BW-1787

Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California



U.S. Army Corps of Engineers
Sacramento District

April 1997

Habitat Management Plan
for Former Fort Ord, California

The Habitat Management Plan for former Fort Ord, California, will be completed and in effect once signed by the Army and the U.S. Fish and Wildlife Service. Other agencies will be asked to sign Memoranda of Agreement for implementation of portions of the Habitat Management Plan designated for each agency.

Daniel D. Devlin
Colonel, U.S. Army
Commanding, Presidio of Monterey

The U.S. Fish and Wildlife Service finds that the Habitat Management Plan for the former Fort Ord fulfills reasonable and prudent measure 1 in its October 19, 1993 Biological Opinion for the disposal and reuse of Fort Ord. Additionally, the U.S. Fish and Wildlife Service issued an amended Biological/Conference Opinion in April 1997 that analyzed the effects of the Habitat Management Plan on the federally listed Smith's blue butterfly, western snowy plover, California red-legged frog, sand gilia, Monterey spineflower, and robust spineflower and the proposed black legless lizard and Yadon's piperia. The Habitat Management Plan does not authorize incidental take by entities acquiring land at the former Fort Ord of any species listed as threatened or endangered under the federal Endangered Species Act of 1973, as amended. Entities would submit the Habitat Management Plan in combination with additional documentation, including an implementation agreement signed by all parties receiving lands that are to be managed for wildlife values, to the U.S. Fish and Wildlife Service to receive authorization for incidental take through Section 10(a)(1)(B) permits.

Diane K. Noda
Field Supervisor
U.S. Fish and Wildlife Service

Concurring Agencies

The following agency signs to indicate its concurrence with the Habitat Management Plan.

The Fort Ord Reuse Authority concurs with the Habitat Management Plan and agrees to comply with the conditions in the Habitat Management Plan in implementation of the Base Reuse Plan for former Fort Ord.

Fort Ord Reuse Authority

Concurrence with Management Requirements for Habitat Reserve, Habitat Corridor, Borderland Development Areas Along NRMA Interface, and Development with Reserve Areas or Development with Restrictions

The following agencies will receive lands designated in the Habitat Management Plan as Habitat Reserve, Habitat Corridor, Borderland Development Areas Along NRMA Interface, and/or Development with Reserve Areas or Development with Restrictions and concur with the management requirements stated in the Habitat Management Plan for their respective parcels.

U.S. Bureau of Land Management

California Department of Parks and Recreation

California Department of Transportation

Regents of the University of California (Santa Cruz Campus)

Monterey County

Regents of the University of California (Division of Agriculture and Natural Resources)

Monterey Peninsula Regional Parks District

City of Marina

Concurrence with Provisions for Land Transfers of Parcels with Habitat Management Plan Requirements

These agencies are agencies who, in addition to those above, may receive land having Habitat Management Plan requirements. However, the agency plans to execute the Habitat Management Plan requirements via one of the above agencies or another Habitat Management Plan managing agency acceptable to the U.S. Fish and Wildlife Service.

Fort Ord Reuse Authority

Monterey Peninsula College

Habitat Management Plan for Former Fort Ord, California

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Executive Summary

INTRODUCTION

The Installation-Wide Multispecies Habitat Management Plan (HMP) for former Fort Ord complies with the U.S. Fish and Wildlife Service (USFWS) final Biological/Conference Opinion for disposal and reuse of former Fort Ord lands and establishes the guidelines for the conservation and management of wildlife and plant species and habitats that largely depend on former Fort Ord land for survival. The HMP was developed with input from federal, state, local, and private agencies and organizations concerned with the natural resources and reuse of former Fort Ord. Implementation of this HMP will assist in the orderly disposal and reuse of former Fort Ord.

PURPOSE AND NEED FOR THE MULTISPECIES HABITAT MANAGEMENT PLAN

The Department of the Army in 1991 was directed to close and dispose of Fort Ord, California. The Army's action is considered a major federal action that could affect eight species proposed for listing or listed as threatened or endangered under the federal Endangered Species Act (ESA). A Biological Assessment (BA) was prepared that identifies the potential loss of populations and habitat of federally listed species, species proposed for listing, and species that are candidates for listing, resulting from caretaker actions, disposal actions, and six reuse alternatives (U.S. Army Corps of Engineers 1993a). A supplement to the draft BA was prepared that describes the loss of populations and habitat of these same species resulting from an additional reuse alternative (Alternative 6R) (U.S. Army Corps of Engineers 1993b). The USFWS's October 19, 1993, Final Biological Opinion on the disposal and reuse of former Fort Ord required that an HMP be developed and implemented to reduce the incidental take of listed species and loss of habitat that supports these species.

The 1993 Final Environmental Impact Statement (FEIS) for the disposal and reuse of former Fort Ord identified the need to develop and implement a multispecies Habitat Management Plan (HMP) as a mitigation measure for impacts on vegetation and wildlife resources. An HMP was published, initially, in February 1994 in response to both the biological opinion and mitigation measures identified in the FEIS and the December 1993 National Environmental Policy Act Record of Decision (1993 NEPA ROD). The February 1994 HMP (1994 HMP) addressed impacts resulting from predisposal, disposal, and reuse actions. Reuse actions addressed were those proposed under Alternative 6R Modified as included in the 1993 NEPA ROD.

Since publication of the FEIS and 1994 HMP, the U.S. Army (Army) has prepared a Final Supplemental Environmental Impact Statement (FSEIS) (U.S. Army Corps of Engineers 1996) to include additional data and an analysis of the following:

- disposal of additional land excess to the Army needs resulting from changes in the Army's Presidio of Monterey (POM) Annex boundary;
- those reuse areas that, as agreed to by the Army in the 1993 NEPA ROD associated with the FEIS, require additional analysis to cover disposal for new land uses;
- uses contained in the Fort Ord Reuse Authority (FORA) Final Base Reuse Plan (December 1994) that were not covered fully in the FEIS and ROD; and

- three additional reuse alternatives:

  - Alternative 7, which represents the December 12, 1994 FORA Final Base Reuse Plan;

  - Revised Alternative 7 is not significantly different from Alternative 7 and includes land uses established through property transfers or memoranda of agreement (MOA) for property transfers already completed by the Army; land uses proposed through federal, state, local, and McKinney Act screening completed in April 1996 for recently excessed lands; land uses required in the draft Revised HMP; land uses for remaining areas as proposed in the Draft FORA Fort Ord Reuse Plan (March 1996) that do not conflict with laws and other federal regulations, policies, and requirements or the draft Revised HMP (April 1996 Concept Agreement); relocation of a resort hotel; and utility easements needed for transfer of utility systems; and

  - Alternative 8, a land use scenario very similar to Alternative 7, contains most of the land use proposals of the FORA Final Base Reuse Plan (December 1994), but it also includes uses for specific parcels that were received through the scoping process for the Supplemental EIS.

During development of the FSEIS and through an agreement between the Army, USFWS, U.S. Bureau of Land Management (BLM), University of California (UC), and Fort Ord Reuse Authority (FORA) related to minimizing impacts on biological resources, it was determined that a revised HMP would be developed to replace the 1994 HMP. This document (this HMP) serves as a revised HMP. It follows a format similar to that presented in the 1994 HMP and has the same goals and objectives as the original document. The primary differences are modification of the HMP reuse scenario to reflect the planned methods for remediation of the beach trainfire ranges to the health-based level of concern, revisions in development and reserve areas, replacing parcel-specific land use descriptors from a specific reuse alternative with a generic development designation that would include a potential range of reuses considered in the FEIS and the June 1996 FSEIS, and inclusion of the mitigation measures agreed to by the Army, USFWS, and other agencies included in the agreement mentioned above.

A general goal of this HMP is to promote preservation, enhancement, and restoration of habitat and populations of HMP species while allowing development on selected properties that promotes economic recovery after closure of Fort Ord. (Specific HMP goals are described in Chapter 1.) As an installation-wide plan, all parcels to be disposed of by the Army are addressed in this HMP and are considered in achieving HMP goals. However, management guidelines and specifications for reuse may vary from parcel to parcel based on future plans for the parcel associated with this HMP and overall reuse planning.

Some parcels to be disposed of by the Army are intended to promote economic recovery after disposal and will be designated for development with no restrictions or guidelines described in this HMP. Other parcels will have development designated as the primary use, but recipients of disposed land will be obligated to implement certain guidelines and/or preserve specific areas through this HMP and deed covenants. Other parcels are designated as habitat reserves or corridors and have specific management guidelines and restrictions on development and uses. This HMP also includes consideration of specific transportation corridors planned by the local community. (Refer to the "HMP Analysis of Road Corridors" section in Chapter 4.)

Attachment A shows each parcel proposed for reuse and indicates the HMP management categories planned for the parcel: Habitat Reserve, Habitat Corridor, Development with Reserve Areas or Development with Restrictions, Borderland Development Areas Along NRMA Interface, Development, and Future Road Corridors. Figure S-1 shows the areas where these categories apply.

Each parcel is also numbered in Attachment A. The letter before each parcel number identifies the type of agency expected to receive the parcel and/or the anticipated method of transfer. The letter F before a parcel number indicates a Federal Transfer Parcel; an S indicates a State Transfer Parcel; an L indicates a Local Transfer Parcel under a public benefit conveyance (PBC); and an E indicates a parcel available for

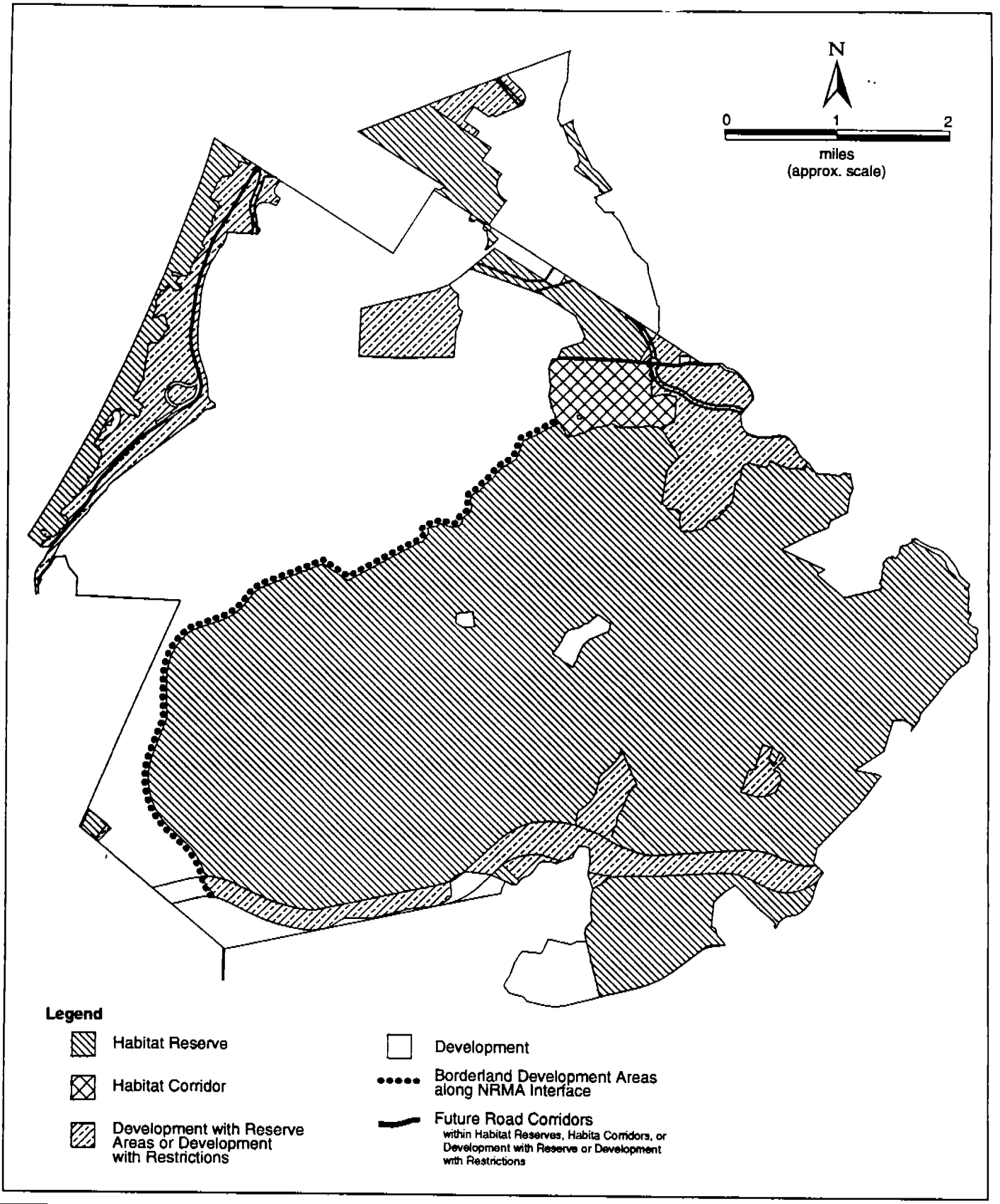


Figure S-1
Habitat Management Plan Map for Former Fort Ord (April 1997)

an Economic Development Conveyance (EDC) or other method of transfer. Parcel numbers beginning with an E correspond to polygon numbers included in the Draft FORA Fort Ord Reuse Plan (March 1996).

ARMY DISPOSAL PROCESS

Upon completion of this HMP and the FSEIS ROD, the Army intends to continue with property disposal at the former Fort Ord. The Army does not intend to adopt a specific reuse plan or alternative. The Army intends for the disposal process to be consistent with FORA's Final Base Reuse Plan where it is not in conflict with laws and other federal regulations, policies, and requirements. As stated in the 1993 NEPA ROD, "The disposal process will consider federal requests received in the screening process for transfer of federal land that is required under the Federal Property and Administrative Services Act of 1949, as well as all McKinney Act requests. The Army will honor, where possible and appropriate, all state and local requests for conveyance from separately authorized federal programs for transportation, education, recreation and open space, public health and safety, and airports." In addition, the Army will proceed with transfers for which memoranda of agreement (MOA) have been completed, e.g., California State University Monterey Bay and University of California Santa Cruz. Lands that are not transferred through these processes will be available for FORA to include in its economic development conveyance (EDC) application. Any remaining property will be available for negotiated sale to public bodies and for private sale.

Key disposal actions have been initiated or committed to by the Army based on the 1993 FEIS and ROD, the 1994 HMP, and the then-existing reuse plan, to federally sponsored PBC recipients, to Health and Human Services sponsored McKinney Act providers, and to the University of California and California State University Monterey Bay via EDC .

The 1993 Biological Opinion describes the concepts for disposal and habitat preservation within portions of Fort Ord (based on Alternative 6R) with habitat reserve lands to be transferred with binding habitat management and conservation requirements. The 1993 Biological Opinion provides for other parcels to be transferred that contain habitat for special-status species as development parcels. The management requirements of the 1993 Biological Opinion have been consolidated into six principal management categories for parcels in this HMP. These include the following:

- **Habitat Reserve** - no development allowed; management goal is conservation and enhancement of threatened and endangered species;
- **Habitat Corridor** - lands between major reserve areas; to be managed to promote connections between conservation areas;
- **Development with Reserve Areas or Development with Restrictions** - lands slated for development that contain inholdings of reserve or require specific restrictions to protect biological resource values; management of reserve inholdings must match that for habitat reserves, while management in developable areas must proceed with certain specific restrictions identified in this HMP;
- **Borderland Development Areas Along NRMA Interface** - areas abutting the Natural Resources Management Area that are slated for development; management of these lands includes no restrictions except along the development/reserve interface;
- **Development**- no management restrictions are contained in this HMP; some plans for salvage of biological resources from these lands may be specified; and
- **Future Road Corridors** - lands within habitat reserve set aside for future road development; to be managed as habitat reserve until road development occurs.

The Development areas, Development with Reserve Areas or Development with Restrictions areas, and Borderland Development Areas Along NRMA Interface (described in this HMP) will be available for disposal and development for reuse. For the 1993 Biological Opinion, it is assumed that a complete loss of biological resources would occur in the development parcels. The development parcels could be transferred with no covenants, deed restrictions, or conservation easements required. Lands designated as Development have no management restrictions placed on them as a result of this HMP.

Several reuse alternatives have been analyzed in the Army FEIS and FSEIS and these include the 1993 NEPA ROD land use map (Alternative 6RM), the December 1994 FORA Final Base Reuse Plan (Alternative 7) and elements of the March 1996 Draft FORA Fort Ord Reuse Plan (Revised Alternative 7). The 1994 HMP supports reuse within development areas based on Alternative 6RM. The FSEIS concluded that Alternative 7 would result in the removal of approximately 6,180 acres of habitat, approximately 240 acres more habitat removed from reserve areas than provided for in the February 1994 HMP. Alternative 7 would have adverse effects on biological resources and while the land uses proposed in the December 1994 FORA Plan could be accommodated within the development areas of the 1994 HMP, avoidance and mitigation measures are needed to avoid significant impacts to HMP target species. These measures have been included in this HMP and in Revised Alternative 7 and Alternative 8 of the FSEIS. The land uses described in these alternatives can be accommodated within the Development, Development with Reserve Areas or Development with Restrictions Areas, Borderland Development Areas Along NRMA Interface, and Habitat Corridor lands in this HMP. Other development land uses may also be accommodated within this HMP's development areas.

ORGANIZATION OF THE HMP

This HMP is organized in the same manner as the 1994 HMP. It is presented in six chapters. Chapter 1, "Purpose of and Need for the Habitat Management Plan", describes the purpose and need, goals and objectives, and procedure followed in developing this HMP. Chapter 2, "Minimum Conservation Area and Corridor System", describes methods used to develop a minimum conservation area and corridor system for former Fort Ord. Chapter 3, "Habitat Management for Predisposal Actions", presents habitat management procedures to accompany Army actions taken before disposal of former Fort Ord land. Chapter 4, "Habitat Management for Disposal and Reuse", describes the habitat management procedures to be taken by recipients of disposed land. Chapter 5, "Citations", lists the sources cited in this HMP. Chapter 6, "List of Preparers and Acknowledgments", describes the contributions of key staff and agency representatives.

GOALS AND OBJECTIVES

The goals and objectives of this HMP are the same as those for the 1994 HMP.

- Preserve, protect, and enhance populations and habitat of federally listed threatened and endangered wildlife and plant species.
- Avoid reducing populations or habitat of federal proposed and candidate wildlife and plant species to levels that may result in one or more of these species becoming listed as threatened or endangered.
- Preserve and protect populations and habitat of state-listed threatened and endangered wildlife and plant species.

- Avoid reducing populations or habitat of species listed as rare, threatened, and endangered by the California Native Plant Society (CNPS) (List 1B), or with large portions of their range at former Fort Ord, to levels that may result in one or more of these species becoming listed as threatened or endangered.

- Conduct the disposal of land to public and private entities in a manner that is compatible with the preservation of federally listed threatened and endangered wildlife and plants within the HMP conservation area.

- Inform potential recipients of former Fort Ord land and the general public of methods that provide a suitable mechanism for protecting natural resources while allowing implementation of a community-based reuse plan that promotes economic recovery after closure of former Fort Ord.

- Provide the basis for recipients of former Fort Ord lands to seek Section 10(a) permits pursuant to the federal ESA and achieve compliance for conservation of state-listed threatened and endangered species and other special-status species recognized by California Department of Fish and Game (DFG) under the California ESA and the California Environmental Quality Act (CEQA).

- Provide a foundation for a prelisting agreement between USFWS and recipient landowners.

The overall goal of this HMP is to provide for, at a minimum, no net loss of populations or important habitat for any of the subject species of this HMP. This goal can be met through the careful selection of areas designated as reserves and corridors. The beneficial enhancement of habitat by the selected management agencies is essential to the achievement of this goal.

FLEXIBILITY OF THE HMP

Pre-Transfer Modifications to the HMP

This HMP has adjusted the development and reserve areas to reflect changes proposed in the community reuse plan and information relating to the Army environmental remediation actions. The specific land use designations for individual development parcels have been replaced with a generic development designation, allowing for broad flexibility in reuse of specific development parcels. Changes in specific use of development parcels within the range of uses described in the FEIS and the FSEIS would not require revision to this HMP. During disposal by the Army, it may be necessary to alter management agencies for reserve areas or portions of reserve areas because of changes in anticipated land recipients. Any such change would be coordinated with USFWS and agreed to by both parties. Any further revision to habitat reserves or corridors before transfer would necessitate revisions in this HMP.

The Army will remain responsible for any changes to this HMP in areas that have not been transferred (pre-transfer). The Army will also remain responsible for revisions to this HMP relating to hazardous, toxic, and radiological waste and ordnance and explosives response actions. Changes undertaken in parcels after they are transferred are the responsibility of the land recipient.

Polygon boundaries in development areas may be modified, and development polygons may be subdivided or aggregated before transfer. These types of changes in development polygons will not require modifications to this HMP.

Post-Transfer Modifications to the HMP

All recipients of former Fort Ord lands will be required to abide by management guidelines and procedures addressed in this HMP. However, situations may arise during the life of this HMP that make changes in the plan's guidelines after lands have been transferred (post-transfer) appropriate. Several types of changes may occur. Land recipients may wish to change the boundaries of their parcels or land uses within their parcels. Actions such as additional infrastructure development in reserve areas may be necessary. Changes in management guidelines within a land use may be required to better preserve or enhance a resource. These kinds of changes may be made if the affected landowners and USFWS can agree that the overall goals and objectives of this HMP will not be compromised.

Such post-transfer revisions do not involve the Army and would be the responsibility of future landowners, subject to the terms of the reservation placed on the lands in the MOAs and/or deeds at the time the lands are transferred from the Army. Such revisions will be funded by the responsible agency/land recipient. The agency or land recipient will also be responsible for any necessary documentation and any coordination with USFWS, BLM, or other agencies.

Polygon boundaries in development areas may be modified, and development polygons may be subdivided or aggregated after transfer. These types of changes in development polygons will not require modifications to this HMP.

HABITAT MANAGEMENT PLAN SPECIES AND HABITATS

Species Addressed in the HMP

Wildlife and plant species and habitats addressed in this HMP are the same as those included in the 1994 HMP (Tables S-1 and S-2). These species are a subset of the species analyzed in the FEIS. Species addressed in the 1994 HMP were included based on their legal protection, listing status at the time of publication, and the relative importance of populations and habitats at former Fort Ord to the continued survival of the species.

Since publication of the 1994 HMP, the legal status of several species has changed. On February 28, 1996, the Department of the Interior published in the Federal Register (FR) the Department of the Interior Endangered and Threatened Species, Plant and Animal Taxa; Proposed Rule (61 FR 7596 February 28, 1996). Under the rule, the Category 1 and 2 classifications for federal candidate species are removed. Species either are identified as Candidate species with a listing priority classification or are no longer given any federal status. Many species previously considered Category 1 or 2 candidates are retained under the new Candidate status. Other species that were previously considered candidate species are identified as no longer having status under the federal ESA.

Although several species included in the 1994 HMP are no longer considered federal candidates, they are still retained in this HMP because they may be listed under the California ESA, they have a significant portion of their range at former Fort Ord, or they are associated with a habitat that is important to a suite of many other sensitive species.

Maritime Chaparral

Maritime chaparral is a coastal form of chaparral associated with specific soil conditions. Two forms are recognized at former Fort Ord based on the substrate that supports them: sand hill maritime chaparral occurs on relict dunes of the late Pleistocene epoch, and Aromas formation maritime chaparral occurs on weakly consolidated red sandstone that is a relict of mid-Pleistocene epoch dunes.

Periodic disturbance or removal of vegetation caused by unstable substrate and fire are important factors in maintaining and rejuvenating the maritime chaparral community. Early successional sites appear to support the highest diversity of shrubs, including the largest number of HMP shrub species.

HMP species occurring in maritime chaparral are black legless lizard, Toro manzanita, sandmat manzanita, Hooker's manzanita, Monterey ceanothus, Eastwood's ericameria, Seaside bird's-beak, sand gilia, Monterey spineflower, coast wallflower, and Yadon's piperia.

Healthy maritime chaparral occurs as a patchwork of stands that have burned at different times and that support vegetation of various ages and structures. This habitat mosaic allows for high species and habitat diversity and provides sources of propagules for dispersal between patches.

Successful conservation of maritime chaparral is dependent on proper management of the habitat by using fire as a management tool and allowing or encouraging some forms of substrate disturbance. The goal of management is to achieve high species and habitat diversity through a program of controlled burning that creates and maintains a mosaic pattern of maritime chaparral of various aged stands. However, sand gilia, Monterey spineflower, and coast wallflower may be dependent on open habitat created by blowing sand rather than by fire. Promoting a dynamic system of moving sand by selective vegetation removal may encourage the formation of habitat for these HMP species.

Coastal Dunes

Coastal strand and dune scrub habitats of the coastal dunes are dynamic plant communities that respond to a moving sand substrate and changing dune configuration. Blowing sand undermines and buries plants, but most dune plants are adapted to shallow burial and blasting by sand. Large areas of destabilized sand, called "blowouts", result in large-scale removal of vegetation and change in dune structure. As plants reinvade the bare sand they stabilize the dune.

The highest diversity of dune habitat and species is best maintained in dunes with conditions ranging from active to stabilized and a variety of topography with foredunes and rear dunes, dune crests, interdune valleys, and north- and south-facing slopes.

HMP species occurring in coastal strand and dune scrub are Smith's blue butterfly, sand gilia, Monterey spineflower, robust spineflower, black legless lizard, and coast wallflower. Yadon's piperia may occur in these habitats.

HABITAT CONSERVATION AND MANAGEMENT FOR PREDISPOSAL ACTIONS

Predisposal actions include placing former Fort Ord into a caretaker status, remediating contaminated sites, and supporting interim uses. As the 7th Infantry Division (Light) (IDL) realigned from Fort Ord, the Army placed structures, utilities, and operation and maintenance systems into a caretaker status until property disposal decisions are implemented. Caretaker status is defined by Army regulation as "the minimum required staffing to maintain an installation in a state of repair that maintains safety, security, and health standards".

Cleanup of contaminated sites is required in preparing lands for disposal and proposed future uses. The entire former Fort Ord installation is listed on the National Priorities List as a Superfund site. A Federal Facilities Agreement, negotiated under Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), requires the Army to perform the Superfund cleanup process described in the Other Physical Attributes Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992c). Cleanup activities that have potential to affect biological resources include excavation of contaminated soils, landfill remediation, removal of lead and other heavy metals, and ordnance and explosives removal. Impacts resulting from each of these actions are discussed separately in this chapter.

HMP guidelines for the cleanup of contaminated sites have been developed based on the best available information. Mitigation for cleanup activities may be modified in the future based on findings and conclusions in the Fort Ord Basewide Record of Decision for the Remedial Investigation/Feasibility Study, which is currently in preparation. Other mitigation measures may be considered based on site-specific information, results of human health and ecological risk assessments, and the development and screening of remedial alternatives. Any modifications to this HMP based on new information must be reviewed and approved by USFWS.

FUTURE REGULATORY COMPLIANCE

This HMP does not exempt future landowners from complying with environmental regulations enforced by federal, state, or local agencies. These regulations could include obtaining Section 7 or Section 10(a) permits from USFWS pursuant to the federal ESA, complying with federal ESA Section 9 prohibitions against take of listed species, complying with measures for conservation of state-listed threatened and endangered species and other special-status species recognized by DFG under the California ESA, CEQA compliance, and complying with local land use regulations and restrictions. This HMP is intended to form a basis for binding agreements between receiving jurisdictions, the Army and USFWS to establish detailed plans for natural resource conservation, and specific management goals for each land parcel with habitat management requirements.

The HMP does not authorize incidental take by entities acquiring land at former Fort Ord of any species listed as threatened or endangered under the ESA, as amended. Entities would submit the HMP in combination with additional documentation, including an Implementation Agreement signed by all parties receiving lands that are to be managed for wildlife values, to the USFWS to receive authorization for incidental take.

In addition, the HMP is intended to be the basis for a habitat conservation plan (HCP) that will support the issuance of incidental take permits under Section 10(a)(1)(B) of the ESA to the land recipients identified above. The provisions of the HCP(s) are expected to closely mirror the provisions of this HMP, and the implementing agreement developed to implement the HCP(s) is expected to establish detailed provisions for monitoring of the habitat conservation areas by the affected land recipients and reporting of habitat conditions to BLM, USFWS, and DFG consistent with the procedure outlined below.

Section 9 of the ESA prohibits any taking of a threatened or endangered animal species. The definition of "take" includes to harass, harm, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Exemptions to Section 9 can be obtained through Sections 7 and 10 of the ESA. The USFWS has recommended that all nonfederal entities acquiring land at former Fort Ord apply for Section 10(a)(1)(B) incidental take permits for the species covered in the HMP. Although the USFWS will not require further mitigation from entities that are in conformance with the HMP, those entities without incidental take authorization would be in violation of the ESA if any of their actions resulted in the take of a listed animal species.

To apply for a Section 10(a)(1)(B) incidental take permit, an entity must submit an application form (Form 3-200), a complete description of the activity sought to be authorized, the common and scientific names of the species sought to be covered by the permit, and a conservation plan (50 CFR 17.22[b]). Pursuant to 50 CFR 17.22(b)(1)(iii), the Habitat Conservation Plan (HCP) must specify (a) the impacts that will likely result from such takings; (b) what steps the applicant will take to monitor, minimize, and mitigate such impacts, the funding that will be available to implement such steps, and the procedures to be used to deal with unforeseen circumstances; (c) what alternative actions to such taking the applicant considered and the reasons why such alternative are not proposed to be utilized; and (d) such other measures that the director of the USFWS may require as being necessary or appropriate for purposes of the plan. For the USFWS to issue incidental take permits to any entities acquiring land at former Fort Ord, that entity will have to provide the above information.

Because this HMP addresses several unlisted species, the HMP provides a foundation for prelisting agreements between USFWS and recipient landowners.

To coordinate this HMP with CEQA compliance, DFG may take into account the conservation measures set forth in this HMP when considering CEQA requirements for sensitive species and habitat types. DFG would consider the conservation program for HMP species and their habitats included in this HMP as adequate mitigation for CEQA compliance for those natural resources during the implementation of land reuse and development planning at former Fort Ord. There may be issues, such as oak woodland mitigation, outside the scope of this HMP that would need to be considered under CEQA.

IMPACTS ON LISTED AND PROPOSED HMP SPECIES

The following sections summarize the impacts on federally and state-listed HMP target species and HMP species proposed for federal listing, if all development areas identified in this HMP were developed. Plant and animal species considered in this HMP are listed in Tables S-1 and S-2, respectively, at the end of this Executive Summary.

Appendix B identifies which species occur in each parcel at former Fort Ord. Table B-1 indicates the presence or absence of each target species based on the latest available information. Table B-2 describes acreage of low-, medium-, and high-density habitat suitable for each target species within each of the HMP reserves, HMP corridors, and the development areas based on 1992 survey information. Maps indicating the distribution of each HMP plant species at former Fort Ord and potential and occupied habitats for each HMP wildlife species are also included in Appendix B. Maps are based on data collected during preparation of the 1992 Flora and Fauna Baseline Study (U.S. Army Corps of Engineers, Sacramento District 1992a). Information in Appendix B has been updated where available; however, analysis of impacts in this HMP is based on the 1992 data. The tables, combined with the distribution maps, provide further understanding of impacts to HMP species associated with development in development areas. The losses of habitat within development areas, as well as acres of habitat to be protected and enhanced within the HMP reserves and corridors, are described in Chapter 4 in the "Analysis of Impacts to HMP Target Species from the HMP" section.

Robust Spineflower (Federal Endangered)

Robust spineflower occurs on sandy soils in coastal dune and coastal scrub habitat. Several plants were observed at one site on the dunes west of Highway 1 during the 1992 field surveys. No other occurrences of robust spineflower were observed. Under this HMP, the group of plants would be preserved.

Sand Gilia (Federal Endangered)

Sand gilia inhabits openings in maritime chaparral and coastal scrub communities. It also prefers disturbed sites, such as the borders of old roads and firebreaks. Based on 1992 survey results for all of former Fort Ord, approximately 5 acres of maritime chaparral and coastal scrub supporting sand gilia at high densities, 120 acres at medium density, and approximately 680 acres at low density will be removed under this HMP. Annually from 1993 to 1996, portions of former Fort Ord have been resurveyed to provided more site-specific data on sand gilia distribution and abundance. Results of the 1993 surveys for the northern portion of former Fort Ord are shown in Figure B-1b in Appendix B. These surveys have typically shown a greater abundance of sand gilia than indicated by the 1992 survey results. However, none of these surveys has covered the entire installation as was done in 1992.

Smith's Blue Butterfly (Federal Endangered)

Smith's blue butterfly is completely dependent on seacliff and coast buckwheat for oviposition and as food sources for larvae and adults. Distribution and density of seacliff and coast buckwheat were recorded during the 1992 botanical surveys. Analysis of impacts to Smith's blue butterfly habitat is based on this data. Areas supporting medium or high densities of either buckwheat species are considered potential habitat for Smith's blue butterfly based on models included in the Flora and Fauna Baseline study. The 1994 HMP states that under that plan approximately 15 acres of potential Smith's blue butterfly habitat (areas supporting medium- and high-density populations of buckwheat) would be removed in the dunes west of SR1. In addition, an area of approximately 35 acres of dune habitat supporting buckwheat at low density would be removed and could potentially affect populations of Smith's blue butterfly. Habitat conservation and management requirements and land uses on the dunes west of Highway 1 under this HMP are consistent with those described for the 1994 HMP. Therefore, impacts to Smith's blue butterfly under this HMP are expected to be no greater than those described for the 1994 HMP.

Western Snowy Plover (Federal Threatened)

Western snowy plovers are known to nest on the beaches at former Fort Ord from the northern installation boundary to Stilwell Hall. They may also nest south of Stilwell Hall. The USFWS has proposed critical habitat for the Western snowy plover (60 FR 11768, March 2, 1995). The beaches at former Fort Ord are among the areas proposed as critical habitat. The HMP will not directly remove any western snowy plover nesting habitat. However, increased human presence on the beaches associated with the alternative could negatively affect snowy plover breeding success.

Monterey Spineflower (Federal Threatened)

Implementation of this HMP would result in the loss of approximately 3,910 acres of maritime chaparral, coastal dunes, coastal scrub, and grassland habitats occupied by Monterey spineflower. These habitat areas support Monterey spineflower at high densities on approximately 310 acres, medium densities on about 1,200 acres, and low densities on approximately 2,400 acres. Sand hill maritime chaparral, all coastal dune habitats, and grassland and coastal scrub habitats on sandy soils are potentially suitable habitat for Monterey spineflower. Monterey spineflower occurs in natural and artificial disturbance patches in these habitats.

Seaside Bird's-Beak (Species of Concern)

Seaside bird's-beak occurs in openings on sandy soils in maritime chaparral and oak woodland habitats. Implementation of this HMP would result in the removal of roughly 45 acres of maritime chaparral and oak woodlands supporting Seaside bird's-beak at low densities.

California Red-Legged Frog (Federal Threatened)

The California red-legged frog typically occupies cold water ponds with both emergent and submergent vegetation. No red-legged frogs have been observed on former Fort Ord; although potential habitat is available. Approximately 2 acres of potential California red-legged frog habitat would be removed under this HMP. However, part of this two acres consists of an artificial pond in parcel L20.2.2 (Attachment A) associated with the former Army Family Camp. The pond is filled from artificial sources and has been stocked with fish to provide recreational fishing for campers. Due to the presence of predatory game fish, it is unlikely that red-legged frogs would occur in this water body.

Almost all other potential red-legged frog habitat at former Fort Ord would be preserved within the Natural Resource Management Area (NRMA). The Salinas River is also considered potential red-legged frog habitat. One portion of former Fort Ord is within the river channel. This area is identified as a habitat reserve.

Yadon's Piperia (Federal Proposed Endangered)

The species occurs near established shrubs in maritime chaparral habitat. One population is known to occur on former Fort Ord in parcel E2a. This population would be preserved under this HMP. USFWS has proposed Yadon's piperia for federal listing as endangered.

Black Legless Lizard (Federal Proposed Endangered)

The California black legless lizard is found on dune habitats supporting native vegetation and where maritime chaparral and coastal scrub occur on loose sandy soils. Figure B-16 in Appendix B shows the occurrence of potential black legless lizard habitat at former Fort Ord based on habitat models developed during preparation of the 1992 Flora and Fauna Baseline study. Areas where potential habitat will be most affected include the western boundary of the multirange area (MRA) and where the former Fort Ord boundary abuts the City of Marina. USFWS has proposed the black legless lizard for federal listing as endangered.

ANALYSIS OF REUSE ALTERNATIVES FROM THE FEIS AND FSEIS

This HMP assumes, as described in the previous "Impacts on Listed and Proposed HMP Species" section, that development can occur through all development areas with the resultant loss of habitat. The following description provides a similar analysis of the full buildout of areas identified for development within Alternative 6R of the FEIS; Alternative 6RM of the 1993 NEPA ROD; and Alternative 7, Revised Alternative 7, and Alternative 8 of the FSEIS. These alternatives give an indication of the range of specific land uses that may occur within various development areas within this HMP.

This section summarizes impacts to biological resources associated with Alternative 6R from the 1993 FEIS; 6RM of the 1993 NEPA ROD; and Alternative 7, Revised Alternative 7, and Alternative 8 as described in the 1996 FSEIS. The 1993 FEIS, 1993 Biological Assessment, and the USFWS final Biological Opinion (October 19, 1993) describe Alternative 6R. Alternative 6RM is a modification of Alternative 6R that was contained in the 1993 NEPA ROD; it incorporated likely land uses in NPU areas based on an early version of the community reuse plan. Alternative 7 represents the December 12, 1994 FORA Final Base Reuse Plan. Revised Alternative 7 incorporates the Draft FORA Fort Ord Reuse Plan (March 1996) where it does not conflict with Army policies or agreements. Alternative 8, a land use scenario similar to Alternative 7, includes uses for specific parcels received during scoping processes. The full discussion of impacts to biological resources associated with Alternative 6R appears on pages 6-100 through 6-130 of Volume I of the FEIS. The full discussion of impacts to biological resources associated with Alternative 7 appears on pages 5-67

through 5-74 of the FSEIS. The full discussion of impacts to biological resources associated with Revised Alternative 7 appears on pages 5-112 through 5-121 of the FSEIS. The full discussion of impacts to biological resources associated with Alternative 8 appears on pages 5-125 through 5-127 of the FSEIS.

Alternative 6R was analyzed using a Geographic Information System (GIS) database of the 1992 biological survey data overlaid with a map of the alternative. For impact calculations, development-related land uses were assumed to remove all biological resources within the land use footprint and habitat conservation related land uses were assumed to preserve all biological resources in the land use footprint. Alternative 6R also included several areas with no proposed use (identified as NPU areas). NPU areas were assumed to have no effect on biological resources. However, it was acknowledged in the FEIS that lands designated as NPU could be subject to reuse in the future and would require future, separate environmental documentation.

The total effect of Alternative 6R would be the removal of approximately 2,507 acres of common and special native biological communities. Within this area of removed habitat, approximately 130 acres supporting low-density populations of sand gilia, 5 acres supporting medium-density populations, and 15 acres supporting high-density populations of sand gilia would be removed. The only other listed plant species that would be affected would be Monterey spineflower. This species would lose approximately 355 acres, 515 acres, and 70 acres respectively of areas supporting low-, medium-, and high-density populations. Alternative 6RM was analyzed using the same methodology described above for Alternative 6R, except that land uses were inserted into NPU areas based on the local reuse planning assumptions available at the time the 1993 NEPA ROD was completed.

The total effect of Alternative 6RM would be the removal of 5,941 acres of common and special native biological communities. Within this area of removed habitat, approximately 555 acres supporting low-density populations of sand gilia, 125 acres supporting medium-density populations of sand gilia, and 13 acres supporting high-density populations of sand gilia would be removed. The only other federally listed plant species that would be affected would be Monterey spineflower. This species would lose approximately 1,970 acres, 985 acres, and 260 acres, respectively, of areas supporting low-, medium-, and high-density populations.

Alternative 7 was analyzed using both a GIS database and manual overlaying of a proposed road network map with resource maps. The GIS analysis for Alternative 7 used the same methods as used for the Alternative 6R analysis. However, impact assumptions for some parcels were modified based on more recent information. Impact calculations using the GIS did not include impacts associated with a proposed road network because the digital mapping data for the road network was not compatible with the GIS biological resource data. Impacts from the road network were quantified by overlaying by hand road network maps with resource maps and planimetering the acres of effect.

The total effect of Alternative 7 would be the removal of approximately 6,180 acres of common and special native biological communities. Within this area of removed habitat, approximately 595 acres supporting low-density populations of sand gilia, 120 acres supporting medium-density populations of sand gilia, and 6 acres supporting high-density populations of sand gilia would be removed. The only other federally listed plant species that would be affected would be Monterey spineflower. This species would lose approximately 1,965 acres, 1,065 acres, and 250 acres, respectively, of areas supporting low-, medium-, and high-density populations.

Revised Alternative 7 was analyzed through a comparison against the reuse scenario described in the 1994 HMP. Areas where the alternative differed from the 1994 HMP relative to locations of development and habitat reserved were identified. Locations where portions of the proposed transportation network conflicted with habitat reserve areas in the February 1994 HMP were included in this analysis. Acreages of loss or gain of areas identified as habitat reserve were calculated for each location where Revised Alternative 7 and the 1994 HMP differed. Losses and gains were also calculated for key HMP resources. For the analysis, key HMP resources include areas supporting sand gilia, Monterey spineflower, and Seaside bird's beak.

The total effect of Revised Alternative 7 on habitat reserve areas is the conversion of approximately 370 acres of area considered habitat reserve in the 1994 HMP to developed area or another use. The total effect on key HMP resources under Revised Alternative 7 would be a loss of approximately 114 acres of habitat supporting low-density sand gilia populations; a loss of approximately 3 acres of area supporting medium-density sand gilia populations; a gain of approximately 8 acres of area supporting high-density sand gilia populations; a loss of approximately 183 acres and 62 acres, respectively, of area supporting low- and medium-density Monterey spineflower populations; a gain of approximately 7 acres of area supporting high-density Monterey spineflower populations; and a loss of approximately 25 acres of habitat supporting low-density populations of Seaside bird's beak.

Alternative 8 is very similar to Alternative 7, with differences primarily associated with proposed changes in land uses in specific areas. Alternative 8 was analyzed by examining these specific areas. Differences between Alternatives 7 and 8 that could affect impacts to biological resources included expansion of a community park, removal of small areas from the NRMA (at the request of BLM due to the separation of these areas from the main body of the NRMA by existing roads), and construction of a golf course on the landfill parcel. The total effect of Alternative 8 would be the removal of approximately 6,230 acres of common and special native biological communities and removal of approximately 793 acres of area supporting sand gilia and 3,423 acres of area supporting Monterey spineflower at various densities.

ANALYSIS OF IMPACTS TO HMP TARGET SPECIES FROM THIS HMP

This section summarizes the habitat areas within each HMP reserve or corridor area that are going to be preserved for each HMP target species. In some cases, the HMP reserve area is actually a combination of Habitat Reserve parcels and parcels that are classified Development with Reserve or Development with Restrictions but contain primarily lands to be managed as reserve. The section also indicates the habitat acreage contained within the total development area allowed by this HMP. This Development Areas category includes parcels that are classified as Development and others that are classified as Development with Reserve or Development with Restrictions but have no reserve component, only restrictions.

Acreage totals for HMP target species were calculated by overlaying the current reserve, corridor and development area boundaries with the 1992 habitat data contained in the planning-level Geographic Information System (GIS) developed by the Army to support the disposal and reuse of Fort Ord. The totals have been summarized for low-, medium-, and high-density habitats for each species. For the detailed breakdown of low-, medium-, and high-density habitat for each species in each reserve, refer to Table B-2 in Appendix B.

State Parks Reserve

The State Parks reserve is located along the coast, west of SR 1. It includes both Reserve and Development with Reserve Areas or Development with Restrictions parcels, as mapped in Figure 4-1. This reserve occupies approximately 970 acres. Table S-3 indicates which target species are supported by habitat on this reserve area.

Landfill Development with Reserve

The Landfill reserve is located northeast of the Main Garrison, just south of Imjin Road. It is composed of two Development with Reserve or Development with Restrictions parcels. This reserve occupies approximately 308 acres. Refer to Table S-3 for target species supported within the Landfill reserve.

UC/NRS Fort Ord Natural Reserve

The UC/NRS Fort Ord Natural Reserve is located in the southwestern corner of the former Fritzsche Army Airfield and south of Reservation Road; it has already been transferred to UC. It is being managed as part of the UC Natural Reserve System. This reserve includes approximately 590 acres. Table S-3 lists target species supported by this natural reserve.

Marina Reserve

The Marina reserve is located in the Fritzsche Army Airfield area, north and west of the developed portion of the airfield. It includes both Reserve and Development with Reserve or Development with Restrictions parcels. The reserve has approximately 175 acres. This reserve area has already been transferred to the City of Marina. Refer to Table S-3 for a list of species supported in this reserve area.

East Garrison Reserve

The East Garrison reserve is located in the easternmost portion of former Fort Ord, south of Reservation Road. The reserve includes both Reserve and Development with Reserve or Development with Restrictions parcels. The reserve totals approximately 855 acres. Refer to Table S-3 for a list of species supported in this reserve area.

Habitat Corridor

The Habitat Corridor, located immediately west of the East Garrison portion of former Fort Ord, includes both Reserve and Development with Reserve or Development with Restrictions parcels. The reserve totals approximately 400 acres. Table S-3 lists the target species supported within the Habitat Corridor.

BLM Natural Resource Management Area

The BLM NRMA is located in the southern and eastern portions of former Fort Ord. This reserve is largest natural area being retained in the HMP area. It totals approximately 15,000 acres. Some portions of the area have already been transferred to BLM and are being managed as reserve. This transfer includes most of the land east of Barloy Canyon Road. Refer to Table S-3 for a list of target species supported within the BLM NRMA.

Caltrans State Route 68 Easement

The Caltrans State Route (SR) 68 easement overlays the NRMA in the southern portion of former Fort Ord (Figure 4-1). A total of approximately 660 acres are contained within the corridor. Of this total, approximately 180 acres could be lost to development of a highway, assuming a 300-foot-wide construction corridor. Refer to Table S-3 for a list of species supported by habitat in this corridor.

MPRPD Reserve

The MPRPD Reserve is located in the extreme southwestern portion of former Fort Ord. It is a Reserve parcel containing approximately 20 acres. Refer to Table S-3 for a list of species supported by habitat in this reserve.

Caltrans State Route 1 Area

The SR 1 corridor passes through the western portion of former Fort Ord, separating the beach areas from the Main Garrison area. It is considered a Development with Reserve or Development with Restrictions area. The corridor totals approximately 225 acres. Refer to Table S-3 for a list of target species supported within the SR 1 corridor.

Development Areas

The Development Areas of former Fort Ord include the remaining parcels outside of reserve areas and corridors. Some of these parcels are developable with no restrictions, while several others are classified as Development with Restrictions. The Development Areas total approximately 10,500 acres. The developable areas are located primarily between the SR 1 corridor and the NRMA (Figure 4-1). Habitat supporting nearly all of the HMP target species is found within the Development Areas (Table S-3).

There are no resource conservation requirements in the HMP for most of the Development Areas. The habitat resources contained in the parcels are not considered critical to the long-term survival of the species. However, habitat may be preserved within and around the development areas within these parcels.

MANAGEMENT GUIDELINES FOR RECIPIENTS AND/OR HABITAT MANAGERS OF DISPOSED LAND

This section describes key resources, expected impacts on resources, and land management responsibilities for each recipient of disposed land in the HMP area. Land management responsibilities are divided into the following categories: Habitat Reserve, Habitat Corridor, Development with Reserve Areas or Development with Restrictions, Borderland Development Areas Along NRMA Interface, Development, and Future Road Corridors. The Army will include deed covenants in transfer of lands and may, as appropriate, enter into separate MOAs with recipients or habitat managers of disposed land to ensure implementation of HMP requirements. Land recipients may also agree to take part in a Coordinated Resource and Management Planning (CRMP) process. The CRMP is described in detail at the end of Chapter 4. Methods for updating or modifying this HMP after agencies or private parties have received Fort Ord lands are described in the "Flexibility of HMP" section in Chapter 1.

Habitat conservation and management responsibilities by recipients or habitat managers of disposed lands at former Fort Ord are discussed individually with each land use parcel in Chapter 4.

Implementation Strategies

Memoranda of Agreement and Deed Covenants

Before disposal of land, the Army will place appropriate deed covenants (restrictions and/or management requirements) on lands to be transferred and/or enter into MOAs with recipients and/or habitat managers of disposed lands identified in this HMP as Habitat Reserve, Habitat Corridor, Borderland Development Area Along NRMA Interface, or Development with Reserve Areas or Development with Restrictions. Appropriate HMP guidelines will be included in each document. A sample deed is included in Appendix D. USFWS will enforce the requirements of the federal ESA.

Monitoring Procedures and Responsibilities

Monitoring of habitat reserves and habitat corridors would be the responsibility of BLM, California Department of Parks and Recreation, UC, Monterey County, City of Marina, Monterey Peninsula Regional Park District, California Department of Transportation (Caltrans), FORA, and any other organization with management responsibilities for areas designated as Habitat Reserve, Habitat Corridor, or Development with Reserve Areas or Development with Restrictions in this HMP. These agencies would be responsible for ensuring that the HMP guidelines are implemented on parcels under their jurisdictions.

FORA or other organizations receiving Borderland Development Areas Along NRMA Interface will provide status reports for parcels adjacent to the NRMA on interim habitat management and/or firebreak construction and maintenance (according to Item c. in the agreement) and compliance with other management requirements associated with these parcels (see the "Borderland Development Areas Along NRMA Interface" section in Chapter 4).

Monitoring results for CRMP participants will be coordinated by BLM, and BLM will consolidate the results into a single monitoring report. Annual monitoring reports will be filed with USFWS and DFG, as well as with each of the participating agencies.

Program Costs and Funding

Funding to develop this HMP has been provided by the Army. Funding to implement the HMP prescribed habitat restoration, management, and monitoring for reuse will be provided by entities receiving properties or having management responsibilities for areas designated as Habitat Reserve, Habitat Corridor, Borderland Development Area Along NRMA Interface, or Development with Reserve Areas or Development with Restrictions in this HMP. These agencies will fund implementation of this HMP and implement conservation and/or management guidelines specific to parcels they receive. This HMP does not preclude other sources of funding for HMP implementation or preclude these agencies from securing funding from other sources to support their implementation of HMP guidelines. Requirements for each agency's minimal participation and accomplishments toward implementation of this HMP will be specified in covenants in the deed that will be completed at the time of land transfer or in a MOA with the Army.

ANALYSIS OF ROAD CORRIDORS

The analysis of impacts to biological resources in the FSEIS considered the effects of a proposed transportation network. The transportation network considered was based on the FORA December 12, 1994 Final Fort Ord Base Reuse Plan with mitigations and modifications agreed on with USFWS, UC, and FORA on March 15 and 28, 1996. Several road segments included in the proposed network pass through areas identified as Habitat Reserve, Habitat Corridor, or Development with Reserve Areas or Development with Restrictions in this HMP (Figure 4-2). These road corridors are accommodated within this HMP. Descriptions of individual parcels affected by these road segments each contain a reference to the road segment and how it may affect HMP habitat conservation or management requirements. The SR68 transportation easement is treated separately and is considered in the category of "Development with Reserve Areas or Development with Restrictions".

Plant Species	Listing Status[a] Federal/State/CNPS	CNPS RED Code[b]	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Importance of Populations at Former Fort Ord
Robust spineflower *Chorizanthe robusta* var. *robusta*	E/--/4	1-1-3	<1	Found on sandy soils in coastal dune and coastal scrub habitats	Historically from Alameda and San Mateo Counties south to Santa Cruz County and near the coast from southern Santa Cruz County to northern Monterey County, much of which is now developed (4, 5, 8)[c]	Several plants of robust spineflower were found at one site on former Fort Ord; former Fort Ord does not provide important habitat for this species (7)
Sand gilia *Gilia tenuiflora* ssp. *arenaria*	E/T/1B	3-3-3	50-70	Sandy openings in coastal dunes and scrub and maritime chaparral	Occurs around Monterey Bay, Salinas River Beach, Asilomar State Beach, from Point Pinos to Point Joe, and Fort Ord (1, 2, 9)	Former Fort Ord provides extensive suitable habitat for sand gilia and constitutes a substantial portion of its range (at least half)
Yadon's piperia *Piperia yadoni*	PE/--/1B	N/A	<1	Occurs on sandy soils in maritime chaparral, coastal scrub, and closed-cone coniferous forest	Occurs in Monterey County from the Pajaro Hills to the Monterey Peninsula	Less than 1% of the individuals of Yadon's piperia are found on former Fort Ord; it is noteworthy that its habitat on former Ford Ord is intermediate between that of its occurrence in chaparral and pine forest habitats (7)
Monterey spineflower *Chorizanthe pungens* var. *pungens*	T/--/1B	3-3-3	75-95	Colonizes recently disturbed sandy sites in coastal dune, coastal scrub, grassland, and maritime chaparral habitats	Along the coast of southern Santa Cruz and northern Monterey Counties and inland to the coastal plain of the Salinas Valley (1, 4, 8)	Former Fort Ord supports the largest populations of Monterey spineflower known (7, 8)
Coast wallflower *Erysimum ammophilum*	SC/--/1B	2-2-3	10-30	Occurs scattered on stabilized coastal dunes	Coastal dunes of Monterey Bay and Santa Rosa Island, and coastal scrub on former Fort Ord (10, 11)	Former Fort Ord provides a moderate amount of suitable habitat for coast wallflower and may constitute an important portion of its range because of the limited extent and high degree of disturbance to its habitat in California
Eastwood's ericameria *Ericameria fasciculata*	SC/--/1B	3-3-3	70-90	Inhabits coastal dune and scrub, maritime chaparral, and closed-cone coniferous forest communities	Found in Monterey County, including Del Monte Forest, Monterey Airport, Toro Regional Park, near Prunedale, and former Fort Ord (1)	Former Fort Ord supports most of the remaining individuals of Eastwood's ericameria (3)
Monterey ceanothus *Ceanothus cuneatus* var. *rigidus*	SC/--/4	1-2-3	50-70	Sandy hills and flats of maritime chaparral, closed-cone coniferous forests, and coastal scrub	Monterey County along the coast and former Fort Ord, Toro Regional Park, Monterey Airport, and near Prunedale (1, 6)	The most abundant and probably most vigorous population of Monterey ceanothus is found on former Fort Ord (3)

Plant Species	Listing Status* Federal/State/CNPS	CNPS RED Code[b]	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Importance of Populations at Former Fort Ord
Sandmat manzanita *Arctostaphylos pumila*	SC/--/1B	3-2-3	70-90	Sand hills of maritime chaparral and coast live oak woodland	Scattered locations around Monterey Peninsula and an extensive area on former Fort Ord (1, 3)	A large and important part of the range of sandmat manzanita is found on former Fort Ord
Seaside bird's-beak *Cordylanthus rigidus* var. *littoralis*	SC/E/1B	2-3-3	30-50[d]	Inhabits sandy soils of stabilized dunes, maritime chaparral, coastal scrub, and closed-cone coniferous forests	Monterey and Santa Barbara Counties, including former Fort Ord, Monterey Airport, and between Carmel and Elkhorn Slough in Monterey County, and on Burton Mesa in Santa Barbara County (1, 2)	A substantial portion of the range of Seaside bird's-beak is found at former Fort Ord
Toro manzanita *Arctostaphylos montereyensis*	SC/--/1B	3-2-3	70-90	Occurs on stabilized sandy soils and badlands in maritime chaparral	Restricted to several sites in Monterey County, including former Fort Ord, Toro Regional Park, and Monterey Airport (1, 3)	Former Fort Ord supports the largest expanse of Toro manzanita in existence
Hooker's manzanita *Arctostaphylos hookeri*	--/--/1B	2-2-3	15-35	Sand hill and Aromas formation maritime chaparral and closed-cone coniferous forest	Del Monte Forest, Monterey Peninsula, Prunedale Hills, former Fort Ord, and sand hills in the Larkin Valley	Former Fort Ord supports large populations of Hooker's manzanita; although it is more common on the Monterey Peninsula and near Prunedale than at former Fort Ord, former Fort Ord provides important and extensive habitat (3,6)

* Status explanations (see the "Definitions of Special-Status Species" section above for citations):

Federal

- E = listed as endangered under the federal Endangered Species Act.
- T = listed as threatened under the federal Endangered Species Act.
- PE = proposed for federal listing as endangered under the federal Endangered Species Act.
- SC = Species of Concern are all former Category 1 and 2 candidate species that without additional conservation action are likely to become candidates for listing by the U.S. Fish and Wildlife Service under the federal Endangered Species Act.
- -- = no designation.

State

- E = listed as endangered under the California Endangered Species Act.
- T = listed as threatened under the California Endangered Species Act.
- -- = no designation.

California Native Plant Society

1B	=	List 1B species: rare, threatened, or endangered in California and elsewhere.
4	=	List 4 species: plants of limited distribution.
–	=	no designation.

[b] **CNPS RED Code:**

Rarity (R)

1	=	Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time.
2	=	Occurrence confined to several populations or to one extended population.
3	=	Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

Endangerment (E)

1	=	Not endangered.
2	=	Endangered in a portion of its range.
3	=	Endangered throughout its range.

Distribution (D)

1	=	More or less widespread outside California.
2	=	Rare outside California.
3	=	Endemic to California.

[c] Data sources:

1	=	Natural Diversity Data Base 1992.
2	=	Hillyard 1992.
3	=	Griffin 1976.
4	=	Reveal and Hardham 1989.
5	=	Thomas 1961.
6	=	Griffin 1978.
7	=	Morgan 1992.
8	=	U.S. Fish and Wildlife Service 1991.
9	=	U.S. Fish and Wildlife Service 1992.
10	=	Munz and Keck 1968.
11	=	Abrams 1940.

[d] This estimate incorporates locations of Seaside bird's-beak in Santa Barbara County, which may have formed as a result of hybridization. The estimate based only on Monterey County occurrences would increase the percent of range at former Fort Ord to 60-80%.

Table S-2. Wildlife Species Considered in This Habitat Management Plan (HMP Species)

Wildlife Species	Listing Status[a] Federal/State	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Occurrence at Former Fort Ord	Importance of Former Fort Ord Population
Smith's blue butterfly *Euphilotes enoptes smithi*	E/–	5-10	Uses coastal dunes and hillsides that support seacliff buckwheat (*Eriogonum parvifolium*) or coast buckwheat (*Eriogonum latifolium*); these plants are used as a nectar source for adults and host plant for larvae	Restricted to localized populations along the coast of Monterey County; single populations reported in Santa Cruz and San Mateo Counties	Known to occur near the northern boundary of former Fort Ord and from Giggling Siding to the southern base boundary (5)[b]	Former Fort Ord has been identified as important to the recovery of Smith's blue butterfly
California black legless lizard *Anniella pulchra nigra*	PE/SSC	10-20	Requires moist, warm habitats with loose soil for burrowing and prostrate plant cover; may be found on beaches, in chaparral, pine oak woodland, or riparian areas	Restricted to small populations along the coast in Monterey and northern San Luis Obispo Counties; one population in Contra Costa County	Found in stabilized dunes, oak woodland, and oak savanna, and maritime chaparral with sandy soils at former Fort Ord (2, 4, 7)	Former Fort Ord supports one of the larger expanses of black legless lizard habitat within the species' range
California red-legged frog *Rana aurora draytoni*	T/SSC	<1	Requires coldwater ponds with emergent and submergent vegetation and riparian vegetation at the edges	Found along the coast and coastal mountain ranges from Humboldt to San Diego Counties, and in the Sierra Nevada from Butte to Fresno Counties	May occur at Ford Ord (1)	Former Fort Ord composes little of the species' total range; however, former Fort Ord provides potential habitat for California red-legged frog, which is relatively rare within the Monterey Bay region
Western snowy plover *Charadrius alexandrinus nivosus*	T/SSC	5-10	Found along beach above the high tide limit; also uses shores of salt ponds and alkali or brackish inland lakes	Intermittent nesting sites along the Pacific Coast from Washington to Baja California	Nests along the beaches at former Fort Ord north of Stillwell Hall (3)	Former Fort Ord supports one of 20 coastal breeding populations of western snowy plovers in California; Monterey Bay as a whole is considered one of eight primary coastal nesting areas; former Fort Ord beaches are one of the areas proposed by USFWS as critical habitat for this species (60FR 11768 March 2, 1995)

Wildlife Species	Listing Status[a] Federal/State	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Occurrence at Former Fort Ord	Importance of Former Fort Ord Population
California tiger salamander *Ambystoma tigrinum californiense*	C/SSC	<1	Favors open woodlands and grasslands; requires water for breeding and burrows or cracks in the soil for summer dormancy	Occurs only in California from the coastline to the Sierra Nevada crest and from Sonoma to Santa Barbara Counties	Occurs in ponds and vernal pools throughout former Fort Ord (2, 6)	Former Fort Ord comprises little of the total range of California tiger salamander; however, vernal pool habitat is relatively rare in the Monterey Bay region
Monterey ornate shrew *Sorex ornatus salarius*	SC/--	15-25	Found in a variety of riparian, woodland, and upland communities where there is thick duff or downed logs	Restricted to the Monterey Bay region; historical occurrences at the mouth of the Salinas River and Moss Landing in Monterey County	May occur at former Fort Ord (1)	Former Fort Ord provides abundant potential habitat for Monterey ornate shrew within the species' limited range
California linderiella *Linderiella occidentalis*	--/--	<1	Ephemeral freshwater habitats such as vernal pools, rock outcrop pools, swales, and ponds	Found in the Central Valley from Tehama to Madera Counties, and the central and south Coast Ranges from Lake to Riverside County	Known from eight water bodies at former Fort Ord (2)	Former Fort Ord composes little of the total range of California linderiella; however, vernal pool habitat is relatively rare in the Monterey Bay region

[a] Status definitions:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
PE = federally proposed for listing as endangered.
C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened.
SC = Species of Concern are former Category 1 and 2 species that without additional conservation action are likely to become candidates for listing by the U.S. Fish and Wildlife Service under the federal Endangered Species Act.
-- = no status.

State

SSC = considered a State Species of Special Concern by California Department of Fish and Game.
-- = no status.

[b] Data sources.

(1) Not found during field surveys.
(2) Encountered during field surveys.
(3) Source: George pers. comm.
(4) Source: Bury 1985.
(5) Source: Arnold 1983.
(6) Source: Stanley pers. comm.
(7) Source: Installation UXO surveys.

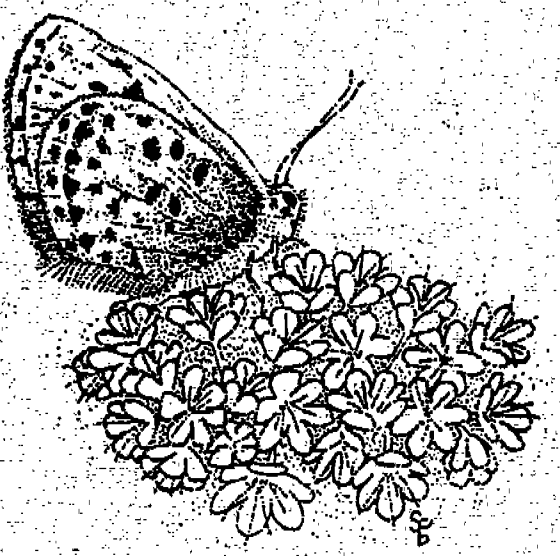
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Document # BW-1787

Chapter 1.

Purpose and Need



Smith's Blue Butterfly

Chapter 1. Purpose of and Need for the Habitat Management Plan

INTRODUCTION AND BACKGROUND

The Department of the Army in 1991 was directed to close and dispose of Fort Ord, California. The U.S. Army's (Army's) action is considered a major federal action that could affect eight species proposed for listing or listed as threatened or endangered under the federal Endangered Species Act (ESA). A Biological Assessment (BA) was prepared that identifies the potential loss of populations and habitat of federally listed species, species proposed for listing, and species that are candidates for listing, resulting from caretaker actions, disposal actions, and six reuse alternatives (U.S. Army Corps of Engineers 1993a). A supplement to the draft BA was prepared that describes the loss of populations and habitat of these same species resulting from an additional reuse alternative (Alternative 6R) (U.S. Army Corps of Engineers 1993b).

The June 1993 Final Environmental Impact Statement (FEIS) for the disposal and reuse of former Fort Ord identified the need to develop and implement a multispecies Habitat Management Plan (HMP) as a mitigation measure for impacts on vegetation and wildlife resources. The affected resources addressed in the FEIS included 22 plant and 22 wildlife species that are (or were during development of the 1994 Habitat Management Plan [1994 HMP]) listed, proposed, or candidates for federal or state listing as threatened or endangered; state species of special concern; and plants listed by the California Native Plant Society (CNPS) (U.S. Army Corps of Engineers 1993c). The FEIS described the potential impacts of several reuse alternatives analyzed in the document as severe enough to result in federal or state listing as threatened or endangered for some unlisted species.

The U.S. Fish and Wildlife Service's (USFWS's) October 19, 1993, final Biological Opinion on the disposal and reuse of former Fort Ord required that an HMP be developed and implemented to reduce the incidental take of listed species and loss of habitat that supports these species.

The land use and land management concepts that were contained in Alternative 6R in the FEIS were augmented by input from local entities following publication of the FEIS. As a result, an Alternative 6R modified (6RM) was included in the December 1993 National Environmental Policy Act (NEPA) Record of Decision (ROD) (hereinafter referred to as the 1993 NEPA ROD) as a most likely reuse scenario. This modified alternative consisted largely of updates to federal, state, and local screening requests and incorporated those portions of local reuse planning that were analyzed in the FEIS. At the time, this alternative was considered the most likely reuse based on screening requests and community reuse planning. This reuse concept was used as the basis for development of the 1994 HMP.

An HMP was published in February 1994 in response to both the October 1993 biological opinion and mitigation measures identified in the FEIS. The 1994 HMP addressed impacts resulting from predisposal, disposal, and reuse actions. Reuse actions addressed are those proposed under Alternative 6RM, a modified version of the preferred alternative (Alternative 6R) presented in the FEIS.

Since publication of the FEIS and 1994 HMP, the Army has prepared a Final Supplemental Environmental Impact Statement (FSEIS) to include additional data and an analysis of the following:

- disposal of additional land excess to the Army needs resulting from changes in the Army's Presidio of Monterey (POM) Annex boundary;
- those reuse areas that, as agreed to by the Army in the 1993 NEPA ROD associated with the FEIS, require additional analysis to cover disposal for new land uses;
- uses contained in the Fort Ord Reuse Authority (FORA) Final Base Reuse Plan (December 1994) that were not covered fully in the FEIS and 1993 NEPA ROD; and
- three additional reuse alternatives:
  - Alternative 7, which represents the December 12, 1994 FORA Final Base Reuse Plan, is slightly different from the anticipated reuse scenario contained in the Army's 1993 NEPA ROD on disposal and reuse of Fort Ord;
  - Revised Alternative 7 is not significantly different from Alternative 7 and includes land uses established through property transfers or memoranda of agreement (MOAs) for property transfers already completed by the Army; land uses proposed through federal, state, local, and McKinney Act screening completed in April 1996 for recently excessed lands; land uses required in the Draft Revised HMP; land uses for remaining areas as proposed in the Draft FORA Fort Ord Reuse Plan (March 1996) that do not conflict with laws and other federal regulations, policies, and requirements or the draft Revised HMP; relocation of a resort hotel; and utility easements needed for transfer of utility systems; and
  - Alternative 8 a land use scenario very similar to Alternative 7, contains most of the land use proposals of the FORA Final Base Reuse Plan (December 1994), but it also includes uses for specific parcels that were received through the scoping process for the Supplemental EIS.

During development of the FSEIS and through an agreement between the Army, USFWS, U.S. Bureau of Land Management (BLM), University of California (UC), and Fort Ord Reuse Authority (FORA) related to minimizing impacts on biological resources, it was determined that a revised HMP would be developed to replace the 1994 HMP. The revised HMP would accommodate disposal and reuse of property by defining development areas that may be used for nondetermined land uses that may be proposed in community reuse plans and by future landowners. The revised HMP would provide for the establishment of habitat reserves, development areas with reserve areas or development with restrictions, and habitat corridors that mitigate impacts to the target biological resources in the development areas.

This document (this HMP) serves as a revised HMP. It follows a format very similar to that presented in the 1994 HMP and has the same goals and objectives as the original document. The primary differences are modification of the HMP reuse scenario to reflect the planned methods for remediation of the beach trainfire ranges to the health-based level of concern, revisions in development and reserve areas, replacing parcel-specific land use descriptors from a specific reuse alternative with a generic development designation that would include a potential range of reuses considered in the FEIS and the FSEIS, and inclusion of the mitigation measures agreed to by the Army, USFWS, and other agencies included in the agreement mentioned above.

USFWS issued an amended Biological/Conference Opinion in January 1997 dealing with new species listings and status changes and the December 1996 draft HMP. USFWS then issued a second amended Biological/Conference Opinion in April 1997, which analyzed additional information provided by the Army. The April 1997 Biological/Conference Opinion analyzes the implementation of this revised HMP and establishes

incidental take limits for listed animal species contained in this HMP. The April 1997 amended Biological/ Conference Opinion replaces the 1993 and January 1997 opinions.

Army Disposal Process

Upon completion of this HMP and FSEIS ROD, the Army intends to continue with property disposal at the former Fort Ord. The Army does not intend to adopt a specific reuse plan or alternative. The Army intends for the disposal process to be consistent with FORA's Final Base Reuse Plan where it is not in conflict with laws and other federal regulations, policies, and requirements. As stated in the 1993 NEPA ROD, "The disposal process will consider federal requests received in the screening process for transfer of federal land that is required under the Federal Property and Administrative Services Act of 1949, as well as all McKinney Act requests. The Army will honor, where possible and appropriate, all state and local requests for conveyance from separately authorized federal programs for transportation, education, recreation and open space, public health and safety, and airports." In addition, the Army will proceed with transfers for which memoranda of agreement (MOA) have been completed (e.g., California State University, Monterey Bay and University of California, Santa Cruz). Lands that are not transferred through these processes will be available for FORA to include in its economic development conveyance (EDC) application. Any remaining property will be available for negotiated sale to public bodies and for private sale.

All transfers must be consistent with the Army and other federal requirements for historic preservation; Endangered Species Act requirements for special-status plants and animals, including the 1993 Biological Opinion and requirements of this HMP; and conditions contained in the Army's Coastal Zone Management Act consistency determinations.

The likely reuse scenario contains elements of Alternative 6, Alternative 6RM, Alternative 7, Revised Alternative 7, and Alternative 8 as described in the FEIS, 1993 NEPA ROD, and the FSEIS . Based on the FEIS, 1993 NEPA ROD, the 1994 HMP, and the then-existing reuse plan, key disposal actions have been initiated or committed to by the Army that include the coastal zone transferred to the California Department of Parks and Recreation for habitat and park uses; the inland range and training areas transferred to the U. S. Bureau of Land Management for open space and natural resource management uses; a southern portion of the base transferred to the Monterey Peninsula Regional Park District for recreation area expansion; and airfield areas transferred to the City of Marina and the University of California for airport, science-related business park, and habitat reserves.

The 1993 Biological Opinion describes the concepts for disposal and habitat preservation within portions of Fort Ord (based on Alternative 6R) with habitat reserve lands to be transferred with binding habitat management and conservation requirements. The 1993 Biological Opinion provides for other parcels to be transferred that contain habitat for special status species without management or conservation requirements as development parcels. The 1994 HMP expanded the 1993 Biological Opinion's analysis to accommodate the 1993 NEPA ROD's anticipated reuse scenario. This HMP further expands the 1993 Biological Opinion's analysis to include the current range of anticipated reuse scenarios. The development parcels would be subject to impacts from construction and reuse subsequent to Army transfer. The Development Areas, Development with Reserve Areas or Development with Restrictions Areas, and Borderland Development Areas Along NRMA Interface (described in this HMP) will be available for disposal and development for reuse. For the 1993 Biological Opinion, it is assumed that a complete loss of biological resources would occur in the development parcels. The development parcels could be transferred with no covenants, deed restrictions, or conservation easements required. The development parcels would be available for total development. (See pages 10-12 of the 1993 Biological Opinion.)

Several reuse alternatives have been analyzed in the Army FEIS and FSEIS and these include the 1993 NEPA ROD land use map (Alternative 6RM), the December 1994 FORA Final Base Reuse Plan (Alternative 7) and elements of the March 1996 Draft FORA Fort Ord Reuse Plan (Revised Alternative 7). The

1994 HMP supports reuse within development areas based on Alternative 6RM. The FSEIS concluded that Alternative 7 would result in the removal of approximately 6,180 acres of habitat, approximately 240 acres more habitat removed than provided for in the 1994 HMP. Revised Alternative 7 would remove 6,300 acres of habitat, and Alternative 8 would remove 6,230 acres of habitat.

Alternative 7 would have adverse effects on biological resources from development within the coastal zone, proposed increased development areas, and from transportation corridors in locations that would bisect the HMP reserve and corridor areas described in the 1994 HMP. While the majority of land uses proposed in Alternative 7 (and the December 1994 FORA Plan) could be accommodated within the development areas of the 1994 HMP, avoidance and mitigation measures are needed to avoid significant impacts to HMP target species. These measures were cooperatively developed by FORA, the Army, BLM, UC, and USFWS. The measures are described in the April 1996 HMP Concept Agreement and included in Revised Alternative 7 and Alternative 8 in the FSEIS and in this HMP. Revisions in land use proposals from the March 1996 Draft FORA Fort Ord Reuse Plan are included in Revised Alternative 7. Table 1-1 summarizes the vegetation and wildlife impacts from the 1993 NEPA ROD, Alternative 7, Revised Alternative 7 , and Alternative 8. Any of the land uses described in these alternatives can be accommodated within the Development, Borderland Development Areas Along NRMA Interface, Development with Reserve Areas or Development with Restrictions, and Habitat Corridor areas in this HMP.

Mitigation Agreement for the HMP

The following is the mitigation agreement between the Army, USFWS, BLM, UC, and FORA. The agreement, a letter of concurrence signed by all five agencies, and a copy of Figure 5-11 (referenced in the agreement) are included in Appendix A.

> Representatives from the Army, USFWS, and Fort Ord Reuse Authority (FORA) met on March 15, 1996 to discuss modifications to the HMP. A telephone conference was held on March 28, 1996 which included a University of California (UC) representative. The discussion resulted in clarifications regarding revision to the [1994] HMP, including an agreement by UC or FORA to obtain the landfill parcel and manage a portion of it as habitat subject to review of liability and indemnification. Any final decision regarding acceptance of the landfill parcel is subject to approval by the respective governing body. A detailed amendment to the HMP will be prepared by the Army and provided to affected parties for signature prior to publication. The following are the terms of the modifications for the Revised Habitat Management Plan.
>
> a. The requirement for the landfill parcel to be included as an HMP habitat management area is revised from being an Army responsibility to being a University of California or FORA responsibility. The Army will not be required to restore habitat on the landfill cap nor will the Army be required to perform habitat management activities in the parcel while the landfill is being remediated or in caretaker status.
>
> b. The University of California (if not UC, then FORA) will apply to obtain the landfill parcel as part of an Economic Development Conveyance (EDC) transfer under terms of an existing MOA between the U.S. Army and UC. Following land transfer from the Army, UC or FORA will manage seventy-five percent (75%) of the landfill parcel (including the completed landfill cap) as habitat. The remaining twenty-five percent (25%) of the parcel will be available for development. Other changes in boundaries and trade-offs of development and habitat areas will be made in the HMP as shown on the attached figure (Figure 5-11, Revised Habitat Management Plan for Former Fort Ord). This will satisfy basewide HMP habitat management requirements for all proposed development

Table 1-1. Vegetation and Wildlife Impact Summary
Alternative 7, Revised Alternative 7, and Alternative 8 and the
Reuse Scenario Contained in the 1993 NEPA ROD

Resource Area	ROD	Alternative 7	Revised Alternative 7	Alternative 8
Vegetation and Wildlife				
Approximate acres of existing habitat considered removed	5,940 (25%)	6,180 (26%)	6,300 (26%)	6,230 (26%)
Approximate acres of exisitng sand gilia habitat removed	693 (19%)	793 (21%)	764 (20%)	793 (21%)
Approximate acres of exisitng Monterey spineflower habitat removed	3,215 (31%)	3,495 (34%)	3,372 (33%)	3,423 (34%)

areas (shown as land areas with no HMP habitat preservation requirements on Figure 5-11).

c. The other development areas adjacent to the BLM Natural Resources Management Area (NRMA) will be obtained as part of the FORA EDC. In these areas of undeveloped habitat adjacent to the NRMA, FORA will either arrange to have existing native habitat managed or construct and maintain fire breaks and vehicle barriers to separate these areas from the NRMA until such time as roads and other developments are constructed in these locations. (See attached figure for locations of fire breaks along the edge of the NRMA.) This will replace the individual development parcel descriptions contained in the original HMP. The revised HMP will rely on this measure to accomplish the desired separation of habitat areas from future development areas. The land use specific requirements for development parcels will be removed in the revised HMP.

If FORA becomes responsible for managing the habitat portion of the landfill parcel identified in item b, FORA will arrange for and fund an appropriate agency for long-term management of this area.

The Borderland Development Area Along NRMA Interface habitat management requirements (described in the section titled "Borderland Development Areas Along NRMA Interface" in Chapter 4) includes interim and long-term management requirements applicable to the Habitat Reserve/Development interface between the NRMA and developing areas. This management category will implement provisions in item c.

In reference to the requirements in item c, FORA has stated that it is not FORA's intent to separate developable natural land areas from the NRMA by the establishment of fire breaks and vehicle barriers before planned development of those lands as allowed by this HMP. BLM and FORA will work together to identify suitable locations for both interim and long-term fire breaks/barriers separating developed lands from natural lands as development of former Fort Ord lands proceeds. FORA or other recipients of the land will supply reports on interim habitat management in development parcels and/or development of firebreaks to BLM.

Grazing

An additional modification of this HMP is the removal of grazing as an Army caretaker action. The discussion of impacts and mitigation related to grazing was removed because the Army no longer has a grazing program at former Fort Ord, as lands previously used for grazing are being transferred to the BLM.

Species Addressed in the HMP

Wildlife and plant species and habitats addressed in this HMP are the same as those included in the 1994 HMP. These species are a subset of the species analyzed in the FEIS. Species addressed in the 1994 HMP were included based on their legal protection, listing status at the time of publication, and the relative importance of populations and habitats at former Fort Ord to the continued survival of the species (Tables 1-2 and 1-3). However, since publication of the 1994 HMP, the legal status of several species has changed. The columns labeled "Listing Status" in Tables 1-2 and 1-3 reflect these changes, and the circumstances and results of these changes are described below.

Table 1-2. Plant Species Considered in This Habitat Management Plan (HMP Plants)

Plant Species	Listing Status[a] Federal/State/CNPS	CNPS RED Code[b]	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Importance of Populations at Former Fort Ord
Robust spineflower *Chorizanthe robusta* var. *robusta*	E/--/4	1-1-3	<1	Found on sandy soils in coastal dune and coastal scrub habitats	Historically from Alameda and San Mateo Counties south to Santa Cruz County and near the coast from southern Santa Cruz County to northern Monterey County, much of which is now developed (4, 5, 8)[c]	Several plants of robust spineflower were found at one site on former Fort Ord; former Fort Ord does not provide important habitat for this species (7)
Sand gilia *Gilia tenuiflora* ssp. *arenaria*	E/T/1B	3-3-3	50-70	Sandy openings in coastal dunes and scrub and maritime chaparral	Occurs around Monterey Bay, Salinas River Beach, Asilomar State Beach, from Point Pinos to Point Joe, and Fort Ord (1, 2, 9)	Former Fort Ord provides extensive suitable habitat for sand gilia and constitutes a substantial portion of its range (at least half)
Yadon's piperia *Piperia yadoni*	PE/--/1B	N/A	<1	Occurs on sandy soils in maritime chaparral, coastal scrub, and closed-cone coniferous forest	Occurs in Monterey County from the Pajaro Hills to the Monterey Peninsula	Less than 1% of the individuals of Yadon's piperia are found on former Fort Ord; it is noteworthy that its habitat on former Ford Ord is intermediate between that of its occurrence in chaparral and pine forest habitats (7)
Monterey spineflower *Chorizanthe pungens* var. *pungens*	T/--/1B	3-3-3	75-95	Colonizes recently disturbed sandy sites in coastal dune, coastal scrub, grassland, and maritime chaparral habitats	Along the coast of southern Santa Cruz and northern Monterey Counties and inland to the coastal plain of the Salinas Valley (1, 4, 8)	Former Fort Ord supports the largest populations of Monterey spineflower known (7, 8)
Coast wallflower *Erysimum ammophilum*	SC/--/1B	2-2-3	10-30	Occurs scattered on stabilized coastal dunes	Coastal dunes of Monterey Bay and Santa Rosa Island, and coastal scrub on former Fort Ord (10, 11)	Former Fort Ord provides a moderate amount of suitable habitat for coast wallflower and may constitute an important portion of its range because of the limited extent and high degree of disturbance to its habitat in California
Eastwood's ericameria *Ericameria fasciculata*	SC/--/1B	3-3-3	70-90	Inhabits coastal dune and scrub, maritime chaparral, and closed-cone coniferous forest communities	Found in Monterey County, including Del Monte Forest, Monterey Airport, Toro Regional Park, near Prunedale, and former Fort Ord (1)	Former Fort Ord supports most of the remaining individuals of Eastwood's ericameria (3)
Monterey ceanothus *Ceanothus cuneatus* var. *rigidus*	SC/--/4	1-2-3	50-70	Sandy hills and flats of maritime chaparral, closed-cone coniferous forests, and coastal scrub	Monterey County along the coast and former Fort Ord, Toro Regional Park, Monterey Airport, and near Prunedale (1, 6)	The most abundant and probably most vigorous population of Monterey ceanothus is found on former Fort Ord (3)

Plant Species	Listing Status[a] Federal/State/CNPS	CNPS RED Code[b]	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Importance of Populations at Former Fort Ord
Sandmat manzanita *Arctostaphylos pumila*	SC/--/1B	3-2-3	70-90	Sand hills of maritime chaparral and coast live oak woodland	Scattered locations around Monterey Peninsula and an extensive area on former Fort Ord (1, 3)	A large and important part of the range of sandmat manzanita is found on former Fort Ord
Seaside bird's-beak *Cordylanthus rigidus* var. *littoralis*	SC/E/1B	2-3-3	30-50[d]	Inhabits sandy soils of stabilized dunes, maritime chaparral, coastal scrub, and closed-cone coniferous forests	Monterey and Santa Barbara Counties, including former Fort Ord, Monterey Airport, and between Carmel and Elkhorn Slough in Monterey County, and on Burton Mesa in Santa Barbara County (1, 2)	A substantial portion of the range of Seaside bird's-beak is found at former Fort Ord
Toro manzanita *Arctostaphylos montereyensis*	SC/--/1B	3-2-3	70-90	Occurs on stabilized sandy soils and badlands in maritime chaparral	Restricted to several sites in Monterey County, including former Fort Ord, Toro Regional Park, and Monterey Airport (1, 3)	Former Fort Ord supports the largest expanse of Toro manzanita in existence
Hooker's manzanita *Arctostaphylos hookeri*	--/--/1B	2-2-3	15-35	Sand hill and Aromas formation maritime chaparral and closed-cone coniferous forest	Del Monte Forest, Monterey Peninsula, Prunedale Hills, former Fort Ord, and sand hills in the Larkin Valley	Former Fort Ord supports large populations of Hooker's manzanita; although it is more common on the Monterey Peninsula and near Prunedale than at former Fort Ord, former Fort Ord provides important and extensive habitat (3,6)

[a] Status explanations (see the "Definitions of Special-Status Species" section above for citations):

Federal

- E = listed as endangered under the federal Endangered Species Act.
- T = listed as threatened under the federal Endangered Species Act.
- PE = proposed for federal listing as endangered under the federal Endangered Species Act.
- SC = Species of Concern are all former Category 1 and 2 candidate species that without additional conservation action are likely to become candidates for listing by the U.S. Fish and Wildlife Service under the federal Endangered Species Act.
- -- = no designation.

State

- E = listed as endangered under the California Endangered Species Act.
- T = listed as threatened under the California Endangered Species Act.
- -- = no designation.

California Native Plant Society

1B	=	List 1B species: rare, threatened, or endangered in California and elsewhere
4	=	List 4 species: plants of limited distribution.
--	=	no designation.

[b] **CNPS RED Code:**

Rarity (R)

1	=	Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time.
2	=	Occurrence confined to several populations or to one extended population.
3	=	Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

Endangerment (E)

1	=	Not endangered.
2	=	Endangered in a portion of its range.
3	=	Endangered throughout its range.

Distribution (D)

1	=	More or less widespread outside California.
2	=	Rare outside California.
3	=	Endemic to California.

[c] Data sources:

1	=	Natural Diversity Data Base 1992.
2	=	Hillyard 1992.
3	=	Griffin 1976.
4	=	Reveal and Hardham 1989.
5	=	Thomas 1961.
6	=	Griffin 1978.
7	=	Morgan 1992.
8	=	U.S. Fish and Wildlife Service 1991.
9	=	U.S. Fish and Wildlife Service 1992.
10	=	Munz and Keck 1968.
11	=	Abrams 1940.

[d] This estimate incorporates locations of Seaside bird's-beak in Santa Barbara County, which may have formed as a result of hybridization. The estimate based only on Monterey County occurrences would increase the percent of range at former Fort Ord to 60-80%.

Wildlife Species	Listing Status[a] Federal/State	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Occurrence at Former Fort Ord	Importance of Former Fort Ord Population
Smith's blue butterfly *Euphilotes enoptes smithi*	E/–	5-10	Uses coastal dunes and hillsides that support seacliff buckwheat (*Eriogonum parvifolium*) or coast buckwheat (*Eriogonum latifolium*); these plants are used as a nectar source for adults and host plant for larvae	Restricted to localized populations along the coast of Monterey County; single populations reported in Santa Cruz and San Mateo Counties	Known to occur near the northern boundary of former Fort Ord and from Giggling Siding to the southern base boundary (5)[b]	Former Fort Ord has been identified as important to the recovery of Smith's blue butterfly
California black legless lizard *Anniella pulchra nigra*	PE/SSC	10-20	Requires moist, warm habitats with loose soil for burrowing and prostrate plant cover; may be found on beaches, in chaparral, pine oak woodland, or riparian areas	Restricted to small populations along the coast in Monterey and northern San Luis Obispo Counties; one population in Contra Costa County	Found in stabilized dunes, oak woodland, and oak savanna, and maritime chaparral with sandy soils at former Fort Ord (2, 4, 7)	Former Fort Ord supports one of the larger expanses of black legless lizard habitat within the species' range
California red-legged frog *Rana aurora draytoni*	T/SSC	<1	Requires coldwater ponds with emergent and submergent vegetation and riparian vegetation at the edges	Found along the coast and coastal mountain ranges from Humboldt to San Diego Counties, and in the Sierra Nevada from Butte to Fresno Counties	May occur at Ford Ord (1)	Former Fort Ord composes little of the species' total range; however, former Fort Ord provides potential habitat for California red-legged frog, which is relatively rare within the Monterey Bay region
Western snowy plover *Charadrius alexandrinus nivosus*	T/SSC	5-10	Found along beach above the high tide limit; also uses shores of salt ponds and alkali or brackish inland lakes	Intermittent nesting sites along the Pacific Coast from Washington to Baja California	Nests along the beaches at former Fort Ord north of Stillwell Hall (3)	Former Fort Ord supports one of 20 coastal breeding populations of western snowy plovers in California; Monterey Bay as a whole is considered one of eight primary coastal nesting areas; former Fort Ord beaches are one of the areas proposed by USFWS as critical habitat for this species (60FR 11768 March 2, 1995)

Wildlife Species	Listing Status[a] Federal/State	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Occurrence at Former Fort Ord	Importance of Former Fort Ord Population
California tiger salamander *Ambystoma tigrinum californiense*	C/SSC	<1	Favors open woodlands and grasslands; requires water for breeding and burrows or cracks in the soil for summer dormancy	Occurs only in California from the coastline to the Sierra Nevada crest and from Sonoma to Santa Barbara Counties	Occurs in ponds and vernal pools throughout former Fort Ord (2, 6)	Former Fort Ord comprises little of the total range of California tiger salamander; however, vernal pool habitat is relatively rare in the Monterey Bay region
Monterey ornate shrew *Sorex ornatus salarius*	SC/--	15-25	Found in a variety of riparian, woodland, and upland communities where there is thick duff or downed logs	Restricted to the Monterey Bay region; historical occurrences at the mouth of the Salinas River and Moss Landing in Monterey County	May occur at former Fort Ord (1)	Former Fort Ord provides abundant potential habitat for Monterey ornate shrew within the species' limited range
California linderiella *Linderiella occidentalis*	--/--	<1	Ephemeral freshwater habitats such as vernal pools, rock outcrop pools, swales, and ponds	Found in the Central Valley from Tehama to Madera Counties, and the central and south Coast Ranges from Lake to Riverside County	Known from eight water bodies at former Fort Ord (2)	Former Fort Ord composes little of the total range of California linderiella; however, vernal pool habitat is relatively rare in the Monterey Bay region

[a] Status definitions:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
PE = federally proposed for listing as endangered.
C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened.
SC = Species of Concern are former Category 1 and 2 species that without additional conservation action are likely to become candidates for listing by the U.S. Fish and Wildlife Service under the federal Endangered Species Act.
-- = no status.

State

SSC = considered a State Species of Special Concern by California Department of Fish and Game.
-- = no status.

[b] Data sources.

(1) Not found during field surveys.
(2) Encountered during field surveys
(3) Source: George pers. comm.
(4) Source: Bury 1985.
(5) Source: Arnold 1983.
(6) Source: Stanley pers. comm.
(7) Source: Installation UXO surveys.

California Linderiella

The California linderiella fairy shrimp was proposed for listing as endangered by USFWS in May 1992. The species was still considered proposed for listing during development of the 1994 HMP. However, during the scientific review of the species completed during the proposal period, USFWS found the California linderiella to be more abundant than initially believed. Based on this information, USFWS withdrew the proposal to list the California linderiella in September 1994 and determined that the species is not likely to become either endangered or threatened throughout all or a significant portion of its entire range in the foreseeable future.

Although the California linderiella is no longer considered proposed for listing as endangered, it is retained in this HMP because measures included in this HMP to protect the California linderiella also protect other wetland-associated HMP wildlife species such as the California tiger salamander and California red-legged frog.

Removal of Category 2 Candidate Species Designation from the ESA

On February 28, 1996, the Department of the Interior published in the Federal Register (FR) the Department of the Interior Endangered and Threatened Species, Plant and Animal Taxa; Proposed Rule (61 FR 7596 February 28, 1996). Under the rule, the Category 1 and 2 classifications for federal candidate species are removed. Species either are identified as Candidate species with a listing priority classification or are no longer given any federal status.

Included in the rule are tables identifying new classifications for numerous species. Many species previously considered Category 1 or 2 candidates are retained under the new Candidate status and provided listing priority classification. Other species that were previously considered candidate species are identified as no longer having status under the federal ESA. Species not listed in the tables included in the rule are presumed to no longer be provided federal status. Further guidance from USFWS staff has indicated that these former candidate species are now considered "Species of Concern". The listing status for each species addressed in Tables 1-2 and 1-3 has been modified as appropriate to reflect information included in this rule.

Species listed as threatened or endangered or proposed for threatened or endangered status were not affected by the rule.

Although several species included in the 1994 HMP are no longer considered federal candidates, they are retained in this HMP because they may be listed under the California ESA, they are considered by USFWS as Species of Concern, they have a significant portion of their range at former Fort Ord, or they are associated with a habitat that is important to a suite of many other sensitive species.

Changes in Listing Status

Since publication of the 1994 HMP several species proposed for threatened or endangered status have been listed, and other species that were previously considered federal candidates are now proposed for threatened or endangered status. The California red-legged frog and Monterey spineflower are now listed as threatened, the robust spineflower is listed as endangered, and both Yadon's piperia and the black legless lizard are proposed for endangered status. Management and preservation measures in this HMP will not change because of changes in the listing status of HMP species. However, land recipients may need to further coordinate with USFWS and/or other agencies as appropriate in the event that species such as the black legless lizard become listed to receive Section 10a permits or other approvals.

ORGANIZATION OF THE HMP

This HMP is organized in the same manner as the 1994 HMP. It is presented in six chapters. Chapter 1, "Purpose of and Need for the Habitat Management Plan", describes the purpose and need, goals and objectives, and procedure followed in developing this HMP. Chapter 2, "Minimum Conservation Area and Corridor System", describes methods used to develop a minimum conservation area and corridor system for former Fort Ord. Chapter 3, "Habitat Management for Predisposal Actions", presents habitat management procedures to accompany Army actions taken before disposal of former Fort Ord land. Chapter 4, "Habitat Management for Disposal and Reuse", describes the habitat management procedures to be taken by recipients of disposed land. Chapter 5, "Citations", lists the sources cited in this HMP. Chapter 6, "List of Preparers and Acknowledgments", describes the contributions of key staff and agency representatives.

GOALS AND OBJECTIVES

The goals and objectives of this HMP are the same as those for the 1994 HMP.

- Preserve, protect, and enhance populations and habitat of federally listed threatened and endangered wildlife and plant species.
- Avoid reducing populations or habitat of federal proposed and candidate wildlife and plant species to levels that may result in one or more of these species becoming listed as threatened or endangered.
- Preserve and protect populations and habitat of state-listed threatened and endangered wildlife and plant species.
- Avoid reducing populations or habitat of species listed as rare, threatened, and endangered by the CNPS (List 1B), or with large portions of their range at former Fort Ord, to levels that may result in one or more of these species becoming listed as threatened or endangered.
- Conduct the disposal of land to public and private entities in a manner that is compatible with the preservation of federally listed threatened and endangered wildlife and plants within the HMP conservation area.
- Inform potential recipients of former Fort Ord land and the general public of methods that provide a suitable mechanism for protecting natural resources while allowing implementation of a community-based reuse plan that promotes economic recovery after closure of former Fort Ord.
- Provide the basis for recipients of former Fort Ord lands to seek Section 10(a) permits pursuant to the federal ESA and achieve compliance for conservation of state-listed threatened and endangered species and other special-status species recognized by California Department of Fish and Game (DFG) under the California ESA and the California Environmental Quality Act (CEQA).
- Provide a foundation for a prelisting agreement between USFWS and recipient landowners.

The overall goal of this HMP is to provide for, at a minimum, no net loss of populations or important habitat for any of the subject species of this HMP. This goal can be met through the careful selection of areas

designated as reserves and corridors. The beneficial enhancement of habitat by the selected management agencies is essential to the achievement of this goal.

FLEXIBILITY OF THE HMP

Pre-Transfer Modifications to This HMP

This HMP has adjusted the development and reserve areas to reflect changes proposed in the community reuse plan and information relating to the Army environmental remediation actions. The specific land use designations for individual development parcels have been replaced with a generic development designation, allowing for broad flexibility in reuse of specific development parcels. Changes in specific use of development parcels within the range of uses described in the FEIS and the FSEIS would not require revision to this HMP. During disposal by the Army, it may be necessary to alter management agencies for reserve areas or portions of reserve areas because of changes in anticipated land recipients. Any such change would be coordinated with USFWS and agreed to by both parties. Any further revision to habitat reserves or corridors before transfer would necessitate revisions in this HMP.

The Army will remain responsible for any changes to this HMP in areas that have not been transferred (pre-transfer). The Army will also remain responsible for revisions to this HMP relating to hazardous, toxic, and radiological waste and ordnance and explosives response actions. Changes undertaken in parcels after they are transferred are the responsibility of the land recipient.

Polygon boundaries in development areas may be modified, and development polygons may be subdivided or aggregated before transfer. These types of changes in development polygons will not require modifications to this HMP.

Post-Transfer Modifications to the HMP

All recipients of former Fort Ord lands will be required to abide by management guidelines and procedures addressed in this HMP. However, situations may arise during the life of this HMP that make changes in the plan's guidelines after lands have been transferred (post-transfer) appropriate. Several types of changes may occur. Land recipients may wish to change the boundaries of their parcels or land uses within their parcels. Actions such as additional infrastructure development in reserve areas may be necessary. Changes in management guidelines within a land use may be required to better preserve or enhance a resource. These kinds of changes may be made if the affected landowners and USFWS can agree that the overall goals and objectives of this HMP will not be compromised.

Such post-transfer revisions do not involve the Army and would be the responsibility of future landowners, subject to the terms of the reservation placed on the lands in the MOAs and/or deeds at the time the lands are transferred from the Army. Such revisions will be funded by the responsible agency/land recipient. The agency or land recipient will also be responsible for any necessary documentation and any coordination with USFWS, BLM, or other agencies.

Polygon boundaries in development areas may be modified, and development polygons may be subdivided or aggregated after transfer. These types of changes in development polygons will not require modifications to this HMP.

HMP STEPWISE ANALYSIS

This HMP was developed following a stepwise analysis to evaluate and minimize the loss of specific wildlife and plant species and their habitats resulting from disposal and reuse of former Fort Ord. A description of the steps is provided in the following sections. This analysis was conducted during development of the 1994 HMP; however, the results are still applicable to this HMP.

Step 1: Identify Species and Habitats to Be Considered in the HMP

Wildlife and plant species analyzed in this HMP were chosen during development of the 1994 HMP. Selection was based on their legal protection under the state and federal ESA, their listing status, and the relative importance of existing populations and habitats at former Fort Ord to the continued survival of the species. CNPS-listed species with more than 10% of their known range at former Fort Ord were also analyzed in this HMP. Habitats analyzed in this HMP were chosen based on their importance to the species chosen for analysis.

The same species selected for the 1994 HMP are also analyzed in this HMP; however, the legal status for many of the species has changed (see the "Species Addressed in this HMP" section earlier in Chapter 1 for an explanation of changes in legal status). The following species are analyzed in this HMP (current legal status is provided[1]):

- federally proposed and listed threatened and endangered species (Smith's blue butterfly [E], sand gilia [E], Monterey spineflower [T], robust spineflower [E], western snowy plover [T], California red-legged frog [T], California black legless lizard [PE], and Yadon's piperia [PE];
- species that are candidates for federal listing as threatened or endangered (California tiger salamander [C]);
- state-listed threatened and endangered species (sand gilia [T], Seaside bird's-beak [E]);
- species that fell under one of the previous categories during preparation of the 1994 HMP but that no longer have any legal status under the federal or state ESA (California linderiella, Monterey ornate shrew, and Monterey ceanothus); and
- CNPS list 1B species with extensive portions (greater than 10%) of their known ranges at former Fort Ord (Hooker's manzanita, Toro manzanita, sandmat manzanita, Eastwood's ericameria, and coast wallflower).

These species are referred to as "HMP species" in this report.

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[1] Status explanations: **Federal** - E = listed as endangered under the federal ESA; T = listed as threatened under the federal ESA; PE = proposed for federal listing as endangered under the federal ESA; C = species for which USFWS has sufficient information on biological vulnerability and threat(s) on file to support proposals to list them as endangered or threatened; **State** - E = listed as endangered under the California ESA; T = listed as threatened under the California ESA; **California Native Plant Society** - 1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

The following habitats were analyzed in this HMP because they support large concentrations of HMP species:

- maritime chaparral;
- coastal strand;
- dune scrub; and
- beaches, bluffs, and blowouts.

The following habitats were analyzed in this HMP because they occur at sites that could be restored to high-quality HMP species habitat:

- ice plant mats and
- disturbed dunes.

Vernal pools and ponds are habitat for California linderiella, red-legged frog, and California tiger salamander but were not analyzed in this initial stepwise analysis. Specific mitigation measures for impacts on fairy shrimp, red-legged frog, California tiger salamander, vernal pools, and ponds are included in Chapters 3 and 4. Protection or replacement for these waters of the United States will also be provided through implementation of the federal Clean Water Act of 1972.

Step 2: Develop a Conservation Area and Corridor System

A preliminary conservation area and corridor system was developed during preparation of the FEIS to define the minimal area necessary to preserve HMP species populations and habitats according to ecological principles and the known biological resource distributions at former Fort Ord.

The conservation areas developed for the FEIS provided a benchmark for subsequent analysis and defined these more valuable areas of habitat that could be given priority for conservation and protection from development impacts. The benchmark is used to identify biologically important habitat and the minimum area required to protect the most species. The conservation areas were planned to protect sufficient habitat for listed and proposed species to avoid a jeopardy opinion by USFWS and to protect representative populations and habitats of the other HMP species. Where necessary, corridors were identified to maintain connections between conservation areas. Habitat values within corridors may be less than in conservation areas; however, corridors are important for maintaining the ecological integrity of conservation areas.

Step 3: Compare Land Requests with Conservation Area and Corridor System

The locations of land requests and proposed land uses for former Fort Ord were compared with the locations of minimum conservation areas and corridors. The boundaries of the initial conservation areas and corridors were designed to be flexible, with some adjustments made to accommodate the land uses prescribed under various reuse scenarios for former Fort Ord. The loss of some valuable habitat within the conservation areas would be replaced by expanding the conservation areas to other locations, preserving usable habitat in other locations, or improving and restoring disturbed habitat. Certain land uses would be allowed within corridor areas if these uses are compatible with proper corridor functioning.

Step 4: Create Final Conservation Area and Corridor System

The conservation area and corridor system was modified to create a final conservation area and corridor system that considered the land uses proposed for former Fort Ord and includes sites necessary for mitigation of impacts on HMP species.

Step 5: Develop HMP Guidelines

Protection, enhancement, mitigation, monitoring, management, and funding guidelines were developed to allow for an installation-wide means of accomplishing mitigation.

Step 6: Implement the HMP

This HMP will be signed by all responsible parties, and conservation, management guidelines, monitoring, and enforcement will be implemented by each party as described in Chapter 4, "Habitat Management for Disposal and Reuse". The Army will include HMP conservation and management requirements in land transfer documents.

Chapter 2.

Minimum Conservation Area and Corridor System



Sand Gilia

Chapter 2. Minimum Conservation Area and Corridor System

INTRODUCTION

Modifications to the 1994 Habitat Management Plan (1994 HMP) incorporated into this HMP have little or no effect on the methods and results of the minimum conservation area and corridor system development process. Information has been revised to reflect changes such as modifications to a species-listing status.

SPECIES AND COMMUNITY BIOLOGICAL DATA

Tables 2-1 and 2-2 present ecological characteristics of HMP wildlife and plant species that are pertinent to development of conservation areas and corridors. Additional information on species distributions and endangerment status is in the Flora and Fauna Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992a) and the supplement to the draft Biological Assessment (BA) (U.S. Army Corps of Engineers, Sacramento District 1993b). Distribution maps for HMP species at former Fort Ord (from these documents) are included in Appendix B of this HMP.

HABITAT MANAGEMENT PLAN HABITATS

The following sections describe the community ecology of maritime chaparral and coastal dunes that is pertinent to development of conservation areas and corridors.

Maritime Chaparral

Maritime chaparral is a coastal form of chaparral associated with specific soil conditions. Two forms are recognized at former Fort Ord based on the substrate that supports them: sand hill maritime chaparral occurs on relict dunes of the late Pleistocene Epoch and Aromas formation maritime chaparral occurs on weakly consolidated red sandstone that is a relict of mid-Pleistocene dunes. The occurrence of maritime chaparral may be limited to the summer fog zone. (Griffin 1976.)

Periodic disturbance or removal of vegetation caused by unstable substrate and fire are important factors in maintaining and rejuvenating the maritime chaparral community.

Important shrubs in maritime chaparral are shaggy-barked manzanita, chamise, Toro manzanita, sandmat manzanita, Hooker's manzanita, Monterey ceanothus, toyon, black sage, bush monkeyflower, coyote bush, Eastwood's ericameria, poison-oak, dwarf ceanothus, coast silk tassel, rush rose, California sagebrush, blue-blossom ceanothus, and mock heather. HMP species occurring in maritime chaparral are black legless lizard, Toro manzanita, sandmat manzanita, Hooker's manzanita, Monterey ceanothus, Eastwood's ericameria, Seaside bird's-beak, sand gilia, Monterey spineflower, coast wallflower, and Yadon's piperia.

Table 2-1 Ecological Characteristics of HMP Wildlife

Species	Life Cycle	Dispersal Migration	Reproduction	Mating Behavior	Breeding Period	Habitat Requirement
Smith's blue butterfly (*Euphilotes enoptes smithi*)	1-year life span, egg laying, five larval instars and adult stage are associated with peak blooming period of coastal and seacliff buckwheat, pupal stage is dormant stage during nonflowering periods	Limited flight dispersal; migration unknown	Emergence from pupae and mating associated with peak flowering period of coastal buckwheat species	Mate location, copulation, and oviposition occur on flowerheads of buckwheat species	Breeding occurs June-September tied to peak flowering periods of coast and seacliff buckwheat	Coastal sand dunes and ravines associated with coast and seacliff buckwheat, completely dependent on buckwheat during all lifestages
Western snowy plover (Coastal populations) (*Charadrius alexandrinus nivosus*)	Young are precocial, fledge in 27-47 days	Migrate north and south, from Washington to Baja California	Nest on sandy, open ground; both adults incubate eggs; multiple clutches per year; 2-6 eggs per clutch	Colonial nesting; monogamous by clutch	Breeding and nesting occurs mid-March through mid-September	Flat sandy beach above the high tide level; highly sensitive to human disturbance; may abandon nests if disturbed
California linderiella (*Linderiella occidentalis*)	1-year life cycle; egg stage is dormant in soil during dry season; larvae and adult develop during winter rains	Possible dispersal of eggs borne in mud adhered to feet of animals; wind may also disperse eggs during dry season	Breed in winter when pools and ponds are full; lay eggs as ponds dry in spring	Male grasps female with specially elongated antennae	Adult linderiella observed from mid-October to May	Vernal pools, ponds, and swales
California black-legless lizard (*Anniella pulchra nigra*)	Young born live, adults and young remain near soil surface in spring; burrow to unknown depths during rest of year	Presume all habitat requirements are found in activity areas; no migration patterns known, regional dispersal highly restricted, may disperse short distances between suitable habitat areas	1-4 born live	Unknown	Unknown	Various plant communities where loose sandy soils and abundant invertebrate populations are available
Monterey ornate shrew (*Sorex ornatus salarius*)	Most do not live beyond 1 year	No dispersal patterns known, probably highly restricted; no migration patterns known	Up to 6 born in a litter, multiple litters produced per year	Unknown	Believed to be February to October	Found in a variety of riparian, woodland, and upland communities where there is thick duff or downed logs
California red-legged frog (*Rana aurora draytoni*)	Egg and tadpole stages aquatic; adult amphibians	Travel overland during rains	Female lays egg masses; after fertilization, eggs are left unprotected	Copulate in breeding ponds	Eggs laid from December to early April	Cold water ponds or river pools with emergent and submergent vegetation with riparian vegetation along the edges
California tiger salamander (*Ambystoma tigrinum californiense*)	Eggs and larval stages occur in temporary pools; adults are subterranean, except during breeding	Travels overland; may migrate up to 1 mile from burrow to breeding ponds	Females lay numerous clutches of eggs in temporary pools and ponds on submerged and emergent vegetation	Unknown	Breeding occurs from December to February, mainly in vernal pools	Open woodlands and grasslands; requires water to breed and uses burrows or cracks in soil at upland sites up to 1 mile from breeding ponds during summer

Table 2-2. Ecological Characteristics of HMP Plants

Sensitive Plant Species	Life Cycle/Habit	Seed or Fruit Dispersal Mechanism	Regeneration Mechanism	Pollination Biology	Response to Disturbance	Habitat Requirements
Sand gilia (*Gilia tenuiflora* ssp. *arenaria*)	Annual herb; flowers in spring	Small seeds dropped or shaken by wind from capsule; may disperse with blowing sand	Annual seed production; seed bank in soil	Insect pollinated; bee flies may be important	Colonizes open sand	Coastal sand dunes below 30 meters elevation; fog belt area;some inland areas, such as the former Fritzsche Army Airfield area at former Fort Ord; Monterey Bay; needs open, sandy sites for establishment; Baywood sands and coastal dunes
Monterey spineflower (*Chorizanthe pungens* var. *pungens*)	Annual herb; flowers in summer	Small seeds dropped or shaken by wind from capsule; spiny fruits may be carried by fur-bearing animals or may disperse with blowing sand	Annual seed production; seed bank in soil	Insect pollinated; self-pollination likely common	Colonizes open sand; invades roadsides and firebreaks	Coastal strand, coastal scrub, maritime chaparral, and disturbed sites in grassland; below 450 meters elevation; fog belt area; sandy soils (Baywood sands, Oceano, Arnold, coastal dunes)
Robust spineflower (*Chorizanthe robusta* var. *robusta*)	Annual herb; flowers in summer	Small seeds dropped or shaken by wind from capsule; spiny fruits may be carried by fur-bearing animals or may disperse with blowing sand	Annual seed production; seed bank in soil	Insect pollinated; self-pollination likely common	Colonizes open sand	Coastal strand, coastal scrub areas below 300 meters elevation
Seaside bird's-beak (*Cordylanthus rigidus* var. *littoralis*)	Annual herb; flowers in summer; hemiparasitic	Small seeds dropped or shaken by wind from capsule	Annual seed production; seed bank in soil; must attach roots to host plant	Insect pollinated	Does not tolerate disturbance	Coastal dunes, coastal scrub, and maritime chaparral, below 200 meters elevation; must have host plant in vicinity
Toro manzanita (*Arctostaphylos montereyensis*)	Shrub, flowers in late winter-early spring	Fruits with large seeds eaten and dispersed by mammals and birds	Annual seeds produced; need fire to crack seed coat	Insect pollinated; bees, flies, moths	Seedlings colonize areas after fire and open eroded sandstone	Chaparral in sandy soils below 350 meters elevation, especially on Aromas formation sandstone

Table 2-2. Continued.

Sensitive Plant Species	Life Cycle/Habit	Seed or Fruit Dispersal Mechanism	Regeneration Mechanism	Pollination Biology	Response to Disturbance	Habitat Requirements
Sandmat manzanita (*Arctostapohylo s pumila*)	Shrub, mat and mound forming; flowers in late winter-early spring	Fruits with large seeds eaten and dispersed by mammals and birds	Annual seeds produced; need fire to crack seed coat	Insect pollinated; bees, flies, moths	Seedlings colonize areas after fire	Sandy soils, hills, chaparral, woodland, coniferous forest below 200 meters elevation
Hooker's manzanita (*Arctostaphylos hookeri* ssp. *hookeri*)	Shrub, mat and mound forming; flowers in late winter-early spring	Fruits with large seeds eaten and dispersed by mammals and birds	Annual seeds produced; need fire to crack seed coat	Insect pollinated; bees, flies, moths	Seedlings colonize areas after fire	Sandy soils, sandy shales, sandstone outcrops, chaparral, below 300 meters elevation
Monterey ceanothus (*Ceanothus rigidus* = *C. cuneatus* var. *ridigus*)	Shrub, flowers in early spring	Seeds ejected mechanically from capsule as fruit drys in summer sun	Annual seeds produced; need fire to crack seed coat	Insect pollinated	Seedlings colonize areas after fire	Sandy hills, flats, chaparral, close-cone-pine forests below 200 meters elevation
Eastwood's ericameria or golden bush (*Ericameria fasciculata*)	Shrub, flowers in late spring-early summer	Seeds dispersed by wind	Annual seed production; seed bank in soil	Insect pollinated; beetles, butterflies, bees, flies, etc.	Likely colonizes after fire	Dunes, coastal chaparral, closed-cone-pine forest below 100 meters elevation
Coast wallflower (*Erysimum ammophilum*)	Annual or biennial herb; flowers in spring	Seeds dropped or shaken by wind from fruit	Annual seed production; seed bank in soil	Insect pollinated; likely bees and butterflies	Colonizes open (stabilized) sand	Coastal dunes below 50 meters elevation
Yadon's piperia (*Piperia yadoni*)	Perennial herb from corm; flowers in spring	Tiny seeds dropped from capsule	Annual seed production; seed bank in soil	Insect pollinated	Resprouts from roots after fire	Generally sandy soil or sandstone, coastal shrubland, Monterey pine forest and maritime chaparral, below 150 meters elevation

Windblown sand in the sand hill and water erosion in the Aromas formation create open substrate where herbaceous species and a high diversity of shrubs make up the vegetative cover. Without disturbance in sand hill maritime chaparral, shaggy-barked manzanita and chamise tend to dominate the shrub cover and form a closed canopy that excludes herbaceous species. Without disturbance in Aromas formation maritime chaparral, chamise or Toro manzanita tend to form nearly monotypic stands and a closed canopy that excludes herbaceous species. After a fire, shaggy-barked manzanita and chamise resprout from their base while other shrubs and herbs recolonize from seed. Early successional sites appear to support the highest diversity of shrubs, including the largest number of HMP shrub species. On some sites, coast live oak may form a canopy over maritime chaparral if the site has not burned in a long time.

Healthy maritime chaparral occurs as a patchwork of stands that have burned at different times and that support vegetation of various ages and structures. This habitat mosaic allows for high species and habitat diversity and provides sources of propagules for dispersal between patches.

Successful conservation of maritime chaparral is dependent on proper management of the habitat by using fire as a management tool and allowing or encouraging some forms of substrate disturbance. The goal of management is to achieve high species and habitat diversity through a program of controlled burning that creates and maintains a mosaic pattern of maritime chaparral of various aged stands. However, sand gilia, Monterey spineflower, and coast wallflower may be dependent on open habitat created by blowing sand rather than by fire. Destabilized sand from firebreaks and roads in maritime chaparral apparently creates habitat for these species. Promoting a dynamic system of moving sand by selective vegetation removal may encourage the formation of habitat for the above-mentioned HMP species.

Coastal Dunes

Coastal strand and dune scrub habitats of the coastal dunes are dynamic plant communities that respond to a moving sand substrate and changing dune configuration. Blowing sand undermines and buries plants, but most dune plants are adapted to shallow burial and blasting by sand. Large areas of destabilized sand, called "blowouts," result in large-scale removal of vegetation and change in dune structure. As plants reinvade the bare sand they stabilize the dune. Dune structure creates a variety of habitats. The foredune is more exposed to wind and salt spray than the rear dune. Dune crests are subject to high winds and substrate removal, while interdune valleys are protected from wind, have higher soil moisture, and experience sand deposition. North-facing dune slopes are usually moister and cooler than south-facing dune slopes.

The highest diversity of dune habitat and species is best maintained in dunes with conditions ranging from active to stabilized and a variety of topography with foredunes and rear dunes, dune crests, interdune valleys, and north- and south-facing slopes.

Native plants likely to be found in healthy coastal strand habitat on Monterey Bay include coastal sand verbena, pink sand verbena, beach sagewort, beach bursage, beach evening primrose, beach morning-glory, live-forever, woolly paintbrush, coastal paintbrush, sea rocket, Douglas' bluegrass, mock heather, sea thrift, wild buckwheat, seacliff buckwheat, and cudweed aster. Healthy dune scrub at former Fort Ord is dominated by mock heather, bush lupine, Chamisso bush lupine, poison-oak, coyote bush, bracken fern, and deer weed.

HMP species occurring in coastal strand and dune scrub are Smith's blue butterfly, sand gilia, Monterey spineflower, robust spineflower, black legless lizard, and coast wallflower. Yadon's piperia may occur in these habitats.

ECOLOGICAL CONCEPTS FOR CONSERVATION AREA AND CORRIDOR SYSTEM DESIGN

Habitat loss and resultant habitat fragmentation are considered the primary causes of the loss of biodiversity in many regions (Norton 1988, Noss 1991). Conservation of many species of plants and animals is now dependent on proper management of the remaining fragmented habitat patches or habitat islands. Management of these fragmented habitats must consider several factors, including the size and shape of the patch, location of the patch in relation to other patches, species present, and the connectivity of the patch to adjacent patches (Doak et al. 1992, Pulliam and Danielsen 1991). The following sections describe ecological concepts used to design conservation area and corridor systems.

Conservation Area Size

Isolated habitat patches will generally contain fewer species than will large, continuous tracts of the same habitat. Additionally, the populations present in habitat patches are more vulnerable to extinction than populations present in continuous tracts: vulnerability to extinction is area dependent (Terbough and Winter 1980, Soulé 1987). Small populations are highly susceptible to random changes in their environment and in their recruitment rates. Small, isolated populations are also vulnerable to inbreeding and to "genetic drift", the random loss of genetic diversity (Gilpin and Soulé 1986). For long-term conservation, minimal viable population sizes must be maintained to provide for sufficient genetic diversity to overcome genetic drift and allow the species to continue naturally to evolve and adapt.

The effective area of a habitat patch is smaller than the total area of the patch for many species (Soulé 1987). The edges of habitat patches are vulnerable to invasion by new species of plants and animals and to changes in biotic structure or composition due to edge effects such as windthrow or desiccation. Many species of plants and animals are considered "interior species" because of their susceptibility to edge effects (Jensen et al. 1990).

Small, isolated habitats do not allow the populations contained within them to escape changing environmental conditions. Seasonal fluctuations in the environment, such as changes in temperature, water regime, or vegetation, may require seasonal changes in the distribution of a population over a region. Catastrophic natural or humanmade disturbances may require major spatial shifts by populations or individuals for survival. The inability to escape temporally occurring events will result in high extinction rates for the populations confined to small habitat patches.

Natural communities are a complex of small populations that vary in structure or composition. This variability provides stability in the face of environmental stochasticity (random events) or catastrophes (Jensen et al. 1990). Small habitat patches cannot maintain the natural variability inherent in larger systems, nor can they maintain adequate amounts of microhabitats to provide for long-term viability for species or populations dependent on specific microhabitats.

Conservation Area Shape

The shape of a habitat patch influences the effective size of the habitat. A long, thin strip of habitat is smaller in effective size than a more geometric-shaped habitat because of the high edge-to-interior ratio in long, thin shapes. As mentioned above, the habitat at the edge of a patch is often substantially different in structure and composition than that found in the interior. This edge habitat is unsuitable for many species of plants and animals that may require interior habitats. Edge habitat is vulnerable to environmental effects from wind pruning, desiccation, invasions by weed and pest species, and disturbances associated with human

activities. The type and intensity of effects from human activity on habitat and species depend on the kind of activity or development that occurs adjacent to conserved habitat. Increased susceptibility to invasions by disease, competitors, and predators also occurs in habitat patches that have a high edge-to-interior ratio. The theoretical optimal shape for a preserve would be circular, thus having minimal edge habitat (Temple 1983, Samson et al. 1991).

Conservation Area Location

The location of a habitat patch is important at several levels. At the landscape level, the location in relation to other habitat patches and populations is critical for the long-term viability of the populations. Because a population at the extreme edge of its species' distribution is as vulnerable to extinction as is a small population (Weaver 1993), a conservation area located in the center of a species' range may have higher potential for maintenance of viable populations. At the population level, the location of a conservation area in an area of high habitat suitability for healthy populations would be advantageous. Preservation of large tracts of marginal habitats may have only minimal benefits for a species. Marginal habitats often do not support viable populations because recruitment rates are below mortality or dispersal rates. Individual species present in marginal or disturbed habitats are more likely to be only temporary residents or to have reduced reproductive success (Doak et al. 1992). However, marginal habitats may be critical to long-term viability of a regional population by providing for corridors of dispersal or areas of temporary residency during catastrophes or times of high-population levels (Leftkovich and Fahrig 1985, Pulliam and Danielsen 1991). Marginal habitats may also function as areas where pressures from natural selection may be more intense or differ from high-quality habitat areas. These increased or varying selection pressures may assist in maintaining the long-term genetic variability of a population and allow for establishment of new traits that contribute to the species' overall genetic variability.

Conservation Area Connectivity

Small populations in habitat patches are highly susceptible to extinction because of environmental and demographic stochasticity. This susceptibility is greatly reduced if the population is not isolated from other populations. Connections or corridors between populations can effectively create a dynamic regional population, often called a metapopulation. The exchange of individuals between populations lessens the effect of natural fluctuations on small populations, allows for recolonization of habitats when local extinction occurs, and maintains genetic diversity. The ability of the metapopulation to function dynamically is related to the proximity of the individual habitat patches and the dispersal capabilities of the species (Pulliam and Danielsen 1991, Doak et al. 1992). If the habitat patches are small and widely dispersed, the rate of successful immigration will probably be low. More individuals will be lost or will settle in the unsuitable habitats surrounding each patch, and will not be available or productive members of the metapopulation.

The loss of individuals to unsuccessful dispersal is lessened when habitats patches are connected by corridors of suitable habitat. Corridors are not necessarily optimal habitats, but do provide the dispersing individuals with minimal life requirements. Corridor habitats also may play a critical role in population viability during catastrophes by providing escape routes, as well as temporary refuge habitat (Pulliam and Danielsen 1991).

Different species have different dispersal capabilities and habitat requirements. Generally, a species' survival rate will be higher if the species disperses through habitats similar to its preferred habitat. Species differ in their habitat requirements and flexibility, and a corridor for one species will be a barrier to dispersal to another (i.e., a forest species may not be able to cross grassland successfully). To optimize survival, a conservation area should have a network of adjacent corridor habitats of various types within which many species could disperse. To connect habitat patches, a single corridor may have to provide the only route of

movement for the populations. Corridors of poor-quality habitats may result in high-dispersal mortality rates and reduced effectiveness of the regional dynamics to stabilize the metapopulation.

Management Considerations for Conservation Areas and Corridors

Active management practices are often required to maintain the ecological integrity of habitats within conservation areas and corridors. Controlled burns in chaparral and scrub may be necessary to provide a mosaic of successional stages and maintain high species diversity. Active management may also entail limiting public access or controlling various uses in the conservation area to prevent habitat degradation.

Management requirements may be constrained or aggravated by land uses adjacent to a conservation area. Urban or residential uses close to conservation areas or corridors may limit fire management capabilities; result in the need for added law enforcement to prevent unauthorized use; and require control of introduced species, pets, and pest species tolerant of human disturbance.

To minimize potential conflicts between adjacent land use and management activities within conservation areas and corridors, conservation areas should be established where adjacent land uses are compatible with management actions necessary within the conservation area. Also, management requirements within a conservation area should be considered before development is planned near the conservation area.

Potential conflicts between management and adjacent land uses may also be minimized by limiting the edge-to-interior ratio of the conservation area and reducing the amount of edge in contact with incompatible land uses.

METHODS USED TO DEVELOP A MINIMUM CONSERVATION AREA AND CORRIDOR SYSTEM

The distributions of several HMP resources were analyzed to develop a minimum conservation area and corridor system. This system was used as a stepping stone toward development of the final conservation area and corridor system described in Chapter 4. Existing and potential land uses, opportunities for habitat restoration, and habitat enhancement were not factored into this preliminary analysis.

The analysis of HMP species distributions resulted in selection of four conservation areas and three corridors. The four conservation areas were created by combining the distributions of the following resources:

- sites supporting high or medium densities of known populations of sand gilia and Monterey spineflower,
- sites supporting high- and medium-quality habitat (as defined by the density of buckwheat) or known occurrences of Smith's blue butterfly,
- sites supporting potential or known coastal nesting habitat for western snowy plover, and
- study polygons supporting the highest richness of HMP species (seven or more species or suitable habitat occurrences).

The analysis was based on data included in the Flora and Fauna Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992a).

Habitat Management Plan Species Richness Study

The distribution and abundance of botanical resources at former Fort Ord were initially identified in 1992 through surveys of a series of irregularly shaped and sized polygons (survey polygons) of uniform habitat (U.S. Army Corps of Engineers, Sacramento District 1992a). To conduct an appropriate analysis of richness patterns of HMP species at former Fort Ord, land units of similar size had to be used. Because the size of the survey polygons varied greatly, these smaller survey polygons were aggregated into larger land units (richness study polygons) with a smaller variance in size. Richness study polygons were created to contain approximately 300-400 acres and to incorporate blocks of similar habitats where possible. The total number of HMP species that occurred in each study polygon was then calculated. Of 18 HMP species, the number in any polygon ranged from one to nine.

Mapping the Minimum Conservation Area

A map was produced of high- and medium-density habitat for Smith's blue butterfly, high- and medium-density occurrences of sand gilia and Monterey spineflower, known and potential nesting habitat for Western snowy plover and richness study polygons that support seven or more HMP species (Figures 2-1 and 2-2). The California red-legged frog was not included in the map because it has not been observed at former Fort Ord. (However, the potential habitat was considered and included in designation of habitat reserve areas. See the "Impacts on Listed and Proposed HMP Species" section of Chapter 4.) The selection of a threshold of seven species was arbitrary. Mapping the resources in this manner resulted in identification of four discrete areas of former Fort Ord that would protect the most HMP species with the least amount of habitat (Figure 2-3). The conceptual conservation areas (Figure 2-3) were used with information from reuse plans to determine habitat reserve and corridor areas that meet the overall goals of this HMP. The reserve and corridor areas are shown on Figure 4-1. These areas were then connected with potential habitat corridors to ensure that genetic migration could be maintained between the conservation areas (Figure 2-3). The conservation areas and corridors are described below.

DESCRIPTIONS OF MINIMUM CONSERVATION AREAS AND CORRIDORS

Inter-Garrison - Former Fritzsche Field Conservation Area

The Inter-Garrison - Former Fritzsche Field conservation area is a roughly triangular area approximately bounded by Inter-Garrison Road on the south, Highway 1 and the City of Marina on the west, and former Fritzsche Army Airfield and Reservation Road on the north (Figure 2-3). Dominant habitats are coast live oak woodland, coastal scrub, maritime chaparral, and annual grassland. Housing and other developments also exist in the conservation area. The area provides important habitats for the black legless lizard, sand gilia, and Monterey spineflower. The highest densities of sand gilia at former Fort Ord exist in this conservation area. Areas of high species richness occur along Inter-Garrison Road and Reservation Road and between former Fritzsche Army Airfield and the City of Marina.

Figure 2-1

High- and Medium-Density Occurrences of Federally Listed HMP Species

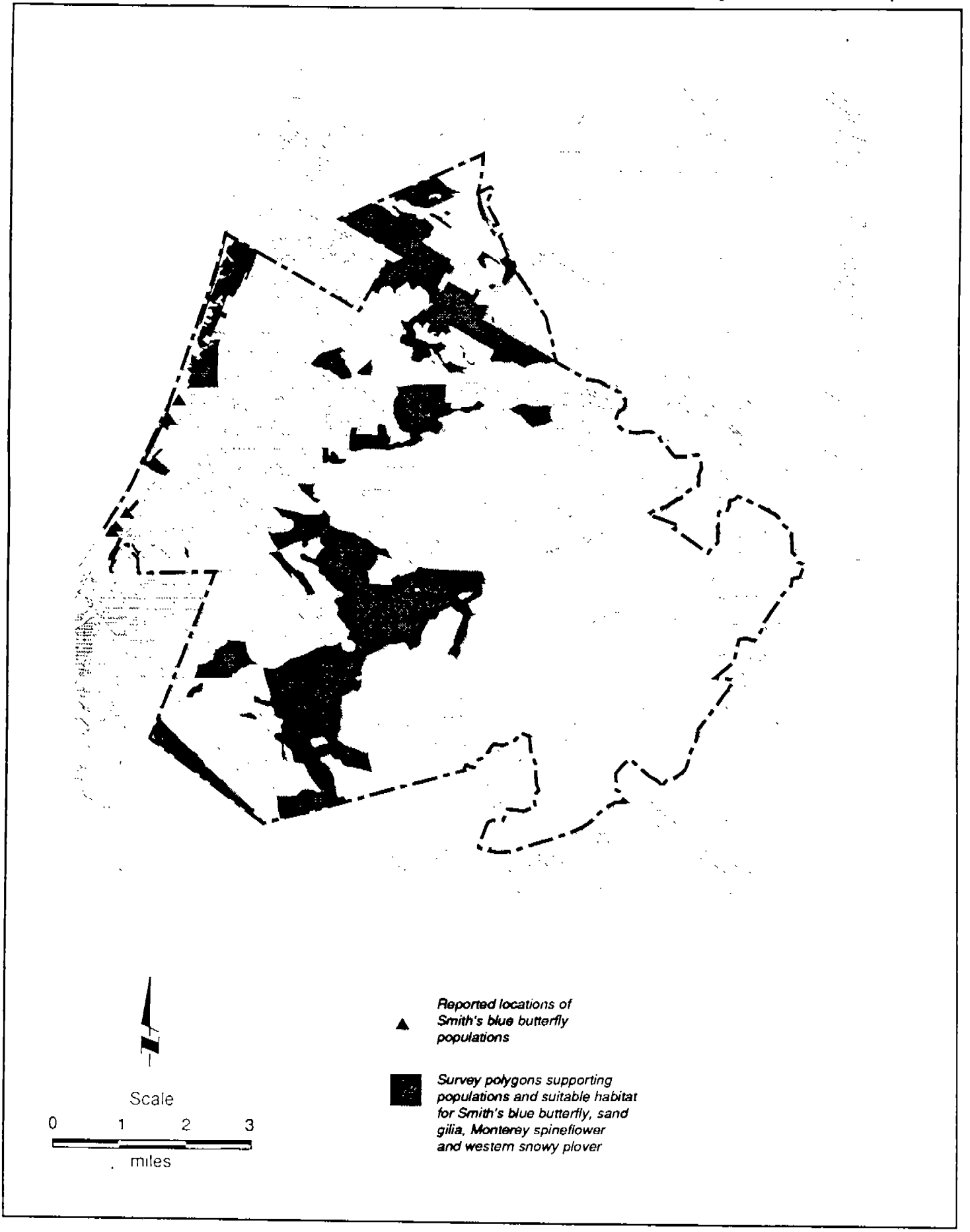


Figure 2-2
HMP Species High Richness Sites

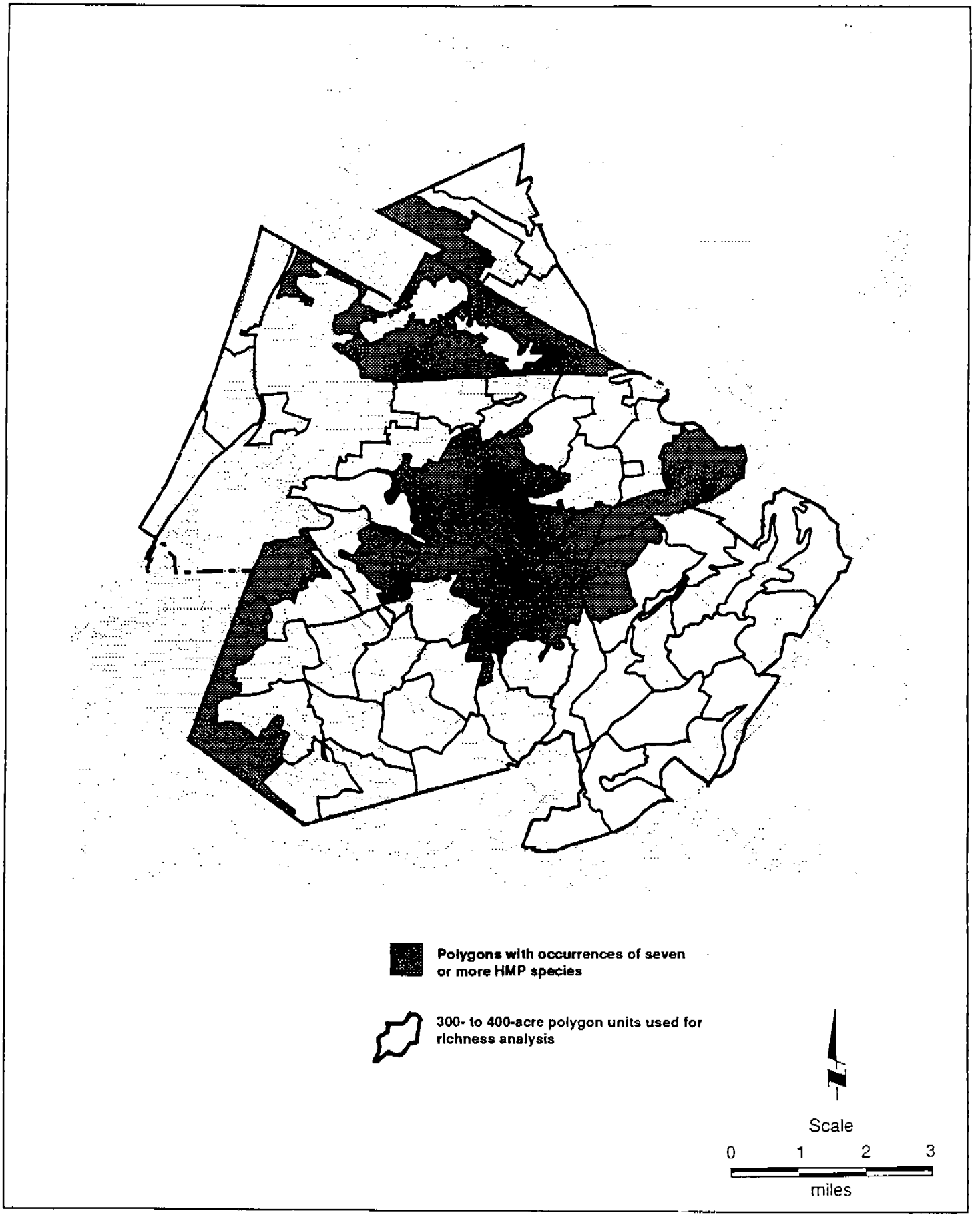
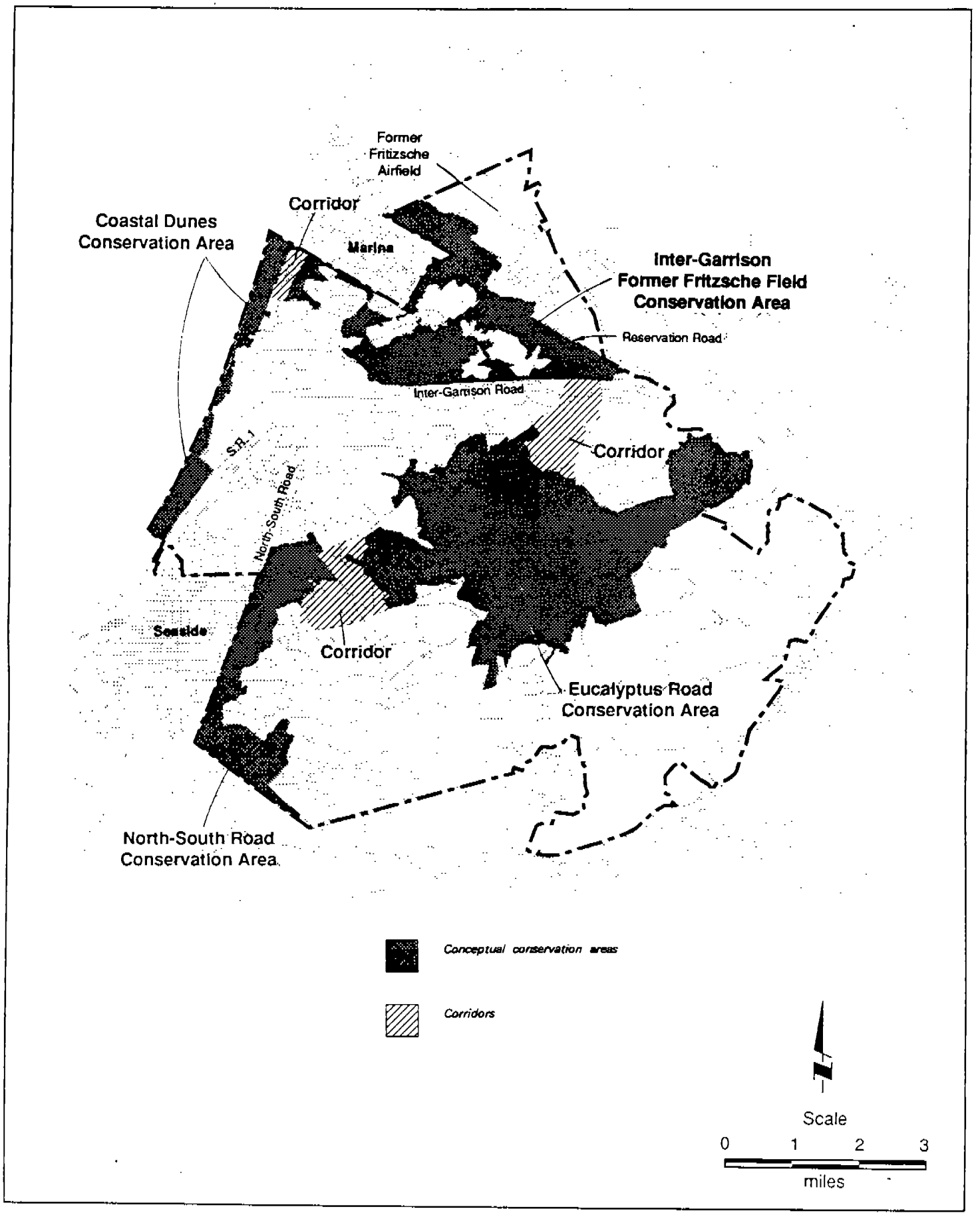


Figure 2-3
Conceptual Conservation Areas and Corridors



Coastal Dunes Conservation Area

The Coastal Dunes conservation area occupies the western half of the dunes west of Highway 1 (Figure 2-3). The Coastal Dunes conservation area provides important habitat for Smith's blue butterfly, western snowy plover, black legless lizard, Monterey spineflower, and several small populations of sand gilia.

Eucalyptus Road Conservation Area

The Eucalyptus Road conservation area is a large conservation area located in the central portion of the installation surrounding Eucalyptus Road (Figure 2-3). Dominant habitats are maritime chaparral and coast live oak woodlands and savannas, with inclusions of grasslands. The area generally supports listed and proposed species at low densities, but supports a high richness of HMP species, particularly plants that characterize the sand hill and Aromas maritime chaparral subtypes. Vernal pools providing habitat for California linderiella and California tiger salamander are also present in the conservation area.

North-South Road Conservation Area

The North-South Road conservation area is located along the east side of North-South Road south of the Presidio of Monterey Annex (Figure 2-3). The dominant habitat is maritime chaparral, which supports sand gilia and Monterey spineflower at low densities and a high richness of HMP species, particularly plants that characterize the sand hill maritime chaparral subtype.

Corridors

Habitat corridors were developed to provide avenues for wildlife and plant dispersal and genetic interchange among the larger habitat blocks of the conservation areas (Figure 2-3). One corridor would link the North-South Road conservation area with the Eucalyptus Road conservation area and another would link the Eucalyptus Road conservation area with the Inter-Garrison - Former Fritzsche Field conservation area.

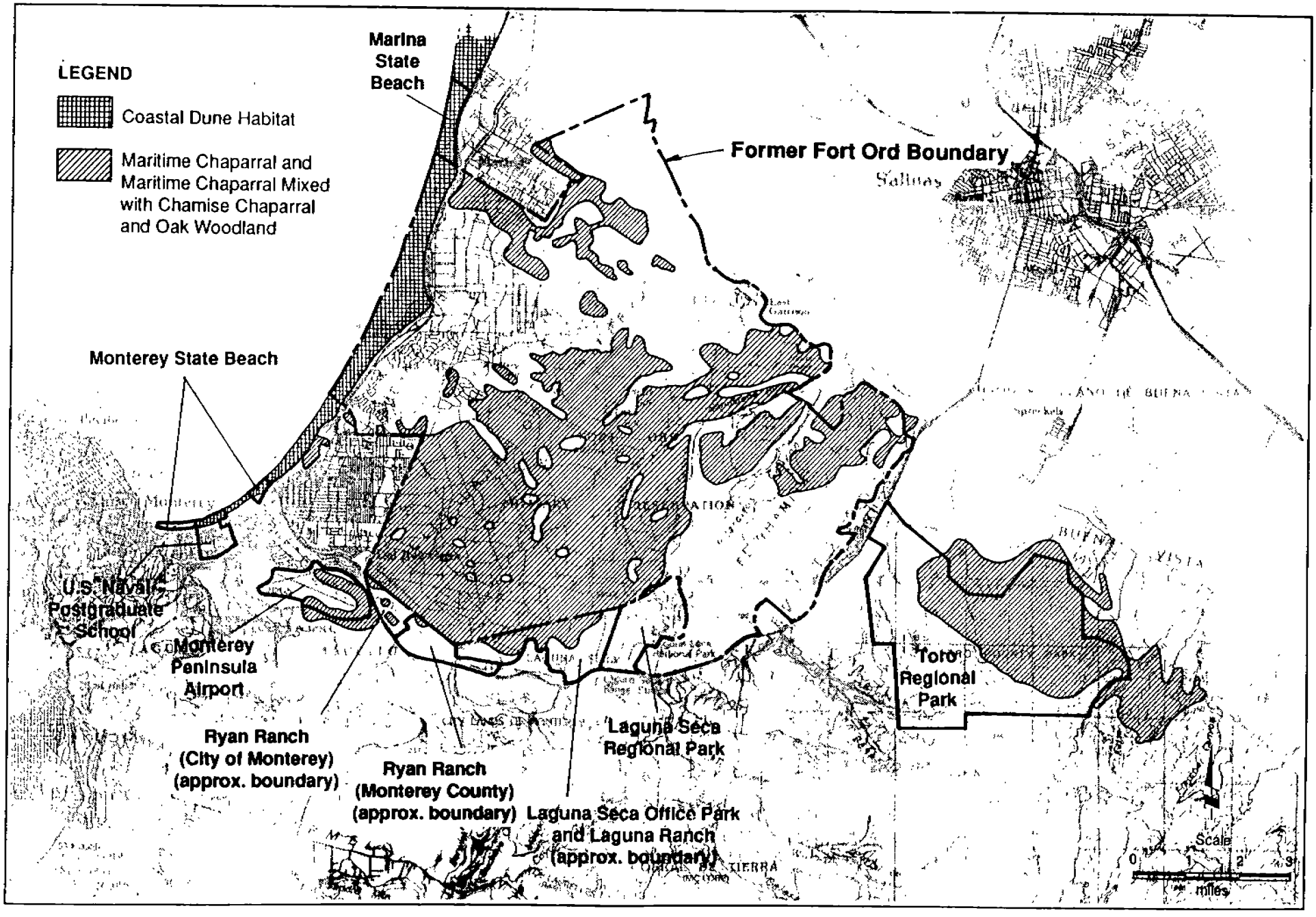
An additional corridor could link plant populations of the Inter-Garrison - Former Fritzsche Field and Coastal Dunes conservation areas. The link would have to be provided by habitat on the roadside and center median of Highway 1. Sand gilia and Monterey spineflower occur on both sides of Highway 1 where this corridor is located.

RELATIONSHIP OF FORMER FORT ORD TO OTHER MARITIME CHAPARRAL AND DUNE HABITATS

Former Fort Ord is mostly surrounded by developed and agricultural land, but protected and unprotected land supporting maritime chaparral and coastal dune habitats and HMP species occurs nearby (Figure 2-4).

Figure 2-4

Maritime Chaparral and Coastal Dune Habitats in the Vicinity of Former Fort Ord



Coastal Dune Habitat

Coastal dune habitat on private and public lands along the coast north and south of former Fort Ord is known to support or have potential to support Smith's blue butterfly, sand gilia, Monterey spineflower, robust spineflower, coast wallflower, black legless lizard, and western snowy plover (Figure 2-4).

Marina State Beach

Marina State Beach is contiguous with the north end of the coastal dunes of former Fort Ord. The coastal strand habitat at Marina State Beach is known to support Smith's blue butterfly, sand gilia, Monterey spineflower, robust spineflower, coast wallflower, and black legless lizard. Beaches support western snowy plover nesting habitat.

Sand City, Seaside, and Monterey

Dune habitats in Sand City, Seaside, and Monterey are contiguous with the south end of the coastal dunes at former Fort Ord (Figure 2-4). These dune habitats are heavily disturbed and fragmented by water treatment plants, hotel and residential development, sand mining operations, and roads. However, sand gilia, Monterey spineflower, and black legless lizard are known to occur in specific locations in this area, and various dune restoration efforts have been undertaken.

Monterey State Beach

Monterey State Beach is divided into two parcels within the City of Monterey (Figure 2-4). The north parcel supports degraded dune habitat. The south parcel supports a narrow strip of beach with only a small amount of degraded coastal strand habitat between the beach and developed sites. Dune restoration efforts have been undertaken at portions of Monterey State Beach.

U.S. Naval Postgraduate School

The U.S. Naval Postgraduate School supports coastal dune habitats, including degraded and native coastal strand. These dunes are known to support many sand gilia.

Maritime Chaparral

Maritime chaparral habitat occurs on private and public lands to the east and south of former Fort Ord and is known to support or could potentially support sand gilia, Monterey spineflower, California linderiella, Seaside bird's-beak, Yadon's piperia, black legless lizard, Toro manzanita, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and Hooker's manzanita (Figure 2-4).

Toro Regional Park and Adjacent Private Land

Toro Regional Park supports stands of Aromas formation maritime chaparral disjunct from that on former Fort Ord. The park is known to support Toro manzanita, Monterey ceanothus, and Eastwood's ericameria. Urban development, State Route (SR) 68, oak woodland, and grassland separate the maritime chaparral at Toro Regional Park from that at former Fort Ord.

Monterey Peninsula Airport and Adjacent Private Land

Southwest of former Fort Ord, Monterey Peninsula Airport and adjacent private property support maritime chaparral. These sites are known to support Seaside bird's-beak, Toro manzanita, sandmat manzanita, and Eastwood's ericameria. The maritime chaparral at the airport is separated from former Fort Ord by SR 68 and a narrow strip of oak woodland.

Ryan Ranch

Ryan Ranch (a portion of which is within the City of Monterey and a portion is in county lands) borders former Fort Ord on the south and supports small patches of maritime chaparral. Some of these maritime chaparral patches are contiguous with former Fort Ord maritime chaparral and others are separated by areas of grassland. Maritime chaparral at the west end of the city portion of Ryan Ranch forms a partial corridor between former Fort Ord and the Monterey Peninsula Airport. Development already exists on both Ryan Ranch properties and additional development is proposed for these sites.

Laguna Seca Park

Small patches of maritime chaparral occur at the north edge of Laguna Seca Park contiguous with the maritime chaparral at the southwest corner of former Fort Ord.

Laguna Seca Office Park and Laguna Ranch

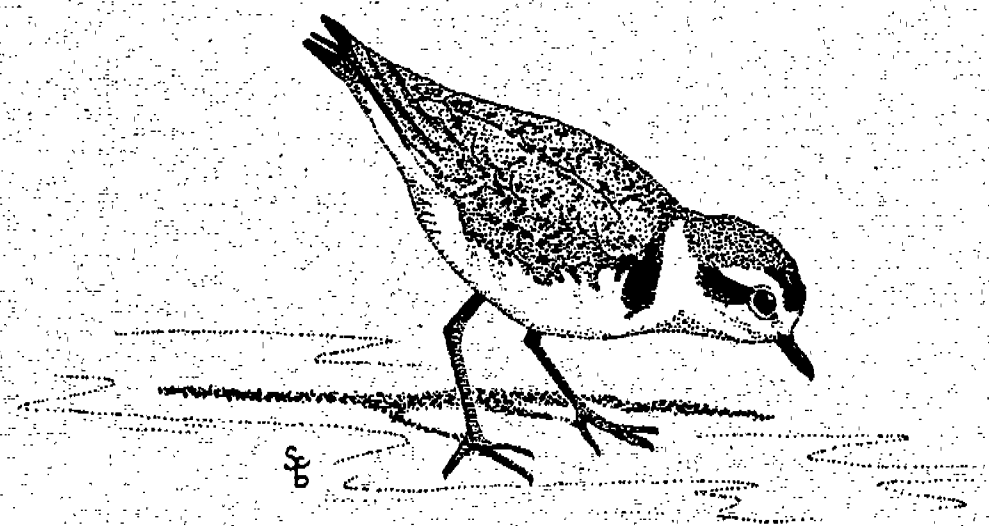
Laguna Seca Office Park and Laguna Ranch support large areas of maritime chaparral contiguous with the south boundary of former Fort Ord. This site likely supports sandmat manzanita, Monterey ceanothus, and Hooker's manzanita, based on occurrences of these species abutting the former Fort Ord side of the boundary. Low-density residential development occurs within the maritime chaparral habitat at Laguna Ranch.

Sand City

Approximately 60 acres of sand hill maritime chaparral occurs in Sand City between Highway 1 and Del Monte Boulevard. This site supports transitional habitat between sand hill maritime chaparral on Baywood sands and coastal strand habitat on coastal dunes. Large populations of sand gilia are known to occur at this site.

Chapter 3.

Habitat Management for Predisposal Actions



Western Snowy Plover

Chapter 3. Habitat Management for Predisposal Actions

Predisposal actions include placing former Fort Ord into a caretaker status, remediating contaminated sites, conducting ordnance and explosives removal, and supporting interim uses. As the 7th Infantry Division (Light) (IDL) realigned from Fort Ord, the U.S. Army (Army) placed structures, utilities, and operation and maintenance systems into a caretaker status until property disposal decisions are implemented. Caretaker status is defined by Army regulation as "the minimum required staffing to maintain an installation in a state of repair that maintains safety, security, and health standards".

Cleanup of contaminated sites is required in preparing lands for disposal and proposed future uses. The entire former Fort Ord installation is listed on the National Priorities List as a Superfund site. A federal facilities agreement, negotiated under Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), requires the Army to perform the Superfund cleanup process described in the Other Physical Attributes Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992c). Cleanup activities that have potential to affect biological resources include excavation of contaminated soils, landfill remediation, removal of lead and other heavy metals, and ordnance and explosives removal. Impacts resulting from each of these actions are discussed separately in this chapter.

Habitat Management Plan (HMP) guidelines for the cleanup of contaminated sites have been developed based on the best available information. Mitigation for cleanup activities may be modified in the future based on findings and conclusions in the Fort Ord Basewide Record of Decision for the Remedial Investigation/Feasibility Study, which is currently in preparation. Other mitigation measures may be considered based on site-specific information, results of human health and ecological risk assessments, and the development and screening of remedial alternatives. Any modifications to this HMP based on new information must be reviewed and approved by U.S. Fish and Wildlife Service (USFWS).

Interim uses, before disposal, could affect HMP species and habitats. Interim use is the use of real property through real estate documentation, such as leases, licenses, and permits, before disposal of federal land is accomplished. Interim uses could include leasing of office space, storage space, housing, and other developed facilities; training facilities; or other facilities to non-Army entities. Some public access and recreational use may also be permitted on limited areas of the former Fort Ord dunes and beach before disposal of property west of Highway 1. Use permits are also possible for scientific and cultural uses. Interim uses on currently developed lands will have no impact on biological resources. Impacts resulting from interim uses on undeveloped land are addressed in this chapter.

CONTAMINATED SOILS TREATMENT

Impacts

The majority of cleanup and remediation of contaminated soils will take place in developed areas of the Main Garrison that do not have HMP requirements.

Limited removal of contaminated soils will take place in the inland range area in locations that support natural habitats. Contaminated soils in these areas will be excavated and likely used as engineering fill under the landfill cap (described in the next section). Vegetation will be removed during soil excavation. However,

the impact will be temporary because excavated soils will be replaced with clean fill or contoured into the landscape and disturbed areas either will be allowed to revegetate naturally or will be actively restored. Each area will be retained and managed as part of the U.S. Bureau of Land Management (BLM) Natural Resource Management Area.

HMP species associated with maritime chaparral could potentially be affected by contaminated soils removal in the inland range. Species potentially affected include sand gilia, Monterey spineflower, Seaside bird's-beak, Toro manzanita, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, and Hooker's manzanita. If these soil remediation sites are within maritime chaparral habitat in areas with baywood sands or oceano soils , black legless lizards may also be affected (see Figure B-16 in Appendix B).

Mitigation

Specific impacts and mitigation for disturbance of natural habitats in the inland range area during contaminated soil removal will be identified on a case-by-case basis. During the remedial design phase of the contaminated soil removal process, impacts will be identified based on anticipated levels and types of disturbance required to treat each area, and mitigation will be incorporated into the project design to minimize disturbance to natural resources. Areas will be allowed to naturally revegetate or will be actively revegetated using methods and level of effort appropriate to each situation.

Similar mitigation, monitoring, and reporting requirements as described in the following "Unexploded Ordnance Removal" section of Chapter 3 will also be implemented as applicable at contaminated soil removal sites in the inland range area.

LANDFILL REMEDIATION

Impacts

Two landfill areas (one just north of Imjin Road and one just south of the road) are proposed for remediation. The landfill on the south side of Imjin Road will be capped. The landfill on the north side of the road will be excavated and consolidated on the fill areas on the south side of Imjin Road.

Capping the landfill on the south side of Imjin Road will result in the loss of populations of Monterey spineflower and sand gilia. The landfill north of Imjin Road encompasses approximately 30 acres and does not support Monterey spineflower or sand gilia; the landfill south of Imjin Road occupies approximately 120 acres and contains low-density populations of Monterey spineflower and small sand gilia populations (Figure 3-1).

Placement of groundwater treatment facilities in the landfill area has already been completed and groundwater remediation has begun. Groundwater remediation activities were conducted outside designated habitat areas and no sand gilia or Monterey spineflower were affected.

Capping the landfills will involve stripping existing vegetation from the landfill surfaces. The landfill cells will be consolidated in the area south of Imjin Road. Cover material will be used to bring the grade of the landfill area to the level of the flexible membrane liner (FML). Soils from the dunes collected during the lead removal process (after large lead particles are sifted out) may be used for portions of the fill material under the FML. Approximately 2 feet of soil will be placed over the FML to achieve the final grade and surface to be achieved by the remedial action. Stripping of vegetation from the landfill surfaces will remove individuals of Monterey spineflower and sand gilia. However, seed has been salvaged from plants to be affected. The

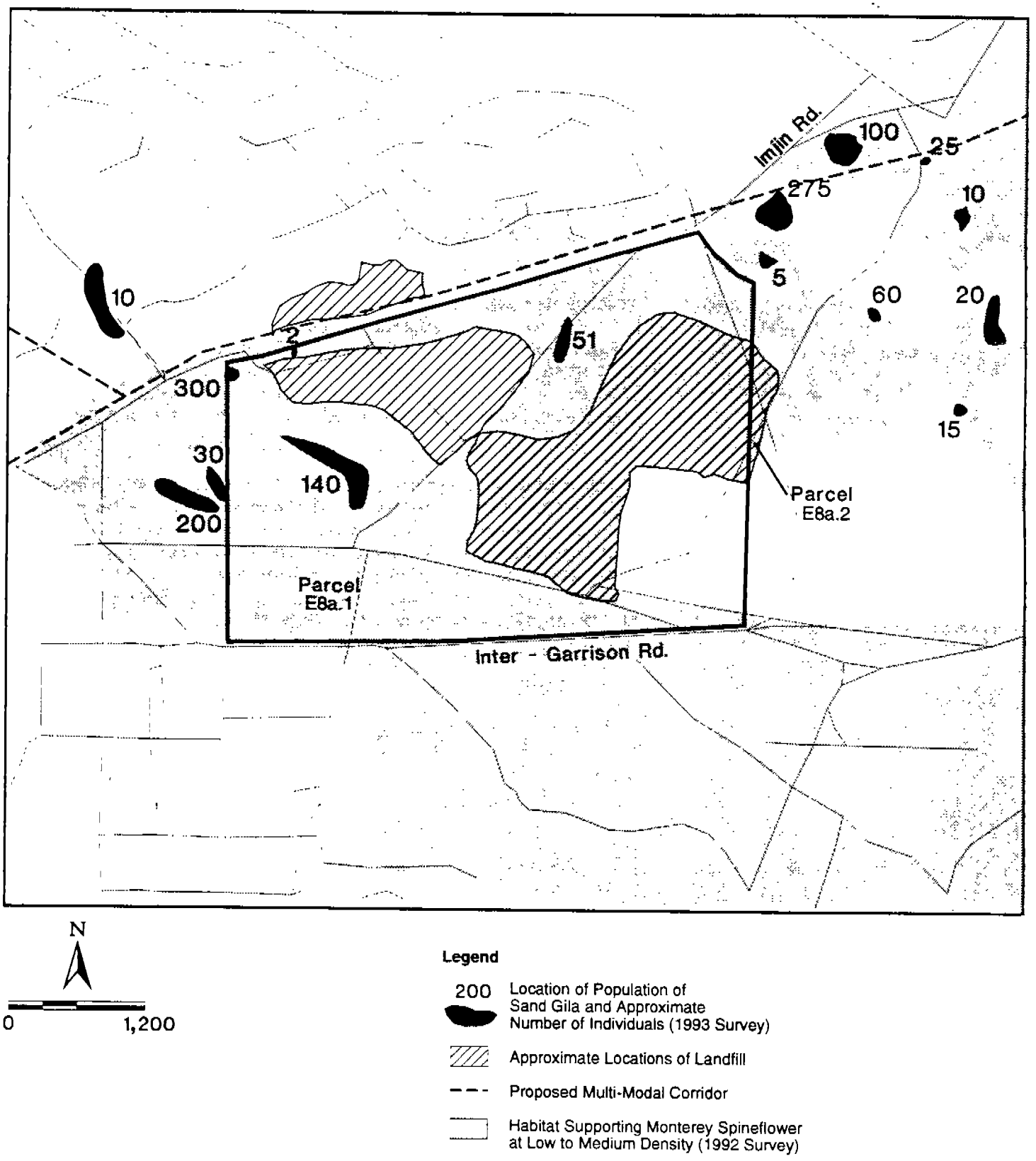


Figure 3-1
Locations of Sand Gilia and Monterey Spineflower Populations in and Adjacent to Parcels E8.1 and E8.2

seed will be available to future land recipients if desired for restoration activities. Vehicle traffic bringing fill to the site could eliminate some Monterey spineflower habitat and individual plants at sites adjacent to the landfill.

The Army will use appropriate construction management practices to limit construction disturbance to designated work areas. Construction access routes and haul roads within natural habitat areas will be selected to avoid large areas of habitat and will be marked to confine construction traffic to the designated areas.

Mitigation

According to the agreement between the Army, USFWS, BLM, University of California (UC), and Fort Ord Reuse Authority (FORA) included in Appendix A, the Army is not required to perform any mitigation for impacts on biological resources associated with remediation of the landfill. The requirement for the landfill parcel to be included as an HMP habitat management area is not an Army responsibility . Subject to approval by the UC governing body, UC will accept the landfill parcel and manage habitat. Alternatively, FORA will accept and manage the landfill parcel (see the section titled "Parcels E8a.1 and E8a.2 - Landfill Parcel" in Chapter 4).

Although the Army is not required to perform mitigation for biological resource impacts associated with capping of the landfill, the following actions have been or will be taken. The Army will exercise appropriate construction management techniques to avoid unnecessary disturbance of habitat during remediation of the landfill. The Army will not be required to restore habitat on the landfill cap nor will the Army be required to restore or monitor threatened and endangered species or perform other habitat management activities in the parcel while the landfill is being remediated or is in caretaker status. The Army has salvaged seed from sand gilia and Monterey spineflower plants affected by remediation activities. The seed will be made available to future land recipients for restoration activities. The Army will avoid using invasive exotic plant species in erosion control seed mixes.

REMOVAL OF LEAD AND OTHER HEAVY METALS

Impacts

Lead will be removed at certain beach firing ranges. Large lead particles will be sifted out of sand at the Corrective Action Management Unit (CAMU). Soils contaminated with metals would likely be excavated and used as engineer fill under the landfill caps, as described earlier. In locations where these remediation measures are conducted, Monterey spineflower, coast wallflower, Smith's blue butterfly, and black legless lizard may be adversely affected through direct mortality and temporary loss of habitat. The expected area of lead removal would not reach areas of western snowy plover habitat along the beach.

Sands contaminated with heavy metals could be disturbed or removed in areas supporting less than 1% of the total occupied habitat of Monterey spineflower at former Fort Ord. The specific number of individuals and amount of habitat affected cannot be determined because the extent of lead removal is unknown. The coastal dune areas of former Fort Ord support approximately 3-4% of the entire known range of Monterey spineflower.

Smith's blue butterfly requires seacliff or coast buckwheat as host plants. Remediation of the beach firing ranges will involve excavation of contaminated soil, resulting in the removal of approximately 20 acres of seacliff and coast buckwheat habitat used by the Smith's blue butterfly (Figure B-19). This area of

disturbance may increase if other areas require cleanup based on ongoing remedial investigations. Removal of host plants could also result in direct mortality to adults, larvae, or pupae depending on the time of year remediation takes place.

Coastal populations of western snowy plover nest on Pacific coast beaches above the high tide line. Western snowy plovers are highly sensitive to human disturbance. Lead removal activity will be concentrated at the dune backstops of the firing ranges occurring at various distances inland from the beach. Lead removal activities are not anticipated in or near snowy plover nesting habitat. If lead removal is required on or near the beaches at former Fort Ord, disturbance from remediation activities could cause nest abandonment and nesting failures for western snowy plovers, resulting in direct mortality.

The black legless lizard occurs in areas of loose, sandy soils supporting native dune, coastal scrub, maritime chaparral, oak woodland, or oak savanna vegetation. Soil excavation associated with lead removal on the dunes could result in mortality and temporary loss of habitat for black legless lizards. The range of the black legless lizard is restricted to the Monterey Bay region. Intergrades between black and silvery legless lizards have been found elsewhere along the California coast from the east side of the San Francisco Bay to San Luis Obispo County, but the status and distribution of these varieties are unresolved.

Because of the limited range of the black legless lizard and the scarcity of suitable habitat in the Monterey Bay region, loss of habitat and individual animals at former Fort Ord may substantially reduce the range of the species and could contribute to state or federal listing as threatened or endangered.

Mitigation

High concentrations of lead near the target areas will be removed to reduce lead exposure to levels that are protective of human health. Based on human health risk assessment, areas with 10% and greater surface cover of spent ammunition were defined as the Soil Remedial Unit for Site 3 Beach Trainfire Ranges.

The remedial action objectives for site 3 are to reduce the risks associated with site-related chemicals and reduce potential adverse health and environmental effects for site-related chemicals by remediation to the health-based level of concern. The areas with 10% and greater surface cover of spent ammunition will be excavated. Approximately 63,000 cubic yards of spent ammunition and soil will be excavated down to a depth of approximately 2 feet below ground surface. Large lead particles will be separated from the soil using screens and gravity-feed separation techniques at the CAMU. The screened soil will be placed in the OU2 landfill.

The 10% and greater areas of spent ammunition compose a relatively small portion (approximately 20 acres) of the overall dunes area and are heavily disturbed from previous use.

The ecological risk assessment results for site 3 are not final. There is a need for additional ecological assessment activities and finalization of the environmental cleanup level. The finalization of the ecological assessment activities and finalization of an environmental cleanup level will result in a determination of whether further remedial actions are needed at site 3 (beyond lead removal at areas with 10% or greater surface cover of spent ammunition as already planned). If additional areas (less than 10% spent ammunition) must be treated to reach a desired environmental cleanup level, the biological resources of these areas will be examined together rather than as separate remediation sites. This will allow lead removal and mitigation to be planned in a manner that will minimize impacts on sensitive plant and wildlife species and increase the effectiveness and efficiency of dune restoration efforts. A comprehensive lead removal and dune restoration program will be developed that will provide guidelines for timing and location of lead removal and methods and priorities for restoration efforts. In addition to HMP species and habitat considerations, the timing and method of lead removal at specific sites will be adjusted based on the level of human health risk associated with each site.

Minimize Disturbance Associated with Lead Removal

Lead removal sites will be limited to the smallest area possible and marked to ensure effective cleaning of the site and limit unnecessary disturbance of habitat. Placement of all access roads, staging areas, and other appurtenant facilities will attempt to avoid areas containing HMP plant and wildlife species and native dune vegetation.

Identify Resources and Restoration Potential before Lead Removal

Once the Army has identified all sites where lead must be removed, these sites will be surveyed for plant and wildlife resources and the restoration potential for each area will be estimated. Typically, areas with 10% or greater surface cover of lead concentrations support poor-quality habitat because of high disturbance and grading activities that have occurred. Although these areas contain poor-quality habitat, they will be surveyed for existing plant resources to provide a baseline for vegetation replacement.

Before lead removal actions are initiated at sites with less than 10% lead concentration, each site will be surveyed for populations of sand gilia, Monterey spineflower, coast wallflower, and black legless lizard and for populations of or suitable habitat (buckwheat populations) for Smith's blue butterfly. Beach areas within or near lead removal sites (although this is not anticipated) will be surveyed for western snowy plover nesting activity. The number of individuals of each of these species will be estimated for each lead removal site by direct counts or by using appropriate field sampling methods (e.g., quadrat or transect methods). These data will be used to establish mitigation success criteria.

Estimates of restoration potential will indicate plant and wildlife species that could be established and the population densities expected at each site following lead removal. Restoration potential should be estimated for native dune vegetation, sand gilia, Monterey spineflower, coast wallflower, black legless lizard, and Smith's blue butterfly. Estimates will be based on occurrences of these resources before lead removal, occurrence of non-native vegetation, current soil conditions, expected soil conditions after lead removal, slope, aspect, specific microhabitat conditions, proximity to existing populations of each species, and habitat associations of all species considered.

Develop Restoration Plans for Each Site Where Lead Will Be Removed

A restoration plan will be developed for each lead removal site. The Army will coordinate with California Department of Parks and Recreation (DPR) during development of restoration plans. The restoration plan will include plant and wildlife species to be established at the site, target densities for all species, a monitoring plan, and corrective measures if goals are not met. At a minimum, native dune vegetation will be established at each site, as well as HMP species populations equitable with those that were removed. Specific success criteria for restoration of vegetation and wildlife populations are described in the "Success Criteria" section following the mitigation section.

Recontouring of sand dunes following lead excavation activities will be included in restoration plans. All restored areas will be recontoured to create a natural dune landscape that grades smoothly into existing topography.

Seed and/or cuttings for revegetation will be collected from former Fort Ord or from other dune areas less than 10 miles from the installation. Plants that may be transplanted will be removed from areas before cleanup and transferred to restoration areas. Seed will be collected from plants within former Fort Ord or from adjacent dunes and used for restoration. Seed may be either directly broadcast in restoration areas or propagated in nurseries and transplanted, depending on which method is most successful for each species.

Purchased nursery stock of local origin will be used only if at least three attempts to use transplants and seed collected from local dunes prove insufficient to meet restoration success criteria.

The Army and DPR may work cooperatively on restoration efforts. The Army will be responsible for restoring biological resources lost during lead removal so that criteria described in the "Success Criteria" section are met. DPR will be responsible for additional restoration and/or enhancement outside lead removal areas required to compensate for impacts associated with reuse of former Fort Ord. Success criteria for restoration efforts to be completed by DPR are described in Chapter 4.

DPR may complete its restoration and enhancement responsibilities with Army restoration efforts or after Army restoration activities are complete. The Army will coordinate with DPR to ensure that Army restoration activities are compatible with future DPR restoration and enhancement goals. The Army may also contract with DPR or other appropriate agencies to develop and implement dune restoration plans associated with lead removal.

Restoration of HMP species populations after lead removal will not be conducted in areas designated by DPR for future development. After lead removal, sand will be stabilized in these areas using straw plugs or other suitable techniques.

Remove Lead

The order of lead removal from cleanup sites will be based primarily on the human health risk associated with each site. The total dune area disturbed by lead removal at any one time may also be limited to protect biological resources. If more than 15% of the coastal former Fort Ord occurrence of HMP species populations or habitat is to be impacted (before successful restoration of previously disturbed areas) the Army will coordinate with USFWS to determine if phasing of the cleanup activity is necessary to protect the affected HMP resources. Restored populations and habitat for each species can be included as part of the total coastal occurrence when restoration success criteria have been fulfilled.

Before an area is disturbed for lead removal, all plants that may be transplanted will be removed and planted in an area cleaned previously. Seed also will be collected from all available plants and used for propagation of new material and restoration.

Immediately after lead removal procedures have been completed in an area, straw will be plugged and spread over the location to stabilize the loose sand. The restoration plan for that site will be implemented once the final cleanup of the site is completed. Lead will not be removed in a new area (above the 15% allowable habitat disturbance) until resources are restored in the previously cleaned locations.

Mitigation for impacts on wildlife species may alter the timing of lead removal in certain areas. Specific mitigation measures for vegetation and wildlife species are described below.

Erosion Control

The loose, sandy texture of the dune soils at former Fort Ord (U.S. Army Corps of Engineers 1992b), the temporary removal of protective vegetation during lead removal, the lack of particle-binding organic matter in the soil, and the presence of strong prevailing winds off the Pacific Ocean are all factors that combine to create a high potential for wind erosion during lead cleanup.

Use of straw plugs and straw mulch is an effective wind erosion control technique at Marina State Beach and other coastal dunes in the Monterey Bay area. Four-foot-high wood lath and wire or plastic snow fences can be used to reduce wind erosion in the most severe sites. Snow fences are placed perpendicular to the prevailing wind direction in parallel rows approximately 100 feet apart.

Control of windblown sand can best be achieved by controlling the movement of sand over an entire area of bare sand. Problems often occur when stabilization is attempted downwind from an area of drifting, unstable sand. The blowing sand from the unstable upwind area will continually cover the mulch and/or seedling plants on the treatment site. If an entire area can be stabilized, straw plugs or straw mulch is an inexpensive, effective technique.

Native Vegetation

In accordance with the overall restoration plan, native dune vegetation will be reestablished at each lead removal site following final cleanup actions. The procedure given below will be followed to restore native dune vegetation. Restoration techniques may be modified if necessary to better accommodate site-specific conditions or if previous restoration efforts at former Fort Ord indicate different techniques may be more successful. USFWS must approve all major modifications of restoration procedures. This procedure is based on a similar, nearby restoration effort at Marina State Beach, where various methods were used to determine the most successful procedure for restoring coastal dune habitat (Ferreira and Gray 1987):

- Collect seeds of native plants onsite and from other local dune populations in the Monterey Bay region.

- Recontour sand following lead excavation activities to create a natural dune landscape that grades smoothly into the existing dune topography. This measure will be included in the restoration plans for each lead removal area.

- Remove ice plant by hand and dispose of the plants offsite, remove by hand and lay the plant upside down on the sand or in compost piles, or apply Roundup or other appropriate herbicides and leave dead plants in place to hold substrate. European beach grass may also be removed as necessary using techniques appropriate for the species.

- Promote dune stabilization where sand is exposed. The "straw planting" technique described in Ferreira and Gray (1987) is a method that could be used.

- Prepare two types of seed mix that reflect the species compositions characteristic of coastal strand and dune scrub habitats, depending on where restoration activities are to occur on the dunes. Table 3-1 illustrates possible seed mixes. Species may be planted as seeds or seedlings, depending on which method is most effective.

- Apply seed mixes to coastal strand restoration sites in the foredune and mid-dune habitats, and dune scrub restoration sites in the rear dune habitat, at approximately 40 pounds per acre (lbs/ac). Irrigation is not usually necessary for dune restoration. Summer irrigation should not be conducted because of its high potential to promote the growth of weedy, non-native species, and to alter the life cycle of native plants.

- Plant nursery propagated seedlings in locations with appropriate microhabitat conditions for each species.

- Control human access to dunes and implement a beach access plan during the interim period between closure, cleanup, and disposal of former Fort Ord lands.

Potential sources of labor that may be employed in implementing the restoration procedures described above include the California Conservation Corps (CCC), the Monterey County Court Work Alternative Program, and California Native Plant Society (CNPS) volunteers. The Army may also contract with DPR to implement restoration procedures.

Table 3-1. Example of Potential Seed Mixes for Restoring Coastal Strand and Dune Scrub Communities

Coastal Strand

Abronia latifolia
Abronia umbellata
Ambrosia chamissonis
Armeria maritima
Artemisia pycnocephala
Atriplex leucophylla
Calystegia soldanella
Camissonia cheiranthifolia
Dudleya caespitosa
Ericameria ericoides
Erigeron glaucus
Eriogonum latifolium[a]
Eriogonum parvifolium[a]
Eriophyllum staechadifolium
Lessingia filaginifolia
Poa douglasii

Dune Scrub

Achillea millefolium
Baccharis pilularis
Ericameria ericoides
Lupinus arboreous
Lupinus chamissonis

[a] At Smith's blue butterfly restoration sites the amount of the species removed during remediation will be proportional to that which is used during restoration.

Specific mitigation actions described below for sand gilia, Monterey spineflower, coast wallflower, Smith's blue butterfly, and black legless lizard will be conducted with the restoration procedures described above. Lead removal is not anticipated in or near beach areas considered habitat for the western snowy plover and the species is not expected to be affected. However, mitigation is included in the event that lead removal activities extend to the vicinity of snowy plover nesting areas.

Sand Gilia, Monterey Spineflower, and Coast Wallflower

In conjunction with and following establishment of native dune vegetation, establishment of populations and habitat for sand gilia, Monterey spineflower, and coast wallflower will be encouraged within the dune restoration sites. The following measures will be taken to establish sand gilia, Monterey spineflower, and coast wallflower in the dunes:

- Collect and store all seed from populations of sand gilia, Monterey spineflower, and coast wallflower to be removed by lead removal activities.
- Collect seed from other populations of these species on the former Fort Ord dunes or other Monterey Bay dune sites. Seed should be collected from no more than 10% of plants in these populations to prevent adverse effects on local reproduction.
- Distribute seed into suitable habitat for each of these species within the restoration sites following restoration of dune topography. Plants may be germinated in a nursery and whole plants transferred to the restored dune habitat if this method is found to be more successful than broadcasting seed.

Restoring lead cleanup sites to dune contours with native vegetation is expected to result in microhabitat conditions favoring the establishment of at least small, localized populations of sand gilia; larger, widespread populations of Monterey spineflower; and scattered individuals of coast wallflower. Sand gilia and Monterey spineflower typically occur in small openings in stabilized dune vegetation.

Smith's Blue Butterfly Habitat and Populations

The Smith's blue butterfly is completely dependent on seacliff buckwheat and coast buckwheat for oviposition, food for larvae, and as a nectar source for adults. Both seacliff and coast buckwheat occur at former Fort Ord.

The ranges of seacliff and coast buckwheat overlap in Monterey and San Luis Obispo Counties (Munz 1959). This range overlap allows both these food plants to be used by Smith's blue butterfly at former Fort Ord. However, variations in the life histories for both buckwheat species have resulted in differences in timing of breeding for Smith's blue butterfly at former Fort Ord. Coast buckwheat blooms up to 1 month before seacliff buckwheat. Adult Smith's blue butterflies emerge to breed as host plants bloom. The difference in blooming times between seacliff and coast buckwheat has instigated a temporal breeding separation between Smith's blue butterflies using each species of buckwheat, resulting in two relatively distinct races of butterflies (Arnold 1980). One race occurs primarily in the northern portion of the dunes and favors coast buckwheat, and the other occurs primarily in the southern portion of the dunes and favors seacliff buckwheat (Arnold 1980). Natural speciation may be occurring between the two races of Smith's blue butterfly (Arnold pers. comm.). Maintaining spatial separation of seacliff and coast buckwheat at former Fort Ord will allow this process to continue.

No more than 15% of the 135 acres (based on 1995 inventories) of coastal former Fort Ord occurrence of seacliff and coast buckwheat may be disturbed at any one time during lead removal. These areas are shown in Figure B-19 in Appendix B. If more than 15% of the total population is to be

disturbed, the additional buckwheat cannot be removed until restoration sites that fully compensate for the affected areas have been successfully established.

Buckwheat will be planted as seedlings in restoration areas. Seed will be collected from seacliff and coast buckwheat plants at former Fort Ord and cultivated in a nursery for up to 9 months. This method was chosen because success rates are higher for planting seedlings than for broadcasting seed, and buckwheat plants reach maturity faster if initially grown in greenhouse conditions (Kreiberg pers. comm.). Buckwheat plants can also be transplanted from sites to be disturbed and, if successfully established, may complement the nursery-grown plants to meet the compensation requirements for the affected areas.

Collection of buckwheat seed could adversely affect Smith's blue butterfly pupae in the flowering head of the plant. Care should be taken to avoid collecting seed from flowering heads that contain pupae. Additionally, as much buckwheat seed as possible should be collected from plants within soil remediation areas before removal or transplanting of these plants. This will minimize the need to collect seed (and disturb plants) outside remediation areas.

The two races of Smith's blue butterfly and species of buckwheat at former Fort Ord should be treated separately during dune restoration efforts. Coast buckwheat affected by lead removal should be replaced with coast buckwheat, and seacliff buckwheat should be replaced with seacliff buckwheat. Plantings of these two species should not be mixed in the same area because densities of favorable plants for each race of Smith's blue butterfly would be diluted at the site and because favorable habitat conditions differ for each plant. Coast buckwheat occurs primarily in ferritin habitat where there is more coastal influence, and seacliff buckwheat occurs primarily in more sheltered rear dune habitat (Arnold pers. comm.). Revegetation efforts should mimic this trend.

Where feasible, leaf litter from under buckwheat plants will be collected from lead removal areas before disturbance and relocated to restoration sites. Collection and relocation of leaf litter should also result in relocation of some Smith's blue butterfly pupae. Leaf litter of seacliff and coast buckwheat will be segregated during collection and relocation to avoid the mixing of these two species as described above.

Western Snowy Plover

Coastal populations of western snowy plovers breed on the upper portions of flat sandy beaches above the high tide line (Grinnell and Miller 1944). Breeding western snowy plovers are very sensitive to human disturbance, and nesting success can be significantly reduced by human intrusion (57 Federal Register (FR) 1443, January 14, 1992). The USFWS has proposed critical habitat for the western snowy plover (60 FR 11768, March 2, 1995). The beaches at former Fort Ord are among the areas proposed as critical habitat. Lead removal is not expected to occur in the vicinity of snowy plover nesting habitat. However, the following mitigation has been developed in the event that removal activities extend near these areas.

To prevent disturbance to western snowy plovers, restrictions will be placed on timing of lead removal and restoration activities in some areas. If lead removal or restoration operations can be seen or heard from the shoreline where snowy plovers nest, all activities will be conducted between October and February (avoiding the snowy plover breeding and nesting season). Cleanup and restoration personnel will not be permitted on the beach during the breeding and nesting season.

Surveys for western snowy plovers are being conducted by Point Reyes Bird Observatory along coastal areas, including the former Fort Ord beach area, to determine exact nesting locations. If no nesting birds are found near an area proposed for lead removal or restoration, these activities may proceed through the nesting season and personnel may use that portion of the beach during that time.

Black Legless Lizard Habitat and Populations

Black legless lizards occur at former Fort Ord in areas with sandy soils and native dune, coastal scrub, maritime chaparral, oak woodland, and oak savanna vegetation. Black legless lizards appear to be more abundant on former Fort Ord than previously thought.

Restoration of dune habitat will mitigate impacts on black legless lizards. If lizards are encountered during construction, they will be relocated to nearby habitat. However, it is not anticipated that significant numbers of black legless lizards would be encountered in areas of poor-quality habitat, such as iceplant mats and denuded and lead-encrusted target areas (such as areas remediated for human health), where black legless lizards may occur in low densities.

Only cover boards will be used during follow-up surveys to prevent disturbance to leaf litter and plant root systems caused by raking in restoration areas. Black legless lizards have very low dispersal ability on a regional level, but may disperse over short distances between adjacent areas of suitable habitat. Therefore, any lizards present in restoration areas may be relocated animals or resident animals from adjacent areas.

Success Criteria

Native Dune Vegetation

Healthy native coastal dune habitat is described in Chapter 2 in the "Habitat Management Plan Habitats" section. This description and comparisons with other sites supporting coastal strand and dune scrub should be used to measure the success of restored habitat. The restored habitat will consist of naturally regenerating native coastal strand and dune scrub habitats. After 5 years, the vegetative cover and species diversity should be similar to existing occurrences of these habitats in the Monterey Bay area. The extent of non-native, weedy species (e.g., African ice plant and European beach grass) shall be no more than 20% of vegetative cover.

Sand Gilia, Monterey Spineflower, and Coast Wallflower

Restoration efforts for sand gilia, Monterey spineflower, and coast wallflower will be considered successful if:

- self-sustaining populations of these species result within naturally functioning coastal strand habitat,
- suitable habitat for these species is created within the coastal strand habitat that is at least as extensive as that present before site remediation, and
- annual reproduction and soil seed bank of restored populations are comparable to that of existing populations nearby.

Smith's Blue Butterfly

To mitigate for removal of potential but unoccupied Smith's blue butterfly habitat, new populations of seacliff and coast buckwheat will be established at dune restoration sites. Mitigation will be considered successful if buckwheat populations established in restoration areas are of least equal in size and density as populations lost during lead removal. These populations must also produce at least equal densities of

flowering heads as do removed populations. Populations of seacliff and coast buckwheat should not be mixed in restoration areas.

If occupied Smith's blue butterfly habitat is removed during lead cleanup, both buckwheat populations and butterfly populations must be established in restoration areas. Success criteria for buckwheat populations are the same as those described above for unoccupied habitat. Mitigation for removal of butterfly populations will be considered successful if restored areas support Smith's blue butterfly populations for at least 2 of 5 years.

Western Snowy Plover

Mitigation for potential impacts on nesting western snowy plovers is designed to prevent disturbance to the nesting population. Mitigation will be considered successful if lead removal activities are not visible or audible from active western snowy plover nest sites at former Fort Ord during the breeding and nesting season.

Black Legless Lizard

Losses of black legless lizard populations during lead removal will be mitigated for by establishing new black legless lizard populations in restored dune habitat. Mitigation will be considered successful if, after black legless lizard relocation, suitable habitat is present, and adult lizards are found every year for 5 years.

Monitoring

A monitoring program will be conducted to evaluate the success of restoration efforts for native dune vegetation, sand gilia, Monterey spineflower, coast wallflower, Smith's blue butterfly, western snowy plover, and black legless lizard. The following monitoring procedures will be conducted annually, or more often as stated.

Native Dune Vegetation, Sand Gilia, Monterey Spineflower, and Coast Wallflower

Monitoring of restored dune vegetation, sand gilia, Monterey spineflower, and coast wallflower will include the following actions:

- Conduct releves or transects of random samples of restored coastal dune vegetation and gather data on species composition, cover, and reproduction of dune plants. Estimate cover of non-native, weedy plant species.
- Estimate the number of individuals and amount of suitable habitat for sand gilia, Monterey spineflower, and coast wallflower on restoration sites. Map the locations of populations and habitat.
- Measure reproduction in populations of sand gilia, Monterey spineflower, and coast wallflower at restoration sites and at nearby existing population sites.
- Estimate relative amounts of viable seed in the soil seed bank between restoration and existing populations of sand gilia, Monterey spineflower, and coast wallflower.
- Record vegetation establishment with color photographs from fixed locations.

Smith's Blue Butterfly

A monitoring program will be implemented to evaluate the success of restoring potential and occupied Smith's blue butterfly habitat. Monitoring for the first 2 years after planting will determine whether buckwheat plants are surviving in adequate numbers to potentially fulfill success criteria. Monitoring for quality of Smith's blue butterfly habitat will be conducted for 5 years and will begin 2 years after planting to allow buckwheat seedlings to reach a mature state. The monitoring procedures for potential habitat are as follows:

- Conduct annual surveys of seacliff and coast buckwheat populations for 2 years after planting to determine densities and survivorship of newly established seedlings.
- Conduct annual surveys of seacliff and coast buckwheat populations at restoration sites for 5 consecutive years starting 2 years after planting of buckwheat seedlings to determine quality of habitat for Smith's blue butterfly.
- Use randomly placed quadrats of appropriate size and number to accurately estimate the density of seacliff and coast buckwheat plants in restoration areas during both the 2-year and 5-year monitoring periods. During the 5-year monitoring period the same quadrats will also be used to determine vegetative cover of these species and average number of flowering heads per plant.
- Each year plot on the ground and map the boundaries of seacliff and coast buckwheat populations surveyed to determine if population size is expanding, contracting, or remaining stable.

The vegetation monitoring procedures for occupied habitat will be the same as for potential habitat. In addition Smith's blue butterfly populations will be monitored where occupied habitat is to be restored. Monitoring procedures for butterfly populations are:

- Conduct annual surveys for Smith's blue butterfly for 5 consecutive years, starting 2 years after buckwheat seedlings have been planted.
- Sufficient surveys will be conducted during the adult flight period (mid-June to early August for populations using coast buckwheat and mid-July to early September for populations using seacliff buckwheat) to determine butterfly use.

Western Snowy Plover

A monitoring program will be implemented as needed to determine whether lead removal activities could potentially disturb nesting western snowy plovers. Annual surveys for western snowy plovers will be conducted at former Fort Ord by the Point Reyes Bird Observatory (see the previous discussion of western snowy plover under the mitigation portion of this section). If no western snowy plovers are found nesting at former Fort Ord, no further monitoring or restrictions on lead removal activities will be required.

If western snowy plovers are found to nest at former Fort Ord, all lead removal activities that can be seen or heard from the nesting area will be stopped until the end of the breeding and nesting season (March 1 to September 30).

However, no lead removal activities are expected in the immediate vicinity of the beaches at former Fort Ord where snowy plovers may nest. Lead removal activities that are not visible or audible from the coastline are not expected to disturb nesting western snowy plovers and need not restrict their activities during the breeding and nesting season.

Black Legless Lizard

Annual black legless lizard surveys will be conducted for 5 years after lizard relocation into restoration areas. To avoid disturbing vegetation in restoration areas, raking will not be used as a survey technique. Cover boards will be placed under shrubs in the restoration area no later than early March. Sufficient numbers of boards will be used to adequately assess black legless lizard population trends in the area. Boards will be checked during periods and conditions when legless lizards are most likely to be near the surface (March through July when warm weather follows rain). Numbers of lizards found and size class (snout-vent length) will be recorded.

In addition to this monitoring, the Army will allow appropriate agencies (i.e., UC, California State University, or USFWS) to conduct research on relocated black legless lizards in conjunction with Army relocation and monitoring efforts. Research studies may include but are not limited to marking and tracking individual lizards, using monitoring data for mark-recapture analysis, and measuring specific habitat conditions in restoration sites. Agencies conducting the research will be responsible for research costs.

Corrective Measures

If monitoring indicates success criteria are not met for native dune vegetation or any HMP species, correction measures will be implemented as described below.

Native Dune Vegetation, Sand Gila, Monterey Spineflower, and Coast Wallflower

Based on the results of each year's monitoring, the restored dune habitat will be supplementally recontoured, weeded, replanted, or reseeded as needed to meet the established success criteria.

Improvement of sand gilia, Monterey spineflower, and coast wallflower habitat will be conducted if success criteria for these species are not met.

Smith's Blue Butterfly

If during the first 2 years after planting buckwheat seedlings it appears densities or survivorship of young plants will not be adequate to eventually fulfill success criteria for restoration of potential Smith's blue butterfly habitat, additional plantings of coast or seacliff buckwheat seedlings will be attempted in the restoration area to increase densities of individual plants. If after two attempted plantings densities of young plants are still not sufficient to eventually meet success criteria for densities of mature plants, a new area will be used as a restoration site and will be monitored using the same procedures as for the original restoration site.

If sufficient densities of mature plants are present after the 2-year monitoring period to fulfill success criteria, but densities of flowering heads are inadequate, one additional planting of buckwheat seedlings will be attempted to increase densities of flowering heads available in restoration sites. If 2 years after the supplemental planting densities of flowering heads still do not fulfill the success criteria, a new area will be used as a restoration site and will be monitored using the same procedures as for the original restoration site.

If the restoration area is intended to support Smith's blue butterfly populations, but butterfly use does not fulfill the success criteria for the site, additional seacliff or coast buckwheat will be planted to attempt to improve the habitat quality. Areas of additional plantings will be monitored for 5 years to determine whether Smith's blue butterfly use is sufficient to fulfill the success criteria. If after one attempted planting success

criteria are not met, a new area will be used as a restoration site. The new area must meet the same success criteria and will be monitored in the same manner as the original restoration site.

If a restored area intended to replace occupied Smith's blue butterfly habitat satisfies success criteria for buckwheat populations, but supports no Smith's blue butterflies, a new restoration site will be developed within 40 meters of an existing Smith's blue butterfly population. [Average daily movements for female Smith's blue butterflies are roughly 47.5 meters, and approximately 34.4 meters for males (Arnold 1983)]. The new site will be monitored in the same manner as the original site to determine if success criteria are met.

An alternative corrective measure could be transplanting Smith's blue butterfly larvae to the existing restoration site instead of creating a new restoration site. Moving Smith's blue butterfly larvae must be approved by USFWS before this measure is attempted. If larvae are to be transplanted, trial studies will be conducted with a small number of larvae to test whether larvae pupate and metamorphose into adults at the site. If trials are successful, more larvae may be moved. All transplanted larva will be monitored to determine if adults breed successfully. Larvae will not be transplanted to sites where butterfly populations already exist within 40 meters of the site. The existence of butterfly populations near an unoccupied site indicates that microhabitat conditions are not suitable for Smith's blue butterflies in the unoccupied restoration area.

Western Snowy Plover

If at any time between March 1 and September 30 lead removal activities are audible or visible from areas identified as containing nesting western snowy plovers, those activities will be stopped until after October 1.

Black Legless Lizard

If success criteria are not met after 5 years, monitoring may continue for 3 more years and if success criteria are not met after the additional 3 years, a new restoration site will be created.

Data gathered during monitoring of the unsuccessful restoration site will be used to better design and implement a restoration plan for the new site. The new restoration site will connect with an existing black legless lizard population and will be monitored for 5 years after it is determined that microhabitat conditions are suitable for black legless lizards (sufficient shrub size, leaf litter, and invertebrate populations). Success criteria for the new site will be the same as for the original restoration site.

ORDNANCE AND EXPLOSIVES REMOVAL

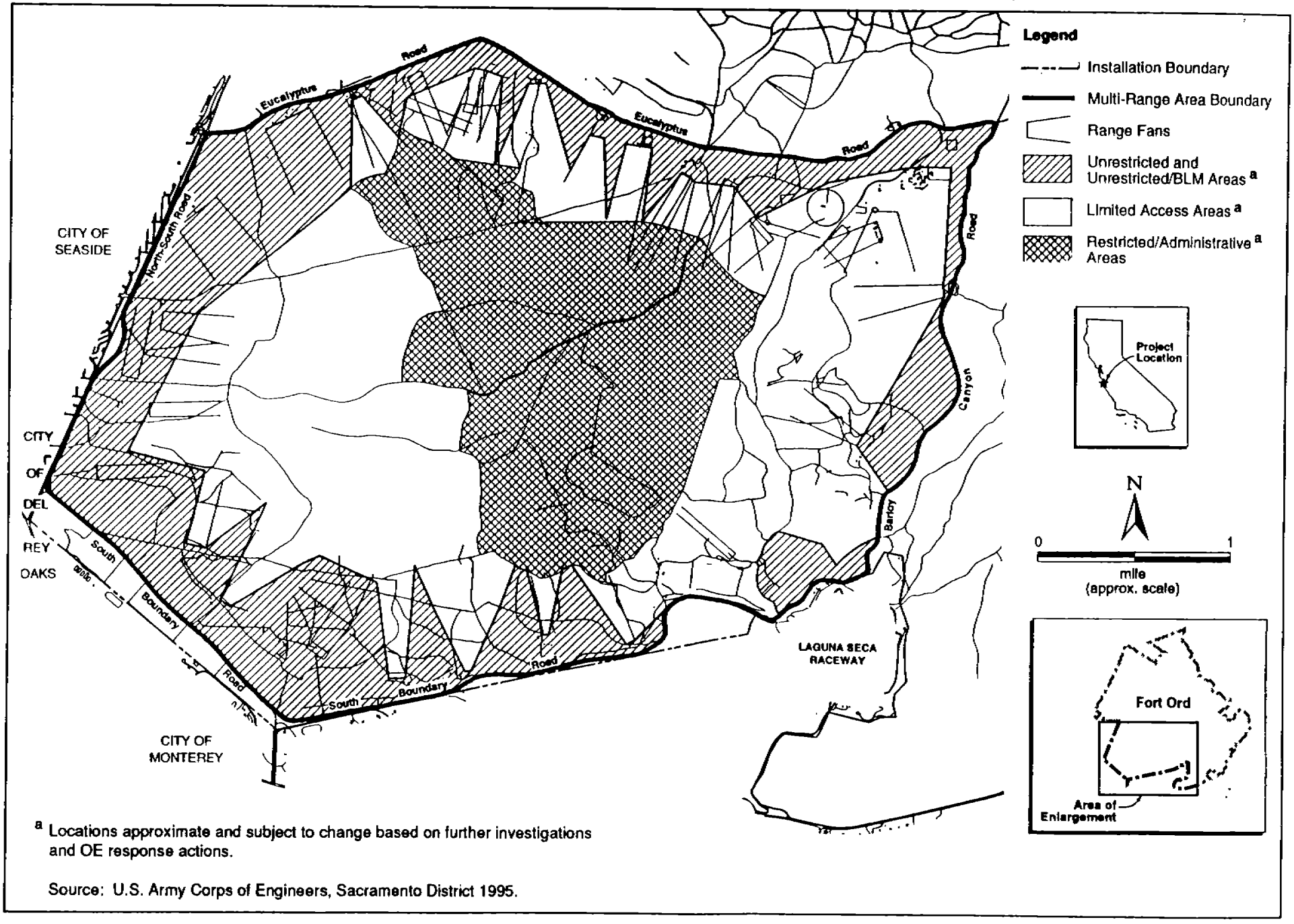
Background

Former Fort Ord contains an approximately 8,000-acre multi-range area (MRA) (also referred to as the inland range area) with ordnance and explosives (OE), plus additional training areas that may contain OE.

The Army and BLM have completed a Site Use Management Plan for Land Transfer and Reuse of the Multi-Range Area (U.S. Army Corps of Engineers, Sacramento District July 1995a). This document discusses the future land uses within and adjacent to the multi-range area. The following site use descriptions represent current expectations for future public and administrative uses within the multi-range area (Figure 3-2). Boundaries for these areas are approximate and subject to change based on further investigations, OE response actions, or other factors.

Figure 3-2

Conceptual Multi-Range Area Land Reuse Plan



[a] Locations approximate and subject to change based on further investigations and OE response actions.

Source: U.S. Army Corps of Engineers, Sacramento District 1995.

- U - Unrestricted. Public access will be unrestricted upon clearance of ordnance. These areas are on the perimeter of the multi-range area and are typically at or behind the firing points used by military personnel during active use of former Fort Ord. These areas are within the multi-range area but outside the lands to be transferred to BLM. These areas will be cleared of unexploded ordnance (UXO) and other OE following the same standards applied to other parcels designated for development. They will be transferred with the same use restrictions that are being applied to development parcels outside the multi-range area.

- UB - Unrestricted/BLM. These areas will be unrestricted to the depth of clearance for use by BLM personnel. These areas are on the perimeter of the multi-range area and are typically at or behind the firing points used by military personnel during active use of former Fort Ord. These areas will be cleared of UXO and other OE following the same standards applied to future BLM lands outside the multi-range area. They will be transferred to BLM with the same use restrictions that are being applied to parcels outside the multi-range area.

- LA - Limited Access. These areas are limited to specific uses. These areas are located within the core of the multi-range area but will be cleared to a level safe for some uses. The areas generally include old range areas, range safety fans, and other areas outside the high-impact area. These areas will be cleared of UXO and other OE sufficient to permit pedestrian and other nonmotorized access. An existing system of fire roads and firebreaks will be cleared to a sufficient standard to allow annual maintenance of fire roads with heavy equipment. They may be transferred with use restrictions that prohibit any surface disturbance or excavation outside the established system of fire roads and trails.

- RA - Restricted/Administrative. These high-impact areas will be restricted for use by BLM to trained persons only and will be off-limits to the public. The areas will be fenced by the Army, and the fence will be maintained by BLM. A system of fire roads and firebreaks will be cleared within this area to allow access for fire suppression and habitat monitoring. These areas were the primary target areas. The density or hazard of UXO is such that it is not deemed cost-effective to remove UXO at present. UXO clearance of the high-density impact area is not planned. If new technology allows further clearance actions in a cost-effective manner, the Army and BLM would jointly seek funding for future clearances.

Clearance of OE may involve selectively removing vegetation, possibly by burning to clear the ground surface. Burning may be infeasible in overly dense or high-moisture content vegetation in some portions of the inland range area, in which case, vegetation may be cut and chipped by a "brush hog" or other mechanical means. Where burning or mechanical removal may be used, burning will be the preferred method because of the beneficial effects of fire on HMP species associated with maritime chaparral.

After vegetation clearing, OE will then be located by visual and electromagnetic means (metal detectors), identified, and disposed of. During the location process, inert ordnance and ordnance scrap will be collected and properly disposed of. Removal of OE may require excavation of soil from around the ordnance. Excavations could range in size from a single cubic foot to several cubic feet, depending on the type, location, and position of OE. A potential method of disposal of OE is *in situ* detonation, which would increase the amount of soil disturbed.

Subsurface investigation and clearance activities may be conducted in areas where historical record reviews and interviews indicate the possible presence of buried ammunition or in impact areas where the velocity, trajectory, and momentum of munitions are likely to cause them to penetrate the ground's surface. Subsurface OE is located by use of metal detectors, ground-penetrating radars, or other appropriate methods, and then the area is excavated to determine the source of the magnetic or radio wave anomaly. Depending on the type and means of delivery, excavations could reach depths greater than 10 feet and have surface areas ranging in size from several square feet to tens of square feet. *In situ* detonation of subsurface OE would increase the amount of soil disturbed.

Impacts

Ordnance clearance from the inland range area and other live fire areas could result in the loss of portions of sand gilia and Monterey spineflower populations. Sand gilia and Monterey spineflower plants would be removed by vegetation burning and cutting, whole plant excavation, crushing or trampling from movement of excavation equipment and removal team foot traffic, and onsite ordnance detonation. The maritime chaparral habitat that support these species would be removed by burning and cutting. However, the disturbance associated with burning and cutting may have benefits to sand gilia and Monterey spineflower.

Clearance of OE could occur in areas supporting approximately 75% of the occupied habitat of sand gilia and Monterey spineflower at former Fort Ord. The number of individuals and amount of habitat affected cannot be determined because the locations and amount of OE is unknown. Approximately 50-70% of the entire range of sand gilia and about 75-95% of the entire range of Monterey spineflower are located on former Fort Ord.

California linderiella and California tiger salamanders occur in ephemeral, freshwater aquatic habitats, such as vernal pools, swales, and ponds. California linderiella eggs are laid by adults when water bodies are full and remain in the soil after vernal pools and ponds have dried until the following rainy season. California tiger salamanders breed and lay eggs in these water bodies where the young develop from aquatic larvae to adults and leave the area by late spring. The excavation necessary for removal of subsurface OE could fill or severely disrupt several ponds and vernal pools that are considered to be habitat for California linderiella and California tiger salamanders. If OE is found inside a vernal pool or pond, *in situ* detonation of the ordnance may disrupt a significant portion of the soil in the area and potentially destroy California linderiella and California tiger salamander habitat and California linderiella eggs in the soil. Soil disruption during excavation or *in situ* detonation could also cover California linderiella eggs with sufficient soil to prevent them from hatching, resulting in direct mortality.

Ponds provide the only potential habitat for California red-legged frogs at former Fort Ord because the adult frogs require a relatively permanent water source. Although no California red-legged frogs were found at former Fort Ord during wetland surveys (Flora and Fauna Baseline Study of Fort Ord, California and later investigations), the installation is within the range of the species and potential habitat is available. Excavation or *in situ* detonation of OE would require ponds to be drained and thus could degrade the habitat quality of the ponds for this species.

The ponds and vernal pools described above constitute wetland habitat. OE that must be detonated onsite could adversely alter the hydrological functioning of these wetlands. The exact amount of ordnance clearing that will occur in wetlands is unknown. Vernal pools and freshwater marshes potentially are jurisdictional wetlands regulated under the Clean Water Act.

Sampling and clearance of OE could result in the loss of portions of populations and habitat of other HMP plant species occurring at former Fort Ord. Potential impact mechanisms are the same as those described above for sand gilia and Monterey spineflower. Ordnance clearance could result in the loss of individual plants and reduction of suitable habitat for Seaside bird's-beak, Eastwood's ericameria, coast wallflower, Toro manzanita, sandmat manzanita, and Monterey ceanothus. The amount of loss of these species cannot be estimated because the amount of buried ordnance has not been determined. Large reductions in numbers and habitat for Seaside bird's-beak, Eastwood's ericameria, Toro manzanita, sandmat manzanita, and Monterey ceanothus could result in their eligibility for federal listing as threatened or endangered.

Clearance of OE in the inland range area and other live firing areas could result in adverse effects on 935 acres of the habitat of black legless lizards at former Fort Ord and direct mortality to individual animals.

The black legless lizard occurs in areas of loose sandy soils supporting native dune, coastal scrub, maritime chaparral, oak woodland, or oak savanna vegetation. The range of the black legless lizard is restricted to the Monterey Bay region. Intergrades between black and silvery legless lizards have been found elsewhere along the California coast from the east side of San Francisco Bay to San Luis Obispo County, but the status and distribution of these varieties are unresolved.

Clearance of OE could result in the temporary loss of habitat occupied by maritime chaparral. The amount of vegetation removed during ordnance removal activities cannot be estimated because the specific location and amount of ordnance in the ground is unknown.

Mitigation

Mitigation measures for impacts on HMP species and habitats resulting from OE sampling and removal activities will be implemented at all sites not planned for development (see Chapter 4). The primary objective of mitigation efforts is to reestablish healthy, high-diversity maritime chaparral habitat that has a variety of seral stages and age classes and that includes microhabitat for sand gilia, Monterey spineflower, Seaside bird's beak, and black legless lizard.

The health of maritime chaparral is marked by successful establishment of this community's component species, many of which are HMP species (i.e., sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, Toro manzanita, and Hooker's manzanita).

Specific mitigation measures for vernal pools and ponds are also provided to minimize potential impacts on California linderiella, California tiger salamander, and red-legged frog.

Minimize Disturbance Associated with OE Removal

OE removal sites will be restricted to the smallest area possible to limit unnecessary disturbance of habitat. Placement of all access roads, staging areas, and other appurtenant facilities will attempt to avoid areas containing HMP plant and wildlife species and maritime chaparral vegetation. Existing roads will be used whenever possible and use of vehicles off roads will be minimized to the greatest extent practicable.

Avoid Disturbance of Sand Gilia and Seaside Bird's-Beak Populations

Where feasible, avoid populations of sand gilia and Seaside bird's-beak. Fence or flag known populations and educate ordnance clearing crews as to the location and identification of these species.

Coordinate Vegetation Management and Restoration with OE Removal

A vegetation burning and restoration program will be developed to coordinate with ordnance cleanup activities. The program should consist of a series of feedback mechanisms to allow for testing of burning and restoration methods on sites cleared early to be used to direct the burning and restoration program and maximize revegetation success on sites cleared later in the process. A 5-year burn plan for the inland range was completed in December 1994 and provides guidance on burn sizes and location (Jones & Stokes Associates 1994).

Clearing or burning vegetation for the cleanup of OE in maritime chaparral will initially be conducted at sites up to 400 acres in size with preferred burn sizes being between 200 and 300 acres. Cleanup sites should be separated by undisturbed chaparral, in patches greater than 25 acres, to create a mosaic of

patches burned or cleared at different times. No more than 800 acres of maritime chaparral per year should be cleared or burned. The cleanup site sizes and yearly acreage limit can be adjusted as better techniques and more understanding of maritime chaparral reestablishment are developed during early ordnance cleanup efforts.

Conduct Employee Education Program

Before OE removal or sampling activities begin, all supervisors and field personnel must attend a brief environmental training program. The training program will be presented by a qualified biologist familiar with this HMP plant and wildlife resources at former Fort Ord. As the project proceeds, all new personnel must attend an environmental training session before working on the site. Topics to be covered in the training session include:

- a description of HMP plant and wildlife species that could be encountered in the project area,
- pertinent state and federal laws relating to the conservation of these species,
- guidelines that personnel must follow to reduce or avoid impacts on HMP species, and
- the appropriate contacts to report unforeseen impacts on HMP species.

Minimize and Compensate for Impacts on California Linderiella, California Tiger Salamander, and California Red-Legged Frog

Vernal pools are considered potential habitat for California linderiella and California tiger salamander. Ponds also provide potential habitat for these two species, as well as for the California red-legged frog. Vernal pools and ponds will be avoided whenever possible during cleanup of OE. However, if these habitats must be disturbed during removal of OE (i.e., during excavation or *in situ* detonation of OE), a mitigation and habitat restoration plan will be developed and implemented for each vernal pool or pond that is affected.

Mitigation and habitat restoration plans will include measures to minimize disturbance to ponds and vernal pools during ordnance removal. Methods for reducing disturbance include minimizing excavation area and depth, completing *in situ* detonation in a manner that minimizes soil disturbance, and setting aside topsoil during excavation to salvage plant seeds and California linderiella eggs. Before any vernal pool or pond is disturbed, it will be surveyed and all data described in the monitoring section below will be collected.

The goal of restoration plans will be to restore affected wetlands so that they are of the same acreage and provide the same functions as before clearing of ordnance. Restoration objectives would include establishment of self-sustaining populations of California linderiella, California tiger salamander, and California red-legged frogs similar to those that existed before ordnance removal.

Minimize Impacts on Black Legless Lizards

Potential habitat for black legless lizards has been identified in the western portion of the inland range area and other locations (see Figure B-16 in Appendix B). Designation of suitable habitat was based on soil and vegetation conditions favorable to black legless lizards; however, the area has not been surveyed for the species.

Because of the difficulty and safety hazards associated with surveying for legless lizards in areas that may contain OE, all areas identified in Figure B-16 in Appendix B as potential habitat for the black legless lizard will be considered occupied.

These areas will be burned only between July 1 and February 1 so that burning takes place when legless lizards are most likely to have burrowed deep into the soil where they should not be affected by the fire. Implementation of the mitigation measures described below will minimize impacts on black legless lizards while OE clearance and other ground disturbance activities occur year round.

If a legless lizard is encountered during excavation of OE, maximum effort will be made to preserve the animal without unreasonably delaying excavation activities. The lizard will be captured by hand, making all efforts possible not to injure the animal. The first option for treatment is to release an unharmed lizard after the excavation or ground disturbing activity is completed. The lizard will be placed in a plastic container loosely filled with moist paper towels. If an injured or dead specimen is taken, a predetermined contact from USFWS or California Department of Fish and Game (DFG) will be immediately notified and may receive the specimen or recommend an appropriate person to receive the specimen. The live lizard either will be kept temporarily until activities are complete in the area where it was encountered and then released as near as possible to the point of capture, or it will be kept in captivity until the following spring and released in suitable habitat as near as possible to the point of capture. If the lizard encountered is dead, the person receiving the specimen will identify the species of legless lizard and give the specimen to an appropriate agency or institution.

Success Criteria

Healthy maritime chaparral habitat is described in Chapter 2 in the "Habitat Management Plan Habitats" section. This description and comparisons with undisturbed sites supporting maritime chaparral should be used to measure the success of restored habitat. The restored habitat will consist of naturally regenerating maritime chaparral that is managed using controlled burning and other techniques that maximize the habitat value for HMP species.

The acreages of habitat occupied by sand gilia, Monterey spineflower, and Seaside bird's-beak at low, medium, and high densities in areas in the inland range where some amount of OE is expected to occur are shown in Table 3-2 (based on 1992 field surveys). Based on rough estimates of plant densities, the occupied habitat identified in Table 3-2 may represent about 8,000-12,000 individual sand gilia plants, 5,000-10,000 Seaside bird's-beak plants, and 4-7 million Monterey spineflower plants in the inland range area. This does not include areas outside the inland range where there is potential for OE. Restoration for these species will be considered successful if, at the end of 5 years:

- self-sustaining populations result within a mosaic of maritime chaparral habitat in different stages of succession,
- the amount of occupied habitat varies over time within a range that includes amounts similar to the amount of habitat estimated for these species in 1992, and
- population sizes vary from year to year within a range that includes annual populations similar in size to those estimated for these species in 1992.

In many instances suitable habitat, occupied habitat, and populations of two or all three of these species will occur on the same site.

Vernal pool and pond restoration will be considered successful if affected wetlands are of the same acreage and provide the same functions as before clearing of ordnance. Also, if affected wetlands supported California linderiella, California tiger salamander, or California red-legged frogs before ordnance removal, they must support self-sustaining populations of these species for 5 years after restoration is complete.

Table 3-2. Approximate Acres of Habitat Supporting Sand Gilia, Monterey Spineflower, and Seaside Bird's-Beak in Areas in the Inland Range Expected to Contain Unexploded Ordnance

	Unexploded Ordnance Expected to Occur
Sand gilia[a]	
Low density	1,115
Medium density	20
High density	0
Monterey spineflower[a]	
Low density	2,135
Medium density	1,780
High density	410
Seaside bird's-beak[a]	
Low density	390
Medium density	15
High density	0

[a] From 1992 survey data.

Monitoring

Each patch of maritime chaparral cleared of ordnance will be monitored annually for 5 years beginning with the year of ordnance removal activities. In most cases, the monitored site will be delineated by the edge of a controlled burn area established before ordnance removal. Because ordnance removal will occur over several years, the 5-year monitoring period for groups of ordnance removal sites will be initiated in different years. The reestablishment of vegetation will be measured at each ordnance removal site, using releve, quadrat, transect, or a combination of vegetation survey methods. Each monitoring year, the following information will be recorded for each ordnance removal site:

- size of the site in acres (first year only);
- method used to clear vegetation (e.g., burning, chipping, none) (first year only);
- extent of soil disturbance from ordnance removal (first year only);
- percent absolute vegetative cover;
- percent cover of each woody plant species present (including HMP shrubs);
- percent herbaceous cover and list of dominant herbaceous species;
- percent cover by non-native weedy plants;
- estimated number of plants and mapped location of sand gilia, Monterey spineflower, Seaside bird's-beak, and coast wallflower;
- general wildlife use;
- vegetation establishment record through color photographs.

A protocol for conducting vegetation sampling at former Fort Ord has been developed to guide monitoring efforts (U.S. Army Corps of Engineers, Sacramento District, 1995). The protocol and results of monitoring efforts are being coordinated with the Coordinated Resource Management and Planning (CRMP) process (described at the end of Chapter 4), USFWS, and others. With ordnance removal sites varying from approximately 200 to 400 acres in size and the inland range comprising approximately 8,000 acres, there should be between 20 to 40 sites to be monitored for habitat reestablishment. This number could be reduced based on the final size of the Restricted/Administrative area shown in Figure 3-2. This information will be analyzed and compiled into annual monitoring reports. Conclusions drawn from the data in monitoring reports will be used to modify subsequent burning and ordnance clearing actions to promote more effective restoration of healthy, diverse maritime chaparral and habitat and populations of HMP species. The level of detail of monitoring data for maritime chaparral and associated HMP species may be adjusted over time, as the level of detail necessary to judge mitigation success is better understood through the results of monitoring the initial sites of vegetation clearing, ordnance cleanup, and vegetation reestablishment.

Restored vernal pools and ponds will be monitored during each rainy season for 5 years after restoration is completed. Each monitoring year, the following information will be recorded for each restored vernal pool or pond:

- dates each pool or pond begins to fill and when it dries relative to timing and abundance of yearly rainfall;
- water conditions including depth, surface area, turbidity, and pH;

- percent submergent, floating, and emergent vegetative cover (estimated using transects, quadrats, or other appropriate techniques) and species composition; and

- occurrence and relative abundance of California linderiella adults and adults and larvae of California tiger salamander and California red-legged frog.

This information will be analyzed and compiled into annual monitoring reports. Conclusions drawn from the data in monitoring reports will be used to modify subsequent ordnance removal practices in wetland habitats and implementation of future vernal pool and pond restoration plans. The level of detail of monitoring data for vernal pools and ponds may be adjusted over time, as the level of detail necessary to judge mitigation success is better understood through the results of monitoring the initial sites of vernal pool and pond restoration.

Corrective Measures

Based on the results of each year's monitoring, the restored maritime chaparral habitat management will be modified, if necessary, to meet success criteria. In some instances supplemental weeding, planting, or seeding may be needed to meet the established success criteria.

Improvement of sand gilia, Monterey spineflower, and Seaside bird's-beak habitat will be conducted if population levels for these species do not meet the success criteria.

If success criteria for vernal pool and pond restoration are not satisfied, corrective measures will be developed on a case-by-case basis to identify the cause of failure. Previous monitoring data will be analyzed, and, if necessary, specific studies will be undertaken to determine the reason for failure to meet success criteria. Corrective measure will be developed to respond to the cause of noncompliance determined from these data. An appropriate corrective measure must be implemented within 1 year of determination that success criteria will not be satisfied, and the vernal pool or pond will be monitored for additional 3 years after implementation.

USFWS, DFG, and the Army will review all proposed wetland corrective measures before they are implemented. If after two attempted corrective measure success criteria are still not satisfied, another mitigation site will be chosen for vernal pool or pond enhancement or creation.

INTERIM USES

Before final disposal of some former Fort Ord lands, property and structures will be made available for interim uses to various agencies. Use of existing structures in the developed portions of former Fort Ord will have no impact on biological resources. Recreational use along the dunes and beaches, another potential interim use, could have a potential adverse effect on HMP species if not managed properly.

Public Access to Dunes and Beaches

Impacts

Removal of lead from the dunes at former Fort Ord may require phasing of cleanup over several years. Phasing of cleanup will be required if the extent of remediation needed to minimize the human health risk exceeds the remediation allowed at any one time to protect biological resources. These lands cannot be

transferred until the lead has been removed. However, some public recreation uses may be permitted on the former Fort Ord dunes in areas that do not require lead removal, or where lead has already been removed, before the transfer of land to DPR.

If not properly managed, public use of the beaches and dunes could have adverse effects on sand gilia, Monterey spineflower, Smith's blue butterfly, western snowy plovers, and black legless lizards. Populations of sand gilia, Monterey spineflower, Smith's blue butterfly, and black legless lizards could potentially be eliminated by repeated foot traffic or unauthorized off-road vehicle use. Potential habitat for these species could also be lost through the same mechanisms. Nesting western snowy plovers may be sufficiently disturbed by recreational uses on the beach to abandon nests.

Mitigation

If the beaches and dunes at former Fort Ord are open for recreational use before disposal, measures will be taken to control and channel public access and uses.

The Army will coordinate with DPR to prevent damaging public foot and vehicle access to:

- sites supporting Smith's blue butterfly populations and habitat;
- existing populations of sand gilia and medium- and high-density occurrences of Monterey spineflower;
- beach areas supporting western snowy plover breeding habitat during the breeding season; and
- dune restoration areas.

Temporary signing and barriers will be installed, and sufficient law enforcement personnel will be present to ensure that the public does not degrade or damage these resources before the transfer of land to DPR.

The Army and DPR will also work cooperatively to ensure the public does not have access to current and future lead removal sites until lead removal activities are complete.

Success Criteria

Mitigation for potential impacts on HMP resources from interim public use of beaches and dunes at former Fort Ord will consist of various means of directing, restricting, and controlling public access to areas of beaches and dunes where HMP resources occur. Mitigation will be considered successful if no individuals of HMP species are disturbed or removed and no destruction of potential or occupied habitat for these species results from public use of the beaches and dunes at former Fort Ord.

Monitoring

The Army and DPR will provide coordination of sufficient law enforcement staff on the beaches and dunes at former Fort Ord to adequately patrol all areas west of Highway 1. These personnel will record any disturbance or evidence of disturbance to HMP species. The Army and USFWS will be notified immediately of the incident. The Army, USFWS, and DPR will work cooperatively to determine whether the impacts on HMP species are attributable to recreational use of the beaches and dunes at former Fort Ord and take

appropriate actions to prevent future impacts. The same process will be followed if destruction of potential or occupied habitat for HMP species is encountered. All other personnel working on the dunes (e.g., lead removal personnel, restoration crews, or biologists) will also report any incidents or evidence of impacts on HMP species or destruction of potential or occupied habitat to the Army and DPR.

Corrective Measures

If removal of any HMP species or destruction of potential or occupied habitat of any HMP species can be attributed to interim public use on the dunes at former Fort Ord, DPR, the Army, and USFWS will coordinate development of suitable corrective measures. Potential corrective measures include restoration or enhancement of dune habitat to compensate for lost habitat, increased monitoring effort, installation of additional temporary barriers and signing, or installation of permanent barriers and signing.

Chapter 4.

Habitat Management for Disposal and Reuse



Monterey Spineflower

Chapter 4. Habitat Management for Disposal and Reuse

INTRODUCTION AND BACKGROUND

A general goal of this habitat management plan (HMP) is to promote preservation, enhancement, and restoration of habitat and populations of HMP species while allowing development on selected properties that promotes economic recovery after closure of Fort Ord. (Specific HMP goals are described in Chapter 1.) As an installation-wide plan, all parcels to be disposed of by the U.S. Army (Army) are addressed in this HMP and are considered in achieving HMP goals. However, management guidelines and specifications for reuse may vary from parcel to parcel based on future plans for the parcel associated with this HMP and overall reuse planning.

Some parcels to be disposed of by the Army are intended to promote economic recovery after disposal and will be designated for development with no restrictions or guidelines described in this HMP. Other parcels will have development designated as the primary use, but recipients of disposed land will be obligated to implement certain guidelines and/or preserve specific areas through this HMP. Other parcels are designated as habitat reserves or corridors and have specific management guidelines and restrictions on development and uses. The HMP also includes consideration of specific transportation corridors planned by the local community. (Refer to the "HMP Analysis of Road Corridors" section in Chapter 4).

Attachment A shows each parcel proposed for reuse and indicates the HMP requirements planned for the parcel: Habitat Reserve, Habitat Corridor, Development with Reserve Areas or Development with Restrictions, Borderland Development Areas Along NRMA Interface, Development, and Future Road Corridors. The management requirements for lands covered by this HMP are grouped in several categories. These categories have varying levels of restriction on development and intensities of habitat management requirements. The management categories are mapped in Figure 4-1.

Habitat Reserve

The "Habitat Reserve" category is the core to achieving the goals of the HMP. These lands are set aside from development to protect biologically important habitat for the HMP target species; the main management goal for this category is the conservation and enhancement of threatened and endangered species. The lands are to be set aside from public mining laws and other nondiscretionary land laws that jeopardize attainment of the primary management goal. Management of Habitat Reserve areas must be undertaken by a land management agency acceptable to the USFWS. The HMP describes specific management goals, procedures for enhancement and restoration, and methods of funding for each reserve parcel. The HMP also clearly establishes who will be responsible for monitoring operations and maintenance activities, conducting status surveys, and funding of overall management activities. The requirements to avoid and restore habitat disturbed within the habitat reserve areas for operation, maintenance, and replacement of utility systems within utility easement areas in the reserves will be the same as applied to the fee title grantee of the habitat reserve area. Coordination and permitting of the proposed actions will be the responsibility of the easement interest grantee. In general, landowners are expected to fund management of biological resources on reserve parcels. These requirements for the habitat reserve areas are contained in the USFWS Biological/Conference Opinion.

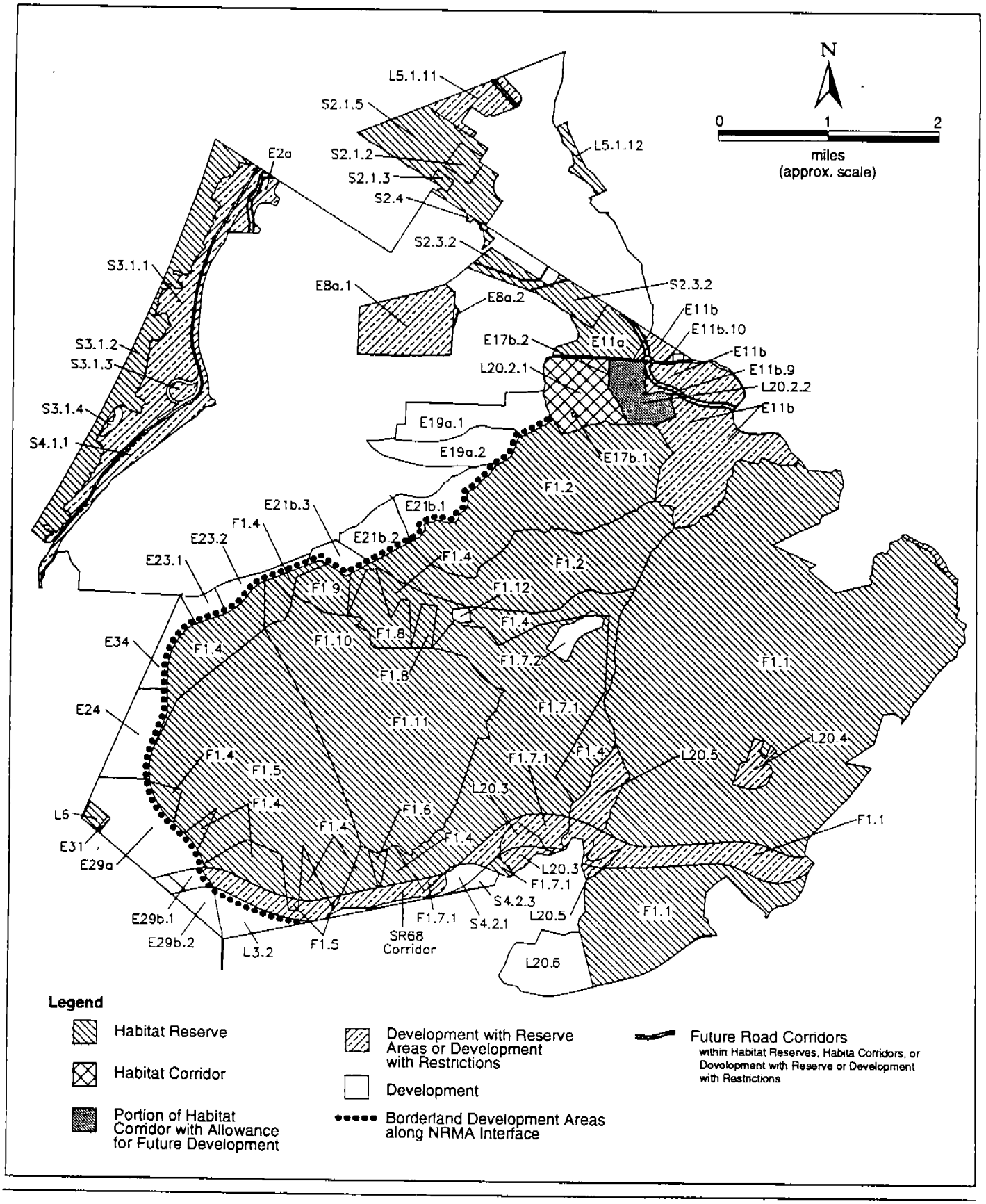


Figure 4-1
Habitat Mangement Plan Map for Former Fort Ord (December 1996)

Habitat Corridor

"Habitat Corridor" areas require management strategies that promote maintenance of connections between conservation areas. While these corridors may be exposed to some land management practices other than those that emphasize conservation of biological resources (parcel L20.2.2 allows for expansion of existing developed facilities as well as corridor conservation), corridors are important to the ecological integrity of reserve areas. These lands must be managed to protect existing sensitive species in perpetuity and remain viable to support the dynamics of the ecological systems within former Fort Ord. Corridor areas must be managed by entities acceptable to the USFWS. The requirements to avoid and restore habitat disturbed within the corridor area for operation, maintenance, and replacement of utility systems within utility easement areas will be the same as applied to the fee title grantee of the corridor area. Coordination and permitting of the proposed actions will be the responsibility of the easement interest grantee.

Development with Reserve Areas or Development with Restrictions

Some of the lands slated for development in the HMP contain inholdings of habitat reserve land or require development restrictions to protect habitat within or adjacent to the parcel. This management category is titled "Development with Reserve Areas or Development with Restrictions". For development parcels that have habitat reserve areas within their boundaries, the management practices must be consistent with maintenance of the reserves. The inholding reserve areas are subject to the same management conditions described above for the Habitat Reserve category, including management by an entity acceptable to the USFWS. Some developed land must be managed as described for the specific parcel to include development restrictions or management action. Some of the lands in this category have no reserve inholding; they are subject only to certain restrictions on development needed to protect biological resource values. These parcels include E31, L20.3, and L20.4; there is no requirement that these areas be managed by an entity acceptable to the USFWS and these parcels may be transferred for development with appropriate deed restrictions.

Borderland Development Areas Along NRMA Interface

"Borderland Development Areas Along NRMA Interface" include parcels expected to be transferred to FORA as economic development conveyance and one parcel expected to be transferred to York School through a public benefit conveyance. The properties abut the Natural Resource Management Area and have no management restrictions except along the development/reserve interface. Management requirements such as development of fire breaks and limitation to vehicle access are required along the interface. Remaining portions of these parcels have no HMP development restrictions designed to protect biological resources. The management requirements would be the responsibility of FORA or other recipients and would apply to agencies receiving lands from FORA.

Development

Lands designated as "Development" have no management restrictions placed upon them as a result of this HMP. The biological resources found on these parcels are not considered essential to the long-term preservation of sensitive species at former Fort Ord. The Biological Opinion allows for development of these parcels, but it also requires identification of sensitive biological resources within these parcels that may be salvaged for use in restoration activities within reserve areas. The HMP does not exempt future landowners from complying with environmental regulations enforced by federal, state, and local agencies. This includes compliance with the federal ESA. However, implementation of the HMP will simplify future regulatory compliance by allowing USFWS and DFG to issue the permits and take authorizations easily.

Future Road Corridor

Several of the reserve areas have "Future Road Corridor" designations within their boundaries. These road corridors allow for development of roads and other transit facilities in the future. Before use as corridors, these areas are subject to the same management restrictions as reserve areas.

Parcel Designations

Each parcel is numbered in Attachment A. The letter before each parcel number identifies the type of agency expected to receive the parcel and/or the anticipated method of transfer. The methods of transfer include public benefit conveyance, economic benefit conveyance, negotiated sale, and auction or private sale. The type of conveyance will not affect how the HMP requirements are implemented. The HMP requirements will be placed in the deed transferring the property for any of these means of transfer. The letter F before a parcel number indicates a Federal Transfer Parcel; an S indicates a State Transfer Parcel; an L indicates a Local Transfer Parcel under a public benefit conveyance (PBC); and an E indicates a parcel available for an Economic Development Conveyance (EDC) or other method of transfer. Parcel numbers beginning with an E correspond to polygon numbers included in the Draft FORA Fort Ord Reuse Plan (March 1996).

Numbers are based on a parcel map for former Fort Ord lands. The parcel map frequently defines parcels as subparcels; for example, the Natural Resources Management Area (NRMA) contains subparcels F1.1 through F1.11, except parcel F1.7.2. Subparcels are identified as necessary to describe specific parcels.

For parcels that have already been disposed of, parcel boundaries match the boundaries included in the disposal documents. Table 4-1 identifies each parcel by number, describes the general land use planned for the parcel, and indicates whether the parcel would be transferred to a federal, state, or local agency or available for transfer through an EDC or other method.

Because this HMP will affect future regulatory compliance during reuse, these effects are discussed in the following section. Impacts on listed species from development of all development areas in Figure 4-1 are then described beginning on page 4-10, followed by an analysis of impacts associated with Alternative 6R from the 1993 final environmental impact statement (FEIS); Alternative 6R modified (6RM) from the 1993 NEPA Record of Decision (ROD); and Alternative 7 (1994 FORA Final Base Reuse Plan [December 1994]), Revised Alternative 7 (including elements of the Draft FORA Fort Ord Reuse Plan [March 1996]), and Alternative 8 from the Final Supplemental Environmental Impact Statement (FSEIS). Overall management guidelines for recipients of disposed land are also described followed by a discussion of several proposed road corridors and how they relate to this HMP. Land use parcels are then discussed separately in this chapter. Parcels considered primary conservation areas are discussed first, followed by parcels identified for development with reserve areas or development with restrictions, then parcels with no HMP requirements are discussed (as shown in Table 4-1). The general location of the parcel is described, then the recipient or a description of the proposed land use within the parcel provided, the major habitat features and HMP resources currently within the parcel are listed, and resource conservation requirements and habitat management requirements, if any, are described. The resource conservation requirements section describes areas of natural habitat that must be preserved in a parcel. The management requirements section describes management actions necessary to assist in conserving HMP resources within a parcel or in adjacent parcels. The HMP acknowledges that future data on species distribution and occurrence will be gathered over time. This data will be coordinated through the coordinated resource management and planning process (CRMP) and will not affect this HMP. The parties responsible (if known) for habitat management activities to take place within the parcel are also identified at the end of each section. After all parcels have been addressed, methods for implementing a CRMP process are described.

Table 4-1. Fort Ord HMP Parcel Designations

Text Order	Page Numbers	Parcels	Parcel Title	Land Use Description
			Federal Lands with Habitat Reserves	
1	4-23	F1.1-F1.11, except F1.7.2	Natural Resource Management Area (NRMA)	Habitat Reserve
			State Lands with Habitat Reserves	
2	4-26	S3.1.2	Coastal Dune Zone	Habitat Reserve
3	4-27	S2.1.2*, S2.1.3*, S2.1.5*	UC/NRS Fort Ord Natural Reserve	Habitat Reserve
4	4-29	S2.3.2*	Reservation Road Habitat Reserve	Habitat Reserve
5	4-30	S2.4*	Habitat Reserve/Corridor	Habitat Reserve
			Local Agency Lands with Habitat Reserves	
6	4-31	L5.1.12	Salinas River Habitat Area	Habitat Reserve
7	4-32	L6	Natural Area Expansion	Habitat Reserve
			Economic Development Conveyance Lands with Habitat Reserves	
8	4-33	E11a	East Garrison	Habitat Reserve
			Local Agency Lands with Habitat Corridors	
9	4-34	L20.2.1, L20.2.2	Habitat Corridor/Recreational Vehicle Park/Youth Camp	Habitat Corridor/Recreation
			Federal Lands with Development with Reserve Areas or Development with Restrictions	
			No federal lands are in this category	
			State Lands with Development with Reserve Areas or Development with Restrictions	
10	4-37	S3.1.1, S3.1.3	Disturbed Habitat Zone	Development with Reserve Areas or Development with Restrictions
11	4-40	S4.1.1, S4.1.2, S4.1.3	Highway 1 Corridor	Development with Reserve Areas or Development with Restrictions
24	4-53	Transportation Easement	State Route 68 Corridor	Development with Reserve Areas or Development with Restrictions
			Local Agency Lands with Development with Reserve Areas or Development with Restrictions	
12	4-41	L5.1.11	North Fritzsche Habitat Reserve	Development with Reserve Areas or Development with Restrictions
13	4-42	L20.3, L20.5	Recreation Area Expansion #1	Development with Reserve Areas or Development with Restrictions
14	4-44	L20.4	Recreation Area Expansion #2	Development with Reserve Areas or Development with Restrictions

Table 4-1. Continued

Text Order	Page Numbers	Parcels	Parcel Title	Land Use Description
		Economic Development Conveyance Lands with Development with Reserve Areas or Development with Restrictions		
15	4-46	E8a.1, E8a.2	Landfill Parcel	Development with Reserve Areas or Development with Restrictions
16	4-47	E31	Office Park	Development with Reserve Areas or Development with Restrictions
17	4-48	E2a	No title	Development with Reserve Areas or Development with Restrictions
18	4-49	E11b.1-E11b.8, E11b.11	East Garrison	Development with Reserve Areas or Development with Restrictions
		Federal Lands with No HMP Requirements		
19	4-51	F1.4.1, F1.7.2, F1.12, F2.1, F2.2, F2.3, F2.4, F2.5, F2.6, F2.7.1, F2.7.2, F2.7.3, F2.8, F2.9, F3, F4, F5.1, F5.2, F6	Federal Agency Parcels with No HMP Requirements	Development
		State Lands with No HMP Requirements		
20	4-51	S1.1,* S1.2.1,* S1.2.2,* S1.2.3,* S1.3.1,* S1.3.2,* S1.3.3,* S1.3.4,* S1.4,* S1.5.1,* S1.5.2,* S1.6*, S1.7,* S2.1.1,* S2.1.4,* S2.2.1,* S2.2.2,* S2.2.3,* S2.3.1,* S2.5.1,* S2.5.2,* S3.1.4, S3.2, S4.2.1, S4.2.2, S4.2.3, S4.3	State Agency Parcels with No HMP Requirements	Development

Table 4-1. Continued

Text Order	Page Numbers	Parcels	Parcel Title	Land Use Description
		Local Agency Lands with No HMP Requirements		
21	4-52	L1.1, L1.2, L2.1, L2.2, L2.3, L3.1, L4.1, L4.2, L5.1, L5.1.1, L5.1.2, L5.1.3, L5.1.4, L5.1.5, L5.1.6, L5.1.7, L5.1.8, L5.1.9, L5.1.10, L5.2, L5.4.1, L5.4.2, L5.5, L5.6, L5.7, L5.8.1, L5.8.2, L5.9.1, L5.9.2, L5.10, L7.1, L7.2, L7.3, L7.4, L7.5, L7.6, L7.7, L8.1, L8.2, L8.3, L9.1.1, L9.1.2, L9.2, L9.3, L10.1, L10.2, L10.3, L10.4, L11, L12.1, L12.3, L13.1, L13.2, L14, L15.1, L15.2, L15.3, L16, L17.1, L17.2, L18, L19, L20.6, L20.7, L20.9, L20.10.1, L20.10.2, L20.10.3, L20.11.1, L20.11.2, L20.12, L20.13, L20.14.2, L20.15, L20.16, L20.17.1, L20.17.2, L20.18, L21, L22, L23.1.1, L23.1.2, L23.1.3, L23.1.4, L23.1.5, L23.2. L23.4, L23.5, L24, L25, L27, L28, L29, L30, L31, L32, L33, L34, LE12.2**, LE20.16**, LE5.9**	Local Agency Parcels with No HMP Requirements	Development

Table 4-1. Continued

Text Order	Page Numbers	Parcels	Parcel Title	Land Use Description
			Existing Roads in HMP Management Areas	
22	4-52	L20.8, L20.14.1, L20.19, L20.20, L20.21, L20.22, LE20.18**, LE20.19**	Existing Roads in the HMP Management Areas	Development
			Economic Development Conveyance Lands with No HMP Requirements	
23	4-53	E2b.1, E2b.2, E2b.3, E2c.1, E2c.2, E2c.3, E2c.4, E2d, E2e, E4.1, E4.2, E4.3, E4.4, E4.5,. E4.6, E4.7, E5a, E5b, E11b.9, E11b.10, E11b.12, E15.1, E15.2, E17b.1, E17b.2, E18.1, E18.2, E18.3, E18.4, E19a.3, E20b, E20c.1.1, E20c.1.2, E20c.1.3, E20c.2.1, E20c.2.2, E21a, E29, E29b.3, E29e, E35, E36	Economic Development Conveyance (EDC) Parcels with No HMP Requirements	Development
			Borderland Development Areas Along NRMA Interface	
25	4-56	L3.2, E19a.1, E19a.2, E21b.1, E21b.2, E21b.3, E23.1, E23.2, E24, E29a, E29b.1, E29b.2, E34	Borderland Development Areas Along NRMA Interface	Development

* These areas are part of the California State University and University of California Economic Development Conveyances.

** LE parcels are areas where easements are proposed for transfer to local agencies.

FUTURE REGULATORY COMPLIANCE

The HMP does not exempt future landowners from complying with environmental laws and regulations enforced by federal, state, and local agencies. These laws include the federal Endangered Species Act (ESA). Section 9 of the ESA prohibits take of wildlife species listed as threatened or endangered, removal of listed plant species occurring on federal land, or destruction of listed plant species in violation of any state laws and may trigger the need to obtain an incidental take permit under Section 10(a)(1)(B) of the act. Section 7 of the act prohibits a federal agency from authorizing, funding, or carrying out any action that would be likely to jeopardize the existence of a listed species or adversely modify its critical habitat. Future landowners will also be required to comply with applicable measures for conservation of state-listed threatened and endangered species under the California ESA, California Environmental Quality Act (CEQA), and local land use regulations and restrictions. However, implementation of this HMP is intended to simplify future regulatory compliance by allowing the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (DFG) to rely on the HMP in carrying out their regulatory responsibilities.

This HMP is intended to support binding legal agreements among receiving entities, the Army, and the USFWS that would establish plans to manage lands designated for natural resource conservation. This HMP describes management goals; provides procedures for the enhancement, restoration, and management of parcels with HMP resource conservation requirements or management requirements; and identifies methods to fund these activities.

The HMP is intended to provide the foundation for a prelisting agreement between USFWS and local jurisdictions for candidate species covered by the HMP that may be listed in the future and a habitat conservation plan(s) (HCP[s]) to support issuance of a Section 10(a)(1)(B) incidental take permit for listed species. The HMP requires that its provisions be carried out by all land recipients that will receive parcels of land that are subject to management and/or use restrictions under the HMP. Likely recipients of land will include the Fort Ord Reuse Authority (FORA), U.S. Bureau of Land Management (BLM), state and local general and special purpose government agencies, and other successor owners of former Fort Ord lands. Compliance with the terms of the HMP will be required as a condition of conveyance in the document of transfer of the affected parcels. To the extent permitted by law, a compliance provision will be included as a covenant or restriction in any deed conveying lands subject to habitat conservation requirements. If it is not legally possible to place such restrictions in the deed, a legally binding memorandum of agreement will be executed with the recipient, requiring that the HMP be implemented.

The HMP would be considered suitable mitigation for impacts to HMP species and would facilitate the USFWS procedures to authorize incidental take of these species by participating entities as required under Section 10 of the ESA. The HMP does not authorize incidental take by entities acquiring land at former Fort Ord of any species listed as threatened or endangered under the ESA, as amended. Entities would submit the HMP in combination with additional documentation, including an Implementation Agreement signed by all parties receiving lands that are to be managed for wildlife values, to the USFWS to receive authorization for incidental take. In addition, the HMP is intended to be the basis for an HCP(s) that will support the issuance of incidental take permits under Section 10(a)(1)(B) of the ESA to the land recipients identified above. The provisions of the HCP(s) are expected to closely mirror the provisions of this HMP, and the implementing agreement developed to implement the HCP(s) is expected to establish detailed provisions for monitoring of the habitat conservation areas by the affected land recipients and reporting of habitat conditions to the U.S. Bureau of Land Management (BLM), USFWS, and DFG consistent with the procedure outlined below. The intention of the HMP is that no further mitigation will be required to allow development in Development areas unless species other than HMP target species are proposed for listing or are listed.

However, on lands with HMP resource conservation and management requirements, supporting documentation in addition to this HMP may be necessary to obtain incidental take authorization from USFWS. Section 9 of the ESA prohibits any taking of a threatened or endangered fish and wildlife species. The

definition of "take" includes to harass, harm, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Exemptions to Section 9 can be obtained through Sections 7 and 10 of the ESA. The USFWS has recommended that all nonfederal entities acquiring land at former Fort Ord apply for Section 10(a)(1)(B) incidental take permits for the species covered in the HMP. Although the USFWS will not require further mitigation from entities that are in conformance with the HMP, those entities without incidental take authorization would be in violation of the ESA if any of their actions resulted in the take of a listed animal species.

To apply for a Section 10(a)(1)(B) incidental take permit, an entity must submit an application form (Form 3-200), a complete description of the activity sought to be authorized, the common and scientific names of the species sought to be covered by the permit, and a conservation plan (50 CFR 17.22[b]). Pursuant to 50 CFR 17.22(b)(1)(iii), the HCP must specify (a) the impacts that will likely result from such takings; (b) what steps the applicant will take to monitor, minimize, and mitigate such impacts, the funding that will be available to implement such steps, and the procedures to be used to deal with unforeseen circumstances; (c) what alternative actions to such taking the applicant considered and the reasons why such alternative are not proposed to be utilized; and (d) such other measures that the director of the USFWS may require as being necessary or appropriate for purposes of the plan. For the USFWS to issue incidental take permits to any entities acquiring land at former Fort Ord, that entity will have to provide the above information.

The basic mechanism for implementing HMP requirements to this point has been by memoranda of agreement (MOAs). HMP requirements have been placed on land transfers to UCSC and BLM using MOAs. The Army proposes to place restrictions on all future transfer of Habitat Reserve, Habitat Corridor, Development with Reserve Areas or Development with Restrictions, and Borderland Development Areas Along NRMA Interface with dead restrictions. See Appendix D for a sample deed and MOA.

For compliance with the California ESA, this HMP may simplify the issuance of take authorization by DFG for take of HMP species and further facilitate coordination with DFG regarding future regulatory compliance concerning endangered and threatened species issues in the HMP Planning Area.

The HMP provides a foundation for prelisting agreements between USFWS and recipient landowners.

To coordinate this HMP with CEQA compliance, DFG may take into account the conservation measures set forth in this HMP when considering CEQA requirements for sensitive species and habitat types. DFG would consider the conservation program for HMP species and their habitats included in this HMP as adequate mitigation for CEQA compliance for those natural resources during the implementation of land reuse and development planning at former Fort Ord. Issues, such as oak woodland mitigation, outside the scope of this HMP would need to be considered under CEQA.

IMPACTS ON LISTED AND PROPOSED HMP SPECIES

The following sections summarize the impacts on federally and state-listed HMP target species and HMP species proposed for federal listing, if all development areas identified in Attachment A and Figure 4-1 were developed. This discussion assumes all habitat is removed in Development areas.

Appendix B identifies which species occur in each parcel at former Fort Ord. Table B-1 indicates the presence or absence of each target species based on the latest available information. Table B-2 describes acreage of low-, medium-, and high-density habitat suitable for each target species within each of the HMP reserves, HMP corridors, and the development areas based on 1992 survey information. Maps indicating the distribution of each HMP plant species at former Fort Ord and potential and occupied habitats for each HMP wildlife species are also included in Appendix B. Maps are based on data collected during preparation of the 1992 Flora and Fauna Baseline Study (U.S. Army Corps of Engineers, Sacramento District 1992a).

Information in Appendix B has been updated where available; however, analysis of impacts in this HMP is based on the 1992 data. The tables, combined with the distribution maps, provide further understanding of impacts to HMP species associated with development in development areas. The losses of habitat within development areas, as well as acres of habitat to be protected and enhanced within the HMP reserves and corridors, are described in Chapter 4 in the "Analysis of Impacts to HMP Target Species from the HMP" section.

Robust Spineflower (Federal Endangered)

Robust spineflower occurs on sandy soils in coastal dune and coastal scrub habitat. Several plants were observed at one site on the dunes west of Highway 1 during the 1992 field surveys. No other occurrences of robust spineflower were observed. Under this HMP the group of plants would be preserved.

Sand Gilia (Federal Endangered)

Sand gilia inhabits openings in maritime chaparral and coastal scrub communities. It also prefers disturbed sites, such as the borders of old roads and firebreaks. Based on 1992 survey results for all of former Fort Ord, approximately 5 acres of maritime chaparral and coastal scrub supporting sand gilia at high densities, 120 acres at medium density, and approximately 680 acres at low density will be removed under this HMP. Annually from 1993 to 1996, portions of former Fort Ord have been resurveyed to provided more site-specific data on sand gilia distribution and abundance. Results of the 1993 surveys for the northern portion of former Fort Ord are shown in Figure B-1b included in Appendix B. These surveys have typically shown a greater abundance of sand gilia than indicated by the 1992 survey results. However, none of these surveys has covered the entire installation as was done in 1992.

Smith's Blue Butterfly (Federal Endangered)

Smith's blue butterfly is completely dependent on seacliff and coast buckwheat for oviposition and as food sources for larvae and adults. Distribution and density of seacliff and coast buckwheat were recorded during the 1992 botanical surveys. Analysis of impacts to Smith's blue butterfly habitat is based on this data. Areas supporting medium or high densities of either buckwheat species are considered potential habitat for Smith's blue butterfly based on models included in the Flora and Fauna Baseline study. The 1994 HMP states that under that plan approximately 15 acres of potential Smith's blue butterfly habitat (areas supporting medium- and high-density populations of buckwheat) would be removed in the dunes west of Highway 1. In addition, an area of approximately 35 acres of dune habitat supporting buckwheat at low density would be removed and could potentially affect populations of Smith's blue butterfly. Habitat conservation and management requirements and land uses on the dunes west of Highway 1 under this HMP are consistent with those described for the 1994 HMP. Therefore, impacts to Smith's blue butterfly under this HMP are expected to be no greater than those described for the 1994 HMP .

Western Snowy Plover (Federal Threatened)

Western snowy plovers are known to nest on the beaches at former Fort Ord from the northern installation boundary to Stilwell Hall. They may also nest south of Stilwell Hall. The USFWS has proposed critical habitat for the Western snowy plover (60 FR 11768, March 2, 1995). The beaches at former Fort Ord are among the areas proposed as critical habitat. The HMP will not directly remove any western snowy plover nesting habitat. However, increased human presence on the beaches associated with the alternative could negatively affect snowy plover breeding success.

Monterey Spineflower (Federal Threatened)

Implementation of this HMP would result in the loss of approximately 3,910 acres of maritime chaparral, coastal dunes, coastal scrub, and grassland habitats occupied by Monterey spineflower. These habitat areas support Monterey spineflower at high densities on approximately 310 acres, medium densities on about 1,200 acres, and low densities on approximately 2,400 acres. Sand hill maritime chaparral, all coastal dune habitats, and grassland and coastal scrub habitats on sandy soils are potentially suitable habitat for Monterey spineflower. Monterey spineflower occurs in natural and artificial disturbance patches in these habitats.

Seaside Bird's-Beak (USFWS Species of Concern)

Seaside bird's-beak occurs in openings on sandy soils in maritime chaparral and oak woodland habitats. Implementation of this HMP would result in the removal of roughly 45 acres of maritime chaparral and oak woodlands supporting Seaside bird's-beak at low densities.

California Red-Legged Frog (Federal Threatened)

The California red-legged frog typically occupies cold water ponds with both emergent and submergent vegetation. No red-legged frogs have been observed on former Fort Ord; although potential habitat is available. Approximately 2 acres of potential California red-legged frog habitat would be removed under this HMP. However, part of this two acres consists of an artificial pond in parcel L20.2.2 (Attachment A) associated with the former Army Family Camp. The pond is filled from artificial sources and has been stocked with fish to provide recreational fishing for campers. Because of the presence of predatory game fish, it is unlikely that red-legged frogs would occur in this water body.

Almost all other potential red-legged frog habitat at former Fort Ord would be preserved within the NRMA. The Salinas River is also considered potential red-legged frog habitat. One portion of former Fort Ord is within the river channel. This area is identified as a habitat reserve.

Yadon's Piperia (Proposed for Federal Listing as Endangered)

The species occurs near established shrubs in maritime chaparral habitat. One population is known to occur on former Fort Ord in parcel E2a. This population would be preserved under this HMP. USFWS has proposed Yadon's piperia for federal listing as endangered.

Black Legless Lizard (Proposed for Federal Listing as Endangered)

The California black legless lizard is found in dune habitats supporting native vegetation and where maritime chaparral, coastal scrub, oak woodland, and oak savanna occur on loose sandy soils. Figure B-1b in Appendix B shows the occurrence of potential black legless lizard habitat at former Fort Ord based on habitat models developed during preparation of the 1992 Flora and Fauna Baseline study. Areas where potential habitat will be most affected include the western boundary of the multi-range area (MRA) and where the former Fort Ord boundary abuts the City of Marina. USFWS has proposed the black legless lizard for federal listing as endangered.

ANALYSIS OF REUSE ALTERNATIVES FROM THE FEIS AND FSEIS

This HMP assumes, as described in the previous "Impacts on Listed and Proposed HMP Species" section, that development can occur through all development areas with the resultant loss of habitat. The following description provides a similar analysis of the full buildout of areas identified for development within Alternative 6R of the FEIS; Alternative 6RM of the 1993 NEPA ROD; and Alternatives 7, Revised Alternative 7, and 8 of the FSEIS. These alternatives give an indication of the range of specific land uses that may occur within various development areas within this HMP.

This section summarizes impacts to biological resources associated with Alternative 6R from the 1993 FEIS; 6RM of the 1993 NEPA ROD; and Alternative 7, Revised Alternative 7, and Alternative 8 as described in the 1996 FSEIS. The 1993 FEIS, 1993 Biological Assessment, and the USFWS final Biological Opinion (October 19, 1993) describe Alternative 6R. Alternative 6RM is a modification of Alternative 6R that was contained in the 1993 NEPA ROD; it incorporated likely land uses in NPU areas based on an early version of the community reuse plan. Alternative 7 represents the December 12, 1994 FORA Final Base Reuse Plan. Revised Alternative 7 incorporates the Draft FORA Fort Ord Reuse Plan (March 1996) where it does not conflict with Army policies or agreements. Alternative 8, a land use scenario similar to Alternative 7, includes uses for specific parcels received during scoping processes. The full discussion of impacts to biological resources associated with Alternative 6R appears on pages 6-100 through 6-130 of Volume I of the FEIS. The full discussion of impacts to biological resources associated with Revised Alternative 7 appears on pages 5-67 through 5-74 of the FSEIS. The full discussion of impacts to biological resources associated with Revised Alternative 7 appears on pages 5-112 through 5-121 of the FSEIS. The full discussion of impacts to biological resources associated with Alternative 8 appears on pages 5-125 through 5-127 of the FSEIS.

Alternative 6R was analyzed using a Geographic Information System (GIS) database of the 1992 biological survey data overlaid with a map of the alternative. For impact calculations, development-related land uses were assumed to remove all biological resources within the land use footprint and habitat conservation related land uses were assumed to preserve all biological resources in the land use footprint. Alternative 6R also included several areas with no proposed use (identified as NPU areas). NPU areas were assumed to have no effect on biological resources. However, it was acknowledged in the FEIS that lands designated as NPU could be subject to reuse in the future and would require future, separate environmental documentation.

The total effect of Alternative 6R would be the removal of approximately 2,507 acres of common and special native biological communities. Within this area of removed habitat, approximately 130 acres supporting low-density populations of sand gilia, 5 acres supporting medium-density populations, and 15 acres supporting high-density populations of sand gilia would be removed. The only other listed plant species that would be affected would be Monterey spineflower. This species would lose approximately 355 acres, 515 acres, and 70 acres respectively of areas supporting low-, medium-, and high-density populations. Alternative 6RM was analyzed using the same methodology described above for Alternative 6R, except that land uses were inserted into NPU areas based on the local reuse planning assumptions available at the time the 1993 NEPA ROD was completed.

The total effect of Alternative 6RM would be the removal of 5,941 acres of common and special native biological communities. Within this area of removed habitat, approximately 555 acres supporting low-density populations of sand gilia, 125 acres supporting medium-density populations of sand gilia, and 13 acres supporting high-density populations of sand gilia would be removed. The only other federally listed plant species that would be affected would be Monterey spineflower. This species would lose approximately 1,970 acres, 985 acres, and 260 acres, respectively, of areas supporting low-, medium-, and high-density populations.

Alternative 7 was analyzed using both a GIS database and manual overlaying of a proposed road network map with resource maps. The GIS analysis for Alternative 7 used the same methods as used for the Alternative 6R analysis. However, impact assumptions for some parcels were modified based on more recent information. Impact calculations using the GIS did not include impacts associated with a proposed road network because the digital mapping data for the road network was not compatible with the GIS biological resource data. Impacts from the road network were quantified by overlaying by hand road network maps with resource maps and planimetering the acres of effect.

The total effect of Alternative 7 would be the removal of approximately 6,180 acres of common and special native biological communities. Within this area of removed habitat, approximately 595 acres supporting low-density populations of sand gilia, 120 acres supporting medium-density populations of sand gilia, and 6 acres supporting high-density populations of sand gilia would be removed. The only other federally listed plant species that would be affected would be Monterey spineflower. This species would lose approximately 1,965 acres, 1,065 acres, and 250 acres, respectively, of areas supporting low-, medium-, and high-density populations.

Revised Alternative 7 was analyzed through a comparison against the reuse scenario described in the 1994 HMP. Areas where the alternative differed from the 1994 HMP relative to locations of development and habitat reserved were identified. Locations where portions of the proposed transportation network conflicted with habitat reserve areas in the February 1994 HMP were included in this analysis. Acreages of loss or gain of areas identified as habitat reserve were calculated for each location where Revised Alternative 7 and the 1994 HMP differed. Losses and gains were also calculated for key HMP resources. For the analysis, key HMP resources include areas supporting sand gilia, Monterey spineflower, and Seaside bird's beak.

The total effect of Revised Alternative 7 on habitat reserve areas is the conversion of approximately 370 acres of area considered habitat reserve in the 1994 HMP to developed area or another use. The total effect on key HMP resources under Revised Alternative 7 would be a loss of approximately 114 acres of habitat supporting low-density sand gilia populations; a loss of approximately 3 acres of area supporting medium-density sand gilia populations; a gain of approximately 8 acres of area supporting high-density sand gilia populations; a loss of approximately 183 acres and 62 acres, respectively, of area supporting low- and medium-density Monterey spineflower populations; a gain of approximately 7 acres of area supporting high-density Monterey spineflower populations; and a loss of approximately 25 acres of habitat supporting low-density populations of Seaside bird's beak.

Alternative 8 is very similar to Alternative 7, with differences primarily associated with proposed changes in land uses in specific areas. Alternative 8 was analyzed by examining these specific areas. Differences between Alternatives 7 and 8 that could affect impacts to biological resources included expansion of a community park, removal of small areas from the NRMA (at the request of BLM due to the separation of these areas from the main body of the NRMA by existing roads), and construction of a golf course on the landfill parcel. The total effect of Alternative 8 would be the removal of approximately 6,230 acres of common and special native biological communities and removal of approximately 793 acres of area supporting sand gilia and 3,423 acres of area supporting Monterey spineflower at various densities.

ANALYSIS OF IMPACTS TO HMP TARGET SPECIES FROM THIS HMP

Earlier sections of this chapter described the impacts to listed and proposed plant and animal species from the maximum development allowed by this HMP. This section summarizes the habitat areas within each HMP reserve or corridor area that are going to be preserved for each HMP target species. In some cases, the HMP reserve area is actually a combination of Habitat Reserve parcels and parcels that are classified Development with Reserve or Development with Restrictions but contain primarily lands to be managed as

reserve. The section also indicates the habitat acreage contained within the total development area allowed by this HMP. This Development Areas category includes parcels that are classified as Development and others that are classified as Development with Reserve or Development with Restrictions but have no reserve component, only restrictions.

Acreage totals contained below were calculated by overlaying the current reserve, corridor, and development area boundaries with the 1992 habitat data contained in the planning-level Geographic Information System (GIS) developed by the Army to support the disposal and reuse of Fort Ord. The totals below are a sum of the low-, medium-, and high-density habitats for each species. For the detailed breakdown of low-, medium-, and high-density habitat for each species in each reserve, refer to Table B-2 in Appendix B.

State Parks Reserve

The State Parks reserve is located along the coast, west of SR 1. It includes both Reserve and Development with Reserve Areas or Development with Restrictions parcels, as mapped in Figure 4-1. This reserve occupies approximately 970 acres and includes parcels S3.1.1, S3.1.2, and S3.1.3. The list below identifies the species that have supporting habitat in the reserve. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- Smith's blue butterfly (177),
- western snowy plover (73),
- California black legless lizard (86),
- Monterey spineflower (666),
- robust spineflower (476),
- sandmat manzanita (1), and
- coast wallflower (171).

The State Parks reserve has an allowance for up to 186 acres of development for existing and proposed facilities. Conversely, an additional 390 acres that currently do not support native habitat will be restored to coastal strand and coastal scrub habitat. Therefore, a net increase in habitat available for target species is expected in this reserve. It is expected that this reserve will be transferred to California Department of Parks and Recreation as a public benefit conveyance (PBC) by the U.S. Department of Interior.

Landfill Development with Reserve

The Landfill reserve is located northeast of the Main Garrison, just south of Imjin Road. It is composed of two Development with Reserve or Development with Restrictions parcels (parcels E8a.1 and E8a.2). This reserve occupies approximately 308 acres. Three habitat types exist in the reserve, including coastal coast live oak woodland, annual grassland, and maritime chaparral. The list below identifies the species that have supporting habitat in the reserve. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California black legless lizard (43),
- Monterey ornate shrew (149),
- sand gilia (101),
- Monterey spineflower (243),
- sandmat manzanita (270),
- Monterey ceanothus (164), and
- coast wallflower (8).

The Landfill reserve has an allowance for up to 81 acres of development. The exact location of this development has not been determined. The remaining 227 acres of the area, including the landfill cap, will be managed as reserve.

UC/NRS Fort Ord Natural Reserve

The UC/NRS Fort Ord Natural Reserve is located in the southwestern corner of the former Fritzsche Army Airfield and south of Reservation Road; it has already been transferred to UC. It is being managed as part of the UC Natural Reserve System. This reserve includes approximately 590 acres and is composed of Reserve parcels S2.1.2, S2.1.3, S2.1.5, S2.3.2, and S2.4 (Figure 4-1). The habitat types in the parcel include maritime chaparral and coastal coast live oak woodland. The species that have supporting habitat within the reserve are listed below. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California black legless lizard (261),
- Monterey ornate shrew (243),
- sand gilia (473),
- Monterey spineflower (507),
- Toro manzanita (30),
- sandmat manzanita (424),
- Monterey ceanothus (348),
- Eastwood's ericameria (115), and
- coast wallflower (172).

Marina Reserve

The Marina reserve is located in the Fritzsche Army Airfield area, north and west of the developed portion of the airfield. It includes both Reserve and Development with Reserve or Development with Restrictions parcels. The reserve has approximately 175 acres and includes parcels L5.1.11 and L5.1.12 (Figure 4-1). These parcels have already been transferred to the City of Marina and are being managed as reserve. The species that have supporting habitat within the Marina Reserve are listed below. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California red-legged frog (1),
- California black legless lizard (19),
- Monterey ornate shrew (27),
- sand gilia (1),
- Monterey spineflower (120), and
- sandmat manzanita (1).

East Garrison Reserve

The East Garrison reserve is located in the easternmost portion of former Fort Ord, south of Reservation Road. The reserve includes both Reserve and Development with Reserve or Development with Restrictions parcels. The reserve totals approximately 855 acres and includes parcels E11a, E11b.1-E11b.8, and E11b.11. This large reserve area supports inland and coastal coast live oak woodland, grassland, and

maritime chaparral habitat types. The target species supported by habitat within the reserve are listed below. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California black legless lizard (6),
- Monterey ornate shrew (492),
- sand gilia (14),
- Monterey spineflower (158),
- Seaside bird's beak (5),
- Toro manzanita (349),
- sandmat manzanita (24),
- Monterey ceanothus (236),
- Eastwood's ericameria (195),
- coast wallflower (3), and
- Hooker's manzanita (65).

The East Garrison reserve includes an allowance for up to 200 acres of total development, both existing and future, at some location within the area. This 200 acres does not include lands already occupied by two water tanks, a wastewater treatment facility, and a future road corridor. It is expected that portions of this reserve will be transferred as a PBC by the U.S. Department of Interior.

Habitat Corridor

The Habitat corridor, located immediately west of the East Garrison portion of former Fort Ord, includes both Reserve and Development with Reserve or Development with Restrictions parcels. It includes parcels L20.2.1 and L20.2.2 (Figure 4-1). The reserve totals approximately 400 acres. Coastal coast live oak woodland and annual grassland habitats are found in the Habitat corridor. The list below identifies the target species that have supporting habitat within the corridor. Combined acreages of low-, medium-, and high-density habitat within the corridor are included in parentheses:

- California linderiella (1),
- California red-legged frog (1),
- California tiger salamander (1),
- Monterey ornate shrew (376),
- sand gilia (61),
- Monterey spineflower (204), and
- sandmat manzanita (78).

Some development will be allowed in the corridor, concentrated around the existing campground in parcel L20.2.2. The exact location of development is unknown, but it is not expected to affect the acreages listed above. It is expected that the Habitat Corridor will be transferred to Monterey County by the U.S. Department of Interior as a PBC.

BLM Natural Resource Management Area

The BLM NRMA is located in the southern and eastern portions of former Fort Ord. This reserve is largest natural area being retained in the HMP area. It totals approximately 15,000 acres and includes parcels Fl.1-F1.11, excluding parcel F1.7.2 (Figure 4-1). Some portions of the area have already been transferred to BLM and are being managed as reserve. This transfer includes most of the land east of Barloy Canyon Road. The NRMA includes 12 habitat types but is dominated by maritime chaparral. The target species that

are supported by habitat within the NRMA are listed below. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California linderiella (56),
- California red-legged frog (23),
- California black legless lizard (935),
- California tiger salamander (56),
- Monterey ornate shrew (1,723),
- sand gilia (2,288),
- Monterey spineflower (5,176),
- Seaside bird's beak (1,046),
- Toro manzanita (5,261),
- sandmat manzanita (5,453),
- Monterey ceanothus (8,223),
- Eastwood's ericameria (4,194),
- coast wallflower (36), and
- Hooker's manzanita (4,499).

Significant habitat management efforts and restoration of built areas are expected to add to the acreages within the NRMA that support the above-listed species.

Caltrans State Route 68 Easement

The Caltrans State Route (SR) 68 easement overlays the NRMA in the southern portion of former Fort Ord (Figure 4-1). A total of approximately 660 acres are contained within the corridor. Of this total, approximately 180 acres could be lost to development of a highway, assuming a 300-foot-wide construction corridor. The parcels overlain by the corridor include L4.2, E29e, E29b.1, F1.4, F1.5, F1.7.1, S4.2.1, S4.2.3, L20.3, L20.5, and F1.1. The major habitat types in this area are maritime chaparral, annual grassland, and valley needlegrass grassland. The list below identifies the species that have supporting habitat in the corridor. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California linderiella (1),
- California tiger salamander (2),
- Monterey ornate shrew (37),
- sand gilia (10),
- Monterey spineflower (64),
- Toro manzanita (155),
- sandmat manzanita (219),
- Monterey ceanothus (353), and
- Hooker's manzanita (226).

MPRPD Reserve

The MPRPD reserve is located in the extreme southwestern portion of former Fort Ord. It is a Reserve parcel containing approximately 20 acres. The parcel number is L6. It is dominated by coastal coast live oak woodland habitat but also contains riparian and maritime chaparral habitats. The list below identifies the target species supported by habitat in the MPRPD reserve. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California black legless lizard (7).
- Monterey spineflower (20),

- Seaside bird's beak (7),
- sandmat manzanita (20),
- Monterey ceanothus (20), and
- Eastwood's ericameria (20).

Caltrans State Route 1 Area

The SR 1 corridor passes through the western portion of former Fort Ord, separating the beach areas from the Main Garrison area. It is considered a Development with Reserve or Development with Restrictions area and includes parcels S4.1.1, S4.1.2, and S4.1.3 (Figure 4-1). The corridor totals approximately 225 acres. A variety of disturbed dune, ice plant mat, and annual grassland habitats dominate the corridor. The target species that are supported by habitat in the SR 1 corridor are listed below. Combined acreages of low-, medium-, and high-density habitat within the corridor are included in parentheses:

- California black legless lizard (9),
- sand gilia (3),
- Monterey spineflower (40),
- sandmat manzanita (14),
- Monterey ceanothus (7),
- Eastwood's ericameria (5),
- coast wallflower (7), and
- Yadon's piperia (1).

Development Areas

The Development areas of former Fort Ord include the remaining parcels not listed above. Some of these parcels are developable with no restrictions, while several others (parcels E2a, E31, L20.3, L20.4, and L20.5) are classified as Development with Restrictions. The Development areas total approximately 10,500 acres. The developable areas are located primarily between the SR 1 corridor and the NRMA (Figure 4-1). Habitat supporting all of the HMP target species is found within the Development areas. Acreages of habitat for each of these species are listed below. The acreages are a combination of low-, medium-, and high-density habitats, summarized from Table B-2 in Appendix B:

- Smith's blue butterfly (2),
- California linderiella (2),
- California tiger salamander (2),
- California red-legged frog (2),
- California black legless lizard (1,846),
- Monterey ornate shrew (1,648),
- Hooker's manzanita (426),
- Yadon's piperia (13),
- sand gilia (806),
- Eastwood's ericameria (1,338),
- coast wallflower (375),
- Seaside bird's beak (69),
- Monterey spineflower (3,204),
- Monterey ceanothus (2,437),
- sandmat manzanita (2,325), and
- Toro manzanita (631).

There are no resource conservation requirements in the HMP for most of the Development areas. The habitat resources contained in the parcels are not considered critical to the long-term survival of the species. However, habitat may be preserved within and around the Development areas within these parcels.

MANAGEMENT GUIDELINES FOR RECIPIENTS AND/OR HABITAT MANAGERS OF DISPOSED LAND

This section describes key resources, expected impacts on resources, and land management responsibilities for each recipient of disposed land in the HMP area. The Army will include deed covenants in transfer of lands and may, as appropriate, enter into separate MOAs with recipients or habitat managers of disposed land to ensure implementation of HMP requirements. Land recipients and habitat managers may also agree to take part in a CRMP. The CRMP is described in detail at the end of this chapter. Methods for updating or modifying this HMP after agencies or private parties have received Fort Ord lands are described in the "Flexibility of This HMP" section in Chapter 1.

Habitat conservation and management responsibilities by recipients (or habitat managers) of disposed lands at former Fort Ord are discussed individually in the "Descriptions of Parcels" section.

Implementation Strategies

Memoranda of Agreement and Deed Covenants

Before disposal of land, the Army will place appropriate deed covenants (restrictions and/or management requirements) on lands to be transferred and/or enter into MOAs with recipients and/or habitat managers of disposed lands identified in this HMP as Habitat Reserve, Habitat Corridor, Development with Reserve Areas or Development with Restrictions, or Borderland Development Areas Along NRMA Interface. Appropriate HMP guidelines will be included in each document. USFWS will be designated as an agency of the United States to enforce restrictions and/or management requirements in the transfer documents.

Monitoring Procedures and Responsibilities

Monitoring of conservation areas and corridors shall be the responsibility of BLM, California Department of Parks and Recreation (DPR), University of California (UC), Monterey County, City of Marina, Monterey Peninsula Regional Park District, California Department of Transportation (Caltrans), Fort Ord Reuse Authority (FORA), and any other organization with management responsibilities for areas designated as Habitat Reserve, Habitat Corridor, or Development with Reserve Areas or Development with Restrictions in this HMP. The managing agency shall require avoidance of impacts to HMP target species, including listed species, and restoration of disturbed habitat for these species within HMP Habitat Reserve or HMP Habitat Corridors managed by that agency. These areas shall be conserved and managed in accord with the goals and objectives of the HMP and the parcel-specific management requirements in section 4 of the HMP for these parcels. The managing agency shall submit to BLM an annual report that details completed activities and the results of the endangered species protection program for the previous year. The report shall include summaries of land transfers that have occurred; occurrences of incidental take, if any, including known harassment (including both authorized and unauthorized incidental take in accordance with the ESA); acres of listed species' habitat eliminated or destroyed; problems encountered in implementing mitigation measures; pertinent results of biological surveys and sighting records; and any other pertinent information. The report shall be submitted by November 1 of each calendar year, and BLM shall be notified in case of a delay. FORA or other organizations receiving Borderland Development Areas Along NRMA Interface will provide status

reports for parcels adjacent to the NRMA on interim habitat management and/or firebreak construction and maintenance and compliance with other management requirements associated with these parcels (see the "Borderland Development Areas Along NRMA Interface" section near the end of this chapter). These agencies would be responsible for ensuring that this HMP's guidelines are implemented on parcels under their jurisdictions.

Monitoring results for CRMP participants will be coordinated by BLM, and BLM will consolidate the results into a single monitoring report. Annual monitoring reports will be filed with USFWS and DFG, as well as with each of the participating agencies.

Program Costs and Funding

Funding to develop this HMP was provided by the Army. Funding to implement this HMP's prescribed habitat restoration, management, and monitoring for reuse will be provided by entities receiving properties or with management responsibilities for areas designated as Habitat Reserve, Habitat Corridor, Borderland Development Areas Along NRMA Interface, or Development with Reserve Areas or Development with Restrictions in this HMP. These agencies will fund implementation of this HMP and implement conservation and/or management guidelines specific to parcels they receive. This HMP does not preclude other sources of funding for HMP implementation or preclude these agencies from securing funding from other sources to support their implementation of this HMP guidelines. Requirements for each agency's minimal participation and accomplishments toward implementation of this HMP will be specified in covenants in the deed that will be completed at the time of land transfer or in a MOA with the Army.

ANALYSIS OF ROAD CORRIDORS

The analysis of impacts to biological resources in the FSEIS considered the effects of a proposed transportation network. The transportation network considered was based on the FORA December 12, 1994 Final Fort Ord Base Reuse Plan with mitigations and modifications agreed on with USFWS, UC, and FORA on March 15 and 28, 1996. Several road segments included in the proposed network pass through areas identified as Habitat Reserve, Habitat Corridor, or Development with Reserve Areas or Development with Restrictions in this HMP (Figure 4-2). These road corridors are accommodated within this HMP. Descriptions of individual parcels affected by these road segments each contains a reference to the road segment and how it may affect HMP habitat conservation or management requirements. The SR68 Transportation Easement is treated separately and is considered in the category of "Development with Reserve Areas or Development with Restrictions".

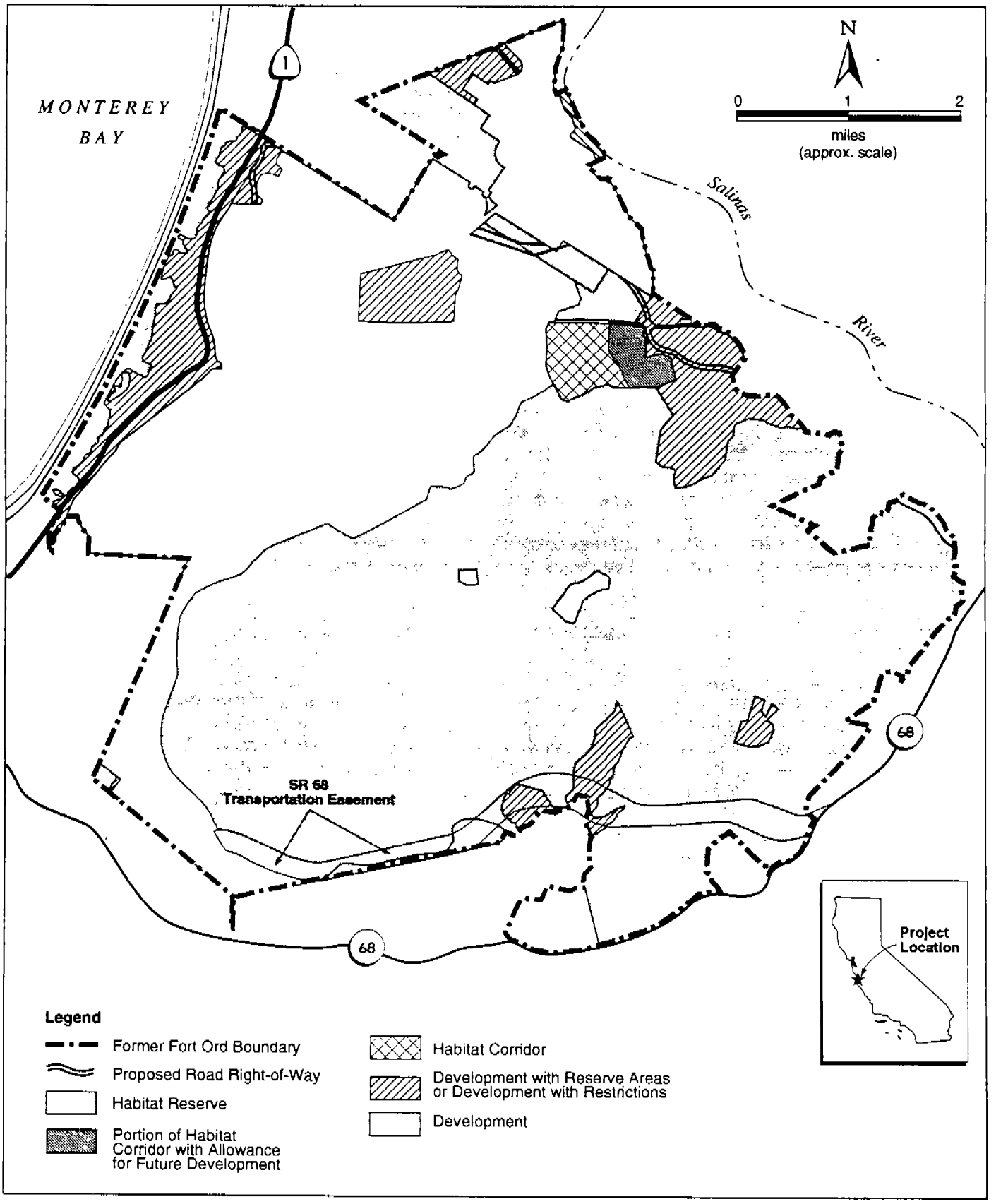


Figure 4-2
Proposed Road Corridors Passing through Areas with HMP Conservation Requirements

Description of Parcels

PARCELS F1.1-F1.11 (EXCLUDING PARCEL F1.7.2)
U.S. BUREAU OF LAND MANAGEMENT
NATURAL RESOURCE MANAGEMENT AREA

Parcel Description

Approximately 15,000 acres of Fort Ord lands are identified as Parcels F1.1 through F1.11 (excluding parcel F1.7.2, which is a Development area) in Figure 4-1 and Attachment A. This area, the Natural Resource Management Area (NRMA), includes areas designated as conservation areas and habitat corridors, as well as other habitat areas important to HMP plant and wildlife species.

The proposed SR 68 corridor passes through the southern portion of the NRMA, the existing Barloy Canyon Road (parcels L20.8 and LE20.19) passes north to south through the central portion of the NRMA, and the existing Eucalyptus Road (parcel LE20.18) passes east to west through the central portion of the NRMA. These areas are treated separately: the SR 68 corridor under the section titled Transportation Easement and parcels L20.8, LE20.18, and LE20.19 are included in the Existing Roads in HMP Management Areas discussion.

Parcel F1.12 contains the former Range Control compound and is currently developed. This parcel is considered a development parcel and is included with the Federal Lands with No HMP Requirements parcels.

Resources Present

Major Habitat Features

Twelve habitat types occur within the NRMA. The most abundant habitat type is maritime chaparral. Other dominant habitat types include annual grasslands, inland coast live oak woodland, and coastal coast live oak. Habitats of special interest within the NRMA include riparian forests, perennial grasslands, and vernal pools.

HMP Species

Sand gilia, Monterey spineflower, California linderiella, Seaside bird's-beak, Toro manzanita, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, coast wallflower, Hooker's manzanita, and California tiger salamander are known to occur in the NRMA.

Potential habitat is available in the NRMA for California red-legged frog, black legless lizard, and Monterey ornate shrew. Distribution maps for these species at former Fort Ord (based on 1992 survey data) are included in Appendix B. The appendix also contains updates of 1992 data where available.

Resource Conservation Requirements

Overall, undeveloped areas in the NRMA will be maintained in their natural state. No more than 2% of the areas with natural vegetation may be converted to areas having buildings or other development-oriented uses. Parcel F1.12, which contains the former Range Control compound, is not included in this 2%. Any development that may occur in the Transportation Easement that passes through the NRMA is also not included in this 2%. Only land management consistent with the conservation of biological resources will be conducted in the NRMA. Potential land uses in the NRMA include public access, grazing, police and fire training, education and research, and implementation of a Natural Resources Management Plan to be developed for the area. Restoration and enhancement efforts described in the next section will also be conducted.

Management Requirements

The NRMA is separated into two portions for management of maritime chaparral. Initial management of the NRMA will be different in the portion within the inland range, and any other areas requiring ordnance and explosives (OE) clearing, from the portions outside the inland range. After the clearing of OE by the Army, the management of maritime chaparral in the NRMA will not be separated into these two units.

NRMA within the Inland Range

During the Army's actions to clear OE from the inland range and other sites within the NRMA, BLM (the anticipated land recipient) will provide advice and guidance to the Army as the Army carries out the following actions:

- develop the spatial pattern of vegetation burning and OE clearing to promote healthy maritime chaparral and HMP species habitat;
- monitor the recovery and succession of maritime chaparral over the long term and short term;
- study the establishment, persistence, and habitat requirements of sand gilia, Monterey spine-flower, and Seaside bird's-beak;
- develop management procedures that encourage and maintain sand gilia, Monterey spineflower, and Seaside bird's-beak populations and habitat; and
- develop management procedures that encourage and maintain populations of other special-status maritime chaparral species.

At heavily disturbed sites requiring maritime chaparral restoration (e.g., paved sites, sites of compacted soils), BLM and the Army will conduct portions of the restoration effort. The Army, or others, will prepare the site surface for restoration by removing structures, asphalt, cement, and other materials; ripping compacted soils; restoring natural relief and landform conditions; and using other techniques. California Department of Transportation (Caltrans) may assist the Army in these efforts to the extent that funding is negotiated. Refer to the description of the Transportation Easement - State Route 68 corridor later in this chapter for more information concerning coordination between the Army and Caltrans regarding habitat improvements in the NRMA. BLM will conduct revegetation of maritime chaparral at these sites immediately following site preparation to meet the habitat success criteria described below.

NRMA Management

The following management actions will be taken by BLM in the NRMA. These actions will be taken outside the inland range before OE clearing and within the inland range after OE clearing.

Maritime Chaparral Habitat Restoration Success Criteria. Healthy maritime chaparral habitat is described in Chapter 2 in the "Habitat Management Plan Habitats" section. This description and comparisons with undisturbed sites supporting maritime chaparral should be used to measure the success of restored habitat. Restored habitat will consist of naturally regenerating maritime chaparral managed to maximize the habitat value for HMP shrub species associated with the habitat.

Sand gilia, Monterey spineflower, and Seaside bird's-beak will also be considered when restoring maritime chaparral habitat. Habitat conditions will be modified in restoration sites to promote favorable conditions for these species. Sand gilia, Monterey spineflower, and Seaside bird's-beak are annuals and locations of populations may vary from year to year. Because population occurrences may vary and restoration sites will be relatively small (typically 1-5 acres), it cannot be expected that each restoration site will support any one of these species every year.

Maritime chaparral restoration will be considered successful if restored sites support naturally regenerating maritime chaparral that becomes a functioning part of the entire dynamic, managed maritime chaparral habitat of the NRMA. These restored maritime chaparral sites should also provide habitat for, and in some years support populations of, sand gilia, Monterey spineflower, and Seaside bird's-beak.

Most potential maritime chaparral restoration sites occur within the inland range area. There are some denuded areas outside the inland range with potential for maritime chaparral restoration. However, soil conditions at many of these sites (exposed sandstone) would make site preparation and restoration efforts exceptionally costly and labor intensive. These areas are not considered in this HMP as locations where BLM is obligated to restore maritime chaparral habitat.

Maritime Chaparral Enhancement. BLM will enhance maritime chaparral habitat wherever it occurs in a degraded condition in the NRMA. Specific actions will be determined based on the results of monitoring and test study sites. Success criteria will be the same as those for maritime chaparral restoration.

Monitoring. BLM will monitor populations of all special-status species within the NRMA and may conduct population viability studies. BLM will maintain records of the location, timing, intensity, and extent of wildfires and controlled fires and will monitor post fire recovery and succession of maritime chaparral.

Controlled Burning. BLM will control burn approximately 500 acres per year on a rotational basis (about a 12- to 15-year rotation). Specific seasonal timing, patch size, yearly total, and rotational time for maritime chaparral burns will be determined based on the results of studies of maritime chaparral burning and recovery in the NRMA.

Access Control. Existing roads, necessary for land management, will be maintained by BLM in the NRMA. BLM will close all trails and nonmaintained roads to motor vehicle access. Approximately 240 roads will need to be closed. Permanent barriers will be erected and regular ranger patrols conducted.

Erosion Control. BLM will conduct erosion control measures at sites in greatest need of stabilization. These sites are along roads where the road, an adjacent road, or riparian habitat is threatened. BLM estimates that approximately 60 sites will need immediate action to be stabilized.

Responsible Parties

The BLM is responsible for ensuring that habitat enhancement is conducted and that natural vegetation is managed to maintain high habitat value for HMP species.

PARCEL S3.1.2
COASTAL DUNE ZONE

Parcel Description

Parcel S3.1.2 located along the coastline (Figure 4-1 and Attachment A) would be used for the preservation of restored coastal dune habitat, with public access limited to hiking trails and beach access. The parcel is identified as the Coastal Dune Zone (CDZ). The sandy beach area would provide the prime public recreation opportunities in the coastal zone, including wading, surfing, fishing, sunbathing, and picnicking. Creation of vernal ponds is also being considered in the CDZ. Public access would be by pedestrian means only.

Trail construction would involve minimal grading and the use of boardwalks, sand ladders, and guide railings for pedestrian control. Interpretive signs about the natural resources of the zone would be provided for public education.

Resources Present

Major Habitat Features

Five habitat types occur in the CDZ. The dominant habitat type is beaches, bluff, and blowouts. Other habitat types include iceplant mats, coastal strand, disturbed dunes, and dune scrub.

HMP Species

Sand gilia, Monterey spineflower, Smith's blue butterfly, western snowy plover, black legless lizard, and coast wallflower are known to occur in the CDZ parcel.

Resource Conservation Requirements

Except areas disturbed by boardwalk and/or sand ladder construction, all HMP resources within the CDZ will be preserved.

Management Requirements

Boardwalks and/or sand ladders will be constructed to channel foot traffic from the Disturbed Habitat Zone (DHZ) (Parcels S3.1.1 and S3.1.3 described later in this chapter) to the beach. Interpretative signs will be placed along each boardwalk/sand ladder describing the sensitive species present and the need to restrict foot traffic on the dunes. Boardwalk/sand ladder siting will avoid areas currently supporting native dune vegetation.

Beach access will be restricted at all western snowy plover nesting areas (including an acceptable buffer distance) during the snowy plover breeding and nesting season (March through September). If snowy plovers are found nesting in other areas, beach access will be restricted there as well. Beach raking will not be used as a method to remove trash in areas where western snowy plovers are nesting.

Responsible Parties

DPR is responsible for implementing all management requirements after Army lead removal and restoration requirements are complete and DPR has received the property.

PARCELS S2.1.2, S2.1.3, and S2.1.5
UC/NRS FORT ORD NATURAL RESERVE

Parcel Description

Parcels S2.1.2, S2.1.3, and S2.1.5 (collectively called the UC/Natural Reserve System (UC/NRS) Fort Ord Natural Reserve parcel [FONR]) will be managed by the UC/NRS. The FONR parcel is located in the southwestern corner of the former Fritzsche Army Airfield (Figure 4-1 and Attachment A). Parcels S2.3.2 and S2.4 are also considered part of the UC/NRS Fort Ord Natural Reserve but are discussed separately following this parcel description.

Subsequent to transfer of the reserve areas to UC by the Army, a boundary change has occurred between HMP Reserve parcel S2.1.5 and Development parcel S2.1.1, based on an agreement between UC and USFWS. Correspondence regarding this boundary change and a map showing the posttransfer boundary change are included in Appendix C.

Resources Present

Major Habitat Features

Two habitat types occur within the FONR parcel. The most abundant habitat type is maritime chaparral; the second habitat type is coastal coast live oak woodland.

HMP Species

Sand gilia and Monterey spineflower occur in most of the FONR parcel at medium and high densities (see distribution maps in Appendix B). Black legless lizard, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and Toro manzanita also occur in the parcel. The coastal coast live oak woodland in the FONR is considered potential habitat for the Monterey ornate shrew.

Resource Conservation Requirements

Research and teaching activities for the study of existing natural resources will be conducted on the FONR parcel, and natural habitats will be preserved and protected. Development will be limited within the parcel to that needed to support scientific research and teaching and to manage the habitat with priority given to HMP plant and wildlife species. Development will not affect more than 1% of the total natural habitat within the parcel.

Management Requirements

The following sections describe management principles and procedures that will guide management of the FONR parcel.

Baseline Inventory and Mapping

The UC/NRS will conduct a detailed, site-specific inventory and mapping of species and habitats on the FONR parcel, with an emphasis on special-status species that have significant habitat at the site.

Environmental Monitoring

The UC/NRS will design and implement an ongoing environmental monitoring program for both abiotic (e.g., climate and hydrology) and biotic (e.g., special-status species) components at the FONR parcel. Monitoring data will be used to guide species and habitat management programs.

Active Management

The UC/NRS will actively manage species and habitats, with an emphasis on maintaining viable populations and habitats of listed, proposed, and candidate species, including the maintenance of necessary disturbance regimes and ecosystem processes, as appropriate.

Management-Oriented Research

The UC/NRS will foster targeted research to address species and habitat management issues and to provide a base for informed management.

Parcel Monitoring

As a trustee agency under CEQA, UC is required to be notified when land use activities on adjacent lands have the potential to adversely affect environmental resources managed by the UC/NRS in the public trust. Trustee agencies may require early consultation with project proponents, identify significant impacts on public trust resources, and recommend mitigation and mitigation monitoring requirements for project approval.

Responsible Parties

The UC/NRS will be responsible for ensuring that natural resources are protected and properly managed at the FONR parcel.

PARCEL S2.3.2
RESERVATION ROAD HABITAT RESERVE

Parcel Description

The Reservation Road Habitat Reserve is shown as Parcel S2.3.2 in Figure 4-1 and Attachment A (along the southern edge of Reservation Road). A proposed Multi-Modal Corridor passes along the southern edge of parcel S2.3.2 (Figure 4-2). This corridor is accommodated in this HMP as described in the "HMP Analysis of Road Corridors" section earlier in this chapter. Parcel S2.3.2 is considered part of the UC/NRS Fort Ord Natural Reserve.

Resources Present

Major Habitat Features

Four habitat types occur within parcel S2.3.2. The most abundant habitat type is maritime chaparral. Other habitat types include coastal coast live oak woodland, annual grassland, and coastal scrub.

HMP Species

Sand gilia, Monterey spineflower, Toro manzanita, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, and coast wallflower are known to occur in parcel S2.3.2. Potential habitat is available in the parcel for black legless lizard and Monterey ornate shrew.

Resource Conservation Requirements

Resource conservation requirements will be the same for parcel S2.3.2 as for the FONR parcel.

Management Requirements

Management requirements for parcel S2.3.2 are the same as for the FONR parcel.

Responsible Parties

The UC/NRS will be responsible for ensuring that natural resources are protected and properly managed on parcel S2.3.2.

PARCEL S2.4
HABITAT RESERVE/CORRIDOR

Parcel Description

Parcel S2.4 borders the southern edge of Reservation Road just west of Imjin Road (Figure 4-1 and Attachment A). Parcel S2.4 is titled the Habitat Reserve/Corridor parcel. The corridor is intended as a connector between parcel S2.1.5 and parcel S2.3.2 to assist in maintaining the long-term viability of HMP species populations in these areas. (The importance of habitat corridors is described in detail in the "Ecological Concepts for Conservation Area and Corridor System Design" section in Chapter 2.) Parcel S2.4 will be managed by the UC/NRS and is considered part of the UC/NRS Fort Ord Natural Reserve.

Resources Present

Major Habitat Features

All of parcel S2.4 contains maritime chaparral habitat.

HMP Species

Sand gilia, Monterey spineflower, sandmat manzanita, Monterey ceanothus, and Eastwood's ericameria are known to occur in parcel S2.4. Potential habitat is available in the parcel for black legless lizards.

Resource Conservation Requirements

Resource conservation requirements for parcel S2.4 will be the same as for the FONR parcel. Any development necessary for scientific research, teaching, or maintenance activities will be sited and constructed so that it does not impede the area's function as a habitat corridor for HMP species.

Management Requirements

Management requirements for parcel S2.4 will be the same as for the FONR parcel. In addition, all artificially created landscape features within parcel S2.4 not required for preservation or operation of parcel S2.4 or adjacent parcels will be removed and the area restored to sand hill maritime chaparral.

Responsible Parties

The UC/NRS will be responsible for conservation and management requirements in parcel S2.4.

PARCEL L5.1.12
SALINAS RIVER HABITAT AREA

Parcel Description

Parcel L5.1.12 is located on the east central edge of the former Fritzsche Army Airfield area (Figure 4-1 and Attachment A). The parcel is titled the Salinas River Habitat Area. The City of Marina will have jurisdiction over this parcel.

Resources Present

Major Habitat Features

The southern segment of parcel L5.1.12 contains coastal scrub, inland coast live oak woodland, and small amounts of annual grassland habitat. Some riparian habitat occurs where the Salinas River passes through the northern segment.

HMP Species

Monterey spineflower occurs in parcel L5.1.12. Potential habitat is available for California red-legged frog in the Salinas River and Monterey ornate shrew in the oak woodland and riparian habitats.

Resource Conservation Requirements

All habitat within parcel L5.1.12 will be preserved in perpetuity.

Management Requirements

Parcel L5.1.12 will be managed to maintain existing habitat values for HMP species. The City of Marina may contract with an appropriate and qualified CRMP agency or other appropriate and qualified agency, as approved by the USFWS, to manage natural resources within parcel L5.1.12.

Responsible Parties

The City of Marina will be responsible for ensuring that existing habitat values are retained within parcel L5.1.12.

PARCEL L6
NATURAL AREA EXPANSION

Parcel Description

The Monterey Peninsula Regional Parks Natural Area Expansion (NAE) is shown as Parcel L6 in Figure 4-1 and Attachment A. The NAE, located in Monterey County, would be an expansion of the existing Frogpond Natural Area (owned by Monterey Peninsula Regional Parks), which is located in the City of Del Rey Oaks near the Fort Ord installation boundary. The NAE would add several additional habitat types to the Frogpond Natural Area. This would provide an area for interpretive trails, biological research, and other appropriate uses where several different habitat types may be observed in a small area.

Major Habitat Features

The NAE land use footprint is dominated by coastal coast live oak woodland habitat. The ephemeral drainage that feeds the frogpond area passes through the NAE parcel and supports some willow riparian habitat. A very small amount of maritime chaparral habitat also occurs in the NAE.

Listed and Proposed Threatened and Endangered Species

Monterey Spineflower. The entire NAE footprint supports Monterey spineflower at medium density.

California Black Legless Lizard. Portions of the coastal coast live oak woodland and maritime chaparral habitats in the NAE that occur on areas of loose sandy soil are considered potential habitat for the black legless lizard.

Other HMP Species

Seaside Bird's-beak. A population of Seaside bird's-beak occurs along North-South Road in the northern portion of the NAE parcel.

Sandmat Manzanita. Sandmat manzanita occurs across the entire NAE parcel at medium density.

Monterey Ceanothus. High-density Monterey ceanothus is found over the entire NAE parcel.

Eastwood's Ericameria. Eastwood's ericameria occurs at medium density over the entire NAE parcel.

Resource Conservation Requirements

Monterey Peninsula Regional Parks will preserve natural habitat within the NAE parcel in perpetuity.

Regional parks would limit development to a vehicle parking area, internal circulation (trails), and modest interpretive displays. Resource management, enhancement, and restoration, along with environmental education are the high-priority uses.

Management Requirements

Members of the CNPS will be given access to the CNPS native plant reserve within the NAE boundary for research and other purposes. Plant species of special concern will be managed appropriately. Where feasible and appropriate, habitat restoration and enhancement practices and techniques will be implemented. Water quality and wetland dependant species will be monitored.

Responsible Parties

Monterey Peninsula Regional Parks District will be responsible for development and management of the NAE parcel.

PARCEL E11a
EAST GARRISON

Parcel Description

E11a is located in the northeastern portion of former Fort Ord and borders the south side of Reservation Road (Figure 4-1 and Attachment A). A proposed road corridor passes through this parcel (Figure 4-2).

Resources Present

Major Habitat Features

Almost all of parcel E11a supports coastal coast live oak woodland habitat.

HMP Species

Sand gilia, Monterey spineflower, Monterey ceanothus, and Eastwood's ericameria are known to occur in parcel E11a. Potential habitat is available for Monterey ornate shrew.

Resource Conservation Requirements

All habitat within parcel E11a will be preserved. However, this HMP does accommodate a proposed road corridor in the parcel (Figure 4-2). (Refer to the "HMP Analysis of Road Corridors" section earlier in this chapter.) If the road is constructed, habitat and HMP resources may be removed to accommodate road construction.

Management Requirements

Parcel E11a will be managed to maintain existing habitat values for HMP species. Management will include maintaining small amounts of area with disturbed sandy soils to support sand gilia and Monterey spineflower habitat.

Two populations of sand gilia and scattered individuals were found in parcel E11a during 1993 surveys. In addition to providing habitat for sand gilia, parcel E11a, in conjunction with parcel L20.2.1, are important as a corridor for sand gilia movement between parcel S2.3.2 and the NRMA (parcels F1.1-F1.11). Sand gilia habitat should be maintained in parcel E11a to retain and improve the areas' function as a corridor for sand gilia movement. Special attention should be given to maintaining north-south trending linear habitat, such as dirt roads and firebreaks, to enhance the potential for sand gilia populations from the NRMA and parcel S2.3.2 to occasionally intermix.

The EDC recipient may contract with an appropriate and qualified CRMP agency or other appropriate and qualified agency, as approved by the USFWS, to manage, or assist in managing, natural resources within parcel E11a.

Responsible Parties

The EDC recipient will be responsible for ensuring that all conservation and management requirements for parcel E11a are fulfilled.

PARCELS L20.2.1 and L20.2.2 HABITAT CORRIDOR/RECREATIONAL VEHICLE PARK/YOUTH CAMP

Parcel Description

Parcels L20.2.1 and L20.2.2 are located just west of the former East Garrison (Figure 4-1 and Attachment A). The parcels are collectively titled habitat corridor/recreational vehicle park/youth camp. The

parcels are addressed together as proposed uses as management requirements in one parcel, while different from the other, will influence the other parcel. Parcel L20.2.2 includes the former Army RV park/family camp.

Two existing water tanks are located in the habitat corridor/recreational vehicle park/youth camp area. These tanks are shown as development parcels E17b.1 and E17b.2 in Attachment A. No HMP requirements apply to the water tanks.

Resources Present

Major Habitat Features

Coastal coast live oak woodland occurs over the majority of parcel L20.2.1 . Coastal coast live oak occupies approximately one-third of parcel L20.2.2. The balance is either developed or annual grassland. Parcel L20.2.1 provides a corridor connecting two conservation areas.

HMP Species

Monterey spineflower, sand gilia, and sandmat manzanita are known to occur in parcels L20.2.1 and L20.2.2. Potential habitat is available for California linderiella, California red-legged frog, and California tiger salamander in parcel L20.2.2. However, this habitat consists of an artificial pond associated with the former Army family camp. The pond is filled from artificial sources and has historically been stocked with fish to provide recreational fishing for campers. Because of the presence of predatory game fish, it is unlikely that any of these three species occur in the water body. The oak woodlands in the parcels are considered potential habitat for the Monterey ornate shrew and California black legless lizard.

Resource Conservation Requirements

Development will be concentrated in the existing campground in parcel L20.2.2, with potential future expansion of the campground based on USFWS and DFG approval. Uses such as low-impact programs for youth, outdoor nature education, resource management activities, and trails will occur outside of the developed campground in parcel L20.2.1 (Figure 4-3).

Except possibly small pockets of vegetation within the existing campground in parcel L20.2.2, no HMP species or other sensitive biological resources will be removed by development. All vegetation will be preserved in parcel L20.2.1; although, habitat values may be degraded by youths camping in undeveloped areas.

Although the existing pond in parcel L20.2.2 is considered potential habitat for California linderiella, California tiger salamander, and California red-legged frog, continued use for recreational fishing is not considered as either a loss or conservation of a resource because existing conditions will be maintained.

Management Requirements

Parcel L20.2.1 is considered part of a habitat corridor connecting two conservation areas. Habitat values within this corridor will be retained at high levels to allow movement of wildlife and dispersal of plant seeds and pollen by various methods.

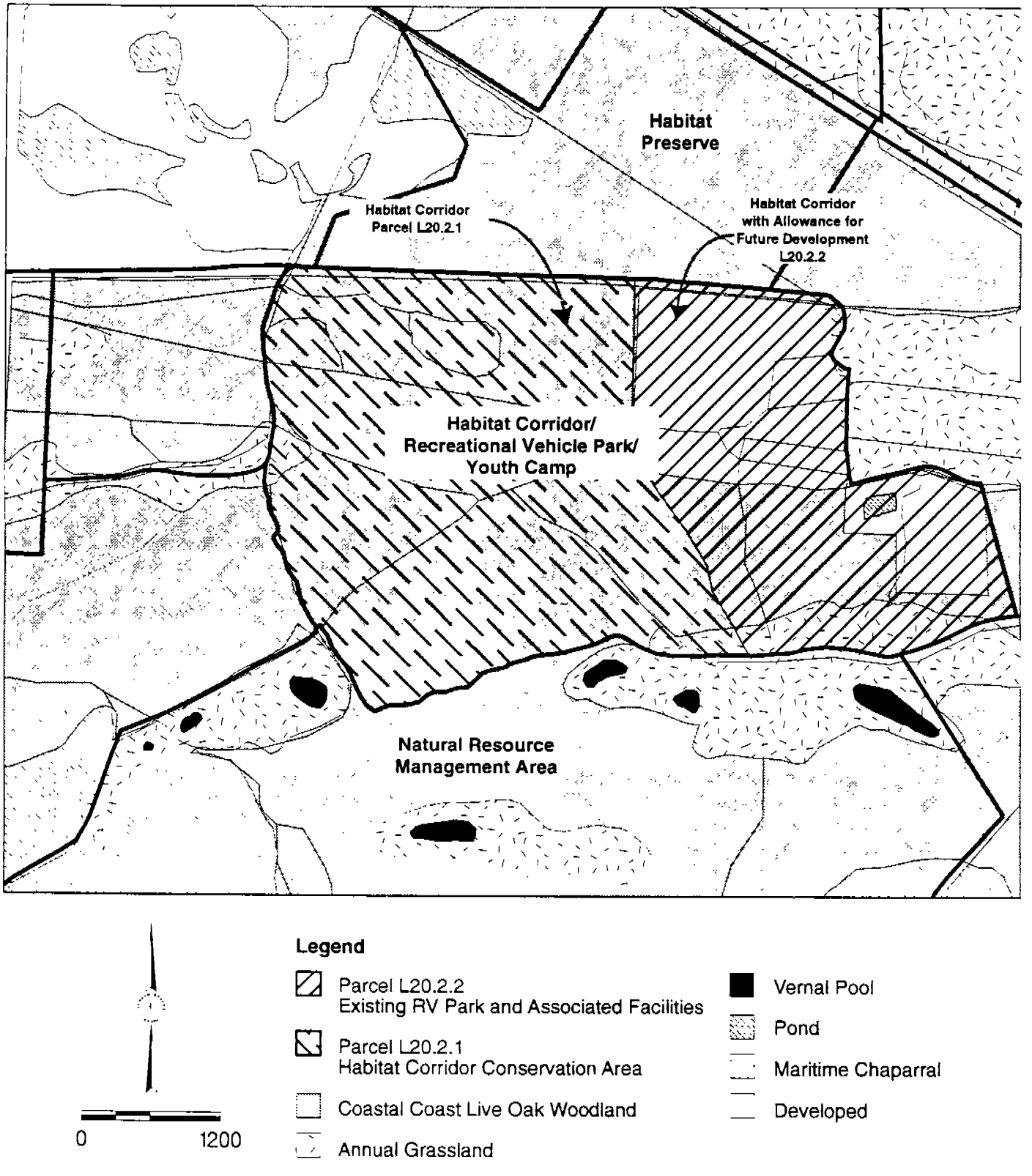


Figure 4-3
Development and Conservation Areas in the Habitat Corridor/Recreational Vehicle Park/Youth Camp Parcel

Management actions for parcel L20.2.1 to maintain habitat values will include special-status species monitoring, controlled burning, firebreak construction, and maintenance as appropriate, vehicle access controls, erosion control, and regular patrols to assure that passive public use and/or unauthorized actions are not impacting natural habitats. A resource management plan will be developed to execute this strategy and will be reviewed by USFWS and DFG. Monterey County may implement the resource management plan for parcel L20.2.1, or may contract with an appropriate and qualified CRMP agency or other appropriate and qualified agency, as approved by USFWS, to implement the management plan.

In addition, to prevent habitat degradation from youth camping and other activities, several specific management requirements will be included in the overall resource management plan. Interpretive signs and displays will be installed at the park entrance in parcel L20.2.2 and in selected locations throughout the park and camping areas. Displays should describe the importance of the area as a wildlife corridor and methods for maintaining habitat values such as removing trash, limiting ground disturbance, restraining pets, and discouraging capture or harassment of wildlife. Campers should also be informed that rare plants occur at the site and should not be collected.

Surveys will be conducted for Monterey ornate shrews in suitable habitat in both parcels. If Monterey ornate shrews are found, the following management practices will also be implemented:

- to preserve dead and downed wood for Monterey ornate shrews,
- wood collection for campfires will not be permitted.
- wood for fires will be provided at the campground entrance.

If trees or snags must be cut down for public safety reasons in parcel L20.2.1, the trunk will be left on the ground as potential habitat for Monterey ornate shrew.

Landscaping installed within either parcel will consist of species native to the project site.

The County of Monterey will coordinate with California Department of Forestry and Fire Protection (CDF) and DFG to determine suitable habitat management practices to retain and potentially enhance habitat values within the oak woodlands in parcel L20.2.1 and any oak woodlands that may be retained in parcel L20.2.2.

Responsible Parties

The County of Monterey will be responsible for ensuring that all conditions described above are followed.

PARCELS S3.1.1 and S3.1.3
DISTURBED HABITAT ZONE

Parcel Description

The Disturbed Habitat Zone (DHZ) is composed of two parcels (Parcels S3.1.1 and S3.1.3 in Figure 4-1 and Attachment A). These parcels include 186 acres of land available for development for existing and proposed facilities.

The DHZ would be used for preservation of restored coastal dune habitats and for visitor service facilities. Day use facilities could include hiking trails, interpretive displays, and group picnic areas. Overnight facilities could include family/group and hike-in/bike-in campgrounds, a hostel facility, a campfire center for interpretive programs, and a conference and lodging facility. Creation of vernal ponds is also being considered within the DHZ. Public access will be on existing roads and new hiking trails. Limited development is allowed in the DHZ and the California Department of Parks and Recreation (DPR) (the proposed land recipient), and others may choose to construct an aquaculture/marine research facility and/or desalinization plant, or allow FORA access for minor improvements to existing utilities and infrastructure within the DHZ. Mitigation for habitat disturbed during utility and infrastructure improvement will be developed by the project's proponent and approved by DPR and USFWS.

Trail construction would involve minimal grading and the use of guide railings for pedestrian control. Interpretive signs would be provided around the natural resources of the zone.

A beach through-road connecting the City of Marina to Sand City has been proposed along the existing beach frontage road west of Highway 1 and would pass through the north and south segments of the DHZ. An unregulated through-road along the dunes west of Highway 1 would allow an unacceptable potential for habitat degradation and destruction through unregulated public use of the dunes. A regulated through-road, controlled by DPR at the northern and southern ends and all other possible entrances, would be acceptable. The preferred method for public access to the dunes would be a single entrance and exit monitored by DPR. The through-road is not considered suitable by DPR for a scenic road because ocean views are shielded by the dunes along most of its length.

Resources Present

Major Habitat Features

Four habitat types occur in the DHZ. The dominant habitat type consists of ice plant mats, which are present throughout the parcel. Other habitat types include disturbed dunes, which occur in the northern and southern portions of the parcel, and small areas of dune scrub and coastal strand.

HMP Species

Monterey spineflower, coast wallflower, robust spineflower, and Smith's blue butterfly are known to occur in the DHZ parcel. Potential habitat is available in the parcel for black legless lizard. Maps showing the occurrence of populations and/or habitat of these species at former Fort Ord are included in Appendix B.

Resource Conservation Requirements

Large areas in the DHZ will be restored to native vegetation and HMP species habitat. These actions are described below. Outside of the sites disturbed by providing designated visitor services and facilities, all HMP resources within the DHZ will be preserved.

Management Requirements

Inventory

DPR will inventory both the DHZ and Coastal Dunes Zone (CDZ) (the CDZ is described previously in Parcel S3.1.2). DPR will use the Army's inventory data for lead removal sites where applicable and will not be required to reinventory these sites. Degraded habitat supporting dense mats of African ice plant and heavily disturbed habitat dominated by non-native weeds that are most suitable for restoration of native coastal stand habitat will be identified. The location, physical condition, and biological condition of each restoration site will be recorded and mapped.

Dune Habitat Restoration

All disturbed and degraded sites within the DHZ and CDZ that are not developed with recreation, access, or support facilities will be maintained as open space and restored to native habitat. The habitat area in the park will total approximately 700 acres including coastal strand, coastal scrub, beaches, bluffs, and blowouts. Approximately 130 acres of coastal strand, 30 acres of dune scrub, and 150 acres mapped as "beaches, bluffs, and blowouts" currently exists on the 886-acre site. The total of these three existing habitat types is 310 acres. This 310-acre area will be enhanced through the removal of ice plant and other exotic species. An additional 390 acres of coastal strand and coastal scrub habitat will be restored to reach the goal of 700 acres of habitat within the park. Up to 186 acres of the park will be available for existing and proposed facilities. It is an objective of this HMP that at least 250 acres of the total dune habitat restoration are completed by DPR within 7 years of land transfer to DPR (subject to availability of funds).

A majority of this dune restoration will occur in the CDZ. Habitat restoration will involve the removal of African ice plant, dune stabilization, and establishment of native dune plants. The restored habitat will include suitable habitat for sand gilia and Monterey spineflower. Successful dune habitat restoration techniques used at Marina and Asilomar State Beaches should be used at former Fort Ord.

Monitoring and Management

DPR will monitor the success of native coastal strand and dune scrub habitat restoration with specific monitoring of the establishment and persistence of sand gilia and Monterey spineflower populations. Management of dune habitats will be conducted as needed to maintain viable populations of sand gilia and Monterey spineflower. Monitoring data will be used to guide species and habitat management programs. Target levels for average yearly population sizes are 14,000-18,000 individuals of sand gilia and 375-475 acres of habitat occupied by high densities of Monterey spineflower.

Access Control

DPR will restrict foot and vehicle access in areas that:

- support Smith's blue butterfly populations or habitat,
- contain existing populations of sand gilia and medium- and high-density occurrences of Monterey spineflower, and
- support western snowy plover breeding habitat during the breeding season.

DPR may create opportunities for controlled interpretive trails or guided events at these sites.

Boardwalks and/or railed trails will be constructed to channel foot traffic across the DHZ to the CDZ. Interpretative signs will be placed at the entrance to and along each boardwalk/trail describing the sensitive species present and the need to restrict foot traffic on the dunes. Boardwalk/trail siting will avoid as much as possible areas currently supporting native dune vegetation.

Visitor service facilities will be sited, to the extent possible, to avoid areas currently supporting sensitive resources.

If a desalinization facility is built, to prevent potential degradation of habitat in the adjacent CDZ parcel from unauthorized vehicle entry, a barrier will be installed around all developed areas where topography would allow vehicle access. The design of the barrier and the materials used will be sufficient to prevent vehicles from leaving developed areas of the desalinization plant.

Measures will also be taken to minimize the potential for erosion in natural areas of the plant or on adjacent areas from stormwater runoff, which may originate from developed portions of the plant.

Responsible Parties

DPR will be responsible for implementing all management responsibilities.

PARCELS S4.1.1, S4.1.2, AND S4.1.3
HIGHWAY 1 CORRIDOR

Parcel Description

The Highway 1 Corridor (managed by Caltrans) is composed of the existing Highway 1 right-of-way. It includes parcels S4.1.1, S4.1.2, and S4.1.3 (Figure 4-1 and Attachment A), which are collectively called the Highway 1 Corridor parcel. This parcel will continue to be used for transportation purposes and may be used for expansion or improvements of transportation systems.

Resources Present

Major Habitat Features

The road shoulders and medians of the Highway 1 Corridor parcel support mostly disturbed dune, ice plant mat, and annual grassland habitats with remnant patches of coastal strand, dune scrub, and sand hill maritime chaparral. Sand hill maritime chaparral is best developed at the northern end of the parcel. Horticultural tree plantings are also present.

HMP Species

Monterey spineflower occurs at scattered locations throughout the Highway 1 Corridor parcel, mostly at low density. Sandmat manzanita, sand gilia, Yadon's piperia, and Monterey ceanothus are also known to occur in the parcel. The Highway 1 Corridor parcel also contains potential habitat for Eastwood's ericameria and coast wallflower in the sandhill maritime chaparral areas and potential habitat for the black legless lizard.

Resource Conservation Requirements

In conjunction with any transportation projects or work that would have an impact on the native habitat, Caltrans will preserve existing patches of native coastal strand, dune scrub, and sand hill maritime chaparral habitats in the road shoulders and medians in areas that will not conflict with anticipated highway expansion, improvements, operations, or maintenance.

Management Requirements

Caltrans will restore and enhance native coastal strand, dune scrub, and sand hill maritime chaparral habitats in the road shoulders and medians in areas that will not conflict with anticipated highway expansion, improvements, operations, or maintenance.

Responsible Parties

Caltrans is responsible for ensuring that HMP conservation and management guidelines are followed in the Highway 1 Corridor parcel.

PARCEL L5.1.11
NORTH FRITZSCHE HABITAT RESERVE

Parcel Description

Parcel L5.1.11 occurs in the west central portion of the former Fritzsche Army Airfield area (Figure 4-1 and Attachment A). The parcel is titled the North Fritzsche Habitat Reserve. The City of Marina will have jurisdiction over this parcel.

After transfer of HMP Reserve parcel L5.1.11 by the Army to the City of Marina, the city and USFWS agreed on a boundary change to the parcel. The change deleted the northeast portion of parcel L5.1.11 and added a portion of adjacent Development parcel L5.1 to the reserve area so that the reserve parcel ends at the edge of the proposed road along the northern boundary of the parcel. See Appendix C for the correspondence and maps describing the changes.

Resources Present

Major Habitat Features

Parcel L5.1.11 is dominated by annual grassland habitat with small inclusions of coastal scrub in the southern and central portions of the area.

HMP Species

Monterey spineflower occurs in parcel L5.1.11. Potential habitat is available for the black legless lizard. See Appendix B for distribution maps for these species at former Fort Ord.

Resource Conservation Requirements

FAA-required airport support facilities (navigational aids, access, and utilities) may be constructed in parcel L5.1.11, as well as a proposed six-lane road (Figure 4-2). The road is accommodated in this HMP as described in the "HMP Analysis of Road Corridors" section earlier in this chapter. All remaining habitat within parcel L5.1.11 after construction of these facilities will be preserved in perpetuity.

Management Requirements

Gates or vehicle barriers will be constructed along access roads as necessary to prevent unauthorized off-road vehicle traffic in parcel L5.1.11. Habitat remaining in parcel L5.1.11 after development will be managed to maintain existing habitat values for HMP species. Management will include maintaining small amounts of area with disturbed sandy soils to support Monterey spineflower habitat. The City of Marina may contract with an appropriate and qualified CRMP agency or other appropriate and qualified agency, as approved by the USFWS, to manage natural resources within parcel L5.1.11.

Responsible Parties

The City of Marina will be responsible for ensuring that resource conservation and management requirements are followed within parcel L5.1.11.

PARCELS L20.3 and L20.5
RECREATION AREA EXPANSION #1

Parcel Description

Parcels L20.3 and L20.5 are located along the southern boundary of former Fort Ord adjacent to the Laguna Seca Raceway (Figure 4-1 and Attachment A). Parcels L20.3 and L20.5 are collectively called the Recreation Area Expansion #1 (RAE1) parcel. The RAE1 parcel would be used for overflow parking during

major events at Laguna Seca. Some existing maritime chaparral would be removed to create areas suitable for parking.

Resources Present

Major Habitat Features

The RAE1 parcel contains maritime chaparral, and one small area of annual grasslands exists in the western portion of the parcel. Inland coast live oak woodland and coast live oak savanna occur along Barloy Canyon. The western portion of the parcel is dominated by annual grassland habitat with inclusions of coast live oak savanna. Two areas of coastal scrub habitat occur in the southwestern portion of the RAE1 parcel.

Listed and Proposed Threatened and Endangered Species

Sand Gilia. Sand gilia occurs at low density in a small area of the western section of the RAE1 parcel (1992 surveys).

Other HMP Species

California Linderiella. Two small ponds within the central portion of the RAE1 parcel are known to support California linderiella (1992 surveys). These ponds are adjacent to Barloy Canyon Road and within 100 feet of each other.

Toro Manzanita. The western portion of the RAE1 parcel supports both high- and medium-density occurrences of Toro manzanita.

Monterey Ceanothus. A medium-density occurrence of Monterey ceanothus occupies the western segment of the RAE1 parcel.

Hooker's Manzanita. A small amount of medium-density Hooker's manzanita is found in the western segment of the RAE1 parcel.

Monterey Ornate Shrew. The inland coast live oak woodlands in the RAE1 parcel are considered potential habitat for the Monterey ornate shrew.

California Tiger Salamander. One of the ponds (in which California linderiella occur) in the central portion of the RAE1 parcel is also a known breeding pond for California tiger salamander.

Resource Conservation Requirements

The California linderiella and California tiger salamander breeding ponds and their shared watershed will be preserved.

Management Requirements

To prevent erosion problems that may degrade habitat in the surrounding NRMA, grass will be maintained over areas where maritime chaparral or other vegetation is removed to allow for parking. This grass will be mowed before being used for parking to minimize fire hazards.

Other measures will also be taken as necessary to minimize the potential for erosion or accelerated sedimentation in the adjacent NRMA parcel.

A firebreak will be constructed along the inside perimeter of the RAE1 parcel to prevent fires that may start in the RAE1 parcel from spreading to the NRMA. The firebreak will be inspected before each event where the RAE1 parcel will be used and will be improved as necessary to ensure its effectiveness. After each event where the RAE1 parcel is used, all trash will immediately be removed from the site.

Signs will be posted in the RAE1 parcel during each event stating that no off-road vehicle used is permitted in the RAE1 parcel and surrounding NRMA.

The ponds where California linderiella and California tiger salamander occur and their shared watershed will be preserved. The ponds will be inspected after each event where the RAE1 parcel is used. If adverse impacts on the ponds from use of the RAE1 parcel are noted, appropriate actions will be taken to prevent these impacts during future use of the area.

Responsible Parties

Monterey County Parks is responsible for ensuring all management requirements for the RAE1 parcel are completed.

PARCEL L20.4
RECREATION AREA EXPANSION #2

Parcel Description

Parcel L20.4 is located in the southeastern portion of former Fort Ord and is surrounded by the NRMA (Figure 4-1 and Attachment A). Parcel L20.4 is titled the Recreation Area Expansion #2 (RAE2) parcel. The RAE2 parcel would be used for overflow parking during major events at Laguna Seca. Shuttle busses would carry patrons between the RAE2 parcel and Laguna Seca.

Resources Present

Major Habitat Features

The RAE2 parcel is dominated by annual grassland habitat. A patch of blue wildrye grassland occurs in the middle of the parcel.

Listed and Proposed Threatened and Endangered Species

No listed or proposed threatened or endangered species occur in the RAE2 parcel.

Other HMP Species

No other botanical HMP species or potential or occupied habitat for other HMP wildlife species occur in the RAE2 parcel.

Resource Conservation Requirements

No resource conservation requirements are associated with this HMP for the RAE2 parcel.

Management Requirements

Grass will be maintained over a majority of the RAE2 parcel to prevent erosion problems that may degrade habitat in the surrounding NRMA. This grass will be mowed before being used for parking to minimize fire hazards.

Other measures will also be taken as necessary to minimize the potential for erosion or accelerated sedimentation in the adjacent NRMA parcel.

A firebreak will be constructed along the inside perimeter of the RAE2 parcel to prevent fires that may start in the RAE2 parcel from spreading to the NRMA. The firebreak will be inspected before each event where the RAE2 parcel will be used and will be improved as necessary to ensure its effectiveness. After each event where the RAE2 parcel is used, all trash will immediately be removed from the site.

Signs will be posted in the RAE2 parcel during each event stating that no off-road vehicle use in permitted in the RAE2 parcel and surrounding NRMA.

The stockpond just east and downslope of the RAE2 parcel will be inspected after each event. If adverse impacts on the pond from use of the RAE2 parcel are noted, appropriate actions will be taken to prevent these impacts during future use of the RAE2 parcel.

Responsible Parties

Monterey County Parks is responsible for ensuring all management requirements for the RAE2 parcel are completed.

PARCELS E8a.1 and E8a.2
LANDFILL PARCEL

Parcel Description

Parcels E8a.1 and E8a.2 (identified collectively as the landfill parcel) are located on the existing landfill site located northeast of the Main Garrison just south of Imjin Road (Figure 4-1 and Attachment A). Both habitat management and development will occur in the landfill parcel.

Resources Present

Major Habitat Features

Three habitat types occur within the landfill parcel. The most abundant habitat type is coastal coast live oak woodland. Other habitat types include annual grassland and maritime chaparral. A small area is also developed.

HMP Species

Sand gilia , Monterey spineflower, sandmat manzanita, Monterey ceanothus, and coast wallflower are known to occur in the landfill parcel. Potential habitat is available in the parcel for black legless lizard and Monterey ornate shrew. (Refer to Appendix B for maps showing the distribution of these species and/or potential habitat at former Fort Ord. These maps are based on 1992 survey data with updated information where available.)

Resource Conservation Requirements

The section addressing landfill remediation in Chapter 3 describes predisposal activities related to the parcel.

Habitat conservation and management requirements for the landfill parcel are addressed in the measures agreed to by the Army, USFWS, BLM, UC, and FORA described in Appendix A (Items a and b). These measures are summarized below.

The requirement for the landfill parcel to be included as an HMP habitat management area is not an Army responsibility . Subject to approval by the UC governing body, UC will accept the landfill parcel and manage habitat. Alternatively, FORA will accept and manage the landfill parcel. The Army will not be required to restore habitat on the landfill cap nor will the Army be required to perform habitat management activities in the parcel while the landfill is being remediated or in caretaker status.

A total of 227 acres of the landfill parcel, including the capped area, will be managed as an HMP Preserve area. After the 227 acres of the parcel to be managed as habitat has been determined, the boundaries of the polygon may be modified when determining locations for development in the remaining 81 acres.

Management Requirements

Following land transfer from the Army, the recipient or an entity acceptable to the USFWS will manage 227 acres of the landfill parcel (including the completed landfill cap) as native habitat. The remaining 81 acres of the parcel will be available for development.

PARCEL E31
OFFICE PARK

Parcel Description

This parcel is shown as Parcel E31 in Figure 4-1 and Attachment A and is included in the group of parcels designated as Development with Reserve Areas or Development with Restrictions. Parcel E31 has no reserve areas but it does have management restrictions.

Resources Present

Major Habitat Features

Parcel E31 is dominated by maritime chaparral habitat. An ephemeral drainage that feeds the Frogpond Natural Area outside the Fort Ord boundary passes through this parcel.

Listed and Proposed Threatened and Endangered Species

Monterey Spineflower. Parcel E31 supports medium-density occurrences of Monterey spineflower.

Other HMP Species

Sandmat Manzanita. Parcel E31 supports medium-density occurrences of sandmat manzanita.

Monterey Ceanothus. High-density occurrences of Monterey ceanothus are found throughout parcel E31.

Eastwood's Ericameria. Medium-density occurrences of Eastwood's ericameria are found throughout parcel E31.

Resource Conservation Requirements

No resource conservation requirements are associated with this HMP for parcel E31. However, implementation of management requirements below may require that some habitat be retained.

Management Requirements

The direct discharge of stormwater or other drainage from new impervious surfaces created by development of the Office Park (OP) parcel into the ephemeral drainage in the NAE parcel will be prohibited. No increase in the rate of flow of stormwater runoff beyond predevelopment levels will be allowed. Stormwater runoff from developed areas in excess of predevelopment quantities shall be managed onsite through the use of basins, detention/retention ponds, percolation wells, pits, infiltration galleries, or any other technical or engineering methods that are appropriate to accomplish these requirements. Indirect, subsurface discharge is acceptable.

To minimize the potential for damage to structures in parcel E31 from potential wildfires in the NAE parcel, parking lots, greenbelts, or another nonflammable or fire-resistant land use will be located at the boundary between parcel E31 and the NAE to act as a firebreak. Structures will be located entirely behind the land use developed as a firebreak.

To prevent potential degradation of habitat in the NAE from unauthorized vehicle entry, a barrier will be installed along the border of parcel E31 and the NAE parcel where topography would allow vehicle access. The design of the barrier and the materials used will be sufficient to prevent vehicle access to the NAE parcel. Gates will be provided in the barrier to allow emergency access to the NAE parcel. The barrier will be maintained and repaired as necessary in perpetuity.

Responsible Parties

The parcel is scheduled to be transferred to FORA as part of the EDC.

PARCEL E2a

Parcel Description

Parcel E2a borders Highway 1 in the northern portion of former Fort Ord (Figure 4-1 and Attachment A). A proposed road corridor passes through the parcel (Figure 4-2).

Resources Present

Major Habitat Features

Most of parcel E2a supports sand hill maritime chaparral habitat. Grasslands and degraded coastal dune habitats consisting of disturbed dunes and ice plant mats also occur.

HMP Species

Sand gilia, Monterey spineflower, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and Yadon's piperia occur in the parcel. Potential habitat is available for the black legless lizard.

Resource Conservation Requirements

The population of Yadon's piperia in the northern portion of the parcel will be preserved. Where possible, habitat may be preserved within and around developed areas. The proposed road corridor shown in Figure 4-2 will avoid the Yadon's piperia population. (This corridor is accommodated in this HMP as described in the "HMP Analysis of Road Corridors" section earlier in this chapter.)

Management Requirements

Vehicle access to the habitat supporting Yadon's piperia will be restricted to prevent potential impacts on the population.

Drainage from development will not be allowed to flow into the habitat supporting Yadon's piperia.

Responsible Parties

The recipient of parcel E2a will be responsible for ensuring that conservation and management requirements are fulfilled.

PARCELS E11b.1-E11b.8 and E11b.11
EAST GARRISON

Parcel Description

Parcel E11b is shown in Figure 4-1 and Attachment A in the eastern portion of former Fort Ord and encompasses the former East Garrison. Attachment A shows parcel E11b divided into several subparcels (E11b.1 through E11b.12). Some of the subparcels may be transferred as PBCs to Monterey Peninsula College (MPC) or Monterey County. The subparcels are collectively called parcel E11b. A developed area supporting the Ammunition Supply Point (ASP) is located in the southern portion of the parcel.

Two existing water tanks and a sewage treatment plant are located in parcel E11b (shown as subparcels E11b.9, E11b.10, and E11b.12 in Attachment A). The water tank parcels and the sewage treatment plant parcel are considered developed and have no HMP requirements.

Resources Present

Major Habitat Features

Parcel E11b is dominated by both the inland and coastal forms of coast live oak woodland. Grassland habitat occurs in the northwest section of the parcel, and the developed former East Garrison occupies the northeast section. Maritime chaparral habitat occurs in the southern portion of the parcel.

HMP Species

Monterey spineflower, Toro manzanita, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, and Hooker's manzanita are known to occur in parcel E11b. Potential habitat is available for the Monterey ornate shrew. Distribution maps of populations and/or habitat for these species (based on 1992 survey data and updated where information was available) are included in Appendix B.

Resource Conservation Requirements

Up to 200 acres of total development, both existing and future, is allowed within the guidelines of this HMP for parcel E11b. The areas occupied by the sewage treatment plant and water tanks in subparcels E11b.9, E11b.10, and E11b.12 and the proposed road corridor shown in Figure 4-2 also may be developed in addition to the 200 acres. Where possible, development will be sited in areas that have existing development and in other areas that will minimize impact on HMP species and have less than 30% slopes. Siting of development will be coordinated with USFWS. The road corridor and 200-acre development area will be considered development areas with no habitat management restrictions. The remainder of the parcel will be managed as a habitat reserve.

Management Requirements

The habitat reserve areas in parcel E11b will be retained as natural habitat. Management will include special-status species monitoring, development and maintenance of fire breaks, controlled burning as appropriate, vehicle access controls, erosion control, and regular patrols to assure that passive public use and/or unauthorized actions are not adversely affecting natural habitat. A management plan will be developed to execute this strategy. The management plan will be implemented by Monterey County or MPC, and either may contract with an appropriate and qualified CRMP agency or other appropriate qualified agency, as approved by the USFWS, to manage natural resources in parcel E11b.

If all or part of the 200-acre development area is transferred to an entity other than Monterey County, the recipient shall fund its pro-rated share of habitat management costs in parcel E11b to Monterey County or another designated habitat management agency.

Monterey County, or the designated habitat management agency, will also coordinate with California Department of Forestry and DFG to determine suitable habitat management practices to retain and potentially enhance habitat values within the oak woodlands in parcel E11b.

Responsible Parties

Monterey County or MPC will be responsible for ensuring all conservation and management guidelines described above are implemented on the lands that are transferred to them.

PARCELS F1.4.1, F1.7.2, F1.12, , F2.1, F2.2, F2.3, F2.4, F2.5, F2.6, F2.7.1, F2.7.2, F2.7.3, F2.8, F2.9, F3, F4, F5.1, F5.2, AND F6 FEDERAL AGENCY PARCELS WITH NO HMP REQUIREMENTS

Parcels F1.4.1, F1.7.2, F1.12, , F2.1, F2.2, F2.3, F2.4, F2.5, F2.6, F2.7.1, F2.7.2, F2.7.3, F2.8, F2.9, F3, F4, F5.1, F5.2, and F6 are federal agency lands with no HMP requirements.

Resource Conservation Requirements

No resource conservation requirements are associated with this HMP for these parcels.

Management Requirements

No management requirements are associated with this HMP for these parcels.

PARCELS S1.1, S1.2.1, S1.2.2, S1.2.3, S1.3.1, S1.3.2, S1.3.3, S1.3.4, S1.4, S1.5.1, S1.5.2, S1.6, S1.7, S2.1.1, S2.1.4, S2.2.1, S2.2.2, S2.2.3, S2.3.1, S2.5.1, S2.5.2, S3.1.4, S3.2, S4.2.1, S4.2.2, S4.2.3, S4.3 STATE AGENCY PARCELS WITH NO HMP REQUIREMENTS

Parcels in series S1 and S2 listed above are economic development conveyance parcels for CSU and UC. Parcels S3.1.4 (the old ammunition supply point) and S3.2 (located adjacent to the main entrance to former Fort Ord), located west and east of SR1, respectively, are proposed for transfer to DPR for Development. Parcels S4.2.1, S4.2.2, and S4.2.3 are Development parcels located south of South Boundary Road. Parcel S4.3 is located along the existing SR 68 right-of-way on the southeastern boundary of former Fort Ord.

Resource Conservation Requirements

No resource conservation requirements are associated with this HMP for these parcels. Small pockets of habitat may be preserved within and around developed areas.

Management Requirements

No management requirements are associated with this HMP for these parcels.

PARCELS L1.1, L1.2, L2.1, L2.2, L2.3, L3.1, L4.1, L4.2, L5.1, L5.1.1, L5.1.2, L5.1.3, L5.1.4, L5.1.5, L5.1.6, L5.1.7, L5.1.8, L5.1.9, L5.1.10, L5.2, L5.4.1, L5.4.2, L5.5, L5.6, L5.7, L5.8.1, L5.8.2, L5.9.1, L5.9.2, L5.10, L7.1, L7.2, L7.3, L7.4, L7.5, L7.6, L7.7, L8.1, L8.2, L8.3, L9.1.1, L9.1.2, L9.2, L9.3, L10.1, L10.2, L10.3, L10.4, L11, L12.1, L12.3, L13.1, L13.2, L14, L15.1, L15.2, L15.3, L16, L17.1, L17.2, L18, L19, L20, L20.6, L20.7, L20.9, L20.10.1, L20.10.2, L20.10.3, L20.11.1, L20.11.2, L20.12, L20.13, L20.14.2, L20.15, L20.16, L20.17.1, L20.17.2, L20.18, L21, L22, L23.1.1, L23.1.2, L23.1.3, L23.1.4, L23.1.5, L23.2. L23.4, L23.5, L24, L25, L27, L28, L29, L30, L31, L32, L33, L34, LE5.9, LE12.2, LE20.16
LOCAL AGENCY PARCELS WITH NO HMP REQUIREMENTS

Resource Conservation Requirements

No resource conservation requirements are associated with this HMP for these parcels. Where possible, habitat may be preserved within and around development areas.

Management Requirements

No resource management requirements are associated with this HMP for these parcels.

PARCELS L20.8, L20.14.1, L20.19, L20.20, L20.21, L20.22, LE20.18, LE20.19
EXISTING ROADS IN HMP MANAGEMENT AREAS

Several existing roads and road segments pass through areas identified in the HMP as Habitat Reserve, Habitat Corridor, or Development with Reserve Areas or Development with Restrictions. Many of these existing roads and accompanying rights-of-way will be transferred for continued use as roads. These roads and road segments are shown in Attachment A as parcels L20.8, L20.14.1, L20.19, L20.20, L20.21, L20.22, LE20.18, and LE20.19. They are identified as Development parcels.

These parcels are not included within those shown in Figure 4-2 as analyzed in the HMP. Although these parcels are identified for development, potential expansions of the existing roads and road segments outside the existing road shoulders where they pass through areas with HMP resource conservation requirements or management requirements may require consultation with USFWS and DFG. Consultation will be the responsibility of the land recipient.

PARCELS E2b.1, E2b.2, E2b.3, E2c.1, E2c.2, E2c.3, E2c.4, E2d, E2e, E4.1, E4.2, E4.3, E4.4, E4.5, E4.6, E4.7, E5a, E5b, E11b.9, E11b.10, E11b.12, E15.1, E15.2, E17b.1, E17b.2, E18.1, E18.2, E18.3, E18.4, E19a.3, E20b, E20c.1.1, E20c.1.2, E20c.1.3, E20c.2.1, E20c.2.2, E21a, E29, E29b.3, E29e, E35, E36
ECONOMIC DEVELOPMENT CONVEYANCE PARCELS WITH NO HMP REQUIREMENTS

Resource Conservation Requirements

No resource conservation requirements are associated with this HMP for these parcels.

Management Requirements

No resource management requirements are associated with this HMP for these parcels.

TRANSPORTATION EASEMENT STATE ROUTE 68 CORRIDOR

Parcel Description

The Transportation Easement - State Route 68 (SR 68) corridor is generally a 1,000-foot-wide study corridor for a proposed new route for SR 68 located along the southern part of former Fort Ord (as depicted in Attachment A). The corridor would include easements from BLM and the Army. The easement crosses parcels L4.2, E29e, E29b.1, F1.4, F1.5, F1.7.1, S4.2.1, S4.2.3, L20.3, L20.5, and F1.1. The State Route 68 Corridor is not a distinct parcel but an easement through several separate parcels. The easement is included in the discussion of proposed road corridors in the "HMP Analysis of Road Corridors" section earlier in this chapter. The developed portion of this right-of-way would be approximately 300 feet wide.

As an alternative to a new SR 68 corridor, Caltrans is studying improvements to the existing SR 68 corridor, which would also require use of former Fort Ord lands adjacent to the existing highway. The Army will not be involved in planning for this alternative or granting easements to Caltrans for this alignment.

Resources Present

Major Habitat Features

Several habitat types occur in the Transportation Easement. Maritime chaparral is the dominant habitat type, with annual grassland and valley needlegrass grassland also prevalent. Some mixed riparian forest, inland coast live oak woodland, coast live oak savanna, and vernal pool habitat also occur.

HMP Species

Sand gilia, Monterey spineflower, Toro manzanita, sandmat manzanita, Monterey ceanothus, and Hooker's manzanita are known to occur in the Transportation Easement. Potential habitat is available for the California linderiella, California tiger salamander, and Monterey ornate shrew.

Resource Conservation Requirements

BLM will conserve HMP habitats and species in the Transportation Easement in the same manner as other parts of the NRMA (F1.1, F1.4, F1.5, F1.7.1), until such time as a new highway is planned and constructed (refer to the discussion of the NRMA earlier in this chapter). The development restrictions in parcels L20.5 and L20.8 will also apply until the new highway is planned and constructed.

Caltrans will design and construct the highway to seek to avoid impacts on vernal pools and vernal pool watersheds. If it is not possible to avoid vernal pools and vernal pool watersheds, appropriate measures will be implemented to minimize and mitigate impacts. Caltrans will design and construct the highway to minimize impacts on all natural habitats and HMP species populations. Caltrans will conserve or restore natural habitats in the road shoulders and medians in areas that will not conflict with Caltrans highway expansion, improvements, operations, or maintenance.

Management Requirements

Where the Transportation Easement passes through the NRMA, BLM will manage the easement in the same manner as other parts of the NRMA. However, because new highway construction could occur in the parcel, no restoration or enhancement of habitat or HMP species will be conducted.

Caltrans (the proposed recipient of the easement) will coordinate with BLM regarding interim management of the proposed state right-of-way until such time that a project could be constructed. If the project is to be constructed, Caltrans will continue to coordinate management of natural habitats and HMP species with BLM before, during, and following construction. Caltrans may participate in the CRMP.

The Army ROD for the 1993 FEIS contained the provision for the transfer of an easement for the development of the SR 68 transportation improvements. A portion of this area, parcel F 1.1, has been assigned to BLM with the proviso that BLM recognize the Army commitment concerning the granting of an easement to Caltrans subject to the conditions of the HMP as it may be revised or modified. Caltrans has indicated that its route selection process and NEPA/CEQA documentation for the SR 68 corridor have been stalled because of staff and funding constraints and that it wishes to keep options for two alignments open: an upper alignment as indicated in the 1993 NEPA ROD and a lower alignment along the existing SR 68 primarily within the parcel transferred to BLM in October 1996. The Army is willing to grant easements to Caltrans for the upper alignment as long as these areas are Army property and have had the required Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and OE investigations and response actions completed and are consistent with the 1993 NEPA ROD. The U.S. government would transfer an easement for SR 68 to Caltrans in phases as the environmental cleanup and OE responsive actions are completed. The easterly portion of the easement, both along the existing SR 68 and the south Fort Ord Corridor (within parcel F1.1 of the BLM transfer), would be transferred by BLM following application by Caltrans and BLM's processing the required transfer documentation, including NEPA and Section 7 consultation. Caltrans will assist in implementing the habitat improvements in the inland range portion of the NRMA as discussed below. Caltrans' role in implementing this HMP is to be tied to the SR 68 corridor selection process and the granting of an easement to Caltrans.

Caltrans and BLM have entered into a Memorandum of Understanding (MOU) concerning habitat considerations and the planning and development of improvements to SR 68. BLM has agreed to acknowledge the Army's intention in the 1993 NEPA ROD and HMP, including revisions and modifications to the HMP. At this point in time it is not known whether Caltrans will actually construct the SR 68 improvements or whether the improvements would take place on the upper or lower alignments within the parcel transferred to BLM. If the lower alignment were used, there would be no easement transferred from the Army since the alternative alignment would be within parcel F1.1, already transferred to BLM and parcel L20.6 scheduled to be transferred to Monterey County. The Army has made no commitment or decision to grant an easement to Caltrans outside of the upper alignment described in the NEPA ROD. Caltrans may work cooperatively with the other agencies receiving former Fort Ord lands to arrange for acquisition of an alternative corridor (such as Monterey County, which has a pending PBC request for parcel L20.6 within the area of the lower corridor alignment and has an MOU for the SR 68 project with Caltrans).

There is a requirement for Caltrans to participate equitably in the implementation of the basewide HMP to accommodate the target species management and restoration required for the Caltrans SR 68 development. The 1994 HMP envisioned the removal of all hardstand areas around the inland ranges to be transferred to BLM, with participation of Caltrans as the agency's contribution to the basewide HMP.

It is undetermined at this time whether the upper South Fort Ord Corridor is preferred from an environmental standpoint. At this time, Caltrans considers the corridor adjacent to SR 68 in parcel F1.1 equally viable as the northerly corridor. As SR 68 environmental studies continue, Caltrans will ask BLM to participate as a cooperating agency in the Caltrans/FHWA SR 68 project development process. Should environmental studies conclude that the lower corridor adjacent to existing SR 68 is preferred, then, subject to compliance with the Federal Land Policy Management Act (the BLM Organic Act - FLPMA), NEPA, and other applicable federal laws, BLM would grant Caltrans an easement for those BLM lands needed to construct the SR 68 project in that corridor.

Caltrans will contribute $250,000 before the end of fiscal year 1998, with the understanding that these funds would apply as mitigation toward future state transportation projects on former Fort Ord. All obligations of Caltrans under the terms of this agreement are subject to the appropriation of resources by the State Legislature and the allocation of resources by the California Transportation Commission.

Responsible Parties

Caltrans will be responsible for implementing management requirements in the Transportation Easement as described above. Caltrans will coordinate with BLM, Monterey County, and other agencies as necessary concerning HMP species and habitat conservation and management when planning and constructing the State Route 68 corridor.

If the Upper Corridor is not selected for SR 68 improvements, the area of the Upper Corridor will contain the management requirement and responsibilities for the parcel within which the corridor is described.

PARCELS L3.2, E19a.1, E19a.2, E21b.1, E21b.2, E21b.3, E23.1, E23.2, E24, E29a, E29b.1, E29b.2, AND E34 BORDERLAND DEVELOPMENT AREAS ALONG NRMA INTERFACE

Parcel Description

Certain development parcels (see parcel numbers above) abut the NRMA. Parcel L3.2 is a PBC development area proposed to be transferred to York School; the E series parcels listed above are to be obtained by FORA as part of the FORA EDC. Special management requirements for the boundaries between development areas and the NRMA are needed to be responsive to agreements between USFWS, BLM, UC, FORA, and the Army. These boundary areas have both interim and long-term management requirements. Except for boundary management requirements, the parcels referenced above are available for development without restriction.

It may take many years before development occurs in the development parcels bordering the NRMA. In order to prevent potential conflicts between the interim use of these parcels before their development and habitat management activities in the adjacent NRMA, FORA or other recipients of the land will arrange for interim management of the land, which shall include, at a minimum, the installation and maintenance of firebreaks and vehicle barriers where appropriate to separate developed and developing areas from natural lands. Other appropriate interim management measures will be developed by FORA or other recipients of the land in collaboration with BLM for the remainder of the parcel.

Long-term management requirements will apply as the development parcels are built out. Barriers will be installed and maintained along the NRMA where topography would allow vehicle access. Gates will allow emergency access to the NRMA. Keys to gates will be provided to reserve managers and other appropriate agencies. To minimize the possibility of fire damage to the NRMA as well as structures on the development parcels, parking lots, greenbelts, or other nonflammable or fire-resistant land uses will be located as a buffer between the NRMA and development. Structures will be sited entirely behind the land use that is developed as a firebreak. Measures will also be taken to reduce potential for erosion in these parcels so as not to affect the NRMA parcel from stormwater runoff that may originate in these parcels.

Resource Conservation Requirements

There are no resource conservation requirements for the Borderland Development Areas Along NRMA Interface. However, FORA or other recipients of the land, in consultation with BLM, will arrange for appropriate interim management of developable natural lands before development so that natural lands would be conserved and managed until development occurs. Additionally, small pockets of habitat may be preserved within and around developed areas. Populations of iceplant, scotch broom, and pampas grass will be controlled on an interim and long-term basis in these areas to avoid the spread of these species into the NRMA.

FORA has stated that it is not FORA's intent to separate developable natural land areas from reserves by the establishment of firebreaks and vehicle barriers before planned development of those lands.

Management Requirements

The following management requirements are applicable as interim requirements before the development of the parcels. For the habitat reserve/development interface in all borderland development areas (parcels listed above), FORA or other recipients of the land will either arrange to have existing native habitat managed in an interim period before development or construct and maintain firebreaks and vehicle barriers to separate developed and developing areas from both interim and permanent habitat areas. FORA has stated that it will work together with BLM to identify suitable locations for both interim and long-term firebreaks/barriers separating developed lands from natural lands as development of former Fort Ord land proceeds. A barrier will be installed and maintained along the NRMA where topography would allow vehicle access. Gates will allow emergency access to the NRMA. Keys to gates will be provided to BLM and other appropriate agencies. FORA will supply reports on interim habitat management in development parcels and/or development of firebreaks to BLM.

The following management requirements will be implemented as parcels are transferred and the parcels or portions of the parcels are developed. Populations of ice plant, scotch broom, and pampas grass will be controlled to avoid their spread into the NRMA. To minimize the possibility of fire damage to the NRMA as well as structures on the development parcels, parking lots, greenbelts, or other nonflammable or fire-resistant land uses will be located as a buffer between the NRMA and development. Structures will be sited entirely behind the land use that is developed as a firebreak. Measures will also be taken to reduce potential for erosion in these parcels so as not to affect the NRMA parcel from stormwater runoff that may originate in these parcels.

Responsible Parties

Parcels E19a.1, E19a.2, E21b.1, E21b.2, E21b.3, E23.1, E23.2, E24, E29a, E29b.1, E29b.2, and E34 will be obtained as part of the FORA EDC. FORA will be responsible for implementing the management requirements specified above, which are consistent with item c of the agreement between the Army, USFWS, UC, and FORA (see Appendix A). In the event that the EDC process is not the selected means of transfer of these properties, the recipient of the land will be responsible for implementing the firebreak/vehicle barrier, invasive exotic plant control, and erosion control requirements specified above, and the parcels would otherwise be available for development. York School will be responsible for implementing the management requirements for parcel L3.2.

Coordinated Resource Management and Planning

A coordinated resource management and planning (CRMP) process is a multi-agency multi-jurisdictional land use planning effort developed under the sponsorship of the California CRMP memorandum of understanding (MOU). This MOU has been signed by 14 federal and state agencies including the BLM, DFG, Soil Conservation Service, USFWS, and UC. Additional details on the development of this planning process are contained in the California CRMP Handbook (1990).

The BLM is using the CRMP process to develop management plans and prescriptions for BLM managed lands at former Fort Ord. The BLM has invited other public entities having natural resource management or habitat conservation responsibilities applicable to the former Fort Ord area to participate in this cooperative planning effort. Agencies that have no resource conservation requirements on received lands but wish assistance in managing lands prior to development may also participate in the CRMP.

Participation in the CRMP is not a requirement of this HMP. The goal of the CRMP is to develop annual work plans, each being a single multi-jurisdictional management plan for all maritime chaparral habitats that are to be preserved and managed for natural values. BLM and UC/NRS are willing to consider managing species and habitats on other public and private lands on a fee bases for those entities required to conserve habitat under this HMP. This service may be provided under the CRMP process.

The CRMP is tiered to this HMP. The CRMP plans would be annually reviewed and would implement this HMP. Anticipated products from the CRMP would be:

- uniform special-status species and habitat-monitoring strategies;
- multi-jurisdictional fire management strategies (prescribed fire and wildfire management);
- uniform prescriptions of compatible and noncompatible uses;
- realignment of land ownership to consolidate natural habitat management with natural resource management agencies;
- consolidated pubic information publications (maps, brochures, etc.), volunteer programs, and other public relations activities; and
- combined single reports to USFWS/DFG on status of special-status species.

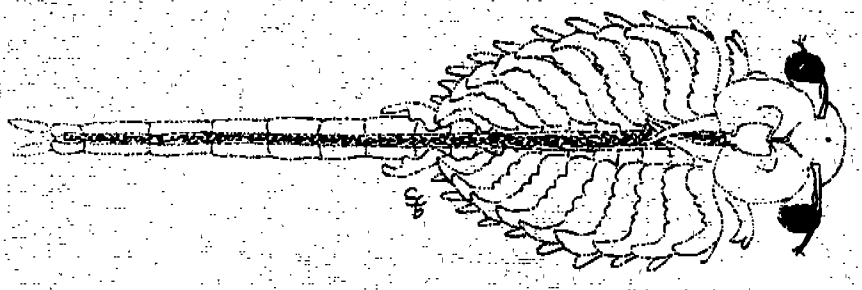
Most importantly, the CRMP will provide a mechanism for public agencies to share resources to deliver the most efficient habitat protection and public services for the money expended. Examples of responsibilities and resources that could be shared include:

- patrolling lands; providing visitor assistance; maintain signs, barriers, and other improvements; and conducting threatened and endangered species monitoring;
- coordinating threatened and endangered species research and graduate intern projects;
- coordinating environmental education and student intern projects;

- providing natural resource interpretation staff and materials;
- providing fire crews for prescribed fires;
- providing road maintenance and personnel for manual labor projects; and
- coordinating vernal pool and wetland management.

Chapter 5.

Citations



California Linderiella

Chapter 5. Citations

PRINTED REFERENCES

Arnold, R. A. 1980. Ecological studies of six endangered butterflies: island biogeography, patch dynamics and the design of nature preserves. Ph.D. dissertation. (U.C. Publication Extension 99:1-161, 1983.) University of California, Berkeley, CA.

_____. 1983. Conservation and management of the endangered Smith's blue butterfly, *Euphilotes enupes smithi* (Lepidoptera lycaenidae). The Journal of Research on the Lepidontera. 22(2):135-153.

Bury, B. R. 1985. Status report. *Anniella pulchra nigra* Fischer, black legless lizard (*Aniellidae: Sauria*) in Central California. Ecosystems Studies Section, Denver Wildlife Research Center. Fort Collins, CO. Prepared for U.S. Fish and Wildlife Service, Office of Endangered Species, Portland, OR.

California Coordinated Resource Management and Planning. 1990. California coordinated resource management and planning handbook. Sacramento, CA.

Doak, D. F., P. C. Marino, and P. M. Kareiva. 1992. Spatial scale mediates the influence of habitat fragmentation and dispersal success: implications for conservation. Theoretical Population Biology 41:315-336.

Ferreira, J. E., and K. L. Gray. 1987. Marina State Beach dune revegetation. California Department of Parks and Recreation. Sacramento, CA.

Gilpin, M. E., and M. E. Soulé. 1986. Minimum viable populations: processes of species extinction. Pages 19-34 in M. Soulé (ed.), Conservation biology: the science of scarcity and diversity. Sinauer Associates, Inc. Sunderland, MA.

Griffin, J. R. 1976. Native plant reserves at Fort Ord. Fremontia 4(2):25-28.

Grinnell, S., and A. H. Miller. 1944. The distribution of the birds of California. Pacific Coast Avifauna 27:1-608.

Jensen, D. B., M. Torn, and J. Harte. 1990. In our own hands: a strategy for conserving biological diversity in California. California Policy Seminar, University of California Berkeley, Berkeley, CA.

Jones & Stokes Associates, Inc. 1993. Preliminary draft. Environmental assessment for livestock grazing on Fort Ord, Monterey County, California. September 15, 1993. (JSA 91-123.) Sacramento, CA. Prepared for U.S. Army Corps of Engineers, Sacramento, CA.

Leftkovitch, L. P., and L. Fahrig. 1985. Spatial characteristics of habitat patches and population survival. Ecological Modeling 30:297-308.

Munz, P. A., and D. D. Keck. 1968. A California flora and supplement. University of California Press. Berkeley, CA.

Norton, B. G. 1988. The preservation of species: the value of biological diversity. Princeton University Press. Princeton, NJ.

Noss, R. 1991. Landscape connectivity: different functions at different scales. Pages 27-39 in Hudson, W. E. (ed.), Landscape linkages and biodiversity. Island Press. Washington, DC.

Pulliam, R. H., and B. J. Danielsen. 1991. Sources, sinks, and habitat selection: a landscape perspective on population dynamics. American Naturalist 137:S50-S66.

Samson, F. B., P. Alaback, J. Christner, T. DeMoe, A. Doyle, J. Martin, J. McKibben, M. Orme, L. Suring, K. Thompson, B. G. Wilson, D. A. Anderson, R. W. Flynn, J. W. Schoen, L. G. Shae, and J. L. Franklin. 1991. Conservation of rainforests in Southeast Alaska: report of a working group. Pages 96-113 in Rodiek, J. E., and E. G. Bolen (eds.), Wildlife and habitats in managed landscapes. Island Press. Washington, DC.

Soulé, M. E. (ed.) 1987. Viable populations for conservation. Cambridge University Press. New York, NY.

Temple, S. A. 1983. Area-dependent changes in the distribution and vegetation of southern Wisconsin forests. Ecology 64:1057-1068.

Terbough, J., and B. Winter. 1980. Some causes of extinction. Pages 119-133 in Soulé, M. E., and B. A. Wilcox (eds.), Conservation biology: an evolutionary-ecological perspective. Sinauer Associates, Inc. Sunderland, MA.

U.S. Army Corps of Engineers. 1992a. Flora and fauna baseline study of Fort Ord, California. December. Sacramento District. Sacramento, CA.

_____. 1992b. Soils baseline study of Fort Ord, California. Final. April. Sacramento, CA.

_____. 1992c. Other physical attributes baseline study of Fort Ord, California. Sacramento, CA.

_____. 1993a. Fort Ord disposal and reuse biological assessment. February 1993. Sacramento District. Sacramento, CA.

_____. 1993b. Supplement to the draft Fort Ord disposal and reuse biological assessment. April 1993. Sacramento District. Sacramento, CA.

_____. 1993c. Fort Ord disposal and reuse environmental impact statement. Final. June 1993. Sacramento District. Sacramento, CA.

_____. 1993d. U.S. Department of Defense base realignment and closure ordnance and explosive waste archive search report, Fort Ord, California. St. Louis, MO.

_____. 1995. Protocol for conducting vegetation sampling at Fort Ord in compliance with the installation-wide multispecies habitat management plan. Sacramento District. Sacramento, CA.

_____. 1996. Ford Ord disposal and reuse supplemental environmental impact statement. Final. June 1996. Sacramento District. Sacramento, CA.

U.S. Department of the Army. 1993. Ford Ord, California disposal and reuse environmental impact statement record of decision. December 23, 1993. Office the Assistant Secretary, Installations Logistics and Environment. Washington, DC.

U.S. Fish and Wildlife Service. 1993. Biological opinion for the disposal and reuse of Fort Ord, Monterey County, California. October 19, 1993. (1-8-93-F-14.) Ecological Services. Ventura, CA.

Weaver, J. L. 1993. Lynx, wolverine, and fisher in the western United States: research assessment and agenda. U.S. Forest Service, Intermountain Research Station. Missoula, MT.

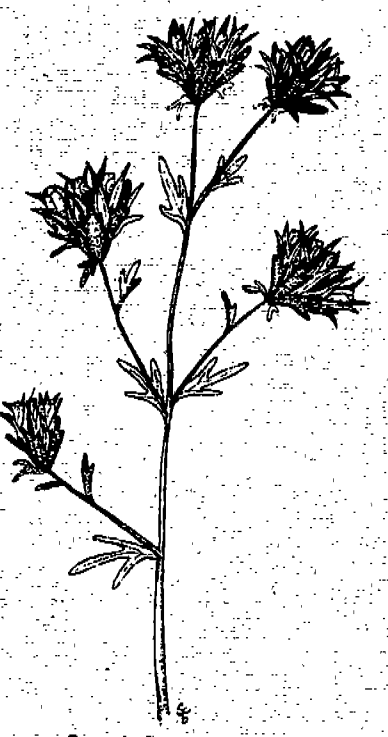
PERSONAL COMMUNICATIONS

Arnold, Richard. Entomologist. University of California, Berkeley, California. September 13, 1993 - telephone conversation.

Kreiberg, Patti. Horticulturalist. Sunset Coast Nursery, Watsonville, CA. October 27, 1993 - telephone conversation.

Chapter 6.

List of Preparers and Acknowledgments



Seaside Bird's-Beak

Chapter 6. List of Preparers and Acknowledgments

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This HMP was prepared under the direction of the U.S. Department of the Army, Forces Command, and Training and Doctrine Command. A list of persons who participated in the preparation of this document is presented below.

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Appendix A. Agreement for the Revised Habitat Management Plan

Development of the Revised Fort Ord Habitat Management Plan (HMP)

Representatives from the Army, USFWS, and Fort Ord Reuse Authority (FORA) met on March 15, 1996 to discuss modifications to the HMP. A telephone conference was held on March 28, 1996 which included a University of California (UC) representative. The discussion resulted in clarifications regarding revision of the HMP, including an agreement by UC or FORA to obtain the landfill parcel and manage a portion of it as habitat subject to review of liability and indemnification. Any final decision regarding acceptance of the landfill parcel is subject to approval by the respective governing body. A detailed amendment the HMP will be prepared by the Army and provided to affected parties for signature prior to publication. The following are the terms of the modifications for the Revised Habitat Management Plan.

a) The requirement for the landfill parcel to be included as an HMP habitat management area is revised from being an Army responsibility to being a University of California or FORA responsibility. The Army will not be required to restore habitat on the landfill cap nor will the Army be required to perform habitat management activities in the parcel while the landfill is being remediated or in caretaker status.

b) The University of California (if not UC, then FORA) will apply to obtain the landfill parcel as part of an Economic Development Conveyance (EDC) transfer under terms of an existing MOA between the U.S. Army and UC. Following land transfer from the Army, UC or FORA will manage seventy-five percent (75%) of the landfill parcel (including the completed landfill cap) as habitat. The remaining twenty-five percent (25%) of the parcel will be available for development. Other changes in boundaries and trade-offs of development and habitat areas will be made in the HMP as shown on the attached figure (Figure 5-11, Revised Habitat Management Plan for Former Fort Ord). This will satisfy basewide HMP habitat management requirements for all proposed development areas (shown as land areas with no HMP habitat preservation requirements on Figure 5-11).

c) The other development areas adjacent to the BLM Natural Resources Management Area (NRMA) will be obtained as part of the FORA EDC. In these areas of undeveloped habitat adjacent to the NRMA, FORA will either arrange to have existing native habitat managed or construct and maintain fire breaks and vehicle barriers to separate these areas from the NRMA until such time as roads and other developments are constructed in these locations. (See attached figure for locations of fire breaks along the edge of the NRMA). This will replace the individual development parcel descriptions contained in the original HMP. The revised HMP will rely on this measure to accomplish the desired separation of habitat areas from future development areas. The land use specific requirements for development parcels will be removed in the revised HMP.

The following Agencies indicate concurrence in the elements of the Revised HMP.

U.S. Fish and Wildlife Service

Date: 4/9/96

U.S. Army

Date: 4.11.96

U.S. Bureau of Land Management

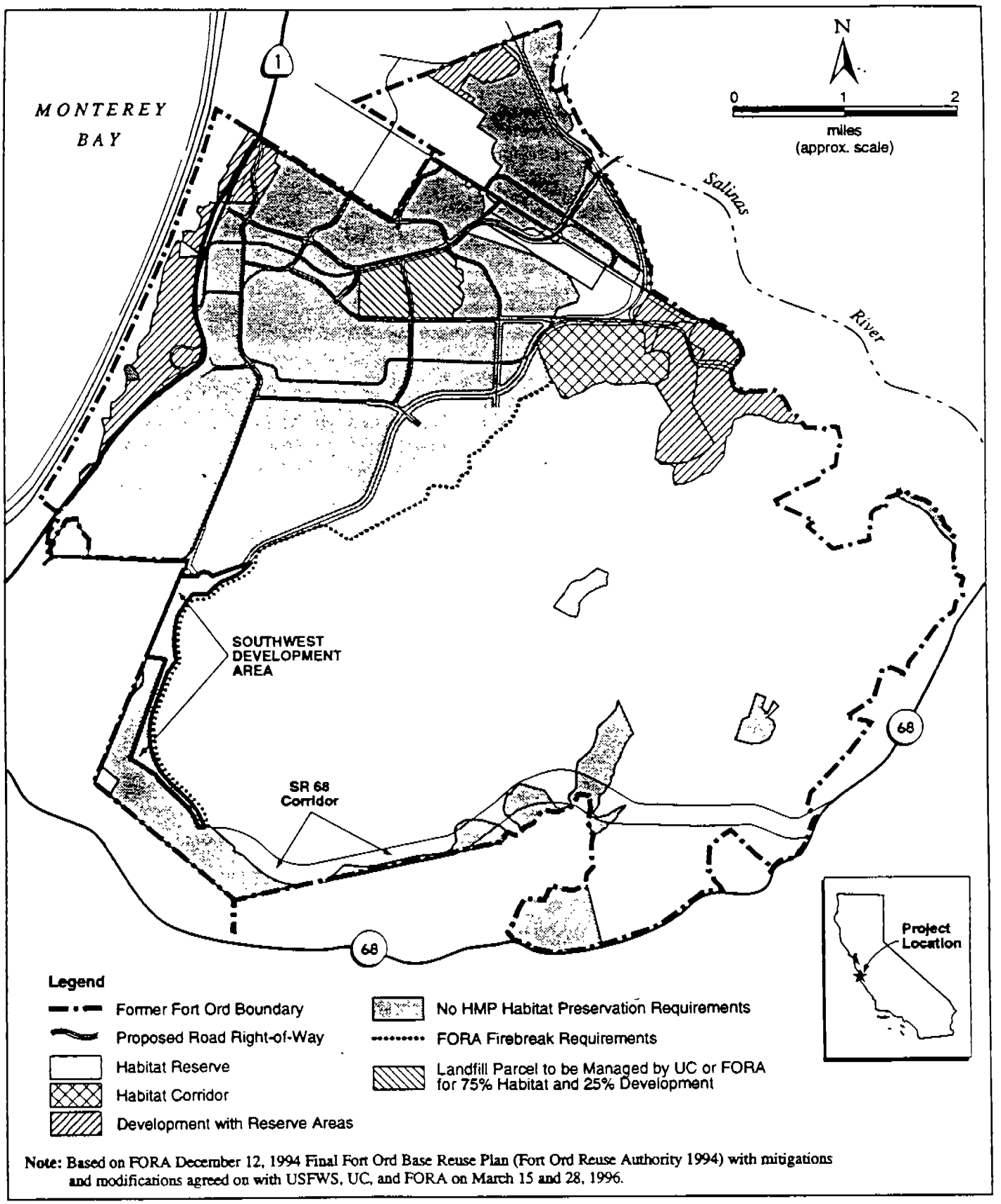
Date: 4/10/96

University of California

Date: 4/3/96

Fort Ord Reuse Authority

Date: 4/3/96



Note: Based on FORA December 12, 1994 Final Fort Ord Base Reuse Plan (Fort Ord Reuse Authority 1994) with mitigations and modifications agreed on with USFWS, UC, and FORA on March 15 and 28, 1996.

Figure 5-11
Draft Revised Habitat Management Plan for Former Fort Ord

Appendix B. HMP Species Occurrence Data

Table B-1. Occurence of HMP Species in Parcels

Parcel	Sand Gilia	Monterey Spineflower	Robust Spineflower	Seaside Bird's beak	Toro Manzanita	Sandmat Manzanita	Monterey Ceanothus	Eastwood's Ericameria	Coast Wallflower	Yadon's Piperia	Hooker's Manzanita	Smith's blue butterfly	California lindenella	California red-legged frog	Western snowy plover	California black legless lizard	California tiger salamander	Monterey ornate shrew
E11a	X	X				X	X	X								X		X
E11b.1																		X
E11b.2		X																X
E11b.3					X													X
E11b.4																		X
E11b.5		X			X	X	X	X									X	X
E11b.6	X			X	X		X	X			X							X
E11b.7	X				X		X	X			X							X
E11b.8					X		X	X			X							X
E11b.9																		X
E11b.10																		
E11b.11																		
E11b.12																		X
E15.1																		X
E15.2																		X
E17b.1																		
E17b.2																		X
E18.1		X					X											X
E18.2																X		X
E18.3																		X
E18.4		X																X
E19a.1		X				X												X
E19a.2		X			X	X	X				X					X		X
E19a.3		X			X	X	X				X					X		X
E20c.1.1		X				X	X	X								X		X
E20c.1.2						X	X									X		X
E20c.1.3		X				X	X	X								X		
E20c.2.1		X				X	X	X								X		X
E20c.2.2		X				X	X									X		X
E20.b																X		
E21a		X				X	X	X										
E21b.1		X			X	X	X	X			X					X		X
E21b.2	X	X			X	X	X	X			X					X		X
E21b.3		X		X		X	X	X								X		X
E23.1						X	X	X								X		
E23.2		X				X	X	X								X		
E24	X	X		X	X	X	X	X	X							X		
E29		X				X	X	X								X		
E29a		X				X	X	X	X				X	X		X	X	
E29b.1		X				X	X	X										
E29b.2		X				X	X	X										
E29b.3		X			X	X	X	X										
E29e		X				X	X	X								X		
E2a	X	X				X	X		X	X								
E2b.1						X	X		X							X		
E2b.2																X		
E2b.3																		
E2c.1						X	X	X								X		
E2c.2																		
E2c.3	X					X	X	X										
E2c.4	X	X				X	X	X								X		
E2d	X					X	X	X								X		
E2e	X	X				X	X									X		X
E31		X				X	X	X								X		
E36		X				X	X	X								X		

Table B-1 Occurence of HMP Species in Parcels

Parcel	Sand Gilia	Monterey Spineflower	Robust Spineflower	Seaside Bird's beak	Toro Manzanita	Sandmat Manzanita	Monterey Ceanothus	Eastwood's Ericameria	Coast Wallflower	Yadon's Piperia	Hooker's Manzanita	Smith's blue butterfly	California lindenella	California red-legged frog	Western snowy plover	California black legless lizard	California tiger salamander	Monterey ornate shrew
E34	X	X				X	X	X								X		
E35																		
E4.1	X	X				X	X	X	X	X						X		X
E4.2	X	X				X	X	X	X							X		X
E4.3	X	X			X	X	X	X								X		X
E4.4	X	X			X	X	X	X								X		
E4.5	X					X	X	X								X		
E4.6	X	X				X	X	X	X		X					X		X
E4.7	X	X			X	X	X	X	X							X		X
E5a	X	X			X	X	X	X								X		
E5b		X			X	X	X	X								X		
E8a.1	X	X				X	X		X							X		X
E8a.2		X				X	X									X		
F1.1	X	X		X	X		X	X			X		X	X			X	X
F1.10	X	X				X	X	X								X		
F1.11	X	X		X	X	X	X	X			X					X		
F1.12	X	X		X	X	X	X	X	X		X							
F1.13		X			X	X	X	X			X		X	X		X	X	X
F1.14	X	X		X	X	X	X	X	X		X		X	X		X	X	X
F1.41					X								X	X		X	X	X
F1.5	X	X		X	X	X	X	X			X		X			X	X	
F1.6						X	X				X		X				X	
F1.7.1	X	X		X	X	X	X	X			X		X	X			X	X
F1.7.2	X	X			X		X	X			X							X
F1.8	X	X		X		X	X	X	X									
F1.9		X		X		X	X	X								X		
F2.1																		
F2.2																		
F2.3		X					X									X		X
F2.4																		
F2.5																		
F2.6		X																X
F2.7.1		X																X
F2.7.2																		X
F2.7.3																		
F2.8																		
F2.9																		
F3		X														X		X
F4	X	X			X	X	X	X	X							X		
F5.1																		
F5.2																		
F6																		
L10.1																		
L10.2						X	X	X								X		
L10.3																		
L10.4	X	X				X	X	X								X		
L11						X	X	X								X		
L12.1	X	X				X	X	X										
L12.3																		
L13.1							X									X		
L13.2							X									X		
L14						X	X	X								X		
L15.1																		
L15.2	X	X			X	X	X	X								X		

Table B-1 Occurence of HMP Species in Parcels

Parcel	Sand Gilia	Monterey Spineflower	Robust Spineflower	Seaside Bird's beak	Toro Manzanita	Sandmat Manzanita	Monterey Ceanothus	Eastwood's Ericamera	Coast Wallflower	Yadon's Piperia	Hooker's Manzanita	Smith's blue butterfly	California linderiella	California red-legged frog	Western snowy plover	California black legless lizard	California tiger salamander	Monterey ornate shrew
L15.3							X											
L16																		
L17.1																		
L17.2		X				X	X	X								X		
L18																		
L19																		
L1.1																		
L1.2																		
L20.10.1	X	X				X	X		X									X
L20.10.2																		X
L20.10.3																		X
L20.11.1	X	X							X							X		X
L20.11.2	X	X														X		X
L20.12																		
L20.13		X		X	X	X	X	X	X				X			X	X	
L20.14.1		X																X
L20.14.2		X																X
L20.15		X																
L20.16																		
L20.17.1																		
L20.17.2	X	X				X	X									X		X
L20.18		X		X		X	X	X								X		X
L20.19					X		X	X			X							X
L20.20																		X
L20.21																		X
L20.22																		
L20.2.1	X	X				X												X
L20.2.2	X	X				X							X	X			X	X
L20.3						X	X				X		X	X			X	
L20.4																		
L20.5					X								X	X			X	X
L20.6																		X
L20.7		X			X	X	X				X							
L20.8		X			X		X	X										X
L20.9					X													
L21																		
L22																X		
L23.1.1																		
L23.1.2																		
L23.1.3						X	X									X		
L23.1.4																		
L23.1.5																		
L23.2		X				X	X											
L23.4																		
L23.5																		X
L24	X	X				X												X
L25																		
L26		X				X			X									
L27																		
L28																X		
L29							X									X		
L2.1																		
L2.2	X					X	X	X								X		
L2.3		X				X												X
L30																		

Table B-1. Occurence of HMP Species in Parcels

Parcel	Sand Gilia	Monterey Spineflower	Robust Spineflower	Seaside Bird's beak	Toro Manzanita	Sandmat Manzanita	Monterey Ceanothus	Eastwood's Encamena	Coast Wallflower	Yadon's Piperia	Hooker's Manzanita	Smith's blue butterfly	California lindenelia	California red-legged frog	Western snowy plover	California black legless lizard	California tiger salamander	Monterey ornate shrew
L3 1		X			X	X	X				X							
L3 2		X			X	X	X	X			X							
L4.1		X				X	X	X								X		
L4.2		X				X	X	X								X		
L5.1	X	X				X	X		X							X		X
L5.10	X	X			X	X	X	X	X							X		X
L5.1 1		X														X		
L5 1 10																X		
L5 1 11	X	X				X										X		X
L5 1.12		X																X
L5.1.2																		
L5.1.3																		
L5.1 4	X	X																X
L5.1.5																X		
L5.1.6																		
L5.1.7																		
L5.1 8		X																X
L5.1 9																		
L5.2																		
L5 4 1																		
L5 4.2																		
L5.5																		
L5.6						X	X	X								X		
L5.7		X																X
L5.8.1																		
L5.8 2																		
L5.9 1	X					X	X	X								X		
L5.9 2	X					X	X	X								X		
L6		X		X		X	X	X								X		
L7 1	X	X				X	X	X	X	X						X		
L7 2	X	X				X			X							X		X
L7.3																		
L7 4																X		X
L7.5		X				X	X									X		
L7 6		X				X	X									X		
L7 7		X																X
L8.1																		
L8 2																		
L8.3																		
L9.1 1						X	X									X		
L9 1 2		X				X	X	X	X							X		
L9 2						X												
L9 3																		
LE5.9																		
LE12 2																		
LE20 16																		
LE20.18	X	X			X	X	X	X			X							X
LE20 19	X				X		X	X			X							
S1.1																		
S1 2.1	X	X				X	X	X	X		X					X		X
S1 2 2	X	X				X	X		X							X		X

Table B-1. Occurence of HMP Species in Parcels

Parcel	Sand Gilia	Monterey Spineflower	Robust Spineflower	Seaside Bird's beak	Toro Manzanita	Sandmat Manzanita	Monterey Ceanothus	Eastwood's Encameria	Coast Wallflower	Yadon's Piperia	Hooker's Manzanita	Smith's blue butterfly	California lindenella	California red-legged frog	Western snowy plover	California black legless lizard	California tiger salamander	Monterey ornate shrew
LE5.9																		
LE12 2																		
LE20 16																		
LE20 18	X	X			X	X	X	X			X							X
LE20.19	X				X		X	X			X							
S1.1																		
S1 2 1	X	X				X	X	X	X		X					X		X
S1 2 2	X	X				X	X		X							X		X
S1.2.3		X				X												X
S1 3 1		X																X
S1 3 2		X														X		X
S1.3.3	X	X				X												X
S1.3 4		X				X												X
S1.4																		
S1.5.1																		
S1.5.2						X												
S1.6																		X
S1.7						X												
S2.1.1	X	X				X	X		X							X		X
S2.1.2	X	X				X	X	X	X							X		X
S2.1.3	X	X				X	X		X							X		
S2.1.4	X	X				X	X		X							X		X
S2.1.5	X	X				X	X	X	X							X		X
S2.2.1		X														X		X
S2.2.2																		
S2.2.3																		
S2.3.1	X	X			X	X	X	X	X							X		X
S2.3 2	X	X			X	X	X	X	X		X					X		X
S2.4	X	X				X	X	X								X		
S2.5.1	X	X				X	X									X		X
S2.5.2	X	X				X	X									X		X
S3.1 1	X	X	X			X			X			X				X		
S3.1.2	X	X							X			X			X	X		
S3.1 3		X																
S3.1.4		X																
S3 2																		
S4.1.1		X																
S4.1.2		X				X			X							X		
S4.1.3	X	X				X	X	X	X	X						X		
S4 2 1						X	X											
S4 2 2						X	X											
S4 2 3		X			X	X	X				X							
S4.3																X		

Occurence data for almost all species was generated by overlaying the rectified 1992 GIS database for biological resources with the HMP map
The rectified 1992 database was created by incorporating the 1992 survey data into a 1996 GIS base map for former Fort Ord.
Occurences for Smith's blue butterfly and black legless lizard considered both the 1992 data and more recent available data.

Table B-2 Habitat Acreages Supporting HMP Target Species within HMP Reserve Areas, Corridors, and Development Areas

	Plants											Animals						
Parcel	Sand Gilia	Eastwood's Ericameria	Coast Wallflower	Seaside Bird's Beak	Robust Spineflower	Monterey Spineflower	Monterey Ceanothus	Sandmat Manzanita	Toro Manzanita	Hooker's manzanita	Yadon's Piperia	California Linderiella	Tiger Salamander	Western Snowy Plover	California Red-Legged Frog	Monterey Ornate Shrew	Black Legless Lizard	Smith's Blue Butterfly
State Parks Reserve	H --	H --	H 35	H --	H --	H 35	H --	H --	H --	H --	H --	--	--	73	--	--	8	140
	M --	M --	M 36	M --	M --	M 25	M --	M --	M --	M --	M --							
	L --	L --	L 75	L --	L --	L 182	L --	L --	L --	L --	L --							
State Parks Development with Reserve	H --	H --	H 8	H --	H --	H 63	H --	H --	H --	H --	H --	--	--	--	--	--	78	37
	M --	M --	M 1	M --	M --	M 84	M --	M --	M --	M --	M --							
	L --	L --	L 16	L --	L 476	L 277	L --	L 1	L --	L --	L --							
Landfill Development with Reserve	H --	H --	H --	H --	H --	H --	H --	H --	H --	H --	H --	--	--	--	--	149	43	--
	M 21	M --	M 8	M --	M --	M 42	M --	M 63	M --	M --	M --							
	L 80	L --	L --	L --	L --	L 201	L 164	L 207	L --	L --	L --							
UC/NRS Reserve	H 148	H --	H 2	H --	H --	H 164	H --	H 256	H --	H --	H --	--	--	--	--	243	261	--
	M 131	M 10	M 86	M --	M --	M 340	M 188	M 123	M --	M --	M --							
	L 194	L 105	L 84	L --	L --	L 3	L 161	L 45	L 30	L --	L --							
Marina Reserve	H --	H --	H --	H --	H --	H --	H --	H --	H --	H --	H --	--	--	--	1	26	1	--
	M --	M --	M --	M --	M --	M 6	M --	M --	M --	M --	M --							
	L --	L --	L --	L --	L --	L 8	L --	L --	L --	L --	L --							
Marina Development with Reserve	H --	H --	H --	H --	H --	H 7	H --	H 1	H --	H --	H --	--	--	--	--	1	18	--
	M --	M --	M --	M --	M --	M 98	M --	M --	M --	M --	M --							
	L 1	L --	L --	L --	L --	L 1	L --	L --	L --	L --	L --							
East Garrison Reserve	H 6	H --	H --	H --	H --	H 9	H --	H --	H --	H --	H --	--	--	--	--	147	6	--
	M --	M --	M --	M --	M --	M 55	M 6	M --	M --	M --	M --							
	L 3	L 6	L 3	L --	L --	L 48	L 3	L 9	L --	L --	L --							
East Garrison Development with Reserve	H --	H --	H --	H --	H --	H --	H 38	H --	H 141	H --	H --	--	--	--	--	282	--	--
	M --	M 189	M --	M --	M --	M 1	M 189	M --	M 89	M 60	M --							
	L 5	L --	L --	L 5	L --	L 54	L --	L 13	L 119	L 5	L --							
Habitat Corridor	H --	H --	H --	H --	H --	H 3	H --	H --	H --	H --	H --	--	--	--	--	246	--	--
	M --	M --	M --	M --	M --	M 31	M --	M --	M --	M --	M --							
	L 31	L --	L --	L --	L --	L 123	L --	L 33	L --	L --	L --							
Habitat Corridor with Development	H --	H --	H --	H --	H --	H --	H --	H --	H --	H --	H --	1	1	--	1	130	--	--
	M --	M --	M --	M --	M --	M 30	M --	M --	M --	M --	M --							
	L 30	L --	L --	L --	L --	L 17	L --	L 45	L --	L --	L --							
BLM NRMA	H --	H --	H --	H --	H --	H 428	H 1,727	H 2,566	H 1,762	H 1,241	H --	56	56	--	23	1,723	935	--
	M 21	M 1,517	M --	M 16	M --	M 1,678	M 5,185	M 1,883	M 1,916	M 2,204	M --							
	L 2,267	L 2,677	L 36	L 1,030	L --	L 3,070	L 1,311	L 1,004	L 1,583	L 1,054	L --							

Table B-2. Continued

| | Plants | | |

Page # 185 (13 pgs.)

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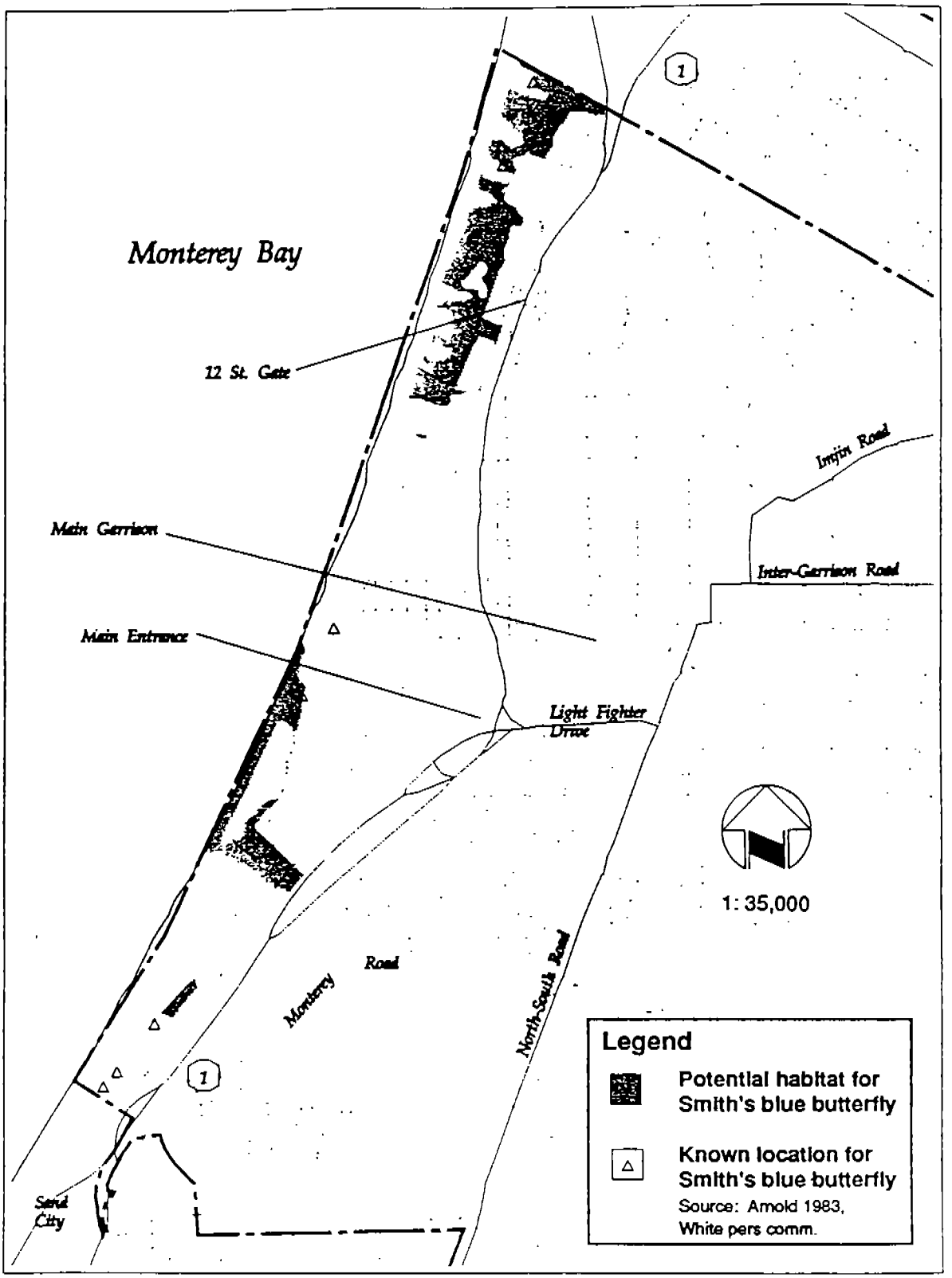


Figure B-12a
Potential and Occupied Habitat for Smith's Blue Butterfly Based on 1992 Survey Data

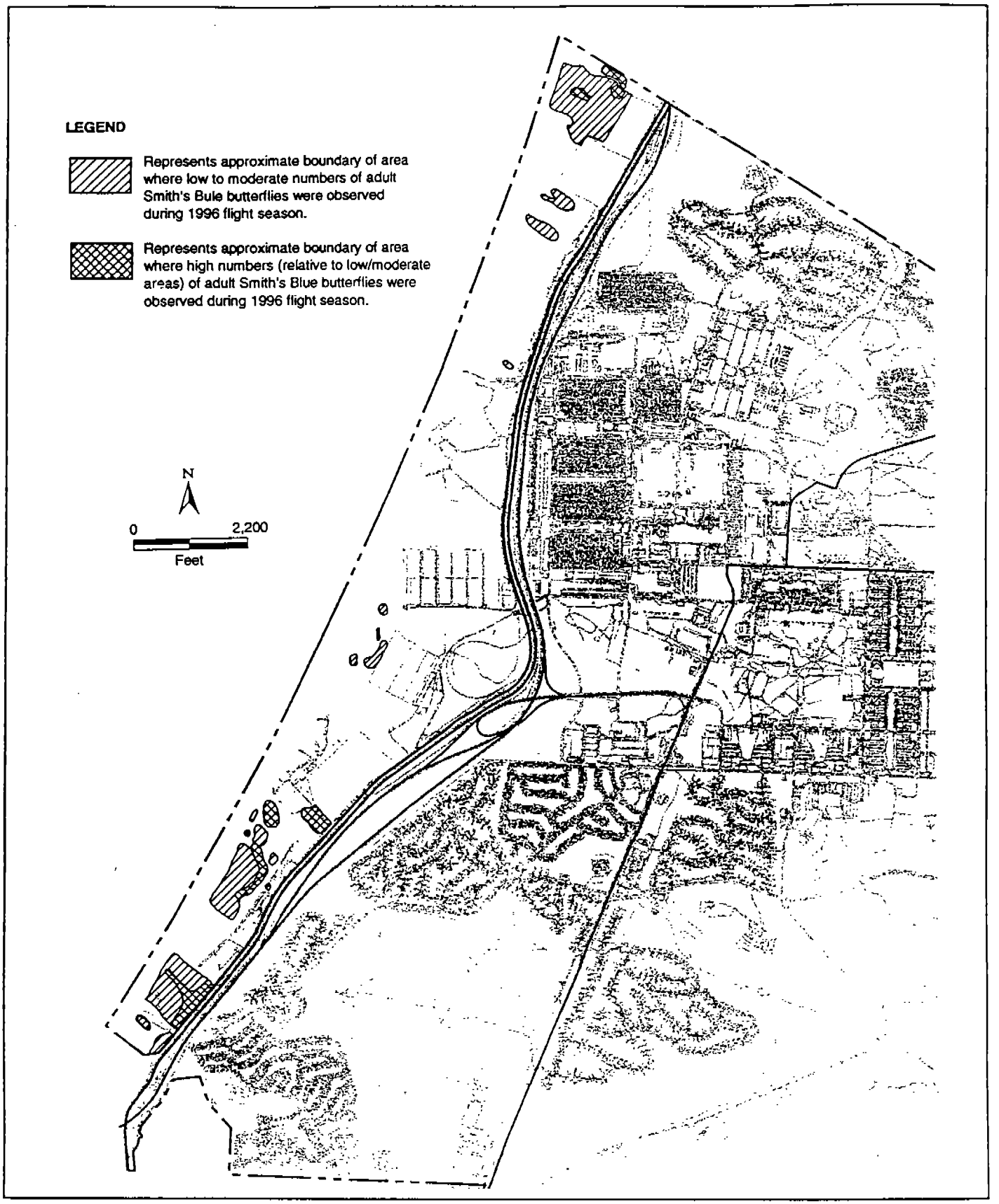


Figure B-12b
Occupied Smith's Blue Butterfly Habitat Based on 1996 Inventories

Figure B-13

Potential and Occupied Habitat for California Linderiella

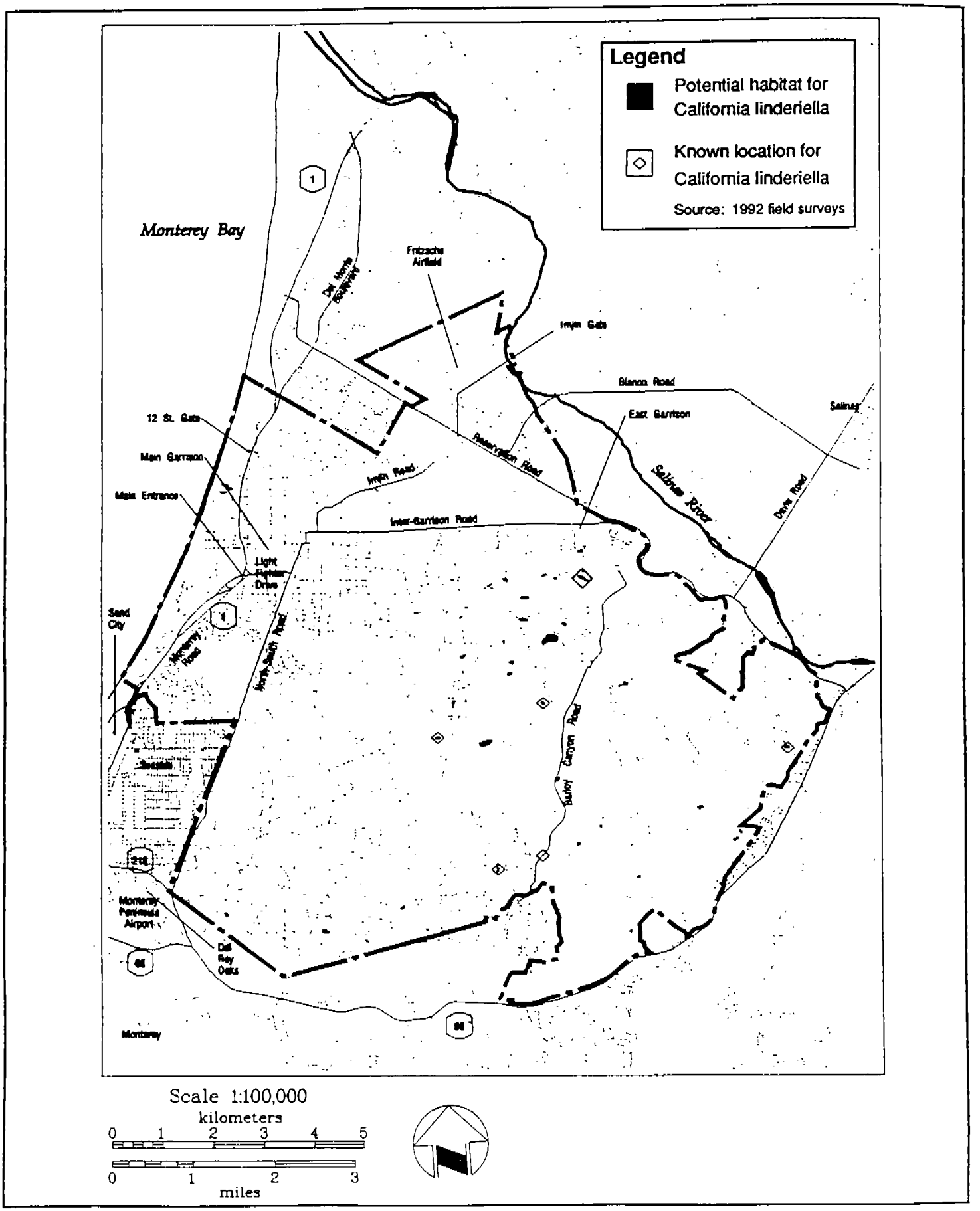
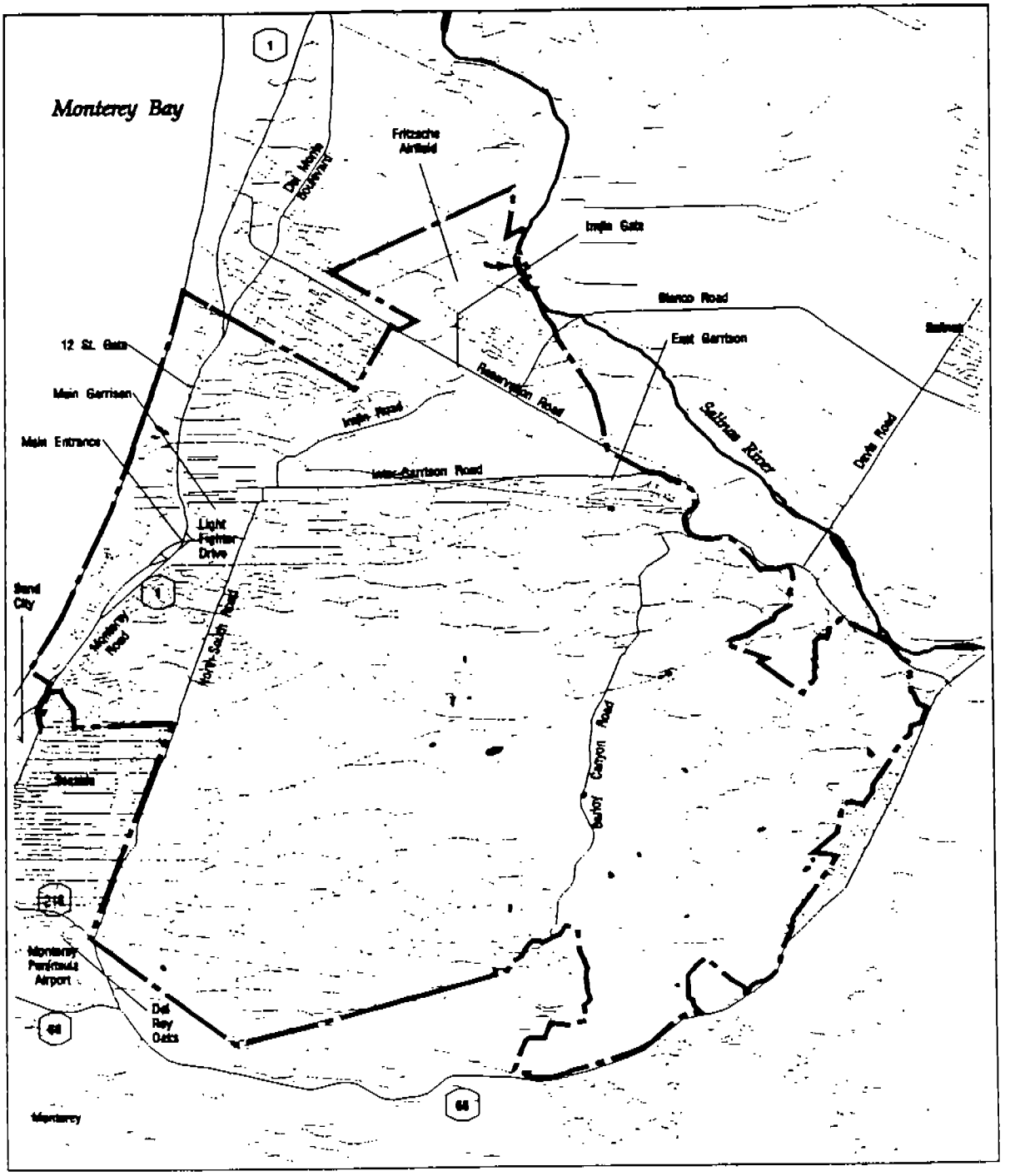


Figure B-14

Potential Habitat for California Red-Legged Frog



Legend

Potential habitat for California red-legged frog

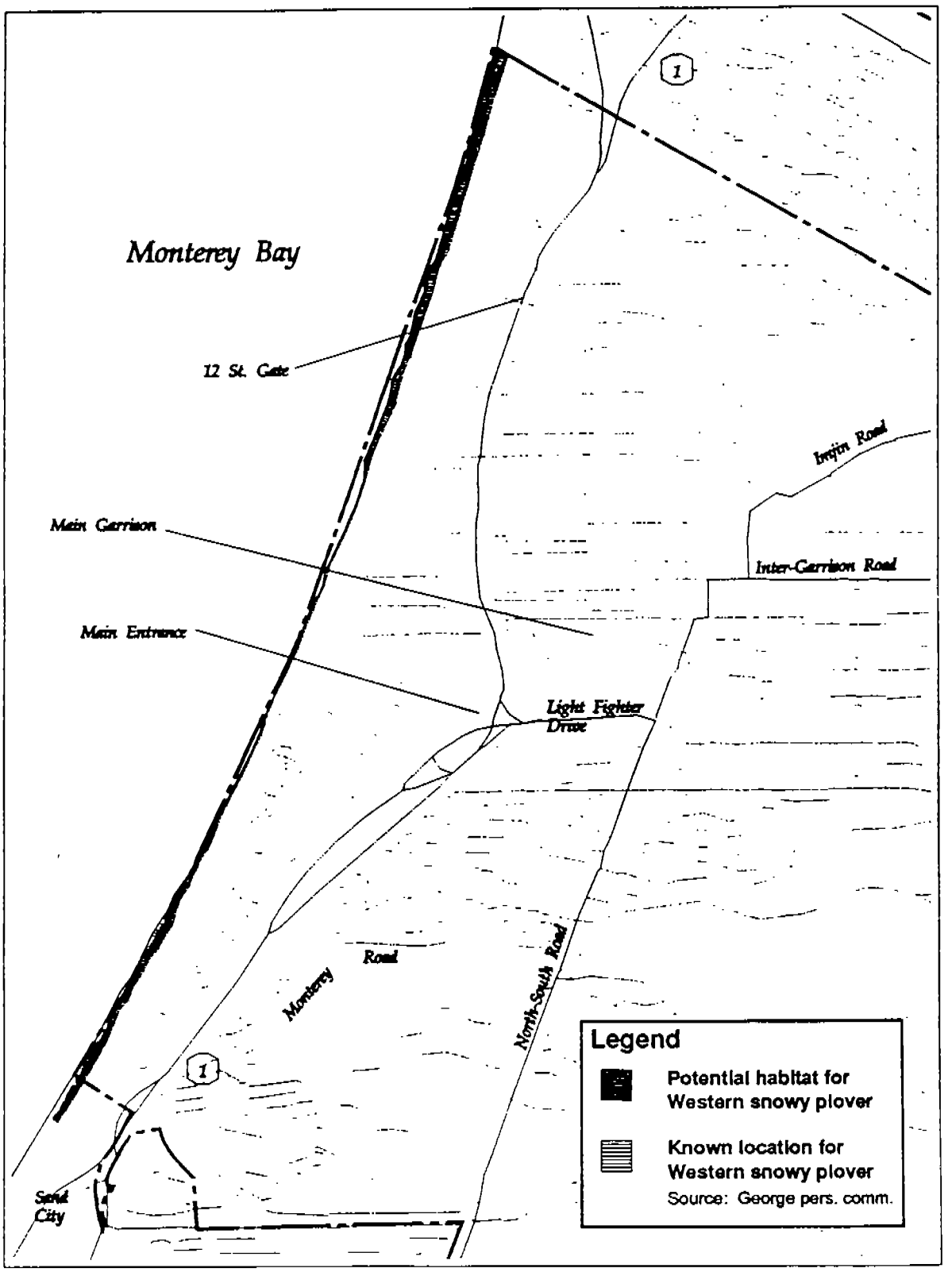
Scale 1:100,000

kilometers 0 1 2 3 4 5

miles 0 1 2 3

Figure B-15

Potential and Occupied Habitat for Western Snowy Plover



Scale: 1" = 35,000'

Figure B-16

Potential and Occupied Habitat for California Black Legless Lizard

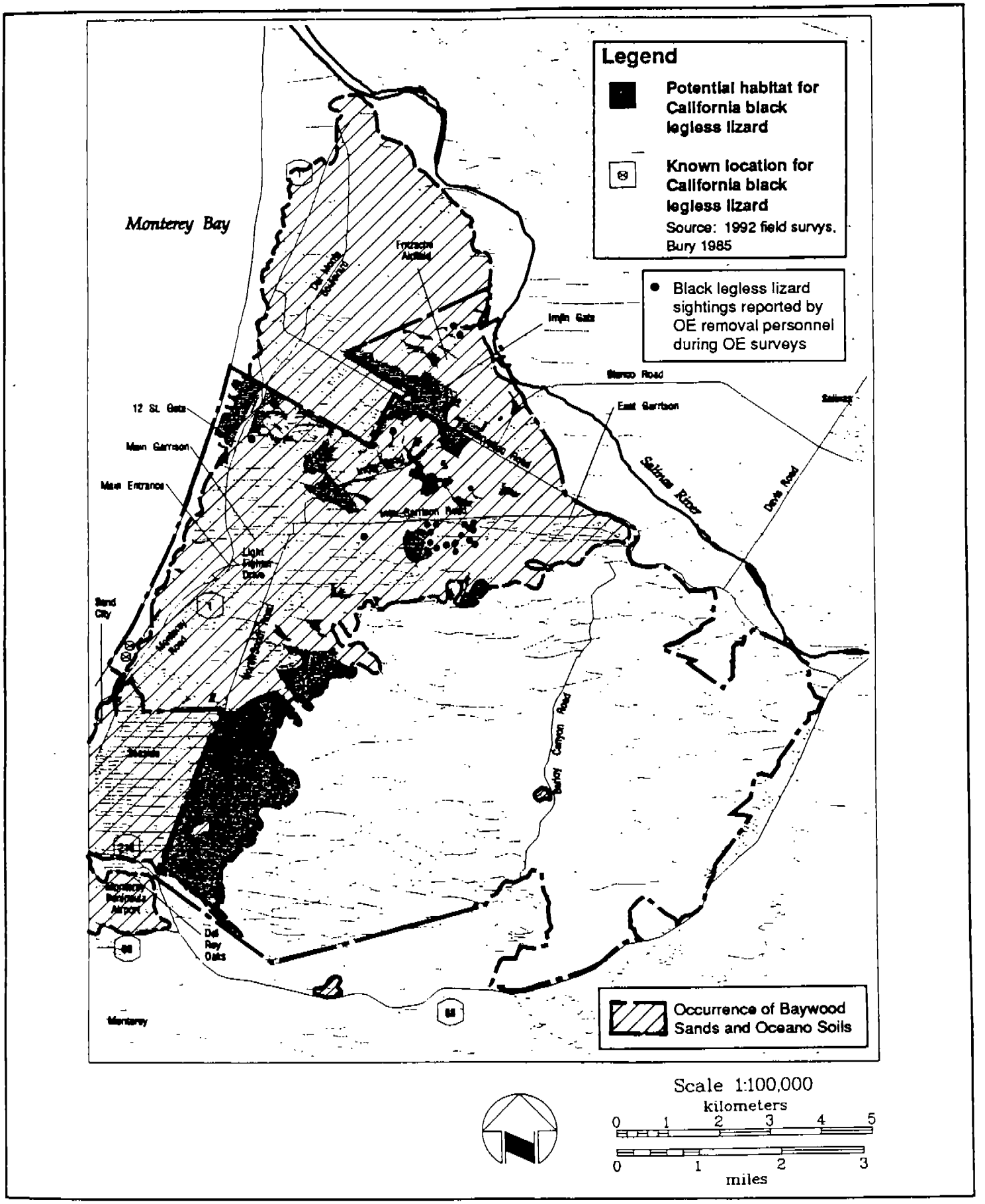


Figure B-17

Potential and Occupied Habitat for California Tiger Salamander

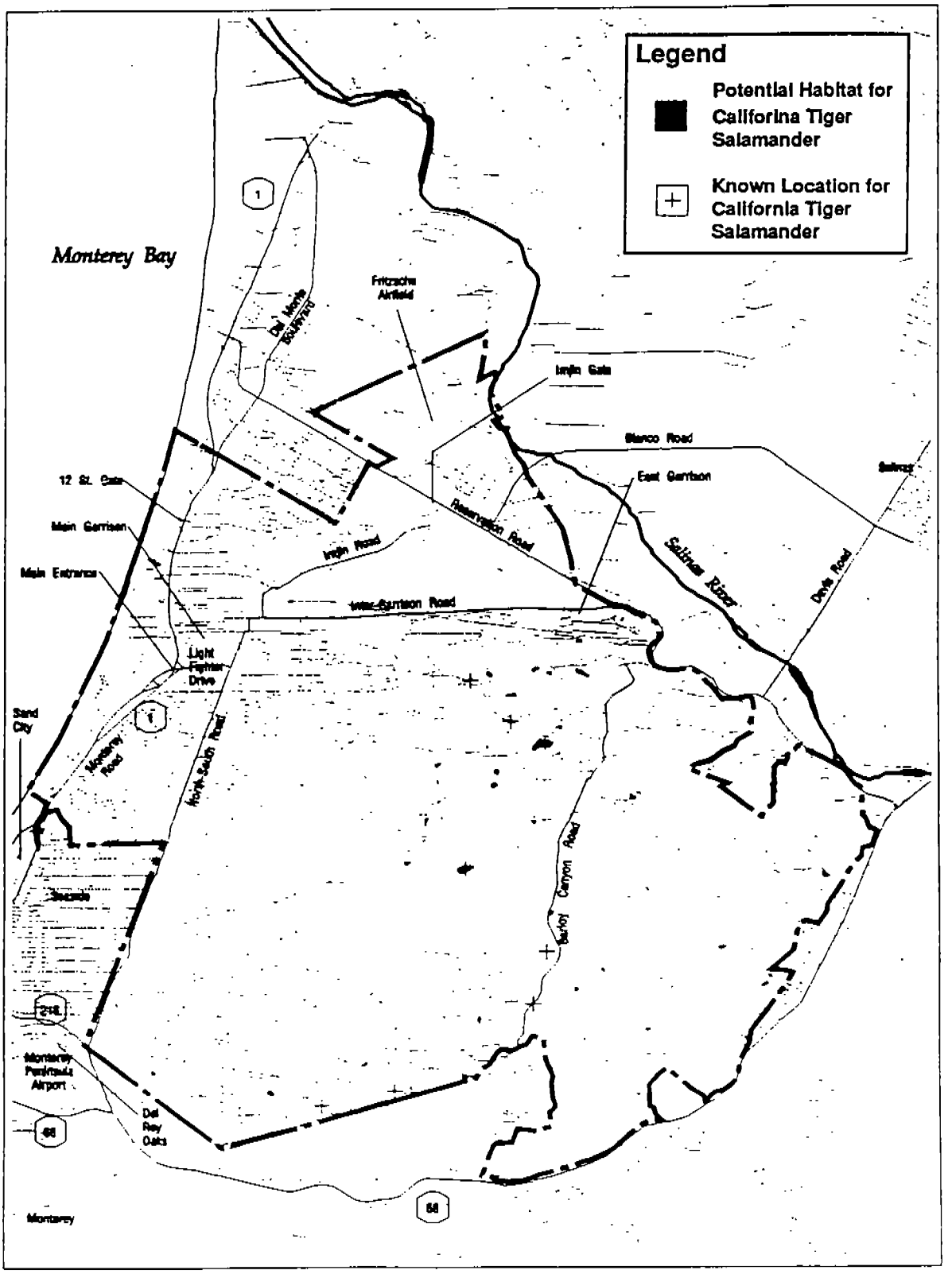
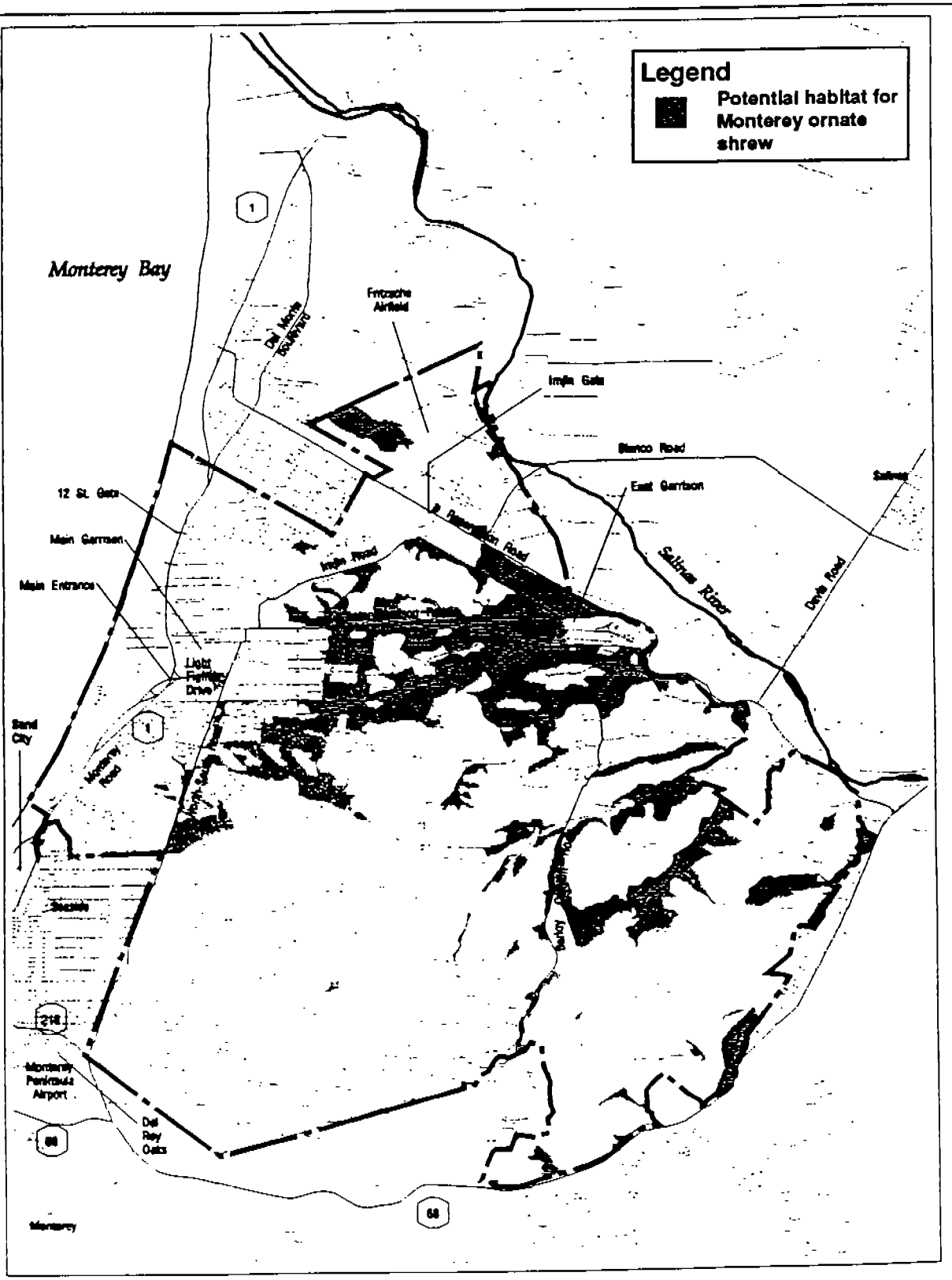


Figure B-18

Potential Habitat for Monterey Ornate Shrew



Page # 194 (3 pgs.)

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Document # BW-1787

Appendix C. Posttransfer Modifications to the HMP

The text and map modifications described in the following correspondence are not reflected in the main text but in the maps of this appendix.

Parcel Number	Recipient	Date
L.51.11	City of Marina	November 25, 1996
S.2.15	University of California	November 25, 1996

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

BERKELEY · DAVIS · IRVINE · LOS ANGELES · RIVERSIDE · SAN DIEGO · SAN FRANCISCO SANTA BARBARA · SANTA CRUZ

COMMUNITY PLANNING AND LAND DEVELOPMENT SANTA CRUZ, CALIFORNIA 95064

November 25, 1996

Cathy McCalvin
US Fish and Wildlife Service
Ventura Field Office
2493 Portola Road, Suite B
Ventural California 93003

Re: Adjustments to HMP Map

Dear Ms. McCalvin

At an October 22, 1996 Fort Ord Habitat Management Plan All Hands meeting Bob Verkade of the US Army Corps of Engineers stated to the University of California and the City of Marina that long-standing requests for changes to the Installation-Wide Multispecies Habitat Management Plan (HMP) map could be made if the Army received concurrence from the US Fish and Wildlife Service. On October 25 and October 28 the University of California and the City of Marina, respectively, sent requests to you for changes to the HMP map. On November 18 US Fish and Wildlife Field Supervisor Diane Noda sent comments on the HMP to Bob Verkade. Those comments included concurrence with the City of Marina and University of California requests. At the November 21 All Hands meeting, Mr. David Taylor of the US Army Training and Doctrine Command overruled Bob Verkade's previous statement, saying that the HMP map itself could not be altered, but that a section of the full map could be included within the text of the HMP indicating the changes that had been proposed by the University of California and the City of Marina and with which the US Fish and Wildlife Service concurred. Following that meeting, Bob Verkade confirmed that such a change could be made provided that a request were to be sent to him from the US Fish and Wildlife Service. We therefore ask that you send a letter to Bob Verkade requesting that the following changes be made to the November 6 version of the HMP.

Page 4-21, line 27, add the following sentence to the end of the paragraph: "The eastern edge of this parcel was adjusted as shown in Figure 4-x following transfer of land to the University of California. The adjustment results in no change in the overall size of this parcel."

Page 4-23, line 11, add the following sentence to the end of the paragraph: "The northern edge of this parcel was adjusted as shown in Figure 4-x following transfer of land to the University of California. The adjustment results in no change in the overall size of this parcel."

Page 4-35, line 16, add the following sentence to the end of the paragraph: "The northern edge of this parcel was adjusted as shown in Figure 4-x following transfer of land to the City of Marina. The centerline of a Right of Way for a major arterial roadway will be relocated to follow the new northern boundary of this parcel. The adjustment results in no change in the overall size of this parcel."

Please ask the Army to use the three enclosed graphics to create one or two section maps that can be inserted into the HMP near the referenced text.

Thank you for supporting our requests. Please call if you have any further questions.

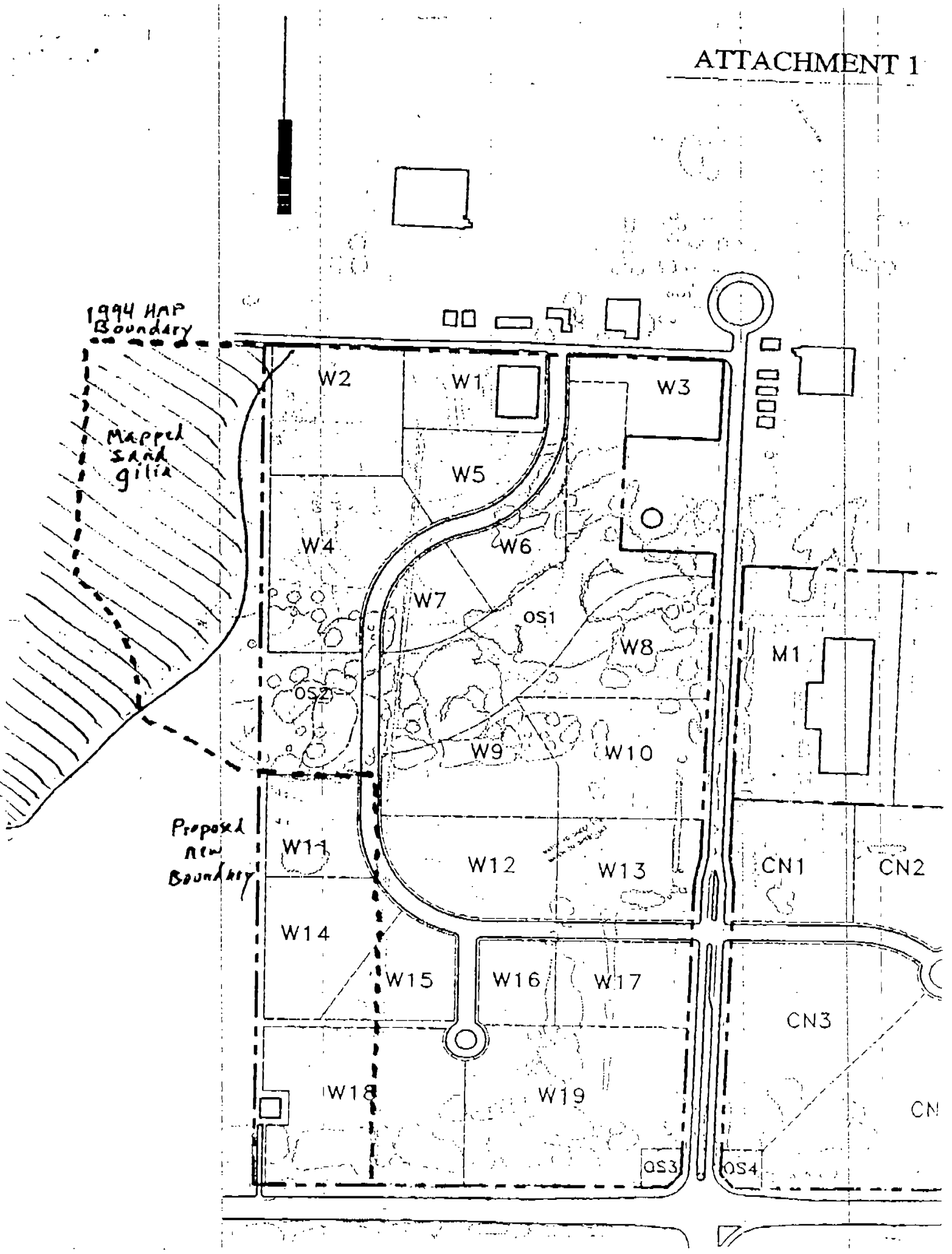
Graham Bice, Director
Physical and Environmental Planning
UC MBEST Center

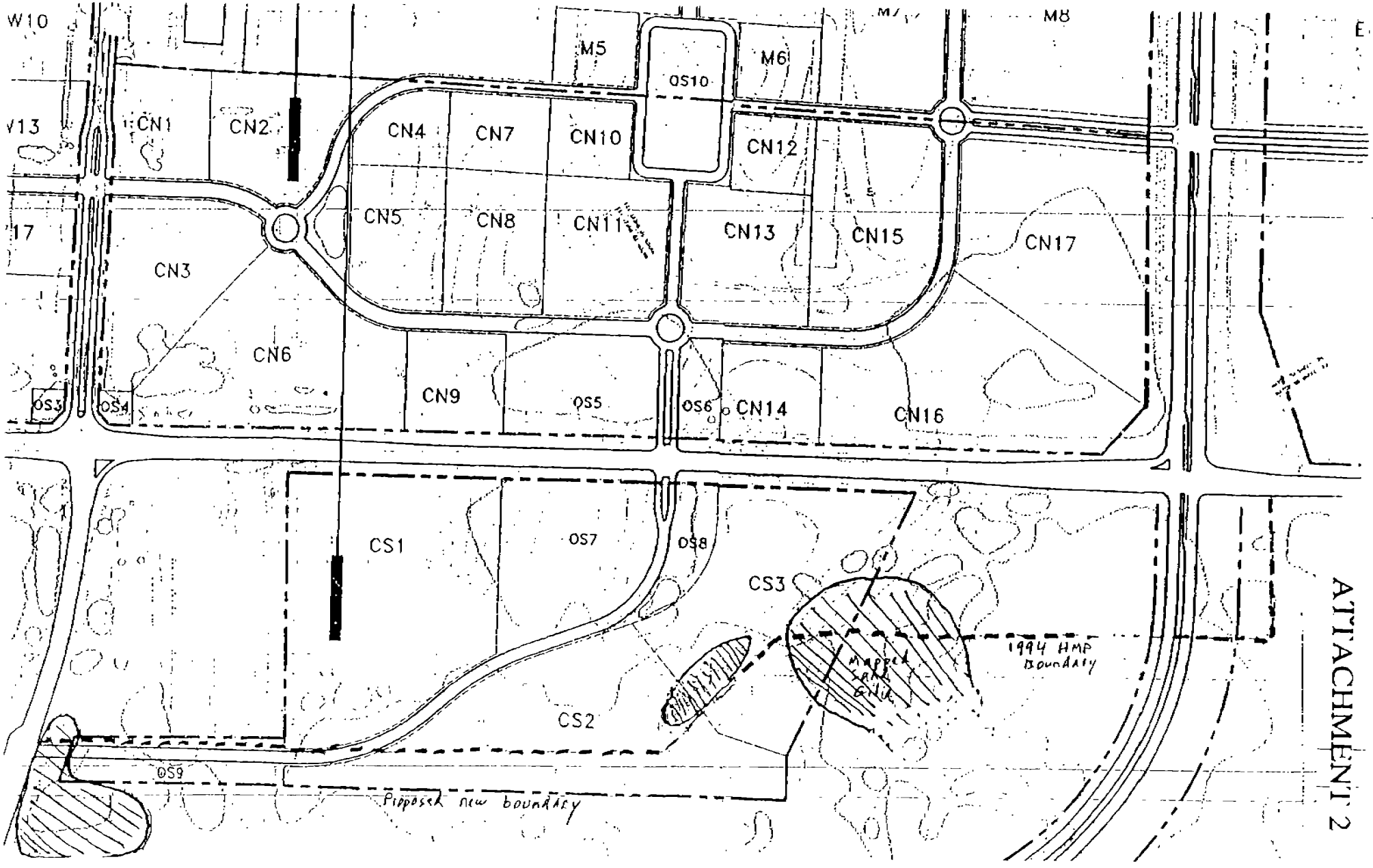
For Jeff Dack, Director
Planning Department
City of Marina

enclosures (3)

cc: Lora Martin
John Longley
Bob Verkade

ATTACHMENT 1





ATTACHMENT 2

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

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SANTA BARBARA • SANTA CRUZ

COMMUNITY PLANNING AND LAND DEVELOPMENT

SANTA CRUZ, CALIFORNIA 95064

January 15, 1996

Bob Verkade
U.S. Army Corps of Engineers
1325 J Street
12th Floor, Room 143
Sacramento, California, 95814

Subject: Clarification of November 25, 1996 letter to U.S. Fish and Wildlife Service

Dear Mr. Verkade,

On November 25, 1996 we issued a joint letter to Cathy McCalvin, of the U.S. Fish and Wildlife Service, requesting concurrence on suggested boundary changes to the large map appearing in the Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California (HMP). The U.S. Army Corps of Engineers chose to note in the text that a change had been made to the large map and include our joint letter in Appendix C of the December 1996 version of the HMP.

Following publication of the December, 1996 version of the HMP we noticed that Attachment 3 of our letter included a planned roadway shown to cross a portion of the UC/NRS Fort Ord Natural Reserve. This planned roadway alignment was not a part of the HMP and is not a part of our requested boundary change, but is included in the City of Marina General Plan, which was the source of the base map used for Attachment 3 of our November 25, 1996 letter. To avoid potential confusion regarding the meaning of the roadway shown on Attachment 3, we request that the final printing of the HMP replace the Attachment 3 you received with the enclosed sheet. The enclosed sheet is identical to the original Attachment 3 with the addition of the the following text, located near the bottom of the page: "Alignment of California Avenue as shown in City of Marina General Plan, not part of the HMP".

We hope you will agree that this clarification is appropriate.

Graham Bice, Director
Physical and Environmental Planning
UC MBEST Center

Jeff Dack, Director
Planning Department
City of Marina

enclosure (1)

cc: Lora Martin, John Longley, Cathy McCalvin, Cathy Klack

CHANGE FROM VISITOR SERVING TO HABITAT MANAGEMENT (ADD TO LR 5)

HABITAT MANAGEMENT

VISITOR SERVING

CHANGE FROM HABITAT TO VISITOR SERVING (ADD TO LR 17)

Alignment of California Avenue as shown in City of Marina General Plan, not part of HMP

1b

1c

1e

7b

6a

6b

6c

7c

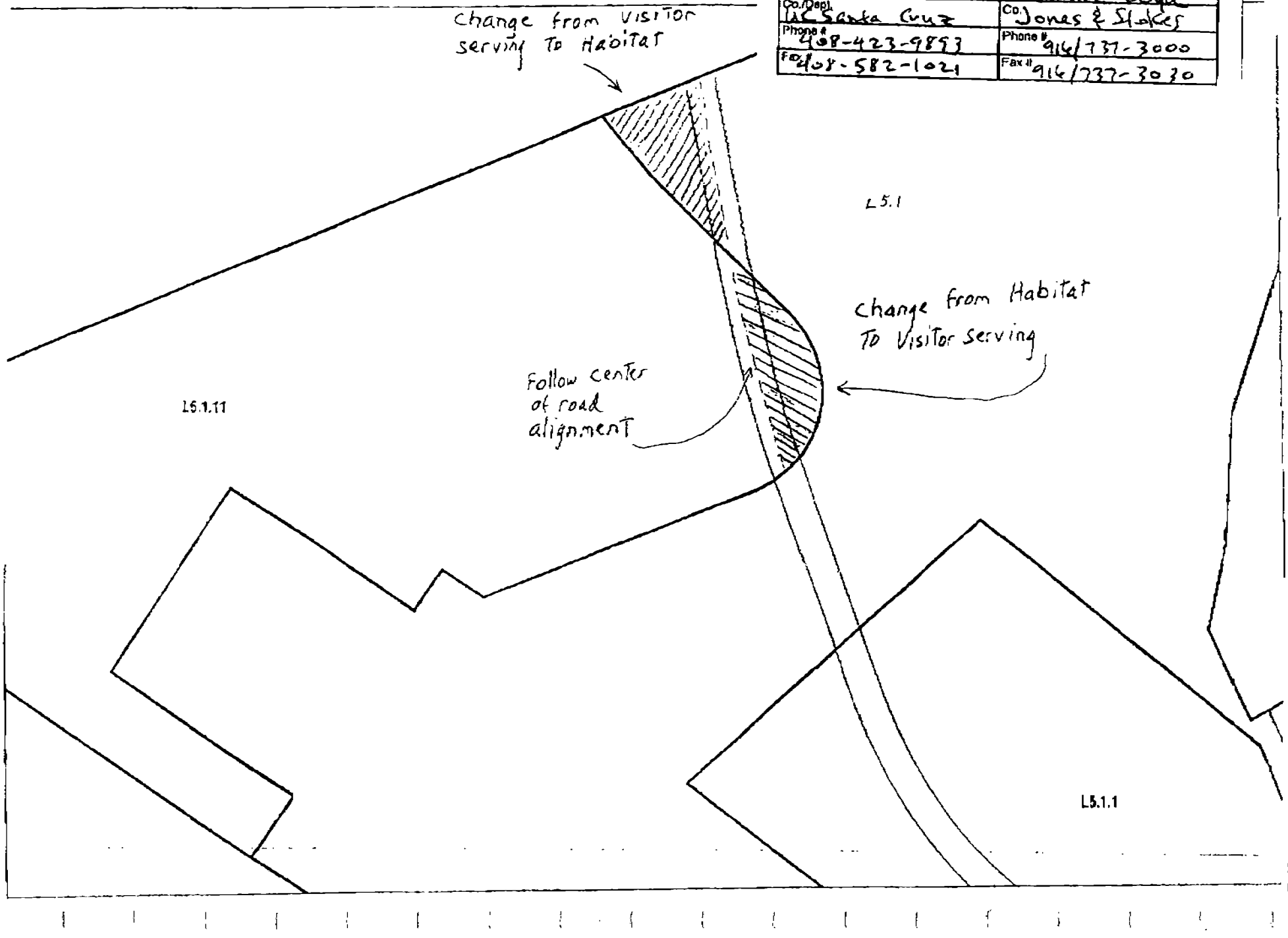
8a

8b

ATTACHMENT 3

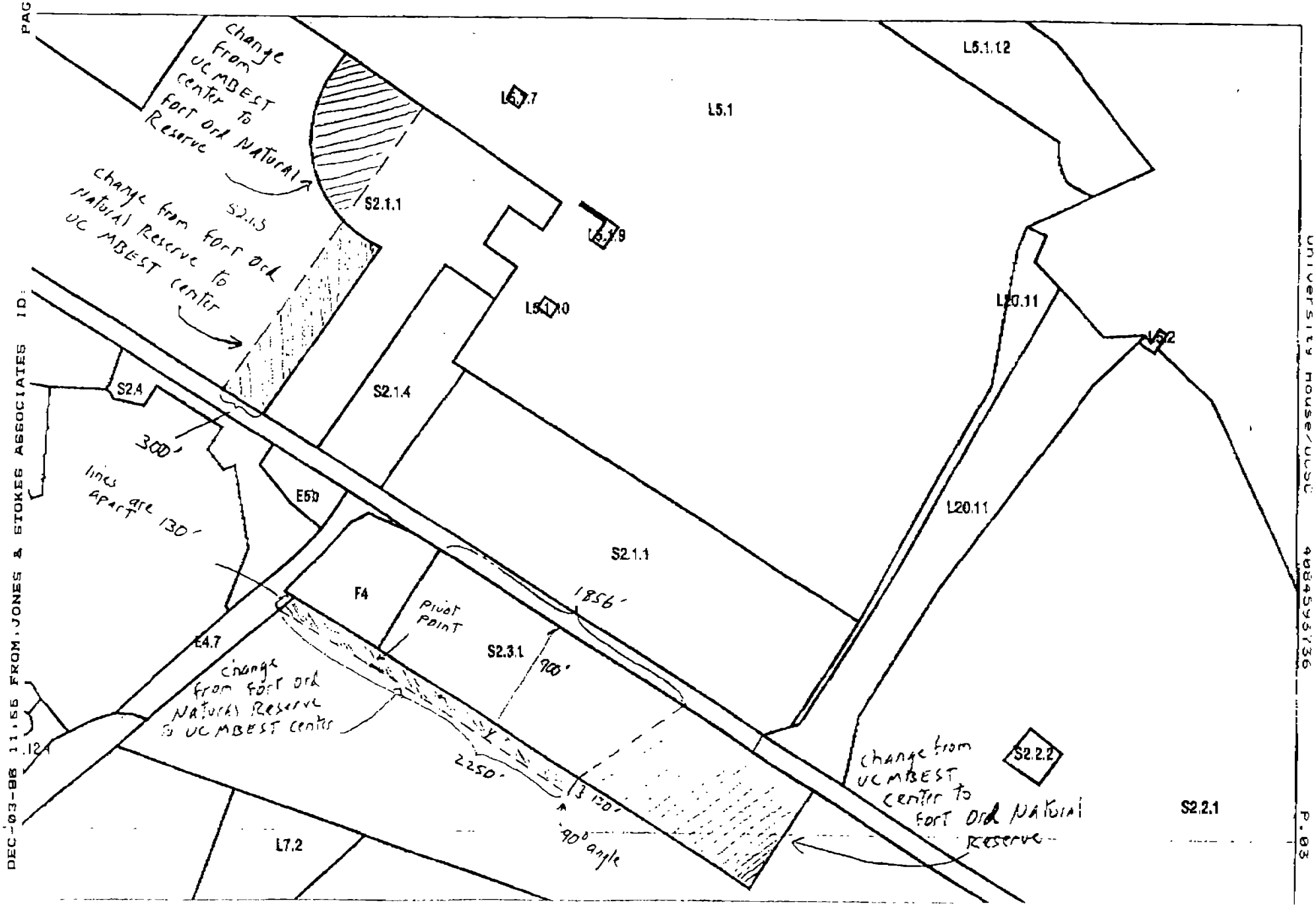
Marina Parcels, scale 1" = 500'

Post-it® Fax Note 7671	Date 12/3	# of pages ▶ 2
To Graham Bice	From Bruce Boyd	
Co./Dept. UC Santa Cruz	Co. Jones & Stokes	
Phone # 408-423-9853	Phone # 916/737-3000	
Fax # 408-582-1021	Fax # 916/737-3030	



DEC 03 '00 11:55 FROM..JONES & STOKES ASSOCIATES ID:
University House/UCSC 4084593736
PAGE 1/2
P.02

UC Santa Cruz Parcels, scale 1" = 800'



DEC-03-96 11:55 FROM:JONES & STOKES ASSOCIATES ID:
4088459136
P.03
University House/UCSC

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Ventura Field Office
2493 Portola Road, Suite B
Ventura, California 93003

December 4, 1996

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL
To Bob Verkade
Dept./Agency
Fax #
Phone #
Fax #
NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Bob Verkade
U.S. Army Corps of Engineers
1325 J Street
12th Floor, Room 143
Sacramento, California 95814

Subject: Adjustments to HMP Map

Dear Mr. Verkade:

Based on the information provided us by the City of Marina (City) and the University of California (U.C.) in letters dated October 28, 1996 and October 25, 1996 respectively, we concur that their proposed boundary changes would not alter the intent of the Habitat Management Plan (HMP) and would not reduce the protection of any HMP species. Therefore, we recommend that the Department of Army make the requested boundary changes to the November 6 version of the HMP as described to us in these letters. The HMP should incorporate the maps developed by the City and U.C. that depict the boundary changes. In addition, the following changes should be made to the HMP text:

Page 4-21, line 27, add the following sentence to the end of the paragraph: "The edge of this parcel was adjusted as shown in Figure 4-x following transfer of land to the University of California. The adjustment results in no change in the overall size of this parcel."

Page 4-23, line 16, add the following sentence to the end of the paragraph: "The northern edge of this parcel was adjusted as shown in Figure 4-x following transfer of land to the University of California. The adjustment results in no change in the overall size of this parcel."

Page 4-35, line 16, add the following sentence to the end of the paragraph: " The northern edge of this parcel was adjusted as shown in Figure 4-x following transfer of land to the City of Marina. The centerline of a Right of Way for a major arterial road

will be relocated to follow the new northern boundary of this parcel. The adjustment results in no change in the overall size of this parcel.

If you have any questions about the requested adjustments, please contact Cathy Mc Calvin on my staff at (805) 644- 1766.

Sincerely,

Raymond Bransfield

for Diane Noda
Field Supervisor

Appendix D. Sample Deed and Memorandum of Agreement

DRAFT 3/24/97

WHEN RECORDED RETURN TO:

QUITCLAIM DEED

THIS INDENTURE, made and entered into between the **UNITED STATES OF AMERICA**, hereinafter referred to as the **GRANTOR**, acting by and through the Secretary of the Army, under and pursuant to the power and authority contained in the Defense Base Closure and Realignment of 1990, Public Law 101-510, as amended, and _____, as amended, and _____ hereinafter referred to as the **GRANTEE**.

WITNESSETH THAT:

WHEREAS, Fort Ord was officially closed on 30 September 1994; any reference herein made to Fort Ord will refer to what is presently designated as the Presidio of Monterey Annex and Excess Lands; and

WHEREAS, the GRANTOR is the owner of certain real property located within the formerly designated Fort Ord Military Installation situated in the County of Monterey, State of California, more particularly described as _____ hereinafter referred to as the **Property**, and more fully described and shown on Exhibits A and B, attached hereto and made a part hereof; and

WHEREAS, the Property has been determined surplus to the needs of the **GRANTOR**; and

WHEREAS, the California State Historic Preservation Officer has determined that _____; and

WHEREAS , the GRANTOR has appropriately fulfilled the requirements of the Stewart B. McKinney Homeless Assistance Act, 40 U.S.C. 11411; and

WHEREAS, the GRANTEE'S use of the Property is compatible with the December, 1994, Fort Ord Reuse Authority's Reuse Plan; and

WHEREAS, Fort Ord, California, has been identified as a National Priority List under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) of 1980, as amended. The GRANTOR has provided the GRANTEE with a copy of the Fort Ord Base Federal Facility Agreement (FFA) and all amendments thereto entered into by EPA Region IX, the State of California, and the Department of the Army that were effective on November 19, 1990; and

WHEREAS, an Installation-Wide Multispecies Habitat Management Plan for former Fort Ord, California (HMP) dated December, 1994 as revised and amended by the "Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California" dated _____ 1997, has been developed to assure that disposal and reuse of Fort Ord lands is in compliance with the Endangered Species Act (ESA), 16 U.S.C. 1531 et seq. Timely transfer of these lands and subsequent implementation of the HMP is critical to ensure effective protection and conservation of the former Fort Ord lands' wildlife and plant species and habitat values while allowing appropriate economic redevelopment of Fort Ord and the subsequent economic recovery of the local communities; and

WHEREAS, the Bureau of Land Management, U.S. Department of the Interior, (BLM) will receive and compile monitoring reports for the parcels (identified in the HMP as restricted) which are transferred to other public and private entities, and these reports will be sent to the United States Fish and Wildlife Service (USFWS) for review to ensure that HMP requirements are being met; and

WHEREAS, the Installation-Wide Multispecies Habitat Management Plan has been developed consistent with the requirements of Section 10(a)(1)(B) of the ESA and may be converted into a habitat conservation plan under Section 10(a)(2)(A) of the ESA which will support the issuance of incidental take permits, covering both listed and unlisted HMP target wildlife species, to state and local governments and other third parties receiving former Fort Ord lands.

NOW THEREFORE, the GRANTOR, for and in consideration of the assumption by the GRANTEE of all the obligations set forth herein for the benefit of the United States and the general public and for the performance by the GRANTEE of the covenants, conditions, reservations, and restrictions hereinafter contained, does hereby **REMISE, RELEASE,** and forever **QUITCLAIM**, unto the GRANTEE, its successors and assigns, all such interest, rights, title, and claim as the GRANTOR has in and to the **Property** lying and

being in the County of Monterey, State of California.

1. This conveyance is made subject to the following **EXCLUSIONS** and **RESERVATIONS**:

a. .....
:::::
:::::

d. The GRANTOR reserves a right of access to any and all portions of the herein described Property for purposes of environmental investigation, remediation, or other corrective action. These rights shall be exercisable in any case in which a remedial action or corrective action is found to be necessary after the date of conveyance of the Property , or such access as necessary to carry out a remedial action, response action, or corrective action on adjoining property. Pursuant to this reservation, the GRANTOR and its officers, agents, employees, contractors and subcontractors shall have the right (upon reasonable notice to the GRANTEE or its successors and assigns and any authorized occupant of the property) to enter upon the herein described Property and shall not unreasonably interfere with the GRANTEE's use of the Property.

e. The GRANTOR also reserves a right of access to those portions of the herein described Property which are subject to the Habitat Management covenants, conditions, reservations and restrictions contained in this deed under Paragraph 8 and to the provisions of the HMP, by USFWS and its designated agents, for the purpose of monitoring GRANTEE's compliance with Paragraph 8 and the HMP and for such other purposes as are identified in the HMP. Pursuant to this reservation, GRANTOR, acting through USFWS and its designated agents, shall have the right to enter onto the herein described Property upon reasonable notice of not less than 48 hours to GRANTEE or its successors and assigns and shall not unreasonably interfere with GRANTEE'S use of the Property.

TO HAVE AND TO HOLD the **Property** unto GRANTEE, its successors and assigns forever, provided that this deed is made and accepted upon each of the following conditions, restrictions, and covenants which shall be binding upon and enforceable against GRANTEE, its successors and assigns, and shall run with the land, in perpetuity, as follows:

2. **"AS IS"**

3 ENVIRONMENTAL CONDITION OF PROPERTY.

The GRANTEE has received the technical environmental reports, prepared by, or on behalf of, the Grantor, the Grantee, and others, and agrees, to the best of the GRANTEE'S knowledge, that they accurately describe the environmental condition of the Property. The GRANTEE has inspected the Property and accepts the physical condition and current level of environmental hazards on the Property and deems the Property to be safe for the GRANTEE'S intended use. The GRANTEE's acknowledgment of the condition of the Property creates a rebuttable presumption that any substance discovered on the Property after the date of transfer is related solely to the activity of, caused, deposited, or created by the GRANTEE, its successors or assigns. If, after conveyance of the Property to GRANTEE, there is an actual or threatened release of a hazardous substance on the Property, or in the event that a hazardous substance is discovered on the Property after the date of the conveyance, whether or not such substance was set forth in the technical environmental reports, GRANTEE or its successor or assigns shall be responsible for such release or newly discovered substance unless GRANTEE is able to demonstrate that such release or such newly discovered substance was due to GRANTOR'S activities, ownership, use, or occupation of the Property, or the activities of GRANTOR'S contractors and/or agents. GRANTEE, its successors and assigns, as consideration for the conveyance, agrees to release GRANTOR from any liability or responsibility for any claims arising out of or in any way predicated on release of any hazardous substance on the Property occurring after the conveyance, where such substance was placed on the Property by the GRANTEE, or its agents or contractors, after the conveyance. This paragraph shall not affect the GRANTOR'S responsibilities to conduct response actions or corrective actions that are required by applicable laws, rules and regulations, or the GRANTOR'S indemnification obligations under applicable laws.

4. FEDERAL FACILITY AGREEMENT.

By accepting this deed, the GRANTEE acknowledges that the GRANTEE has read the FFA and recognizes that, should any conflict arise between the terms of the FFA and the terms of this deed, the FFA will take precedence. Notwithstanding any other provisions of this deed, the GRANTOR assumes no liability to the GRANTEE should implementation of the FFA interfere with GRANTEE'S use of the premises. In exercising the rights hereunder, GRANTOR shall give GRANTEE or its successors or assigns reasonable notice of its actions required by the FFA and GRANTOR shall, consistent with the FFA, and at no additional cost to the GRANTOR, endeavor to minimize the disruption of the GRANTEE'S, its successors',

or assigns' use of the Property. The GRANTEE shall have no claim on account of any such interference against the GRANTOR or any officer, agent, employee or contractor thereof.

5. **CERCLA NOTICE and COVENANTS.**

a. Pursuant to Section 120(h)(3) of the Comprehensive Environmental Response Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. Section 9620(h)(3), the GRANTOR hereby notifies the GRANTEE that _____.

b. The GRANTOR hereby covenants that:

(1) all remedial action necessary to protect human health and the environment with respect to any such hazardous substances remaining on the **Property** has been taken before the date of conveyance hereunder; and

(2) any additional remedial action found to be necessary after the date of this transfer by applicable law that resulted from past activities of the GRANTOR shall be conducted by the GRANTOR.

(3) The GRANTOR reserves a right of access to the Property in any case in which remedial or corrective action by the GRANTOR is found to be necessary after the date of this conveyance.

6. **INDEMNIFICATION.**

. **UNEXPLODED ORDNANCE.**

8. **HABITAT MANAGEMENT.**

a. The Property contains habitat occupied and/or potentially occupied by several sensitive wildlife and plant species, some of which are listed or proposed for listing as threatened or endangered under the ESA. Applicable laws and regulations restrict activities that involve the potential loss of populations and habitats of listed species. To fulfill GRANTOR'S commitment in the Fort Ord Disposal and Reuse Environmental Impact Statement Record of Decision, made in accordance with the National Environmental Policy

Act of 1969, 42 U.S.C. 4321 et seq., this deed requires the conservation in perpetuity of these sensitive wildlife and plant species and their habitats consistent with the USFWS Biological Opinions for disposal of the former Fort Ord lands issued pursuant to Section 7 of the ESA on _____, 1994 and _____, 1997, respectively. By requiring GRANTEE, and its successors and assigns to comply with the Habitat Management Plan, GRANTOR intends to fulfill its responsibilities under Section 7 of the ESA property and to minimize future conflicts between species protection and economic development of portions of the Property.

b. GRANTEE acknowledges that it has received a copy of the HMP dated _____, 1997. The HMP, which is incorporated herein by reference, provides a basewide framework for disposal of lands within Former Fort Ord wherein development and potential loss of species and/or habitat is anticipated to occur in certain areas of the former Fort Ord (the HMP Development Areas) while permanent species and habitat conservation is guaranteed within other areas of the former Fort Ord (i.e., the HMP Reserve and Corridor parcels). Disposal of former Fort Ord lands in accordance with and subject to the restrictions of the HMP is intended to satisfy the Army's responsibilities under Section 7 of the Endangered Species Act.

c. The following parcels of land within the Property hereby conveyed or otherwise transferred to GRANTEE are subject to the specific use restrictions and/or conservation, management, monitoring, and reporting requirements identified for the parcel in the HMP:

1) Habitat Reserve Parcel(s) numbered:_____; and

2) Habitat Corridor Parcel(s) numbered: _____; and

3) Habitat reserves within the Development with Reserve Areas or Development Restrictions Parcels numbered: _____.

d. Any modifications of the boundaries of the Habitat Reserve Parcel(s), Habitat Corridor Parcel(s), or Habitat reserves within the Development with Reserve Areas or Development Restrictions Parcels must be approved in writing by the USFWS and must maintain the viability of the HMP for permanent species and habitat conservation.

e. The HMP describes existing habitat and the likely presence of sensitive wildlife and plant species that are treated as target species in the HMP. Some of the target species are currently listed or proposed for listing as threatened or endangered under the ESA. The HMP establishes general conservation and management requirements applicable to the property to conserve the HMP species. These requirements are intended to meet

mitigation obligations applicable to the property resulting from Army disposal and development reuse actions. Under the HMP, all target species are treated as if listed under the ESA and are subject to avoidance, protection, conservation and restoration requirements. GRANTEE shall be responsible for implementing and funding each of the following requirements set forth in the HMP as applicable to the property:

1) GRANTEE shall implement all avoidance, protection, conservation and restoration requirements identified in the HMP as applicable to the Property and shall cooperate with adjacent property owners in implementing mitigation requirements identified in the HMP for adjacent sensitive habitat areas.

2) GRANTEE shall protect and conserve the HMP target species and their habitats within the Property, and, other than those actions required to fulfil a habitat restoration requirement applicable to the Property, shall not remove any vegetation, cut any trees, disturb any soil, or undertake any other actions that would impair the conservation of the species or their habitats. GRANTEE shall accomplish the Resource Conservation Requirements and Management Requirements identified in Chapter 4 of the HMP as applicable to any portion of the Property.

3) GRANTEE shall manage, through an agency or entity approved by USFWS, each HMP parcel, or portion thereof, within the Property that is required in the HMP to be managed for the conservation of the HMP species and their habitats, in accordance with the provisions of the HMP.

4) GRANTEE shall either directly, or indirectly through its USFWS approved habitant manager, implement the management guidelines applicable to the parcel through the development of a site-specific management plane. The site-specific habitat management plan must be developed and submitted to USFWS (and, for non federal recipients, CDFG as well) for approval, within six months from the date the recipient obtains title to the parcel. Upon approval by USFWS (and , as appropriate, CDFG) the recipient shall implement the plan. Such plans may thereafter be modified through the CRMP process or with the concurrence of USFWS (and, as appropriate, CDFG) as new information or changed conditions indicate the need for adaptive management changes. The six month deadline for development and submission of a site-specific management plan may be extended by mutual agreement of USFWS, CDFG(if appropriate), and the recipient.

5) GRANTEE shall restrict access to the Property in accordance with the HMP, but shall allow access to the Property, upon reasonable notice of not less than 48

hours, by USFWS, and its designated agents, for the purpose of monitoring GRANTEE'S compliance with, and for such other purposes as are identified in, the HMP.

6) GRANTEE shall comply with all monitoring and reporting requirements set forth in the HMP that are applicable to the Property, and shall provide an annual monitoring report, as provided for in the HMP, to the Bureau of Land Management on or before November 1 of each year, or such other date as may be hereafter agreed to by USFWS and BLM.

7) GRANTEE shall not transfer, assign, or otherwise convey any portion of, or interest in, the Property subject to the habitat conservation, management or other requirements of the HMP, without the prior written consent of GRANTOR, acting by and through the USFWS (or designated successor agency), which consent shall not be unreasonably withheld. GRANTEE covenants for itself, its successors and assigns, that it shall include and otherwise make legally binding, covenants, conditions, restrictions and requirements of this deed and the provisions of the HCP in any deed, lease, right of entry, or other legal instrument by which Grantee divests itself of any interest in all or a portion of the Property. The covenants, conditions, restrictions and requirements of this deed and the provisions of the HMP shall run with the land. The covenants, conditions, restrictions and requirements of this deed and the HMP benefit the lands retained by GRANTOR that formerly comprised Fort Ord, as well as the public generally. Management responsibility for the property may only be transferred as a condition of the transfer of the Property, with the consent of the USFWS. USFWS may require the establishment of a perpetual trust fund to pay for the management of the property as a condition of transfer of management responsibility from GRANTEE.

9. This conveyance is made subject to the following ENFORCEMENT PROVISIONS

a. GRANTOR hereby reserves a reversionary interest in all of the Property. If GRANTOR (or its assigns), acting through the USFWS or a designated successor agency, determines that those parcels identified in Paragraph 8.c. above or any other portion of the Property subject to a restriction or other requirement of the HMP is not being conserved and/or managed in accordance with the provisions of the HMP, then GRANTOR may, in its discretion, exercise a right to reenter the Property, or any portion thereof, in which case, the Property, or those portions thereof as to which the right of reentry is exercised, shall revert to GRANTOR. In the event that GRANTOR exercises its right of reentry as to all or portions of the Property, GRANTEE shall

execute any and all documents that GRANTOR deems necessary to perfect or provide recordable notice of the reversion and for the complete transfer and reversion of all right, title and interest in the Property or portions thereof. Subject to applicable federal law, GRANTEE shall be liable for all costs and fees incurred by GRANTOR in perfecting the reversion and transfer of title. Any and all improvements on the Property or those portions thereof reverting back to GRANTOR shall become the property of GRANTOR and GRANTEE shall not be entitled to any payment therefor.

b. In addition to the right of reentry reserved in paragraph 9.a. above, if GRANTOR (or its assigns), acting through the USFWS or a successor designated agency, determines that GRANTEE is violating or threatens to violate the provisions of paragraph 8 of this deed or the provisions of the HMP, GRANTOR shall provide written notice to GRANTEE of such violation and demand corrective action sufficient to cure the violation, and where the violation involves injury to the Property resulting from any use or activity inconsistent with the provisions of paragraph 8 of this deed or the provisions of the HMP, to restore the portion of the Property so injured. If GRANTEE fails to cure a violation within sixty (60) days after receipt of notice thereof from GRANTOR, or under circumstances where the violation cannot reasonably be cured within a sixty (60) day period, or fails to continue to diligently cure such violation until finally cured, GRANTOR may bring an action at law or in equity in a court of competent jurisdiction to enforce the covenants, conditions, reservations and restrictions of this deed and the provisions of the HMP, to enjoin the violation, by temporary or permanent injunction, to recover any damages to which it may be entitled for violation of the covenants, conditions reservations and restrictions of this deed or the provisions of the HMP, or injury to any conservation value protected by this deed or the HMP, and to require the restoration of the Property to the condition that existed prior to such injury. If GRANTOR, in its good faith and reasonable discretion, determines that circumstances require immediate action to prevent or mitigate significant damage to the species and habitat conservation values of the Property, GRANTOR may pursue its remedies under this paragraph without prior notice to GRANTEE or without waiting for the period provided for the cure to expire. GRANTOR'S rights under this paragraph apply equally in the event of either actual or threatened violations of covenants, conditions, reservations and restrictions of this deed or the provisions of the HMP, and GRANTEE acknowledges that GRANTOR'S remedies at law for any of said violations are inadequate and GRANTOR shall be entitled to the injunctive relief described in this paragraph, both prohibitive and mandatory, in addition to such other relief to which GRANTOR may be entitled, including specific performance of the covenants, conditions, reservations and restrictions of this deed and the provisions of the HMP.

c. Enforcement of the covenants, conditions, reservations and restrictions in this deed and the provisions of the HMP shall be at the discretion of GRANTOR, and any forbearance by GRANTOR to exercise its rights under this deed and the HMP in the event of any breach or violation of any provision of this deed or the HMP by GRANTEE shall not be deemed or construed to be a waiver by GRANTOR of such provision or of any subsequent breach or violation of the same or any other provision of this deed or the HMP or of any of GRANTOR'S rights under this deed or the HMP. No delay or omission by GRANTOR in the exercise of any right or remedy upon any breach or violation by GRANTEE shall impair such right or remedy or be construed as a waiver.

d. In addition to satisfying Army's responsibilities under Section 7 of the Endangered Species Act, GRANTEE'S compliance with the covenants, conditions, reservations and restrictions contained in this deed and with the provisions of the HMP are intended to satisfy mitigation obligations included in any future incidental take permit issued by USFWS pursuant to Section 10(a)(1)(B) of the Endangered Species Act which authorizes the incidental take of a target HMP species on the Property. GRANTEE acknowledges that neither this deed nor the HMP authorizes the incidental take of any species listed under the ESA. Authorization to incidentally take any target HMP wildlife species must must be obtained by GRANTEE separately, or through participation in a broader habitat conservation plan and Section 10(a)(1)(B) permit based on the HMP and approved by FWS.

10. **AIR NAVIGATION RESTRICTION.**

11. **NON-DISCRIMINATION.**

THE CONDITIONS, RESTRICTIONS, and COVENANTS set forth in this deed are a binding servitude on the herein conveyed Property and will be deemed to run with the land in perpetuity. Restrictions, stipulations and covenants contained herein will be inserted by the GRANTEE verbatim or by express reference in any deed or other legal instrument by which it divests itself of either the fee simple title or any other lesser estate in the Property or any portion thereof. All rights and powers reserved to the GRANTOR, and all references in this deed to GRANTOR shall include its successor in function. The GRANTOR may agree to waive, eliminate, or reduce the obligations contained in the covenants.

THIS CONVEYANCE IS MADE SUBJECT TO all covenants, easements, reservations, and encumbrances, whether or not of record, and any facts which a physical inspection or accurate survey of the Property may disclose.

19. LICENSE AGREEMENT. CSU shall enter into a license agreement, subject to the approval of the Assistant Secretary of Army for Installations, Logistics, and Environment for use of Building Nos. 4562 and 4552, which are outside the subject Property. These facilities house the hot water boilers that provide heat and hot water to certain facilities located within the Property. This license arrangement shall serve as a temporary measure until such time as these facilities can be transferred to CSU or some other permanent arrangements prevail. The license is at Appendix D.

20. HABITAT MANAGEMENT. CSU will minimize the destruction, loss, or degradation of the wildlife habitat area in accordance with the requirements of this agreement until such time as the Basewide Habitat Management Plan (HMP) is signed by all the participating parties. After this plan is formalized and signed by all applicable parties, CSU will cooperate with adjacent property owners in implementation mitigation requirements identified in the HMP for adjacent sensitive habitat areas. CSU agrees to be held responsible for those mitigation measures related to CSU as described in the Environmental Impact Statement and Record of Decision for the Fort Ord Disposal and Reuse (December 1993) and CSU's Record of CEQA Decision (May 17, 1994). This agreement provides for interim protection for designated areas of habitat by CSU within the lands transferred to them as follows:

a. The parcel being transferred to California State University Monterey Bay (CSU) contains habitat for species that have special status in terms of state and federal protection. The Army and U. S. Fish and Wildlife Service Office of Endangered Species (FWS) have reached agreement on a Basewide Habitat Management Plan (HMP) for the preservation of these species and avoidance of a jeopardy biological opinion from FWS for the Army action of disposal of lands at Fort Ord. The HMP requires that portions of land to be transferred to California Department of Parks and Recreation, U. S. Bureau of Land Management, University of California Santa Cruz, and County of Monterey will be improved and managed to increase habitat for these and other special status species to mitigate for the loss of habitat on other lands at Fort Ord that will be made available for transfer to other agencies with a future development entitlement for destruction of special species habitat. Once the plan is signed and implemented by all participating parties to the HMP, the habitat within the CSU lands (and other parcels not required to maintain habitat long term for the HMP) may be developed and have the

habitat removed or disturbed.

b. The HMP describes the existing special status habitat and resources present within the Property. A map, found at enclosure 2 to the HMP, describes those areas within the Property that have presently undeveloped lands having natural habitat important for these species that need to be managed as INTERIM HABITAT AREAS. These areas do not include all areas of special status plant habitat, and exclude the habitat within 150 feet of the existing housing areas.

c. The areas described on enclosure 2 will not be developed or subjected to ground or vegetation disturbing activities. Non vehicular traffic will be allowed. Motorized vehicles will be prohibited from entering the areas. No roads, firebreaks, buildings or other construction will be allowed to take place on these interim habitat areas until the HMP is fully implemented. In the event that the HMP is not implemented in a timely fashion and CSU desires to use some of these areas for development, the Army and CSU shall confer and if needed develop a strategy for CSU to provide for offsetting mitigation agreeable to the Army and FWS prior to being allowed to develop any of the interim habitat areas.

21. UNEXPLODED ORDNANCE. An archives search indicated that there was no history of ordnance activity being conducted on the CSU Phase I parcel. Other areas of Fort Ord have been used in the past for ordnance training and testing. Reuse of these areas may be restricted due to the presence of ordnance materials. CSU should exercise caution in any earth-moving activity. Should CSU discover any such material on the Property, it shall not attempt to remove or destroy it as it might be dangerous, but shall notify the local Police Department and the Provost Marshall at the Presidio of Monterey and competent U.S. Army Explosive Ordnance personnel will promptly be dispatched to dispose of the material properly.

22. ACCESS TO PROPERTY. Access requirements and access routes to and from the Property shall be coordinated with the Government until such time as security fences have been moved and access can be attained without entering the military complex portion of Fort Ord. Until such time as is mutually agreed by each party, accommodations for unrestricted ingress and egress to the Property shall be coordinated with and agreed to by the Commander of the Presidio of Monterey and CSU administrators.

g. Endangered Species

The Grantee acknowledges and agrees to implement the following provisions, as applicable, relative to endangered species:

1) The Property is within a Habitat Management Plan (HMP) Development Area. No resource conservation requirements are associated with the HMP for these parcels. However, small pockets of habitat may be preserved within and around the Property.

2) The Biological Opinion identified sensitive biological resources that may be salvaged for use in restoration activities within reserve areas, and allows for development of the Property.

3) The HMP does not exempt the Grantee from complying with environmental regulations enforced by Federal, State, or local agencies. These regulations could include obtaining the Endangered Species Act (ESA) (16 U.S.C. §§ 1531-1544 et seq.) Section 7 or Section 10(a)permits from the U.S. Fish and Wildlife Service (USFWS); complying with prohibitions against take of listed animals under ESA Section 9; complying with prohibitions against the removal of listed plants occurring on federal land or the destruction of listed plants in violation of any state laws; complying with measures for conservation of state-listed threatened and endangered species and other special-status species recognized by California Department of Fish and Game (DFG) under the California ESA, or California Environmental Quality Act (CEQA); and, complying with local land use regulations and restrictions.

4) The HMP serves as a management plan for both listed and candidate species, and is a prelisting agreement between the USFWS and the local jurisdiction for candidate species that may need to be listed because of circumstances occurring outside the area covered by the HMP.

5) Implementation of the HMP would be considered suitable mitigation for impacts to HMP species within HMP prevalent areas and would facilitate the USFWS procedures to authorize incidental take of these species by participating entities as required under ESA Section 10. No further mitigation will be required to allow development on the Property unless species other than HMP target species are proposed for listing or are listed.

6) The HMP does not authorize incidental take of any species listed as threatened or endangered under the ESA by entities acquiring land at the former Fort Ord. The USFWS has recommended that all nonfederal entities acquiring land at former Fort Ord apply for ESA Section 10(a)(1)(B) incidental take permits for the species covered in the HMP. The definition of "take" under the ESA includes to harass, harm, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Although the USFWS will not require further mitigation from entities that are in conformance with the HMP, those entities without incidental take authorization would be in violation of the ESA if any of their actions resulted in the take of a listed animal species. To apply for a Section 10 (a)(1)(B) incidental take permit, an entity must submit an application form (Form 3-200), a complete description of the activity sought to be authorized, the common and scientific names of the species sought to be covered by the permit, and a conservation plan (50 CFR 17.22 [b]).

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Document # BW-1787

Page # 38 (1 pg.)

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Document # BW-1787

Table S-3. HMP Target Species Supported by Habitat Within HMP Reserve Areas, Corridors, and Development Areas

	Plants											Animals						
Parcel	Sand Gilia	Eastwood's Ericameria	Coast Wallflower	Seaside Bird's Beak	Robust Spineflower	Monterey Spineflower	Monterey Ceanothus	Sandmat Manzanita	Toro Manzanita	Hooker's manzanita	Yadon's Piperia	California Linderiella	California Tiger Salamander	Western Snowy Plover	California Red-Legged Frog	Monterey Ornate Shrew	California Black Legless Lizard	Smith's Blue Butterfly
State Parks Reserve			X		X	X		X						X			X	X
Landfill Development with Reserve	X		X			X	X	X								X	X	
UC/NRS Fort Ord Natural Reserve	X	X	X			X	X	X	X							X	X	
Marina Reserve	X					X		X							X	X	X	
East Garrison Reserve	X	X	X	X		X	X	X	X	X						X	X	
Habitat Corridor	X					X		X				X	X		X	X		
BLM Natural Resource Management Area	X	X	X	X		X	X	X	X	X		X	X		X	X	X	
Caltrans State Route 68 Easement	X					X	X	X	X	X		X	X			X		
MPRPD Reserve		X		X		X	X	X									X	
Caltrans State Route 1 Area	X	X	X			X	X	X			X						X	
Development Areas	X	X	X	X		X	X	X	X	X	X	X	X		X	X	X	X

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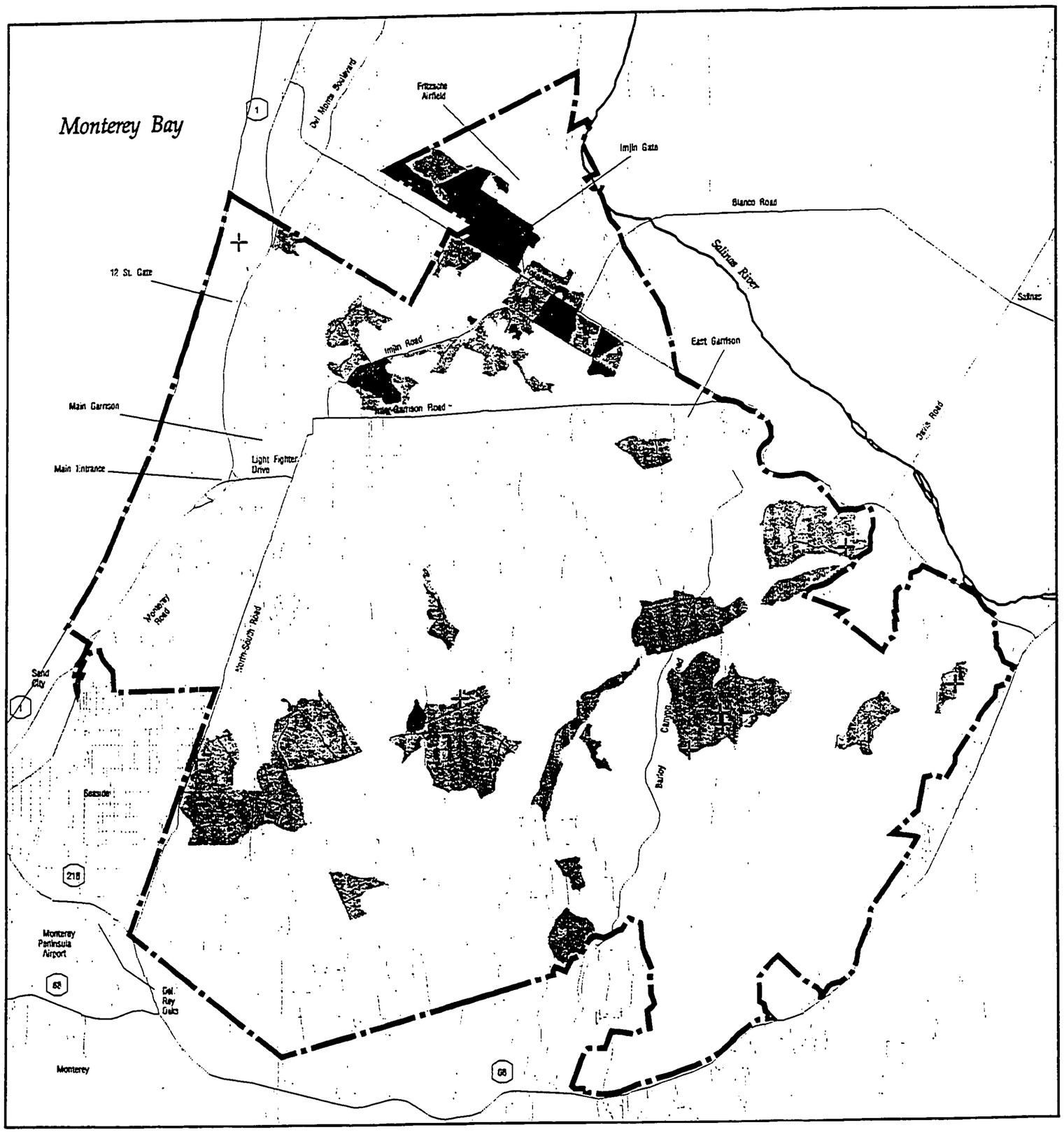
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Figure B-1a

Known Distribution of Sand Gilia *(Gilia tenuiflora* ssp. *arenaria)* at Former Fort Ord



Listing Status

Federal - Endangered
State - Threatened
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*
- *Specific Population Location*

Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

If this image is not as legible as this overlay, it's due to the poor quality of the original document

Figure B-1b

Sand Gilia Populations
Identified in 1993 Spring Surveys



Legend

- Survey Boundary
- Sand Gilia Population Location and Approximate Number of Individual Plants
- Land Use Boundaries

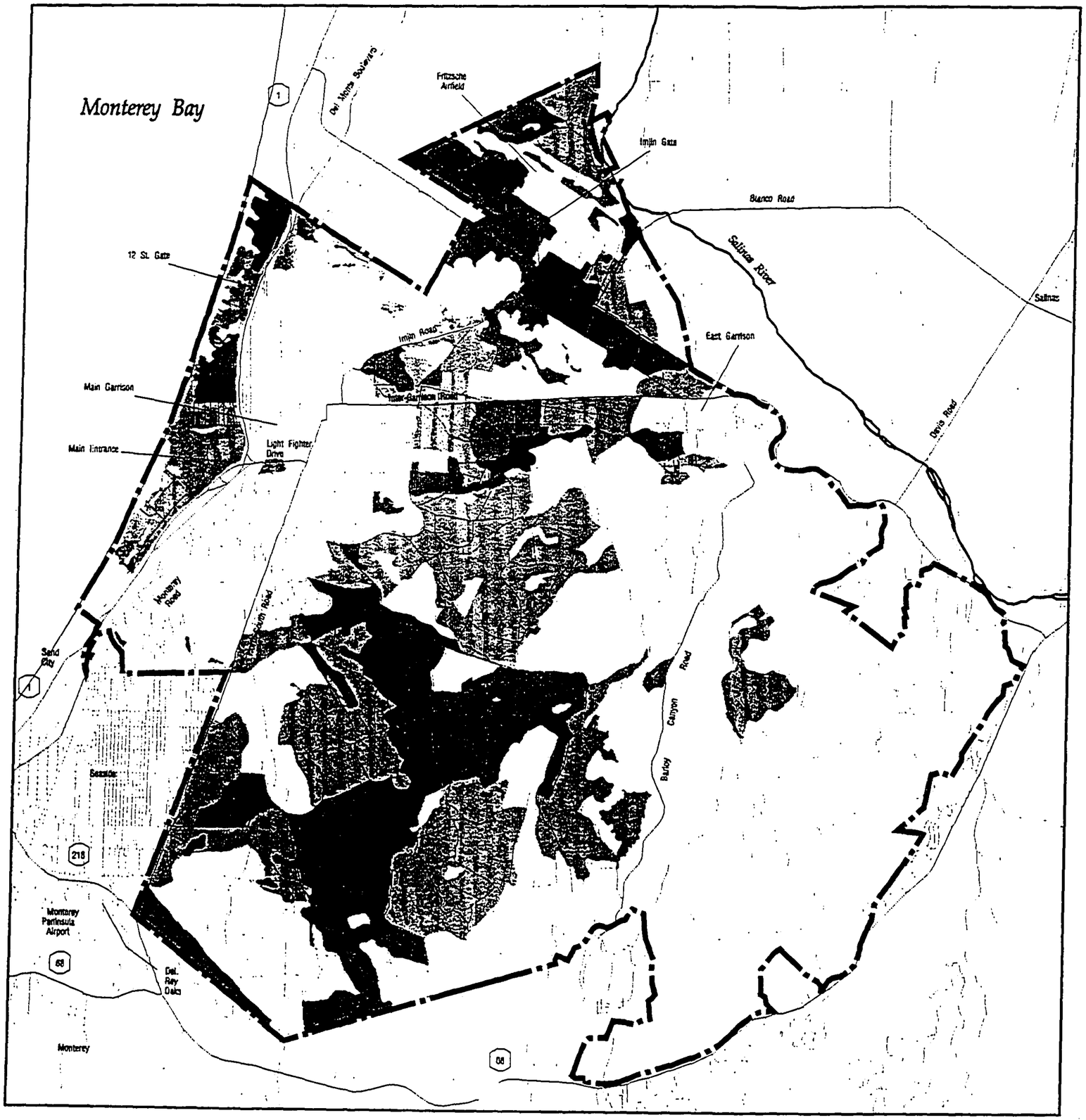
0 2000

US Army Corps of Engineers
Sacramento District

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Figure B-2

Known Distribution of Monterey Spineflower *(Chorizanthe pungens* var. *pungens)* at Former Fort Ord



Listing Status

Federal - Threatened
State - none
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

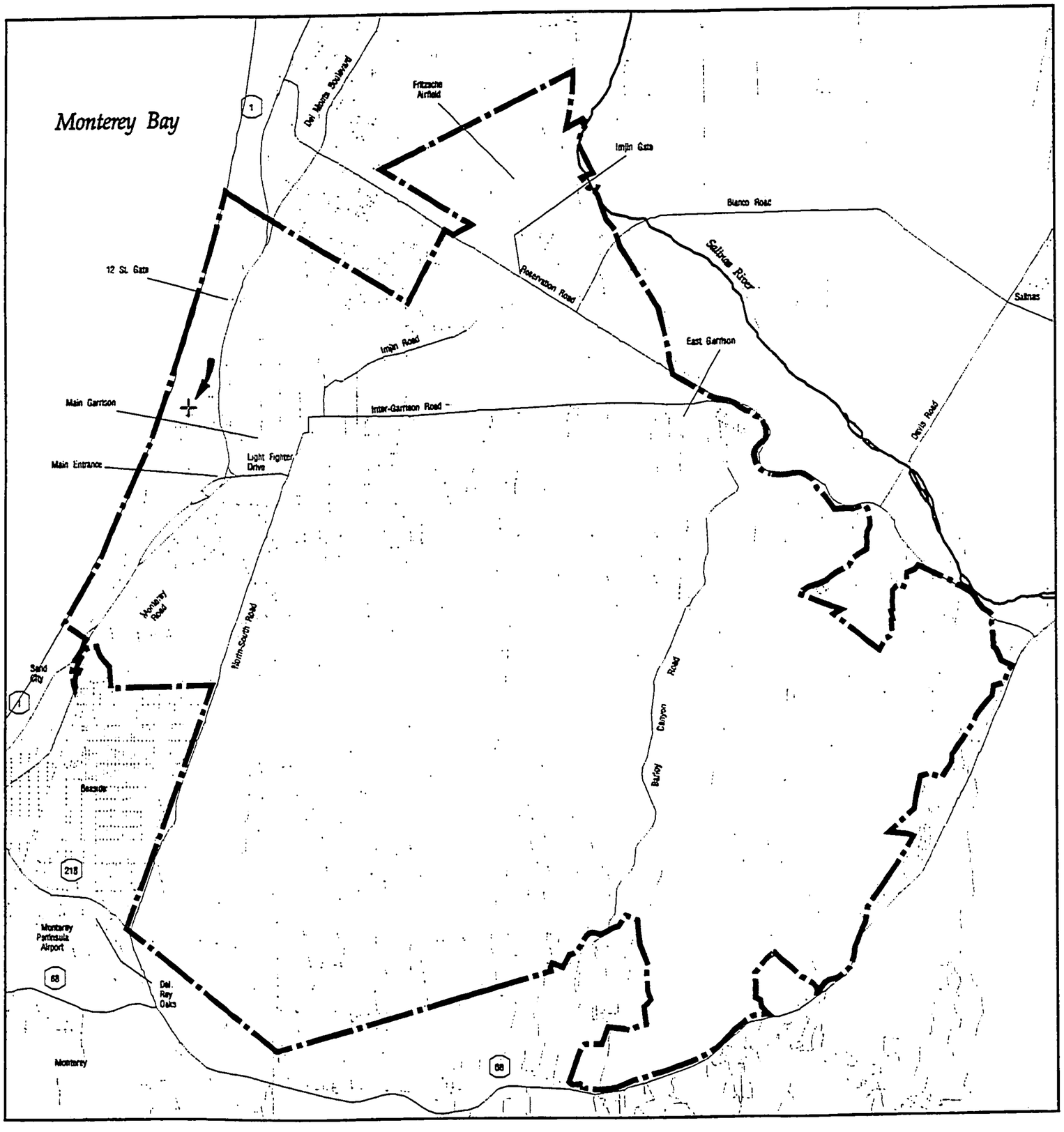
Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

If this image is not as legible as this overlay, it's due to the poor quality of the original document

Figure B-3

Known Distribution of Robust Spineflower
(Chorizanthe robusta var. *robusta)*
at Former Fort Ord



Listing Status

Federal - Endangered
State - none
CNPS - 4

Legend

Specific Population Location

Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

If this image is not as legible as this overlay, it's due to the poor quality of the original document

Figure B-4

Known Distribution of Seaside Bird's-beak
(Cordylanthus rigidus var. littoralis)
at Former Fort Ord

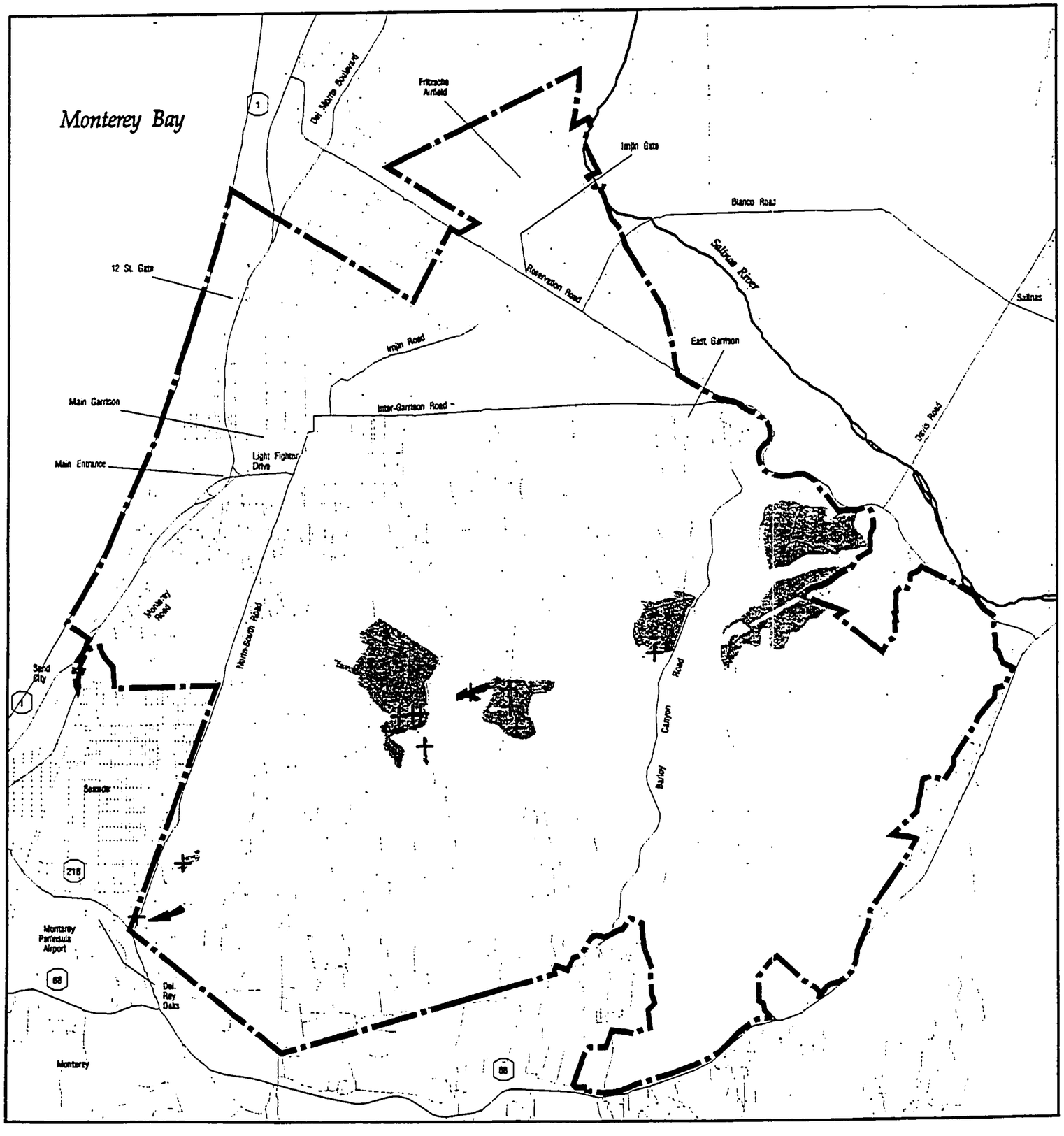
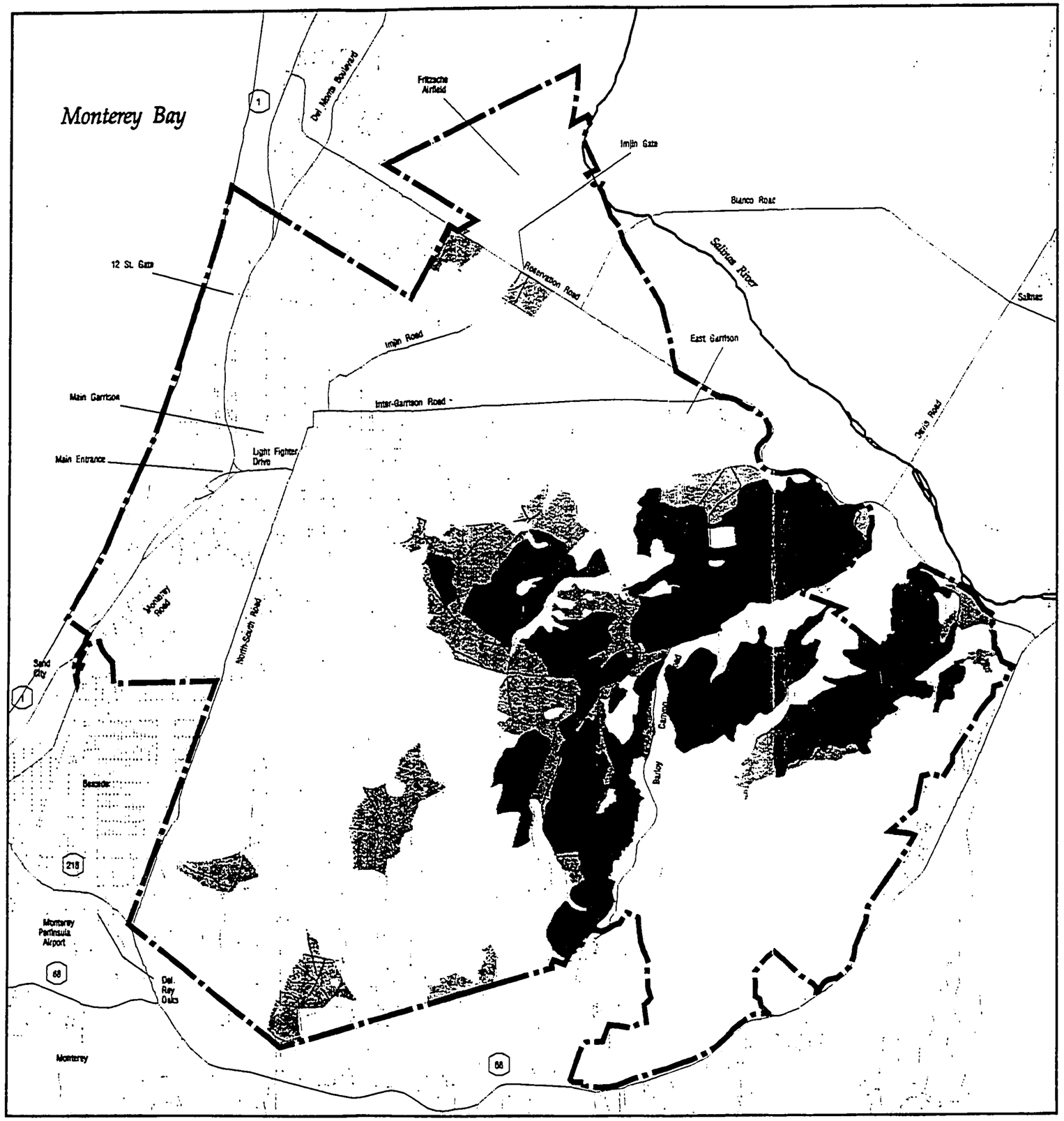

Monterey Bay
1
Del Monte Boulevard
Fritzsche Airfield
Imjin Gate
Blanco Road
Salinas River
Reservation Road
12 St. Gate
Salinas
Imjin Road
East Garrison
Main Garrison
Inter-Garrison Road
Davis Road
Main Entrance
Light Fighter Drive
Monterey Road
Hilby
Hilby
Hilby

Figure B-5

Known Distribution of Toro Manzanita
(Arctostaphylos montereyensis)
at Former Fort Ord



Listing Status

Federal - none
State - none
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

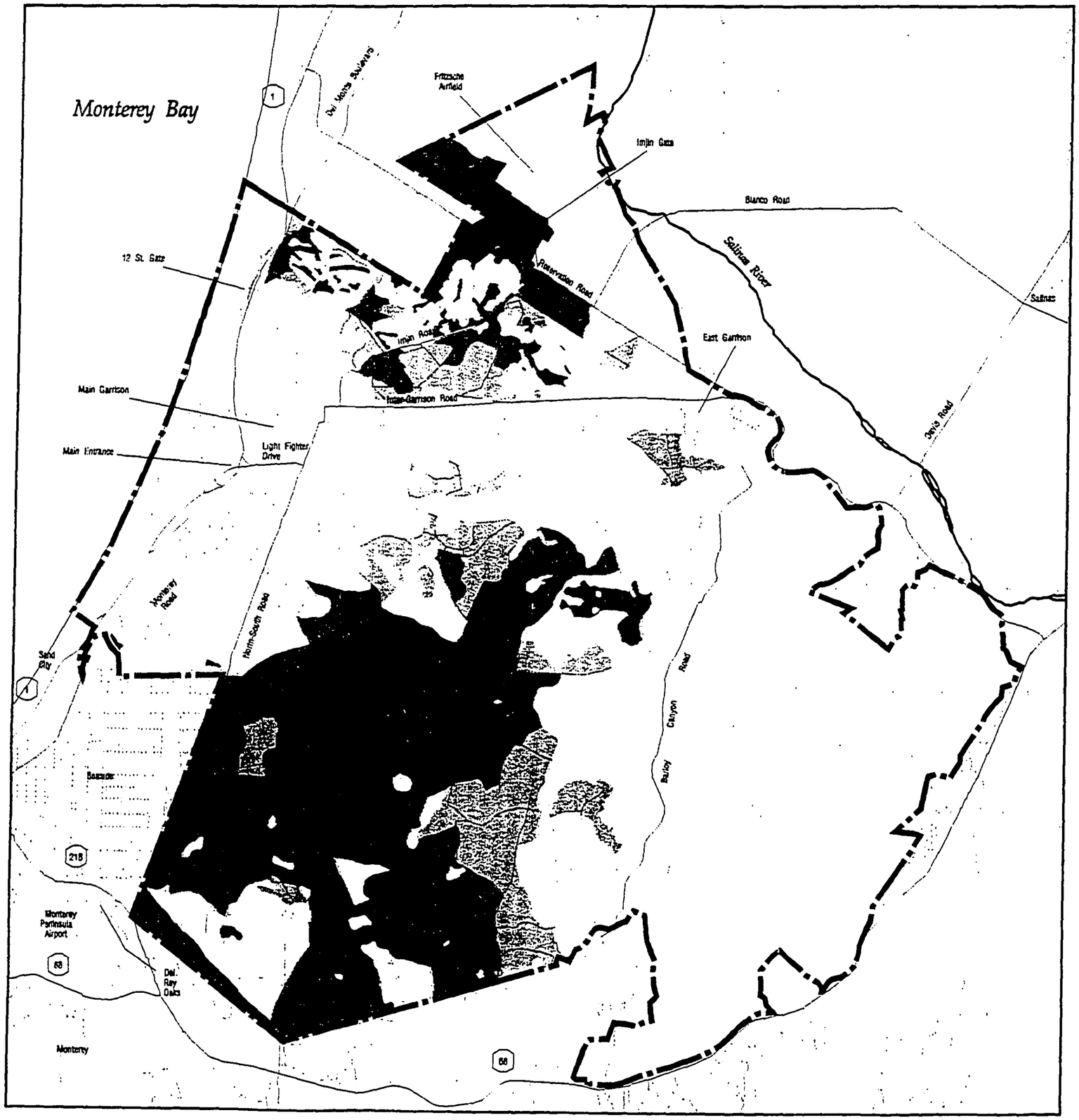
Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

If this image is not as legible as this overlay, it's due to the poor quality of the original document

Figure B-6

Known Distribution of Sandmat Manzanita
(Arctostaphylos pumila) at Former Fort Ord



Listing Status
Federal - none
State - none
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

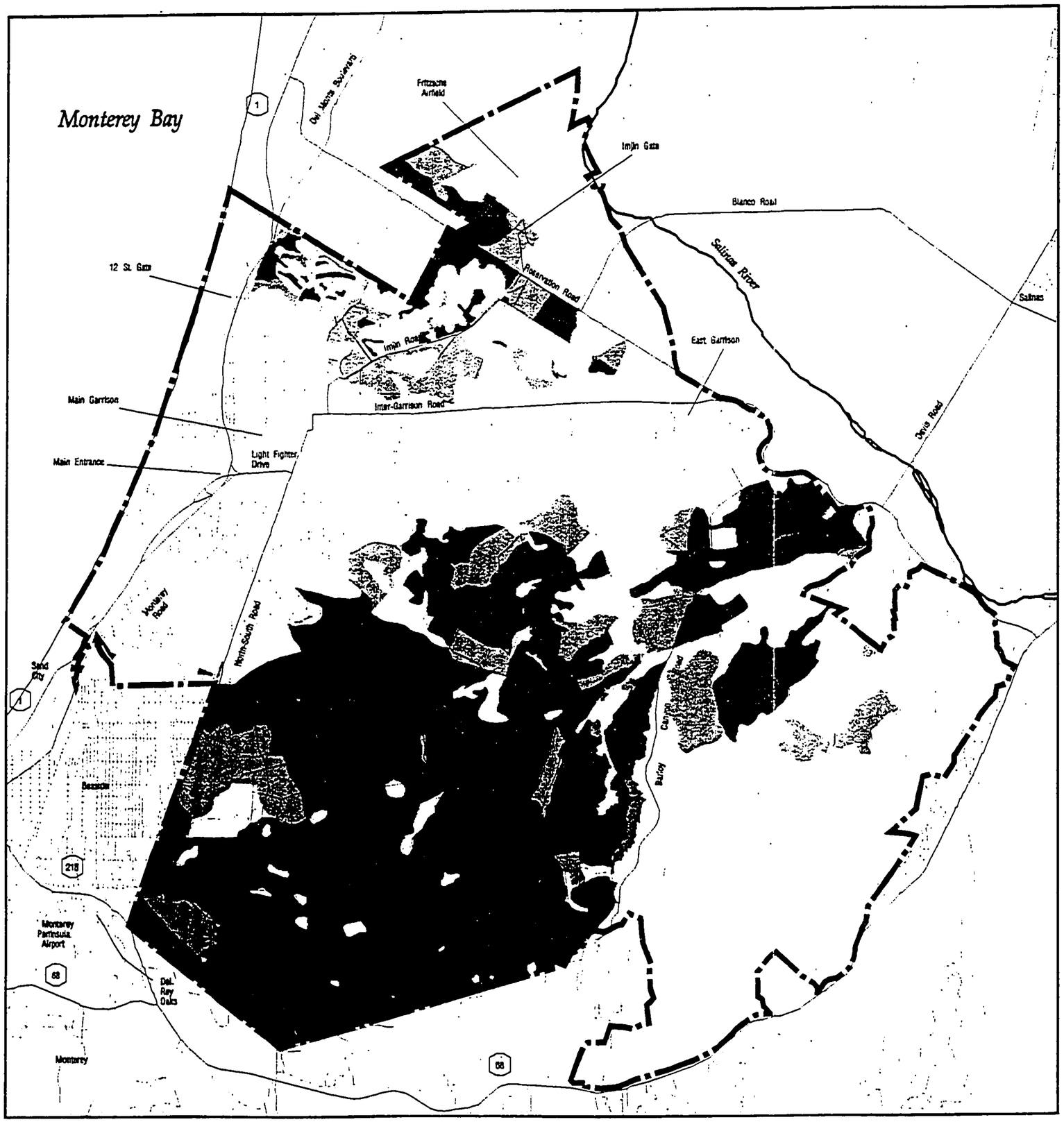
Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

If this image is not as legible as this overlay, it's due to the poor quality of the original document

Figure B-7

Known Distribution of Monterev Ceanothus
(Ceanothus rigidus) at Former Fort Ord



Listing Status
Federal - none
State - none
CNPS - 4

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

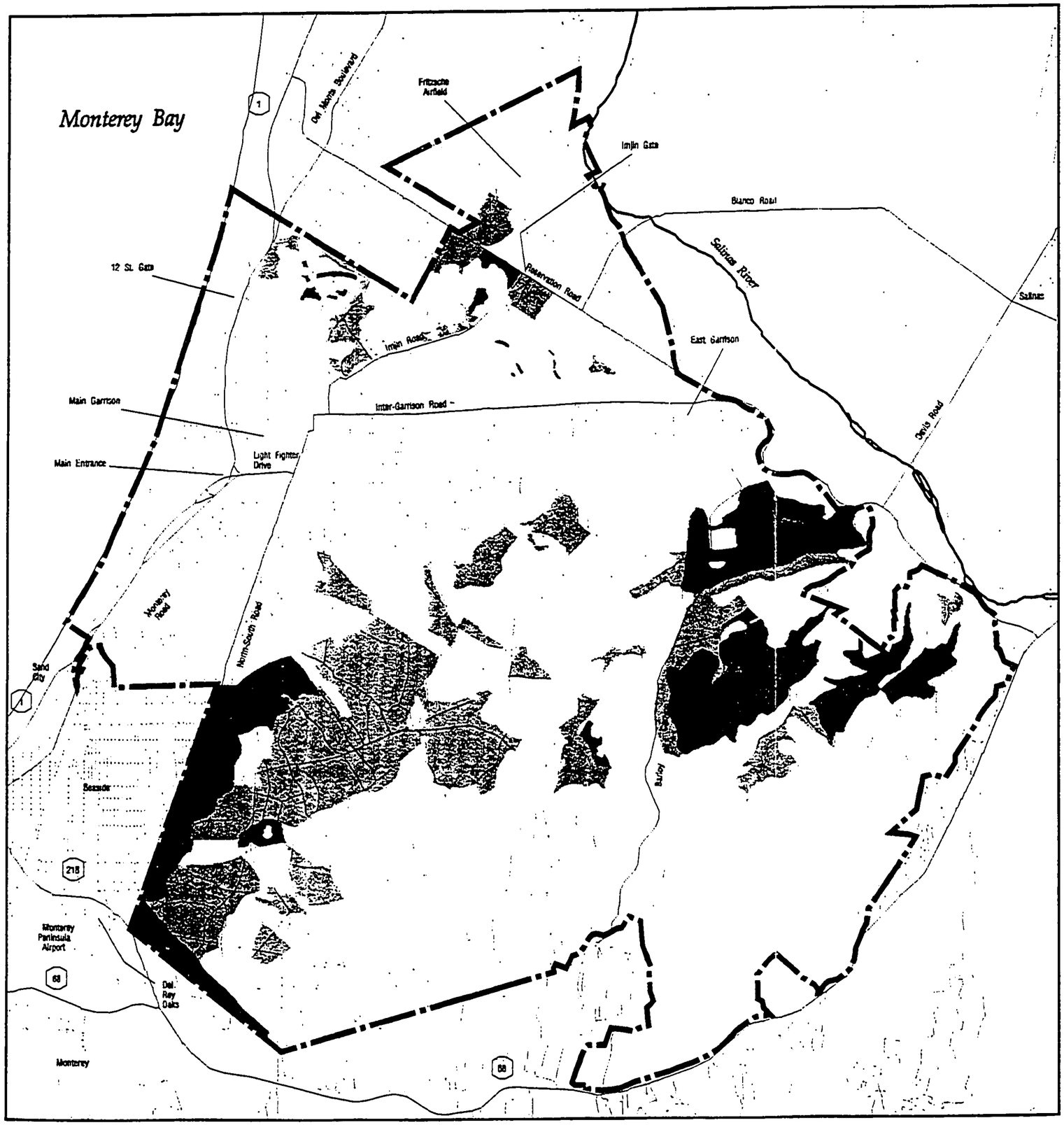
Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

If this image is not as legible as this overlay, it's due to the poor quality of the original document

Figure B-8

Known Distribution of Eastwood's Ericameria *(Ericameria fasciculata)* at Former Fort Ord



Listing Status
Federal - none
State - none
CNPS - 1B

Density of Occurrence

- ***Low Density***
- ***Medium Density***
- ***High Density***

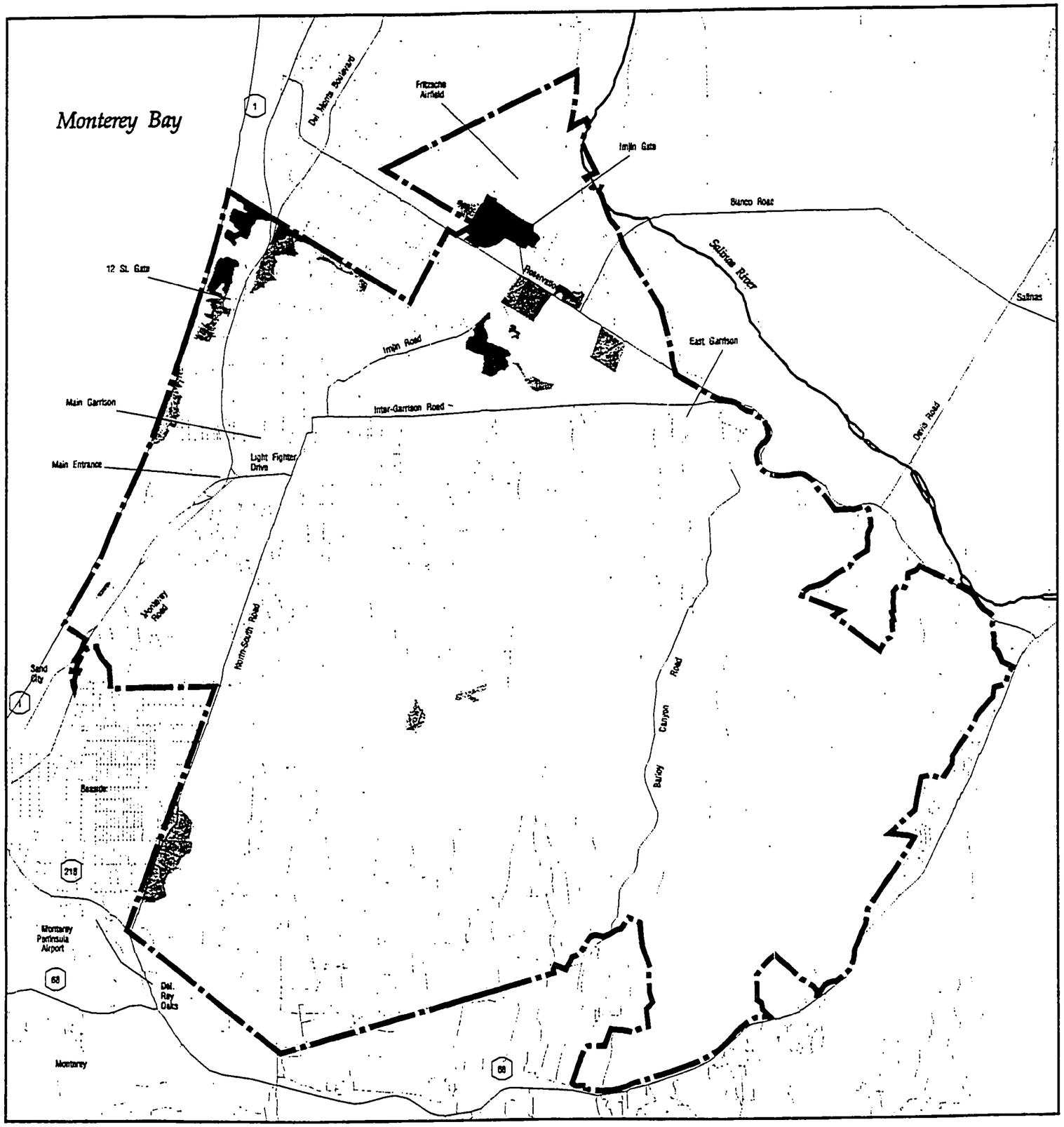
Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

If this image is not as legible as this overlay, it's due to the poor quality of the original document

Figure B-9

Known Distribution of Coast Wallflower
(Erysimum ammophilum) at Former Fort Ord



Listing Status

Federal - none
State - none
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

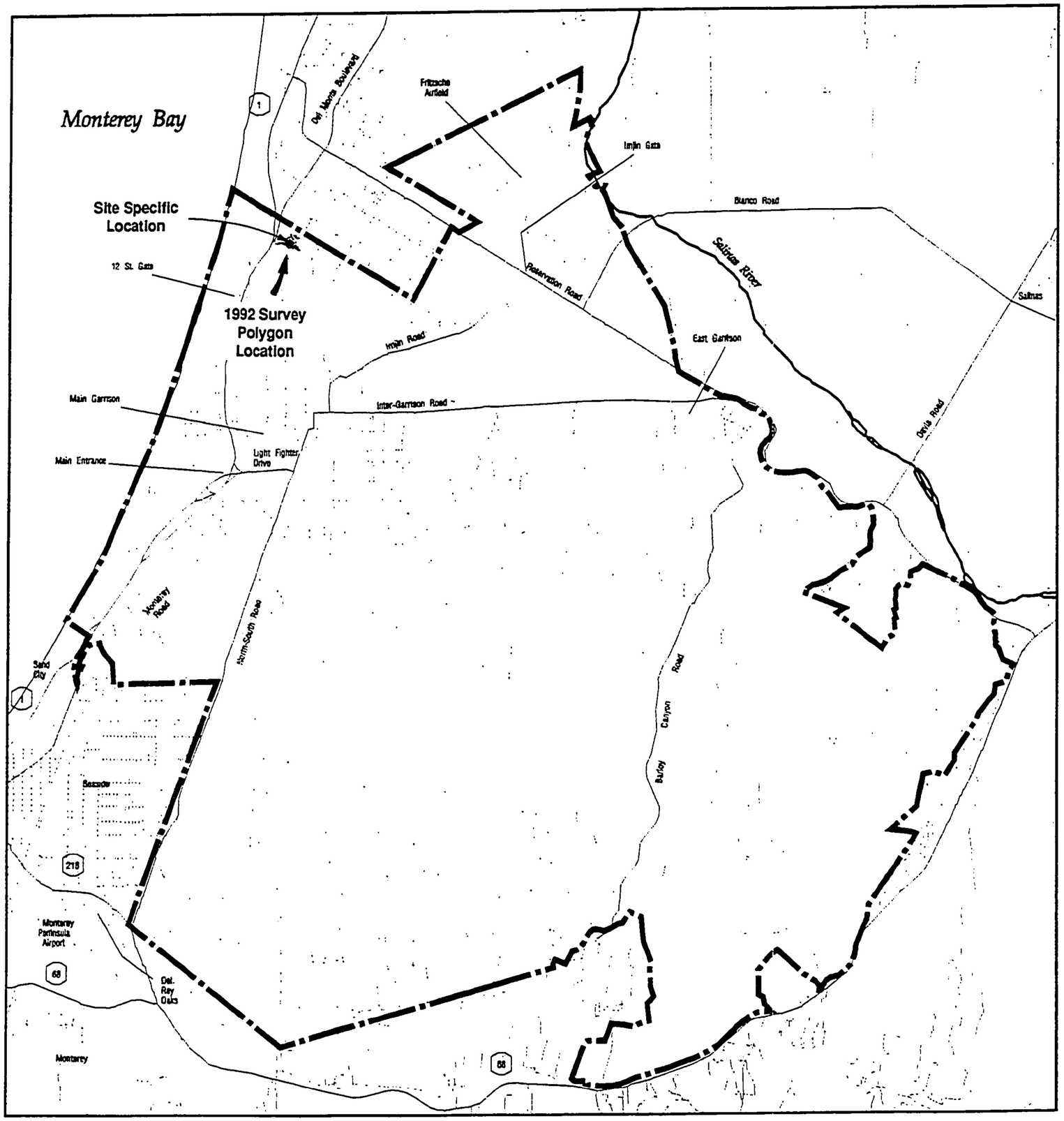
Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

If this image is not as legible as this overlay, it's due to the poor quality of the original document

Figure B-10

Known Distribution of Yadon's Piperia
(Piperia yadoni) at Former Fort Ord



Listing Status
Federal - Proposed Endangered
State - none
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

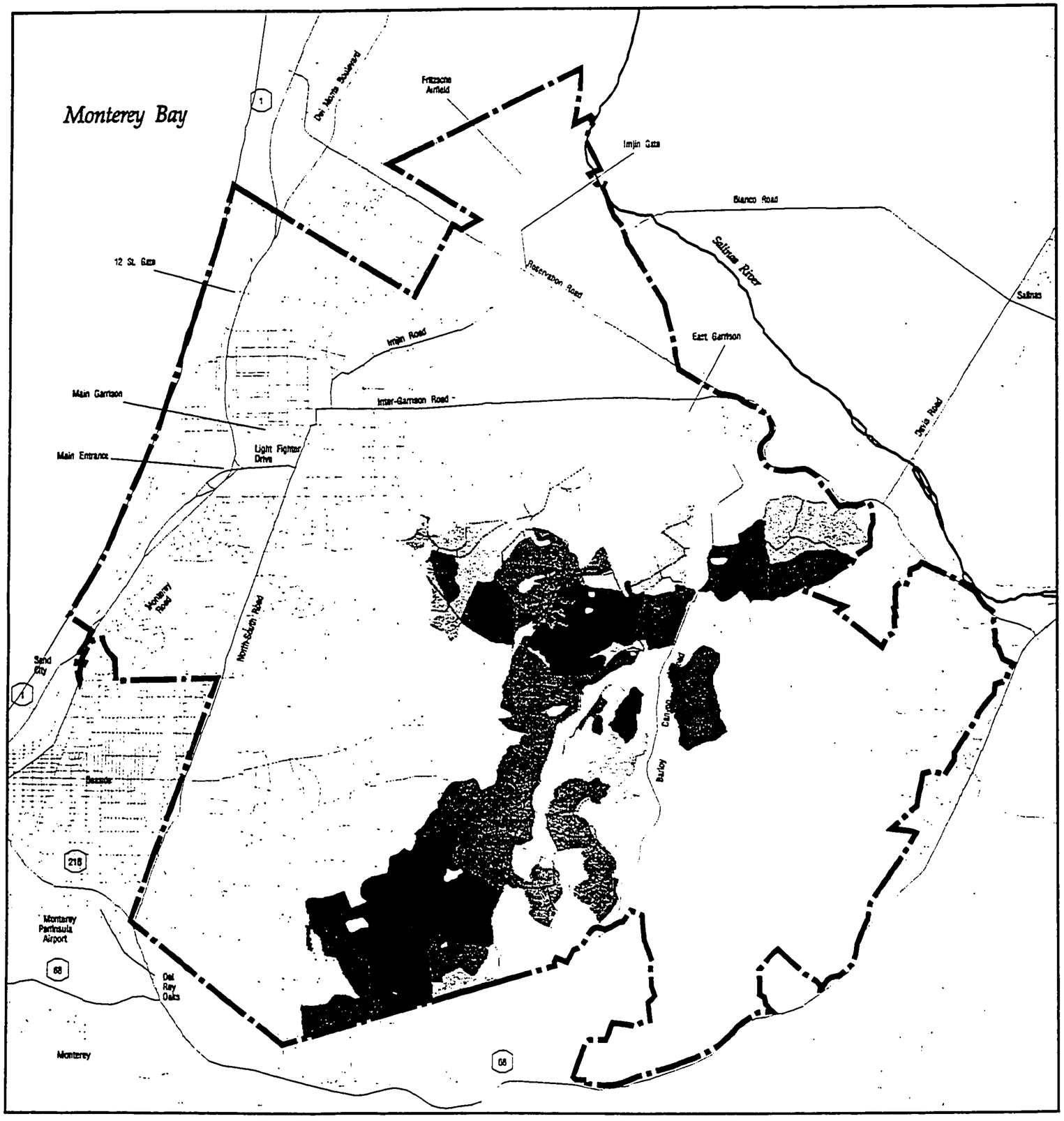
Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

If this image is not as legible as this overlay, it's due to the poor quality of the original document

Figure B-11

Known Distribution of Hooker's Manzanita
(Arctostaphylos hookeri ssp. *hookeri)*
at Former Fort Ord



Listing Status
Federal - none
State - none
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

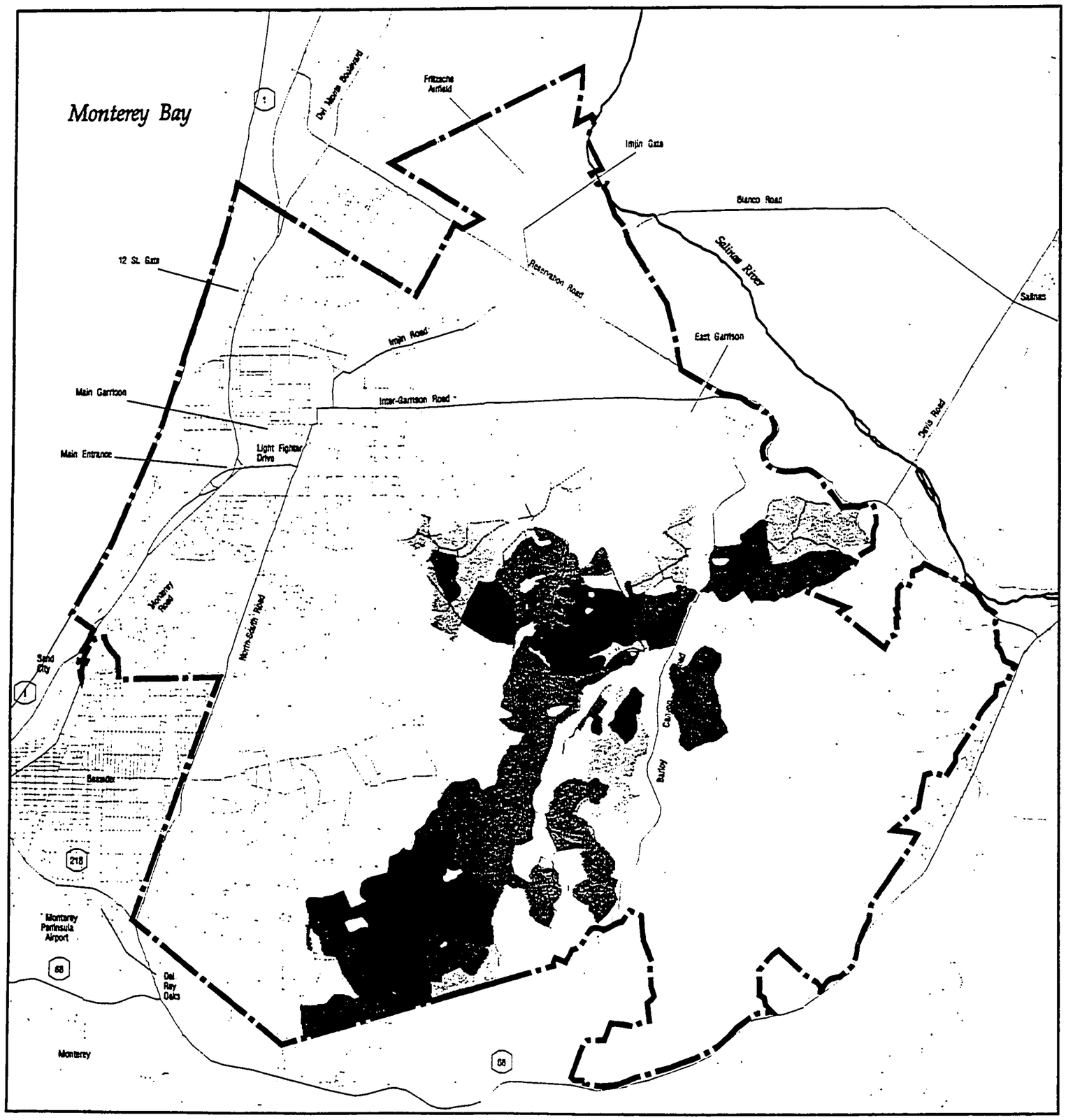
Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

If this image is not as legible as this overlay, it's due to the poor quality of the original document

Figure B-11

Known Distribution of Hooker's Manzanita
(Arctostaphylos hookeri ssp. *hookeri)*
at Former Fort Ord



Listing Status
Federal - none
State - none
CNPS - 1B

Density of Occurrence

- ***Low Density***
- ***Medium Density***
- ***High Density***

Scale 1:60,000

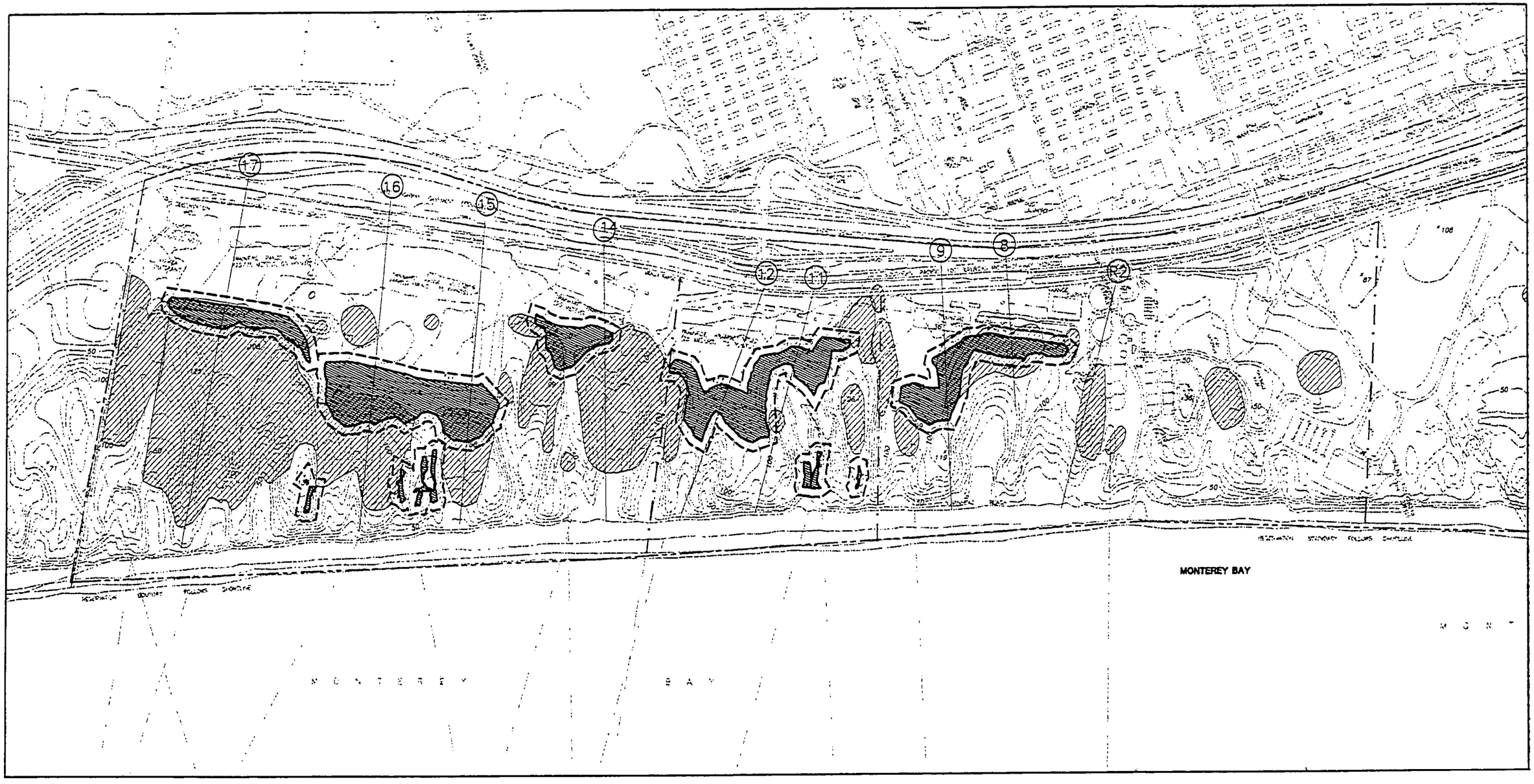
0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

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Document # BW-1787



KEY MAP

EXPLANATION

- SITE BOUNDARY
- STUDY AREA BOUNDARY
- 160 GROUND SURFACE CONTOUR (FEET ABOVE MEAN SEA LEVEL, CONTOUR INTERVAL 10 FEET)
- BUILDING
- HEAVY, 10% OR GREATER SURFACE AREA COVERED
- 50 FOOT OFFSET LINE FROM 10% CONCENTRATION BOUNDARY
- BUCKWHEAT AREAS
- (2) RANGE / TRANSECT
- B1 BACKGROUND SAMPLE LOCATION

NOTE:
REMEDIATION AREAS DO NOT INCLUDE CONSTRUCTION ACCESS ROUTS OR SITE REGRADING AREAS.

300 0 300 600
APPROXIMATE SCALE IN FEET

LEGEND

- Buckwheat Areas (approximate location based on 1995 survey)
- Proposed Lead Removal Areas

Figure B-19

Approximate Location of Lead Removal Areas and Buckwheat Habitat within the Beach Range Area

If this image is not as legible as this overlay, it's due to the poor quality of the original document

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ENGINEER: | SCALE: 300
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DATE: | DATE:

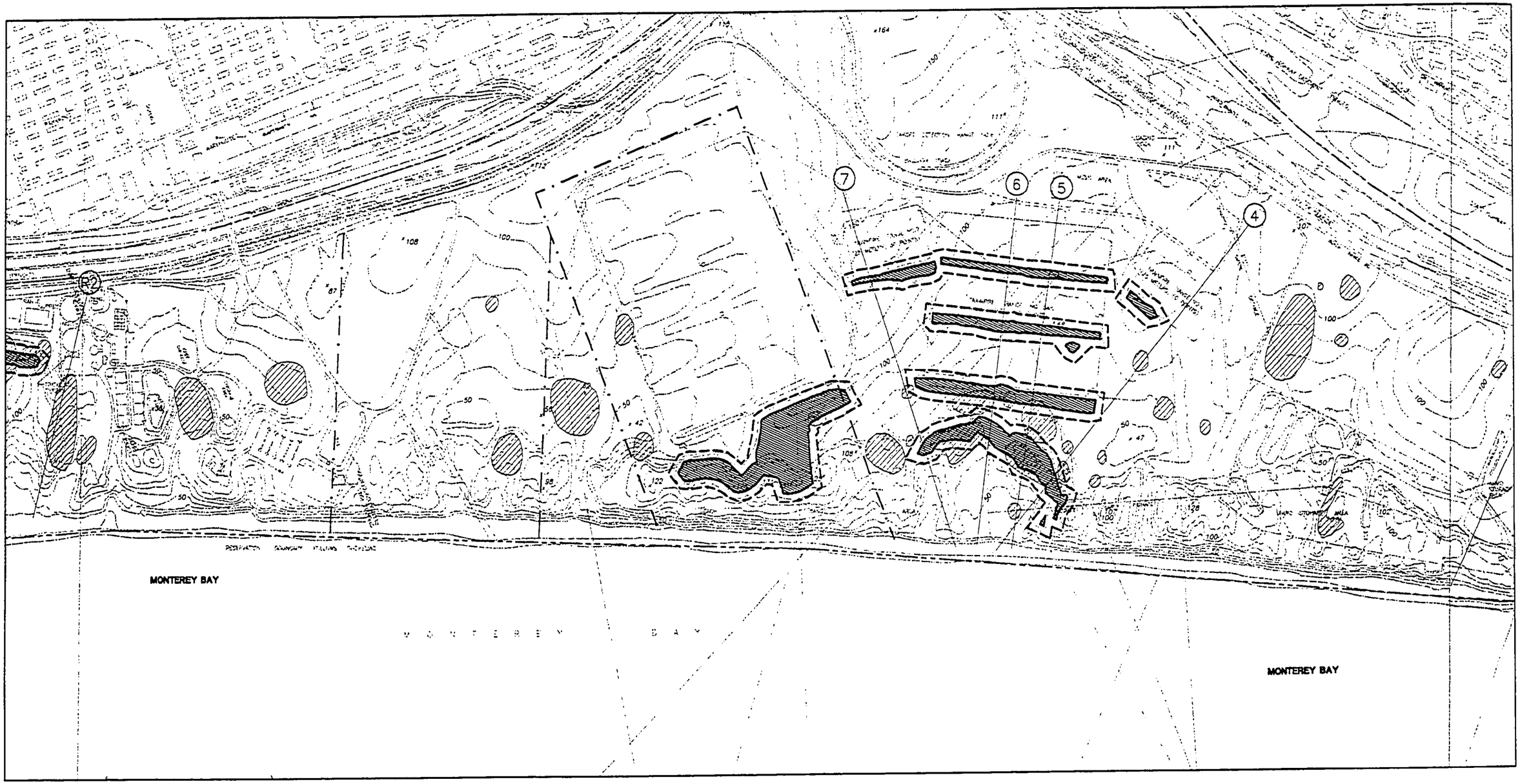
Harding Lawson Associates
Engineering and Environmental Services
90 Digital Drive, Novato, California 94949
Phone (415) 883-0112

DRAFT

Additional Ecological Risk Evaluations
Site 3 – Beach Trainfire Ranges
Fort Ord, California

Location of Proposed Lead Remediation Sites, 50-foot Construction Disturbance Zones, and Potentially Effected Buckwheat Populations

PLATE 1
SHEET: 1 OF 3
REVISION NUMBER: 0
DATE: 4/97



KEY MAP

EXPLANATION

- SITE BOUNDARY
- STUDY AREA BOUNDARY
- 160 GROUND SURFACE CONTOUR (FEET ABOVE MEAN SEA LEVEL, CONTOUR INTERVAL 10 FEET)
- BUILDING
- HEAVY, 10% OR GREATER SURFACE AREA COVERED
- 50 FOOT OFFSET LINE FROM 10% CONCENTRATION BOUNDARY
- BUCKWHEAT AREAS
- (2) RANGE / TRANSECT
- B1 BACKGROUND SAMPLE LOCATION

NOTE:
REMEDIATION AREAS DO NOT INCLUDE CONSTRUCTION ACCESS ROUTS OR SITE REGRADING AREAS.

LEGEND

- Buckwheat Areas (approximate location based on 1995 survey)
- Proposed Lead Removal Areas

300 0 300 600

APPROXIMATE SCALE IN FEET

Figure B-19

Continued

If this image is not as legible as this overlay, it's due to the poor quality of the original document

NO.	DATE	REVISIONS	BY	CHK

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ENGINEER: | SCALE: 300
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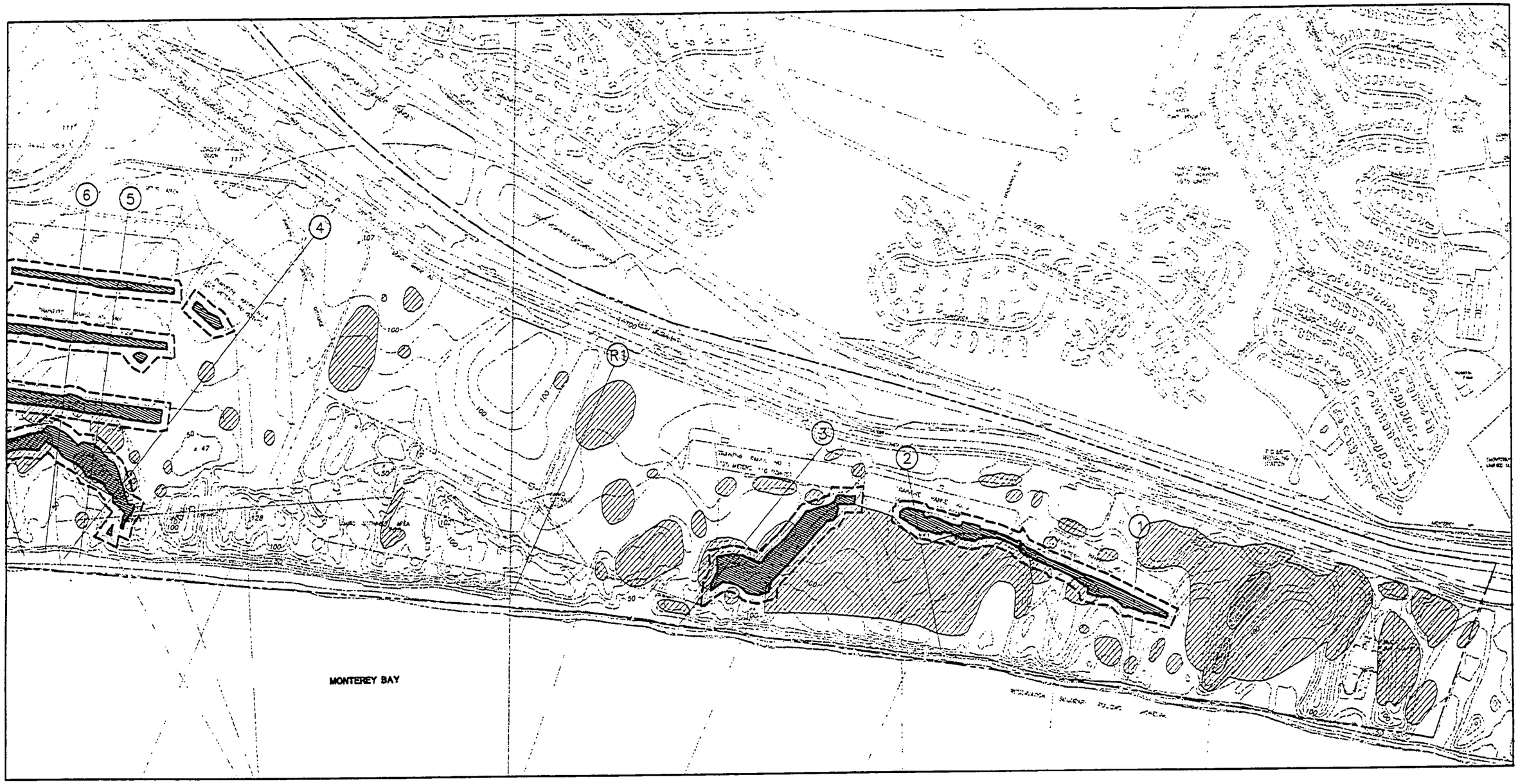
Harding Lawson Associates
Engineering and Environmental Services
90 Digital Drive, Novato, California 94949
Phone (415) 883-0112

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Additional Ecological Risk Evaluations
Site 3 – Beach Trainfire Ranges
Fort Ord, California

Location of Proposed Lead Remediation Sites, 50-foot Construction Disturbance Zones, and Potentially Effected Buckwheat Populations

PLATE 1
SHEET: 2 OF 3
REVISION NUMBER: 0
DATE: 4/97



KEY MAP

EXPLANATION

- SITE BOUNDARY
- STUDY AREA BOUNDARY
- 160 GROUND SURFACE CONTOUR (FEET ABOVE MEAN SEA LEVEL, CONTOUR INTERVAL 10 FEET)
- BUILDING
- HEAVY, 10% OR GREATER SURFACE AREA COVERED
- 50 FOOT OFFSET LINE FROM 10% CONCENTRATION BOUNDARY
- BUCKWHEAT AREAS
- 2 RANGE / TRANSECT
- B1 BACKGROUND SAMPLE LOCATION

NOTE:
REMEDIATION AREAS DO NOT INCLUDE CONSTRUCTION ACCESS ROUTS OR SITE REGRADING AREAS.

LEGEND

- Buckwheat Areas (approximate location based on 1995 survey)
- Proposed Lead Removal Areas

300 0 300 600

APPROXIMATE SCALE IN FEET

Figure B-19

Continued

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Engineering and Environmental Services
90 Digital Drive, Novato, California 94949
Phone (415) 883-0112

DRAFT

Additional Ecological Risk Evaluations
Site 3 – Beach Trainfire Ranges
Fort Ord, California

Location of Proposed Lead Remediation Sites, 50-foot Construction Disturbance Zones, and Potentially Effected Buckwheat Populations

PLATE 1
SHEET: 3 OF 3
REVISION NUMBER: 0
DATE: 4/97

Page # 222 (1 PG.)

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Document # BW-1787

BW-1787

Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California



U.S. Army Corps of Engineers
Sacramento District

April 1997

Habitat Management Plan
for Former Fort Ord, California

The Habitat Management Plan for former Fort Ord, California, will be completed and in effect once signed by the Army and the U.S. Fish and Wildlife Service. Other agencies will be asked to sign Memoranda of Agreement for implementation of portions of the Habitat Management Plan designated for each agency.

Daniel D. Devlin
Colonel, U.S. Army
Commanding, Presidio of Monterey

The U.S. Fish and Wildlife Service finds that the Habitat Management Plan for the former Fort Ord fulfills reasonable and prudent measure 1 in its October 19, 1993 Biological Opinion for the disposal and reuse of Fort Ord. Additionally, the U.S. Fish and Wildlife Service issued an amended Biological/Conference Opinion in April 1997 that analyzed the effects of the Habitat Management Plan on the federally listed Smith's blue butterfly, western snowy plover, California red-legged frog, sand gilia, Monterey spineflower, and robust spineflower and the proposed black legless lizard and Yadon's piperia. The Habitat Management Plan does not authorize incidental take by entities acquiring land at the former Fort Ord of any species listed as threatened or endangered under the federal Endangered Species Act of 1973, as amended. Entities would submit the Habitat Management Plan in combination with additional documentation, including an implementation agreement signed by all parties receiving lands that are to be managed for wildlife values, to the U.S. Fish and Wildlife Service to receive authorization for incidental take through Section 10(a)(1)(B) permits.

Diane K. Noda
Field Supervisor
U.S. Fish and Wildlife Service

Concurring Agencies

The following agency signs to indicate its concurrence with the Habitat Management Plan.

The Fort Ord Reuse Authority concurs with the Habitat Management Plan and agrees to comply with the conditions in the Habitat Management Plan in implementation of the Base Reuse Plan for former Fort Ord.

Fort Ord Reuse Authority

Concurrence with Management Requirements for Habitat Reserve, Habitat Corridor, Borderland Development Areas Along NRMA Interface, and Development with Reserve Areas or Development with Restrictions

The following agencies will receive lands designated in the Habitat Management Plan as Habitat Reserve, Habitat Corridor, Borderland Development Areas Along NRMA Interface, and/or Development with Reserve Areas or Development with Restrictions and concur with the management requirements stated in the Habitat Management Plan for their respective parcels.

U.S. Bureau of Land Management

California Department of Parks and Recreation

California Department of Transportation

Regents of the University of California (Santa Cruz Campus)

Monterey County

Regents of the University of California (Division of Agriculture and Natural Resources)

Monterey Peninsula Regional Parks District

City of Marina

Concurrence with Provisions for Land Transfers of Parcels with Habitat Management Plan Requirements

These agencies are agencies who, in addition to those above, may receive land having Habitat Management Plan requirements. However, the agency plans to execute the Habitat Management Plan requirements via one of the above agencies or another Habitat Management Plan managing agency acceptable to the U.S. Fish and Wildlife Service.

Fort Ord Reuse Authority

Monterey Peninsula College

Habitat Management Plan for Former Fort Ord, California

Prepared by:

U.S. Army Corps of Engineers
Sacramento District
1325 J Street, 12th Floor
Sacramento, CA 95814-2922
Contact: Bob Verkade
916/557-7423

With Technical Assistance from:

Jones & Stokes Associates, Inc.
2600 V Street, Suite 100
Sacramento, CA 95818-1914
Contact: Michael D. Rushton
916/737-3000

April 1997

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Executive Summary

INTRODUCTION

The Installation-Wide Multispecies Habitat Management Plan (HMP) for former Fort Ord complies with the U.S. Fish and Wildlife Service (USFWS) final Biological/Conference Opinion for disposal and reuse of former Fort Ord lands and establishes the guidelines for the conservation and management of wildlife and plant species and habitats that largely depend on former Fort Ord land for survival. The HMP was developed with input from federal, state, local, and private agencies and organizations concerned with the natural resources and reuse of former Fort Ord. Implementation of this HMP will assist in the orderly disposal and reuse of former Fort Ord.

PURPOSE AND NEED FOR THE MULTISPECIES HABITAT MANAGEMENT PLAN

The Department of the Army in 1991 was directed to close and dispose of Fort Ord, California. The Army's action is considered a major federal action that could affect eight species proposed for listing or listed as threatened or endangered under the federal Endangered Species Act (ESA). A Biological Assessment (BA) was prepared that identifies the potential loss of populations and habitat of federally listed species, species proposed for listing, and species that are candidates for listing, resulting from caretaker actions, disposal actions, and six reuse alternatives (U.S. Army Corps of Engineers 1993a). A supplement to the draft BA was prepared that describes the loss of populations and habitat of these same species resulting from an additional reuse alternative (Alternative 6R) (U.S. Army Corps of Engineers 1993b). The USFWS's October 19, 1993, Final Biological Opinion on the disposal and reuse of former Fort Ord required that an HMP be developed and implemented to reduce the incidental take of listed species and loss of habitat that supports these species.

The 1993 Final Environmental Impact Statement (FEIS) for the disposal and reuse of former Fort Ord identified the need to develop and implement a multispecies Habitat Management Plan (HMP) as a mitigation measure for impacts on vegetation and wildlife resources. An HMP was published, initially, in February 1994 in response to both the biological opinion and mitigation measures identified in the FEIS and the December 1993 National Environmental Policy Act Record of Decision (1993 NEPA ROD). The February 1994 HMP (1994 HMP) addressed impacts resulting from predisposal, disposal, and reuse actions. Reuse actions addressed were those proposed under Alternative 6R Modified as included in the 1993 NEPA ROD.

Since publication of the FEIS and 1994 HMP, the U.S. Army (Army) has prepared a Final Supplemental Environmental Impact Statement (FSEIS) (U.S. Army Corps of Engineers 1996) to include additional data and an analysis of the following:

- disposal of additional land excess to the Army needs resulting from changes in the Army's Presidio of Monterey (POM) Annex boundary;
- those reuse areas that, as agreed to by the Army in the 1993 NEPA ROD associated with the FEIS, require additional analysis to cover disposal for new land uses;
- uses contained in the Fort Ord Reuse Authority (FORA) Final Base Reuse Plan (December 1994) that were not covered fully in the FEIS and ROD; and

- three additional reuse alternatives:

  - Alternative 7, which represents the December 12, 1994 FORA Final Base Reuse Plan;

  - Revised Alternative 7 is not significantly different from Alternative 7 and includes land uses established through property transfers or memoranda of agreement (MOA) for property transfers already completed by the Army; land uses proposed through federal, state, local, and McKinney Act screening completed in April 1996 for recently excessed lands; land uses required in the draft Revised HMP; land uses for remaining areas as proposed in the Draft FORA Fort Ord Reuse Plan (March 1996) that do not conflict with laws and other federal regulations, policies, and requirements or the draft Revised HMP (April 1996 Concept Agreement); relocation of a resort hotel; and utility easements needed for transfer of utility systems; and

  - Alternative 8, a land use scenario very similar to Alternative 7, contains most of the land use proposals of the FORA Final Base Reuse Plan (December 1994), but it also includes uses for specific parcels that were received through the scoping process for the Supplemental EIS.

During development of the FSEIS and through an agreement between the Army, USFWS, U.S. Bureau of Land Management (BLM), University of California (UC), and Fort Ord Reuse Authority (FORA) related to minimizing impacts on biological resources, it was determined that a revised HMP would be developed to replace the 1994 HMP. This document (this HMP) serves as a revised HMP. It follows a format similar to that presented in the 1994 HMP and has the same goals and objectives as the original document. The primary differences are modification of the HMP reuse scenario to reflect the planned methods for remediation of the beach trainfire ranges to the health-based level of concern, revisions in development and reserve areas, replacing parcel-specific land use descriptors from a specific reuse alternative with a generic development designation that would include a potential range of reuses considered in the FEIS and the June 1996 FSEIS, and inclusion of the mitigation measures agreed to by the Army, USFWS, and other agencies included in the agreement mentioned above.

A general goal of this HMP is to promote preservation, enhancement, and restoration of habitat and populations of HMP species while allowing development on selected properties that promotes economic recovery after closure of Fort Ord. (Specific HMP goals are described in Chapter 1.) As an installation-wide plan, all parcels to be disposed of by the Army are addressed in this HMP and are considered in achieving HMP goals. However, management guidelines and specifications for reuse may vary from parcel to parcel based on future plans for the parcel associated with this HMP and overall reuse planning.

Some parcels to be disposed of by the Army are intended to promote economic recovery after disposal and will be designated for development with no restrictions or guidelines described in this HMP. Other parcels will have development designated as the primary use, but recipients of disposed land will be obligated to implement certain guidelines and/or preserve specific areas through this HMP and deed covenants. Other parcels are designated as habitat reserves or corridors and have specific management guidelines and restrictions on development and uses. This HMP also includes consideration of specific transportation corridors planned by the local community. (Refer to the "HMP Analysis of Road Corridors" section in Chapter 4.)

Attachment A shows each parcel proposed for reuse and indicates the HMP management categories planned for the parcel: Habitat Reserve, Habitat Corridor, Development with Reserve Areas or Development with Restrictions, Borderland Development Areas Along NRMA Interface, Development, and Future Road Corridors. Figure S-1 shows the areas where these categories apply.

Each parcel is also numbered in Attachment A. The letter before each parcel number identifies the type of agency expected to receive the parcel and/or the anticipated method of transfer. The letter F before a parcel number indicates a Federal Transfer Parcel; an S indicates a State Transfer Parcel; an L indicates a Local Transfer Parcel under a public benefit conveyance (PBC); and an E indicates a parcel available for

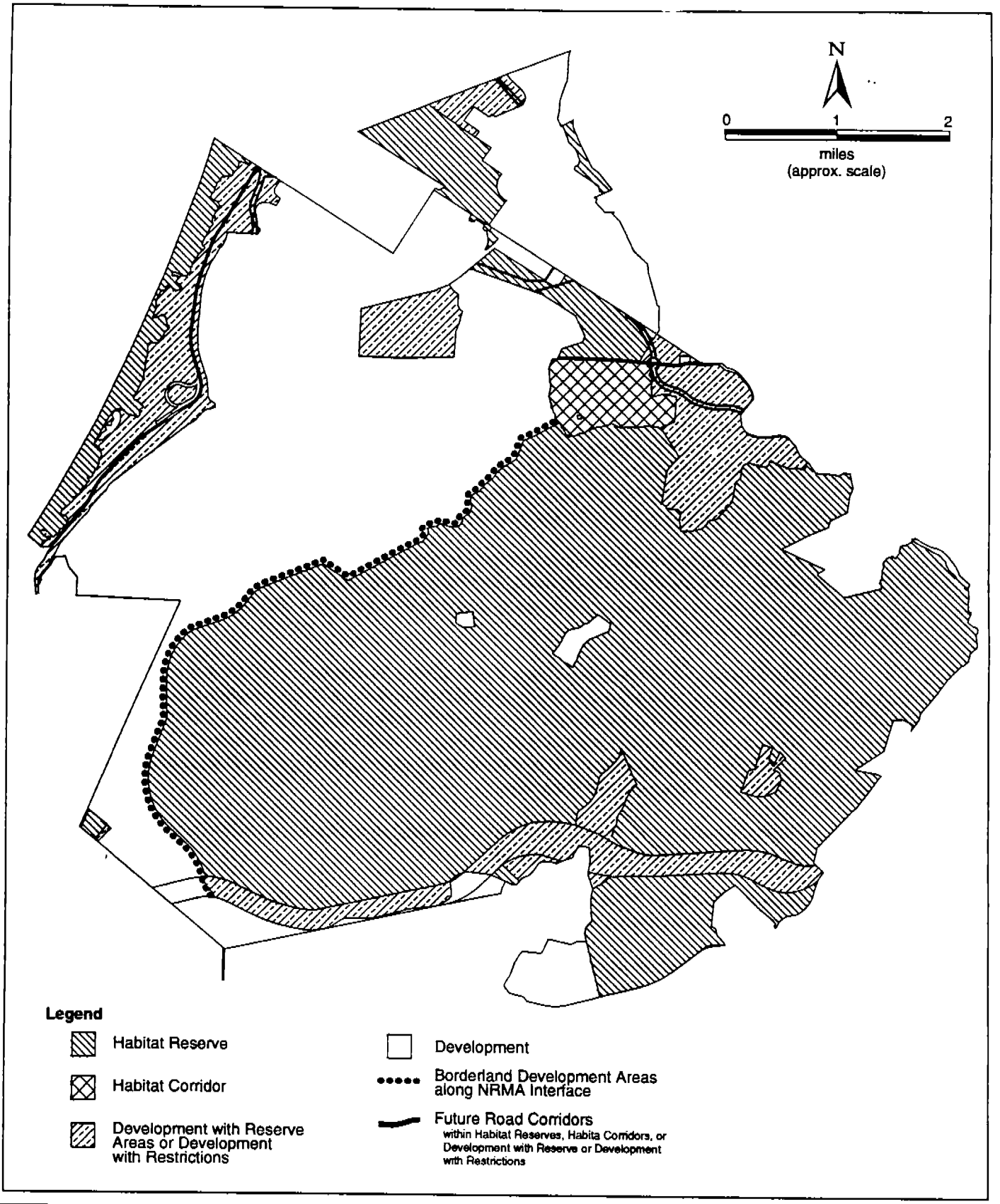


Figure S-1
Habitat Management Plan Map for Former Fort Ord (April 1997)

an Economic Development Conveyance (EDC) or other method of transfer. Parcel numbers beginning with an E correspond to polygon numbers included in the Draft FORA Fort Ord Reuse Plan (March 1996).

ARMY DISPOSAL PROCESS

Upon completion of this HMP and the FSEIS ROD, the Army intends to continue with property disposal at the former Fort Ord. The Army does not intend to adopt a specific reuse plan or alternative. The Army intends for the disposal process to be consistent with FORA's Final Base Reuse Plan where it is not in conflict with laws and other federal regulations, policies, and requirements. As stated in the 1993 NEPA ROD, "The disposal process will consider federal requests received in the screening process for transfer of federal land that is required under the Federal Property and Administrative Services Act of 1949, as well as all McKinney Act requests. The Army will honor, where possible and appropriate, all state and local requests for conveyance from separately authorized federal programs for transportation, education, recreation and open space, public health and safety, and airports." In addition, the Army will proceed with transfers for which memoranda of agreement (MOA) have been completed, e.g., California State University Monterey Bay and University of California Santa Cruz. Lands that are not transferred through these processes will be available for FORA to include in its economic development conveyance (EDC) application. Any remaining property will be available for negotiated sale to public bodies and for private sale.

Key disposal actions have been initiated or committed to by the Army based on the 1993 FEIS and ROD, the 1994 HMP, and the then-existing reuse plan, to federally sponsored PBC recipients, to Health and Human Services sponsored McKinney Act providers, and to the University of California and California State University Monterey Bay via EDC .

The 1993 Biological Opinion describes the concepts for disposal and habitat preservation within portions of Fort Ord (based on Alternative 6R) with habitat reserve lands to be transferred with binding habitat management and conservation requirements. The 1993 Biological Opinion provides for other parcels to be transferred that contain habitat for special-status species as development parcels. The management requirements of the 1993 Biological Opinion have been consolidated into six principal management categories for parcels in this HMP. These include the following:

- **Habitat Reserve** - no development allowed; management goal is conservation and enhancement of threatened and endangered species;
- **Habitat Corridor** - lands between major reserve areas; to be managed to promote connections between conservation areas;
- **Development with Reserve Areas or Development with Restrictions** - lands slated for development that contain inholdings of reserve or require specific restrictions to protect biological resource values; management of reserve inholdings must match that for habitat reserves, while management in developable areas must proceed with certain specific restrictions identified in this HMP;
- **Borderland Development Areas Along NRMA Interface** - areas abutting the Natural Resources Management Area that are slated for development; management of these lands includes no restrictions except along the development/reserve interface;
- **Development**- no management restrictions are contained in this HMP; some plans for salvage of biological resources from these lands may be specified; and
- **Future Road Corridors** - lands within habitat reserve set aside for future road development; to be managed as habitat reserve until road development occurs.

The Development areas, Development with Reserve Areas or Development with Restrictions areas, and Borderland Development Areas Along NRMA Interface (described in this HMP) will be available for disposal and development for reuse. For the 1993 Biological Opinion, it is assumed that a complete loss of biological resources would occur in the development parcels. The development parcels could be transferred with no covenants, deed restrictions, or conservation easements required. Lands designated as Development have no management restrictions placed on them as a result of this HMP.

Several reuse alternatives have been analyzed in the Army FEIS and FSEIS and these include the 1993 NEPA ROD land use map (Alternative 6RM), the December 1994 FORA Final Base Reuse Plan (Alternative 7) and elements of the March 1996 Draft FORA Fort Ord Reuse Plan (Revised Alternative 7). The 1994 HMP supports reuse within development areas based on Alternative 6RM. The FSEIS concluded that Alternative 7 would result in the removal of approximately 6,180 acres of habitat, approximately 240 acres more habitat removed from reserve areas than provided for in the February 1994 HMP. Alternative 7 would have adverse effects on biological resources and while the land uses proposed in the December 1994 FORA Plan could be accommodated within the development areas of the 1994 HMP, avoidance and mitigation measures are needed to avoid significant impacts to HMP target species. These measures have been included in this HMP and in Revised Alternative 7 and Alternative 8 of the FSEIS. The land uses described in these alternatives can be accommodated within the Development, Development with Reserve Areas or Development with Restrictions Areas, Borderland Development Areas Along NRMA Interface, and Habitat Corridor lands in this HMP. Other development land uses may also be accommodated within this HMP's development areas.

ORGANIZATION OF THE HMP

This HMP is organized in the same manner as the 1994 HMP. It is presented in six chapters. Chapter 1, "Purpose of and Need for the Habitat Management Plan", describes the purpose and need, goals and objectives, and procedure followed in developing this HMP. Chapter 2, "Minimum Conservation Area and Corridor System", describes methods used to develop a minimum conservation area and corridor system for former Fort Ord. Chapter 3, "Habitat Management for Predisposal Actions", presents habitat management procedures to accompany Army actions taken before disposal of former Fort Ord land. Chapter 4, "Habitat Management for Disposal and Reuse", describes the habitat management procedures to be taken by recipients of disposed land. Chapter 5, "Citations", lists the sources cited in this HMP. Chapter 6, "List of Preparers and Acknowledgments", describes the contributions of key staff and agency representatives.

GOALS AND OBJECTIVES

The goals and objectives of this HMP are the same as those for the 1994 HMP.

- Preserve, protect, and enhance populations and habitat of federally listed threatened and endangered wildlife and plant species.
- Avoid reducing populations or habitat of federal proposed and candidate wildlife and plant species to levels that may result in one or more of these species becoming listed as threatened or endangered.
- Preserve and protect populations and habitat of state-listed threatened and endangered wildlife and plant species.

- Avoid reducing populations or habitat of species listed as rare, threatened, and endangered by the California Native Plant Society (CNPS) (List 1B), or with large portions of their range at former Fort Ord, to levels that may result in one or more of these species becoming listed as threatened or endangered.

- Conduct the disposal of land to public and private entities in a manner that is compatible with the preservation of federally listed threatened and endangered wildlife and plants within the HMP conservation area.

- Inform potential recipients of former Fort Ord land and the general public of methods that provide a suitable mechanism for protecting natural resources while allowing implementation of a community-based reuse plan that promotes economic recovery after closure of former Fort Ord.

- Provide the basis for recipients of former Fort Ord lands to seek Section 10(a) permits pursuant to the federal ESA and achieve compliance for conservation of state-listed threatened and endangered species and other special-status species recognized by California Department of Fish and Game (DFG) under the California ESA and the California Environmental Quality Act (CEQA).

- Provide a foundation for a prelisting agreement between USFWS and recipient landowners.

The overall goal of this HMP is to provide for, at a minimum, no net loss of populations or important habitat for any of the subject species of this HMP. This goal can be met through the careful selection of areas designated as reserves and corridors. The beneficial enhancement of habitat by the selected management agencies is essential to the achievement of this goal.

FLEXIBILITY OF THE HMP

Pre-Transfer Modifications to the HMP

This HMP has adjusted the development and reserve areas to reflect changes proposed in the community reuse plan and information relating to the Army environmental remediation actions. The specific land use designations for individual development parcels have been replaced with a generic development designation, allowing for broad flexibility in reuse of specific development parcels. Changes in specific use of development parcels within the range of uses described in the FEIS and the FSEIS would not require revision to this HMP. During disposal by the Army, it may be necessary to alter management agencies for reserve areas or portions of reserve areas because of changes in anticipated land recipients. Any such change would be coordinated with USFWS and agreed to by both parties. Any further revision to habitat reserves or corridors before transfer would necessitate revisions in this HMP.

The Army will remain responsible for any changes to this HMP in areas that have not been transferred (pre-transfer). The Army will also remain responsible for revisions to this HMP relating to hazardous, toxic, and radiological waste and ordnance and explosives response actions. Changes undertaken in parcels after they are transferred are the responsibility of the land recipient.

Polygon boundaries in development areas may be modified, and development polygons may be subdivided or aggregated before transfer. These types of changes in development polygons will not require modifications to this HMP.

Post-Transfer Modifications to the HMP

All recipients of former Fort Ord lands will be required to abide by management guidelines and procedures addressed in this HMP. However, situations may arise during the life of this HMP that make changes in the plan's guidelines after lands have been transferred (post-transfer) appropriate. Several types of changes may occur. Land recipients may wish to change the boundaries of their parcels or land uses within their parcels. Actions such as additional infrastructure development in reserve areas may be necessary. Changes in management guidelines within a land use may be required to better preserve or enhance a resource. These kinds of changes may be made if the affected landowners and USFWS can agree that the overall goals and objectives of this HMP will not be compromised.

Such post-transfer revisions do not involve the Army and would be the responsibility of future landowners, subject to the terms of the reservation placed on the lands in the MOAs and/or deeds at the time the lands are transferred from the Army. Such revisions will be funded by the responsible agency/land recipient. The agency or land recipient will also be responsible for any necessary documentation and any coordination with USFWS, BLM, or other agencies.

Polygon boundaries in development areas may be modified, and development polygons may be subdivided or aggregated after transfer. These types of changes in development polygons will not require modifications to this HMP.

HABITAT MANAGEMENT PLAN SPECIES AND HABITATS

Species Addressed in the HMP

Wildlife and plant species and habitats addressed in this HMP are the same as those included in the 1994 HMP (Tables S-1 and S-2). These species are a subset of the species analyzed in the FEIS. Species addressed in the 1994 HMP were included based on their legal protection, listing status at the time of publication, and the relative importance of populations and habitats at former Fort Ord to the continued survival of the species.

Since publication of the 1994 HMP, the legal status of several species has changed. On February 28, 1996, the Department of the Interior published in the Federal Register (FR) the Department of the Interior Endangered and Threatened Species, Plant and Animal Taxa; Proposed Rule (61 FR 7596 February 28, 1996). Under the rule, the Category 1 and 2 classifications for federal candidate species are removed. Species either are identified as Candidate species with a listing priority classification or are no longer given any federal status. Many species previously considered Category 1 or 2 candidates are retained under the new Candidate status. Other species that were previously considered candidate species are identified as no longer having status under the federal ESA.

Although several species included in the 1994 HMP are no longer considered federal candidates, they are still retained in this HMP because they may be listed under the California ESA, they have a significant portion of their range at former Fort Ord, or they are associated with a habitat that is important to a suite of many other sensitive species.

Maritime Chaparral

Maritime chaparral is a coastal form of chaparral associated with specific soil conditions. Two forms are recognized at former Fort Ord based on the substrate that supports them: sand hill maritime chaparral occurs on relict dunes of the late Pleistocene epoch, and Aromas formation maritime chaparral occurs on weakly consolidated red sandstone that is a relict of mid-Pleistocene epoch dunes.

Periodic disturbance or removal of vegetation caused by unstable substrate and fire are important factors in maintaining and rejuvenating the maritime chaparral community. Early successional sites appear to support the highest diversity of shrubs, including the largest number of HMP shrub species.

HMP species occurring in maritime chaparral are black legless lizard, Toro manzanita, sandmat manzanita, Hooker's manzanita, Monterey ceanothus, Eastwood's ericameria, Seaside bird's-beak, sand gilia, Monterey spineflower, coast wallflower, and Yadon's piperia.

Healthy maritime chaparral occurs as a patchwork of stands that have burned at different times and that support vegetation of various ages and structures. This habitat mosaic allows for high species and habitat diversity and provides sources of propagules for dispersal between patches.

Successful conservation of maritime chaparral is dependent on proper management of the habitat by using fire as a management tool and allowing or encouraging some forms of substrate disturbance. The goal of management is to achieve high species and habitat diversity through a program of controlled burning that creates and maintains a mosaic pattern of maritime chaparral of various aged stands. However, sand gilia, Monterey spineflower, and coast wallflower may be dependent on open habitat created by blowing sand rather than by fire. Promoting a dynamic system of moving sand by selective vegetation removal may encourage the formation of habitat for these HMP species.

Coastal Dunes

Coastal strand and dune scrub habitats of the coastal dunes are dynamic plant communities that respond to a moving sand substrate and changing dune configuration. Blowing sand undermines and buries plants, but most dune plants are adapted to shallow burial and blasting by sand. Large areas of destabilized sand, called "blowouts", result in large-scale removal of vegetation and change in dune structure. As plants reinvade the bare sand they stabilize the dune.

The highest diversity of dune habitat and species is best maintained in dunes with conditions ranging from active to stabilized and a variety of topography with foredunes and rear dunes, dune crests, interdune valleys, and north- and south-facing slopes.

HMP species occurring in coastal strand and dune scrub are Smith's blue butterfly, sand gilia, Monterey spineflower, robust spineflower, black legless lizard, and coast wallflower. Yadon's piperia may occur in these habitats.

HABITAT CONSERVATION AND MANAGEMENT FOR PREDISPOSAL ACTIONS

Predisposal actions include placing former Fort Ord into a caretaker status, remediating contaminated sites, and supporting interim uses. As the 7th Infantry Division (Light) (IDL) realigned from Fort Ord, the Army placed structures, utilities, and operation and maintenance systems into a caretaker status until property disposal decisions are implemented. Caretaker status is defined by Army regulation as "the minimum required staffing to maintain an installation in a state of repair that maintains safety, security, and health standards".

Cleanup of contaminated sites is required in preparing lands for disposal and proposed future uses. The entire former Fort Ord installation is listed on the National Priorities List as a Superfund site. A Federal Facilities Agreement, negotiated under Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), requires the Army to perform the Superfund cleanup process described in the Other Physical Attributes Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992c). Cleanup activities that have potential to affect biological resources include excavation of contaminated soils, landfill remediation, removal of lead and other heavy metals, and ordnance and explosives removal. Impacts resulting from each of these actions are discussed separately in this chapter.

HMP guidelines for the cleanup of contaminated sites have been developed based on the best available information. Mitigation for cleanup activities may be modified in the future based on findings and conclusions in the Fort Ord Basewide Record of Decision for the Remedial Investigation/Feasibility Study, which is currently in preparation. Other mitigation measures may be considered based on site-specific information, results of human health and ecological risk assessments, and the development and screening of remedial alternatives. Any modifications to this HMP based on new information must be reviewed and approved by USFWS.

FUTURE REGULATORY COMPLIANCE

This HMP does not exempt future landowners from complying with environmental regulations enforced by federal, state, or local agencies. These regulations could include obtaining Section 7 or Section 10(a) permits from USFWS pursuant to the federal ESA, complying with federal ESA Section 9 prohibitions against take of listed species, complying with measures for conservation of state-listed threatened and endangered species and other special-status species recognized by DFG under the California ESA, CEQA compliance, and complying with local land use regulations and restrictions. This HMP is intended to form a basis for binding agreements between receiving jurisdictions, the Army and USFWS to establish detailed plans for natural resource conservation, and specific management goals for each land parcel with habitat management requirements.

The HMP does not authorize incidental take by entities acquiring land at former Fort Ord of any species listed as threatened or endangered under the ESA, as amended. Entities would submit the HMP in combination with additional documentation, including an Implementation Agreement signed by all parties receiving lands that are to be managed for wildlife values, to the USFWS to receive authorization for incidental take.

In addition, the HMP is intended to be the basis for a habitat conservation plan (HCP) that will support the issuance of incidental take permits under Section 10(a)(1)(B) of the ESA to the land recipients identified above. The provisions of the HCP(s) are expected to closely mirror the provisions of this HMP, and the implementing agreement developed to implement the HCP(s) is expected to establish detailed provisions for monitoring of the habitat conservation areas by the affected land recipients and reporting of habitat conditions to BLM, USFWS, and DFG consistent with the procedure outlined below.

Section 9 of the ESA prohibits any taking of a threatened or endangered animal species. The definition of "take" includes to harass, harm, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Exemptions to Section 9 can be obtained through Sections 7 and 10 of the ESA. The USFWS has recommended that all nonfederal entities acquiring land at former Fort Ord apply for Section 10(a)(1)(B) incidental take permits for the species covered in the HMP. Although the USFWS will not require further mitigation from entities that are in conformance with the HMP, those entities without incidental take authorization would be in violation of the ESA if any of their actions resulted in the take of a listed animal species.

To apply for a Section 10(a)(1)(B) incidental take permit, an entity must submit an application form (Form 3-200), a complete description of the activity sought to be authorized, the common and scientific names of the species sought to be covered by the permit, and a conservation plan (50 CFR 17.22[b]). Pursuant to 50 CFR 17.22(b)(1)(iii), the Habitat Conservation Plan (HCP) must specify (a) the impacts that will likely result from such takings; (b) what steps the applicant will take to monitor, minimize, and mitigate such impacts, the funding that will be available to implement such steps, and the procedures to be used to deal with unforeseen circumstances; (c) what alternative actions to such taking the applicant considered and the reasons why such alternative are not proposed to be utilized; and (d) such other measures that the director of the USFWS may require as being necessary or appropriate for purposes of the plan. For the USFWS to issue incidental take permits to any entities acquiring land at former Fort Ord, that entity will have to provide the above information.

Because this HMP addresses several unlisted species, the HMP provides a foundation for prelisting agreements between USFWS and recipient landowners.

To coordinate this HMP with CEQA compliance, DFG may take into account the conservation measures set forth in this HMP when considering CEQA requirements for sensitive species and habitat types. DFG would consider the conservation program for HMP species and their habitats included in this HMP as adequate mitigation for CEQA compliance for those natural resources during the implementation of land reuse and development planning at former Fort Ord. There may be issues, such as oak woodland mitigation, outside the scope of this HMP that would need to be considered under CEQA.

IMPACTS ON LISTED AND PROPOSED HMP SPECIES

The following sections summarize the impacts on federally and state-listed HMP target species and HMP species proposed for federal listing, if all development areas identified in this HMP were developed. Plant and animal species considered in this HMP are listed in Tables S-1 and S-2, respectively, at the end of this Executive Summary.

Appendix B identifies which species occur in each parcel at former Fort Ord. Table B-1 indicates the presence or absence of each target species based on the latest available information. Table B-2 describes acreage of low-, medium-, and high-density habitat suitable for each target species within each of the HMP reserves, HMP corridors, and the development areas based on 1992 survey information. Maps indicating the distribution of each HMP plant species at former Fort Ord and potential and occupied habitats for each HMP wildlife species are also included in Appendix B. Maps are based on data collected during preparation of the 1992 Flora and Fauna Baseline Study (U.S. Army Corps of Engineers, Sacramento District 1992a). Information in Appendix B has been updated where available; however, analysis of impacts in this HMP is based on the 1992 data. The tables, combined with the distribution maps, provide further understanding of impacts to HMP species associated with development in development areas. The losses of habitat within development areas, as well as acres of habitat to be protected and enhanced within the HMP reserves and corridors, are described in Chapter 4 in the "Analysis of Impacts to HMP Target Species from the HMP" section.

Robust Spineflower (Federal Endangered)

Robust spineflower occurs on sandy soils in coastal dune and coastal scrub habitat. Several plants were observed at one site on the dunes west of Highway 1 during the 1992 field surveys. No other occurrences of robust spineflower were observed. Under this HMP, the group of plants would be preserved.

Sand Gilia (Federal Endangered)

Sand gilia inhabits openings in maritime chaparral and coastal scrub communities. It also prefers disturbed sites, such as the borders of old roads and firebreaks. Based on 1992 survey results for all of former Fort Ord, approximately 5 acres of maritime chaparral and coastal scrub supporting sand gilia at high densities, 120 acres at medium density, and approximately 680 acres at low density will be removed under this HMP. Annually from 1993 to 1996, portions of former Fort Ord have been resurveyed to provided more site-specific data on sand gilia distribution and abundance. Results of the 1993 surveys for the northern portion of former Fort Ord are shown in Figure B-1b in Appendix B. These surveys have typically shown a greater abundance of sand gilia than indicated by the 1992 survey results. However, none of these surveys has covered the entire installation as was done in 1992.

Smith's Blue Butterfly (Federal Endangered)

Smith's blue butterfly is completely dependent on seacliff and coast buckwheat for oviposition and as food sources for larvae and adults. Distribution and density of seacliff and coast buckwheat were recorded during the 1992 botanical surveys. Analysis of impacts to Smith's blue butterfly habitat is based on this data. Areas supporting medium or high densities of either buckwheat species are considered potential habitat for Smith's blue butterfly based on models included in the Flora and Fauna Baseline study. The 1994 HMP states that under that plan approximately 15 acres of potential Smith's blue butterfly habitat (areas supporting medium- and high-density populations of buckwheat) would be removed in the dunes west of SR1. In addition, an area of approximately 35 acres of dune habitat supporting buckwheat at low density would be removed and could potentially affect populations of Smith's blue butterfly. Habitat conservation and management requirements and land uses on the dunes west of Highway 1 under this HMP are consistent with those described for the 1994 HMP. Therefore, impacts to Smith's blue butterfly under this HMP are expected to be no greater than those described for the 1994 HMP.

Western Snowy Plover (Federal Threatened)

Western snowy plovers are known to nest on the beaches at former Fort Ord from the northern installation boundary to Stilwell Hall. They may also nest south of Stilwell Hall. The USFWS has proposed critical habitat for the Western snowy plover (60 FR 11768, March 2, 1995). The beaches at former Fort Ord are among the areas proposed as critical habitat. The HMP will not directly remove any western snowy plover nesting habitat. However, increased human presence on the beaches associated with the alternative could negatively affect snowy plover breeding success.

Monterey Spineflower (Federal Threatened)

Implementation of this HMP would result in the loss of approximately 3,910 acres of maritime chaparral, coastal dunes, coastal scrub, and grassland habitats occupied by Monterey spineflower. These habitat areas support Monterey spineflower at high densities on approximately 310 acres, medium densities on about 1,200 acres, and low densities on approximately 2,400 acres. Sand hill maritime chaparral, all coastal dune habitats, and grassland and coastal scrub habitats on sandy soils are potentially suitable habitat for Monterey spineflower. Monterey spineflower occurs in natural and artificial disturbance patches in these habitats.

Seaside Bird's-Beak (Species of Concern)

Seaside bird's-beak occurs in openings on sandy soils in maritime chaparral and oak woodland habitats. Implementation of this HMP would result in the removal of roughly 45 acres of maritime chaparral and oak woodlands supporting Seaside bird's-beak at low densities.

California Red-Legged Frog (Federal Threatened)

The California red-legged frog typically occupies cold water ponds with both emergent and submergent vegetation. No red-legged frogs have been observed on former Fort Ord; although potential habitat is available. Approximately 2 acres of potential California red-legged frog habitat would be removed under this HMP. However, part of this two acres consists of an artificial pond in parcel L20.2.2 (Attachment A) associated with the former Army Family Camp. The pond is filled from artificial sources and has been stocked with fish to provide recreational fishing for campers. Due to the presence of predatory game fish, it is unlikely that red-legged frogs would occur in this water body.

Almost all other potential red-legged frog habitat at former Fort Ord would be preserved within the Natural Resource Management Area (NRMA). The Salinas River is also considered potential red-legged frog habitat. One portion of former Fort Ord is within the river channel. This area is identified as a habitat reserve.

Yadon's Piperia (Federal Proposed Endangered)

The species occurs near established shrubs in maritime chaparral habitat. One population is known to occur on former Fort Ord in parcel E2a. This population would be preserved under this HMP. USFWS has proposed Yadon's piperia for federal listing as endangered.

Black Legless Lizard (Federal Proposed Endangered)

The California black legless lizard is found on dune habitats supporting native vegetation and where maritime chaparral and coastal scrub occur on loose sandy soils. Figure B-16 in Appendix B shows the occurrence of potential black legless lizard habitat at former Fort Ord based on habitat models developed during preparation of the 1992 Flora and Fauna Baseline study. Areas where potential habitat will be most affected include the western boundary of the multirange area (MRA) and where the former Fort Ord boundary abuts the City of Marina. USFWS has proposed the black legless lizard for federal listing as endangered.

ANALYSIS OF REUSE ALTERNATIVES FROM THE FEIS AND FSEIS

This HMP assumes, as described in the previous "Impacts on Listed and Proposed HMP Species" section, that development can occur through all development areas with the resultant loss of habitat. The following description provides a similar analysis of the full buildout of areas identified for development within Alternative 6R of the FEIS; Alternative 6RM of the 1993 NEPA ROD; and Alternative 7, Revised Alternative 7, and Alternative 8 of the FSEIS. These alternatives give an indication of the range of specific land uses that may occur within various development areas within this HMP.

This section summarizes impacts to biological resources associated with Alternative 6R from the 1993 FEIS; 6RM of the 1993 NEPA ROD; and Alternative 7, Revised Alternative 7, and Alternative 8 as described in the 1996 FSEIS. The 1993 FEIS, 1993 Biological Assessment, and the USFWS final Biological Opinion (October 19, 1993) describe Alternative 6R. Alternative 6RM is a modification of Alternative 6R that was contained in the 1993 NEPA ROD; it incorporated likely land uses in NPU areas based on an early version of the community reuse plan. Alternative 7 represents the December 12, 1994 FORA Final Base Reuse Plan. Revised Alternative 7 incorporates the Draft FORA Fort Ord Reuse Plan (March 1996) where it does not conflict with Army policies or agreements. Alternative 8, a land use scenario similar to Alternative 7, includes uses for specific parcels received during scoping processes. The full discussion of impacts to biological resources associated with Alternative 6R appears on pages 6-100 through 6-130 of Volume I of the FEIS. The full discussion of impacts to biological resources associated with Alternative 7 appears on pages 5-67

through 5-74 of the FSEIS. The full discussion of impacts to biological resources associated with Revised Alternative 7 appears on pages 5-112 through 5-121 of the FSEIS. The full discussion of impacts to biological resources associated with Alternative 8 appears on pages 5-125 through 5-127 of the FSEIS.

Alternative 6R was analyzed using a Geographic Information System (GIS) database of the 1992 biological survey data overlaid with a map of the alternative. For impact calculations, development-related land uses were assumed to remove all biological resources within the land use footprint and habitat conservation related land uses were assumed to preserve all biological resources in the land use footprint. Alternative 6R also included several areas with no proposed use (identified as NPU areas). NPU areas were assumed to have no effect on biological resources. However, it was acknowledged in the FEIS that lands designated as NPU could be subject to reuse in the future and would require future, separate environmental documentation.

The total effect of Alternative 6R would be the removal of approximately 2,507 acres of common and special native biological communities. Within this area of removed habitat, approximately 130 acres supporting low-density populations of sand gilia, 5 acres supporting medium-density populations, and 15 acres supporting high-density populations of sand gilia would be removed. The only other listed plant species that would be affected would be Monterey spineflower. This species would lose approximately 355 acres, 515 acres, and 70 acres respectively of areas supporting low-, medium-, and high-density populations. Alternative 6RM was analyzed using the same methodology described above for Alternative 6R, except that land uses were inserted into NPU areas based on the local reuse planning assumptions available at the time the 1993 NEPA ROD was completed.

The total effect of Alternative 6RM would be the removal of 5,941 acres of common and special native biological communities. Within this area of removed habitat, approximately 555 acres supporting low-density populations of sand gilia, 125 acres supporting medium-density populations of sand gilia, and 13 acres supporting high-density populations of sand gilia would be removed. The only other federally listed plant species that would be affected would be Monterey spineflower. This species would lose approximately 1,970 acres, 985 acres, and 260 acres, respectively, of areas supporting low-, medium-, and high-density populations.

Alternative 7 was analyzed using both a GIS database and manual overlaying of a proposed road network map with resource maps. The GIS analysis for Alternative 7 used the same methods as used for the Alternative 6R analysis. However, impact assumptions for some parcels were modified based on more recent information. Impact calculations using the GIS did not include impacts associated with a proposed road network because the digital mapping data for the road network was not compatible with the GIS biological resource data. Impacts from the road network were quantified by overlaying by hand road network maps with resource maps and planimetering the acres of effect.

The total effect of Alternative 7 would be the removal of approximately 6,180 acres of common and special native biological communities. Within this area of removed habitat, approximately 595 acres supporting low-density populations of sand gilia, 120 acres supporting medium-density populations of sand gilia, and 6 acres supporting high-density populations of sand gilia would be removed. The only other federally listed plant species that would be affected would be Monterey spineflower. This species would lose approximately 1,965 acres, 1,065 acres, and 250 acres, respectively, of areas supporting low-, medium-, and high-density populations.

Revised Alternative 7 was analyzed through a comparison against the reuse scenario described in the 1994 HMP. Areas where the alternative differed from the 1994 HMP relative to locations of development and habitat reserved were identified. Locations where portions of the proposed transportation network conflicted with habitat reserve areas in the February 1994 HMP were included in this analysis. Acreages of loss or gain of areas identified as habitat reserve were calculated for each location where Revised Alternative 7 and the 1994 HMP differed. Losses and gains were also calculated for key HMP resources. For the analysis, key HMP resources include areas supporting sand gilia, Monterey spineflower, and Seaside bird's beak.

The total effect of Revised Alternative 7 on habitat reserve areas is the conversion of approximately 370 acres of area considered habitat reserve in the 1994 HMP to developed area or another use. The total effect on key HMP resources under Revised Alternative 7 would be a loss of approximately 114 acres of habitat supporting low-density sand gilia populations; a loss of approximately 3 acres of area supporting medium-density sand gilia populations; a gain of approximately 8 acres of area supporting high-density sand gilia populations; a loss of approximately 183 acres and 62 acres, respectively, of area supporting low- and medium-density Monterey spineflower populations; a gain of approximately 7 acres of area supporting high-density Monterey spineflower populations; and a loss of approximately 25 acres of habitat supporting low-density populations of Seaside bird's beak.

Alternative 8 is very similar to Alternative 7, with differences primarily associated with proposed changes in land uses in specific areas. Alternative 8 was analyzed by examining these specific areas. Differences between Alternatives 7 and 8 that could affect impacts to biological resources included expansion of a community park, removal of small areas from the NRMA (at the request of BLM due to the separation of these areas from the main body of the NRMA by existing roads), and construction of a golf course on the landfill parcel. The total effect of Alternative 8 would be the removal of approximately 6,230 acres of common and special native biological communities and removal of approximately 793 acres of area supporting sand gilia and 3,423 acres of area supporting Monterey spineflower at various densities.

ANALYSIS OF IMPACTS TO HMP TARGET SPECIES FROM THIS HMP

This section summarizes the habitat areas within each HMP reserve or corridor area that are going to be preserved for each HMP target species. In some cases, the HMP reserve area is actually a combination of Habitat Reserve parcels and parcels that are classified Development with Reserve or Development with Restrictions but contain primarily lands to be managed as reserve. The section also indicates the habitat acreage contained within the total development area allowed by this HMP. This Development Areas category includes parcels that are classified as Development and others that are classified as Development with Reserve or Development with Restrictions but have no reserve component, only restrictions.

Acreage totals for HMP target species were calculated by overlaying the current reserve, corridor and development area boundaries with the 1992 habitat data contained in the planning-level Geographic Information System (GIS) developed by the Army to support the disposal and reuse of Fort Ord. The totals have been summarized for low-, medium-, and high-density habitats for each species. For the detailed breakdown of low-, medium-, and high-density habitat for each species in each reserve, refer to Table B-2 in Appendix B.

State Parks Reserve

The State Parks reserve is located along the coast, west of SR 1. It includes both Reserve and Development with Reserve Areas or Development with Restrictions parcels, as mapped in Figure 4-1. This reserve occupies approximately 970 acres. Table S-3 indicates which target species are supported by habitat on this reserve area.

Landfill Development with Reserve

The Landfill reserve is located northeast of the Main Garrison, just south of Imjin Road. It is composed of two Development with Reserve or Development with Restrictions parcels. This reserve occupies approximately 308 acres. Refer to Table S-3 for target species supported within the Landfill reserve.

UC/NRS Fort Ord Natural Reserve

The UC/NRS Fort Ord Natural Reserve is located in the southwestern corner of the former Fritzsche Army Airfield and south of Reservation Road; it has already been transferred to UC. It is being managed as part of the UC Natural Reserve System. This reserve includes approximately 590 acres. Table S-3 lists target species supported by this natural reserve.

Marina Reserve

The Marina reserve is located in the Fritzsche Army Airfield area, north and west of the developed portion of the airfield. It includes both Reserve and Development with Reserve or Development with Restrictions parcels. The reserve has approximately 175 acres. This reserve area has already been transferred to the City of Marina. Refer to Table S-3 for a list of species supported in this reserve area.

East Garrison Reserve

The East Garrison reserve is located in the easternmost portion of former Fort Ord, south of Reservation Road. The reserve includes both Reserve and Development with Reserve or Development with Restrictions parcels. The reserve totals approximately 855 acres. Refer to Table S-3 for a list of species supported in this reserve area.

Habitat Corridor

The Habitat Corridor, located immediately west of the East Garrison portion of former Fort Ord, includes both Reserve and Development with Reserve or Development with Restrictions parcels. The reserve totals approximately 400 acres. Table S-3 lists the target species supported within the Habitat Corridor.

BLM Natural Resource Management Area

The BLM NRMA is located in the southern and eastern portions of former Fort Ord. This reserve is largest natural area being retained in the HMP area. It totals approximately 15,000 acres. Some portions of the area have already been transferred to BLM and are being managed as reserve. This transfer includes most of the land east of Barloy Canyon Road. Refer to Table S-3 for a list of target species supported within the BLM NRMA.

Caltrans State Route 68 Easement

The Caltrans State Route (SR) 68 easement overlays the NRMA in the southern portion of former Fort Ord (Figure 4-1). A total of approximately 660 acres are contained within the corridor. Of this total, approximately 180 acres could be lost to development of a highway, assuming a 300-foot-wide construction corridor. Refer to Table S-3 for a list of species supported by habitat in this corridor.

MPRPD Reserve

The MPRPD Reserve is located in the extreme southwestern portion of former Fort Ord. It is a Reserve parcel containing approximately 20 acres. Refer to Table S-3 for a list of species supported by habitat in this reserve.

Caltrans State Route 1 Area

The SR 1 corridor passes through the western portion of former Fort Ord, separating the beach areas from the Main Garrison area. It is considered a Development with Reserve or Development with Restrictions area. The corridor totals approximately 225 acres. Refer to Table S-3 for a list of target species supported within the SR 1 corridor.

Development Areas

The Development Areas of former Fort Ord include the remaining parcels outside of reserve areas and corridors. Some of these parcels are developable with no restrictions, while several others are classified as Development with Restrictions. The Development Areas total approximately 10,500 acres. The developable areas are located primarily between the SR 1 corridor and the NRMA (Figure 4-1). Habitat supporting nearly all of the HMP target species is found within the Development Areas (Table S-3).

There are no resource conservation requirements in the HMP for most of the Development Areas. The habitat resources contained in the parcels are not considered critical to the long-term survival of the species. However, habitat may be preserved within and around the development areas within these parcels.

MANAGEMENT GUIDELINES FOR RECIPIENTS AND/OR HABITAT MANAGERS OF DISPOSED LAND

This section describes key resources, expected impacts on resources, and land management responsibilities for each recipient of disposed land in the HMP area. Land management responsibilities are divided into the following categories: Habitat Reserve, Habitat Corridor, Development with Reserve Areas or Development with Restrictions, Borderland Development Areas Along NRMA Interface, Development, and Future Road Corridors. The Army will include deed covenants in transfer of lands and may, as appropriate, enter into separate MOAs with recipients or habitat managers of disposed land to ensure implementation of HMP requirements. Land recipients may also agree to take part in a Coordinated Resource and Management Planning (CRMP) process. The CRMP is described in detail at the end of Chapter 4. Methods for updating or modifying this HMP after agencies or private parties have received Fort Ord lands are described in the "Flexibility of HMP" section in Chapter 1.

Habitat conservation and management responsibilities by recipients or habitat managers of disposed lands at former Fort Ord are discussed individually with each land use parcel in Chapter 4.

Implementation Strategies

Memoranda of Agreement and Deed Covenants

Before disposal of land, the Army will place appropriate deed covenants (restrictions and/or management requirements) on lands to be transferred and/or enter into MOAs with recipients and/or habitat managers of disposed lands identified in this HMP as Habitat Reserve, Habitat Corridor, Borderland Development Area Along NRMA Interface, or Development with Reserve Areas or Development with Restrictions. Appropriate HMP guidelines will be included in each document. A sample deed is included in Appendix D. USFWS will enforce the requirements of the federal ESA.

Monitoring Procedures and Responsibilities

Monitoring of habitat reserves and habitat corridors would be the responsibility of BLM, California Department of Parks and Recreation, UC, Monterey County, City of Marina, Monterey Peninsula Regional Park District, California Department of Transportation (Caltrans), FORA, and any other organization with management responsibilities for areas designated as Habitat Reserve, Habitat Corridor, or Development with Reserve Areas or Development with Restrictions in this HMP. These agencies would be responsible for ensuring that the HMP guidelines are implemented on parcels under their jurisdictions.

FORA or other organizations receiving Borderland Development Areas Along NRMA Interface will provide status reports for parcels adjacent to the NRMA on interim habitat management and/or firebreak construction and maintenance (according to Item c. in the agreement) and compliance with other management requirements associated with these parcels (see the "Borderland Development Areas Along NRMA Interface" section in Chapter 4).

Monitoring results for CRMP participants will be coordinated by BLM, and BLM will consolidate the results into a single monitoring report. Annual monitoring reports will be filed with USFWS and DFG, as well as with each of the participating agencies.

Program Costs and Funding

Funding to develop this HMP has been provided by the Army. Funding to implement the HMP prescribed habitat restoration, management, and monitoring for reuse will be provided by entities receiving properties or having management responsibilities for areas designated as Habitat Reserve, Habitat Corridor, Borderland Development Area Along NRMA Interface, or Development with Reserve Areas or Development with Restrictions in this HMP. These agencies will fund implementation of this HMP and implement conservation and/or management guidelines specific to parcels they receive. This HMP does not preclude other sources of funding for HMP implementation or preclude these agencies from securing funding from other sources to support their implementation of HMP guidelines. Requirements for each agency's minimal participation and accomplishments toward implementation of this HMP will be specified in covenants in the deed that will be completed at the time of land transfer or in a MOA with the Army.

ANALYSIS OF ROAD CORRIDORS

The analysis of impacts to biological resources in the FSEIS considered the effects of a proposed transportation network. The transportation network considered was based on the FORA December 12, 1994 Final Fort Ord Base Reuse Plan with mitigations and modifications agreed on with USFWS, UC, and FORA on March 15 and 28, 1996. Several road segments included in the proposed network pass through areas identified as Habitat Reserve, Habitat Corridor, or Development with Reserve Areas or Development with Restrictions in this HMP (Figure 4-2). These road corridors are accommodated within this HMP. Descriptions of individual parcels affected by these road segments each contain a reference to the road segment and how it may affect HMP habitat conservation or management requirements. The SR68 transportation easement is treated separately and is considered in the category of "Development with Reserve Areas or Development with Restrictions".

Plant Species	Listing Status[a] Federal/State/CNPS	CNPS RED Code[b]	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Importance of Populations at Former Fort Ord
Robust spineflower *Chorizanthe robusta* var. *robusta*	E/--/4	1-1-3	<1	Found on sandy soils in coastal dune and coastal scrub habitats	Historically from Alameda and San Mateo Counties south to Santa Cruz County and near the coast from southern Santa Cruz County to northern Monterey County, much of which is now developed (4, 5, 8)[c]	Several plants of robust spineflower were found at one site on former Fort Ord; former Fort Ord does not provide important habitat for this species (7)
Sand gilia *Gilia tenuiflora* ssp. *arenaria*	E/T/1B	3-3-3	50-70	Sandy openings in coastal dunes and scrub and maritime chaparral	Occurs around Monterey Bay, Salinas River Beach, Asilomar State Beach, from Point Pinos to Point Joe, and Fort Ord (1, 2, 9)	Former Fort Ord provides extensive suitable habitat for sand gilia and constitutes a substantial portion of its range (at least half)
Yadon's piperia *Piperia yadoni*	PE/--/1B	N/A	<1	Occurs on sandy soils in maritime chaparral, coastal scrub, and closed-cone coniferous forest	Occurs in Monterey County from the Pajaro Hills to the Monterey Peninsula	Less than 1% of the individuals of Yadon's piperia are found on former Fort Ord; it is noteworthy that its habitat on former Ford Ord is intermediate between that of its occurrence in chaparral and pine forest habitats (7)
Monterey spineflower *Chorizanthe pungens* var. *pungens*	T/--/1B	3-3-3	75-95	Colonizes recently disturbed sandy sites in coastal dune, coastal scrub, grassland, and maritime chaparral habitats	Along the coast of southern Santa Cruz and northern Monterey Counties and inland to the coastal plain of the Salinas Valley (1, 4, 8)	Former Fort Ord supports the largest populations of Monterey spineflower known (7, 8)
Coast wallflower *Erysimum ammophilum*	SC/--/1B	2-2-3	10-30	Occurs scattered on stabilized coastal dunes	Coastal dunes of Monterey Bay and Santa Rosa Island, and coastal scrub on former Fort Ord (10, 11)	Former Fort Ord provides a moderate amount of suitable habitat for coast wallflower and may constitute an important portion of its range because of the limited extent and high degree of disturbance to its habitat in California
Eastwood's ericameria *Ericameria fasciculata*	SC/--/1B	3-3-3	70-90	Inhabits coastal dune and scrub, maritime chaparral, and closed-cone coniferous forest communities	Found in Monterey County, including Del Monte Forest, Monterey Airport, Toro Regional Park, near Prunedale, and former Fort Ord (1)	Former Fort Ord supports most of the remaining individuals of Eastwood's ericameria (3)
Monterey ceanothus *Ceanothus cuneatus* var. *rigidus*	SC/--/4	1-2-3	50-70	Sandy hills and flats of maritime chaparral, closed-cone coniferous forests, and coastal scrub	Monterey County along the coast and former Fort Ord, Toro Regional Park, Monterey Airport, and near Prunedale (1, 6)	The most abundant and probably most vigorous population of Monterey ceanothus is found on former Fort Ord (3)

Plant Species	Listing Status* Federal/State/CNPS	CNPS RED Code[b]	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Importance of Populations at Former Fort Ord
Sandmat manzanita *Arctostaphylos pumila*	SC/--/1B	3-2-3	70-90	Sand hills of maritime chaparral and coast live oak woodland	Scattered locations around Monterey Peninsula and an extensive area on former Fort Ord (1, 3)	A large and important part of the range of sandmat manzanita is found on former Fort Ord
Seaside bird's-beak *Cordylanthus rigidus* var. *littoralis*	SC/E/1B	2-3-3	30-50[d]	Inhabits sandy soils of stabilized dunes, maritime chaparral, coastal scrub, and closed-cone coniferous forests	Monterey and Santa Barbara Counties, including former Fort Ord, Monterey Airport, and between Carmel and Elkhorn Slough in Monterey County, and on Burton Mesa in Santa Barbara County (1, 2)	A substantial portion of the range of Seaside bird's-beak is found at former Fort Ord
Toro manzanita *Arctostaphylos montereyensis*	SC/--/1B	3-2-3	70-90	Occurs on stabilized sandy soils and badlands in maritime chaparral	Restricted to several sites in Monterey County, including former Fort Ord, Toro Regional Park, and Monterey Airport (1, 3)	Former Fort Ord supports the largest expanse of Toro manzanita in existence
Hooker's manzanita *Arctostaphylos hookeri*	--/--/1B	2-2-3	15-35	Sand hill and Aromas formation maritime chaparral and closed-cone coniferous forest	Del Monte Forest, Monterey Peninsula, Prunedale Hills, former Fort Ord, and sand hills in the Larkin Valley	Former Fort Ord supports large populations of Hooker's manzanita; although it is more common on the Monterey Peninsula and near Prunedale than at former Fort Ord, former Fort Ord provides important and extensive habitat (3,6)

* Status explanations (see the "Definitions of Special-Status Species" section above for citations):

Federal

- E = listed as endangered under the federal Endangered Species Act.
- T = listed as threatened under the federal Endangered Species Act.
- PE = proposed for federal listing as endangered under the federal Endangered Species Act.
- SC = Species of Concern are all former Category 1 and 2 candidate species that without additional conservation action are likely to become candidates for listing by the U.S. Fish and Wildlife Service under the federal Endangered Species Act.
- -- = no designation.

State

- E = listed as endangered under the California Endangered Species Act.
- T = listed as threatened under the California Endangered Species Act.
- -- = no designation.

California Native Plant Society

1B	=	List 1B species: rare, threatened, or endangered in California and elsewhere.
4	=	List 4 species: plants of limited distribution.
–	=	no designation.

[b] **CNPS RED Code:**

Rarity (R)

1	=	Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time.
2	=	Occurrence confined to several populations or to one extended population.
3	=	Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

Endangerment (E)

1	=	Not endangered.
2	=	Endangered in a portion of its range.
3	=	Endangered throughout its range.

Distribution (D)

1	=	More or less widespread outside California.
2	=	Rare outside California.
3	=	Endemic to California.

[c] Data sources:

1	=	Natural Diversity Data Base 1992.
2	=	Hillyard 1992.
3	=	Griffin 1976.
4	=	Reveal and Hardham 1989.
5	=	Thomas 1961.
6	=	Griffin 1978.
7	=	Morgan 1992.
8	=	U.S. Fish and Wildlife Service 1991.
9	=	U.S. Fish and Wildlife Service 1992.
10	=	Munz and Keck 1968.
11	=	Abrams 1940.

[d] This estimate incorporates locations of Seaside bird's-beak in Santa Barbara County, which may have formed as a result of hybridization. The estimate based only on Monterey County occurrences would increase the percent of range at former Fort Ord to 60-80%.

Table S-2. Wildlife Species Considered in This Habitat Management Plan (HMP Species)

Wildlife Species	Listing Status[a] Federal/State	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Occurrence at Former Fort Ord	Importance of Former Fort Ord Population
Smith's blue butterfly *Euphilotes enoptes smithi*	E/–	5-10	Uses coastal dunes and hillsides that support seacliff buckwheat (*Eriogonum parvifolium*) or coast buckwheat (*Eriogonum latifolium*); these plants are used as a nectar source for adults and host plant for larvae	Restricted to localized populations along the coast of Monterey County; single populations reported in Santa Cruz and San Mateo Counties	Known to occur near the northern boundary of former Fort Ord and from Giggling Siding to the southern base boundary (5)[b]	Former Fort Ord has been identified as important to the recovery of Smith's blue butterfly
California black legless lizard *Anniella pulchra nigra*	PE/SSC	10-20	Requires moist, warm habitats with loose soil for burrowing and prostrate plant cover; may be found on beaches, in chaparral, pine oak woodland, or riparian areas	Restricted to small populations along the coast in Monterey and northern San Luis Obispo Counties; one population in Contra Costa County	Found in stabilized dunes, oak woodland, and oak savanna, and maritime chaparral with sandy soils at former Fort Ord (2, 4, 7)	Former Fort Ord supports one of the larger expanses of black legless lizard habitat within the species' range
California red-legged frog *Rana aurora draytoni*	T/SSC	<1	Requires coldwater ponds with emergent and submergent vegetation and riparian vegetation at the edges	Found along the coast and coastal mountain ranges from Humboldt to San Diego Counties, and in the Sierra Nevada from Butte to Fresno Counties	May occur at Ford Ord (1)	Former Fort Ord composes little of the species' total range; however, former Fort Ord provides potential habitat for California red-legged frog, which is relatively rare within the Monterey Bay region
Western snowy plover *Charadrius alexandrinus nivosus*	T/SSC	5-10	Found along beach above the high tide limit; also uses shores of salt ponds and alkali or brackish inland lakes	Intermittent nesting sites along the Pacific Coast from Washington to Baja California	Nests along the beaches at former Fort Ord north of Stillwell Hall (3)	Former Fort Ord supports one of 20 coastal breeding populations of western snowy plovers in California; Monterey Bay as a whole is considered one of eight primary coastal nesting areas; former Fort Ord beaches are one of the areas proposed by USFWS as critical habitat for this species (60FR 11768 March 2, 1995)

Wildlife Species	Listing Status[a] Federal/State	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Occurrence at Former Fort Ord	Importance of Former Fort Ord Population
California tiger salamander *Ambystoma tigrinum californiense*	C/SSC	<1	Favors open woodlands and grasslands; requires water for breeding and burrows or cracks in the soil for summer dormancy	Occurs only in California from the coastline to the Sierra Nevada crest and from Sonoma to Santa Barbara Counties	Occurs in ponds and vernal pools throughout former Fort Ord (2, 6)	Former Fort Ord comprises little of the total range of California tiger salamander; however, vernal pool habitat is relatively rare in the Monterey Bay region
Monterey ornate shrew *Sorex ornatus salarius*	SC/--	15-25	Found in a variety of riparian, woodland, and upland communities where there is thick duff or downed logs	Restricted to the Monterey Bay region; historical occurrences at the mouth of the Salinas River and Moss Landing in Monterey County	May occur at former Fort Ord (1)	Former Fort Ord provides abundant potential habitat for Monterey ornate shrew within the species' limited range
California linderiella *Linderiella occidentalis*	--/--	<1	Ephemeral freshwater habitats such as vernal pools, rock outcrop pools, swales, and ponds	Found in the Central Valley from Tehama to Madera Counties, and the central and south Coast Ranges from Lake to Riverside County	Known from eight water bodies at former Fort Ord (2)	Former Fort Ord composes little of the total range of California linderiella; however, vernal pool habitat is relatively rare in the Monterey Bay region

[a] Status definitions:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
PE = federally proposed for listing as endangered.
C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened.
SC = Species of Concern are former Category 1 and 2 species that without additional conservation action are likely to become candidates for listing by the U.S. Fish and Wildlife Service under the federal Endangered Species Act.
-- = no status.

State

SSC = considered a State Species of Special Concern by California Department of Fish and Game.
-- = no status.

[b] Data sources.

(1) Not found during field surveys.
(2) Encountered during field surveys.
(3) Source: George pers. comm.
(4) Source: Bury 1985.
(5) Source: Arnold 1983.
(6) Source: Stanley pers. comm.
(7) Source: Installation UXO surveys.

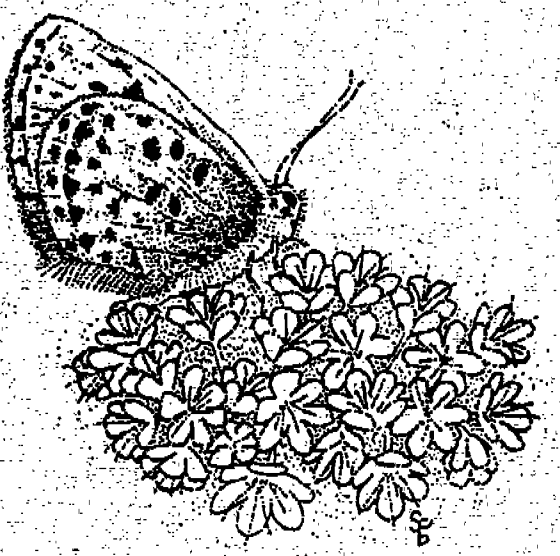
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Document # BW-1787

Chapter 1.

Purpose and Need



Smith's Blue Butterfly

Chapter 1. Purpose of and Need for the Habitat Management Plan

INTRODUCTION AND BACKGROUND

The Department of the Army in 1991 was directed to close and dispose of Fort Ord, California. The U.S. Army's (Army's) action is considered a major federal action that could affect eight species proposed for listing or listed as threatened or endangered under the federal Endangered Species Act (ESA). A Biological Assessment (BA) was prepared that identifies the potential loss of populations and habitat of federally listed species, species proposed for listing, and species that are candidates for listing, resulting from caretaker actions, disposal actions, and six reuse alternatives (U.S. Army Corps of Engineers 1993a). A supplement to the draft BA was prepared that describes the loss of populations and habitat of these same species resulting from an additional reuse alternative (Alternative 6R) (U.S. Army Corps of Engineers 1993b).

The June 1993 Final Environmental Impact Statement (FEIS) for the disposal and reuse of former Fort Ord identified the need to develop and implement a multispecies Habitat Management Plan (HMP) as a mitigation measure for impacts on vegetation and wildlife resources. The affected resources addressed in the FEIS included 22 plant and 22 wildlife species that are (or were during development of the 1994 Habitat Management Plan [1994 HMP]) listed, proposed, or candidates for federal or state listing as threatened or endangered; state species of special concern; and plants listed by the California Native Plant Society (CNPS) (U.S. Army Corps of Engineers 1993c). The FEIS described the potential impacts of several reuse alternatives analyzed in the document as severe enough to result in federal or state listing as threatened or endangered for some unlisted species.

The U.S. Fish and Wildlife Service's (USFWS's) October 19, 1993, final Biological Opinion on the disposal and reuse of former Fort Ord required that an HMP be developed and implemented to reduce the incidental take of listed species and loss of habitat that supports these species.

The land use and land management concepts that were contained in Alternative 6R in the FEIS were augmented by input from local entities following publication of the FEIS. As a result, an Alternative 6R modified (6RM) was included in the December 1993 National Environmental Policy Act (NEPA) Record of Decision (ROD) (hereinafter referred to as the 1993 NEPA ROD) as a most likely reuse scenario. This modified alternative consisted largely of updates to federal, state, and local screening requests and incorporated those portions of local reuse planning that were analyzed in the FEIS. At the time, this alternative was considered the most likely reuse based on screening requests and community reuse planning. This reuse concept was used as the basis for development of the 1994 HMP.

An HMP was published in February 1994 in response to both the October 1993 biological opinion and mitigation measures identified in the FEIS. The 1994 HMP addressed impacts resulting from predisposal, disposal, and reuse actions. Reuse actions addressed are those proposed under Alternative 6RM, a modified version of the preferred alternative (Alternative 6R) presented in the FEIS.

Since publication of the FEIS and 1994 HMP, the Army has prepared a Final Supplemental Environmental Impact Statement (FSEIS) to include additional data and an analysis of the following:

- disposal of additional land excess to the Army needs resulting from changes in the Army's Presidio of Monterey (POM) Annex boundary;
- those reuse areas that, as agreed to by the Army in the 1993 NEPA ROD associated with the FEIS, require additional analysis to cover disposal for new land uses;
- uses contained in the Fort Ord Reuse Authority (FORA) Final Base Reuse Plan (December 1994) that were not covered fully in the FEIS and 1993 NEPA ROD; and
- three additional reuse alternatives:
  - Alternative 7, which represents the December 12, 1994 FORA Final Base Reuse Plan, is slightly different from the anticipated reuse scenario contained in the Army's 1993 NEPA ROD on disposal and reuse of Fort Ord;
  - Revised Alternative 7 is not significantly different from Alternative 7 and includes land uses established through property transfers or memoranda of agreement (MOAs) for property transfers already completed by the Army; land uses proposed through federal, state, local, and McKinney Act screening completed in April 1996 for recently excessed lands; land uses required in the Draft Revised HMP; land uses for remaining areas as proposed in the Draft FORA Fort Ord Reuse Plan (March 1996) that do not conflict with laws and other federal regulations, policies, and requirements or the draft Revised HMP; relocation of a resort hotel; and utility easements needed for transfer of utility systems; and
  - Alternative 8 a land use scenario very similar to Alternative 7, contains most of the land use proposals of the FORA Final Base Reuse Plan (December 1994), but it also includes uses for specific parcels that were received through the scoping process for the Supplemental EIS.

During development of the FSEIS and through an agreement between the Army, USFWS, U.S. Bureau of Land Management (BLM), University of California (UC), and Fort Ord Reuse Authority (FORA) related to minimizing impacts on biological resources, it was determined that a revised HMP would be developed to replace the 1994 HMP. The revised HMP would accommodate disposal and reuse of property by defining development areas that may be used for nondetermined land uses that may be proposed in community reuse plans and by future landowners. The revised HMP would provide for the establishment of habitat reserves, development areas with reserve areas or development with restrictions, and habitat corridors that mitigate impacts to the target biological resources in the development areas.

This document (this HMP) serves as a revised HMP. It follows a format very similar to that presented in the 1994 HMP and has the same goals and objectives as the original document. The primary differences are modification of the HMP reuse scenario to reflect the planned methods for remediation of the beach trainfire ranges to the health-based level of concern, revisions in development and reserve areas, replacing parcel-specific land use descriptors from a specific reuse alternative with a generic development designation that would include a potential range of reuses considered in the FEIS and the FSEIS, and inclusion of the mitigation measures agreed to by the Army, USFWS, and other agencies included in the agreement mentioned above.

USFWS issued an amended Biological/Conference Opinion in January 1997 dealing with new species listings and status changes and the December 1996 draft HMP. USFWS then issued a second amended Biological/Conference Opinion in April 1997, which analyzed additional information provided by the Army. The April 1997 Biological/Conference Opinion analyzes the implementation of this revised HMP and establishes

incidental take limits for listed animal species contained in this HMP. The April 1997 amended Biological/ Conference Opinion replaces the 1993 and January 1997 opinions.

Army Disposal Process

Upon completion of this HMP and FSEIS ROD, the Army intends to continue with property disposal at the former Fort Ord. The Army does not intend to adopt a specific reuse plan or alternative. The Army intends for the disposal process to be consistent with FORA's Final Base Reuse Plan where it is not in conflict with laws and other federal regulations, policies, and requirements. As stated in the 1993 NEPA ROD, "The disposal process will consider federal requests received in the screening process for transfer of federal land that is required under the Federal Property and Administrative Services Act of 1949, as well as all McKinney Act requests. The Army will honor, where possible and appropriate, all state and local requests for conveyance from separately authorized federal programs for transportation, education, recreation and open space, public health and safety, and airports." In addition, the Army will proceed with transfers for which memoranda of agreement (MOA) have been completed (e.g., California State University, Monterey Bay and University of California, Santa Cruz). Lands that are not transferred through these processes will be available for FORA to include in its economic development conveyance (EDC) application. Any remaining property will be available for negotiated sale to public bodies and for private sale.

All transfers must be consistent with the Army and other federal requirements for historic preservation; Endangered Species Act requirements for special-status plants and animals, including the 1993 Biological Opinion and requirements of this HMP; and conditions contained in the Army's Coastal Zone Management Act consistency determinations.

The likely reuse scenario contains elements of Alternative 6, Alternative 6RM, Alternative 7, Revised Alternative 7, and Alternative 8 as described in the FEIS, 1993 NEPA ROD, and the FSEIS . Based on the FEIS, 1993 NEPA ROD, the 1994 HMP, and the then-existing reuse plan, key disposal actions have been initiated or committed to by the Army that include the coastal zone transferred to the California Department of Parks and Recreation for habitat and park uses; the inland range and training areas transferred to the U. S. Bureau of Land Management for open space and natural resource management uses; a southern portion of the base transferred to the Monterey Peninsula Regional Park District for recreation area expansion; and airfield areas transferred to the City of Marina and the University of California for airport, science-related business park, and habitat reserves.

The 1993 Biological Opinion describes the concepts for disposal and habitat preservation within portions of Fort Ord (based on Alternative 6R) with habitat reserve lands to be transferred with binding habitat management and conservation requirements. The 1993 Biological Opinion provides for other parcels to be transferred that contain habitat for special status species without management or conservation requirements as development parcels. The 1994 HMP expanded the 1993 Biological Opinion's analysis to accommodate the 1993 NEPA ROD's anticipated reuse scenario. This HMP further expands the 1993 Biological Opinion's analysis to include the current range of anticipated reuse scenarios. The development parcels would be subject to impacts from construction and reuse subsequent to Army transfer. The Development Areas, Development with Reserve Areas or Development with Restrictions Areas, and Borderland Development Areas Along NRMA Interface (described in this HMP) will be available for disposal and development for reuse. For the 1993 Biological Opinion, it is assumed that a complete loss of biological resources would occur in the development parcels. The development parcels could be transferred with no covenants, deed restrictions, or conservation easements required. The development parcels would be available for total development. (See pages 10-12 of the 1993 Biological Opinion.)

Several reuse alternatives have been analyzed in the Army FEIS and FSEIS and these include the 1993 NEPA ROD land use map (Alternative 6RM), the December 1994 FORA Final Base Reuse Plan (Alternative 7) and elements of the March 1996 Draft FORA Fort Ord Reuse Plan (Revised Alternative 7). The

1994 HMP supports reuse within development areas based on Alternative 6RM. The FSEIS concluded that Alternative 7 would result in the removal of approximately 6,180 acres of habitat, approximately 240 acres more habitat removed than provided for in the 1994 HMP. Revised Alternative 7 would remove 6,300 acres of habitat, and Alternative 8 would remove 6,230 acres of habitat.

Alternative 7 would have adverse effects on biological resources from development within the coastal zone, proposed increased development areas, and from transportation corridors in locations that would bisect the HMP reserve and corridor areas described in the 1994 HMP. While the majority of land uses proposed in Alternative 7 (and the December 1994 FORA Plan) could be accommodated within the development areas of the 1994 HMP, avoidance and mitigation measures are needed to avoid significant impacts to HMP target species. These measures were cooperatively developed by FORA, the Army, BLM, UC, and USFWS. The measures are described in the April 1996 HMP Concept Agreement and included in Revised Alternative 7 and Alternative 8 in the FSEIS and in this HMP. Revisions in land use proposals from the March 1996 Draft FORA Fort Ord Reuse Plan are included in Revised Alternative 7. Table 1-1 summarizes the vegetation and wildlife impacts from the 1993 NEPA ROD, Alternative 7, Revised Alternative 7 , and Alternative 8. Any of the land uses described in these alternatives can be accommodated within the Development, Borderland Development Areas Along NRMA Interface, Development with Reserve Areas or Development with Restrictions, and Habitat Corridor areas in this HMP.

Mitigation Agreement for the HMP

The following is the mitigation agreement between the Army, USFWS, BLM, UC, and FORA. The agreement, a letter of concurrence signed by all five agencies, and a copy of Figure 5-11 (referenced in the agreement) are included in Appendix A.

> Representatives from the Army, USFWS, and Fort Ord Reuse Authority (FORA) met on March 15, 1996 to discuss modifications to the HMP. A telephone conference was held on March 28, 1996 which included a University of California (UC) representative. The discussion resulted in clarifications regarding revision to the [1994] HMP, including an agreement by UC or FORA to obtain the landfill parcel and manage a portion of it as habitat subject to review of liability and indemnification. Any final decision regarding acceptance of the landfill parcel is subject to approval by the respective governing body. A detailed amendment to the HMP will be prepared by the Army and provided to affected parties for signature prior to publication. The following are the terms of the modifications for the Revised Habitat Management Plan.
>
> a. The requirement for the landfill parcel to be included as an HMP habitat management area is revised from being an Army responsibility to being a University of California or FORA responsibility. The Army will not be required to restore habitat on the landfill cap nor will the Army be required to perform habitat management activities in the parcel while the landfill is being remediated or in caretaker status.
>
> b. The University of California (if not UC, then FORA) will apply to obtain the landfill parcel as part of an Economic Development Conveyance (EDC) transfer under terms of an existing MOA between the U.S. Army and UC. Following land transfer from the Army, UC or FORA will manage seventy-five percent (75%) of the landfill parcel (including the completed landfill cap) as habitat. The remaining twenty-five percent (25%) of the parcel will be available for development. Other changes in boundaries and trade-offs of development and habitat areas will be made in the HMP as shown on the attached figure (Figure 5-11, Revised Habitat Management Plan for Former Fort Ord). This will satisfy basewide HMP habitat management requirements for all proposed development

Table 1-1. Vegetation and Wildlife Impact Summary
Alternative 7, Revised Alternative 7, and Alternative 8 and the
Reuse Scenario Contained in the 1993 NEPA ROD

Resource Area	ROD	Alternative 7	Revised Alternative 7	Alternative 8
Vegetation and Wildlife				
Approximate acres of existing habitat considered removed	5,940 (25%)	6,180 (26%)	6,300 (26%)	6,230 (26%)
Approximate acres of exisitng sand gilia habitat removed	693 (19%)	793 (21%)	764 (20%)	793 (21%)
Approximate acres of exisitng Monterey spineflower habitat removed	3,215 (31%)	3,495 (34%)	3,372 (33%)	3,423 (34%)

areas (shown as land areas with no HMP habitat preservation requirements on Figure 5-11).

c. The other development areas adjacent to the BLM Natural Resources Management Area (NRMA) will be obtained as part of the FORA EDC. In these areas of undeveloped habitat adjacent to the NRMA, FORA will either arrange to have existing native habitat managed or construct and maintain fire breaks and vehicle barriers to separate these areas from the NRMA until such time as roads and other developments are constructed in these locations. (See attached figure for locations of fire breaks along the edge of the NRMA.) This will replace the individual development parcel descriptions contained in the original HMP. The revised HMP will rely on this measure to accomplish the desired separation of habitat areas from future development areas. The land use specific requirements for development parcels will be removed in the revised HMP.

If FORA becomes responsible for managing the habitat portion of the landfill parcel identified in item b, FORA will arrange for and fund an appropriate agency for long-term management of this area.

The Borderland Development Area Along NRMA Interface habitat management requirements (described in the section titled "Borderland Development Areas Along NRMA Interface" in Chapter 4) includes interim and long-term management requirements applicable to the Habitat Reserve/Development interface between the NRMA and developing areas. This management category will implement provisions in item c.

In reference to the requirements in item c, FORA has stated that it is not FORA's intent to separate developable natural land areas from the NRMA by the establishment of fire breaks and vehicle barriers before planned development of those lands as allowed by this HMP. BLM and FORA will work together to identify suitable locations for both interim and long-term fire breaks/barriers separating developed lands from natural lands as development of former Fort Ord lands proceeds. FORA or other recipients of the land will supply reports on interim habitat management in development parcels and/or development of firebreaks to BLM.

Grazing

An additional modification of this HMP is the removal of grazing as an Army caretaker action. The discussion of impacts and mitigation related to grazing was removed because the Army no longer has a grazing program at former Fort Ord, as lands previously used for grazing are being transferred to the BLM.

Species Addressed in the HMP

Wildlife and plant species and habitats addressed in this HMP are the same as those included in the 1994 HMP. These species are a subset of the species analyzed in the FEIS. Species addressed in the 1994 HMP were included based on their legal protection, listing status at the time of publication, and the relative importance of populations and habitats at former Fort Ord to the continued survival of the species (Tables 1-2 and 1-3). However, since publication of the 1994 HMP, the legal status of several species has changed. The columns labeled "Listing Status" in Tables 1-2 and 1-3 reflect these changes, and the circumstances and results of these changes are described below.

Table 1-2. Plant Species Considered in This Habitat Management Plan (HMP Plants)

Plant Species	Listing Status[a] Federal/State/CNPS	CNPS RED Code[b]	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Importance of Populations at Former Fort Ord
Robust spineflower *Chorizanthe robusta* var. *robusta*	E/--/4	1-1-3	<1	Found on sandy soils in coastal dune and coastal scrub habitats	Historically from Alameda and San Mateo Counties south to Santa Cruz County and near the coast from southern Santa Cruz County to northern Monterey County, much of which is now developed (4, 5, 8)[c]	Several plants of robust spineflower were found at one site on former Fort Ord; former Fort Ord does not provide important habitat for this species (7)
Sand gilia *Gilia tenuiflora* ssp. *arenaria*	E/T/1B	3-3-3	50-70	Sandy openings in coastal dunes and scrub and maritime chaparral	Occurs around Monterey Bay, Salinas River Beach, Asilomar State Beach, from Point Pinos to Point Joe, and Fort Ord (1, 2, 9)	Former Fort Ord provides extensive suitable habitat for sand gilia and constitutes a substantial portion of its range (at least half)
Yadon's piperia *Piperia yadoni*	PE/--/1B	N/A	<1	Occurs on sandy soils in maritime chaparral, coastal scrub, and closed-cone coniferous forest	Occurs in Monterey County from the Pajaro Hills to the Monterey Peninsula	Less than 1% of the individuals of Yadon's piperia are found on former Fort Ord; it is noteworthy that its habitat on former Ford Ord is intermediate between that of its occurrence in chaparral and pine forest habitats (7)
Monterey spineflower *Chorizanthe pungens* var. *pungens*	T/--/1B	3-3-3	75-95	Colonizes recently disturbed sandy sites in coastal dune, coastal scrub, grassland, and maritime chaparral habitats	Along the coast of southern Santa Cruz and northern Monterey Counties and inland to the coastal plain of the Salinas Valley (1, 4, 8)	Former Fort Ord supports the largest populations of Monterey spineflower known (7, 8)
Coast wallflower *Erysimum ammophilum*	SC/--/1B	2-2-3	10-30	Occurs scattered on stabilized coastal dunes	Coastal dunes of Monterey Bay and Santa Rosa Island, and coastal scrub on former Fort Ord (10, 11)	Former Fort Ord provides a moderate amount of suitable habitat for coast wallflower and may constitute an important portion of its range because of the limited extent and high degree of disturbance to its habitat in California
Eastwood's ericameria *Ericameria fasciculata*	SC/--/1B	3-3-3	70-90	Inhabits coastal dune and scrub, maritime chaparral, and closed-cone coniferous forest communities	Found in Monterey County, including Del Monte Forest, Monterey Airport, Toro Regional Park, near Prunedale, and former Fort Ord (1)	Former Fort Ord supports most of the remaining individuals of Eastwood's ericameria (3)
Monterey ceanothus *Ceanothus cuneatus* var. *rigidus*	SC/--/4	1-2-3	50-70	Sandy hills and flats of maritime chaparral, closed-cone coniferous forests, and coastal scrub	Monterey County along the coast and former Fort Ord, Toro Regional Park, Monterey Airport, and near Prunedale (1, 6)	The most abundant and probably most vigorous population of Monterey ceanothus is found on former Fort Ord (3)

Plant Species	Listing Status[a] Federal/State/CNPS	CNPS RED Code[b]	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Importance of Populations at Former Fort Ord
Sandmat manzanita *Arctostaphylos pumila*	SC/--/1B	3-2-3	70-90	Sand hills of maritime chaparral and coast live oak woodland	Scattered locations around Monterey Peninsula and an extensive area on former Fort Ord (1, 3)	A large and important part of the range of sandmat manzanita is found on former Fort Ord
Seaside bird's-beak *Cordylanthus rigidus* var. *littoralis*	SC/E/1B	2-3-3	30-50[d]	Inhabits sandy soils of stabilized dunes, maritime chaparral, coastal scrub, and closed-cone coniferous forests	Monterey and Santa Barbara Counties, including former Fort Ord, Monterey Airport, and between Carmel and Elkhorn Slough in Monterey County, and on Burton Mesa in Santa Barbara County (1, 2)	A substantial portion of the range of Seaside bird's-beak is found at former Fort Ord
Toro manzanita *Arctostaphylos montereyensis*	SC/--/1B	3-2-3	70-90	Occurs on stabilized sandy soils and badlands in maritime chaparral	Restricted to several sites in Monterey County, including former Fort Ord, Toro Regional Park, and Monterey Airport (1, 3)	Former Fort Ord supports the largest expanse of Toro manzanita in existence
Hooker's manzanita *Arctostaphylos hookeri*	--/--/1B	2-2-3	15-35	Sand hill and Aromas formation maritime chaparral and closed-cone coniferous forest	Del Monte Forest, Monterey Peninsula, Prunedale Hills, former Fort Ord, and sand hills in the Larkin Valley	Former Fort Ord supports large populations of Hooker's manzanita; although it is more common on the Monterey Peninsula and near Prunedale than at former Fort Ord, former Fort Ord provides important and extensive habitat (3,6)

[a] Status explanations (see the "Definitions of Special-Status Species" section above for citations):

Federal

- E = listed as endangered under the federal Endangered Species Act.
- T = listed as threatened under the federal Endangered Species Act.
- PE = proposed for federal listing as endangered under the federal Endangered Species Act.
- SC = Species of Concern are all former Category 1 and 2 candidate species that without additional conservation action are likely to become candidates for listing by the U.S. Fish and Wildlife Service under the federal Endangered Species Act.
- -- = no designation.

State

- E = listed as endangered under the California Endangered Species Act.
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California Native Plant Society

1B	=	List 1B species: rare, threatened, or endangered in California and elsewhere
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[b] **CNPS RED Code:**

Rarity (R)

1	=	Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time.
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3	=	Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

Endangerment (E)

1	=	Not endangered.
2	=	Endangered in a portion of its range.
3	=	Endangered throughout its range.

Distribution (D)

1	=	More or less widespread outside California.
2	=	Rare outside California.
3	=	Endemic to California.

[c] Data sources:

1	=	Natural Diversity Data Base 1992.
2	=	Hillyard 1992.
3	=	Griffin 1976.
4	=	Reveal and Hardham 1989.
5	=	Thomas 1961.
6	=	Griffin 1978.
7	=	Morgan 1992.
8	=	U.S. Fish and Wildlife Service 1991.
9	=	U.S. Fish and Wildlife Service 1992.
10	=	Munz and Keck 1968.
11	=	Abrams 1940.

[d] This estimate incorporates locations of Seaside bird's-beak in Santa Barbara County, which may have formed as a result of hybridization. The estimate based only on Monterey County occurrences would increase the percent of range at former Fort Ord to 60-80%.

Wildlife Species	Listing Status[a] Federal/State	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Occurrence at Former Fort Ord	Importance of Former Fort Ord Population
Smith's blue butterfly *Euphilotes enoptes smithi*	E/–	5-10	Uses coastal dunes and hillsides that support seacliff buckwheat (*Eriogonum parvifolium*) or coast buckwheat (*Eriogonum latifolium*); these plants are used as a nectar source for adults and host plant for larvae	Restricted to localized populations along the coast of Monterey County; single populations reported in Santa Cruz and San Mateo Counties	Known to occur near the northern boundary of former Fort Ord and from Giggling Siding to the southern base boundary (5)[b]	Former Fort Ord has been identified as important to the recovery of Smith's blue butterfly
California black legless lizard *Anniella pulchra nigra*	PE/SSC	10-20	Requires moist, warm habitats with loose soil for burrowing and prostrate plant cover; may be found on beaches, in chaparral, pine oak woodland, or riparian areas	Restricted to small populations along the coast in Monterey and northern San Luis Obispo Counties; one population in Contra Costa County	Found in stabilized dunes, oak woodland, and oak savanna, and maritime chaparral with sandy soils at former Fort Ord (2, 4, 7)	Former Fort Ord supports one of the larger expanses of black legless lizard habitat within the species' range
California red-legged frog *Rana aurora draytoni*	T/SSC	<1	Requires coldwater ponds with emergent and submergent vegetation and riparian vegetation at the edges	Found along the coast and coastal mountain ranges from Humboldt to San Diego Counties, and in the Sierra Nevada from Butte to Fresno Counties	May occur at Ford Ord (1)	Former Fort Ord composes little of the species' total range; however, former Fort Ord provides potential habitat for California red-legged frog, which is relatively rare within the Monterey Bay region
Western snowy plover *Charadrius alexandrinus nivosus*	T/SSC	5-10	Found along beach above the high tide limit; also uses shores of salt ponds and alkali or brackish inland lakes	Intermittent nesting sites along the Pacific Coast from Washington to Baja California	Nests along the beaches at former Fort Ord north of Stillwell Hall (3)	Former Fort Ord supports one of 20 coastal breeding populations of western snowy plovers in California; Monterey Bay as a whole is considered one of eight primary coastal nesting areas; former Fort Ord beaches are one of the areas proposed by USFWS as critical habitat for this species (60FR 11768 March 2, 1995)

Wildlife Species	Listing Status[a] Federal/State	Approximate Percent of Range at Former Fort Ord	Habitat	Distribution	Occurrence at Former Fort Ord	Importance of Former Fort Ord Population
California tiger salamander *Ambystoma tigrinum californiense*	C/SSC	<1	Favors open woodlands and grasslands; requires water for breeding and burrows or cracks in the soil for summer dormancy	Occurs only in California from the coastline to the Sierra Nevada crest and from Sonoma to Santa Barbara Counties	Occurs in ponds and vernal pools throughout former Fort Ord (2, 6)	Former Fort Ord comprises little of the total range of California tiger salamander; however, vernal pool habitat is relatively rare in the Monterey Bay region
Monterey ornate shrew *Sorex ornatus salarius*	SC/--	15-25	Found in a variety of riparian, woodland, and upland communities where there is thick duff or downed logs	Restricted to the Monterey Bay region; historical occurrences at the mouth of the Salinas River and Moss Landing in Monterey County	May occur at former Fort Ord (1)	Former Fort Ord provides abundant potential habitat for Monterey ornate shrew within the species' limited range
California linderiella *Linderiella occidentalis*	--/--	<1	Ephemeral freshwater habitats such as vernal pools, rock outcrop pools, swales, and ponds	Found in the Central Valley from Tehama to Madera Counties, and the central and south Coast Ranges from Lake to Riverside County	Known from eight water bodies at former Fort Ord (2)	Former Fort Ord composes little of the total range of California linderiella; however, vernal pool habitat is relatively rare in the Monterey Bay region

[a] Status definitions:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
PE = federally proposed for listing as endangered.
C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened.
SC = Species of Concern are former Category 1 and 2 species that without additional conservation action are likely to become candidates for listing by the U.S. Fish and Wildlife Service under the federal Endangered Species Act.
-- = no status.

State

SSC = considered a State Species of Special Concern by California Department of Fish and Game.
-- = no status.

[b] Data sources.

(1) Not found during field surveys.
(2) Encountered during field surveys
(3) Source: George pers. comm.
(4) Source: Bury 1985.
(5) Source: Arnold 1983.
(6) Source: Stanley pers. comm.
(7) Source: Installation UXO surveys.

California Linderiella

The California linderiella fairy shrimp was proposed for listing as endangered by USFWS in May 1992. The species was still considered proposed for listing during development of the 1994 HMP. However, during the scientific review of the species completed during the proposal period, USFWS found the California linderiella to be more abundant than initially believed. Based on this information, USFWS withdrew the proposal to list the California linderiella in September 1994 and determined that the species is not likely to become either endangered or threatened throughout all or a significant portion of its entire range in the foreseeable future.

Although the California linderiella is no longer considered proposed for listing as endangered, it is retained in this HMP because measures included in this HMP to protect the California linderiella also protect other wetland-associated HMP wildlife species such as the California tiger salamander and California red-legged frog.

Removal of Category 2 Candidate Species Designation from the ESA

On February 28, 1996, the Department of the Interior published in the Federal Register (FR) the Department of the Interior Endangered and Threatened Species, Plant and Animal Taxa; Proposed Rule (61 FR 7596 February 28, 1996). Under the rule, the Category 1 and 2 classifications for federal candidate species are removed. Species either are identified as Candidate species with a listing priority classification or are no longer given any federal status.

Included in the rule are tables identifying new classifications for numerous species. Many species previously considered Category 1 or 2 candidates are retained under the new Candidate status and provided listing priority classification. Other species that were previously considered candidate species are identified as no longer having status under the federal ESA. Species not listed in the tables included in the rule are presumed to no longer be provided federal status. Further guidance from USFWS staff has indicated that these former candidate species are now considered "Species of Concern". The listing status for each species addressed in Tables 1-2 and 1-3 has been modified as appropriate to reflect information included in this rule.

Species listed as threatened or endangered or proposed for threatened or endangered status were not affected by the rule.

Although several species included in the 1994 HMP are no longer considered federal candidates, they are retained in this HMP because they may be listed under the California ESA, they are considered by USFWS as Species of Concern, they have a significant portion of their range at former Fort Ord, or they are associated with a habitat that is important to a suite of many other sensitive species.

Changes in Listing Status

Since publication of the 1994 HMP several species proposed for threatened or endangered status have been listed, and other species that were previously considered federal candidates are now proposed for threatened or endangered status. The California red-legged frog and Monterey spineflower are now listed as threatened, the robust spineflower is listed as endangered, and both Yadon's piperia and the black legless lizard are proposed for endangered status. Management and preservation measures in this HMP will not change because of changes in the listing status of HMP species. However, land recipients may need to further coordinate with USFWS and/or other agencies as appropriate in the event that species such as the black legless lizard become listed to receive Section 10a permits or other approvals.

ORGANIZATION OF THE HMP

This HMP is organized in the same manner as the 1994 HMP. It is presented in six chapters. Chapter 1, "Purpose of and Need for the Habitat Management Plan", describes the purpose and need, goals and objectives, and procedure followed in developing this HMP. Chapter 2, "Minimum Conservation Area and Corridor System", describes methods used to develop a minimum conservation area and corridor system for former Fort Ord. Chapter 3, "Habitat Management for Predisposal Actions", presents habitat management procedures to accompany Army actions taken before disposal of former Fort Ord land. Chapter 4, "Habitat Management for Disposal and Reuse", describes the habitat management procedures to be taken by recipients of disposed land. Chapter 5, "Citations", lists the sources cited in this HMP. Chapter 6, "List of Preparers and Acknowledgments", describes the contributions of key staff and agency representatives.

GOALS AND OBJECTIVES

The goals and objectives of this HMP are the same as those for the 1994 HMP.

- Preserve, protect, and enhance populations and habitat of federally listed threatened and endangered wildlife and plant species.
- Avoid reducing populations or habitat of federal proposed and candidate wildlife and plant species to levels that may result in one or more of these species becoming listed as threatened or endangered.
- Preserve and protect populations and habitat of state-listed threatened and endangered wildlife and plant species.
- Avoid reducing populations or habitat of species listed as rare, threatened, and endangered by the CNPS (List 1B), or with large portions of their range at former Fort Ord, to levels that may result in one or more of these species becoming listed as threatened or endangered.
- Conduct the disposal of land to public and private entities in a manner that is compatible with the preservation of federally listed threatened and endangered wildlife and plants within the HMP conservation area.
- Inform potential recipients of former Fort Ord land and the general public of methods that provide a suitable mechanism for protecting natural resources while allowing implementation of a community-based reuse plan that promotes economic recovery after closure of former Fort Ord.
- Provide the basis for recipients of former Fort Ord lands to seek Section 10(a) permits pursuant to the federal ESA and achieve compliance for conservation of state-listed threatened and endangered species and other special-status species recognized by California Department of Fish and Game (DFG) under the California ESA and the California Environmental Quality Act (CEQA).
- Provide a foundation for a prelisting agreement between USFWS and recipient landowners.

The overall goal of this HMP is to provide for, at a minimum, no net loss of populations or important habitat for any of the subject species of this HMP. This goal can be met through the careful selection of areas

designated as reserves and corridors. The beneficial enhancement of habitat by the selected management agencies is essential to the achievement of this goal.

FLEXIBILITY OF THE HMP

Pre-Transfer Modifications to This HMP

This HMP has adjusted the development and reserve areas to reflect changes proposed in the community reuse plan and information relating to the Army environmental remediation actions. The specific land use designations for individual development parcels have been replaced with a generic development designation, allowing for broad flexibility in reuse of specific development parcels. Changes in specific use of development parcels within the range of uses described in the FEIS and the FSEIS would not require revision to this HMP. During disposal by the Army, it may be necessary to alter management agencies for reserve areas or portions of reserve areas because of changes in anticipated land recipients. Any such change would be coordinated with USFWS and agreed to by both parties. Any further revision to habitat reserves or corridors before transfer would necessitate revisions in this HMP.

The Army will remain responsible for any changes to this HMP in areas that have not been transferred (pre-transfer). The Army will also remain responsible for revisions to this HMP relating to hazardous, toxic, and radiological waste and ordnance and explosives response actions. Changes undertaken in parcels after they are transferred are the responsibility of the land recipient.

Polygon boundaries in development areas may be modified, and development polygons may be subdivided or aggregated before transfer. These types of changes in development polygons will not require modifications to this HMP.

Post-Transfer Modifications to the HMP

All recipients of former Fort Ord lands will be required to abide by management guidelines and procedures addressed in this HMP. However, situations may arise during the life of this HMP that make changes in the plan's guidelines after lands have been transferred (post-transfer) appropriate. Several types of changes may occur. Land recipients may wish to change the boundaries of their parcels or land uses within their parcels. Actions such as additional infrastructure development in reserve areas may be necessary. Changes in management guidelines within a land use may be required to better preserve or enhance a resource. These kinds of changes may be made if the affected landowners and USFWS can agree that the overall goals and objectives of this HMP will not be compromised.

Such post-transfer revisions do not involve the Army and would be the responsibility of future landowners, subject to the terms of the reservation placed on the lands in the MOAs and/or deeds at the time the lands are transferred from the Army. Such revisions will be funded by the responsible agency/land recipient. The agency or land recipient will also be responsible for any necessary documentation and any coordination with USFWS, BLM, or other agencies.

Polygon boundaries in development areas may be modified, and development polygons may be subdivided or aggregated after transfer. These types of changes in development polygons will not require modifications to this HMP.

HMP STEPWISE ANALYSIS

This HMP was developed following a stepwise analysis to evaluate and minimize the loss of specific wildlife and plant species and their habitats resulting from disposal and reuse of former Fort Ord. A description of the steps is provided in the following sections. This analysis was conducted during development of the 1994 HMP; however, the results are still applicable to this HMP.

Step 1: Identify Species and Habitats to Be Considered in the HMP

Wildlife and plant species analyzed in this HMP were chosen during development of the 1994 HMP. Selection was based on their legal protection under the state and federal ESA, their listing status, and the relative importance of existing populations and habitats at former Fort Ord to the continued survival of the species. CNPS-listed species with more than 10% of their known range at former Fort Ord were also analyzed in this HMP. Habitats analyzed in this HMP were chosen based on their importance to the species chosen for analysis.

The same species selected for the 1994 HMP are also analyzed in this HMP; however, the legal status for many of the species has changed (see the "Species Addressed in this HMP" section earlier in Chapter 1 for an explanation of changes in legal status). The following species are analyzed in this HMP (current legal status is provided[1]):

- federally proposed and listed threatened and endangered species (Smith's blue butterfly [E], sand gilia [E], Monterey spineflower [T], robust spineflower [E], western snowy plover [T], California red-legged frog [T], California black legless lizard [PE], and Yadon's piperia [PE];
- species that are candidates for federal listing as threatened or endangered (California tiger salamander [C]);
- state-listed threatened and endangered species (sand gilia [T], Seaside bird's-beak [E]);
- species that fell under one of the previous categories during preparation of the 1994 HMP but that no longer have any legal status under the federal or state ESA (California linderiella, Monterey ornate shrew, and Monterey ceanothus); and
- CNPS list 1B species with extensive portions (greater than 10%) of their known ranges at former Fort Ord (Hooker's manzanita, Toro manzanita, sandmat manzanita, Eastwood's ericameria, and coast wallflower).

These species are referred to as "HMP species" in this report.

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[1] Status explanations: **Federal** - E = listed as endangered under the federal ESA; T = listed as threatened under the federal ESA; PE = proposed for federal listing as endangered under the federal ESA; C = species for which USFWS has sufficient information on biological vulnerability and threat(s) on file to support proposals to list them as endangered or threatened; **State** - E = listed as endangered under the California ESA; T = listed as threatened under the California ESA; **California Native Plant Society** - 1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

The following habitats were analyzed in this HMP because they support large concentrations of HMP species:

- maritime chaparral;
- coastal strand;
- dune scrub; and
- beaches, bluffs, and blowouts.

The following habitats were analyzed in this HMP because they occur at sites that could be restored to high-quality HMP species habitat:

- ice plant mats and
- disturbed dunes.

Vernal pools and ponds are habitat for California linderiella, red-legged frog, and California tiger salamander but were not analyzed in this initial stepwise analysis. Specific mitigation measures for impacts on fairy shrimp, red-legged frog, California tiger salamander, vernal pools, and ponds are included in Chapters 3 and 4. Protection or replacement for these waters of the United States will also be provided through implementation of the federal Clean Water Act of 1972.

Step 2: Develop a Conservation Area and Corridor System

A preliminary conservation area and corridor system was developed during preparation of the FEIS to define the minimal area necessary to preserve HMP species populations and habitats according to ecological principles and the known biological resource distributions at former Fort Ord.

The conservation areas developed for the FEIS provided a benchmark for subsequent analysis and defined these more valuable areas of habitat that could be given priority for conservation and protection from development impacts. The benchmark is used to identify biologically important habitat and the minimum area required to protect the most species. The conservation areas were planned to protect sufficient habitat for listed and proposed species to avoid a jeopardy opinion by USFWS and to protect representative populations and habitats of the other HMP species. Where necessary, corridors were identified to maintain connections between conservation areas. Habitat values within corridors may be less than in conservation areas; however, corridors are important for maintaining the ecological integrity of conservation areas.

Step 3: Compare Land Requests with Conservation Area and Corridor System

The locations of land requests and proposed land uses for former Fort Ord were compared with the locations of minimum conservation areas and corridors. The boundaries of the initial conservation areas and corridors were designed to be flexible, with some adjustments made to accommodate the land uses prescribed under various reuse scenarios for former Fort Ord. The loss of some valuable habitat within the conservation areas would be replaced by expanding the conservation areas to other locations, preserving usable habitat in other locations, or improving and restoring disturbed habitat. Certain land uses would be allowed within corridor areas if these uses are compatible with proper corridor functioning.

Step 4: Create Final Conservation Area and Corridor System

The conservation area and corridor system was modified to create a final conservation area and corridor system that considered the land uses proposed for former Fort Ord and includes sites necessary for mitigation of impacts on HMP species.

Step 5: Develop HMP Guidelines

Protection, enhancement, mitigation, monitoring, management, and funding guidelines were developed to allow for an installation-wide means of accomplishing mitigation.

Step 6: Implement the HMP

This HMP will be signed by all responsible parties, and conservation, management guidelines, monitoring, and enforcement will be implemented by each party as described in Chapter 4, "Habitat Management for Disposal and Reuse". The Army will include HMP conservation and management requirements in land transfer documents.

Chapter 2.

Minimum Conservation Area and Corridor System



Sand Gilia

Chapter 2. Minimum Conservation Area and Corridor System

INTRODUCTION

Modifications to the 1994 Habitat Management Plan (1994 HMP) incorporated into this HMP have little or no effect on the methods and results of the minimum conservation area and corridor system development process. Information has been revised to reflect changes such as modifications to a species-listing status.

SPECIES AND COMMUNITY BIOLOGICAL DATA

Tables 2-1 and 2-2 present ecological characteristics of HMP wildlife and plant species that are pertinent to development of conservation areas and corridors. Additional information on species distributions and endangerment status is in the Flora and Fauna Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992a) and the supplement to the draft Biological Assessment (BA) (U.S. Army Corps of Engineers, Sacramento District 1993b). Distribution maps for HMP species at former Fort Ord (from these documents) are included in Appendix B of this HMP.

HABITAT MANAGEMENT PLAN HABITATS

The following sections describe the community ecology of maritime chaparral and coastal dunes that is pertinent to development of conservation areas and corridors.

Maritime Chaparral

Maritime chaparral is a coastal form of chaparral associated with specific soil conditions. Two forms are recognized at former Fort Ord based on the substrate that supports them: sand hill maritime chaparral occurs on relict dunes of the late Pleistocene Epoch and Aromas formation maritime chaparral occurs on weakly consolidated red sandstone that is a relict of mid-Pleistocene dunes. The occurrence of maritime chaparral may be limited to the summer fog zone. (Griffin 1976.)

Periodic disturbance or removal of vegetation caused by unstable substrate and fire are important factors in maintaining and rejuvenating the maritime chaparral community.

Important shrubs in maritime chaparral are shaggy-barked manzanita, chamise, Toro manzanita, sandmat manzanita, Hooker's manzanita, Monterey ceanothus, toyon, black sage, bush monkeyflower, coyote bush, Eastwood's ericameria, poison-oak, dwarf ceanothus, coast silk tassel, rush rose, California sagebrush, blue-blossom ceanothus, and mock heather. HMP species occurring in maritime chaparral are black legless lizard, Toro manzanita, sandmat manzanita, Hooker's manzanita, Monterey ceanothus, Eastwood's ericameria, Seaside bird's-beak, sand gilia, Monterey spineflower, coast wallflower, and Yadon's piperia.

Table 2-1 Ecological Characteristics of HMP Wildlife

Species	Life Cycle	Dispersal Migration	Reproduction	Mating Behavior	Breeding Period	Habitat Requirement
Smith's blue butterfly (*Euphilotes enoptes smithi*)	1-year life span, egg laying, five larval instars and adult stage are associated with peak blooming period of coastal and seacliff buckwheat, pupal stage is dormant stage during nonflowering periods	Limited flight dispersal; migration unknown	Emergence from pupae and mating associated with peak flowering period of coastal buckwheat species	Mate location, copulation, and oviposition occur on flowerheads of buckwheat species	Breeding occurs June-September tied to peak flowering periods of coast and seacliff buckwheat	Coastal sand dunes and ravines associated with coast and seacliff buckwheat, completely dependent on buckwheat during all lifestages
Western snowy plover (Coastal populations) (*Charadrius alexandrinus nivosus*)	Young are precocial, fledge in 27-47 days	Migrate north and south, from Washington to Baja California	Nest on sandy, open ground; both adults incubate eggs; multiple clutches per year; 2-6 eggs per clutch	Colonial nesting; monogamous by clutch	Breeding and nesting occurs mid-March through mid-September	Flat sandy beach above the high tide level; highly sensitive to human disturbance; may abandon nests if disturbed
California linderiella (*Linderiella occidentalis*)	1-year life cycle; egg stage is dormant in soil during dry season; larvae and adult develop during winter rains	Possible dispersal of eggs borne in mud adhered to feet of animals; wind may also disperse eggs during dry season	Breed in winter when pools and ponds are full; lay eggs as ponds dry in spring	Male grasps female with specially elongated antennae	Adult linderiella observed from mid-October to May	Vernal pools, ponds, and swales
California black-legless lizard (*Anniella pulchra nigra*)	Young born live, adults and young remain near soil surface in spring; burrow to unknown depths during rest of year	Presume all habitat requirements are found in activity areas; no migration patterns known, regional dispersal highly restricted, may disperse short distances between suitable habitat areas	1-4 born live	Unknown	Unknown	Various plant communities where loose sandy soils and abundant invertebrate populations are available
Monterey ornate shrew (*Sorex ornatus salarius*)	Most do not live beyond 1 year	No dispersal patterns known, probably highly restricted; no migration patterns known	Up to 6 born in a litter, multiple litters produced per year	Unknown	Believed to be February to October	Found in a variety of riparian, woodland, and upland communities where there is thick duff or downed logs
California red-legged frog (*Rana aurora draytoni*)	Egg and tadpole stages aquatic; adult amphibians	Travel overland during rains	Female lays egg masses; after fertilization, eggs are left unprotected	Copulate in breeding ponds	Eggs laid from December to early April	Cold water ponds or river pools with emergent and submergent vegetation with riparian vegetation along the edges
California tiger salamander (*Ambystoma tigrinum californiense*)	Eggs and larval stages occur in temporary pools; adults are subterranean, except during breeding	Travels overland; may migrate up to 1 mile from burrow to breeding ponds	Females lay numerous clutches of eggs in temporary pools and ponds on submerged and emergent vegetation	Unknown	Breeding occurs from December to February, mainly in vernal pools	Open woodlands and grasslands; requires water to breed and uses burrows or cracks in soil at upland sites up to 1 mile from breeding ponds during summer

Table 2-2. Ecological Characteristics of HMP Plants

Sensitive Plant Species	Life Cycle/Habit	Seed or Fruit Dispersal Mechanism	Regeneration Mechanism	Pollination Biology	Response to Disturbance	Habitat Requirements
Sand gilia (*Gilia tenuiflora* ssp. *arenaria*)	Annual herb; flowers in spring	Small seeds dropped or shaken by wind from capsule; may disperse with blowing sand	Annual seed production; seed bank in soil	Insect pollinated; bee flies may be important	Colonizes open sand	Coastal sand dunes below 30 meters elevation; fog belt area;some inland areas, such as the former Fritzsche Army Airfield area at former Fort Ord; Monterey Bay; needs open, sandy sites for establishment; Baywood sands and coastal dunes
Monterey spineflower (*Chorizanthe pungens* var. *pungens*)	Annual herb; flowers in summer	Small seeds dropped or shaken by wind from capsule; spiny fruits may be carried by fur-bearing animals or may disperse with blowing sand	Annual seed production; seed bank in soil	Insect pollinated; self-pollination likely common	Colonizes open sand; invades roadsides and firebreaks	Coastal strand, coastal scrub, maritime chaparral, and disturbed sites in grassland; below 450 meters elevation; fog belt area; sandy soils (Baywood sands, Oceano, Arnold, coastal dunes)
Robust spineflower (*Chorizanthe robusta* var. *robusta*)	Annual herb; flowers in summer	Small seeds dropped or shaken by wind from capsule; spiny fruits may be carried by fur-bearing animals or may disperse with blowing sand	Annual seed production; seed bank in soil	Insect pollinated; self-pollination likely common	Colonizes open sand	Coastal strand, coastal scrub areas below 300 meters elevation
Seaside bird's-beak (*Cordylanthus rigidus* var. *littoralis*)	Annual herb; flowers in summer; hemiparasitic	Small seeds dropped or shaken by wind from capsule	Annual seed production; seed bank in soil; must attach roots to host plant	Insect pollinated	Does not tolerate disturbance	Coastal dunes, coastal scrub, and maritime chaparral, below 200 meters elevation; must have host plant in vicinity
Toro manzanita (*Arctostaphylos montereyensis*)	Shrub, flowers in late winter-early spring	Fruits with large seeds eaten and dispersed by mammals and birds	Annual seeds produced; need fire to crack seed coat	Insect pollinated; bees, flies, moths	Seedlings colonize areas after fire and open eroded sandstone	Chaparral in sandy soils below 350 meters elevation, especially on Aromas formation sandstone

Table 2-2. Continued.

Sensitive Plant Species	Life Cycle/Habit	Seed or Fruit Dispersal Mechanism	Regeneration Mechanism	Pollination Biology	Response to Disturbance	Habitat Requirements
Sandmat manzanita (*Arctostapohylo s pumila*)	Shrub, mat and mound forming; flowers in late winter-early spring	Fruits with large seeds eaten and dispersed by mammals and birds	Annual seeds produced; need fire to crack seed coat	Insect pollinated; bees, flies, moths	Seedlings colonize areas after fire	Sandy soils, hills, chaparral, woodland, coniferous forest below 200 meters elevation
Hooker's manzanita (*Arctostaphylos hookeri* ssp. *hookeri*)	Shrub, mat and mound forming; flowers in late winter-early spring	Fruits with large seeds eaten and dispersed by mammals and birds	Annual seeds produced; need fire to crack seed coat	Insect pollinated; bees, flies, moths	Seedlings colonize areas after fire	Sandy soils, sandy shales, sandstone outcrops, chaparral, below 300 meters elevation
Monterey ceanothus (*Ceanothus rigidus* = *C. cuneatus* var. *ridigus*)	Shrub, flowers in early spring	Seeds ejected mechanically from capsule as fruit drys in summer sun	Annual seeds produced; need fire to crack seed coat	Insect pollinated	Seedlings colonize areas after fire	Sandy hills, flats, chaparral, close-cone-pine forests below 200 meters elevation
Eastwood's ericameria or golden bush (*Ericameria fasciculata*)	Shrub, flowers in late spring-early summer	Seeds dispersed by wind	Annual seed production; seed bank in soil	Insect pollinated; beetles, butterflies, bees, flies, etc.	Likely colonizes after fire	Dunes, coastal chaparral, closed-cone-pine forest below 100 meters elevation
Coast wallflower (*Erysimum ammophilum*)	Annual or biennial herb; flowers in spring	Seeds dropped or shaken by wind from fruit	Annual seed production; seed bank in soil	Insect pollinated; likely bees and butterflies	Colonizes open (stabilized) sand	Coastal dunes below 50 meters elevation
Yadon's piperia (*Piperia yadoni*)	Perennial herb from corm; flowers in spring	Tiny seeds dropped from capsule	Annual seed production; seed bank in soil	Insect pollinated	Resprouts from roots after fire	Generally sandy soil or sandstone, coastal shrubland, Monterey pine forest and maritime chaparral, below 150 meters elevation

Windblown sand in the sand hill and water erosion in the Aromas formation create open substrate where herbaceous species and a high diversity of shrubs make up the vegetative cover. Without disturbance in sand hill maritime chaparral, shaggy-barked manzanita and chamise tend to dominate the shrub cover and form a closed canopy that excludes herbaceous species. Without disturbance in Aromas formation maritime chaparral, chamise or Toro manzanita tend to form nearly monotypic stands and a closed canopy that excludes herbaceous species. After a fire, shaggy-barked manzanita and chamise resprout from their base while other shrubs and herbs recolonize from seed. Early successional sites appear to support the highest diversity of shrubs, including the largest number of HMP shrub species. On some sites, coast live oak may form a canopy over maritime chaparral if the site has not burned in a long time.

Healthy maritime chaparral occurs as a patchwork of stands that have burned at different times and that support vegetation of various ages and structures. This habitat mosaic allows for high species and habitat diversity and provides sources of propagules for dispersal between patches.

Successful conservation of maritime chaparral is dependent on proper management of the habitat by using fire as a management tool and allowing or encouraging some forms of substrate disturbance. The goal of management is to achieve high species and habitat diversity through a program of controlled burning that creates and maintains a mosaic pattern of maritime chaparral of various aged stands. However, sand gilia, Monterey spineflower, and coast wallflower may be dependent on open habitat created by blowing sand rather than by fire. Destabilized sand from firebreaks and roads in maritime chaparral apparently creates habitat for these species. Promoting a dynamic system of moving sand by selective vegetation removal may encourage the formation of habitat for the above-mentioned HMP species.

Coastal Dunes

Coastal strand and dune scrub habitats of the coastal dunes are dynamic plant communities that respond to a moving sand substrate and changing dune configuration. Blowing sand undermines and buries plants, but most dune plants are adapted to shallow burial and blasting by sand. Large areas of destabilized sand, called "blowouts," result in large-scale removal of vegetation and change in dune structure. As plants reinvade the bare sand they stabilize the dune. Dune structure creates a variety of habitats. The foredune is more exposed to wind and salt spray than the rear dune. Dune crests are subject to high winds and substrate removal, while interdune valleys are protected from wind, have higher soil moisture, and experience sand deposition. North-facing dune slopes are usually moister and cooler than south-facing dune slopes.

The highest diversity of dune habitat and species is best maintained in dunes with conditions ranging from active to stabilized and a variety of topography with foredunes and rear dunes, dune crests, interdune valleys, and north- and south-facing slopes.

Native plants likely to be found in healthy coastal strand habitat on Monterey Bay include coastal sand verbena, pink sand verbena, beach sagewort, beach bursage, beach evening primrose, beach morning-glory, live-forever, woolly paintbrush, coastal paintbrush, sea rocket, Douglas' bluegrass, mock heather, sea thrift, wild buckwheat, seacliff buckwheat, and cudweed aster. Healthy dune scrub at former Fort Ord is dominated by mock heather, bush lupine, Chamisso bush lupine, poison-oak, coyote bush, bracken fern, and deer weed.

HMP species occurring in coastal strand and dune scrub are Smith's blue butterfly, sand gilia, Monterey spineflower, robust spineflower, black legless lizard, and coast wallflower. Yadon's piperia may occur in these habitats.

ECOLOGICAL CONCEPTS FOR CONSERVATION AREA AND CORRIDOR SYSTEM DESIGN

Habitat loss and resultant habitat fragmentation are considered the primary causes of the loss of biodiversity in many regions (Norton 1988, Noss 1991). Conservation of many species of plants and animals is now dependent on proper management of the remaining fragmented habitat patches or habitat islands. Management of these fragmented habitats must consider several factors, including the size and shape of the patch, location of the patch in relation to other patches, species present, and the connectivity of the patch to adjacent patches (Doak et al. 1992, Pulliam and Danielsen 1991). The following sections describe ecological concepts used to design conservation area and corridor systems.

Conservation Area Size

Isolated habitat patches will generally contain fewer species than will large, continuous tracts of the same habitat. Additionally, the populations present in habitat patches are more vulnerable to extinction than populations present in continuous tracts: vulnerability to extinction is area dependent (Terbough and Winter 1980, Soulé 1987). Small populations are highly susceptible to random changes in their environment and in their recruitment rates. Small, isolated populations are also vulnerable to inbreeding and to "genetic drift", the random loss of genetic diversity (Gilpin and Soulé 1986). For long-term conservation, minimal viable population sizes must be maintained to provide for sufficient genetic diversity to overcome genetic drift and allow the species to continue naturally to evolve and adapt.

The effective area of a habitat patch is smaller than the total area of the patch for many species (Soulé 1987). The edges of habitat patches are vulnerable to invasion by new species of plants and animals and to changes in biotic structure or composition due to edge effects such as windthrow or desiccation. Many species of plants and animals are considered "interior species" because of their susceptibility to edge effects (Jensen et al. 1990).

Small, isolated habitats do not allow the populations contained within them to escape changing environmental conditions. Seasonal fluctuations in the environment, such as changes in temperature, water regime, or vegetation, may require seasonal changes in the distribution of a population over a region. Catastrophic natural or humanmade disturbances may require major spatial shifts by populations or individuals for survival. The inability to escape temporally occurring events will result in high extinction rates for the populations confined to small habitat patches.

Natural communities are a complex of small populations that vary in structure or composition. This variability provides stability in the face of environmental stochasticity (random events) or catastrophes (Jensen et al. 1990). Small habitat patches cannot maintain the natural variability inherent in larger systems, nor can they maintain adequate amounts of microhabitats to provide for long-term viability for species or populations dependent on specific microhabitats.

Conservation Area Shape

The shape of a habitat patch influences the effective size of the habitat. A long, thin strip of habitat is smaller in effective size than a more geometric-shaped habitat because of the high edge-to-interior ratio in long, thin shapes. As mentioned above, the habitat at the edge of a patch is often substantially different in structure and composition than that found in the interior. This edge habitat is unsuitable for many species of plants and animals that may require interior habitats. Edge habitat is vulnerable to environmental effects from wind pruning, desiccation, invasions by weed and pest species, and disturbances associated with human

activities. The type and intensity of effects from human activity on habitat and species depend on the kind of activity or development that occurs adjacent to conserved habitat. Increased susceptibility to invasions by disease, competitors, and predators also occurs in habitat patches that have a high edge-to-interior ratio. The theoretical optimal shape for a preserve would be circular, thus having minimal edge habitat (Temple 1983, Samson et al. 1991).

Conservation Area Location

The location of a habitat patch is important at several levels. At the landscape level, the location in relation to other habitat patches and populations is critical for the long-term viability of the populations. Because a population at the extreme edge of its species' distribution is as vulnerable to extinction as is a small population (Weaver 1993), a conservation area located in the center of a species' range may have higher potential for maintenance of viable populations. At the population level, the location of a conservation area in an area of high habitat suitability for healthy populations would be advantageous. Preservation of large tracts of marginal habitats may have only minimal benefits for a species. Marginal habitats often do not support viable populations because recruitment rates are below mortality or dispersal rates. Individual species present in marginal or disturbed habitats are more likely to be only temporary residents or to have reduced reproductive success (Doak et al. 1992). However, marginal habitats may be critical to long-term viability of a regional population by providing for corridors of dispersal or areas of temporary residency during catastrophes or times of high-population levels (Leftkovich and Fahrig 1985, Pulliam and Danielsen 1991). Marginal habitats may also function as areas where pressures from natural selection may be more intense or differ from high-quality habitat areas. These increased or varying selection pressures may assist in maintaining the long-term genetic variability of a population and allow for establishment of new traits that contribute to the species' overall genetic variability.

Conservation Area Connectivity

Small populations in habitat patches are highly susceptible to extinction because of environmental and demographic stochasticity. This susceptibility is greatly reduced if the population is not isolated from other populations. Connections or corridors between populations can effectively create a dynamic regional population, often called a metapopulation. The exchange of individuals between populations lessens the effect of natural fluctuations on small populations, allows for recolonization of habitats when local extinction occurs, and maintains genetic diversity. The ability of the metapopulation to function dynamically is related to the proximity of the individual habitat patches and the dispersal capabilities of the species (Pulliam and Danielsen 1991, Doak et al. 1992). If the habitat patches are small and widely dispersed, the rate of successful immigration will probably be low. More individuals will be lost or will settle in the unsuitable habitats surrounding each patch, and will not be available or productive members of the metapopulation.

The loss of individuals to unsuccessful dispersal is lessened when habitats patches are connected by corridors of suitable habitat. Corridors are not necessarily optimal habitats, but do provide the dispersing individuals with minimal life requirements. Corridor habitats also may play a critical role in population viability during catastrophes by providing escape routes, as well as temporary refuge habitat (Pulliam and Danielsen 1991).

Different species have different dispersal capabilities and habitat requirements. Generally, a species' survival rate will be higher if the species disperses through habitats similar to its preferred habitat. Species differ in their habitat requirements and flexibility, and a corridor for one species will be a barrier to dispersal to another (i.e., a forest species may not be able to cross grassland successfully). To optimize survival, a conservation area should have a network of adjacent corridor habitats of various types within which many species could disperse. To connect habitat patches, a single corridor may have to provide the only route of

movement for the populations. Corridors of poor-quality habitats may result in high-dispersal mortality rates and reduced effectiveness of the regional dynamics to stabilize the metapopulation.

Management Considerations for Conservation Areas and Corridors

Active management practices are often required to maintain the ecological integrity of habitats within conservation areas and corridors. Controlled burns in chaparral and scrub may be necessary to provide a mosaic of successional stages and maintain high species diversity. Active management may also entail limiting public access or controlling various uses in the conservation area to prevent habitat degradation.

Management requirements may be constrained or aggravated by land uses adjacent to a conservation area. Urban or residential uses close to conservation areas or corridors may limit fire management capabilities; result in the need for added law enforcement to prevent unauthorized use; and require control of introduced species, pets, and pest species tolerant of human disturbance.

To minimize potential conflicts between adjacent land use and management activities within conservation areas and corridors, conservation areas should be established where adjacent land uses are compatible with management actions necessary within the conservation area. Also, management requirements within a conservation area should be considered before development is planned near the conservation area.

Potential conflicts between management and adjacent land uses may also be minimized by limiting the edge-to-interior ratio of the conservation area and reducing the amount of edge in contact with incompatible land uses.

METHODS USED TO DEVELOP A MINIMUM CONSERVATION AREA AND CORRIDOR SYSTEM

The distributions of several HMP resources were analyzed to develop a minimum conservation area and corridor system. This system was used as a stepping stone toward development of the final conservation area and corridor system described in Chapter 4. Existing and potential land uses, opportunities for habitat restoration, and habitat enhancement were not factored into this preliminary analysis.

The analysis of HMP species distributions resulted in selection of four conservation areas and three corridors. The four conservation areas were created by combining the distributions of the following resources:

- sites supporting high or medium densities of known populations of sand gilia and Monterey spineflower,
- sites supporting high- and medium-quality habitat (as defined by the density of buckwheat) or known occurrences of Smith's blue butterfly,
- sites supporting potential or known coastal nesting habitat for western snowy plover, and
- study polygons supporting the highest richness of HMP species (seven or more species or suitable habitat occurrences).

The analysis was based on data included in the Flora and Fauna Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992a).

Habitat Management Plan Species Richness Study

The distribution and abundance of botanical resources at former Fort Ord were initially identified in 1992 through surveys of a series of irregularly shaped and sized polygons (survey polygons) of uniform habitat (U.S. Army Corps of Engineers, Sacramento District 1992a). To conduct an appropriate analysis of richness patterns of HMP species at former Fort Ord, land units of similar size had to be used. Because the size of the survey polygons varied greatly, these smaller survey polygons were aggregated into larger land units (richness study polygons) with a smaller variance in size. Richness study polygons were created to contain approximately 300-400 acres and to incorporate blocks of similar habitats where possible. The total number of HMP species that occurred in each study polygon was then calculated. Of 18 HMP species, the number in any polygon ranged from one to nine.

Mapping the Minimum Conservation Area

A map was produced of high- and medium-density habitat for Smith's blue butterfly, high- and medium-density occurrences of sand gilia and Monterey spineflower, known and potential nesting habitat for Western snowy plover and richness study polygons that support seven or more HMP species (Figures 2-1 and 2-2). The California red-legged frog was not included in the map because it has not been observed at former Fort Ord. (However, the potential habitat was considered and included in designation of habitat reserve areas. See the "Impacts on Listed and Proposed HMP Species" section of Chapter 4.) The selection of a threshold of seven species was arbitrary. Mapping the resources in this manner resulted in identification of four discrete areas of former Fort Ord that would protect the most HMP species with the least amount of habitat (Figure 2-3). The conceptual conservation areas (Figure 2-3) were used with information from reuse plans to determine habitat reserve and corridor areas that meet the overall goals of this HMP. The reserve and corridor areas are shown on Figure 4-1. These areas were then connected with potential habitat corridors to ensure that genetic migration could be maintained between the conservation areas (Figure 2-3). The conservation areas and corridors are described below.

DESCRIPTIONS OF MINIMUM CONSERVATION AREAS AND CORRIDORS

Inter-Garrison - Former Fritzsche Field Conservation Area

The Inter-Garrison - Former Fritzsche Field conservation area is a roughly triangular area approximately bounded by Inter-Garrison Road on the south, Highway 1 and the City of Marina on the west, and former Fritzsche Army Airfield and Reservation Road on the north (Figure 2-3). Dominant habitats are coast live oak woodland, coastal scrub, maritime chaparral, and annual grassland. Housing and other developments also exist in the conservation area. The area provides important habitats for the black legless lizard, sand gilia, and Monterey spineflower. The highest densities of sand gilia at former Fort Ord exist in this conservation area. Areas of high species richness occur along Inter-Garrison Road and Reservation Road and between former Fritzsche Army Airfield and the City of Marina.

Figure 2-1

High- and Medium-Density Occurrences of Federally Listed HMP Species

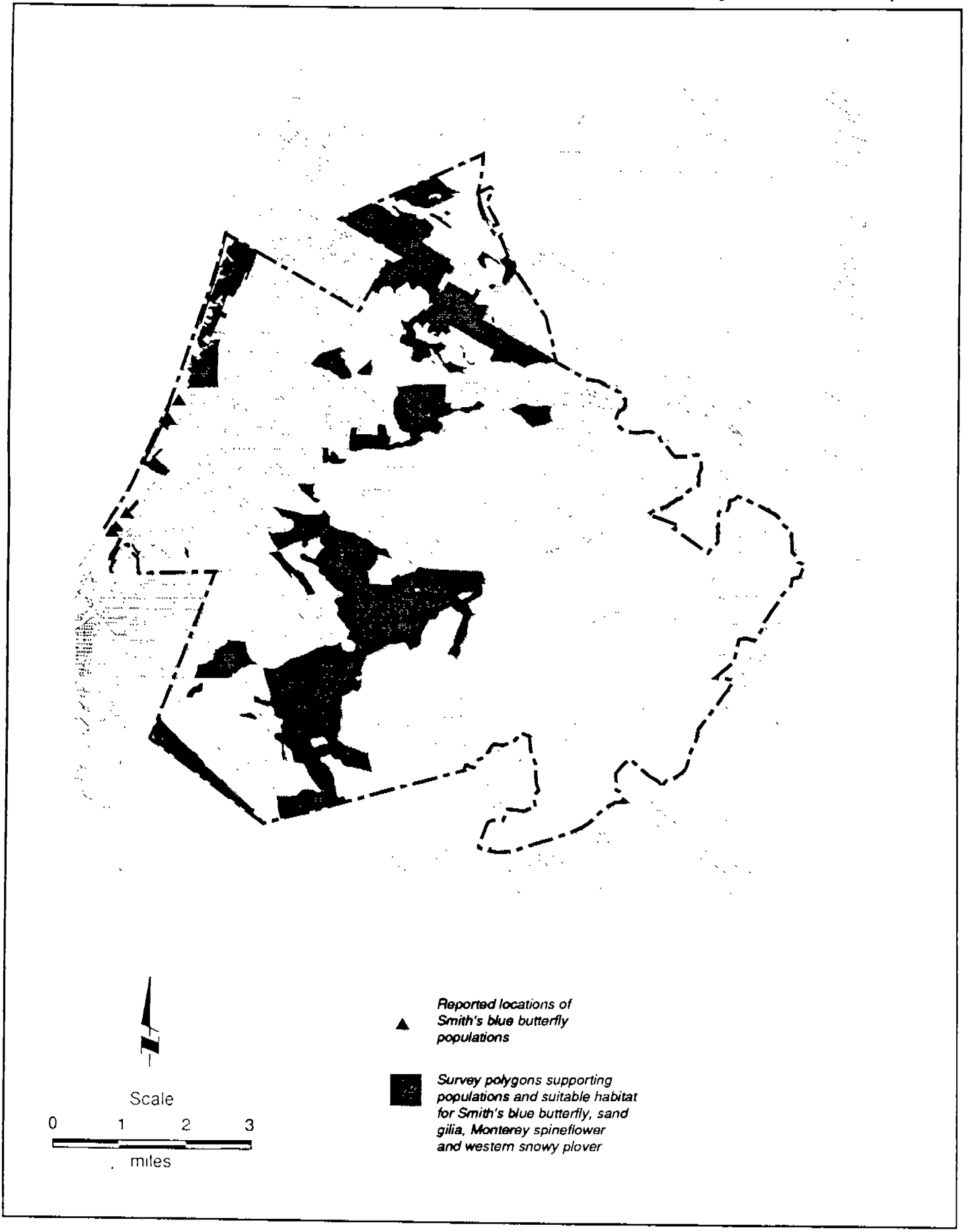


Figure 2-2
HMP Species High Richness Sites

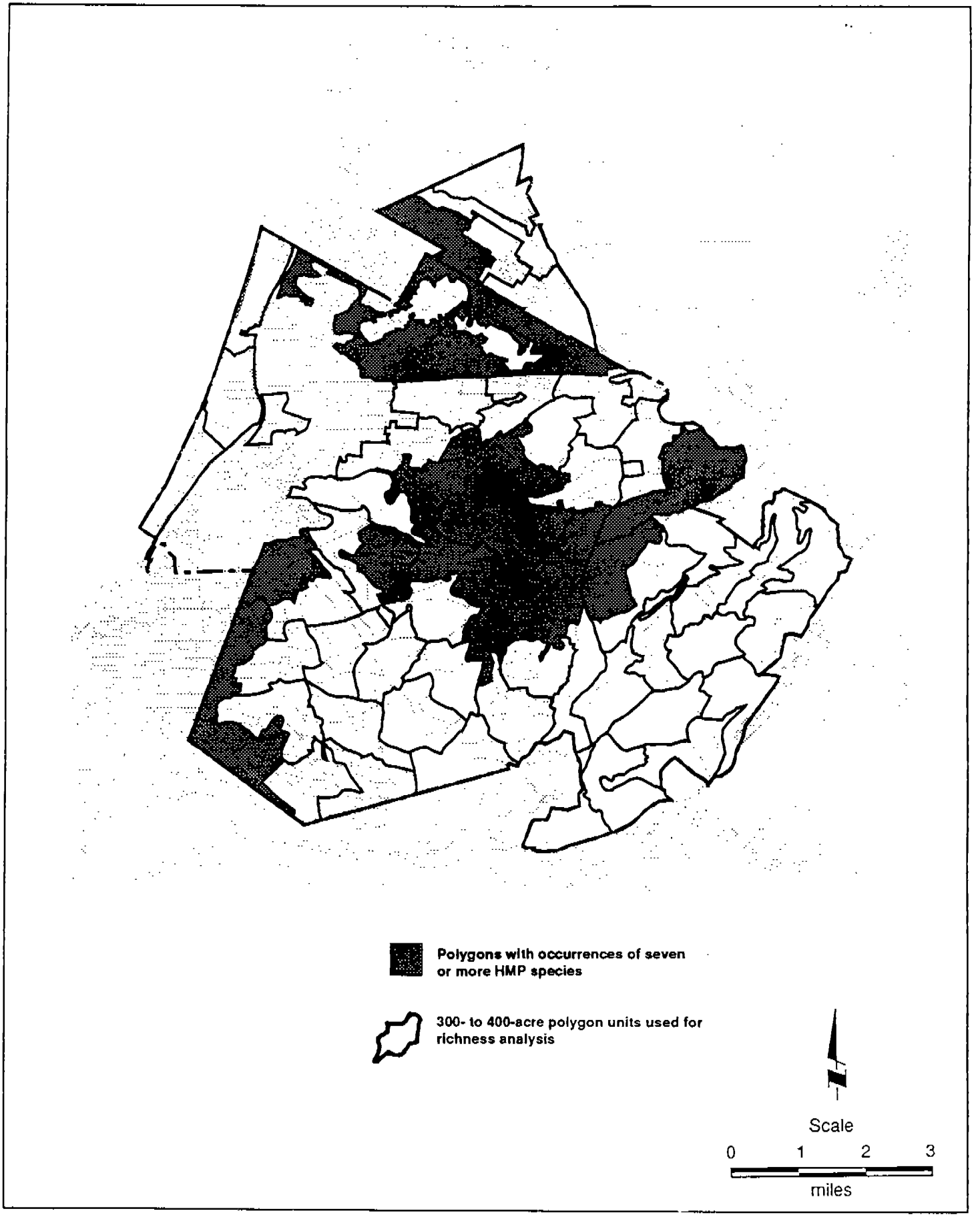
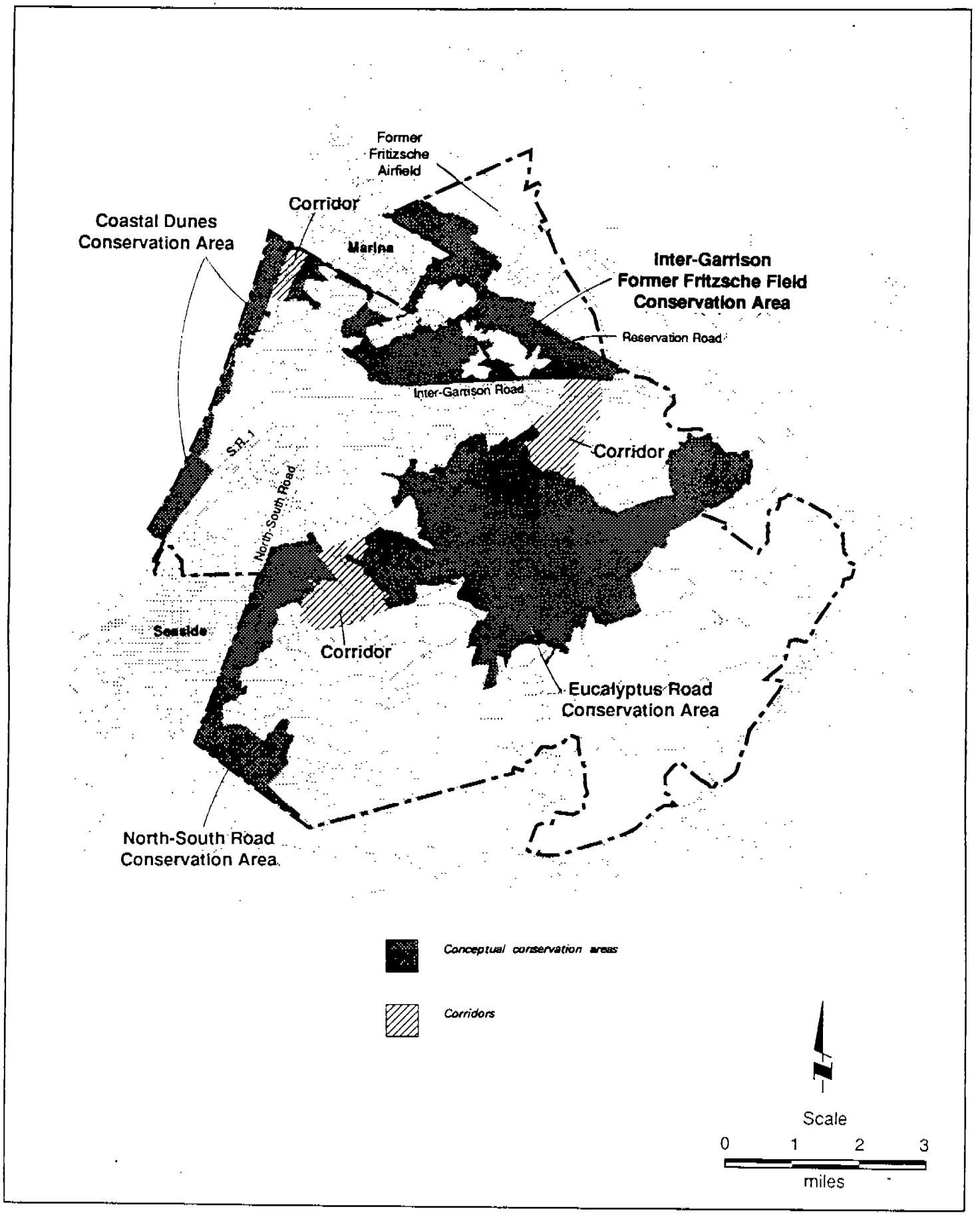


Figure 2-3
Conceptual Conservation Areas and Corridors



Coastal Dunes Conservation Area

The Coastal Dunes conservation area occupies the western half of the dunes west of Highway 1 (Figure 2-3). The Coastal Dunes conservation area provides important habitat for Smith's blue butterfly, western snowy plover, black legless lizard, Monterey spineflower, and several small populations of sand gilia.

Eucalyptus Road Conservation Area

The Eucalyptus Road conservation area is a large conservation area located in the central portion of the installation surrounding Eucalyptus Road (Figure 2-3). Dominant habitats are maritime chaparral and coast live oak woodlands and savannas, with inclusions of grasslands. The area generally supports listed and proposed species at low densities, but supports a high richness of HMP species, particularly plants that characterize the sand hill and Aromas maritime chaparral subtypes. Vernal pools providing habitat for California linderiella and California tiger salamander are also present in the conservation area.

North-South Road Conservation Area

The North-South Road conservation area is located along the east side of North-South Road south of the Presidio of Monterey Annex (Figure 2-3). The dominant habitat is maritime chaparral, which supports sand gilia and Monterey spineflower at low densities and a high richness of HMP species, particularly plants that characterize the sand hill maritime chaparral subtype.

Corridors

Habitat corridors were developed to provide avenues for wildlife and plant dispersal and genetic interchange among the larger habitat blocks of the conservation areas (Figure 2-3). One corridor would link the North-South Road conservation area with the Eucalyptus Road conservation area and another would link the Eucalyptus Road conservation area with the Inter-Garrison - Former Fritzsche Field conservation area.

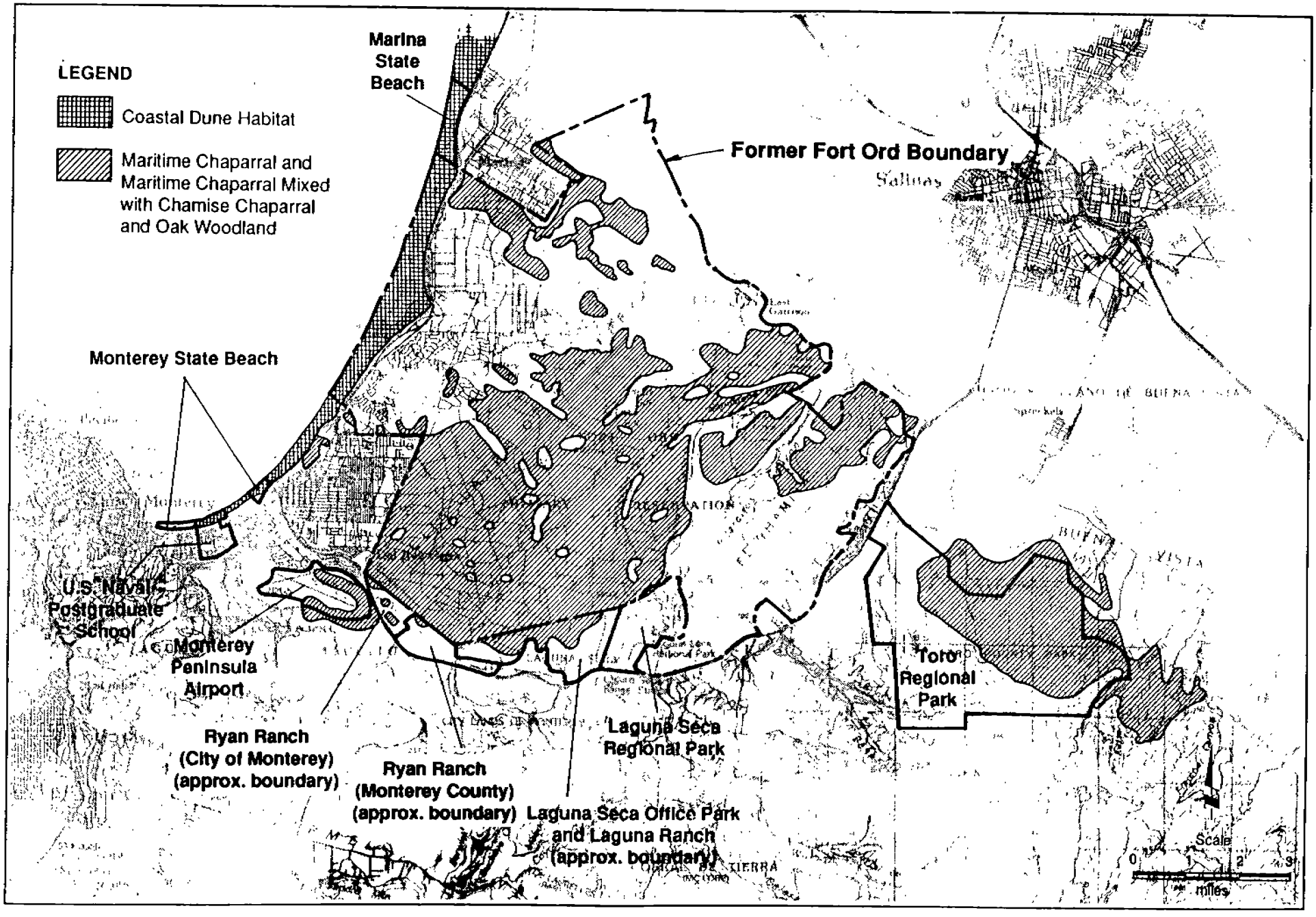
An additional corridor could link plant populations of the Inter-Garrison - Former Fritzsche Field and Coastal Dunes conservation areas. The link would have to be provided by habitat on the roadside and center median of Highway 1. Sand gilia and Monterey spineflower occur on both sides of Highway 1 where this corridor is located.

RELATIONSHIP OF FORMER FORT ORD TO OTHER MARITIME CHAPARRAL AND DUNE HABITATS

Former Fort Ord is mostly surrounded by developed and agricultural land, but protected and unprotected land supporting maritime chaparral and coastal dune habitats and HMP species occurs nearby (Figure 2-4).

Figure 2-4

Maritime Chaparral and Coastal Dune Habitats in the Vicinity of Former Fort Ord



Coastal Dune Habitat

Coastal dune habitat on private and public lands along the coast north and south of former Fort Ord is known to support or have potential to support Smith's blue butterfly, sand gilia, Monterey spineflower, robust spineflower, coast wallflower, black legless lizard, and western snowy plover (Figure 2-4).

Marina State Beach

Marina State Beach is contiguous with the north end of the coastal dunes of former Fort Ord. The coastal strand habitat at Marina State Beach is known to support Smith's blue butterfly, sand gilia, Monterey spineflower, robust spineflower, coast wallflower, and black legless lizard. Beaches support western snowy plover nesting habitat.

Sand City, Seaside, and Monterey

Dune habitats in Sand City, Seaside, and Monterey are contiguous with the south end of the coastal dunes at former Fort Ord (Figure 2-4). These dune habitats are heavily disturbed and fragmented by water treatment plants, hotel and residential development, sand mining operations, and roads. However, sand gilia, Monterey spineflower, and black legless lizard are known to occur in specific locations in this area, and various dune restoration efforts have been undertaken.

Monterey State Beach

Monterey State Beach is divided into two parcels within the City of Monterey (Figure 2-4). The north parcel supports degraded dune habitat. The south parcel supports a narrow strip of beach with only a small amount of degraded coastal strand habitat between the beach and developed sites. Dune restoration efforts have been undertaken at portions of Monterey State Beach.

U.S. Naval Postgraduate School

The U.S. Naval Postgraduate School supports coastal dune habitats, including degraded and native coastal strand. These dunes are known to support many sand gilia.

Maritime Chaparral

Maritime chaparral habitat occurs on private and public lands to the east and south of former Fort Ord and is known to support or could potentially support sand gilia, Monterey spineflower, California linderiella, Seaside bird's-beak, Yadon's piperia, black legless lizard, Toro manzanita, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and Hooker's manzanita (Figure 2-4).

Toro Regional Park and Adjacent Private Land

Toro Regional Park supports stands of Aromas formation maritime chaparral disjunct from that on former Fort Ord. The park is known to support Toro manzanita, Monterey ceanothus, and Eastwood's ericameria. Urban development, State Route (SR) 68, oak woodland, and grassland separate the maritime chaparral at Toro Regional Park from that at former Fort Ord.

Monterey Peninsula Airport and Adjacent Private Land

Southwest of former Fort Ord, Monterey Peninsula Airport and adjacent private property support maritime chaparral. These sites are known to support Seaside bird's-beak, Toro manzanita, sandmat manzanita, and Eastwood's ericameria. The maritime chaparral at the airport is separated from former Fort Ord by SR 68 and a narrow strip of oak woodland.

Ryan Ranch

Ryan Ranch (a portion of which is within the City of Monterey and a portion is in county lands) borders former Fort Ord on the south and supports small patches of maritime chaparral. Some of these maritime chaparral patches are contiguous with former Fort Ord maritime chaparral and others are separated by areas of grassland. Maritime chaparral at the west end of the city portion of Ryan Ranch forms a partial corridor between former Fort Ord and the Monterey Peninsula Airport. Development already exists on both Ryan Ranch properties and additional development is proposed for these sites.

Laguna Seca Park

Small patches of maritime chaparral occur at the north edge of Laguna Seca Park contiguous with the maritime chaparral at the southwest corner of former Fort Ord.

Laguna Seca Office Park and Laguna Ranch

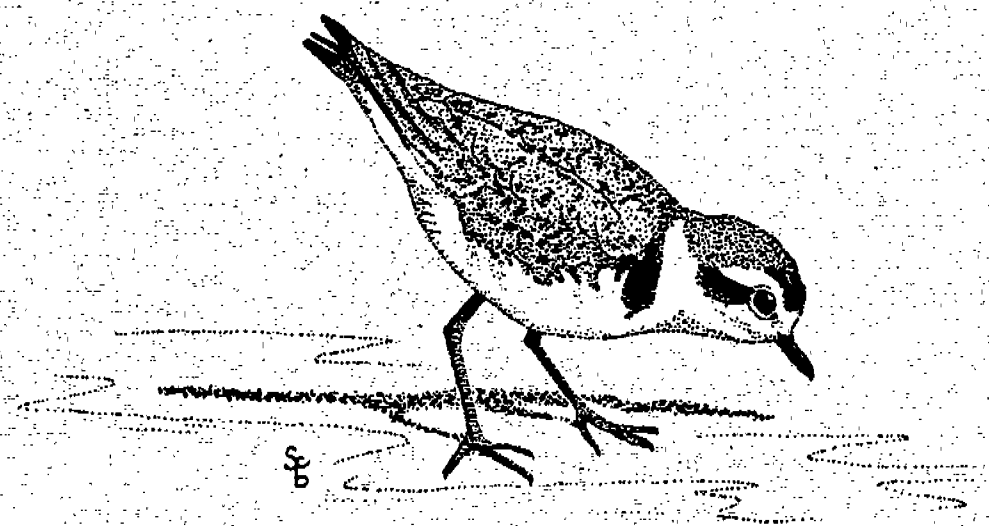
Laguna Seca Office Park and Laguna Ranch support large areas of maritime chaparral contiguous with the south boundary of former Fort Ord. This site likely supports sandmat manzanita, Monterey ceanothus, and Hooker's manzanita, based on occurrences of these species abutting the former Fort Ord side of the boundary. Low-density residential development occurs within the maritime chaparral habitat at Laguna Ranch.

Sand City

Approximately 60 acres of sand hill maritime chaparral occurs in Sand City between Highway 1 and Del Monte Boulevard. This site supports transitional habitat between sand hill maritime chaparral on Baywood sands and coastal strand habitat on coastal dunes. Large populations of sand gilia are known to occur at this site.

Chapter 3.

Habitat Management for Predisposal Actions



Western Snowy Plover

Chapter 3. Habitat Management for Predisposal Actions

Predisposal actions include placing former Fort Ord into a caretaker status, remediating contaminated sites, conducting ordnance and explosives removal, and supporting interim uses. As the 7th Infantry Division (Light) (IDL) realigned from Fort Ord, the U.S. Army (Army) placed structures, utilities, and operation and maintenance systems into a caretaker status until property disposal decisions are implemented. Caretaker status is defined by Army regulation as "the minimum required staffing to maintain an installation in a state of repair that maintains safety, security, and health standards".

Cleanup of contaminated sites is required in preparing lands for disposal and proposed future uses. The entire former Fort Ord installation is listed on the National Priorities List as a Superfund site. A federal facilities agreement, negotiated under Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), requires the Army to perform the Superfund cleanup process described in the Other Physical Attributes Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992c). Cleanup activities that have potential to affect biological resources include excavation of contaminated soils, landfill remediation, removal of lead and other heavy metals, and ordnance and explosives removal. Impacts resulting from each of these actions are discussed separately in this chapter.

Habitat Management Plan (HMP) guidelines for the cleanup of contaminated sites have been developed based on the best available information. Mitigation for cleanup activities may be modified in the future based on findings and conclusions in the Fort Ord Basewide Record of Decision for the Remedial Investigation/Feasibility Study, which is currently in preparation. Other mitigation measures may be considered based on site-specific information, results of human health and ecological risk assessments, and the development and screening of remedial alternatives. Any modifications to this HMP based on new information must be reviewed and approved by U.S. Fish and Wildlife Service (USFWS).

Interim uses, before disposal, could affect HMP species and habitats. Interim use is the use of real property through real estate documentation, such as leases, licenses, and permits, before disposal of federal land is accomplished. Interim uses could include leasing of office space, storage space, housing, and other developed facilities; training facilities; or other facilities to non-Army entities. Some public access and recreational use may also be permitted on limited areas of the former Fort Ord dunes and beach before disposal of property west of Highway 1. Use permits are also possible for scientific and cultural uses. Interim uses on currently developed lands will have no impact on biological resources. Impacts resulting from interim uses on undeveloped land are addressed in this chapter.

CONTAMINATED SOILS TREATMENT

Impacts

The majority of cleanup and remediation of contaminated soils will take place in developed areas of the Main Garrison that do not have HMP requirements.

Limited removal of contaminated soils will take place in the inland range area in locations that support natural habitats. Contaminated soils in these areas will be excavated and likely used as engineering fill under the landfill cap (described in the next section). Vegetation will be removed during soil excavation. However,

the impact will be temporary because excavated soils will be replaced with clean fill or contoured into the landscape and disturbed areas either will be allowed to revegetate naturally or will be actively restored. Each area will be retained and managed as part of the U.S. Bureau of Land Management (BLM) Natural Resource Management Area.

HMP species associated with maritime chaparral could potentially be affected by contaminated soils removal in the inland range. Species potentially affected include sand gilia, Monterey spineflower, Seaside bird's-beak, Toro manzanita, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, and Hooker's manzanita. If these soil remediation sites are within maritime chaparral habitat in areas with baywood sands or oceano soils , black legless lizards may also be affected (see Figure B-16 in Appendix B).

Mitigation

Specific impacts and mitigation for disturbance of natural habitats in the inland range area during contaminated soil removal will be identified on a case-by-case basis. During the remedial design phase of the contaminated soil removal process, impacts will be identified based on anticipated levels and types of disturbance required to treat each area, and mitigation will be incorporated into the project design to minimize disturbance to natural resources. Areas will be allowed to naturally revegetate or will be actively revegetated using methods and level of effort appropriate to each situation.

Similar mitigation, monitoring, and reporting requirements as described in the following "Unexploded Ordnance Removal" section of Chapter 3 will also be implemented as applicable at contaminated soil removal sites in the inland range area.

LANDFILL REMEDIATION

Impacts

Two landfill areas (one just north of Imjin Road and one just south of the road) are proposed for remediation. The landfill on the south side of Imjin Road will be capped. The landfill on the north side of the road will be excavated and consolidated on the fill areas on the south side of Imjin Road.

Capping the landfill on the south side of Imjin Road will result in the loss of populations of Monterey spineflower and sand gilia. The landfill north of Imjin Road encompasses approximately 30 acres and does not support Monterey spineflower or sand gilia; the landfill south of Imjin Road occupies approximately 120 acres and contains low-density populations of Monterey spineflower and small sand gilia populations (Figure 3-1).

Placement of groundwater treatment facilities in the landfill area has already been completed and groundwater remediation has begun. Groundwater remediation activities were conducted outside designated habitat areas and no sand gilia or Monterey spineflower were affected.

Capping the landfills will involve stripping existing vegetation from the landfill surfaces. The landfill cells will be consolidated in the area south of Imjin Road. Cover material will be used to bring the grade of the landfill area to the level of the flexible membrane liner (FML). Soils from the dunes collected during the lead removal process (after large lead particles are sifted out) may be used for portions of the fill material under the FML. Approximately 2 feet of soil will be placed over the FML to achieve the final grade and surface to be achieved by the remedial action. Stripping of vegetation from the landfill surfaces will remove individuals of Monterey spineflower and sand gilia. However, seed has been salvaged from plants to be affected. The

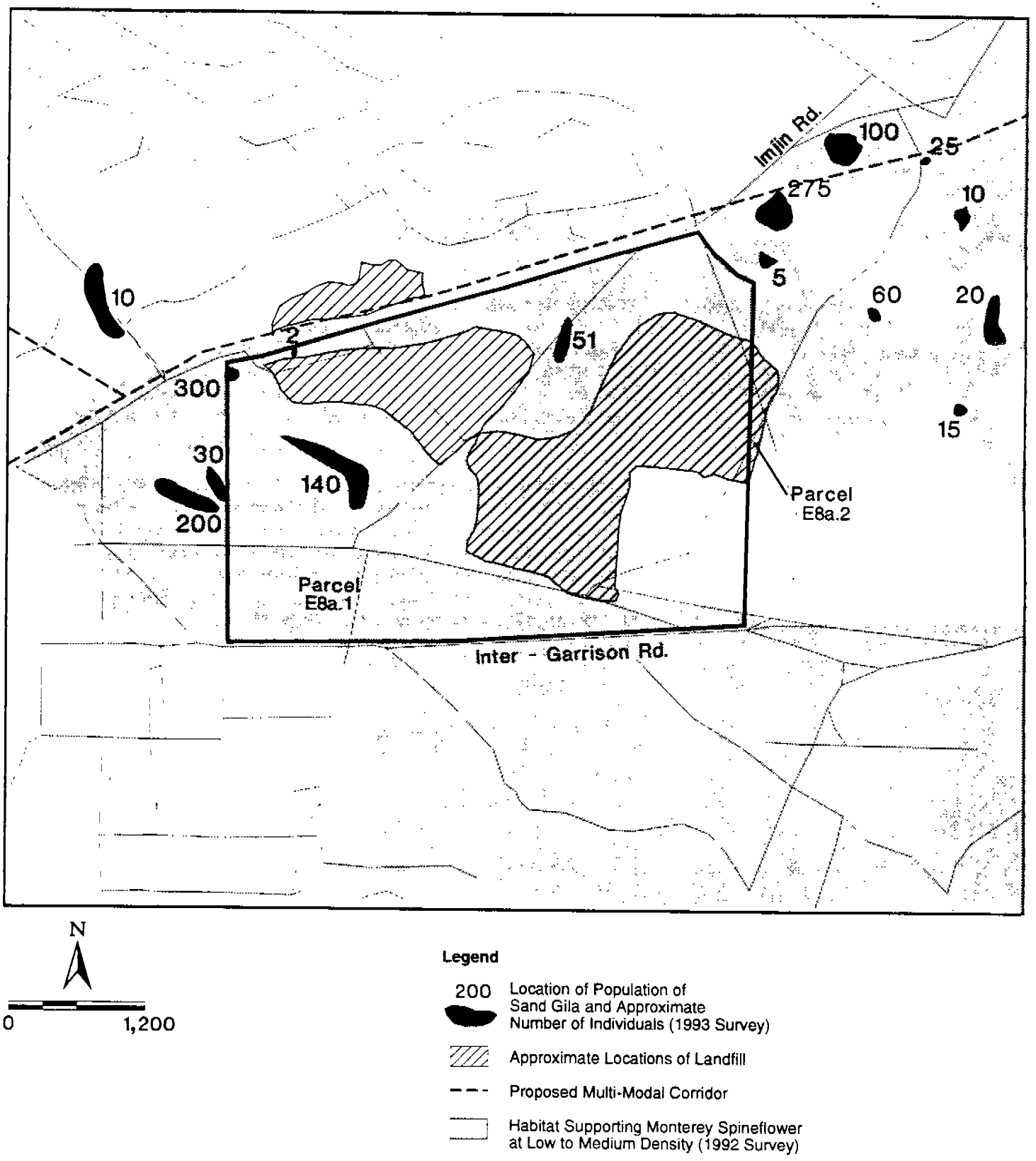


Figure 3-1
Locations of Sand Gilia and Monterey Spineflower Populations in and Adjacent to Parcels E8.1 and E8.2

seed will be available to future land recipients if desired for restoration activities. Vehicle traffic bringing fill to the site could eliminate some Monterey spineflower habitat and individual plants at sites adjacent to the landfill.

The Army will use appropriate construction management practices to limit construction disturbance to designated work areas. Construction access routes and haul roads within natural habitat areas will be selected to avoid large areas of habitat and will be marked to confine construction traffic to the designated areas.

Mitigation

According to the agreement between the Army, USFWS, BLM, University of California (UC), and Fort Ord Reuse Authority (FORA) included in Appendix A, the Army is not required to perform any mitigation for impacts on biological resources associated with remediation of the landfill. The requirement for the landfill parcel to be included as an HMP habitat management area is not an Army responsibility . Subject to approval by the UC governing body, UC will accept the landfill parcel and manage habitat. Alternatively, FORA will accept and manage the landfill parcel (see the section titled "Parcels E8a.1 and E8a.2 - Landfill Parcel" in Chapter 4).

Although the Army is not required to perform mitigation for biological resource impacts associated with capping of the landfill, the following actions have been or will be taken. The Army will exercise appropriate construction management techniques to avoid unnecessary disturbance of habitat during remediation of the landfill. The Army will not be required to restore habitat on the landfill cap nor will the Army be required to restore or monitor threatened and endangered species or perform other habitat management activities in the parcel while the landfill is being remediated or is in caretaker status. The Army has salvaged seed from sand gilia and Monterey spineflower plants affected by remediation activities. The seed will be made available to future land recipients for restoration activities. The Army will avoid using invasive exotic plant species in erosion control seed mixes.

REMOVAL OF LEAD AND OTHER HEAVY METALS

Impacts

Lead will be removed at certain beach firing ranges. Large lead particles will be sifted out of sand at the Corrective Action Management Unit (CAMU). Soils contaminated with metals would likely be excavated and used as engineer fill under the landfill caps, as described earlier. In locations where these remediation measures are conducted, Monterey spineflower, coast wallflower, Smith's blue butterfly, and black legless lizard may be adversely affected through direct mortality and temporary loss of habitat. The expected area of lead removal would not reach areas of western snowy plover habitat along the beach.

Sands contaminated with heavy metals could be disturbed or removed in areas supporting less than 1% of the total occupied habitat of Monterey spineflower at former Fort Ord. The specific number of individuals and amount of habitat affected cannot be determined because the extent of lead removal is unknown. The coastal dune areas of former Fort Ord support approximately 3-4% of the entire known range of Monterey spineflower.

Smith's blue butterfly requires seacliff or coast buckwheat as host plants. Remediation of the beach firing ranges will involve excavation of contaminated soil, resulting in the removal of approximately 20 acres of seacliff and coast buckwheat habitat used by the Smith's blue butterfly (Figure B-19). This area of

disturbance may increase if other areas require cleanup based on ongoing remedial investigations. Removal of host plants could also result in direct mortality to adults, larvae, or pupae depending on the time of year remediation takes place.

Coastal populations of western snowy plover nest on Pacific coast beaches above the high tide line. Western snowy plovers are highly sensitive to human disturbance. Lead removal activity will be concentrated at the dune backstops of the firing ranges occurring at various distances inland from the beach. Lead removal activities are not anticipated in or near snowy plover nesting habitat. If lead removal is required on or near the beaches at former Fort Ord, disturbance from remediation activities could cause nest abandonment and nesting failures for western snowy plovers, resulting in direct mortality.

The black legless lizard occurs in areas of loose, sandy soils supporting native dune, coastal scrub, maritime chaparral, oak woodland, or oak savanna vegetation. Soil excavation associated with lead removal on the dunes could result in mortality and temporary loss of habitat for black legless lizards. The range of the black legless lizard is restricted to the Monterey Bay region. Intergrades between black and silvery legless lizards have been found elsewhere along the California coast from the east side of the San Francisco Bay to San Luis Obispo County, but the status and distribution of these varieties are unresolved.

Because of the limited range of the black legless lizard and the scarcity of suitable habitat in the Monterey Bay region, loss of habitat and individual animals at former Fort Ord may substantially reduce the range of the species and could contribute to state or federal listing as threatened or endangered.

Mitigation

High concentrations of lead near the target areas will be removed to reduce lead exposure to levels that are protective of human health. Based on human health risk assessment, areas with 10% and greater surface cover of spent ammunition were defined as the Soil Remedial Unit for Site 3 Beach Trainfire Ranges.

The remedial action objectives for site 3 are to reduce the risks associated with site-related chemicals and reduce potential adverse health and environmental effects for site-related chemicals by remediation to the health-based level of concern. The areas with 10% and greater surface cover of spent ammunition will be excavated. Approximately 63,000 cubic yards of spent ammunition and soil will be excavated down to a depth of approximately 2 feet below ground surface. Large lead particles will be separated from the soil using screens and gravity-feed separation techniques at the CAMU. The screened soil will be placed in the OU2 landfill.

The 10% and greater areas of spent ammunition compose a relatively small portion (approximately 20 acres) of the overall dunes area and are heavily disturbed from previous use.

The ecological risk assessment results for site 3 are not final. There is a need for additional ecological assessment activities and finalization of the environmental cleanup level. The finalization of the ecological assessment activities and finalization of an environmental cleanup level will result in a determination of whether further remedial actions are needed at site 3 (beyond lead removal at areas with 10% or greater surface cover of spent ammunition as already planned). If additional areas (less than 10% spent ammunition) must be treated to reach a desired environmental cleanup level, the biological resources of these areas will be examined together rather than as separate remediation sites. This will allow lead removal and mitigation to be planned in a manner that will minimize impacts on sensitive plant and wildlife species and increase the effectiveness and efficiency of dune restoration efforts. A comprehensive lead removal and dune restoration program will be developed that will provide guidelines for timing and location of lead removal and methods and priorities for restoration efforts. In addition to HMP species and habitat considerations, the timing and method of lead removal at specific sites will be adjusted based on the level of human health risk associated with each site.

Minimize Disturbance Associated with Lead Removal

Lead removal sites will be limited to the smallest area possible and marked to ensure effective cleaning of the site and limit unnecessary disturbance of habitat. Placement of all access roads, staging areas, and other appurtenant facilities will attempt to avoid areas containing HMP plant and wildlife species and native dune vegetation.

Identify Resources and Restoration Potential before Lead Removal

Once the Army has identified all sites where lead must be removed, these sites will be surveyed for plant and wildlife resources and the restoration potential for each area will be estimated. Typically, areas with 10% or greater surface cover of lead concentrations support poor-quality habitat because of high disturbance and grading activities that have occurred. Although these areas contain poor-quality habitat, they will be surveyed for existing plant resources to provide a baseline for vegetation replacement.

Before lead removal actions are initiated at sites with less than 10% lead concentration, each site will be surveyed for populations of sand gilia, Monterey spineflower, coast wallflower, and black legless lizard and for populations of or suitable habitat (buckwheat populations) for Smith's blue butterfly. Beach areas within or near lead removal sites (although this is not anticipated) will be surveyed for western snowy plover nesting activity. The number of individuals of each of these species will be estimated for each lead removal site by direct counts or by using appropriate field sampling methods (e.g., quadrat or transect methods). These data will be used to establish mitigation success criteria.

Estimates of restoration potential will indicate plant and wildlife species that could be established and the population densities expected at each site following lead removal. Restoration potential should be estimated for native dune vegetation, sand gilia, Monterey spineflower, coast wallflower, black legless lizard, and Smith's blue butterfly. Estimates will be based on occurrences of these resources before lead removal, occurrence of non-native vegetation, current soil conditions, expected soil conditions after lead removal, slope, aspect, specific microhabitat conditions, proximity to existing populations of each species, and habitat associations of all species considered.

Develop Restoration Plans for Each Site Where Lead Will Be Removed

A restoration plan will be developed for each lead removal site. The Army will coordinate with California Department of Parks and Recreation (DPR) during development of restoration plans. The restoration plan will include plant and wildlife species to be established at the site, target densities for all species, a monitoring plan, and corrective measures if goals are not met. At a minimum, native dune vegetation will be established at each site, as well as HMP species populations equitable with those that were removed. Specific success criteria for restoration of vegetation and wildlife populations are described in the "Success Criteria" section following the mitigation section.

Recontouring of sand dunes following lead excavation activities will be included in restoration plans. All restored areas will be recontoured to create a natural dune landscape that grades smoothly into existing topography.

Seed and/or cuttings for revegetation will be collected from former Fort Ord or from other dune areas less than 10 miles from the installation. Plants that may be transplanted will be removed from areas before cleanup and transferred to restoration areas. Seed will be collected from plants within former Fort Ord or from adjacent dunes and used for restoration. Seed may be either directly broadcast in restoration areas or propagated in nurseries and transplanted, depending on which method is most successful for each species.

Purchased nursery stock of local origin will be used only if at least three attempts to use transplants and seed collected from local dunes prove insufficient to meet restoration success criteria.

The Army and DPR may work cooperatively on restoration efforts. The Army will be responsible for restoring biological resources lost during lead removal so that criteria described in the "Success Criteria" section are met. DPR will be responsible for additional restoration and/or enhancement outside lead removal areas required to compensate for impacts associated with reuse of former Fort Ord. Success criteria for restoration efforts to be completed by DPR are described in Chapter 4.

DPR may complete its restoration and enhancement responsibilities with Army restoration efforts or after Army restoration activities are complete. The Army will coordinate with DPR to ensure that Army restoration activities are compatible with future DPR restoration and enhancement goals. The Army may also contract with DPR or other appropriate agencies to develop and implement dune restoration plans associated with lead removal.

Restoration of HMP species populations after lead removal will not be conducted in areas designated by DPR for future development. After lead removal, sand will be stabilized in these areas using straw plugs or other suitable techniques.

Remove Lead

The order of lead removal from cleanup sites will be based primarily on the human health risk associated with each site. The total dune area disturbed by lead removal at any one time may also be limited to protect biological resources. If more than 15% of the coastal former Fort Ord occurrence of HMP species populations or habitat is to be impacted (before successful restoration of previously disturbed areas) the Army will coordinate with USFWS to determine if phasing of the cleanup activity is necessary to protect the affected HMP resources. Restored populations and habitat for each species can be included as part of the total coastal occurrence when restoration success criteria have been fulfilled.

Before an area is disturbed for lead removal, all plants that may be transplanted will be removed and planted in an area cleaned previously. Seed also will be collected from all available plants and used for propagation of new material and restoration.

Immediately after lead removal procedures have been completed in an area, straw will be plugged and spread over the location to stabilize the loose sand. The restoration plan for that site will be implemented once the final cleanup of the site is completed. Lead will not be removed in a new area (above the 15% allowable habitat disturbance) until resources are restored in the previously cleaned locations.

Mitigation for impacts on wildlife species may alter the timing of lead removal in certain areas. Specific mitigation measures for vegetation and wildlife species are described below.

Erosion Control

The loose, sandy texture of the dune soils at former Fort Ord (U.S. Army Corps of Engineers 1992b), the temporary removal of protective vegetation during lead removal, the lack of particle-binding organic matter in the soil, and the presence of strong prevailing winds off the Pacific Ocean are all factors that combine to create a high potential for wind erosion during lead cleanup.

Use of straw plugs and straw mulch is an effective wind erosion control technique at Marina State Beach and other coastal dunes in the Monterey Bay area. Four-foot-high wood lath and wire or plastic snow fences can be used to reduce wind erosion in the most severe sites. Snow fences are placed perpendicular to the prevailing wind direction in parallel rows approximately 100 feet apart.

Control of windblown sand can best be achieved by controlling the movement of sand over an entire area of bare sand. Problems often occur when stabilization is attempted downwind from an area of drifting, unstable sand. The blowing sand from the unstable upwind area will continually cover the mulch and/or seedling plants on the treatment site. If an entire area can be stabilized, straw plugs or straw mulch is an inexpensive, effective technique.

Native Vegetation

In accordance with the overall restoration plan, native dune vegetation will be reestablished at each lead removal site following final cleanup actions. The procedure given below will be followed to restore native dune vegetation. Restoration techniques may be modified if necessary to better accommodate site-specific conditions or if previous restoration efforts at former Fort Ord indicate different techniques may be more successful. USFWS must approve all major modifications of restoration procedures. This procedure is based on a similar, nearby restoration effort at Marina State Beach, where various methods were used to determine the most successful procedure for restoring coastal dune habitat (Ferreira and Gray 1987):

- Collect seeds of native plants onsite and from other local dune populations in the Monterey Bay region.

- Recontour sand following lead excavation activities to create a natural dune landscape that grades smoothly into the existing dune topography. This measure will be included in the restoration plans for each lead removal area.

- Remove ice plant by hand and dispose of the plants offsite, remove by hand and lay the plant upside down on the sand or in compost piles, or apply Roundup or other appropriate herbicides and leave dead plants in place to hold substrate. European beach grass may also be removed as necessary using techniques appropriate for the species.

- Promote dune stabilization where sand is exposed. The "straw planting" technique described in Ferreira and Gray (1987) is a method that could be used.

- Prepare two types of seed mix that reflect the species compositions characteristic of coastal strand and dune scrub habitats, depending on where restoration activities are to occur on the dunes. Table 3-1 illustrates possible seed mixes. Species may be planted as seeds or seedlings, depending on which method is most effective.

- Apply seed mixes to coastal strand restoration sites in the foredune and mid-dune habitats, and dune scrub restoration sites in the rear dune habitat, at approximately 40 pounds per acre (lbs/ac). Irrigation is not usually necessary for dune restoration. Summer irrigation should not be conducted because of its high potential to promote the growth of weedy, non-native species, and to alter the life cycle of native plants.

- Plant nursery propagated seedlings in locations with appropriate microhabitat conditions for each species.

- Control human access to dunes and implement a beach access plan during the interim period between closure, cleanup, and disposal of former Fort Ord lands.

Potential sources of labor that may be employed in implementing the restoration procedures described above include the California Conservation Corps (CCC), the Monterey County Court Work Alternative Program, and California Native Plant Society (CNPS) volunteers. The Army may also contract with DPR to implement restoration procedures.

Table 3-1. Example of Potential Seed Mixes for Restoring Coastal Strand and Dune Scrub Communities

Coastal Strand

Abronia latifolia
Abronia umbellata
Ambrosia chamissonis
Armeria maritima
Artemisia pycnocephala
Atriplex leucophylla
Calystegia soldanella
Camissonia cheiranthifolia
Dudleya caespitosa
Ericameria ericoides
Erigeron glaucus
Eriogonum latifolium[a]
Eriogonum parvifolium[a]
Eriophyllum staechadifolium
Lessingia filaginifolia
Poa douglasii

Dune Scrub

Achillea millefolium
Baccharis pilularis
Ericameria ericoides
Lupinus arboreous
Lupinus chamissonis

[a] At Smith's blue butterfly restoration sites the amount of the species removed during remediation will be proportional to that which is used during restoration.

Specific mitigation actions described below for sand gilia, Monterey spineflower, coast wallflower, Smith's blue butterfly, and black legless lizard will be conducted with the restoration procedures described above. Lead removal is not anticipated in or near beach areas considered habitat for the western snowy plover and the species is not expected to be affected. However, mitigation is included in the event that lead removal activities extend to the vicinity of snowy plover nesting areas.

Sand Gilia, Monterey Spineflower, and Coast Wallflower

In conjunction with and following establishment of native dune vegetation, establishment of populations and habitat for sand gilia, Monterey spineflower, and coast wallflower will be encouraged within the dune restoration sites. The following measures will be taken to establish sand gilia, Monterey spineflower, and coast wallflower in the dunes:

- Collect and store all seed from populations of sand gilia, Monterey spineflower, and coast wallflower to be removed by lead removal activities.
- Collect seed from other populations of these species on the former Fort Ord dunes or other Monterey Bay dune sites. Seed should be collected from no more than 10% of plants in these populations to prevent adverse effects on local reproduction.
- Distribute seed into suitable habitat for each of these species within the restoration sites following restoration of dune topography. Plants may be germinated in a nursery and whole plants transferred to the restored dune habitat if this method is found to be more successful than broadcasting seed.

Restoring lead cleanup sites to dune contours with native vegetation is expected to result in microhabitat conditions favoring the establishment of at least small, localized populations of sand gilia; larger, widespread populations of Monterey spineflower; and scattered individuals of coast wallflower. Sand gilia and Monterey spineflower typically occur in small openings in stabilized dune vegetation.

Smith's Blue Butterfly Habitat and Populations

The Smith's blue butterfly is completely dependent on seacliff buckwheat and coast buckwheat for oviposition, food for larvae, and as a nectar source for adults. Both seacliff and coast buckwheat occur at former Fort Ord.

The ranges of seacliff and coast buckwheat overlap in Monterey and San Luis Obispo Counties (Munz 1959). This range overlap allows both these food plants to be used by Smith's blue butterfly at former Fort Ord. However, variations in the life histories for both buckwheat species have resulted in differences in timing of breeding for Smith's blue butterfly at former Fort Ord. Coast buckwheat blooms up to 1 month before seacliff buckwheat. Adult Smith's blue butterflies emerge to breed as host plants bloom. The difference in blooming times between seacliff and coast buckwheat has instigated a temporal breeding separation between Smith's blue butterflies using each species of buckwheat, resulting in two relatively distinct races of butterflies (Arnold 1980). One race occurs primarily in the northern portion of the dunes and favors coast buckwheat, and the other occurs primarily in the southern portion of the dunes and favors seacliff buckwheat (Arnold 1980). Natural speciation may be occurring between the two races of Smith's blue butterfly (Arnold pers. comm.). Maintaining spatial separation of seacliff and coast buckwheat at former Fort Ord will allow this process to continue.

No more than 15% of the 135 acres (based on 1995 inventories) of coastal former Fort Ord occurrence of seacliff and coast buckwheat may be disturbed at any one time during lead removal. These areas are shown in Figure B-19 in Appendix B. If more than 15% of the total population is to be

disturbed, the additional buckwheat cannot be removed until restoration sites that fully compensate for the affected areas have been successfully established.

Buckwheat will be planted as seedlings in restoration areas. Seed will be collected from seacliff and coast buckwheat plants at former Fort Ord and cultivated in a nursery for up to 9 months. This method was chosen because success rates are higher for planting seedlings than for broadcasting seed, and buckwheat plants reach maturity faster if initially grown in greenhouse conditions (Kreiberg pers. comm.). Buckwheat plants can also be transplanted from sites to be disturbed and, if successfully established, may complement the nursery-grown plants to meet the compensation requirements for the affected areas.

Collection of buckwheat seed could adversely affect Smith's blue butterfly pupae in the flowering head of the plant. Care should be taken to avoid collecting seed from flowering heads that contain pupae. Additionally, as much buckwheat seed as possible should be collected from plants within soil remediation areas before removal or transplanting of these plants. This will minimize the need to collect seed (and disturb plants) outside remediation areas.

The two races of Smith's blue butterfly and species of buckwheat at former Fort Ord should be treated separately during dune restoration efforts. Coast buckwheat affected by lead removal should be replaced with coast buckwheat, and seacliff buckwheat should be replaced with seacliff buckwheat. Plantings of these two species should not be mixed in the same area because densities of favorable plants for each race of Smith's blue butterfly would be diluted at the site and because favorable habitat conditions differ for each plant. Coast buckwheat occurs primarily in ferritin habitat where there is more coastal influence, and seacliff buckwheat occurs primarily in more sheltered rear dune habitat (Arnold pers. comm.). Revegetation efforts should mimic this trend.

Where feasible, leaf litter from under buckwheat plants will be collected from lead removal areas before disturbance and relocated to restoration sites. Collection and relocation of leaf litter should also result in relocation of some Smith's blue butterfly pupae. Leaf litter of seacliff and coast buckwheat will be segregated during collection and relocation to avoid the mixing of these two species as described above.

Western Snowy Plover

Coastal populations of western snowy plovers breed on the upper portions of flat sandy beaches above the high tide line (Grinnell and Miller 1944). Breeding western snowy plovers are very sensitive to human disturbance, and nesting success can be significantly reduced by human intrusion (57 Federal Register (FR) 1443, January 14, 1992). The USFWS has proposed critical habitat for the western snowy plover (60 FR 11768, March 2, 1995). The beaches at former Fort Ord are among the areas proposed as critical habitat. Lead removal is not expected to occur in the vicinity of snowy plover nesting habitat. However, the following mitigation has been developed in the event that removal activities extend near these areas.

To prevent disturbance to western snowy plovers, restrictions will be placed on timing of lead removal and restoration activities in some areas. If lead removal or restoration operations can be seen or heard from the shoreline where snowy plovers nest, all activities will be conducted between October and February (avoiding the snowy plover breeding and nesting season). Cleanup and restoration personnel will not be permitted on the beach during the breeding and nesting season.

Surveys for western snowy plovers are being conducted by Point Reyes Bird Observatory along coastal areas, including the former Fort Ord beach area, to determine exact nesting locations. If no nesting birds are found near an area proposed for lead removal or restoration, these activities may proceed through the nesting season and personnel may use that portion of the beach during that time.

Black Legless Lizard Habitat and Populations

Black legless lizards occur at former Fort Ord in areas with sandy soils and native dune, coastal scrub, maritime chaparral, oak woodland, and oak savanna vegetation. Black legless lizards appear to be more abundant on former Fort Ord than previously thought.

Restoration of dune habitat will mitigate impacts on black legless lizards. If lizards are encountered during construction, they will be relocated to nearby habitat. However, it is not anticipated that significant numbers of black legless lizards would be encountered in areas of poor-quality habitat, such as iceplant mats and denuded and lead-encrusted target areas (such as areas remediated for human health), where black legless lizards may occur in low densities.

Only cover boards will be used during follow-up surveys to prevent disturbance to leaf litter and plant root systems caused by raking in restoration areas. Black legless lizards have very low dispersal ability on a regional level, but may disperse over short distances between adjacent areas of suitable habitat. Therefore, any lizards present in restoration areas may be relocated animals or resident animals from adjacent areas.

Success Criteria

Native Dune Vegetation

Healthy native coastal dune habitat is described in Chapter 2 in the "Habitat Management Plan Habitats" section. This description and comparisons with other sites supporting coastal strand and dune scrub should be used to measure the success of restored habitat. The restored habitat will consist of naturally regenerating native coastal strand and dune scrub habitats. After 5 years, the vegetative cover and species diversity should be similar to existing occurrences of these habitats in the Monterey Bay area. The extent of non-native, weedy species (e.g., African ice plant and European beach grass) shall be no more than 20% of vegetative cover.

Sand Gilia, Monterey Spineflower, and Coast Wallflower

Restoration efforts for sand gilia, Monterey spineflower, and coast wallflower will be considered successful if:

- self-sustaining populations of these species result within naturally functioning coastal strand habitat,
- suitable habitat for these species is created within the coastal strand habitat that is at least as extensive as that present before site remediation, and
- annual reproduction and soil seed bank of restored populations are comparable to that of existing populations nearby.

Smith's Blue Butterfly

To mitigate for removal of potential but unoccupied Smith's blue butterfly habitat, new populations of seacliff and coast buckwheat will be established at dune restoration sites. Mitigation will be considered successful if buckwheat populations established in restoration areas are of least equal in size and density as populations lost during lead removal. These populations must also produce at least equal densities of

flowering heads as do removed populations. Populations of seacliff and coast buckwheat should not be mixed in restoration areas.

If occupied Smith's blue butterfly habitat is removed during lead cleanup, both buckwheat populations and butterfly populations must be established in restoration areas. Success criteria for buckwheat populations are the same as those described above for unoccupied habitat. Mitigation for removal of butterfly populations will be considered successful if restored areas support Smith's blue butterfly populations for at least 2 of 5 years.

Western Snowy Plover

Mitigation for potential impacts on nesting western snowy plovers is designed to prevent disturbance to the nesting population. Mitigation will be considered successful if lead removal activities are not visible or audible from active western snowy plover nest sites at former Fort Ord during the breeding and nesting season.

Black Legless Lizard

Losses of black legless lizard populations during lead removal will be mitigated for by establishing new black legless lizard populations in restored dune habitat. Mitigation will be considered successful if, after black legless lizard relocation, suitable habitat is present, and adult lizards are found every year for 5 years.

Monitoring

A monitoring program will be conducted to evaluate the success of restoration efforts for native dune vegetation, sand gilia, Monterey spineflower, coast wallflower, Smith's blue butterfly, western snowy plover, and black legless lizard. The following monitoring procedures will be conducted annually, or more often as stated.

Native Dune Vegetation, Sand Gilia, Monterey Spineflower, and Coast Wallflower

Monitoring of restored dune vegetation, sand gilia, Monterey spineflower, and coast wallflower will include the following actions:

- Conduct releves or transects of random samples of restored coastal dune vegetation and gather data on species composition, cover, and reproduction of dune plants. Estimate cover of non-native, weedy plant species.
- Estimate the number of individuals and amount of suitable habitat for sand gilia, Monterey spineflower, and coast wallflower on restoration sites. Map the locations of populations and habitat.
- Measure reproduction in populations of sand gilia, Monterey spineflower, and coast wallflower at restoration sites and at nearby existing population sites.
- Estimate relative amounts of viable seed in the soil seed bank between restoration and existing populations of sand gilia, Monterey spineflower, and coast wallflower.
- Record vegetation establishment with color photographs from fixed locations.

Smith's Blue Butterfly

A monitoring program will be implemented to evaluate the success of restoring potential and occupied Smith's blue butterfly habitat. Monitoring for the first 2 years after planting will determine whether buckwheat plants are surviving in adequate numbers to potentially fulfill success criteria. Monitoring for quality of Smith's blue butterfly habitat will be conducted for 5 years and will begin 2 years after planting to allow buckwheat seedlings to reach a mature state. The monitoring procedures for potential habitat are as follows:

- Conduct annual surveys of seacliff and coast buckwheat populations for 2 years after planting to determine densities and survivorship of newly established seedlings.
- Conduct annual surveys of seacliff and coast buckwheat populations at restoration sites for 5 consecutive years starting 2 years after planting of buckwheat seedlings to determine quality of habitat for Smith's blue butterfly.
- Use randomly placed quadrats of appropriate size and number to accurately estimate the density of seacliff and coast buckwheat plants in restoration areas during both the 2-year and 5-year monitoring periods. During the 5-year monitoring period the same quadrats will also be used to determine vegetative cover of these species and average number of flowering heads per plant.
- Each year plot on the ground and map the boundaries of seacliff and coast buckwheat populations surveyed to determine if population size is expanding, contracting, or remaining stable.

The vegetation monitoring procedures for occupied habitat will be the same as for potential habitat. In addition Smith's blue butterfly populations will be monitored where occupied habitat is to be restored. Monitoring procedures for butterfly populations are:

- Conduct annual surveys for Smith's blue butterfly for 5 consecutive years, starting 2 years after buckwheat seedlings have been planted.
- Sufficient surveys will be conducted during the adult flight period (mid-June to early August for populations using coast buckwheat and mid-July to early September for populations using seacliff buckwheat) to determine butterfly use.

Western Snowy Plover

A monitoring program will be implemented as needed to determine whether lead removal activities could potentially disturb nesting western snowy plovers. Annual surveys for western snowy plovers will be conducted at former Fort Ord by the Point Reyes Bird Observatory (see the previous discussion of western snowy plover under the mitigation portion of this section). If no western snowy plovers are found nesting at former Fort Ord, no further monitoring or restrictions on lead removal activities will be required.

If western snowy plovers are found to nest at former Fort Ord, all lead removal activities that can be seen or heard from the nesting area will be stopped until the end of the breeding and nesting season (March 1 to September 30).

However, no lead removal activities are expected in the immediate vicinity of the beaches at former Fort Ord where snowy plovers may nest. Lead removal activities that are not visible or audible from the coastline are not expected to disturb nesting western snowy plovers and need not restrict their activities during the breeding and nesting season.

Black Legless Lizard

Annual black legless lizard surveys will be conducted for 5 years after lizard relocation into restoration areas. To avoid disturbing vegetation in restoration areas, raking will not be used as a survey technique. Cover boards will be placed under shrubs in the restoration area no later than early March. Sufficient numbers of boards will be used to adequately assess black legless lizard population trends in the area. Boards will be checked during periods and conditions when legless lizards are most likely to be near the surface (March through July when warm weather follows rain). Numbers of lizards found and size class (snout-vent length) will be recorded.

In addition to this monitoring, the Army will allow appropriate agencies (i.e., UC, California State University, or USFWS) to conduct research on relocated black legless lizards in conjunction with Army relocation and monitoring efforts. Research studies may include but are not limited to marking and tracking individual lizards, using monitoring data for mark-recapture analysis, and measuring specific habitat conditions in restoration sites. Agencies conducting the research will be responsible for research costs.

Corrective Measures

If monitoring indicates success criteria are not met for native dune vegetation or any HMP species, correction measures will be implemented as described below.

Native Dune Vegetation, Sand Gila, Monterey Spineflower, and Coast Wallflower

Based on the results of each year's monitoring, the restored dune habitat will be supplementally recontoured, weeded, replanted, or reseeded as needed to meet the established success criteria.

Improvement of sand gilia, Monterey spineflower, and coast wallflower habitat will be conducted if success criteria for these species are not met.

Smith's Blue Butterfly

If during the first 2 years after planting buckwheat seedlings it appears densities or survivorship of young plants will not be adequate to eventually fulfill success criteria for restoration of potential Smith's blue butterfly habitat, additional plantings of coast or seacliff buckwheat seedlings will be attempted in the restoration area to increase densities of individual plants. If after two attempted plantings densities of young plants are still not sufficient to eventually meet success criteria for densities of mature plants, a new area will be used as a restoration site and will be monitored using the same procedures as for the original restoration site.

If sufficient densities of mature plants are present after the 2-year monitoring period to fulfill success criteria, but densities of flowering heads are inadequate, one additional planting of buckwheat seedlings will be attempted to increase densities of flowering heads available in restoration sites. If 2 years after the supplemental planting densities of flowering heads still do not fulfill the success criteria, a new area will be used as a restoration site and will be monitored using the same procedures as for the original restoration site.

If the restoration area is intended to support Smith's blue butterfly populations, but butterfly use does not fulfill the success criteria for the site, additional seacliff or coast buckwheat will be planted to attempt to improve the habitat quality. Areas of additional plantings will be monitored for 5 years to determine whether Smith's blue butterfly use is sufficient to fulfill the success criteria. If after one attempted planting success

criteria are not met, a new area will be used as a restoration site. The new area must meet the same success criteria and will be monitored in the same manner as the original restoration site.

If a restored area intended to replace occupied Smith's blue butterfly habitat satisfies success criteria for buckwheat populations, but supports no Smith's blue butterflies, a new restoration site will be developed within 40 meters of an existing Smith's blue butterfly population. [Average daily movements for female Smith's blue butterflies are roughly 47.5 meters, and approximately 34.4 meters for males (Arnold 1983)]. The new site will be monitored in the same manner as the original site to determine if success criteria are met.

An alternative corrective measure could be transplanting Smith's blue butterfly larvae to the existing restoration site instead of creating a new restoration site. Moving Smith's blue butterfly larvae must be approved by USFWS before this measure is attempted. If larvae are to be transplanted, trial studies will be conducted with a small number of larvae to test whether larvae pupate and metamorphose into adults at the site. If trials are successful, more larvae may be moved. All transplanted larva will be monitored to determine if adults breed successfully. Larvae will not be transplanted to sites where butterfly populations already exist within 40 meters of the site. The existence of butterfly populations near an unoccupied site indicates that microhabitat conditions are not suitable for Smith's blue butterflies in the unoccupied restoration area.

Western Snowy Plover

If at any time between March 1 and September 30 lead removal activities are audible or visible from areas identified as containing nesting western snowy plovers, those activities will be stopped until after October 1.

Black Legless Lizard

If success criteria are not met after 5 years, monitoring may continue for 3 more years and if success criteria are not met after the additional 3 years, a new restoration site will be created.

Data gathered during monitoring of the unsuccessful restoration site will be used to better design and implement a restoration plan for the new site. The new restoration site will connect with an existing black legless lizard population and will be monitored for 5 years after it is determined that microhabitat conditions are suitable for black legless lizards (sufficient shrub size, leaf litter, and invertebrate populations). Success criteria for the new site will be the same as for the original restoration site.

ORDNANCE AND EXPLOSIVES REMOVAL

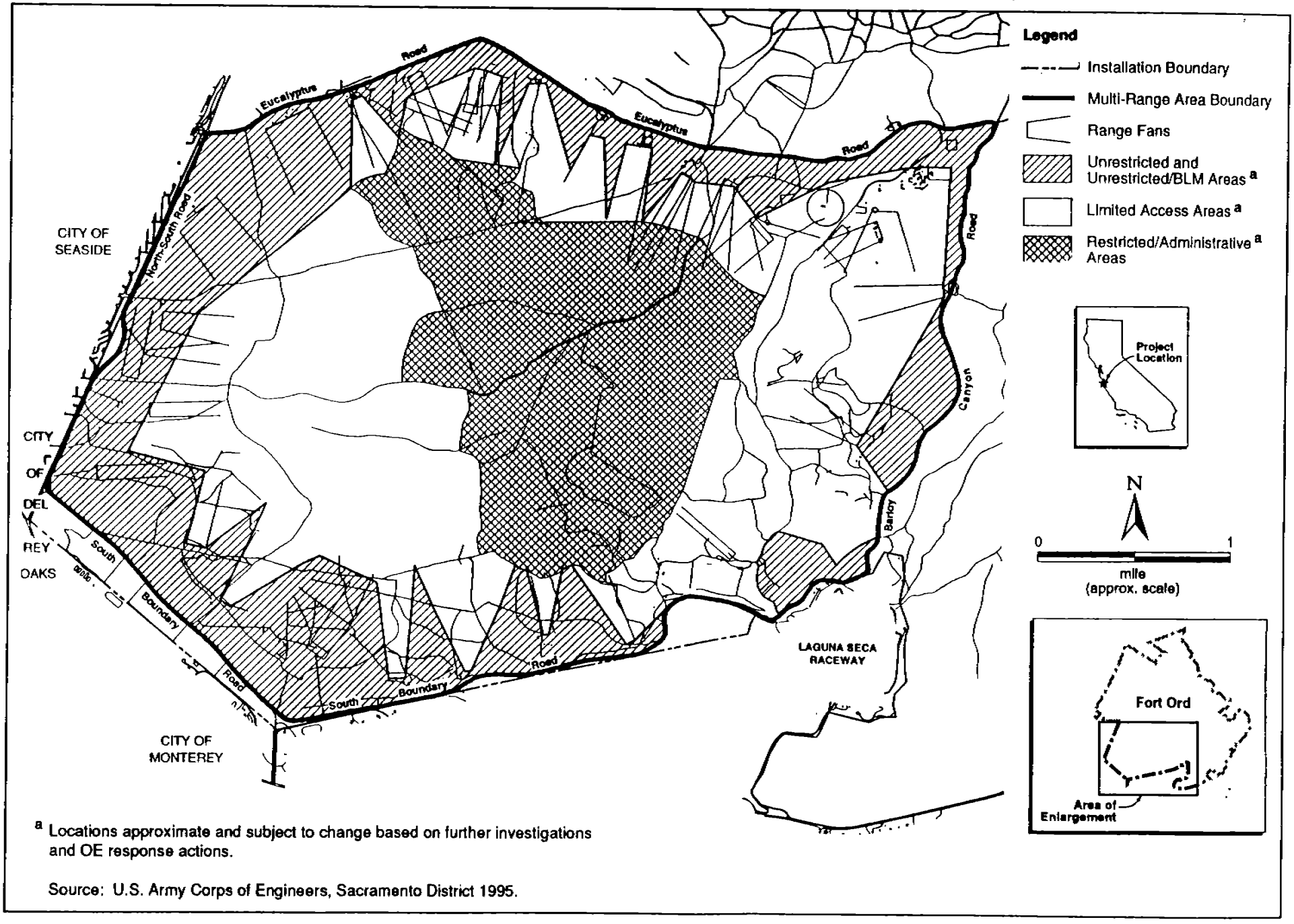
Background

Former Fort Ord contains an approximately 8,000-acre multi-range area (MRA) (also referred to as the inland range area) with ordnance and explosives (OE), plus additional training areas that may contain OE.

The Army and BLM have completed a Site Use Management Plan for Land Transfer and Reuse of the Multi-Range Area (U.S. Army Corps of Engineers, Sacramento District July 1995a). This document discusses the future land uses within and adjacent to the multi-range area. The following site use descriptions represent current expectations for future public and administrative uses within the multi-range area (Figure 3-2). Boundaries for these areas are approximate and subject to change based on further investigations, OE response actions, or other factors.

Figure 3-2

Conceptual Multi-Range Area Land Reuse Plan



[a] Locations approximate and subject to change based on further investigations and OE response actions.

Source: U.S. Army Corps of Engineers, Sacramento District 1995.

- U - Unrestricted. Public access will be unrestricted upon clearance of ordnance. These areas are on the perimeter of the multi-range area and are typically at or behind the firing points used by military personnel during active use of former Fort Ord. These areas are within the multi-range area but outside the lands to be transferred to BLM. These areas will be cleared of unexploded ordnance (UXO) and other OE following the same standards applied to other parcels designated for development. They will be transferred with the same use restrictions that are being applied to development parcels outside the multi-range area.

- UB - Unrestricted/BLM. These areas will be unrestricted to the depth of clearance for use by BLM personnel. These areas are on the perimeter of the multi-range area and are typically at or behind the firing points used by military personnel during active use of former Fort Ord. These areas will be cleared of UXO and other OE following the same standards applied to future BLM lands outside the multi-range area. They will be transferred to BLM with the same use restrictions that are being applied to parcels outside the multi-range area.

- LA - Limited Access. These areas are limited to specific uses. These areas are located within the core of the multi-range area but will be cleared to a level safe for some uses. The areas generally include old range areas, range safety fans, and other areas outside the high-impact area. These areas will be cleared of UXO and other OE sufficient to permit pedestrian and other nonmotorized access. An existing system of fire roads and firebreaks will be cleared to a sufficient standard to allow annual maintenance of fire roads with heavy equipment. They may be transferred with use restrictions that prohibit any surface disturbance or excavation outside the established system of fire roads and trails.

- RA - Restricted/Administrative. These high-impact areas will be restricted for use by BLM to trained persons only and will be off-limits to the public. The areas will be fenced by the Army, and the fence will be maintained by BLM. A system of fire roads and firebreaks will be cleared within this area to allow access for fire suppression and habitat monitoring. These areas were the primary target areas. The density or hazard of UXO is such that it is not deemed cost-effective to remove UXO at present. UXO clearance of the high-density impact area is not planned. If new technology allows further clearance actions in a cost-effective manner, the Army and BLM would jointly seek funding for future clearances.

Clearance of OE may involve selectively removing vegetation, possibly by burning to clear the ground surface. Burning may be infeasible in overly dense or high-moisture content vegetation in some portions of the inland range area, in which case, vegetation may be cut and chipped by a "brush hog" or other mechanical means. Where burning or mechanical removal may be used, burning will be the preferred method because of the beneficial effects of fire on HMP species associated with maritime chaparral.

After vegetation clearing, OE will then be located by visual and electromagnetic means (metal detectors), identified, and disposed of. During the location process, inert ordnance and ordnance scrap will be collected and properly disposed of. Removal of OE may require excavation of soil from around the ordnance. Excavations could range in size from a single cubic foot to several cubic feet, depending on the type, location, and position of OE. A potential method of disposal of OE is *in situ* detonation, which would increase the amount of soil disturbed.

Subsurface investigation and clearance activities may be conducted in areas where historical record reviews and interviews indicate the possible presence of buried ammunition or in impact areas where the velocity, trajectory, and momentum of munitions are likely to cause them to penetrate the ground's surface. Subsurface OE is located by use of metal detectors, ground-penetrating radars, or other appropriate methods, and then the area is excavated to determine the source of the magnetic or radio wave anomaly. Depending on the type and means of delivery, excavations could reach depths greater than 10 feet and have surface areas ranging in size from several square feet to tens of square feet. *In situ* detonation of subsurface OE would increase the amount of soil disturbed.

Impacts

Ordnance clearance from the inland range area and other live fire areas could result in the loss of portions of sand gilia and Monterey spineflower populations. Sand gilia and Monterey spineflower plants would be removed by vegetation burning and cutting, whole plant excavation, crushing or trampling from movement of excavation equipment and removal team foot traffic, and onsite ordnance detonation. The maritime chaparral habitat that support these species would be removed by burning and cutting. However, the disturbance associated with burning and cutting may have benefits to sand gilia and Monterey spineflower.

Clearance of OE could occur in areas supporting approximately 75% of the occupied habitat of sand gilia and Monterey spineflower at former Fort Ord. The number of individuals and amount of habitat affected cannot be determined because the locations and amount of OE is unknown. Approximately 50-70% of the entire range of sand gilia and about 75-95% of the entire range of Monterey spineflower are located on former Fort Ord.

California linderiella and California tiger salamanders occur in ephemeral, freshwater aquatic habitats, such as vernal pools, swales, and ponds. California linderiella eggs are laid by adults when water bodies are full and remain in the soil after vernal pools and ponds have dried until the following rainy season. California tiger salamanders breed and lay eggs in these water bodies where the young develop from aquatic larvae to adults and leave the area by late spring. The excavation necessary for removal of subsurface OE could fill or severely disrupt several ponds and vernal pools that are considered to be habitat for California linderiella and California tiger salamanders. If OE is found inside a vernal pool or pond, *in situ* detonation of the ordnance may disrupt a significant portion of the soil in the area and potentially destroy California linderiella and California tiger salamander habitat and California linderiella eggs in the soil. Soil disruption during excavation or *in situ* detonation could also cover California linderiella eggs with sufficient soil to prevent them from hatching, resulting in direct mortality.

Ponds provide the only potential habitat for California red-legged frogs at former Fort Ord because the adult frogs require a relatively permanent water source. Although no California red-legged frogs were found at former Fort Ord during wetland surveys (Flora and Fauna Baseline Study of Fort Ord, California and later investigations), the installation is within the range of the species and potential habitat is available. Excavation or *in situ* detonation of OE would require ponds to be drained and thus could degrade the habitat quality of the ponds for this species.

The ponds and vernal pools described above constitute wetland habitat. OE that must be detonated onsite could adversely alter the hydrological functioning of these wetlands. The exact amount of ordnance clearing that will occur in wetlands is unknown. Vernal pools and freshwater marshes potentially are jurisdictional wetlands regulated under the Clean Water Act.

Sampling and clearance of OE could result in the loss of portions of populations and habitat of other HMP plant species occurring at former Fort Ord. Potential impact mechanisms are the same as those described above for sand gilia and Monterey spineflower. Ordnance clearance could result in the loss of individual plants and reduction of suitable habitat for Seaside bird's-beak, Eastwood's ericameria, coast wallflower, Toro manzanita, sandmat manzanita, and Monterey ceanothus. The amount of loss of these species cannot be estimated because the amount of buried ordnance has not been determined. Large reductions in numbers and habitat for Seaside bird's-beak, Eastwood's ericameria, Toro manzanita, sandmat manzanita, and Monterey ceanothus could result in their eligibility for federal listing as threatened or endangered.

Clearance of OE in the inland range area and other live firing areas could result in adverse effects on 935 acres of the habitat of black legless lizards at former Fort Ord and direct mortality to individual animals.

The black legless lizard occurs in areas of loose sandy soils supporting native dune, coastal scrub, maritime chaparral, oak woodland, or oak savanna vegetation. The range of the black legless lizard is restricted to the Monterey Bay region. Intergrades between black and silvery legless lizards have been found elsewhere along the California coast from the east side of San Francisco Bay to San Luis Obispo County, but the status and distribution of these varieties are unresolved.

Clearance of OE could result in the temporary loss of habitat occupied by maritime chaparral. The amount of vegetation removed during ordnance removal activities cannot be estimated because the specific location and amount of ordnance in the ground is unknown.

Mitigation

Mitigation measures for impacts on HMP species and habitats resulting from OE sampling and removal activities will be implemented at all sites not planned for development (see Chapter 4). The primary objective of mitigation efforts is to reestablish healthy, high-diversity maritime chaparral habitat that has a variety of seral stages and age classes and that includes microhabitat for sand gilia, Monterey spineflower, Seaside bird's beak, and black legless lizard.

The health of maritime chaparral is marked by successful establishment of this community's component species, many of which are HMP species (i.e., sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, Toro manzanita, and Hooker's manzanita).

Specific mitigation measures for vernal pools and ponds are also provided to minimize potential impacts on California linderiella, California tiger salamander, and red-legged frog.

Minimize Disturbance Associated with OE Removal

OE removal sites will be restricted to the smallest area possible to limit unnecessary disturbance of habitat. Placement of all access roads, staging areas, and other appurtenant facilities will attempt to avoid areas containing HMP plant and wildlife species and maritime chaparral vegetation. Existing roads will be used whenever possible and use of vehicles off roads will be minimized to the greatest extent practicable.

Avoid Disturbance of Sand Gilia and Seaside Bird's-Beak Populations

Where feasible, avoid populations of sand gilia and Seaside bird's-beak. Fence or flag known populations and educate ordnance clearing crews as to the location and identification of these species.

Coordinate Vegetation Management and Restoration with OE Removal

A vegetation burning and restoration program will be developed to coordinate with ordnance cleanup activities. The program should consist of a series of feedback mechanisms to allow for testing of burning and restoration methods on sites cleared early to be used to direct the burning and restoration program and maximize revegetation success on sites cleared later in the process. A 5-year burn plan for the inland range was completed in December 1994 and provides guidance on burn sizes and location (Jones & Stokes Associates 1994).

Clearing or burning vegetation for the cleanup of OE in maritime chaparral will initially be conducted at sites up to 400 acres in size with preferred burn sizes being between 200 and 300 acres. Cleanup sites should be separated by undisturbed chaparral, in patches greater than 25 acres, to create a mosaic of

patches burned or cleared at different times. No more than 800 acres of maritime chaparral per year should be cleared or burned. The cleanup site sizes and yearly acreage limit can be adjusted as better techniques and more understanding of maritime chaparral reestablishment are developed during early ordnance cleanup efforts.

Conduct Employee Education Program

Before OE removal or sampling activities begin, all supervisors and field personnel must attend a brief environmental training program. The training program will be presented by a qualified biologist familiar with this HMP plant and wildlife resources at former Fort Ord. As the project proceeds, all new personnel must attend an environmental training session before working on the site. Topics to be covered in the training session include:

- a description of HMP plant and wildlife species that could be encountered in the project area,
- pertinent state and federal laws relating to the conservation of these species,
- guidelines that personnel must follow to reduce or avoid impacts on HMP species, and
- the appropriate contacts to report unforeseen impacts on HMP species.

Minimize and Compensate for Impacts on California Linderiella, California Tiger Salamander, and California Red-Legged Frog

Vernal pools are considered potential habitat for California linderiella and California tiger salamander. Ponds also provide potential habitat for these two species, as well as for the California red-legged frog. Vernal pools and ponds will be avoided whenever possible during cleanup of OE. However, if these habitats must be disturbed during removal of OE (i.e., during excavation or *in situ* detonation of OE), a mitigation and habitat restoration plan will be developed and implemented for each vernal pool or pond that is affected.

Mitigation and habitat restoration plans will include measures to minimize disturbance to ponds and vernal pools during ordnance removal. Methods for reducing disturbance include minimizing excavation area and depth, completing *in situ* detonation in a manner that minimizes soil disturbance, and setting aside topsoil during excavation to salvage plant seeds and California linderiella eggs. Before any vernal pool or pond is disturbed, it will be surveyed and all data described in the monitoring section below will be collected.

The goal of restoration plans will be to restore affected wetlands so that they are of the same acreage and provide the same functions as before clearing of ordnance. Restoration objectives would include establishment of self-sustaining populations of California linderiella, California tiger salamander, and California red-legged frogs similar to those that existed before ordnance removal.

Minimize Impacts on Black Legless Lizards

Potential habitat for black legless lizards has been identified in the western portion of the inland range area and other locations (see Figure B-16 in Appendix B). Designation of suitable habitat was based on soil and vegetation conditions favorable to black legless lizards; however, the area has not been surveyed for the species.

Because of the difficulty and safety hazards associated with surveying for legless lizards in areas that may contain OE, all areas identified in Figure B-16 in Appendix B as potential habitat for the black legless lizard will be considered occupied.

These areas will be burned only between July 1 and February 1 so that burning takes place when legless lizards are most likely to have burrowed deep into the soil where they should not be affected by the fire. Implementation of the mitigation measures described below will minimize impacts on black legless lizards while OE clearance and other ground disturbance activities occur year round.

If a legless lizard is encountered during excavation of OE, maximum effort will be made to preserve the animal without unreasonably delaying excavation activities. The lizard will be captured by hand, making all efforts possible not to injure the animal. The first option for treatment is to release an unharmed lizard after the excavation or ground disturbing activity is completed. The lizard will be placed in a plastic container loosely filled with moist paper towels. If an injured or dead specimen is taken, a predetermined contact from USFWS or California Department of Fish and Game (DFG) will be immediately notified and may receive the specimen or recommend an appropriate person to receive the specimen. The live lizard either will be kept temporarily until activities are complete in the area where it was encountered and then released as near as possible to the point of capture, or it will be kept in captivity until the following spring and released in suitable habitat as near as possible to the point of capture. If the lizard encountered is dead, the person receiving the specimen will identify the species of legless lizard and give the specimen to an appropriate agency or institution.

Success Criteria

Healthy maritime chaparral habitat is described in Chapter 2 in the "Habitat Management Plan Habitats" section. This description and comparisons with undisturbed sites supporting maritime chaparral should be used to measure the success of restored habitat. The restored habitat will consist of naturally regenerating maritime chaparral that is managed using controlled burning and other techniques that maximize the habitat value for HMP species.

The acreages of habitat occupied by sand gilia, Monterey spineflower, and Seaside bird's-beak at low, medium, and high densities in areas in the inland range where some amount of OE is expected to occur are shown in Table 3-2 (based on 1992 field surveys). Based on rough estimates of plant densities, the occupied habitat identified in Table 3-2 may represent about 8,000-12,000 individual sand gilia plants, 5,000-10,000 Seaside bird's-beak plants, and 4-7 million Monterey spineflower plants in the inland range area. This does not include areas outside the inland range where there is potential for OE. Restoration for these species will be considered successful if, at the end of 5 years:

- self-sustaining populations result within a mosaic of maritime chaparral habitat in different stages of succession,
- the amount of occupied habitat varies over time within a range that includes amounts similar to the amount of habitat estimated for these species in 1992, and
- population sizes vary from year to year within a range that includes annual populations similar in size to those estimated for these species in 1992.

In many instances suitable habitat, occupied habitat, and populations of two or all three of these species will occur on the same site.

Vernal pool and pond restoration will be considered successful if affected wetlands are of the same acreage and provide the same functions as before clearing of ordnance. Also, if affected wetlands supported California linderiella, California tiger salamander, or California red-legged frogs before ordnance removal, they must support self-sustaining populations of these species for 5 years after restoration is complete.

Table 3-2. Approximate Acres of Habitat Supporting Sand Gilia, Monterey Spineflower, and Seaside Bird's-Beak in Areas in the Inland Range Expected to Contain Unexploded Ordnance

	Unexploded Ordnance Expected to Occur
Sand gilia[a]	
Low density	1,115
Medium density	20
High density	0
Monterey spineflower[a]	
Low density	2,135
Medium density	1,780
High density	410
Seaside bird's-beak[a]	
Low density	390
Medium density	15
High density	0

[a] From 1992 survey data.

Monitoring

Each patch of maritime chaparral cleared of ordnance will be monitored annually for 5 years beginning with the year of ordnance removal activities. In most cases, the monitored site will be delineated by the edge of a controlled burn area established before ordnance removal. Because ordnance removal will occur over several years, the 5-year monitoring period for groups of ordnance removal sites will be initiated in different years. The reestablishment of vegetation will be measured at each ordnance removal site, using releve, quadrat, transect, or a combination of vegetation survey methods. Each monitoring year, the following information will be recorded for each ordnance removal site:

- size of the site in acres (first year only);
- method used to clear vegetation (e.g., burning, chipping, none) (first year only);
- extent of soil disturbance from ordnance removal (first year only);
- percent absolute vegetative cover;
- percent cover of each woody plant species present (including HMP shrubs);
- percent herbaceous cover and list of dominant herbaceous species;
- percent cover by non-native weedy plants;
- estimated number of plants and mapped location of sand gilia, Monterey spineflower, Seaside bird's-beak, and coast wallflower;
- general wildlife use;
- vegetation establishment record through color photographs.

A protocol for conducting vegetation sampling at former Fort Ord has been developed to guide monitoring efforts (U.S. Army Corps of Engineers, Sacramento District, 1995). The protocol and results of monitoring efforts are being coordinated with the Coordinated Resource Management and Planning (CRMP) process (described at the end of Chapter 4), USFWS, and others. With ordnance removal sites varying from approximately 200 to 400 acres in size and the inland range comprising approximately 8,000 acres, there should be between 20 to 40 sites to be monitored for habitat reestablishment. This number could be reduced based on the final size of the Restricted/Administrative area shown in Figure 3-2. This information will be analyzed and compiled into annual monitoring reports. Conclusions drawn from the data in monitoring reports will be used to modify subsequent burning and ordnance clearing actions to promote more effective restoration of healthy, diverse maritime chaparral and habitat and populations of HMP species. The level of detail of monitoring data for maritime chaparral and associated HMP species may be adjusted over time, as the level of detail necessary to judge mitigation success is better understood through the results of monitoring the initial sites of vegetation clearing, ordnance cleanup, and vegetation reestablishment.

Restored vernal pools and ponds will be monitored during each rainy season for 5 years after restoration is completed. Each monitoring year, the following information will be recorded for each restored vernal pool or pond:

- dates each pool or pond begins to fill and when it dries relative to timing and abundance of yearly rainfall;
- water conditions including depth, surface area, turbidity, and pH;

- percent submergent, floating, and emergent vegetative cover (estimated using transects, quadrats, or other appropriate techniques) and species composition; and

- occurrence and relative abundance of California linderiella adults and adults and larvae of California tiger salamander and California red-legged frog.

This information will be analyzed and compiled into annual monitoring reports. Conclusions drawn from the data in monitoring reports will be used to modify subsequent ordnance removal practices in wetland habitats and implementation of future vernal pool and pond restoration plans. The level of detail of monitoring data for vernal pools and ponds may be adjusted over time, as the level of detail necessary to judge mitigation success is better understood through the results of monitoring the initial sites of vernal pool and pond restoration.

Corrective Measures

Based on the results of each year's monitoring, the restored maritime chaparral habitat management will be modified, if necessary, to meet success criteria. In some instances supplemental weeding, planting, or seeding may be needed to meet the established success criteria.

Improvement of sand gilia, Monterey spineflower, and Seaside bird's-beak habitat will be conducted if population levels for these species do not meet the success criteria.

If success criteria for vernal pool and pond restoration are not satisfied, corrective measures will be developed on a case-by-case basis to identify the cause of failure. Previous monitoring data will be analyzed, and, if necessary, specific studies will be undertaken to determine the reason for failure to meet success criteria. Corrective measure will be developed to respond to the cause of noncompliance determined from these data. An appropriate corrective measure must be implemented within 1 year of determination that success criteria will not be satisfied, and the vernal pool or pond will be monitored for additional 3 years after implementation.

USFWS, DFG, and the Army will review all proposed wetland corrective measures before they are implemented. If after two attempted corrective measure success criteria are still not satisfied, another mitigation site will be chosen for vernal pool or pond enhancement or creation.

INTERIM USES

Before final disposal of some former Fort Ord lands, property and structures will be made available for interim uses to various agencies. Use of existing structures in the developed portions of former Fort Ord will have no impact on biological resources. Recreational use along the dunes and beaches, another potential interim use, could have a potential adverse effect on HMP species if not managed properly.

Public Access to Dunes and Beaches

Impacts

Removal of lead from the dunes at former Fort Ord may require phasing of cleanup over several years. Phasing of cleanup will be required if the extent of remediation needed to minimize the human health risk exceeds the remediation allowed at any one time to protect biological resources. These lands cannot be

transferred until the lead has been removed. However, some public recreation uses may be permitted on the former Fort Ord dunes in areas that do not require lead removal, or where lead has already been removed, before the transfer of land to DPR.

If not properly managed, public use of the beaches and dunes could have adverse effects on sand gilia, Monterey spineflower, Smith's blue butterfly, western snowy plovers, and black legless lizards. Populations of sand gilia, Monterey spineflower, Smith's blue butterfly, and black legless lizards could potentially be eliminated by repeated foot traffic or unauthorized off-road vehicle use. Potential habitat for these species could also be lost through the same mechanisms. Nesting western snowy plovers may be sufficiently disturbed by recreational uses on the beach to abandon nests.

Mitigation

If the beaches and dunes at former Fort Ord are open for recreational use before disposal, measures will be taken to control and channel public access and uses.

The Army will coordinate with DPR to prevent damaging public foot and vehicle access to:

- sites supporting Smith's blue butterfly populations and habitat;
- existing populations of sand gilia and medium- and high-density occurrences of Monterey spineflower;
- beach areas supporting western snowy plover breeding habitat during the breeding season; and
- dune restoration areas.

Temporary signing and barriers will be installed, and sufficient law enforcement personnel will be present to ensure that the public does not degrade or damage these resources before the transfer of land to DPR.

The Army and DPR will also work cooperatively to ensure the public does not have access to current and future lead removal sites until lead removal activities are complete.

Success Criteria

Mitigation for potential impacts on HMP resources from interim public use of beaches and dunes at former Fort Ord will consist of various means of directing, restricting, and controlling public access to areas of beaches and dunes where HMP resources occur. Mitigation will be considered successful if no individuals of HMP species are disturbed or removed and no destruction of potential or occupied habitat for these species results from public use of the beaches and dunes at former Fort Ord.

Monitoring

The Army and DPR will provide coordination of sufficient law enforcement staff on the beaches and dunes at former Fort Ord to adequately patrol all areas west of Highway 1. These personnel will record any disturbance or evidence of disturbance to HMP species. The Army and USFWS will be notified immediately of the incident. The Army, USFWS, and DPR will work cooperatively to determine whether the impacts on HMP species are attributable to recreational use of the beaches and dunes at former Fort Ord and take

appropriate actions to prevent future impacts. The same process will be followed if destruction of potential or occupied habitat for HMP species is encountered. All other personnel working on the dunes (e.g., lead removal personnel, restoration crews, or biologists) will also report any incidents or evidence of impacts on HMP species or destruction of potential or occupied habitat to the Army and DPR.

Corrective Measures

If removal of any HMP species or destruction of potential or occupied habitat of any HMP species can be attributed to interim public use on the dunes at former Fort Ord, DPR, the Army, and USFWS will coordinate development of suitable corrective measures. Potential corrective measures include restoration or enhancement of dune habitat to compensate for lost habitat, increased monitoring effort, installation of additional temporary barriers and signing, or installation of permanent barriers and signing.

Chapter 4.

Habitat Management for Disposal and Reuse



Monterey Spineflower

Chapter 4. Habitat Management for Disposal and Reuse

INTRODUCTION AND BACKGROUND

A general goal of this habitat management plan (HMP) is to promote preservation, enhancement, and restoration of habitat and populations of HMP species while allowing development on selected properties that promotes economic recovery after closure of Fort Ord. (Specific HMP goals are described in Chapter 1.) As an installation-wide plan, all parcels to be disposed of by the U.S. Army (Army) are addressed in this HMP and are considered in achieving HMP goals. However, management guidelines and specifications for reuse may vary from parcel to parcel based on future plans for the parcel associated with this HMP and overall reuse planning.

Some parcels to be disposed of by the Army are intended to promote economic recovery after disposal and will be designated for development with no restrictions or guidelines described in this HMP. Other parcels will have development designated as the primary use, but recipients of disposed land will be obligated to implement certain guidelines and/or preserve specific areas through this HMP. Other parcels are designated as habitat reserves or corridors and have specific management guidelines and restrictions on development and uses. The HMP also includes consideration of specific transportation corridors planned by the local community. (Refer to the "HMP Analysis of Road Corridors" section in Chapter 4).

Attachment A shows each parcel proposed for reuse and indicates the HMP requirements planned for the parcel: Habitat Reserve, Habitat Corridor, Development with Reserve Areas or Development with Restrictions, Borderland Development Areas Along NRMA Interface, Development, and Future Road Corridors. The management requirements for lands covered by this HMP are grouped in several categories. These categories have varying levels of restriction on development and intensities of habitat management requirements. The management categories are mapped in Figure 4-1.

Habitat Reserve

The "Habitat Reserve" category is the core to achieving the goals of the HMP. These lands are set aside from development to protect biologically important habitat for the HMP target species; the main management goal for this category is the conservation and enhancement of threatened and endangered species. The lands are to be set aside from public mining laws and other nondiscretionary land laws that jeopardize attainment of the primary management goal. Management of Habitat Reserve areas must be undertaken by a land management agency acceptable to the USFWS. The HMP describes specific management goals, procedures for enhancement and restoration, and methods of funding for each reserve parcel. The HMP also clearly establishes who will be responsible for monitoring operations and maintenance activities, conducting status surveys, and funding of overall management activities. The requirements to avoid and restore habitat disturbed within the habitat reserve areas for operation, maintenance, and replacement of utility systems within utility easement areas in the reserves will be the same as applied to the fee title grantee of the habitat reserve area. Coordination and permitting of the proposed actions will be the responsibility of the easement interest grantee. In general, landowners are expected to fund management of biological resources on reserve parcels. These requirements for the habitat reserve areas are contained in the USFWS Biological/Conference Opinion.

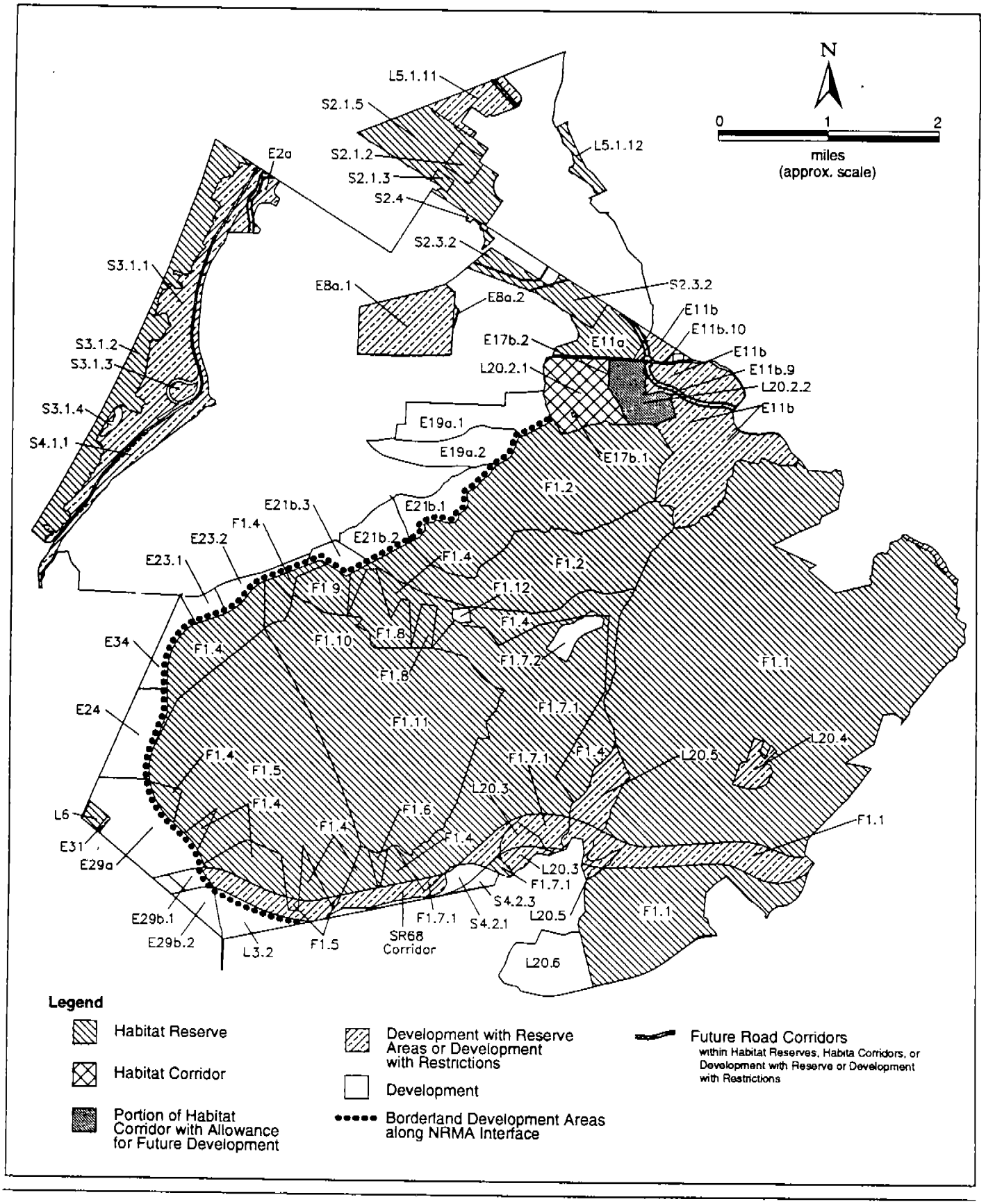


Figure 4-1
Habitat Mangement Plan Map for Former Fort Ord (December 1996)

Habitat Corridor

"Habitat Corridor" areas require management strategies that promote maintenance of connections between conservation areas. While these corridors may be exposed to some land management practices other than those that emphasize conservation of biological resources (parcel L20.2.2 allows for expansion of existing developed facilities as well as corridor conservation), corridors are important to the ecological integrity of reserve areas. These lands must be managed to protect existing sensitive species in perpetuity and remain viable to support the dynamics of the ecological systems within former Fort Ord. Corridor areas must be managed by entities acceptable to the USFWS. The requirements to avoid and restore habitat disturbed within the corridor area for operation, maintenance, and replacement of utility systems within utility easement areas will be the same as applied to the fee title grantee of the corridor area. Coordination and permitting of the proposed actions will be the responsibility of the easement interest grantee.

Development with Reserve Areas or Development with Restrictions

Some of the lands slated for development in the HMP contain inholdings of habitat reserve land or require development restrictions to protect habitat within or adjacent to the parcel. This management category is titled "Development with Reserve Areas or Development with Restrictions". For development parcels that have habitat reserve areas within their boundaries, the management practices must be consistent with maintenance of the reserves. The inholding reserve areas are subject to the same management conditions described above for the Habitat Reserve category, including management by an entity acceptable to the USFWS. Some developed land must be managed as described for the specific parcel to include development restrictions or management action. Some of the lands in this category have no reserve inholding; they are subject only to certain restrictions on development needed to protect biological resource values. These parcels include E31, L20.3, and L20.4; there is no requirement that these areas be managed by an entity acceptable to the USFWS and these parcels may be transferred for development with appropriate deed restrictions.

Borderland Development Areas Along NRMA Interface

"Borderland Development Areas Along NRMA Interface" include parcels expected to be transferred to FORA as economic development conveyance and one parcel expected to be transferred to York School through a public benefit conveyance. The properties abut the Natural Resource Management Area and have no management restrictions except along the development/reserve interface. Management requirements such as development of fire breaks and limitation to vehicle access are required along the interface. Remaining portions of these parcels have no HMP development restrictions designed to protect biological resources. The management requirements would be the responsibility of FORA or other recipients and would apply to agencies receiving lands from FORA.

Development

Lands designated as "Development" have no management restrictions placed upon them as a result of this HMP. The biological resources found on these parcels are not considered essential to the long-term preservation of sensitive species at former Fort Ord. The Biological Opinion allows for development of these parcels, but it also requires identification of sensitive biological resources within these parcels that may be salvaged for use in restoration activities within reserve areas. The HMP does not exempt future landowners from complying with environmental regulations enforced by federal, state, and local agencies. This includes compliance with the federal ESA. However, implementation of the HMP will simplify future regulatory compliance by allowing USFWS and DFG to issue the permits and take authorizations easily.

Future Road Corridor

Several of the reserve areas have "Future Road Corridor" designations within their boundaries. These road corridors allow for development of roads and other transit facilities in the future. Before use as corridors, these areas are subject to the same management restrictions as reserve areas.

Parcel Designations

Each parcel is numbered in Attachment A. The letter before each parcel number identifies the type of agency expected to receive the parcel and/or the anticipated method of transfer. The methods of transfer include public benefit conveyance, economic benefit conveyance, negotiated sale, and auction or private sale. The type of conveyance will not affect how the HMP requirements are implemented. The HMP requirements will be placed in the deed transferring the property for any of these means of transfer. The letter F before a parcel number indicates a Federal Transfer Parcel; an S indicates a State Transfer Parcel; an L indicates a Local Transfer Parcel under a public benefit conveyance (PBC); and an E indicates a parcel available for an Economic Development Conveyance (EDC) or other method of transfer. Parcel numbers beginning with an E correspond to polygon numbers included in the Draft FORA Fort Ord Reuse Plan (March 1996).

Numbers are based on a parcel map for former Fort Ord lands. The parcel map frequently defines parcels as subparcels; for example, the Natural Resources Management Area (NRMA) contains subparcels F1.1 through F1.11, except parcel F1.7.2. Subparcels are identified as necessary to describe specific parcels.

For parcels that have already been disposed of, parcel boundaries match the boundaries included in the disposal documents. Table 4-1 identifies each parcel by number, describes the general land use planned for the parcel, and indicates whether the parcel would be transferred to a federal, state, or local agency or available for transfer through an EDC or other method.

Because this HMP will affect future regulatory compliance during reuse, these effects are discussed in the following section. Impacts on listed species from development of all development areas in Figure 4-1 are then described beginning on page 4-10, followed by an analysis of impacts associated with Alternative 6R from the 1993 final environmental impact statement (FEIS); Alternative 6R modified (6RM) from the 1993 NEPA Record of Decision (ROD); and Alternative 7 (1994 FORA Final Base Reuse Plan [December 1994]), Revised Alternative 7 (including elements of the Draft FORA Fort Ord Reuse Plan [March 1996]), and Alternative 8 from the Final Supplemental Environmental Impact Statement (FSEIS). Overall management guidelines for recipients of disposed land are also described followed by a discussion of several proposed road corridors and how they relate to this HMP. Land use parcels are then discussed separately in this chapter. Parcels considered primary conservation areas are discussed first, followed by parcels identified for development with reserve areas or development with restrictions, then parcels with no HMP requirements are discussed (as shown in Table 4-1). The general location of the parcel is described, then the recipient or a description of the proposed land use within the parcel provided, the major habitat features and HMP resources currently within the parcel are listed, and resource conservation requirements and habitat management requirements, if any, are described. The resource conservation requirements section describes areas of natural habitat that must be preserved in a parcel. The management requirements section describes management actions necessary to assist in conserving HMP resources within a parcel or in adjacent parcels. The HMP acknowledges that future data on species distribution and occurrence will be gathered over time. This data will be coordinated through the coordinated resource management and planning process (CRMP) and will not affect this HMP. The parties responsible (if known) for habitat management activities to take place within the parcel are also identified at the end of each section. After all parcels have been addressed, methods for implementing a CRMP process are described.

Table 4-1. Fort Ord HMP Parcel Designations

Text Order	Page Numbers	Parcels	Parcel Title	Land Use Description
			Federal Lands with Habitat Reserves	
1	4-23	F1.1-F1.11, except F1.7.2	Natural Resource Management Area (NRMA)	Habitat Reserve
			State Lands with Habitat Reserves	
2	4-26	S3.1.2	Coastal Dune Zone	Habitat Reserve
3	4-27	S2.1.2*, S2.1.3*, S2.1.5*	UC/NRS Fort Ord Natural Reserve	Habitat Reserve
4	4-29	S2.3.2*	Reservation Road Habitat Reserve	Habitat Reserve
5	4-30	S2.4*	Habitat Reserve/Corridor	Habitat Reserve
			Local Agency Lands with Habitat Reserves	
6	4-31	L5.1.12	Salinas River Habitat Area	Habitat Reserve
7	4-32	L6	Natural Area Expansion	Habitat Reserve
			Economic Development Conveyance Lands with Habitat Reserves	
8	4-33	E11a	East Garrison	Habitat Reserve
			Local Agency Lands with Habitat Corridors	
9	4-34	L20.2.1, L20.2.2	Habitat Corridor/Recreational Vehicle Park/Youth Camp	Habitat Corridor/Recreation
			Federal Lands with Development with Reserve Areas or Development with Restrictions	
			No federal lands are in this category	
			State Lands with Development with Reserve Areas or Development with Restrictions	
10	4-37	S3.1.1, S3.1.3	Disturbed Habitat Zone	Development with Reserve Areas or Development with Restrictions
11	4-40	S4.1.1, S4.1.2, S4.1.3	Highway 1 Corridor	Development with Reserve Areas or Development with Restrictions
24	4-53	Transportation Easement	State Route 68 Corridor	Development with Reserve Areas or Development with Restrictions
			Local Agency Lands with Development with Reserve Areas or Development with Restrictions	
12	4-41	L5.1.11	North Fritzsche Habitat Reserve	Development with Reserve Areas or Development with Restrictions
13	4-42	L20.3, L20.5	Recreation Area Expansion #1	Development with Reserve Areas or Development with Restrictions
14	4-44	L20.4	Recreation Area Expansion #2	Development with Reserve Areas or Development with Restrictions

Table 4-1. Continued

Text Order	Page Numbers	Parcels	Parcel Title	Land Use Description
		Economic Development Conveyance Lands with Development with Reserve Areas or Development with Restrictions		
15	4-46	E8a.1, E8a.2	Landfill Parcel	Development with Reserve Areas or Development with Restrictions
16	4-47	E31	Office Park	Development with Reserve Areas or Development with Restrictions
17	4-48	E2a	No title	Development with Reserve Areas or Development with Restrictions
18	4-49	E11b.1-E11b.8, E11b.11	East Garrison	Development with Reserve Areas or Development with Restrictions
		Federal Lands with No HMP Requirements		
19	4-51	F1.4.1, F1.7.2, F1.12, F2.1, F2.2, F2.3, F2.4, F2.5, F2.6, F2.7.1, F2.7.2, F2.7.3, F2.8, F2.9, F3, F4, F5.1, F5.2, F6	Federal Agency Parcels with No HMP Requirements	Development
		State Lands with No HMP Requirements		
20	4-51	S1.1,* S1.2.1,* S1.2.2,* S1.2.3,* S1.3.1,* S1.3.2,* S1.3.3,* S1.3.4,* S1.4,* S1.5.1,* S1.5.2,* S1.6*, S1.7,* S2.1.1,* S2.1.4,* S2.2.1,* S2.2.2,* S2.2.3,* S2.3.1,* S2.5.1,* S2.5.2,* S3.1.4, S3.2, S4.2.1, S4.2.2, S4.2.3, S4.3	State Agency Parcels with No HMP Requirements	Development

Table 4-1. Continued

Text Order	Page Numbers	Parcels	Parcel Title	Land Use Description
		Local Agency Lands with No HMP Requirements		
21	4-52	L1.1, L1.2, L2.1, L2.2, L2.3, L3.1, L4.1, L4.2, L5.1, L5.1.1, L5.1.2, L5.1.3, L5.1.4, L5.1.5, L5.1.6, L5.1.7, L5.1.8, L5.1.9, L5.1.10, L5.2, L5.4.1, L5.4.2, L5.5, L5.6, L5.7, L5.8.1, L5.8.2, L5.9.1, L5.9.2, L5.10, L7.1, L7.2, L7.3, L7.4, L7.5, L7.6, L7.7, L8.1, L8.2, L8.3, L9.1.1, L9.1.2, L9.2, L9.3, L10.1, L10.2, L10.3, L10.4, L11, L12.1, L12.3, L13.1, L13.2, L14, L15.1, L15.2, L15.3, L16, L17.1, L17.2, L18, L19, L20.6, L20.7, L20.9, L20.10.1, L20.10.2, L20.10.3, L20.11.1, L20.11.2, L20.12, L20.13, L20.14.2, L20.15, L20.16, L20.17.1, L20.17.2, L20.18, L21, L22, L23.1.1, L23.1.2, L23.1.3, L23.1.4, L23.1.5, L23.2. L23.4, L23.5, L24, L25, L27, L28, L29, L30, L31, L32, L33, L34, LE12.2**, LE20.16**, LE5.9**	Local Agency Parcels with No HMP Requirements	Development

Table 4-1. Continued

Text Order	Page Numbers	Parcels	Parcel Title	Land Use Description
			Existing Roads in HMP Management Areas	
22	4-52	L20.8, L20.14.1, L20.19, L20.20, L20.21, L20.22, LE20.18**, LE20.19**	Existing Roads in the HMP Management Areas	Development
			Economic Development Conveyance Lands with No HMP Requirements	
23	4-53	E2b.1, E2b.2, E2b.3, E2c.1, E2c.2, E2c.3, E2c.4, E2d, E2e, E4.1, E4.2, E4.3, E4.4, E4.5,. E4.6, E4.7, E5a, E5b, E11b.9, E11b.10, E11b.12, E15.1, E15.2, E17b.1, E17b.2, E18.1, E18.2, E18.3, E18.4, E19a.3, E20b, E20c.1.1, E20c.1.2, E20c.1.3, E20c.2.1, E20c.2.2, E21a, E29, E29b.3, E29e, E35, E36	Economic Development Conveyance (EDC) Parcels with No HMP Requirements	Development
			Borderland Development Areas Along NRMA Interface	
25	4-56	L3.2, E19a.1, E19a.2, E21b.1, E21b.2, E21b.3, E23.1, E23.2, E24, E29a, E29b.1, E29b.2, E34	Borderland Development Areas Along NRMA Interface	Development

* These areas are part of the California State University and University of California Economic Development Conveyances.

** LE parcels are areas where easements are proposed for transfer to local agencies.

FUTURE REGULATORY COMPLIANCE

The HMP does not exempt future landowners from complying with environmental laws and regulations enforced by federal, state, and local agencies. These laws include the federal Endangered Species Act (ESA). Section 9 of the ESA prohibits take of wildlife species listed as threatened or endangered, removal of listed plant species occurring on federal land, or destruction of listed plant species in violation of any state laws and may trigger the need to obtain an incidental take permit under Section 10(a)(1)(B) of the act. Section 7 of the act prohibits a federal agency from authorizing, funding, or carrying out any action that would be likely to jeopardize the existence of a listed species or adversely modify its critical habitat. Future landowners will also be required to comply with applicable measures for conservation of state-listed threatened and endangered species under the California ESA, California Environmental Quality Act (CEQA), and local land use regulations and restrictions. However, implementation of this HMP is intended to simplify future regulatory compliance by allowing the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (DFG) to rely on the HMP in carrying out their regulatory responsibilities.

This HMP is intended to support binding legal agreements among receiving entities, the Army, and the USFWS that would establish plans to manage lands designated for natural resource conservation. This HMP describes management goals; provides procedures for the enhancement, restoration, and management of parcels with HMP resource conservation requirements or management requirements; and identifies methods to fund these activities.

The HMP is intended to provide the foundation for a prelisting agreement between USFWS and local jurisdictions for candidate species covered by the HMP that may be listed in the future and a habitat conservation plan(s) (HCP[s]) to support issuance of a Section 10(a)(1)(B) incidental take permit for listed species. The HMP requires that its provisions be carried out by all land recipients that will receive parcels of land that are subject to management and/or use restrictions under the HMP. Likely recipients of land will include the Fort Ord Reuse Authority (FORA), U.S. Bureau of Land Management (BLM), state and local general and special purpose government agencies, and other successor owners of former Fort Ord lands. Compliance with the terms of the HMP will be required as a condition of conveyance in the document of transfer of the affected parcels. To the extent permitted by law, a compliance provision will be included as a covenant or restriction in any deed conveying lands subject to habitat conservation requirements. If it is not legally possible to place such restrictions in the deed, a legally binding memorandum of agreement will be executed with the recipient, requiring that the HMP be implemented.

The HMP would be considered suitable mitigation for impacts to HMP species and would facilitate the USFWS procedures to authorize incidental take of these species by participating entities as required under Section 10 of the ESA. The HMP does not authorize incidental take by entities acquiring land at former Fort Ord of any species listed as threatened or endangered under the ESA, as amended. Entities would submit the HMP in combination with additional documentation, including an Implementation Agreement signed by all parties receiving lands that are to be managed for wildlife values, to the USFWS to receive authorization for incidental take. In addition, the HMP is intended to be the basis for an HCP(s) that will support the issuance of incidental take permits under Section 10(a)(1)(B) of the ESA to the land recipients identified above. The provisions of the HCP(s) are expected to closely mirror the provisions of this HMP, and the implementing agreement developed to implement the HCP(s) is expected to establish detailed provisions for monitoring of the habitat conservation areas by the affected land recipients and reporting of habitat conditions to the U.S. Bureau of Land Management (BLM), USFWS, and DFG consistent with the procedure outlined below. The intention of the HMP is that no further mitigation will be required to allow development in Development areas unless species other than HMP target species are proposed for listing or are listed.

However, on lands with HMP resource conservation and management requirements, supporting documentation in addition to this HMP may be necessary to obtain incidental take authorization from USFWS. Section 9 of the ESA prohibits any taking of a threatened or endangered fish and wildlife species. The

definition of "take" includes to harass, harm, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Exemptions to Section 9 can be obtained through Sections 7 and 10 of the ESA. The USFWS has recommended that all nonfederal entities acquiring land at former Fort Ord apply for Section 10(a)(1)(B) incidental take permits for the species covered in the HMP. Although the USFWS will not require further mitigation from entities that are in conformance with the HMP, those entities without incidental take authorization would be in violation of the ESA if any of their actions resulted in the take of a listed animal species.

To apply for a Section 10(a)(1)(B) incidental take permit, an entity must submit an application form (Form 3-200), a complete description of the activity sought to be authorized, the common and scientific names of the species sought to be covered by the permit, and a conservation plan (50 CFR 17.22[b]). Pursuant to 50 CFR 17.22(b)(1)(iii), the HCP must specify (a) the impacts that will likely result from such takings; (b) what steps the applicant will take to monitor, minimize, and mitigate such impacts, the funding that will be available to implement such steps, and the procedures to be used to deal with unforeseen circumstances; (c) what alternative actions to such taking the applicant considered and the reasons why such alternative are not proposed to be utilized; and (d) such other measures that the director of the USFWS may require as being necessary or appropriate for purposes of the plan. For the USFWS to issue incidental take permits to any entities acquiring land at former Fort Ord, that entity will have to provide the above information.

The basic mechanism for implementing HMP requirements to this point has been by memoranda of agreement (MOAs). HMP requirements have been placed on land transfers to UCSC and BLM using MOAs. The Army proposes to place restrictions on all future transfer of Habitat Reserve, Habitat Corridor, Development with Reserve Areas or Development with Restrictions, and Borderland Development Areas Along NRMA Interface with dead restrictions. See Appendix D for a sample deed and MOA.

For compliance with the California ESA, this HMP may simplify the issuance of take authorization by DFG for take of HMP species and further facilitate coordination with DFG regarding future regulatory compliance concerning endangered and threatened species issues in the HMP Planning Area.

The HMP provides a foundation for prelisting agreements between USFWS and recipient landowners.

To coordinate this HMP with CEQA compliance, DFG may take into account the conservation measures set forth in this HMP when considering CEQA requirements for sensitive species and habitat types. DFG would consider the conservation program for HMP species and their habitats included in this HMP as adequate mitigation for CEQA compliance for those natural resources during the implementation of land reuse and development planning at former Fort Ord. Issues, such as oak woodland mitigation, outside the scope of this HMP would need to be considered under CEQA.

IMPACTS ON LISTED AND PROPOSED HMP SPECIES

The following sections summarize the impacts on federally and state-listed HMP target species and HMP species proposed for federal listing, if all development areas identified in Attachment A and Figure 4-1 were developed. This discussion assumes all habitat is removed in Development areas.

Appendix B identifies which species occur in each parcel at former Fort Ord. Table B-1 indicates the presence or absence of each target species based on the latest available information. Table B-2 describes acreage of low-, medium-, and high-density habitat suitable for each target species within each of the HMP reserves, HMP corridors, and the development areas based on 1992 survey information. Maps indicating the distribution of each HMP plant species at former Fort Ord and potential and occupied habitats for each HMP wildlife species are also included in Appendix B. Maps are based on data collected during preparation of the 1992 Flora and Fauna Baseline Study (U.S. Army Corps of Engineers, Sacramento District 1992a).

Information in Appendix B has been updated where available; however, analysis of impacts in this HMP is based on the 1992 data. The tables, combined with the distribution maps, provide further understanding of impacts to HMP species associated with development in development areas. The losses of habitat within development areas, as well as acres of habitat to be protected and enhanced within the HMP reserves and corridors, are described in Chapter 4 in the "Analysis of Impacts to HMP Target Species from the HMP" section.

Robust Spineflower (Federal Endangered)

Robust spineflower occurs on sandy soils in coastal dune and coastal scrub habitat. Several plants were observed at one site on the dunes west of Highway 1 during the 1992 field surveys. No other occurrences of robust spineflower were observed. Under this HMP the group of plants would be preserved.

Sand Gilia (Federal Endangered)

Sand gilia inhabits openings in maritime chaparral and coastal scrub communities. It also prefers disturbed sites, such as the borders of old roads and firebreaks. Based on 1992 survey results for all of former Fort Ord, approximately 5 acres of maritime chaparral and coastal scrub supporting sand gilia at high densities, 120 acres at medium density, and approximately 680 acres at low density will be removed under this HMP. Annually from 1993 to 1996, portions of former Fort Ord have been resurveyed to provided more site-specific data on sand gilia distribution and abundance. Results of the 1993 surveys for the northern portion of former Fort Ord are shown in Figure B-1b included in Appendix B. These surveys have typically shown a greater abundance of sand gilia than indicated by the 1992 survey results. However, none of these surveys has covered the entire installation as was done in 1992.

Smith's Blue Butterfly (Federal Endangered)

Smith's blue butterfly is completely dependent on seacliff and coast buckwheat for oviposition and as food sources for larvae and adults. Distribution and density of seacliff and coast buckwheat were recorded during the 1992 botanical surveys. Analysis of impacts to Smith's blue butterfly habitat is based on this data. Areas supporting medium or high densities of either buckwheat species are considered potential habitat for Smith's blue butterfly based on models included in the Flora and Fauna Baseline study. The 1994 HMP states that under that plan approximately 15 acres of potential Smith's blue butterfly habitat (areas supporting medium- and high-density populations of buckwheat) would be removed in the dunes west of Highway 1. In addition, an area of approximately 35 acres of dune habitat supporting buckwheat at low density would be removed and could potentially affect populations of Smith's blue butterfly. Habitat conservation and management requirements and land uses on the dunes west of Highway 1 under this HMP are consistent with those described for the 1994 HMP. Therefore, impacts to Smith's blue butterfly under this HMP are expected to be no greater than those described for the 1994 HMP .

Western Snowy Plover (Federal Threatened)

Western snowy plovers are known to nest on the beaches at former Fort Ord from the northern installation boundary to Stilwell Hall. They may also nest south of Stilwell Hall. The USFWS has proposed critical habitat for the Western snowy plover (60 FR 11768, March 2, 1995). The beaches at former Fort Ord are among the areas proposed as critical habitat. The HMP will not directly remove any western snowy plover nesting habitat. However, increased human presence on the beaches associated with the alternative could negatively affect snowy plover breeding success.

Monterey Spineflower (Federal Threatened)

Implementation of this HMP would result in the loss of approximately 3,910 acres of maritime chaparral, coastal dunes, coastal scrub, and grassland habitats occupied by Monterey spineflower. These habitat areas support Monterey spineflower at high densities on approximately 310 acres, medium densities on about 1,200 acres, and low densities on approximately 2,400 acres. Sand hill maritime chaparral, all coastal dune habitats, and grassland and coastal scrub habitats on sandy soils are potentially suitable habitat for Monterey spineflower. Monterey spineflower occurs in natural and artificial disturbance patches in these habitats.

Seaside Bird's-Beak (USFWS Species of Concern)

Seaside bird's-beak occurs in openings on sandy soils in maritime chaparral and oak woodland habitats. Implementation of this HMP would result in the removal of roughly 45 acres of maritime chaparral and oak woodlands supporting Seaside bird's-beak at low densities.

California Red-Legged Frog (Federal Threatened)

The California red-legged frog typically occupies cold water ponds with both emergent and submergent vegetation. No red-legged frogs have been observed on former Fort Ord; although potential habitat is available. Approximately 2 acres of potential California red-legged frog habitat would be removed under this HMP. However, part of this two acres consists of an artificial pond in parcel L20.2.2 (Attachment A) associated with the former Army Family Camp. The pond is filled from artificial sources and has been stocked with fish to provide recreational fishing for campers. Because of the presence of predatory game fish, it is unlikely that red-legged frogs would occur in this water body.

Almost all other potential red-legged frog habitat at former Fort Ord would be preserved within the NRMA. The Salinas River is also considered potential red-legged frog habitat. One portion of former Fort Ord is within the river channel. This area is identified as a habitat reserve.

Yadon's Piperia (Proposed for Federal Listing as Endangered)

The species occurs near established shrubs in maritime chaparral habitat. One population is known to occur on former Fort Ord in parcel E2a. This population would be preserved under this HMP. USFWS has proposed Yadon's piperia for federal listing as endangered.

Black Legless Lizard (Proposed for Federal Listing as Endangered)

The California black legless lizard is found in dune habitats supporting native vegetation and where maritime chaparral, coastal scrub, oak woodland, and oak savanna occur on loose sandy soils. Figure B-1b in Appendix B shows the occurrence of potential black legless lizard habitat at former Fort Ord based on habitat models developed during preparation of the 1992 Flora and Fauna Baseline study. Areas where potential habitat will be most affected include the western boundary of the multi-range area (MRA) and where the former Fort Ord boundary abuts the City of Marina. USFWS has proposed the black legless lizard for federal listing as endangered.

ANALYSIS OF REUSE ALTERNATIVES FROM THE FEIS AND FSEIS

This HMP assumes, as described in the previous "Impacts on Listed and Proposed HMP Species" section, that development can occur through all development areas with the resultant loss of habitat. The following description provides a similar analysis of the full buildout of areas identified for development within Alternative 6R of the FEIS; Alternative 6RM of the 1993 NEPA ROD; and Alternatives 7, Revised Alternative 7, and 8 of the FSEIS. These alternatives give an indication of the range of specific land uses that may occur within various development areas within this HMP.

This section summarizes impacts to biological resources associated with Alternative 6R from the 1993 FEIS; 6RM of the 1993 NEPA ROD; and Alternative 7, Revised Alternative 7, and Alternative 8 as described in the 1996 FSEIS. The 1993 FEIS, 1993 Biological Assessment, and the USFWS final Biological Opinion (October 19, 1993) describe Alternative 6R. Alternative 6RM is a modification of Alternative 6R that was contained in the 1993 NEPA ROD; it incorporated likely land uses in NPU areas based on an early version of the community reuse plan. Alternative 7 represents the December 12, 1994 FORA Final Base Reuse Plan. Revised Alternative 7 incorporates the Draft FORA Fort Ord Reuse Plan (March 1996) where it does not conflict with Army policies or agreements. Alternative 8, a land use scenario similar to Alternative 7, includes uses for specific parcels received during scoping processes. The full discussion of impacts to biological resources associated with Alternative 6R appears on pages 6-100 through 6-130 of Volume I of the FEIS. The full discussion of impacts to biological resources associated with Revised Alternative 7 appears on pages 5-67 through 5-74 of the FSEIS. The full discussion of impacts to biological resources associated with Revised Alternative 7 appears on pages 5-112 through 5-121 of the FSEIS. The full discussion of impacts to biological resources associated with Alternative 8 appears on pages 5-125 through 5-127 of the FSEIS.

Alternative 6R was analyzed using a Geographic Information System (GIS) database of the 1992 biological survey data overlaid with a map of the alternative. For impact calculations, development-related land uses were assumed to remove all biological resources within the land use footprint and habitat conservation related land uses were assumed to preserve all biological resources in the land use footprint. Alternative 6R also included several areas with no proposed use (identified as NPU areas). NPU areas were assumed to have no effect on biological resources. However, it was acknowledged in the FEIS that lands designated as NPU could be subject to reuse in the future and would require future, separate environmental documentation.

The total effect of Alternative 6R would be the removal of approximately 2,507 acres of common and special native biological communities. Within this area of removed habitat, approximately 130 acres supporting low-density populations of sand gilia, 5 acres supporting medium-density populations, and 15 acres supporting high-density populations of sand gilia would be removed. The only other listed plant species that would be affected would be Monterey spineflower. This species would lose approximately 355 acres, 515 acres, and 70 acres respectively of areas supporting low-, medium-, and high-density populations. Alternative 6RM was analyzed using the same methodology described above for Alternative 6R, except that land uses were inserted into NPU areas based on the local reuse planning assumptions available at the time the 1993 NEPA ROD was completed.

The total effect of Alternative 6RM would be the removal of 5,941 acres of common and special native biological communities. Within this area of removed habitat, approximately 555 acres supporting low-density populations of sand gilia, 125 acres supporting medium-density populations of sand gilia, and 13 acres supporting high-density populations of sand gilia would be removed. The only other federally listed plant species that would be affected would be Monterey spineflower. This species would lose approximately 1,970 acres, 985 acres, and 260 acres, respectively, of areas supporting low-, medium-, and high-density populations.

Alternative 7 was analyzed using both a GIS database and manual overlaying of a proposed road network map with resource maps. The GIS analysis for Alternative 7 used the same methods as used for the Alternative 6R analysis. However, impact assumptions for some parcels were modified based on more recent information. Impact calculations using the GIS did not include impacts associated with a proposed road network because the digital mapping data for the road network was not compatible with the GIS biological resource data. Impacts from the road network were quantified by overlaying by hand road network maps with resource maps and planimetering the acres of effect.

The total effect of Alternative 7 would be the removal of approximately 6,180 acres of common and special native biological communities. Within this area of removed habitat, approximately 595 acres supporting low-density populations of sand gilia, 120 acres supporting medium-density populations of sand gilia, and 6 acres supporting high-density populations of sand gilia would be removed. The only other federally listed plant species that would be affected would be Monterey spineflower. This species would lose approximately 1,965 acres, 1,065 acres, and 250 acres, respectively, of areas supporting low-, medium-, and high-density populations.

Revised Alternative 7 was analyzed through a comparison against the reuse scenario described in the 1994 HMP. Areas where the alternative differed from the 1994 HMP relative to locations of development and habitat reserved were identified. Locations where portions of the proposed transportation network conflicted with habitat reserve areas in the February 1994 HMP were included in this analysis. Acreages of loss or gain of areas identified as habitat reserve were calculated for each location where Revised Alternative 7 and the 1994 HMP differed. Losses and gains were also calculated for key HMP resources. For the analysis, key HMP resources include areas supporting sand gilia, Monterey spineflower, and Seaside bird's beak.

The total effect of Revised Alternative 7 on habitat reserve areas is the conversion of approximately 370 acres of area considered habitat reserve in the 1994 HMP to developed area or another use. The total effect on key HMP resources under Revised Alternative 7 would be a loss of approximately 114 acres of habitat supporting low-density sand gilia populations; a loss of approximately 3 acres of area supporting medium-density sand gilia populations; a gain of approximately 8 acres of area supporting high-density sand gilia populations; a loss of approximately 183 acres and 62 acres, respectively, of area supporting low- and medium-density Monterey spineflower populations; a gain of approximately 7 acres of area supporting high-density Monterey spineflower populations; and a loss of approximately 25 acres of habitat supporting low-density populations of Seaside bird's beak.

Alternative 8 is very similar to Alternative 7, with differences primarily associated with proposed changes in land uses in specific areas. Alternative 8 was analyzed by examining these specific areas. Differences between Alternatives 7 and 8 that could affect impacts to biological resources included expansion of a community park, removal of small areas from the NRMA (at the request of BLM due to the separation of these areas from the main body of the NRMA by existing roads), and construction of a golf course on the landfill parcel. The total effect of Alternative 8 would be the removal of approximately 6,230 acres of common and special native biological communities and removal of approximately 793 acres of area supporting sand gilia and 3,423 acres of area supporting Monterey spineflower at various densities.

ANALYSIS OF IMPACTS TO HMP TARGET SPECIES FROM THIS HMP

Earlier sections of this chapter described the impacts to listed and proposed plant and animal species from the maximum development allowed by this HMP. This section summarizes the habitat areas within each HMP reserve or corridor area that are going to be preserved for each HMP target species. In some cases, the HMP reserve area is actually a combination of Habitat Reserve parcels and parcels that are classified Development with Reserve or Development with Restrictions but contain primarily lands to be managed as

reserve. The section also indicates the habitat acreage contained within the total development area allowed by this HMP. This Development Areas category includes parcels that are classified as Development and others that are classified as Development with Reserve or Development with Restrictions but have no reserve component, only restrictions.

Acreage totals contained below were calculated by overlaying the current reserve, corridor, and development area boundaries with the 1992 habitat data contained in the planning-level Geographic Information System (GIS) developed by the Army to support the disposal and reuse of Fort Ord. The totals below are a sum of the low-, medium-, and high-density habitats for each species. For the detailed breakdown of low-, medium-, and high-density habitat for each species in each reserve, refer to Table B-2 in Appendix B.

State Parks Reserve

The State Parks reserve is located along the coast, west of SR 1. It includes both Reserve and Development with Reserve Areas or Development with Restrictions parcels, as mapped in Figure 4-1. This reserve occupies approximately 970 acres and includes parcels S3.1.1, S3.1.2, and S3.1.3. The list below identifies the species that have supporting habitat in the reserve. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- Smith's blue butterfly (177),
- western snowy plover (73),
- California black legless lizard (86),
- Monterey spineflower (666),
- robust spineflower (476),
- sandmat manzanita (1), and
- coast wallflower (171).

The State Parks reserve has an allowance for up to 186 acres of development for existing and proposed facilities. Conversely, an additional 390 acres that currently do not support native habitat will be restored to coastal strand and coastal scrub habitat. Therefore, a net increase in habitat available for target species is expected in this reserve. It is expected that this reserve will be transferred to California Department of Parks and Recreation as a public benefit conveyance (PBC) by the U.S. Department of Interior.

Landfill Development with Reserve

The Landfill reserve is located northeast of the Main Garrison, just south of Imjin Road. It is composed of two Development with Reserve or Development with Restrictions parcels (parcels E8a.1 and E8a.2). This reserve occupies approximately 308 acres. Three habitat types exist in the reserve, including coastal coast live oak woodland, annual grassland, and maritime chaparral. The list below identifies the species that have supporting habitat in the reserve. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California black legless lizard (43),
- Monterey ornate shrew (149),
- sand gilia (101),
- Monterey spineflower (243),
- sandmat manzanita (270),
- Monterey ceanothus (164), and
- coast wallflower (8).

The Landfill reserve has an allowance for up to 81 acres of development. The exact location of this development has not been determined. The remaining 227 acres of the area, including the landfill cap, will be managed as reserve.

UC/NRS Fort Ord Natural Reserve

The UC/NRS Fort Ord Natural Reserve is located in the southwestern corner of the former Fritzsche Army Airfield and south of Reservation Road; it has already been transferred to UC. It is being managed as part of the UC Natural Reserve System. This reserve includes approximately 590 acres and is composed of Reserve parcels S2.1.2, S2.1.3, S2.1.5, S2.3.2, and S2.4 (Figure 4-1). The habitat types in the parcel include maritime chaparral and coastal coast live oak woodland. The species that have supporting habitat within the reserve are listed below. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California black legless lizard (261),
- Monterey ornate shrew (243),
- sand gilia (473),
- Monterey spineflower (507),
- Toro manzanita (30),
- sandmat manzanita (424),
- Monterey ceanothus (348),
- Eastwood's ericameria (115), and
- coast wallflower (172).

Marina Reserve

The Marina reserve is located in the Fritzsche Army Airfield area, north and west of the developed portion of the airfield. It includes both Reserve and Development with Reserve or Development with Restrictions parcels. The reserve has approximately 175 acres and includes parcels L5.1.11 and L5.1.12 (Figure 4-1). These parcels have already been transferred to the City of Marina and are being managed as reserve. The species that have supporting habitat within the Marina Reserve are listed below. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California red-legged frog (1),
- California black legless lizard (19),
- Monterey ornate shrew (27),
- sand gilia (1),
- Monterey spineflower (120), and
- sandmat manzanita (1).

East Garrison Reserve

The East Garrison reserve is located in the easternmost portion of former Fort Ord, south of Reservation Road. The reserve includes both Reserve and Development with Reserve or Development with Restrictions parcels. The reserve totals approximately 855 acres and includes parcels E11a, E11b.1-E11b.8, and E11b.11. This large reserve area supports inland and coastal coast live oak woodland, grassland, and

maritime chaparral habitat types. The target species supported by habitat within the reserve are listed below. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California black legless lizard (6),
- Monterey ornate shrew (492),
- sand gilia (14),
- Monterey spineflower (158),
- Seaside bird's beak (5),
- Toro manzanita (349),
- sandmat manzanita (24),
- Monterey ceanothus (236),
- Eastwood's ericameria (195),
- coast wallflower (3), and
- Hooker's manzanita (65).

The East Garrison reserve includes an allowance for up to 200 acres of total development, both existing and future, at some location within the area. This 200 acres does not include lands already occupied by two water tanks, a wastewater treatment facility, and a future road corridor. It is expected that portions of this reserve will be transferred as a PBC by the U.S. Department of Interior.

Habitat Corridor

The Habitat corridor, located immediately west of the East Garrison portion of former Fort Ord, includes both Reserve and Development with Reserve or Development with Restrictions parcels. It includes parcels L20.2.1 and L20.2.2 (Figure 4-1). The reserve totals approximately 400 acres. Coastal coast live oak woodland and annual grassland habitats are found in the Habitat corridor. The list below identifies the target species that have supporting habitat within the corridor. Combined acreages of low-, medium-, and high-density habitat within the corridor are included in parentheses:

- California linderiella (1),
- California red-legged frog (1),
- California tiger salamander (1),
- Monterey ornate shrew (376),
- sand gilia (61),
- Monterey spineflower (204), and
- sandmat manzanita (78).

Some development will be allowed in the corridor, concentrated around the existing campground in parcel L20.2.2. The exact location of development is unknown, but it is not expected to affect the acreages listed above. It is expected that the Habitat Corridor will be transferred to Monterey County by the U.S. Department of Interior as a PBC.

BLM Natural Resource Management Area

The BLM NRMA is located in the southern and eastern portions of former Fort Ord. This reserve is largest natural area being retained in the HMP area. It totals approximately 15,000 acres and includes parcels Fl.1-F1.11, excluding parcel F1.7.2 (Figure 4-1). Some portions of the area have already been transferred to BLM and are being managed as reserve. This transfer includes most of the land east of Barloy Canyon Road. The NRMA includes 12 habitat types but is dominated by maritime chaparral. The target species that

are supported by habitat within the NRMA are listed below. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California linderiella (56),
- California red-legged frog (23),
- California black legless lizard (935),
- California tiger salamander (56),
- Monterey ornate shrew (1,723),
- sand gilia (2,288),
- Monterey spineflower (5,176),
- Seaside bird's beak (1,046),
- Toro manzanita (5,261),
- sandmat manzanita (5,453),
- Monterey ceanothus (8,223),
- Eastwood's ericameria (4,194),
- coast wallflower (36), and
- Hooker's manzanita (4,499).

Significant habitat management efforts and restoration of built areas are expected to add to the acreages within the NRMA that support the above-listed species.

Caltrans State Route 68 Easement

The Caltrans State Route (SR) 68 easement overlays the NRMA in the southern portion of former Fort Ord (Figure 4-1). A total of approximately 660 acres are contained within the corridor. Of this total, approximately 180 acres could be lost to development of a highway, assuming a 300-foot-wide construction corridor. The parcels overlain by the corridor include L4.2, E29e, E29b.1, F1.4, F1.5, F1.7.1, S4.2.1, S4.2.3, L20.3, L20.5, and F1.1. The major habitat types in this area are maritime chaparral, annual grassland, and valley needlegrass grassland. The list below identifies the species that have supporting habitat in the corridor. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California linderiella (1),
- California tiger salamander (2),
- Monterey ornate shrew (37),
- sand gilia (10),
- Monterey spineflower (64),
- Toro manzanita (155),
- sandmat manzanita (219),
- Monterey ceanothus (353), and
- Hooker's manzanita (226).

MPRPD Reserve

The MPRPD reserve is located in the extreme southwestern portion of former Fort Ord. It is a Reserve parcel containing approximately 20 acres. The parcel number is L6. It is dominated by coastal coast live oak woodland habitat but also contains riparian and maritime chaparral habitats. The list below identifies the target species supported by habitat in the MPRPD reserve. Combined acreages of low-, medium-, and high-density habitat within the reserve are included in parentheses:

- California black legless lizard (7).
- Monterey spineflower (20),

- Seaside bird's beak (7),
- sandmat manzanita (20),
- Monterey ceanothus (20), and
- Eastwood's ericameria (20).

Caltrans State Route 1 Area

The SR 1 corridor passes through the western portion of former Fort Ord, separating the beach areas from the Main Garrison area. It is considered a Development with Reserve or Development with Restrictions area and includes parcels S4.1.1, S4.1.2, and S4.1.3 (Figure 4-1). The corridor totals approximately 225 acres. A variety of disturbed dune, ice plant mat, and annual grassland habitats dominate the corridor. The target species that are supported by habitat in the SR 1 corridor are listed below. Combined acreages of low-, medium-, and high-density habitat within the corridor are included in parentheses:

- California black legless lizard (9),
- sand gilia (3),
- Monterey spineflower (40),
- sandmat manzanita (14),
- Monterey ceanothus (7),
- Eastwood's ericameria (5),
- coast wallflower (7), and
- Yadon's piperia (1).

Development Areas

The Development areas of former Fort Ord include the remaining parcels not listed above. Some of these parcels are developable with no restrictions, while several others (parcels E2a, E31, L20.3, L20.4, and L20.5) are classified as Development with Restrictions. The Development areas total approximately 10,500 acres. The developable areas are located primarily between the SR 1 corridor and the NRMA (Figure 4-1). Habitat supporting all of the HMP target species is found within the Development areas. Acreages of habitat for each of these species are listed below. The acreages are a combination of low-, medium-, and high-density habitats, summarized from Table B-2 in Appendix B:

- Smith's blue butterfly (2),
- California linderiella (2),
- California tiger salamander (2),
- California red-legged frog (2),
- California black legless lizard (1,846),
- Monterey ornate shrew (1,648),
- Hooker's manzanita (426),
- Yadon's piperia (13),
- sand gilia (806),
- Eastwood's ericameria (1,338),
- coast wallflower (375),
- Seaside bird's beak (69),
- Monterey spineflower (3,204),
- Monterey ceanothus (2,437),
- sandmat manzanita (2,325), and
- Toro manzanita (631).

There are no resource conservation requirements in the HMP for most of the Development areas. The habitat resources contained in the parcels are not considered critical to the long-term survival of the species. However, habitat may be preserved within and around the Development areas within these parcels.

MANAGEMENT GUIDELINES FOR RECIPIENTS AND/OR HABITAT MANAGERS OF DISPOSED LAND

This section describes key resources, expected impacts on resources, and land management responsibilities for each recipient of disposed land in the HMP area. The Army will include deed covenants in transfer of lands and may, as appropriate, enter into separate MOAs with recipients or habitat managers of disposed land to ensure implementation of HMP requirements. Land recipients and habitat managers may also agree to take part in a CRMP. The CRMP is described in detail at the end of this chapter. Methods for updating or modifying this HMP after agencies or private parties have received Fort Ord lands are described in the "Flexibility of This HMP" section in Chapter 1.

Habitat conservation and management responsibilities by recipients (or habitat managers) of disposed lands at former Fort Ord are discussed individually in the "Descriptions of Parcels" section.

Implementation Strategies

Memoranda of Agreement and Deed Covenants

Before disposal of land, the Army will place appropriate deed covenants (restrictions and/or management requirements) on lands to be transferred and/or enter into MOAs with recipients and/or habitat managers of disposed lands identified in this HMP as Habitat Reserve, Habitat Corridor, Development with Reserve Areas or Development with Restrictions, or Borderland Development Areas Along NRMA Interface. Appropriate HMP guidelines will be included in each document. USFWS will be designated as an agency of the United States to enforce restrictions and/or management requirements in the transfer documents.

Monitoring Procedures and Responsibilities

Monitoring of conservation areas and corridors shall be the responsibility of BLM, California Department of Parks and Recreation (DPR), University of California (UC), Monterey County, City of Marina, Monterey Peninsula Regional Park District, California Department of Transportation (Caltrans), Fort Ord Reuse Authority (FORA), and any other organization with management responsibilities for areas designated as Habitat Reserve, Habitat Corridor, or Development with Reserve Areas or Development with Restrictions in this HMP. The managing agency shall require avoidance of impacts to HMP target species, including listed species, and restoration of disturbed habitat for these species within HMP Habitat Reserve or HMP Habitat Corridors managed by that agency. These areas shall be conserved and managed in accord with the goals and objectives of the HMP and the parcel-specific management requirements in section 4 of the HMP for these parcels. The managing agency shall submit to BLM an annual report that details completed activities and the results of the endangered species protection program for the previous year. The report shall include summaries of land transfers that have occurred; occurrences of incidental take, if any, including known harassment (including both authorized and unauthorized incidental take in accordance with the ESA); acres of listed species' habitat eliminated or destroyed; problems encountered in implementing mitigation measures; pertinent results of biological surveys and sighting records; and any other pertinent information. The report shall be submitted by November 1 of each calendar year, and BLM shall be notified in case of a delay. FORA or other organizations receiving Borderland Development Areas Along NRMA Interface will provide status

reports for parcels adjacent to the NRMA on interim habitat management and/or firebreak construction and maintenance and compliance with other management requirements associated with these parcels (see the "Borderland Development Areas Along NRMA Interface" section near the end of this chapter). These agencies would be responsible for ensuring that this HMP's guidelines are implemented on parcels under their jurisdictions.

Monitoring results for CRMP participants will be coordinated by BLM, and BLM will consolidate the results into a single monitoring report. Annual monitoring reports will be filed with USFWS and DFG, as well as with each of the participating agencies.

Program Costs and Funding

Funding to develop this HMP was provided by the Army. Funding to implement this HMP's prescribed habitat restoration, management, and monitoring for reuse will be provided by entities receiving properties or with management responsibilities for areas designated as Habitat Reserve, Habitat Corridor, Borderland Development Areas Along NRMA Interface, or Development with Reserve Areas or Development with Restrictions in this HMP. These agencies will fund implementation of this HMP and implement conservation and/or management guidelines specific to parcels they receive. This HMP does not preclude other sources of funding for HMP implementation or preclude these agencies from securing funding from other sources to support their implementation of this HMP guidelines. Requirements for each agency's minimal participation and accomplishments toward implementation of this HMP will be specified in covenants in the deed that will be completed at the time of land transfer or in a MOA with the Army.

ANALYSIS OF ROAD CORRIDORS

The analysis of impacts to biological resources in the FSEIS considered the effects of a proposed transportation network. The transportation network considered was based on the FORA December 12, 1994 Final Fort Ord Base Reuse Plan with mitigations and modifications agreed on with USFWS, UC, and FORA on March 15 and 28, 1996. Several road segments included in the proposed network pass through areas identified as Habitat Reserve, Habitat Corridor, or Development with Reserve Areas or Development with Restrictions in this HMP (Figure 4-2). These road corridors are accommodated within this HMP. Descriptions of individual parcels affected by these road segments each contains a reference to the road segment and how it may affect HMP habitat conservation or management requirements. The SR68 Transportation Easement is treated separately and is considered in the category of "Development with Reserve Areas or Development with Restrictions".

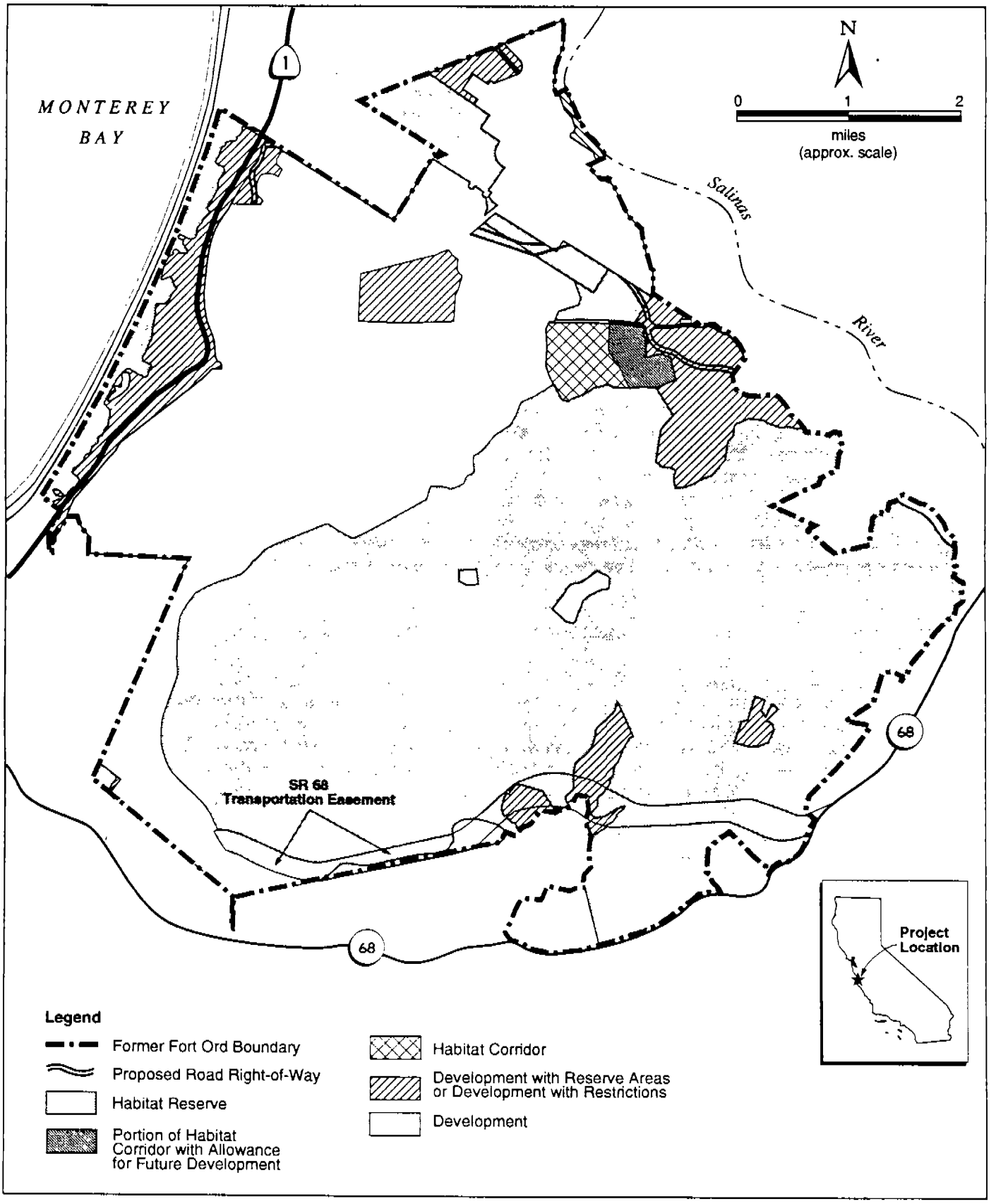


Figure 4-2
Proposed Road Corridors Passing through Areas with HMP Conservation Requirements

Description of Parcels

PARCELS F1.1-F1.11 (EXCLUDING PARCEL F1.7.2)
U.S. BUREAU OF LAND MANAGEMENT
NATURAL RESOURCE MANAGEMENT AREA

Parcel Description

Approximately 15,000 acres of Fort Ord lands are identified as Parcels F1.1 through F1.11 (excluding parcel F1.7.2, which is a Development area) in Figure 4-1 and Attachment A. This area, the Natural Resource Management Area (NRMA), includes areas designated as conservation areas and habitat corridors, as well as other habitat areas important to HMP plant and wildlife species.

The proposed SR 68 corridor passes through the southern portion of the NRMA, the existing Barloy Canyon Road (parcels L20.8 and LE20.19) passes north to south through the central portion of the NRMA, and the existing Eucalyptus Road (parcel LE20.18) passes east to west through the central portion of the NRMA. These areas are treated separately: the SR 68 corridor under the section titled Transportation Easement and parcels L20.8, LE20.18, and LE20.19 are included in the Existing Roads in HMP Management Areas discussion.

Parcel F1.12 contains the former Range Control compound and is currently developed. This parcel is considered a development parcel and is included with the Federal Lands with No HMP Requirements parcels.

Resources Present

Major Habitat Features

Twelve habitat types occur within the NRMA. The most abundant habitat type is maritime chaparral. Other dominant habitat types include annual grasslands, inland coast live oak woodland, and coastal coast live oak. Habitats of special interest within the NRMA include riparian forests, perennial grasslands, and vernal pools.

HMP Species

Sand gilia, Monterey spineflower, California linderiella, Seaside bird's-beak, Toro manzanita, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, coast wallflower, Hooker's manzanita, and California tiger salamander are known to occur in the NRMA.

Potential habitat is available in the NRMA for California red-legged frog, black legless lizard, and Monterey ornate shrew. Distribution maps for these species at former Fort Ord (based on 1992 survey data) are included in Appendix B. The appendix also contains updates of 1992 data where available.

Resource Conservation Requirements

Overall, undeveloped areas in the NRMA will be maintained in their natural state. No more than 2% of the areas with natural vegetation may be converted to areas having buildings or other development-oriented uses. Parcel F1.12, which contains the former Range Control compound, is not included in this 2%. Any development that may occur in the Transportation Easement that passes through the NRMA is also not included in this 2%. Only land management consistent with the conservation of biological resources will be conducted in the NRMA. Potential land uses in the NRMA include public access, grazing, police and fire training, education and research, and implementation of a Natural Resources Management Plan to be developed for the area. Restoration and enhancement efforts described in the next section will also be conducted.

Management Requirements

The NRMA is separated into two portions for management of maritime chaparral. Initial management of the NRMA will be different in the portion within the inland range, and any other areas requiring ordnance and explosives (OE) clearing, from the portions outside the inland range. After the clearing of OE by the Army, the management of maritime chaparral in the NRMA will not be separated into these two units.

NRMA within the Inland Range

During the Army's actions to clear OE from the inland range and other sites within the NRMA, BLM (the anticipated land recipient) will provide advice and guidance to the Army as the Army carries out the following actions:

- develop the spatial pattern of vegetation burning and OE clearing to promote healthy maritime chaparral and HMP species habitat;
- monitor the recovery and succession of maritime chaparral over the long term and short term;
- study the establishment, persistence, and habitat requirements of sand gilia, Monterey spine-flower, and Seaside bird's-beak;
- develop management procedures that encourage and maintain sand gilia, Monterey spineflower, and Seaside bird's-beak populations and habitat; and
- develop management procedures that encourage and maintain populations of other special-status maritime chaparral species.

At heavily disturbed sites requiring maritime chaparral restoration (e.g., paved sites, sites of compacted soils), BLM and the Army will conduct portions of the restoration effort. The Army, or others, will prepare the site surface for restoration by removing structures, asphalt, cement, and other materials; ripping compacted soils; restoring natural relief and landform conditions; and using other techniques. California Department of Transportation (Caltrans) may assist the Army in these efforts to the extent that funding is negotiated. Refer to the description of the Transportation Easement - State Route 68 corridor later in this chapter for more information concerning coordination between the Army and Caltrans regarding habitat improvements in the NRMA. BLM will conduct revegetation of maritime chaparral at these sites immediately following site preparation to meet the habitat success criteria described below.

NRMA Management

The following management actions will be taken by BLM in the NRMA. These actions will be taken outside the inland range before OE clearing and within the inland range after OE clearing.

Maritime Chaparral Habitat Restoration Success Criteria. Healthy maritime chaparral habitat is described in Chapter 2 in the "Habitat Management Plan Habitats" section. This description and comparisons with undisturbed sites supporting maritime chaparral should be used to measure the success of restored habitat. Restored habitat will consist of naturally regenerating maritime chaparral managed to maximize the habitat value for HMP shrub species associated with the habitat.

Sand gilia, Monterey spineflower, and Seaside bird's-beak will also be considered when restoring maritime chaparral habitat. Habitat conditions will be modified in restoration sites to promote favorable conditions for these species. Sand gilia, Monterey spineflower, and Seaside bird's-beak are annuals and locations of populations may vary from year to year. Because population occurrences may vary and restoration sites will be relatively small (typically 1-5 acres), it cannot be expected that each restoration site will support any one of these species every year.

Maritime chaparral restoration will be considered successful if restored sites support naturally regenerating maritime chaparral that becomes a functioning part of the entire dynamic, managed maritime chaparral habitat of the NRMA. These restored maritime chaparral sites should also provide habitat for, and in some years support populations of, sand gilia, Monterey spineflower, and Seaside bird's-beak.

Most potential maritime chaparral restoration sites occur within the inland range area. There are some denuded areas outside the inland range with potential for maritime chaparral restoration. However, soil conditions at many of these sites (exposed sandstone) would make site preparation and restoration efforts exceptionally costly and labor intensive. These areas are not considered in this HMP as locations where BLM is obligated to restore maritime chaparral habitat.

Maritime Chaparral Enhancement. BLM will enhance maritime chaparral habitat wherever it occurs in a degraded condition in the NRMA. Specific actions will be determined based on the results of monitoring and test study sites. Success criteria will be the same as those for maritime chaparral restoration.

Monitoring. BLM will monitor populations of all special-status species within the NRMA and may conduct population viability studies. BLM will maintain records of the location, timing, intensity, and extent of wildfires and controlled fires and will monitor post fire recovery and succession of maritime chaparral.

Controlled Burning. BLM will control burn approximately 500 acres per year on a rotational basis (about a 12- to 15-year rotation). Specific seasonal timing, patch size, yearly total, and rotational time for maritime chaparral burns will be determined based on the results of studies of maritime chaparral burning and recovery in the NRMA.

Access Control. Existing roads, necessary for land management, will be maintained by BLM in the NRMA. BLM will close all trails and nonmaintained roads to motor vehicle access. Approximately 240 roads will need to be closed. Permanent barriers will be erected and regular ranger patrols conducted.

Erosion Control. BLM will conduct erosion control measures at sites in greatest need of stabilization. These sites are along roads where the road, an adjacent road, or riparian habitat is threatened. BLM estimates that approximately 60 sites will need immediate action to be stabilized.

Responsible Parties

The BLM is responsible for ensuring that habitat enhancement is conducted and that natural vegetation is managed to maintain high habitat value for HMP species.

PARCEL S3.1.2
COASTAL DUNE ZONE

Parcel Description

Parcel S3.1.2 located along the coastline (Figure 4-1 and Attachment A) would be used for the preservation of restored coastal dune habitat, with public access limited to hiking trails and beach access. The parcel is identified as the Coastal Dune Zone (CDZ). The sandy beach area would provide the prime public recreation opportunities in the coastal zone, including wading, surfing, fishing, sunbathing, and picnicking. Creation of vernal ponds is also being considered in the CDZ. Public access would be by pedestrian means only.

Trail construction would involve minimal grading and the use of boardwalks, sand ladders, and guide railings for pedestrian control. Interpretive signs about the natural resources of the zone would be provided for public education.

Resources Present

Major Habitat Features

Five habitat types occur in the CDZ. The dominant habitat type is beaches, bluff, and blowouts. Other habitat types include iceplant mats, coastal strand, disturbed dunes, and dune scrub.

HMP Species

Sand gilia, Monterey spineflower, Smith's blue butterfly, western snowy plover, black legless lizard, and coast wallflower are known to occur in the CDZ parcel.

Resource Conservation Requirements

Except areas disturbed by boardwalk and/or sand ladder construction, all HMP resources within the CDZ will be preserved.

Management Requirements

Boardwalks and/or sand ladders will be constructed to channel foot traffic from the Disturbed Habitat Zone (DHZ) (Parcels S3.1.1 and S3.1.3 described later in this chapter) to the beach. Interpretative signs will be placed along each boardwalk/sand ladder describing the sensitive species present and the need to restrict foot traffic on the dunes. Boardwalk/sand ladder siting will avoid areas currently supporting native dune vegetation.

Beach access will be restricted at all western snowy plover nesting areas (including an acceptable buffer distance) during the snowy plover breeding and nesting season (March through September). If snowy plovers are found nesting in other areas, beach access will be restricted there as well. Beach raking will not be used as a method to remove trash in areas where western snowy plovers are nesting.

Responsible Parties

DPR is responsible for implementing all management requirements after Army lead removal and restoration requirements are complete and DPR has received the property.

PARCELS S2.1.2, S2.1.3, and S2.1.5
UC/NRS FORT ORD NATURAL RESERVE

Parcel Description

Parcels S2.1.2, S2.1.3, and S2.1.5 (collectively called the UC/Natural Reserve System (UC/NRS) Fort Ord Natural Reserve parcel [FONR]) will be managed by the UC/NRS. The FONR parcel is located in the southwestern corner of the former Fritzsche Army Airfield (Figure 4-1 and Attachment A). Parcels S2.3.2 and S2.4 are also considered part of the UC/NRS Fort Ord Natural Reserve but are discussed separately following this parcel description.

Subsequent to transfer of the reserve areas to UC by the Army, a boundary change has occurred between HMP Reserve parcel S2.1.5 and Development parcel S2.1.1, based on an agreement between UC and USFWS. Correspondence regarding this boundary change and a map showing the posttransfer boundary change are included in Appendix C.

Resources Present

Major Habitat Features

Two habitat types occur within the FONR parcel. The most abundant habitat type is maritime chaparral; the second habitat type is coastal coast live oak woodland.

HMP Species

Sand gilia and Monterey spineflower occur in most of the FONR parcel at medium and high densities (see distribution maps in Appendix B). Black legless lizard, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and Toro manzanita also occur in the parcel. The coastal coast live oak woodland in the FONR is considered potential habitat for the Monterey ornate shrew.

Resource Conservation Requirements

Research and teaching activities for the study of existing natural resources will be conducted on the FONR parcel, and natural habitats will be preserved and protected. Development will be limited within the parcel to that needed to support scientific research and teaching and to manage the habitat with priority given to HMP plant and wildlife species. Development will not affect more than 1% of the total natural habitat within the parcel.

Management Requirements

The following sections describe management principles and procedures that will guide management of the FONR parcel.

Baseline Inventory and Mapping

The UC/NRS will conduct a detailed, site-specific inventory and mapping of species and habitats on the FONR parcel, with an emphasis on special-status species that have significant habitat at the site.

Environmental Monitoring

The UC/NRS will design and implement an ongoing environmental monitoring program for both abiotic (e.g., climate and hydrology) and biotic (e.g., special-status species) components at the FONR parcel. Monitoring data will be used to guide species and habitat management programs.

Active Management

The UC/NRS will actively manage species and habitats, with an emphasis on maintaining viable populations and habitats of listed, proposed, and candidate species, including the maintenance of necessary disturbance regimes and ecosystem processes, as appropriate.

Management-Oriented Research

The UC/NRS will foster targeted research to address species and habitat management issues and to provide a base for informed management.

Parcel Monitoring

As a trustee agency under CEQA, UC is required to be notified when land use activities on adjacent lands have the potential to adversely affect environmental resources managed by the UC/NRS in the public trust. Trustee agencies may require early consultation with project proponents, identify significant impacts on public trust resources, and recommend mitigation and mitigation monitoring requirements for project approval.

Responsible Parties

The UC/NRS will be responsible for ensuring that natural resources are protected and properly managed at the FONR parcel.

PARCEL S2.3.2
RESERVATION ROAD HABITAT RESERVE

Parcel Description

The Reservation Road Habitat Reserve is shown as Parcel S2.3.2 in Figure 4-1 and Attachment A (along the southern edge of Reservation Road). A proposed Multi-Modal Corridor passes along the southern edge of parcel S2.3.2 (Figure 4-2). This corridor is accommodated in this HMP as described in the "HMP Analysis of Road Corridors" section earlier in this chapter. Parcel S2.3.2 is considered part of the UC/NRS Fort Ord Natural Reserve.

Resources Present

Major Habitat Features

Four habitat types occur within parcel S2.3.2. The most abundant habitat type is maritime chaparral. Other habitat types include coastal coast live oak woodland, annual grassland, and coastal scrub.

HMP Species

Sand gilia, Monterey spineflower, Toro manzanita, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, and coast wallflower are known to occur in parcel S2.3.2. Potential habitat is available in the parcel for black legless lizard and Monterey ornate shrew.

Resource Conservation Requirements

Resource conservation requirements will be the same for parcel S2.3.2 as for the FONR parcel.

Management Requirements

Management requirements for parcel S2.3.2 are the same as for the FONR parcel.

Responsible Parties

The UC/NRS will be responsible for ensuring that natural resources are protected and properly managed on parcel S2.3.2.

PARCEL S2.4
HABITAT RESERVE/CORRIDOR

Parcel Description

Parcel S2.4 borders the southern edge of Reservation Road just west of Imjin Road (Figure 4-1 and Attachment A). Parcel S2.4 is titled the Habitat Reserve/Corridor parcel. The corridor is intended as a connector between parcel S2.1.5 and parcel S2.3.2 to assist in maintaining the long-term viability of HMP species populations in these areas. (The importance of habitat corridors is described in detail in the "Ecological Concepts for Conservation Area and Corridor System Design" section in Chapter 2.) Parcel S2.4 will be managed by the UC/NRS and is considered part of the UC/NRS Fort Ord Natural Reserve.

Resources Present

Major Habitat Features

All of parcel S2.4 contains maritime chaparral habitat.

HMP Species

Sand gilia, Monterey spineflower, sandmat manzanita, Monterey ceanothus, and Eastwood's ericameria are known to occur in parcel S2.4. Potential habitat is available in the parcel for black legless lizards.

Resource Conservation Requirements

Resource conservation requirements for parcel S2.4 will be the same as for the FONR parcel. Any development necessary for scientific research, teaching, or maintenance activities will be sited and constructed so that it does not impede the area's function as a habitat corridor for HMP species.

Management Requirements

Management requirements for parcel S2.4 will be the same as for the FONR parcel. In addition, all artificially created landscape features within parcel S2.4 not required for preservation or operation of parcel S2.4 or adjacent parcels will be removed and the area restored to sand hill maritime chaparral.

Responsible Parties

The UC/NRS will be responsible for conservation and management requirements in parcel S2.4.

PARCEL L5.1.12
SALINAS RIVER HABITAT AREA

Parcel Description

Parcel L5.1.12 is located on the east central edge of the former Fritzsche Army Airfield area (Figure 4-1 and Attachment A). The parcel is titled the Salinas River Habitat Area. The City of Marina will have jurisdiction over this parcel.

Resources Present

Major Habitat Features

The southern segment of parcel L5.1.12 contains coastal scrub, inland coast live oak woodland, and small amounts of annual grassland habitat. Some riparian habitat occurs where the Salinas River passes through the northern segment.

HMP Species

Monterey spineflower occurs in parcel L5.1.12. Potential habitat is available for California red-legged frog in the Salinas River and Monterey ornate shrew in the oak woodland and riparian habitats.

Resource Conservation Requirements

All habitat within parcel L5.1.12 will be preserved in perpetuity.

Management Requirements

Parcel L5.1.12 will be managed to maintain existing habitat values for HMP species. The City of Marina may contract with an appropriate and qualified CRMP agency or other appropriate and qualified agency, as approved by the USFWS, to manage natural resources within parcel L5.1.12.

Responsible Parties

The City of Marina will be responsible for ensuring that existing habitat values are retained within parcel L5.1.12.

PARCEL L6
NATURAL AREA EXPANSION

Parcel Description

The Monterey Peninsula Regional Parks Natural Area Expansion (NAE) is shown as Parcel L6 in Figure 4-1 and Attachment A. The NAE, located in Monterey County, would be an expansion of the existing Frogpond Natural Area (owned by Monterey Peninsula Regional Parks), which is located in the City of Del Rey Oaks near the Fort Ord installation boundary. The NAE would add several additional habitat types to the Frogpond Natural Area. This would provide an area for interpretive trails, biological research, and other appropriate uses where several different habitat types may be observed in a small area.

Major Habitat Features

The NAE land use footprint is dominated by coastal coast live oak woodland habitat. The ephemeral drainage that feeds the frogpond area passes through the NAE parcel and supports some willow riparian habitat. A very small amount of maritime chaparral habitat also occurs in the NAE.

Listed and Proposed Threatened and Endangered Species

Monterey Spineflower. The entire NAE footprint supports Monterey spineflower at medium density.

California Black Legless Lizard. Portions of the coastal coast live oak woodland and maritime chaparral habitats in the NAE that occur on areas of loose sandy soil are considered potential habitat for the black legless lizard.

Other HMP Species

Seaside Bird's-beak. A population of Seaside bird's-beak occurs along North-South Road in the northern portion of the NAE parcel.

Sandmat Manzanita. Sandmat manzanita occurs across the entire NAE parcel at medium density.

Monterey Ceanothus. High-density Monterey ceanothus is found over the entire NAE parcel.

Eastwood's Ericameria. Eastwood's ericameria occurs at medium density over the entire NAE parcel.

Resource Conservation Requirements

Monterey Peninsula Regional Parks will preserve natural habitat within the NAE parcel in perpetuity.

Regional parks would limit development to a vehicle parking area, internal circulation (trails), and modest interpretive displays. Resource management, enhancement, and restoration, along with environmental education are the high-priority uses.

Management Requirements

Members of the CNPS will be given access to the CNPS native plant reserve within the NAE boundary for research and other purposes. Plant species of special concern will be managed appropriately. Where feasible and appropriate, habitat restoration and enhancement practices and techniques will be implemented. Water quality and wetland dependant species will be monitored.

Responsible Parties

Monterey Peninsula Regional Parks District will be responsible for development and management of the NAE parcel.

PARCEL E11a
EAST GARRISON

Parcel Description

E11a is located in the northeastern portion of former Fort Ord and borders the south side of Reservation Road (Figure 4-1 and Attachment A). A proposed road corridor passes through this parcel (Figure 4-2).

Resources Present

Major Habitat Features

Almost all of parcel E11a supports coastal coast live oak woodland habitat.

HMP Species

Sand gilia, Monterey spineflower, Monterey ceanothus, and Eastwood's ericameria are known to occur in parcel E11a. Potential habitat is available for Monterey ornate shrew.

Resource Conservation Requirements

All habitat within parcel E11a will be preserved. However, this HMP does accommodate a proposed road corridor in the parcel (Figure 4-2). (Refer to the "HMP Analysis of Road Corridors" section earlier in this chapter.) If the road is constructed, habitat and HMP resources may be removed to accommodate road construction.

Management Requirements

Parcel E11a will be managed to maintain existing habitat values for HMP species. Management will include maintaining small amounts of area with disturbed sandy soils to support sand gilia and Monterey spineflower habitat.

Two populations of sand gilia and scattered individuals were found in parcel E11a during 1993 surveys. In addition to providing habitat for sand gilia, parcel E11a, in conjunction with parcel L20.2.1, are important as a corridor for sand gilia movement between parcel S2.3.2 and the NRMA (parcels F1.1-F1.11). Sand gilia habitat should be maintained in parcel E11a to retain and improve the areas' function as a corridor for sand gilia movement. Special attention should be given to maintaining north-south trending linear habitat, such as dirt roads and firebreaks, to enhance the potential for sand gilia populations from the NRMA and parcel S2.3.2 to occasionally intermix.

The EDC recipient may contract with an appropriate and qualified CRMP agency or other appropriate and qualified agency, as approved by the USFWS, to manage, or assist in managing, natural resources within parcel E11a.

Responsible Parties

The EDC recipient will be responsible for ensuring that all conservation and management requirements for parcel E11a are fulfilled.

PARCELS L20.2.1 and L20.2.2 HABITAT CORRIDOR/RECREATIONAL VEHICLE PARK/YOUTH CAMP

Parcel Description

Parcels L20.2.1 and L20.2.2 are located just west of the former East Garrison (Figure 4-1 and Attachment A). The parcels are collectively titled habitat corridor/recreational vehicle park/youth camp. The

parcels are addressed together as proposed uses as management requirements in one parcel, while different from the other, will influence the other parcel. Parcel L20.2.2 includes the former Army RV park/family camp.

Two existing water tanks are located in the habitat corridor/recreational vehicle park/youth camp area. These tanks are shown as development parcels E17b.1 and E17b.2 in Attachment A. No HMP requirements apply to the water tanks.

Resources Present

Major Habitat Features

Coastal coast live oak woodland occurs over the majority of parcel L20.2.1 . Coastal coast live oak occupies approximately one-third of parcel L20.2.2. The balance is either developed or annual grassland. Parcel L20.2.1 provides a corridor connecting two conservation areas.

HMP Species

Monterey spineflower, sand gilia, and sandmat manzanita are known to occur in parcels L20.2.1 and L20.2.2. Potential habitat is available for California linderiella, California red-legged frog, and California tiger salamander in parcel L20.2.2. However, this habitat consists of an artificial pond associated with the former Army family camp. The pond is filled from artificial sources and has historically been stocked with fish to provide recreational fishing for campers. Because of the presence of predatory game fish, it is unlikely that any of these three species occur in the water body. The oak woodlands in the parcels are considered potential habitat for the Monterey ornate shrew and California black legless lizard.

Resource Conservation Requirements

Development will be concentrated in the existing campground in parcel L20.2.2, with potential future expansion of the campground based on USFWS and DFG approval. Uses such as low-impact programs for youth, outdoor nature education, resource management activities, and trails will occur outside of the developed campground in parcel L20.2.1 (Figure 4-3).

Except possibly small pockets of vegetation within the existing campground in parcel L20.2.2, no HMP species or other sensitive biological resources will be removed by development. All vegetation will be preserved in parcel L20.2.1; although, habitat values may be degraded by youths camping in undeveloped areas.

Although the existing pond in parcel L20.2.2 is considered potential habitat for California linderiella, California tiger salamander, and California red-legged frog, continued use for recreational fishing is not considered as either a loss or conservation of a resource because existing conditions will be maintained.

Management Requirements

Parcel L20.2.1 is considered part of a habitat corridor connecting two conservation areas. Habitat values within this corridor will be retained at high levels to allow movement of wildlife and dispersal of plant seeds and pollen by various methods.

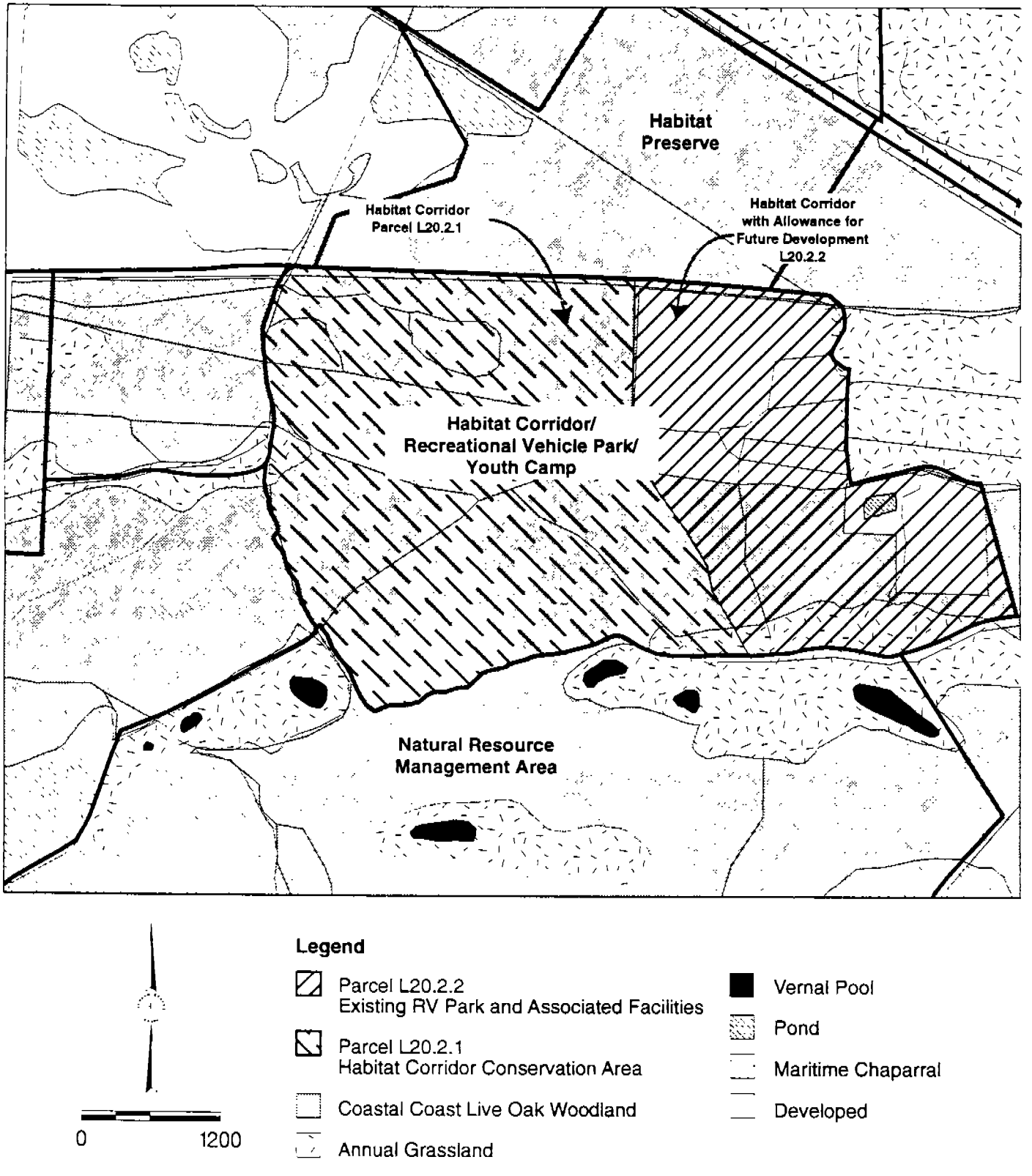


Figure 4-3
Development and Conservation Areas in the Habitat Corridor/Recreational Vehicle Park/Youth Camp Parcel

Management actions for parcel L20.2.1 to maintain habitat values will include special-status species monitoring, controlled burning, firebreak construction, and maintenance as appropriate, vehicle access controls, erosion control, and regular patrols to assure that passive public use and/or unauthorized actions are not impacting natural habitats. A resource management plan will be developed to execute this strategy and will be reviewed by USFWS and DFG. Monterey County may implement the resource management plan for parcel L20.2.1, or may contract with an appropriate and qualified CRMP agency or other appropriate and qualified agency, as approved by USFWS, to implement the management plan.

In addition, to prevent habitat degradation from youth camping and other activities, several specific management requirements will be included in the overall resource management plan. Interpretive signs and displays will be installed at the park entrance in parcel L20.2.2 and in selected locations throughout the park and camping areas. Displays should describe the importance of the area as a wildlife corridor and methods for maintaining habitat values such as removing trash, limiting ground disturbance, restraining pets, and discouraging capture or harassment of wildlife. Campers should also be informed that rare plants occur at the site and should not be collected.

Surveys will be conducted for Monterey ornate shrews in suitable habitat in both parcels. If Monterey ornate shrews are found, the following management practices will also be implemented:

- to preserve dead and downed wood for Monterey ornate shrews,
- wood collection for campfires will not be permitted.
- wood for fires will be provided at the campground entrance.

If trees or snags must be cut down for public safety reasons in parcel L20.2.1, the trunk will be left on the ground as potential habitat for Monterey ornate shrew.

Landscaping installed within either parcel will consist of species native to the project site.

The County of Monterey will coordinate with California Department of Forestry and Fire Protection (CDF) and DFG to determine suitable habitat management practices to retain and potentially enhance habitat values within the oak woodlands in parcel L20.2.1 and any oak woodlands that may be retained in parcel L20.2.2.

Responsible Parties

The County of Monterey will be responsible for ensuring that all conditions described above are followed.

PARCELS S3.1.1 and S3.1.3
DISTURBED HABITAT ZONE

Parcel Description

The Disturbed Habitat Zone (DHZ) is composed of two parcels (Parcels S3.1.1 and S3.1.3 in Figure 4-1 and Attachment A). These parcels include 186 acres of land available for development for existing and proposed facilities.

The DHZ would be used for preservation of restored coastal dune habitats and for visitor service facilities. Day use facilities could include hiking trails, interpretive displays, and group picnic areas. Overnight facilities could include family/group and hike-in/bike-in campgrounds, a hostel facility, a campfire center for interpretive programs, and a conference and lodging facility. Creation of vernal ponds is also being considered within the DHZ. Public access will be on existing roads and new hiking trails. Limited development is allowed in the DHZ and the California Department of Parks and Recreation (DPR) (the proposed land recipient), and others may choose to construct an aquaculture/marine research facility and/or desalinization plant, or allow FORA access for minor improvements to existing utilities and infrastructure within the DHZ. Mitigation for habitat disturbed during utility and infrastructure improvement will be developed by the project's proponent and approved by DPR and USFWS.

Trail construction would involve minimal grading and the use of guide railings for pedestrian control. Interpretive signs would be provided around the natural resources of the zone.

A beach through-road connecting the City of Marina to Sand City has been proposed along the existing beach frontage road west of Highway 1 and would pass through the north and south segments of the DHZ. An unregulated through-road along the dunes west of Highway 1 would allow an unacceptable potential for habitat degradation and destruction through unregulated public use of the dunes. A regulated through-road, controlled by DPR at the northern and southern ends and all other possible entrances, would be acceptable. The preferred method for public access to the dunes would be a single entrance and exit monitored by DPR. The through-road is not considered suitable by DPR for a scenic road because ocean views are shielded by the dunes along most of its length.

Resources Present

Major Habitat Features

Four habitat types occur in the DHZ. The dominant habitat type consists of ice plant mats, which are present throughout the parcel. Other habitat types include disturbed dunes, which occur in the northern and southern portions of the parcel, and small areas of dune scrub and coastal strand.

HMP Species

Monterey spineflower, coast wallflower, robust spineflower, and Smith's blue butterfly are known to occur in the DHZ parcel. Potential habitat is available in the parcel for black legless lizard. Maps showing the occurrence of populations and/or habitat of these species at former Fort Ord are included in Appendix B.

Resource Conservation Requirements

Large areas in the DHZ will be restored to native vegetation and HMP species habitat. These actions are described below. Outside of the sites disturbed by providing designated visitor services and facilities, all HMP resources within the DHZ will be preserved.

Management Requirements

Inventory

DPR will inventory both the DHZ and Coastal Dunes Zone (CDZ) (the CDZ is described previously in Parcel S3.1.2). DPR will use the Army's inventory data for lead removal sites where applicable and will not be required to reinventory these sites. Degraded habitat supporting dense mats of African ice plant and heavily disturbed habitat dominated by non-native weeds that are most suitable for restoration of native coastal stand habitat will be identified. The location, physical condition, and biological condition of each restoration site will be recorded and mapped.

Dune Habitat Restoration

All disturbed and degraded sites within the DHZ and CDZ that are not developed with recreation, access, or support facilities will be maintained as open space and restored to native habitat. The habitat area in the park will total approximately 700 acres including coastal strand, coastal scrub, beaches, bluffs, and blowouts. Approximately 130 acres of coastal strand, 30 acres of dune scrub, and 150 acres mapped as "beaches, bluffs, and blowouts" currently exists on the 886-acre site. The total of these three existing habitat types is 310 acres. This 310-acre area will be enhanced through the removal of ice plant and other exotic species. An additional 390 acres of coastal strand and coastal scrub habitat will be restored to reach the goal of 700 acres of habitat within the park. Up to 186 acres of the park will be available for existing and proposed facilities. It is an objective of this HMP that at least 250 acres of the total dune habitat restoration are completed by DPR within 7 years of land transfer to DPR (subject to availability of funds).

A majority of this dune restoration will occur in the CDZ. Habitat restoration will involve the removal of African ice plant, dune stabilization, and establishment of native dune plants. The restored habitat will include suitable habitat for sand gilia and Monterey spineflower. Successful dune habitat restoration techniques used at Marina and Asilomar State Beaches should be used at former Fort Ord.

Monitoring and Management

DPR will monitor the success of native coastal strand and dune scrub habitat restoration with specific monitoring of the establishment and persistence of sand gilia and Monterey spineflower populations. Management of dune habitats will be conducted as needed to maintain viable populations of sand gilia and Monterey spineflower. Monitoring data will be used to guide species and habitat management programs. Target levels for average yearly population sizes are 14,000-18,000 individuals of sand gilia and 375-475 acres of habitat occupied by high densities of Monterey spineflower.

Access Control

DPR will restrict foot and vehicle access in areas that:

- support Smith's blue butterfly populations or habitat,
- contain existing populations of sand gilia and medium- and high-density occurrences of Monterey spineflower, and
- support western snowy plover breeding habitat during the breeding season.

DPR may create opportunities for controlled interpretive trails or guided events at these sites.

Boardwalks and/or railed trails will be constructed to channel foot traffic across the DHZ to the CDZ. Interpretative signs will be placed at the entrance to and along each boardwalk/trail describing the sensitive species present and the need to restrict foot traffic on the dunes. Boardwalk/trail siting will avoid as much as possible areas currently supporting native dune vegetation.

Visitor service facilities will be sited, to the extent possible, to avoid areas currently supporting sensitive resources.

If a desalinization facility is built, to prevent potential degradation of habitat in the adjacent CDZ parcel from unauthorized vehicle entry, a barrier will be installed around all developed areas where topography would allow vehicle access. The design of the barrier and the materials used will be sufficient to prevent vehicles from leaving developed areas of the desalinization plant.

Measures will also be taken to minimize the potential for erosion in natural areas of the plant or on adjacent areas from stormwater runoff, which may originate from developed portions of the plant.

Responsible Parties

DPR will be responsible for implementing all management responsibilities.

PARCELS S4.1.1, S4.1.2, AND S4.1.3
HIGHWAY 1 CORRIDOR

Parcel Description

The Highway 1 Corridor (managed by Caltrans) is composed of the existing Highway 1 right-of-way. It includes parcels S4.1.1, S4.1.2, and S4.1.3 (Figure 4-1 and Attachment A), which are collectively called the Highway 1 Corridor parcel. This parcel will continue to be used for transportation purposes and may be used for expansion or improvements of transportation systems.

Resources Present

Major Habitat Features

The road shoulders and medians of the Highway 1 Corridor parcel support mostly disturbed dune, ice plant mat, and annual grassland habitats with remnant patches of coastal strand, dune scrub, and sand hill maritime chaparral. Sand hill maritime chaparral is best developed at the northern end of the parcel. Horticultural tree plantings are also present.

HMP Species

Monterey spineflower occurs at scattered locations throughout the Highway 1 Corridor parcel, mostly at low density. Sandmat manzanita, sand gilia, Yadon's piperia, and Monterey ceanothus are also known to occur in the parcel. The Highway 1 Corridor parcel also contains potential habitat for Eastwood's ericameria and coast wallflower in the sandhill maritime chaparral areas and potential habitat for the black legless lizard.

Resource Conservation Requirements

In conjunction with any transportation projects or work that would have an impact on the native habitat, Caltrans will preserve existing patches of native coastal strand, dune scrub, and sand hill maritime chaparral habitats in the road shoulders and medians in areas that will not conflict with anticipated highway expansion, improvements, operations, or maintenance.

Management Requirements

Caltrans will restore and enhance native coastal strand, dune scrub, and sand hill maritime chaparral habitats in the road shoulders and medians in areas that will not conflict with anticipated highway expansion, improvements, operations, or maintenance.

Responsible Parties

Caltrans is responsible for ensuring that HMP conservation and management guidelines are followed in the Highway 1 Corridor parcel.

PARCEL L5.1.11
NORTH FRITZSCHE HABITAT RESERVE

Parcel Description

Parcel L5.1.11 occurs in the west central portion of the former Fritzsche Army Airfield area (Figure 4-1 and Attachment A). The parcel is titled the North Fritzsche Habitat Reserve. The City of Marina will have jurisdiction over this parcel.

After transfer of HMP Reserve parcel L5.1.11 by the Army to the City of Marina, the city and USFWS agreed on a boundary change to the parcel. The change deleted the northeast portion of parcel L5.1.11 and added a portion of adjacent Development parcel L5.1 to the reserve area so that the reserve parcel ends at the edge of the proposed road along the northern boundary of the parcel. See Appendix C for the correspondence and maps describing the changes.

Resources Present

Major Habitat Features

Parcel L5.1.11 is dominated by annual grassland habitat with small inclusions of coastal scrub in the southern and central portions of the area.

HMP Species

Monterey spineflower occurs in parcel L5.1.11. Potential habitat is available for the black legless lizard. See Appendix B for distribution maps for these species at former Fort Ord.

Resource Conservation Requirements

FAA-required airport support facilities (navigational aids, access, and utilities) may be constructed in parcel L5.1.11, as well as a proposed six-lane road (Figure 4-2). The road is accommodated in this HMP as described in the "HMP Analysis of Road Corridors" section earlier in this chapter. All remaining habitat within parcel L5.1.11 after construction of these facilities will be preserved in perpetuity.

Management Requirements

Gates or vehicle barriers will be constructed along access roads as necessary to prevent unauthorized off-road vehicle traffic in parcel L5.1.11. Habitat remaining in parcel L5.1.11 after development will be managed to maintain existing habitat values for HMP species. Management will include maintaining small amounts of area with disturbed sandy soils to support Monterey spineflower habitat. The City of Marina may contract with an appropriate and qualified CRMP agency or other appropriate and qualified agency, as approved by the USFWS, to manage natural resources within parcel L5.1.11.

Responsible Parties

The City of Marina will be responsible for ensuring that resource conservation and management requirements are followed within parcel L5.1.11.

PARCELS L20.3 and L20.5
RECREATION AREA EXPANSION #1

Parcel Description

Parcels L20.3 and L20.5 are located along the southern boundary of former Fort Ord adjacent to the Laguna Seca Raceway (Figure 4-1 and Attachment A). Parcels L20.3 and L20.5 are collectively called the Recreation Area Expansion #1 (RAE1) parcel. The RAE1 parcel would be used for overflow parking during

major events at Laguna Seca. Some existing maritime chaparral would be removed to create areas suitable for parking.

Resources Present

Major Habitat Features

The RAE1 parcel contains maritime chaparral, and one small area of annual grasslands exists in the western portion of the parcel. Inland coast live oak woodland and coast live oak savanna occur along Barloy Canyon. The western portion of the parcel is dominated by annual grassland habitat with inclusions of coast live oak savanna. Two areas of coastal scrub habitat occur in the southwestern portion of the RAE1 parcel.

Listed and Proposed Threatened and Endangered Species

Sand Gilia. Sand gilia occurs at low density in a small area of the western section of the RAE1 parcel (1992 surveys).

Other HMP Species

California Linderiella. Two small ponds within the central portion of the RAE1 parcel are known to support California linderiella (1992 surveys). These ponds are adjacent to Barloy Canyon Road and within 100 feet of each other.

Toro Manzanita. The western portion of the RAE1 parcel supports both high- and medium-density occurrences of Toro manzanita.

Monterey Ceanothus. A medium-density occurrence of Monterey ceanothus occupies the western segment of the RAE1 parcel.

Hooker's Manzanita. A small amount of medium-density Hooker's manzanita is found in the western segment of the RAE1 parcel.

Monterey Ornate Shrew. The inland coast live oak woodlands in the RAE1 parcel are considered potential habitat for the Monterey ornate shrew.

California Tiger Salamander. One of the ponds (in which California linderiella occur) in the central portion of the RAE1 parcel is also a known breeding pond for California tiger salamander.

Resource Conservation Requirements

The California linderiella and California tiger salamander breeding ponds and their shared watershed will be preserved.

Management Requirements

To prevent erosion problems that may degrade habitat in the surrounding NRMA, grass will be maintained over areas where maritime chaparral or other vegetation is removed to allow for parking. This grass will be mowed before being used for parking to minimize fire hazards.

Other measures will also be taken as necessary to minimize the potential for erosion or accelerated sedimentation in the adjacent NRMA parcel.

A firebreak will be constructed along the inside perimeter of the RAE1 parcel to prevent fires that may start in the RAE1 parcel from spreading to the NRMA. The firebreak will be inspected before each event where the RAE1 parcel will be used and will be improved as necessary to ensure its effectiveness. After each event where the RAE1 parcel is used, all trash will immediately be removed from the site.

Signs will be posted in the RAE1 parcel during each event stating that no off-road vehicle used is permitted in the RAE1 parcel and surrounding NRMA.

The ponds where California linderiella and California tiger salamander occur and their shared watershed will be preserved. The ponds will be inspected after each event where the RAE1 parcel is used. If adverse impacts on the ponds from use of the RAE1 parcel are noted, appropriate actions will be taken to prevent these impacts during future use of the area.

Responsible Parties

Monterey County Parks is responsible for ensuring all management requirements for the RAE1 parcel are completed.

PARCEL L20.4
RECREATION AREA EXPANSION #2

Parcel Description

Parcel L20.4 is located in the southeastern portion of former Fort Ord and is surrounded by the NRMA (Figure 4-1 and Attachment A). Parcel L20.4 is titled the Recreation Area Expansion #2 (RAE2) parcel. The RAE2 parcel would be used for overflow parking during major events at Laguna Seca. Shuttle busses would carry patrons between the RAE2 parcel and Laguna Seca.

Resources Present

Major Habitat Features

The RAE2 parcel is dominated by annual grassland habitat. A patch of blue wildrye grassland occurs in the middle of the parcel.

Listed and Proposed Threatened and Endangered Species

No listed or proposed threatened or endangered species occur in the RAE2 parcel.

Other HMP Species

No other botanical HMP species or potential or occupied habitat for other HMP wildlife species occur in the RAE2 parcel.

Resource Conservation Requirements

No resource conservation requirements are associated with this HMP for the RAE2 parcel.

Management Requirements

Grass will be maintained over a majority of the RAE2 parcel to prevent erosion problems that may degrade habitat in the surrounding NRMA. This grass will be mowed before being used for parking to minimize fire hazards.

Other measures will also be taken as necessary to minimize the potential for erosion or accelerated sedimentation in the adjacent NRMA parcel.

A firebreak will be constructed along the inside perimeter of the RAE2 parcel to prevent fires that may start in the RAE2 parcel from spreading to the NRMA. The firebreak will be inspected before each event where the RAE2 parcel will be used and will be improved as necessary to ensure its effectiveness. After each event where the RAE2 parcel is used, all trash will immediately be removed from the site.

Signs will be posted in the RAE2 parcel during each event stating that no off-road vehicle use in permitted in the RAE2 parcel and surrounding NRMA.

The stockpond just east and downslope of the RAE2 parcel will be inspected after each event. If adverse impacts on the pond from use of the RAE2 parcel are noted, appropriate actions will be taken to prevent these impacts during future use of the RAE2 parcel.

Responsible Parties

Monterey County Parks is responsible for ensuring all management requirements for the RAE2 parcel are completed.

PARCELS E8a.1 and E8a.2
LANDFILL PARCEL

Parcel Description

Parcels E8a.1 and E8a.2 (identified collectively as the landfill parcel) are located on the existing landfill site located northeast of the Main Garrison just south of Imjin Road (Figure 4-1 and Attachment A). Both habitat management and development will occur in the landfill parcel.

Resources Present

Major Habitat Features

Three habitat types occur within the landfill parcel. The most abundant habitat type is coastal coast live oak woodland. Other habitat types include annual grassland and maritime chaparral. A small area is also developed.

HMP Species

Sand gilia , Monterey spineflower, sandmat manzanita, Monterey ceanothus, and coast wallflower are known to occur in the landfill parcel. Potential habitat is available in the parcel for black legless lizard and Monterey ornate shrew. (Refer to Appendix B for maps showing the distribution of these species and/or potential habitat at former Fort Ord. These maps are based on 1992 survey data with updated information where available.)

Resource Conservation Requirements

The section addressing landfill remediation in Chapter 3 describes predisposal activities related to the parcel.

Habitat conservation and management requirements for the landfill parcel are addressed in the measures agreed to by the Army, USFWS, BLM, UC, and FORA described in Appendix A (Items a and b). These measures are summarized below.

The requirement for the landfill parcel to be included as an HMP habitat management area is not an Army responsibility . Subject to approval by the UC governing body, UC will accept the landfill parcel and manage habitat. Alternatively, FORA will accept and manage the landfill parcel. The Army will not be required to restore habitat on the landfill cap nor will the Army be required to perform habitat management activities in the parcel while the landfill is being remediated or in caretaker status.

A total of 227 acres of the landfill parcel, including the capped area, will be managed as an HMP Preserve area. After the 227 acres of the parcel to be managed as habitat has been determined, the boundaries of the polygon may be modified when determining locations for development in the remaining 81 acres.

Management Requirements

Following land transfer from the Army, the recipient or an entity acceptable to the USFWS will manage 227 acres of the landfill parcel (including the completed landfill cap) as native habitat. The remaining 81 acres of the parcel will be available for development.

PARCEL E31
OFFICE PARK

Parcel Description

This parcel is shown as Parcel E31 in Figure 4-1 and Attachment A and is included in the group of parcels designated as Development with Reserve Areas or Development with Restrictions. Parcel E31 has no reserve areas but it does have management restrictions.

Resources Present

Major Habitat Features

Parcel E31 is dominated by maritime chaparral habitat. An ephemeral drainage that feeds the Frogpond Natural Area outside the Fort Ord boundary passes through this parcel.

Listed and Proposed Threatened and Endangered Species

Monterey Spineflower. Parcel E31 supports medium-density occurrences of Monterey spineflower.

Other HMP Species

Sandmat Manzanita. Parcel E31 supports medium-density occurrences of sandmat manzanita.

Monterey Ceanothus. High-density occurrences of Monterey ceanothus are found throughout parcel E31.

Eastwood's Ericameria. Medium-density occurrences of Eastwood's ericameria are found throughout parcel E31.

Resource Conservation Requirements

No resource conservation requirements are associated with this HMP for parcel E31. However, implementation of management requirements below may require that some habitat be retained.

Management Requirements

The direct discharge of stormwater or other drainage from new impervious surfaces created by development of the Office Park (OP) parcel into the ephemeral drainage in the NAE parcel will be prohibited. No increase in the rate of flow of stormwater runoff beyond predevelopment levels will be allowed. Stormwater runoff from developed areas in excess of predevelopment quantities shall be managed onsite through the use of basins, detention/retention ponds, percolation wells, pits, infiltration galleries, or any other technical or engineering methods that are appropriate to accomplish these requirements. Indirect, subsurface discharge is acceptable.

To minimize the potential for damage to structures in parcel E31 from potential wildfires in the NAE parcel, parking lots, greenbelts, or another nonflammable or fire-resistant land use will be located at the boundary between parcel E31 and the NAE to act as a firebreak. Structures will be located entirely behind the land use developed as a firebreak.

To prevent potential degradation of habitat in the NAE from unauthorized vehicle entry, a barrier will be installed along the border of parcel E31 and the NAE parcel where topography would allow vehicle access. The design of the barrier and the materials used will be sufficient to prevent vehicle access to the NAE parcel. Gates will be provided in the barrier to allow emergency access to the NAE parcel. The barrier will be maintained and repaired as necessary in perpetuity.

Responsible Parties

The parcel is scheduled to be transferred to FORA as part of the EDC.

PARCEL E2a

Parcel Description

Parcel E2a borders Highway 1 in the northern portion of former Fort Ord (Figure 4-1 and Attachment A). A proposed road corridor passes through the parcel (Figure 4-2).

Resources Present

Major Habitat Features

Most of parcel E2a supports sand hill maritime chaparral habitat. Grasslands and degraded coastal dune habitats consisting of disturbed dunes and ice plant mats also occur.

HMP Species

Sand gilia, Monterey spineflower, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and Yadon's piperia occur in the parcel. Potential habitat is available for the black legless lizard.

Resource Conservation Requirements

The population of Yadon's piperia in the northern portion of the parcel will be preserved. Where possible, habitat may be preserved within and around developed areas. The proposed road corridor shown in Figure 4-2 will avoid the Yadon's piperia population. (This corridor is accommodated in this HMP as described in the "HMP Analysis of Road Corridors" section earlier in this chapter.)

Management Requirements

Vehicle access to the habitat supporting Yadon's piperia will be restricted to prevent potential impacts on the population.

Drainage from development will not be allowed to flow into the habitat supporting Yadon's piperia.

Responsible Parties

The recipient of parcel E2a will be responsible for ensuring that conservation and management requirements are fulfilled.

PARCELS E11b.1-E11b.8 and E11b.11
EAST GARRISON

Parcel Description

Parcel E11b is shown in Figure 4-1 and Attachment A in the eastern portion of former Fort Ord and encompasses the former East Garrison. Attachment A shows parcel E11b divided into several subparcels (E11b.1 through E11b.12). Some of the subparcels may be transferred as PBCs to Monterey Peninsula College (MPC) or Monterey County. The subparcels are collectively called parcel E11b. A developed area supporting the Ammunition Supply Point (ASP) is located in the southern portion of the parcel.

Two existing water tanks and a sewage treatment plant are located in parcel E11b (shown as subparcels E11b.9, E11b.10, and E11b.12 in Attachment A). The water tank parcels and the sewage treatment plant parcel are considered developed and have no HMP requirements.

Resources Present

Major Habitat Features

Parcel E11b is dominated by both the inland and coastal forms of coast live oak woodland. Grassland habitat occurs in the northwest section of the parcel, and the developed former East Garrison occupies the northeast section. Maritime chaparral habitat occurs in the southern portion of the parcel.

HMP Species

Monterey spineflower, Toro manzanita, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, and Hooker's manzanita are known to occur in parcel E11b. Potential habitat is available for the Monterey ornate shrew. Distribution maps of populations and/or habitat for these species (based on 1992 survey data and updated where information was available) are included in Appendix B.

Resource Conservation Requirements

Up to 200 acres of total development, both existing and future, is allowed within the guidelines of this HMP for parcel E11b. The areas occupied by the sewage treatment plant and water tanks in subparcels E11b.9, E11b.10, and E11b.12 and the proposed road corridor shown in Figure 4-2 also may be developed in addition to the 200 acres. Where possible, development will be sited in areas that have existing development and in other areas that will minimize impact on HMP species and have less than 30% slopes. Siting of development will be coordinated with USFWS. The road corridor and 200-acre development area will be considered development areas with no habitat management restrictions. The remainder of the parcel will be managed as a habitat reserve.

Management Requirements

The habitat reserve areas in parcel E11b will be retained as natural habitat. Management will include special-status species monitoring, development and maintenance of fire breaks, controlled burning as appropriate, vehicle access controls, erosion control, and regular patrols to assure that passive public use and/or unauthorized actions are not adversely affecting natural habitat. A management plan will be developed to execute this strategy. The management plan will be implemented by Monterey County or MPC, and either may contract with an appropriate and qualified CRMP agency or other appropriate qualified agency, as approved by the USFWS, to manage natural resources in parcel E11b.

If all or part of the 200-acre development area is transferred to an entity other than Monterey County, the recipient shall fund its pro-rated share of habitat management costs in parcel E11b to Monterey County or another designated habitat management agency.

Monterey County, or the designated habitat management agency, will also coordinate with California Department of Forestry and DFG to determine suitable habitat management practices to retain and potentially enhance habitat values within the oak woodlands in parcel E11b.

Responsible Parties

Monterey County or MPC will be responsible for ensuring all conservation and management guidelines described above are implemented on the lands that are transferred to them.

PARCELS F1.4.1, F1.7.2, F1.12, , F2.1, F2.2, F2.3, F2.4, F2.5, F2.6, F2.7.1, F2.7.2, F2.7.3, F2.8, F2.9, F3, F4, F5.1, F5.2, AND F6 FEDERAL AGENCY PARCELS WITH NO HMP REQUIREMENTS

Parcels F1.4.1, F1.7.2, F1.12, , F2.1, F2.2, F2.3, F2.4, F2.5, F2.6, F2.7.1, F2.7.2, F2.7.3, F2.8, F2.9, F3, F4, F5.1, F5.2, and F6 are federal agency lands with no HMP requirements.

Resource Conservation Requirements

No resource conservation requirements are associated with this HMP for these parcels.

Management Requirements

No management requirements are associated with this HMP for these parcels.

PARCELS S1.1, S1.2.1, S1.2.2, S1.2.3, S1.3.1, S1.3.2, S1.3.3, S1.3.4, S1.4, S1.5.1, S1.5.2, S1.6, S1.7, S2.1.1, S2.1.4, S2.2.1, S2.2.2, S2.2.3, S2.3.1, S2.5.1, S2.5.2, S3.1.4, S3.2, S4.2.1, S4.2.2, S4.2.3, S4.3 STATE AGENCY PARCELS WITH NO HMP REQUIREMENTS

Parcels in series S1 and S2 listed above are economic development conveyance parcels for CSU and UC. Parcels S3.1.4 (the old ammunition supply point) and S3.2 (located adjacent to the main entrance to former Fort Ord), located west and east of SR1, respectively, are proposed for transfer to DPR for Development. Parcels S4.2.1, S4.2.2, and S4.2.3 are Development parcels located south of South Boundary Road. Parcel S4.3 is located along the existing SR 68 right-of-way on the southeastern boundary of former Fort Ord.

Resource Conservation Requirements

No resource conservation requirements are associated with this HMP for these parcels. Small pockets of habitat may be preserved within and around developed areas.

Management Requirements

No management requirements are associated with this HMP for these parcels.

PARCELS L1.1, L1.2, L2.1, L2.2, L2.3, L3.1, L4.1, L4.2, L5.1, L5.1.1, L5.1.2, L5.1.3, L5.1.4, L5.1.5, L5.1.6, L5.1.7, L5.1.8, L5.1.9, L5.1.10, L5.2, L5.4.1, L5.4.2, L5.5, L5.6, L5.7, L5.8.1, L5.8.2, L5.9.1, L5.9.2, L5.10, L7.1, L7.2, L7.3, L7.4, L7.5, L7.6, L7.7, L8.1, L8.2, L8.3, L9.1.1, L9.1.2, L9.2, L9.3, L10.1, L10.2, L10.3, L10.4, L11, L12.1, L12.3, L13.1, L13.2, L14, L15.1, L15.2, L15.3, L16, L17.1, L17.2, L18, L19, L20, L20.6, L20.7, L20.9, L20.10.1, L20.10.2, L20.10.3, L20.11.1, L20.11.2, L20.12, L20.13, L20.14.2, L20.15, L20.16, L20.17.1, L20.17.2, L20.18, L21, L22, L23.1.1, L23.1.2, L23.1.3, L23.1.4, L23.1.5, L23.2. L23.4, L23.5, L24, L25, L27, L28, L29, L30, L31, L32, L33, L34, LE5.9, LE12.2, LE20.16
LOCAL AGENCY PARCELS WITH NO HMP REQUIREMENTS

Resource Conservation Requirements

No resource conservation requirements are associated with this HMP for these parcels. Where possible, habitat may be preserved within and around development areas.

Management Requirements

No resource management requirements are associated with this HMP for these parcels.

PARCELS L20.8, L20.14.1, L20.19, L20.20, L20.21, L20.22, LE20.18, LE20.19
EXISTING ROADS IN HMP MANAGEMENT AREAS

Several existing roads and road segments pass through areas identified in the HMP as Habitat Reserve, Habitat Corridor, or Development with Reserve Areas or Development with Restrictions. Many of these existing roads and accompanying rights-of-way will be transferred for continued use as roads. These roads and road segments are shown in Attachment A as parcels L20.8, L20.14.1, L20.19, L20.20, L20.21, L20.22, LE20.18, and LE20.19. They are identified as Development parcels.

These parcels are not included within those shown in Figure 4-2 as analyzed in the HMP. Although these parcels are identified for development, potential expansions of the existing roads and road segments outside the existing road shoulders where they pass through areas with HMP resource conservation requirements or management requirements may require consultation with USFWS and DFG. Consultation will be the responsibility of the land recipient.

PARCELS E2b.1, E2b.2, E2b.3, E2c.1, E2c.2, E2c.3, E2c.4, E2d, E2e, E4.1, E4.2, E4.3, E4.4, E4.5, E4.6, E4.7, E5a, E5b, E11b.9, E11b.10, E11b.12, E15.1, E15.2, E17b.1, E17b.2, E18.1, E18.2, E18.3, E18.4, E19a.3, E20b, E20c.1.1, E20c.1.2, E20c.1.3, E20c.2.1, E20c.2.2, E21a, E29, E29b.3, E29e, E35, E36
ECONOMIC DEVELOPMENT CONVEYANCE PARCELS WITH NO HMP REQUIREMENTS

Resource Conservation Requirements

No resource conservation requirements are associated with this HMP for these parcels.

Management Requirements

No resource management requirements are associated with this HMP for these parcels.

TRANSPORTATION EASEMENT STATE ROUTE 68 CORRIDOR

Parcel Description

The Transportation Easement - State Route 68 (SR 68) corridor is generally a 1,000-foot-wide study corridor for a proposed new route for SR 68 located along the southern part of former Fort Ord (as depicted in Attachment A). The corridor would include easements from BLM and the Army. The easement crosses parcels L4.2, E29e, E29b.1, F1.4, F1.5, F1.7.1, S4.2.1, S4.2.3, L20.3, L20.5, and F1.1. The State Route 68 Corridor is not a distinct parcel but an easement through several separate parcels. The easement is included in the discussion of proposed road corridors in the "HMP Analysis of Road Corridors" section earlier in this chapter. The developed portion of this right-of-way would be approximately 300 feet wide.

As an alternative to a new SR 68 corridor, Caltrans is studying improvements to the existing SR 68 corridor, which would also require use of former Fort Ord lands adjacent to the existing highway. The Army will not be involved in planning for this alternative or granting easements to Caltrans for this alignment.

Resources Present

Major Habitat Features

Several habitat types occur in the Transportation Easement. Maritime chaparral is the dominant habitat type, with annual grassland and valley needlegrass grassland also prevalent. Some mixed riparian forest, inland coast live oak woodland, coast live oak savanna, and vernal pool habitat also occur.

HMP Species

Sand gilia, Monterey spineflower, Toro manzanita, sandmat manzanita, Monterey ceanothus, and Hooker's manzanita are known to occur in the Transportation Easement. Potential habitat is available for the California linderiella, California tiger salamander, and Monterey ornate shrew.

Resource Conservation Requirements

BLM will conserve HMP habitats and species in the Transportation Easement in the same manner as other parts of the NRMA (F1.1, F1.4, F1.5, F1.7.1), until such time as a new highway is planned and constructed (refer to the discussion of the NRMA earlier in this chapter). The development restrictions in parcels L20.5 and L20.8 will also apply until the new highway is planned and constructed.

Caltrans will design and construct the highway to seek to avoid impacts on vernal pools and vernal pool watersheds. If it is not possible to avoid vernal pools and vernal pool watersheds, appropriate measures will be implemented to minimize and mitigate impacts. Caltrans will design and construct the highway to minimize impacts on all natural habitats and HMP species populations. Caltrans will conserve or restore natural habitats in the road shoulders and medians in areas that will not conflict with Caltrans highway expansion, improvements, operations, or maintenance.

Management Requirements

Where the Transportation Easement passes through the NRMA, BLM will manage the easement in the same manner as other parts of the NRMA. However, because new highway construction could occur in the parcel, no restoration or enhancement of habitat or HMP species will be conducted.

Caltrans (the proposed recipient of the easement) will coordinate with BLM regarding interim management of the proposed state right-of-way until such time that a project could be constructed. If the project is to be constructed, Caltrans will continue to coordinate management of natural habitats and HMP species with BLM before, during, and following construction. Caltrans may participate in the CRMP.

The Army ROD for the 1993 FEIS contained the provision for the transfer of an easement for the development of the SR 68 transportation improvements. A portion of this area, parcel F 1.1, has been assigned to BLM with the proviso that BLM recognize the Army commitment concerning the granting of an easement to Caltrans subject to the conditions of the HMP as it may be revised or modified. Caltrans has indicated that its route selection process and NEPA/CEQA documentation for the SR 68 corridor have been stalled because of staff and funding constraints and that it wishes to keep options for two alignments open: an upper alignment as indicated in the 1993 NEPA ROD and a lower alignment along the existing SR 68 primarily within the parcel transferred to BLM in October 1996. The Army is willing to grant easements to Caltrans for the upper alignment as long as these areas are Army property and have had the required Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and OE investigations and response actions completed and are consistent with the 1993 NEPA ROD. The U.S. government would transfer an easement for SR 68 to Caltrans in phases as the environmental cleanup and OE responsive actions are completed. The easterly portion of the easement, both along the existing SR 68 and the south Fort Ord Corridor (within parcel F1.1 of the BLM transfer), would be transferred by BLM following application by Caltrans and BLM's processing the required transfer documentation, including NEPA and Section 7 consultation. Caltrans will assist in implementing the habitat improvements in the inland range portion of the NRMA as discussed below. Caltrans' role in implementing this HMP is to be tied to the SR 68 corridor selection process and the granting of an easement to Caltrans.

Caltrans and BLM have entered into a Memorandum of Understanding (MOU) concerning habitat considerations and the planning and development of improvements to SR 68. BLM has agreed to acknowledge the Army's intention in the 1993 NEPA ROD and HMP, including revisions and modifications to the HMP. At this point in time it is not known whether Caltrans will actually construct the SR 68 improvements or whether the improvements would take place on the upper or lower alignments within the parcel transferred to BLM. If the lower alignment were used, there would be no easement transferred from the Army since the alternative alignment would be within parcel F1.1, already transferred to BLM and parcel L20.6 scheduled to be transferred to Monterey County. The Army has made no commitment or decision to grant an easement to Caltrans outside of the upper alignment described in the NEPA ROD. Caltrans may work cooperatively with the other agencies receiving former Fort Ord lands to arrange for acquisition of an alternative corridor (such as Monterey County, which has a pending PBC request for parcel L20.6 within the area of the lower corridor alignment and has an MOU for the SR 68 project with Caltrans).

There is a requirement for Caltrans to participate equitably in the implementation of the basewide HMP to accommodate the target species management and restoration required for the Caltrans SR 68 development. The 1994 HMP envisioned the removal of all hardstand areas around the inland ranges to be transferred to BLM, with participation of Caltrans as the agency's contribution to the basewide HMP.

It is undetermined at this time whether the upper South Fort Ord Corridor is preferred from an environmental standpoint. At this time, Caltrans considers the corridor adjacent to SR 68 in parcel F1.1 equally viable as the northerly corridor. As SR 68 environmental studies continue, Caltrans will ask BLM to participate as a cooperating agency in the Caltrans/FHWA SR 68 project development process. Should environmental studies conclude that the lower corridor adjacent to existing SR 68 is preferred, then, subject to compliance with the Federal Land Policy Management Act (the BLM Organic Act - FLPMA), NEPA, and other applicable federal laws, BLM would grant Caltrans an easement for those BLM lands needed to construct the SR 68 project in that corridor.

Caltrans will contribute $250,000 before the end of fiscal year 1998, with the understanding that these funds would apply as mitigation toward future state transportation projects on former Fort Ord. All obligations of Caltrans under the terms of this agreement are subject to the appropriation of resources by the State Legislature and the allocation of resources by the California Transportation Commission.

Responsible Parties

Caltrans will be responsible for implementing management requirements in the Transportation Easement as described above. Caltrans will coordinate with BLM, Monterey County, and other agencies as necessary concerning HMP species and habitat conservation and management when planning and constructing the State Route 68 corridor.

If the Upper Corridor is not selected for SR 68 improvements, the area of the Upper Corridor will contain the management requirement and responsibilities for the parcel within which the corridor is described.

PARCELS L3.2, E19a.1, E19a.2, E21b.1, E21b.2, E21b.3, E23.1, E23.2, E24, E29a, E29b.1, E29b.2, AND E34 BORDERLAND DEVELOPMENT AREAS ALONG NRMA INTERFACE

Parcel Description

Certain development parcels (see parcel numbers above) abut the NRMA. Parcel L3.2 is a PBC development area proposed to be transferred to York School; the E series parcels listed above are to be obtained by FORA as part of the FORA EDC. Special management requirements for the boundaries between development areas and the NRMA are needed to be responsive to agreements between USFWS, BLM, UC, FORA, and the Army. These boundary areas have both interim and long-term management requirements. Except for boundary management requirements, the parcels referenced above are available for development without restriction.

It may take many years before development occurs in the development parcels bordering the NRMA. In order to prevent potential conflicts between the interim use of these parcels before their development and habitat management activities in the adjacent NRMA, FORA or other recipients of the land will arrange for interim management of the land, which shall include, at a minimum, the installation and maintenance of firebreaks and vehicle barriers where appropriate to separate developed and developing areas from natural lands. Other appropriate interim management measures will be developed by FORA or other recipients of the land in collaboration with BLM for the remainder of the parcel.

Long-term management requirements will apply as the development parcels are built out. Barriers will be installed and maintained along the NRMA where topography would allow vehicle access. Gates will allow emergency access to the NRMA. Keys to gates will be provided to reserve managers and other appropriate agencies. To minimize the possibility of fire damage to the NRMA as well as structures on the development parcels, parking lots, greenbelts, or other nonflammable or fire-resistant land uses will be located as a buffer between the NRMA and development. Structures will be sited entirely behind the land use that is developed as a firebreak. Measures will also be taken to reduce potential for erosion in these parcels so as not to affect the NRMA parcel from stormwater runoff that may originate in these parcels.

Resource Conservation Requirements

There are no resource conservation requirements for the Borderland Development Areas Along NRMA Interface. However, FORA or other recipients of the land, in consultation with BLM, will arrange for appropriate interim management of developable natural lands before development so that natural lands would be conserved and managed until development occurs. Additionally, small pockets of habitat may be preserved within and around developed areas. Populations of iceplant, scotch broom, and pampas grass will be controlled on an interim and long-term basis in these areas to avoid the spread of these species into the NRMA.

FORA has stated that it is not FORA's intent to separate developable natural land areas from reserves by the establishment of firebreaks and vehicle barriers before planned development of those lands.

Management Requirements

The following management requirements are applicable as interim requirements before the development of the parcels. For the habitat reserve/development interface in all borderland development areas (parcels listed above), FORA or other recipients of the land will either arrange to have existing native habitat managed in an interim period before development or construct and maintain firebreaks and vehicle barriers to separate developed and developing areas from both interim and permanent habitat areas. FORA has stated that it will work together with BLM to identify suitable locations for both interim and long-term firebreaks/barriers separating developed lands from natural lands as development of former Fort Ord land proceeds. A barrier will be installed and maintained along the NRMA where topography would allow vehicle access. Gates will allow emergency access to the NRMA. Keys to gates will be provided to BLM and other appropriate agencies. FORA will supply reports on interim habitat management in development parcels and/or development of firebreaks to BLM.

The following management requirements will be implemented as parcels are transferred and the parcels or portions of the parcels are developed. Populations of ice plant, scotch broom, and pampas grass will be controlled to avoid their spread into the NRMA. To minimize the possibility of fire damage to the NRMA as well as structures on the development parcels, parking lots, greenbelts, or other nonflammable or fire-resistant land uses will be located as a buffer between the NRMA and development. Structures will be sited entirely behind the land use that is developed as a firebreak. Measures will also be taken to reduce potential for erosion in these parcels so as not to affect the NRMA parcel from stormwater runoff that may originate in these parcels.

Responsible Parties

Parcels E19a.1, E19a.2, E21b.1, E21b.2, E21b.3, E23.1, E23.2, E24, E29a, E29b.1, E29b.2, and E34 will be obtained as part of the FORA EDC. FORA will be responsible for implementing the management requirements specified above, which are consistent with item c of the agreement between the Army, USFWS, UC, and FORA (see Appendix A). In the event that the EDC process is not the selected means of transfer of these properties, the recipient of the land will be responsible for implementing the firebreak/vehicle barrier, invasive exotic plant control, and erosion control requirements specified above, and the parcels would otherwise be available for development. York School will be responsible for implementing the management requirements for parcel L3.2.

Coordinated Resource Management and Planning

A coordinated resource management and planning (CRMP) process is a multi-agency multi-jurisdictional land use planning effort developed under the sponsorship of the California CRMP memorandum of understanding (MOU). This MOU has been signed by 14 federal and state agencies including the BLM, DFG, Soil Conservation Service, USFWS, and UC. Additional details on the development of this planning process are contained in the California CRMP Handbook (1990).

The BLM is using the CRMP process to develop management plans and prescriptions for BLM managed lands at former Fort Ord. The BLM has invited other public entities having natural resource management or habitat conservation responsibilities applicable to the former Fort Ord area to participate in this cooperative planning effort. Agencies that have no resource conservation requirements on received lands but wish assistance in managing lands prior to development may also participate in the CRMP.

Participation in the CRMP is not a requirement of this HMP. The goal of the CRMP is to develop annual work plans, each being a single multi-jurisdictional management plan for all maritime chaparral habitats that are to be preserved and managed for natural values. BLM and UC/NRS are willing to consider managing species and habitats on other public and private lands on a fee bases for those entities required to conserve habitat under this HMP. This service may be provided under the CRMP process.

The CRMP is tiered to this HMP. The CRMP plans would be annually reviewed and would implement this HMP. Anticipated products from the CRMP would be:

- uniform special-status species and habitat-monitoring strategies;
- multi-jurisdictional fire management strategies (prescribed fire and wildfire management);
- uniform prescriptions of compatible and noncompatible uses;
- realignment of land ownership to consolidate natural habitat management with natural resource management agencies;
- consolidated pubic information publications (maps, brochures, etc.), volunteer programs, and other public relations activities; and
- combined single reports to USFWS/DFG on status of special-status species.

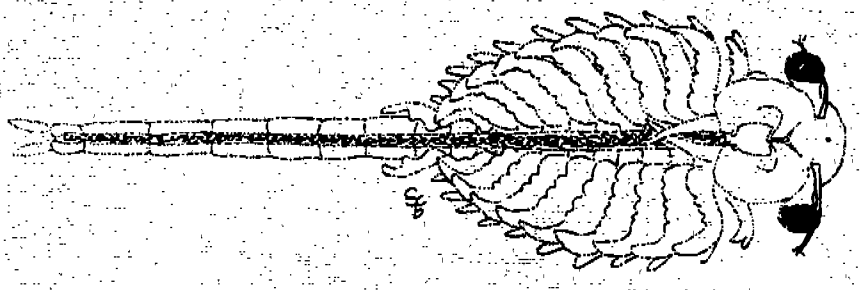
Most importantly, the CRMP will provide a mechanism for public agencies to share resources to deliver the most efficient habitat protection and public services for the money expended. Examples of responsibilities and resources that could be shared include:

- patrolling lands; providing visitor assistance; maintain signs, barriers, and other improvements; and conducting threatened and endangered species monitoring;
- coordinating threatened and endangered species research and graduate intern projects;
- coordinating environmental education and student intern projects;

- providing natural resource interpretation staff and materials;
- providing fire crews for prescribed fires;
- providing road maintenance and personnel for manual labor projects; and
- coordinating vernal pool and wetland management.

Chapter 5.

Citations



California Linderiella

Chapter 5. Citations

PRINTED REFERENCES

Arnold, R. A. 1980. Ecological studies of six endangered butterflies: island biogeography, patch dynamics and the design of nature preserves. Ph.D. dissertation. (U.C. Publication Extension 99:1-161, 1983.) University of California, Berkeley, CA.

_____. 1983. Conservation and management of the endangered Smith's blue butterfly, *Euphilotes enupes smithi* (Lepidoptera lycaenidae). The Journal of Research on the Lepidontera. 22(2):135-153.

Bury, B. R. 1985. Status report. *Anniella pulchra nigra* Fischer, black legless lizard (*Aniellidae: Sauria*) in Central California. Ecosystems Studies Section, Denver Wildlife Research Center. Fort Collins, CO. Prepared for U.S. Fish and Wildlife Service, Office of Endangered Species, Portland, OR.

California Coordinated Resource Management and Planning. 1990. California coordinated resource management and planning handbook. Sacramento, CA.

Doak, D. F., P. C. Marino, and P. M. Kareiva. 1992. Spatial scale mediates the influence of habitat fragmentation and dispersal success: implications for conservation. Theoretical Population Biology 41:315-336.

Ferreira, J. E., and K. L. Gray. 1987. Marina State Beach dune revegetation. California Department of Parks and Recreation. Sacramento, CA.

Gilpin, M. E., and M. E. Soulé. 1986. Minimum viable populations: processes of species extinction. Pages 19-34 in M. Soulé (ed.), Conservation biology: the science of scarcity and diversity. Sinauer Associates, Inc. Sunderland, MA.

Griffin, J. R. 1976. Native plant reserves at Fort Ord. Fremontia 4(2):25-28.

Grinnell, S., and A. H. Miller. 1944. The distribution of the birds of California. Pacific Coast Avifauna 27:1-608.

Jensen, D. B., M. Torn, and J. Harte. 1990. In our own hands: a strategy for conserving biological diversity in California. California Policy Seminar, University of California Berkeley, Berkeley, CA.

Jones & Stokes Associates, Inc. 1993. Preliminary draft. Environmental assessment for livestock grazing on Fort Ord, Monterey County, California. September 15, 1993. (JSA 91-123.) Sacramento, CA. Prepared for U.S. Army Corps of Engineers, Sacramento, CA.

Leftkovitch, L. P., and L. Fahrig. 1985. Spatial characteristics of habitat patches and population survival. Ecological Modeling 30:297-308.

Munz, P. A., and D. D. Keck. 1968. A California flora and supplement. University of California Press. Berkeley, CA.

Norton, B. G. 1988. The preservation of species: the value of biological diversity. Princeton University Press. Princeton, NJ.

Noss, R. 1991. Landscape connectivity: different functions at different scales. Pages 27-39 in Hudson, W. E. (ed.), Landscape linkages and biodiversity. Island Press. Washington, DC.

Pulliam, R. H., and B. J. Danielsen. 1991. Sources, sinks, and habitat selection: a landscape perspective on population dynamics. American Naturalist 137:S50-S66.

Samson, F. B., P. Alaback, J. Christner, T. DeMoe, A. Doyle, J. Martin, J. McKibben, M. Orme, L. Suring, K. Thompson, B. G. Wilson, D. A. Anderson, R. W. Flynn, J. W. Schoen, L. G. Shae, and J. L. Franklin. 1991. Conservation of rainforests in Southeast Alaska: report of a working group. Pages 96-113 in Rodiek, J. E., and E. G. Bolen (eds.), Wildlife and habitats in managed landscapes. Island Press. Washington, DC.

Soulé, M. E. (ed.) 1987. Viable populations for conservation. Cambridge University Press. New York, NY.

Temple, S. A. 1983. Area-dependent changes in the distribution and vegetation of southern Wisconsin forests. Ecology 64:1057-1068.

Terbough, J., and B. Winter. 1980. Some causes of extinction. Pages 119-133 in Soulé, M. E., and B. A. Wilcox (eds.), Conservation biology: an evolutionary-ecological perspective. Sinauer Associates, Inc. Sunderland, MA.

U.S. Army Corps of Engineers. 1992a. Flora and fauna baseline study of Fort Ord, California. December. Sacramento District. Sacramento, CA.

_____. 1992b. Soils baseline study of Fort Ord, California. Final. April. Sacramento, CA.

_____. 1992c. Other physical attributes baseline study of Fort Ord, California. Sacramento, CA.

_____. 1993a. Fort Ord disposal and reuse biological assessment. February 1993. Sacramento District. Sacramento, CA.

_____. 1993b. Supplement to the draft Fort Ord disposal and reuse biological assessment. April 1993. Sacramento District. Sacramento, CA.

_____. 1993c. Fort Ord disposal and reuse environmental impact statement. Final. June 1993. Sacramento District. Sacramento, CA.

_____. 1993d. U.S. Department of Defense base realignment and closure ordnance and explosive waste archive search report, Fort Ord, California. St. Louis, MO.

_____. 1995. Protocol for conducting vegetation sampling at Fort Ord in compliance with the installation-wide multispecies habitat management plan. Sacramento District. Sacramento, CA.

_____. 1996. Ford Ord disposal and reuse supplemental environmental impact statement. Final. June 1996. Sacramento District. Sacramento, CA.

U.S. Department of the Army. 1993. Ford Ord, California disposal and reuse environmental impact statement record of decision. December 23, 1993. Office the Assistant Secretary, Installations Logistics and Environment. Washington, DC.

U.S. Fish and Wildlife Service. 1993. Biological opinion for the disposal and reuse of Fort Ord, Monterey County, California. October 19, 1993. (1-8-93-F-14.) Ecological Services. Ventura, CA.

Weaver, J. L. 1993. Lynx, wolverine, and fisher in the western United States: research assessment and agenda. U.S. Forest Service, Intermountain Research Station. Missoula, MT.

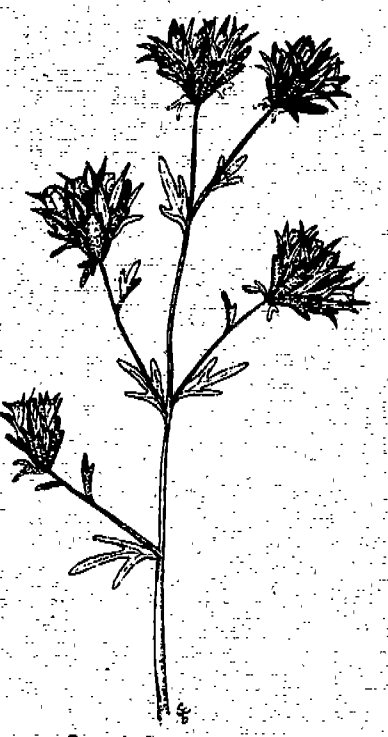
PERSONAL COMMUNICATIONS

Arnold, Richard. Entomologist. University of California, Berkeley, California. September 13, 1993 - telephone conversation.

Kreiberg, Patti. Horticulturalist. Sunset Coast Nursery, Watsonville, CA. October 27, 1993 - telephone conversation.

Chapter 6.

List of Preparers and Acknowledgments



Seaside Bird's-Beak

Chapter 6. List of Preparers and Acknowledgments

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This HMP was prepared under the direction of the U.S. Department of the Army, Forces Command, and Training and Doctrine Command. A list of persons who participated in the preparation of this document is presented below.

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Appendix A. Agreement for the Revised Habitat Management Plan

Development of the Revised Fort Ord Habitat Management Plan (HMP)

Representatives from the Army, USFWS, and Fort Ord Reuse Authority (FORA) met on March 15, 1996 to discuss modifications to the HMP. A telephone conference was held on March 28, 1996 which included a University of California (UC) representative. The discussion resulted in clarifications regarding revision of the HMP, including an agreement by UC or FORA to obtain the landfill parcel and manage a portion of it as habitat subject to review of liability and indemnification. Any final decision regarding acceptance of the landfill parcel is subject to approval by the respective governing body. A detailed amendment the HMP will be prepared by the Army and provided to affected parties for signature prior to publication. The following are the terms of the modifications for the Revised Habitat Management Plan.

a) The requirement for the landfill parcel to be included as an HMP habitat management area is revised from being an Army responsibility to being a University of California or FORA responsibility. The Army will not be required to restore habitat on the landfill cap nor will the Army be required to perform habitat management activities in the parcel while the landfill is being remediated or in caretaker status.

b) The University of California (if not UC, then FORA) will apply to obtain the landfill parcel as part of an Economic Development Conveyance (EDC) transfer under terms of an existing MOA between the U.S. Army and UC. Following land transfer from the Army, UC or FORA will manage seventy-five percent (75%) of the landfill parcel (including the completed landfill cap) as habitat. The remaining twenty-five percent (25%) of the parcel will be available for development. Other changes in boundaries and trade-offs of development and habitat areas will be made in the HMP as shown on the attached figure (Figure 5-11, Revised Habitat Management Plan for Former Fort Ord). This will satisfy basewide HMP habitat management requirements for all proposed development areas (shown as land areas with no HMP habitat preservation requirements on Figure 5-11).

c) The other development areas adjacent to the BLM Natural Resources Management Area (NRMA) will be obtained as part of the FORA EDC. In these areas of undeveloped habitat adjacent to the NRMA, FORA will either arrange to have existing native habitat managed or construct and maintain fire breaks and vehicle barriers to separate these areas from the NRMA until such time as roads and other developments are constructed in these locations. (See attached figure for locations of fire breaks along the edge of the NRMA). This will replace the individual development parcel descriptions contained in the original HMP. The revised HMP will rely on this measure to accomplish the desired separation of habitat areas from future development areas. The land use specific requirements for development parcels will be removed in the revised HMP.

The following Agencies indicate concurrence in the elements of the Revised HMP.

U.S. Fish and Wildlife Service

Date: 4/9/96

U.S. Army

Date: 4.11.96

U.S. Bureau of Land Management

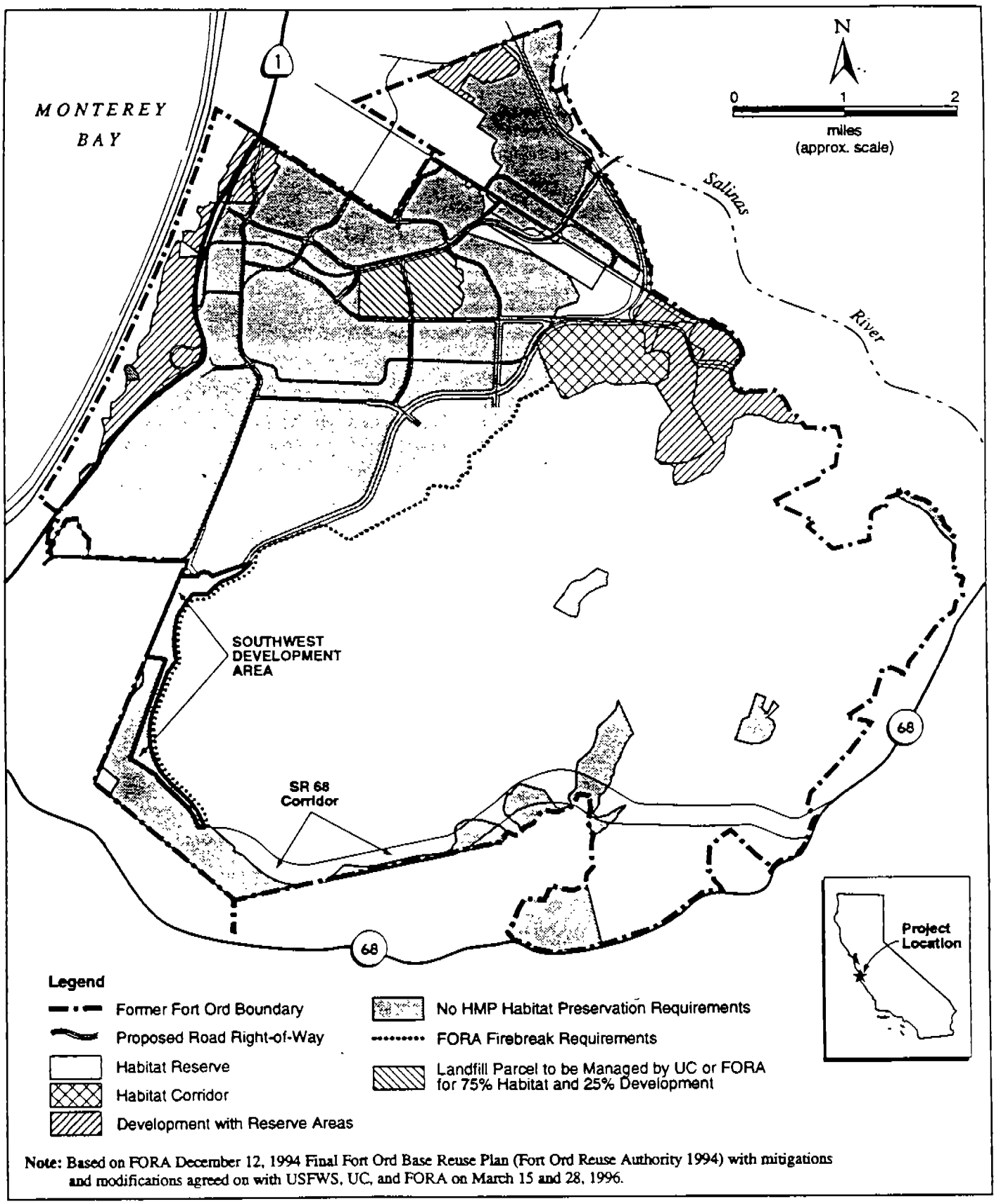
Date: 4/10/96

University of California

Date: 4/3/96

Fort Ord Reuse Authority

Date: 4/3/96



Note: Based on FORA December 12, 1994 Final Fort Ord Base Reuse Plan (Fort Ord Reuse Authority 1994) with mitigations and modifications agreed on with USFWS, UC, and FORA on March 15 and 28, 1996.

Figure 5-11
Draft Revised Habitat Management Plan for Former Fort Ord

Appendix B. HMP Species Occurrence Data

Table B-1. Occurence of HMP Species in Parcels

Parcel	Sand Gilia	Monterey Spineflower	Robust Spineflower	Seaside Bird's beak	Toro Manzanita	Sandmat Manzanita	Monterey Ceanothus	Eastwood's Ericameria	Coast Wallflower	Yadon's Piperia	Hooker's Manzanita	Smith's blue butterfly	California lindenella	California red-legged frog	Western snowy plover	California black legless lizard	California tiger salamander	Monterey ornate shrew
E11a	X	X				X	X	X								X		X
E11b.1																		X
E11b.2		X																X
E11b.3					X													X
E11b.4																		X
E11b.5		X			X	X	X	X									X	X
E11b.6	X			X	X		X	X			X							X
E11b.7	X				X		X	X			X							X
E11b.8					X		X	X			X							X
E11b.9																		X
E11b.10																		
E11b.11																		
E11b.12																		X
E15.1																		X
E15.2																		X
E17b.1																		
E17b.2																		X
E18.1		X					X											X
E18.2																X		X
E18.3																		X
E18.4		X																X
E19a.1		X				X												X
E19a.2		X			X	X	X				X					X		X
E19a.3		X			X	X	X				X					X		X
E20c.1.1		X				X	X	X								X		X
E20c.1.2						X	X									X		X
E20c.1.3		X				X	X	X								X		
E20c.2.1		X				X	X	X								X		X
E20c.2.2		X				X	X									X		X
E20.b																X		
E21a		X				X	X	X										
E21b.1		X			X	X	X	X			X					X		X
E21b.2	X	X			X	X	X	X			X					X		X
E21b.3		X		X		X	X	X								X		X
E23.1						X	X	X								X		
E23.2		X				X	X	X								X		
E24	X	X		X	X	X	X	X	X							X		
E29		X				X	X	X								X		
E29a		X				X	X	X	X				X	X		X	X	
E29b.1		X				X	X	X										
E29b.2		X				X	X	X										
E29b.3		X			X	X	X	X										
E29e		X				X	X	X								X		
E2a	X	X				X	X		X	X								
E2b.1						X	X		X							X		
E2b.2																X		
E2b.3																		
E2c.1						X	X	X								X		
E2c.2																		
E2c.3	X					X	X	X										
E2c.4	X	X				X	X	X								X		
E2d	X					X	X	X								X		
E2e	X	X				X	X									X		X
E31		X				X	X	X								X		
E36		X				X	X	X								X		

Table B-1 Occurence of HMP Species in Parcels

Parcel	Sand Gilia	Monterey Spineflower	Robust Spineflower	Seaside Bird's beak	Toro Manzanita	Sandmat Manzanita	Monterey Ceanothus	Eastwood's Ericameria	Coast Wallflower	Yadon's Piperia	Hooker's Manzanita	Smith's blue butterfly	California lindenella	California red-legged frog	Western snowy plover	California black legless lizard	California tiger salamander	Monterey ornate shrew
E34	X	X				X	X	X								X		
E35																		
E4.1	X	X				X	X	X	X	X						X		X
E4.2	X	X				X	X	X	X							X		X
E4.3	X	X			X	X	X	X								X		X
E4.4	X	X			X	X	X	X								X		
E4.5	X					X	X	X								X		
E4.6	X	X				X	X	X	X		X					X		X
E4.7	X	X			X	X	X	X	X							X		X
E5a	X	X			X	X	X	X								X		
E5b		X			X	X	X	X								X		
E8a.1	X	X				X	X		X							X		X
E8a.2		X				X	X									X		
F1.1	X	X		X	X		X	X			X		X	X			X	X
F1.10	X	X				X	X	X								X		
F1.11	X	X		X	X	X	X	X			X					X		
F1.12	X	X		X	X	X	X	X	X		X							
F1.13		X			X	X	X	X			X		X	X		X	X	X
F1.14	X	X		X	X	X	X	X	X		X		X	X		X	X	X
F1.41					X								X	X		X	X	X
F1.5	X	X		X	X	X	X	X			X		X			X	X	
F1.6						X	X				X		X				X	
F1.7.1	X	X		X	X	X	X	X			X		X	X			X	X
F1.7.2	X	X			X		X	X			X							X
F1.8	X	X		X		X	X	X	X									
F1.9		X		X		X	X	X								X		
F2.1																		
F2.2																		
F2.3		X					X									X		X
F2.4																		
F2.5																		
F2.6		X																X
F2.7.1		X																X
F2.7.2																		X
F2.7.3																		
F2.8																		
F2.9																		
F3		X														X		X
F4	X	X			X	X	X	X	X							X		
F5.1																		
F5.2																		
F6																		
L10.1																		
L10.2						X	X	X								X		
L10.3																		
L10.4	X	X				X	X	X								X		
L11						X	X	X								X		
L12.1	X	X				X	X	X										
L12.3																		
L13.1							X									X		
L13.2							X									X		
L14						X	X	X								X		
L15.1																		
L15.2	X	X			X	X	X	X								X		

Table B-1 Occurence of HMP Species in Parcels

Parcel	Sand Gilia	Monterey Spineflower	Robust Spineflower	Seaside Bird's beak	Toro Manzanita	Sandmat Manzanita	Monterey Ceanothus	Eastwood's Ericamera	Coast Wallflower	Yadon's Piperia	Hooker's Manzanita	Smith's blue butterfly	California linderiella	California red-legged frog	Western snowy plover	California black legless lizard	California tiger salamander	Monterey ornate shrew
L15.3							X											
L16																		
L17.1																		
L17.2		X				X	X	X								X		
L18																		
L19																		
L1.1																		
L1.2																		
L20.10.1	X	X				X	X		X									X
L20.10.2																		X
L20.10.3																		X
L20.11.1	X	X							X							X		X
L20.11.2	X	X														X		X
L20.12																		
L20.13		X		X	X	X	X	X	X				X			X	X	
L20.14.1		X																X
L20.14.2		X																X
L20.15		X																
L20.16																		
L20.17.1																		
L20.17.2	X	X				X	X									X		X
L20.18		X		X		X	X	X								X		X
L20.19					X		X	X			X							X
L20.20																		X
L20.21																		X
L20.22																		
L20.2.1	X	X				X												X
L20.2.2	X	X				X							X	X			X	X
L20.3						X	X				X		X	X			X	
L20.4																		
L20.5					X								X	X			X	X
L20.6																		X
L20.7		X			X	X	X				X							
L20.8		X			X		X	X										X
L20.9					X													
L21																		
L22																X		
L23.1.1																		
L23.1.2																		
L23.1.3						X	X									X		
L23.1.4																		
L23.1.5																		
L23.2		X				X	X											
L23.4																		
L23.5																		X
L24	X	X				X												X
L25																		
L26		X				X			X									
L27																		
L28																X		
L29							X									X		
L2.1																		
L2.2	X					X	X	X								X		
L2.3		X				X												X
L30																		

Table B-1. Occurence of HMP Species in Parcels

Parcel	Sand Gilia	Monterey Spineflower	Robust Spineflower	Seaside Bird's beak	Toro Manzanita	Sandmat Manzanita	Monterey Ceanothus	Eastwood's Encamena	Coast Wallflower	Yadon's Piperia	Hooker's Manzanita	Smith's blue butterfly	California lindenelia	California red-legged frog	Western snowy plover	California black legless lizard	California tiger salamander	Monterey ornate shrew
L3 1		X			X	X	X				X							
L3 2		X			X	X	X	X			X							
L4.1		X				X	X	X								X		
L4.2		X				X	X	X								X		
L5.1	X	X				X	X		X							X		X
L5.10	X	X			X	X	X	X	X							X		X
L5.1 1		X														X		
L5 1 10																X		
L5 1 11	X	X				X										X		X
L5 1.12		X																X
L5.1.2																		
L5.1.3																		
L5.1 4	X	X																X
L5.1.5																X		
L5.1.6																		
L5.1.7																		
L5.1 8		X																X
L5.1 9																		
L5.2																		
L5 4 1																		
L5 4.2																		
L5.5																		
L5.6						X	X	X								X		
L5.7		X																X
L5.8.1																		
L5.8 2																		
L5.9 1	X					X	X	X								X		
L5.9 2	X					X	X	X								X		
L6		X		X		X	X	X								X		
L7 1	X	X				X	X	X	X	X						X		
L7 2	X	X				X			X							X		X
L7.3																		
L7 4																X		X
L7.5		X				X	X									X		
L7 6		X				X	X									X		
L7 7		X																X
L8.1																		
L8 2																		
L8.3																		
L9.1 1						X	X									X		
L9 1 2		X				X	X	X	X							X		
L9 2						X												
L9 3																		
LE5.9																		
LE12 2																		
LE20 16																		
LE20.18	X	X			X	X	X	X			X							X
LE20 19	X				X		X	X			X							
S1.1																		
S1 2.1	X	X				X	X	X	X		X					X		X
S1 2 2	X	X				X	X		X							X		X

Table B-1. Occurence of HMP Species in Parcels

Parcel	Sand Gilia	Monterey Spineflower	Robust Spineflower	Seaside Bird's beak	Toro Manzanita	Sandmat Manzanita	Monterey Ceanothus	Eastwood's Encameria	Coast Wallflower	Yadon's Piperia	Hooker's Manzanita	Smith's blue butterfly	California lindenella	California red-legged frog	Western snowy plover	California black legless lizard	California tiger salamander	Monterey ornate shrew
LE5.9																		
LE12 2																		
LE20 16																		
LE20 18	X	X			X	X	X	X			X							X
LE20.19	X				X		X	X			X							
S1.1																		
S1 2 1	X	X				X	X	X	X		X					X		X
S1 2 2	X	X				X	X		X							X		X
S1.2.3		X				X												X
S1 3 1		X																X
S1 3 2		X														X		X
S1.3.3	X	X				X												X
S1.3 4		X				X												X
S1.4																		
S1.5.1																		
S1.5.2						X												
S1.6																		X
S1.7						X												
S2.1.1	X	X				X	X		X							X		X
S2.1.2	X	X				X	X	X	X							X		X
S2.1.3	X	X				X	X		X							X		
S2.1.4	X	X				X	X		X							X		X
S2.1.5	X	X				X	X	X	X							X		X
S2.2.1		X														X		X
S2.2.2																		
S2.2.3																		
S2.3.1	X	X			X	X	X	X	X							X		X
S2.3 2	X	X			X	X	X	X	X		X					X		X
S2.4	X	X				X	X	X								X		
S2.5.1	X	X				X	X									X		X
S2.5.2	X	X				X	X									X		X
S3.1 1	X	X	X			X			X			X				X		
S3.1.2	X	X							X			X			X	X		
S3.1 3		X																
S3.1.4		X																
S3 2																		
S4.1.1		X																
S4.1.2		X				X			X							X		
S4.1.3	X	X				X	X	X	X	X						X		
S4 2 1						X	X											
S4 2 2						X	X											
S4 2 3		X			X	X	X				X							
S4.3																X		

Occurence data for almost all species was generated by overlaying the rectified 1992 GIS database for biological resources with the HMP map
The rectified 1992 database was created by incorporating the 1992 survey data into a 1996 GIS base map for former Fort Ord.
Occurences for Smith's blue butterfly and black legless lizard considered both the 1992 data and more recent available data.

Table B-2 Habitat Acreages Supporting HMP Target Species within HMP Reserve Areas, Corridors, and Development Areas

	Plants											Animals						
Parcel	Sand Gilia	Eastwood's Ericameria	Coast Wallflower	Seaside Bird's Beak	Robust Spineflower	Monterey Spineflower	Monterey Ceanothus	Sandmat Manzanita	Toro Manzanita	Hooker's manzanita	Yadon's Piperia	California Linderiella	Tiger Salamander	Western Snowy Plover	California Red-Legged Frog	Monterey Ornate Shrew	Black Legless Lizard	Smith's Blue Butterfly
State Parks Reserve	H --	H --	H 35	H --	H --	H 35	H --	H --	H --	H --	H --	--	--	73	--	--	8	140
	M --	M --	M 36	M --	M --	M 25	M --	M --	M --	M --	M --							
	L --	L --	L 75	L --	L --	L 182	L --	L --	L --	L --	L --							
State Parks Development with Reserve	H --	H --	H 8	H --	H --	H 63	H --	H --	H --	H --	H --	--	--	--	--	--	78	37
	M --	M --	M 1	M --	M --	M 84	M --	M --	M --	M --	M --							
	L --	L --	L 16	L --	L 476	L 277	L --	L 1	L --	L --	L --							
Landfill Development with Reserve	H --	H --	H --	H --	H --	H --	H --	H --	H --	H --	H --	--	--	--	--	149	43	--
	M 21	M --	M 8	M --	M --	M 42	M --	M 63	M --	M --	M --							
	L 80	L --	L --	L --	L --	L 201	L 164	L 207	L --	L --	L --							
UC/NRS Reserve	H 148	H --	H 2	H --	H --	H 164	H --	H 256	H --	H --	H --	--	--	--	--	243	261	--
	M 131	M 10	M 86	M --	M --	M 340	M 188	M 123	M --	M --	M --							
	L 194	L 105	L 84	L --	L --	L 3	L 161	L 45	L 30	L --	L --							
Marina Reserve	H --	H --	H --	H --	H --	H --	H --	H --	H --	H --	H --	--	--	--	1	26	1	--
	M --	M --	M --	M --	M --	M 6	M --	M --	M --	M --	M --							
	L --	L --	L --	L --	L --	L 8	L --	L --	L --	L --	L --							
Marina Development with Reserve	H --	H --	H --	H --	H --	H 7	H --	H 1	H --	H --	H --	--	--	--	--	1	18	--
	M --	M --	M --	M --	M --	M 98	M --	M --	M --	M --	M --							
	L 1	L --	L --	L --	L --	L 1	L --	L --	L --	L --	L --							
East Garrison Reserve	H 6	H --	H --	H --	H --	H 9	H --	H --	H --	H --	H --	--	--	--	--	147	6	--
	M --	M --	M --	M --	M --	M 55	M 6	M --	M --	M --	M --							
	L 3	L 6	L 3	L --	L --	L 48	L 3	L 9	L --	L --	L --							
East Garrison Development with Reserve	H --	H --	H --	H --	H --	H --	H 38	H --	H 141	H --	H --	--	--	--	--	282	--	--
	M --	M 189	M --	M --	M --	M 1	M 189	M --	M 89	M 60	M --							
	L 5	L --	L --	L 5	L --	L 54	L --	L 13	L 119	L 5	L --							
Habitat Corridor	H --	H --	H --	H --	H --	H 3	H --	H --	H --	H --	H --	--	--	--	--	246	--	--
	M --	M --	M --	M --	M --	M 31	M --	M --	M --	M --	M --							
	L 31	L --	L --	L --	L --	L 123	L --	L 33	L --	L --	L --							
Habitat Corridor with Development	H --	H --	H --	H --	H --	H --	H --	H --	H --	H --	H --	1	1	--	1	130	--	--
	M --	M --	M --	M --	M --	M 30	M --	M --	M --	M --	M --							
	L 30	L --	L --	L --	L --	L 17	L --	L 45	L --	L --	L --							
BLM NRMA	H --	H --	H --	H --	H --	H 428	H 1,727	H 2,566	H 1,762	H 1,241	H --	56	56	--	23	1,723	935	--
	M 21	M 1,517	M --	M 16	M --	M 1,678	M 5,185	M 1,883	M 1,916	M 2,204	M --							
	L 2,267	L 2,677	L 36	L 1,030	L --	L 3,070	L 1,311	L 1,004	L 1,583	L 1,054	L --							

Table B-2. Continued

| | Plants | | |

Page # 185 (13 pgs.)

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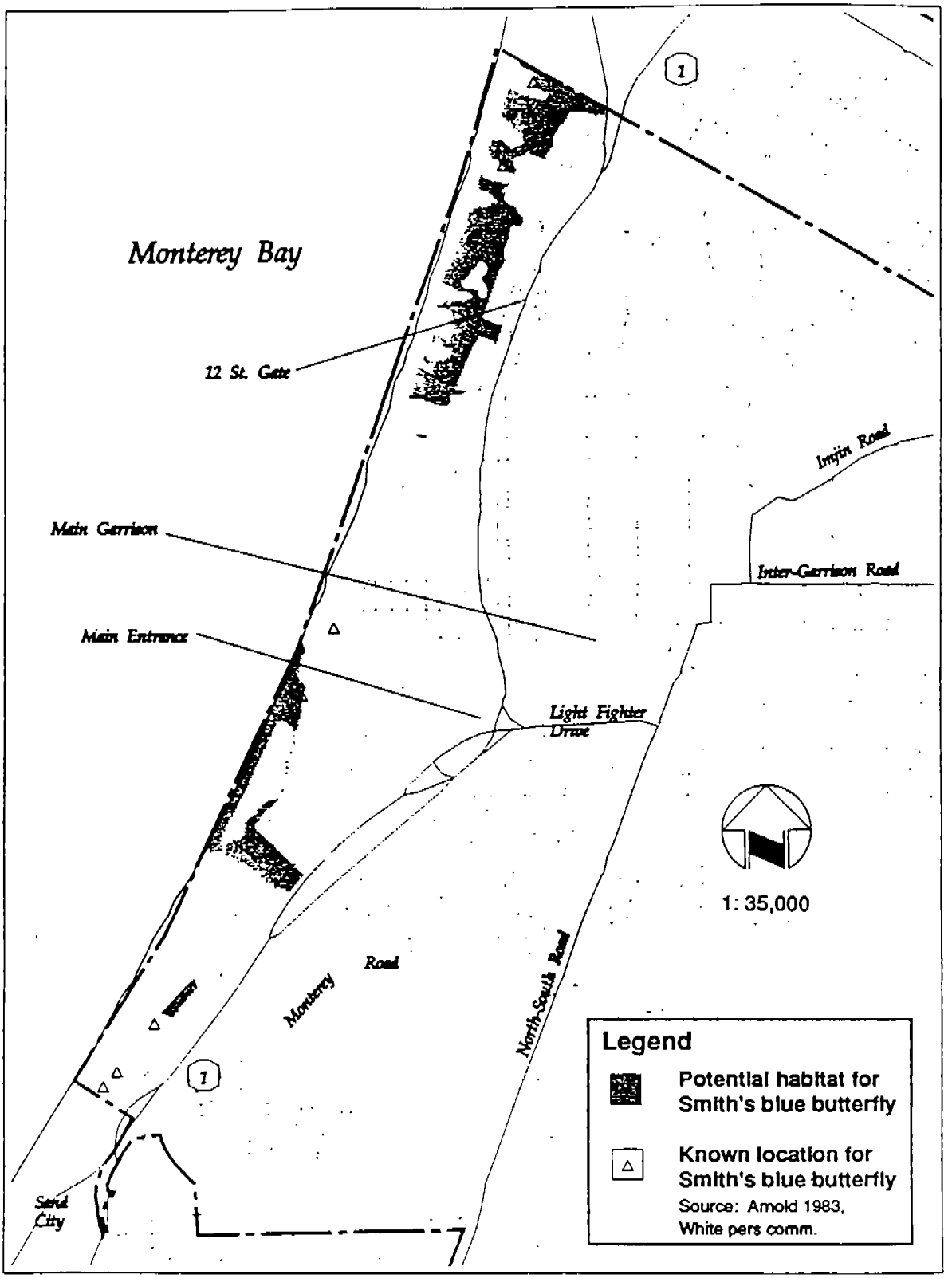


Figure B-12a
Potential and Occupied Habitat for Smith's Blue Butterfly Based on 1992 Survey Data

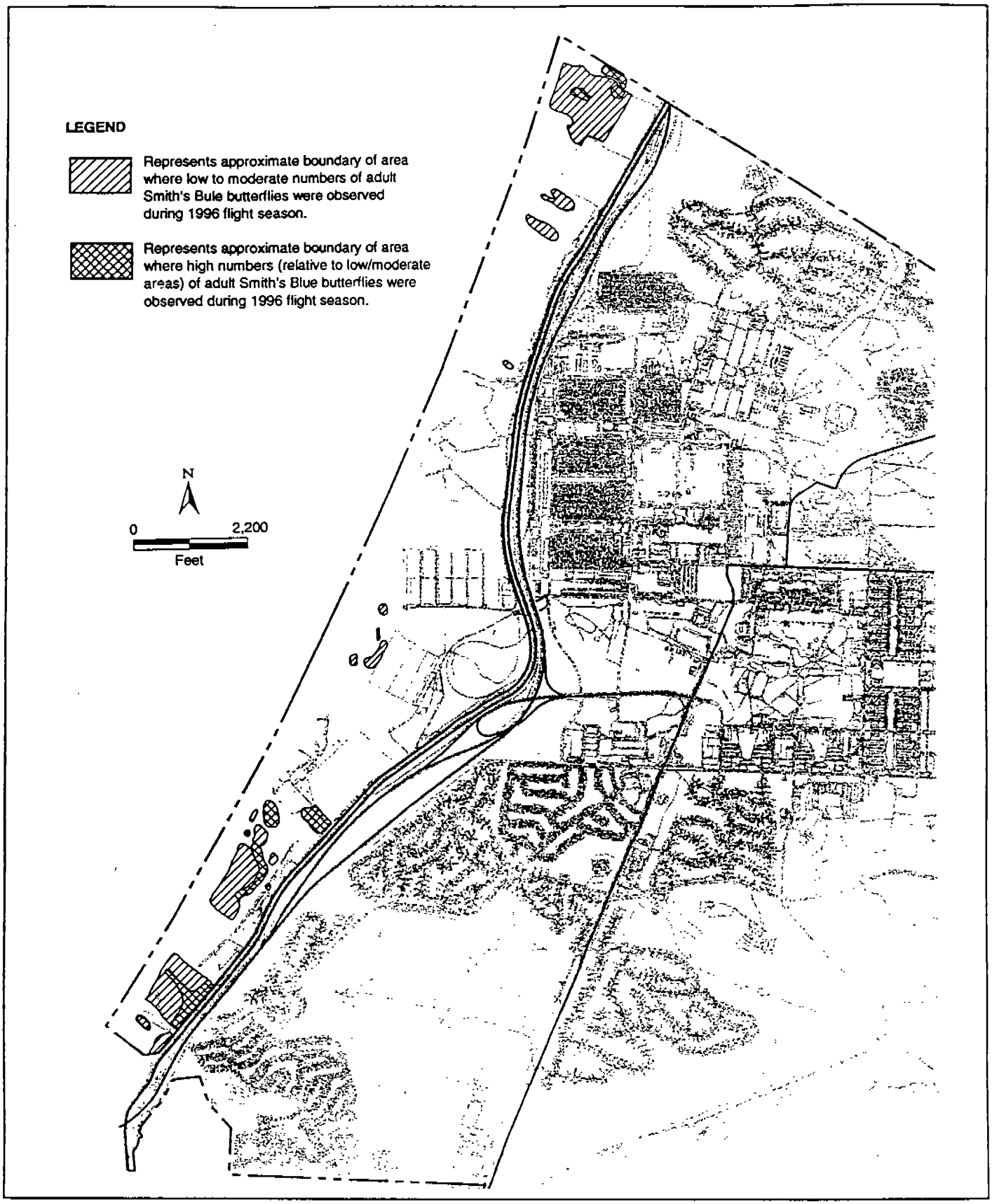


Figure B-12b
Occupied Smith's Blue Butterfly Habitat Based on 1996 Inventories

Figure B-13

Potential and Occupied Habitat for California Linderiella

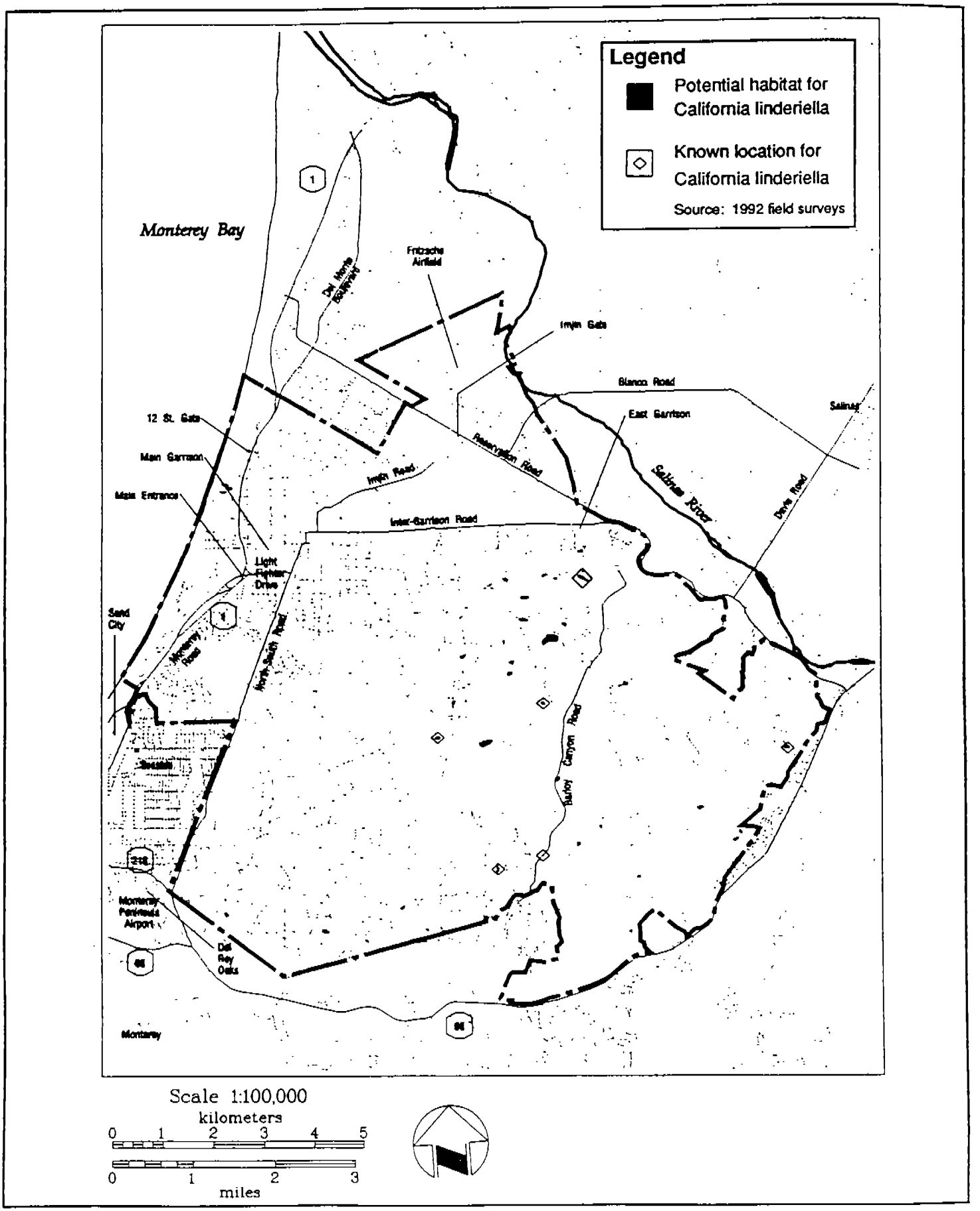
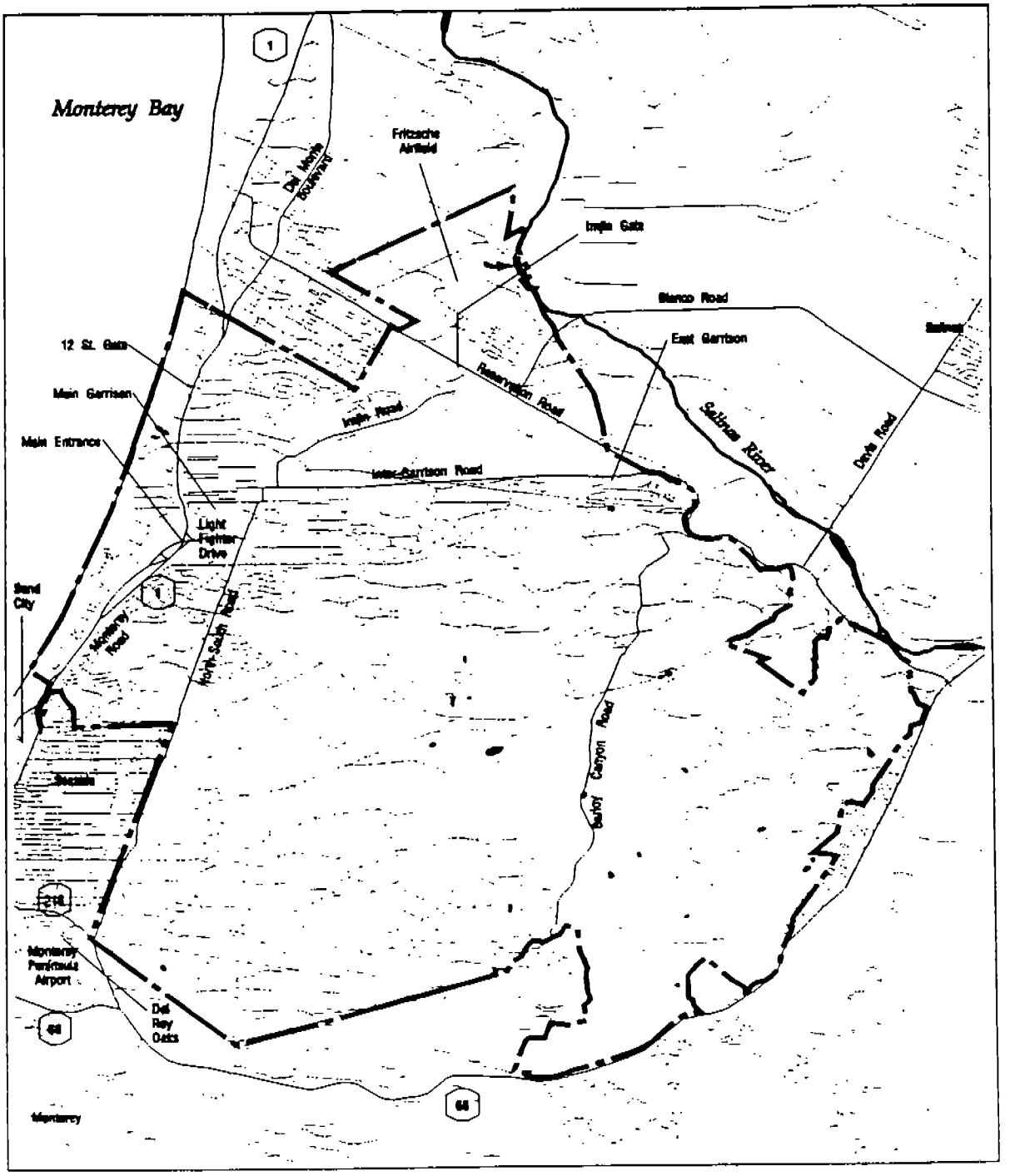


Figure B-14

Potential Habitat for California Red-Legged Frog



Legend

Potential habitat for California red-legged frog

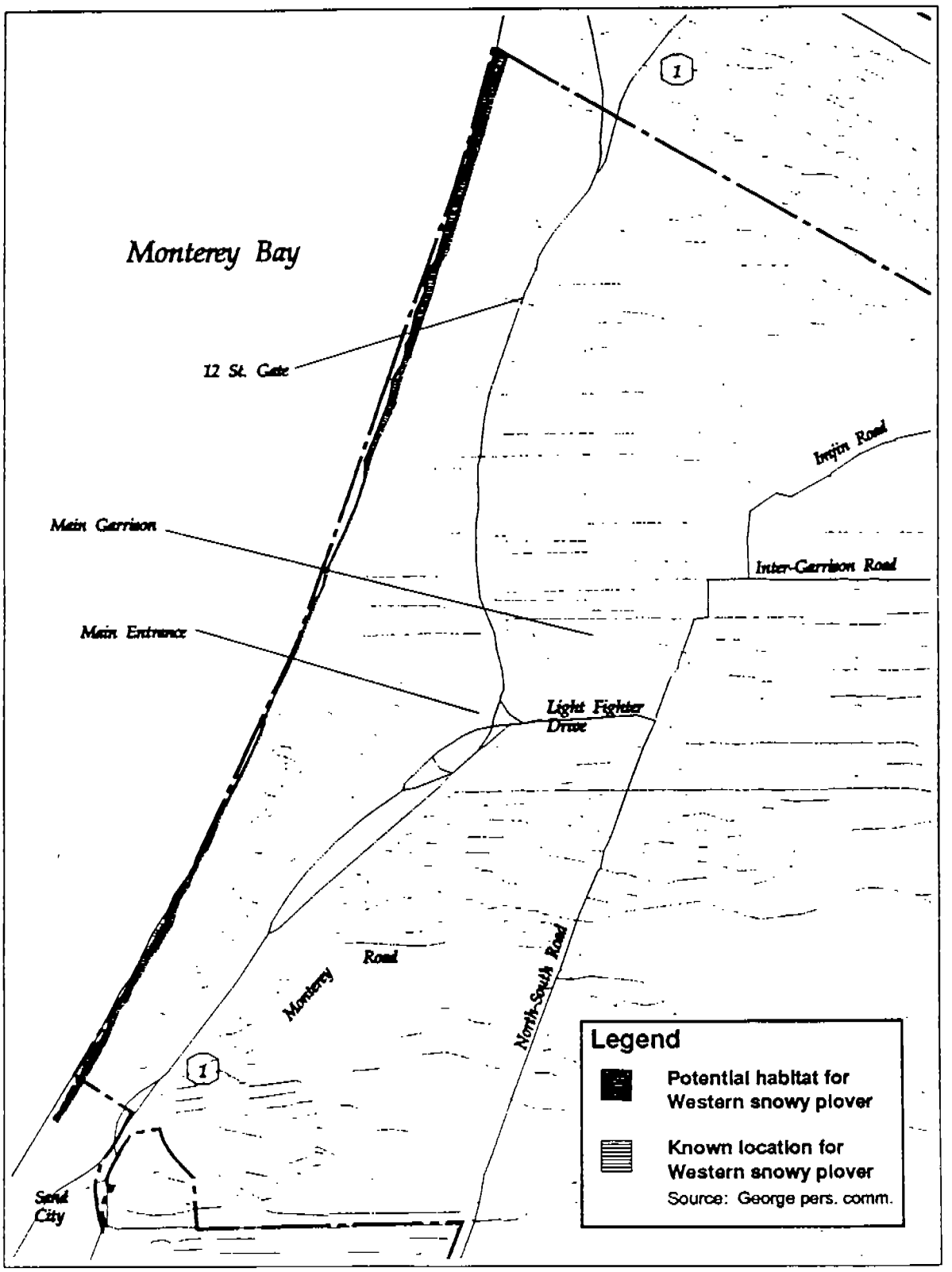
Scale 1:100,000

kilometers 0 1 2 3 4 5

miles 0 1 2 3

Figure B-15

Potential and Occupied Habitat for Western Snowy Plover



Scale: 1" = 35,000'

Figure B-16

Potential and Occupied Habitat for California Black Legless Lizard

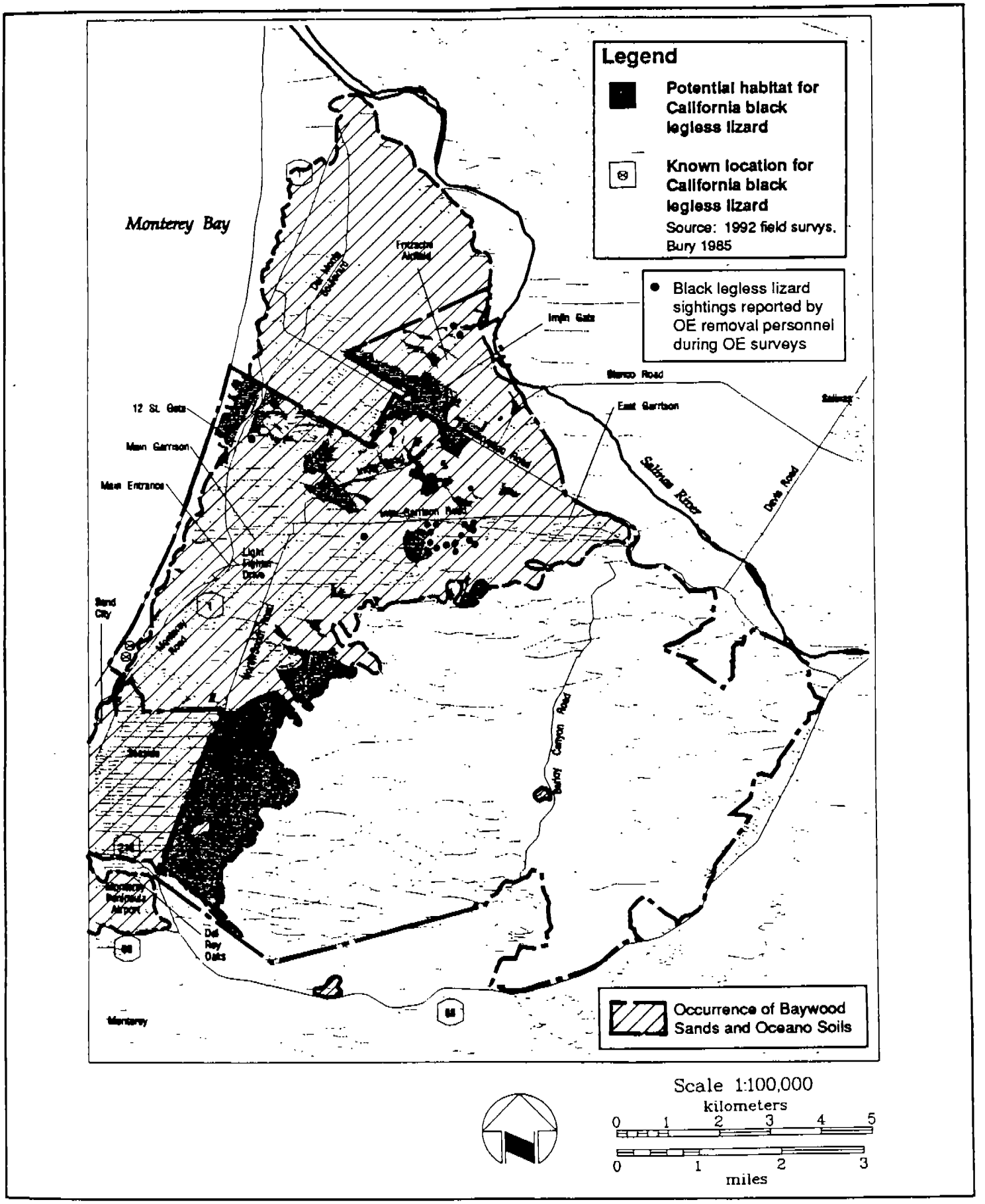


Figure B-17

Potential and Occupied Habitat for California Tiger Salamander

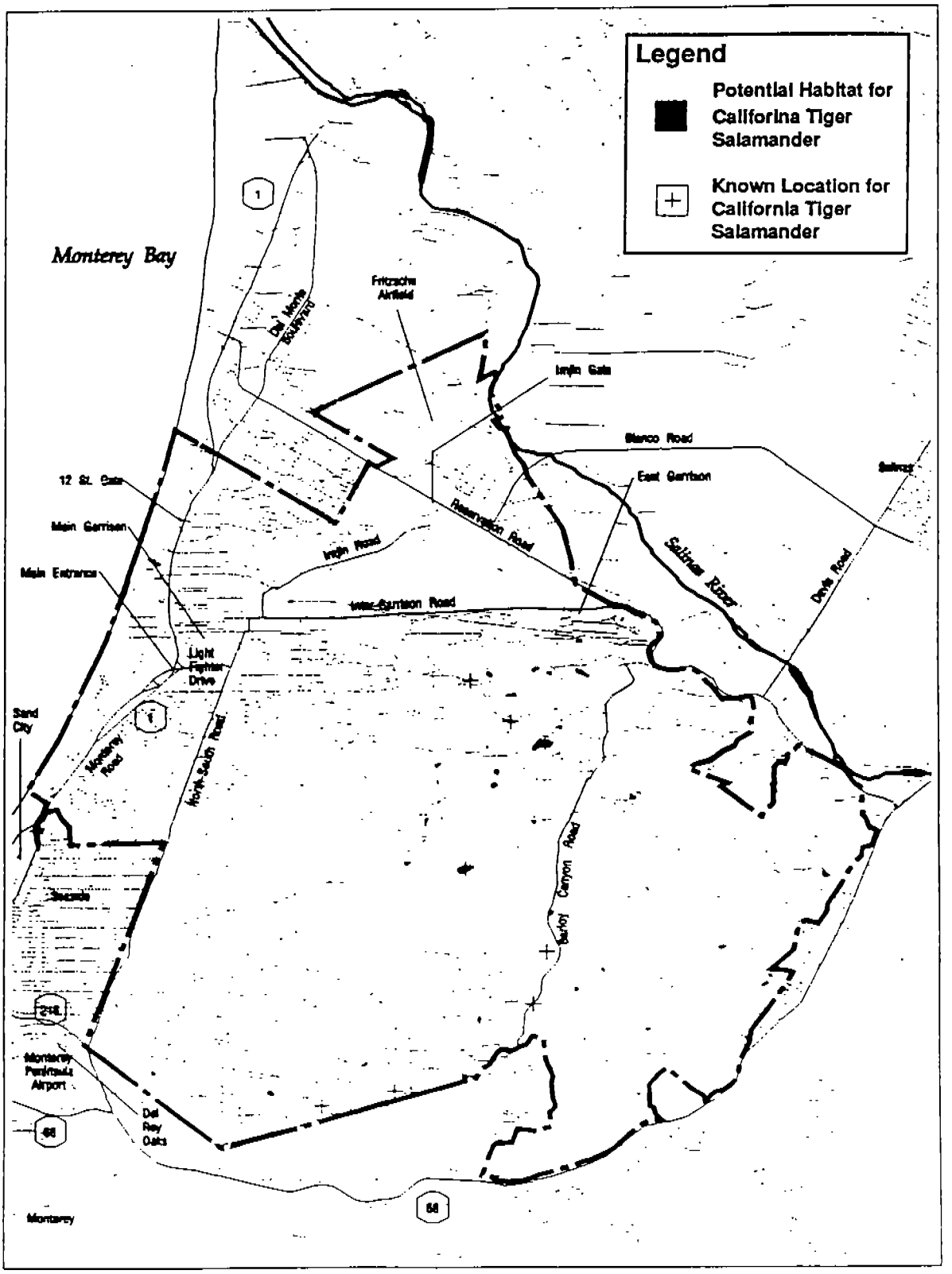
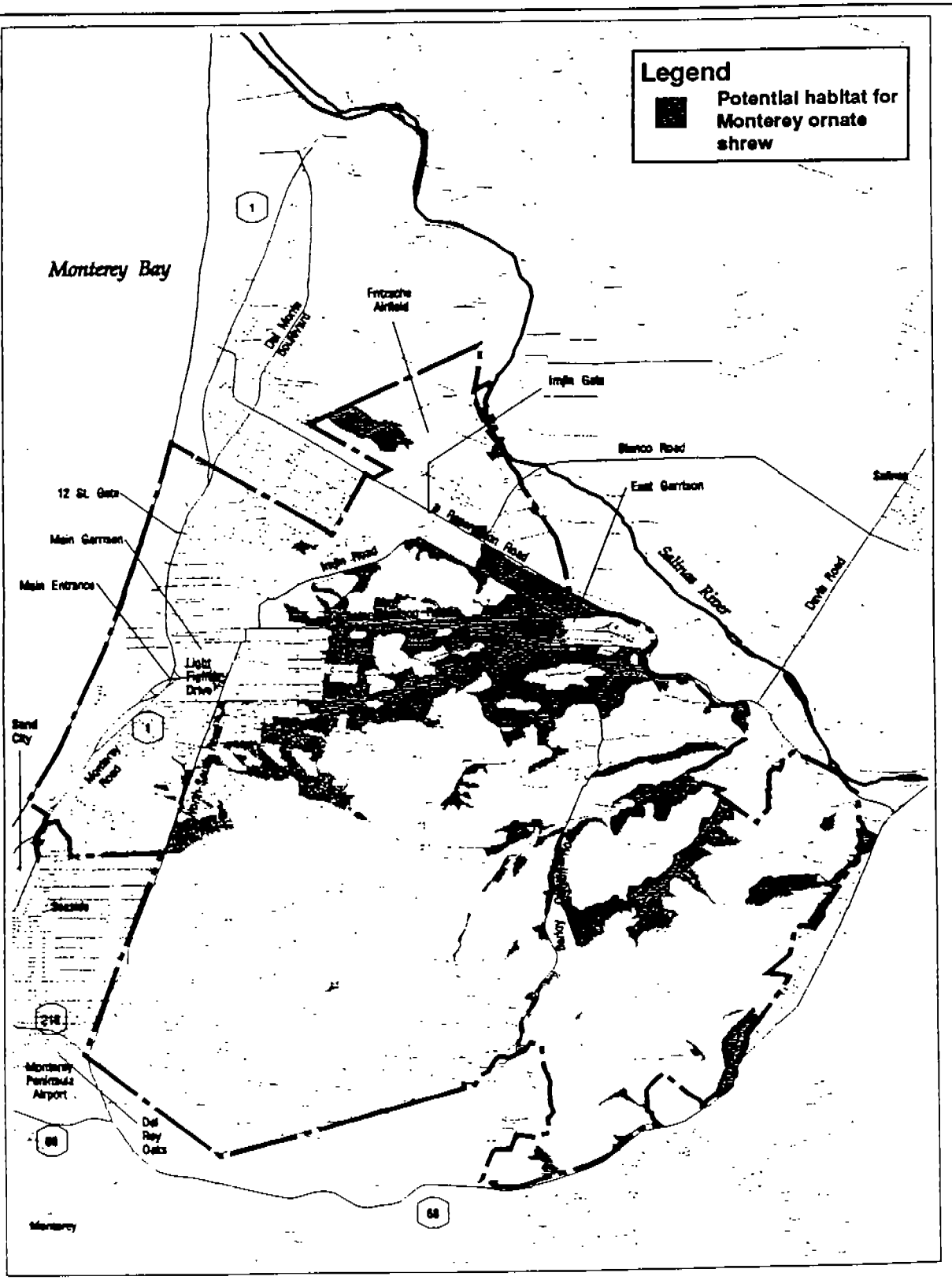


Figure B-18

Potential Habitat for Monterey Ornate Shrew



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Appendix C. Posttransfer Modifications to the HMP

The text and map modifications described in the following correspondence are not reflected in the main text but in the maps of this appendix.

Parcel Number	Recipient	Date
L.51.11	City of Marina	November 25, 1996
S.2.15	University of California	November 25, 1996

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

BERKELEY · DAVIS · IRVINE · LOS ANGELES · RIVERSIDE · SAN DIEGO · SAN FRANCISCO SANTA BARBARA · SANTA CRUZ

COMMUNITY PLANNING AND LAND DEVELOPMENT SANTA CRUZ, CALIFORNIA 95064

November 25, 1996

Cathy McCalvin
US Fish and Wildlife Service
Ventura Field Office
2493 Portola Road, Suite B
Ventural California 93003

Re: Adjustments to HMP Map

Dear Ms. McCalvin

At an October 22, 1996 Fort Ord Habitat Management Plan All Hands meeting Bob Verkade of the US Army Corps of Engineers stated to the University of California and the City of Marina that long-standing requests for changes to the Installation-Wide Multispecies Habitat Management Plan (HMP) map could be made if the Army received concurrence from the US Fish and Wildlife Service. On October 25 and October 28 the University of California and the City of Marina, respectively, sent requests to you for changes to the HMP map. On November 18 US Fish and Wildlife Field Supervisor Diane Noda sent comments on the HMP to Bob Verkade. Those comments included concurrence with the City of Marina and University of California requests. At the November 21 All Hands meeting, Mr. David Taylor of the US Army Training and Doctrine Command overruled Bob Verkade's previous statement, saying that the HMP map itself could not be altered, but that a section of the full map could be included within the text of the HMP indicating the changes that had been proposed by the University of California and the City of Marina and with which the US Fish and Wildlife Service concurred. Following that meeting, Bob Verkade confirmed that such a change could be made provided that a request were to be sent to him from the US Fish and Wildlife Service. We therefore ask that you send a letter to Bob Verkade requesting that the following changes be made to the November 6 version of the HMP.

Page 4-21, line 27, add the following sentence to the end of the paragraph: "The eastern edge of this parcel was adjusted as shown in Figure 4-x following transfer of land to the University of California. The adjustment results in no change in the overall size of this parcel."

Page 4-23, line 11, add the following sentence to the end of the paragraph: "The northern edge of this parcel was adjusted as shown in Figure 4-x following transfer of land to the University of California. The adjustment results in no change in the overall size of this parcel."

Page 4-35, line 16, add the following sentence to the end of the paragraph: "The northern edge of this parcel was adjusted as shown in Figure 4-x following transfer of land to the City of Marina. The centerline of a Right of Way for a major arterial roadway will be relocated to follow the new northern boundary of this parcel. The adjustment results in no change in the overall size of this parcel."

Please ask the Army to use the three enclosed graphics to create one or two section maps that can be inserted into the HMP near the referenced text.

Thank you for supporting our requests. Please call if you have any further questions.

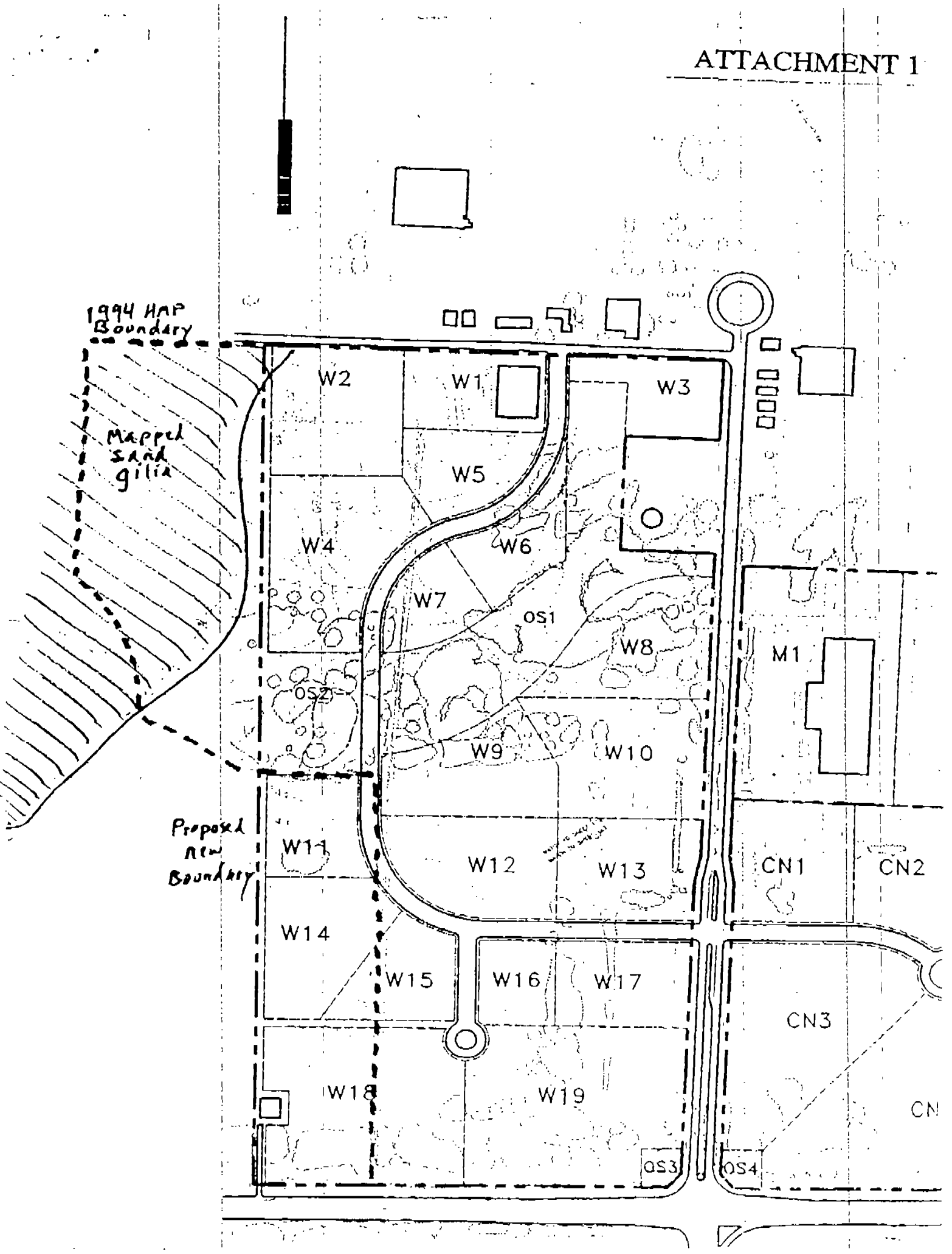
Graham Bice, Director
Physical and Environmental Planning
UC MBEST Center

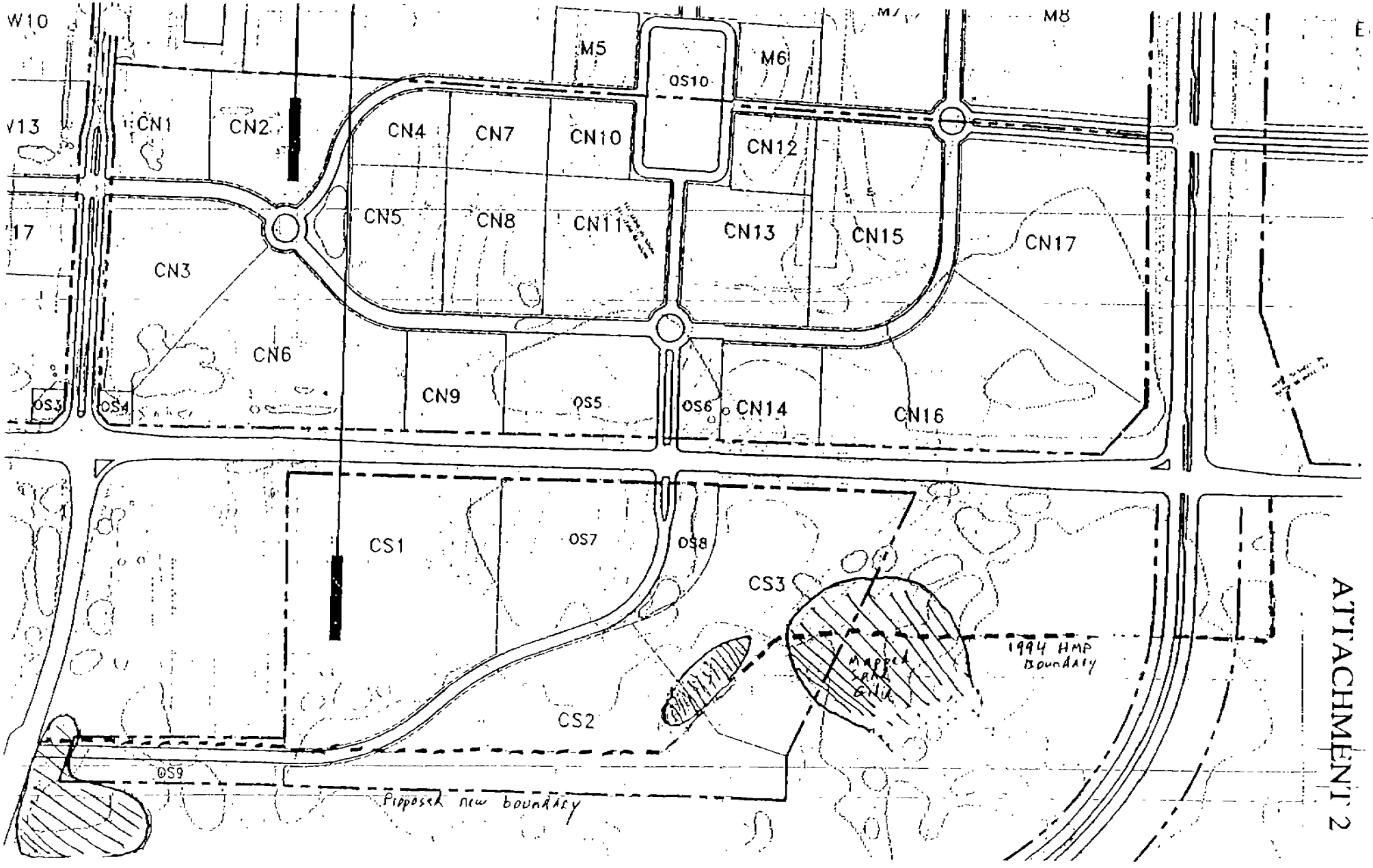
For Jeff Dack, Director
Planning Department
City of Marina

enclosures (3)

cc: Lora Martin
John Longley
Bob Verkade

ATTACHMENT 1





ATTACHMENT 2

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

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SANTA BARBARA • SANTA CRUZ

COMMUNITY PLANNING AND LAND DEVELOPMENT

SANTA CRUZ, CALIFORNIA 95064

January 15, 1996

Bob Verkade
U.S. Army Corps of Engineers
1325 J Street
12th Floor, Room 143
Sacramento, California, 95814

Subject: Clarification of November 25, 1996 letter to U.S. Fish and Wildlife Service

Dear Mr. Verkade,

On November 25, 1996 we issued a joint letter to Cathy McCalvin, of the U.S. Fish and Wildlife Service, requesting concurrence on suggested boundary changes to the large map appearing in the Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California (HMP). The U.S. Army Corps of Engineers chose to note in the text that a change had been made to the large map and include our joint letter in Appendix C of the December 1996 version of the HMP.

Following publication of the December, 1996 version of the HMP we noticed that Attachment 3 of our letter included a planned roadway shown to cross a portion of the UC/NRS Fort Ord Natural Reserve. This planned roadway alignment was not a part of the HMP and is not a part of our requested boundary change, but is included in the City of Marina General Plan, which was the source of the base map used for Attachment 3 of our November 25, 1996 letter. To avoid potential confusion regarding the meaning of the roadway shown on Attachment 3, we request that the final printing of the HMP replace the Attachment 3 you received with the enclosed sheet. The enclosed sheet is identical to the original Attachment 3 with the addition of the the following text, located near the bottom of the page: "Alignment of California Avenue as shown in City of Marina General Plan, not part of the HMP".

We hope you will agree that this clarification is appropriate.

Graham Bice, Director
Physical and Environmental Planning
UC MBEST Center

Jeff Dack, Director
Planning Department
City of Marina

enclosure (1)

cc: Lora Martin, John Longley, Cathy McCalvin, Cathy Klack

CHANGE FROM VISITOR SERVING TO HABITAT MANAGEMENT (ADD TO LR 5)

HABITAT MANAGEMENT

VISITOR SERVING

CHANGE FROM HABITAT TO VISITOR SERVING (ADD TO LR 17)

Alignment of California Avenue as shown in City of Marina General Plan, not part of HMP

1b

1c

1e

7b

6a

6b

6c

7c

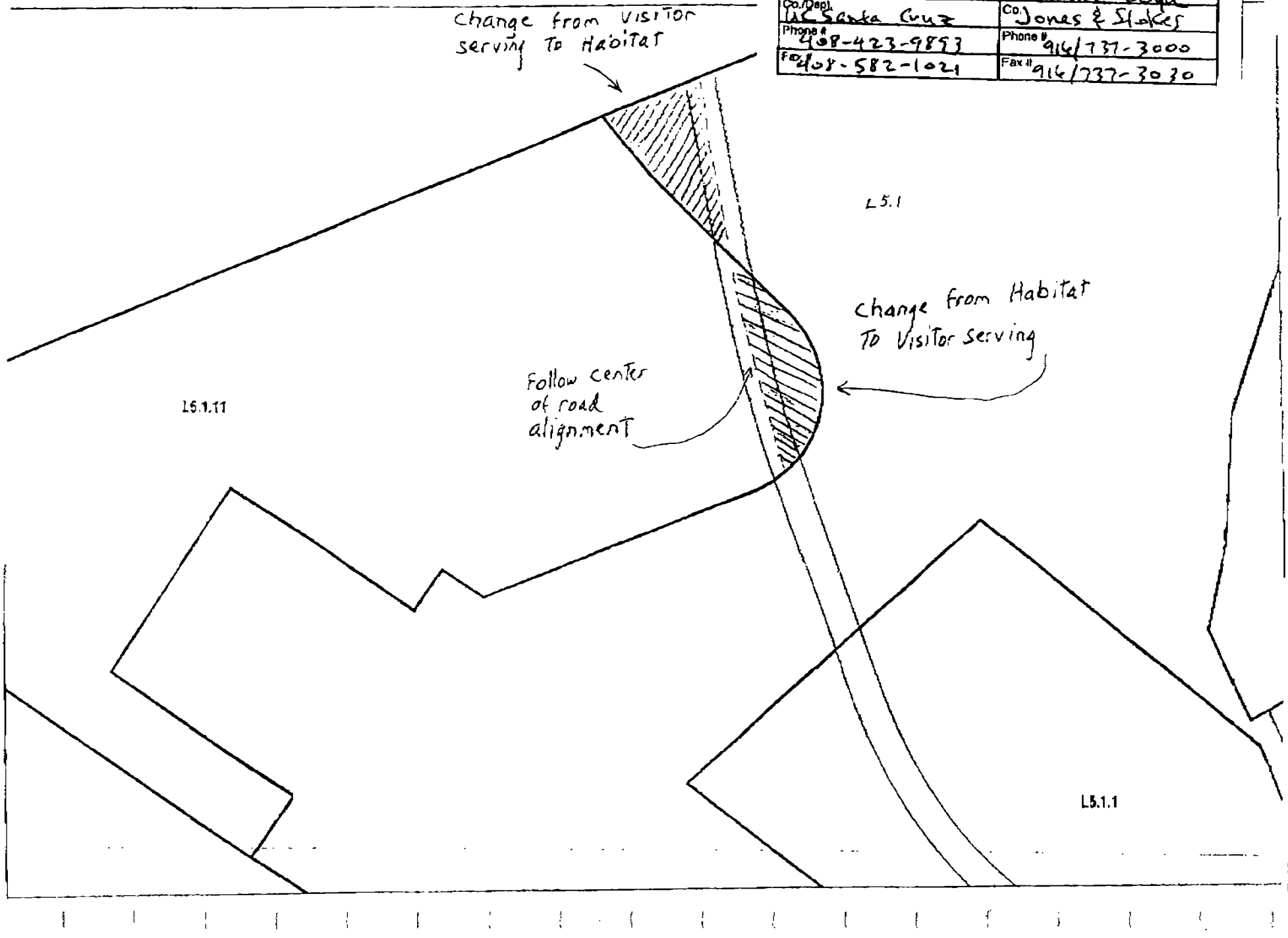
8a

8b

ATTACHMENT 3

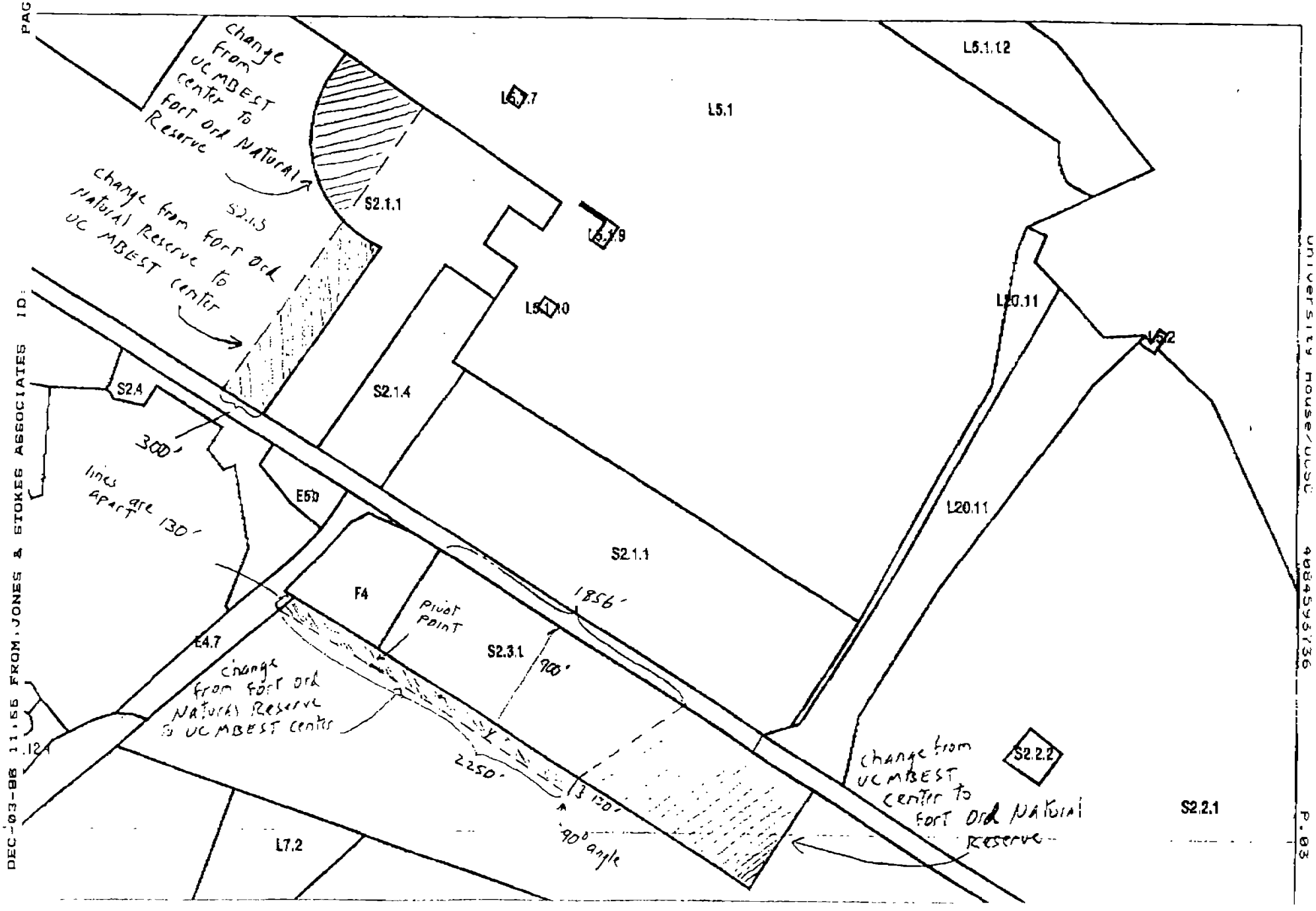
Marina Parcels, scale 1" = 500'

Post-it® Fax Note 7671	Date 12/3	# of pages ▶ 2
To Graham Bice	From Bruce Boyd	
Co./Dept. UC Santa Cruz	Co. Jones & Stokes	
Phone # 408-423-9853	Phone # 916/737-3000	
Fax # 408-582-1021	Fax # 916/737-3030	



DEC 03 '00 11:55 FROM..JONES & STOKES ASSOCIATES ID:
University House/UCSC 4084593736
PAGE 1/2
P.02

UC Santa Cruz Parcels, scale 1" = 800'



DEC-03-96 11:55 FROM:JONES & STOKES ASSOCIATES ID:
4088459136
P.03
University House/UCSC

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Ventura Field Office
2493 Portola Road, Suite B
Ventura, California 93003

December 4, 1996

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL
To Bob Verkade
Dept./Agency
Fax #
Phone #
Fax #
NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Bob Verkade
U.S. Army Corps of Engineers
1325 J Street
12th Floor, Room 143
Sacramento, California 95814

Subject: Adjustments to HMP Map

Dear Mr. Verkade:

Based on the information provided us by the City of Marina (City) and the University of California (U.C.) in letters dated October 28, 1996 and October 25, 1996 respectively, we concur that their proposed boundary changes would not alter the intent of the Habitat Management Plan (HMP) and would not reduce the protection of any HMP species. Therefore, we recommend that the Department of Army make the requested boundary changes to the November 6 version of the HMP as described to us in these letters. The HMP should incorporate the maps developed by the City and U.C. that depict the boundary changes. In addition, the following changes should be made to the HMP text:

Page 4-21, line 27, add the following sentence to the end of the paragraph: "The edge of this parcel was adjusted as shown in Figure 4-x following transfer of land to the University of California. The adjustment results in no change in the overall size of this parcel."

Page 4-23, line 16, add the following sentence to the end of the paragraph: "The northern edge of this parcel was adjusted as shown in Figure 4-x following transfer of land to the University of California. The adjustment results in no change in the overall size of this parcel."

Page 4-35, line 16, add the following sentence to the end of the paragraph: " The northern edge of this parcel was adjusted as shown in Figure 4-x following transfer of land to the City of Marina. The centerline of a Right of Way for a major arterial road

will be relocated to follow the new northern boundary of this parcel. The adjustment results in no change in the overall size of this parcel.

If you have any questions about the requested adjustments, please contact Cathy Mc Calvin on my staff at (805) 644- 1766.

Sincerely,

Raymond Bransfield

for Diane Noda
Field Supervisor

Appendix D. Sample Deed and Memorandum of Agreement

DRAFT 3/24/97

WHEN RECORDED RETURN TO:

QUITCLAIM DEED

THIS INDENTURE, made and entered into between the **UNITED STATES OF AMERICA**, hereinafter referred to as the **GRANTOR**, acting by and through the Secretary of the Army, under and pursuant to the power and authority contained in the Defense Base Closure and Realignment of 1990, Public Law 101-510, as amended, and _____, as amended, and _____ hereinafter referred to as the **GRANTEE**.

WITNESSETH THAT:

WHEREAS, Fort Ord was officially closed on 30 September 1994; any reference herein made to Fort Ord will refer to what is presently designated as the Presidio of Monterey Annex and Excess Lands; and

WHEREAS, the GRANTOR is the owner of certain real property located within the formerly designated Fort Ord Military Installation situated in the County of Monterey, State of California, more particularly described as _____ hereinafter referred to as the **Property**, and more fully described and shown on Exhibits A and B, attached hereto and made a part hereof; and

WHEREAS, the Property has been determined surplus to the needs of the **GRANTOR**; and

WHEREAS, the California State Historic Preservation Officer has determined that _____; and

WHEREAS , the GRANTOR has appropriately fulfilled the requirements of the Stewart B. McKinney Homeless Assistance Act, 40 U.S.C. 11411; and

WHEREAS, the GRANTEE'S use of the Property is compatible with the December, 1994, Fort Ord Reuse Authority's Reuse Plan; and

WHEREAS, Fort Ord, California, has been identified as a National Priority List under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) of 1980, as amended. The GRANTOR has provided the GRANTEE with a copy of the Fort Ord Base Federal Facility Agreement (FFA) and all amendments thereto entered into by EPA Region IX, the State of California, and the Department of the Army that were effective on November 19, 1990; and

WHEREAS, an Installation-Wide Multispecies Habitat Management Plan for former Fort Ord, California (HMP) dated December, 1994 as revised and amended by the "Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California" dated _____ 1997, has been developed to assure that disposal and reuse of Fort Ord lands is in compliance with the Endangered Species Act (ESA), 16 U.S.C. 1531 et seq. Timely transfer of these lands and subsequent implementation of the HMP is critical to ensure effective protection and conservation of the former Fort Ord lands' wildlife and plant species and habitat values while allowing appropriate economic redevelopment of Fort Ord and the subsequent economic recovery of the local communities; and

WHEREAS, the Bureau of Land Management, U.S. Department of the Interior, (BLM) will receive and compile monitoring reports for the parcels (identified in the HMP as restricted) which are transferred to other public and private entities, and these reports will be sent to the United States Fish and Wildlife Service (USFWS) for review to ensure that HMP requirements are being met; and

WHEREAS, the Installation-Wide Multispecies Habitat Management Plan has been developed consistent with the requirements of Section 10(a)(1)(B) of the ESA and may be converted into a habitat conservation plan under Section 10(a)(2)(A) of the ESA which will support the issuance of incidental take permits, covering both listed and unlisted HMP target wildlife species, to state and local governments and other third parties receiving former Fort Ord lands.

NOW THEREFORE, the GRANTOR, for and in consideration of the assumption by the GRANTEE of all the obligations set forth herein for the benefit of the United States and the general public and for the performance by the GRANTEE of the covenants, conditions, reservations, and restrictions hereinafter contained, does hereby **REMISE, RELEASE,** and forever **QUITCLAIM**, unto the GRANTEE, its successors and assigns, all such interest, rights, title, and claim as the GRANTOR has in and to the **Property** lying and

being in the County of Monterey, State of California.

1. This conveyance is made subject to the following **EXCLUSIONS** and **RESERVATIONS**:

a. .....
:::::
:::::

d. The GRANTOR reserves a right of access to any and all portions of the herein described Property for purposes of environmental investigation, remediation, or other corrective action. These rights shall be exercisable in any case in which a remedial action or corrective action is found to be necessary after the date of conveyance of the Property , or such access as necessary to carry out a remedial action, response action, or corrective action on adjoining property. Pursuant to this reservation, the GRANTOR and its officers, agents, employees, contractors and subcontractors shall have the right (upon reasonable notice to the GRANTEE or its successors and assigns and any authorized occupant of the property) to enter upon the herein described Property and shall not unreasonably interfere with the GRANTEE's use of the Property.

e. The GRANTOR also reserves a right of access to those portions of the herein described Property which are subject to the Habitat Management covenants, conditions, reservations and restrictions contained in this deed under Paragraph 8 and to the provisions of the HMP, by USFWS and its designated agents, for the purpose of monitoring GRANTEE's compliance with Paragraph 8 and the HMP and for such other purposes as are identified in the HMP. Pursuant to this reservation, GRANTOR, acting through USFWS and its designated agents, shall have the right to enter onto the herein described Property upon reasonable notice of not less than 48 hours to GRANTEE or its successors and assigns and shall not unreasonably interfere with GRANTEE'S use of the Property.

TO HAVE AND TO HOLD the **Property** unto GRANTEE, its successors and assigns forever, provided that this deed is made and accepted upon each of the following conditions, restrictions, and covenants which shall be binding upon and enforceable against GRANTEE, its successors and assigns, and shall run with the land, in perpetuity, as follows:

2. **"AS IS"**

3 ENVIRONMENTAL CONDITION OF PROPERTY.

The GRANTEE has received the technical environmental reports, prepared by, or on behalf of, the Grantor, the Grantee, and others, and agrees, to the best of the GRANTEE'S knowledge, that they accurately describe the environmental condition of the Property. The GRANTEE has inspected the Property and accepts the physical condition and current level of environmental hazards on the Property and deems the Property to be safe for the GRANTEE'S intended use. The GRANTEE's acknowledgment of the condition of the Property creates a rebuttable presumption that any substance discovered on the Property after the date of transfer is related solely to the activity of, caused, deposited, or created by the GRANTEE, its successors or assigns. If, after conveyance of the Property to GRANTEE, there is an actual or threatened release of a hazardous substance on the Property, or in the event that a hazardous substance is discovered on the Property after the date of the conveyance, whether or not such substance was set forth in the technical environmental reports, GRANTEE or its successor or assigns shall be responsible for such release or newly discovered substance unless GRANTEE is able to demonstrate that such release or such newly discovered substance was due to GRANTOR'S activities, ownership, use, or occupation of the Property, or the activities of GRANTOR'S contractors and/or agents. GRANTEE, its successors and assigns, as consideration for the conveyance, agrees to release GRANTOR from any liability or responsibility for any claims arising out of or in any way predicated on release of any hazardous substance on the Property occurring after the conveyance, where such substance was placed on the Property by the GRANTEE, or its agents or contractors, after the conveyance. This paragraph shall not affect the GRANTOR'S responsibilities to conduct response actions or corrective actions that are required by applicable laws, rules and regulations, or the GRANTOR'S indemnification obligations under applicable laws.

4. FEDERAL FACILITY AGREEMENT.

By accepting this deed, the GRANTEE acknowledges that the GRANTEE has read the FFA and recognizes that, should any conflict arise between the terms of the FFA and the terms of this deed, the FFA will take precedence. Notwithstanding any other provisions of this deed, the GRANTOR assumes no liability to the GRANTEE should implementation of the FFA interfere with GRANTEE'S use of the premises. In exercising the rights hereunder, GRANTOR shall give GRANTEE or its successors or assigns reasonable notice of its actions required by the FFA and GRANTOR shall, consistent with the FFA, and at no additional cost to the GRANTOR, endeavor to minimize the disruption of the GRANTEE'S, its successors',

or assigns' use of the Property. The GRANTEE shall have no claim on account of any such interference against the GRANTOR or any officer, agent, employee or contractor thereof.

5. **CERCLA NOTICE and COVENANTS.**

a. Pursuant to Section 120(h)(3) of the Comprehensive Environmental Response Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. Section 9620(h)(3), the GRANTOR hereby notifies the GRANTEE that _____.

b. The GRANTOR hereby covenants that:

(1) all remedial action necessary to protect human health and the environment with respect to any such hazardous substances remaining on the **Property** has been taken before the date of conveyance hereunder; and

(2) any additional remedial action found to be necessary after the date of this transfer by applicable law that resulted from past activities of the GRANTOR shall be conducted by the GRANTOR.

(3) The GRANTOR reserves a right of access to the Property in any case in which remedial or corrective action by the GRANTOR is found to be necessary after the date of this conveyance.

6. **INDEMNIFICATION.**

. **UNEXPLODED ORDNANCE.**

8. **HABITAT MANAGEMENT.**

a. The Property contains habitat occupied and/or potentially occupied by several sensitive wildlife and plant species, some of which are listed or proposed for listing as threatened or endangered under the ESA. Applicable laws and regulations restrict activities that involve the potential loss of populations and habitats of listed species. To fulfill GRANTOR'S commitment in the Fort Ord Disposal and Reuse Environmental Impact Statement Record of Decision, made in accordance with the National Environmental Policy

Act of 1969, 42 U.S.C. 4321 et seq., this deed requires the conservation in perpetuity of these sensitive wildlife and plant species and their habitats consistent with the USFWS Biological Opinions for disposal of the former Fort Ord lands issued pursuant to Section 7 of the ESA on _____, 1994 and _____, 1997, respectively. By requiring GRANTEE, and its successors and assigns to comply with the Habitat Management Plan, GRANTOR intends to fulfill its responsibilities under Section 7 of the ESA property and to minimize future conflicts between species protection and economic development of portions of the Property.

b. GRANTEE acknowledges that it has received a copy of the HMP dated _____, 1997. The HMP, which is incorporated herein by reference, provides a basewide framework for disposal of lands within Former Fort Ord wherein development and potential loss of species and/or habitat is anticipated to occur in certain areas of the former Fort Ord (the HMP Development Areas) while permanent species and habitat conservation is guaranteed within other areas of the former Fort Ord (i.e., the HMP Reserve and Corridor parcels). Disposal of former Fort Ord lands in accordance with and subject to the restrictions of the HMP is intended to satisfy the Army's responsibilities under Section 7 of the Endangered Species Act.

c. The following parcels of land within the Property hereby conveyed or otherwise transferred to GRANTEE are subject to the specific use restrictions and/or conservation, management, monitoring, and reporting requirements identified for the parcel in the HMP:

1) Habitat Reserve Parcel(s) numbered:_____; and

2) Habitat Corridor Parcel(s) numbered: _____; and

3) Habitat reserves within the Development with Reserve Areas or Development Restrictions Parcels numbered: _____.

d. Any modifications of the boundaries of the Habitat Reserve Parcel(s), Habitat Corridor Parcel(s), or Habitat reserves within the Development with Reserve Areas or Development Restrictions Parcels must be approved in writing by the USFWS and must maintain the viability of the HMP for permanent species and habitat conservation.

e. The HMP describes existing habitat and the likely presence of sensitive wildlife and plant species that are treated as target species in the HMP. Some of the target species are currently listed or proposed for listing as threatened or endangered under the ESA. The HMP establishes general conservation and management requirements applicable to the property to conserve the HMP species. These requirements are intended to meet

mitigation obligations applicable to the property resulting from Army disposal and development reuse actions. Under the HMP, all target species are treated as if listed under the ESA and are subject to avoidance, protection, conservation and restoration requirements. GRANTEE shall be responsible for implementing and funding each of the following requirements set forth in the HMP as applicable to the property:

1) GRANTEE shall implement all avoidance, protection, conservation and restoration requirements identified in the HMP as applicable to the Property and shall cooperate with adjacent property owners in implementing mitigation requirements identified in the HMP for adjacent sensitive habitat areas.

2) GRANTEE shall protect and conserve the HMP target species and their habitats within the Property, and, other than those actions required to fulfil a habitat restoration requirement applicable to the Property, shall not remove any vegetation, cut any trees, disturb any soil, or undertake any other actions that would impair the conservation of the species or their habitats. GRANTEE shall accomplish the Resource Conservation Requirements and Management Requirements identified in Chapter 4 of the HMP as applicable to any portion of the Property.

3) GRANTEE shall manage, through an agency or entity approved by USFWS, each HMP parcel, or portion thereof, within the Property that is required in the HMP to be managed for the conservation of the HMP species and their habitats, in accordance with the provisions of the HMP.

4) GRANTEE shall either directly, or indirectly through its USFWS approved habitant manager, implement the management guidelines applicable to the parcel through the development of a site-specific management plane. The site-specific habitat management plan must be developed and submitted to USFWS (and, for non federal recipients, CDFG as well) for approval, within six months from the date the recipient obtains title to the parcel. Upon approval by USFWS (and , as appropriate, CDFG) the recipient shall implement the plan. Such plans may thereafter be modified through the CRMP process or with the concurrence of USFWS (and, as appropriate, CDFG) as new information or changed conditions indicate the need for adaptive management changes. The six month deadline for development and submission of a site-specific management plan may be extended by mutual agreement of USFWS, CDFG(if appropriate), and the recipient.

5) GRANTEE shall restrict access to the Property in accordance with the HMP, but shall allow access to the Property, upon reasonable notice of not less than 48

hours, by USFWS, and its designated agents, for the purpose of monitoring GRANTEE'S compliance with, and for such other purposes as are identified in, the HMP.

6) GRANTEE shall comply with all monitoring and reporting requirements set forth in the HMP that are applicable to the Property, and shall provide an annual monitoring report, as provided for in the HMP, to the Bureau of Land Management on or before November 1 of each year, or such other date as may be hereafter agreed to by USFWS and BLM.

7) GRANTEE shall not transfer, assign, or otherwise convey any portion of, or interest in, the Property subject to the habitat conservation, management or other requirements of the HMP, without the prior written consent of GRANTOR, acting by and through the USFWS (or designated successor agency), which consent shall not be unreasonably withheld. GRANTEE covenants for itself, its successors and assigns, that it shall include and otherwise make legally binding, covenants, conditions, restrictions and requirements of this deed and the provisions of the HCP in any deed, lease, right of entry, or other legal instrument by which Grantee divests itself of any interest in all or a portion of the Property. The covenants, conditions, restrictions and requirements of this deed and the provisions of the HMP shall run with the land. The covenants, conditions, restrictions and requirements of this deed and the HMP benefit the lands retained by GRANTOR that formerly comprised Fort Ord, as well as the public generally. Management responsibility for the property may only be transferred as a condition of the transfer of the Property, with the consent of the USFWS. USFWS may require the establishment of a perpetual trust fund to pay for the management of the property as a condition of transfer of management responsibility from GRANTEE.

9. This conveyance is made subject to the following ENFORCEMENT PROVISIONS

a. GRANTOR hereby reserves a reversionary interest in all of the Property. If GRANTOR (or its assigns), acting through the USFWS or a designated successor agency, determines that those parcels identified in Paragraph 8.c. above or any other portion of the Property subject to a restriction or other requirement of the HMP is not being conserved and/or managed in accordance with the provisions of the HMP, then GRANTOR may, in its discretion, exercise a right to reenter the Property, or any portion thereof, in which case, the Property, or those portions thereof as to which the right of reentry is exercised, shall revert to GRANTOR. In the event that GRANTOR exercises its right of reentry as to all or portions of the Property, GRANTEE shall

execute any and all documents that GRANTOR deems necessary to perfect or provide recordable notice of the reversion and for the complete transfer and reversion of all right, title and interest in the Property or portions thereof. Subject to applicable federal law, GRANTEE shall be liable for all costs and fees incurred by GRANTOR in perfecting the reversion and transfer of title. Any and all improvements on the Property or those portions thereof reverting back to GRANTOR shall become the property of GRANTOR and GRANTEE shall not be entitled to any payment therefor.

b. In addition to the right of reentry reserved in paragraph 9.a. above, if GRANTOR (or its assigns), acting through the USFWS or a successor designated agency, determines that GRANTEE is violating or threatens to violate the provisions of paragraph 8 of this deed or the provisions of the HMP, GRANTOR shall provide written notice to GRANTEE of such violation and demand corrective action sufficient to cure the violation, and where the violation involves injury to the Property resulting from any use or activity inconsistent with the provisions of paragraph 8 of this deed or the provisions of the HMP, to restore the portion of the Property so injured. If GRANTEE fails to cure a violation within sixty (60) days after receipt of notice thereof from GRANTOR, or under circumstances where the violation cannot reasonably be cured within a sixty (60) day period, or fails to continue to diligently cure such violation until finally cured, GRANTOR may bring an action at law or in equity in a court of competent jurisdiction to enforce the covenants, conditions, reservations and restrictions of this deed and the provisions of the HMP, to enjoin the violation, by temporary or permanent injunction, to recover any damages to which it may be entitled for violation of the covenants, conditions reservations and restrictions of this deed or the provisions of the HMP, or injury to any conservation value protected by this deed or the HMP, and to require the restoration of the Property to the condition that existed prior to such injury. If GRANTOR, in its good faith and reasonable discretion, determines that circumstances require immediate action to prevent or mitigate significant damage to the species and habitat conservation values of the Property, GRANTOR may pursue its remedies under this paragraph without prior notice to GRANTEE or without waiting for the period provided for the cure to expire. GRANTOR'S rights under this paragraph apply equally in the event of either actual or threatened violations of covenants, conditions, reservations and restrictions of this deed or the provisions of the HMP, and GRANTEE acknowledges that GRANTOR'S remedies at law for any of said violations are inadequate and GRANTOR shall be entitled to the injunctive relief described in this paragraph, both prohibitive and mandatory, in addition to such other relief to which GRANTOR may be entitled, including specific performance of the covenants, conditions, reservations and restrictions of this deed and the provisions of the HMP.

c. Enforcement of the covenants, conditions, reservations and restrictions in this deed and the provisions of the HMP shall be at the discretion of GRANTOR, and any forbearance by GRANTOR to exercise its rights under this deed and the HMP in the event of any breach or violation of any provision of this deed or the HMP by GRANTEE shall not be deemed or construed to be a waiver by GRANTOR of such provision or of any subsequent breach or violation of the same or any other provision of this deed or the HMP or of any of GRANTOR'S rights under this deed or the HMP. No delay or omission by GRANTOR in the exercise of any right or remedy upon any breach or violation by GRANTEE shall impair such right or remedy or be construed as a waiver.

d. In addition to satisfying Army's responsibilities under Section 7 of the Endangered Species Act, GRANTEE'S compliance with the covenants, conditions, reservations and restrictions contained in this deed and with the provisions of the HMP are intended to satisfy mitigation obligations included in any future incidental take permit issued by USFWS pursuant to Section 10(a)(1)(B) of the Endangered Species Act which authorizes the incidental take of a target HMP species on the Property. GRANTEE acknowledges that neither this deed nor the HMP authorizes the incidental take of any species listed under the ESA. Authorization to incidentally take any target HMP wildlife species must must be obtained by GRANTEE separately, or through participation in a broader habitat conservation plan and Section 10(a)(1)(B) permit based on the HMP and approved by FWS.

10. **AIR NAVIGATION RESTRICTION.**

11. **NON-DISCRIMINATION.**

THE CONDITIONS, RESTRICTIONS, and COVENANTS set forth in this deed are a binding servitude on the herein conveyed Property and will be deemed to run with the land in perpetuity. Restrictions, stipulations and covenants contained herein will be inserted by the GRANTEE verbatim or by express reference in any deed or other legal instrument by which it divests itself of either the fee simple title or any other lesser estate in the Property or any portion thereof. All rights and powers reserved to the GRANTOR, and all references in this deed to GRANTOR shall include its successor in function. The GRANTOR may agree to waive, eliminate, or reduce the obligations contained in the covenants.

THIS CONVEYANCE IS MADE SUBJECT TO all covenants, easements, reservations, and encumbrances, whether or not of record, and any facts which a physical inspection or accurate survey of the Property may disclose.

19. LICENSE AGREEMENT. CSU shall enter into a license agreement, subject to the approval of the Assistant Secretary of Army for Installations, Logistics, and Environment for use of Building Nos. 4562 and 4552, which are outside the subject Property. These facilities house the hot water boilers that provide heat and hot water to certain facilities located within the Property. This license arrangement shall serve as a temporary measure until such time as these facilities can be transferred to CSU or some other permanent arrangements prevail. The license is at Appendix D.

20. HABITAT MANAGEMENT. CSU will minimize the destruction, loss, or degradation of the wildlife habitat area in accordance with the requirements of this agreement until such time as the Basewide Habitat Management Plan (HMP) is signed by all the participating parties. After this plan is formalized and signed by all applicable parties, CSU will cooperate with adjacent property owners in implementation mitigation requirements identified in the HMP for adjacent sensitive habitat areas. CSU agrees to be held responsible for those mitigation measures related to CSU as described in the Environmental Impact Statement and Record of Decision for the Fort Ord Disposal and Reuse (December 1993) and CSU's Record of CEQA Decision (May 17, 1994). This agreement provides for interim protection for designated areas of habitat by CSU within the lands transferred to them as follows:

a. The parcel being transferred to California State University Monterey Bay (CSU) contains habitat for species that have special status in terms of state and federal protection. The Army and U. S. Fish and Wildlife Service Office of Endangered Species (FWS) have reached agreement on a Basewide Habitat Management Plan (HMP) for the preservation of these species and avoidance of a jeopardy biological opinion from FWS for the Army action of disposal of lands at Fort Ord. The HMP requires that portions of land to be transferred to California Department of Parks and Recreation, U. S. Bureau of Land Management, University of California Santa Cruz, and County of Monterey will be improved and managed to increase habitat for these and other special status species to mitigate for the loss of habitat on other lands at Fort Ord that will be made available for transfer to other agencies with a future development entitlement for destruction of special species habitat. Once the plan is signed and implemented by all participating parties to the HMP, the habitat within the CSU lands (and other parcels not required to maintain habitat long term for the HMP) may be developed and have the

habitat removed or disturbed.

b. The HMP describes the existing special status habitat and resources present within the Property. A map, found at enclosure 2 to the HMP, describes those areas within the Property that have presently undeveloped lands having natural habitat important for these species that need to be managed as INTERIM HABITAT AREAS. These areas do not include all areas of special status plant habitat, and exclude the habitat within 150 feet of the existing housing areas.

c. The areas described on enclosure 2 will not be developed or subjected to ground or vegetation disturbing activities. Non vehicular traffic will be allowed. Motorized vehicles will be prohibited from entering the areas. No roads, firebreaks, buildings or other construction will be allowed to take place on these interim habitat areas until the HMP is fully implemented. In the event that the HMP is not implemented in a timely fashion and CSU desires to use some of these areas for development, the Army and CSU shall confer and if needed develop a strategy for CSU to provide for offsetting mitigation agreeable to the Army and FWS prior to being allowed to develop any of the interim habitat areas.

21. UNEXPLODED ORDNANCE. An archives search indicated that there was no history of ordnance activity being conducted on the CSU Phase I parcel. Other areas of Fort Ord have been used in the past for ordnance training and testing. Reuse of these areas may be restricted due to the presence of ordnance materials. CSU should exercise caution in any earth-moving activity. Should CSU discover any such material on the Property, it shall not attempt to remove or destroy it as it might be dangerous, but shall notify the local Police Department and the Provost Marshall at the Presidio of Monterey and competent U.S. Army Explosive Ordnance personnel will promptly be dispatched to dispose of the material properly.

22. ACCESS TO PROPERTY. Access requirements and access routes to and from the Property shall be coordinated with the Government until such time as security fences have been moved and access can be attained without entering the military complex portion of Fort Ord. Until such time as is mutually agreed by each party, accommodations for unrestricted ingress and egress to the Property shall be coordinated with and agreed to by the Commander of the Presidio of Monterey and CSU administrators.

g. Endangered Species

The Grantee acknowledges and agrees to implement the following provisions, as applicable, relative to endangered species:

1) The Property is within a Habitat Management Plan (HMP) Development Area. No resource conservation requirements are associated with the HMP for these parcels. However, small pockets of habitat may be preserved within and around the Property.

2) The Biological Opinion identified sensitive biological resources that may be salvaged for use in restoration activities within reserve areas, and allows for development of the Property.

3) The HMP does not exempt the Grantee from complying with environmental regulations enforced by Federal, State, or local agencies. These regulations could include obtaining the Endangered Species Act (ESA) (16 U.S.C. §§ 1531-1544 et seq.) Section 7 or Section 10(a)permits from the U.S. Fish and Wildlife Service (USFWS); complying with prohibitions against take of listed animals under ESA Section 9; complying with prohibitions against the removal of listed plants occurring on federal land or the destruction of listed plants in violation of any state laws; complying with measures for conservation of state-listed threatened and endangered species and other special-status species recognized by California Department of Fish and Game (DFG) under the California ESA, or California Environmental Quality Act (CEQA); and, complying with local land use regulations and restrictions.

4) The HMP serves as a management plan for both listed and candidate species, and is a prelisting agreement between the USFWS and the local jurisdiction for candidate species that may need to be listed because of circumstances occurring outside the area covered by the HMP.

5) Implementation of the HMP would be considered suitable mitigation for impacts to HMP species within HMP prevalent areas and would facilitate the USFWS procedures to authorize incidental take of these species by participating entities as required under ESA Section 10. No further mitigation will be required to allow development on the Property unless species other than HMP target species are proposed for listing or are listed.

6) The HMP does not authorize incidental take of any species listed as threatened or endangered under the ESA by entities acquiring land at the former Fort Ord. The USFWS has recommended that all nonfederal entities acquiring land at former Fort Ord apply for ESA Section 10(a)(1)(B) incidental take permits for the species covered in the HMP. The definition of "take" under the ESA includes to harass, harm, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Although the USFWS will not require further mitigation from entities that are in conformance with the HMP, those entities without incidental take authorization would be in violation of the ESA if any of their actions resulted in the take of a listed animal species. To apply for a Section 10 (a)(1)(B) incidental take permit, an entity must submit an application form (Form 3-200), a complete description of the activity sought to be authorized, the common and scientific names of the species sought to be covered by the permit, and a conservation plan (50 CFR 17.22 [b]).

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Page # 38 (1 pg.)

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Document # BW-1787

Table S-3. HMP Target Species Supported by Habitat Within HMP Reserve Areas, Corridors, and Development Areas

	Plants											Animals						
Parcel	Sand Gilia	Eastwood's Ericameria	Coast Wallflower	Seaside Bird's Beak	Robust Spineflower	Monterey Spineflower	Monterey Ceanothus	Sandmat Manzanita	Toro Manzanita	Hooker's manzanita	Yadon's Piperia	California Linderiella	California Tiger Salamander	Western Snowy Plover	California Red-Legged Frog	Monterey Ornate Shrew	California Black Legless Lizard	Smith's Blue Butterfly
State Parks Reserve			X		X	X		X						X			X	X
Landfill Development with Reserve	X		X			X	X	X								X	X	
UC/NRS Fort Ord Natural Reserve	X	X	X			X	X	X	X							X	X	
Marina Reserve	X					X		X							X	X	X	
East Garrison Reserve	X	X	X	X		X	X	X	X	X						X	X	
Habitat Corridor	X					X		X				X	X		X	X		
BLM Natural Resource Management Area	X	X	X	X		X	X	X	X	X		X	X		X	X	X	
Caltrans State Route 68 Easement	X					X	X	X	X	X		X	X			X		
MPRPD Reserve		X		X		X	X	X									X	
Caltrans State Route 1 Area	X	X	X			X	X	X			X						X	
Development Areas	X	X	X	X		X	X	X	X	X	X	X	X		X	X	X	X

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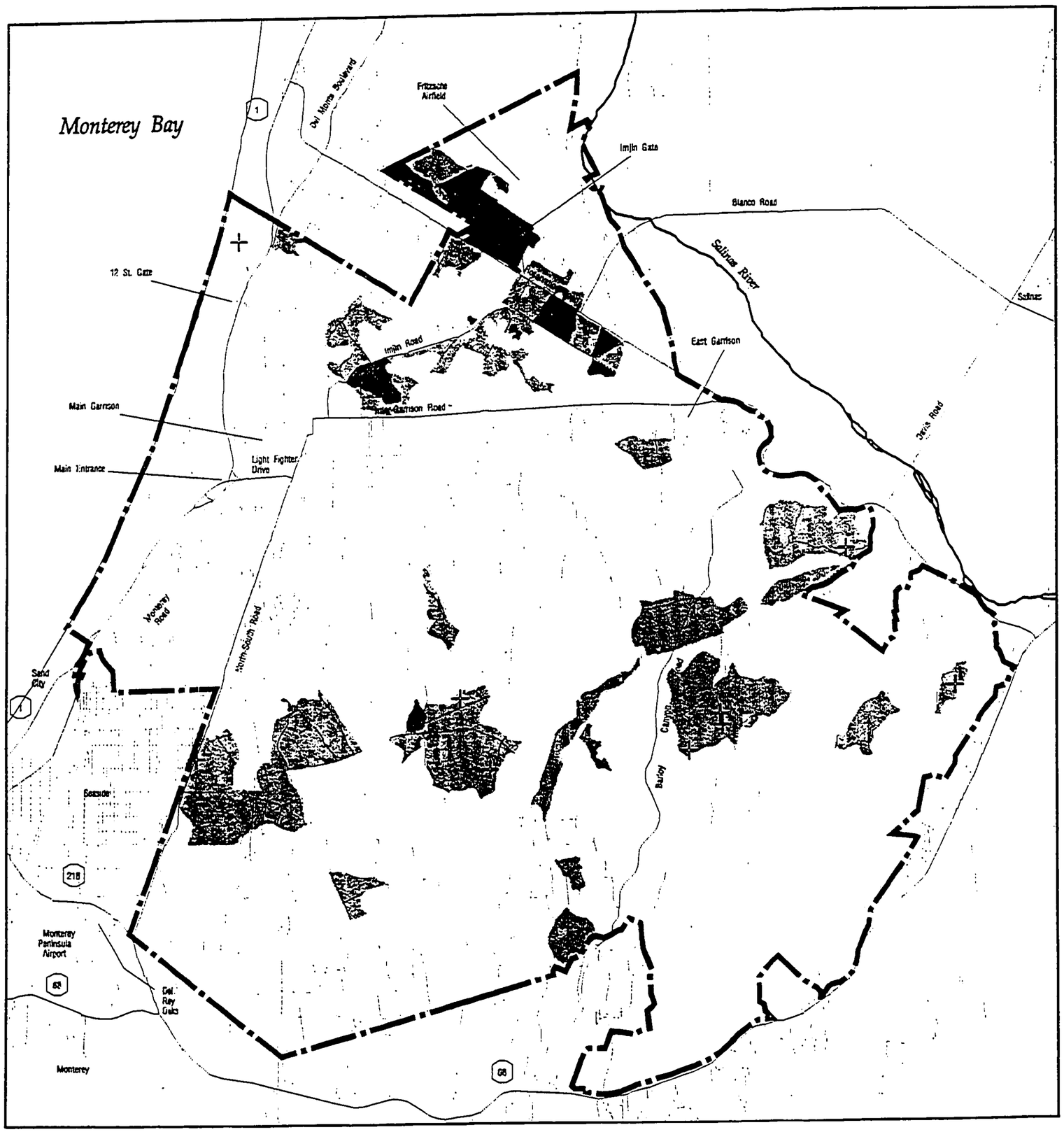
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Document # BW-1787

Figure B-1a

Known Distribution of Sand Gilia *(Gilia tenuiflora* ssp. *arenaria)* at Former Fort Ord



Listing Status

Federal - Endangered
State - Threatened
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*
- *Specific Population Location*

Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

If this image is not as legible as this overlay, it's due to the poor quality of the original document

Figure B-1b

Sand Gilia Populations
Identified in 1993 Spring Surveys



Legend

- Survey Boundary
- Sand Gilia Population Location and Approximate Number of Individual Plants
- Land Use Boundaries

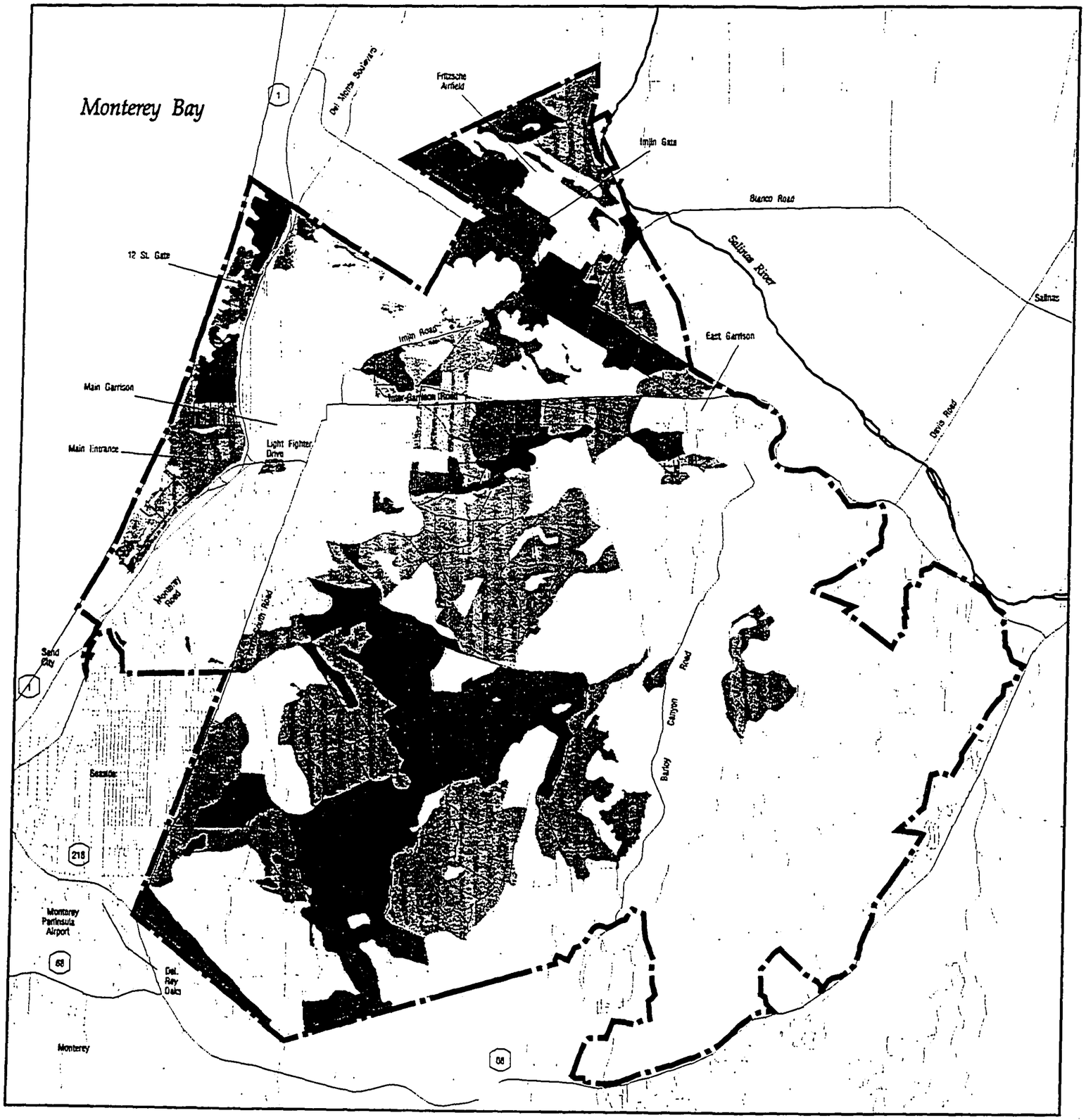
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US Army Corps of Engineers
Sacramento District

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Figure B-2

Known Distribution of Monterey Spineflower *(Chorizanthe pungens* var. *pungens)* at Former Fort Ord



Listing Status

Federal - Threatened
State - none
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

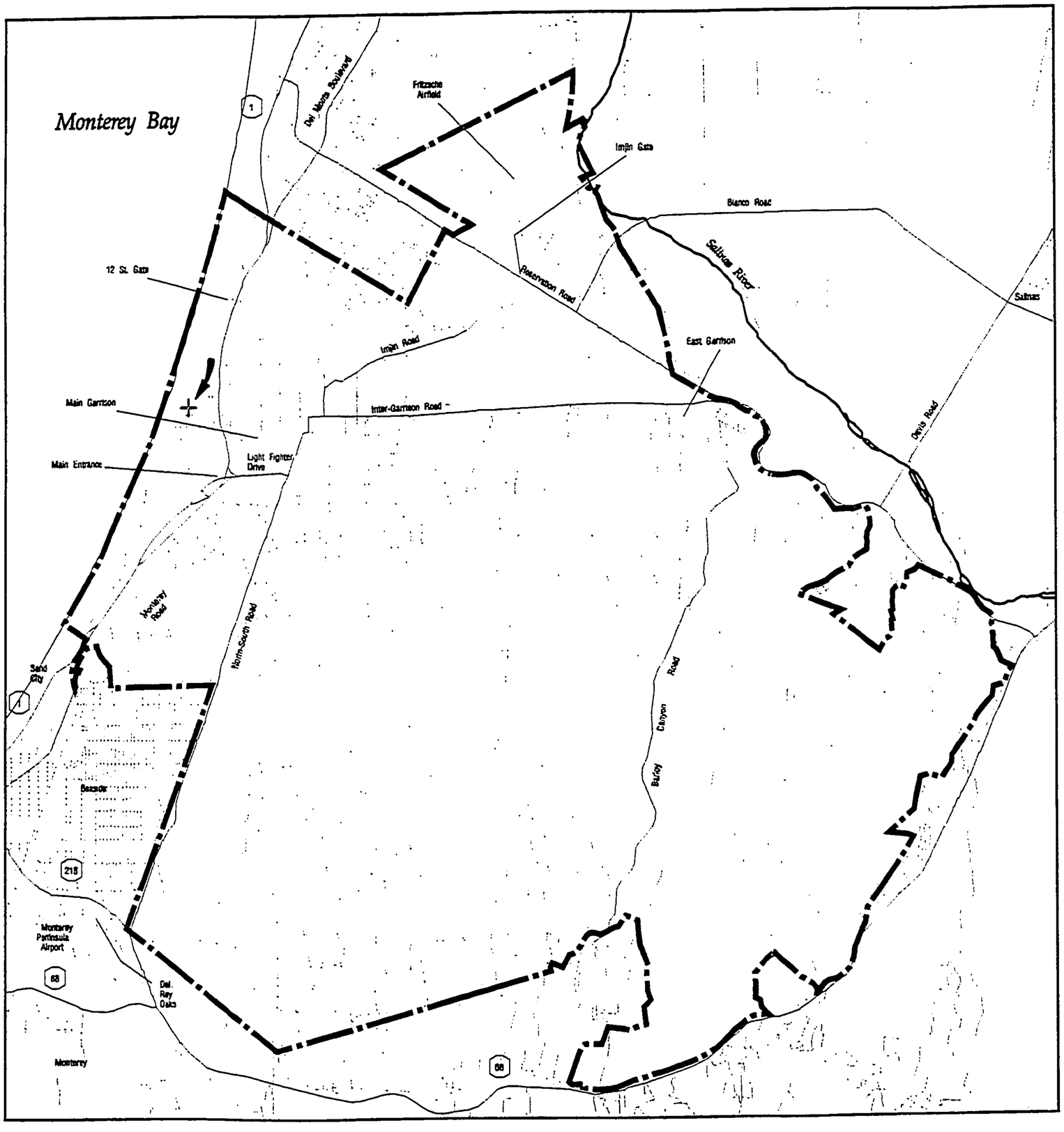
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0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

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Figure B-3

Known Distribution of Robust Spineflower
(Chorizanthe robusta var. *robusta)*
at Former Fort Ord



Listing Status

Federal - Endangered
State - none
CNPS - 4

Legend

Specific Population Location

Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

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Figure B-4

Known Distribution of Seaside Bird's-beak
(Cordylanthus rigidus var. littoralis)
at Former Fort Ord

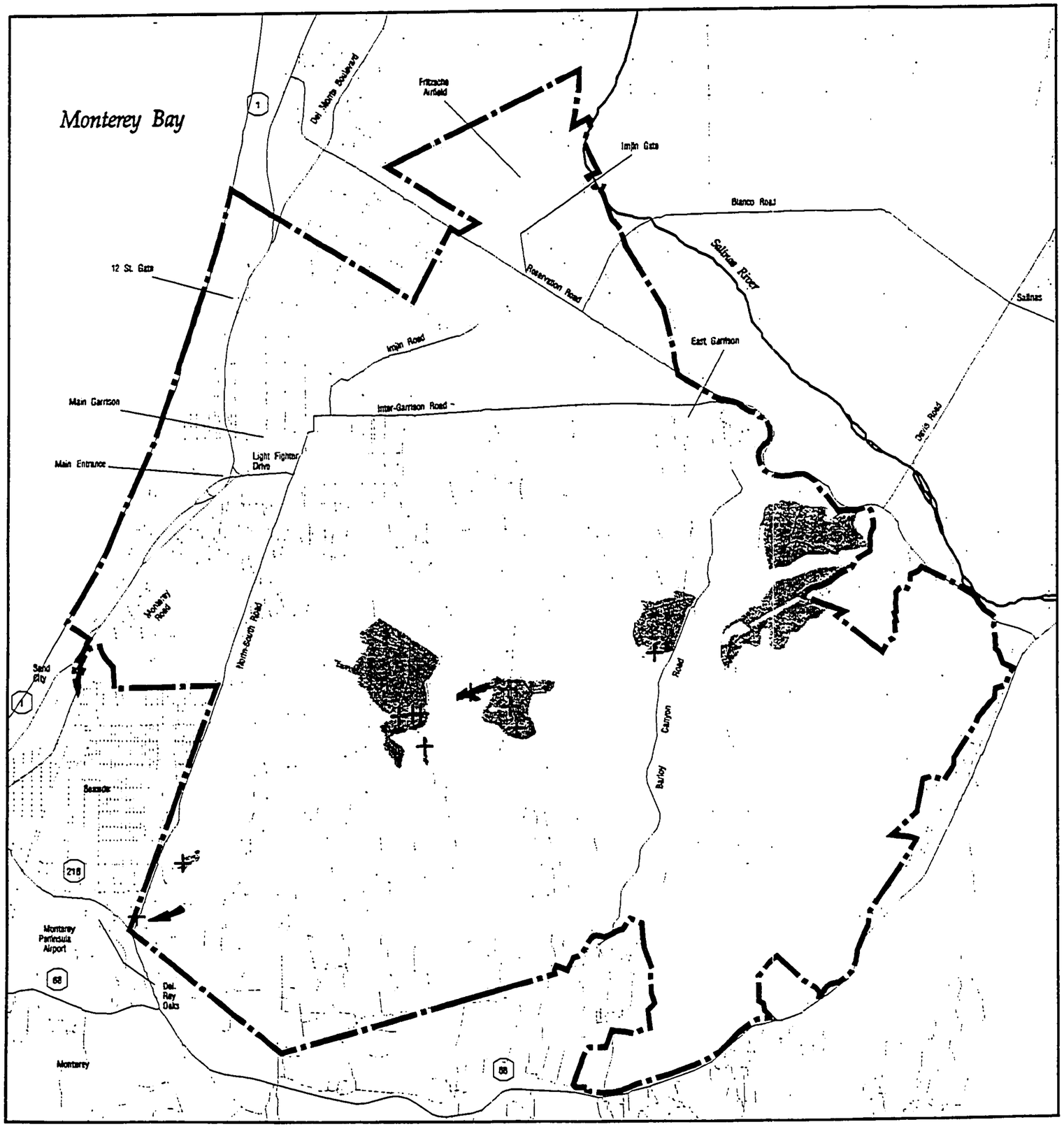
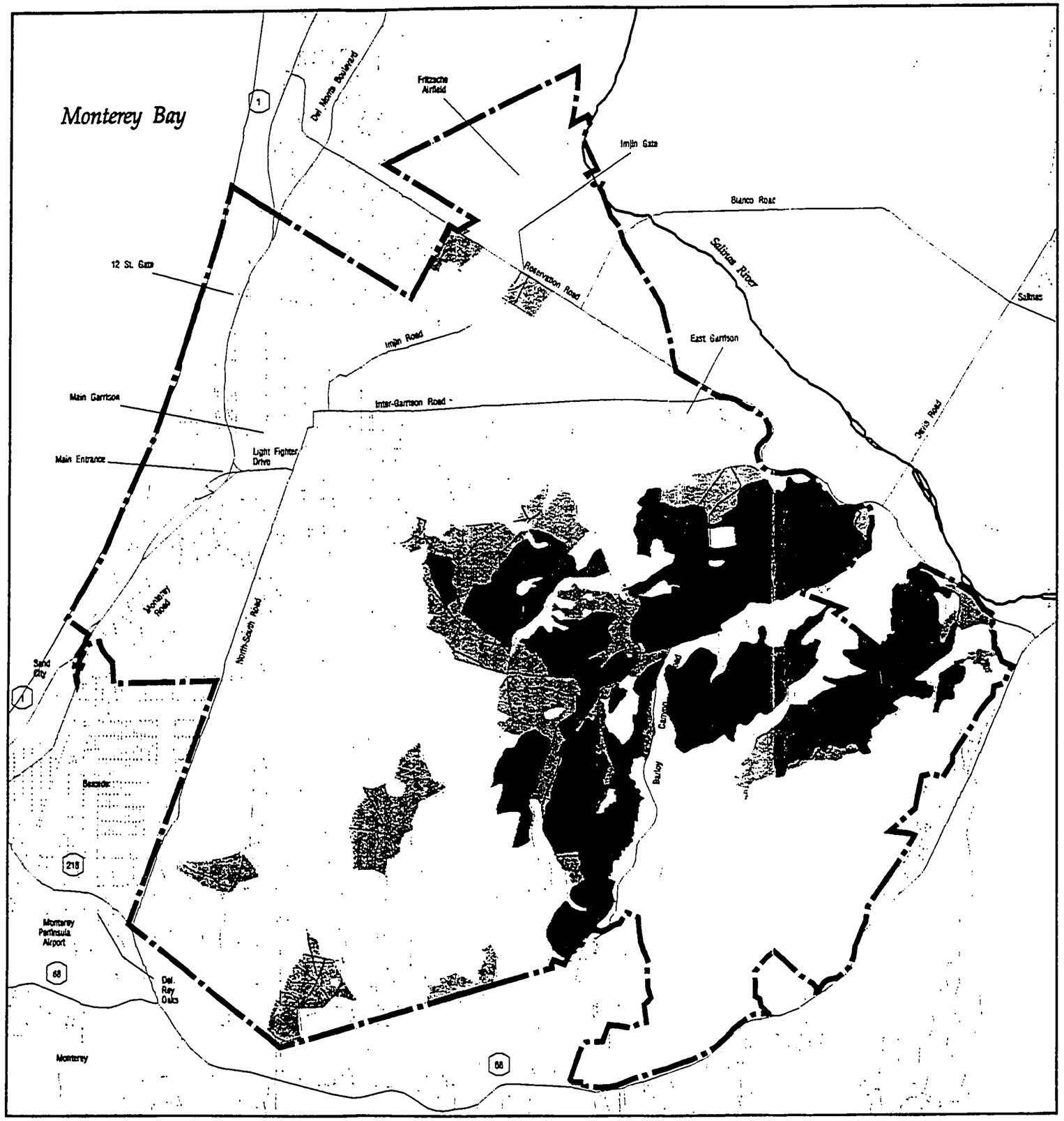

Monterey Bay
1
Del Monte Boulevard
Fritzsche Airfield
Imjin Gate
Blanco Road
Salinas River
Reservation Road
12 St. Gate
Salinas
Imjin Road
East Garrison
Main Garrison
Inter-Garrison Road
Davis Road
Main Entrance
Light Fighter Drive
Monterey Road
Hilby
Hilby
Hilby

Figure B-5

Known Distribution of Toro Manzanita
(Arctostaphylos montereyensis)
at Former Fort Ord



Listing Status

Federal - none
State - none
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

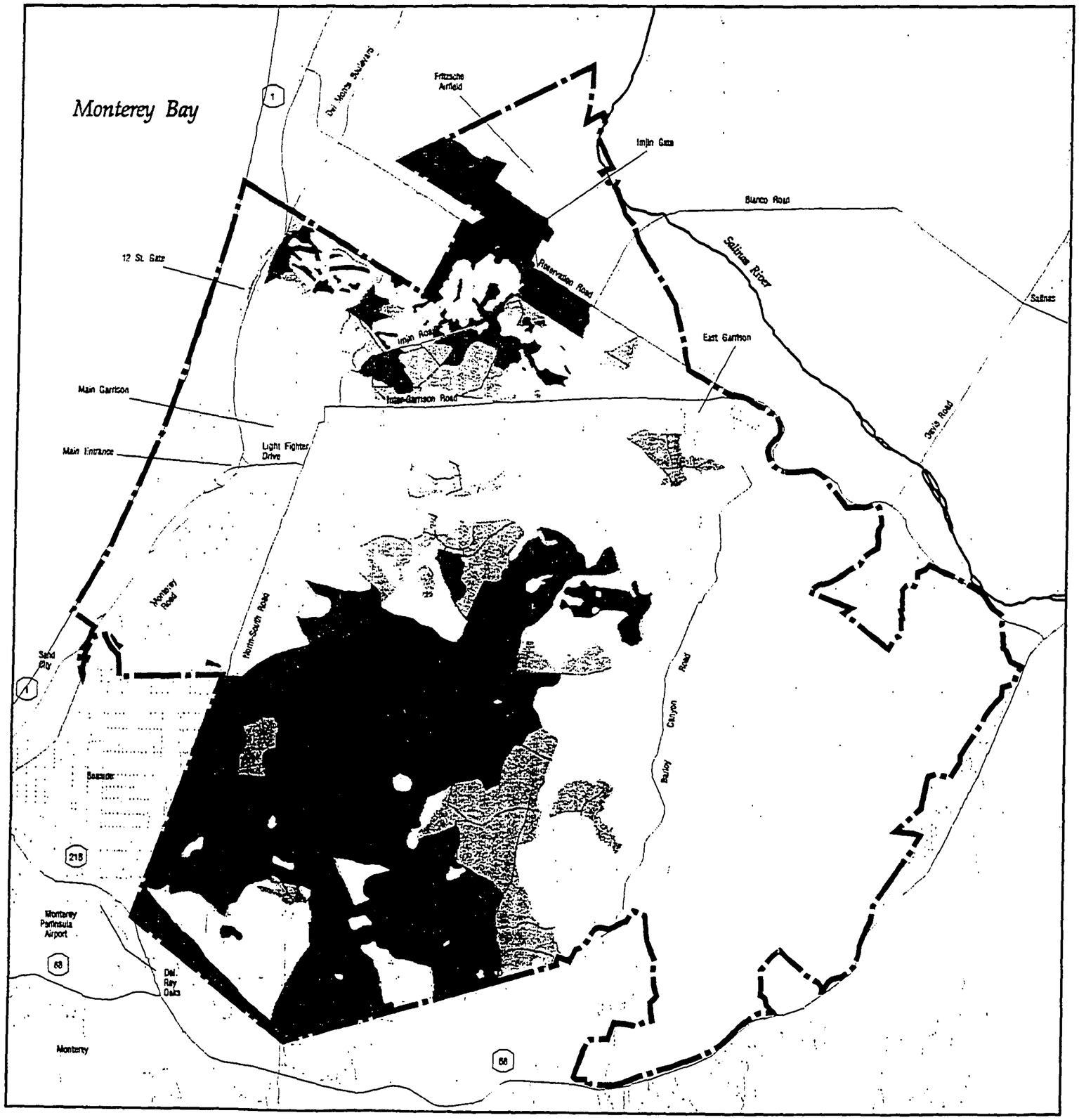
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0 1 2 3 kilometers

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Figure B-6

Known Distribution of Sandmat Manzanita
(Arctostaphylos pumila) at Former Fort Ord



Listing Status
Federal - none
State - none
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

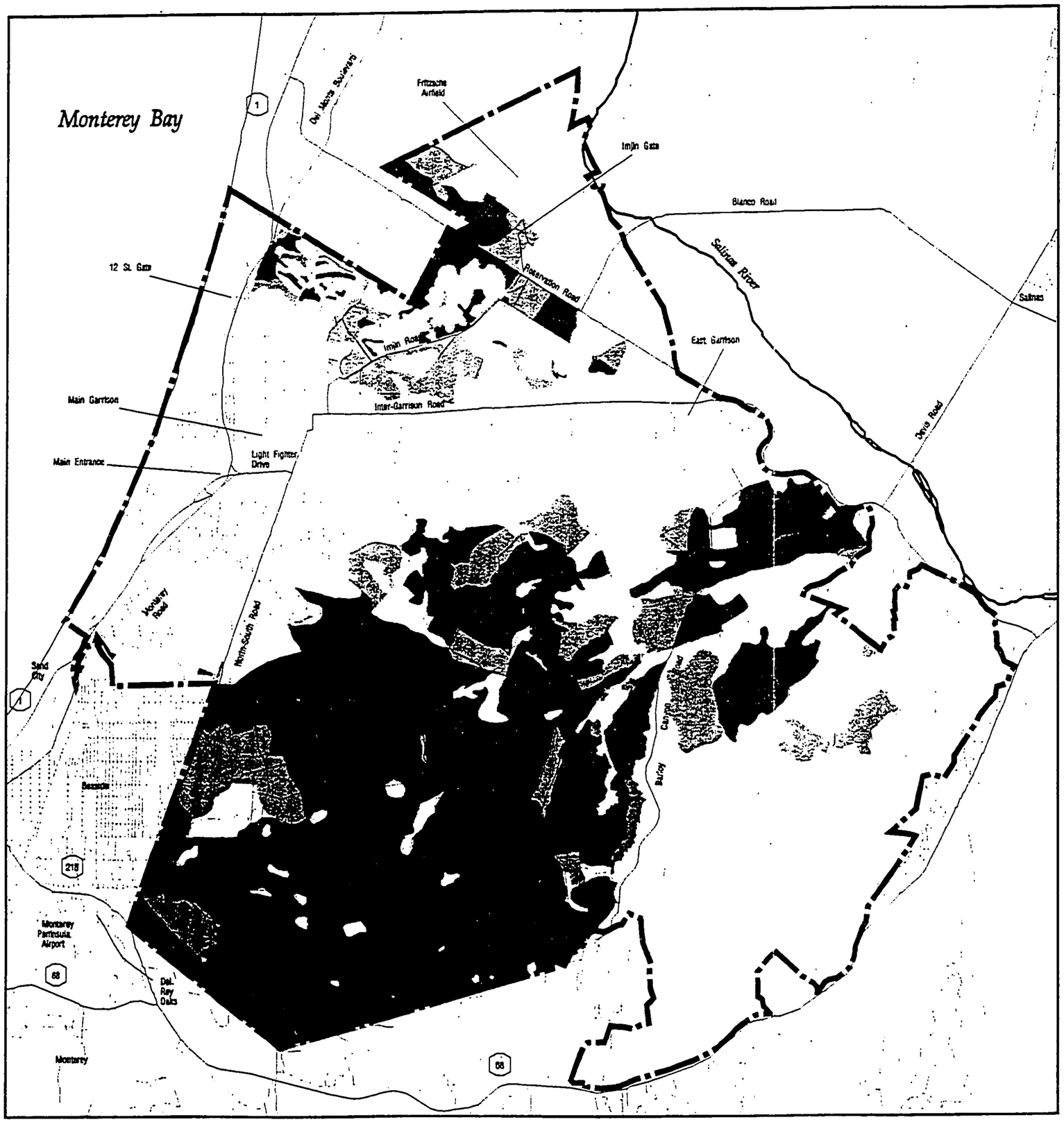
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0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

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Figure B-7

Known Distribution of Monterev Ceanothus
(Ceanothus rigidus) at Former Fort Ord



Listing Status
Federal - none
State - none
CNPS - 4

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

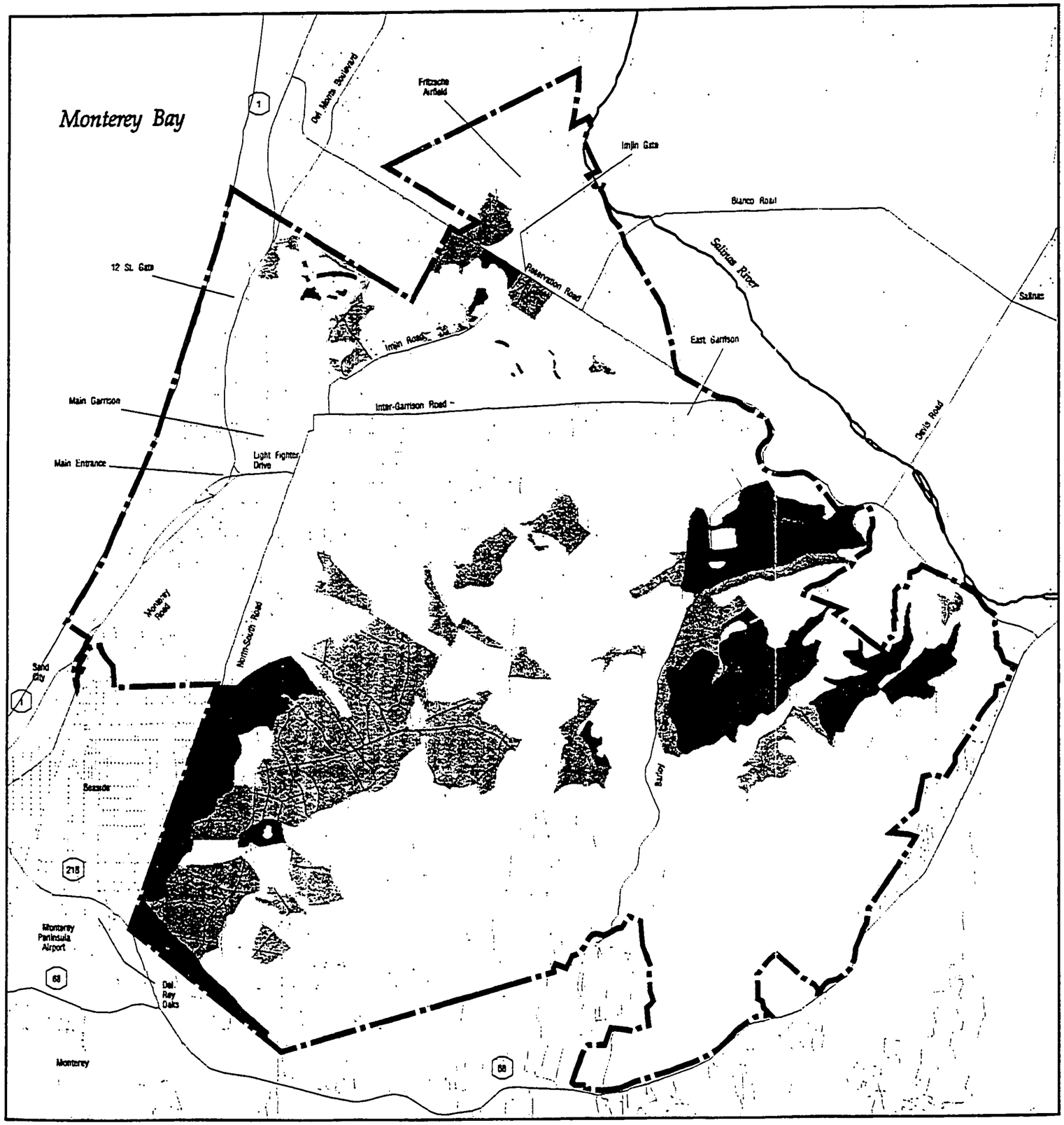
Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

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Figure B-8

Known Distribution of Eastwood's Ericameria *(Ericameria fasciculata)* at Former Fort Ord



Listing Status
Federal - none
State - none
CNPS - 1B

Density of Occurrence

- ***Low Density***
- ***Medium Density***
- ***High Density***

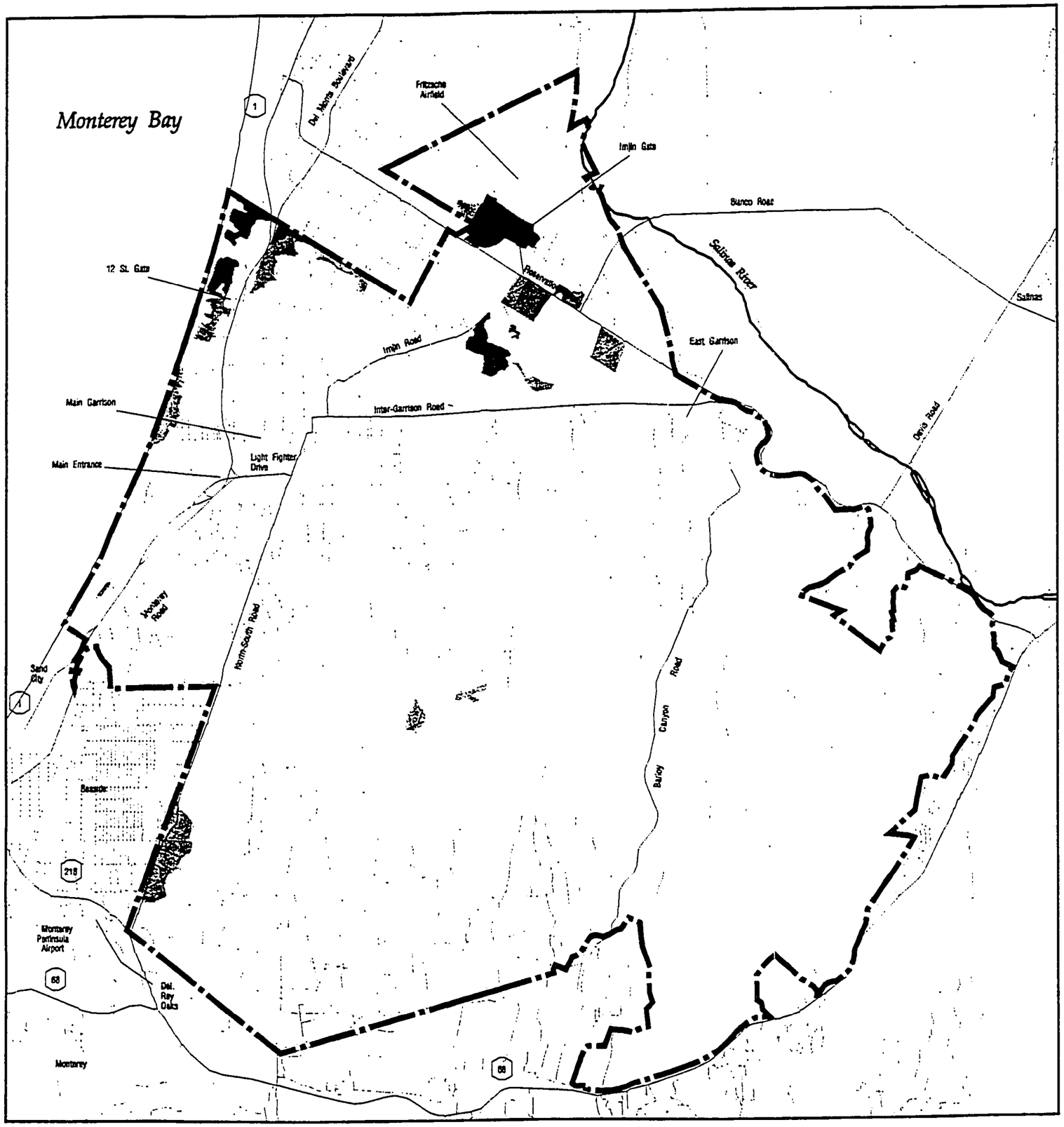
Scale 1:60,000

0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

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Figure B-9

Known Distribution of Coast Wallflower
(Erysimum ammophilum) at Former Fort Ord



Listing Status

Federal - none
State - none
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

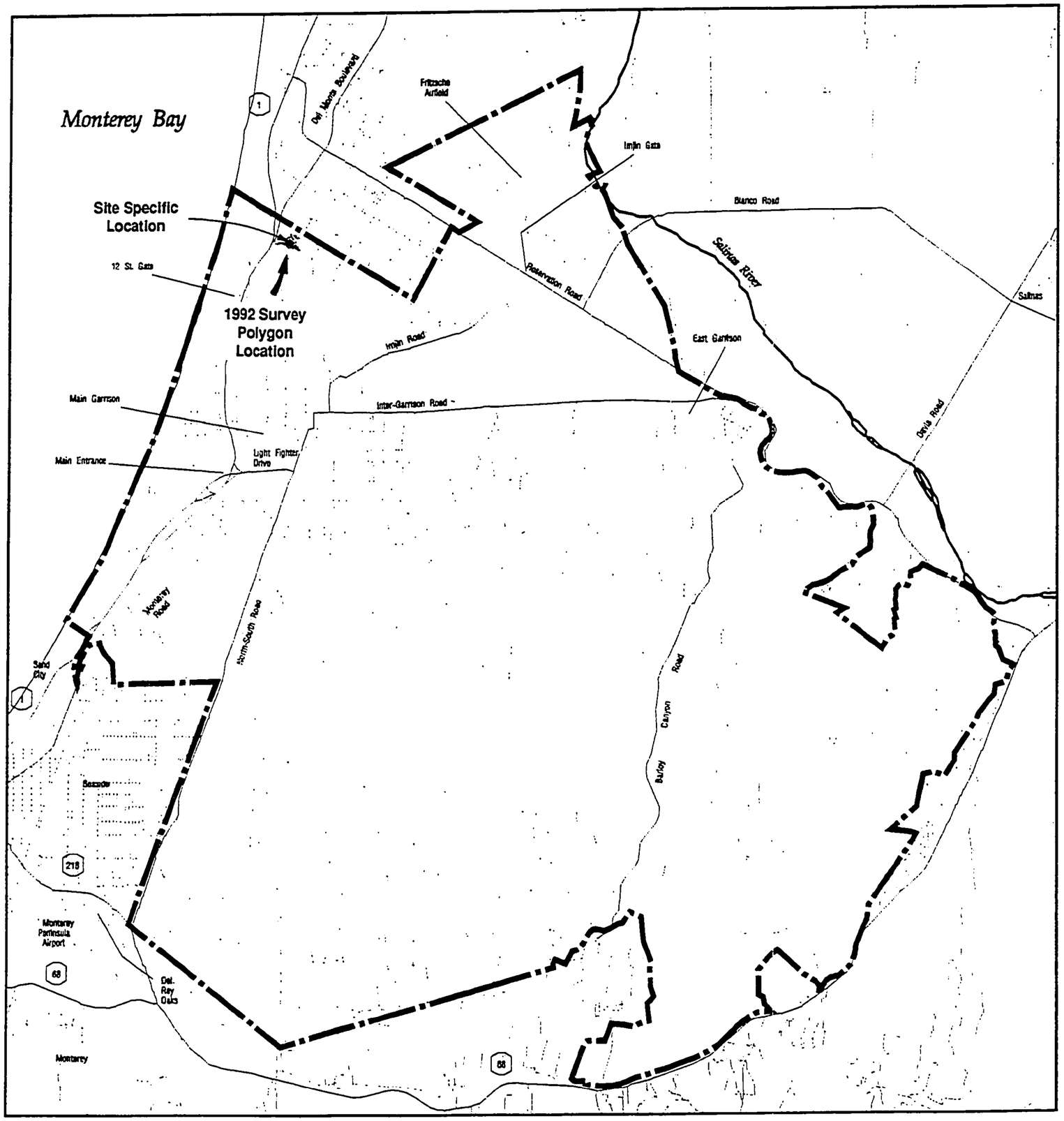
Scale 1:60,000

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0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

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Figure B-10

Known Distribution of Yadon's Piperia
(Piperia yadoni) at Former Fort Ord



Listing Status
Federal - Proposed Endangered
State - none
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

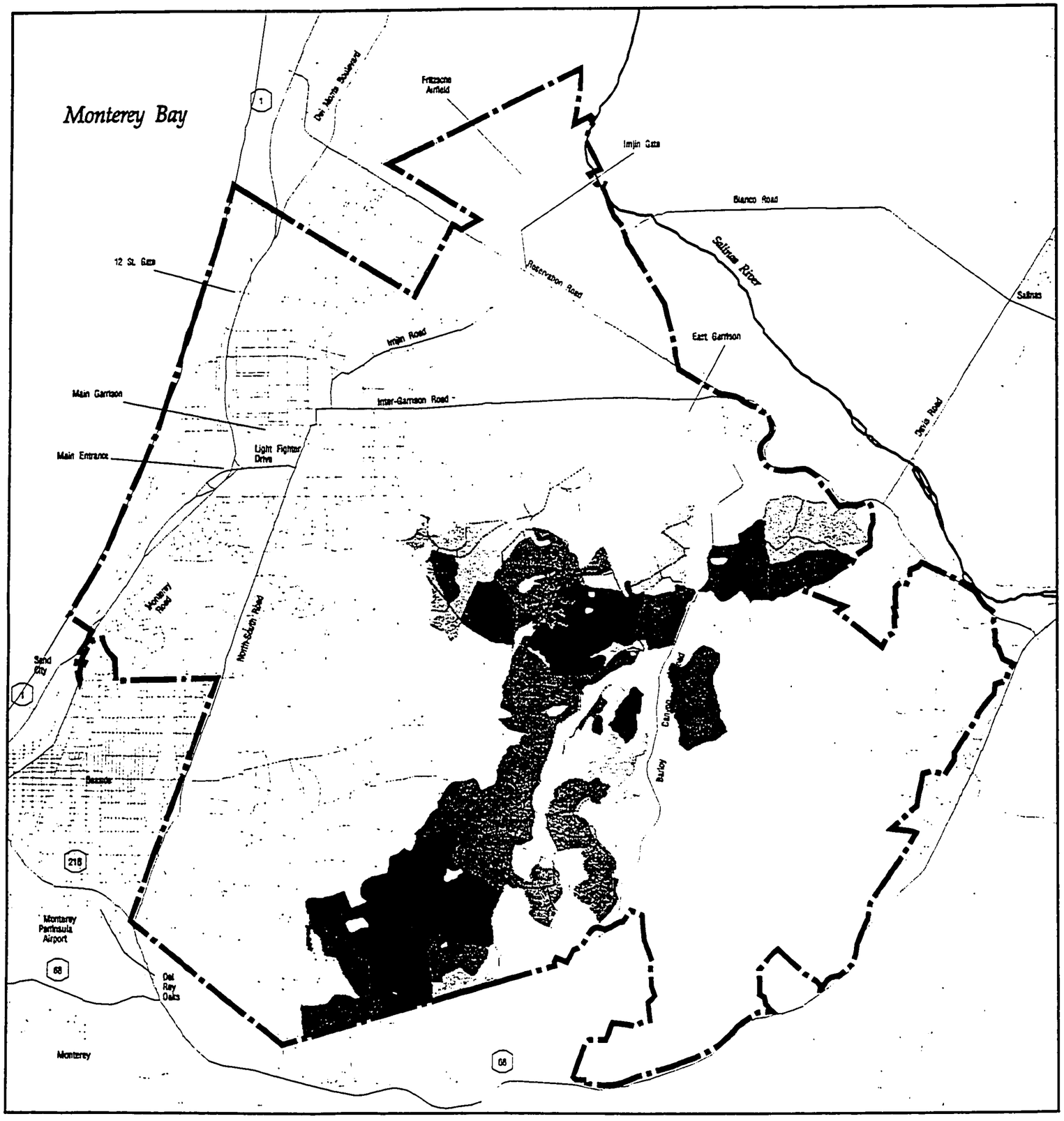
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0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

If this image is not as legible as this overlay, it's due to the poor quality of the original document

Figure B-11

Known Distribution of Hooker's Manzanita
(Arctostaphylos hookeri ssp. *hookeri)*
at Former Fort Ord



Listing Status
Federal - none
State - none
CNPS - 1B

Density of Occurrence

- *Low Density*
- *Medium Density*
- *High Density*

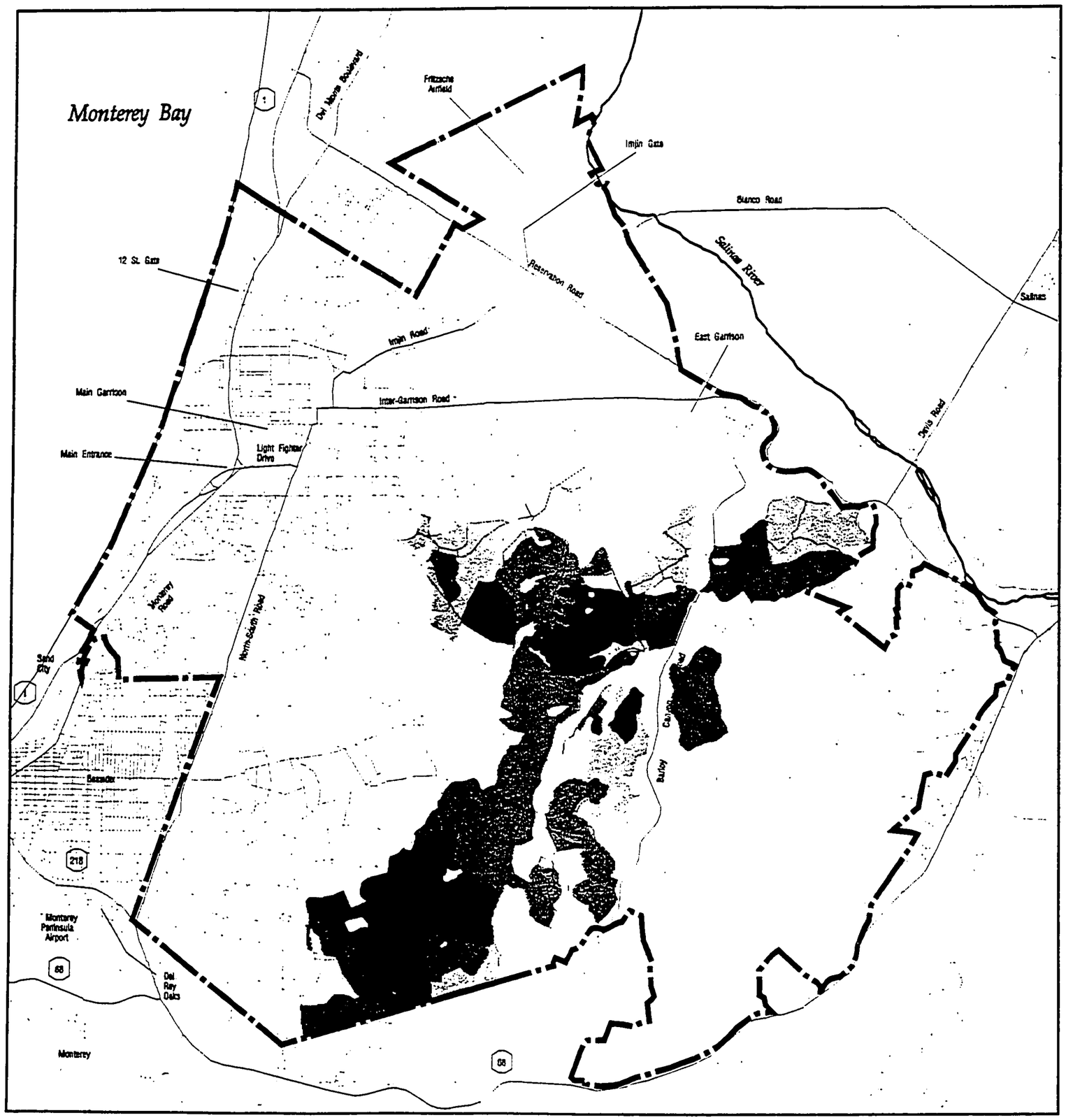
Scale 1:60,000

0 1 2 3 miles
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Scale 1:60,000

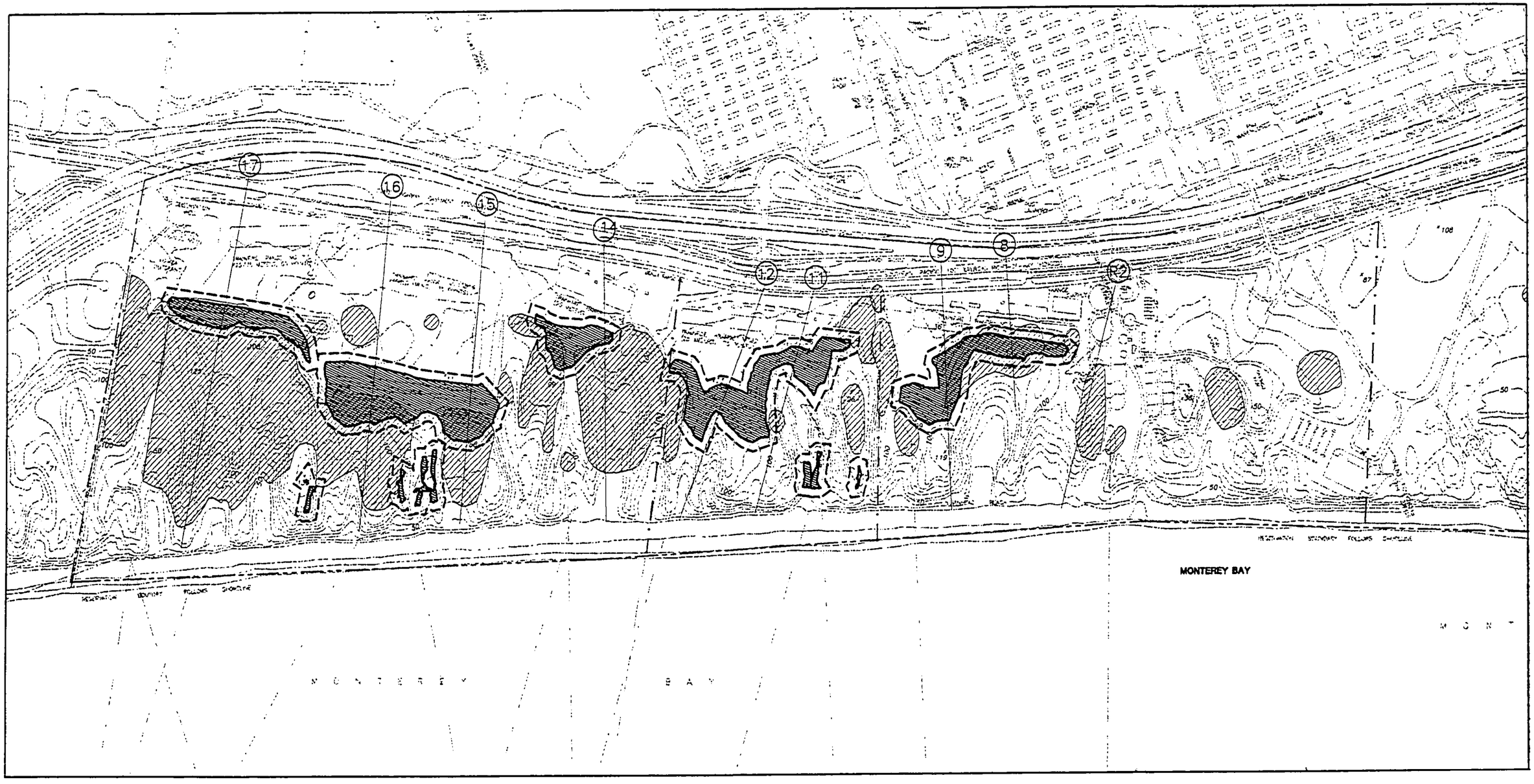
0 1 2 3 miles
0 2,500 5,000 7,500 10,000 feet
0 1 2 3 kilometers

If this image is not as legible as this overlay, it's due to the poor quality of the original document

Page # 194 (3 pgs.)

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Document # BW-1787



KEY MAP

EXPLANATION

- SITE BOUNDARY
- STUDY AREA BOUNDARY
- 160 GROUND SURFACE CONTOUR (FEET ABOVE MEAN SEA LEVEL, CONTOUR INTERVAL 10 FEET)
- BUILDING
- HEAVY, 10% OR GREATER SURFACE AREA COVERED
- 50 FOOT OFFSET LINE FROM 10% CONCENTRATION BOUNDARY
- BUCKWHEAT AREAS
- (2) RANGE / TRANSECT
- B1 BACKGROUND SAMPLE LOCATION

NOTE:
REMEDIATION AREAS DO NOT INCLUDE CONSTRUCTION ACCESS ROUTS OR SITE REGRADING AREAS.

300 0 300 600
APPROXIMATE SCALE IN FEET

LEGEND

- Buckwheat Areas (approximate location based on 1995 survey)
- Proposed Lead Removal Areas

Figure B-19

Approximate Location of Lead Removal Areas and Buckwheat Habitat within the Beach Range Area

If this image is not as legible as this overlay, it's due to the poor quality of the original document

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DATE: | DATE:

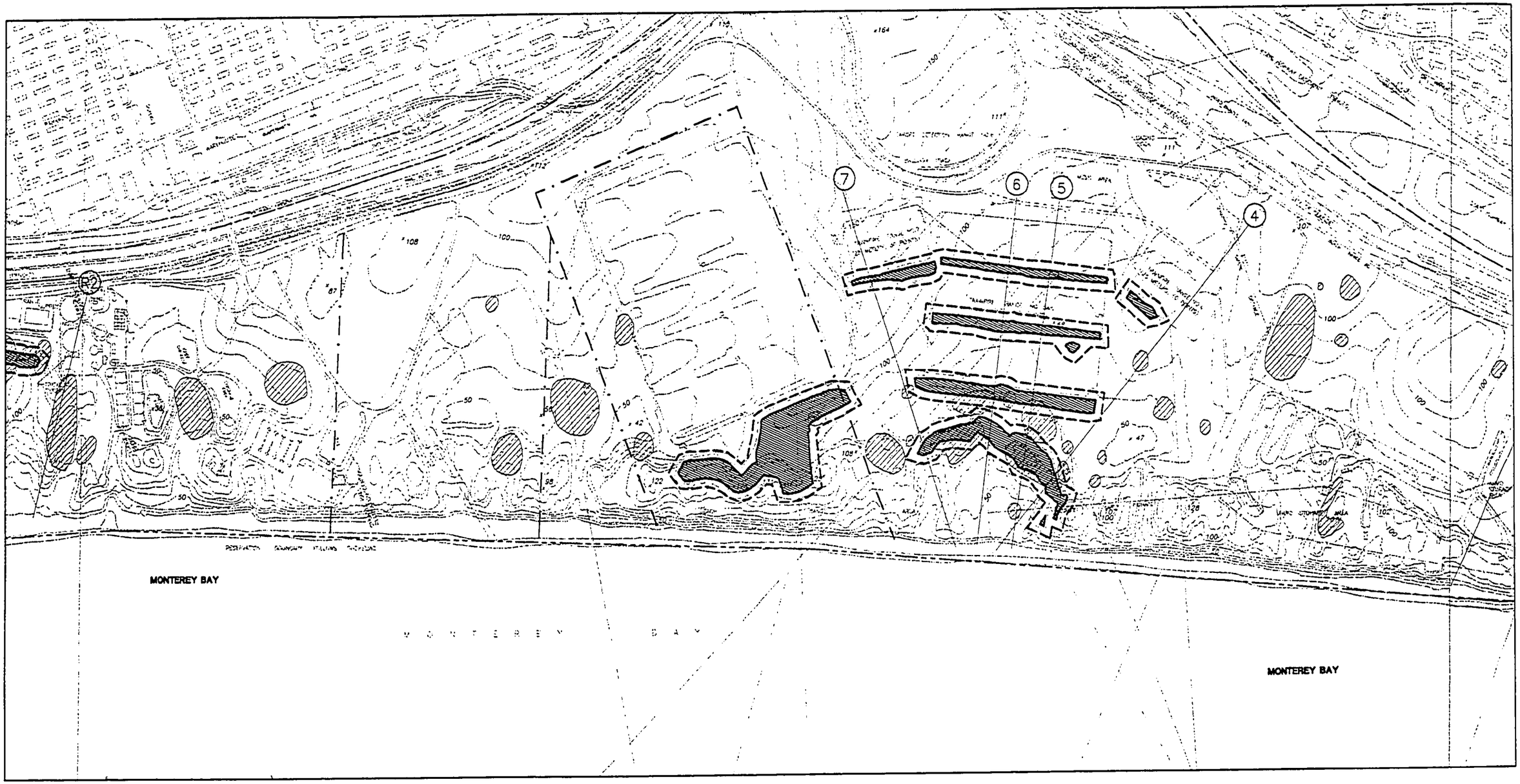
Harding Lawson Associates
Engineering and Environmental Services
90 Digital Drive, Novato, California 94949
Phone (415) 883-0112

DRAFT

Additional Ecological Risk Evaluations
Site 3 – Beach Trainfire Ranges
Fort Ord, California

Location of Proposed Lead Remediation Sites, 50-foot Construction Disturbance Zones, and Potentially Effected Buckwheat Populations

PLATE 1
SHEET: 1 OF 3
REVISION NUMBER: 0
DATE: 4/97



KEY MAP

EXPLANATION

- SITE BOUNDARY
- STUDY AREA BOUNDARY
- 160 GROUND SURFACE CONTOUR (FEET ABOVE MEAN SEA LEVEL, CONTOUR INTERVAL 10 FEET)
- BUILDING
- HEAVY, 10% OR GREATER SURFACE AREA COVERED
- 50 FOOT OFFSET LINE FROM 10% CONCENTRATION BOUNDARY
- BUCKWHEAT AREAS
- (2) RANGE / TRANSECT
- B1 BACKGROUND SAMPLE LOCATION

NOTE:
REMEDIATION AREAS DO NOT INCLUDE CONSTRUCTION ACCESS ROUTS OR SITE REGRADING AREAS.

LEGEND

- Buckwheat Areas (approximate location based on 1995 survey)
- Proposed Lead Removal Areas

300 0 300 600

APPROXIMATE SCALE IN FEET

Figure B-19

Continued

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NO.	DATE	REVISIONS	BY	CHK

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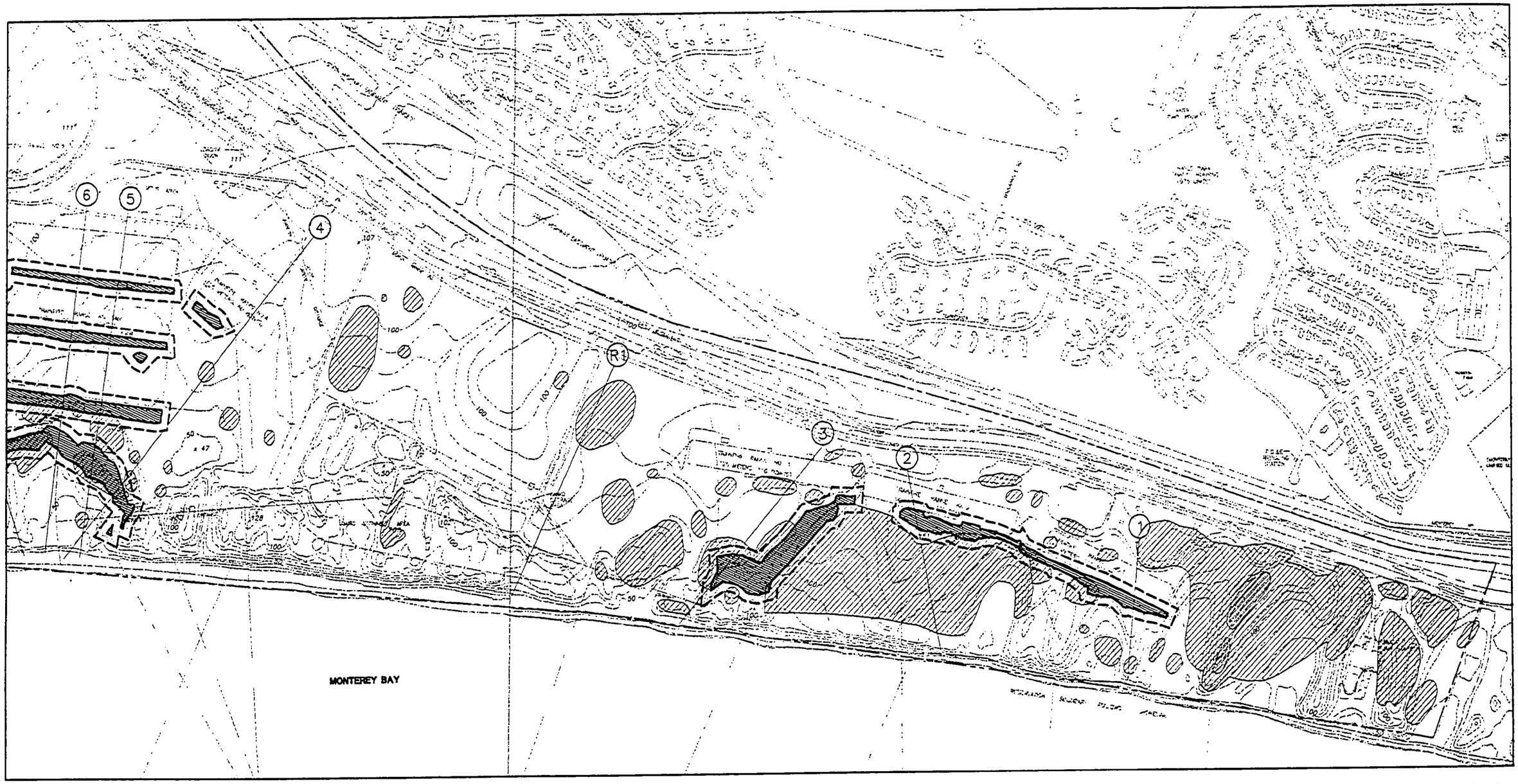
Harding Lawson Associates
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Additional Ecological Risk Evaluations
Site 3 – Beach Trainfire Ranges
Fort Ord, California

Location of Proposed Lead Remediation Sites, 50-foot Construction Disturbance Zones, and Potentially Effected Buckwheat Populations

PLATE 1
SHEET: 2 OF 3
REVISION NUMBER: 0
DATE: 4/97



KEY MAP

EXPLANATION

- SITE BOUNDARY
- STUDY AREA BOUNDARY
- 160 GROUND SURFACE CONTOUR (FEET ABOVE MEAN SEA LEVEL, CONTOUR INTERVAL 10 FEET)
- BUILDING
- HEAVY, 10% OR GREATER SURFACE AREA COVERED
- 50 FOOT OFFSET LINE FROM 10% CONCENTRATION BOUNDARY
- BUCKWHEAT AREAS
- 2 RANGE / TRANSECT
- B1 BACKGROUND SAMPLE LOCATION

NOTE:
REMEDIATION AREAS DO NOT INCLUDE CONSTRUCTION ACCESS ROUTS OR SITE REGRADING AREAS.

LEGEND

- Buckwheat Areas (approximate location based on 1995 survey)
- Proposed Lead Removal Areas

300 0 300 600

APPROXIMATE SCALE IN FEET

Figure B-19

Continued

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DRAFT

Additional Ecological Risk Evaluations
Site 3 – Beach Trainfire Ranges
Fort Ord, California

Location of Proposed Lead Remediation Sites, 50-foot Construction Disturbance Zones, and Potentially Effected Buckwheat Populations

PLATE 1
SHEET: 3 OF 3
REVISION NUMBER: 0
DATE: 4/97

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Document # BW-1787

Attachment A - Habitat Management Plan Map for Former Fort Ord December 1996

Boundary of the Former Fort Ord

HMP Management Categories

Habitat Reserve

Habitat Corridor

Habitat Corridor

Portion of Habitat Corridor with Allowance for Future Development (See Figure 4-3 and the Discussion of Parcels L20.2.1 and L20.2.2 in Chapter 4)

Development with Reserve Areas or Development with Restrictions

Development

Borderland Development Areas Along NRMA Interface

Future Road Corridors within Habitat Reserves, Habitat Corridors, or Development with Reserve Areas or Development with Restrictions.

Notes:

1) Polygon boundaries in development areas may be modified, and development polygons may be subdivided or aggregated, before or after transfer. These types of changes in development polygons will not require modifications to this HMP.

2) The E11b parcels do not reflect the public benefit conveyance still being coordinated by FORA, the County of Monterey, and Monterey Peninsula Regional College. A portion of these parcels will likely be transferred as public benefit conveyance transfers.

L26 Railroad Right-of-way (not part of former Fort Ord)

N

1,000 0 1,000 2,000 4,000 Feet

SCALE: 1" = 2,000'

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT,
CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

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December 4, 1996 masthmp4.dwg