

Los Osos Habitat Conservation Plan

DRAFT



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CHAPTER 1: INTRODUCTION

1.1 OVERVIEW

Los Osos is an ancient sand dune whose isolation gave rise to unique species dependent upon the aeolian soil. The Morro Bay kangaroo rat, not seen since 1980's, Morro shoulderband snail, Morro manzanita, Indian Knob mountainbalm, and splitting yarn lichen (collectively the "Covered Species") are among those endangered species populating this small and important ecosystem. Los Osos adjoins Morro Bay, a national estuary, and is home to a community of nearly 15,000 people. Development over the years has reduced the coastal scrub habitat to mostly the surround of the community. Recently, several groups and individuals have worked to protect over 600 acres of this important resource. Efforts continue, and with the success of the Morro Estuary Greenbelt Alliance together with its many partners, the Los Osos preserve is well underway.



This habitat conservation plan is a component of the overall protection strategy for the Los Osos dunes. Several thousand acres of protected resources are in the neighboring Montana de Oro and Morro Bay State Parks. The LOHCP will provide funding for and implement a management strategy for protected lands and control future development to assure minimal disturbance to the resources. The absence of this plan will result in a patchwork of permitting that will not be able to achieve the coordinated goals of this HCP.

Development that may occur within the community following completion of a community-wide wastewater system may result in harm to the Covered Species and their habitats (called "take"). The incidental "take" of endangered species or their habitat requires the issuance of a permit by the USFWS in accordance with Section 10(A)(1)(B) of the federal Endangered Species Act (ESA) and by the California Department of Fish and Game (DFG) in accordance with Section 2081 of the California Endangered Species Act (CESA).

The process for securing a take permit under ESA Section 10(A)(1)(B) or CESA Section 2081 requires that a property be surveyed by a qualified biologist to determine the presence or absence of the protected species. If such species or their habitats are present, a Habitat Conservation Plan (HCP)¹ must be prepared that sets forth a program of project-specific measures aimed at mitigating the loss of habitat and ensuring that such take does not put at risk the survival of the protected species. An incidental take permit may be issued by the USFWS and DFG following approval of an HCP, which in turn must precede approval of construction plans and building permit issuance.

¹ Under CESA, referred to as a Natural Community Conservation Plan (NCCP).

Needless to say, this process is expensive, time consuming and complicated for individual property owners to undertake. More importantly, the preparation of individual HCPs for the building sites where take could occur would result in fragmented preservation and would not necessarily further the goal of long-term survival of the protected species.

A second approach, and the one set forth by the LOHCP, is for property owners to voluntarily participate in a community-wide program for ESA and CESA compliance, which is greatly simplified and offers a greater measure of certainty for the long-term survival of the protected species. Under the LOHCP most participants would pay a one-time fee that would fund a comprehensive program aimed at preserving, restoring and managing the largest, intact (and hence, most valuable) habitat areas that lie on the periphery of the Los Osos urban area. Owners of larger parcels may still need to conduct a site-specific analysis of their property and to provide mitigation on site, if feasible. Nonetheless, under the LOHCP the process would be greatly simplified. In this way the LOHCP builds on the efforts of previous and ongoing conservation efforts which, over time, creates a habitat preserve around Los Osos, which would be managed for the long-term benefit of these special status species.

Such an approach has a number of advantages. First and foremost, preserving the largest, intact, contiguous habitat areas affords a greater measure of protection for the species than a fragmented, piecemeal approach. There is strong consensus among State and federal resource agencies that the approach taken by the LOHCP is the most effective way to protect and enhance the viability of special status species and habitats in Los Osos. Secondly, participants do not face the daunting, time-consuming and expensive process of ESA/CESA compliance when contemplating new construction or additions. And lastly, a simplified process enables the scarce resources of the regulatory agencies to be more efficiently employed, which in turn allows them to undertake other pressing ecological work.

The main focus of the LOHCP is to facilitate compliance with the ESA and the CESA as applied by USFWS and DFG. However, the LOHCP was prepared in cooperation with all of the regulatory stakeholders in the Los Osos area, including the Los Osos Community Services District (LOCSA), the County of San Luis Obispo (County), and the California Coastal Commission. Accordingly, the LOHCP addresses compliance with relevant provisions of the federal Endangered Species Act (ESA) of 1973 as amended, the California Endangered Species Act (CESA), the federal Coastal Zone Management Act (CZMA) of 1972, the California Coastal Act of 1976, and the San Luis Obispo County General Plan and Local Coastal Program (SLOLCP).²

1.2 GOALS OF THE HABITAT CONSERVATION PLAN

The primary goal of the LOHCP is to mitigate for the "take" of the "Covered Species" that could result from development and other activities in Los Osos. The LOHCP views the environmental resources of Los Osos as an ecological system and uses a "habitat-based" approach to protect and conserve the Covered Species in that system. The LOHCP will provide a net benefit to those

² The updated LCP referred to herein is the November 2004 Estero Area Plan. As of the date of this document, the 2004 Estero Area Plan has been adopted by the San Luis Obispo County Board of Supervisors, but not certified by the California Coastal Commission.

species, as well as many others, while also allowing certain types of new development, which are referred to as the “Covered Activities.”

The main goals of the LOHCP are:

- Authorize the take of specified “Covered Species” that are listed on the "incidental take permit" under Section 10(a)(1)(B) under ESA and Section 2081 under CESA, and allow Covered Activities, which includes private development and most public works projects, to occur in the LOHCP Area. The extent of private development addressed in the LOHCP encompasses growth in Los Osos consistent with the County’s Estero Area Plan. The LOHCP does not approve new development but establishes a conservation program to mitigate the impacts of development that is otherwise allowed through applicable plans, policies and ordinances.
- Provide a coordinated and comprehensive approach to species and habitat protection and recovery. The LOHCP incorporates several measures including: (1) policies for adoption by the County of San Luis Obispo in the Estero Area Plan and Local Coastal Plan, (2) recommendations for acquisition of properties, and (3) a coordinated management plan to be used by the agencies and organizations cooperating to protect and recover the sensitive species and habitat of Los Osos. The participation by these agencies in the development of the LOHCP has increased its value as a comprehensive policy and management program.
- Provide for a conservation strategy that also meets the requirements of the federal Coastal Zone Management Act (CZMA) of 1972, the California Coastal Act of 1976, and the San Luis Obispo Local Coastal Program (SLOLCP) by effectively protecting certain Environmentally Sensitive Habitat Areas (ESHAs).³
- Provide a framework for conserving and benefiting plant and animals species not included in the ESA (Section 10) permit authorization of this plan.
- Improve decision making by permitting authorities by offering a comprehensive view of the resources, rather than focusing on individual projects and properties.
- Coordinate future permits for development so that requirements are consistent with the overall plan for the resources while providing a more cost-effective process and greater certainty to persons wishing to develop new buildings or additions and reducing the administrative burden for the regulatory agencies.
- Direct ongoing activities for fire fuel management for the Covered Species.

³ ESHA in the LOHCP Area is referred to as SRA in order to retain consistency with the Estero Area Plan, but ESHA is used in the LOCHP when associated with the California Coastal Act of 1976 and LCPs.

- Protect the quality of life for the residents of Los Osos by maintaining the area's scenic beauty, natural biological diversity, and recreational opportunities that are of local, state and federal importance.
- Utilize adaptive management through a biological monitoring program to ensure the protection of the Covered Species.

1.3 OVERALL APPROACH

As stated above, the main goal of the LOHCP is to facilitate compliance with the ESA, the CESA, and the California Coastal Act by setting forth a program for voluntary property owner participation that leads to the creation of a preserve over the larger, intact habitat areas surrounding Los Osos. The overall approach for achieving these objectives is summarized below, and described in greater detail in subsequent chapters.

1.3.1 Jurisdictional Boundaries and Subareas

The area covered by the LOHCP lies in the unincorporated community of Los Osos, which is located on the central coast of California in San Luis Obispo County, approximately ten miles west of San Luis Obispo and five miles south of Morro Bay. The LOHCP Area borders the Morro Bay Estuary to the west, Morro Bay State Park to the north, Los Osos Creek to the east, and Montana de Oro State Park to the South. The LOHCP Area coincides with the Urban Reserve Line for Los Osos (see Figure 1-1).

The boundaries of the Plan Area were determined based on scientific data relative to the extent of habitat suitable for the Morro shoulderband snail, an endangered species found throughout Los Osos. The Plan Area is divided between the jurisdictions of the LOCSO and that of San Luis Obispo County (see Figure 3-2). The LOCSO derives its authority for granting participation in the LOHCP through the issuance of permits for new connections to the wastewater system within the wastewater system service area. The County, on the other hand, will exercise its authority for participation through its governance of land use in accordance with the standards of the Estero area Plan.

Each jurisdictional area is further divided into two subareas for purposes of implementing the LOHCP: the area in the "Dunes Sands SRA"⁴ as designated by the County in the Estero Area Plan, and the Urban Area not within the Dunes Sands SRA (see Figure 3-2). The rationale for this division is that most properties in the Dunes Sands SRA are especially valuable as habitat and are generally larger. Thus, protecting habitat on site is more important and the opportunity for doing so more practical. In the Urban Area, which is composed of mostly smaller lots and largely within the more built-up portion of the community, on-site protection is generally less effective and impractical. Thus, there are significant differences in the options for participating in the LOHCP in these two subareas, as described in Chapter 6.

⁴ During public hearings in early 2004, the Planning Commission renamed the "Greenbelt" area of Los Osos, as identified in the August 2003 Draft Estero Area Plan, to the "Dunes Sands ESHA". It was then renamed, again, in the July 2004 Planning Commission-Recommended Estero Area Plan, as "Dunes Sands SRA".

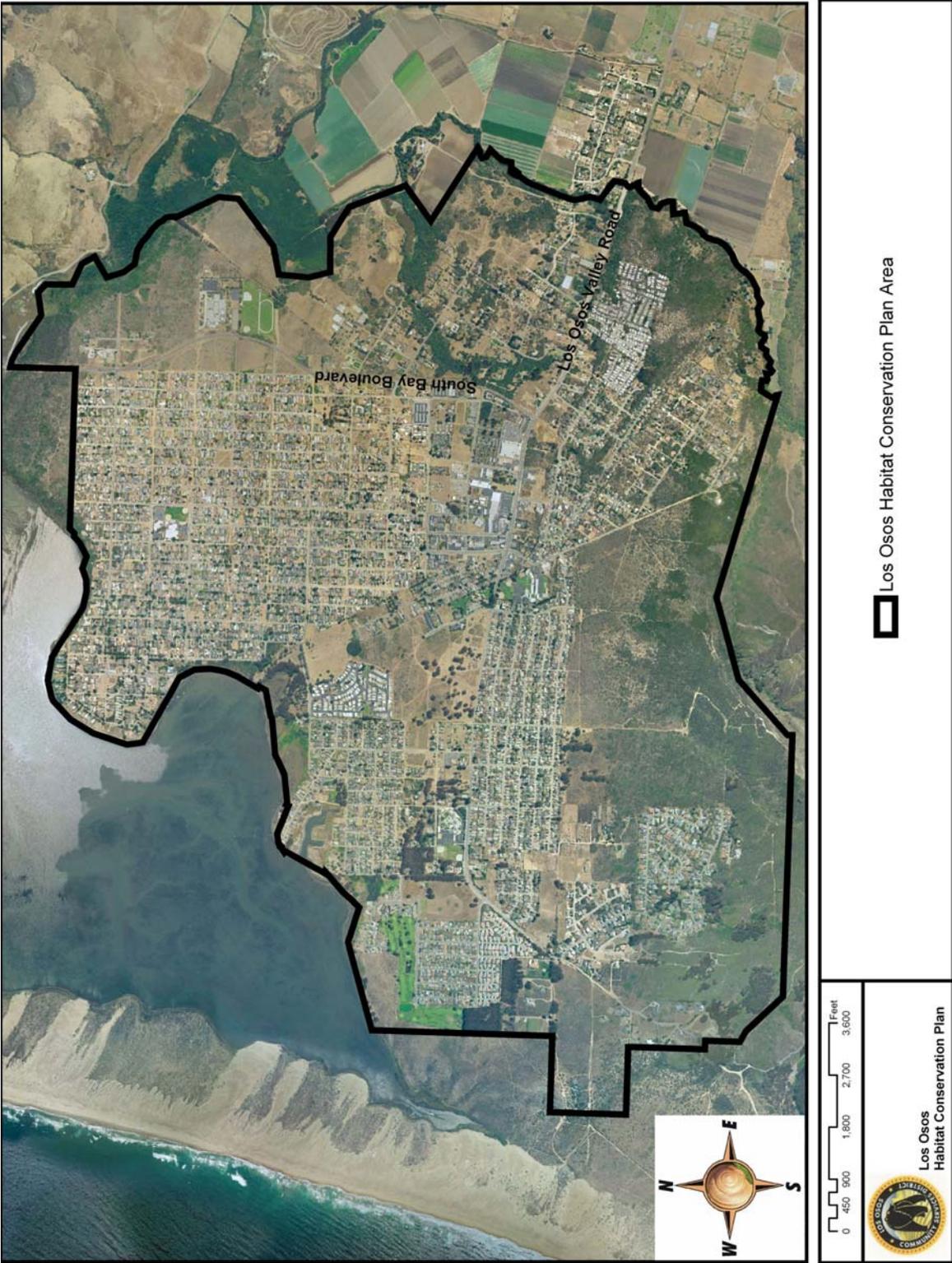


Figure 1-1: Los Osos Habitat Conservation Plan Area

1.3.2 The Approach for Smaller Parcels (Less than Five Acres)

For vacant parcels in the Urban Area that are less than five acres in size, landowners who choose to participate in the LOHCP will pay a fee to be used for offsite restoration and management of the Habitat Preserve. These landowners will also be required to abide by certain “take minimization” measures to reduce impacts to the species and their habitats as may be applicable to their properties. An example of such a measure would be a prohibition of the use of chemical snail bait.

1.3.3 The Approach for Large Parcels in the Urban Area and All Parcels in the Dunes Sands SRA

For parcels equal to or greater than five acres in the Urban Area and for all parcels in the Dunes Sands SRA, owners would be required to protect some habitat on-site; that is, they must limit disturbances to a portion of the property and place the remainder under a protective easement in accordance with the Estero Area Plan and to agree to certain “take minimization” measures to reduce impacts to the species and their habitats as may be applicable to their properties. The easement permanently protects the remaining resources from development.

1.3.4 Voluntary Fee

Regardless of parcel size, participants will pay a voluntary habitat mitigation fee toward the restoration and management of the Preserve lands. The fee amounts vary by whether the property is located inside or outside the Dunes Sands SRA. For parcels less than five acres in the Urban Area, the property owner may simply pay a fee as determined in Chapter 8. For parcels less than five acres in the SRA, the property owner will pay a fee as determined in Chapter 8, and limit development on the property in accordance with the Estero Area Plan (see Chapter 5).

However, for parcels equal to or greater than five acres, the fee is determined on a case-by-case basis considering the size, condition and types of habitat to be conserved on site. In these cases, once the site assessment is complete and the fee is paid for restoration and management, the LOHCP through its Preserve Manager assumes responsibility for restoration and management of the lands in the protective easement, relieving the property owner of further financial obligations. Requirements for allowable development level and onsite set aside requirements are set forth in the Estero Area Plan (see Chapter 5).

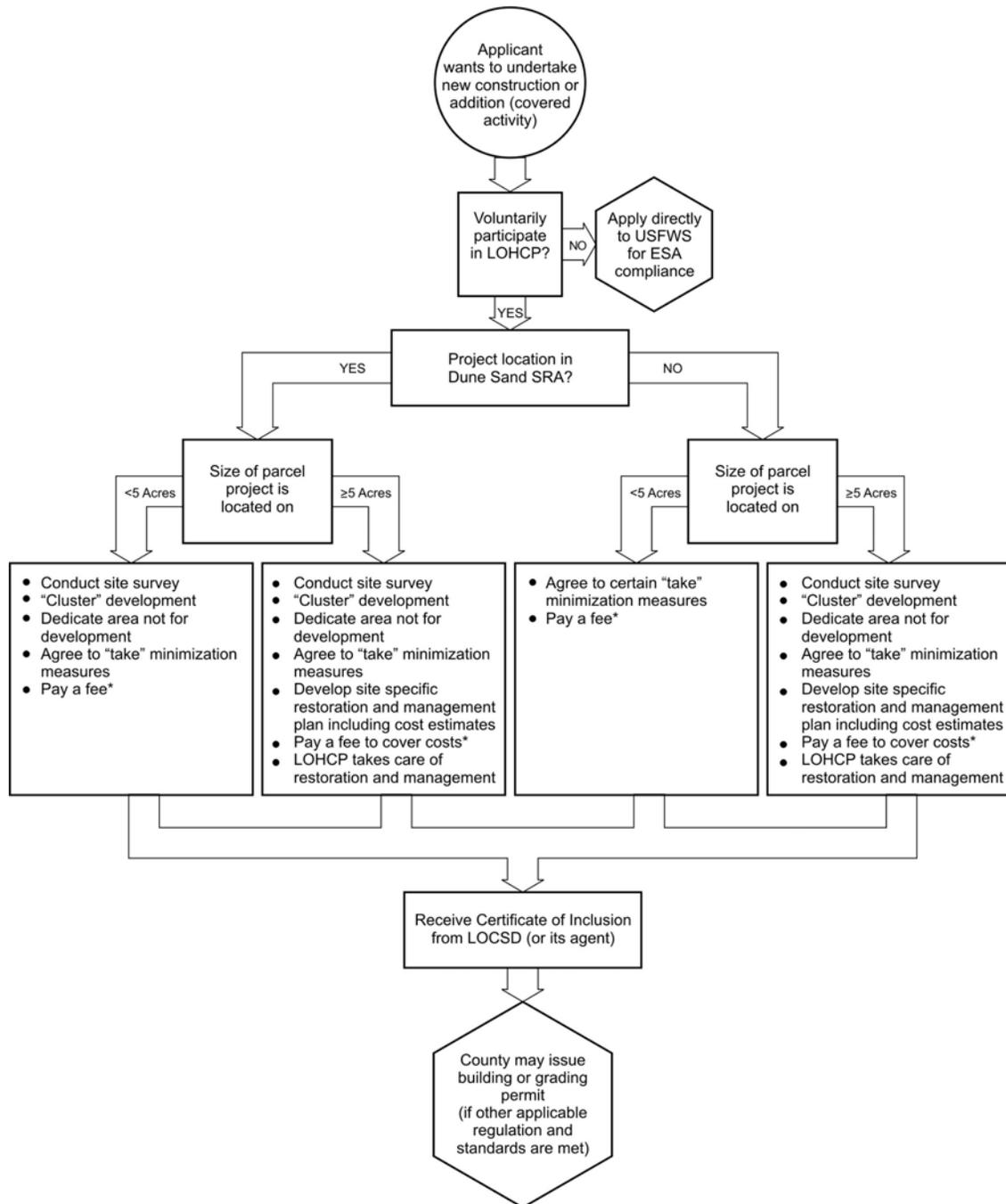
Collected fees would be used for the acquisition of land, restoration of degraded habitat, maintenance, and research and monitoring of species and habitats in the Preserve. Land in the Preserve would be protected in perpetuity for the conservation and preservation of the species that the LOHCP addresses. The process for obtaining approval for projects under the LOHCP is illustrated by Figure 1-2.

1.3.5 A “Cushion” to Start the Program

The LOCSO may purchase suitable land for inclusion in the preserve as a “cushion” to get the program started. Participating landowners would reimburse the LOCSO through a portion of their fees. Creating a cushion early on ensures that key habitat is preserved and ready for management and restoration prior to new development.

1.3.6 Form a Non-Profit Organization to Serve As Preserve Manager

The County and LOHCP will either contract with an existing non-profit or create a non-profit preserve management group to implement, monitor, and report progress.



*Note: fee amount varies by location and lot size

Figure 1-2. Approval Process Under the LOHCP

1.3.7 Some Key Terminology

Unfortunately, but unavoidably, the Endangered Species Act includes certain terminology that can be confusing out of context. Furthermore, understanding the LOHCP is easier if certain terms and concepts used in the plan are understood as the plan is presented in more detail in later chapters. A few of the more critical terms/concepts are defined briefly below (see also Appendix C):

- **Covered Species:** Those species identified by the federal or State government as endangered, threatened or of concern that are “covered” by the LOHCP. They are specifically the Morro shoulderband Snail⁵, Morro Bay kangaroo rat, the Morro manzanita, the Indian Knob mountainbalm, and the splitting yarn lichen.
- **Covered Activities:** Those projects that are “covered” by the LOHCP (most public works projects, and private projects that need a building or grading permit).
- **ESHA and Sensitive Resource Areas.** The Estero Area Plan (the portion of the County General Plan governing land use in Los Osos) refers to ESHA as Sensitive Resource Areas (SRAs) in the LOHCP Area. SRAs include many ecologically important areas, such as wetlands; marshes; sand dunes; natural plant communities; habitat for rare and endangered plants and animals; and sensitive watershed. The LOHCP refers to these areas as SRA in order to maintain consistency with the Estero Area Plan. ESHA is used in the LOHCP when relating to issues associated with the California Coastal Act, but SRA is used when associated with site-specific issues of the LOHCP Area.
- **Dunes Sands SRA:** An area mapped by the County in their Estero Area Plan located around the community of Los Osos that is Environmentally Sensitive Habitat Area for species associated with dunes and dunes-related soils. Most of the properties anticipated to be acquired and/or managed within the Preserve are within the designated Dunes Sands SRA.
- **Incidental Take:** The taking of a federally or State listed wildlife or plant species, if such taking is incidental to, and not the purpose of, carrying out otherwise lawful activities. An incidental take permit (Section 10(a)(1)(B)) is issued by the USFWS as authorization for incidental take. An incidental take permit (Section 2081) is issued by DFG as authorization for incidental take.
- **Preserve:** The swath of closely linked habitat areas that are or will be permanently preserved for the viability of the covered species. Larger areas that are relatively undisturbed and contiguous generally comprise the habitat most likely to sustain the covered species.

⁵ The USFWS has distinguished between two subspecies of Morro shoulderband snail “morroensis” and “walkeriana”. Morroensis is found outside the Los Osos/Morro bay Area on non-sandy soils and is not regulated or protected under the ESA.

- **Preserve Manager:** A non-profit corporation appointed or set up by the LOCSO and the County of San Luis Obispo to manage the LOHCP Preserve. The manager's functions will include using funds to acquire land, enhance and restore habitat, monitor the need for changes in the plan, and conduct research. The activities of the Preserve Manager will be subject to oversight by a board comprised of the USFWS, DFG, the County, and the LOCSO, among others, as necessary or deemed appropriate.
- **Permitor:** The USFWS and the DFG – these agencies issue the incidental take permits for covered activities in the LOHCP.
- **Permittees:** The LOCSO and the County of San Luis Obispo will receive incidental take permits for the covered activities. Each entity will hold a separate permit. Under the LOHCP, private landowners may apply for certificates of inclusion from the LOCSO or County through the LOHCP rather than going directly to the USFWS or DFG for an incidental take permit, if they so choose.
- **Implementing Agreement (IA):** The binding, legal agreement among the LOCSO, County, USFWS, DFG and other resources agencies, as appropriate, to undertake the LOHCP.
- **"Take" Minimization Measures:** Certain measures that property owners agree to that help avoid or minimize take of the special status species. An example would be to agree not to use chemical snail bait.

1.4 BACKGROUND -- THE NEED FOR AN HCP IN LOS OSOS

The Central Coast Regional Water Quality Control Board (RWQCB) and other public agencies became concerned about pollution arising from the use of individual wastewater disposal systems (i.e., septic systems) in the Los Osos area as early as 1971. The basis for this concern was that while depth to groundwater varies in the area, it is shallow enough to come in contact with some leach fields in wet weather,



potentially contaminating the groundwater. In the Baywood Park area, few of the systems can meet the RWQCB's criteria for separation between the bottom of a leach field and groundwater. Furthermore, many of the lots are too small for leach fields, and as a result, utilize deeper seepage pits that may discharge directly to groundwater. Concerns regarding the impacts of septic systems on groundwater were heightened by the fact that the Los Osos area obtains its water supply from groundwater aquifers. As a result, an interim Basin Plan adopted by the

RWQCB in June 1971 contained a provision prohibiting septic system discharges in the area after 1974.

In 1983, the RWQCB issued Resolution No. 83-13, which made the following findings:

- Previous studies indicated that the quality of water derived from the shallow aquifer underlying the community was deteriorating, particularly as it relates to increasing concentrations of nitrates in excess of State standards.
- The current method of wastewater disposal by individual septic tank systems located in areas of high groundwater may be a major contributing factor to this degradation of water quality.
- Continuation of this method of waste disposal could result in health hazards to the community and the continued degradation of groundwater quality in violation of the federal Clean Water Act.

In January 1988, the RWQCB established a discharge moratorium, which effectively halted new construction or major expansion of existing development until San Luis Obispo County, who was responsible for service at that time, provided a solution to the water pollution problem.

The County devised a plan for a wastewater treatment system. A Final Environmental Impact Report (FEIR) was prepared for the original County project in 1987. Addenda to the FEIR were prepared in 1987 and 1989 to address various topics. By 1997, the County had refined and approved a project, and issued a coastal development permit for the system.

The Coastal Commission heard an appeal of the County's coastal development permit in 1998. The Commission stayed the appeal to provide an opportunity for Los Osos to form a Community Services District and develop an alternative wastewater treatment system. In November 1998, voters approved the formation of a CSD for the Los Osos community to assume responsibilities for the completion of a wastewater solution. In January 1999, the Coastal Commission voted to allow the newly formed LOCSO the opportunity to develop its own solution to the water pollution problem. The Commission gave the LOCSO until January 2000 to prepare a facilities plan for the alternative wastewater system and to present the plans to the RWQCB.

Following numerous public hearings, a range of alternatives was identified and a preferred project configuration was selected. A FEIR was certified in 2001 and the LOCSO Board subsequently approved the project. In 2002 the Coastal Commission approved an amendment of the County's Local Coastal Program for the proposed treatment plant site that enabled the project to move forward. In 2003, the County approved a coastal development permit for the wastewater system. That approval was appealed to the Coastal Commission. However, after hearing the appeal the Coastal Commission approved, and, in January 2005 issued the coastal development permit.

The need for an HCP was determined during the environmental analysis under the California Environmental Quality Act (CEQA) for the Los Osos wastewater treatment facility. The LOHCP was required as mitigation because of secondary and cumulative impacts to listed species from build-out of the area. Secondary impacts are those created when new construction is allowed

after the Los Osos wastewater treatment facility is operational. Cumulative impacts refer to construction that will take place outside of the Los Osos wastewater treatment facility service area. (The Los Osos wastewater treatment facility itself is permitted separately under Section 7 of the Endangered Species Act.)

The LOCSO approached the County of San Luis Obispo to be a co-applicant to the USFWS for the LOHCP. This is an important component of the plan, because the County has land use permitting authority in Los Osos.

A Memorandum of Understanding (MOU) among participating agencies – the LOCSO, County, USFWS, DFG, and the California Coastal Commission – was developed to formalize the decision to prepare the LOHCP, to facilitate its development, and to coordinate the responsibilities and interests of the participating agencies in this process (see Appendix B).

1.5 REGULATORY SETTING

The Los Osos Habitat Conservation Plan has been developed to comply with a host of environmental laws, regulations, and ordinances at the local, State, and federal levels. The following section briefly summarizes these laws, regulations, and ordinances as well as describes how they relate to the development and implementation of the LOHCP and issuance of incidental take permits.

1.5.1 Federal Regulations

1.5.1.1 The Endangered Species Act

The Endangered Species Act of 1973, as amended provides for the protection and conservation of fish, wildlife, and plants that have been listed as threatened or endangered by the federal Government. Section 9 of the ESA prohibits the take of any federally listed endangered or threatened animal species. Section 3(18) of the ESA defines “take” to mean “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” USFWS regulations (50 CFR 17.3) define “harm” to include significant habitat modification or degradation which actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harassment is defined by the USFWS as an intentional or negligent action that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering.

The ESA provides for civil and criminal penalties for the unlawful “take” of listed species. Exemptions to the prohibitions against take may be obtained through coordination with the USFWS in two ways: 1) through interagency consultation for projects with federal involvement pursuant to section 7; or, 2) through the issuance of an incidental take permit under section 10(a)(1)(B) of the ESA. “Incidental take” is defined by the ESA as take that is incidental to, and not the purpose of, carrying out of an otherwise lawful activity.

The purpose of the LOHCP is to allow for incidental take that may occur with secondary and cumulative impacts from the wastewater system, while also ensuring that the authorized

incidental take is adequately minimized and mitigated. The required components of any HCP include:

- An assessment of impacts likely to result from the proposed take of listed species;
- Measures that the applicant will use to minimize, mitigate, and monitor these impacts;
- Funding mechanisms available to implement such measures;
- Alternative actions to avoid or minimize take;
- Additional measures that the USFWS may require as necessary or appropriate.

Protection of Plant Species Under the ESA

The take prohibition for federally listed plants under the ESA is less restrictive than for listed animals. The ESA does not prohibit the incidental take of federally listed plants on private land unless the take, or the action resulting in take, is a violation of State law. Nevertheless, the USFWS recommends that applicants consider listed plants in HCPs and, whenever possible, provide for their protection. If an HCP adequately addresses and conserves listed plants, they may be placed on an incidental take permit. In the case of the LOHCP, the Morro manzanita, a federally threatened plant species, the Indian Knob mountainbalm, federally and State endangered, and the splitting yarn lichen, a species of concern, are fully addressed; therefore, these species will be listed on all incidental take permits issued.

Requirements for the Issuance of Section 10 Permits

Section 10 of the ESA states:

"The Secretary [of the Interior] may permit...any act otherwise prohibited by Section 9 for scientific purposes or to enhance the propagation or survival of affected species...; or any taking [of fish and wildlife] otherwise prohibited by Section 9(a)(1)(B) if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity."

Section 10(a)(2)(B) of the ESA specifies the criteria for issuing an incidental take permit, including a requirement that the take authorized by the permit "will not appreciably reduce the likelihood of the survival and recovery of the species in the wild."

Although not specifically required by the ESA, conservation actions undertaken pursuant to a Section 10(a)(1)(B) permit are encouraged to assist in carrying out species recovery plans and to improve the status of listed species affected by the permit.

1.5.1.2 The National Environmental Policy Act

The National Environmental Policy Act of 1969, as amended (NEPA), requires that federal agencies analyze and disclose the environmental impacts of their proposed actions. Issuance of an incidental take permit is considered a federal action; therefore, the LOHCP is subject to NEPA. In addition to analyzing impacts to listed species, NEPA requires that the impacts of

issuance of the incidental take permit and carrying out of the proposed project on additional environmental resources also be analyzed. These impacts include air quality, water quality, and cultural and historical resources.

1.5.2 Regulations of the State of California

1.5.2.1 California Endangered Species Act

The California Endangered Species Act (CESA) provides for the designation of native species or subspecies of birds, mammals, fish, amphibians, reptiles, or plants as endangered or threatened (CESA Section 2080). Invertebrates cannot be designated as threatened or endangered under CESA. The Morro shoulderband snail, the splitting yarn lichen, Morro manzanita are not listed under CESA. However, the Morro Bay kangaroo rat and the Indian Knob mountainbalm are State listed species. The permittees are requesting a 2081 permit from DFG for the take of these species. The CESA requirements run parallel to ESA requirements. Under the CESA, permittees are required to prepare a Natural Community Conservation Plan (NCCP). Throughout this document reference an Habitat Conservation Plan (HCP), as defined by ESA, is meant to also incorporate the State requirements for an NCCP.

1.5.2.2 California Environmental Quality Act

The California Environmental Quality Act (CEQA) (Pub. Res. Code §21000 seq.) requires State and local government agencies to complete an environmental review of most kinds of projects that could impact environmental resources.

The County, as the lead agency under CEQA for new development in Los Osos, is responsible for conducting CEQA review and ensuring compliance. Each development application must be considered separately for compliance with CEQA. The receipt of an incidental take permit for the Covered Species does not in itself ensure compliance with CEQA, as there may be the potential for other significant environmental impacts related to other resources--depending, of course, on the size, nature and location of the proposal.

If a discretionary project needs to complete an Environmental Impact Report (EIR), as defined under CEQA, adequate mitigation will need to be determined. The LOHCP may provide appropriate mitigation for some species, but this will be decided on a case-by-case basis.

1.5.2.3 California Coastal Act of 1976

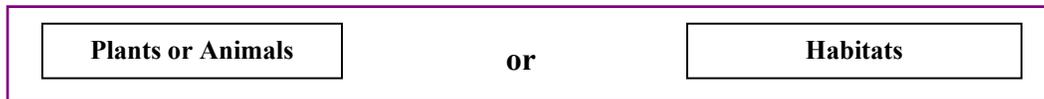
One of the primary objectives of the California Coastal Act is to preserve, protect, and enhance environmentally sensitive habitat areas (ESHA)⁶. Section 30107.5 of the Coastal Act defines an “Environmentally Sensitive Area” as:

Any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

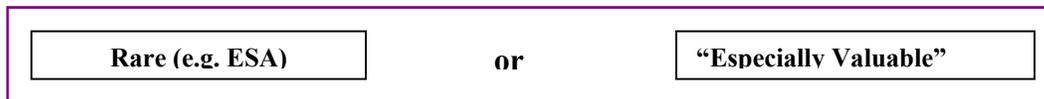
⁶ ESHA in the LOHCP Area is to be referred to as SRA in order to retain consistency with the Estero Area Plan, but ESHA is used in the LOHCP under the discussion associated with the California Coastal Act of 1976.

There are three important elements to the definition of ESHA in Section 30107.5. First, a geographic area can be designated ESHA either because of the presence of individual species of plants or animals or because of the presence of a particular habitat. Second, in order for an area to be designated ESHA, the species or habitat must be either rare or “especially valuable”. Finally, the area must be easily disturbed or degraded by human activities. These three elements and their relationship to each other is shown in the diagram below:

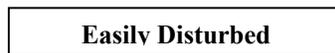
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In addition to the ESHA definition in Section 30107.5, the central provisions of Chapter 3 of the Coastal Act provide further guidance for protecting ESHA. These provisions includes Sections 30231, 30240, and 30250(a) as follows:

- Section 30231 provides that the biological productivity of coastal waters, streams, wetlands, estuaries, and lakes must be maintained and, where feasible, restored. This is to be achieved by, among other means: minimizing adverse effects of wastewater discharges and entrainment; controlling runoff; preventing depletion of groundwater supplies and substantial interference with surface water flow; encouraging wastewater reclamation; maintaining natural buffer areas that protect riparian habitats; and minimizing alteration of natural streams.
- Section 30240 prohibits any significant disruption of habitat values, and limits development within ESHA to uses that are dependent on the resources. It also requires development adjacent to ESHA be sited and designed to prevent significant degradation and be compatible with the continuance of the habitat.
- Section 30250(a) directs new residential, commercial, or industrial development to existing developed areas. Where developed areas cannot accommodate new development, it is to be located in other areas where it will not have significant adverse effects, either individually or cumulatively, on coastal resources.

The underlying goals and objectives of the LOHCP programs support those set forth in the Coastal Act, and the ultimate goal of protecting Covered Species and sensitive habitats is shared

by both of the LOHCP and the Coastal Act. Therefore, it is both possible and necessary for the LOHCP and San Luis Obispo County LCP (which implements the Coastal Act for most of Los Osos) to be integrated so that each complements and supports the other, to provide the highest overall level of protection for sensitive natural coastal resources within Los Osos.

These Coastal Act provisions support a finding that areas within the coastal zone containing coastal sage scrub, which are occupied by Covered Species (e.g., Morro shoulderband snail) or used for foraging by those species, are ESHAs. Other vegetative communities, such as central maritime chaparral, are determined to be ESHA based upon the presence of endangered plant and animal species and/or their foraging habitat. All of these vegetation communities within the LOHCP Area are found growing on the Baywood soil series. The existing mosaic of central maritime chaparral and coastal sage scrub is the result of a dynamic process that is a function of fire history, recent climatic conditions, soil differences, slope, aspect and moisture regime, and where the species are in the natural succession. The spatial patterns of these vegetation communities depend on the local site conditions and historical influences (e.g. fire), and are influenced by both natural and anthropogenic factors. After a fire or anthropogenic disturbance (e.g. agriculture), the soil can be left denuded. These vegetation communities can return to their native state through the natural succession process as seen in between the 1949 and the 1998 aerial photos (Figure 2-3).

Based on the species and habitat analysis from the best scientific and technical information available, the entire LOHCP Area is presumed to meet the definition of ESHA, because of the abundance of sensitive vegetation types and rare plants and animals. The LOHCP Area is known habitat for numerous special status wildlife species, special status plant species, and special status lichen species (see Table 2-2 and Table 2-3). The highest quality of native habitat and the majority of special status species are generally found near the shoreline and on the large non-developed parcels on the eastern and southern portion of the LOHCP Area. However, there are many fragments of native habitat and special status species widely located in the Plan Area. Figure 2-4 illustrates, for example, that patches of coastal sage scrub, central maritime chaparral, and oak woodland can be found throughout Los Osos. Figure 4-2 shows that the Morro shoulderband snail is widely distributed in the LOHCP Area.

In addition to wildlife and habitat protection policies, the Coastal Act includes land use policies, which address other aspects of development. For example, section 30250 of the Public Resources Code provides that new residential, commercial and industrial development shall be located within, contiguous with, or in close proximity to existing developed areas and/or areas with adequate public services, and where it will not have significant adverse impacts on coastal resources. This section is generally interpreted as promoting concentration of development in or adjacent to existing developed areas in order to reduce sprawl and its attendant impacts to coastal zone resources. This argues for infill development in the Los Osos URL, especially on existing legal smaller lots.

In general, the Coastal Act prescribes a regulatory approach to habitat protection. The Coastal Act acknowledges that conflicts may occur between one or more of its policies, and “in such cases, conflicts should be resolved in a manner which on balance is the most protective of significant coastal resources.” (Section 30007.5) In order to protect corridors of viable,

connected habitat areas that take into account the mobility and foraging requirements of Covered Species, it may be preferable to take a regional approach to the preservation of ESHAs.

A principal consequence of the HCP process is to allow for the “incidental take” of some individuals while maintaining the general health and viability of a listed species population. It is the focus of this HCP to balance both environmental protection and development. Instead of preserving all ESHAs in place where they are found, which could result in excessive fragmentation, reduced habitat values and difficulties in monitoring and management, it may be more protective of ESHA resources to focus on regional conservation approaches that concentrate development away from the habitat of greatest overall value. The LOHCP, therefore, may have some adverse impacts to small ESHAs in order to effect greater overall protection of contiguous, high-quality habitat. A pattern of development that allows for infill on more marginal or isolated parcels while accumulating the resources necessary to permanently protect, enhance and manage large and contiguous habitats is more protective of ESHA than retention of all habitats in place. Such an approach will ensure the health and viability of larger, connected sensitive vegetative communities that support the Covered Species.

1.6 PLAN PARTICIPANTS

Implementation of the LOHCP will involve a variety of agencies and entities. Chapter 10 describes in more detail LOHCP implementation and the roles and responsibilities of the Participating Agencies (the permittor and the permittees), which are summarized below.

1.6.1 Permittors - U.S. Fish and Wildlife Service and California Department of Fish and Game

1.6.1.1 Permittor - U.S. Fish and Wildlife Service (USFWS)

The USFWS has the authority for issuing Section 10(a)(1)(B) incidental take permits under the ESA and will be responsible for enforcing the provisions of those permits; reviewing annual status reports; responding to requests for amendments; and providing technical assistance to Permittees with regard to the acquisition and management of reserve lands, and the implementation of avoidance and minimization measures.



1.6.1.2 Permittor - California Department of Fish and Game

The California Department of Fish and Game (DFG) has the authority for issuing Section 2081 incidental take permits under the CESA and will be responsible for enforcing the provisions of those permits; reviewing annual status reports; responding to requests for amendments; and providing technical assistance to Permittees with regard to the acquisition and management of reserve lands, and the implementation of avoidance and minimization measures.



1.6.2 Permittees – Los Osos Community Services District and San Luis Obispo County

1.6.2.1 General Responsibilities

The Los Osos Community Services District (LOCS D) and San Luis Obispo County (County) are the Permittees under the LOHCP. As permittees each is expected to obtain separate Section 10(a)(1)(B) and 2081 permits for activities occurring under their respective authorities (i.e. The LOCS D will receive a Section 10 permit and a Section 2081 permit, and the County will receive a Section 10 permit and a Section 2081 permit.) The Permittees shall utilize a single LOHCP and Implementing Agreement which will be executed as each participant becomes signatory to the Implementing Agreement. It is anticipated that the LOCS D may commence the permit application process earlier than the County.



Entities undertaking urban development or other Covered Activities under the direct control of the Permittees and in compliance with the LOHCP will be covered under the Permittee's Incidental Take Permits. Specific Covered Activities for each of the Permittees are identified under Section 5.

Private parties proposing new development can voluntarily participate in the LOHCP. The LOHCP will provide for the establishment of a system of reserves in order to mitigate the individual and cumulative impacts of the Covered Activities on Covered Species and their habitats. Development must be in compliance with the LOHCP and State and federal law. Compliance with the LOHCP will typically be accomplished through payment of a Habitat Conservation Fee and compliance with all applicable take minimization measures required under by the LOHCP. The Permittees will keep track of all authorized development to ensure that mitigation fees have been paid and required take avoidance, minimization and mitigation measures have been met.

For purposes of obtaining coverage under the LOHCP, expansion of the LOCS D or San Luis Obispo County's permit area or an increase in the authorized development could only be accomplished through approval of a major amendment of the LOHCP and the associated permits. Such an amendment of the LOHCP and associated permits would be subject to all applicable state and federal statutes and regulations, including the provisions of the CESA, ESA, CEQA and NEPA.

The Permittees will ensure that all the Covered Activities are conducted in accordance with the practices described in Chapter 6. The Permittees shall comply with annual reporting requirements as set forth in Chapter 7 and document their compliance with the provisions of the LOHCP and the associated permits.

1.6.2.2 Specific Requirements of the Los Osos Community Services District

The LOCS D will be responsible for issuing "certificates of inclusion" for private parties who voluntarily participate in the LOHCP and who have met the requirements of this Plan. The LOCS D may contract out this service to the Preserve Manager or some other entity.

1.6.2.3 Specific Requirements of San Luis Obispo County

For new development in the LOHCP area, San Luis Obispo County will require applicants to demonstrate compliance with the ESA, either in the form of a “letter of concurrence” or individual incidental take permit issued directly from the USFWS or a “certificate of inclusion” issued by the LOCSD for all voluntary participants in the LOHCP prior to issuance of a grading or building permit.



1.6.2.4 Third Party Beneficiary

“Third Party Beneficiary” refers to private parties who receive incidental take coverage under the incidental take permits held by the Permittees. An example of a “third party beneficiary” is a private landowner in Los Osos who is requesting a development permit from San Luis Obispo County and volunteers to participate in the LOHCP. If the party meets all relevant LOHCP requirements, the LOCSD will issue a “certificate of inclusion” that can be submitted to the County when applying for a building or grading permit.

1.6.3 California Coastal Commission

The California Coastal Commission has ongoing and appellate jurisdiction over coastal development permits in certain areas of the coastal zone. The Commission has the responsibility to review proposed changes to San Luis Obispo County’s LCP.



The Commission is also charged with promoting coastal policies set forth in the Coastal Act, including those pertaining to the protection of Environmentally Sensitive Habitat Areas (ESHA). LOHCP will be used in part as a guide to the Commission in determining and mitigating impacts to ESHA resulting from the issuance of coastal development permits throughout Los Osos.

The Commission has participated in the development of the LOHCP and will provide oversight of its implementation along with DFG, USFWS and the Permittees.

1.7 ORGANIZATION OF THE LOHCP

Chapter 2 discusses the environmental setting of the LOHCP area, including the species, habitats and related conditions that helped define the Plan’s boundary.

Chapter 3 summarizes the history and current conditions of the built environment. It also discusses previous conservation planning by the USFWS that provided the critical framework for the LOHCP.

Chapter 4 describes special status species and presents the methodology for selecting the specific species covered by the LOHCP.

Chapter 5 defines the covered activities and estimates the take that could result from those activities.

Chapter 6 is the Conservation Program that sets forth the LOHCP's conservation goals and objectives, and the related actions to be undertaken to conserve the species and their habitats. This chapter lays out the take avoidance, minimization and mitigation measures for participants in the LOHCP, and delineates the key features of the Preserve, including areas suitable for acquisition, restoration and management.

Chapter 7 describes the ongoing monitoring and reporting that will be required to ensure compliance with the LOHCP. It also outlines ongoing research that will be used to help assess the effectiveness of the Plan over time, and the need for an adaptive management approach so that adjustments to the Plan can be made if so warranted by new circumstances or new data.

Chapter 8 estimates the amount of money needed to effectively implement the Plan and shows the calculations used to determine the fees for Plan participants.

Chapter 9 discusses alternatives that were considered as the LOHCP was developed.

Chapter 10 details the implementation process and the roles of the different participating agencies. It spells out the duties of the Preserve Manager in implementing the Plan and monitoring its progress.

Chapter 11 provides required information about the federal "No Surprises" rule that assures participants that the LOHCP meets the requirements of the ESA.

The Adaptive Management and Monitoring Plan (AMMP) (included under a separate cover) guides protection and enhancement of the sensitive species and communities of the LOHCP. By confronting the current stresses and new threats that emerge, management proposed in the plan will play an important role in attaining the conservation goals of the LOHCP.

The AMMP provides the biological effectiveness monitoring program designed to track success toward the biological goals and objectives of the LOHCP Preserve System. The AMMP is a proactive and remedial management approach. Rather than waiting for conditions to decline, management will be implemented to the fullest extent possible.

CHAPTER 2: ENVIRONMENTAL SETTING AND EXISTING BIOLOGICAL CONDITIONS

2.1 INTRODUCTION

The setting and existing conditions for this HCP have been developed from an assessment of local and regional biological resources, and based on the best available scientific and technical information. This information was obtained from the following sources:



- Field surveys conducted for the LOHCP and other local projects;
- Environmental review documents (i.e., EIRs/EISs, previously approved parcel specific HCPs for properties in the Plan Area);
- The California Department of Fish and Game's (DFG) Natural Diversity Database (CNDDDB);
- US Fish and Wildlife Service's (USFWS) Critical Habitat Designations and Recovery Plans;
- California Native Plant Society's (CNPS) inventory of rare plants;
- Information from local biological reports and experts.

2.2 OVERVIEW AND LOCATION

Los Osos is an unincorporated community located on the central coast of California in San Luis Obispo County, approximately ten miles northwest of San Luis Obispo and five miles south of Morro Bay. Centrally located along the Pacific Coast, the area has a combination of northern and southern species. The area's unique environmental qualities contribute to the high number of narrow endemic species.

The LOHCP Area covers approximately 2,825 acres coterminous with the Los Osos Urban Reserve Line (URL) as shown in the Estero Area Plan portion of the County General Plan and Local Coastal Program. It is bounded on the west and north by Morro Bay and Morro Bay State Park, on the east by Los Osos Creek, and on the south by Montana de Oro State Park (Figure 2-1). A late-Pleistocene and Holocene Dune complex overlies the majority of the LOHCP Area, with valley fill occurring adjacent to Los Osos Creek and its tributaries. The surfaces include young active dunes near the beach, middle-aged dunes over the greatest area, and old dunes at the higher elevations farthest inland.

Topography in the LOHCP Area ranges from the southern hillsides, which are adjacent to the Irish Hills, to the broad Aeolian (wind blown) sand dunes. The elevation ranges from mean sea level in areas located adjacent to Los Osos Creek and Morro Bay to approximately 800 feet above mean sea level in the southern portion of the area.

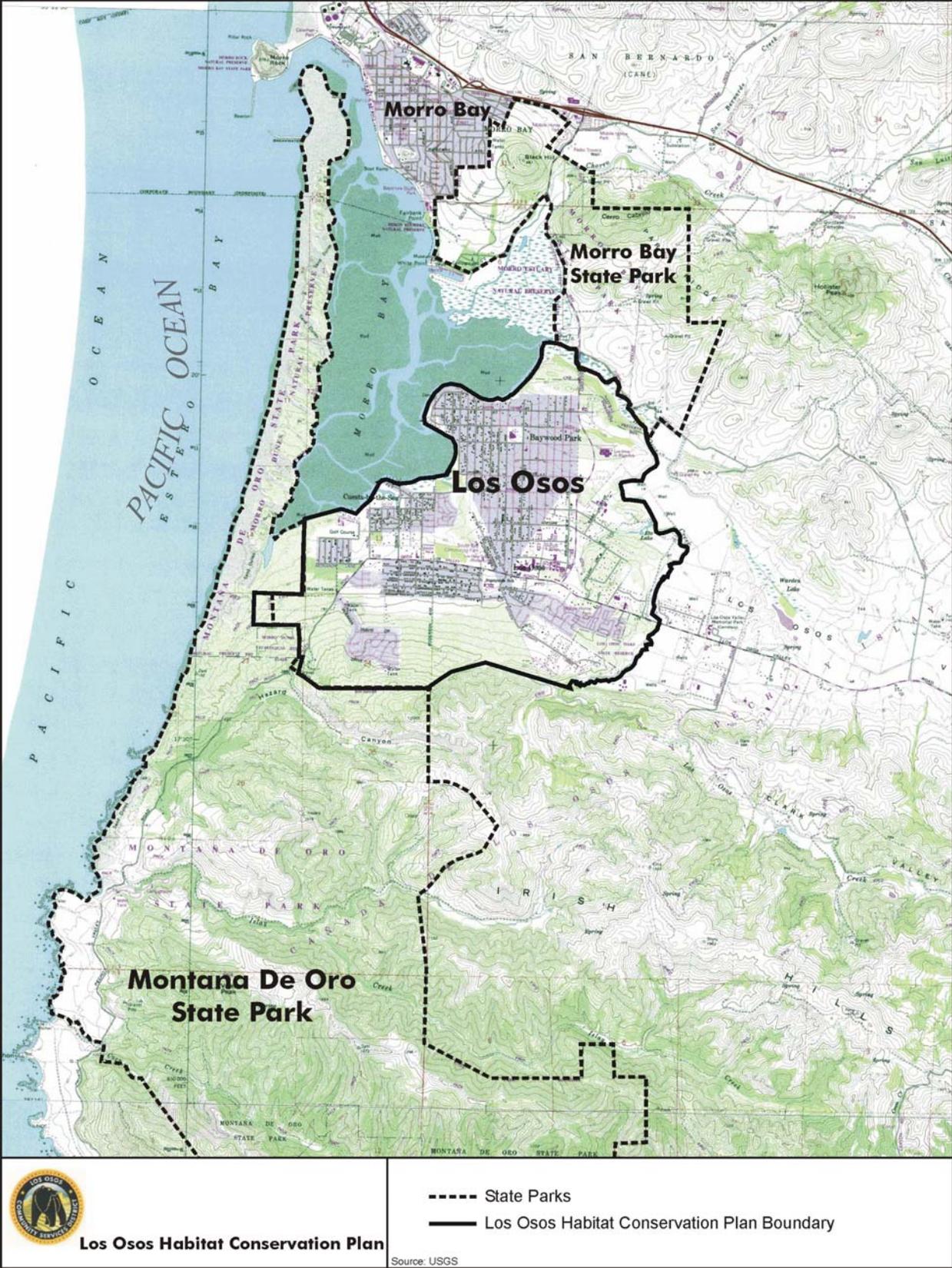


Figure 2-1: LOHCP Geography

2.3 CLIMATE

The climate of the Los Osos area can be described as semi-arid with warmer, foggy summers followed by a cool, rainy period from November to March. During the summer months, the daily pattern often consists of dense morning fog followed by periods of afternoon sunshine. Average temperatures in the Los Osos area range between 42 and 79 degrees Fahrenheit.

Weather patterns are dominated by the eastern Pacific High Pressure System, which persists off the California coast for much of the year, diverting storms northward. Mean annual rainfall in the Los Osos Valley increases gradually from about 14.5 inches at the coast to about 15 inches at the inland end of the valley. Rainfall also increases towards the mountains. Mean annual rainfall is about 15 inches per year along Park Ridge in Morro Bay State Park on the north side of Los Osos Valley and 30 inches per year at the upper end of the Los Osos Creek drainage basin in the Irish Hills (California Department of Water Resources, 1973).

2.4 HYDROLOGY

The primary drainage is Los Osos Creek, which flows from the Irish Hills northerly to Morro Bay. The principal source of runoff for this creek is the Clark Valley. The creek has been channeled and diked along the northerly section to protect agricultural operations in the valley.



Warden Creek, the primary tributary of Los Osos Creek, drains the easterly portions of Los Osos Valley and is outside of the Plan Area. The creek flows through an area know as Warden Lake and then northwesterly along the edge of the valley until it joins Los Osos Creek just above the abandoned crossing of Santa Ysabel Avenue. Warden Creek has also been channeled and diked to protect local agricultural activity.

The other tributary of Los Osos Creek is Eto Creek. This smaller creek is located just east of the intersection of Los Osos Valley Road and South Bay Boulevard. It flows northeasterly to Eto Lake. The main source of the flow in this creek is shallow groundwater.

Los Osos Creek has a small estuary that extends from its confluence with Warden Creek, downstream to the west of the South Bay Boulevard Bridge where it flows into Morro Bay. The estuary is bordered on the northwest by the delta and tributary system of Chorro Creek. These two creeks provide most of the freshwater that flows to Morro Bay.

2.5 GEOLOGY

The LOHCP Area is located in a seismically active region that includes several active earthquake faults, most notably the Los Osos fault zone, which cuts through the Los Osos Valley area in an east-west fashion.

The northern coastal area of San Luis Obispo County, including the LOHCP Area, is underlain primarily by Jurassic-age to Cretaceous-age (approximately 120 to 180 million years old) rocks of the Franciscan complex. The Franciscan complex is a mixture of igneous, metamorphic and sedimentary rocks. Cretaceous-age (65 to 140 million years old) and Tertiary-age (2 to 65 million years old) sedimentary rocks, including unnamed Cretaceous sandstone, and the Lospe, Vaqueros, Rincon, Monterey and Pismo formations overlie the Franciscan Formation basement rocks in some parts of the region.

A late Pleistocene and Holocene Dune Complex and Lower Pleistocene sediments of the Paso Robles formation overlie the majority of the LOHCP Area. Distinguishing locally between these units can be difficult as sands from upper Paso Robles beds may be found in close proximity to dune sands. Additional clays and clayey silts distinguish the Paso Robles formation.

2.6 SOILS

A defining feature of the Los Osos terrestrial habitats is the presence of fine Aeolian sands. The National Resource Conservation Service (NRCS) Soil Survey Division (1999) developed the generalized soils map of the area and depicted these Aeolian sands as the Baywood series (Baywood fine sands) (Figure 2-2). While Baywood fine sands also occur in isolated locations in Cayucos and Morro Bay, it is the dominant soil type throughout Los Osos. In Los Osos, the Baywood fine sands are distinctively bounded by Los Osos Creek to the east, the foothills to the south, and Morro Bay to the northwest. These soils provide the foundation for a unique ecosystem and largely define the LOHCP Area.

In Los Osos, the Baywood series consists of sand dunes near the coast with gradients of 0 to 50 percent and with elevations from sea level to 800 feet. They are deep, somewhat excessively drained soils that formed in the Pleistocene epoch, which occurred in the Quaternary Period of geologic time (from about 10 to 12 thousand to 1.6 million years ago). The primary soil formation processes affecting the soils are accumulation of organic matter (metanization), clay synthesis, clay migration to lower profile position (lessivage), and iron mineral transformation (rubification) resulting in soil reddening. Typically the surface appears very dark grayish brown to dark brown fine sand that is 12-36 inches thick. The underlying material is dark grayish brown and brown fine sand reaching a depth of 60 inches or more. Some pedons have a B horizon, few faint lamellae, or small dark reddish brown concretions. The surface layer is slightly acidic. The soil becomes medium acidic or strongly acidic as depth increases. In places the soil is loamy sand.

Two other soil series, the Oceano and the Garey series, are formed to a limited extent on the older sand dunes in the Plan Area. They meet the characteristics of more developed soils and are included within the Baywood series but are not separately mapped by the National Resource Conservation Service Soil Survey Division.

The Garey series consists of very deep, well-drained soils that formed in Aeolian sand deposits. Permeability is moderately slow and these soils are found on old stabilized sand dunes. Typically, the surface layer is brown and pale brown sandy loam 21-36 inches thick. The upper part of the subsoil is brown loamy sand to a depth of 64 inches. The lower part to a depth of 75 inches is light yellowish brown loamy sand. The profile is medium acidity in the surface layer

and as depth increases becomes neutral. Lamellae are present that are usually one unit darker than the matrix and have hues of 7.5YR or 5YR. The lamellae have an increase in clay content from the overlying A horizon that is greater than 3% absolute. The cumulative thickness of the lamellae is more than 6 inches.

The Oceano series consists of very deep, excessively drained, rapidly permeable soils that formed in Aeolian sand deposits. These soils are found on old sand dunes. Typically the surface layer is 14 to 36 inches of brown sand. The underlying material is 60 inches or more of pale and pink sand. The profile is strongly acid or medium acid throughout. There is a loamy sand lamellae, which are found at a depth of 40 inches and are 1/4 to 1/2 inches thick.

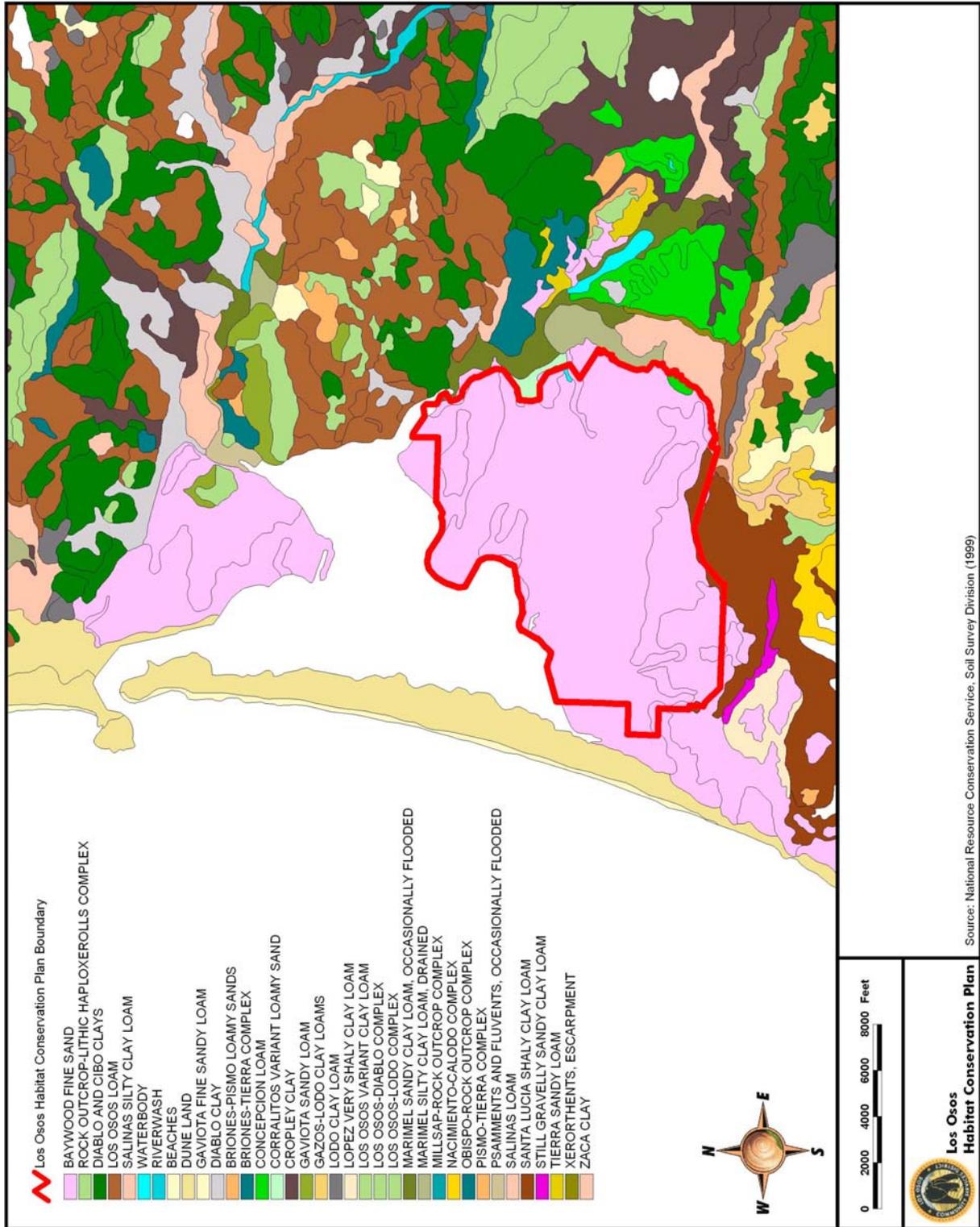


Figure 2-2: Soil Types Throughout the Los Osos Area

2.7 HISTORICAL VEGETATION

The Baywood fine sands are similar to other areas of wind-blown sand dunes along the California coast that are geographically separated from each other, such as the Asilomar dunes and the Oceano dunes. Like the other dune complexes, the Baywood fine sands support an ecosystem where many endemic species, such as the Morro shoulderband snail, Morro kangaroo rat, Morro manzanita, and splitting yarn lichen, have developed. Plant communities found in the Baywood series vary slightly from their inland cousins due to their proximity to the coast, coastal fog, natural disturbances such as fire, and cultural disturbances such as clearing, grazing, and tillage (National Resource Conservation Service Soil Survey Division, 1999).

Since 1949, Los Osos has experienced many changes in vegetation patterns including a significant increase in urban development (see Figure 2-3). However, both historic and recent documentation have demonstrated that vegetation on Baywood fine sands meeting SRA criteria can reestablish after disturbance through revegetation or natural succession. Areas of agriculture on the south end of the Plan Area, observable in the 1949 aerial photo, had returned to native plant communities including coastal sage scrub, Morro manzanita and central maritime chaparral by 1987 (Los Osos/Baywood Park Conservation Plan, 1998).

A more recent example of native vegetation recovery on Baywood fine sands is on the eastern side of Los Osos just east of the middle school. The “Powell II” property (APN 067-011-033) was in dry crop bean cultivation in the 1980s (Powell M., per comm., 1997). The site was left fallow during which time native dune lupine, croton, and other herbaceous plants became established creating sparse coastal scrub habitat. In 1997 the property again was plowed under for agriculture purposes and planted with beans. After the growing season in 1998, the property was left fallow. Since then, through natural succession, the vegetation has returned to coastal sage scrub within 5 years. The property has since been purchased for conservation.

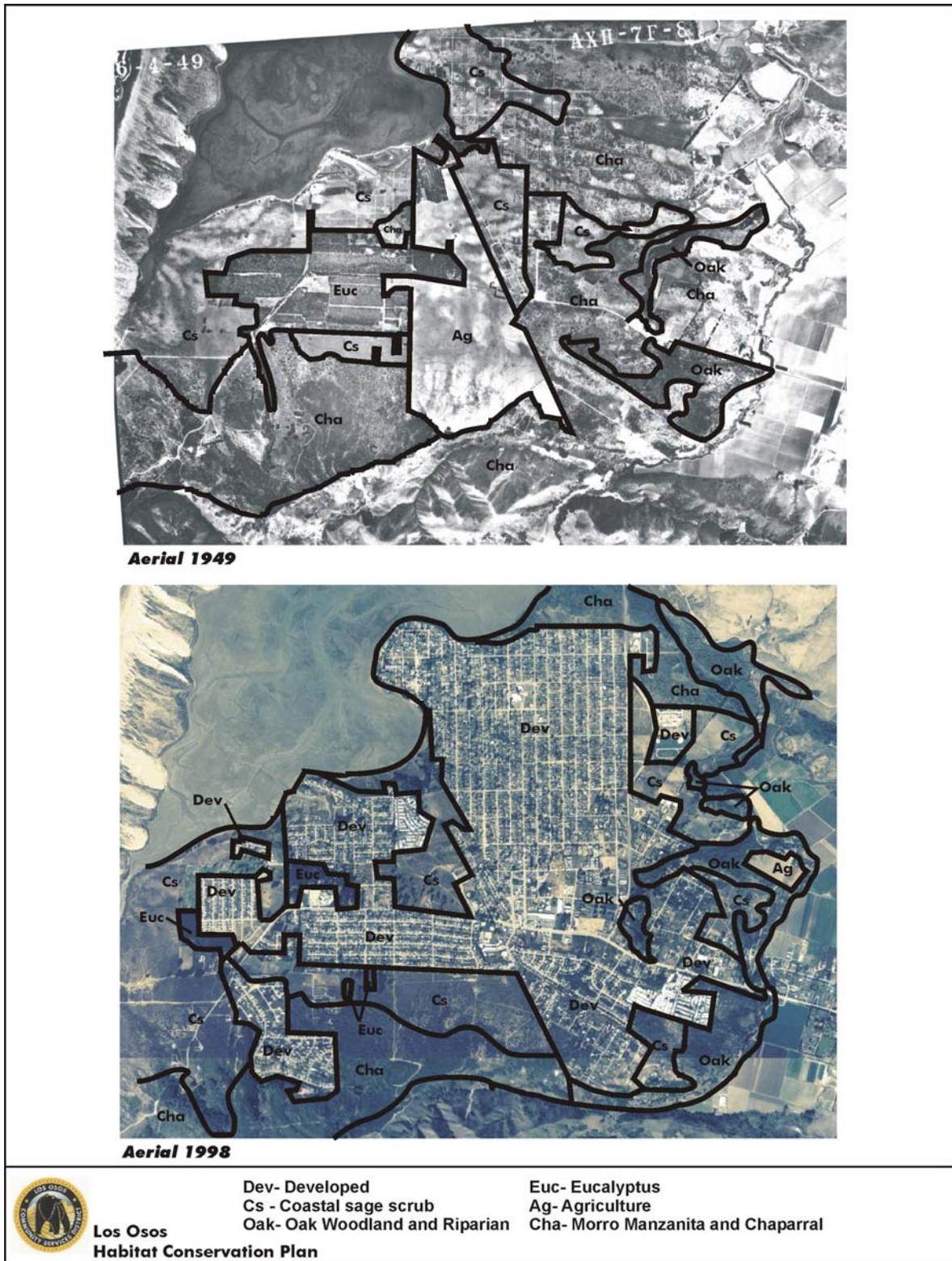


Figure 2-3: Aerial Photos 1949 and 1998

2.8 BIOLOGICAL RESOURCES

Although Los Osos is a relatively small area geographically, it is recognized as a zone where northern and southern species converge causing a great diversity in plant vegetation and wildlife. The LOHCP Area provides habitat for almost ninety special status plant and wildlife species. In addition, at least four of these species, Morro shoulderband snail, Morro kangaroo rat, Morro manzanita, and splitting yarn lichen, are endemic to the area.

2.8.1 Ecosystems and Landscapes

The LOHCP Area is part of a broader ecosystem that is represented as an environmental gradient built upon geological and soil features and characterized by an associated suite of vegetation types. The upland habitats of this ecosystem, which are the focus of the LOHCP, extend west to the Morro Dunes and include the major coastal areas and the northern extent of Montana de Oro State Park. The unique environmental gradient is the result of tens of thousands of years of geological change and soil development.

The ecological basis of the ecosystem links the physical components of the area, including the soils and geology, with the associated vegetation. The landform of the area is predominately a dune land type. Three areas of dune development have been recognized in the Los Osos area (Jones and Stokes, 1997) including young dunes, middle-aged dunes and old dunes. The location of each of these dune system types is typically a gradient beginning with young dunes slightly inland from the beach then middle-aged dunes extending further inland and older dunes up the slope of the hills in southern Los Osos. Soils that range from low moisture holding with relatively low nutrients in the young dunes to higher soil moisture capacity and relatively higher nutrient levels in the middle-aged and old dune systems have simultaneously developed on these dune systems together with a complex of vegetation types. The youngest dunes have sparse coastal sage scrub vegetation, while the middle-age dunes have greater cover and a higher diversity of coastal sage scrub plants, and finally, the old dunes support a unique maritime chaparral plant community that is dominated by Morro manzanita, which has evolved only within this area.

The younger dune soils have relatively low organic matter and clay content preventing moisture from accumulating. They also are relatively low in important nutrients including nitrogen and phosphorus. The young dunes range from unstable, shifting sands closer to the beach to recently stabilized dunes further inland. They are vegetated by patchy areas of herbaceous annual and perennial plants or short woody shrubs including dune lupine, which produces its own nitrogen in its root system. These areas can be characterized as having coastal sage scrub habitat in an early stage of development. Sites that have been cleared for agriculture or disturbed in other ways are often naturally revegetated with plants such as dune lupine. Recently, the invasion from veldt grass and other non-native weedy plants is supplanting the establishment of native plants.

The middle-aged dunes are further inland and upslope from the young dunes but generally below an elevation of 300 to 400 feet above sea level. The soil characteristics of these dunes meet those that typify the Baywood series as described by the NRCS. These soils have a relatively higher organic and clay content allowing moisture to persist for a longer period. This is also associated with higher soil fertility providing conditions for more nutrient requiring plants. The vegetation on these soils is predominately coastal sage scrub dominated by California sagebrush and black

sage with wedgeleaf ceanothus and Morro manzanita as occasional shrub associates. These middle-aged dune systems have experienced the greatest amount of loss and disturbance and have become heavily invaded by non-native weedy plants, particularly veldt grass. Historical aerial photos indicate that following disturbance, coastal sage scrub vegetation returns, sometimes initially with the presence of plant species from the young dunes such as dune lupine and goldenbush (Figure 2-3).

Old dune systems in the Los Osos area are upslope from the middle-aged dunes and occur on steeper slopes. These old dunes have soils that meet the characteristics of more developed soils including the Oceano and Garey series. Both the Oceano and Garey soil series have higher amounts of clay including clay layers that are up to one inch thick allowing more moisture retention in the soil than the less developed Baywood fine sands. The vegetation cover is greatest on these older dunes due to the fact that the soil is more developed. The vegetation is predominately central maritime chaparral mostly dominated by Morro manzanita. Historical aerial photos indicate that disturbance to these soils has generally resulted in the same vegetation becoming revegetated following the disturbance. The relative density of Morro manzanita and other shrubs appears to preclude to any great extent the rapid invasion by non-native weedy plants.

This unique environmental gradient represents an endemic coastal ecosystem. The physical processes that have led to these conditions are not duplicated elsewhere, and, therefore, the ecological functioning under these conditions creates very high value biological resources.

2.8.2 Habitat Types

The LOHCP Area occurs within the Central Coast subregion of the California Floristic Province and supports a large diversity of habitat types. The baseline vegetation inventory and mapping was compiled by CMCA using data from Jones and Stokes (Los Osos/Baywood Conservation Plan, 1998) and Gaylene Tupin (1997), which were field checked for accuracy. Mapping was completed using a GIS-based format (ArcView) compatible with the USFWS's systems.

The LOHCP Area encompasses approximately 2,825 acres with approximately 1,740 acres supporting native and nonnative vegetation (Figure 2-4 and Table 2-1). The 6 vegetation communities within the LOHCP Area include central maritime chaparral (396 acres), coastal sage scrub (638 acres), wetlands (41 acres), riparian (92 acres), woodlands (296 acres), grasslands (34 acres), and other habitats/land uses (242 acres).

2.8.3 Vegetation Communities and Series

The variety of plant community series creates a mosaic of different habitats throughout the Plan Area and includes 23 plant community series (Figure 2-5 and Table 2-1). These plant community series are based on the California Native Plant Society's Manual of California Vegetation (Sawyer and Keeler-Wolf, 1995). Terminology used in this section utilizes Sawyer and Keeler-Wolf (1995), Holland (1989), and other described series that have been submitted to the CNPS. All of the Morro manzanita series are unique to the Plan Area.

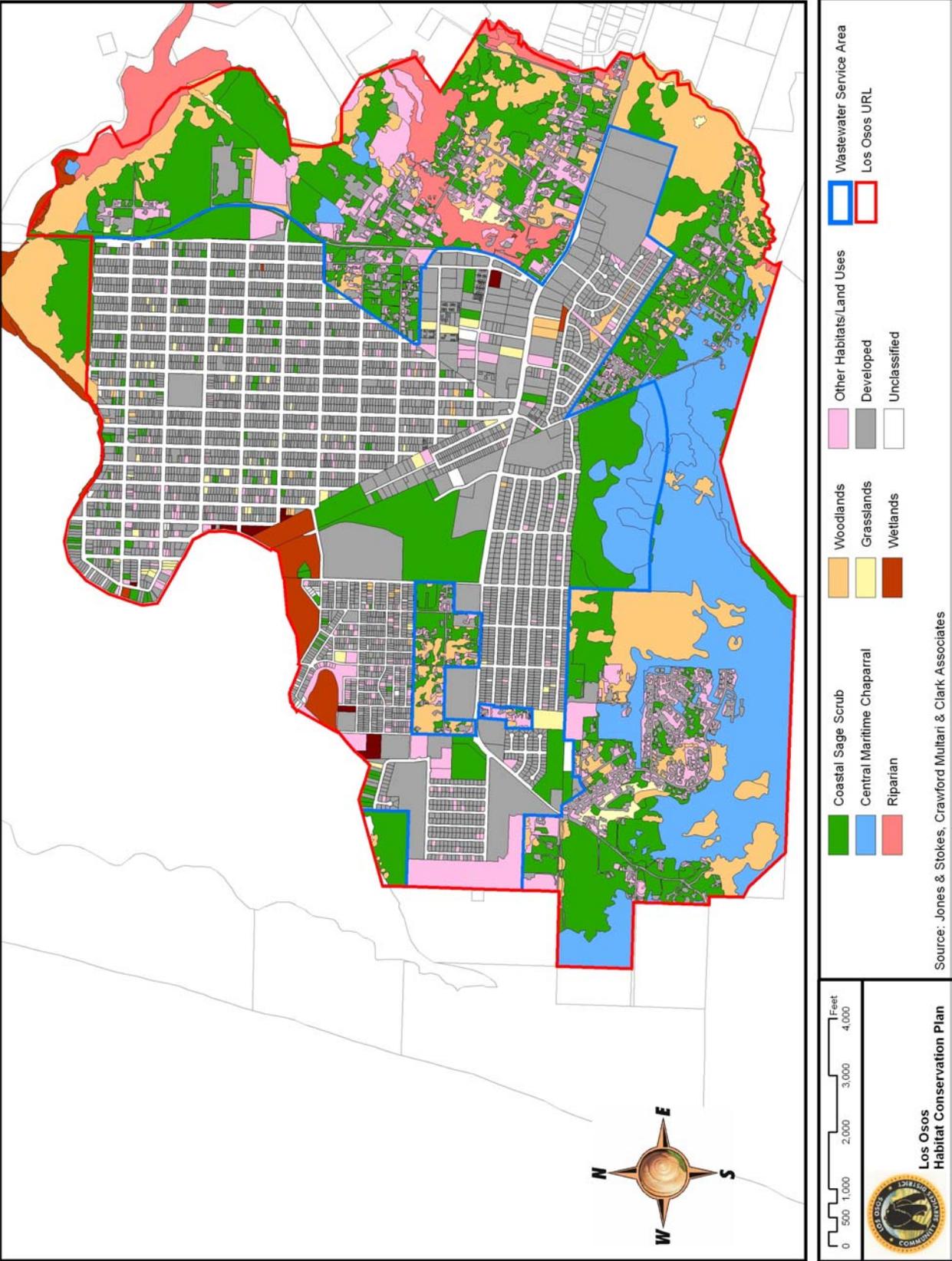


Figure 2-4: Vegetation Communities

Table 2-1: Vegetation Communities and Series

Plant Communities Series	Inside Wastewater Service Area		Outside Wastewater Service Area		LOHCP Plan Area
	Urban	Dune Sands SRA	Urban	Dune Sand SRA	
Central Maritime Chaparral					
Morro Manzanita Series (MM)			11.9	285.2	297.0
Morro Manzanita California Sagebrush Series (MS)				37.8	37.8
Morro Manzanita Wedgeleaf Ceanothus Series (MW)				61.5	61.5
Subtotal	0.0	0.0	11.9	384.4	396.3
Coastal Sage Scrub					
California Sagebrush – Black Sage Series (CS)			5.2	277.7	282.8
California Sagebrush – Black Sage Series Disturbed (CSD)	64.9	62.5	43.5	172.7	343.6
California Sagebrush – Black Sage Series Heavily Disturbed (CHSD)			6.3	4.9	11.2
Coyote Brush Series (CY)	0.7				0.7
Subtotal	65.6	62.5	55.0	455.2	638.3
Wetland					
Cattail Series (CT)				0.1	0.1
Pickleweed Series (PW)				0.0	0.0
Disturbed Wetlands (DW)	41.2				41.2
Subtotal	41.2	0.0	0.0	0.1	41.3
Riparian					
Arroyo Willow Series (AW)	7.8			1.7	9.6
Black Cottonwood Series (BC)				2.5	2.5
Coast Live Oak - Arroyo Willow Series (LW)				56.2	56.2
Arroyo Willow Black Cottonwood Series (AWBC)				23.3	23.3
Subtotal	7.8	0.0	0.0	83.7	91.5
Woodlands					
Coast Live Oak Series (LO)	10.7		5.7	209.5	225.9
Bishop Pine Series (BP)				3.1	3.1
Eucalyptus Series (EU)			20.4	46.5	67.0
Subtotal	10.7	0.0	26.1	259.1	296.0
Grasslands					
California Annual Grassland Series (CA)				2.1	2.1
Non-Native Grassland (NG)	21.9	0.0	4.4	5.8	32.1
Subtotal	21.9	0.0	4.4	7.9	34.2
Other Habitats/Land Uses					
Agriculture (AG)	2.5	0.0	0.5	31.9	35.0
Open Water (OW)				4.0	4.0
Landscaped Trees (LT)	41.9		34.2	80.6	156.8
Ruderal Disturbed (RD)	39.8			6.0	45.8
Subtotal	84.3	0.0	34.7	122.5	241.6
TOTAL	231.6	62.5	132.1	1312.9	1739.2

Note: Vegetation surveys and mapping inside the wastewater service area only conducted on vacant parcels. Vegetation mapping outside the wastewater service area was conducted on all parcels.

Sources: Jones and Stokes, Tupin, CMCA

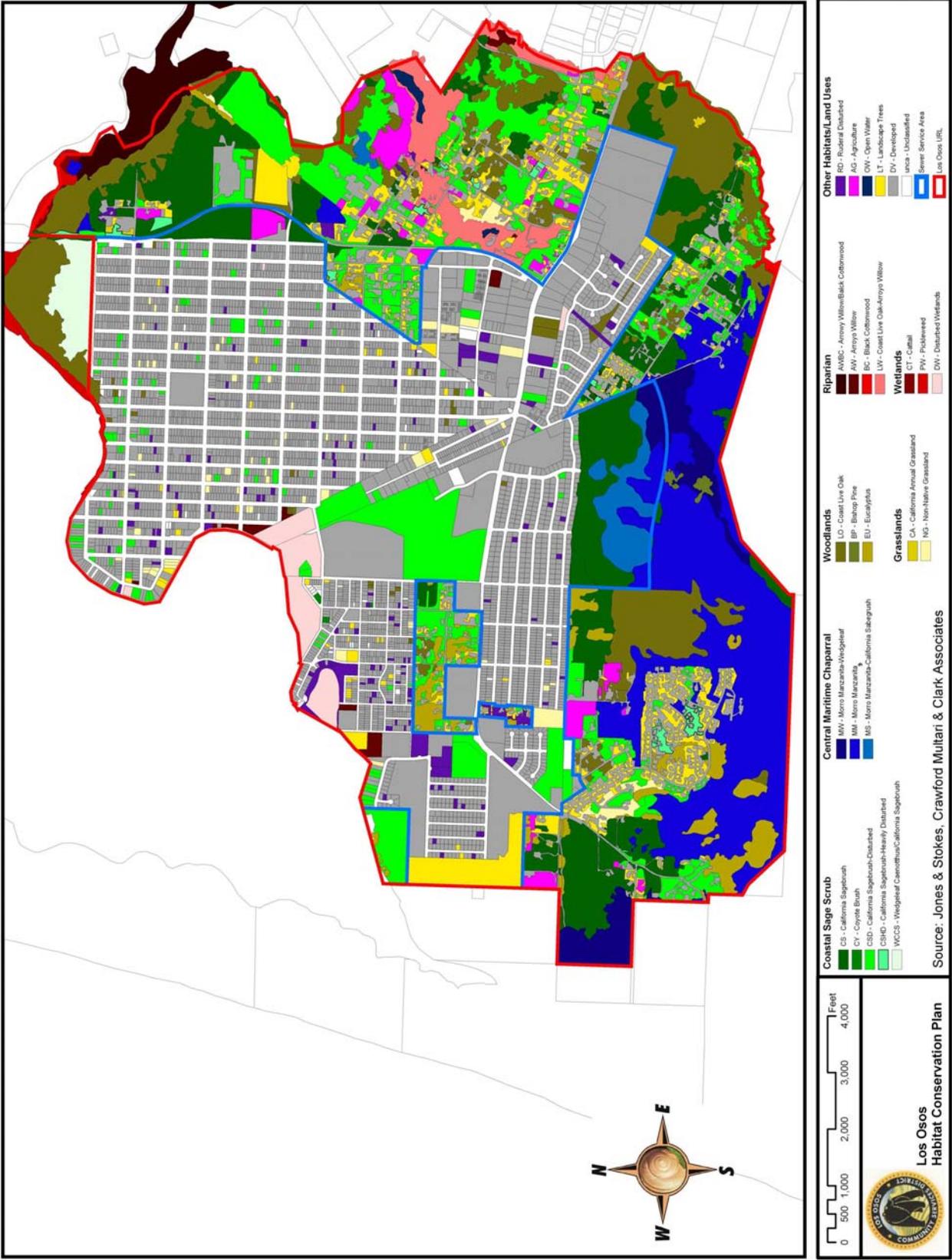


Figure 2-5: Vegetation Series

Central Maritime Chaparral

Originally described by Holland in 1989, central maritime chaparral is dominated by Morro manzanita within the LOHCP Area and found throughout the southern hillsides and on the north-facing slopes of the marine terraces just south of Los Osos Creek. Maritime chaparral occurs on highly erosive, sandy soils and merges into pygmy oak woodland and other coastal scrub communities. The cool, moist climate provides frequent fog drip, an extremely important factor limiting the distribution of this community.



In addition to Morro manzanita, chamise is also a dominant species associated with central maritime chaparral. There is little understory as the environment under this chaparral is one of low light and deep leaf litter. Chamise and Morro manzanita may be allelopathic, emitting toxins to retard other competitors. Only after a fire do other species get a foothold until canopies grow thick and are shaded out. Other characteristic plants include coast live oak, wedge-leaf ceanothus, sticky monkeyflower, and Indian Knob mountainbalm.

In the LOHCP Area, central maritime chaparral makes up approximately 396 acres or 23 percent of the remaining habitat and vegetation. Central maritime chaparral in the LOHCP Area consists of the following plant community series.

Morro Manzanita Series (MM)

The Morro manzanita series is typically a dense canopy cover of manzanita approximately 4 to 12 feet in height. Coast live oak, wedgeleaf ceanothus, sticky monkey flower, and/or black sage may be present. Morro manzanita is restricted to the older middle-aged dunes and older dunes consisting of Oceano and Garey soil series. Based on the current distribution of Morro Manzanita, they are located on slopes ranging from a few degrees to 15 degrees with a predominately north-facing to west-facing aspect.

Morro Manzanita - Wedgeleaf Ceanothus Series (MW)

This plant community series consists of a dense canopy formed by Morro manzanita and wedgeleaf ceanothus as the co-dominant species approximately 3 to 6 feet in height. California sage, black sage and/or sticky monkey flower may be present.

Morro Manzanita - California Sagebrush Series (MS)

This plant community series consists of an open canopy of Morro manzanita and California Sagebrush as the co-dominant species approximately 3 to 6 feet tall. California buckwheat, deer weed, wedgeleaf ceanothus, sticky monkey flower, and/or black sage may be present. This plant community series is found in areas where Morro manzanita has been disturbed or removed allowing California sagebrush and other associated species to become established and in the transitional area between the middle-aged dunes to older dunes where the Morro manzanita becomes less dense.

Coastal Sage Scrub

Coastal sage scrub is a diminishing habitat in the state of California, primarily because of its location on relatively flat terraces adjacent to the Pacific Ocean where development is common. Much of Los Osos is situated in coastal sage scrub habitat. Silver lupine, mock heather, and coyote brush are characteristic plants occurring within coastal sage scrub. Lack of habitat continuity, encroachment of development, suppression of natural burns, invasion of veldt grass (an exotic species), and intrusions of domestic pets are all serious threats to this habitat and its inhabitants.



In the LOHCP Area, the coastal sage scrub makes up approximately 638 acres or 37 percent of the remaining habitat. Coastal sage scrub in the LOHCP Area consists of the following plant community series.

California Sagebrush – Black Sage Series (CS)

This plant community series consists of either a continuous or intermittent California sagebrush and black sage dominated canopy approximately 2 to 5 feet tall and found on steep, south-facing slopes in colluvial-derived soils with a variable ground layer. California buckwheat, deer weed, and/or white sage may be present in the stand. Historical aerial photography of the LOHCP Area shows that the clearing of California sagebrush-black sage series in the late 40's significantly disturbed a large portion of the plant community series; however, remarkably, this area has revegetated.

Coyote Brush Series (CY)

This plant community series consists of a continuous or intermittent canopy dominated by coyote brush (*Baccharis pilularis*). The stand is approximately 3 to 6 feet tall and found on stabilized dunes and coastal bluffs and terraces. California sagebrush, California buckwheat, poison oak and/or black sage may be present in the stand.

California Sagebrush – Black Sage Series Disturbed (CSD)

This plant community series consists of a low shrub cover dominated with California sagebrush and black sage. The stand is approximately 1 to 4 feet tall with low vegetation cover and found on disturbed sites. Non-native herbaceous plants including veldt grass are present in the stand.

California Sagebrush – Black Sage Series Heavily Disturbed (CSHD)

This plant community is the same as CSD but more disturbed. This disturbance is identified with the presence of more veldt grass combined with more sparse, lower growing natural vegetation cover.

Wedgeleaf Ceanothus - California Sagebrush Series (WCCS)

This plant community series consists of a dense canopy formed by wedgeleaf ceanothus and California sagebrush as the co-dominant species approximately 3 to 6 feet in height. Black sage and/or sticky monkey flower may be present.

Wetlands

Wetland vegetation in and near Los Osos is found in three different zones that are a transition between a freshwater and a saline environment. The zones are made up of:



Coastal Salt Marsh (Estuarine Emergent Wetland): Coastal salt and brackish marsh are important components of the wetland habitat found at the edge of the Morro Bay estuary. Portions of these habitats have been severely impacted by sedimentation and aggressive takeover by introduced weed species, particularly hoary cress. The coastal salt marsh is a known habitat for a number of nesting and foraging shorebirds, waterfowl, and raptors. The abundance of small mammals provides an excellent prey base.

Brackish Marsh (Estuarine Emergent Wetland): Coastal Brackish Water Marsh, found in the narrow zone between salt marsh and fresh water marsh or upland habitats, is characterized by salt grass, jaumea, and alkali heath. Small areas of brackish marsh are found near the mouth of Los Osos Creek and at Sweet Springs Marsh.

Fresh Water Marsh (Palustrine Emergent Wetland): Coastal freshwater marsh is primarily found at the south edges of Morro Bay and is dependent on high groundwater.

In the LOHCP Area, the wetland communities make up approximately 41 acres or 2 percent of the mapped habitat areas. However, even though it makes up a very small portion of the LOHCP Area, it is an important link in the overall ecosystem and important to the adjacent Morro Bay estuary.

Cattail Series (CT)

This plant community series consists of a continuous, intermittent, or open canopy dominated by cattails. The stand is approximately 4 to 8 feet tall and found associated with permanently or seasonally flooded fresh and brackish wetlands near Los Osos Creek and Sweet Springs. Bulrush, sedges, rushes, nettles, mugwort and/or arroyo willow may be present in the stand.

Pickleweed Series (PW)

This plant community series consists of a continuous or intermittent canopy dominated by pickleweed. The stand is approximately 0.5 to 1 feet in height and found associated with permanently or seasonally flooded saltwater and brackish marshes along Los Osos Creek. Brass buttons, jaumea, and/or saltgrass may be present in the stand. This plant community series is

located at the mouth of Los Osos Creek where it enters into Morro Bay, and the east marsh of Sweet Springs Nature Preserve.

Disturbed Wetlands Series (DW)

This plant community series consists of wetlands that were previously disturbed wetlands. They may contain a mixture of riparian and wetland plants including young arroyo willows, cattails, rushes and/or sedges.

Riparian

Healthy riparian corridors consist of tall overstory shade trees, shrubby vegetation, and understory grasses and forbs. The shade of the trees keeps creek water cool and reduces algal growth in the creek channel. Riparian corridors provide important nesting, feeding, and cover habitat for a number of birds, mammals, and other species. They also serve as wildlife corridors for migratory animals. Riparian vegetation also helps to prevent stream bank erosion and trap sediment before it reaches the stream.



The riparian woodland makes up approximately 91 acres or 5 percent of the mapped habitat in the Plan Area. The riparian woodland in the LOHCP Area consists of the following plant community series.

Arroyo Willow Series (AW)

This plant community series consists of a continuous shrub or tree canopy dominated by arroyo willow (*Salix lasiolepis*) with a sparse shrub understory. The stand is approximately 8 to 30 feet in height and found in seasonally flooded habitat with a sparse or abundant ground layer. California sycamore, coyote brush, and/or willows may be present in the stand.

Coast Live Oak - Arroyo Willow Series (LW)

This plant community series consists of a continuous, intermittent, or open tree canopy dominated by coast live oak and arroyo willow with a shrub understory. The stand is approximately 20 to 50 feet in height and found in mostly sandstone or shale derived soil along steep slopes or raised stream banks and terraces with a grassy ground layer. California bay may be present in the stand.

Black Cottonwood Series (BC)

This plant community series consists of a continuous or intermittent tree canopy dominated by black cottonwood with a shrub understory. The stand is approximately 20 to 50 feet in height and found in seasonally flooded habitat with a sparse or abundant ground layer. Fremont cottonwood and/or aspen may be present in the stand.

Arroyo Willow-Black Cottonwood Series (AWBC)

This plant community is a combination of the AW series and the BC series. It consists of a mix of both series.

Woodlands

Within the LOHCP Area, two distinct phases of coast live oak woodland can be found. The common coast live oak woodland typically occurs on mesic soils of north facing slopes and canyons, while the "pygmy oak" phase, known locally as the "elfin forest," occurs along the southern edge of Morro Bay and the western edge of Los Osos Creek. Pygmy oaks are a stunted, wind-pruned variety of coast live oak often occurring as a many-stemmed, gnarled shrub or tree. The Elfin Forest Small Wilderness



Preserve, which sits on some of the oldest dunes, and the Los Osos Oaks State Reserve contain stunning examples of the pygmy oaks. This type of oak woodland is known in only two other areas in the state: Burton Mesa in Santa Barbara County and the Presidio area on the San Francisco peninsula.

Some of the more commonly occurring understory species are wood fern, manroot, bracken fern, wild blackberry, gooseberry, and poison oak. Coast live oak communities are extremely variable, and often intergrade with riparian and chaparral types. A progression in cover types is generally recognized from oak savanna to oak woodland to oak forest. Oak savanna usually has a grassy understory, oak woodland contains scattered oak trees generally with a chaparral understory, and oak forest contains large specimen-size trees where canopies touch providing a shady environment for shrubs and many ferns. The upper watershed of Los Osos Creek supports undisturbed stands of mostly oak woodland and oak forest, providing valuable wildlife habitat.

The Eucalyptus groves in the LOHCP area provide overwintering habitat for Monarch butterflies, which are recognized as a "California Special Resource." They may also be used by raptors for nesting and, in some cases, wintering habitat.

The woodlands comprise approximately 296 acres or 17 percent of the mapped habitat in the Plan Area. The woodlands in the LOHCP Area consist of the following plant community series.

Coast Live Oak Series (LO)

This plant community series consists of a continuous, intermittent, or open tree canopy dominated by coast live oak with a shrub understory. The stand is approximately 20 to 45 feet in height and found in very steep slopes with mostly sandstone or shale derived soils with a grassy or absent ground layer. Morro manzanita, wedgeleaf ceanothus, coffee berry and/or poison oak may be present in the stand.

Bishop Pine Series (BP)

This plant community series consists of a continuous tree canopy dominated by bishop pine (*Pinus muricata*) with a shrub understory. The stand is approximately 20 to 35 feet in height and found in maritime terraces and rocky ridges with mostly shallow acidic soils with a sparse or abundant ground layer. There are two stands of bishop pine that are associated with Morro manzanita. These stands are over 50 years old and appear in aerial photographs taken in 1949. The small amount of bishop pine series may be a result of either their serotinous cones and a lack of fires in the area or a local soil condition.

Eucalyptus Series (EU)

This plant community series consists of a continuous tree canopy dominated by eucalyptus (*Eucalyptus* spp.) with an infrequent shrub understory. The stand is approximately 20 to 75 feet in height and found on all slopes with a sparse understory. In areas where eucalyptus forms dense stands, growth of native plants within the immediate vicinity is usually completely inhibited, thereby altering community structure and dynamics.

Grassland

Grassland is a good foraging area for raptors. Annual grassland is the most abundant grassland type and plant community in the LOHCP Area. Much of this community has been utilized as rangeland, and has been greatly altered by human activities. It consists mostly of introduced grasses, such as veldt grass, slender wildoats, common wild oats, rip-gut brome, soft chess, red brome, ryegrass, foxtail barley, and rat-tail fescue. Veldt grass invasion of coastal sage scrub communities is a serious problem to the ecosystem.



Grasslands comprise approximately 34 acres or 2 percent of the habitat. The grasslands in the LOHCP Area consist of these plant community series:

California Annual Grassland Series (CA)

This plant community series consists of a continuous or open area dominated by annual grasses and herbs with an infrequent shrub or tree associated. The stand is approximately 0.5 to 1 feet in height and found in all topographic settings. It is characterized primarily by native genera of grasses such as needle-grass, bunchgrass or three-awn. Springtime also can bring masses of wildflowers such as buttercup, larkspur, blue-eyed grass, blue dicks, owl's clover, lupines, star-thistle and filaree.

Non-Native Grassland (NG)

This plant community series consists of continuous or open areas dominated by annual grasses and herbs with an infrequent shrub or tree associated. The stand is approximately 0.5 to 1 feet in height. It is characterized primarily by introduced genera such as veldt grass, brome grass, wild oats, fescue, ryegrass and harding grass.

Other habitats/land uses

The other habitats/land uses together comprise approximately 242 acres or 14 percent of the habitat.

Agriculture (AG)

Agriculture is typically established on flat terrain with fertile soils that have been greatly manipulated in terms of irrigation, crop rotation, and fertilization. Cropland vegetation is usually grown in a monoculture, using tillage or herbicides to eliminate unwanted vegetation. Cultivated species in such fields exhibit a variety of sizes and growing patterns that provide various heights and canopy covers.

Open Water (OW)

Open water is mapped at Eto Lake and Los Osos Creek. Eto Lake is connected to Los Osos Creek by Eto Creek, which is located east of the intersection of Los Osos Valley Road and South Bay Boulevard. Los Osos Creek is the main creek, which flows from the Irish Hills northerly to Morro Bay. Los Osos Creek has a small estuary that extends from its confluence with Warden Creek, downstream to the west of the South Bay Boulevard Bridge where it flows into Morro Bay. The estuary is bordered on the northwest by the delta and tributary system of Chorro Creek.

Landscaped Trees Series (LT)

Dense canopy of either native or non-native trees that have been planted as landscaping or wind blocks including Monterey pine, Monterey cypress, and Eucalyptus approximately 40 to 60 feet in height.

Ruderal Disturbed (RD)

Ruderal vegetation has been significantly disturbed by agriculture, construction, or other land clearing activities. The primary difference between non-native grasslands and ruderal habitats are that the soil is often disturbed in ruderal habitats, which also lack the native wildflowers found in the grasslands. Characteristic uncultivated species recorded in disturbed habitats include non-native species such as wild mustard (*Brassica* spp.), wild radish (*Raphanus sativus*), Russian thistle (*Salsola iberica*), castor bean (*Ricinus communis*), wild oat (*Avena* spp.), soft chess (*Bromus horedeaceus*), red brome (*Bromus madritensis* spp. *rubens*), ripgut grass (*Bromus diandrus*), sweet fennel (*Foeniculum vulgare*), Bermuda grass (*Cynodon dactylon*), and red stem filaree (*Erodium cicutarium*). The only native species common in ruderal habitats is coyote brush.

2.8.4 Wildlife and Plant Species in The LOHCP Area.

Appendix D provides detailed species accounts of special status plant and wildlife species that may occur in the LOHCP Area. “Special Status” is defined as:

- Listed as endangered or threatened under the federal Endangered Species Act (or formally proposed for, or candidates for, listing);
- Listed as endangered or threatened under the California Endangered Species Act (or proposed for listing);
- Designated as endangered or rare, pursuant to California Fish and Game Code (§1901);

- Designated as fully protected, pursuant to California Fish and Game Code (§3511, §4700, or §5050);
- Designated as species of concern by the USFWS or as species of special concern by DFG;
- Plants or animals that meet the definitions of rare or endangered under the California Environmental Quality Act (CEQA);
- Plants listed as rare under the California Native Plant Protection Act; or
- Plants considered by the California Native Plant Society (CNPS) to be “rare, threatened, or endangered in California” (Lists 1B and 2).

Appendix D was compiled using the regional analysis conducted for the Estero Area Plan, existing literature, local studies of the Plan Area, species recovery plans, critical habitat designations, Endangered Species Act listed occurrence data, the California Natural Diversity Database (CNDDDB), and interviews with species experts. Each of the species accounts contains the following information:

Wildlife

- Legal Status of Species
- Species Description
- Habitat and Habitat Associations
- Range
- Key Populations in LOHCP Planning Area
- Biology
 - Diet
 - Daily Activity
 - Migration and Dispersal
 - Survival
 - Socio-Spatial Behavior
 - Reproduction
- Threats
- Special Biological Considerations
- Conservation
- Literature Cited

Vegetation

- Legal Status of Species
- Species Description
- Habitat and Habitat Associations
- Range
- Key Populations in LOHCP Planning Area
- Biology
 - Flowering Period
 - Dispersal
- Threats
- Special Biological Considerations
- Conservation
- Literature Cite

The species accounts in Appendix D are summarized in Tables 2-2 and 2-3 below.

Table 2-2: Summary of Species Accounts for Special Status Wildlife Species that May Occur in the Plan Area

Scientific and Common Name	ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area
AMPHIBIANS					
<i>Ambystoma californiense</i> California tiger salamander	FC	SSC	Disjunct remnant vernal pool complexes in Sonoma and Santa Barbara Counties, and scattered along narrow strip of rangeland on the fringes of the Central Valley from southern Colusa County, and in sag ponds and human-maintained stock ponds in the coast ranges from the San Francisco Bay area south to Temblor Range.	Grasslands and low foothill regions where lowland aquatic sites are available for breeding. Large vernal pools, vernal playas, and large sag ponds. Occupies existing burrows during dormant phase in dry season.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the California tiger salamander within the LOHCP Area.
<i>Rana aurora draytonii</i> California red-legged frog	FT	SSC	Found along the coast and coastal mountain ranges of California from Humboldt County to San Diego County; Sierra Nevada (midelevations [above 1,000 feet] from Butte County to Fresno County)	Inhabits lowland streams, wetlands, riparian woodlands, and livestock ponds.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Red legged frog within the LOHCP Area. There is suitable habitat in the LOHCP Area. They are found in the Morro Bay tributaries that include Los Osos Creek.
BIRDS					
<i>Accipiter cooperii</i> Cooper's hawk	--	SSC	Throughout California except high altitudes in the Sierra Nevada; winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range.	Nests primarily in riparian forests dominated by deciduous species; forages in open woodlands.	Potential to occur. The CNDDDB (2002) has one historical record of a nesting occurrence within the LOHCP Area in Baywood. The existing literature regards the species as a resident of San Luis Obispo County, nesting and foraging in and near deciduous riparian areas.
<i>Accipiter striatus</i> Sharp-shinned hawk	--	SSC	Permanent resident on the Sierra Nevada, Cascade, Klamath, and north Coast Ranges at midelevations and along the coast in Marin, San Francisco, San Mateo, Santa Cruz, and Monterey Counties; winters over the rest of the state except very high elevations.	Prefer riparian habitats they are not restricted to them and are found in mid-elevation habitat such as pine forests, woodlands and mixed conifer forests. For nesting they occur in dense tree stands that are cool, moist, well shaded and usually near water. For hunting habitat, they often use openings at the edges of woodlands and also brushy pastures.	Potential to occur. The CNDDDB (2002) and existing literature have no records of known occurrence for the Sharp-shinned hawk within the LOHCP Area. There is suitable wintering habitat present in LOHCP Area.
<i>Athene cunicularia hypugea</i> Western burrowing owl	SOC	SSC	Restricted to the central valley extending from Redding south to the Grapevine, east through the Mojave Desert and west to San Jose, the San Francisco Bay area, the outer coastal foothills area which extend from Monterey south to San Diego and the Sonoran desert.	Inhabits dry, sparse grasslands, desert scrub, and agricultural areas.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Burrowing owl within the LOHCP Area. There is suitable nesting and foraging habitat present in LOHCP Area but the LOHCP Area is outside of its known range.
<i>Aquila chrysaetos</i> Golden eagle	--	SSC, FP	Foothills and mountains throughout California; uncommon nonbreeding visitor to lowlands such as the Central Valley	Cliffs and escarpments or tall trees for nesting; annual grasslands, chaparral, and oak woodlands for hunting.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Golden eagle within the LOHCP Area. No suitable nesting habitat present in LOHCP Area.

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Scientific and Common Name		ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area
<i>Arenaria melanocephala</i>	Black turnstone*	SOC	--	Distributed along the shores of Pacific Coast during the winter. In the fall, the Black Turnstone migrates along the central California coast.	Found on rocky shores of marine habitats along the coast. In the summer they are found on partial to rugged, rocky, intertidal coasts, but also occurs on outer coast sandy beaches and on mudflats.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the black turnstone within the LOHCP Area, but suitable habitat is available.
<i>Buteo regalis</i>	Ferruginous hawk	--	SSC	Does not nest in California; winter visitor along the coast from Sonoma County to San Diego County, eastward to the Sierra Nevada foothills and southeastern deserts, the Inyo-White Mountains, the plains east of the Cascade Range, and Siskiyou County.	Large, open tracts of grasslands, sparse shrub, or desert habitats with elevated structures for nesting. Its wintering habitat is similar in being open and it may also occur in areas of mixed grassy glades and pineries.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Ferruginous hawk within the LOHCP Area. Suitable wintering and foraging habitat present in LOHCP Area.
<i>Charadrius alexandrinus nivosus</i>	Western Snowy Plover	FT	SSC	Coastal areas from Del Norte County to San Diego County.	Nests, feeds, and takes cover on sandy or gravelly beaches along the coast, on estuarine salt ponds, alkali lakes, and at the Salton Sea.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Western snowy plover within the LOHCP Area. No suitable nesting habitat present in LOHCP Area.
<i>Circus cyaneus</i>	Northern harrier	--	SSC	Occurs from annual grassland up to lodgepole pine and alpine meadow habitats. It breeds from sea level to 1,700 m (0-5700 ft) in the Central Valley and Sierra Nevada, and up to 800 m (3600 ft) in northeastern California. It is a permanent resident of the northeastern plateau and coastal areas; it is a less common resident of the Central Valley.	Grasslands, meadows, marshes, and seasonal and agricultural wetlands providing tall cover.	Known. The Northern Harrier is a frequent forager on the Powell II and Palisade property (per. Comm., J. Chesnut).
<i>Contopus cooperi</i>	Olive sided flycatcher*	SOC	--	The breeding range extends south from Canada, extending as far south as the mountains of southern California. Winters primarily in the Andes Mountains of South America, with small numbers in Central America and southern Mexico.	Mid- to high-elevation mountains and coniferous forests, often associated with forest openings and edges. Presence in early successional forests appears to depend on availability of snags or live trees that provide suitable foraging and singing perches. It is frequently found along wooded shores of streams, lakes, and rivers, where natural edge habitat occurs and standing dead trees often are present.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the olive sided flycatcher within the LOHCP Area, but suitable habitat is available.
<i>Dendroica petechia brewsteri</i>	Yellow warbler	--	SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes in the Sierra Nevada; winters along the Colorado River and in parts of Imperial and Riverside Counties; two small permanent populations in San Diego and Santa Barbara Counties.	Breed in lowland and foothill riparian woodlands dominated by cottonwoods, alders, or willows and other small trees and shrubs typical of low, open-canopy riparian woodland.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the yellow warbler within the LOHCP Area. The LOHCP Area is outside of its known range and the LOHCP Area has no suitable habitat.
<i>Elanus leucurus</i>	White-tailed kite	--	FP	Lowland areas west of Sierra Nevada from head of Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border.	Forage in low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands. Breed in lowland grasslands, agriculture, wetlands, oak-woodland, and savannah habitats, and riparian areas associated with open areas.	Known. There is a known white-tailed kite occurrence in the Plan area. A large roosting concentration of white tailed kite are commonly found north of Nipomo and east of South Bay Blvd and on the "Iacono" property. The birds are winter a resident, with occasional summer presence (per comm., J. Chesnut).

Scientific and Common Name		ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area
<i>Empidonax traillii</i> ssp. <i>Extimus</i>	Southwestern willow flycatcher*	FE	SE	The breeding range for this species includes Owens Valley, south fork of the Kern River, the Los Angeles Basin, the Santa Ynez River near Buellton, the Prado Basin riparian forest in Riverside County, the Santa Margarita and San Luis Rey Rivers in San Diego County, Middle Peak in the Cuyamaca Mountains, and near Imperial Beach.	Riparian woodlands along streams and rivers with mature, dense stands of willows, cottonwoods or smaller spring fed or boggy areas with willows or alders.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the southwestern willow flycatcher within the LOHCP Area. The LOHCP Area is outside known range.
<i>Falco columbarius</i>	Merlin	--	SSC, FP	Does not nest in California; rare but widespread winter visitor to the Central Valley and coastal areas.	Forages along coastlines, open grasslands, savannas, and woodlands; often forages near lakes and other wetlands.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the merlin within the LOHCP Area. There is no suitable breeding habitat in the LOHCP Area. May be a wintering visitor but presence is unlikely in the LOHCP Area.
<i>Falco mexicanus</i>	Prairie falcon	--	SSC	Uncommon permanent resident and migrant that ranges from southeastern deserts northwest along the inner Coast Ranges and Sierra Nevada. It is distributed from annual grasslands to alpine meadows within this region. It is not found in the northern coastal fog belt, or along the coastline.	Annual grasslands to alpine meadows, but they are also associated primarily with perennial grasslands, savannas, rangeland, some agricultural fields, and desert scrub areas, typically dry environments of western North American where there are cliffs or bluffs for nest sites.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the prairie falcon within the LOHCP Area. Suitable foraging habitat present in LOHCP Area but the LOHCP Area is out of its known range.
<i>Falco peregrinus anatum</i>	Peregrine falcon	FD	SE, FP	Common along the coast north of Santa Barbara, in the Sierra Nevada, and in other mountains of northern California. In winter, found inland throughout the Central Valley, and occasionally on the Channel Islands. Migrants occur along the coast, and in the western Sierra Nevada in spring and fall.	Open habitats, including tundra, marshes, seacoasts, savannas and high mountains. Breeds mostly in woodland, forest, and coastal habitats.	Known. The undeveloped shorefront lots in Baywood are a preferred hunting area for the Morro Bay birds. They are frequent observations of peregrines feeding on shorebirds at the end of Pine Street, 2nd Street frontage, and Pecho Road. Hunting on undeveloped lots are preferred hypothetically because of lower level of human disturbances to shorebird prey in undeveloped areas, and lower chance that humans will flush the falcon off the prey (per. com., J. Chesnut).
<i>Haematopus bachmani</i>	Black oystercatcher*	SOC	--	Found along almost the entire Pacific Coast of North America, stretching from southern Alaska all the way to Baja California.	Black Oystercatcher is almost always found along the rocky shoreline of the Pacific Coast, although in winter, it can also occur on nearby mudflats.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the black oystercatcher within the LOHCP Area, but suitable habitat is available.
<i>Lanius ludovicianus</i>	Loggerhead shrike	--	SSC	Found throughout the foothills and lowlands of California as a resident. Winter migrants are found coastally, north of Mendocino County.	Forage over open ground within areas of short vegetation, pastures with fence rows, old orchards, mowed roadsides, cemeteries, golf courses, riparian areas, open woodland, agricultural fields, desert washes, desert scrub, grassland, broken chaparral and beach with scattered shrubs.	Potential to occur. The CNDDDB (2002) has no record of known occurrence for the loggerhead shrike within the LOHCP Area. Suitable foraging habitat present in LOHCP Area.

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Scientific and Common Name		ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area
<i>Laterallus jamaicensis coturniculus</i>	California black rail	SOC	ST, FP	Northern reaches of the San Francisco Bay estuary, especially the tidal marshland of San Pablo Bay and associated rivers; several small, fragment subpopulations still existed at Tomales Bay, Bolinas Lagoon, Morro Bay, and in southeastern California.	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations.	Known. The CNDDDB (2002) has a record of known occurrence for the California black rail within the LOHCP Area at Sweet Springs Preserve, adjacent to Cuesta-by-the-Sea. Also found at other locations in the LOHCP area during the Morro Coast Audubon Christmas Bird Counts.
<i>Limosa fedoa</i>	Marbled godwit*	SOC	--	The species winters in greatest numbers along the Pacific coast from central California south through Southern California A number of Important Bird Areas (IBAs) in both the United States and Canada help protect important habitat for Marbled Godwit. These sites include California's Morro Bay IBA, which regularly hosts over 2,000 wintering godwits	Coastal mudflat wintering grounds.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the marbled godwit within the LOHCP Area, but suitable habitat is available.
<i>Numenius americanus</i>	Long billed curlew*	SOC	--	Breeding grounds include northeastern California. Wintering range along entire Pacific Coast of California.	Breed mainly in the native grasslands of arid western regions, and are often found in farm fields and grasslands during migration and on their wintering grounds. Occur in coastal marshes and mudflats during the winter. Nest on the ground in the open, on dry prairie.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the long billed curlew within the LOHCP Area, but suitable habitat is available.
<i>Numenius phaeopus</i>	Whimbrel*	SOC	--	Winter along the coast of California	Dry heath uplands to dwarf shrub, and mossy lowlands. During the winter, it forages in tidal flats, mangroves and a variety of other coastal habitats.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the whimbrel within the LOHCP Area, but suitable habitat is available.
<i>Passerculus sandwichensis rostratus</i> (wintering)	Large-billed* savannah sparrow	--	SSC	Winter along the coast of California	Salt marches or dune grasses.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the large-billed savannah sparrow within the LOHCP Area, but suitable habitat is available.
<i>Pelecanus occidentalis californicus</i>	California brown pelican	FE	SE, FP	Ranges along entire California coast. Breeds on Channel Islands (Santa Barbara, Anacapa, and Santa Cruz). Also occasionally can be found on Salton Sea.	Estuarine, marine subtidal, and marine pelagic waters along the California coast. Specifically, they are found on rocky shores and cliffs, in sloughs, and coastal river deltas.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the California Brown Pelican within the LOHCP Area. Not suitable foraging or breeding habitat present.
<i>Rallus longirostris obsoletus</i>	California clapper rail	FE	SE, FP	Currently limited to San Francisco Bay, San Pablo Bay, Suisun Bay, and tidal marshes associated with estuarine sloughs draining into these bays.	Marshes supporting tidal sloughs that provide direct tidal circulation throughout the area and shallow water and mudflats with sparse vegetation.	Potential to occur. LOHCP Area is near its historical range but currently out of its known range. LOHCP Area is outside of its known range.

Scientific and Common Name		ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area
<i>Selasphorus sasin</i>	Allen's hummingbird*	SOC	--	Breeds in a narrow strip along the Pacific coast, throughout California.	Inhabit mixed evergreen, riparian woodlands, eucalyptus and cypress groves, oak woodlands, and coastal scrub areas in breeding season. Males maintain territories that overlook open coastal scrub or riparian shrubs where they perch in conspicuous places. Females choose nest sites in areas where there is more tree cover. They locate the nest in shrubs and trees with dense vegetation.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Allen hummingbird within the LOHCP Area, but suitable habitat is available.
<i>Sterna elegans</i>	Elegant tern*	SOC	--	Breed in nesting colonies located in Southern California. Disperse northward to central and northern California following breeding season.	Found along the shallow waters of estuaries and bays along the ocean. During breeding season they nest on sandy or rocky islands.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the elegant tern within the LOHCP Area, but suitable habitat is available.
<i>Strix occidentalis occidentalis</i>	California spotted owl	--	SSC	The south Cascade Range and northern Sierra Nevada from near Burney (Pit River), Shasta County, California south through the remainder of the western Sierra Nevada and Tehachapi Mountains to Lebec, Kern County.	In northern California it resides in dense, old growth, multi-layered mixed conifer, redwood, and Douglas-fir habitats. In southern California, it occurs at low elevations (sea level to 1,000 m), and occupies habitats dominated by hardwoods, primarily oak and oak-conifer woodlands.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the California spotted owls within the LOHCP Area. LOHCP Area is outside of its known range.
<i>Toxostoma redivivum</i>	California thrasher*	SOC	--	Endemic in what is known as the California Biotic Province (mostly in the western part of the state).	Breeds from sea level to the higher parts of the montane chaparral. It will breed in adjacent oak woodlands and pine-juniper scrub as well as occasionally in parks and gardens, but only if dense cover is available.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the California thrasher within the LOHCP Area, but suitable habitat is available.
FISH						
<i>Eucyclogobius newberryi</i>	Tidewater goby	FE	SSC	From the Agua Hedionda Lagoon, San Diego County, in the south to the mouth of the Smith River (Tillas Slough), Del Norte County, in the north.	Sandy and silty bottoms of shallow lagoons and lower stream areas where the water is brackish (salinities usually <10 ppt) to fresh.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the tidewater goby within the LOHCP Area. There are known occurrences near the LOHCP Area.
<i>Oncorhynchus mykiss irideus</i>	Steelhead-South/Central California Coast ESU	FT	SSC	They occur in Malibu Creek, Ventura River, Santa Clara River, and Santa Ynez River, although in greatly reduced numbers. Recent records show that they have been found in Mission and Atascadero creeks (Santa Barbara County) and Mulholland, Big Sycamore, and Topanga canyons (Los Angeles County).	Steelhead inhabit riparian, emergent, palustrine habitat. Perennial streams usually characterize spawning and rearing habitat with clear, cool to cold, fast flowing water with high dissolved oxygen content and abundant gravels and riffles.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Southern steelhead within the LOHCP Area. There are known occurrences near the LOHCP Area.

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Scientific and Common Name	ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area
INSECTS					
<i>Coelus globosus</i> Globose dune beetle*	SOC	--	Found in California's coastal dune system. Have colonized on the California Channel islands.	Coastal dunes, forming tunnels underneath native vegetation.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the globose dune beetle within the LOHCP Area, but suitable habitat is available.
<i>Danaus plexippus</i> Monarch butterfly	--	TP	Roost in coastal regions from San Francisco to Baja California.	Winter Roost Sites Extend Along the Coast From Northern Mendocino to Baja California, Mexico. Roosts Located in Wind-protected Tree Groves (Eucalyptus, Monterey Pine, Cypress), With Nectar and Water Sources Nearby.	Known. The CNDDDB (2002) have three records of known occurrence for wintering sites within the LOHCP Area. The records in the Plan area consist of a Eucalyptus grove in Skyline Grove, which is near the intersection of Doris Avenue, West Woodland Ave at the end of Monarch Lane, and Sweet Springs Marsh, north of Ramona.
INVERTEBRATES					
<i>Helminthoglypta walkeriana</i> Morro shoulderband snail	FE	--	On the south end of Morro Bay and is endemic to the western portion of San Luis Obispo County, California.	Coastal dune and scrub communities with the dominant shrub associated with the snail's habitat being mock heather (<i>Ericameria ericoides</i>).	Known. The CNDDDB (2002) have two records of known occurrence for the Morro shoulderband snail in the LOHCP Area. The records in the LOHCP Area consist of coastal scrub are south of Highland Drive Between Roderson Ave and Bayview Drive, and south of Pecho Valley Road in the Los Osos Oaks State Reserve.
<i>Tryona imatator</i> California brackishwater snail	SOC	--	Historically occupied coastal lagoons and areas where creek mouths joined the tidal marsh, from San Diego to Sonoma County. Present populations are scattered throughout the former range; however, the Sonoma County populations are believed to be extinct.	Coastal lagoons and where creek mouths join tidal marshes.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the California brackishwater snail within the LOHCP Area. There are known occurrences near the LOHCP Area.

Scientific and Common Name	ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area	
MAMMALS						
<i>Antrozous pallidus</i>	Pallid bat*	--	SSC	Occur throughout California, except in the high Sierra Nevada.	Inhabit a variety of habitats, including grasslands, shrublands, woodlands, and forests from sea level up through mixed coniferous forests.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the pallid bat within the LOHCP Area, but suitable habitat is available.
<i>Corynorhinus townsendii pallescens</i>	Pale big-eared bat*	SOC	SSC	Not able to locate information regarding distribution.	Found in all habitats up to alpine zone. Requires caves, mines, or buildings for roosting. Prefers mesic habitats where it feeds on insects	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the pale big-eared bat within the LOHCP Area, but suitable habitat is available.
<i>Corynorhinus townsendii townsendii</i>	Townsend's western big-eared bat*	SOC	SSC	Throughout California; prefer humid, coastal regions of northern and central California	Coastal conifer and broad-leaf forests, oak and conifer woodlands, arid grasslands and desert, and high-elevation forests and meadows. Roost and hibernate in caves, mine tunnels, buildings, and other human-made structures.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Townsend's western big-eared bat within the LOHCP Area, but suitable habitat is available.
<i>Dipodomys heermanni morroensis</i>	Morro Bay kangaroo rat	FE	SE, FP	It was found only in several small areas of less than one-half square mile in total size near Los Osos in San Luis Obispo County.	Optimum habitat consists of the earlier successional stages of the coastal sagebrush community that occur on the old, stabilized dune terraces. The optimum vegetation is an essentially herbaceous annual, with scattered woody perennial shrubs.	Known. The CNDDDB (2002) have three records of known occurrence and six historical records for the Morro Bay Kangaroo rats in the LOHCP Area. The records of known occurrence in the LOHCP Area are located at the Bayview Drive site, south of Highland Drive between Roderson Ave & Bayview Drive; the junior high site, Santa Ysabel, east of South Bay Blvd and just west of Los Osos Creek; and the Buckskin Drive site, just north of the dead end at Buckskin Drive.

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Scientific and Common Name		ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area
<i>Enhydra lutris nereis</i>	Southern sea otter	FT	FP	Ano Nuevo, San Mateo County to Point Sal, Santa Barbara County.	Shallow ocean waters, particularly in the vicinity of kelp beds.	No potential. The CNDDDB (2002) and existing literature have no record of known occurrence for the southern sea otter within the LOHCP Area. They inhabit nearby in Morro Bay.
<i>Eumops perotis</i>	Western mastiff bat*	SOC	SSC	Occurs in central California through southern California. Have been recorded from Butte County southward in the western lowlands through the southern California coastal basins, the western portions of the southeastern desert region, and central Sierra Nevada and Yosemite Valley.	Resides at low elevations in the coastal basin. Favors rugged, rocky areas where suitable crevices are available for day-roosts. Day-roosts are located in large cracks in exfoliating slabs of granite or sandstone. Also frequently roost in buildings, provided there is sheltering space.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Western mastiff bat within the LOHCP Area, but suitable habitat is available.
<i>Myotis evotis</i>	Long-eared myotis*	SOC	--	Widespread in California, but avoids the arid Central Valley and hot deserts. Occurs along the entire coast and in the Sierra Nevada, from sea level to at least 2700m (9000ft).	Prefers coniferous woodlands and forests, but is found in brush, woodland, and forest habitats.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the long-eared myotis within the LOHCP Area, but suitable habitat is available.
<i>Myotis thysanodes</i>	Fringed myotis*	SOC	--	Widespread in California, occurring in all but the Central Valley and Mojave desert. Found at 1300-2200 m (4000-7000ft).	Optimal habitats are pinyon-juniper, valley foothill hardwood and hardwood-conifer. Roosts in caves, mines, buildings, and crevices.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the fringed myotis within the LOHCP Area, but suitable habitat is available.
<i>Myotis volans</i>	Long-legged myotis*	SOC	--	Widespread in California	Found in coniferous forest, also found in riparian and arid habitats. May shift habitats seasonally. Roosts in cracks on the ground, spaces beneath tree bark, buildings, and crevices. Typical habitat is montane or subalpine forest, ponderosa pine woodland, pinon juniper woodland, and montane shrub with willow.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the long-legged myotis within the LOHCP Area, but suitable habitat is available.
<i>Myotis yumanensis</i>	Yuma myotis*	SOC	SSC	Widespread in California. Found in a wide variety of habitats ranging from sea level to 3300m (11,000ft), but it is uncommon to rare above 2560m (8000ft).	Optimal habitats are open forests and woodlands with sources of water over which to feed. Roosts in caves, mines, buildings, and crevices.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the yuma myotis within the LOHCP Area, but suitable habitat is available.
<i>Phoca vitulina</i>	Harbor seal*	--	--	Found on California islands and along entire mainland coast.	Prefers to remain close to shore in subtidal and intertidal habitats. Often swims into bays and estuaries. Groups form on emergent offshore and tidal rocks, mudflats, sandbars, and sandy beaches.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the harbor seals within the LOHCP Area, but suitable habitat is available.
<i>Tadarida brasiliensis</i>	Mexican free-tailed bat*	--	--	Found throughout California, mostly absent from high Sierra Nevada (from Tehama to Tulare cos.) and north coastal region (from Del Norte and Siskiyou cos. to northern Sonoma Co).	All habitats up through mixed conifer forests are used, but open habitats such as woodlands, shrubland, and grasslands are preferred. Requires caves, mine tunnels, crevices, or buildings for roosting and hibernation.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Mexican free-tailed bat within the LOHCP Area, but suitable habitat is available.

Scientific and Common Name		ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area
<i>Taxidea taxus</i>	American badger	--	SSC	An uncommon, permanent resident found throughout most of the state, with the exception of the North coast area.	Grasslands, savannas, mountain meadows, and openings in desert scrub.	Potential to occur. The CNDDDB (2002) has no record of known occurrence for the American badger within the LOHCP Area. No suitable foraging habitat within the LOHCP Area.
REPTILES						
<i>Anniella pulchra nigra</i>	Black legless lizard	--	SSC	Antioch (Contra Costa County), south through the Coast, Transverse, and Peninsular ranges; parts of the San Joaquin Valley; and the western edge of the Sierra Nevada Mountains and Mojave Desert to El Consuelo (Baja California Norte).	Areas with sandy or loose loamy soils under the sparse vegetation of beaches, chaparral, or pine-oak woodland; or sycamores, cottonwoods, or oaks that grow on stream terraces.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the black legless lizard within the LOHCP Area. Suitable habitat present in LOHCP Area.
<i>Clemmys marmorata pallida</i>	Southwestern pond turtle	--	SSC	Occurs along the central coast of California east to the Sierra Nevada and along the southern California coast inland to the Mojave and Sonora Deserts; range overlaps with that of the northwestern pond turtle throughout the Delta and in the Central Valley from Sacramento County to Tulare County.	Inhabits slow moving permanent or intermittent streams, small ponds, small lakes, reservoirs, abandoned gravel pits, permanent and ephemeral shallow wetlands, stock ponds, and sewage treatment lagoons.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the southwestern pond turtles within the LOHCP Area. Suitable habitat present in LOHCP Area. Known to occur at the Sweet Springs Nature Preserve.
<i>Phrynosoma coronatum (frontale population)</i>	Coast horned lizard*	SOC	SSC	California endemic with distribution from Lake Shasta southward along the edges of the Sacramento Valley into much of the South Coast Ranges, San Joaquin Valley, and Sierra Nevada foothills to northern Los Angeles, Santa Barbara and Ventura Counties. Several fine-scaled populations in the Shandon-Cuyama Valley region, Santa Barbara and San Luis Obispo counties.	The California horned lizard seems to occur in several habitat types, ranging from areas with an exposed gravelly-sandy substrate containing scattered shrubs (e.g. California buckwheat) to clearings in riparian woodlands, to dry uniform chamise chaparral to annual grassland with scattered perennial seepweed or saltbush. Maximum abundance is reached in sandy loam areas on alkali flats.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the coast horned lizard within the LOHCP Area, but suitable habitat is available.
<i>Taricha torosa torosa</i>	Coast range newt*	--	SSC	Coastal drainages from the vicinity of central Mendocino County, south to Boulder Creek, San Diego County. Populations in southern California are highly fragmented. Known elevation range of this species extends from near sea level to 1830m (6004ft)	Frequents terrestrial habitats, but breeds in ponds, reservoirs, and slop-moving streams.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the coast range newt within the LOHCP Area, but suitable habitat is available.
<i>Thamnophis hammondi</i>	Two-striped garter snake	--	SSC	Monterey County southward (including Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside and San Diego counties) along the coast and drainages within the coast and peninsular ranges to the Mexican border.	Associated with permanent or semi-permanent bodies of water bordered by dense vegetation in a variety of habitats.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the two-striped garter snake within the LOHCP Area. The LOHCP Area is out of its known range.

* Indicates species, which were researched for coverage, based on the advise of the Scientific Advisory Team. However, full species accounts were not prepared for Appendix D, because, based on preliminary research, coverage of these species was deemed improbable due to either low potential occurrence or the unlikelihood that Covered Activities will result in incidental take. See Chapter 4 for the determination of Covered Species.

Note: See Key at the end of Table 2-4.

Table 2-3: Summary of Species Accounts for Special Status Plant and Lichen Species that May Occur in the Plan Area

Scientific and Common Name		CNPS	ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area
VASCULAR PLANTS							
<i>Agrostis hooveri</i>	Hoover bentgrass	1B, 2-2-3	--	--	Hoover's bentgrass is native and endemic to California. It occurs in Los Osos Valley, San Luis Valley, and the East slope of Santa Lucia Mountains in San Luis Obispo County and south to La Purisma Hills in Santa Barbara Counties.	Occurs in chaparral, cismontane woodland, and valley foothill grassland communities with dry sandy soil.	Potential to occur. No documented occurrence of this taxon within the LOHCP Area, but suitable habitat is available.
<i>Arctostaphylos cruzensis</i>	Arroyo de la Cruz manzanita	1B, 2-2-3	SOC	--	San Luis Obispo County to Monterey County.	Found in broadleaved upland forest, coastal bluff scrub, closed-cone coniferous forest, chaparral, coastal scrub, and valley and foothill grassland.	Potential to occur. The CNDDDB (2002) has one historical record of known occurrence for La Cruz Manzanita within the LOHCP Area, which is 1.5 miles southeast of the mouth of Los Osos Creek, east of Morro Bay.
<i>Arctostaphylos morroensis</i>	Morro manzanita	1B, 2-3-3	FT	--	San Luis Obispo County, from Morro Bay to just south of Hazard Canyon.	The distribution of Morro manzanita is correlated with Baywood fine sands and is found in association with coastal scrub, maritime chaparral, and coast live oak woodland communities in sites with no or low to moderate slopes.	Known. The CNDDDB (2002) has two records of known occurrence for Morro manzanita within the LOHCP Area. They are in Baywood Park at the junction of 1 st Street and Santa Ysabel Avenue and at the intersection of 2 nd Street and street just north of Santa Ysabel, the Baywood Park Vicinity; and from north of Santa Ysabel Avenue southward to Nipomo Avenue.
<i>Arctostaphylos osoensis</i>	Oso manzanita	1B, 3-2-3	SOC	--	Narrowly endemic to the mountains North of Los Osos Valley, San Luis Obispo County.	Grows in chaparral and in cismontane woodland on dacite porphyry buttes.	Potential to occur. The CNDDDB (2002) has one record of known occurrence for Oso manzanita near the Plan area in the isolated buttes along the divide on the north side of Los Osos.
<i>Arctostaphylos tomentosa</i> ssp. <i>daciticola</i>	Dacite manzanita	1B, 3-3-3	SOC	--	Near Cambria and northeastern portion of Los Osos Valley, San Luis Obispo County.	Located in chaparral and cismontane woodland on dacite porphyry buttes.	Potential to occur. Documented occurrences limited to the vicinity of Hollister Peak.
<i>Arenaria paludicola</i>	Marsh sandwort	List 1B, 3-3-2	FE	CE	Occur within the counties of Los Angeles, San Bernardino (in southern San Bernardino), Santa Cruz (Felton), San Francisco (northern), and San Luis Obispo (Oceano).	Found in marshes and swamps.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the marsh sandwort within the LOHCP Area, but suitable habitat is available.
<i>Calochortus obispoensis</i>	San Luis mariposa lily	1B, 2-2-3	--	--	Endemic to San Luis Obispo County. Found in hills around San Luis Valley, from Cuesta Pass to Prefumo and See Canyons, south to Arroyo Grande.	Found in chaparral, coastal scrub, grassland, and freshwater seep habitats of dry, serpentine soils.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the San Luis Obispo sedge within the LOHCP Area.

Scientific and Common Name		CNPS	ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area
<i>Carex obispoensis</i>	San Luis Obispo sedge	1B, 2-2-3	--	--	Monterey and San Luis Obispo Counties.	This species chiefly occurs on steep, serpentine-derived hillsides in association with chaparral and coastal sage scrub habitats.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the San Luis Obispo sedge within the LOHCP Area. There is no suitable habitat in the LOHCP Area.
<i>Castilleja densiflora</i> ssp. <i>obispoensis</i>	Obispo Indian paintbrush*	1B, 2-2-3	--	--	Occurs in Arroyo Grande, Pismo Beach, Port San Luis, San Luis Obispo, Lopez Mountain, Morro Bay, Cayucos, San Simeon, Pico Creek, Cambria, Piedras Blancas, and Burro Mountain.	Grows in valley and foothill grasslands.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Obispo indian paintbrush within the LOHCP Area, but suitable habitat is available.
<i>Chorizanthe breweri</i>	Brewer's spineflower	1B, 3-1-3	--	--	Only found in San Luis Obispo County in the outer South Coast Ranges.	Occurs in closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub habitats; primarily on serpentine substrates.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the San Luis Obispo sedge within the LOHCP Area.
<i>Chorizanthe pungens</i> ssp. <i>pungens</i>	Monterey spineflower	1B, 2-2-3	FT	--	Monterey spineflower occurs from the Monterey Peninsula (Monterey County) northward along the coast to southern Santa Cruz County, and inland to the Salinas Valley.	Occurs in stabilized sand dunes and is found within open, dune scrub vegetation.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Monterey spineflower within the LOHCP Area.
<i>Cirsium fontinale</i> var. <i>obispoense</i>	Chorro Creek bog thistle*	1B, 3-2-3	FE	SE	Occurs within San Luis Obispo County in Pismo Beach and southern Morro Bay.	Found in chaparral (cismontane woodlands/serpentine seeps).	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Chorro Creek bog thistle within the LOHCP Area, but suitable habitat is available.
<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>	Salt marsh bird's beak	1B, 2-2-2	FE	SE	Cuesta-By-The-Sea and at Sweet Springs Marsh, San Luis Obispo County.	Grows in the higher reaches of coastal salt marshes to intertidal and brackish areas influenced by freshwater input.	Known. The CNDDDB (2002) has two records of known occurrence for Salt Marsh Bird's Beak within the LOHCP Area. They are South end of Morro Bay along Mitchell Drive (Pecho Rd.) in Cuesta-By-The-Sea and at Sweet Springs Marsh at the south end of Morro Bay, north of Bay Street and east of Doris Avenue.
<i>Dithyrea maritima</i>	Beach spectaclepod	1B, 3-3-2	SOC	ST	The dunes of San Luis Obispo and Santa Barbara counties and on San Nicholas and San Miguel Islands.	It is found in small transverse foredunes within approximately 50-300 meters from the surf.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Beach spectacle pod within the LOHCP Area.
<i>Dudleya abramsii</i> ssp. <i>bettinae</i>	San Luis serpentine dudleya	1B, 3-2-3	SOC	--	Endemic to San Luis Obispo County.	Coastal scrub and valley foothill grassland communities on serpentine soils.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the San Luis Obispo serpentine dudleya within the LOHCP Area.

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Scientific and Common Name		CNPS	ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area
<i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i>	Blochman's dudleya	1B, 2-3-2	SOC	--	Coastal Regions of Monterey, San Luis Obispo, Santa Barbara and Ventura Counties.	Found on open, rocky slopes mainly on soils of serpentine or clay or in rocky areas with little soil.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the blochman's dudleya within the LOHCP Area.
<i>Erigeron blochmaniae</i>	Blochman leafy daisy	1B, 2-2-3	--	--	Endemic to Santa Barbara and San Luis Obispo Counties.	Dune scrub habitats.	Known. Blochman's leafy daisy is found in undisturbed areas of the HCP (per. com., J. Chesnut). There is a documented occurrence on the Palisade property (Holland and Kiel, 1985).
<i>Erigeron sanctarum</i>	Saint's daisy	4, 1-2-3	--	--	Occur in Santa Barbara, Santa Cruz Island, Santa Rosa Island, and San Luis Obispo	Found in chaparral, cismontane woodland, and coastal scrub.	Known. Documented throughout LOHCP area (Holland and Keil, 1985).
<i>Eriodictyon altissimum</i>	Indian knob mountainbalm	1B, 3-3-3	FE	SE	Between San Luis Obispo and Pismo Beach on Indian Knob Ridge, San Luis Obispo County.	Maritime chaparral and coastal scrub. Ridges in open, disturbed areas within chaparral on pismo sandstone.	Known. The CNDDDB (2002) has three records of known occurrence for Indian Knob mountainbalm within the LOHCP Area. These are located west of Broderson Ave. and east of bend in Travis Dr., south of Los Osos; in Los Osos on a north-facing slope between Broderson Ave. and Bayview, just above Highland Dr.; and in Los Osos at the extension of Bayview at Calle Cordoniz, 50 yards southwest of the road.
<i>Fritillaria viridea</i>	San Benito fritillary	1B, 2-2-3	SOC	--	Occurs in Monterey, San Benito, and San Luis Obispo counties.	Found in chaparral (serpentine).	Potential to occur. No documented occurrence of this taxon within the LOHCP Area, but suitable habitat is available.
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter goldfields	1B, 2-3-2	SOC	--	From interior portions of Monterey County, south to coastal and interior portions of San Diego County, and on Santa Rosa Island.	Coastal salt marches.	Known. It is known to occur on the undeveloped lots at the shore end of Pine and Ramona (per. com., J. Chestnut). The CNDDDB (2002) has records of known occurrence for Coulter's goldfields within the LOHCP Area in Sweet Springs Nature Preserve and at the southern end of Morro near Shark's Inlet.
<i>Layia jonesii</i>	Jones' layia	1B, 3-2-3	SOC	--	Known Only From Monterey and San Luis Obispo Counties.	Found on serpentine or clay-based chaparral and valley grassland habitats.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Jones's layia within the LOHCP Area.
<i>Monardella crispera</i>	Crisp monardella*	1B, 2-2-3	--	--	Known in Santa Barbara and San Luis Obispo Counties. Occurs in the dunes of Point Arguello, Guadalupe, Point Sal, Casmalia, and Oceano.	Coastal Dunes, often on the borders of open, sand areas, usually adjacent to typical backdune scrub vegetation.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the crisp monardella within the LOHCP Area, but suitable habitat is available.
<i>Monardella frutescens</i>	San Luis Obispo monardella*	List 4, 1-1-3	--	--	Monterey County, San Benito County, and San Luis Obispo County.	Found in chaparral (serpentine).	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the San Luis

Scientific and Common Name		CNPS	ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area
							Obispo monardella within the LOHCP Area, but suitable habitat is available.
<i>Monardella undulata</i>	Curly leaved monardella	4, 1-2-3	SOC	--	Curly-leaved monardella is found from Marin to Santa Barbara Counties.	Occurs in coastal sand dune, chaparral, and coastal scrub communities.	Known. Curly-leaved monardella is known and documented in Los Osos (Holland and Kiel, 1985) and found occasionally in undeveloped properties throughout Los Osos (per. com., J. Chesnut).
<i>Orobanche parishii</i> ssp. <i>brachyloba</i>	Short-lobed broomrape	4, 1-2-2	SOC	--	San Diego County, San Luis Obispo County, San Nicolas Island, Santa Catalina Island, Santa Cruz Island, San Miguel Island, Santa Rosa Island; Baja California and Isla Guadalupe, Mexico.	Found in coastal bluff scrub and coastal dunes.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Short-lobed broomrape within the LOHCP Area.
<i>Prunus fasciculata punctata</i>	Dune almond*	List 4, 1-1-3	--	--	Endemic to Santa Barbara and San Luis Obispo Counties.	Found in maritime chaparral, cismontane woodland, coastal dunes, coastal scrub and sand.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the sand almond within the LOHCP Area, but suitable habitat is available.
<i>Sanicula maritima</i>	Adobe sanicle	1B, 3-3-3	SOC	Rare	Its distribution is centered in the coastal hills of San Luis Obispo and Monterey County.	Found in wet to dry clay soils of coastal prairie and coastal sage scrub plant communities.	Potential to occur. The CNDDDB (2002) and existing literature have no record of known occurrence for the Adobe sanicle within the LOHCP Area.
<i>Sidalcea hickmanii</i> ssp. <i>anomala</i>	Cuesta pass checkerbloom	1B, 3-2-3	SOC	Rare	Restricted to a small area on West Cuesta Ridge, San Luis Obispo County.	Grows in open sites on serpentine rock and soils at in the vicinity of Sargent cypress forest.	Potential to occur. Documented occurrences limited to the vicinity of West Cuesta Ridge.
<i>Suaeda californica</i>	California seablite	1B, 3-3-3	FE	--	Occurs along the perimeter of Morro Bay.	It is restricted to the upper intertidal zone within coastal marsh habitat.	Known. It is frequent on shoreline margin of undeveloped properties, especially at Pecho Road and Pasadena Drive and First Street (per. com., J. Chesnut). The CNDDDB (2002) has one records of known occurrence for California seablite within the LOHCP Area that is in Baywood Park at Sweet Springs Marsh.
LICHEN							
<i>Bryoria spiralifera</i>	Spiraled old man's beard	1B, 3-3-3	--	--	North and Central Coastal California endemic. Humbolt, Sonoma, Monterey, and San Luis Obispo Counties.	Occurs on twigs and small branches of trees and older shrubs within coast live oak woodland, chaparral, and coastal scrub.	Known. Found in the Los Osos Oaks State Reserve and Baywood Park.
<i>Cladonia firma</i>	Popcorn lichen*	--	--	--	Believed to only occur in the Elfin Forest in Los Osos.	Common at the base of small shrubs.	Known. Suitable habitat is available.
<i>Hypogymnia mollis</i>	Los Osos black and white lichen	1B, 3-3-3	--	--	Fog belt of Central California: Monterey, San Luis Obispo, Riverside, and San Diego County.	Occurs on bark and twigs of trees and older shrubs in Coast Live Oak Woodland, Chaparral, and Coastal Scrub.	Known. Found in Los Osos.

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Scientific and Common Name		CNPS	ESA	CESA	Distribution	Preferred Habitat	Occurrence in LOHCP Area
<i>Parotrema hypolecinum</i>	Long fringed parmotrema	1B, 3-3-3	--	--	Fog belt of Central and Southern California: Marin, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego County.	Occurs on bark and twigs of trees and older shrubs in Coast Live Oak Woodland, Chaparral, Coastal Scrub, and Arroyo Willow Series.	Known. Found in Los Osos.
<i>Sulcaria isidifera</i>	Splitting yarn lichen	1B, 3-3-3	SOC	--	Los Osos/Baywood Park area, San Luis Obispo County.	On trunks of coast live oaks, chamise and ceanothus.	Known. Found in Los Osos.

* Indicates species, which were researched for coverage, based on the advise of the Scientific Advisory Team. However, full species accounts were not prepared for Appendix D, because, based on preliminary research, coverage of these species was deemed improbable due to either low potential occurrence or the unlikelihood that Covered Activities will result in incidental take. See Chapter 4 for the determination of Covered Species.

KEY:

Federal Designations: (Federal Endangered Species Act, USFWS):

FE: Federal Endangered.
FT: Federal Threatened.
SOC: Federal Species of Concern.
FC: Candidate to be Federally listed.
FD: Federally Delisted
PT: Federally proposed for threatened listing

State Designations: (California Endangered Species Act, CDFG)

SE: State Endangered.
ST: State Threatened.
SSC: Species of Special Concern
RARE: State-listed as Rare
FP: State Fully Protected
TP: Threatened Phenomenon

California Native Plant Society (CNPS) designations:

List 1A = Plants presumed extinct in California
List 1B = Plants Rare, Threatened, or Endangered in California and elsewhere
List 2 = Plants Rare, Threatened, or Endangered in California, but more common elsewhere
List 3 = Plants about which we need more information--a review list
List 4 = Plants of limited distribution--a watch list

CNPS R-E-D Code:

R (Rarity)

1 = Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time
2 = Distributed in a limited number of occurrences, occasionally more if each occurrence is small
3 = Distributed in one to several highly restricted occurrences, or present in such small numbers that it is seldom reported

E (Endangerment)

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

D (Distribution)

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

CHAPTER 3: EXISTING LAND USE

3.1 LAND USE

Much of the urbanized area of Los Osos was subdivided into small lots in the early part of the twentieth century. The typical residential development pattern in Los Osos consists of fairly long and narrow (25' X 50') residential lots located on wide (40'-80') streets generally arranged in a grid.



Existing land uses within the LOHCP Area can be broadly characterized as developed, vacant (privately owned undeveloped land) and open space (undeveloped areas in public ownership or otherwise preserved). Developed land uses include residential uses, commercial uses, and office, professional, and public facilities.

Table 3-1 and Figure 3-1 show the land use designations and acreage under the 1988 Estero Area Plan. Of the approximately 2,900 acres, 2,446 (85%) are designated for residential development and 120 acres (4%) are designated for office and commercial uses. While the land use designations are proposed to change in the updated Estero Area Plan, no significant increase is proposed for commercial and office uses. However, due to numerous acquisitions of private property for dedicated open space, land available for residential development has decreased (see also Section 5.2 for an analysis of anticipated buildout and impacts of Covered Activities).

Table 3-1: Los Osos Land Use Designations Acreage

Land Use	Acres	Percent
Commercial and Office		
Commercial Retail (CR)	70	2.4%
Commercial Service (CS)	24	0.8%
Office Professional (OP)	26	0.9%
Residential		
Residential Multifamily (RMF)	109	3.8%
Residential Rural (RR)	99	3.4%
Residential Suburban (RS)	921	31.8%
Residential Single Family (RSF)	1,317	45.5%
Other		
Open Space (OS)	149	5.1%
Public Facilities (PF)	68	2.3%
Recreation (REC)	113	3.9%
TOTAL	2,895	100%

Source: Estero Area Plan, 1988.

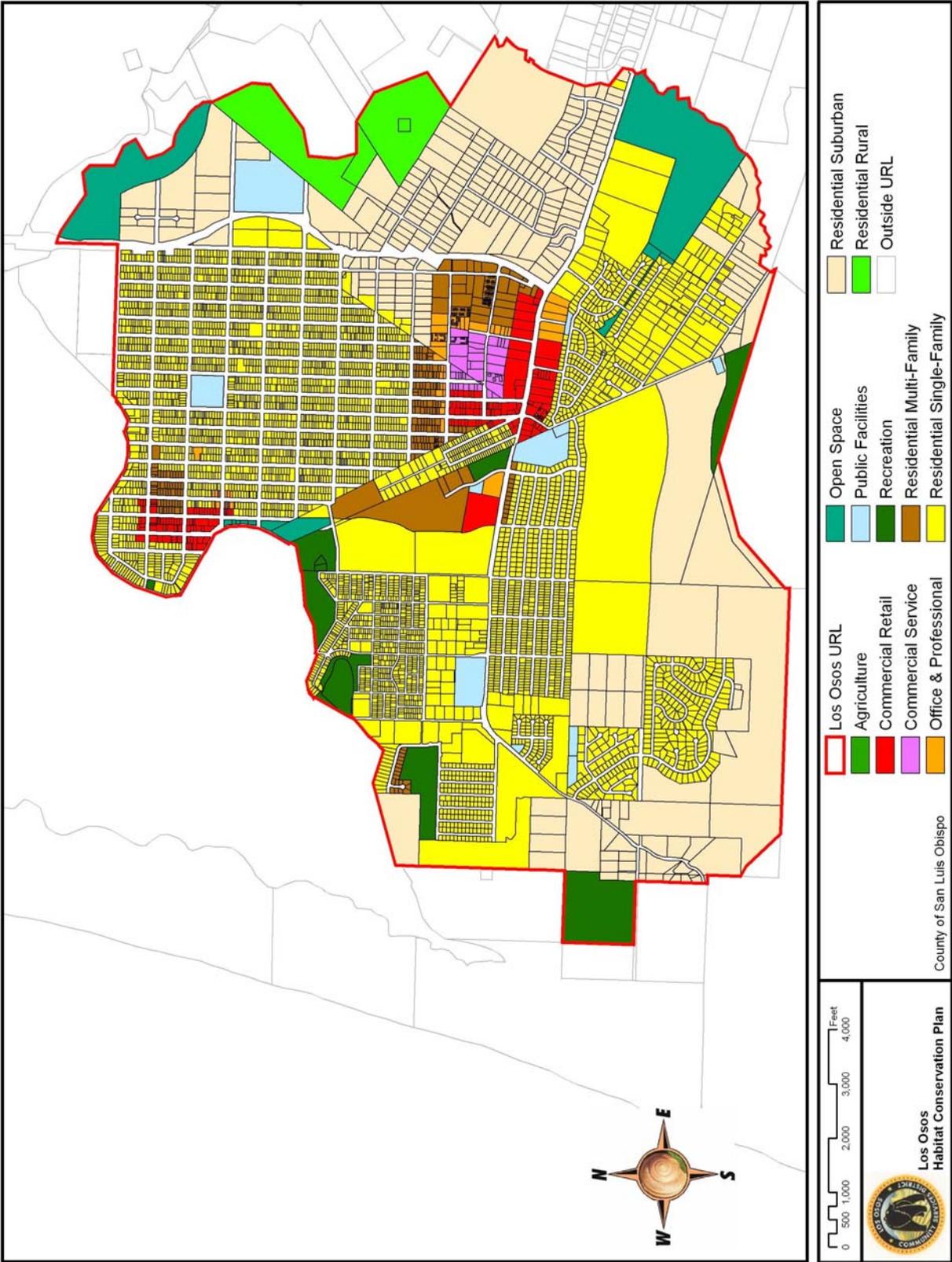


Figure 3-1: Land Use Designations – Estero Area Plan 1988

3.1.1 Demographics

In 1961, Los Osos had approximately 2,100 people. By the mid-1980s, the population had grown to about 14,200. Because of the building moratorium in effect since 1988 (see Section 1.4), the population growth rate has remained low since then. Today, Los Osos is primarily a residential community with a population of approximately 14,000 persons and 6,200 housing units, of which about 4,100 are owner occupied (see Table 3-2).

Table 3-2: Population and Housing Units in the LOHCP Area

	Population			Housing					
	1990	2000	Change 1990-2000 %	1990 Units	2000 Units	Change 1990-2000 %	Owner Occupied Units	Owner Occupied %	Average Household Size
Baywood-Los Osos Census Designated Place	14,377	14,154	-0.2%	6,097	6,214	1.9%	4,116	66%	2.42
San Luis Obispo County	217,162	246,681	12.0%	80,281	102,275	21.5%	57,001	56%	2.49

Source: U.S. Census Data, 1990 and 2000.

3.1.2 Urban Development

When the wastewater treatment facility is operational, the building moratorium will be lifted and development will be allowed to proceed within the Los Osos wastewater treatment facility service area. Approximately 500 vacant parcels exist within the Los Osos wastewater treatment facility service area, only a few of which have the potential to be further subdivided. Another 122 undeveloped residential parcels are outside the service area, but within the LOHCP Area (see Table 3-3). According to the 2004 draft Estero Area Plan, Los Osos will reach buildout in 2019 at about 19,600 residents, an increase of approximately 5,400 residents from the population recorded in the 2000 U.S. Census. Using an average household size of 2.4 persons (see Table 3-2), this increased growth would require approximately 2,170 new housing units.

3.2 LOHCP JURISDICTIONS

The LOHCP Area is divided into two jurisdictional areas: the portion to be served by the LOCSD wastewater system and, the portion outside the service area (see Figure 3-2). This distinction was made in order to facilitate coordination and permitting by the LOCSD and the County, as the LOCSD only has permitting authority within the wastewater service area through the approval of new connections to the wastewater system.

However, in order to successfully implement the LOHCP, it also important for it to be consistent with the Estero Area Plan. The Estero Area Plan divides the Plan Area into Urban and Dune Sands SRA (see Figure 3-2) and indicates that Dune Sands SRA. The Area Plan further states that Dunes Sands ESHA has a high conservation priority and that development should avoid disturbance of sensitive habitat. Avoidance of sensitive habitat will be accomplished by applying the development standards of the Estero Area Plan, which were used to calculate development potential and the resulting habitat impacts (see Chapter 5 for this analysis) for purposes of this HCP.

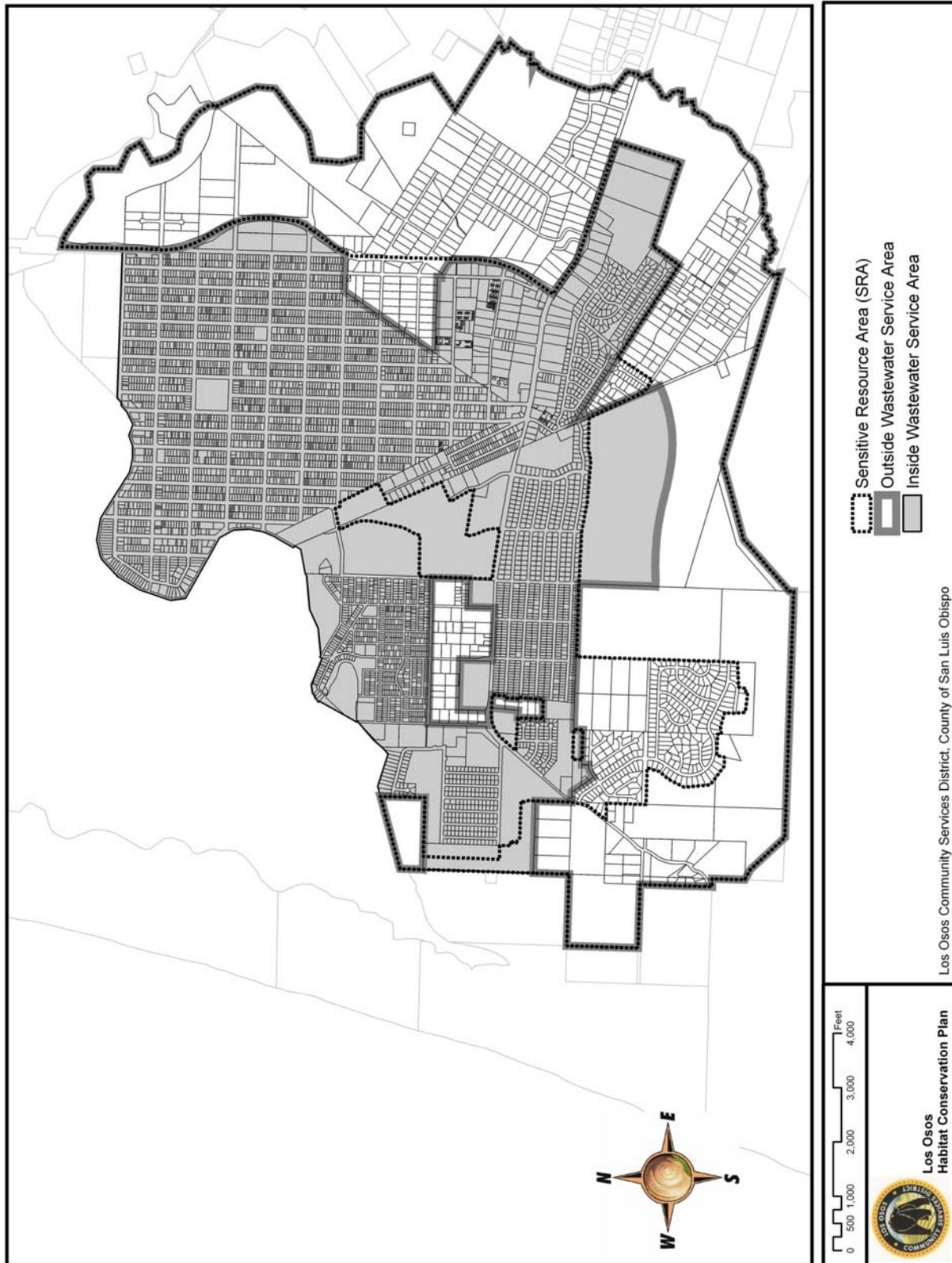


Figure 3-2: Dune Sands SRA in Relation to LOHCP Service Area

3.2.1 Wastewater Service Area

The wastewater service area is about 1,270 acres, of which approximately 250 acres (19%) are undeveloped (See Table 3-3). The bulk of the wastewater service area is located northwest of two major arterials, South Bay Boulevard and Los Osos Valley Road. The wastewater service area also includes Redfield Woods, which is a single-family development south of Los Osos Valley Road (see Figure 1-3).

The majority of the wastewater service area parcels are small with either significantly disturbed or fragmented natural vegetation, including some scattered patches of coastal sage scrub. These areas have little potential for habitat conservation other than small-scale native landscaping.

Seven large undeveloped parcels (greater than 5 acres) remain in the wastewater service area. These sites deserve special planning consideration because of their significant habitat value, restoration potential, and importance to the LOHCP Preserve design. The most significant of these large parcels is the Resource Park Morro Shores Mixed Use Area (multi-family). This is a 53.5-acre parcel located adjacent to the Los Osos Community Center between Los Osos Valley Road to the south and Ramona Avenue to the north. The area is covered with medium quality coastal sage scrub, arroyo willow, and eucalyptus stands. (See also Table 5-1 and Figure 5-1.)

3.2.2 Outside the Wastewater Service Area

The non-service area is about 1,640 acres, of which 441 acres (27%) are undeveloped (See Table 3-3 non-service), including Bayview Heights and the area northeast of Los Osos Valley Road and the area east of South Bay Boulevard. (See also Table 5-2 and Figure 5-2.)

Considerable areas of viable habitat, including coastal sage scrub, central maritime chaparral, and oak woodlands, remains on developed and undeveloped parcels outside the service area. As a result, opportunities for conservation exist if development can be minimized and coordinated into a larger preserve design. These areas also represent important opportunities for corridors between parcels already preserved or large undeveloped parcels with preservation potential. For example, the Bayview Heights area provides connectivity between the Los Osos Oaks State Reserve, the Morro Palisades, and Montana De Oro State Park, and to/from the Irish Hills.

Fifteen large undeveloped parcels (greater than 5 acres) remain in the non-service area (see Table 5-2 and Figure 5-2). These sites deserve special planning consideration due to significant habitat value, restoration potential, and importance to the preserve design. The most significant of these parcels are:

APN 074-222-013 (Iacano). A 65-acre, undeveloped parcel located off the eastern terminus of Nipomo Avenue. The parcel supports both coastal sage scrub and coast live oak habitat and represents a considerable portion of the remaining undeveloped area in the eastern portion of the plan area.

APN 067-011-041(Eto). A 44-acre, largely undeveloped parcel located in the northeastern portion of Los Osos off Hollister Lane. This parcel supports coast live oak, arroyo willow, California sagebrush, and an area of open water (Eto Lake).

APNs 074-022-033, 074-021-042, 074-021-036 (Pratt). Pratt consists of three parcels surrounding the southern portion of the Cabrillo Estates development. Together the parcels are about 120 acres. This area is covered by high quality Morro manzanita and oak stands.

APNs 074-022-058, 074-022-059 (Morro Bay & Land). These are two parcels adjacent to the Pratt site and Montana de Oro State Park. Together the parcels are approximately 45 acres. This site is covered with high quality Morro manzanita and a grove of eucalyptus.

Table 3-3: Summary of Developed, Undeveloped, and Preserved

	Developed		Undeveloped		Preserved		Total	
	Parcels	Acres	Parcels	Acres	Parcels	Acres	Parcels	Acres
Wastewater Service Area	4,607	987	503	248	14	31	5,124	1,267
Urban	4,605	981	500	183	14	31	5,119	1,196
Dune Sands SRA	2	6	3	65	0	0	5	71
Outside Wastewater Service Area	613	571	122	441	18	629	753	1,641
Urban	338	173	67	58	0	0	405	231
Dune Sands SRA	275	399	55	383	18*	629*	348	1,411
Total	5,220	1,559	625	689	32*	660*	5,877	2,908

*Note: Includes 81 acre Broderson parcel
 Source: CMCA, Jones and Stokes, 1996

3.3 PRESERVED PARCELS

As a result of the listing of the snail and recognizing the significant biological diversity in Los Osos, the Plan Area includes a significant amount of already preserved land (see Table 3-4 and Figure 3-3). There are 32 preserved or publicly held parcels totaling 660 acres or about 23% of the Plan Area. For analysis, the preserved parcels are subdivided into four categories: northeast Los Osos, south Los Osos, other preserved parcels, and Los Osos Community Services District properties. Approximately ninety percent of the 81-acre “Broderson” site (APN 074-022-030) is preserved as ESA Section 7 mitigation for the construction of the wastewater treatment facility. Leach fields for the wastewater treatment facility will be located on eight acres on the north end of the site.



The preserved parcels have some of the greatest remaining biodiversity in the area. For this reason, one of the key features of the Conservation Strategy in Chapter 6 is to support the restoration and long-term management of existing preserved parcels with a focus on the preserved parcels in the southern Los Osos area (total of 237 acres), because these are areas designated by the USFWS as Critical Habitat for the Morro shoulderband snail as discussed above (see Figure 3-3) and the California Department of Fish and Game is willing to cooperate in implementation of the LOHCP. Very little restoration and management funds have been dedicated to these areas.

A small endowment (amount unknown) has been provided for the Powell I property (16 acres, APN 038-711-010) and some funding (amount unknown) has been made available for restoration efforts on Powell II (51 acres, APN 067-011-033). In addition, a \$5,000 endowment has been provided for the Bureau of Land Management parcel (5 acres, APN 038-711-016).

The Bay Foundation owns a property along Morro Bay adjacent to Montana de Oro State Park (18 acres, APN 074-022-003). This parcel has sixteen acres of disturbed coastal dune scrub and has no dedicated source of funding for restoration and management. However, the Bay Foundation is attempting to transfer the property to California State Parks. This transfer was anticipated in the various grants used to fund the acquisition; thus, the property may not be available as part of the LOHCP Preserve System.

As of the date of this document, no other restoration or management activities are known on any of the preserved parcels listed in Table 3-4.

Table 3-4 Preserved Parcels

County Assessor Information			HABITAT IN ACRES																				
APN	Owner/Name	Acreage	PW	DW	LO	CS	MM	CT	AWBC	EU	NG	CSD	LT	AG	MS	DV	CA	BP	MW	DL	RD	Not mapped	
NORTHEAST LOS OSOS																							
038-711-010	Powell, Elizabeth	16			3	12				1													
038-721-014	State Parks	2				1.5	<1																
038-721-005	Hord (Individual HCP prepared for this site)	4				2.7	1.7																
038-711-011	State of CA - General Services	62	3		26	2	2	2	26			<1										1	
038-711-015	Anastasi Development Company	12			3	8																	
038-711-016	Bureau of Land Management	5				5																	
067-011-033	Trust for Public Lands (Powell II)	51			6	5	<1			1	1	34	2	1		1							
038-721-024	State Parks (Pismo Parcel)	10.9			<1	6	3					<1	<1										
SUBTOTAL			162	3	0	38	43	8	2	26	2	1	34	2	1	0	1	0	0	0	0	1	
SOUTH LOS OSOS																							
067-131-006	CA Department of Fish and Game	32			0		28											0	4				
074-221-089	CA Department of Fish and Game	205				54	78								34			3	31	4			
SUBTOTAL			237	0	0	0	54	106	0	0	0	0	0	0	34	0	0	3	35	4	0	0	
OTHER PRESERVED PARCELS																							
074-021-043	Charles A. Pratt Construction	3					1			2													
074-022-003	Bay Foundation	18								1		16										2	
074-022-061	State of CA (Hotel Site) (pending)	42				13				<1						<1			24				
074-141-002	State of CA -Coastal Conservancy	1																				1	
074-411-014	Janice Corr	3			3																		
074-101-004	Morro Coast Audubon Society (Sweet Springs)	12		8		4																	
074-221-079	Morro Coast Audubon Society (Sweet Springs)	10		10																			
074-224-019	State of CA - Parks/Rec (Los Osos Oak Preserve)	86			59	24										1	1						
038-031-001	Morro Coast Audubon Society (Lookout)	<1							<1														
038-262-050	Morro Coast Audubon Society	<1							<1														
074-084-010	Morro Coast Audubon Society	<1							<1														
SUBTOTAL			177	0	18	62	41	1	0	<2	3	0	16	0	0	0	1	1	0	24	0	0	3
LOS OSOS CSD																							
074-323-010	Los Osos CSD	<1				<1																	
074-323-012	Los Osos CSD	<1				<1																	
074-491-032	Los Osos CSD	<1																				<1	
074-491-033	Los Osos CSD	<1																				<1	
074-491-034	Los Osos CSD	<1																				<1	
074-492-057	Los Osos CSD	<2			<2																		
074-492-058	Los Osos CSD	<1			<1																		
074-511-013	Los Osos CSD	<1																				<1	
074-511-014	Los Osos CSD	<2											<2										
074-511-048	Los Osos CSD	<1			<1																		
074-022-030	Los Osos CSD (Broderson site)	81			44	16	14			7		1	<1	0.1									
SUBTOTAL			83	0	0	46	18	14	0	0	7	0	1	2	<1	0	0	0	0	0	0	3	1
TOTAL			660	3	18	146	206	155	2	27	12	1	51	4	1.1	34	2	1	3	59	4	3	5

Key: PW – Pickleweed, DW-Disturbed Wetlands, LO-Coast Live Oak, CS-California Sagebrush, MM-Morro Manzanita, CT-Cattail, AWBC-Arroyo Willow Black Cottonwood, EU-Eucalyptus, NG-Non-Native Grassland, CSD-California Sagebrush-Disturbed, LT-Landscape Trees, AG-Agriculture, MS-Morro Manzanita-California Sagebrush, DV-Developed, CA-California Annual Grassland, BP-Bishop Pine, MW-Morro Manzanita-Wedgeleaf, DL-Dune Lupin, RD-Ruderal Disturbed

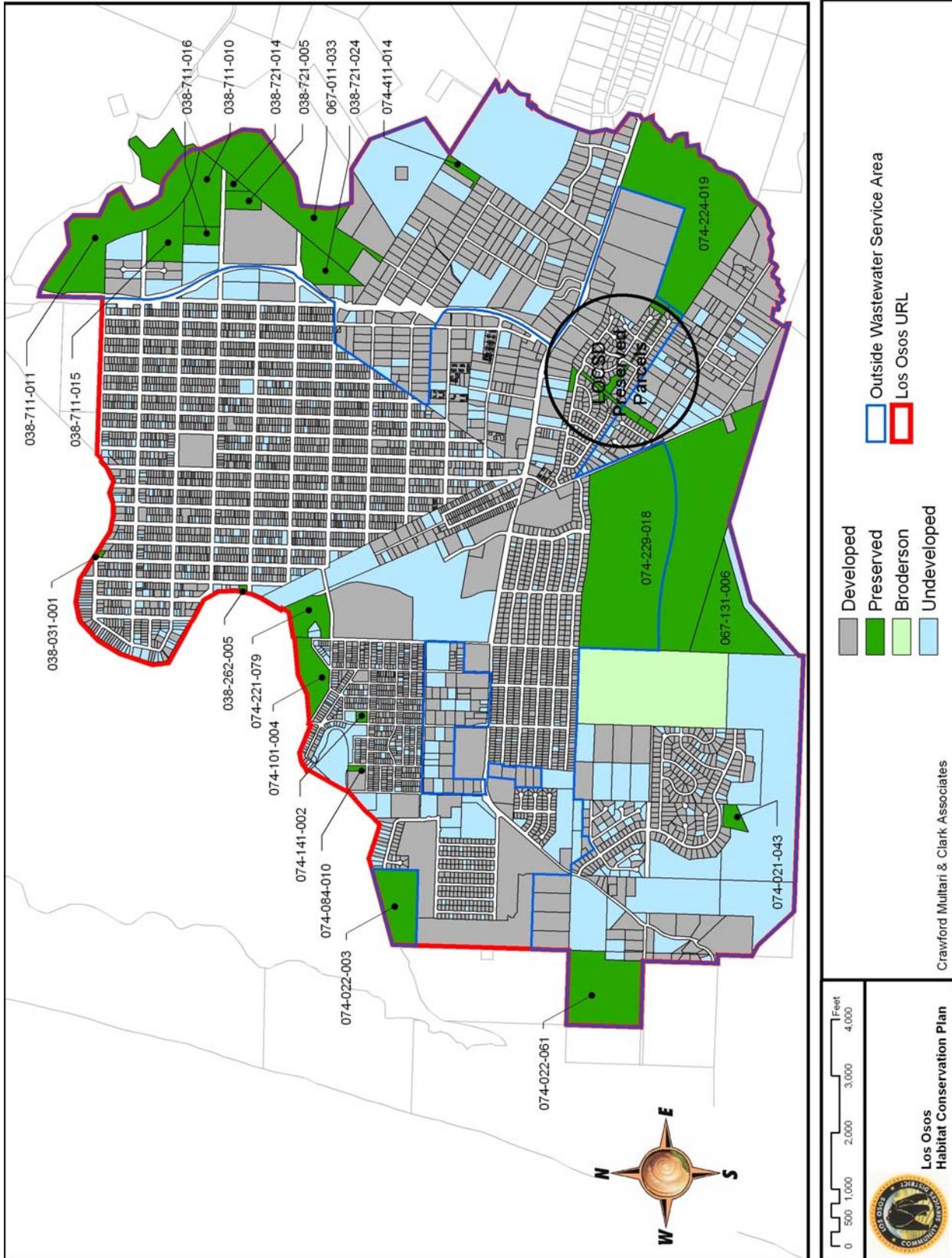


Figure 3-3 Preserved Parcels

CHAPTER 4: COVERED SPECIES

4.1 LOHCP COVERED SPECIES

"Covered Species" refers to those species whose habitat is specifically addressed by the conservation strategies and programs of the LOHCP, and for which the legal authority to take such species is provided in the ESA Section 10(a)(1)(B) and within the DFG Section 2081.

In Chapter 2, 89 species (54 animals and 35 plants and lichens), which are either known or suspected to occur in the LOHCP Area, were reviewed for conservation and coverage under the LOHCP (see Tables 2-2 and Table 2-3). A two-tiered filtering system was applied to these special status species to determine the species to be covered by the LOHCP.

The first tier of the filter determines if the Covered Activities (see Chapter 5, Covered Activities) will affect a species directly through impact of the species or its habitat. Based on the data collected and input from the Scientific Advisory Team, 24 of the species identified in Chapter 2 are associated with upland habitats and could be directly impacted by the activities covered by the LOHCP (see Table 4-1).

If a species is directly impacted, the second tier of the filter is applied which screens for species that are federally or State listed as threatened or endangered. Applying the first and second tier filters yields the Covered Species: Morro shoulderband snail, Morro manzanita, Morro Bay kangaroo rat, Indian Knob mountainbalm, and the splitting yarn lichen (see Table 4-2). Although the splitting yarn lichen is not listed as threatened or endangered, it was included as a Covered Species because it is a narrowly endemic species and federally listed as a Species of Concern. Because the Morro Bay kangaroo rate and the Indian Knob mountainbalm are extremely rare, take of these species is only requested for management purposes.

A coordinated approach to maintaining the mosaic of coastal sage scrub, coast live oak, and maritime chaparral vegetation is essential to the recovery of the Covered Species. However, conservation and management actions of the LOHCP will benefit many other species as these plant communities support several other sensitive species in the Plan Area.

Several listed species known to occur in the LOHCP Area will not be covered under the federal and state permits. These include the tidewater goby, salt marsh bird's-beak, and California seablite. These listed species are found in wetland and riparian communities, which will not be impacted by the Covered Activities (see also Section 2.8 Biological Resources and Chapter 5, Covered Activities).

Listed species not on the Covered Species list will continue to be regulated under ESA, CESA, and CEQA. Take of listed species can be authorized separately from the HCP under separate Section 7 consultations, Section 10 HCPs, and state management authorizations under Section 2081 of the California Fish and Game Code. Alternatively, species can be added to the LOHCP Covered Species list using the federal and state take authorization amendment process. This process for adding species to the covered species list may involve additional or new priorities among management practices or habitat acquisition.

Table 4-1 Results of Tier 1 Covered Species Filter

TIER 1 - Could the species be directly impacted by the Covered Activities?	
WILDLIFE	
<i>Anniella pulchra nigra</i>	Black legless lizard
<i>Athene cunicularia hypugea (burrows also protected)</i>	Western burrowing owl
<i>Coelus globosus</i>	Globose dune beetle
<i>Contopus cooperi</i>	Olive sided flycatcher
<i>Danaus plexippus</i>	Monarch butterfly
<i>Dipodomys heermanni morroensis</i>	Morro Bay kangaroo rat
<i>Elanus leucurus</i>	White-tailed kite
<i>Helminthoglypta walkeriana</i>	Morro shoulderband snail
<i>Lanius ludovicianus</i>	Loggerhead shrike
<i>Phrynosoma coronatum (frontale population)</i>	Coast horned lizard
<i>Selasphorus sasin</i>	Allen's hummingbird
<i>Taxidea taxus</i>	American badger
<i>Toxostoma redivivum</i>	California thrasher
PLANTS and LICHEN	
<i>Cladonia firma</i>	Popcorn lichen
<i>Arctostaphylos morroensis</i>	Morro manzanita
<i>Bryoria spiralis</i>	Spiraled old man's beard
<i>Erigeron blochmaniae</i>	Blochman leafy daisy
<i>Erigeron sanctarum</i>	Saint's daisy
<i>Eriodictyon altissimum</i>	Indian knob mountainbalm
<i>Hypogymnia mollis</i>	Los Osos black and white lichen
<i>Orobanche parishii ssp. brachyloba</i>	Short-lobed broomrape
<i>Parotrema hypolecinum</i>	Long fringed parmotrema
<i>Prunus fasciculata punctata</i>	Dune almond
<i>Sulcaria isidifera</i>	Splitting yarn lichen

Note: Filter 1 was applied to all species in Tables 2-2 and 2-3.

4.2 COVERED SPECIES

The description, conservation status, life history, distribution, habitat requirements, threats, recovery objectives, and information gaps for each Covered Species are discussed in the following section (See also Appendix B, Covered Species Biologies, of the Adaptive Management and Monitoring Plan).

Table 4-2: Covered Species

Scientific Name Common Name	Federal Status/State Status	CNPS
<i>Helminthoglypta walkeriana</i> Morro shoulderband snail	Endangered/None	--
<i>Dipodomys heermanni morroensis</i> Morro Bay kangaroo rat	Endangered/ Endangered and Fully Protected	--
<i>Arctostaphylos morroensis</i> Morro manzanita	Threatened/None	1B, 2-3-3
<i>Eriodictyon altissimum</i> Indian knob mountainbalm	Endangered/ Endangered	1B, 3-3-3
<i>Sulcaria isidifera</i> Splitting yarn lichen	Species of Concern/None	1B, 3-3-3

4.2.1 Morro shoulderband snail

4.2.1.1 Conservation Status and Description

The Morro shoulderband snail (*Helminthoglypta walkeriana*) was added to the List of Endangered Wildlife on December 15, 1994 (59 FR 64613). A recovery plan for the Morro shoulderband snail and four plants from western San Luis Obispo County was published in September 1998. The Final Determination of Critical Habitat for the Morro Shoulderband Snail was approved March 9, 2001 (50 CFR Part 17).



The Morro shoulderband snail has a slightly translucent, globose (globe-shaped) shell, with spiral grooves and a narrow dark-brown, spiral band on the shoulder. The Morro shoulderband snail has spiral striae (longitudinal ridges) as well as transverse striae giving it a “checkerboard” appearance. Further, there are raised papillae (bumps) at the intersections of some of the striae. The Morro shoulderband's spire is low-domed and half or more of the umbilicus (the cavity in the center of the base of a spiral shell that is surrounded by the whorls) is covered by the apertural (small opening) lip (Roth, 1985). The Morro shoulderband snail has one narrow dark brown spiral band on the shoulder and is approximately 0.7 to 1.1 inches in diameter and 0.6 to 1 inch in height.

4.2.1.2 Conservation Planning Areas and Critical Habitat

On December 15, 1994 the USFWS listed the Morro shoulderband snail as endangered. The USFWS then developed a “Recovery Plan for the Morro shoulderband snail and Four Plants from Western San Luis Obispo County, California,” which was approved in 1998. In the recovery plan, the USFWS identified four conservation planning areas in and around Los Osos (see Figure 4-1.). The four plants included in the recovery plan include Morro manzanita, Indian Knob mountainbalm, Chorro Creek Bog Thistle, and Pismo Clarkia. The Morro manzanita and the Indian Knob mountainbalm are covered by this plan (see Sections 4.2.4 and 4.2.5).

Conservation planning areas are delineated to focus conservation activities on lands that support numerous listed and sensitive species and where recovery potential is high. Conservation planning areas were based on the following conditions:

- (1) The distributions of the Morro manzanita, Morro shoulderband snail, and Indian Knob mountainbalm overlap or are contiguous with one another, with historic or occupied habitat for the Morro Bay kangaroo rat, or with the distributions of other sensitive species; and
- (2) Natural habitats are relatively large and unfragmented by development; or
- (3) Natural habitats are in public ownership or are adjacent to areas that are already secured and are to be managed for their biological diversity.

Critical habitat¹ for the Morro shoulderband snail was designated on February 7, 2001 (66 FR 9233). The final rule describes three Critical Habitat Units encompassing 2,400 acres of which approximately 84 percent is already in public ownership (See Figure 3-3). Critical habitat for the Morro shoulderband snail includes sand or sandy soils needed for reproduction, a land slope not greater than ten percent to facilitate movement of individuals, and the presence of native coastal dune scrub vegetation. The final rule defines coastal dune scrub as vegetation typically but not exclusively represented by mock heather, buckwheat, *eristrum*, *chamisso lupine* and *dudleya*; and in more inland locations by California sagebrush, coyote brush and black sage. The Critical Habitat Units are described below.

Unit 1: Morro Spit and West Pecho. Unit 1 encompasses areas managed by Montana de Oro State Park (Dunes Natural Preserve) and the City of Morro Bay (north end of spit), including the length of the spit and the foredune areas extending south toward Hazard Canyon. The unit provides dune scrub habitat which support populations of Morro shoulderband snail. The spit's windward side and its north end are largely non-vegetated; patches of vegetation occur primarily along its leeward side on Morro Bay. The West Pecho portion of this unit lies to the east of the Morro Spit Conservation Planning Area and is bounded on the east by Pecho Road and the community of Los Osos. It extends north to Morro Bay and south to Hazard Canyon. Elevations range from sea level on the bay to about 75 meters (m) (250 feet (ft)) along its southeastern edge.

Vegetation associations include coastal dune scrub, with coastal sage scrub closer to Hazard Canyon. The DFG owns an ecological reserve in this unit, which is managed cooperatively with State Parks (privately owned lands to the northeast are not included in this unit and are not reflected in the approximate area of the critical habitat designated). Approximately 1,670 acres occur on State land, and 65 hectares (160 ac) occur on local government land. The protection and recovery of this unit is essential to maintain the genetic diversity of the Morro shoulderband snail. It contains several significant, viable populations, and if suitable habitat conditions are maintained through proper management, this unit will provide for connectivity and dispersal among those populations, thereby maintaining genetic diversity over the long-term.

Unit 2: South Los Osos. Unit 2, approximately 320 acres, is bounded on the north and east by residential development in the community of Los Osos. The area on the lower slopes of the Irish Hills, where the vegetation is composed of maritime chaparral, is considered essential to the conservation of the Morro shoulderband snail.

With appropriate management in this area, the right ecological conditions for the snail can be maintained, and the core population can be expanded and threats to the species can be reduced. Special management considerations, necessary in this unit for the protection and recovery of this population, are not currently in place.

¹ Under the Endangered Species Act, critical habitat is defined as "the specific areas within the geographic area occupied by a species on which are found those physical and biological features essential to the conservation of the species, and that may require special management considerations or protection; and specific areas outside the geographic area occupied by a species at the time it is listed, upon determination that such areas are essential for the conservation of the species."

Unit 3: Northeast Los Osos. The Northeast Los Osos Critical Habitat Unit is 416 acres and includes undeveloped areas between Los Osos Creek and Baywood Park and is divided by South Bay Boulevard. Its elevation range is from sea level to about 100 feet. Vegetation is dominated by variants of coastal sage and dune scrub, with scattered stands of manzanita (*Arctostaphylos spp.*) and coast live oak (*Quercus agrifolia*). This unit includes the State and county-owned Elfin Forest Preserve, portions of Morro Bay State Park, and privately owned lands. The Los Osos Center, Hord Residential, and MCI/Worldcom HCPs fall within the unit boundaries.

At the time of the Recovery Plan publication, it was believed that this unit supports the most northern intact habitat for the snail. The protection and recovery of this unit is essential to maintain the genetic variability of the species and the full range of ecological setting within which the snail is found. Special management considerations are necessary in this unit for the protection and recovery of this population, and these are not currently in place. The unit has favorable habitat conditions for the expansion and persistence of the core population. With the reduction of threats through appropriate management, this area should support a larger Morro shoulderband snail population and hence, contribute to the recovery of the species.

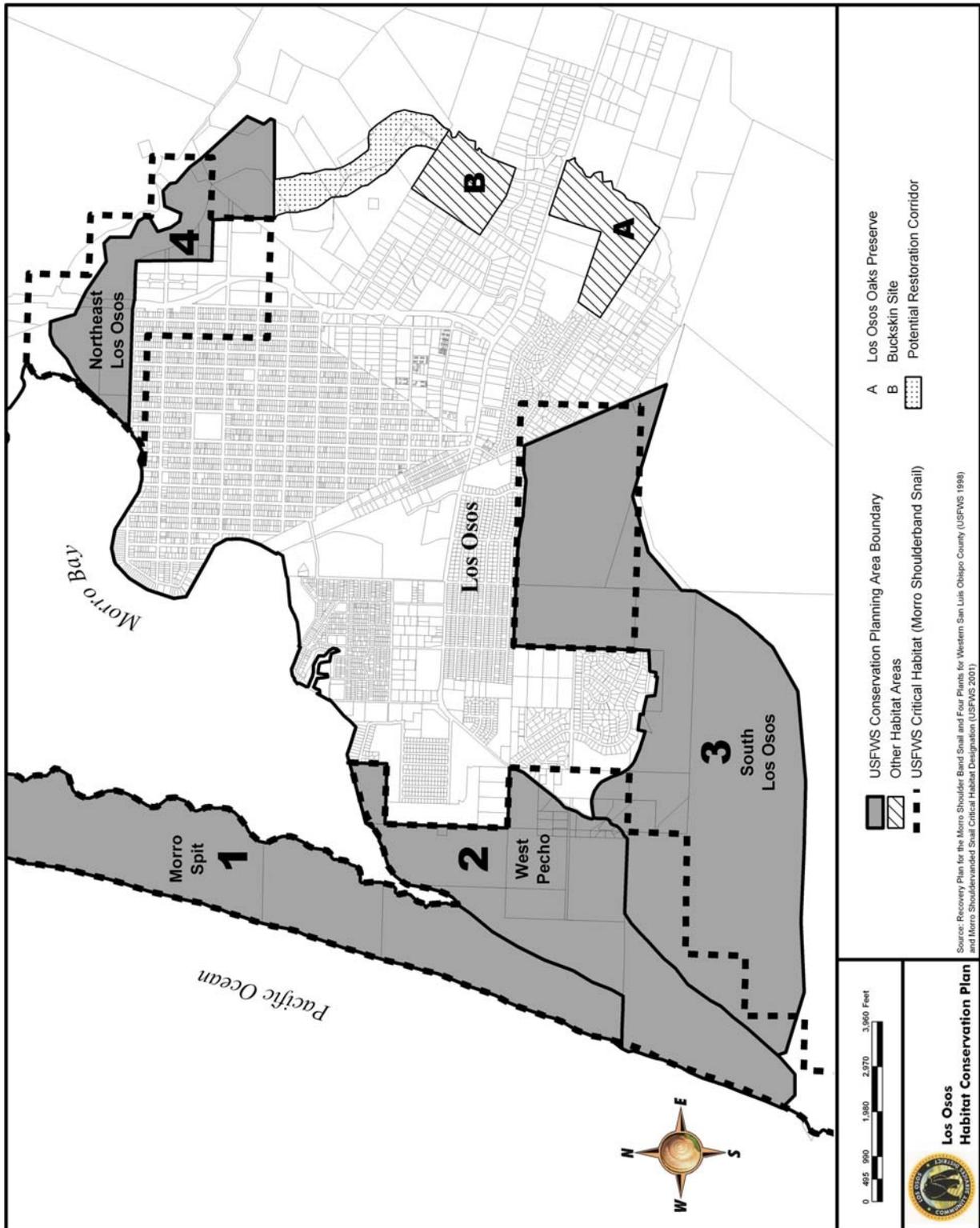


Figure 4-1 Morro Shoulderband Snail Conservation Planning Areas and Critical Habitat

4.2.1.3 Life History

The feeding behaviors of the Morro shoulderband snail has not been studied or documented by observations. Hill (1974) speculates that the snail feeds on the fungal mycelia (webs or mats of non-reproductive fungal strands) growing on decaying plant litter. To date, no research has been conducted on daily activity and socio-spacial behavior of the Morro shoulderband snail. For survival, the Morro shoulderband snail buries itself in leaf litter to prevent desiccation (Roth, 1985). As with most snail species that live in a Mediterranean climate, the Morro shoulderband snail is most active and reproduces in the rainy season while estivating during the dry season (Roth, 1985).

4.2.1.4 Distribution and Habitat Requirements

The recovery plan for the Morro shoulderband snail describes its current distribution as “areas south of Morro Bay, west of Los Osos Creek and north of Hazard Canyon”; the species occurs throughout the community of Los Osos (Service, 1998). At the time the recovery plan was written, the range of the Morro shoulderband snail was thought to be limited to the vicinity of Morro Bay and to be largely restricted to sandy soils of the coastal dune and coastal sage plant communities of the City of Morro Bay and the community of Los Osos.

Two other species in the genus *Helminthoglypta* inhabit areas adjacent to or overlapping the range of the Morro shoulderband snail. The Surf shoulderband snail (*H. fieldi*) inhabits coastal dunes from the San Luis Range in San Luis Obispo County to Point Arguello in Santa Barbara County. The Big Sur shoulderband snail (*H. umbilicata*) occurs from Monterey Bay, Monterey County, south to northern Santa Barbara County, and it has been found in the community of Los Osos.

The USFWS has distinguished between two subspecies of Morro shoulderband snail “morroensis” and “walkeriana”. Morroensis is found outside the Los Osos/Morro bay Area on non-sandy soils and is not regulated or protected under the ESA

The Morro shoulderband snail typically inhabits accumulated litter and the undersides of low shrub branches in coastal dune scrub vegetation, particularly mock heather (*Ericameria ericoides*), golden yarrow (*Eriophyllum staechadifolium*), deerweed (*Lotus scoparius*), and dune almond (*Prunus fasciculata* var. *punctata*). While the species has most often been found in mock heather (Roth, 1985; Hill, 1974; Symonds, pers. comm. 1996), it has also been found within introduced iceplant (*Mesembryanthemum* ssp. and *Conicosia* spp.) and fig-marigold (*Carpobrotus edulis*).

In addition, observations made in 1996 and 1997 by the USFWS and DFG staff (Symonds, USFWS, and Hillyard, DFG) indicate that the Morro shoulderband snail inhabits more vegetation types than originally thought. They observed the Morro shoulderband snail on California sage-black sage, dune lupine-goldenbush, Morro manzanita-California sagebrush, dune almond, and several other maritime chaparral and coastal sage scrub plant communities (Los Osos/Baywood Park Conservation Plan, 1998).

From 1997 to 2001, the Morro Group and Jones and Stokes Associates completed Morro shoulderband snail surveys for 117 parcels. The surveys divide the evidence for the presence of

snails into three categories: live snails, live snails and shells, and shells only. The surveys documented that snails are found throughout the Plan Area on different parcels with different vegetation types. Of the 117 surveys conducted, the results show that thirty-five surveys (30 percent) found live snails (live or live/shells) and 29 (25 percent) found shells only (see Figure 4-2). In addition, as the aerial photos help to illustrate (see Figure 2-3), even though Baywood Park and much of central Los Osos has experienced significant human disturbance and a grid-like street pattern for over 50 years, the snail has persisted in these heavily disturbed areas.

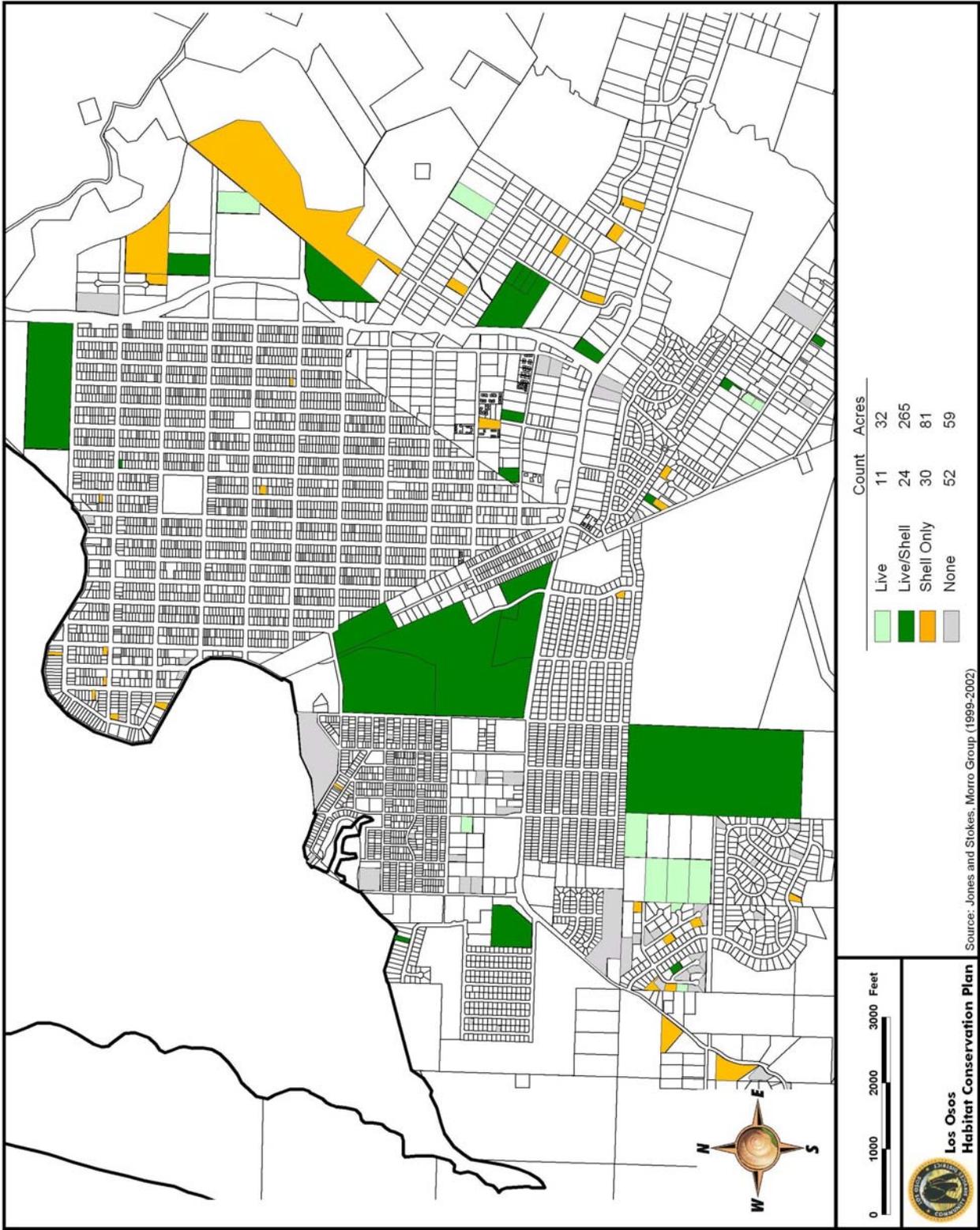


Figure 4-2: Morro Shoulderband Snail Survey Locations

Table 4-3 combines the results of the Morro Group and Jones and Stokes Associates surveys with parcel sizes. The Morro shoulderband snails may be found on any size lots throughout the Plan Area; however, there is a higher probability that the Morro shoulderband snails will be found on larger parcels (>5 acres).

Table 4-3: Morro Shoulderband Snail Survey Data by Parcel Size

Acres	Parcel Count			
	Live Snails and Live Snails w/ Snail Shells	Snail Shells Only	No Snail Presence	Total
<.25	1	7	13	21
.25-.5	5	10	18	33
.5-1	6	2	7	15
1-2	6	7	8	21
2-5	3	2	4	9
>5	13	2	2	17
TOTAL	34	30	52	116

Source: Morro Shoulderband Snail Surveys for 1998-2001, USFW.

The 1997 to 2001 surveys found Morro shoulderband snail in the habitats listed below. This includes a far wider range of habitats than those described in the Recovery Plan and supports the observations made by the USFWS and DFG staff discussed above.

Coastal sage scrub: Plants occurring in coastal scrub communities are characterized as being aromatic, low growing and drought tolerant. Common plant species include: California sagebrush, coyote brush (*Baccharis pilularis*), monkeyflower (*Mimulus* spp.), poison oak, California buckwheat (*Eriogonum fasciculatum*) and black sage (*Salvia mellifera*).

Central maritime chaparral: Maritime chaparral is found to form a mosaic with central dune scrub, coastal scrub, and coast live oak communities. Stiff, woody shrubs such as *Arctostaphylos* spp. and *Ceanothus* spp. dominate maritime chaparral communities. Other species frequently occurring as part of this community include: toyon (*Heteromeles arbutifolia*), coffeeberry (*Rhamnus californica*), black sage, chamise (*Adenostoma fasciculatum*), and poison-oak (*Toxicodendron diversilobum*).

Coast live oak woodlands: Coast live oak woodlands within the LOHCP Area do not form a continuous belt, but rather, occur as a mosaic closely associated with communities such as coastal scrub and non-native grassland. Typical understory plant species occurring in areas where coast live oaks form dense canopies include: toyon, poison oak, bracken fern (*Pteridium aquilinum*), miner's lettuce (*Claytonia perfoliata*), bedstraw (*Galium aparine*), and coffeeberry.

Noxious Non-native plants: Iceplant or sea fig (*Carpobrotus edulis*) is an invasive non-native species found throughout the sand dunes and bluffs along the coast. Veldt grass is

an invasive non-native weed that is found throughout the LOHCP Area. Eucalyptus groves have also been known to contain Morro shoulderband snail.

The Morro shoulderband snail was not found in areas dominated by pampas grass, ornamental plantings or blue gum trees (Morro shoulderband snail surveys, 1998-2001).

4.2.1.5 Threats

The predominant threat to the survival of the Morro shoulderband snail is the destruction of its habitat. Increased development, mowing, grading, off-road vehicles, fire suppression, and invasive non-native species such as veldt grass play a major role in the degradation of the snail's habitat. Natural factors that contribute to the snail's mortality include drought and severe heat that can destroy the eggs. Sarcophagid flies, which parasitize the Morro shoulderband snail, are suggested to have a potential impact on the snail's population as well (Hill, 1974). Various encroaching threats on the snail's habitat included expanding housing developments, equestrians and trail use, off-road vehicular traffic, prescribed burns for habitat management of the endangered Morro Bay kangaroo rat, predatory rodents, invasion of nonnative plant species (e.g., veldt grass (*Ehrharta calycina*), and the maturation of the coastal sage scrub community.



Eucalyptus expansion and ice plant may be considered an increasing exotic threat, but Veldt grass is the greatest exotic threat to the snails. Snails may utilize Mock heather (*Ericameria*) as an important component of habitat, and it appears that this shrub is the most susceptible to invasion from grasses. Although an exotic, ice plant may be used as an estivation site for snails, and it should be removed with sufficient care to avoid snail take.

In addition to the known threats, possible threats to the snail include the competition for resources with the nonnative brown garden snail (although no assessment has been made of possible dietary overlap between the species); the small and isolated nature of the remaining populations; the use of pesticides (including snail and slug baits); and the introduction of nonnative predatory snails, such as *Oxycheilus sp.* (Roth, 1985) or the decollate snail (*Rumina decollate*).

4.2.1.6 Recovery Objectives

The “Recovery Plan for the Morro shoulderband snail and Four Plants from Western San Luis Obispo County, California” was approved by the USFWS in 1998. The recovery objective for the Morro shoulderband snail is delisting. The downlisting and delisting criteria developed by the Service for the Morro shoulderband snail are described below.

Downlisting for the Morro shoulderband snail can be considered when sufficient populations and suitable occupied habitats from all four Conservation Planning Areas (Morro Spit, West Pecho, South Los Osos, and Northeast Los Osos) are secured and protected (see Figure 3-3). The 2,400 acres of Critical Habitat Units described in Section 3.3 fall within these Conservation Planning Areas. These areas should be intact and relatively unfragmented by urban development. Snail populations must be large enough

to minimize the short-term (next 50 years) risk of extinction on any of the four Conservation Planning Areas, based on results of tasks and on at least preliminary results of the Recovery Plan's objectives.

Downlisting also requires that potential habitat within the snail's historic range will have been identified and surveyed to see if undiscovered populations exist. Should surveys locate additional populations, especially north of Morro Bay, recovery criteria will have to be evaluated and revised.

Delisting can be considered for the Morro shoulderband snail when habitats from all Conservation Planning Areas (and, if necessary, any newly located populations) are successfully managed to maintain the desired community structure and secured from threats of development, invasion of non-native plants, structural changes due to senescence of dune vegetation, recreational use, pesticides (including slug and snail baits), parasites, and competition or predation from non-native snail species.

Figure 3-3 displays the USFWS conservation planning areas for the Morro shoulderband snail, Morro manzanita, and the Indian Knob mountainbalm from the 1998 Recovery Plan and the critical habitat for the Morro shoulderband snail.

Recovery Plan Tasks

Conduct species-specific research

Although many basic characteristics of the life history of the species are known, other critical aspects need to be investigated to allow refinement of management actions. The following are specific research projects considered especially worthy:

- Determine if the brown garden snail is a competitive threat to Morro shoulderband and control as necessary. Competition for food, estivation sites, and especially shelter sites between Morro shoulderband and the non-native brown garden snail (*Helix aspersa*) should be investigated. Preferred food, estivation, and shelter sites should be determined for both species. If the research results show that both snails use similar resources and *Helix* is a competitive threat, a detailed control strategy for *Helix* should be developed and implemented. The best available method of control for exotic snail species that will not also affect the Morro shoulderband snail is handpicking. This process is very time-consuming and would probably not completely eradicate *Helix*.
- Study habitat use and life history needs of the Morro shoulderband snail. Studies should be performed to determine if immature stands in earlier successional stages offer more favorable shelter and litter higher in food value compared to mature senescent stands of coastal dune scrub. Documented observations and research on the feeding behaviors of the snail should be gathered to determine the required vegetation needed for food resources. Information on the snail's reproduction, growth, and dispersal capabilities should also be obtained. This information is needed to understand the ecological, management, and recovery requirements of the snail.

- Identify Morro shoulderband parasites and determine if parasitism rates are threatening populations. The sarcophagid fly parasitoid of the Morro shoulderband should be identified to determine whether it is native or introduced. Since vacant fly puparia were found inside many empty subadult shells, the mortality from the parasitoid flies probably occurs before the snail's reproductive maturity (Roth, 1985). Research results should determine how this parasitic infestation during pre-reproductive maturity affects the population dynamics of the snails. If research results conclude that the parasite is detrimental to the snail's recovery, a control strategy for the parasite might be considered.

Recovery Plan Results

Determine population dynamics and effects of recovery efforts

Studies should be conducted to learn the number and size of successful self-sustaining populations for each species to establish criteria for their re-classification.

Document population dynamics and cycles to ascertain trends

Wide population fluctuations, both spatially and temporally, have been observed within populations of the Morro shoulderband snail. Studies should be conducted to document population dynamics and cycles to determine population trends. Standardized survey methodology should be used to track populations from one year to the next.

Evaluate effectiveness of methods used to reduce threats

Regular monitoring is needed to evaluate the success of reducing threats to these species. This is necessary to determine if recovery goals are being met and if downlisting or delisting is appropriate.

4.2.1.7 Information Gaps

As noted earlier, there is little known regarding the Morro shoulderband snail habitat use and life history needs. Information gaps, as discussed above, include determining if the brown garden snail is a competitive threat and the extent that the parasitism rate is threatening the population. There is little known regarding the Morro shoulderband snail's ability to recolonize following a fire or from habitat restoration techniques.

4.2.2 Morro Bay kangaroo rat

4.2.2.1 Conservation Status and Description



The Morro Bay kangaroo rat's optimum habitat consists of the earlier successional stages of the coastal sagebrush community that occurs on the old, stabilized dune terraces on the south and southeast sides of Morro Bay. The optimum vegetation is an essentially herbaceous annual, with scattered woody perennial shrubs (e.g. sagebrush, coyote brush, lupine, and buckwheat) no more than 2 feet in height (Condon, 1971; Condon, 1975; Roest, 1973; Stewart, 1958; Stewart and Roest, 1960; Toyoshima, 1978; Toyoshima, 1979). The CNDDDB (2002) has three records of known occurrence and six historical records for the Morro Bay kangaroo rats in the Plan Area. The records of known occurrence in the Plan Area are located at (1) the Morro Palisades site, south of Highland Drive between Broderson Ave and Bayview Heights Drive; (2) the junior high site on Santa Ysabel Street, east of South Bay Boulevard and just west of Los Osos Creek; and (3) just north of the dead end on Buckskin Drive.

The USFWS released a Draft Revised Recovery Plan for the Morro Bay Kangaroo Rat (*Dipodomys heermanni morroensis*), September 1999. The recovery objective for Morro Bay kangaroo rat was to reclassify it to Threatened. The USFWS identified Critical Habitat for the Morro Bay kangaroo rat, which is a portion of its historical range and is primarily in Montana de Oro State Park (See Figure 4-3). The Morro Bay kangaroo rat has not been detected since the early 1990's. The only locations thought to harbor the Morro Bay kangaroo rat are the Morro Palisades south of Highland Drive and the Los Osos Oaks Preserve south of Los Osos Valley Road.

4.2.2.2 Life History

The Morro Bay kangaroo rat surfaces from underground burrows immediately after dusk and then periodically throughout the night until 1 –2 hours before dawn. Their foraging behavior typically involves “investigating” the substrate and periodically stopping for 1 to 2 minutes while the front feet are shuffled through the sand. They also forage directly on foliage, flowers, or fruits. Occasionally they stand up on their hind legs, grab at low branches with their front feet, and vigorously shake the branches. Food items are either eaten or moved to the cheek pouches. Seeds in the cheek pouches are either hoarded in the burrow or hidden in small surface-pit-caches.

Morro Bay kangaroo rats are considered only slightly social, and their social systems may be limited to their mating system. During close proximity in the field, two Morro Bay kangaroo rats may repeatedly run toward each other and then jump to opposite sides just before colliding. After several “sparring” sequences, one animal may speedily chase the other through the brush. Each individual's exclusive burrow system is only shared during mating encounters or while rearing pups. Individuals communicate in the field by scent marking and foot drumming; conveying such information as identification, sex, and mating condition.

The limited data collected on the reproduction activity of the Morro Bay kangaroo rat suggests that pregnancy, parturition, and lactation occur most frequently between March and August (Gambis and Holland, 1988).

4.2.2.3 Distribution and Habitat Requirements

1989 burrow surveys indicate that the total occupied range of the Morro Bay kangaroo rat consists of about 37 acres distributed over the Morro Palisades site in the community of Los Osos. The Morro Bay kangaroo rat prefers coastal dune scrub having comparatively low plant species diversity, with high cover of buckbrush, deerweed, and silverweed and low cover of yarrow (*Achillea millefolium*), iceplant (*Carpobrotus* spp.), California aster (*Lessingia filaginifolia*), and *Dudleya* (*dudleya caespiosa*). Within stands of coastal dune scrub habitat having these attributes, the sites where Morro Bay kangaroo rats were found had significantly higher silverweed cover and significantly lower croton (*Croton californicus*) cover than the stands as a whole.

Eight other subspecies under *Dipodomys heermanni*, in addition to *morroensis*, including *D.h. arenae*, *berkeleyensis*, *dixoni*, *goldmani*, *heermanni*, *jolonensis*, *swarthy*, and *tularensis*. The Morro Bay kangaroo rat is smaller and more darkly-colored than the most similar subspecies of *D. heermanni*. These differences are considered to be significant enough to warrant full species status for the Morro Bay animals. The Morro Bay kangaroo rat is completely isolated from the other subspecies; with the nearest subspecies found in the eastern part of San Luis Obispo County.

Most of the area where Morro Bay kangaroo rats are found are covered by Baywood fine sand, a soil that supports a mosaic of coastal dune scrub, chaparral, and coastal oak woodland plant communities. The historic and potential range of Morro Bay kangaroo rats occurs almost entirely within this soil and its vegetation mosaic.

Vegetation in the historic range of the Morro Bay kangaroo rat is a complex mosaic of relatively natural terrestrial, semiaquatic, and aquatic (freshwater and saltwater) plant communities. The natural terrestrial plant communities are pioneer coastal dune, coastal dune scrub, chaparral, coastal oak woodland, and grassland communities. Added to these natural communities are the many plants (e.g., ornamentals, windrows, crops, and weeds) introduced to the area during urban and agricultural development. Morro Bay kangaroo rats are believed to have occupied a large portion of the area currently or historically covered by the coastal dune scrub community, which occurs on progressively older and more stabilized dunes.

4.2.2.4 Threats

The predominant threat to the survival of the Morro Bay kangaroo rat is the destruction of its habitat. Increased development, mowing, grading, off-road vehicles, equestrians, trail use, fire suppression, and invasive non-native species play a major role in the degradation of the rat's habitat. Direct loss of habitat from urban development, changes in the vegetation characteristics of the remaining habitat, predation by domestic and feral cats and dogs, destruction of burrows by vehicles and pedestrian traffic, competition with other burrowing rodents, fragmentation of larger populations into small subpopulations, and perhaps inbreeding are all threats that have led to the decline in the Morro Bay kangaroo rat (Roest 1982, Gambs 1986b, Gambs and Holland 1988, and Gambs and Nelson 1989, Gambs 1990).

4.2.2.5 Recovery Objectives

The "Recovery Plan for the Morro Bay Kangaroo Rat" was approved by the USFWS in 1999. The recovery objective for the Morro Bay Kangaroo rat is to downlist to threatened. Delisting is not likely because the limited amount of remaining historic habitat is probably insufficient to ever remove the threat of endangerment. The downlisting criteria developed by the Service for the Morro Bay kangaroo rat is described below.

Based purely on genetic considerations, the Morro Bay kangaroo rat may be reclassified as threatened when an effective genetic population size of 500 has been achieved, which translates to an actual census size of about 2,000 individuals. The subspecies must have a 95 percent probability of persisting for at least 100 years. This population size must be sustained with a mean at the level for 10 consecutive years, with adequate geographic distribution.

Assuming a mean density of 4 animals per acre, approximately 500 acres of functional habitat will be required for status improvement. If habitat is not managed to sustain a mean density of 4 animals per acre, more land will be required. Any change in the protected status of the Morro Bay kangaroo rat should be based on the status of the subspecies in the wild.

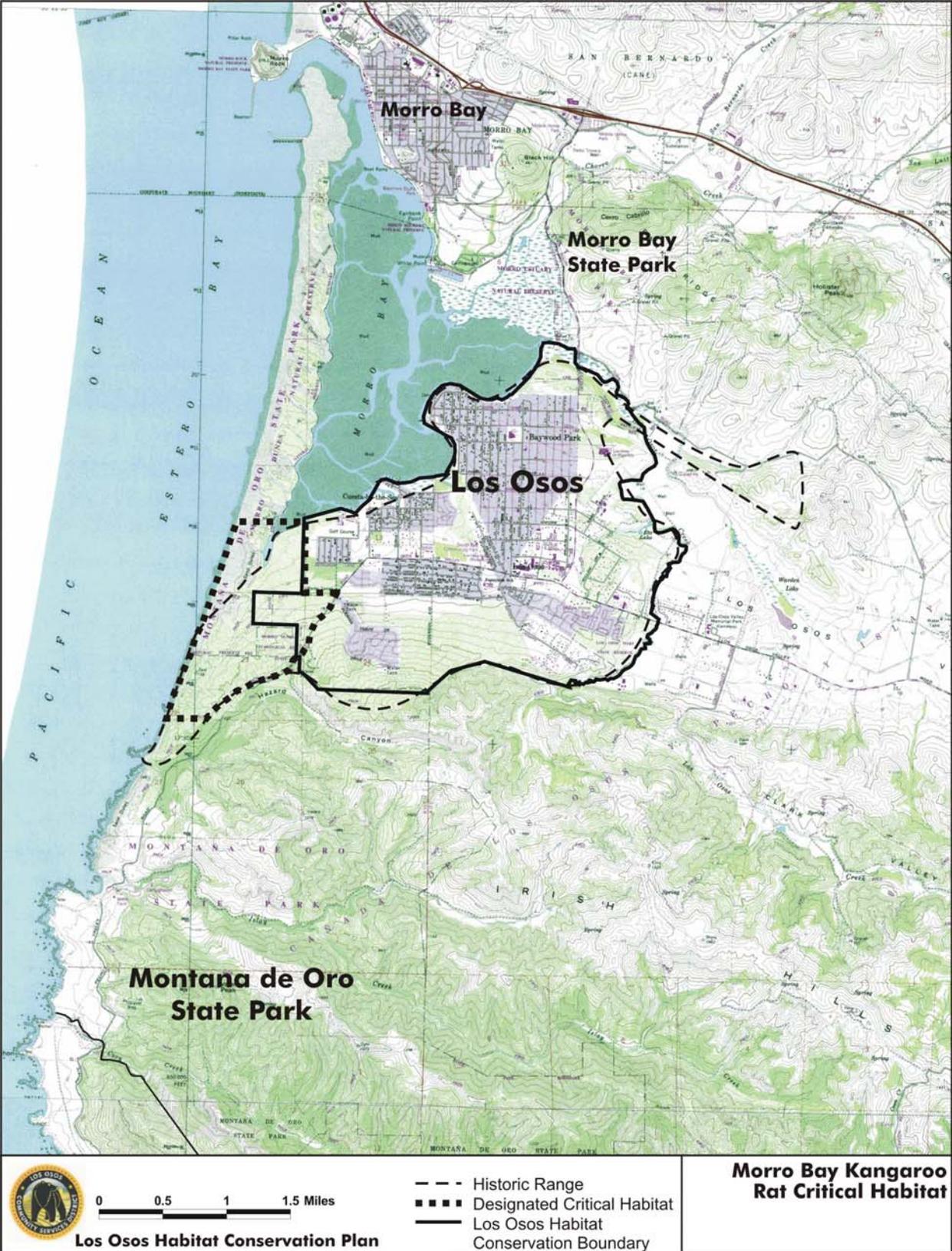
Recovery Plan Tasks

The actions needed in order for the Morro Bay kangaroo rat to be downlisted to threatened include:

- Remove up to 100 Morro Bay kangaroo rats from the wild and breed them in captivity using techniques developed with a surrogate, the Lompoc kangaroo rat (*Dipodomys heermanni arenai*).
- Identify and coordinate interagency activities to secure, manage, and improve habitat for all available areas in historic habitat.
- Reintroduce Morro Bay kangaroo rats to the wild in restored habitat using techniques developed with the Lompoc kangaroo rat.
- Revise the Morro Bay kangaroo rat recovery plan based on population viability analysis.
- Conduct public outreach and fundraising efforts.

4.2.2.6 Information Gaps

For conservation efforts, the state of knowledge concerning reproductive physiology and reproductive behavior of the Morro Bay kangaroo rat is insufficient to permit successful application of technologically-advanced reproductive techniques, to aid in increasing populations.



SOURCE: USGS; USFWS, Morro Bay Kangaroo Rat Draft Revised Recovery Plan, 9/99; County of San Luis Obispo

Figure 4-3: Morro Bay Kangaroo Rat Critical Habitat

4.2.3 Splitting Yarn Lichen

4.2.3.1 Conservation Status and Description

Splitting yarn lichen (*Sulcaria isidiifera*) is designated a species of concern by the U.S. Fish and Wildlife Service and is ranked by the CNPS as 1B, 3-3-3. Critical habitat has not been designated.

Splitting yarn lichen is a short shrubby species with many isidia (Brodo et al., 2001). It is fruticose lichen that has a thallus that is dull yellowish-white grading into light brown and reddish-brown at the more exposed tips; the lichen is rarely olive-grey. The main spinulose branches developing from splits in the thallus; branches splitting lengthwise and opening into rather wide, linear soralia filled with spinulose isidia and spinules, often with brown tips; main branches 0.3-0.5 mm wide; secondary branches 0.15-0.3 wide; branches fairly even and smooth except for the sulci and isidial development; branches are very brittle (Brodo, 1986).

4.2.3.2 Life History

To date, no known research has been conducted on lifespan of the splitting yarn lichen.

4.2.3.3 Distribution and Habitat Requirements

Splitting yarn lichen is endemic to Los Osos (Von Reis, 1991). The CNDDDB (2002) has two records of known occurrence for splitting yarn lichen within the plan area at the Los Osos Oaks State Reserve and in the Elfin Forest Preserve.

Splitting yarn lichen is an epiphyte on branches of chamise (*Adenostoma fasciculatum*), monkey flower (*Diplacus aurantiacus*) and coastal buckbrush (*Ceanothus cuneatus. var. fascicularis*) in sandy areas and is found only rarely on coast live oak (*Quercus agrifolia*) (Brodo, 1986).

4.2.3.4 Threats

Threats include overcollecting, equestrians, trail use, being overgrown by other plants like poison oak (*Toxicodendron diversilobum*), and urban development (CNDDDB, 2002). Fire would presumably remove the woody substrate that the lichen appears to require, therefore the prescribed burns for habitat management of the endangered Morro Bay kangaroo rat could pose a threat to the Splitting yarn lichen.

4.2.3.5 Recovery Objectives

None established.

4.2.3.6 Information Gaps

There is little known regarding the lifespan of the splitting yarn lichen. Research needs to be done to determine population dynamics and cycles.

4.2.4 Morro Manzanita

4.2.4.1 Conservation Status and Description

Morro manzanita (*Arctostaphylos morroensis*) was added to the federal Threatened List on December 15, 1994 (59 FR 64613) and is ranked by the CNPS as 1B, 2-3-3. Although Conservation Planning Areas have been established, Critical Habitat has not been designated by the USFWS.



Morro manzanita reaches a height of 1.5 to 4.0 meters (5 to 13 feet) and has crowded oblong to ovate grey-green to olive-green leaves, 2.5 to 4.0 centimeters (1 to 1.5 inches) long, with petioles 2 to 6 millimeters (0.08 to 0.20 inch) long. The white to pinkish flowers are 5 to 8 millimeters (0.2 to 0.3 inch) long and form orange-brown fruits 8 to 13 millimeters (0.3 to 0.5 inch) in diameter with 8 to 10 stones per fruit (Wells, 1993; Tyler and Odion, 1996) that are fused but separable.

Morro manzanita is distinguished from other manzanitas by the bark of the trunk, which is a shaggy grey to brown; the leaf blades range from wedge-shaped (cuneate) to rounded or nearly straight (truncate) at the base with the lower surface paler and usually somewhat tomentose (short woolly hairs).

4.2.4.2 Life History

The flowering period is December through March (CNPS, 2001). Fruit mature and seed dispersal occurs in summer and fall (Tyler and Odion, 1996).

4.2.4.3 Distribution and Habitat Requirements

Morro manzanita is endemic south of Morro Bay in stands of varying size at elevations up to 200 meters (Jepson, 2003). The historic distribution of Morro manzanita was estimated to cover between 2,000 and 2,700 acres (McGuire and Morey, 1992) based on the distribution of Baywood fine sands soil in the Los Osos area. In 1992, LSA Associates, Inc. estimated that Morro manzanita scattered over approximately 840 to 890 acres (LSA, 1992). However, a more recent analysis of mapped distributions by cover classes suggests that the area actually covered by Morro manzanita shrubs may currently be less than 400 acres (Tyler and Odion, 1996).

Population estimates from 1992 range from 86,000 to 153,000 individuals, depending on the method used (McGuire and Morey, 1992; LSA Associates, 1992).

Approximately 65 per cent of the remaining Morro manzanita habitat is in private ownership with the bulk of this in habitat with high densities of manzanita. Approximately 35 per cent of the plant's habitat is on publicly owned lands within Montana de Oro State Park and on two small preserves managed by California Department of Fish and Game. Most of the habitat on public lands supports low or moderate densities of Morro manzanita (McGuire and Morey, 1992).

Figure 4-4 illustrates the location and percent coverage of Morro manzanita stands.

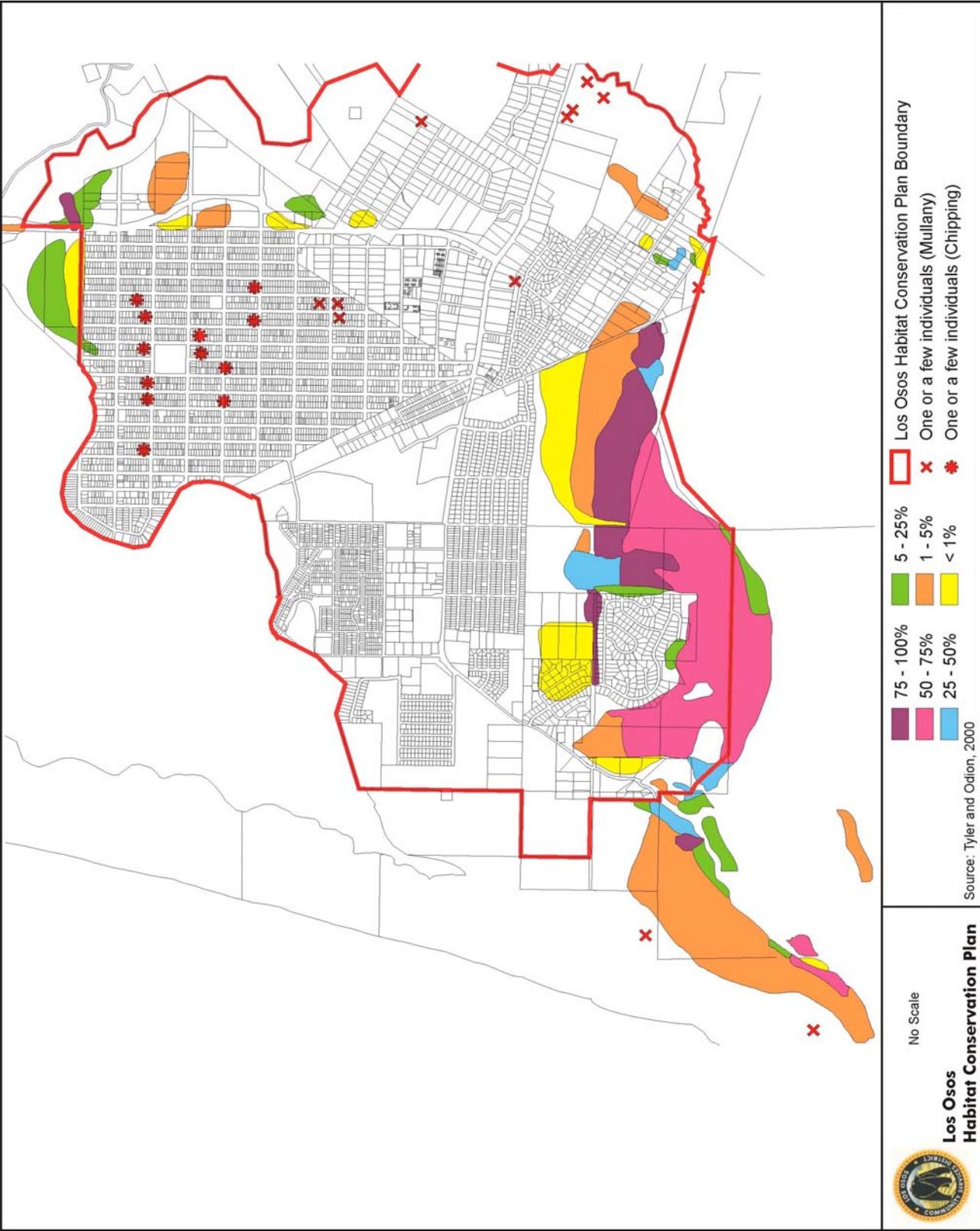


Figure 4-4: Percent Cover for Morro Manzanita

Morro manzanita is found in association with coastal scrub, maritime chaparral, and coast live oak woodland communities in sites with no or low to moderate slopes. On steeper slopes, particularly on the north-facing slopes of the Irish Hills, Morro manzanita occurs in almost pure stands. Where Morro manzanita occurs in dense stands, few understory species are present (Tyler and Odion, 1996). Morro manzanita is not known to inhibit the growth or seed germination of other plants (i.e., to be allelopathic), but allelopathy is known in at least one other species of manzanita (Chou and Muller, 1972). Older individuals of Morro manzanita may have canopies 10 meters (33 feet) in diameter.

4.2.4.4 Threats

The greatest threat to Morro manzanita is loss and fragmentation of its habitat from development. About 75 percent of its historical habitat has been altered by development, primarily in the urban areas of Los Osos. Over half the remaining habitat is in private ownership, and proposals are pending to develop several large parcels. Although approximately a third of the habitat for Morro manzanita is owned and managed by the California Department of Parks and Recreation (Montana de Oro State Park) and two parcels owned by California Department of Fish and Game, it is still subject to alteration. Groves of non-native Eucalyptus trees planted in the early 1900's have encroached on nearby stands of Morro manzanita (Holland et al., 1990). Equestrians and trail use has posed an additional threat to existing habitat.

Invasive, exotic, and competing plants and improper fire management are additional major threats to the Morro manzanita. Invasion of exotic or native plants can either compete for water and space with Morro manzanita seedlings after fire events or they can contribute to shading. Veldt grass invasion is the greatest threat from exotics. Fire would not normally be carried through coastal dune scrubs with their high ratios of bare ground to vegetative cover, but veldt grass will not allow fires to start in the coastal scrubs and carry into the manzanita. Ice plant invasion is a relatively minor risk. Locally, eucalyptus is spreading into mixed oak-manzanita habitat and is a long term risk.

4.2.4.5 Recovery Objectives

Morro manzanita is included in the Service Recovery Plan for Morro Shoulderband Snail and four plants from Western San Luis Obispo County, California, completed in 1998. The recovery objective for the Morro Manzanita is delisting. The delisting criteria developed by the Service for the Morro Manzanita is described below.

Morro manzanita can be considered for delisting when all three of the following have been achieved: (1) 90 percent of existing acreage supporting high (75-100 percent) and medium (25-75 percent) cover of Morro manzanita and 85-90 percent of low (1-24 percent) cover supporting Morro manzanita are secured from human-induced threats in preserves in the Northeast Los Osos, South Los Osos and West Pecho Conservation Planning Areas with no greater fragmentation by roads, residences, or other areas of human use than currently exists, (2) evidence that the acreage and approximate cover classes of Morro manzanita in preserves can be maintained over time and that preserves are not made unmanageable by small size, proximity to urban development, or fragmentation, and (3) site-specific management plans have been successfully implemented for the preserves.

Because habitat in the Conservation Planning Areas must remain unfragmented to recover this species, habitat attrition must be restricted to isolated or remnant patches of Morro manzanita that are unlikely to be viable over the long term. Highest priority for securing sites should be given to stands where Morro manzanita is the dominant species in terms of cover, where large, contiguous blocks of occupied habitat are still present, and where Morro manzanita habitat can be secured that abuts other protected lands, as in the South Los Osos Conservation Planning Area.

4.2.4.6 Information Gaps

There is little known regarding Morro manzanita's ability to recolonize following a fire or habitat restoration techniques.

4.2.5 Indian Knob mountainbalm

4.2.5.1 Conservation Status and Description

The Indian Knob mountainbalm was listed by the State of California Fish and Game Commission as endangered in 1979. The City of San Luis Obispo has purchased a conservation easement that provides protection to a large portion of the known population at Indian Knob. The easement covers almost 1500 acres and restricts mining and development where the known population of the mountain balm occurs.



Indian Knob mountainbalm, a diffusely branched evergreen shrub, reaches a height of 2 to 4 meters (6.6 to 13 feet). The sticky leaves are long (6 to 9 centimeters [2.4 to 3.5 inches]) and narrow (2 to 4 millimeters [0.08 to 0.2 inch]); the lavender flowers (1.1 to 1.5 centimeters [0.4 to 0.6 inch] long) are arranged in coiled clusters and produce tiny (0.4 millimeter [0.02 inch] long) seeds. As with other fire-adapted chaparral plants, Indian Knob mountainbalm produces new growth primarily from rhizomatous suckers.

4.2.5.2 Life History

This perennial shrub is believed to be relatively longlived; slow-growing lichens can be found attached to its woody stems. Indian Knob mountainbalm flowers in June and July. A variety of nonspecialist potentially pollinating insects have been recorded visiting the flowers of this species. Fruits contain a single ovule and seed set is low in those plants in which it has been recorded (John Chesnut, pers. Comm. 1997). A related species, Lompoc yerba santa, is self-incompatible and reproductive and genetic studies suggest that small colonies may consist of only a single genotype (clone) (Elam 1994). It is not known if Indian Knob mountainbalm is self-compatible; however, it is possible that some colonies are also composed of a single clone. In addition to sexual reproduction, this species regenerates by root sprouts.

4.2.5.3 Distribution and Habitat Requirements

Indian Knob mountainbalm is found typically at the margins of central maritime chaparral and coastal sage scrub communities. The CNDDB (2002) has three records of known occurrence for Indian Knob mountainbalm within the Plan Area. These are located (1) west of Broderson

Avenue and east of Travis Drive, (2) between Broderson Avenue and Bayview Heights Drive, just above Highland Drive, and (3) at the extension of Bayview Heights Drive at Calle Cordoniz, 50 yards southwest of the road.

Only two other narrow-leaved *Eriodictyon* species occur in southern California; narrow-leaved yerba santa (*E.angustifolium*) occurs in the New York Mountains in the eastern Mojave Desert and has much smaller flowers. The other, Lompoc yerba santa (*E. capitatum*), is restricted to a few locations in coastal Santa Barbara County and has distinctly capitate (headlike) inflorescence.

4.2.5.4 Threats

The potential for development is the greatest threat to Indian Knob mountainbalm on private lands. In the early 1990's, a water storage tank was installed within a hundred feet of one occurrence north of Highland Drive on private property. Surface mining of tar sands was proposed several years ago for the Indian Knob area (Vanderwier 1987); however, part of this stand now receives protection through a conservation easement that restricts mining activities (N. Havlik, pers. comm.1997). At Montana de Oro State Park, a communications line installed in Hazards Canyon in the early 1990s would have affected scattered individuals, but efforts were made to avoid them. Equestrians and trail use poses a threat to existing habitat.

4.2.5.5 Recovery Objectives

The recovery objective in the *USFWS Recovery Plan for the Morro Shoulderband Snail and Four Plants from Western San Luis Obispo County, California* (1998), which includes the Indian Knob mountainbalm, states:

The Indian knob mountainbalm can be considered for down listing when all three of the following have been achieved: (1) at least five occurrences from throughout its range are on lands secure from human-induced threats, (2) surrounding habitat is protected in amounts adequate to permit management of the vegetation community using prescribed fire, if it is deemed beneficial for the species, and (3) populations are projected to be self-sustaining and either stable or increasing as determined from long-term monitoring and research results.

4.2.2.6 Information Gaps

Estimates of population sizes are imprecise because Indian Knob mountainbalm sprouts from the root, making identification of a genetic or physiological "individual" difficult. Because rugged terrain in the Irish Hills (between Morro Bay and Indian Knob) has precluded extensive botanical surveying, it is not know whether other stands of Indian Knob mountainbalm occur in this area.

CHAPTER 5: COVERED ACTIVITIES AND IMPACTS

5.1 COVERED ACTIVITIES

According to the USFWS Endangered Species Habitat Conservation Planning Handbook, Covered Activities are actions within the habitat conservation planning area that: (1) are likely to result in incidental take of the covered species; (2) are reasonably certain to occur over the life of the permit; and (3) are controlled by the applicant(s) to some extent. In Los Osos, the Covered Activities are primarily new residential and commercial construction, including associated infrastructure and facilities, anticipated to occur after the Los Osos Wastewater Treatment Facility is operational. The LOHCP requests take of the Morro shoulderband snail, the Morro manzanita, and the splitting yarn lichen for these Covered Activities. The take request for the remaining Covered Species, the Morro Bay kangaroo rat and the Indian Knob mountainbalm, is for management and monitoring activities.



According to the Estero Area Plan, “build out” of the LOHCP Area is estimated to occur in 2019. However, because of unexpected circumstances, activities covered under this incidental take permit may be ongoing for a greater length of time. Therefore, the requested length of the Section 10(a)(1)(B) and the Section 2081 permits is 20 years, to be set upon the issuance of the permit. The level of take of Covered Species is determined based on the number of habitat acres that will be modified by the Covered Activities.

Activities that are not specified as Covered Activities will not be included under the incidental take authorization.

Covered Activities under the LOHCP include the following:

- **New Residential and Nonresidential Construction.** New commercial and residential construction, including associated infrastructure and facilities (*e.g.*, roads, utilities, and storm water control measures) and “defensible space” around the buildings¹ (both ministerial and discretionary as defined in CEQA Guidelines Sections 15369 and 15357).
- **Residential and Commercial Remodeling, Renovation, and Reconstruction.** Commercial and residential remodeling, renovation, and reconstruction projects, including associated infrastructure and facilities (*i.e.*, roads, utilities, and storm water control measures), that add to or modify the footprint of an existing structure(s), (both ministerial and discretionary as defined in CEQA Guidelines Sections 15369 and 15357).
- **Roadway and Bridge Maintenance and Expansion.** The Public Works Department of the County maintains and builds the roadways within Los Osos. This maintenance and expansion occasionally involves impacts to habitat areas.

¹ The California Department of Forestry (CDF) and South Bay Community Fire Department require new construction to maintain “defensible space” surrounding buildings. This allows fire personnel and equipment access to fight fires and possibly slow a fire’s progression. A form is available to residents who suspect they may have Endangered Species habitat within 30 feet of any structure. The LOHCP can waive the owners responsibility to maintain defensible space for a period of five years upon completion of the form. If an endangered species is observed within 30 feet of any structure then the owner is not required to maintain a defensible space.

- **Stormwater Maintenance.** The LOCSD maintains several stormwater conveyance facilities throughout the community. Many of these are unlined basins or channels that require maintenance to perpetuate their utility. Maintenance primarily consists of cleaning out sediment that can support vegetation with various habitat qualities.

5.2 METHODOLOGY FOR ESTIMATING HABITAT IMPACTS AND TAKE

The LOHCP is a habitat based plan that addresses the loss of habitat from the Covered Activities. For each of the Covered Activities, habitat impacts are analyzed for the LOCSD wastewater service area and the County separately. The impacts are not to exceed amounts and represent the maximum potential impacts. In addition, because of the high quality habitat found on the larger parcels (greater than five acres) and the potential for significant mitigation on site, parcels greater than five acres are considered separately.



Much of the prime habitat in the wastewater service area was lost when the existing residences, streets, and sidewalks were constructed. Outside the wastewater service area, however, there is a greater need for protection based on the quality of the habitat and the potential to protect large parcels of land.

5.3 NEW RESIDENTIAL AND NONRESIDENTIAL CONSTRUCTION

5.3.1 Impacts Within the LOCSD Wastewater Service Area

The wastewater service area consists of about 1,270 acres within the Los Osos urban area and contains 503 undeveloped parcels occupying 247 acres (See Table 5-1 and Figure 5-1). On some of the larger parcels, habitat and species impacts can be avoided and minimized on site by applying the standards of the Estero Area Plan, by limiting certain types of landscaping, and other requirements of the Coastal Zone Land Use Ordinance. But the majority of parcels in the service area will be impacted and the habitat will be further fragmented by the Covered Activities. It is presumed that minimal habitat value will remain on those parcels once developed.

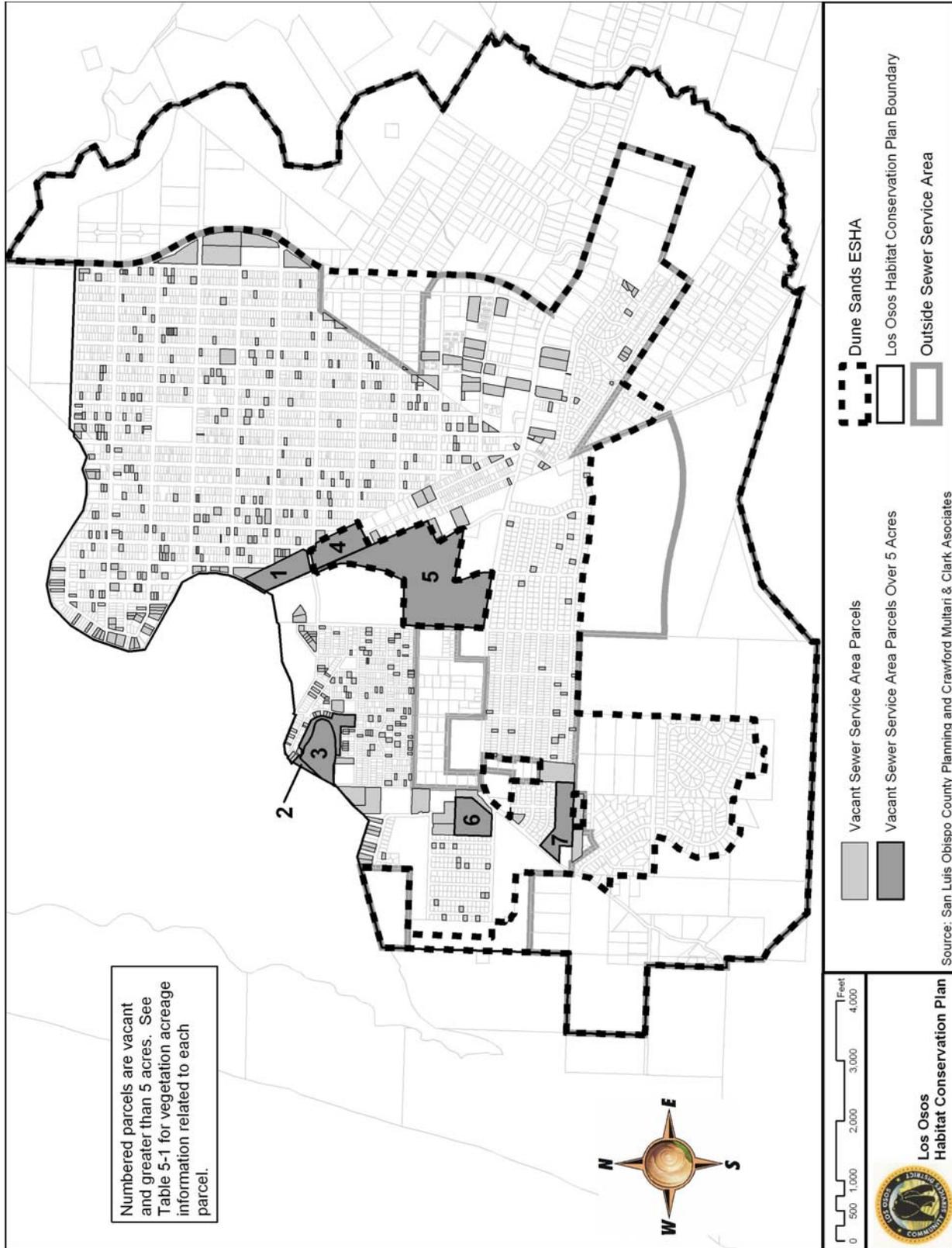
Table 5-1 shows the number of parcels, acreage, and acreage of vegetation types on undeveloped parcels in the wastewater service area by parcel size. Table 5-1 also shows parcels in the Urban Area and parcels in the Dune Sands SRA. This distinction is important as the Estero Area Plan has different development standards for each area (see Section 5.3.3 for more details). As the table illustrates, approximately 127 acres of disturbed coastal sage scrub exist on undeveloped parcels in the wastewater service area. Of this total, approximately 48 acres occur on parcels less than five acres in area. These parcels have very few on-site habitat protection opportunities.

Because the wastewater service area parcels are generally highly fragmented and low quality habitat, the LOHCP does not anticipate protecting parcels under five acres for long-term conservation. More effective conservation can be achieved by focusing new development in the urbanized areas and establishing a mitigation fund within the wastewater service area to pay for protection, restoration, and management outside the wastewater service area (see Chapter 6, Conservation Program, and Chapter 8, Funding).

Table 5-1: Undeveloped Wastewater Service Area Parcels, Acreage, and Vegetation Types

	Parcels	Acreage	Agriculture (AG)	Arroyo Willow (AW)	Coastal Sage Scrub (CS)	Disturbed Coastal Sage Scrub (CSD)	Coastal Sage Scrub Heavily Disturbed (CSHD)	Coyote Brush (CY)	Disturbed Wetlands (DW)	Eucalyptus (EU)	Coast Live Oak (LO)	Landscape Trees (LT)	Coast Live Oak/Arroyo Willow (AW/LW)	Morro Manzanita (MM)	Non-Native Grassland (NG)	Ruderal (RD)	Unclassified
URBAN																	
Parcels less than or equal to 5 acres																	
≤ 1 acre	464	83.3		1.2		25.5		0.7	0.7		4.9	7.6			12.7	22.5	7.4
1 to 5 acres	31	59.9	2.5	5.7		22.5					3.5	3.4			9.3	10.6	2.9
Subtotal	495	143.2	2.5	6.9		48.0		0.7	0.7		8.4	11.0			22.0	33.1	10.3
Parcels greater than 5 acres																	
1	074-221-075	1	8.0						8.0								
2	074-084-012	1	5.4													5.4	
3	074-084-013	1	9.3						9.3								
6	074-431-001	1	7.8			7.8											
7	074-025-010	1	9.1			9.1											
Subtotal		5	39.6			16.9			17.3							5.4	
DUNE SANDS SRA																	
Parcels less than or equal to 5 acres																	
1 to 5 acres	1	2.1															2.1
Subtotal	1	2.1															2.1
Parcels greater than 5 acres																	
4	074-229-004	1	9.0			9.0											
5	074-229-024	1	53.5			53.5											
Subtotal		2	62.2			62.2											
TOTAL	503	247.4	2.5	6.9		127.3		0.7	18.1		8.4	11.0			21.9	38.5	12.5

Notes: Unclassified refers to acreage for which the habitat type is not mapped
Source: Jones & Stokes, Crawford Multari Clark & Associates



Source: San Luis Obispo County Planning and Crawford Multari & Clark Associates

Figure 5-1: Vacant Wastewater Service Area Parcels

5.3.2 Impacts Outside the Wastewater Service Area (County)

Outside the wastewater service area there are 122 parcels consisting of 441 acres (See Table 5-2 and Figure 5-2). In this area, because of generally larger parcels, a key conservation objective is to avoid and minimize habitat and species impacts on-site through implementation of the planning area standards in the Estero Area Plan.

Minimal impact to parcels outside the wastewater service area is critical to preserving the Covered Species' habitats. In addition, these parcels provide important linkages to other preserved parcels or privately held habitat areas. Table 5-2 shows the acreage, number of parcels, and acreage of vegetation types of undeveloped parcels outside the wastewater service area by parcel size. Much of the remaining habitat on these lots is found on parcels greater than one acre, which provides the opportunity for on-site preservation.

Table 5-2 also shows parcels in the Urban Area and parcels in the Dune Sands SRA. This distinction is important as the Estero Area Plan has different development standards for each area (see Section 5.3.3 for more details).

Table 5-2: Undeveloped Parcels, Acreage, and Vegetation Types Outside the Wastewater Service Area

	Parcels	Acres	Oak Woodland (LO)	Coastal Sage Scrub (CS)	Morro Manzanita (MM)	Highly Disturbed Coastal Sage Scrub (CSHD)	Eucalyptus (EU)	Non-Native Grassland (NG)	Disturbed Coastal Sage Scrub (CSD)	Landscape Trees (LT)	Ruderal Disturbed (RD)	Agriculture (AG)	Morro Manzanita-Ca Sagebrush (MS)	Coast Live Oak-Arroyo Willow (LW)	Open Water (OW)	Arroyo Willow (AW)	Morro Manzanita-Wedgeleaf Ceanothus (MW)	Developed (DV)
Parcels less than or equal to 5 acres																		
URBAN																		
≤ 1 acre	54	22.6	1.4	0.6	3.6	0.6	2.0	2.5	9.3	0.5								2.0
1 to 5 acres	9	15.0	0.1	2.8			4.7		7.0	0.1								0.3
Subtotal	63	37.6	1.5	3.4	3.6	0.6	6.7	2.5	16.3	0.6								2.3
Parcels greater than 5 acres																		
13	074-022-043	1	5.1		1.4				1.8	0.1		1.2						0.6
14	074-022-042	1	5.1		4.6				0.4									0.1
16	074-022-039	1	5.1		4.6				0.1		0.2							0.2
20	074-022-014	1	5.1	0.1					4.1									0.9
Subtotal	4	20.4		0.1	10.6				6.4	0.1		1.4						1.8
DUNE SANDS SRA																		
Parcels less than or equal to 5 acres																		
≤ 1 acre	15	7.5	0.8	3.1	0.4		0.1		2.5		0.2			0.2				0.2
1 to 5 acres	29	57.0	2.7	25.6	5.5	1.1	1.5		8.7	0.2	1.4	0.1		8.3			0.2	1.9
Subtotal	44	64.5	3.5	28.7	5.9	1.1	1.6		11.2	0.2	1.6	0.1		8.5			0.2	2.1
Parcels greater than 5 acres																		
8	038-711-004	1	6.1	1.5	4.6													
9	067-011-041	1	43.8	7.2	0.7				7.5			15.2	0.8	8.3	3.8			0.2
10	074-263-033	1	10.2					2.7	1.1	0.1				6.2	0.2			
11	074-222-013	1	65.3	21.5	10.3		0.3		22.1	0.1				7.9		1.9		1.1
12	074-024-011	1	17.7		15.2		2.0											0.5
15	074-022-058	1	22.5		8.3	11.2	2.8		0.1									
17	074-022-033	1	13.3			8.5	1.8	0.6	2.4									
18	074-022-059	1	23.1			14.8	8.3											
19	074-021-042	1	96.5	4.3	1.3	85.6	5.4											
21	067-131-007	1	9.4		3.2	5.4												0.9
22	074-021-036	1	10.2			10.2												
Subtotal	11	318.3	34	43.8	135.7	1.1	20.5	3.3	33.2	0.2		15.2	0.8	22.4	4.0	1.9	0.9	1.8
TOTAL	122	441	39	76	156	2	29	6	67	1	2	17	1	31	4	2	1	8

Source: Jones & Stokes, Crawford Multari Clark & Associates

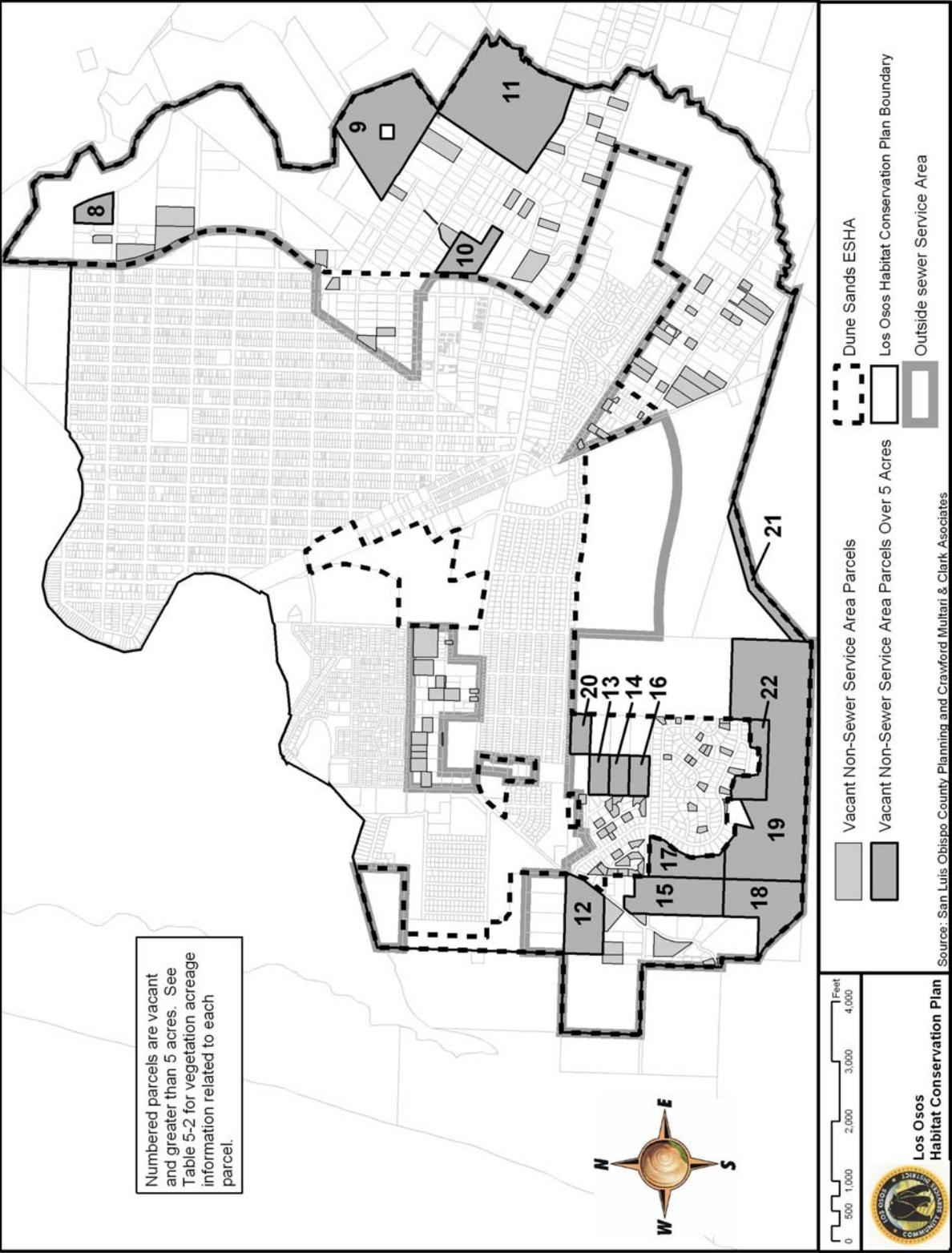


Figure 5-2: Vacant Parcels Outside the Wastewater Service Area

5.3.3 Level of Take Requested for New Residential and Commercial Construction

Table 5-3 shows the buildout potential in the Plan Area based on the development standards in the Estero Area Plan, which limit site disturbance for new construction in the designated Los Osos Dune Sands SRA. The Estero Area Plan defines site disturbance as the installation of any non-permeable surfaces, such as driveways, sidewalks, and decks, that results in the permanent loss of habitat.

The Estero Area Plan also requires a biological survey on parcels in the Dune Sands SRA to minimize environmental impacts and to limit site disturbance of environmentally sensitive habitat to:

- 10,000 square feet on parcels less than or equal to one acre, and
- 20,000 square feet on parcels more than one acre.

While the Estero Area Plan does not include fuel modification areas² as part of the site disturbance, the LOHCP assumes that fuel breaks will be accommodated in the maximum site disturbance areas.

Under the Estero Area Plan, the large parcels (greater than 5 acres) have specific planning area standards and subdivision potential that directly affect site development and habitat protection. These standards have been used in calculating the development potential for each large parcel under the LOHCP in Table 5-3.

Based on the LOHCP development scenario, take of potential habitat for the Covered Species within the Plan Area will not exceed 196 acres in the wastewater service area and 84 acres outside the wastewater service area. This buildout scenario will also provide a total of approximately 409 acres in dedicated open space. Estimates of the habitats disturbed were calculated by clustering development and situating the allowable site disturbance (e.g. 10,000 and 20,000 square feet) next to the nearest road or street. This resulted in approximately 138 acres of site disturbance to coastal sage scrub (CS, CSD, and CSHD) and 17 acres of disturbance to maritime chaparral (MM and MW).

The impacts of this development on the Covered Species will be mitigated and monitored through the conservation plan and monitoring programs in Chapters 6 and 7.

² As required by the Public Resources Code, fuel modification is needed to reduce fire hazards.

Table 5-3: Buildout Scenarios and Impacts

			Los Osos Habitat Conservation Plan ¹			Acres of Habitats Disturbed													
Parcel Size or Map Number	Number of Parcels or APN	Acres	Sub-division	Development Potential (Acres)	Preserved Open Space (Acres)	AG	AW	CS	CSD	CSHD	CY	DW	EU	LO	LW	MM	MW	OTHER	
UNDEVELOPED WASTEWATER SERVICE AREA PARCELS																			
URBAN																			
Parcels Less than or Equal to 5 acres																			
Parcels ≤ 1 acre	464	83.3	N/A	83.3			1.2		25.5		0.7	0.7		4.9					50.2
1 to 5 acres	31	59.9	N/A	59.9		2.5	5.7		22.5					3.5					25.7
Subtotal	495	143.2	N/A	143.2		2.5	6.8		48.0		0.7	0.7		8.4					75.9
Parcels Greater than 5 acres																			
1	074-221-075	8.0	15	1.8	6.2							1.8							
2	074-084-012	5.4	1	0.5	4.9														0.5
3	074-084-013	9.3	N/A	0	9.3														
6	074-431-001	7.8	N/A	7.8					7.8										
7	074-025-010	9.1	N/A	4.4	4.7				4.4										
Subtotal	5	39.6	16	14.5	25.1				12.2			1.8							0.5
DUNE SANDS SRA																			
Parcels Less than or Equal to 5 acres																			
1 to 5 acres	1	2.1	N/A	0.5	1.6	0.5													
Subtotal	1	2.1	N/A	0.5	1.6	0.5													
Parcels Greater than 5 acres																			
4	074-229-004	9.0	N/A	5.4	3.6				5.4										
5	074-229-024	53.5	N/A	32.1	21.4				32.1										
Subtotal	3	62.5		37.5	25.0				37.5										
Total Inside Wastewater Service Area	505	247.4	16.0	195.7	51.7	3.0	6.8	-	97.7	-	0.7	2.5	-	8.4	-	-	-	-	76.9

Table 5-3: Buildout Scenarios and Impacts (Continued)

Los Osos Habitat Conservation Plan ²						Acres of Habitats Disturbed												
Parcel Size or Map Number	Number of Parcels or APN	Acres	Sub-division	Development Potential (Acres)	Preserved Open Space (Acres)	AG	AW	CS	CSD	CSHD	CY	DW	EU	LO	LW	MM	MW	OTHER
UNDEVELOPED PARCELS OUTSIDE THE WASTEWATER SERVICE AREA																		
URBAN																		
Parcels Less than or Equal to 5 acres																		
Parcels ≤ 1 acre	54	22.6	N/A	22.6				0.6	9.3	0.6			2.0	1.4		3.6		5.0
1 to 5 acres	9	15.0	N/A	15.0				2.8	7.0				4.7					0.4
Subtotal	63	37.6	N/A	37.6				3.4	16.3	0.6			6.7	1.4		3.6		5.4
Parcels Greater than 5 acres																		
13	074-022-043	5.1	1	0.5	4.6	0.1											0.3	
14	074-022-042	5.1	1	0.5	4.6												0.5	
16	074-022-039	5.1	1	0.5	4.6	0.1											0.2	0.2
20	074-022-014	5.1	1	0.5	4.6				0.3									0.2
Subtotal	4	20.4	4	2.0	18.5	0.2			0.3								1.0	0.4
DUNE SANDS SRA																		
Parcels Less than or Equal to 5 acres																		
Parcels ≤ 1 acre	15	7.5	N/A	3.4	4.0			1.1	1.1					0.3			0.3	0.1
1 to 5 acres	29	57.0	N/A	13.3	43.7			5.5	2.8				0.8	1.0	0.9	1.1	0.1	1.0
Subtotal	44	64.5	N/A	16.8	47.7			6.5	4.0				0.8	1.3	0.9	1.4	0.1	1.1
Parcels Greater than 5 acres																		
8	038-711-004	6.1	2	0.9	5.2			0.9										
9	067-011-041	43.8	8	3.7	40.1	2.8								0.4	0.5			
10	074-263-033	10.2	1	0.5	9.8										0.2			0.3
11	074-222-013	65.3	13	6.0	59.3				4.3					1.6				
12	074-024-011	17.7	3	1.4	16.3			1.4										
15	074-022-058	22.5	3	1.4	21.1			1.1					0.1				0.2	
17	074-022-033	13.3	3	1.4	11.9				1.0				0.2				0.2	
18	074-022-059	23.1	5	2.3	20.8								0.2				2.1	
19	074-021-042	96.5	19	8.7	87.8								1.1				7.7	
21	067-131-007	9.4	1	0.5	9.0			0.5										
22	074-021-036	10.2	2	0.9	9.3												0.9	
Subtotal	11	318.3	60	27.5	290.7	2.8		3.9	5.3				1.6	2.0	0.7	11.1		0.3
Total Outside Wastewater Service Area	122	440.8	64	83.8	356.9	3.0	-	13.9	25.9	0.6	-	-	9.2	4.7	1.6	17.1	0.1	7.3
GRAND TOTAL	625	689	80	279.5	408.6	6.0	6.8	13.9	123.6	0.6	0.7	2.5	9.2	13.1	1.6	17.1	0.1	86.3

See footnotes on the next page

Footnotes:

1. The LOHCP buildout scenario, including potential subdivision, is based on the Estero Area Plan. Except as noted below, the following site disturbance standards were applied to parcels counts or subdivision potential, as appropriate, to determine development impacts.
 - ☐ 10,000 square feet on parcels less than or equal to an acre, and
 - ☐ 20,000 square feet on parcels more than an acreOpen space on parcels 4, 5, and 7 was calculated at 40% of the acreage of parcel. Due to wetland issues development on parcel 1 is severely limited and no development is anticipated on parcel 3. According to the Estero Area Plan, no onsite open space is called for on parcel number 6 (APN 074-431-001).

Key:

AG – Agriculture

AW – Arroyo Willow

CS – Coastal Sage Scrub

CSD - Coastal Sage Scrub Disturbed

CSHD - Coastal Sage Scrub Highly Disturbed

CY – Coyote Brush

DW – Disturbed Wetlands

EU - Eucalyptus

LO – Oak Woodland

LW – Coast Live Oak – Arroyo Willow

MM – Morro Manzanita

MW - Morro Manzanita – Wedgeleaf Ceanothus

OTHER - Other includes: Landscaped trees (LT), non-native grassland (NG), ruderal (RD), and any unclassified habitat

5.4 RESIDENTIAL AND COMMERCIAL REMODELING, RENOVATION, AND RECONSTRUCTION

The potential site disturbance from remodeling, renovation, and reconstruction was estimated using County building permit activity for a 54-month period (4.5 years) beginning January 2000 and ending June 2004. Table 5-4 below shows the valuation of this building activity was \$8,725,386. The square footage was calculated by dividing the valuation by \$77.45 per square foot³ to arrive at an estimated 112,658 square feet of building activity for the 54-month period. This equates to an average of approximately 0.6 acres per year (112,658/4.5/43,560) or 11.5 acres for the life of the Section 10 permit (20 years). Fees for remodeling, renovation, or reconstruction, which modifies the footprint of the original structure, will be charged a per square foot basis based on the location and parcel size. For example, in the wastewater service area, the cost per square foot for a remodel on an urban parcel less than or equal to 5 acres would be \$1.08 per square foot (see Table 8-6).

Table 5-4: Estimated Construction in Los Osos January 2000 - June 2004

Ground Disturbing Activity	Number of Permits Issued (54 months)	Valuation June 2004 - January 2000 (54 months)	Square Feet*
Agricultural Storage Building-Residential	2	\$ 33,547	433
Sign - Commercial	4	\$ 91,850	1,186
Addition Garage Workshop	3	\$ 28,377	366
Addition/Alteration Commercial/Industrial	17	\$ 895,564	11,563
Fences/Retaining Walls	10	\$ 37,815	488
Grading-Major-Over 10% Slope or > 5000 Cubic Yards	1	\$ 24,405	315
Grading	17	\$ 587,688	7,588
Residential Storage Building	2	\$ 17,628	228
Addition/Alteration Single Family Dwelling	220	\$ 5,224,477	67,456
Swimming Pool and/or Spa-Residential	10	\$ 171,606	2,216
Garage-Private	12	\$ 206,570	2,667
Garage/Workshop	25	\$ 494,762	6,388
Mini-Storage Building	4	\$ 908,597	11,731
Radio Tower/Cell Sites	1	\$ 2,500	32
Total	328	\$ 8,725,386	112,658

* Based on an average valuation of \$77.45 per square foot of construction.

Source: San Luis Obispo County Planning and Building

5.5 ESTIMATED TAKE FOR COUNTY ROAD AND BRIDGE MAINTENANCE

The San Luis Obispo County Public Works Department performs roadway maintenance for all road rights-of-way in Los Osos. Table 5-5 below shows that roadway maintenance could result in a maximum 42 acres of habitat disturbance if every existing unpaved road right-of-way in Los Osos is maintained. The following assumptions were used to arrive at this figure:

- Disturbance was calculated assuming an unpaved area of five feet wide on either side of the roadway could contain habitat and be impacted during maintenance.

³ The average valuation was provided by the San Luis Obispo County Planning and Building Department.

- Roads with sidewalks on both sides and roads where paving extends to private property were excluded from the analysis.
- Intersections were removed from the analysis so that they would not be counted twice.
- Unpaved streets were not included.

Table 5-5: County Roadway Maintenance Estimates of Take

Roadway Type	Length in Feet	Acres of Disturbance**
No Maintenance*	103,255	0.0
Maintenance on One Side	15,880	1.8
Maintenance on Both Sides	174,645	40.1
Total	293,780	42

* Includes roadway lengths where sidewalk exists on both sides, unpaved roads, and roads where paved street abutted property lines.

** Assumes an area of 5 square feet of disturbance for every foot of roadway and assumes an average road right of way of 50 feet.

These areas are highly disturbed and do not provide high habitat value. Costs associated with estimated take from roadway maintenance will be covered by the County through overhead and implementation of the LOHCP, therefore, no further funding arrangements are required.

5.6 ESTIMATED TAKE FROM STORMWATER MAINTENANCE

Stormwater facilities consist of four pump stations and five drainage basins that require regular maintenance. There is an estimated 0.3-acre of potential stormwater maintenance disturbance. Costs associated with estimated take from stormwater maintenance will be covered by the LOCSD through overhead and implementation of the LOHCP, therefore, no further funding arrangements are required.

CHAPTER 6: CONSERVATION PROGRAM

6.1 APPROACH TO THE CONSERVATION PROGRAM

The Conservation Program sets up the framework for the establishment, restoration, and long-term management of a Preserve that will avoid, minimize, and mitigate the impacts of the Covered Activities on the Covered Species. The primary goal of the Conservation Program is to contribute to the recovery of the Covered Species and help avoid future listings of other sensitive species. It is based on the best scientific data available and applicable conservation principles and recognizes a natural hierarchy of ecological scales: landscape, vegetation communities, and species (Figure 6-1).

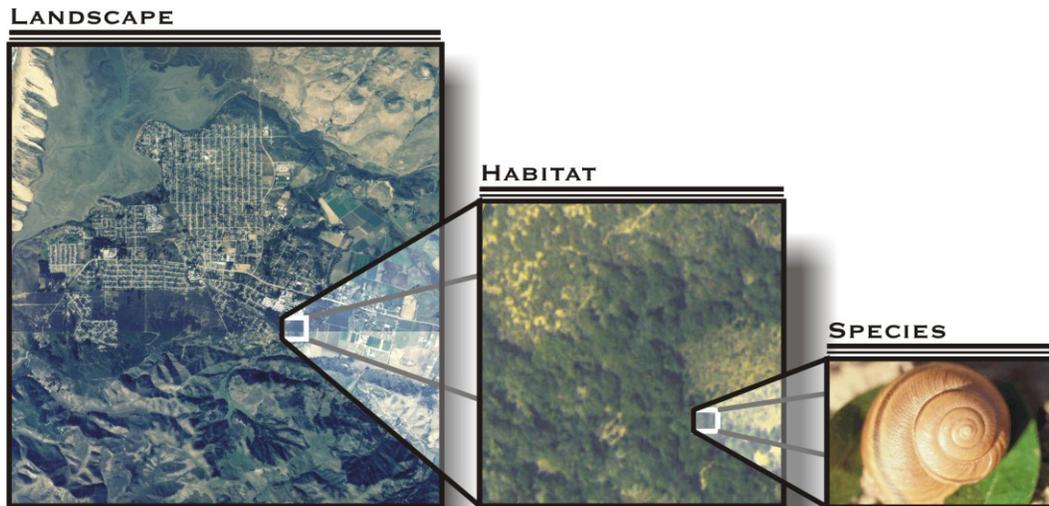


Figure 6-1: Hierarchy

An Adaptive Management and Monitoring Plan (AMMP) has been prepared (under a separate cover), which provides the management principles and strategies to protect the Covered Species and their habitats. It also provides a monitoring program which will be used to assess progress toward achieving the biological goals and objectives of the LOHCP Preserve System.

The AMMP takes into account the limitations of the current baseline data through “adaptive” management strategies which inform the Conservation Program through monitoring and research. The flow of biological data can then be used to adjust or “adapt” the conservation program as necessary or useful to meet the overall goals and objectives.

A summary of the goals of the AMMP are included in Section 6.5 of this Chapter.

6.2 CONSERVATION GOALS AND OBJECTIVES

In developing the conservation goals and objectives, the Covered Activities that could result in take of the Covered Species were evaluated (see Section 5.2). Covered Activities in the wastewater service area, which is already highly fragmented by roads, driveways, buildings, sidewalks, and fences, pose significant obstacles to the long-term viability of the Covered Species. Given these threats, the densely developed wastewater service area does not offer viable long-term conservation opportunities. Rather, conservation and, ultimately, the recovery of the Covered Species will require protection, restoration, and management of larger, more intact parcels located outside of the wastewater service area. In accordance with this approach, the conservation goals, objectives, and actions for the LOHCP are as follows:

Note: Acreages of different habitats and protection measures correspond to those calculated as necessary to mitigate for potential habitat loss from Covered Activities. See Table 6.3.

The following definitions were used in developing the conservation goals, actions, and objectives for the LOHCP:

Goal - A desired future state. Goals provide general direction.

Action: An implementation measure, such as a procedure, program, or technique, that carries out a goal.

Objective: A quantified condition or end state. Objectives should be achievable and measurable.

Goal 1: Establish a biologically sound and interconnected preserve system that mitigates the impacts on Covered Species and provides habitat for existing and new viable populations of Covered Species.

Action 1.1. Permanently protect existing habitat of the same type that will be 'taken' as a result of Covered Activities.

Action 1.2. Set priorities for acquisition or dedication of land for the LOHCP Preserve.

Opportunities for dedications and acquisitions will be evaluated based on the following criteria:

- Presence of Covered Species or their habitats;
- Adjacency to other preserved areas;
- Size of the area that could be preserved (larger areas will be given higher priority);
- Potential for the reestablishment or restoration of native habitats;
- Potential to support other rare or threatened species other than the covered species.

Objective 1.1. Acquire, through dedication or purchase, 17 acres of coastal sage scrub habitat to help mitigate for development inside the wastewater service area.

Objective 1.2. Acquire, through dedication or purchase, 1.5 acres of coastal sage scrub habitat to help mitigate for development outside the wastewater service area.

Objective 1.3 Permanently protect and restore, as necessary, at least 50 acres of native habitat through protective easements or other suitable instruments to help mitigate for development inside the wastewater service area.

Objective 1.4 Permanently protect and restore, as necessary, at least 310 acres of native habitat through protective easements or other suitable instruments to help mitigate for development outside the wastewater service area.

Action 1.3. Annually evaluate habitat acquisitions and land dedications, and potential acquisitions and land dedications, relative to the existing preserve and anticipated covered activities and include in the LOHCP Annual Report.

Action 1.4. Modify, as appropriate, the Adaptive Management and Monitoring Plan as new habitat is added to the preserve through acquisitions and easements to address site-specific needs.

Goal 2: Create and enhance a mosaic of upland habitats for breeding, foraging, and shelter for the Covered Species.

Action 2.1. Restore degraded habitat on lands permanently protected in the LOHCP Area, both in cases where on site mitigation is required and where Preserve lands are acquired in fee title.

Action 2.2. Complete onsite restoration of habitat on parcels greater than or equal to five acres in the LOHCP Preserve where vegetation is degraded and/or invaded by non-native plants. (See Chapter 2 for definitions of the following habitat types.)

Objective 2.1. Restore at least 30 acres of disturbed coastal sage scrub on parcels greater than five acres inside the Wastewater Service Area.

Objective 2.2. Restore at least 30 acres of disturbed coastal sage scrub on parcels greater than five acres outside the Wastewater Service Area.

Objective 2.3. Restore at least 5 acres of ruderal habitat to native habitat on parcels greater than five acres inside the Wastewater Service Area.

Objective 2.4. Restore at least 14 acres of agricultural lands to native habitat on parcels greater than five acres outside the Wastewater Service Area.

Objective 2.5. Restore at least 6 acres of other nonnative habitats (e.g. nonnative grassland) to native habitat on parcels greater than five acres outside the Wastewater Service Area.

Action 2.3. Set priorities among areas for enhancement and restoration of existing preserved parcels in the LOHCP Preserve where vegetation is degraded and/or invaded by non-native plants.

Objective 2.5 Provide restoration and enhancement of 237 acres of habitat on existing preserved parcels for mitigation of development inside the Wastewater Service Area.

Objective 2.6 Provide restoration and enhancement of 126 acres of habitat on existing preserved parcels for mitigation of development outside the Wastewater Service Area.

Objective 2.7. Restore disturbed coastal sage scrub on existing preserved parcels.

Action 2.4. Implement the Exotic Plant Management program in the Adaptive Management and Monitoring Plan.

Action 2.4. Coordinate with surrounding landowners including, the San Luis Obispo County Parks and Recreation Department and the California State Parks, on ways to enhance upland habitats for breeding, foraging and shelter of Covered Species.

Action 2.5. Annually evaluate the Adaptive Management and Monitoring Plan and include in the LOHCP Annual Report.

Goal 3: Manage the LOHCP Preserve in perpetuity to maintain and, where possible, improve habitat conditions and population dynamics for the Covered Species.

Action 3.1. Implement the Adaptive Management and Monitoring Plan.

Objective 3.1. When fully implemented, the Management Plan should cover the 742 acres anticipated to be within the LOHCP Preserve system, which includes 126 acres of existing preserved lands, 310 acres from on site protective easements and 18.5 acres of other acquisitions.

Action 3.2. Implement the fire management strategies in the Adaptive Management and Monitoring Plan to: (1) enhance sensitive populations and communities using fire and fire surrogates and (2) reduce the risk of wildfire, which can degrade habitat and threaten human communities.

Action 3.3. Create Fire Safety Best Management Practices (BMP's) with the LOCSO South Bay Fire Department.

Action 3.4. Distribute information regarding the Fire Safety BMP's to the Los Osos Community.

Action 3.5. Annually evaluate the Fire Management Program and include in the LOHCP Annual Report.

Action 3.6. Implement the recreation management strategies in the Adaptive Management and Monitoring Plan.

Action 3.7. Coordinate recreation with the County Parks and Recreation Department and California State Parks.

Action 3.8. Annually evaluate progress toward implementing the Recreation Plan and include in the LOHCP Management Committee's Annual Report.

Action 3.9. Develop an Education Program in conjunction with the local resource management agencies for the LOHCP Preserve.

Action 3.10. Create an Education Program for the LOHCP Preserve with the County Parks and Recreation Department and the California State Parks that helps the community appreciate the importance of the resources and explains what people can do to better protect them.

Action 3.12. Distribute information regarding the Education Program to the Los Osos Community.

Action 3.13. Annually evaluate progress toward implementation of the Education Program and include in the LOHCP Annual Report.

6.3 TAKE AVOIDANCE, MINIMIZATION AND MITIGATION

The LOHCP will "minimize and mitigate" the take of covered species so that the issuance of the Section 10 permit will not "appreciably reduce the likelihood of the survival and recovery of the species in the wild." The LOHCP mitigation program is based on sound biological rationale, practicable, and commensurate with the impacts of the Covered Activities on the Covered Species. The Covered Activities will result in some permanent habitat loss, therefore the mitigation strategy preserves larger intact habitat, restores damaged habitat and manages these areas in perpetuity. In combination, these actions most effectively conserve other, more viable habitat for the Covered Species. The following sections discuss key minimization and mitigation measures. (Note that these measures shall precede impacts from Covered Activities.)

6.3.1 Measures to Minimize Take

The LOHCP conservation program prescribes different sets of mitigation and minimization measures for parcels based on their location and size.

Smaller Lots in the Urban Area. For lots less than five acres in area, owners who wish to participate in the LOHCP must agree to the following minimization measures:

Measures to Reduce Take of Morro Shoulderband Snail

Measure 1. LOHCP participants shall not introduce non-native predatory snails.

Implementation of this measure will minimize impacts to the Morro shoulderband snail by reducing the predatory population.

Measure 2. LOHCP participants shall not use snail control applications, such as pesticides (e.g. molluscicide), beer, or salt on their property.

Implementation of this measure will minimize impacts to the Morro shoulderband snail by reducing the potential to damage from snail control application.

Measures to Reduce Take of Morro Manzanita

Measure 3. LOHCP participants shall not plant other species of manzanita besides the Morro manzanita on their property.

Implementation of this measure will minimize impacts of hybridization that would occur between Morro manzanita and other species of manzanita.

Measures to Reduce Take of Splitting Yarn Lichen

Measure 4. Coast live oaks and other native trees shall be preserved to the maximum extent possible by locating development away from oak trees. Any oak trees removed shall be replaced at a ratio of 4:1 and impacted oak trees (i.e. where development and/or construction activities encroach upon the root zone of the tree) shall be mitigated at a ratio of 2:1.

Implementation of this measure will minimize impacts to splitting yarn lichen.

Measures to Reduce Overall Take

Measure 5. LOHCP Participants shall restore any habitat disturbed during the construction of Covered Activities that is not a part of their maximum building footprint with appropriate native vegetation from a native plant nursery specialist. All exotic plant species should be removed on a regular basis. In addition, the health and maintenance of all replacement vegetation shall be monitored for a sufficient duration and frequency to ensure successful establishment of the vegetation.

Implementation of this measure will minimize impacts to the remaining species in the LOHCP Area by the Covered Activities.

Larger Lots and Dune Sands SRA. Property owners either on lots greater than five acres or located in Dune Sands SRA who wish to participate in the LOHCP must have a site-specific survey conducted and develop a corresponding minimization program. This survey must be undertaken not less than 60 days, nor more than 6 months prior to commencement of construction activities and must determine the status and presence of, and likely impacts to, the Covered Species and their habitats on the site. The applicant seeking to develop land will be responsible for contracting with biological consultants, which are approved by the Plan Participants, to carry out the pre-construction survey, and, as necessary, to implement specific take minimization and other Conservation Measures set forth in the LOHCP. Surveys shall be conducted by qualified personnel (e.g., persons with suitable biological, botanical, or related expertise).



The results of the pre-construction survey along with recommended site-specific take minimization measures shall be documented in a report and shall be submitted to the LOHCP Preserve Manager. Based upon the survey results, the LOHCP Preserve Manager will approve the pre-construction survey as consistent with this LOHCP or identify additional minimization measures required to be carried out on the site. The developer will submit approved pre-construction survey documents and a list of minimization measures to the Permittees in order to demonstrate compliance with the LOHCP minimization measures.

The site-specific conservation program must incorporate the following minimization measures to reduce take, as applicable, to the site's resources:

Measures to Reduce Take of Morro Shoulderband Snail

Measure 1. LOHCP participants shall not introduce non-native predatory snails.

Implementation of this measure will minimize impacts to the Morro shoulderband snail by reducing the predatory population.

Measure 2. LOHCP participants shall not use snail control applications, such as pesticides (e.g. molluscicide), beer, or salt on their property.

Implementation of this measure will minimize impacts to the Morro shoulderband snail by reducing the potential to damage from snail control application.

Measure 3. Any Morro shoulderband snails encountered in the LOHCP Area that cannot be avoided and will be impacted by the Covered Activities shall be transplanted to a

receiver site (a site that has coastal sage scrub vegetation reaches the ground and has some ground cover).

This measure will minimize take of the Morro shoulderband snail by reducing the number of snails that would be injured or killed as a result of the Covered Activities.

Measures to Reduce Take of Morro Manzanita

Measure 4. LOHCP participants shall not plant other species of manzanita besides the Morro manzanita on their property.

Implementation of this measure will minimize impacts of hybridization that would occur between Morro manzanita and other species of manzanita.

Measure 5. LOHCP participants shall use local native central maritime chaparral and coastal sage scrub vegetation for landscaping on their property.

Implementation of this measure will minimize impacts by invasive species and hybridization to the remaining native species in the LOHCP Area and improve the overall habitat value of the Area.

Measure 6. If the Covered Activities will impact a Morro manzanita, the Morro manzanita shall be transplanted to a receiver site (a site that has central maritime chaparral vegetation).

This measure minimizes impacts to the Morro manzanita by transplanting individuals rather than intentionally destroying existing plants that are in the LOHCP Area.

Measures to Reduce Take of Splitting Yarn Lichen

Measure 7. Coast live oaks and other native trees shall be preserved to the maximum extent possible by locating development away from oak trees and outside the root zone. Any oak trees removed shall be replaced at a ratio of 4:1 and impacted oak trees (i.e. where development and/or construction activities encroach upon the root zone of the tree) shall be mitigated at a ratio of 2:1.

Implementation of this measure will minimize impacts to Special Status Species habitats.

Measures to Reduce Overall Take

Measure 8. LOHCP Participants shall restore any habitat disturbed during the construction of Covered Activities that is not a part of their maximum building footprint with appropriate native vegetation from a native plant nursery specialist. All exotic plant species should be removed on a regular basis. In addition, the health and maintenance of all replacement vegetation shall be monitored for a sufficient duration and frequency to ensure successful establishment of the vegetation.

Implementation of this measure will minimize impacts to the remaining species in the LOHCP Area by the Covered Activities.

6.3.2 Measures to Mitigate Take

The LOHCP mitigation process will be triggered when a project proponent inside the LOHCP boundary requests a grading or building permit from the County. If a landowner chooses to participate in the LOHCP in order to comply with State and federal regulations, he or she must receive Third Party Beneficiary status (see Section 10.2.2) by obtaining a certificate of inclusion from the LOCSA. In this case, the County will not approve a building permit application until:

- (1) The private landowner or developer receives a Certificate of Inclusion as a Third Party Beneficiary under the LOHCP and has committed to pay the LOHCP Mitigation Fee and/or transfer land in fee title or establish a protective easement over part of the parcel for the LOHCP Preserve system; and
- (2) The landowner agrees to any other minimization measures required for the Covered Species as described in Section 6.3.1 above.

The certificate of inclusion is recorded so that it runs with the land and is enforceable against and binding upon the Third Party Beneficiary and any successor in interest to the Third Party Beneficiary.

Alternatively, of course, project proponents may choose not to participate in the LOHCP. In those cases, the County will not issue any permit unless and until the proponents demonstrate compliance with the ESA, CESA, and Coastal Act by approvals directly from the appropriate agencies.

6.3.2.1 Wastewater Service Area Mitigation Strategy

The wastewater service area is comprised of 503 vacant parcels totaling 247 acres. The applicable mitigation measures are based on location (Urban Area versus Dune Sands SRA) and parcel size, both of which determine onsite conservation requirements and opportunities. Parcels less than five acres in the Urban Area are not considered to have feasible onsite mitigation opportunities and thus will be required to pay a mitigation fee. All other parcels are required to provide some on-site mitigation.

Table 6-1 summarizes the mitigation strategy for the wastewater service area . Mitigation for this development will be satisfied by:

Urban Area – Parcels Less Than or Equal to Five Acres

- Acquisition of a mitigation bank or “cushion” (17 acres); and
- Restoration and management of existing preserved parcels.

Urban Area – Parcels Greater Than Five Acres

- Parcels greater than 5 acres are self-mitigating and will mitigation their impacts on site (except parcel APN 074-431-001, which has a 2:1 mitigation ratio for offsite mitigation).

Dune Sands SRA – Parcels Less Than or Equal to Five Acres

- Restoration and management of existing preserved parcels at a ratio of 3 to 1.

Dune Sands SRA – Parcels Greater Than Five Acres

- Parcels greater than 5 acres are self-mitigating and will mitigate their impacts on site.

A habitat mitigation fee will be collected from parcels less than five acres (see Chapter 8 Funding) which will be used to provide offsite mitigation for the impacts from Covered Activities (see Tables 5-1 and 5-3 for analysis of habitat impacts). In addition, in the Dune Sands SRA, development on parcels less than five acres will need to adhere to the standards of the Estero Area Plan, which limits the building footprint (See Section 5.3). A protective easement will be established on the undeveloped area to preserve SRA. However, this easement will not be considered part of the LOHCP Preserve system.

All parcels greater than five acres will be self-mitigating. Development on these parcels will be limited to the development potential summarized in Table 5-3. Mitigation will be achieved when the landowner transfers the open space requirement in fee title or establishes a protective easement and funds the restoration and perpetual management of the protected open space. Site-specific restoration and management plans will be prepared by a qualified biologist approved by the Plan Participants and approved by the Preserve Manager. The Preserve Manager will oversee any restoration efforts. The open space portion will be incorporated into the LOHCP Preserve system.

Table 6-1. Summary of Wastewater Service Area Mitigation Strategy

Parcels or APN	Parcel Acreage	Developed Acres ¹	On Site Habitat Protection ¹ (Acres)	Acquisition (Acres)	Onsite Restoration (Acres)	Offsite Restoration On Existing Preserved Parcels (Acres)	Ongoing Management and Mitigation ² (Acres)
URBAN							
Parcels less than or equal to 5 acres							
495	143.2	143.2	--	17 Coastal Sage Scrub	--	219.8	17.0 Acquisition 219.8 Existing Preserved Parcels
Parcels greater than 5 acres							
074-221-075	8.0	1.8	6.2	--	6.2 Disturbed Wetlands	--	6.2 Wetlands
074-084-012	5.4	0.5	4.9	--	4.9 Ruderal Habitat	--	4.9 Coastal Sage Scrub
074-084-013	9.3	0	9.3	--	9.3 Disturbed Wetlands	--	9.3 Wetlands
074-431-001	7.8	7.8	--	--	--	15.6	15.6 Existing Preserved Parcels
074-431-010	9.1	4.4	4.7	--	4.7 Disturbed Coastal Sage Scrub	--	4.7 Coastal Sage Scrub
Subtotal	5	39.6	14.5	--	25.1	15.6	15.6 Existing Preserved Parcels 25.1 Easements
DUNE SANDS SRA							
Parcels less than or equal to 5 acres (3:1)							
1	2.1	0.5	1.6	--	--	1.6	1.6 Existing Preserved Parcels
Parcels greater than 5 acres²							
074-229-004	9.0	5.4	3.6	--	3.6 Disturbed Coastal Sage Scrub	--	3.6 Coastal Sage Scrub
074-229-024	53.5	32.1	21.4	--	21.4 Disturbed Coastal Sage Scrub	--	21.4 Coastal Sage Scrub
Subtotal	2	62.5	37.5	--	25.0	--	25.0 Easements
Total	503	247.4	195.7	17	Coastal Sage Scrub	237	Existing Preserved Parcels
					15.5 Disturbed Wetlands		17.0 Acquisition
					4.9 Ruderal Habitat		237 Existing Preserved Parcels
					29.7 Disturbed Coastal Sage Scrub		50.1 Easements

1. This information from Table 5-3. Note: Requirements for protected areas on parcels in the Dune Sands SRA less than or equal to 5 acres are established under the Estero Area Plan for SRA protection. However, these will not become part of the LOHCP Preserve system.
2. Acreage under ongoing management takes into account that any degraded habitat had been restored to native habitat.

6.3.2.2 Outside the Wastewater Service Area Mitigation Strategy

Outside the wastewater service area there are 122 vacant parcels with 441 acres. The applicable mitigation measures are based on location (Urban Area versus Dune Sands SRA) and parcel size, both of which determine onsite conservation opportunities. Table 6-2 summarizes the mitigation strategy for parcels outside the wastewater service area.

Mitigation will be satisfied by:

Urban Area – Parcels Less Than or Equal to Five Acres

- Contribute to the acquisition of a mitigation bank or “cushion”; and
- Restoration and management of existing preserved parcels at a ratio of 2 to 1.

Urban Area – Parcels Greater Than Five Acres

Parcels greater than 5 acres are self-mitigating and will mitigation their impacts on site.

Dune Sands SRA – Parcels Less Than or Equal to Five Acres

- Contribute to the acquisition of a mitigation bank or “cushion” (1.5 acres); and
- Restoration and management of existing preserved parcels at a ratio of 3 to 1.

Dune Sands SRA – Parcels Greater Than Five Acres

- Parcels greater than 5 acres are self-mitigating and will mitigation their impacts on site.

A habitat mitigation fee will be collected from parcels that are less than five acres (see Chapter 8 Funding), which will be used to provide offsite mitigation for the impacts from Covered Activities (see Tables 5-2 and 5-3 for analysis of habitat impacts). In addition, in the Dune Sands SRA, development on parcels less than five acres will need to adhere to the standards of the Estero Area Plan, which limits the building footprint (See Section 5.3). A protective easement will be established on the undeveloped area to preserve SRA. This easement will not be part of the LOHCP Preserve system.

Parcels greater than five acres will be self-mitigating. Development on these parcels will be limited to the development potential in Table 5-3. The mitigation will be achieved when the landowner transfers the open space requirement in fee title or establishes a protective easement and funds the restoration and perpetual management of the open space. Site-specific restoration and management plans will be prepared by a qualified biologist approved by the Plan Participants and approved by the Preserve Manager. The Preserve Manager will oversee any restoration efforts. The open space portion will be incorporated into the LOHCP Preserve system.

Table 6-2. Summary of Outside the Wastewater Service Area Mitigation Strategy

Parcels or APN Number	Parcel Acreage	Acres Dev- eloped ¹	Onsite Habitat Protection ¹ (Acres)	Acquisition (Acres)	Onsite Restoration (Acres)	Offsite Restoration (Acres)	Ongoing Management (Acres)
URBAN							
Parcels less than or equal to 5 acres (2:1 offsite restoration)							
63	37.7	37.7	--		--	75.3 Existing preserved	75.3 Existing preserved
Parcels greater than 5 acres							
074-022-043	5.1	0.5	1.1 Morro Manzanita 1.8 Coastal Sage Scrub Disturbed 0.1 Landscape Trees 1.2 Agriculture 0.6 Other	--	1.8 Coastal Sage Scrub Disturbed 1.2 Agriculture 0.6 Other	--	4.6
074-022-042	5.1	0.5	4.2 Morro Manzanita 0.4 Coastal Sage Scrub Disturbed 0.1 Other	--	0.4 Coastal Sage Scrub Disturbed 0.1 Other	--	4.6
074-022-039	5.1	0.5	4.4 Morro Manzanita 0.1 Coastal Sage Scrub Disturbed 0.09 Agriculture 0.1 Other	--	0.1 Coastal Sage Scrub Disturbed 0.09 Agriculture 0.1 Other	--	4.6
074-022-014	5.1	0.5	0.1 Coastal Sage Scrub 3.9 Coastal Sage Scrub Disturbed 0.6 Other	--	3.9 Coastal Sage Scrub Disturbed 0.6 Other	--	4.6
Subtotal	4	20.4	19	--	6.2 Coastal Sage Scrub Disturbed 1.3 Agriculture 1.3 Other		18.4
DUNE SANDS SRA							
Parcels less than or equal to 5 acres (3:1 offsite restoration)							
44	64.5	16.8	47.7	1.5 Coastal Sage Scrub ²	--	50.3 Existing preserved	1.5 Acquisition 50.3 Preserved Parcels

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Parcels or APN Number	Parcel Acreage	Acres Dev- eloped ¹	Onsite Habitat Protection ¹ (Acres)	Acquisition (Acres)	Onsite Restoration (Acres)	Offsite Restoration (Acres)	Ongoing Management (Acres)
DUNE SANDS SRA (Continued)							
Parcels greater than 5 acres							
038-711-004	6.1	0.9	5.2 Coastal Sage Scrub	--			5.2
067-011-041	43.8	3.7	6.8 Oak Woodland 0.7 Coastal Sage Scrub 7.5 Coastal Sage Scrub Disturbed 12.5 Agriculture 0.8 Morro Manzanita/Ca. Sagebrush 7.8 Coast Live Oak Arroyo Willow 3.8 Open Water	--	7.5 Disturbed Coastal Sage Scrub 12.5 Agriculture	--	40.1
074-263-033	10.2	0.5	2.4 Non-native grassland 1.1 Coastal Sage Scrub Disturbed 0.1 Landscape Trees 6.0 Coast Live Oak Arroyo Willow 0.2 Open Water	--	2.4 Non-native grassland 1.1 Coastal Sage Scrub Disturbed	--	9.8
074-222-013	65.3	6.0	20.0 Oak Woodland 10.3 Coastal Sage Scrub 0.3 Eucalyptus 17.8 Coastal Sage Scrub Disturbed 0.1 Landscape Trees 7.9 Coast Live Oak Arroyo Willow 1.9 Arroyo Willow 1.1 Other	--	13.5 Coastal Sage Scrub Disturbed 1.1 Other	--	59.3
074-024-011	17.7	1.4	13.8 Coastal Sage Scrub 2.0 Eucalyptus 0.5 Other	--	0.5 Other	--	16.3
074-022-058	22.5	1.4	7.2 Coastal Sage Scrub 11.0 Morro Manzanita 2.7 Eucalyptus	--		--	21.1

Parcels or APN Number	Parcel Acreage	Acres Dev- eloped ¹	Onsite Habitat Protection ¹ (Acres)	Acquisition (Acres)	Onsite Restoration (Acres)	Offsite Restoration (Acres)	Ongoing Management (Acres)
DUNE SANDS SRA (Continued)							
074-022-059	23.1	2.3	12.7 Morro Manzanita 8.1 Eucalyptus	--		--	20.8
074-021-042	96.5	8.7	4.3 Coast Live Oak 1.3 Coastal Sage Scrub 77.9 Morro Manzanita 4.3 Eucalyptus	--		--	87.8
067-131-007	9.4	0.5	2.7 Coastal Sage Scrub 5.4 Morro Manzanita 0.9 Morro Manzanita- Wedgeleaf Ceanothus	--		--	9.0
074-021-036	10.2	0.9	9.3 Morro Manzanita	--		--	9.3
Subtotal	11	318	291	--	23.4 Coastal Sage Scrub Disturbed 3.0 Non-native grassland 12.5 Agriculture 2.9 Other		291
TOTAL	122	441	84	356	1.5 Coastal Sage Scrub	49.8	126 Disturbed Habitat on Existing Preserved Parcels 126 Existing Preserved Parcels 310 Easements

1. This information is from Table 5-3.
2. Acreage under ongoing management takes into account that any degraded habitat had been restored to native habitat.

Note: Requirements for protected areas on parcels in the Dune Sands SRA less than or equal to 5 acres are established under the Estero Area Plan for SRA protection. However, these will not become part of the LOHCP Preserve system.

6.4 PROPOSED PRESERVE DESIGN

The proposed preserve design incorporates all the mitigation for the Covered Species. Based on the buildout scenario in Chapter 5, the wastewater service area will result in the take of approximately 196 acres of potential habitat and outside of the wastewater service area will result in the take of approximately 84 acres of potential habitat.

Table 6-3 and Figure 6-2 below shows what the proposed preserve will include. At full implementation the LOHCP would have approximately 742 acres under ongoing management and monitoring.

Table 6-3. Proposed Preserve Design

Acquisition (Acres)		Onsite Restoration (Acres)		Offsite Restoration (Acres)		Ongoing Management (Acres)	
Inside the Wastewater Service Area							
17	Coastal Sage Scrub	15	Disturbed Wetlands	237	Disturbed Habitat on Existing Preserved Parcels	17	Acquisition
		5	Ruderal Habitat			237	Existing LOHCP Preserve
		30	Disturbed Coastal Sage Scrub			50	Protective Easements on Large Parcels
Subtotal	17	50		237		304	
Outside the Wastewater Service Area							
1.5	Coastal Sage Scrub	30	Disturbed Coastal Sage Scrub	126	Disturbed Habitat on Existing Preserved Parcels		
		3	Non-native grassland			1.5	Acquisition
		14	Agriculture			126	Existing LOHCP Preserve
		3	Other			310	Protective Easements on Large Parcels
Subtotal	1.5	50		126		438	
TOTAL	18.5	100		363		742	

Note: This information is summarized from Tables 6-1 and 6-2.



Figure 6-2: Proposed Preserve Design

6.5 ADAPTIVE MANAGEMENT AND MONITORING PLAN

The Adaptive Management and Monitoring Plan (AMMP) (included under a separate cover) guides protection and enhancement of the sensitive species and communities of the LOHCP. By confronting the current stresses and new threats that emerge, management proposed in the plan will play an important role in attaining the conservation goals of the LOHCP.

The AMMP provides the biological effectiveness monitoring program designed to track success toward the biological goals and objectives of the LOHCP Preserve System. The AMMP is a proactive and remedial management approach. Rather than waiting for conditions to decline, management will be implemented to the fullest extent possible. Biological effectiveness monitoring will be reassessed throughout management to ensure biological objectives are being achieved and to modify strategies and techniques if necessary.

The overall goal of the AMMP is to:

Preserve and enhance the covered species populations within the LOHCP Preserve System.

The following are the goals for the Covered Species, communities, and ecosystem. The goals for each of the five covered species are similar, as are the rationales for their importance as part of the conservation strategy.

Covered Species

Goal 1: Preserve and enhance populations of the Morro shoulderband snail (MSS) in the LOHCP Preserve System.

Goal 2: Preserve and enhance populations of Morro manzanita (MM) in the LOHCP Preserve System.

Goal 3: Preserve and enhance populations of splitting yarn lichen (SYL) in the LOHCP Preserve System.

Goal 4: Enhance and preserve populations of Indian Knob mountainbalm (IKM) in the LOHCP Preserve System.

Goal 5: Enhance populations of Morro Bay kangaroo rat (MBKR) in the LOHCP Preserve System.

Communities

Goal 6: Maintain or enhance the structure and species composition of the native plant communities in the LOHCP Preserve System.

Ecosystem

Goal 7: Develop an interconnected system of Preserves which protects native communities of the Baywood fine sand soils and allows for continuance of the natural ecological processes on which they depend.

CHAPTER 7: MONITORING AND REPORTING

Monitoring is an essential element of the LOHCP. A successful monitoring program provides information to (1) determine if biological goals and objectives are being met and (2) evaluate compliance with the terms of the Section 10 permit. Monitoring programs play a key role in determining whether the chosen management strategy is providing the desired outcome.



7.1 EFFECTIVENESS MONITORING: ACHIEVEMENT OF CONSERVATION GOALS

7.1.1 Overview

Biological effectiveness monitoring evaluates the implementation of the measurable conservation goals and objectives of the Conservation Strategy. The purpose of the effectiveness monitoring program is to chart the population trends of the Covered Species and to assess whether the preserve design and the restoration and management techniques are improving the viability of the Covered Species and their habitats. The results of the effectiveness monitoring program will inform the LOHCP Conservation Strategy and will be used to guide the LOHCP Adaptive Management and Monitoring Program (AMMP).

The Preserve Manager will be responsible for completing the effectiveness monitoring program described below. The biological effectiveness monitoring program shall be prepared within one year of issuance of the ESA Section 10 and CESA Section 2080 permits and shall be approved by the Wildlife agencies. The effectiveness monitoring program shall include, but is not limited to, the following components that apply to the overall implementation:

- Annual surveys of the Plan Area to determine the status of the Covered Species, including presence, density, and reproductive success;
- Annual summary of data collected from pre-construction surveys;
- Density and distribution sampling of Covered Species on the LOHCP Preserve conducted every five years beginning one year after issuance of the permits;
- Annual evaluation of the conservation goals and objectives and progress toward their implementation;

The monitoring program shall also provide specific details on the following information:

- Monitoring methodologies and protocols to be implemented;
- Timing of monitoring efforts, including frequency and duration of monitoring;
- Locations of monitoring and methods used to determine locations;
- Personnel required;
- Methods of documenting results of monitoring;
- Methods of analysis of data collected;

- Information expected to be gained from monitoring program;
- Thresholds at which restoration and management must be modified to assure success of the conservation strategy.
- Quality assurance and records management procedures.

The biological effectiveness monitoring program shall establish a format for annual reporting. The Annual Report will include a brief summary of the Covered Activities and loss of habitat as it relates to the biological environment, a discussion of the species and habitat that have been affected, an analysis of the significance of the impacts, and identification of problems and potential solutions. This information is critical to assess potential and actual impacts of the Covered Activities.

7.1.2 Adaptive Management Strategy

The LOHCP is a habitat-based approach for ensuring that mitigation is provided for Covered Species take associated with Covered Activities and for contributing to the recovery of the Covered Species over the 20-year term of the permit. It is generally understood that uncertainty is an unavoidable component of restoring and managing natural systems. To address such uncertainties, the LOHCP will implement an adaptive management strategy, which allows conservation program goals, objectives, actions, and minimization measures to be adjusted over time based on results of monitoring to better ensure LOHCP goals are achieved.

The AMMP incorporates the four elements the USFWS recommends for adaptive management in HCPs (65 FR 35252):

- Identify uncertainties and the questions that need to be addressed to resolve the uncertainties.
- Develop alternative strategies and determine which experimental strategies to implement.
- Integrate a monitoring program that is able to detect the necessary information for strategy evaluation.
- Incorporate feedback loops that link implementation and monitoring to a decision making process.

Future LOHCP modifications, through the adaptive management process, may be needed as a result of uncertainties generated from the following situations Each could result in new information, new approaches, new recovery, and/or new conservation standards that would need to be incorporated into the LOHCP Conservation Strategy.

1. New information obtained from monitoring efforts on preserved lands or other ongoing research;
2. New recovery strategies under future USFWS recovery plans that differ from the measures described in the LOHCP.

The LOHCP Conservation Strategy has incorporated elements of and is consistent with the United States Fish and Wildlife Service “Draft Recovery Plan for the Morro Shoulderband Snail and Four Plants from San Luis Obispo County, California.” September 1997.

The adaptive management strategy allows for revisions of objectives and conservation measures to incorporate recovery strategies identified in new or revised recovery plans. The LOHCP Preserve Manager will incorporate conservation measures identified in future or revised recovery plans when such measures:

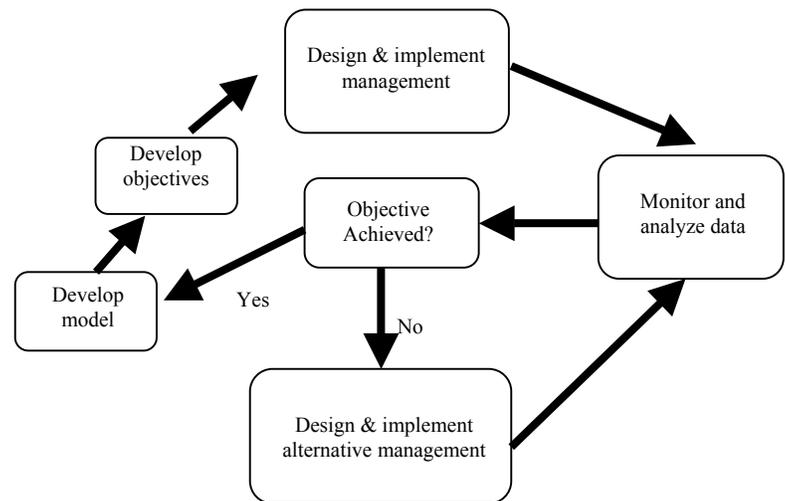
- Are expected to improve the effectiveness of the LOHCP in achieving objectives;
 - Can be achieved in the LOHCP Area; and
 - Are compatible with LOHCP conservation program goals, objectives, actions, and measures, and LOHCP funding levels.
3. New information received from the monitoring program on minimization and mitigation measures.
 4. Significant land use changes outside of the Plan Area but in close proximity to the LOHCP Preserve that result in a negative impact on the preserve.
 5. Other uncertainties associated with monitoring and implementation.

7.1.3 Adaptive Management Implementation

The Preserve Manager will implement the adaptive management strategy in conjunction with feedback from the monitoring programs. Responsibilities of the Preserve Manager include:

- Gathering monitoring data;
- Assessing results of biological goals and objectives;
- Identifying the need to modify conservation program goals, objectives, actions, and avoidance, minimization, and mitigation measures; and
- Identifying the need for and approving changes to the LOHCP Conservation Program or the AMMP.

Figure 7-1: Adaptive Management Cycle as Described in Text (from (Elzinga et al. 2001).



The LOHCP Preserve Manager shall have the authority to change elements of the conservation program that will result in greater effectiveness or efficiency in achieving LOHCP conservation goals that do not require a change in LOHCP permit conditions (e.g., federal ESA) or conflict

with local, State, or federal laws and regulations. Revisions proposed by the Preserve Manager that could require amendments to the LOHCP are discussed in Chapter 11.

The LOHCP Preserve Manager may undertake the following types of revisions to the LOHCP, where such revisions are warranted, based on results of monitoring of the Covered Species and habitat:

- Modifications to elements of the monitoring programs;
- Modifications to or adoption of additional goals, objectives, actions and avoidance, minimization, and mitigation measures that improve the likelihood of recovery of the Covered Species; and
- Modifications to the design and management of the LOHCP Preserve to improve efficiency where such modifications are consistent with achieving conservation program goals, objectives, actions, and measures established for the LOHCP Preserve.

The success of the conservation program is determined by comparing its goals and objectives to results of monitoring on an annual basis.

7.2 COMPLIANCE MONITORING: COMPLETION OF AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

Compliance monitoring is verifying that the Permittees are carrying out the terms of the LOHCP, the Implementing Agreement, and the permits. The Preserve Manager will track the Permittees compliance with the terms of the incidental take permit and determine if avoidance, minimization and mitigation measures are being implemented.

Described below are the components of the compliance monitoring that will be analyzed by the Preserve Manager.

1. Annual acquisitions:
 - a. Acreage (annual incremental and cumulative)
 - b. Location
 - c. Evaluation of vegetation and condition.
2. Take of Covered Species and impacts to habitat resulting from Covered Activities.
3. Implementation of incidental take avoidance measures:
 - a. Avoidance measures used pre- and post-ground disturbing activities.
 - b. Take avoidance implemented during maintenance and management.
 - c. Success or failure in implementing take avoidance and minimization measures.
 - d. Recommendations for changing or improving take avoidance and minimization measures.
4. Annual financial status
 - a. Amount and source of funds collected
 - b. Funds expended or committed for acquisition
 - c. Funds held in reserve accounts
 - d. Summary of revenues and expenditures for preserve management
 - e. An accounting of the long-term endowment fund
 - f. Any funds allocated to another entity for restoration, monitoring, or management

CHAPTER 8: FUNDING

8.1 INTRODUCTION

The LOHCP is a voluntary environmental protection program developed to meet the legal requirements of federal and State resource mandates, which require that public and private development mitigate for their effects on the Covered Species and their habitats. This chapter describes the funding plan for the LOHCP. The funding analysis was prepared using Property Analysis Record (PAR) software developed by the Center for Natural Lands.



Persons wishing to develop on lots five acres in size or larger will need to do a site-specific plan that will include recommendations for restoration and on-going management, including the estimated costs.¹ Consequently, the funding costs for these sites are not considered in this analysis. A qualified biologist approved by the Plan Participants and the Preserve Manager will prepare these plans. The Preserve Manager will oversee any restoration efforts. The open space portion will be incorporated into the LOHCP Preserve system.

For lots smaller than five acres – which are the vast majority in the LOHCP Area – property owners wishing to participate in the LOHCP will pay a voluntary Habitat Conservation Fee that will be used for preserve assembly, habitat restoration, and long-term management and monitoring. A portion of the fee will be used to create an endowment fund to ensure the management and monitoring of the LOHCP Preserve in perpetuity. The LOHCP funding plan anticipates that the LOHCP Area will be assembled by the end of 20-year permit period.

8.2 ESTIMATED COSTS OF PLAN IMPLEMENTATION

Implementation of the LOHCP will require funding for acquisition, initial financial (start up) costs, and long-term management, including monitoring and administration. Each of these components is addressed individually below. All costs are in 2004 dollars.

Because of jurisdictional boundaries and biological resources, analysis of the LOHCP is separated into the LOCSO wastewater service area and outside the service area. Furthermore, these areas are broken down in turn into those in “urban” areas and those that are part of the Dunes Sands SRA. In the latter case, the breakdown is especially relevant to funding in that the acquisition and restoration requirements (and, thus, the costs) are different for the two areas.

Table 8-1 summarizes the mitigation requirements based on location and parcel size as determined in Chapter 6. Parcels greater than or equal to five acres are required to provide onsite open space and funding for the restoration and management of this open space. As noted above,

¹ Because of Estero Area Plan standards, one parcel greater than 5 acres inside the wastewater service area require some offsite mitigation and are included in the funding analysis (APN 074-431-001).

these parcels are required to prepare a site-specific minimization, restoration, and management plan. Costs for implementing these plans will, of course, vary with site-specific conditions.

Table 8-1: Summary of Mitigation Requirements

Location	Parcels	Total Acreage	Acreage to Be Developed	On site Preservation and Restoration	Needed Offsite Acquisition	Offsite Restoration	Offsite Restoration and Management
UNDEVELOPED WASTEWATER SERVICE AREA PARCELS¹							
Urban (≤ 5 acres)	495	143.2	143.2	0	17	219.8	236.8
Urban (> 5 acres) ²	1	7.8	7.8	0	0	15.6	15.6
Dunes Sands SRA (≤ 5 acres)	1	2.1	0.5	1.6 ³	0	1.6	1.6
Subtotal	497	153.1	151.5	1.6	17	237	254
UNDEVELOPED PARCELS OUTSIDE THE WASTEWATER SERVICE AREA⁴							
Urban (≤ 5 acres)	63	37.6	37.6	0	0	75.3	75.3
Dunes Sands SRA (≤ 5 acres)	44	64.5	16.8	47.7 ³	1.5	50.3	51.8
Subtotal	107	102.1	54.4	47.7	1.5	125.6	127.1
Total	604	255.2	205.9	49.3	18.5	362.6	381.1

1. See Table 6-1 and related text for a description of the mitigation strategy in the wastewater service area.
2. Under the Estero Area Plan, 1 parcel greater than 5 acres (in the wastewater service area) will be completely developed and require some offsite mitigation.
3. Parts of many of these lots will be preserved as open space, but are not considered viable habitat in the LOHCP.
4. See Table 6-2 and related text for a description of the mitigation strategy outside the wastewater service area.

8.2.1 Habitat Acquisition

One of the conservation goals of the LOHCP is to preserve to the extent possible the remaining habitat on undeveloped parcels under private ownership. Some of this will occur by requiring portions of developable lots to permanently protect and restore viable habitat on-site. The Conservation Program, however, also anticipates purchasing 18.5 acres to help offset unavoidable habitat losses that may occur from development on smaller lots. The cost of acquisition based on recent experience and market conditions is estimated to be \$90,000 per acre in 2004 dollars. Table 8-2 shows the acquisition costs for those areas and parcels size as applicable.

Table 8-2: Off-Site Acquisition Costs (2004 Dollars)

Location	Acquisition	Cost per Acre	Costs
Inside Wastewater Service Area	17	\$90,000	\$1,530,000
Outside Wastewater Service Area	1.5	\$90,000	\$135,000
Total	18.5		\$1,665,000

8.2.2 Initial Financial Requirements

Habitat quality has been degraded in many locations by past and present land uses, a significant invasion of nonnative species, and the proximity of the areas to urban development. Some habitat restoration and maintenance, such as erosion control and fencing, will occur at the outset, when

necessary, on parcels obtained through acquisition or protected through other methods, such as easements. Again, for parcels five acres in size or greater, site-specific analyses will be required to recommend appropriate restoration measures. For parcels less than five acres, the Conservation Program requires owners of lots to contribute to restoring existing degraded habitat offsite.

Depending of the condition of the site, such efforts can vary. Based on detailed analysis of the 237-acre Morro Dunes Ecological Reserve (Bayview Unit) using the PAR software, the restoration in the LOHCP plan area is estimated to average about \$829 per acre. Thus, the initial financial costs are estimated as follows:

Table 8-3: Initial Financial Costs (2004 Dollars)

Location	Offsite Restoration and Management	Average Cost per Acre	Total Initial Costs
Inside Wastewater Service Area			
Urban (≤ 5 acres)	236.8	\$829	\$196,307
Urban (> 5 acres)	15.6	\$829	12,932
Dunes Sands SRA (≤ 5 acres)	1.6	\$829	1,326
Subtotal	254	\$829	\$210,566
Outside Wastewater Service Area			
Urban (≤ 5 acres)	75.3	\$829	\$62,424
Dunes Sands SRA (≤ 5 acres)	51.8	\$829	42,942
Subtotal	127.1	\$829	\$105,366
Total	381.1	\$829	\$315,932

8.2.3 Habitat Management, Biological Monitoring, and Program Administration

Lands that are incorporated in the LOHCP Preserve will be managed in perpetuity through monies generated by an endowment fund. Habitat management will include field operations, such as trail maintenance and weed abatement, biological monitoring, and administration. Management costs can fluctuate widely, depending on the size, uses, species-specific requirements, geography, and adjacent land characteristics. (Historically, larger contiguous parcels are less expensive to manage than smaller areas.)

In Los Osos, because of the fragmented nature of the preserve and the proximity to urban areas, the annual management cost is estimated at about \$420 per acre per year (in 2004 dollars), approximately \$160,000 annually, based on a detailed analysis of the 237-acre Morro Dunes Ecological Reserve (Bayview Unit) using the PAR software (see Table 8-4).

Approximately \$8.041 million will be needed in 2025 at full implementation to generate \$160,000 per year assuming net interest revenues of 2% per year after inflation. (The management endowment is assumed to generate interest revenue of 5% per year; inflation is assumed to be 3% per year; thus, the net yield would be 2%.)

Again, for parcels greater than five acres in size, site-specific analyses will be required to estimate restoration and on going management costs. These plans will be prepared by a qualified biologist approved by the Plan Participants and the Preserve Manager. The Preserve Manager will oversee any restoration efforts. The open space portion will be incorporated into the LOHCP Preserve system. Consequently, the funding costs for these sites are not considered in this analysis.

Table 8-4: Estimated Annual Management Costs (2004 Dollars)

Location	Offsite Management (acres)	Average Cost per Acre (\$)	Total Annual Cost (\$)	Endowment per Acre (\$)	Management Endowment (\$)
Inside Wastewater Service Area					
Urban (≤ 5 acres)	236.8	\$420	\$99,456	\$21,100	\$4,996,480
Urban (> 5 acres)	15.6	\$420	6,552	\$21,100	329,160
Dunes Sands SRA (≤ 5 acres)	1.6	\$420	672	\$21,100	33,760
Subtotal	254	\$420	\$106,680	\$21,100	\$5,359,400
Outside Wastewater Service Area					
Urban (≤ 5 acres)	75.3	\$420	\$31,626	\$21,100	\$1,588,830
Dunes Sands SRA (≤ 5 acres)	51.8	\$420	21,756	\$21,100	1,092,980
Subtotal	127.1	\$420	\$53,382	\$21,100	\$2,681,810
Total	381.1	\$420	\$160,062	\$21,100	\$8,041,210

8.2.4 Total Funding Required for Acquisition, Restoration and Management

Based on the above estimates, Table 8-5 combines the costs associated with mitigating for the Covered Activities. Total costs to implement the Conservation Program are approximately \$10 million (in 2004 dollars).

Table 8-5: Total Funding Required (2004 Dollars)

Location/Size	Acquisition	Initial Costs	Management Endowment	Total
Inside Wastewater Service Area				
Urban (≤ 5 acres)	\$1,530,000	\$196,307	\$4,996,480	\$6,722,787
Urban (> 5 acres)	-	12,932	329,160	342,092
Dunes Sands SRA (≤ 5 acres)	-	1,326	33,760	35,086
Subtotal	\$1,530,000	\$210,566	\$5,359,400	\$7,099,966
Outside Wastewater Service Area				
Urban (≤ 5 acres)	-	\$62,424	\$1,588,830	\$1,651,254
Dunes Sands SRA (≤ 5 acres)	\$135,000	42,942	1,092,980	1,270,922
Subtotal	\$135,000	\$105,366	\$2,681,810	\$2,922,176
Total	\$1,665,000	\$315,932	\$8,041,210	\$10,022,142
Percent of Total	17%	3%	80%	100%

8.3 HABITAT CONSERVATION FEE CALCULATION

The primary funding source for the LOHCP is a Habitat Conservation Fee charged to new development. The conservation fee will be adjusted annually for inflation.

Table 8-6 allocates the cost of LOHCP implementation per acre of land disturbed or developed, as well as by the square foot of developed lot. Implementation assumes 100% participation by landowners. If 100% participation is not realized, total initial costs and the management endowment will be reduced proportionately with the realized participation rate. Hence, there would be no impact on the cost per acre (or cost per square foot).² However, the acquisition costs may need to be allocated to a smaller group of landowners, thus potentially increasing the cost per acre (or cost per square foot).

Table 8-6: Habitat Conservation Fee (2004 Dollars)

Location	Parcels	Total Acreage	Acreage to Be Developed	Total Costs	Cost per Acre Developed	Cost per Square Foot	Cost per 5,000 Sq. Ft. of Developed Area
UNDEVELOPED WASTEWATER SERVICE AREA PARCELS							
Urban (≤ 5 acres)	495	143.2	143.2	\$6,722,787	\$46,946	\$1.08	\$5,388
Urban (> 5 acres)	1	7.8	7.8	342,092	\$43,858	\$1.01	\$5,034
Dunes Sands SRA (≤ 5 acres)	1	2.1	0.4	35,086	87,715	\$2.01	\$10,068
Subtotal	497	153.1	151.5	\$7,099,966	\$46,864	\$1.08	\$5,379
UNDEVELOPED PARCELS OUTSIDE THE WASTEWATER SERVICE AREA							
Urban (≤ 5 acres)	63	37.6	37.6	\$1,651,254	\$43,916	\$1.01	\$5,041
Dunes Sands SRA (≤ 5 acres)	44	64.5	16.8	1,270,922	\$75,650	\$1.74	\$8,683
Subtotal	107	102.1	54.4	\$2,922,176	\$53,716	\$1.23	\$6,166
Total	604	255.2	205.9	\$10,022,142	\$48,675	\$1.12	\$5,587

8.4 LOHCP COST RECOVERY

The LOHCP benefits the owners of properties wishing to develop by providing a simpler, more predictable way of meeting the ESA. It is, therefore, reasonable for new development participating in the LOHCP to pay for the costs of creating the plan. Those costs are approximately \$200,000. If allocated on a per-parcel basis among all the vacant parcels in the LOHCP Area that could be developed, the share is about \$320 per parcel. Thus, in addition to the conservation fee discussed above, developers of a vacant parcel wishing to participate in the LOHCP, will also contribute \$320 which will be used to reimburse the LOCS D for the cost of the plan.

8.5 PHASING OF MITIGATION WITH RESPECT TO DEVELOPMENT

The LOHCP calls for completion of the habitat mitigation requirements established in the Conservation Program in Chapter 6 in advance of or at the same pace of the impacts from

² For example, parcels ≤ 5 acres in the wastewater service area need to provide for the offsite restoration of 219.8 acres assuming a 100% participation rate (i.e. 495 parcels with 143.2 acres developed (see Table 8-1)). If landowners with 90% of the development (i.e. 128.9 acres) opt into the plan, then 197.8 acres (219.8 * .9) of offsite restoration will be required. The initial financial cost per acre (\$829) and the endowment per acre (\$21,100) stay constant. Thus, these costs will be proportionately reduced by the final participation rate.

Covered Activities. To assure adequate mitigation sufficient to meet mitigation obligations, the Permittees shall establish a 17-acre mitigation cushion prior to the approval of any new development in the Plan Area. This will be repaid as the Habitat Conservation Fees are collected.

If landowners participate in the plan at a constant rate, approximately \$501,100 would be generated annually from the Habitat Conservation Fee for 20 years (assuming 100% participation). Fees will be distributed into separate funds for acquisition (17%), initial costs (3%), and the management endowment (80%) (see Table 8-5).

8.6 OTHER POTENTIAL FUNDING SOURCES

The Permittees may pursue outside funding, as appropriate, to assist with habitat restoration and enhancement activities, as a means to compliment the Habitat Conservation Fee program. Such outside sources of funding would not be used to alleviate mitigation responsibilities for private developers, but rather to facilitate mitigation so that development can proceed in an orderly fashion, to improve the quality of management of the LOHCP's mitigation lands without increasing the responsibilities of the County or private landowners, or to meet other public policy objectives under the LOHCP.

Other potential funding sources include the following.

Local Sources

- Ad valorem property tax/general obligation bond
- Mello-Roos Special Tax
- Sales Tax
- Habitat maintenance assessment district (SB 445)
- Proposition 218
- Volunteers

State Sources

- California Department of Fish and Game
- State Coastal Conservancy
- Wildlife Conservation Board
- California Department of Parks and Recreation

Federal Sources

- Land and Water Conservation Fund
- Cooperative Endangered Species Conservation Fund
- North American Wetlands Conservation Fund
- U.S. Fish and Wildlife Service
- National Fish and Wildlife Challenge Grants

Private Sources

- Grants/Donations

CHAPTER 9: ALTERNATIVES CONSIDERED

The ESA requires an HCP to include a discussion of alternatives to the taking of listed species be considered and the reasons why such alternatives are not implemented. These alternatives are discussed below.



9.1 NO ACTION ALTERNATIVE

The No Action Alternative is one in which no federal permit would be obtained by the LOCSO or County. This alternative was considered but rejected because, under this alternative, landowners or developers who propose an activity that would result in take would either have to abandon their activity or individually apply for an incidental take permit to avoid violation of section 9 of the ESA. This could lead to over six hundred individual HCPs in Los Osos and equivalent numbers of NEPA/CEQA documents in addition to other regulatory permits and authorizations (e.g. California Coastal Act compliance). In addition, some developers may be more likely to attempt to conduct activities in violation of the Act.

Currently, habitat conditions in Los Osos have been degraded or lost due to human activities including urban development, recreational activities, introduction of invasive plant species, and suppression of natural disturbance regimes (e.g., fire). Because very little of the natural habitat remains in good condition, it is imperative to help preserve and properly manage any remaining high quality, intact areas that have coastal sage scrub and central maritime chaparral habitat. The no-action alternative would result in piecemeal conservation planning. The resource agencies reached consensus that this approach provided lesser conservation value to the Covered Species than the proposed LOHCP. It could also result in an unnecessary economic burden on the landowners because they may need to prepare individual HCPs in lieu of participation in the LOHCP. For each of these reasons, the No-action Alternative was rejected.

A variation of the No-action Alternative considered pursuing a permit for the LOCSO wastewater service area only. Under this scenario, the LOCSO would receive Section 10 and 2081 permits, but the County would not receive a regional permit for the area outside the wastewater service area. Landowners outside the wastewater service area of Los Osos would need to obtain the appropriate authority from the regulatory agencies individually. This alternative was also rejected for the same reasons cited above.

9.2 COVERED SPECIES FOCUSED ALTERNATIVE

The Covered Species focused alternative would work to protect any area that Covered Species were found instead of focusing on critical habitat areas and areas with the highest habitat value. This could lead to preserving smaller parcels and creating habitat fragmentation.

The result of implementing the Covered Species focused alternative would be protection of most or all of the occupied parcels until further research is conducted. This approach could be costly

and could result in protecting more isolated parcels instead of larger, contiguous areas and would result in a extremely fragmented preserve system. It could also result in reducing the amount of land available in the central district area for implementing Covered Activities or at least delaying their implementation. For these reasons, the Covered Species Alternative was not performed.

9.3 PROPOSED ACTION ALTERNATIVE

Under this alternative, the landowners would provide mitigation by contributing funds, and in some cases on-site habitat set asides, to a conservation program established to create a preserve system with the appropriate level of restoration and management of habitat for the Covered Species. Conservation funds are paid to the LOHCP preserve manager who in turn administers, manages, and monitors the preserve and its resources in perpetuity.

This alternative conserves more habitat than the no action or covered species focused alternatives. The expected result from this alternative will be minimizing impacts to SRA, maximizing the long-term viability and protection of habitats and covered species, and increasing habitat quality as well as overall biological diversity through restoration and management.

This alternative will result in a streamlined regulatory process for implementing Covered Activities for landowners and many local, State and federal agencies. Additionally, it alleviates the need to prepare individual HCPs to obtain an incidental take permit. For these reasons, the Proposed Action Alternative is preferred.

CHAPTER 10: LOHCP IMPLEMENTATION

10.1 ORGANIZATIONAL STRUCTURE FOR LOHCP IMPLEMENTATION

Implementation will require certain initiating actions by the parties to the Implementing Agreement (IA) to set up and operate the LOHCP. There will also be a need for ongoing monitoring and review. The underlying premise of the LOHCP is that the level of effort and expense on the part of the participating agencies and property owners will be less than if no LOHCP existed. This is because the LOHCP provides a more standardized and efficient mitigation process when compared to project-by-project permit actions. Therefore, ongoing implementation and support of LOHCP efforts is essential.



The goals and objectives of LOHCP can only be achieved through effective ongoing coordination among the various stakeholders. These duties include property assembly activities, accumulating and distributing funds, managing and monitoring LOHCP preserve lands, and ensuring Permittee compliance with the LOHCP.

The County and the LOCSO will transfer the responsibility for carrying out the ongoing conservation strategy provisions of the permit to a private nonprofit public benefit corporation, which will oversee implementation of those components of the LOHCP on behalf of the County and the LOCSO. A board or committee, staffed by the participating agencies, will govern this nonprofit agency. However, the County and the LOCSO are ultimately responsible for compliance with all of the terms and conditions of the LOHCP's Section 10 and Section 2080 permits.

Getting the LOHCP underway requires a number of actions, including: (1) preparation and execution of an Implementing Agreement (see Appendix B) and environmental documents under NEPA and CEQA; (2) formation of a permanent implementing structure (i.e. Preserve Manager) and development of related contracts and agreements; and (3) implementation of a habitat conservation fee which will be the primary source of funding. The Financing Program is discussed in Chapter 8.

The Implementing Agreement (IA) is a legal document that identifies the roles and responsibilities of the participating parties in implementing the conservation plan and the terms of the permit. The participating parties include the Permittees and the Resource Agencies. In addition, the IA describes legal remedies should any party fail to meet its obligations under the LOHCP and the section 10 permit. The final LOHCP and the IA will be approved by the Permittees and submitted to the U.S. Fish and Wildlife Service in support of an application for a federal incidental take permit. The County and the LOCSO will each hold a separate Federal Section 10(a)(1)(B) incidental take permit for the areas under their jurisdictions.

10.2 ROLES AND RESPONSIBILITIES

10.2.1 The County and the LOCSD

The County and the LOCSD are ultimately responsible for ensuring that the LOHCP is properly implemented and that the terms and conditions of the permits are met, including those that apply to incidental take resulting from implementation of the conservation program provisions of the LOHCP. Specific responsibilities of the County and the LOCSD are:

- Authorize covered activities and other discretionary projects within the LOHCP Area only in a manner consistent with the LOHCP;
- Establish a voluntary habitat conservation fee adequate to implement the LOHCP;
- Collect LOHCP habitat conservation fees for development activities and deposit them into dedicated trust accounts (e.g. Habitat Acquisition Account, Habitat Restoration Account and Habitat Management Endowment Account) for use by the Preserve Manager (See 10.2.3 below) for the acquisition and permanent management of mitigation lands through conservation easements, fee title acquisition, or other conservation mechanisms acceptable to the Service;
- Provide staff assistance for LOHCP implementation activities as necessary.

10.2.2 Third Party Beneficiaries

The LOCSD, and the County may allow within the LOHCP Area the incidental Take of Covered Species by Third Party Beneficiaries, specifically including landowners and public and private entities undertaking covered activities in conformance with approval granted by the LOCSD and the County in compliance with this Section.

In order to obtain Third Party Beneficiary status, a landowner must obtain a “certificate of inclusion”, which allow multiple third parties coverage under one incidental take permit. A certificates of inclusion will be issued by the LOCSD after the following steps have been completed: (1) the necessary mitigation has been determined; (2) the mitigation has been imposed as a condition for connection to the wastewater system or as a condition of land use development; and (3) the Third Party Beneficiary has read and signed a statement that he/she will comply with the general incidental take permit and the LOHCP, will comply with the applicable terms and conditions, and will fund the applicable measures of the conservation plan. The certificate of inclusion is recorded so that it runs with the land and is enforceable against, and binding upon, the Third Party Beneficiary and any successor in interest. Recordation shall occur before Los Osos wastewater system connections are finalized by the LOCSD, or the County issues building or grading permits.

10.2.3 Preserve Manager

The Preserve Manager could be either an existing private non-profit public benefit corporation or a newly-established private non-profit public benefit corporation whose responsibility is to carry out the day-to-day tasks of implementing the LOHCP "on the ground". The LOHCP habitat mitigation fees and mitigation lands will be transferred to the Preserve Manager. The Preserve Manager's tasks are guided by a Board of Directors with members appointed by the County and the LOCSD. The Board of the Preserve Manager is assisted by a technical advisory committee,

which is a group of experts with members including the U.S. Fish and Wildlife Service, California Department of Fish and Game, the California Coastal Commission, and the Permittees.

The Preserve Manager will undertake a variety of activities to acquire, establish, restore, monitor, and manage lands in perpetuity to ensure the successful implementation of the LOHCP. The Preserve Manager will serve, on behalf of the Permittees and the Wildlife Agencies, as the Plan implementation and effectiveness monitor.

The Preserve Manager will also be responsible for monitoring the terms of easements and ensuring that they are carried out. In some cases the Preserve Manager will hold the easements for the benefits of the public. In all such situations, the easement shall revert to a responsible public agency if the Manager, for whatever reasons, is no longer capable of fulfilling this role. For lands held by another approved organization in fee title, the Preserve Manager will be responsible for ensuring that habitat management, restoration, and enhancement activities are carried out subject to the requirements of applicable management plans. The Preserve Manager may also contract out habitat management and enhancement activities, as appropriate.

The Preserve Manager's specific roles and responsibilities include, but are not limited to:

- Oversee, supervise, and implement the LOHCP's conservation program on behalf of the County and the LOCSD. This includes, but is not limited to, setting and enforcing applicable policies and budgets and providing final approval for all land and easement purchases.
- Adopt annual budgets for LOHCP implementation, amend the budget as necessary, and authorize expenditures of LOHCP mitigation funds for the various purposes.
- Make recommendations regarding technical LOHCP decisions, including, but not limited to, mitigation land selection, purchase, enhancement, management, and monitoring consistent with the terms of the LOHCP.
- Negotiate the terms and conditions of conservation easements where such easements are purchased, and, where fee title is acquired, in negotiating and completing land sales. Prepare documentation associated with all land transactions.
- Enforce the terms of all conservation easements acquired on mitigation lands and ensure that all uses of mitigation lands acquired in fee are consistent with the habitat conservation purposes of the LOHCP.
- Hold title to easements and land (note: the terms of such holdings would have them revert to a responsible public agency if the Preserve Manager no longer provides this function); the USFWS, DFG and California Coastal Commission shall also have the right to enforce terms of any easements or deed restrictions.
- Assist landowners and developers in conducting pre-construction surveys, evaluating the results of such surveys, maintaining a database of all survey results, and recommending appropriate minimization and mitigation measures, as requested.
- Conduct or oversee monitoring activities as described in Chapter 7 and provide written documentation of such activities to the LOHCP Participating Agencies.
- Pursue outside funding as appropriate to assist with habitat restoration and enhancement activities, as a means to complement the mitigation fee program. Such outside sources of

funding would not be used to alleviate mitigation responsibilities for private developers, but rather to facilitate a mitigation banking mechanism so that development can proceed in an orderly fashion, to improve the quality of management of the LOHCP's mitigation lands without increasing the responsibilities of the County or private landowners, or to meet other public policy objectives under the LOHCP

- Insure that mitigation proceeds in step with development, in accordance with the LOHCP, so that the mitigation achieved by the end of each calendar year is equal to or greater than the number of habitat acres developed under Covered Activities. Insure that the total amount of habitat mitigation fees collected in each calendar year directly corresponds to the number of habitat acres that have been approved for development and that mitigation for such development has been secured during the calendar year.
- Maintain on a continuous basis records on the amount, location, and habitat types of development approved within the LOHCP Area (cumulatively and by year) and on the amount of mitigation fees collected and deposited in the Habitat Acquisition Account, Habitat Restoration Account and Habitat Management Endowment Account, provide such information as necessary to the participating agencies and include in the annual report.

The Preserve Manger will prepare an annual report which evaluates the status and success of the program in achieving LOHCP goals and objectives, describes levels of development and associated take, describes habitat lands acquired or protected, and provides an accounting of fees collected and expended. The County will be responsible for submitting information regarding all public and private development approved. Monitoring reports will be public information and will be submitted to the USFWS for review to assist in monitoring the County's and LOCSA's compliance with the LOHCP and permits. At a minimum the annual report will include the following:

- Documentation of the acres authorized for disturbance within the LOHCP Area during the reporting period;
- Documentation of Minor/Administrative Amendments approved for the preceding year in accordance with the procedures described in Section 11.4 of this document;
- Documentation of ongoing management and monitoring activities highlighting issues of concern and proposed remedies/actions;
- Documentation concerning funding/collection of mitigation fees;

See also Chapter 7: Monitoring and Reporting.

CHAPTER 11: NO SURPRISES RULE UNFORESEEN AND CHANGED CIRCUMSTANCES

11.1 NO SURPRISES RULE

In accordance with the Habitat Conservation Plan ("No Surprises") Assurances Rule (63 Federal Register 8859, as codified in 50 Code of Federal Regulations (C.F.R.), Sections 17.3, 17.22[b] and 17.32[b]), it is acknowledged that the purpose of the LOHCP is to provide for the conservation of Covered Species and the mitigation, minimization and compensatory measures required in connection with incidental taking of the Covered Species in the course of otherwise lawful and permitted activities within the LOHCP Area.

Accordingly, as described below and except as otherwise required by law and/or provided under the terms of the LOHCP and except for Unforeseen Circumstances, in particular as these requirements are addressed in Section 11.2 of this document, no further mitigation or compensation will be required by the USFWS to address impacts from Covered Activities undertaken by the Permittees, Third Parties granted take authorization, and other participating entities, pursuant to the Federal Endangered Species Act. Pursuant to 50 CFR, sections 17.22(b)(5) and 17.32(b)(5), the USFWS will not require from the Permittees, Third Parties granted take authorization, and other participating entities receiving Take Authorization under the Permit the commitment of additional land or financial compensation or additional restrictions on the use of land or other natural resources with regard to Covered Activities and their impact on Covered Species beyond that provided pursuant to the LOHCP, provided that the Permittees are properly implementing the LOHCP, the Implementing Agreement (IA), and the Permits. In the event that the USFWS makes a finding of Unforeseen Circumstances and such Unforeseen Circumstances warrant the requirement of additional mitigation, enhancement or compensation measures, any such additional measures shall be restricted to modification of the management of the LOHCP Preserve, and shall be the least burdensome measures available to address the Unforeseen Circumstances.

On December 10, 2004, the USFWS issued a final rule setting forth new regulations authorizing the Service to revoke incidental take permits (ITPs) issued for habitat conservation plans (HCPs) under the Endangered Species Act (ESA) under certain circumstances. 69 Fed. Reg. 71723. This action reinstates an element of the Service's HCP procedures allowing landowners to enter into HCPs with "No Surprises" assurances. In a decision issued in December 2003, a U.S. district court held that the Service adopted the permit revocation rule in violation of the notice and comment requirements of the Administrative Procedure Act (APA). *Spirit of the Sage Council v. Norton*, 294 F. Supp.2d 67 (D.D.C. 2003). The court ordered the Service to adopt new revocation rules following full compliance with the APA notice and comment requirements and ordered the Service to refrain from approving any ITPs or HCPs containing No Surprises assurances until the new rulemaking was completed. In accordance with this decision, the Service released draft rules for comment and adopted these new final rules in compliance with the deadlines set by the court.

In the final permit revocation rule, USFWS has made one change to the text of the original rule. The agency deleted the phrase at the end of the original rule, which stated that a permit would be revoked if an inconsistency was not been remedied "in a timely fashion." This is an acknowledgment to the uniqueness of each HCP, and the situation associated with a finding of

unforeseen circumstances and a determination that continued activity under a permit would appreciably reduce the likelihood of survival and recovery of a species covered by the permit is case-specific. As a result, USFWS has determined that it is not possible to determine when a situation has been remedied in “a timely fashion.”

11.2 UNFORESEEN CIRCUMSTANCES

"Unforeseen Circumstances" (defined in 50 C.F.R. Section 17.3) means any significant, unanticipated adverse change in the status of the Covered Species or in their habitats or any significant unanticipated adverse change in impacts of the LOHCP or in other factors upon which the LOHCP is based, in accordance with 63 Federal register 8859 (February 23, 1998). The term “Unforeseen Circumstances” is intended to have the same meaning as it is used to define the limit of the Permittees’ obligation on the “No Surprises” regulations set forth in 50 code of Federal Regulations, Sections 17.22 (b)(5) and 17.32 (b)(5).

In deciding whether Unforeseen Circumstances exist which might warrant requiring additional conservation measures, the USFWS shall consider, but not be limited to, the factors identified in 50 Code of Federal Regulations, Sections 17.22(b)(5)(C) and 17.32(b)(5)(C) (the No Surprises Rule), which are:

1. The extent of the current range of the affected Covered Species;
2. The percentage of the range of the affected Covered Species and habitat that has been adversely affected by the Covered Activities;
3. The percentage in the range of the affected Covered Species and habitat that has been conserved by the LOHCP;
4. The ecological significance of that portion of the range or habitat of the affected Covered Species;
5. The level of knowledge about the affected Covered Species and habitat and the degree of specificity of the conservation program for that species or habitat under the LOHCP; and
6. Whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the Covered Species in the wild.

As described in 50 C.F.R., Sections 17.22(b)(5)(C) and 17.32(b)(5)(C), the No Surprises Rule, the USFWS shall have the burden of demonstrating that Unforeseen Circumstances exist, using the best scientific and commercial data available. Any findings of Unforeseen Circumstances must be clearly documented and based upon reliable technical information regarding the biological status and habitat requirements of the affected species.

Except where there is substantial threat of imminent, significant adverse impacts to a Covered Species, the USFWS will provide the Permittees at least sixty (60) calendar days written notice of a proposed finding of Unforeseen Circumstances, during which time the USFWS will meet with the Permittees to discuss the proposed finding, to provide the San Luis Obispo County and the LOCSO with an opportunity to submit information to rebut the proposed finding, and to consider any proposed changes to the conservation strategies for the LOHCP Preserve.

If the USFWS makes a finding of Unforeseen Circumstances in accordance with the procedures described above, and determines that additional conservation measures are warranted, such

additional conservation measures will conform to the maximum extent possible to the original terms of the LOHCP.

11.2.1 Reconciliation of the No Surprises Rule, Unforeseen Circumstances and Adaptive Management in the HCP

The No Surprises Rule states, in part, that:

In negotiating Unforeseen Circumstances, the USFWS will not require without the consent of the permittees, the commitment of additional land, water or financial compensation or additional restrictions on the use of land, water, including quantity and timing of delivery, or other natural resources beyond the level otherwise agreed upon for the species covered by the conservation plan.

If additional conservation and mitigation measures are deemed necessary to respond to Unforeseen Circumstances, the USFWS may require additional measures of the Permittees where the conservation plan is being properly implemented, but only if such measures are limited to modifications within conserved habitat areas or to the conservation plan's operating conservation program for the affected species and such measures maintain the original terms of the conservation plan to the maximum extent possible. Additional conservation and mitigation measures will not involve the commitment of additional land, water or financial compensation or restrictions on the use of land, water (including quantity and timing of delivery), or other natural resources otherwise available for development or use under the original terms of the conservation plan, without the consent of the Permittees.

Thus, in the event that Unforeseen Circumstances adversely affect any of the LOHCP Covered Species during the life of the plan, the Permittees, Third Parties granted take authorization and other participating entities would not be required to provide additional financial compensation, land or land restrictions beyond those required by the LOHCP at the time of issuance of the Section 10(a)(1)(B) Take Authorization without their consent, except as provided for in Changed Circumstances as described in Section 11.3.

In light of the LOHCP's Adaptive Management and Monitoring Plan, which allows certain changes to occur throughout the life of the Plan, it is necessary to clarify what aspects of the conservation program are subject to the "No Surprises" rule and for which, therefore the USFWS may not require additional mitigation as a result of Unforeseen Circumstances without the consent of the Permittees. Adaptive management allows the LOHCP to be revised as a result of new information on the life history or ecology of Covered Species generated through continuing research or information on the effectiveness of mitigation measures, and as a result of the monitoring programs.

As a result, revisions may be made to several of the conservation components, including the technical aspects of mitigation land management and enhancement, implementation of Incidental Take Minimization Measures and monitoring of Covered Species.

However, pursuant to the "No Surprises" Rule, the Permittees and the USFWS agree that the following LOHCP components are not subject to modification as a result of the LOHCP's adaptive management provisions without the consent of the Permittees and the USFWS, except for those projects that constitute an action authorized, funded or carried out by a federal agency which are exempt from such assurances:

1. The estimates of conservation of private land as described in Chapter 6.
2. The permitted activities described in Chapter 5.
3. The LOHCP Preserve funding plan as described in Chapter 8.
4. The minimization and mitigation measures imposed on Third Parties granted take authorization where the Permittees have already granted final project approvals unless the Third Party agrees to such additional conservation measures.
5. Any other change not currently described in this Plan that would significantly increase the Plan's costs or diminish the interests in land of the Permittees, or any landowner in the LOHCP Plan Area.

11.3 CHANGED CIRCUMSTANCES

The "No Surprises" assurances apply to "Unforeseen Circumstances," which are defined above. However, another category of circumstances under the "No Surprises" regulations is "changed circumstances," which are defined as "changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the USFWS and that can be planned for (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events)." Accordingly, actions to be taken for certain categories of changed circumstances under the LOHCP are described below.

11.3.1 Listing of New Species

If a new species that is not covered by the LOHCP but that may be affected by activities covered by the LOHCP (Covered Activities, as specifically described above), is listed under the federal ESA during the term of the federal incidental take permit, the permit will be reevaluated by the USFWS and the LOHCP's covered activities may be modified as necessary to ensure that those activities are not likely to jeopardize or result in the take of or adverse modification of the designated critical habitat, if any, of the newly listed species. The Permittees shall implement the modifications to the LOHCP's covered activities identified by the USFWS as necessary to avoid the likelihood of jeopardy to or take or adverse modification of the designated critical habitat of the newly listed species. The Permittees shall continue to implement such modifications until such time as the Permittees have applied for and the USFWS has approved an amendment to the permits, in accordance with applicable statutory and regulatory requirements, to cover the newly listed species or until the USFWS notifies the Permittees in writing that the modifications to the LOHCP's covered activities are no longer required to avoid the likelihood of jeopardy to, take of, or adverse modification of the designated critical habitat, if any, of the newly listed species.

11.3.2 Availability of New Scientific Information

If a species covered under the LOHCP becomes delisted under the federal ESA during the term of the federal incidental take permit, the permit holder must mitigate and minimize the impacts of the action to the covered species up to the date that the species was delisted. In addition, the permit holder has the option of doing one of two things:

- 1) He or she can either keep the permit for assurance in case the species becomes re-listed; or
- 2) He or she can terminate the permit early (through a written request to the Service), but complete the mitigation and minimization and funding measures that are still due to mitigate the impacts of the action. This termination mitigation is found in our regulations: 50 CFR part 17.22 (a)(7).” (per personal contact, Jen Lechuga)

See the Adaptive Management Strategy in Section 7.1.2 for additional information.

11.3.3 Changes in the Environmental Baseline

This changed circumstance would be invoked when the LOHCP’s goals and objectives are not being met as a result of anticipated changes in the environmental baseline for the Covered Species. It will be addressed by implementing additional conservation measures that are necessary to address the changed environmental baseline while still meeting the LOHCP’s original goals and objectives. It should be noted that changes in the environmental baseline involve actions that are not under the control of the LOHCP’s Permittees.

Projects that have been approved by the County or the LOCSD and have participated in the LOHCP prior to this changed circumstance will have already received coverage for impacts to Covered Species and would not be subject to the additional measures, if any. However, development projects that are implemented after this changed circumstance has been determined to have significantly affected the environmental baseline for the Covered Species would be subject to the mitigation measures described within the conservation strategies for the Covered Species as well as any additional measures.

11.3.4 Problems in Implementing the LOHCP

Certain types of problems may develop during implementation of the LOHCP. These could include funding deficiencies, possible lack of effectiveness in some of the plan's mitigation approaches and lands, deficiencies in certain aspects of the plan's monitoring program, and problems in coordinating the activities of the participating agencies. These types of changed circumstances are addressed in Chapter 7, Monitoring and Reporting, and Chapter 8, Funding.

11.3.5 Short-Interval Return Fire

For the purpose of defining Changed Circumstances, short-interval return fire is defined as fire occurring in the same location as a previous fire within the same footprint no more than once in a 5-year period within the LOHCP Preserve.

If a short-interval return fire occurs within the LOHCP Area as defined above, the Permittees will notify the Wildlife Agencies of this Changed Circumstance. The Permittees will assess the damage caused by the short-interval return fire and initiate the following actions:

- Develop and implement a monitoring program to monitor natural re-growth within the damage area for a period of up to two years.
- If, after two years, it is determined that natural re-growth is not occurring and that such absence of natural re-growth will adversely affect Covered Species, an action plan will be

developed and implemented; the action plan will involve efforts to improve habitat conditions.

- Implement response measures through the adaptive management policies.

11.4 MODIFICATIONS AND AMENDMENTS TO THE LOHCP

LOHCP modifications and amendments are not anticipated on a regular basis. However, certain events may trigger modifications or minor or major amendments to the LOHCP. Any signatory to the IA may seek a modification or amendment to the LOHCP.

11.4.1 Clerical Changes

Clerical changes to the LOHCP can be made by the Permittees on their own initiative or in response to a written request submitted by one of the participating agencies, which includes documentation supporting the proposed clerical change. Clerical changes shall not require any amendment to the LOHCP, the Permits or the IA. Clerical changes include corrections of typographical, grammatical, and similar editing errors that do not change the intended meaning and corrections of any maps or exhibits to correct insignificant errors in mapping. The Parties to the IA anticipate that most clerical changes to the LOHCP will occur during the first ten (10) years of the Permits. The annual report shall include a summary of clerical changes made to the LOHCP in the preceding calendar year.

11.4.2 Land Use Changes

The Parties to the IA agree that the granting of land use entitlements by the County and the adoption of or amendments to the Estero Area Plan, any specific plans, and zoning ordinances are matters within the sole discretion of the County and shall *not* require amendments to the LOHCP, IA or the approval by the Parties to the IA, and by themselves are not actions subject to Federal Register publication and NEPA compliance. However, the Parties agree that: (1) no such action by the County shall in any way alter or diminish their respective obligations under the IA or the LOHCP and (2) approval of projects not covered by the Section 10 permit(s) and that violate the ESA could lead to the revocation or suspension of the Section 10 permit.

11.4.3 Adaptive Management Changes

Except as otherwise provided, changes to minimization, mitigation, compensation and LOHCP Preserve management developed through and consistent with the adaptive management described in Sections 7.1.2 and 7.1.3 of this document shall not require any amendment to the LOHCP, the IA or the Permit.

11.4.4 Minor Amendments

Minor Amendments are amendments to the LOHCP of a minor or technical nature where the effect on Covered Species, level of Take and Permittees' ability to implement the LOHCP are not significantly different than those described in the LOHCP as originally adopted. Minor Amendments to the LOHCP shall not require amendments to the IA or the Permits.

11.4.4.1 List of Minor Amendments

The following are contemplated as Minor Amendments to the LOHCP and the Permit and therefore, will be administratively implemented pursuant to the procedures below. Minor Amendments may include, but are not limited to, the following:

1. Corrections of typographic, grammatical, and similar editing errors that do not change the intended meaning;
2. Correction of any maps or exhibits to correct errors in mapping or to reflect previously approved changes in the permit or LOHCP;
3. Minor revisions to survey, monitoring, reporting and/or management protocols that clearly do not affect Covered Species or overall LOHCP Preserve functions and values;
4. Any change that is minor and that has no significant impacts according to the LOCSO, County, and USFWS.

11.4.4.2 Procedure

Any Party to the IA may propose Minor Amendments to the LOHCP or the IA by providing written notice to all other Parties. Such notice shall include a description of the proposed Minor Amendment, an explanation of the reason for the proposed Minor Amendment, an analysis of its environmental effects including any impacts to the Conservation of Covered Species and a description of why that Party believes the effects of the proposed Minor Amendment:

- A. Are not significantly different from, and are biologically equivalent to, the terms in the LOHCP as originally adopted;
- B. Substantially conform to the terms in the LOHCP as originally adopted; and
- C. Will not significantly reduce the ability to acquire the additional lands.

The participating agencies shall submit any comments on the proposed Minor Amendments in writing within sixty days of receipt of such notice. If the participating agencies do not concur with the analysis supporting the Minor Amendment, the project will be subject to a Major Amendment. If the participating agencies concur, or if they fail to respond within the 60-day period, the Minor Amendment will be implemented.

11.4.5 Major Amendments

Major Amendments are those proposed changes to the LOHCP and the Permits that are not modifications or Minor Amendments as described above. Major Amendments to the LOHCP shall require a subsequent amendment to the IA and the Permit, and public notice as required by applicable laws and regulations. The Permittees shall submit any proposed Major Amendments to all of the Parties of the IA.

11.4.5.1 List of Major Amendments

Major amendments are, but are not limited to, any of the following:

- A. All amendments not contemplated in the IA as modifications or Minor Amendments to the LOHCP, except subsequent minor changes which are not specifically listed as a Minor Amendment in the IA that the USFWS determines to be insubstantial and/or otherwise appropriate for implementation as a Minor Amendment;
- B. Changes to the boundary of the LOHCP Plan Area;
- C. Addition of species to the Covered Species list; and
- D. Changes in anticipated LOHCP Preserve assembly or funding strategies and schedules that would have substantial adverse effects on the Covered Species.

11.4.5.2 Procedure

Major Amendments shall require the same process followed for the original LOHCP approval. A Major Amendment will require an amendment to the LOHCP and the IA addressing the new circumstances, subsequent publication and public notification, NEPA compliance and intra-Service Section 7 Consultation, if one is deemed necessary. Major Amendments shall be subject to review and approval by the Permittees and the other Parties to the IA, as appropriate, at noticed public hearings. The wildlife agencies will use reasonable efforts to process proposed Major Amendments within one hundred twenty days after publication.

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Memorandum of Understanding for the Preparation of the Los Osos Habitat Conservation Plan

This Memorandum of Understanding (MOU) regarding the Los Osos Habitat Conservation Plan (LOHCP) is entered into as of _____ by and among the County of San Luis Obispo (County), the Los Osos Community Services District (LOCSD), the United States Fish and Wildlife Service (USFWS), the California Department of Fish and Game (DFG), and the California Coastal Commission (collectively the "Participating Agencies"). If this MOU is entered into, the next step will be for the Participating Agencies to negotiate and agree on their responsibilities in planning and carrying out the provisions of the LOHCP. At this time, none of the parties agree to enter into an Implementing Agreement, but do agree to discuss the requirements of both the LOHCP and the subsequent Implementing Agreement.

The LOHCP is a voluntary program (applicants for development will have the option to participate in the LOHCP or prepare their own Habitat Conservation Plan) and a collaborative effort between local and state government, federal and state wildlife agencies, and landowners. The LOHCP is a broad planning tool used to achieve long-term conservation goals for listed and unlisted species and their habitats, while enabling development of certain land uses. The LOHCP is intended to facilitate more efficient and comprehensive conservation land-use planning and regulation, facilitate the implementation of various state and federal requirements, and reduce regulatory uncertainty.

Los Osos contains valuable biological resources, including endemic, threatened and endangered species, and sensitive habitat. The primary purposes of the LOHCP are to: (1) develop an approved Habitat Conservation Plan thereby allowing issuance of federal and state incidental take permits (Section 10(a)(1)(B) of the federal Endangered Species Act of 1973 as amended (ESA) and Section 2081 of the California Endangered Species Act (CESA)) to the LOCSD and the County and (2) to provide for a coordinated conservation strategy that meets the requirements of the federal Coastal Zone Management Act (CZMA) of 1972, the California Coastal Act of 1976, and the San Luis Obispo Local Coastal Program (SLOLCP) by effectively protecting Environmentally Sensitive Habitat Areas (ESHAs). It is anticipated that the LOHCP will be necessary for adoption of and form the basis for a comprehensive amendment to the Estero Area Plan of the SLOLCP submitted to the California Coastal Commission by the County of San Luis Obispo.

1. LOHCP GOALS

The LOHCP will identify the impacts to covered-species and their habitats and provide steps to avoid, minimize, and mitigate such impacts to and thereby achieve recovery of the covered-species. The overall goals of LOHCP are to:

- 1.1 Maintain the diversity of natural biological communities native to the region, and conserve viable populations of native species including endangered, threatened, and key sensitive species and their habitats, thereby preventing species extinction and contributing to the recovery of stable and self-sustaining populations of said species and the ecological processes they depend on.
- 1.2 Protect our quality of life by maintaining natural biological diversity.

- 1.3 Create greater certainty for economic and urban development by establishing a legal and procedural framework that streamlines the permitting process, provides a reliable basis for economic decision-making, and directs and encourages development and investment into the least environmentally sensitive areas.

2. LOHCP BENEFITS

The LOHCP will seek to provide the following benefits:

- 2.1 California Environmental Quality Act (CEQA) compliance for the Los Osos sewer mitigation measures.
- 2.2 Permit streamlining to facilitate compliance with the conservation requirements of the ESA, CESA, the CZMA, the California Coastal Act, the SLOLCP, and the environmental review processes of CEQA and the National Environmental Policy Act (NEPA).
- 2.3 Preserve plants, wildlife, and the habitats upon which they depend as part of a permanently protected ecosystem and thereby be consistent with the SLOLCP and Estero Area Plan.
- 2.4 Allow projects within the community to fulfill ACT and CESA requirements for certain species and the habitats upon which they depend through compliance with the LOHCP.
- 2.5 Provide the basis for a comprehensive habitat protection implementation strategy to be incorporated into the SLOLCP.
- 2.6 Maintaining the area's scenic beauty, natural biological diversity, and recreational opportunities, which are of local, state and federal importance.

3. PURPOSE OF THIS MEMORANDUM OF UNDERSTANDING

The purpose of the MOU is to identify the responsibilities of the Participating Agencies in the planning and preparation of the LOHCP.

4. PLANNING AREA

The Planning Area to be covered by the LOHCP is the unincorporated community of Los Osos, which is located on the central coast of California in the San Luis Obispo County coastal zone. The Planning Area borders the Morro Bay Estuary to the west, Morro Bay State Park to the north, Los Osos Creek to the east, and Montana de Oro State Park to the South. (See attached map.)

5. PARTICIPATING AGENCIES' RESPONSIBILITIES

Successful planning and preparation of the LOHCP requires coordination between the Participating Agencies as follows.

- 5.1 The Participating Agencies will coordinate in the development of the LOHCP within and consistent with the provisions of the ESA and CESA, such as critical habitat, habitat conservation, recovery plan requirements, and the requirements of the CZMA, California Coastal Act and SLOLCP, as applicable.
- 5.2 The Participating Agencies will continue to coordinate and review development within the Planning Area prior to the implementation of the LOHCP, taking into account the benefits of maintaining options for a viable preserve system by avoidance, minimization, and compensation for impacts on wildlife.

- 5.3 The Participating Agencies will develop a process for public education, outreach, and scientific review pursuant to the recommendations provided in the Habitat Conservation Planning Handbook (USFWS 1996) and its Final Addendum (USFWS 2000).
- 5.4 The Participating Agencies will review and comment on the LOHCP, as applicable.
- 5.5 The Participating Agencies agree to develop LOHCP implementation measures in a manner such that it could be submitted as an amendment to the Estero Area Plan of the SLOLCP, consistent with the California Coastal Act.

In addition to the above, the Participating Agencies agree that:

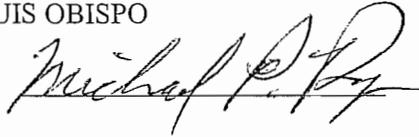
- 5.6 Because the LOHCP is required mitigation under CEQA for the Los Osos sewer project, the LOCSO is responsible for drafting the proposed LOHCP and the Implementing Agreement, both of which should meet applicable legal requirements.
- 5.7 Because the County has land use authority over the Planning Area, the County is a co-applicant with the LOCSO for the incidental take permits (Section 10(a)(1)(B) of the ESA and Section 2081 of the CESA).
- 5.8 The USFWS, the DFG, and the California Coastal Commission agree to cooperate with the County and the LOCSO in identifying and securing, where appropriate, federal and state funds earmarked for habitat conservation planning purposes.
- 5.9 None of the Participating Agencies shall incur fiscal obligation under this MOU.
- 5.10 Final adoption and approval of the LOHCP and IA is subject to the review and approval of all Participating Agencies.

V. SIGNATURES

Any Participating Agency may become a Party to this Memorandum of Understanding by executing it. This agreement may be signed in counterparts, and is hereby effective with the following signatures:

Dated: 7/8/03, 2003

COUNTY OF SAN LUIS OBISPO

By: 

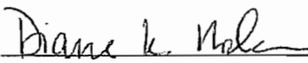
Dated: 3/13, 2003

LOS OSOS COMMUNITY SERVICES DISTRICT

By: 
General Manager

Dated: June 17, 2003

US FISH AND WILDLIFE SERVICE

By: 
Field Supervisor

Dated: _____, 2003

CALIFORNIA DEPARTMENT OF FISH AND GAME

By: _____

Dated: _____, 2003

CALIFORNIA COASTAL COMMISSION

By: _____

DEFINITIONS

Assurances: Mutual agreements and covenants contained in the MOU, which bind the parties to, specified actions and provide each party with benefits. The benefits include, for example, authorization for incidental take of species in accordance with the HCP, and conservation of species resulting from actions to implement the plan.

Authorizations: Permits for incidental take of species in accordance with the HCP.

Biodiversity: Species do not live in a vacuum. They exist in a "community" and are dependent upon the many elements of the community. Biodiversity is recognition of the interdependence of species, and the need to protect larger ecosystems and the variety and abundance of life within them, in order to protect the individuals.

California Native Plant Society (CNPS) Designations:

List 1A: Plants presumed extinct in California.

List 1B: Plants rare and endangered in California and throughout their range.

List 2: Plants rare, threatened or endangered in California but more common elsewhere in their range.

List 3: Plants about which we need more information; a review list.

List 4: Plants of limited distribution; a watch list.

California Native Plant Society R-E-D Code:

Rarity

- 1: Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time.
- 2: Occurrence confined to several populations or 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

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

Distribution

- 1: More or less widespread outside California.
- 2: Rare outside California.
- 3: Endemic to California (i.e., does not occur outside California).

California Special Concern Species: It is the goal and responsibility of the Department of Fish and Game to maintain viable populations of all native species. To this end, the Department has designated certain vertebrate species as "Species of Special Concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating species as "Species of Special Concern" is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long term viability. Not all "Species of Special Concern have declined equally; some species may be just starting to

decline, while others may have already reached the point where they meet the criteria for listing as a "Threatened" or "Endangered" species under the State and/or Federal Endangered Species Acts.

Carrying Capacity: This concept is used in wildlife management as a standard for measuring the impact of land use and development on the environment. Ecosystems have a limited capacity for development. The more development is designed to work within the system (natural landscaping, appropriate drainage, etc) the greater the system's carrying capacity.

Conserve: To keep from loss, decay or depletion; maintain, protect. Conservation and preservation are similar terms and are used in much the same way. Preservation connotes the act of securing the land and its values, whereas conservation generally is broader and includes activities such as management of the land and its resources.

Conservation: As defined in the federal Endangered Species Act, the use of all methods and procedures which are necessary to bring any endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary; such measures and procedures include, but are not limited to, all activities associated with scientific resource management such as research, census, law enforcement, habitat acquisition and management, propagation, live trapping and transportation, and in rare cases, regulated taking (ESA, Section 3[3]). In this plan, conservation also applies to all actions related to providing a viable habitat preserve system in the City.

Core: A component of the preserve system established under the HMP, consisting of large blocks of conserved habitat capable of sustaining species over time. (Also see HCP Cores).

Corridor: A defined tract of land, usually linear, through which a species must travel to reach habitat suitable for reproduction and other life-sustaining needs.

Covered Species: A species for which take authorization would be provided because long-term viability was determined to be adequately maintained under the HCP preserve design. The federal action addressed in this document is the issuance of incidental take permits from all species on the covered species list whether they currently are listed or are listed in the future.

Critical Habitat: An area that must be conserved substantially for that species to be adequately conserved by the HCP. Critical habitats often coincide with major populations, but not all-major populations are considered critical.

Ecosystem: Ecology is the science of the relationships between organisms and their environment. An ecosystem includes both the organisms and their requisite environment.

Endangered Species: Any plant or animal in danger of extinction in all or a significant part of its range.

Endangered Species Act: Federal Act of 1973, as amended 16 U.S.C. Sections 1531-1543; and California Act of 1984, as amended, California Fish and Game Code, Sections 2050-2098.

Extraordinary Circumstances: Events beyond the control of the parties to the Implementation Agreement, which would trigger a reevaluation of the Authorizations and Assurances pursuant to the No Surprises Policy.

Focus Planning Areas: An area that incorporates the lands of high biological value that will be considered for conservation or development as part of this plan.

Fully protected and Protected: Fully protected and Protected species may not be taken or possessed without a permit from the Fish and Game Commission and/or the Department of Fish and Game. Information on Fully protected species can be found in the Fish and Game Code, (birds at §3511, mammals at §4700, reptiles and amphibians at §5050, and fish at §5515). Information on Fully Protected fish can be found in the California Code of Regulations, Title 14, Division 1, Chapter 2, Article 4, §5.93.

Habitat: The combination of environmental conditions of a specific place occupied by a species or a population of such species.

Harass: A form of incidental take under the federal Endangered Species Act; defined in federal regulations as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering (50 CFR 17.3).

Harm: A form of incidental take under the federal Endangered Species Act; defined in federal regulations as an act that actually kills or injures wildlife. Such acts may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3).

HCP Cores: Areas within the Plan area which consist of blocks of habitat that are sufficiently large to reliably support breeding populations of species, or that are large and intact enough to form ecologically functional areas for preserve design.

Implementing Agreement: A binding legal agreement between the permittee and agencies for incidental take of species in accordance with this plan.

Incidental Take: The taking of a federally listed wildlife species, if such taking is incidental to and not the purpose of carrying out otherwise lawful activities.

Linkage: A component of the preserve system established under the HCP, consisting of conserved habitat that provides connectivity between Cores and to natural communities within the region. Linkages are depicted on Map (Figure).

Major Population: A population considered sufficiently large to be self-sustaining with a minimum of active or intensive management intervention (especially for plants) or that at least support enough breeding individuals to contribute reliably to the overall metapopulation stability of the species (especially for animals). Also includes smaller populations that nonetheless are considered important to long-term species survival.

Metapopulation: A network of semi-isolated breeding populations of a species that have some level of regular or intermittent migration and gene flow among them.

Mitigation: Measures undertaken to diminish or compensate for the negative impacts of a project or activity on the environment, including: (a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or (e) compensating for the impact by replacing or providing substitute resources or environments.

Myotis: Largest and most widely distributed genus of bats.

Narrow Endemic Species: Native species with restricted geographic distributions, soil affinities and/or habitats, and for purposes of the HMP, species that in addition have important populations within the Plan area, such that substantial loss of these populations or their habitat within the HMP area might jeopardize the continued existence or recovery of that species.

Population: A group of individuals of a given species that inhabits a relatively well-defined geographic area and has the opportunity to interbreed freely.

Preserve: As a noun, an area set apart for the protection of wildlife and natural resources. As a verb: to keep in safety; protect from danger or harm; to keep intact or unimpaired; maintain. Preservation and conservation are similar terms and are used in much the same way. Preservation connotes the act of securing the land and its values, whereas conservation generally is broader and includes activities such as management of the land and its resources.

Project(s): Any activity that has biological impacts and is undertaken by the County or involves the issuance of a lease, permit, license, certificate, or other entitlement by the County.

Public Lands: Properties owned by the County or another governmental agency or special purpose district which are being addressed in this plan.

Rare: State-listed as “Rare” animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.

Section 7: A section of the federal Endangered Species Act that provides for a consultation between a federal agency and the U. S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat or such species.

Special Resource Area (SRA): A component of the Focus Planning Areas established under the HCP, consisting of conserved habitat outside of HCP Cores and Linkages; SRAs are limited to areas with vernal pools, significant populations of listed plant species, and movement corridors for large mammals.

Species: Any distinct population of wildlife that interbreeds when mature.

Stepping Stone Linkage: A discontinuous linkage or corridor that consists of a series of habitat patches separated by non-habitat patches. Individuals may move across the linkage by moving from one habitat patch to another. Generally, at least some of the stepping-stones should support some breeding individuals of a species, at least in some years.

Threatened Species: Any species or subspecies that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.