Agenda Item E.1
DISCUSSION/ACTION ITEM
Meeting Date: September 4, 2018

TO: Mayor and Councilmembers

FROM: Peter Imhof, Planning and Environmental Review Director

CONTACT: Anne Wells, Advance Planning Manager

SUBJECT: Ellwood Mesa / Sperling Preserve Draft Monarch Butterfly Habitat Management Plan and 2018 Implementation Plan

RECOMMENDATION:

A. Provide feedback to City staff regarding the Draft Ellwood Mesa/Sperling Preserve Open Space Monarch Butterfly Habitat Management Plan (MBHMP) and accompanying 2018 Implementation Plan (2018 IP).

B. Authorize staff to submit the 2018 IP and an accompanying Coastal Development Permit Application to the California Coastal Commission, consistent with the requirements of the 2017 emergency permit.

BACKGROUND:

Each fall, monarch butterflies (*Danaus plexippus*) in the western United States migrate to the coast of California from various locations throughout western North America. The butterflies arrive at the coast in mid-September and as winter approaches, they form permanent roosts, often called overwintering or wintering colonies. The butterflies remain until about mid-February, when they generally disperse inland.

The eucalyptus groves at the City's Ellwood Mesa Open Space / Sperling Preserve (Ellwood Mesa) were planted by horticulturist Ellwood Cooper in the late 1800s and are called the Ellwood Complex. These groves support overwintering monarchs on a regular basis. Five monarch butterfly overwintering sites occur in the complex – Sandpiper Aggregation, Ellwood North, Ellwood West, Ellwood Main, and Ocean Meadows Roost (Attachment 1, Figure 2 and Attachment 2, Figure 2). The Ellwood Main site historically harbored many overwintering butterflies, consisting of hundreds of thousands of individuals in some years.

Butterfly Habitat Management Plan

The Ellwood Main butterfly aggregation site is a highly treasured community asset, which played an important role in both the incorporation of the City and the City's purchase of

the Ellwood Mesa. The Goleta General Plan / Coastal Land Use Plan (General Plan) reflects how much we value the resource and includes policies devoted to the protection of monarch butterfly habitat areas (Attachment 3). The Ellwood-Devereux Coast Open Space and Habitat Management Plan, adopted by the City in 2004, similarly calls for the protection of butterfly habitat and recommends that the City prepare a Monarch Butterfly Habitat Management Plan (Attachment 3).

In response to this policy direction, the City initiated the Monarch Butterfly Habitat Management Plan process in 2011. Since initiation, the City has conducted annual field surveys and completed extensive public outreach, culminating in the release of a MBHMP in July 2018.

The MBHMP is an overarching, long-term conservation strategy, setting forth the broad objectives, desired outcomes, and management policies for the Ellwood Mesa monarch butterfly habitat. Periodic Implementation Plans (IPs) are required as part of the MBHMP (Policy 1-4) to identify and describe short-term actions needed to further the goals and objectives of the MBHMP. As required under the MBHMP, IPs require City Council authorization before activity commences.

The City intends to evaluate the potential environmental effects of the MBHMP at a programmatic level pursuant to the California Environmental Quality Act (CEQA). Projects that would be implemented under the MBHMP would be detailed in the annual implementation plans. The City would obtain any necessary Coastal Development Permits (CDP) from the CCC for implementation of the projects and actions contained in the annual implementation plans, until the City has a certified Local Coastal Program.

2018 Implementation Plan (Emergency Permit Tree Replacement)

On September 22, 2017, the City submitted a request to the California Coastal Commission (CCC) for an emergency permit to remove 29 dead and dying trees posing a risk to Ellwood Mesa trail users (Attachment 4). To address a larger Ellwood Mesa trail user public safety concern consistent with the direction of the Public Works Director and recommendation of the Joint Powers Insurance Authority (JPIA) and City Attorney, the City also requested authorization to close specific trails with trail closure signage (refer to map of tree removals and trail closures in Attachment 4).

In response to the City's request, the CCC issued an emergency permit (No. G-4-17-0048), dated September 26, 2017, subject to special conditions, including the required tree replacement plan, a trail re-opening strategy, and habitat management strategies. Between September 30 and December 31, the City removed 28 of the 29, authorized, dead and dying trees. During this time, the City installed trail closure signage, consistent with the emergency permit authorization.

A 2018 IP was released with the MBHMP to address the CCC emergency permit special conditions (Attachment 2). The focus of the 2018 IP is a tree replacement plan, including 28 replacement eucalyptus trees. The selected location is at the Ellwood North overwintering site where tree die-off and butterfly count reductions are dramatic. The

2018 IP also includes a strategy for re-opening public trails, the continuation of monarch butterfly population counts, and the installation of educational and safety signs.

The 2018 IP must be reviewed and approved by the CCC staff prior to the City commencing with restoration and trail closure signage removal. The plan will be submitted to the CCC for review following City Council direction. Implementation of the plan requires CCC authorization, as detailed in the emergency permit, and this authorization process is subject to the CCC staff's direction and timing. If the authorization process is a fast turn-around, staff will implement immediately thereafter. If there is a delay or challenges with the approach, staff will return to Council with information and a request for direction, if any is necessary.

Draft MBHMP and 2018 IP Public Outreach

After the release of the Draft MBHMP, staff hosted a stakeholder meeting to review the Draft MBHMP and receive input. Stakeholder feedback was used to inform a public workshop hosted at City Hall on August 16 and a presentation before the Public Tree Advisory Commission on August 22.

Comments and suggestions generally related to modifying the Draft MBHMP to include more citations and an executive summary, expand fire protection actions with more detail and specificity, expand the signage program and related sign information / contact detail, and clarify other details and add specificity wherever possible. Some comments were received in support for native plant habitat restoration as opposed to eucalyptus restoration.

Comments and suggestions related to the 2018 IP were generally in support of the approach to replace trees, with temporary irrigation and monitoring, with eucalyptus at Ellwood North. Additionally, the public was generally in support of replacing trail closure signage with cautionary signs.

Cumulatively, input received along with written comments were consolidated by staff to inform this report and recommendations to Council for plan revisions.

Other Tree-Related Issues

The eucalyptus windrow paralleling the residences along Pebble Beach Drive have historically been subject to maintenance by Southern California Edison (SCE) and Goleta Public Works to reduce tree fall risks on electrical lines and residences respectively. During August 2018, SCE proceeded with a tree pruning and removal project under a CCC emergency permit along the SCE utility line paralleling Ellwood Mesa eucalyptus and residences along Pebble Beach Drive. As such, tree fall risks have been abated under SCE's authority and responsibility as the local utility provider.

DISCUSSION:

The purpose of this staff report is to (1) present Council with the progress and status of the MBHMP and 2018 IP, (2) seek direction with respect to the next steps toward finalizing the plans; and (3) receive direction regarding the submittal of the 2018 IP and an accompanying emergency permit-required follow-up Coastal Development Permit to the CCC as the first step towards implementing the tree replacement plan, required as part of the 2017 emergency permit.

MBHMP Proposed Revisions

The intent of the MBHMP is to maintain and improve habitat conditions to ensure long-term viability of the monarch butterfly population, consistent with General Plan policy direction. The MBHMP outlines a programmatic approach and methods for the City to manage and improve the Ellwood Mesa eucalyptus forest for the benefit of the monarch butterfly, other wildlife, and the public's use and enjoyment.

The MBHMP details 22 programs intended to organize and integrate the diverse aspects of habitat management into an overall plan that can be implemented in a clear and concise manner. Each program identifies individual goals, policies, and actions to establish a well-organized and efficient process leading to a management strategy for the sustainability of monarch habitat at Ellwood Mesa. The programs include implementation priorities, schedules, needs, and contacts for responsible parties, and are organized into the following four categories: administration; natural resource management; outreach; and monitoring, research, and adaptive management.

Considering public feedback, staff suggests revisions to the Draft MBHMP and seeks Council direction in this regard. The revisions proposed by staff are intended to better reflect the City's management approach in the Ellwood Mesa Open Space butterfly habitat and include:

- add detail about historic management practices in the eucalyptus groves as context for future management;
- add detail on fire protection actions and specific methods and locations of work, including tree clearance between 0 feet and 30 feet from structures and selected understory debris pile removal from 30 feet to 100 feet from structures, consistent with the Community Wildfire Protection Plan;
- consider the addition of an action to install fire hydrant connections at the end of public streets;
- clarify fire protection actions in the eucalyptus windrow on the southeast portion of Ellwood Mesa where structures are not present and eliminate actions if supported by Santa Barbara County Fire and California Department of Forestry;
- add actions to underground overhead utilities, if possible, to reduce fire risk and eliminate the need for utility company tree removals/pruning;

- expand the signage program to include Spanish translation, particularly for trail safety and no parking signage, and add no parking signs at emergency access points;
- add a City point of contact to signage;
- add an action to clarify access options and parking for people with mobility limitations;
- add actions to ensure that City and other public advertisement of Ellwood Mesa visitor information will reflect the carrying capacity of trails and protections of wildlife and habitats;
- expand actions to allow for a broader list of eucalyptus species to be planted in future restoration projects;
- clarify that pest control actions are in response to pest infestations, not pests in general;
- clarify that eucalyptus irrigation in the butterfly aggregation sites may occur during drought events to address related tree stress;
- add actions in support of the protection and enhancement of natural eucalyptus recruitment;
- add an action to save some cut tree rounds to be used as benches on site;
- add definitions, references, and footnotes; and,
- include an executive summary.

2018 IP Proposed Revisions

Similarly, staff suggests revisions to the 2018 IP and seeks Council direction in this regard. The revisions proposed by staff include:

- expand the tree replacement approach to include some native understory species, including understory species on the edge of the windrow paralleling the west side of Ellwood North; and
- add an action to replace trail closure signage with cautionary signage, consistent with the City Attorney and JPIA recommendations.

Submittal of the 2018 IP to the CCC

Staff seeks Council authorization to submit the revised 2018 IP and an accompanying emergency permit-required follow-up Coastal Development Permit to the CCC staff for review and input. After CCC review and approval, staff will proceed with implementing the plan, as required by the CCC. As previously stated, staff will return to Council for review and input, if the timeline of the CCC staff review is extended beyond 2018 or if the CCC requests a modified restoration location, altered restoration approach, or altered trail signage approach.

NEXT STEPS:

The next step in the MBHMP adoption process is to complete the revisions, subject to City Council approval, conduct environmental review, seek public feedback and Planning Commission recommendation, concluding with Council's review and adoption of the MBHMP and environmental review. Once approved, implementation actions would commence on a case-by-case basis and subject to any necessary permitting and City Council authorization to proceed.

If authorized by Council, staff will submit the emergency permit-required Coastal Development Permit application and the 2018 IP to the CCC staff for review. If approved by CCC, City staff will replace trail closure signage with warning signs and commence with restoration implementation at Ellwood North next to the parking lot on Hollister Avenue. All activity will be monitored and documented, as required under the 2018 IP and consistent with the CCC's authorization. Long-term success monitoring and reporting will also be conducted, as required under the 2018 IP. Because the CCC is exempt from the California Environmental Quality Act, environmental review is not typically required. In the unlikely event that it is requested, the City will prepare any necessary analysis and documentation to support the CCC's permit requirements for emergency permit.

FISCAL IMPACTS:

The estimated cost for 10 years of implementation of the MBHMP is $2,460,000 and 37,000 staff hours. Funding for implementation of the MBHMP will be drawn from a variety of sources, which may include grants, donations, mitigation fees, and the City's General Fund. On June 29, 2018, the Governor approved the California state budget for the 2018–2019 Fiscal Year. The budget includes a provision allocating $3,900,000 to the City for management and restoration of the monarch butterfly habitats on Ellwood Mesa. The state funds will be maintained in an account separate from other City funds, and they will be used only for actions to restore, enhance, manage, and monitor butterfly habitats on Ellwood Mesa. In the near-term, this funding will be instrumental in getting the MBHMP's programs operational and in addressing some of the imminent habitat issues that presently face the grove.

Reviewed By:	**Legal Review By:**	**Approved By:**
Carmen Nichols	Michael Jenkins	Michelle Greene
Deputy City Manager	City Attorney	City Manager

Attachments

1 Draft Ellwood Mesa / Sperling Preserve Open Space Monarch Butterfly Habitat Management Plan

2 Draft Ellwood Mesa / Sperling Preserve Open Space Monarch Butterfly Habitat Management Plan 2018 Implementation Plan

3 Habitat Management Plan Guiding Policy

4 California Coastal Commission Emergency Permit No. G-4-17-0048 and City Emergency Permit Application

Attachment 1:

Draft Ellwood Mesa / Sperling Preserve Open Space Monarch Butterfly Habitat Management Plan

Draft Ellwood Mesa/Sperling Preserve Open Space Monarch Butterfly Habitat Management Plan

CITY OF GOLETA

Draft
Ellwood Mesa/Sperling Preserve Open Space Monarch Butterfly Habitat Management Plan

July 2018

Prepared by:

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Approved by Resolution No. CC-18-XX
July 2018

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Cover photograph of monarch butterflies on Ellwood Mesa by Charis van der Heide.

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EXECUTIVE SUMMARY

This Ellwood Mesa/Sperling Preserve Open Space Monarch Butterfly Habitat Management Plan (MBHMP) outlines the programmatic approach and methods for the City of Goleta (City) to manage and improve the Ellwood Mesa eucalyptus forest for the benefit of the overwintering behavior of the monarch butterfly (*Danaus plexippus*), other wildlife, and the public's use and enjoyment.

Two key local policy documents drive the protection of the monarch butterfly: the Goleta General Plan/Coastal Land Use Plan (General Plan; City of Goleta 2006) and The Ellwood-Devereux Coast Open Space and Habitat Management Plan (Open Space Plan; City of Goleta et al. 2004). These policy documents provide an important context for this MBHMP.

The 22 programs detailed in this MBHMP organize and integrate the many diverse aspects of habitat management into an overall plan that can be implemented in a clear and concise manner. Each specific program identifies individual goals, policies, and actions to establish a well-organized and efficient process leading to a management strategy for the sustainability of monarch habitat at Ellwood Mesa. The programs are followed by implementation priorities, schedules, needs, and contacts for those responsible for the implementation.

The 22 programs are organized into four categories: Administrative Programs; Natural Resources Management Programs; Outreach Programs; and Monitoring, Research, and Adaptive Management Programs.

- The nine Administrative Programs are designed to assist the City with and inform the many MBHMP stakeholders of the details regarding implementation of the MBHMP.
- The seven Natural Resources Management Programs articulate the goals, policies, and actions necessary to maintain and improve the many important natural resources, including biological diversity and ecosystem functions associated with the Ellwood Mesa eucalyptus groves and the monarch butterfly aggregation sites they support.
- The three Outreach Programs are designed to provide information for visitors, educators, and students to help develop a broad appreciation for natural resources and local natural heritage, with a focus on monarch butterflies.
- The three Monitoring, Research, and Adaptive Management Programs provide a mechanism for assessing environmental conditions and conducting original studies to help understand the ecology of monarch butterflies, particularly at Ellwood Mesa. Information obtained from these programs and other sources can be used to adapt the MBHMP in response to additional information or changing conditions.

With adoption and implementation of this MBHMP, the City will fulfill a major commitment to the natural resources of Ellwood Mesa and its residents, and to all those committed to the conservation of monarch butterflies.

Funding for implementation of the MBHMP will be drawn from a variety of sources, which may include grants, donations, mitigation fees, and City funds. On June 29, 2018, the California state budget for the 2018–2019 fiscal year was approved and included a provision allocating 3.9 million dollars to the City for management and restoration of the monarch butterfly habitats on Ellwood Mesa. The state funds will be maintained in an account separate from other City funds, and they will be used only for actions to restore, enhance, manage, and monitor butterfly habitats on Ellwood Mesa. In the near-term, this funding will be instrumental in getting the MBHMP's programs operational and in addressing some of the imminent habitat issues that presently face the grove.

INTRODUCTION

BACKGROUND

Monarch butterfly (*Danaus plexippus*) use of the eucalyptus groves on Ellwood Mesa in the City of Goleta (City), California has inspired many citizens over the years to help in the preservation and conservation of this important natural phenomenon. These eucalyptus groves occur in the City-owned Ellwood Mesa/Sperling Preserve Open Space (Ellwood Mesa Open Space or Ellwood Mesa) (Figure 1).

Over-wintering monarch butterfly aggregations in Ellwood Mesa groves have numbered in the tens of thousands during some years, making Ellwood Mesa one of the most important sites for monarch butterflies in California. Each fall, monarch butterflies in the western United States migrate to the coast of California from various locations throughout western North America. The butterflies arrive at Ellwood Mesa in mid-September and, as winter approaches, cluster into aggregation roosts, often called overwintering or wintering colonies. The butterflies remain until about mid-February, when they generally disperse inland.

The eucalyptus groves at Ellwood Mesa are called the Ellwood Complex. As shown on Figure 2, six monarch butterfly over-wintering sites occur in the complex: Sandpiper, Ellwood North, Ellwood West, Ellwood Main, Ellwood East, and Ocean Meadows. The Ellwood East site is not within the Ellwood Mesa Open Space and is therefore outside the scope of this Monarch Butterfly Habitat Management Plan (MBHMP); however, it is included for context. The Ellwood Main site is located along Devereux Creek and is the primary aggregation site for over-wintering butterflies in Ellwood Mesa.

Information and data regarding the condition of the butterfly population and groves—as well as trends in butterfly health, number, and behavior—were compiled over the last several years through a collaborative effort between City staff and the City's consultants—Althouse and Meade, Rincon Consultants, and Agri-Turf Supplies, Inc. Tracking butterfly numbers at Ellwood aggregation sites has been an ongoing effort that began in 1989 and has been maintained by the City since the City's incorporation in 2002. A Habitat Assessment was completed for Ellwood Mesa in 2013 to document the habitat conditions and health of the eucalyptus groves on the mesa (Althouse and Meade, Inc. 2013). In 2017, during the 5-year drought, the condition of the eucalyptus trees was assessed at the aggregation sites, and tree mortality was determined throughout Ellwood Mesa. The development of management priorities was an expanded effort between City staff, the consultant team, the City's monarch butterfly docents, and members of the public.

The monarch butterfly populations at Ellwood Mesa and in California statewide have been in decline for several years. The monarch butterfly is listed on the California Department of Fish and Wildlife's (CDFW) Special Animals List, with overwintering roosts designated as imperiled to vulnerable in the state (CDFW 2017). Currently, the species is under federal review for potential listing under the Endangered Species Act (ESA), and the U.S. Fish and Wildlife Service (USFWS) plans to make its determination of whether this species warrants ESA listing by June 30, 2019.

Figure 1. Vicinity Map

Figure 2. Monarch Butterfly Aggregation Sites

Photo 1. Monarch Butterfly (*Danaus plexippus*) Aggregation on Blue Gum (*Eucalyptus globulus*)

POLICY

Two key local policy documents drive the protection of the monarch butterfly: the Goleta General Plan/Coastal Land Use Plan (General Plan; City of Goleta 2006) and The Ellwood-Devereux Coast Open Space and Habitat Management Plan (Open Space Plan; City of Goleta et al. 2004). These policy documents provide an important context for this MBHMP. Additionally, the City's Community Wildfire Protection Plan (CWPP) was used as a key reference. A summary of related policies and/or actions is provided below.

Goleta General Plan/Coastal Land Use Plan – Conservation Element

Monarch butterfly overwintering sites are considered Environmentally Sensitive Habitat Areas (ESHAs) under the Coastal Act because the occupied groves meet the definition of an ESHA in Section 30107.5 of the California Coastal Act. An ESHA is defined as follows:

> 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.

As such, autumnal and overwintering sites are protected by the Coastal Act and the General Plan. Specifically, the General Plan protects monarch butterflies and associated habitat via General Plan Conservation Element Policy 4, Protection of Monarch Butterfly Habitat Areas. The objective of the policy is as follows:

> To preserve, protect, and enhance habitats for monarch butterflies in Goleta, including existing and historical autumnal and winter roost or aggregation sites, and promote the long-term stability of over-wintering butterfly populations.

The definition of butterfly habitat is documented in subpolicy CE 4.1, Definition of Habitat Area, as follows:

> …Sites that provide the key elements essential for successful monarch butterfly aggregation areas and are locations where monarchs have been historically present shall be considered ESHAs. These elements include stands of eucalyptus or other suitable trees that offer shelter from strong winds and storms, provide a microclimate with adequate sunlight, are situated near a source of water or moisture, and that provide a source of nectar to nourish the butterflies.

Additional subpolicies pertaining to the protection of this important local resource are provided in Policy CE 4 of the General Plan Conservation Element and were used to guide the preparation of this MBHMP.

Ellwood Mesa Open Space Plan

The 230-acre Ellwood Mesa is part of a 652-acre contiguous open space along the Ellwood-Devereux Coast that is managed by the City, the County of Santa Barbara, and the University of California, Santa Barbara (UCSB). In March 2004, these three agencies released The Ellwood-Devereux Coast Open Space and Habitat Management Plan (City of Goleta et al. 2004). The sections of the plan applying to the Goleta properties (referred to as the Ellwood Mesa Open Space Plan) were adopted by the Goleta City Council on June 24, 2004.

The Ellwood Mesa Open Space Plan establishes the following goal and policies that guide the management actions related to the monarch butterfly and supporting habitat:

> **Monarch Goal 1.** Protect and maintain existing monarch butterfly populations in the Open Space Plan Area, and manage the habitats to be self-sustaining.
>
> > **Monarch Policy 1.** Manage public access to protect butterflies and their habitat, while promoting public enjoyment, education, and scientific research.
> >
> > **Monarch Policy 2.** Conduct scientifically sound studies using appropriate and cautious methods to maintain and improve habitat conditions to ensure long-term viability of the population.
> >
> > **Monarch Policy 3.** Implement phased habitat improvements using pilot programs, small-scale projects, and adaptive management.

Additional overarching management goals and policies are provided in the Ellwood Mesa Open Space Plan and were used to guide the preparation of this MBHMP.

Community Wildfire Protection Plan

The City's CWPP was adopted by the City Council on March 20, 2012. The purpose of the CWPP is to enhance community wildfire protection by identifying fire hazard treatments that are in balance with sustainable ecological management and fiscal resources. The CWPP presents design standard recommendations for fuel treatments specific to areas near butterfly aggregation sites that are intended to minimize adverse effects on adjacent habitat while reducing hazardous fuels. Key recommendations focus on the coordination between butterfly and wildland fire experts during planning and implementation of fuel treatment strategy prescriptions. The CWPP was used during the preparation of this MBHMP, and this MBHMP is intended to support implementation of the CWPP, which is further discussed in detail in Program 4. (City of Goleta 2012.)

PURPOSE

The purpose of the MBHMP is to provide a programmatic approach to management of the habitats that support the monarch butterfly seasonal aggregation areas at the Ellwood Mesa Open Space. The intent of the management approach is to maintain and improve habitat conditions to ensure long-term viability of the monarch butterfly population. The 22 programs detailed in this MBHMP organize and integrate the many diverse aspects of habitat management into an overall plan that can be implemented in a clear and concise manner.

METHODS

This MBHMP is the result of careful consideration of existing information, site surveys, inventory, and assessment of tree health within the groves, consultation with a broad array of professionals and citizens, and discussions with City staff. The City collaborated with Althouse and Meade, Inc. and Rincon Consultants in the preparation of this MBHMP. This MBHMP is composed of 22 programs, each of which contains a goal, one or more policies, and one or more actions associated with each policy. Information on program status, needs, and contacts are also included, as well as general priority and schedule information and an annual cost estimate (Appendix 1). A main focus of each program is to establish an implementation structure with targets to achieve and mechanisms for ongoing and future achievements. The scope of this MBHMP includes monarch butterfly habitat in the City's Ellwood Mesa Open Space, including aggregation sites, forest areas, and nectaring locations (refer to Figure 1 for a vicinity map and Figure 2 for a map of the butterfly aggregation sites).

For the purposes of this MBHMP, the following definitions apply:

Program: a planned series of activities.

Goal: a broad statement of program intentions.

Policy: a set of plans or actions agreed upon by the interested parties.

Action: the process of doing something to achieve a goal.

This MBHMP for the Ellwood Mesa Open Space is organized into four categories: Administrative Programs; Natural Resource Management Programs; Outreach Programs; and Monitoring, Research, and Adaptive Management Programs. These programs—including their goals, policies, actions, implementation priorities, and schedules—are described in the sections that follow.

A. ADMINISTRATIVE PROGRAMS

Administrative programs are designed to assist the City and inform the many MBHMP stakeholders of the details regarding implementation of the MBHMP. Identifying specific programs and their goals, policies, and actions enables a well-organized and efficient process to be established that leads to a management strategy for the sustainability of monarch habitat at Ellwood Mesa.

It is the City's intent that the goals and policies of this MBHMP should be considered and incorporated into future land use planning and policy documents, such as General Plan amendments and a Local Coastal Program, as appropriate, as these documents are developed.

1. Municipal Management Program

Overview: This program focuses on the role of the City as manager of the Ellwood Mesa Open Space and in particular the role of the City in the implementation of this MBHMP. Habitats included in this MBHMP include primarily the eucalyptus groves and windrows used by monarch butterflies for winter aggregations at Ellwood Mesa, covering approximately 230 acres from Hollister Avenue south to the ocean bluffs and from UCSB west to the Sandpiper Golf Course. The eucalyptus groves and windrows occur in the context of coastal mesa grasslands, coastal scrub, riparian habitats, and residential development. Therefore, they are part of a larger coastal ecosystem and neighborhood, with management priorities for which the monarch butterfly MBHMP is designed to be compatible.

Goal 1. To implement the MBHMP, with the City providing the administrative structure to oversee the programs and scheduling, and to interface with the community at large.

Policy 1-1. The City shall review, and revise as necessary, the MBHMP to reflect current data, butterfly conservation science, and management techniques.

Action 1-1.1. Conduct a public workshop to inform the community regarding the content and implementation of this MBHMP.

Action 1-1.2. Conduct environmental review of this MBHMP, including a public hearing.

Action 1-1.3. Prepare any necessary revisions to this MBHMP to resolve any issues identified during public review.

Action 1-1.4. Submit this MBHMP to the Goleta City Council for review and discussion, followed by adoption and implementation.

Policy 1-2. During implementation of the programs, goals, policies, and actions described in this MBHMP, and during the planning and implementation of other projects that may affect monarch butterfly habitat within the Ellwood Mesa Open Space, protection of the environment shall be given the utmost consideration.

Action 1-2.1. Whenever vegetation removal, ground disturbance, construction, or other activities with the potential to significantly disrupt habitat values are proposed within the MBHMP coverage area, environmental protection measures shall be implemented. These measures shall be determined in coordination with a qualified biologist, and should normally include pre-activity surveys for nesting birds or other wildlife, pre-activity surveys for monarch butterfly aggregations, presence of an environmental monitor during construction, and other protections, as deemed appropriate.

Policy 1-3. Because many of the MBHMP actions are related to trail improvements, tree work, and related project implementation monitoring and reporting, the City's Public Works Department shall oversee the implementation of this MBHMP.

Action 1-3.1. The City's Public Works Department, Neighborhood Services Department, and Planning and Environmental Review Department will coordinate regularly regarding MBHMP implementation.

Policy 1-4. The MBHMP is an overarching long-term conservation strategy, setting forth the broad objectives, desired outcomes, and management policies for the Ellwood Mesa monarch butterfly habitat. Periodic Implementation Plans shall identify and describe short-term actions needed to further the goals and objectives of the MBHMP, taking into consideration current conditions and funding levels at the time each Implementation Plan is prepared.

Action 1-4.1. On an annual basis, or as warranted based on habitat conditions, prepare an Implementation Plan identifying the actions planned to implement the MBHMP's programs, goals, policies, and actions during the coming year.

Action 1-4.2. City staff should present each annual Implementation Plan at a public hearing for stakeholder input and City Council approval.

Program Status: This MBHMP has been completed and is in the process of undergoing environmental review.

Program Needs: A public workshop, MBHMP review and revision as needed, and a public hearing—followed by adoption by City Council—are to be achieved.

Program Contact: Public Works Department

2. Fiscal Program

Overview: Successful implementation of this MBHMP and related conservation of the Ellwood Mesa Open Space depend in part on the ability to provide funding for the various programs contained in this MBHMP. Funding will come from a variety of sources as identified herein.

Goal 2. To provide short-term (annual), long-term (endowment), and special project (grant) funding for the implementation of this MBHMP.

Policy 2-1. The City shall provide annual funding to support MBHMP implementation.

Action 2-1.1. Appropriate General Fund, Special Revenue Fund, or Grant Fund monies, as available, during the bi-annual and mid-cycle budget processes.

Action 2-1.2. Include the MBHMP as a project sheet in the Capital Improvement Program annual budget.

Action 2-1.3. Develop an annual needs list from which the annual operating budget can be determined. This list should be included in the annual Implementation Plan (see Policy 1-3).

Policy 2-2. The City shall manage and use the City's Ellwood Mesa Butterfly Fund (Butterfly Fund) (226-5-9800-706) to pay for the implementation of the MBHMP and special projects consistent with the requirements of the fund. The Butterfly Fund shall be supplemented by grant funds and compensatory mitigation fees, as available.

Action 2-2.1. Manage the Butterfly Fund such that the fund may serve as an implementation funding source. Continue to identify grant funds to supplement the Butterfly Fund. Accept donations specific to the Butterfly Fund.

Action 2-2.2. Allow payments of compensatory mitigation fees into the Butterfly Fund, as deemed appropriate during CEQA analysis for projects with limited impacts on monarch butterfly habitat.

Program Status: The City provides annual funds in support of planning initiatives and general management needs at the Ellwood Mesa Open Space. With adoption of this MBHMP, funds can be earmarked annually for implementation of programs and specific actions within this MBHMP. Furthermore, grants and other fundraising opportunities will exist for which City funds can be used to match new funds raised from external sources. In the near term, the $3.9 million allocated in the State Budget will provide funding.

Program Needs: Adoption of this MBHMP so the Fiscal Program can be implemented.

Program Contact: Public Works Department

3. Interagency Cooperative Program

Overview: In today's complex regulatory environment, important sites for natural resource conservation can be subject to conflicting regulatory goals at the federal, state, county, and municipal levels. Management of threatened or endangered species that may occur in the future—and rare species and sensitive habitats at Ellwood Mesa—require careful coordination among regulatory partners so that conflicts are minimized.

Goal 3. To develop cooperative relationships with federal, state, county, and municipal agencies toward the implementation of integrated management practices favorable to the conservation of the monarch butterfly habitats at Ellwood Mesa Open Space.

Policy 3-1. The City shall pursue cooperative relationships with other agencies regarding regulatory goals and policies that the partners have in common concerning the Ellwood Mesa Open Space, in particular goals and policies that have an impact on the management of the monarch butterfly aggregation sites.

Action 3-1.1. As appropriate and productive, pursue cooperative relationships with federal agencies such as the USFWS and the U.S. Army Corps of Engineers to obtain potential permits, identify funding opportunities, and identify/pursue other potentially shared interests regarding the natural resources at Ellwood Mesa, with a focus on sustaining monarch butterfly aggregation sites.

Action 3-1.2. As appropriate and productive, pursue cooperative relationships with state entities such as the CDFW, Regional Water Quality Control Board (RWQCB), UCSB, and California Coastal Commission (CCC) to obtain potential permits, identify funding opportunities, and identify/pursue other potentially shared interests regarding the natural resources at Ellwood Mesa, with a focus on sustaining monarch butterfly aggregation sites.

Action 3-1.3. As appropriate and productive, pursue cooperative relationships with Santa Barbara County departments (such as Agricultural Commissioner, Fire, Parks, Planning and Development, Flood Control, and Public Works) to obtain potential permits, identify funding opportunities, solve problems, and identify/pursue other potentially shared interests regarding the natural resources at Ellwood Mesa and adjacent properties, with a focus on sustaining monarch butterfly aggregation sites.

Program Status: City staff regularly coordinates with the County of Santa Barbara and UCSB. Additionally, City staff has formed a functioning interdepartmental working relationship among the Public Works Department, Neighborhood Services Department, and Planning and Environmental Review Department regarding the management of Ellwood Mesa. Many additional productive relationships can be pursued related to the conservation of monarch and other butterflies.

Program Needs: Adoption of this MBHMP and implementation of its programs.

Program Contacts: Public Works Department, Neighborhood Services Department, and Planning and Environmental Review Department

4. Community Wildfire Protection Program

Overview: One of the most important efforts regarding coordination of potentially competing management goals is the identification and resolution of conflicts between the actions to protect the adjacent communities from the threat of wildfires while also providing protection of the habitats for seasonal aggregation of monarch butterflies at the Ellwood Mesa Open Space. The groves and windrows, composed primarily of blue gum eucalyptus (*Eucalyptus globulus*), are fire-prone and can present a threat to residential communities adjacent to the butterfly habitats. The CWPP was produced in coordination with this MBHMP to provide management practices compatible with monarch butterfly aggregation site protection. The City's adopted CWPP provides important context for the management of these resources.

Ellwood North, Main, and West sites are the aggregation locations within the groves on Ellwood Mesa that are directly adjacent to residences along eucalyptus grove boundaries (Figure 2). The Sandpiper site is not directly adjacent to structures, but it is adjacent to the Sandpiper Golf Course (Figure 2). In habitat areas that are not adjacent to structures, fuel treatments consist of mowing along the outside edge of the grove.

The Monarch Butterfly Aggregation Area Treatment Strategy section of the CWPP states that fuel treatments in areas near human developments are critical measures in the wildfire protection strategy for both residences and butterfly aggregations and habitat. Trees along grove edges provide wind and weather protection for aggregation sites. Therefore, it is important to maintain adequate tree density inside these edges (The Xerces Society 2017). Larger trees are not the primary fuel of concern in the spread of wildfire; rather, the greater hazard and threat are understory vegetation, dead-downed trees, and fuels that could create fire ladders.

In butterfly aggregation areas near homes, the fuel treatment strategy prescribed by the CWPP includes removal of understory, ladder fuel, and dead-downed fuel. Careful thinning of smaller or unhealthy trees within 30 feet of the grove edge is recommended while considering the wind buffering needs of the aggregation site. Fuel reduction implementation and subsequent monitoring should involve input by City-approved monarch butterfly and wildfire professionals.

Goal 4. To provide management practices within the eucalyptus groves and windrows that support healthy monarch butterfly habitat and are compatible with the City's CWPP.

Policy 4-1. The goals, policies, and actions of this MBHMP shall be consistent with the intent of the CWPP.

Action 4-1.1. Support implementation of Goleta's CWPP, specifically in regard to guidelines that are not in potential conflict with the management of the eucalyptus groves that support monarch butterfly aggregation sites, as noted below.

Action 4-1.2. Maintain and revegetate moderate cover of understory in and around aggregation sites with fire-resistant, native plant species (The Xerces Society 2017) (Appendix 3).

Action 4-1.3. Conduct all wildfire protection work within 300 feet of butterfly aggregations areas between April 1 and September 15, outside of monarch butterfly overwintering season.

Action 4-1.4. Coordinate with City-approved butterfly and wildland fire experts during planning and implementation of any fuel treatments since conditions within groves can change and aggregation locations may shift.

Policy 4-2. Eucalyptus trees in the groves containing monarch butterfly aggregation sites shall be managed, as feasible, to ensure their health and longevity in the context of a high fire hazard environment.

Action 4-2.1. Implement Program 12, Tree Management Program, to reduce fire hazard, improve public safety, and eliminate trees that are threatening the sustainability of the aggregation sites, including dead, diseased, and dying trees.

Photo 2. Evidence of Wildfire (Charred Trunks) at Main Grove – East, Ellwood Mesa Open Space

Program Status: The CWPP was adopted with the passage of Resolution No. 12-21 by the Goleta City Council on March 20, 2012. The Ellwood Mesa Implementation Plan is in environmental review.

Program Needs: Adoption and implementation of CWPP and the MBHMP will result in a reduction of wildfire hazards associated with eucalyptus groves.

Program Contact: Public Works Department

5. Trail Management Program

Overview: Public access trails are located through or adjacent to most of the monarch butterfly aggregation sites on Ellwood Mesa. These localized trails link together a series of regional trails, adjacent residential neighborhoods, and other preserves, such as the Coronado Butterfly Preserve managed by the Santa Barbara Land Trust and open space lands managed by the University of California system. Public access, including organized field trips to see the seasonal aggregations of monarch butterflies, is an important part of the Ellwood Mesa experience. However, repeated and increasing access along the semi-formal trails can result in negative impacts on the habitats and

overall site aesthetics. Additionally, the trees constituting the butterfly habitat do occasionally die, fall, and shed limbs, creating hazardous conditions for recreationalists at certain locations.

Goal 5. To develop and maintain public access trails that provide a safe and meaningful experience for visitors while also limiting impacts on habitats and wildlife, in particular monarch butterflies and their seasonal aggregation sites.

Policy 5-1. The City shall maintain existing public access trails that provide a safe experience for visitors to the eucalyptus groves supporting seasonal monarch butterfly aggregation sites.

Action 5-1.1. Maintain existing public access trails through the eucalyptus groves supporting monarch butterfly aggregation sites by reducing threats of trips, slips, and falls. May use Trails Council and CCC to help with maintenance.

Action 5-1.2. Implement Program 12, Tree Management Program, to reduce the threats from falling tree limbs and trunks.

Action 5-1.3. Repair damage to trial boundary ropes and posts, as needed.

Action 5-1.4. Prevent damage to seasonal monarch habitat by installing additional trail boundary posts, ropes, and signs, as necessary, consistent with those at the Ellwood Main monarch aggregation area.

Action 5-1.5. Use wood chips on trails to reduce soil compaction and decrease erosion during wet months.

Action 5-1.6. Retain and maintain Ellwood Main visitor viewing area boundary signs and rails.

Action 5-1.7. Review locations of trail and viewing area delineations and adjust if needed to protect trees or butterflies, annually.

Action 5-1.8. Review trail conditions on an annual basis and provide recommendations on improvements and modifications regarding human safety, trail maintenance, and ecosystem health, including conservation of monarch butterfly habitat in relationship to location, condition, and use of trails. Include recommendations for any tree trimming, removal recommendations, or other tree safety issues in the annual Implementation Plan.

Action 5-1.9. Long-term closure of official trails is undesirable and should not be used as a management approach. It is preferable to remedy trail hazards promptly, or to allow trails to remain open with appropriate signage alerting users to the risks present.

Policy 5-2. Maintain and improve existing links between trails associated with eucalyptus groves that support monarch butterfly aggregation sites at Ellwood Mesa with the adjacent Coronado Butterfly Preserve.

Action 5-2.1. Coordinate trail improvement activities with the Santa Barbara Land Trust and UCSB staff to ensure that improvements are compatible.

Action 5-2.2. Coordinate trail improvements with proposals for the Coastal and Juan Bautista De Anza trails that traverse Ellwood Mesa, which also link to trails within the eucalyptus groves that support monarch butterfly aggregation sites, to ensure protection measures are addressed for the aggregation sites.

Program Status: Public access trails already exist within the majority of the aggregation sites, but human safety issues exist because of the poor condition of many eucalyptus trees along the trails and eroded trail conditions. Impacts on eucalyptus groves supporting monarch butterfly aggregation sites also exist as a result of public access.

Program Needs: Dead and dying trees along trails and viewing areas present a public safety risk and risk to habitat stability. The Implementation Plan should detail work to be accomplished on an annual basis to maintain access and protect the public and sensitive habitat. Eroded trail conditions and overhanging trees can be public safety issues as well as tree health issues, necessitating trail improvements.

Program Contact: Public Works Department

6. Waste Management Program

Overview: Although the City's Public Works Department staff conducts inspections and removes easily visible waste and trash, unauthorized off-trail use, homeless encampments, and related trash dumping periodically occur in the Ellwood Mesa's eucalyptus groves. The City's butterfly docents also remove trash and alert the Public Works Department staff when there are new accumulations of trash and/or other debris that are too large or abundant for hand removal.

Goal 6. To maintain a waste-, trash-, and debris-free butterfly habitat management area.

Policy 6-1. The City shall collect, remove, and appropriately dispose of all waste, trash, and debris that accumulate in monarch butterfly habitat on Ellwood Mesa.

Action 6-1.1. Continue to remove existing accumulations of waste, trash, and debris from monarch butterfly habitat and dispose of them in an appropriate manner. Coordinate with Sheriff's Office for removal of homeless encampments, if necessary.

Policy 6-2. The City shall inform visitors of the monarch butterfly habitat of rules relating to trash and debris policies associated with monarch butterfly habitat.

Action 6-2.1. Post signs at appropriate locations stating open space user rules; for example, "Please take out your trash" and, "Day Use Only – Camping Prohibited."

Action 6-2.2. Educate the public through seasonal, on-site presence by the City's butterfly docents about the importance of maintaining the groves free of trash.

Action 6-2.3. Place trash cans in the parking lot. Inspect annually and replace as needed.

Program Status: Despite trash removal attempts by Public Works Department staff and the City's butterfly docents, various sites throughout the monarch butterfly habitat at Ellwood Mesa accumulate trash and other debris from human activity. Some trail areas are currently closed due to hazardous tree conditions, and no trash or debris removal is currently occurring in these areas.

Program Needs: Trash and debris should be removed, where feasible, from the Ellwood Mesa eucalyptus groves that support monarch butterfly aggregation sites.

Program Contact: Public Works Department, Neighborhood Services Department

7. Aesthetic Resources Management Program

Overview: Portions of Ellwood Mesa eucalyptus groves suffer from grove senescence, drought, pests, disease, or lack of formal management efforts that can negatively affect the aesthetic value of that area. Fencing and signs are irregularly installed and inconsistently maintained. They also lack a consistent theme. The presence of management consistency is now an important need.

Goal 7. To integrate this MBHMP's programs into an effort to improve the quality of aesthetic resources of the Ellwood Mesa, in particular the eucalyptus groves and windrows supporting monarch butterfly aggregation sites.

Policy 7.1. The City shall provide stewardship and management oversight of the eucalyptus groves, in particular those areas supporting monarch butterfly aggregation sites.

Action 7-1.1. Adopt and implement this MBHMP, including its 22 management programs.

Action 7-1.2. Provide integration of program goals, policies, and actions to improve the overall aesthetics of the various groves, including installation of a consistently designed interpretive program and strategically placed fencing, as more specifically outlined in Program 18, Interpretive Program.

Policy 7.2. Signs, fencing, and restoration efforts associated with monarch butterfly habitat on Ellwood Mesa shall be aesthetically compatible with natural conditions.

Action 7-2.1. Review signage and fencing design for compatibility with the Ellwood Mesa natural areas.

Action 7-2.2. Review restoration plantings and activities for appropriate aesthetic compatibility.

Program Status: Adoption and implementation of this MBHMP will result in a more sustainable and visually pleasant user experience because of the improved aesthetic value of the Ellwood Mesa eucalyptus groves and monarch butterfly aggregation sites.

Program Needs: Adopt and implement this MBHMP.

Program Contact: Public Works Department

8. MBHMP Review, Update, and Amendment Program

Overview: Reviewing and updating key planning documents would ensure that the management goals and actions are working as intended. Updating and amending programs, when needed, would ensure that the planning document is responsive to the changing needs of the community and the resource.

Goal 8. To maintain the relevance of this MBHMP with periodic reviews, updates, and amendments.

Policy 8-1. The City shall review this MBHMP as the need for updates and amendments arises (e.g., changes in physical conditions, regulations, or expansion of habitat management knowledge or strategies) or at least every 5 years.

Action 8-1.1. Conduct internal and public review of this MBHMP, as conditions warrant.

Action 8-1.2. Update information in this MBHMP, as conditions warrant.

Action 8-1.3. Amend programs, goals, polices, and actions in this MBHMP to reflect the results of the review and update process.

Action 8-1.4. Seek public input on amendments to programs, goals, polices, and actions in this MBHMP.

Action 8-1.5. Conduct environmental review, if necessary (new or modified policies and actions pose new impacts).

Action 8-1.6. Obtain approval by the Goleta City Council and adopt amended MBHMP.

Program Status: Adoption of this MBHMP by the City will provide the mechanism for review, update, and amendment.

Program Needs: Commitment to update this MBHMP to ensure that it is meeting the demands of the existing conditions.

Program Contacts: Planning and Environmental Review Department and Public Works Department

9. Catastrophic Event Response Program

Overview: The eucalyptus groves at Ellwood Mesa are at risk of catastrophic environmental events. For example, trees falling during powerful storms could cause collapse of additional trees, excessive fuel loads can spread wildfires, and infestations of insect pests can weaken or kill trees. Because such potential catastrophic events are likely to occur within the monarch butterfly aggregation sites, the City proposes Program 9, Catastrophic Event Response Program, to have in place a preliminary plan of action to address the consequences of loss of trees or entire groves containing monarch butterfly aggregation sites.

For the purpose of this MBHMP, a catastrophic environmental event is defined as an event causing great ecological distress and damage, either sudden or gradual, across the a significant portion of the monarch butterfly habitat within the Ellwood Mesa plan area. A qualifying event could negatively affect a large portion of the eucalyptus groves within the Ellwood Mesa, or could cause substantial damage to single monarch butterfly overwintering site.

The response actions for catastrophic events would not be funded in the annual budget for this MBHMP and would require supplemental funding with approval from the City Council. Funding shall be approved by City Council with a finding that the condition is a qualifying catastrophic event. If such a finding is made, funding received through the State Budget or other sources may be also used to address catastrophic events.

As of this writing, the 5-year drought in Goleta from 2012 to 2016 has created dire conditions for the eucalyptus trees at Ellwood Mesa (County of Santa Barbara 2018). Arborists estimate that over one thousand trees are dead or dying due to drought, drought stress, and infestation by pests across the Ellwood Mesa. The monarch overwintering sites are suffering from the die-back of trees with the loss of canopy and wind protection and loss of roosting branches. The last similar 5-year drought on record for the Goleta area was in 1947–1951 and was not as severe, with 58.05 consecutive rainfall inches, compared with 50.83 inches during the 2012–2016 drought years (County of Santa Barbara 2018). Timing of rainfall since 2012 has also been more concentrated than in prior years, with the annual rainfall occurring in a small number of intense storm events rather than a larger number of small or gentle events. This concentration has come with an increased rainfall intensity, which leads to increased runoff, excess erosion and sediment transport, and decreased groundwater recharge. The ultimate result has been less available water for uptake by trees.

The 5-year drought and the death of over a thousand trees may qualify as a catastrophic event, if so determined by the City Council.

Goal 9. To prepare for possible catastrophic environmental events within the monarch butterfly aggregation sites by adopting a set of actions that potentially minimize the impacts and plan for a response should such events affect the groves in which aggregation sites are located.

Policy 9-1. The City shall adopt a set of protocols that could minimize the impacts from potential catastrophic environmental events.

Action 9-1.1. Implement Program 12, Tree Management Program, to reduce potential impacts on eucalyptus groves that support monarch butterfly aggregation sites.

Action 9-1.2. Implement Program 4, Community Wildfire Protection Program, to reduce potential impacts on monarch butterfly aggregation sites from wildfire.

Action 9-1.3. Implement Program 13, Integrated Pest Management Program, to reduce the potential impacts from pest infestations.

Policy 9-2. The City shall assess the damage of catastrophic events as they occur and respond with corrective action to restore damaged monarch butterfly habitat.

Action 9-2.1. Measure the extent and assess the magnitude of the damage to the monarch butterfly overwintering habitat.

Action 9-2.2. Design and implement a response strategy with actions to correct and restore the habitat after the catastrophic event and include them in the annual Implementation Plan (Policy 1-3) if practical. When feasible, employ phased approaches with consistent monitoring to evaluate success or need for changes in strategy or actions. Assign priorities, including sources of materials, constraints, and methods for debris management.

Steps for Response Strategy:

1. Define the extent of the damage to the monarch butterfly habitat within the plan area.
2. Divide affected area into sections for a phased approach, based on level of damage and importance of overwintering site compared to other areas.
3. Assign priorities to the divided sections of the damaged area.
4. Implement guidance from Programs 4, 12, and 13 for specifics in those areas.

Example Response Strategy for a catastrophic event that causes the die-back of 25% of the trees in the MBHMP area. The catastrophic event for this example could be fire, drought, pest, disease, wind storm, etc.

1. Consider whether the catastrophic event presents an imminent danger to the public, and install warning signage and/or closures as appropriate.

2. Assess and analyze the extent of the dead/dying trees in the forest at Ellwood Mesa in relation to the monarch butterfly aggregation areas.
3. Establish a phased approach for restoration activities, starting with the most affected areas. Tag and map the trees that are dead, dying, diseased, burnt, hazardous, or otherwise affected by the catastrophic event. Confer with arborists, biologists, and/or other relevant specialist to select trees for removal to benefit the forest on a whole and facilitate restoration. Remove selected trees in the first phase area. The removed trees may be disposed of off site or chipped for use on site as ground cover. Install new plantings of eucalyptus trees and native understory species with irrigation.
4. Monitor the success of the plantings and irrigation over a set time (e.g., 1–2 years). Replace plantings, as needed.
5. Adjust restoration methods if necessary and implement phased approach at the next priority phase area for restoration.
6. Repeat steps 2 through 5 until every area has been attended to and restored.
7. Continue to monitor for the presence of monarch butterflies during the aggregation season and other wildlife.

Action 9-2.3. Request City Council approval for supplemental funding, with a finding that the condition is a catastrophic event. Use funding received from the State Budget, apply for grants, and/or accept private donations for the dedicated mission of monarch butterfly overwintering habitat restoration.

Program Status: Tree condition surveys that have been completed for Ellwood Mesa eucalyptus trees have identified the number of dead trees. Cause of tree mortality has been identified as drought and pest infestations. Ellwood Main and Ellwood North monarch butterfly aggregation sites contain many dead trees. In-depth planning for management and recovery of a living eucalyptus forest will be detailed in an annual Implementation Plan. Similar events have occurred in the past and are likely to be part of the future.

Program Needs: Development of an Implementation Plan addressing the significant die-off of eucalyptus trees on Ellwood Mesa is underway. The City should have an ongoing response program in place so that careful and measured decisions following a catastrophic event can be implemented.

Program Contact: Public Works Department

B. NATURAL RESOURCES MANAGEMENT PROGRAMS

Seven natural resources management programs are provided that articulate the goals, policies, and actions necessary to maintain and improve the many important natural resources, including biological diversity and ecosystem functions, associated with the Ellwood Mesa eucalyptus groves and the monarch butterfly aggregation sites they support.

10. Monarch Butterfly Management Program

Overview: The City's General Plan includes a policy specific to the protection of monarch butterfly habitat areas, including the habitat on Ellwood Mesa. The City's Ellwood Mesa Open Space Plan further specifies the need to protect and maintain the eucalyptus habitat to be self-sustaining and identifies the need for managed public access, scientifically sound existing conditions studies, phased habitat improvements, and adaptive management. The primary focus of the Habitat Management Plan described below is to implement the directives of the General Plan and Ellwood Mesa Open Space Plan.

Goal 10. To facilitate the ongoing use of Ellwood Mesa by the monarch butterfly.

Policy 10-1. The City shall encourage management strategies that facilitate the use of Ellwood Mesa by monarch butterflies.

Action 10-1.1. Implement Program 12, Tree Management Program, to help facilitate the conservation of the monarch butterfly aggregation sites.

Action 10-1.2. Implement Program 20, Biological Monitoring Program, and Program 21, Monarch Research Program, to expand the body of knowledge and further the understanding of the monarch butterflies' use of the resources at Ellwood Mesa.

Policy 10-2. Preservation of aggregation sites on Ellwood Mesa shall be a focus of management activities, as feasible, and in coordination with Program 9, Catastrophic Event Response Program.

Action 10-2.1. Should one or more catastrophic events result in impacts on the sustainability of monarch butterfly aggregation sites, consider alternative management and recovery strategies that incorporate goals for sustaining aggregation sites at Ellwood Mesa.

Policy 10-3. Ecosystem functions proposed for habitat restoration projects at Ellwood Mesa shall consider inclusion of native plant species.

Action 10-3.1. Implement Program 14, Habitat Enhancement and Restoration Program, as feasible, to improve conditions for native plants and animals and the ecosystem functions

they provide in and adjacent to the eucalyptus groves containing monarch butterfly aggregation sites.

Policy 10-4. To avoid impacts on monarch butterflies while they are present at the Ellwood aggregation sites, no maintenance or restoration work shall be conducted in the aggregation sites from October 1 through March 31 of each year, unless authorized by a qualified biologist.

Action 10-4.1. Unless authorized by a qualified biologist, conduct all site maintenance, tree trimming and removal, habitat restoration, exotic plant removal, and other potentially invasive activities between April 1 and September 30 of each year, when there would not likely be direct impacts on monarch butterflies.

Program Status: Monarch butterflies are important to the ecosystem of Ellwood Mesa and to the City's sense of community. Development and implementation of this MBHMP is an important step in the active conservation of the monarch butterflies and their habitat at Ellwood Mesa.

Program Needs: New information about monarch butterflies regularly emerges from the scientific community, and the Ellwood Main site is an important site for the sustainability of monarchs. The more monarch butterfly biology is understood, the better Ellwood Mesa can be managed.

Program Contact: Public Works Department

11. Wildlife Habitat Management Program

Overview: Eucalyptus groves supporting seasonal aggregation sites for monarch butterflies also provide habitat for other wildlife species. Examples include or have included perches for red-shouldered hawks, roosting sites for turkey vultures, and nesting sites for white-tailed kites, Cooper's hawks, great horned owls, and acorn woodpeckers. This MBHMP identifies management strategies for conserving habitat for monarch butterflies that are intended to be consistent, where feasible, with management of habitat for other wildlife species.

Goal 11. Manage eucalyptus groves at Ellwood Mesa for monarch butterflies in a manner consistent with ecosystem functions for other wildlife species that use the groves as habitat.

Policy 11-1. The eucalyptus groves at Ellwood Mesa that support monarch butterfly aggregation sites shall be managed in a manner consistent with ecosystem functions supporting other wildlife species, where feasible.

Action 11-1.1. All personnel associated with the implementation of this MBHMP will receive educational information regarding the presence of monarch butterfly and other native wildlife species and the need to protect all native wildlife species.

Action 11-1.2. Preserve some trees with cavities to provide opportunities for cavity-nesting birds, such as acorn woodpeckers.

Action 11-1.3. Avoid removal of or disturbance to trees or other woody vegetation during nesting bird season (March 15 to August 15), when feasible. If not feasible, a biological monitor will survey for nesting birds in the area of proposed vegetation removal and ensure no active nests are present prior to removal or disturbance.

Action 11-1.4. Limit vegetation removal and ground disturbance activities to the dry season. Avoid areas with open water in Devereux Creek and tributaries.

Policy 11-2. Program 14, Habitat Enhancement and Restoration Program, shall complement the Wildlife Habitat Management Program.

Action 11-2.1. Include native plant species that are important for wildlife habitat and food in enhancement and restoration projects (Appendix 3).

Action 11-2.2. Require a Planting Plan for any proposed enhancement plantings near the groves containing aggregation sites.

Action 11-2.3. Consider increasing mid-canopy and low-stature or groundcover native plant species to enhance wildlife habitat complexity and increase potential use of eucalyptus groves by a variety of wildlife species.

Action 11-2.4. Implement restoration for the Devereux Creek riparian corridor to improve functions for wildlife, consistent with the goals of this MBHMP for monarch butterflies.

Program Status: A variety of management actions have occurred in the Ellwood Mesa eucalyptus groves, including monitoring the butterfly populations, evaluating the health of the eucalyptus grove and individual trees, and educating the public regarding the sensitivity of the aggregation sites. However, a comprehensive approach to managing and educating the public as to the importance of all native wildlife species that inhabit the Ellwood Mesa Eucalyptus groves will benefit both the visitors and the natural resources of the open space area.

Program Needs: Adoption and implementation of this MBHMP will include programs to improve the health of the habitats and their ecosystem functions for wildlife species in general, and monarch butterflies in particular.

Program Contact: Public Works Department

12. Tree Management Program

Overview: One of the most important aspects of this MBHMP is the set of management practices that would result in a sustainable eucalyptus forest that supports aggregation sites for monarch butterflies. Health of the individual eucalyptus trees, structure of the aggregation sites, and long-term sustainability of the groves supporting the sites are of primary importance. In response to these management needs, as well as concern for public safety within the groves and concern for wildfire

hazards, City staff continues to work with professional biologists and arborists to develop protocols for managing the eucalyptus groves supporting monarch butterfly aggregation sites. The information obtained during inventories and assessments, and coordination with the development of the CWPP, resulted in the management recommendations as presented in this MBHMP.

Goal 12. To manage the eucalyptus groves within monarch butterfly aggregation sites at Ellwood Mesa in a manner that provides for (1) healthy trees, (2) suitable aggregation site structure, (3) sustainable butterfly aggregation sites, (4) public safety while visitors are on trails within the groves, and (5) sensitivity to wildfire hazards.

Policy 12-1. Eucalyptus trees in the groves containing monarch butterfly aggregation sites shall be managed, as feasible, to ensure tree health and longevity.

Action 12-1.1. Include guidance for necessary tree work in the annual Implementation Plan (Action 1-2.1). Tree work will take place in the month of September each year. The Implementation Plan should specify responsible parties, work locations, individual trees addressed, work to be accomplished, restoration measures, and methods and procedures for managing tree health. An annual plan is recommended but may be prepared on an as-needed basis based on conditions and progress of the previous Implementation Plan.

Action 12-1.2. Preliminarily identify potential threats to aggregation sites that may occur over time, and develop a framework for mitigating the threats and maintaining/recovering suitable overwintering habitat. Threats may include, but are not limited to, the following:

- Drought
- Pests
- Disease
- Fire
- Flood/erosion
- Vandalism
- Invasion by non-native plants (not including eucalyptus)

These threats, as well as others, may arise and impair the function of Ellwood Mesa as habitat for overwintering monarch butterflies. When threats are encountered, a specific plan of action should be undertaken to address the needs of the situation. However, for planning purposes, the City should be prepared to undertake the response measures outlined in Table 1 below. Although not exhaustive, these measures represent a prudent suite of response tools to address future conditions. Measures listed below may prevent or rectify impacts from multiple types of threats, as the intent of the measures is to restore and encourage healthy habitat.

Table 1. Identified Threats and Potential Response Actions

Potential Actions/Tools for Management	Purpose/Goal/Target	Threat/Cause
Selective removal of standing dead trees	To protect the living trees from being taken out if a dead tree falls, and to provide space for growth of young trees.	Drought, disease, pests, fire
Selective removal of downed trees/debris	To open up space in the grove for younger trees to grow and replace dead trees. To reduce fuel load.	Drought, disease, pests, fire
Watering/irrigation	To prevent trees (established and newly planted) from declining in health because of insufficient water, or attempt to recover drought-stressed trees. Use of reclaimed water should be explored.	Drought
Planting eucalyptus trees	To correct habitat deficiencies such as: ▪ The overstory has become too sparse. ▪ Wind speeds in the grove are too strong. ▪ A tree died, fell over, or was removed.	Death of one or more trees, insufficient canopy, or aggregation site protection.
Planting understory species	▪ To add or create a diverse understory. ▪ To add nectar sources. ▪ To create variable edge barrier.	Non-native plants, poor/homogeneous understory
Planting nectar sources within and near groves	To make nectar sources for adult monarchs available near the overwintering sites.	Non-native plants, understory lacking nectar species
Selective pruning	To prune or remove understory plants when they reduce monarch butterfly flight space or aggregation areas. To protect/maintain the open interior of the grove.	Understory becomes too dense
Re-contouring/grading	In the case of a flood, to correct erosion and reshape the drainage channel to protect trees.	Flood/erosion
Installation of erosion control best management practices (BMPs)	To prevent future erosion and direct flows away from erosion-sensitive areas (exposed roots, etc.).	Flood/erosion

Action 12-1.3. Thresholds should be established to direct professional review and potential action to address conditions in the groves. Ultimately, it is envisioned that quantitative thresholds will be established based on the results of monitoring and scientific study within the groves (Programs 20, 21, and 22). However, until adequate reference data are available, action thresholds will be determined qualitatively by the City in consultation with a qualified monarch butterfly biologist.

Factors for Consideration:

- Did a major tree fall down in or adjacent to a known overwintering site?
- Is a butterfly expert recommending that action be taken?
- Has the butterfly overwintering population at a specific site decreased dramatically in a way that does not follow the populations at other sites in the vicinity?
- Is there erosion or threat of exposed roots of trees in or adjacent to a known overwintering site?
- Has the tree canopy decreased noticeably and dramatically?
- Has a certified arborist identified a high-risk tree that could degrade the aggregation site?

Steps for Taking Action:

1. Identify the threat (persistent or temporary, site-specific or large-scale).
2. Consult with a qualified monarch butterfly biologist, guided by the goals for a sustainable overwintering habitat.
3. Develop a plan of action.
    - If the problem is large-scale, a prescribed action may be taken in phases and the effect will be evaluated to assess success before any large-scale implementation of the action.
    - Manipulative experiments may occur in coordination with adaptive management, such as pilot studies, to inform decisions.
4. Obtain approvals. Depending on the plan of action, authorization from the City Council, CCC, and/or resource agencies may be needed. Environmental review may also be required, depending on the scope.
5. Implement the plan of action.
6. Monitor and document results.
    - Areas affected by response actions, especially major ones, should be included in the monitoring program conducted under Program 20, Biological Monitoring Program.

Action 12-1.4. Implement Program 13, Integrated Pest Management Program, to help maintain tree health and control infestation in the eucalyptus groves supporting monarch butterfly aggregation sites.

Action 12-1.5. Cut down or prune trees identified as a threat to butterfly aggregation sites because they may fall and cause injury or collapse on other trees important to sustaining aggregation sites.

Action 12-1.6. Maintain a living forest within the outline of pre-drought forest extent as determined with historic aerial photographs. Restore sections of the forest where dead zones occur due to multiple tree die-offs.

Action 12-1.7. Implement Program 14, Invasive Plant Management Program, particularly regarding non-native vines that could affect the quality of monarch butterfly habitat, following recommendations for eradication consistent with the California Invasive Plant Council (Cal-IPC) and conservation priorities of monarch butterflies and their habitat.

Action 12-1.8. Implement Program 20, Biological Monitoring Program, to provide information regarding management of eucalyptus groves to ensure their health and longevity.

Action 12-1.9. Annually, identify conditions that threaten eucalyptus trees at aggregation sites and include recommended actions in the Implementation Plan to reduce perceived threats.

Action 12-1.10. Replace removed trees at a one-to-one ratio with five-gallon container stock. A two-to-one ratio may be used where only smaller containers are available.

Policy 12-2. Eucalyptus trees in the groves containing monarch butterfly aggregation sites shall be managed, as feasible, to provide sustainable habitat for butterfly aggregation sites.

Action 12-2.1. When considering eucalyptus or other tree replacement actions, consider tree configurations that retain open areas for monarch butterfly patrolling and monarch overwintering preferences.

Action 12-2.2. Investigate potential enhancement to monarch butterfly patrolling habitat by reducing tree tangles and fallen debris.

Action 12-2.3. Remove hazard trees as necessary to protect monarch butterfly cluster locations, as consistent with goals for public safety.

Action 12-2.4. Implement, as feasible, Program 10, Monarch Butterfly Management Program, to facilitate improvements in eucalyptus groves that help sustain aggregation sites.

Policy 12-3. Eucalyptus trees within the groves containing monarch butterfly aggregation sites shall be managed, as feasible and consistent with conservation of monarch habitat, to provide safe conditions for the visiting public.

Action 12-3.1. Prune and remove dead, dying, or particularly vulnerable tree trunks and branches that overhang trails and seating areas, or lay across trails, inside and near monarch butterfly aggregation sites to reduce the threat of injury from falling trunks and branches,

debris on trails (trip hazards), or low-hanging material across trails that visitors could bump heads on.

Action 12-3.2. As recommended by the City arborist and detailed in the annual Implementation Plan, conduct work designed to protect the structure of aggregation sites.

Action 12-3.3. As recommended by the City arborist and detailed in the annual Implementation Plan, remove or prune dead standing, dead suspended, dead on the ground, or thick understory trees both to improve grove tree health and monarch butterfly habitat and to correct hazard conditions for human safety along trails and at observation sites.

Action 12-3.4. Consider using downed, dead trees for seating along trails, or to add to slope stability or help control erosion, for preservation rather than removal, as feasible, considering human safety or wildfire threat.

Action 12-3.5. Remove ground debris, such as accumulations of branches and leaves, at trailheads in particular to reduce threat from wildfires, to reduce threat to human safety from obscured views, and to increase aesthetic appeal.

Action 12-3.6. In consultation with the City arborist, conduct an annual review of tree health in April and May at aggregation sites. Develop and implement an annual Implementation Plan to address issues identified during the review, including potential need for tree removal or pruning, treatment of diseases or pests, and other potential recommendations.

Policy 12-4. Eucalyptus trees within the groves containing monarch butterfly aggregation sites shall be managed, as feasible, to provide for low wildfire hazards.

Action 12-4.1. Implement Program 4, Community Wildfire Protection Plan, to provide wildfire protection consistent with the City's adopted CWPP.

Action 12-4.2. Reduce accumulations of dead, dry, and loose organic and other flammable material within eucalyptus groves to decrease potential for ground-level fires becoming canopy fires as a result of ladder effect of fire hazard materials.

Action 12-4.3. Remove accumulations of dead plant material along southern grassland margins of eucalyptus groves and at southern trailheads to reduce threat of grassland fires becoming eucalyptus grove fires as a result of fire hazards at the boundary between grasslands and groves via mowing or selective weed-whacking. Herbicides shall not be used.

Action 12-4.4. Replace removed understory plants as recommended by the City monarch butterfly biologist with fire-resistant native shrubs to restore and improve habitat structure for monarch butterflies (Appendix 3).

Action 12-4.5. Coordinate (1) butterfly habitat management, (2) public access and safety needs, (3) fire management requirements, and (4) wildlife habitat restoration proposals to ensure management priorities and implementation of procedures that provide the most compatible result for the conservation of monarch butterflies, while also respecting the goals of the other MBHMP programs, as feasible.

Program Status: Although eucalyptus trees in some groves with monarch butterfly aggregation sites are in good health (e.g., Sandpiper and Ocean Meadows, both of which are more windrow-like than grove-like), others are of average health (Ellwood West), and some are rated poor (Ellwood East, Ellwood North, and the important Ellwood Main). As of July 2017, a significant die-off of trees occurred from drought and pest infestation, resulting in over 1,200 dead trees on Ellwood Mesa.

Program Needs: Quantitative habitat condition standards based on best available science that establishes thresholds for action. With adoption of this MBHMP and implementation of the 22 programs—in particular Program 12, Tree Management Program—the health of the eucalyptus groves supporting monarch butterfly aggregation sites is anticipated to improve and become a more sustainable resource.

Program Contact: Public Works Department

13. Integrated Pest Management Program

Overview: Eucalyptus trees are subject to a variety of pests and diseases that can injure or kill trees. When trees occur in groves, the spread of pests and disease is facilitated by proximity to infected trees, resulting in the potential of widespread loses. Current and past infestations at Ellwood Mesa of blue gum and river red gum (*Eucalyptus camaldulensis*) include lerp psyllids on leaves, tortoise beetles, longhorned borer beetles, and orange sulfur fungus. Invasive non-native species such as English ivy and cape ivy also can be problematic, smothering entire trees and changing or destroying wildlife habitat (Refer to Program 15, Invasive Plant Management Program). Various approaches to pest management will be necessary to try experimentally to determine which approach works best for each pest without affecting native plant and animal species, including monarch butterflies and their seasonal aggregation sites.

Goal 13. Control or eradicate, as feasible, plant, animal, fungal, and other pests that would result in impacts on monarch butterflies or degrade monarch butterfly habitat.

Policy 13-1. To maintain current knowledge of pests and diseases, the City shall conduct an annual inventory of organisms negatively affecting eucalyptus trees in the groves at Ellwood Mesa.

Action 13-1.1. Conduct an inventory of pests and diseases throughout the groves and windrows at Ellwood Mesa.

Action 13-1.2. Conduct an inventory of pests and diseases within the monarch butterfly aggregation sites in the Ellwood North, Ellwood West, Ellwood Main, Ellwood East, Sandpiper, and Ocean Meadows groves.

Policy 13-2. The City shall consider using a variety of approaches to pest management to prevent pests and diseases from affecting eucalyptus groves, particularly those supporting seasonal aggregation sites for monarch butterflies.

Action 13-2.1. As feasible, experiment with different integrated pest management (IPM) approaches for different pests and diseases to determine which approach best suits the conditions in eucalyptus groves at Ellwood Mesa.

Action 13-2.2. Implement wise management practices in the eucalyptus groves at Ellwood Mesa that do not facilitate the spread of pests and diseases in groves.

Action 13-2.3. Identify current problems that require immediate treatment and implement appropriate treatment protocols.

Action 13-2.4. Implement a pest and disease monitoring program, as feasible, to determine success of treatments and any new infestations requiring treatment.

Program Status: Currently, no IPM approaches are implemented for eucalyptus trees at Ellwood Mesa. A tree inventory was conducted in 2017 that found 1,260 dead eucalyptus trees on Ellwood Mesa City property. An Implementation Plan is in preparation to address tree health issues.

Program Needs: Adopt the MBHMP and implement the 22 MBHMP programs—including Program 13, Integrated Pest Management Program—to reduce the threat of impacts on tree health and sustainability and the potential for degradation of eucalyptus groves supporting monarch butterfly aggregation sites.

Program Contact: Public Works Department

14. Habitat Enhancement and Restoration Program

Overview: This program focuses on the enhancement of the eucalyptus groves from a native plant and wildlife habitat perspective and on the restoration of the Devereux Creek corridor along the northern margin of Ellwood West, Ellwood Main, and Ellwood East groves. The mid-canopy vegetation and understory of the eucalyptus groves is generally lacking or in some situations is composed of non-native invasive plant species. Enhancement of groves with native plant species would benefit native wildlife. Various native plants are present but scattered within the groves. Most of these plant species have fleshy fruits and are bird-dispersed. Restoration of portions of Devereux Creek associated with eucalyptus groves, as feasible, is consistent with the goal to restore Devereux Creek. This restoration would provide important habitat for native plant and animal species and would potentially improve water quality flowing downstream to Devereux Slough and the Pacific Ocean.

Goal 14. To provide for the enhancement of native plant and animal habitats in the context of preserving the monarch butterfly habitat associated with established eucalyptus groves.

Policy 14-1. Establishment of appropriate native plants—in particular ground cover, shrub, and mid-canopy species—shall be encouraged in the eucalyptus groves and along the Devereux Creek corridor outside of the eucalyptus forest.

Action 14-1.1. Plant experimental plots of native ground cover species to determine which species may result in sustainable populations.

Action 14-1.2. Focus enhancement efforts on native plants existing in the eucalyptus groves, such as toyon (*Heteromeles arbutifolia*), and native plants with nectar sources for monarchs (Appendix 3).

Action 14-1.3. Coordinate with Program 13, Integrated Pest Management Program, and Program 15, Invasive Exotic Plant Management Program.

Policy 14-2. Gaps in eucalyptus groves shall be considered for habitat enhancement and restoration alternatives.

Action 14.2.1. Implement priority native plant restoration activities along Devereux Creek in the gaps in monarch habitat between the Ellwood East and Ellwood Main groves, between the Ellwood West and Sandpiper groves, and between the Ellwood East and Ocean Meadows groves.

Action 14-2.2. Eradicate non-native herbaceous cover, seedlings, and saplings (not including eucalyptus saplings) in habitat gaps between groves and aggregation sites to encourage or actively plant local natives in the existing eucalyptus grove canopy breaks.

Action 14-2.3. Link enhancement and restoration of gaps in eucalyptus groves to restoration and enhancement priorities for the Devereux Creek riparian corridor to which the gaps are contiguous.

Policy 14.3. Restoration of Devereux Creek shall include appropriate actions to improve the habitat structure, ecological functions and processes, and native biodiversity of the riparian corridor.

Action 14-3.1. Restoration activities include establishment of a riparian forest along the banks of Devereux Creek composed of native riparian tree species.

Action 14-3.2. Ensure that no restoration activities along Devereux Creek shall result in increased flooding.

Action 14-3.3. Coordinate to align efforts with other restoration projects under separate permits or mitigation plans for Devereux Creek.

Policy 14-4. Native plant species are considered to be local genotypes of plants occurring naturally within the Ellwood Mesa/Devereux Creek Ecosystem.

Action 14-4.1. Collect all plant materials for use in restoration projects from existing native plant populations in the Ellwood Mesa/Devereux Creek Ecosystem, where feasible.

Action 14-4.2. Collect plant material from the nearest existing populations for re-introduction of extirpated species.

Action 14-4.3. Obtain native plants for use in restoration from local nurseries or growers within the Santa Barbara area, emphasizing contract-grown material of local genotypes.

Policy 14-5. No enhancement or restoration actions shall result in negative impacts on the quality of the eucalyptus groves that provide monarch butterfly habitat.

Action 14-5.1. Coordinate with Program 10, Monarch Butterfly Management Program; Program 11, Wildlife Habitat Management Program; and Program 12, Tree Management Program.

Policy 14-6. No enhancement or restoration actions shall conflict with the goals and policies of the CWPP.

Action 14-6.1. Coordinate all enhancement and restoration activities with the guidelines and recommendations of the CWPP.

Program Status: An Implementation Plan that describes work activities to occur each year will accompany this MBHMP.

Program Needs: Adoption of this MBHMP and implementation of Program 14, Habitat Enhancement and Restoration Program, and fund-raising necessary to design, permit, implement, and maintain the projects.

Program Contacts: Public Works Department and Planning and Environmental Review Department

Photo 3. Toyon (*Heteromeles arbutifolia*), a Native Shrub or Small Tree in the Ellwood Main Grove

15. Invasive Plant Management Program

Overview: Cal-IPC has established a list of invasive, non-native plant species of concern regarding conservation of California natural heritage (www.cal-ipc.org/ip/inventory/index.php). Invasive non-native plants are defined by Cal-IPC (2006) as "plants that 1) are not native to, yet can spread into, wildland ecosystems, and that also 2) displace native species, hybridize with native species, alter biological communities, or alter ecosystem processes." Non-native invasive plants have been given High, Moderate, or Limited ratings by Cal-IPC, depending on the severity of their potential for resulting in impacts on wildland ecosystems.

The monarch butterfly aggregation sites at Ellwood Mesa are themselves characterized and dominated by non-native and potentially invasive plants species—most importantly blue gum, given a "Moderate" rating, and to a lesser degree river red gum, given a "Limited" rating. However, these stands of introduced trees are designated as an ESHA in the General Plan because of their importance to monarch butterflies as fall and winter aggregation sites. Several other aggressively invasive non-native plant species have prominent visual and habitat impacts within the monarch aggregation sites at Ellwood Mesa. These are mostly vines that climb butterfly habitat trees, and herbaceous ground cover, which potentially endanger the character and sustainability of the

aggregation sites. Examples of these deleterious invasive species at Ellwood Mesa and their ratings are listed below:

- "High" rating:
  - Canary Islands ivy (*Hedera canariensis*)
  - English ivy (*Hedera helix*)
  - Cape ivy (*Delairea odorata*)
  - Victorian box or mock orange (*Pittosporum undulatum*)
- "Moderate" rating:
  - Panic veltgrass (*Ehrharta erecta*)
  - Myoporum (*Myoporum laetum*)
- "Limited" rating:
  - Kikuyu grass (*Pennisetum clandestinum*)
  - New Zealand spinach (*Tetragonia tetragonioides*)

Photo 4. Canary Islands Ivy (*Hedera canariensis*) along Trail and Growing up Trees at Ellwood Main

Goal 15. To eradicate existing stands of invasive non-native species and prevent or control new occurrences of invasive non-native plant species within the monarch butterfly habitat at Ellwood Mesa.

Policy 15-1. The City shall undertake an inventory and generalized mapping program to identify, locate, and prioritize for eradication or control all invasive non-native plant species within the butterfly habitat at Ellwood Mesa.

Action 15-1.1. Identify and map all invasive non-native species identified by Cal-IPC as "High" priority species.

Action 15-1.2. Identify and map all invasive non-native species identified by Cal-IPC as "Moderate" priority species.

Action 15-1.3. Identify all invasive non-native species identified by Cal-IPC as "Limited" or unrated priority species and map any medium to large populations.

Policy 15-2. The City shall control all "High," "Moderate," and "Limited" priority invasive plant species within the monarch butterfly habitat, except those species for which monarch butterflies are dependent, as feasible.

Action 15-2.1. Control all "High" priority invasive non-native invasive plant species.

Action 15-2.2. Control all "Moderate" priority, non-native invasive plant species.

Action 15-2.3. Eradicate or control all medium or large stands of "Limited" or unrated priority non-native invasive plant species.

Policy 15-3. The City shall undertake annual monitoring as feasible to identify and eradicate or control new occurrences of "High" or "Moderate" priority invasive non-native plant species.

Action 15-3.1. Implement monitoring of eradication efforts and potential new occurrences as part of Program 20, Biological Monitoring Program.

Action 15-3.2. Coordinate with other programs in this MBHMP, including Program 14, Habitat Enhancement and Restoration Program.

Program Status: Currently, no non-native invasive plants species control or detection program is in place for the eucalyptus groves at Ellwood Mesa.

Program Needs: Adoption of this MBHMP and implementation of the MBHMP programs, including Program 15, Invasive Plant Management Program.

Program Contacts: Public Works Department and Planning and Environmental Review Department

16. Ecosystem-wide Management Coordination Program

Overview: The eucalyptus forests, including those areas where seasonal monarch butterfly aggregation sites occur, do not exist as island ecosystems but in fact are part of a broader ecosystem of the Ellwood Mesa and Devereux Creek Watershed, including UCSB's North Campus Open Space (Upper Devereux Slough) and Coal Oil Point Reserve. This MBHMP primarily addresses monarch butterfly eucalyptus tree habitat in the Ellwood Mesa Open Space.

Goal 16. To manage the eucalyptus trees supporting seasonal monarch butterfly aggregation sites by coordinating among the 22 programs directed toward the management of monarch butterfly habitat and to consider management of the eucalyptus forest in the context of managing the entire Ellwood Mesa Open Space.

Policy 16-1. The City shall manage eucalyptus trees in the context of all eucalyptus habitat supporting monarch butterfly aggregation sites at Ellwood Mesa.

Action 16-1.1. When considering implementation of actions for each program, consider their relationships to other actions in the same program.

Action 16-1.2. When considering implementation of actions for each program, consider their relationships to actions in related programs.

Policy 16-2. The City shall manage eucalyptus trees supporting monarch butterfly aggregation sites in the context of all eucalyptus habitat at Ellwood Mesa.

Action 16-2.1. Through results of Program 20, Biological Monitoring Program, consider potential changes in monarch butterfly use of other aggregation locations at Ellwood Mesa, impacts of pests and diseases throughout the eucalyptus forest, or other relevant factors that can potentially affect monarch butterflies and their habitats at Ellwood Mesa.

Policy 16-3. The City shall manage eucalyptus trees supporting monarch butterfly aggregation sites in the context of all habitats at Ellwood Mesa.

Action 16-3.1. When considering implementation of management actions for eucalyptus trees, consider their relationships to management actions for other habitats and programs for all of Ellwood Mesa.

Program Status: The City regularly coordinates the management of Ellwood Mesa with adjoining public agency land managers, including UCSB and Santa Barbara County. The focus of these management meetings is to ensure that trails are connected, grant applications are coordinated, and general issues such as illegal encampments and police enforcement are discussed and collectively addressed.

Program Needs: Adopt this MBHMP and implement its 22 programs considering the potential interaction of the program actions and results. Examples include eradication of exotic plant species

(Program 15, Invasive Plant Management Program) and removal of trash and debris (Program 6, Waste Management Program), followed by habitat enhancement efforts (Program 14, Habitat Enhancement and Restoration Program) within the affected sites in eucalyptus groves, in particular along affected trails (Program 5, Trail Management Program) with potential for additional erosion.

Program Contacts: Public Works Department and Planning and Environmental Review Department

C. OUTREACH PROGRAMS

Outreach programs are designed to provide information to visitors, educators, and students to help develop a broad appreciation for natural resources and local natural heritage, with a focus on monarch butterflies.

17. Community Advisory and Docent Program

Overview: The residents of Goleta have been actively involved in the protection and acquisition of Ellwood Mesa over many decades, with a focus on the conservation of the monarch butterfly aggregation sites. The long-term sustainability of the eucalyptus groves and the aggregation sites they support will depend in part on the continuing public involvement in the process.

Goal 17. To provide a formal vehicle to involve public participation, the City shall engage with the City's butterfly docents to provide recommendations to the Public Works Department.

Policy 17-1. The City shall engage with the City's butterfly docents to review MBHMP implementation work plans and make recommendations to the Public Works Department.

Action 17-1.1. Identify a point of contact with the City's butterfly docents, referred to the as the Butterfly Docent Coordinator, who will coordinate with and speak on behalf of the docents with the Public Works Department, Planning and Environmental Review Department, and Neighborhood Services Department.

Action 17-1.2. Set up regular meetings between the Butterfly Docent Coordinator and City staff.

Policy 17-2. As needed, the City shall continue to support the City's Butterfly Docent Program, the Butterfly Docent Coordinator, and ongoing training for the docents to ensure that educational opportunities for the public are maintained and to demonstrate the City's stewardship of the eucalyptus groves.

Action 17-2.1. Continue to support the Butterfly Docent Program and the Butterfly Docent Coordinator.

Action 17-2.2. Continue to support and update the City of Goleta's monarch butterfly website at www.goletabutterflygrove.com.

Action 17-2.3. Continue to support development of educational materials to be used by docents during scheduled public tours of the monarch butterfly aggregation sites.

Action 17-2.4. Train docents in the details of this MBHMP.

Action 17-2.5. Expand the pool of trained docents and encourage docent assistance with the implementation of this MBHMP.

Program Status: An active Butterfly Docent Program, including a Butterfly Docent Coordinator, has been in operation since 2007.

Program Needs: With adoption and implementation of this MBHMP, the existing docent program becomes part of the structure of this MBHMP. No formal volunteer program exists to assist in the implementation of this MBHMP.

Program Contacts: Neighborhood Services Department, Public Works Department, and Planning and Environmental Review Department.

18. Interpretive Program

Overview: Although there are a few signs identifying the Ellwood Main grove and several behavioral signs regarding trails, there are no interpretive signs that provide information regarding the biology of monarch butterflies, general aspects of Ellwood Mesa, and the importance of the aggregation sites. There is an interpretive sign program at the nearby Coronado Butterfly Preserve. City butterfly docents at Ellwood Mesa provide an important role, and the City's monarch website has important information and links to the National Geographic monarch web information. However, for the casual visitor without web access and without the presence of a docent, there is no interpretive information to assist in understanding this significant biological phenomenon.

Goal 18. To establish a useful and informative interpretive signage program at Ellwood Mesa monarch butterfly aggregation sites that is environmentally sensitive and creates a minimum of intrusion into the habitats.

Policy 18-1. The City shall design and install an interpretive signage program that provides important information on the biology of monarch butterflies, the significance of the aggregation sites, and general information on Ellwood Mesa and the eucalyptus groves, when feasible.

Action 18-1.1. Apply for grant funding to design, construct, and install the interpretive signage program.

Action 18-1.2. Design, construct, and install an interpretive signage program that is sensitive to the environment.

Action 18-1.3. Locate the interpretive signage program in key locations minimally intrusive to the sensitive habitats of Ellwood Mesa.

Policy 18-2. The Butterfly Docent Coordinator shall provide input during design, review the draft interpretive program, and make recommendations to the City.

Action 18-2.1. Involve the butterfly docents in all phases of the interpretive signage program.

Photo 5. Ellwood Main Grove Entrance Sign at Trailhead along Devereux Creek

Program Status: No on-site interpretive program currently exists for the eucalyptus groves supporting monarch butterfly aggregation sites.

Program Needs: Adopt this MBHMP—including Program 18, Interpretive Program—and include links to the city's existing website and docent program.

Program Contact: Neighborhood Services Department and the Public Works Department.

19. Education Program

Overview: Education has always been an important part of the Ellwood Mesa monarch butterfly enthusiasm expressed by the residents of the area. Local and regional schools participate on a regular basis, especially when monarch butterflies are using the seasonal aggregation sites. Also, the National

Geographic educational information is available through the City's website: www.goletabutterflygrove.com. Therefore, it is important that education is a part of this MBHMP.

Goal 19. To provide educational experiences and information for K–12 students.

Policy 19-1. The City shall continue to work with K–12 students and their schools to explore educational experiences regarding Ellwood Mesa and the eucalyptus groves supporting monarch butterfly aggregation sites.

Action 19-1.1. Continue to support the educational opportunities provided by the Ellwood Mesa eucalyptus groves and their monarch butterfly aggregation sites.

Action 19-1.2. Create educational materials regarding biology of monarch butterflies and their habitats.

Action 19-1.3. Continue to support the position of Butterfly Docent Coordinator.

Policy 19-2. The City shall continue to support its website containing educational materials regarding monarch butterflies.

Action 19-2.1. Support, expand, and revise as necessary the City's website www.goletabutterflygrove.com.

Program Status: The City has active participation in K–12 education programs, including scheduled docent-led tours of the aggregation sites when monarchs are present and presentations at local area schools during science fairs. The City's website also includes a link to the Monarch Teachers' Network.

Program Needs: Adoption of this MBHMP—including Program 19, Education Program—will formalize the city's contributions to K–12 students as part of this MBHMP for Ellwood Mesa.

Program Contact: Neighborhood Services Department

D. MONITORING, RESEARCH, AND ADAPTIVE MANAGEMENT PROGRAMS

Monitoring and research programs provide the mechanism for assessing environmental conditions and conducting original studies to help understand the ecology of monarch butterflies, particularly at Ellwood Mesa. Information obtained from these programs and other sources can be used to adapt the MBHMP to improved or additional information or changing conditions.

20. Biological Monitoring Program

Overview: Background studies of monarch butterfly number, aggregation locations, environmental conditions, tree health, wildlife, botanical resources, and climate have been conducted at Ellwood Mesa over many years. However, more detailed studies are warranted regarding tree health and failure risk, aggregation site canopy cover and light intensity, wind patterns, microclimate, soil moisture and water demand, viable forest density, pest control, wildlife species, invasive non-native plants, eucalyptus tree health (including pest and diseases), enhancement and restoration projects within the groves, impacts from access trails, and other important aspects of the biological and physical resources related to monarch butterfly aggregation sites.

Goal 20: To develop and implement a monitoring program integrating various components of the biological resources and impacts related to the eucalyptus groves that support seasonal monarch butterfly aggregation sites.

Policy 20-1. The City shall maintain annual counts of the butterfly population at the various aggregation sites on Ellwood Mesa.

Action 20-1.1. Count and document monarch butterfly population number and cluster locations within the six Ellwood Mesa aggregation sites every year. The counts shall be conducted every 2 weeks through the overwintering season (October 1 through March 15) using the counting protocol established by Xerces Society, as funding allows. Where possible, record the tree tag numbers of trees with clustering monarchs to establish habitat use patterns (Althouse and Meade 2018).

Policy 20-2. The City shall conduct an annual assessment of ecosystem-wide tree and vegetation health on Ellwood Mesa, as funding allows.

Action 20-2.1. Track ecosystem-wide tree and vegetation health on Ellwood Mesa using high resolution multispectral and hyperspectral imaging and analysis, or similar appropriate means (Appendix 2).

Action 20-2.2. Coordinate results of the ecosystem-wide tree health assessment with Program 12, Tree Management Program, as feasible, to determine necessary and applicable management actions.

Policy 20-3. Create a Monitoring Report, updated annually, when feasible, resulting from the information obtained during the implementation of the various policies and actions called for in this MBHMP.

Action 20-3.1. Track the implementation of this MBHMP in the form of a Monitoring Report, preferably updated on an annual basis.

Action 20-3.2. Conduct a Visitor Impact Assessment as part of the monitoring program to determine use patterns and potential impacts on trails, changes in erosion of trails, and potential impacts on aggregation sites through which trails are located.

Action 20-3.3. Coordinate results of the monitoring reports with Program 22, Adaptive Management Program, as feasible, to determine if changes in management actions are necessary.

Program Status: Various studies and butterfly counts have been gathered on a somewhat irregular basis. The City recently conducted a Tree Inventory and Health Analysis. However, no formal regular monitoring program has been developed or implemented at the eucalyptus forest, in particular those areas that support monarch butterfly aggregation sites.

Program Needs: Adopt and implement this MBHMP, including Program 20, Biological Monitoring Program.

Program Contact: Public Works Department

21. Monarch Research Program

Overview: Although the City has conducted field studies as part of the preparation of this MBHMP, the City has not actively encouraged scientific studies using appropriate and cautious methods to maintain and improve habitat of the Ellwood Mesa habitats.

Goal 21. Encourage research projects and identify funding for research associated with monarch butterflies and their habitats at Ellwood Mesa.

Policy 21-1. The City shall allow for certain research projects that investigate the biology of monarch butterflies and their habitats at Ellwood Mesa and that provide information helpful to this MBHMP management programs.

Action 21-1.1. Evaluate requests for research and, where approved, issue Scientific Research Permits to regulate the research efforts.

Action 21-1.2. Ensure that scientists use non-invasive research projects at Ellwood Mesa, in particular those that focus on monarch butterflies and their habitats, and require that the

results of the research are provided to the City and posted on the City's website at www.goletabutterflygrove.com.

Program Status: No formal, ongoing research projects are conducted at the Ellwood Mesa eucalyptus groves that support monarch butterfly aggregation sites.

Program Needs: Adopt and implement this MBHMP, including Program 21, Monarch Research Program.

Program Contact: Public Works Department

22. Adaptive Management Program

Overview: Management plans with ongoing maintenance, restoration, monitoring, and research programs generally develop an information base that helps provide insight into those portions of the implemented management plan that are performing well and those that could be performing better or differently with changing situations. In addition to the update and amendment process provided in Program 8, MBHMP Review, Update, and Amendment Program, the Adaptive Management Program provides a vehicle for the management authority to make adjustments in management approaches on an as-needed basis, especially as new information provides new opportunities for improved management practices and resource stewardship.

Goal 22. To establish an adaptive management approach to resource management at the eucalyptus groves that supports monarch butterfly aggregation sites and their surrounding environment at Ellwood Mesa.

Policy 22-1. The City shall use an adaptive management approach to resource management at the eucalyptus groves that supports monarch butterfly aggregation sites and their surrounding environment at Ellwood Mesa.

Action 22-1.1. Implement adaptive management procedures associated with all relevant programs of this MBHMP for Ellwood Mesa.

Action 22-1.2. Include a description of adaptive management actions in the Monitoring Report (Action 20.2-1).

Action 22-1.3. Conduct a review of management policies and actions every fifth year, as feasible, to determine possible patterns in change regarding monarch butterfly use of the aggregation sites and overall ecosystem health of the monarch butterfly habitat at Ellwood Mesa.

Program Status: Currently, there are no adaptive management procedures associated with the management of the eucalyptus groves at Ellwood Mesa.

Program Needs: Adopt and implement this MBHMP, including Program 22, Adaptive Management Program.

Program Contact: Public Works Department

E. CONCLUSION

This MBHMP for the Ellwood Mesa/Sperling Preserve Open Space provides a fully functional programmatic plan for the management of natural resources, focusing on eucalyptus groves that support the phenomenal occurrence of seasonal aggregations of thousands of monarch butterflies at six aggregation sites at Ellwood Mesa. With adoption and implementation of this MBHMP, the City of Goleta will fulfill a major commitment to the natural resources of Ellwood Mesa and its residents, and all those committed to the conservation of monarch butterflies.

F. REFERENCES

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G. LIST OF PREPARERS

This MBHMP was collaborative effort. Consultants and City staff involved in the preparation of this plan are listed below.

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APPENDICES

APPENDIX 1. IMPLEMENTATION PRIORITIES, SCHEDULE, AND ESTIMATED COSTS

For the purposes of this MBHMP, implementation priorities, scheduling, and cost estimates are provided on a general programmatic basis. Programs are ranked as **Urgent**, **High**, and **Moderate** priority. They also are given an **Ongoing** and **Long-term** (+/- 5-year) scheduling estimate. Cost estimates are on an annual basis, with staff time listed as such and some first-year estimates in brackets. Some programs are listed as grant funded.

Table A1. Implementation Priorities and Cost Estimates

	Cost ($)		City of Goleta Staff Time (hours)				
Program	Annual	One-Time	Annual	One-Time	Priority	Schedule	Department Responsible
A. Administrative Programs							
1. Municipal Management Program	$12,000	$13,000	260	96	High	ASAP	PW
2. Fiscal Program	$1,000	—	196	—	High	ASAP	PW
3. Interagency Cooperative Program	$3,000	—	96	—	High	ASAP	PW, NS, PER
4. Community Wildfire Protection Program	$8,000	—	78	—	Moderate	Annually	PW
5. Trail Management Program	$10,000	$10,000	456	240	Moderate	Annually	PW
6. Waste Management Program	$1,500	—	104	16	Moderate	Annually	PW/NS
7. Aesthetic Resources Management Program	—	—	70	—	Low	Annually	PW
8. MBHMP Review, Update, and Amendment Program	$10,000	—	124	—	Moderate	Annually	PW, PER
9. Catastrophic Event Response Program	$75,000	—	204	—	Moderate	Annually	PW

Program	Cost ($)		City of Goleta Staff Time (hours)		Priority	Schedule	Department Responsible
	Annual	One-Time	Annual	One-Time			
B Natural Resources Management Programs							
10. Monarch Butterfly Management Program	$2,000	—	60	—	High	Annually	PW
11. Wildlife Habitat Management Program	$2,750	—	60	—	Moderate	Annually	PW
12. Tree Management Program	$40,800	—	224	—	High	ASAP	PW
13. Integrated Pest Management Program	$11,500	$5,000	116	—	Moderate	As funding is available	PW
14. Habitat Enhancement and Restoration Program	$30,000	$40,000	296	160	High	ASAP	PW, PER
15. Invasive Plant Management Program	$5,500	$27,500	148	—	Moderate	As funding is available	PW, PER
16. Ecosystem-wide Management Coordination Program	—	—	50	—	Low	Annually	PW, PER
C. Outreach Programs							
17. Community Advisory and Docent Program	$5,000	—	772	—	High	Annually	PW, NS, PER
18. Interpretive Program	$500	$3,000	88	60	Moderate	As needed	PW, NS
19. Education Program	—	—	124	20	Moderate	Annually	NS
D. Monitoring, Research, and Adaptive Management Programs							
20. Biological Monitoring Program	$16,100	—	56	—	High	Annually	PW
21. Monarch Research Program	—	$15,000	24	40	Low	As needed	PW
22. Adaptive Management Program	—	—	32	—	Low	Every 5 years	PW
Totals	$234,650	$113,500	3,634	632			
Grand Total Over 10 Years	**$2,460,000**		**36,972**				

PW = Public Works Department
NS = Neighborhood Services Department
PER = Planning and Environmental Review Department

Table A2. Cost Estimates by Action

	Materials and Contractors Cost ($)		City of Goleta Staff Time (hours)		
	Annual	**One-Time**	**Annual**	**One-Time**	**Notes/Assumptions**
A. ADMINISTRATIVE PROGRAMS					
1. Municipal Management Program					
Action 1-1.1	$4,000	—	—	24	Prepare and conduct public workshop, 40 consultant hours
Action 1-1.2	—	$8,000	—	—	IS/MND
Action 1-1.3	—	$5,000	—	40	Depends on quantity and scope of revisions
Action 1-1.4	—	—	—	32	4 hours for the review by 8 people
Action 1-2.1	—	—	200	—	City coordination
Action 1-3.1	$10,000	—	40	—	Prepare annual Implementation Plan
Action 1-3.2	$2,000	—	20	—	Prepare and conduct City Council presentation, 20 consultant hours
2. Fiscal Program					
Action 2-1.1	—	—	24	—	Accounting staff, 12 hours bi-annually
Action 2-1.2	—	—	8	—	Accounting staff
Action 2-1.3	$1,000	—	8	—	Annual needs list to be included into Implementation Plan, accounting staff to determine operating budget
Action 2-2.1	—	—	136	—	8 hrs/month + 40 hours grant application coordinating
Action 2-2.2	—	—	20	—	As compensatory mitigation fees are paid
3. Interagency Cooperative Program					
Action 3-1.1	$1,000	—	24	—	2 hr/month for coordination meetings/calls with City staff and consultants
Action 3-1.2	$1,000	—	48	—	2 hr/month for coordination meetings/calls with City staff and consultants

	Materials and Contractors Cost ($)		City of Goleta Staff Time (hours)		
	Annual	**One-Time**	**Annual**	**One-Time**	**Notes/Assumptions**
Action 3-1.3	$1,000	—	24	—	2 hr/month for coordination meetings/calls with City staff and consultants
4. Community Wildfire Protection Program (CWPP)					
Action 4-1.1	—	—	12	—	CWPP
Action 4-1.2	$2,000	—	40	—	PW's site maintenance. the majority of this cost is included in Program 14
Action 4-1.3	—	—	—	—	Restrictions on timing of work
Action 4-1.4	$6,000	—	24	—	Coordination with butterfly and fire experts 2hr/mo prior to work activates. Expert time for consultation/surveys/ inspections monthly as necessary
Action 4-2.1	—	—	2	—	Cost incorporated into Program 12
5. Trail Management Program					
Action 5-1.1	—	—	192	—	2 days/month for trail maintenance
Action 5-1.2	—	—	—	—	Cost incorporated into Program 12
Action 5-1.3	$1,000	—	—	—	Staff time in Action 5-1.1
Action 5-1.4	$5,000	$10,000	96	240	Installation cost & 2 wks x 3 staff; maintenance 1 day/mo
Action 5-1.5	—	—	64	—	2 day effort x 2 staff x twice during wet season
Action 5-1.6	—	—	16	—	2 day effort once annually
Action 5-1.7	—	—	8	—	Annual review of trails boundaries
Action 5-1.8	$4,000	—	40	—	5 days x 1 staff and risk assessor, trails, arborist, butterfly biologist
Action 5-2.1	—	—	20	—	Staff coordination time and meetings
Action 5-2.2	—	—	20	—	Staff coordination time and meetings

	Materials and Contractors Cost ($)		City of Goleta Staff Time (hours)		
	Annual	**One-Time**	**Annual**	**One-Time**	**Notes/Assumptions**
6. Waste Management Program					
Action 6-1.1	—	—	96	—	1 day/mo
Action 6-2.1	$1,500	—	—	16	2 days staff time and signs
Action 6-2.2	—	—	4	—	Cost incorporated into Program 17
Action 6-2.3	—	—	4	—	Inspection of trash cans annually
7. Aesthetic Resources Management Program					
Action 7-1.1	—	—	10	—	Read and adopt all programs
Action 7-1.2	—	—	20	—	Program 18
Action 7-2.1	—	—	20	—	Review signage and fencing. Cost included in Program 5
Action 7-2.2	—	—	20	—	Staff time to review restoration plans
8. MBHMP Review, Update and Amendment Program					
Action 8-1.1	$1,000	—	32	—	Staff and consultant time for review
Action 8-1.2	$2,000	—	24	—	City staff and consultant's' time for updates
Action 8-1.3	$2,000	—	24	—	City staff and consultants' time for updates
Action 8-1.4	$2,000	—	24	—	City staff and consultants' time for response to public comments
Action 8-1.5	$3,000	—	12	—	Update IS/MND, if necessary. Consultant time
Action 8-1.6	—	—	8	—	City Council approval/meeting
9. Catastrophic Event Response Program					
Action 9-1.1	—	—	4	—	Cost included in Program 12
Action 9-1.2	—	—	4	—	Cost included in Program 4
Action 9-1.3	—	—	4	—	Cost included in Program 13
Action 9-2.1	$25,000	—	80	—	Expert/arborist/risk/biologist consultant time, plus materials to assess
Action 9-2.2	$50,000	—	80	—	Expert/arborist/risk/biologist consultant time, plus materials to design and implement strategy
Action 9-2.3	—	—	32	—	City staff time

	Materials and Contractors Cost ($)		City of Goleta Staff Time (hours)		
	Annual	**One-Time**	**Annual**	**One-Time**	**Notes/Assumptions**
B. NATURAL RESOURCES MANAGEMENT PROGRAMS					
10. Monarch Butterfly Management Program					
Action 10-1.1	—	—	8	—	Program 12
Action 10-1.2	—	—	8	—	Program 20 and 21
Action 10-2.1	—	—	8	—	Program 9
Action 10-2.2	$1,000	—	20	—	Staying current with research, staff time, and consultant time to inform staff.
Action 10-3.1	—	—	8	—	Program 14
Action 10-4.1	$1,000	—	8	—	Guidance to staff and education
11. Wildlife Habitat Management Program					
Action 11-1.1	$1,000	—	40	—	0.5-hr training per employee
Action 11-1.2	$750	—	8	—	Arborist/biologist as needed
Action 11-1.3	$800	—	—	—	Cost of nesting bird survey if needed, NBS biologist 1 day to confirm nests $800
Action 11-1.4	$200	—	8	—	Educate City/crew to avoid water
Action 11-2.1	—	—	—	—	Program 14
Action 11-2.2	—	—	—	—	Program 14
Action 11-2.3	—	—	—	—	Program 14
Action 11-2.4	—	—	—	—	Program 14
12. Tree Management Program					
Action 12-1.1	$4,800	—	40	—	Monarch biologist (8 hrs) and arborist (16 hrs) site visits. $2400. Implementation Plan preparation 16 hrs. $2400. = $4800. Quarterly site visits 32 hrs, IP 8 hrs
Action 12-1.2	—	—	—	—	Guidance for identifying threats
Action 12-1.3	—	—	—	—	Guidance for establishing thresholds
Action 12-1.4	—	—	—	—	Program 13

	Materials and Contractors Cost ($)		City of Goleta Staff Time (hours)		
	Annual	**One-Time**	**Annual**	**One-Time**	**Notes/Assumptions**
Action 12-1.5	$23,800	—	20	—	Arborist for 5 days: $4000, Butterfly biologist for 1 day to confirm tree work: $800, Wildlife biologist to monitor work for 5 days: $4000, Tree crew for 5 days: 15,000. (Total = $23,800.) City staff to check work for 5 days @4 hrs. (Total = 20 hours.)
Action 12-1.6	—	—	—	—	Would be accomplished with replanting restoration.
Action 12-1.7	—	—	—	—	Program 14
Action 12-1.8	—	—	—	—	Program 20
Action 12-1.9	$1,600	—	—	—	Biologist/arborist field visit 2 days
Action 12-1.10	$5,000	—	60	—	Container trees and labor estimate, depends on # of trees planted.
Action 12-2.1	—	—	—	—	Direction for restoration design
Action 12-2.2	$800	—	32	—	Biologist 1 field day, City staff labor for 4 x 4 days
Action 12-2.3	—	—	—	—	Included in 12-1.5
Action 12-2.4	—	—	—	—	Program 10
Action 12-3.1	—	—	—	—	Included in 12-1.5
Action 12-3.2	—	—	—	—	Included in 12-1.5
Action 12-3.3	—	—	—	—	Included in 12-1.5
Action 12-3.4	—	—	—	—	Included in 12-1.5
Action 12-3.5	—	—	48	—	3 days x 2 staff
Action 12-3.6	$4,800	—	8	—	Implementation Plan. Arborist: 20 hours. Monarch biologist: 20 hours. Report prep: 8 hours. @ 100/ hr. City staff to review Implementation Plan
Action 12-4.1	—	—	0	—	Program 4
Action 12-4.2	—	—		—	Program 4
Action 12-4.3	—	—		—	Program 4
Action 12-4.4	—	—	8	—	To review programs annually
Action 12-4.5	—	—	8	—	Staff time to coordinate

	Materials and Contractors Cost ($)		City of Goleta Staff Time (hours)		
	Annual	**One-Time**	**Annual**	**One-Time**	**Notes/Assumptions**
13. Integrated Pest Management Program					
Action 13-1.1	—	—	—	—	Arborist pest assessment can be done during annual plan site visits, 12-3.6
Action 13-1.2	—	—	—	—	Arborist pest assessment can be done during annual plan site visits, 12-3.6
Action 13-2.1	$5,000	—	40	—	Estimate for experimental techniques
Action 13-2.2	$2,000	—	20	—	Guidance
Action 13-2.3	$3,000	—	24	—	Pest inspection by specialist with recommendations; staff time to review
Action 13-2.4	$1,500	$5,000	32	—	Pest specialist to develop and maintain pest monitoring program and materials, and staff time to implement.
14. Habitat Enhancement and Restoration Program					
Action 14-1.1	$20,000	$25,000	120	80	Container plants, planting, irrigation system, water, maintenance, and monitoring; Initial experimental plots allowance. City staff maintenance: 10 hr/month.
Action 14-1.2	—	—	—	—	Guidance
Action 14-1.3	—	—	—	—	Programs 13 and 15
Action 14-2.1	$10,000	$15,000	120	80	Container plants, planting, irrigation system, water, maintenance, and monitoring; Initial experimental plots allowance. City staff maintenance: 10 hr/month.
Action 14-2.2	—	—	—	—	Program 15
Action 14-2.3	—	—	20	—	Guidance
Action 14-3.1	—	—	12	—	Coordination activities
Action 14-3.2	—	—	12	—	Coordination activities
Action 14-3.3	—	—	12	—	Coordination activities
Action 14-4.1	—	—	—	—	Direction for collection locations

	Materials and Contractors Cost ($)		City of Goleta Staff Time (hours)		
	Annual	**One-Time**	**Annual**	**One-Time**	**Notes/Assumptions**
Action 14-4.2	—	—	—	—	Direction for collection locations
Action 14-4.3	—	—	—	—	Direction for collection locations
Action 14-5.1	—	—	—	—	Coordinate with Program 10, 11, 12
Action 14-6.1	—	—	—	—	Coordinate with Wildfire Protection Plan
15. Invasive Plant Management Program					
Action 15-1.1	$2,500	$5,000			Renew map every two years. Initial mapping for 1511.1, 1.2, and 1.3 = 40 hrs. Botanist: 10 hrs. GIS @ $100 = $5000
Action 15-1.2	—	—	—	—	Cost in 15-1.1
Action 15-1.3	—	—	—	—	Cost in 15-1.1
Action 15-2.1	$1,000	$7,500	36		Control invasive plants allowance. Hand removal, herbicide. Hand crews CCC for 5 days per year.
Action 15-2.2	$1,000	$7,500	36		Control invasive plants allowance. Hand removal, herbicide
Action 15-2.3	$1,000	$7,500	36		Control invasive plants allowance. Hand removal, herbicide
Action 15-3.1	—	—	20	—	Program 20
Action 15-3.2	—	—	20	—	Program 14
16. Ecosystem-wide Management Coordination Program					
Action 16-1.1	—	—	20	—	Guidance for staff
Action 16-1.2	—	—	10	—	Guidance for staff
Action 16-2.1	—	—	10	—	Guidance for staff
Action 16-3.1	—	—	10	—	Guidance for staff
C. OUTREACH PROGRAMS					
17. Community Advisory and Docent Program					
Action 17-1.1	—	—	4	—	Hire docent coordinator
Action 17-1.2	—	—	64	—	2 hrs/wk for 8 month (Aug–Mar)
Action 17-2.1	$5,000	—	640	—	20 hrs/wk for 8 month (Aug–mar), supplies for the program

	Materials and Contractors Cost ($)		City of Goleta Staff Time (hours)		
	Annual	**One-Time**	**Annual**	**One-Time**	**Notes/Assumptions**
Action 17-2.2	—	—	64	—	2 hrs/wk for 8 month (Aug–Mar)
Action 17-2.3	—	—	—	—	Incorporated in Action 17-2.1
Action 17-2.4	—	—	—	—	Incorporated in Action 17-2.1
Action 17-2.5	—	—	—	—	Incorporated in Action 17-2.1
18. Interpretive Program					
Action 18-1.1	—	—	40	40	Staff prepare grant applications
Action 18-1.2	$500	$3,000	20	20	Design and install signage
Action 18-1.3	—	—	20	—	Guidance for signs
Action 18-2.1	—	—	8	—	Guidance for signs
19. Education Program					
Action 19-1.1	—	—	80	—	1 hr/tour x 80 tours average, by docents
Action 19-1.2	—	—	20	20	Create education materials and keep them updated
Action 19-1.3	—	—	—	—	Incorporated in Action 17-2.1
Action 19-2.1	—	—	24	—	Monthly updates. 12 x 2 hrs. = 24 hrs
D. MONITORING, RESEARCH, AND ADAPTIVE MANAGEMENT PROGRAMS					
20. Monitoring Program					
Action 20-1.1	$4,800	—	20	—	This could be docents for 48 hours: 4 hours per survey for 12 surveys
Action 20-2.1	$4,800	—	—	—	Per year estimate. One field day with drone to cover 4 sites; camera use, analysis, and brief report
Action 20-2.2	—	—	20	—	Staff coordination
Action 20-3.1	$3,000	—	4	—	30 hrs for biologist for monitoring report, staff review
Action 20-3.2	$3,000	—	4	—	30 hrs for biologist for visitor impact assessment, staff review.
Action 20-3.3	$500	—	8	—	Coordination of programs for biologists and staff
21. Monarch Research Program					
Action 21-1.1	—	$15,000	16	40	Evaluate requests for research and issue permits as needed.
Action 21-1.2	—	—	8	—	Guidance for research permits

	Materials and Contractors Cost ($)		City of Goleta Staff Time (hours)		
	Annual	**One-Time**	**Annual**	**One-Time**	**Notes/Assumptions**
22. Adaptive Management Program					
Action 22-1.1	—	—	16	—	16 hours per year staff time
Action 22-1.2	—	—	8	—	8 hours per year staff time
Action 22-1.3	—	—	8	—	8 hours per year staff time
TOTALS	**$203,650**	**$63,500**	**3226**	**472**	

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APPENDIX 2. SPECTRAL IMAGING AND ANALYSIS FOR ASSESSING TREE HEALTH

To monitor and determine vegetation health within the aggregate sites, spectral imaging and analysis will be used. In the last few decades, high resolution multispectral and hyperspectral imaging have become more commonly used by agricultural and horticultural industries to manage soil, fertilizing, and irrigation, and to monitor the health of crops. Spectral imaging is similar to digital photography except that instead of just collecting an image of three primary colors or bands (red, green, and blue; RGB) the multispectral camera sensor (spectrometer) divides the color range into multiple discrete bands of colors (typically 5 to 15 bands for multispectral to greater than 100 for hyperspectral) across the visible and near-infrared spectrums. In addition, the image captures data about the amount of light for each band that reaches the sensor. Since most plants with chlorophyll absorb light in the red (650 to 700 nm) and blue spectrum (425 to 475 nm) and reflect green and yellow light (500 to 600 nm), changes in the ratio of light within these regions can be used to determine vegetation health over time or in comparison to known healthy vegetation. By using spectral imaging over traditional arborist techniques, small changes in vegetation health can be assessed rapidly, the data can be quantified, and management decisions can be monitored for effectiveness. In addition, very little quantifiable information about the health of vegetation and butterfly use of aggregation sites has been studied.

To monitor the health of vegetation in aggregate sites, a ground-based imaging spectrometer will be used at set locations within the study area and within known aggregates sites. The spectrometer will be placed on a tripod at a known elevation and location within a study site. A series of images (both spectral and RGB) will be taken at a predefined aspect and slope of the tree canopy and surrounding vegetation. All perennial vegetation (trees and shrubs) within each image will be identified, and a visual assessment of vegetation health will be recorded and catalogued in order to track changes over time. For at least the first 2 or 3 years of the study, images should be taken three times during the year to help determine phenotypical color differences (variation in color due to genetics) between members of the same species and to calibrate seasonal changes. Afterwards, image frequency can be reduced to twice a year (at the beginning and middle of the growing season). For each spectral image, key individuals will be identified, and multiple pixel groups will be sampled across the foliage using multispectral imaging software and statistically analyzed to determine relative chlorophyll absorbance and reflectance, to indicate vegetation health.

By comparing changes in spectral signatures of like species and individuals, and by looking for abnormal changes for all species over time, the health of vegetation can be assessed. Individual, chronic changes to perennial vegetation can help determine which individuals are stressed and have a higher potential for mortality, while overall changes to the ecosystem can indicate climate stressors (e.g., drought) or toxic conditions (e.g., pollution). Since modern cameras are small and light enough to be mounted to unmanned aerial vehicles (UAVs), this technique can be used to determine whole forest health by sampling upper canopy foliage (once yearly) along with below canopy aggregation sites. This would allow for a whole ecosystem assessment and would help determine stressed locations or individual species across the whole study area.

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APPENDIX 3. NATIVE PLANTS TO BE INCLUDED IN HABITAT RESTORATION EFFORTS

The following plants are native to the Central Coast of California and are known to offer several valuable elements to enhance the quality and longevity of native coastal habitats, including: fall and winter nectar source for monarch butterflies, canopy for wind protection, food source for wildlife, drought resistance, and fire resistance. California native plants are plants that were present in California prior to the arrival of European explorers and colonists in the late 18th century. Native plant stock should be sourced from local populations.

Restoration Plant List	**Location**			**Purpose**					
Common Name (*Scientific Name*)	**Over-wintering Site**	**Open Area Adjacent to Overwintering Site**	**Devereux Creek**	**Understory Windbreak**	**Nectar Source**	**Wildlife Habitat and Forage**	**Fire Resistant**	**Drought Tolerant**	**Erosion Control**
Trees									
coast live oak (*Quercus agrifolia*)	X	X		X		X	X	X	
western sycamore (*Platanus racemosa*)			X			X			
toyon (*Heteromeles arbutifolia*)	X			X		X	X	X	X
arroyo willow (*Salix lasiolepis*)			X			X			X
hollyleaf cherry (*Prunus ilicifolia*)		X			X	X	X	X	
Shrubs									
seacliff buckwheat (*Eriogonum parvifolium* var. *parvifolium*)		X				X			
California bay laurel (*Umbellularia californica*)	X			X				X	
California wax myrtle (*Myrica californica*)	X			X				X	
lemonade berry (*Rhus integrifolia*)		X		X	X	X	X	X	X
golden currant (*Ribes aureum*)		X		X	X	X	X	X	
Mulefat (*Baccharis salicifolia*)			X		X	X			
California brittlebush (*Encelia californica*)		X			X	X		X	X
California goldenrod (*Solidago veluntina* ssp. *Californica*)		X			X	X		X	
California goldenbush (*Ericameria ericoides*)		X			X	X		X	
saltmarsh baccharis (*baccharis douglasii*)			X		X	X			X
coyote bush (*Baccharis pilularis*)		X			X	X		X	
black sage (*Salvia mellifera)*		X			X	X		X	

Restoration Plant List	Location			Purpose					
Common Name (*Scientific Name*)	**Over-wintering Site**	**Open Area Adjacent to Overwintering Site**	**Devereux Creek**	**Understory Windbreak**	**Nectar Source**	**Wildlife Habitat and Forage**	**Fire Resistant**	**Drought Tolerant**	**Erosion Control**
seaside fleabane (*Erigeron glaucus*)		X			X	X		X	
purple sage (*Salvia leucophylla)*		X			X	X		X	
blueblossom (*Ceanothus thyrsiflorus)*		X			X	X		X	
Groundcovers									
purple needlegrass (*Nassella pulchra*)		X				X		X	X
dwarf coyote bush (*Baccharis piluaris* "Pigeon Point")	X	X		X		X	X	X	X
blue-eyed grass (*Sisrinchium bellum*)		X			X	X	X	X	
bluedicks (*Dichelostemma capitatum)*		X			X	X		X	

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Attachment 2:

Draft Ellwood Mesa / Sperling Preserve Open Space Monarch Butterfly Habitat Management Plan 2018 Implementation Plan

Draft Ellwood Mesa/Sperling Preserve Open Space Monarch Butterfly Habitat Management Plan 2018 Implementation Plan

CITY OF GOLETA

Draft
Ellwood Mesa/Sperling Preserve Open Space Monarch Butterfly Habitat Management Plan 2018 Implementation Plan

July 2018

Prepared by:

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Approved by Resolution No. CC-18-XX
July 2018

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Cover photo: Ellwood North, view east June 2, 2017

1.0 INTRODUCTION

1.1 PURPOSE

The Ellwood Mesa/Sperling Preserve Open Space Monarch Butterfly Habitat Management Plan (MBHMP) (City of Goleta 2018) calls for this Ellwood Mesa 2018 Implementation Plan (EMIP or Implementation Plan), which presents work tasks to be accomplished in 2018 for the maintenance and preservation of Ellwood Mesa. The purpose of this work is to implement the goals outlined in the MBHMP's 22 programs. This 2018 Implementation Plan will focus on the policies, goals, and actions from 9 of the 22 programs in the MBHMP, as listed below:

- Trail Management Program (Program 5)
- Monarch Butterfly Management Program (Program 10)
- Tree Management Program (Program 12)
- Habitat Enhancement and Restoration Program (Program 14)
- Invasive Plant Management Program (Program 15)
- Community Advisory and Docent Program (Program 17)
- Interpretive Program (Program 18)
- Education Program (Program 19)
- Biological Monitoring Program (Program 20)

The focus of the work this year is to protect and enhance habitat for monarch butterflies and other wildlife and to sustain natural habitat on Ellwood Mesa to support wild species and benefit public use and enjoyment of this open space area. Actions delineated are directed toward protection and improvement of individual trees, as well as restoration of areas where trees have died.

1.2 PROBLEM OF IMMEDIATE CONCERN

The eucalyptus forest on Ellwood Mesa suffered during an historic 5-year drought from 2011 to 2016, as evidenced by damaged and dead trees. The loss of living trees and the reduction in canopy and cover has degraded the habitat value for monarch butterflies, birds, and other wildlife. A count of dead trees was conducted by the City of Goleta (City) in 2017 that determined 1,260 trees on City property were dead. This included 59 dead trees in monarch butterfly aggregation sites, 247 within falling distance of public designated trails, and 28 that were removed in 2017. As of January 2018, within the aggregation sites, 2 trees have fallen and 1 has been removed, reducing the number to 56. At least 3 other trees have fallen, and others have died along trails. Work recommended by this EMIP includes replacement of the 28 trees removed in 2017 and replacement of trees proposed for removal in 2018.

Disease from insect pests and pathogens continues to affect the health of the forest. Insect pests absent from California prior to 1985 contributed significantly to the death of trees. Dead and decadent trees reduce opportunities for recruitment and regrowth of young trees. These dead trees may also present an imminent hazard to adjacent residences and to members of the public who extensively use the Ellwood Mesa trails, open space, and beach. Balancing preservation and protection of the spectacular monarch butterfly overwintering natural phenomenon with safe management of the forest is a primary driver of this Implementation Plan.

Since the tally of dead trees was completed, other trees that were stressed and showed signs of pest damage have died. Conducting surveys to identify dead trees and add to the list of risk assessment trees should be an ongoing task for the Ellwood forests.

The EMIP is intended to protect and enhance habitat for monarch butterflies and the suite of other species known to occupy Ellwood Mesa eucalyptus forest. This would be accomplished by safe removal of trees that have become a hazard and do not contribute to the protection of monarch butterfly aggregation sites. This EMIP presents three categories of actions based on tree conditions: (1) action directly related to public safety (wildfire hazard and falling trees in public areas) and damage to butterfly aggregation site trees, (2) butterfly aggregation site health long-term maintenance, and (3) management actions for tree health outside of the aggregation sites in the greater Ellwood eucalyptus forest. A proposed schedule of actions to be taken is provided in Section 5.0, Schedule (Table 4).

1.3 ENVIRONMENTAL SETTING

Ellwood Mesa contains approximately 78 acres of eucalyptus forest and windrow habitat. Three species of eucalyptus are present: blue gum (*Eucalyptus globulus*), river red gum (*E. camaldulensis*), and red ironbark (*E. sideroxylon*). Blue gum eucalyptus is the dominant species on Ellwood Mesa. Within the eucalyptus forest, there are five locations known to regularly harbor monarch butterfly aggregations through the overwintering period from October 1 through March 31. Four of these—Ellwood Main, Ellwood West, Ellwood North, and Sandpiper—are on City property. A portion of the Sandpiper aggregation site and all of Ellwood East aggregation site are on private property. The Ocean Meadows site has a few monarch butterflies on rare occasions. The Ellwood Monarch Butterfly groves, especially the aggregation site known as Ellwood Main, are well-known and visited by thousands of people each year. Ellwood Main has been specifically designated as a location for visitors to view the butterflies and has been configured with rope barriers, trails, and viewing areas for the public.

1.4 TREE CONDITION ASSESSMENT

Each tree within the Ellwood monarch butterfly aggregation sites (East, Main, West, North, and Sandpiper [eastern portion on City property]) was evaluated for health in 2017 by Certified Arborist Cory Meyer, and for use by monarch butterflies by Daniel E. Meade, Ph.D. Individual trees were tagged with metal tree tags, their measures and condition were documented, and their locations were recorded using sub-meter accuracy Trimble GeoXT global positioning system (GPS) and plotted using ArcGIS.

Following the aggregation site tree assessment, the City undertook a survey to document all the dead trees on Ellwood Mesa. That survey found 1,260 dead trees as of September 2017.

These two tree assessments thus documented all dead trees on Ellwood Mesa. The dead trees in monarch butterfly aggregation sites and along public trails were specifically targeted for further evaluation.

1.5 VEGETATION MANAGEMENT PLANS

The Xerces Society management guidance document, *Protecting California's Butterfly Groves, Management Guidelines for Monarch Butterfly Overwintering Habitat,* was published November 7, 2017 (Jepsen et al. 2017). This Implementation Plan incorporates The Xerces Society guidance and is consistent with its recommendations. The EMIP also consulted the University of California San Francisco Mount Sutro Open Space Reserve Vegetation Management Plan (UCSF 2018) and the Monarch Butterfly Overwintering Site Management Plan for Lighthouse Field State Beach (Pelton et al. 2017); it uses applicable management and restoration recommendations from these plans.

This Implementation Plan is consistent with policies and actions of the Ellwood Mesa/Sperling Preserve Open Space Monarch Butterfly Habitat Management Plan and the City of Goleta General Plan policies.

1.6 RESPONSIBLE PARTIES

Table 1 provides contact information for responsible parties.

Table 1. Responsible Parties

Lead Agency	Biological Consultants
City of Goleta Planning and Environmental Review 130 Cremona Drive, Suite B Goleta, CA 93117 805-961-7543 Contact: Peter T. Imhof Planning and Environmental Review Director pimhof@cityofgoleta.org	**Althouse and Meade, Inc.** 1602 Spring Street Paso Robles, CA 93446 (805) 237-9626 Contact: Dr. Daniel E. Meade dan@althouseandmeade.com **Rincon Consultants** 209 Victoria St., Suite B Santa Barbara, CA 93101 805-319-4092 Contact: Christopher Julian cjulian@rinconconsultants.com
Property Owner Representative/Manager	**Responsible Agency**
City of Goleta Public Works 130 Cremona Drive, Suite B Goleta, CA 93117 805-961-7543 Contact: Charlie Ebeling Interim Public Works Co-Director cebeling@cityofgoleta.org	**California Coastal Commission** Ventura Field Office 89 S. California Street, Suite 200 Ventura, CA 93001-2801 (805) 585-1800 Contact: Jonna Engel Jonna.Engel@coastal.ca.gov

2.0 MONARCH BUTTERFLIES AND SIGNAGE IMPLEMENTATION

The MBHMP's Monarch Butterfly Management Program (Program 10), Community Advisory and Docent Program (Program 17), Education Program (Program 19), and Biological Monitoring Program (Program 20) will be implemented during 2018. They will include the replacement and installation of new signage and the continued monitoring and counting of the overwintering monarch butterfly population.

2.1 MONARCH POPULATION COUNTS

For almost three decades, the population of overwintering monarch butterflies has been tracked at the Ellwood Mesa/Sperling Open Space Preserve during the monarch butterfly overwintering season. This monitoring will continue by counting and documenting the monarch butterfly population number and cluster locations within the six Ellwood Mesa aggregation sites every year. The counts will be conducted every 2 weeks through the overwintering season (October 1 through March 15) using the counting protocol established by the *Step-by-Step Western Monarch Thanksgiving Count Monitoring Guide (*The Xerces Society for Invertebrate Conservation 2017). Where possible, the tag numbers of trees will be recorded with clustering monarch butterflies to establish habitat use patterns (Althouse and Meade 2017, or as updated).

2.2 MONARCH DOCENT PROGRAM

As the trails are deemed passable, the Monarch Butterfly Docent Program will continue as it has in recent years, leading field trips and tour groups and providing a knowledgeable presence in the Ellwood Mesa/Sperling Open Space Preserve to improve visitor experience and education. These activities are described in the Community Advisory and Docent Program (Program 17) and the Education Program (Program 19) of the MBHMP.

2.3 SIGNAGE

Following the parameters of the MBHMP, replacement signage and installation of new signage will occur throughout the Ellwood Mesa/Sperling Open Space Preserve. Three types of signs will be installed: replacement trail markers, educational signs, and safety signs.

2.3.1 Replacement Trail Markers

Replacement signage will mark the trails toward the Goleta Butterfly Grove (Ellwood Main), provided safety concerns have been addressed (Section 3.0), and following the Trail Management Program (MBHMP Program 5). These signs will be placed at various locations between the Sperling parking lot and the Coronado Preserve entrance and the Goleta Butterfly Grove. The City and sign designers will collaborate with the Santa Barbara Land Trust to create trail markers and educational signs to guide visitors between the Coronado Preserve and the Ellwood Mesa/Sperling Open Space Preserve.

2.3.2 Educational Signs

Informational signs will educate visitors on the biology, migration, and behavior of monarch butterflies. These signs will be placed in and around the Goleta Butterfly Grove, following the Interpretive Program (MBHMP Program 18).

2.3.3 Safety Signs

Safety signs will inform the public about trail closures while alerting them to be aware of falling limbs and branches overhead, following the Trail Management Program (MBHMP Program 5). Present trail closure signs will be removed and replaced with signage educating users about the risks associated with using trails near dead/dying trees that may fall or shed limbs. "Enter at your own risk" or similar warnings will be posted.

3.0 TREE, TRAIL, AND HABITAT IMPLEMENTATION

Implementation of the MBHMP's Trail Management Program (Program 5) and Habitat Enhancement and Restoration Program (Program 14) will occur in 2018; each is detailed in this section.

Goals, objectives, and actions are described (Section 3.2) for restoration and maintenance work set for Ellwood Mesa in 2018 according to the MBHMP. Activities will include restoration of trees removed in 2017 and restoration work to compensate for tree removal or enhance habitat. Means and methods for tree restoration are provided herein, and locations are specified for those actions needed to protect the public and aggregation sites from falling trees.

3.1 PRIORITIES AND TIMING OF WORK

A limited window of opportunity exists each year for working in areas where monarch butterflies aggregate. Restoration activities may be conducted throughout the year if they do not affect wildlife (including butterflies) or water quality. Therefore, work recommendations will be directed to beneficial actions for monarch butterfly aggregations and public safety.

3.2 GOALS, OBJECTIVES, ACTIONS

Goal 1. Public Trails: Balance Public Safety with Habitat Preservation

Ensure public safety along trails in the Ellwood Mesa within reason while balancing the importance of habitat.

Objectives

Objective 1. Ensure agency review of Implementation Plan occurs before executing the Implementation Plan.

Objective 2. Remove hazard trees and large branches that are dead and/or present an imminent threat to public safety (near public trail network and public gathering areas like Ellwood Main viewing area) and monarch butterfly habitat.

Objective 3. Identify restoration areas, methods, species, and plant numbers.

Objective 4. Identify tree management and removal staging areas and vehicle and equipment access routes that minimize impacts on the Ellwood Mesa and forest.

Objective 5. Identify transport routes and appropriate offsite receiver locations for trees removed from the site.

Objective 6. Coordinate with tree removal teams to ensure that all actions used to remove or trim hazard trees will minimize or avoid damage or loss of living trees and will avoid nesting birds.

Action

Action 1. Prepare a tree restoration planting map consistent with the MBHMP that designates number, species, size, and specific locations of trees to be planted.

Goal 2. Wildlife Habitat Health outside Aggregation Areas

Areas of dead trees on Ellwood Mesa occur outside of monarch butterfly aggregation sites and trail safety zones. Long-term restoration plans include the following objectives and actions to protect and enhance the Ellwood Mesa forest.

Objectives

Objective 7. Within the forest, conduct restoration to benefit habitat for monarch butterflies and wildlife, and maintain the extent and improve the condition of the Ellwood forest.

Actions

Action 1 applies to this section, plus the following:

Action 2. A monarch butterfly biologist and Certified Arborist will recommend locations where restoration and re-forestation are appropriate (Figure 1).

Action 3. For 2018, develop a pilot project to implement re-forestation where significant die-off of trees has occurred.

Action 4. Incorporate a forest health assessment in the Ellwood Mesa/Sperling Preserve Butterfly Habitat Management Plan for ongoing forest management.

Action 5. Implement restoration when this Implementation Plan is approved.

Timing. Tree removals for this goal are not proposed for 2018. If necessary, restoration work may be conducted until the end of the year. Rainy day avoidance and best management practices to prevent erosion must be implemented. Any work done after October 1 must be approved by qualified biologists to ensure avoidance and minimization of impacts on monarch butterfly aggregations and other wildlife.

4.0 WORK APPROACH

Work for 2018 consists of restoration of trees removed in 2017. Restoration of habitat areas where trees have already been removed would be conducted in the location designated on Figure 1. Work will be managed by the City. A licensed landscape contractor and/or vegetation management specialist will be contracted by the City to conduct restoration actions such as tree removal and replacement.

4.1 RESTORATION ACTIONS

In 2017, 28 dead eucalyptus trees that presented a risk to the public on trails were removed. One tree designated for removal due to extremely poor condition was trimmed and retained under the direction of the Certified Arborist in case recovery was possible. Replacement of these trees will be accomplished by planting 28 eucalyptus trees (Figure 1). Replanting will be conducted in accordance with the University of California Cooperative Extension guidance found in *Planting Landscape Trees,* Publication 8046 (Exhibit A) and direction provided in this section of the EMIP.

4.2 HABITAT RESTORATION

Habitat restoration actions to be taken include replacement of dead or hazardous trees removed and maintenance of restored habitat. All trees removed will be replaced at a 1:1 ratio. Tree removal and tree replacement locations for 2018 are shown on Figure 1. The final planting and temporary irrigation plans must be consistent with the conceptual plan and approved by the City of Goleta, Planning & Environmental Review and Public Works Departments.

4.2.1 Replacement Trees

Replacement trees will be a 5-gallon container stock (as available) planted where shown in Figure 1. If smaller containers are available, the number of plantings will be increased to a 2:1 ratio. Trees will be obtained from commercial nurseries. Final planting and temporary irrigation plans must be consistent with this Implementation Plan and approved by the City of Goleta, Planning & Environmental Review and Public Works Departments.

Phase 1. Twenty-eight trees removed in 2017 were eucalyptus. Replacement trees are primarily red ironbark eucalyptus due to proximity to existing red ironbark trees and drought tolerance of this species. The following replacement trees are proposed:

- 22 red ironbark eucalyptus (5-gallon)
- 6 blue gum eucalyptus (5-gallon)

4.2.2 Replacement Methods

Replacement trees will be planted in the immediate vicinity of removed trees in replanting zones (Figure 1). Locations will be marked in the field by the tree installer with pin flags or wooden stakes designating tree species to be planted. Planting locations and species will be verified by the

monarch butterfly specialist and Certified Arborist. Planting spots will be in openings with approximately 15 feet or greater radius between live eucalyptus trunks.

Planting will be conducted under the supervision of a licensed landscape contractor, Certified Arborist, or qualified restoration biologist. Planting activities may be conducted by volunteers through the City's volunteer program.

Trees will be planted as described below in accordance with the University of California Cooperative Extension guidance found in *Planting Landscape Trees,* Publication 8046 (Exhibit A). Browsing by deer or damage by wildlife is not expected.

- Holes will be dug at least twice the diameter, but not more than 2 inches deeper, than the root ball.
- Excavated soil may be mixed with wetting agents and organic material to increase plant growth. One example is a unique, all-purpose soil surfactant containing 5 percent kelp concentrate (Kelpro® or equivalent) to stimulate plant root growth. Hydrolink Advance® (or equivalent) is a year-round wetting agent that assists with penetration and retention of moisture, particularly in heavier soils or mulched surfaces. In addition to the concentrated kelp extract, Hydrolink Advance contains 45 percent blended surfactant, including a strong surface tension agent for rapid soil and mulch penetration.
- The root crown will be planted slightly above ground elevation. Fill material will be backfilled and tamped around the root ball to eliminate air pockets.
- Vinyl stem protection will be wrapped at least 8 inches up each stem.
- A 6-foot-diameter ring of loose soil will be formed to create a basin. Loose soil will be covered with 2 to 4 inches of mulch and/or compost, keeping mulch 2 to 3 inches from the stem. Mulch refers to a layer of organic material over soil, such as naturally deposited leaves or thatch. Compost may also be used with mulch. Compost is a mixture of decaying organic matter. Both mulch and compost are spread directly over soil. They protect soil from raindrop erosion, retain soil moisture, and enhance nutrient release to the young tree roots. On steeper slopes, mulch and compost must be used in conjunction with rolled erosion control products to prevent loss during wind, rain, or runoff. Wood chips may be placed over the mulch and between sapling planting locations to protect soil from erosion, and to reduce evaporative loss of soil moisture.

In windy areas, trees will be braced with at least two tree stakes, with flexible straps placed below the canopy where practicable. In areas with high winds, three stakes may be required.

Each tree will be outfitted with a numbered stake. The number will be recorded with GPS coordinates and identified on maps prepared to report planting results. After installation, replacement tree number, species, height, sapling caliper, and/or diameter at breast height (DBH) (as applicable) will be recorded. Notes regarding microsite condition and nearest neighbor trees/shrubs will also be recorded (e.g., thin soil, north-facing slope, *E. globulus* within 20 feet).

4.2.3 Irrigation

The 2018 Implementation of the MBHMP will include the irrigation for 28 planted trees in the area specified. Irrigation water will be supplied to supplement natural rainfall through the establishment period. Replacement trees must be watered until established, which may require several years, depending on rainfall patterns. Saplings may be outfitted with Tree Gators (or equivalent) that may be periodically filled by a water truck, or they may be directly watered by hose from a water truck at regular intervals. For the first year of planting, a generous soaking of the soil surrounding each replacement tree will occur every week during the dry season (May through October) and every month during the wet season (November through April) unless significant rainfall occurs. This watering schedule will be confirmed by the restoration specialist/contractor and may be adjusted based on the condition of the replacement trees.

A water tank may be necessary to fulfil irrigation requirements. An irrigation plan must be prepared with input from the restoration contractor to suit the demands of the replacement trees. The irrigation plan will include water source(s) (potable vs reclaimed), watering schedule, water quantity, water storage (if tanks are used), water distribution (hoses, valves, pumps, lines, emitters), energy source (e.g., electricity or solar), and security (materials, methods, and practices to limit opportunities for vandalism).

4.2.4 Weed Control

Table 2 lists weed species in and near the Implementation Area that are on the California Department of Food and Agriculture (CDFA) Noxious Weeds List, the California Invasive Plant Council (Cal-IPC) Invasive Plant Inventory, or both lists. Current extent at the site, potential to increase after module installation, and recommendations regarding the need to eradicate or control each species are also provided. Those species that require management are discussed in more detail in the subsections below. Species that are naturalized and widespread in the region that do not present habitat or management concerns are not discussed further in this document.

Mock orange (*Pittosporum undulatum*) and myoporum (*Myoporum laetum*), have become established in some areas of the forest. Myoporum is rated a moderate invasive plant species. Mock orange is not in the Cal-IPC plant inventory. The spread of these two species should be monitored and included in annual assessments of forest condition. Any actions proposed should be reviewed and approved by a monarch butterfly expert.

English ivy (*Hedera helix*) and Algerian ivy (*Hedera canariensis*) are rated as high in the inventory of invasive plants. Both species are lumped together in California invasive weed lists. Cal-IPC (2012) provides the following description of ivy infestation:

> English ivy can alter natural succession patterns in forests. It forms ivy deserts of vigorous vines in forests where nothing else seems able to compete. It inhibits regeneration of understory plants, including forest wildflowers and new trees and shrubs (Thomas 1980). By blocking regeneration in forests, it jeopardizes their long-term persistence. English ivy also kills trees in the understory and overstory by shading them out (Thomas 1980). It tends to grow up tree trunks into branches, especially those of deciduous trees. (Cal-IPC 2012)

Herbicide application on English or Algerian ivy has poor success—due to the waxy nature of leaves—and is not recommended. No effective biological control has been found; because of the wide use of both species for ornamental plantings, introduction of a biological control is not appropriate. Cal-IPC (2012) recommends:

> "The best method for controlling English ivy may be hand removal of vines using pruners to cut the vines and then pulling the plants up from the forest floor and down from the trees. Removing and killing vines that spread up into trees is especially important because the fertile branches grow primarily on upright portions of the vine. If vines are cut at the base of the tree the upper portions will die quickly but may persist on the tree for some time; vines on the ground around the tree should also be removed to prevent re-growth up the tree. Care should be taken to minimize disturbance during removal. If the forest floor becomes disrupted, appropriate native species should be planted on the site to inhibit re-infestation by English ivy or another invader (Humphries et al. 1991).

Table 2. Weedy Species

Scientific Name Common Name Plant Family	**Weed Rating**	**Pre-Action Distribution and Discussion**	**Level of Management**
Centaurea melitensis Tocalote Asteraceae	CDFA C Cal-IPC Moderate	Common in disturbed areas on mesa. Can invade disturbed areas such as trail borders.	Control
Convolvulus arvensis Field bindweed Convolvulaceae	CDFA C (Cal-IPC Evaluated and Not Listed)	Widely distributed, common in open grassland areas.	Control as needed only if adversely affecting young trees.
Hirschfeldia incana Perennial mustard Brassicaceae	Cal-IPC Moderate	Occasional throughout site. Fire hazard when dense.	Control
Salsola tragus Russian thistle Chenopodiaceae	CDFA C Cal-IPC Limited	Occasional in disturbed areas.	Control
Bromus diandrus Rip-gut brome Poaceae	Cal-IPC Moderate	Recruits easily to disturbed sandy soil.	Control where it adversely affects saplings.
Ehrharta calycina Perennial veldt grass Poaceae	Cal-IPC High	Recruits easily to disturbed sandy soil.	Eradicate where it adversely affects saplings.
Foeniculum vulgare Fennel Apiaceae	Cal-IPC High	Recruits to disturbed areas in the coastal zone.	Eradicate
Hedera canariensis Algerian ivy Araliaceae	Cal-IPC High	Competes with trees for water and sunlight.	Eradicate
Hedera helix English ivy Araliaceae	Cal-IPC High	Competes with trees for water and sunlight.	Eradicate

Scientific Name Common Name Plant Family	**Weed Rating**	**Pre-Action Distribution and Discussion**	**Level of Management**
Hirschfeldia incana Perennial mustard Brassicaceae	Cal-IPC Moderate	Recruits easily to disturbed sandy soil.	Control where it adversely affects saplings.
Myoporum laetum Myoporum Scrophulariaceae	Cal-IPC Moderate	Occasional recruit from residential gardens.	Eradicate from planting zones.
Pittosporum undulatum Mock orange Pittosporaceae	Cal-IPC Watch List	Uncommon recruit from residential gardens.	Remove from planting zones.

Note: Scientific name, common name, plant family, weed rating from CDFA, Cal-IPC, and level of management concern for the success of the Implementation Plan are presented in order of scientific name.

4.2.5 Site Restoration Public Information Signs

Public information signs will be placed near each of the three tree planting areas. At a minimum, signs will include the phrase, "Monarch Butterfly Habitat Restoration in Progress" and will have the City of Goleta's logo and department contact phone number. A link to a website about the status of the Ellwood Mesa Implementation Plan may also be appropriate.

4.3 PERFORMANCE CRITERIA

The success of the Implementation Plan will be based on removal and restoration efforts meeting performance criteria that include minimal damage during tree removal, replacement plant attainment of quantitative benchmarks (count, height, aerial extent, distribution), and effective habitat maintenance actions, such as weed control.

Table 3. Performance Criteria and Data Collection Requirements

Criterion	**Notes**	**Metric**	**Target**
Talley number of trees removed each year by species	Total number of trees by species planted beginning in 2018	Count	Remove trees per City's approval process
	Number of new trees by species planted each year	Count	
	Average and Range DBH (inches)	DBH – inches	
Size of trees removed each year	Species, DBH, height	DBH average (inches); height (inches)	None (for reference)

Criterion	Notes	Metric	Target
Condition of trees removed each year	Certified Arborist health assessment	1 to 10 rank (range and average)	Only 0 and 1
Verify ratio of 1:1 trees planted (still alive) to trees removed	Total trees planted by year and as a total	Count planted	1:1 ratio planted trees alive to trees removed
	Total trees alive each year	Count alive	
Aerial extent	Average individual tree canopy diameter	Square foot average for individuals	Increase each year
	Aerial extent of planted canopy (square feet/acre) in each of the three planting areas and total area of new canopy	Square foot and acreage of total new sapling canopy by year and as a total for all years	
Distribution	Acreage of planting zones (aerial extent of each planting area and total area planted)	Acres	Restore historic canopy
	Aerial extent of live eucalyptus canopy		
Canopy health	Health of planted trees compared to health of mature trees in the restoration area	1 to 10 rank (range and average)	7 to 10 average rank
Weeds	Weeds eradicated and controlled	Aerial extent of treatment by species.	Reduce aerial extent and/or occurrence of target weeds.
Pests	Note damage by pests	Location, extent (percentage)	Reduce damage by pests

Note: Individual replacement trees will be evaluated yearly for a minimum of 10 years following installation, or until establishment of tree is determined.

4.4 MONITORING PROGRAM

4.4.1 Replacement Tree Monitoring

Replacement trees will be monitored by a Certified Arborist to ensure trees are healthy and receiving appropriate care to obtain establishment. Any trees that die will be assessed by the Certified Arborist and replaced. The Certified Arborist will establish cause of any replacement trees that die, will make recommendations appropriate to support replacement trees, and will correct any deficiencies in care. Monitoring will occur monthly for the first year, every 2 months for years 2 through 5, and every 4 months for years 6 through 10, or until establishment of trees is determined.

Each of the planting sites will be photographed from at least three representative locations each year. Observations will be recorded regarding habitat use by monarch butterflies, birds, mammals, reptiles, amphibians, and pests such as rats and invasive insects. Human impacts will be documented. Performance criteria will be evaluated for each of three sites and summarized in an annual report. Raw data will be made available to City staff.

Monitoring tasks include implementation monitoring on a weekly basis during installation, a restoration installation completion report, and an annual report until installation of restoration plantings and irrigation is completed. Annual reports will include monitoring dates and weather/site conditions present on those days, restoration planting data related to performance criteria, and monarch butterfly use data from site visits during monarch butterfly aggregation season (e.g., October, December, January/February) for 10 years. Reports will also include appendices with detailed records of herbicide application (if used), irrigation maintenance, plant replacement dates, and other maintenance actions by City staff or approved volunteer activities. As needed, recommendations for adaptive management strategies will be provided in the annual report. Annual reports will be provided to the City by May 15 each year.

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5.0 SCHEDULE

Table 4. Schedule of Tasks

Task	Responsible Party	Timing
1. Preparation of restoration plan	City of Goleta and consultant team	July 1
2. Selection of tree firm(s)	City of Goleta	August 1
3. Nesting bird surveys	City biologist	Within 1 week of work
4. Restoration planting	City of Goleta	Between July 1 and December 1

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6.0 TREE CONDITION DATA

Dead trees in the Ellwood forest were identified by a Certified Arborist. Dead trees were counted, tagged with a numbered tree tag, and located using a sub-meter accuracy GPS. Table 5 summarizes standing dead trees. Risk assessment evaluations are to be conducted on aggregation site trees and along trails to be opened by the City. Tree condition data is provided for informational and tracking purposes.

Table 5. Standing Dead Trees

Location	Tree Number
Ellwood Forest dead trees on City of Goleta property	1,260
Dead trees within monarch butterfly aggregation sites	56
Dead trees within 50 feet of public trails	247

Note: Dead standing trees on the Ellwood Mesa/Sterling Preserve as of September 2017. All trees were examined by a Certified Arborist and are potential safety risks along public trails and/or monarch butterfly aggregation locations.

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7.0 FIGURE

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Figure 1. Restoration Area

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8.0 REFERENCES

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9.0 EXHIBIT

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Exhibit A – Planting Landscape Trees

PUBLICATION 8046

Planting Landscape Trees

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The performance of a landscape tree depends a great deal on how it is planted. Survival after initial transplanting, rate of growth and establishment, root development, and many other factors can be improved by proper planting techniques. Topics to consider when planting include the size and shape of the planting hole, whether to add soil amendments or fertilizer, pruning, staking, mulching, and watering.

PLANTING HOLE PREPARATION

Plant a young tree "high," whether it is bare-root, balled, or container-grown. Dig the hole no deeper than approximately 2 inches (5 cm) less than the depth of the soil in the container or the depth of the soil ball. Planting a tree too deeply or in loose soil may lead to the root ball settling below grade and potential crown rot problems.

Soils compacted by construction, vehicular traffic, or agricultural use must be broken up before planting to ensure adequate air and water penetration. After loosening compacted soil using a shovel or excavation equipment, irrigate thoroughly and delay planting for 2 weeks to allow the soil to settle. An evaluation of the soil drainage should be completed prior to planting. Dig a hole at the planting site and fill with water. The water should drain through the planting hole within 24 hours. If not, more extensive soil modifications may be necessary.

In soils of reasonable tilth, the planting hole should be at least twice the diameter of the container or root ball. In more compacted soil, the hole should be three to four times the diameter of the root ball. In either case, the sides of the hole should slope slightly in toward the bottom and should be roughened to allow easier root penetration. When planting bare-root trees, make the hole large enough to accommodate the roots without crowding. Backfill the hole with soil dug from the hole, or use more friable surface soil if the soil from the hole is mainly hard clods. With container-grown trees, take care to not cover the root ball top with soil because the finer-textured backfill soil can prevent the root ball from being wetted (fig. 1).

In order for a tree to grow well as it matures, its roots must grow into the soil of the planting site. Amending the backfill soil merely creates an artificial container through which the roots must grow. Limited research has found no benefit from backfill amendments.

If the soil at the planting site will not satisfactorily sustain a tree, extensive conditioning and modification of the entire rooting area would be needed, but this is seldom practical. Roots grow and develop in moist soil where oxygen is available. Roots grow little or not at all in dry soil, in compacted soil, or in soil that is saturated. Trees will have shallow roots if planted on shallow soils that have impervious layers or an underlying shallow water table.

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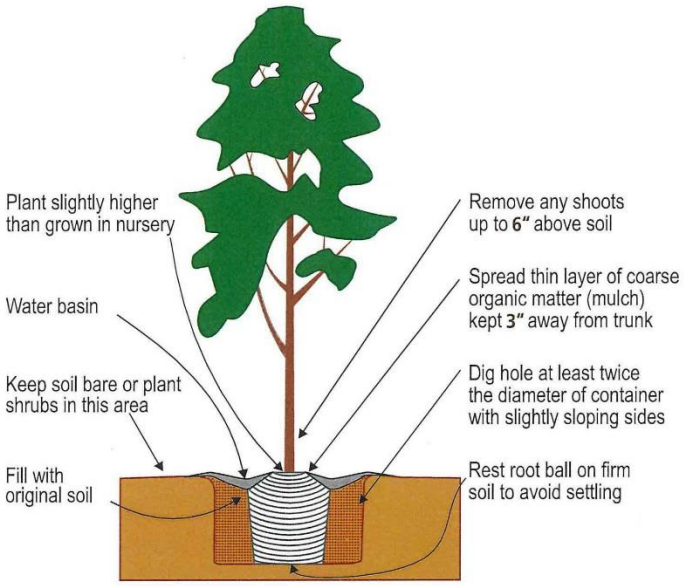

Figure 1. Proper planting of a container-grown tree.

FERTILIZING

Adding fertilizer, soil amendments, or root stimulants to the planting hole or backfill soil is not recommended. Most nursery-grown trees are well fertilized during production and seldom respond to fertilizing at planting except in the most infertile soils.

PRUNING

The less a young tree is pruned, the more total growth the tree will make. However, the growth may not be where you want it or where it will develop the most desirable tree structure. After planting, remove broken, dead, or diseased branches and branches that interfere with more desirably placed ones. Remove or cut back branches that will compete with the central leader (the topmost shoot). Leave small shoots along the trunk below where you want the lowest permanent branch; remove large low branches or cut them back to two or three buds. These low shoots will protect the trunk and increase its strength. Check the tree every 2 to 3 weeks during the growing season to see how it is doing; direct its growth by pinching back shoots that are too vigorous or shoots that you will not want later.

STAKING

Newly planted trees may need staking for protection, anchorage, or support (fig. 2). The type of staking depends on the landscape situation and the ability of the tree to stand upright. The more freedom to move the top of a tree has, the better it is able to develop structure to stand upright and withstand storms. Stakes are not necessary for trees that can stand by themselves or are planted where little or no protection is needed. Most conifers, trees with upright growth habits, and trees planted bare-root usually do not need support.

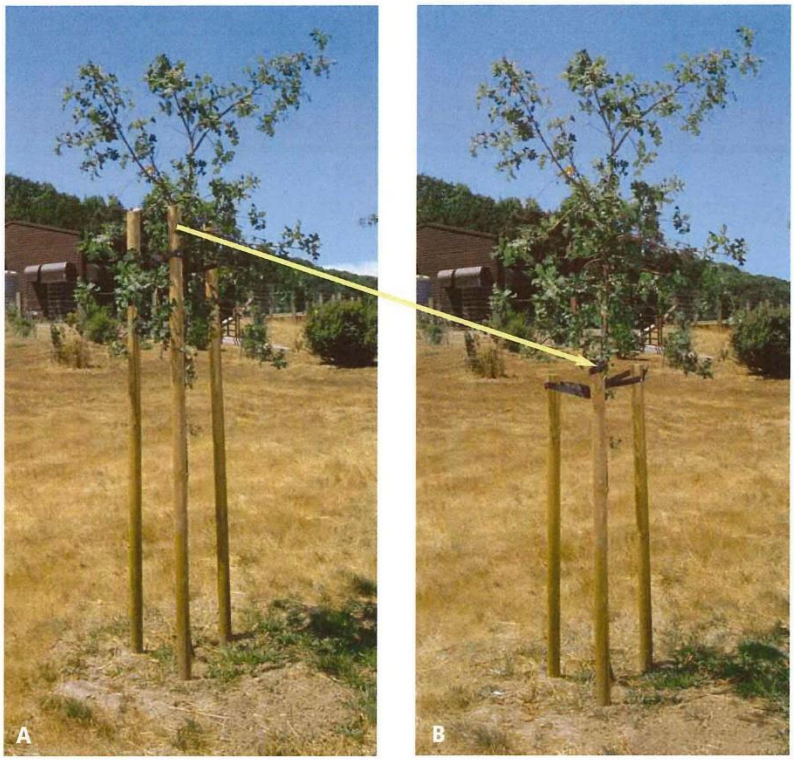

Figure 2. (A) Valley oak tied and staked too high. (B) Stakes and ties properly adjusted.

Stakes should not extend too high into the tree canopy, where they can injure the lateral branches; injured branches can be infested by insects or infected by pathogens. Stakes should not be higher than necessary to hold the tree upright while allowing the top to move in the wind. To find the correct height, grasp the trunk with one hand and bend the top. If the top returns to its upright position when released, tie the trunk at that height. The tie should provide some flexibility but should prevent the trunk from rubbing against the stakes. Tree stakes should be removed as soon as the tree has rooted well enough for support. In most cases, the stakes should not be left in place for more than 1 year.

Protective stakes are needed for trees that can stand without support but that need protection from equipment, vehicles, or animals. To protect trees from equipment and vehicles, stakes need only be high enough to be seen, so as not to be a tripping hazard. Three taller stakes with wire mesh or other covering may be needed to prevent animal damage.

Anchor stakes are needed for trees whose trunks can hold the trees upright but whose roots may not be able to support the trunks, particularly in a wind when the soil is muddy. Stakes used for protection are usually tall enough for attaching ties to the tree trunk to anchor the roots securely and still allow the top to move in the wind.

Support stakes are required for trees unable to stand by themselves. Top support for these trees should be as low on the trunk as possible but high enough to return the tree upright after deflection. Use two or three support stakes. Tie the trunk to them at only one height to allow the trunk below the tie to bend in the opposite direction from the top during a wind. Tie material should contact the trunk with a broad, smooth surface and it should be elastic enough to minimize trunk abrasion and girdling.

COMPETITION FROM TURF AND WEEDS

When trees are planted in a turfed area, keep the turf or other vegetation at least 12 inches (30 cm) away from the trunk of young trees for at least the first 2 years. The growth of young trees may be retarded by turf growing close to their trunks, even though additional water and fertilizer are applied (fig. 3). A 2-foot-diameter (60-cm) area of bare soil, or an area of mulch, around the tree trunk will also reduce damage to young trees by lawn mowers. Mechanical damage to the trunks of young trees can have a severe dwarfing effect.

WATERING

The basin for watering a newly planted tree should be constructed so that water will drain away from the trunk. Even if the soil is moist at the time of planting, thoroughly irrigate the tree to settle the soil around the root system. Remember that most of the root volume occupies a rather limited area, particularly through the first growing season. During this early period, lighter and more frequent watering than what is recommended for established trees is needed until the roots grow into the parent soil. One or two irrigations per week during high water-use periods may be desirable. If the parent soil is poorly drained, be careful not to overwater the tree. Once established, thorough, infrequent irrigation around the "dripline" (ends of branches) is most beneficial for good tree growth.

Figure 3. Maintaining an area of bare soil around young trees prevents other vegetation from competing for water and nutrients. The growth rate of the oak tree at left, planted in a 9-square-foot (0.8-sq-m) area of bare soil with sprouting weeds controlled by herbicide, surpassed the growth of a similar tree grown in turf (right). Both trees were planted as 1-year-old-liners in tree shelters.

FOR MORE INFORMATION

You'll find more information on planting and care of fruit trees in the following ANR publication:

California Master Gardener Handbook, Publication 3382.

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An electronic version of this publication is available on the ANR Communication Services website at http://anrcatalog.ucdavis.edu.

Publication 8046

pr-12/01-SB/VFG ISBN 978-1-60107-224-5

This publication has been anonymously peer reviewed for technical accuracy by University of California scientists and other qualified professionals. This review process was managed by the ANR Associate Editor for Environmental Horticulture.

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Attachment 3:

Habitat Management Plan Guiding Policy

Ellwood Mesa/Sperling Preserve Open Space Monarch Butterfly Habitat Management Plan: Related Policies

1. Goleta General Plan/Coastal Land Use Plan

Policy LU 9: Coastal-Dependent and -Related Uses (Key Pacific Shoreline Sites) [GP/CP]

Objective: *To designate lands in appropriate locations near or on the shoreline for uses that are dependent upon coastal locations and cannot readily be provided at inland sites.*

LU 9.4 **Site #4 – Santa Barbara Shores Park and Sperling Preserve Parcels (Open Space/Passive Recreation). [GP/CP]** This group of parcels, with a total of about 229 acres, is owned by the City. These lands are subject to deed restrictions that require the use of the property to be restricted in perpetuity to passive recreational activities and habitat protection. The criteria applicable to these parcels are as follows (see Figure 2-2):

a. All future actions shall be consistent with the primary purposes of (1) preserving and enhancing the properties' sensitive habitats, including habitats for monarch butterflies, various raptors, and western snowy plovers, as well as vernal pools, riparian areas, native grasslands, coastal scrub, and other sensitive aquatic and terrestrial habitats and (2) preserving or improving the past level of access and use by the public.

b. Any development of structures shall be limited to a public restroom facility to be located at the public parking lot at Hollister Avenue.

c. An extensive coastal access trail system shall be maintained, as shown in Figure 3-2 of the Open Space Element. The trails shall include segments of the California Coastal Trail and the Juan Bautista de Anza Historic Trail.

d. Any trail improvements shall be designed to maintain the natural, low-impact appearance of the existing informal trails; surfacing materials shall be limited to compacted fines or native soil materials without binders. The widths of trails shall be the minimum necessary to accommodate the planned types of users.

e. A public coastal access parking lot, not to exceed 45 parking spaces, shall be maintained at Santa Barbara Shores Park, with vehicular access from Hollister Avenue.

f. Any ornamental landscaping shall be limited to native species that will maintain the natural appearance of the area and that will not impair or obstruct scenic views from Hollister Avenue to the coastal bluffs, Pacific Ocean, and Channel Islands and preserve views from within the property to the Santa Ynez Mountains.

(See related Policy OS 5 and Figures 3-3 and 3-4.)

Policy OS 4: Trails and Bikeways [GP/CP]

Objective: *To designate, preserve, and expand a public trail system that will provide recreation opportunities for multiple types of users in diverse and attractive environmental settings and that will connect various parks and neighborhoods with the regional trail network and to Los Padres National Forest.*

OS 4.3 **California Coastal Trail. [GP/CP]** The California Coastal Trail segment within Goleta, as shown on the maps in Figures 3-1 and 3-3, shall be planned as a part of a continuous lateral shoreline trail system traversing the entire length of the state's coastline, connecting with contiguous California Coastal Trail segments within the jurisdictions of the County and UCSB. The following criteria and standards shall apply to the California Coastal Trail:

a. The trail shall be sited as close to the ocean as possible, while maintaining an appropriate setback for safety purposes from the edge of the coastal bluff.

b. The trail shall be connected at appropriate intervals to existing and proposed local trail systems and to vertical access facilities.

c. The trail shall be sited to maximize ocean views and scenic coastal vistas.

d. The trail shall be planned primarily as a pedestrian trail, although certain segments, particularly within the City-owned Ellwood-Devereux Open Space Area, may be planned to accommodate the needs of bicyclists and/or equestrians.

e. Segments of the trail located along the beach and shoreline that may not be passable at all times shall, where feasible, have an alternate landward or bluff-top route that will allow continuous passage during all seasons and tide conditions.

f. The trail shall be sited and designed to minimize impacts to environmentally sensitive habitat areas to the extent feasible. The trail surface shall generally be limited to groomed and/or compacted native soil or sand material, except that segments intended for handicapped access or to beach overlooks (vista points) may be improved to a higher standard.

g. Trail easement dedication and installation of trail improvements shall be required as a condition of approval of all coastal development permits on properties located on the California Coastal Trail corridor, when dedication will mitigate impacts by the project on public access and/or recreation.

OS 4.4 **Juan Bautista de Anza National Historic Trail. [GP/CP]** The following criteria and standards apply to future improvements to the Anza Trail segment within Goleta:

a. The planned corridor for the Anza Trail is shown on the maps in Figures 3-1 and 3-3.

b. Within the City-owned Sperling Preserve and Santa Barbara Shores Park, the Anza Trail shall be planned for multiple user types, including pedestrians, bicyclists, and equestrians, as shown on the map in Figure 3-3.

c. Within the City-owned open space property the Anza Trail shall generally be designed as follows:

   1) The equestrian path or tread may be separate from or combined with the main trail tread for pedestrians and bicyclists.

   2) The trail shall be designed to have the minimum width necessary to accommodate the multiple users. The surface may be native soil materials or imported compacted fines (such as decomposed granite) without stabilizer or binder.

d. As it exits the public open space area, the future Anza Trail corridor extends along Hollister Avenue to the Bacara access road and along that road to the city's western boundary. Standards for improvements of this segment of the Anza Trail shall be flexible to respond to the amount of available space for trail improvements. Dedication of a public access easement for the trail shall be required as a condition of approval of all coastal development permits for properties located along the Anza Trail corridor.

e. Connectivity of the Anza Trail in Goleta with segments within the jurisdictions of the County and UCSB shall be provided as indicated in the multi-jurisdictional Ellwood-Devereux OSHMP.

OS 4.5 **Creekside Trails. [GP]** Trails shall be sited to minimize damage to riparian areas while allowing some public access. To the extent feasible, trail corridors should be located outside riparian areas but provide occasional contact to streams to allow public access and enjoyment of the resources. Where feasible, public trail easements should be located within the boundaries of flood control easements. All trail construction should minimize removal of riparian vegetation and utilize natural features and/or lateral fencing to discourage public access to streamside areas not directly within the trail alignment. Any fences constructed along trail corridors should allow for wildlife movement. Where necessary to prevent disturbance of nesting birds, sections of trails may be closed on a seasonal basis. At such times, alternative trail segments should be provided, where feasible. In order to protect

riparian resources, the number of creek crossings should be limited and maintenance should be conducted to minimize introduction and spread of invasive plants.

Policy OS 5: Ellwood-Devereux Open Space Area [GP/CP]

Objective: *The portion of the Ellwood-Devereux Open Space Area within Goleta, which includes the City-owned Sperling Preserve and Santa Barbara Shores Park units, shall be managed to provide coastal access and passive, coastal-dependent recreational opportunities consistent with protection and enhancement of the site's environmentally sensitive habitat areas and other environmental and scenic resources.*

OS 5.3 **Public Access and Recreation. [GP/CP]** The Ellwood-Devereux Open Space Area shall be managed to maintain the site's historical public access and recreation uses while managing accessways to protect natural resources such as the monarch butterfly groves, vernal pools, native grasslands, beaches, coastal bluffs, and other environmentally sensitive habitat areas. The planned trail and beach access system, shown on the map in Figure 3-3, is based on the locations of existing informal trails created by repeated public use, with some trail segments being closed to avoid impacts to environmentally sensitive areas, to eliminate hazardous segments, and/or to eliminate parallel redundant trail segments. Although some trail closures are proposed, the planned trail system will not reduce overall access or trail experiences in the public open space area, but will redirect users to alternate routes located in close proximity. The following standards shall apply to public access and recreation in the open space area:

a. The Anza Trail is one of two major planned east-west trails across the Ellwood Mesa. This trail extends from the eastern boundary with UCSB to the public access parking lot at Santa Barbara Shores Park adjacent to Hollister Avenue (see related OS 4.4).

b. The California Coastal Trail segment within the Ellwood-Devereux Open Space Area, the other major east-west trail, is planned to have a bluff-top alignment (see related OS 4.3).

c. The locations of additional planned trails are also shown on Figure 3-3. Although the trail system shall be planned primarily as footpaths for pedestrians, bicyclists and/or equestrians may also be accommodated on certain trail segments as shown in Figure 3-3. At least one trail from the Hollister parking lot to the bluff-top shall be designated for exclusive use by pedestrians.

d. Except for the Anza Trail, trails shall generally be designed to utilize native soil materials with appropriate grooming and maintenance to provide for slightly crowned cross sections, defined trail edges, and proper drainage. Trail improvements shall be designed to maintain natural drainage patterns in order to avoid potential impacts to Devereux Creek and the associated eucalyptus groves that comprise the monarch butterfly aggregation sites. Trail improvements may include boardwalks and/or bridges across Devereux Creek in wet or eroded areas in the vicinity of the Ellwood Main grove

e. Two accessways from the bluff top to Ellwood Beach (identified as accessways E and F) are planned, as shown on Figure 3-3. These beach accessways shall be planned to accommodate pedestrians only.

    1) Improvements to accessway E, which is a steeply sloped former roadway with a badly eroded asphalt surface, are limited to repairs to improve the surface for the safety of users and to reduce further erosion of the bluff face and pathway.

    2) Improvements to accessway F, which is a steep pathway down the face of the bluff, shall be designed to smooth the surface, improve drainage, and reduce erosion of the path and bluff face and are generally limited to minor grading and placement of landscape ties or a similar material to stabilize the pathway.

f. A public access parking lot consisting of not less than 40 parking spaces shall be provided adjacent to Hollister Avenue, as shown in Figure 3-3. The following standards shall apply to public parking serving the open space area:

1) The Hollister Avenue lot shall be paved with permeable materials to reduce stormwater runoff and prevent pollution of surface waters.

2) Landscaping of the parking lot and Hollister Avenue street frontage shall maintain a natural appearance and shall be limited to drought-tolerant species. Landscaping shall not impair views of the coastal bluff-top, ocean, and Channel Islands from Hollister Avenue.

3) Onstreet parking on streets within the Ellwood neighborhood shall be available as needed for public coastal access, subject to appropriate restrictions on the hours of availability and duration of such parking.

g. A limited amount of facilities or amenities may be provided within the open space area to better accommodate users and manage accessways to protect natural resources. These may include the following:

1) A potential public restroom facility to be located between the public parking lot and Hollister Avenue, which shall be designed to avoid impairing views of the ocean and the Channel Islands from Hollister Avenue.

2) Low-profile signs to identify permitted uses, guide pedestrians, interpret resources, and advise users on resource protection regulations.

3) Temporary or permanent barriers to establish protection for sensitive plants and animals and habitat restoration areas that are compatible with the natural appearance of the surroundings.

4) Benches at a limited number of selected scenic locations.

5) Trash receptacles, mutt-mitt dispensers, and other similar low-impact facilities.

h. A signage program shall be prepared for the open space area. The overall intent or purposes of the sign program shall be to assist and inform visitors as to open space regulations, directions, and information. Signs shall be designed and located in a manner that is protective of environmental and visual resources and may include the following:

1) A donor recognition sign.

2) Trail markers identifying names, directions, and distances.

3) Trail head signs.

4) Interpretative signs.

5) Regulatory signs, including trail and open space rules, closures, and hazardous areas.

6) Habitat protection signs.

OS 5.4 **Protection and Enhancement of Habitat Areas. [GP/CP]** Within its boundaries, the Ellwood-Devereux Open Space Area encompasses a diverse array of sensitive aquatic and upland habitats, as shown on Figure 3-3. These habitats include beach and shoreline areas, dunes, rocky intertidal areas, coastal bluffs, monarch butterfly aggregation sites and associated eucalyptus groves, vernal pools, riparian areas along Devereux Creek and its tributaries, coastal sage and scrub areas, native grasslands, and raptor nesting and roosting areas. All environmentally sensitive habitat areas shall be managed and protected consistent with the policies and standards described in the Conservation Element of this plan. In addition, the following criteria and standards shall apply to the Ellwood-Devereux Open Space Area:

a. Habitat management on City owned lands shall be implemented within a broad ecosystem context in which habitat management priorities will consider the role of the targeted habitats and the interrelationships with other habitats in the open space area. In addition to protection of existing habitats, management actions may include interventions to enhance or restore degraded habitat conditions. All management activities shall use an

adaptive approach that includes monitoring and adjustments to ensure that self-sustaining habitats will be created that are not reliant on long-term human intervention.

b. Priority habitat management activities include ensuring the long-term vitality of the eucalyptus groves and stability in the monarch butterfly population; restoration of native grasslands; enhancement of vernal pools and riparian habitats; and protection of special status species, including various raptors and the western snowy plover. Some examples of habitat management action areas are shown on Figure 3-4.

c. Habitat management activities shall be designed to accommodate public access and use in or adjacent to habitat areas, where practicable, in a manner consistent with protection of the resource.

d. In all habitat enhancement or restoration projects, genetic stock for seeds and plants from the Devereux Creek watershed shall be used, unless such use has been determined to be infeasible.

OS 5.5 **Use and Management of the Open Space Area. [GP/CP]** The following management policies shall apply to lands owned by the City within the Ellwood-Devereux Open Space area:

a. An advisory committee may be established to provide advice and recommendations to the City regarding management of access, recreation uses, and habitat within the area. The committee may include residents of the adjacent neighborhoods as well as technical experts.

b. Permitted uses include, but are not limited to, the following compatible passive and coastal-dependent recreation activities: hiking, bicycling on designated trails, horseback riding on designated trails, bird-watching, surfing, sunbathing and beach play, surf fishing as allowed by law, swimming, scuba diving and snorkeling, kayaking, picnicking, playing of nonamplified musical instruments, kite flying, small educational tours, habitat restoration, scientific studies, and other uses as deemed appropriate by the City. Particular uses may require advance approval of a permit by the City.

c. Prohibited uses include, but are not necessarily limited to, the following: fireworks; camping; plant or wildlife collecting unless approved by the City; amplified music; radio-controlled motorized equipment such as model airplanes and cars; organized competitive sporting events such as track and field and bicycle races; large-scale special events and public gatherings; model rockets; fires of any kind, including in pits or in camp stoves; and archery, BB guns, pellet guns, paint guns, and firearms of all types.

d. All private for-profit commercial uses of the City-owned portion of the Ellwood-Devereux Open Space Area shall be prohibited, including but not limited to commercial equestrian operations.

e. Beach grooming using mechanical equipment shall be prohibited.

f. Any group activity that causes damage to vegetation or soil outside of designated trails shall be prohibited.

g. Use of herbicides, insecticides, and similar toxic substances shall not be permitted unless other nonchemical methods of pest control have been attempted or determined to be infeasible.

Policy CE 1: Environmentally Sensitive Habitat Area Designations and Policy [GP/CP]

Objective: *To identify, preserve, and protect the city's natural heritage by preventing disturbance of ESHAs.*

CE 1.6 **Protection of ESHAs. [GP/CP]** ESHAs shall be protected against significant disruption of habitat values, and only uses or development dependent on and compatible with maintaining such resources shall be allowed within ESHAs or their buffers. The following shall apply:

a. No development, except as otherwise allowed by this element, shall be allowed within ESHAs and/or ESHA buffers.

b. A setback or buffer separating all permitted development from an adjacent ESHA shall be required and shall have a minimum width as set forth in subsequent policies of this element. The purpose of such setbacks shall be to prevent any degradation of the ecological functions provided by the habitat area.

c. Public accessways and trails are considered resource-dependent uses and may be located within or adjacent to ESHAs. These uses shall be sited to avoid or minimize impacts on the resource to the maximum extent feasible. Measures—such as signage, placement of boardwalks, and limited fencing or other barriers—shall be implemented as necessary to protect ESHAs.

d. The following uses and development may be allowed in ESHAs or ESHA buffers only where there are no feasible, less environmentally damaging alternatives and will be subject to requirements for mitigation measures to avoid or lessen impacts to the maximum extent feasible: 1) public road crossings, 2) utility lines, 3) resource restoration and enhancement projects, 4) nature education, 5) biological research, and 6) Public Works projects as identified in the Capital Improvement Plan, only where there are no feasible, less environmentally damaging alternatives.

e. If the provisions herein would result in any legal parcel created prior to the date of this plan being made unusable in its entirety for any purpose allowed by the land use plan, exceptions to the foregoing may be made to allow a reasonable economic use of the parcel. Alternatively, the City may establish a program to allow transfer of development rights for such parcels to receiving parcels that have areas suitable for and are designated on the Land Use Plan map for the appropriate type of use and development. *(Amended by Reso. 09-59, 11/17/09)*

CE 1.10 Management of ESHAs. [GP/CP] The following standards shall apply to the ongoing management of ESHAs:

a. The use of insecticides, herbicides, artificial fertilizers, or other toxic chemical substances that have the potential to degrade ESHAs shall be prohibited within and adjacent to such areas, except where necessary to protect or enhance the ESHA itself.

b. The use of insecticides, herbicides, or other toxic substances by City employees and contractors in construction and maintenance of City facilities and open space lands shall be minimized.

c. Mosquito abatement within or adjacent to ESHAs shall be limited to the implementation of the minimum measures necessary to protect human health and shall be undertaken in a manner that minimizes adverse impacts to the ESHAs.

d. Weed abatement and brush-clearing activities for fire safety purposes shall be the minimum that is necessary to accomplish the intended purpose. Techniques shall be limited to mowing and other low-impact methods such as hand crews for brushing, tarping, and hot water/foam for weed control. Disking shall be prohibited.

e. Where there are feasible alternatives, existing sewer lines and other utilities that are located within an ESHA shall be taken out of service, abandoned in place, and replaced by facilities located outside the ESHA to avoid degradation of the ESHA resources, which could be caused by pipeline rupture or leakage and by routine maintenance practices such as clearing of vegetation.

f. Removal of nonnative invasive plant species within ESHAs may be allowed and encouraged, unless the nonnatives contribute to habitat values.

g. The following flood management activities may be allowed in creek and creek protection areas: desilting, obstruction clearance, minor vegetation removal, and similar flood management methods.

Policy CE 2: Protection of Creeks and Riparian Areas [GP/CP]

Objective: *Enhance, maintain, and restore the biological integrity of creek courses and their associated wetlands and riparian habitats as important natural features of Goleta's landscape.*

CE 2.6 Restoration of Degraded Creeks. [GP/CP] Segments of several creeks in Goleta have been covered or channelized by concrete culverts, causing degradation of the creek ecosystem. Restoration activities for improving degraded creek resources shall include the following:

a. Channelized creek segments and culverts shall be evaluated and removed to restore natural channel bed and bank, where feasible.

b. Creek courses in public rights-of-way shall be uncovered as part of public works improvement projects.

c. Barriers that prevent migration of fish such as anadromous salmonids from reaching their critical habitat shall be removed or modified.

d. Restoration of native riparian vegetation and removal of exotic plant species shall be implemented, unless such plants provide critical habitat for monarch butterflies, raptors, or other protected animals.

e. Creek rehabilitation projects shall be designed to maintain or improve flow capacity, trap sediments and other pollutants that decrease water quality, minimize channel erosion, prevent new sources of pollutants from entering the creek, and enhance in-creek and riparian habitat.

f. The use of closed-pipe drainage systems for fish-bearing creeks shall be prohibited unless there is no feasible, less environmentally damaging alternative. When the use of culverts is necessary, the culverts shall be oversized and have gravel bottoms that maintain the channel's width and grade.

Policy CE 4: Protection of Monarch Butterfly Habitat Areas [GP/CP]

Objective: *To preserve, protect, and enhance habitats for monarch butterflies in Goleta, including existing and historical autumnal and winter roost or aggregation sites, and promote the long-term stability of over-wintering butterfly populations.*

CE 4.1 Definition of Habitat Area. [GP/CP] The monarch butterfly is recognized as a California and Goleta special resource. Although the species is not threatened with extinction, its autumnal and winter aggregation sites, or roosts, are especially vulnerable to disturbance. Sites that provide the key elements essential for successful monarch butterfly aggregation areas and are locations where monarchs have been historically present shall be considered ESHAs. These elements include stands of eucalyptus or other suitable trees that offer shelter from strong winds and storms, provide a microclimate with adequate sunlight, are situated near a source of water or moisture, and that provide a source of nectar to nourish the butterflies.

CE 4.2 Designation of Monarch Butterfly ESHAs. [GP/CP] Existing and known historical monarch roost sites, as shown on Figure 4-1, are hereby designated as ESHAs. These include about 20 known roosts, eight of which comprise the Ellwood Complex, a series of sites within a network consisting of eucalyptus groves and windrows interspersed by open fields and crossed by small creeks. This network includes several separate but interconnected autumnal and winter roost sites. The Ellwood Main site, the largest roost in Santa Barbara County and one of the largest in the state, occupies a site along Devereux Creek in the Sperling Preserve, a City-owned tract situated near the coastal bluffs in western Goleta.

CE 4.3 Site-Specific Studies and Unmapped Monarch ESHAs. [GP/CP] Any area not designated on Figure 4-1 that is determined by a site-specific study to contain monarch habitats, including autumnal and winter roost sites, shall be granted the same protections as if the area was shown on the figure. Proposals for development on sites shown on this figure or where

there is probable cause to believe that monarch habitats may exist shall be required to provide a site-specific study.

CE 4.4 **Protection of Monarch Butterfly ESHAs. [GP/CP]** Monarch butterfly ESHAs shall be protected against significant disruption of habitat values, and only uses or development dependent on and compatible with maintaining such resources shall be allowed within these ESHAs or their buffer areas. The following standards shall apply:

a. No development, except as otherwise allowed by this policy, shall be allowed within monarch butterfly ESHAs or ESHA buffers.

b. Since the specific locations of aggregation sites may vary from one year to the next, the focus of protection shall be the entire grove of trees rather than individual trees that are the location of the roost.

c. Removal of vegetation within monarch ESHAs shall be prohibited, except for minor pruning of trees or removal of dead trees and debris that are a threat to public safety.

d. Public accessways are considered resource-dependent uses and may be located within a monarch ESHA or its buffer; however, such accessways shall be sited to avoid or minimize impacts to aggregation sites.

e. Interpretative signage is allowed within a monarch ESHA or its buffer, but shall be designed to be visually unobtrusive.

f. Butterfly research, including tree disturbance or other invasive methods, may be allowed subject to City approval of a permit.

CE 4.5 **Buffers Adjacent to Monarch Butterfly ESHAs. [GP/CP]** A buffer of a sufficient size to ensure the biological integrity and preservation of the monarch butterfly habitat, including aggregation sites and the surrounding grove of trees, shall be required. Buffers shall not be less than 100 feet around existing and historic roost sites as measured from the outer extent of the tree canopy. The buffer area shall serve as transitional habitat with native vegetation and shall provide physical barriers to human intrusion. The buffer may be reduced to 50 feet in circumstances where the trees contribute to the habitat but are not considered likely to function as an aggregation site, such as along narrow windrows. Grading and other activities that could alter the surface hydrology that sustains the groves of trees are prohibited within or adjacent to the buffer area.

CE 4.6 **Standards Applicable to New Development Adjacent to Monarch ESHAs. [GP/CP]** The following standards shall apply to consideration of proposals for new development adjacent to monarch ESHAs or ESHA buffers:

a. A site-specific biological study, prepared by an expert approved by the City who is qualified by virtue of education and experience in the study of monarch butterflies, shall be required to be submitted by the project proponent.

b. The study shall include preparation of a Monarch Butterfly Habitat Protection Plan, which at a minimum shall include: 1) the mapped location of the cluster of trees where monarchs are known, or have been known, to roost in both autumnal and over-wintering aggregations; 2) an estimate of the size of the population within the colony; 3) the mapped extent of the entire habitat area; and 4) the boundaries of the buffer zone around the habitat area.

c. A temporary fence shall be installed along the outer boundary of the buffer zone prior to and during any grading and construction activities on the site.

d. If an active roost or aggregation is present on the project site, any construction grading, or other development within 200 feet of the active roost, shall be prohibited between October 1 and March 1.

2. Ellwood Mesa/Sperling Preserve Open Space Plan – Related Policies

3.1.2 Environmentally Sensitive Habitat Areas

The GCP, which applies to the unincorporated areas of the County, contains a list of ESHAs that occur in the Open Space Plan Area. Key policies related to ESHAs are as follows:

> **GCP Policy BIO-GV-6.** Monarch butterfly roosting habitats shall be preserved and protected.

3.1.6 Exotic Species Management Approach

"Invasive exotics" are insects, plants, or wildlife species that exhibit rapid and aggressive ability to colonize suitable areas and that displace native species by competitive abilities or predatory actions. Invasive exotics can cause adverse impact to habitats through various means besides physical displacement. They can hybridize with native stock and cause undesirable traits in native plants, support other invasive species, and create new microclimates and alter physical conditions in the ecosystem.

The habitat protection and management element is designed to reduce the extent of, and if feasible, eradicate, invasive exotic species. This will be accomplished by targeted removal of invasive exotics with or without associated habitat restoration. The primary objectives of invasive exotic species management are to protect the various biological, hydrological, and geophysical functions of ESHAs in the Open Space Plan Area, as well as to protect the genetic integrity and reproductive capability of native species populations in the Open Space Plan Area.

Control and eventual eradication of the following invasive exotic species will be an opportunity throughout the implementation of the Open Space Plan:

- Long-horned beetle (which attack eucalyptus trees)
- Fennel (*Foeniculum vulgare*). Fennel is scattered through non-native grasslands, along the Devereux Creek drainage, and in large patches on the South Parcel Nature Park.
- Pampas Grass (*Cortaderia selloana*). Pampas grass occurs in dense patches on the South Parcel Nature Park.
- Harding Grass (*Phalaris aquatica*). Harding grass occurs in scattered locations on Ellwood Mesa, the South Parcel Nature Park, and West Campus Bluffs Nature Park.
- Hottentot Fig (*Carpobrotus edulis*). Hottentot fig (a species of iceplant) occurs in dense patches on the coastal bluffs and dunes in the Open Space Plan Area.
- Tamarisk (*Tamarix aphylla*). Tamarisk occurs in patches on the West Campus Bluffs Nature Park.

Eucalyptus trees on the City of Goleta's Ellwood Mesa and Santa Barbara Shores and the University's large ornamental pine and cypress trees on the West Campus will not be removed as part of the habitat protection and management plan. These trees provide important monarch butterfly aggregation and roosting habitat and also serve as raptor roost and nest sites.

Areas where the vegetation and soil have been disturbed by humans or domestic animals are more susceptible to invasion of exotic species. Previous grazing activity, uncontrolled recreation uses, and other land disturbances within the Open Space Plan Area support the conditions to sustain exotic species. A more complete list of invasive exotic species occurring within the Open Space Plan Area and a description of the species' general location is provided in Appendix A.

The phrase "native species" used in this Open Space Plan refers to plants, insects, fish, and wildlife indigenous to the South Coast and/or southern California. "Non-native species" refers to species that are from areas outside of the region, state, or continent. "Naturalized species" refers to non-native species which have become common since the European settlement of California, and which now are integral

elements of the coastal ecosystem. Examples of naturalized species include the annual grasses that dominate most of the grassy foothills and meadows of the South Coast (e.g., wild oats, plantain, Italian ryegrass, filaree, ripgut brome), and eucalyptus trees.

3.1.7 General Policies for Habitat Protection and Management

The following goal and associated policies guide the overall implementation of the Habitat Protection and Management Element of the Open Space Plan.

Habitat Goal 1. Protect, enhance, and, where feasible, restore ESHAs in the Open Space Plan Area.

> **Habitat Policy 1.** Focus high priority habitat enhancement and restoration initial improvements and opportunities on invasive exotic species control in wetlands, enhancement and restoration of riparian and non-riparian wetlands, ensuring the long-term vitality of the monarch groves, and enhancement and restoration of native habitats that are under-represented in the Open Space Plan Area.
>
> **Habitat Policy 2.** Enhance and restore native habitats to be self-sustaining and not reliant on long-term human management and intervention.
>
> **Habitat Policy 3.** Control and, where feasible, eradicate invasive exotic species within the Open Space Plan Area in a manner that protects ESHAs from adverse impacts.

3.2.2 Management Issues

The monarch butterfly groves have been subject to past and ongoing human impacts due to unmanaged access by pedestrians, bicyclists, equestrian users, and pets. Unmanaged and excessive access has compacted soils, destroyed the layer of litter (dead leaves and small twigs), and trampled vegetation. Evidence of damaging public access is very evident in the Ellwood Main site. The loss of the litter layer exposes soils to erosion. Compaction of soil can cause stress to the trees and hinders natural regeneration by seedling and saplings in the understory. In some experts' opinions, the absence of a diverse size and age structure of trees in the Ellwood Main site makes the groves vulnerable to disease.

Another major management issue is the growing number of eucalyptus pests that have arrived in California, including the long horned beetle (*Phoracantha semipunctata*), several species of psilid (*psilids*), and at least two species of weevils. The long horned beetle is probably the best known of these pests and can kill a eucalyptus tree in a matter of months. There are few tools presently available to control this pest. The best defense is healthy trees free of stress by drought, soil compaction, or overcrowding. The Ellwood Main site exhibits limited signs of beetle infestation (Meade, 1999).

Eucalyptus trees are very vulnerable to fire because of the abundance of oil within their leaves. In the long-term, fire may be beneficial to a eucalyptus grove because it regenerates old groves. However, in the Open Space Plan Area, fire is not an acceptable management tool due to obvious public safety concerns to adjacent residences.

Finally, a number of educational and scientific organizations and community groups monitor monarchs in the Ellwood Complex. Many times these efforts include tagging or handling the butterflies. The high level of interest and direct interaction with this species from school children to scientists could harm the population if not properly managed and coordinated.

3.2.3 Regulatory Considerations

Monarch butterfly overwintering sites in the Open Space Plan Area are considered ESHAs because the occupied groves meet the definition of an ESHA in Section 30107.5 of the Coastal Act. As such, autumnal and overwintering sites are afforded the protection under the Coastal Act described in Section 3.1. Unoccupied eucalyptus groves within the City of Goleta in areas adjacent to the overwintering sites that

contain suitable conditions to support overwintering butterflies are also considered ESHAs because they could be used at any time in the future, and because they provide additional habitat in the event that the occupied groves are damaged.

3.2.4 Management Goals and Policies

The following goal and policies will guide the overall implementation of the monarch butterfly Habitat Protection and Management Element of this Open Space Plan. The three sponsoring agencies will formally adopt these goals and policies into their local coastal programs. Management actions and projects by each agency associated with the implementation of the Open Space Plan within their jurisdiction must be consistent with these goals and policies.

Monarch Goal 1. Protect and maintain existing monarch butterfly populations in the Open Space Plan Area, and manage the habitats to be self-sustaining.

Monarch Policy 1. Manage public access to protect butterflies and their habitat, while promoting public enjoyment, education, and scientific research.

Monarch Policy 2. Conduct scientifically sound studies using appropriate and cautious methods to maintain and improve habitat conditions to ensure long-term viability of the population.

Monarch Policy 3. Implement phased habitat improvements in a manner, using pilot programs, small-scale projects, and adaptive management.

3.2.5 Resource Protection and Management

Trail and Public Access Plan in Butterfly Groves

During the peak overwintering season, especially on weekends and during holidays, a large number of people visit the Ellwood Main site which can cause adverse impacts to the habitat. To reduce the impact, access in the Ellwood Main site would be managed by closing certain duplicative trails and placing low-profile barriers such as post and cable fences or logs to direct foot traffic and discourage bicycle use in sensitive or eroded areas. The fencing and other barriers would be similar to the existing onsite barriers in the Ellwood Main site.

The trail system for the Open Space Plan Area is presented on Figure 12 (as presented in Section 4.0 of this plan). Trail closure opportunities would occur within all of the monarch butterfly overwintering sites, as summarized below:

- Public access in the Sandpiper Aggregation would be reduced as a result of elimination of the north-south connecting trail as a result of the Comstock Homes Development. A 500-foot-long trail that connects the Comstock Homes Development site with the grove would be closed. Pedestrian access would be maintained on Trail 24, located along the perimeter of the aggregation.
- Within the Ellwood West site, a small trail connector, approximately 200 feet in length, would be closed. Pedestrian access would be allowed; bicyclists and equestrians would not be allowed.
- Approximately 400 feet of existing trail between Trails 18 and 23 would be closed in the Ellwood West site. This trail closure would include a Devereux Creek crossing.
- Three trail closures totaling approximately 1,050 feet are proposed within the Ellwood Main site. Trail closures include approximately 300 feet between Trails 18 and 16; approximately 350 feet between Trails 19 and 17; and 400 foot between Trails 18 and 17. Pedestrian access would be allowed. Bicyclists and equestrians would not be allowed.

- Two trail closures totaling 200 feet are proposed within the Ocean Meadows Roost. These small spur trails diverge off Trail 14 and connect to the golf course. Pedestrian access would be allowed; bicyclists and equestrians would not be allowed. The southern edge of this roost would be accessed via an existing improved trail (Trail 8) on University property that would connect with the unimproved trail (Trail 17) on City of Goleta property.

Eucalyptus Woodland Enhancement Opportunities

The following opportunities to enhance the six monarch overwintering sites in the Open Space Plan Area will be considered during the implementation of the Open Space Plan. The objective of these opportunity projects is to ensure that the eucalyptus groves that provide overwintering habitat remain viable, self-sustaining, and protected from stress factors such as disease, drought, senescence, fire, and storm damage. The sponsoring agencies recognize there is scientific debate and uncertainty about habitat enhancement approaches and methods for monarch groves. Hence, the opportunity projects would only be pursued after consultation with experts, a careful consideration of the scientific and empirical observations concerning the habitat enhancement issues, and input from the public. The following opportunity projects will not be implemented without public involvement and additional environmental review where applicable. Any eucalyptus enhancement and management actions would be implemented in a phased and incremental manner over time, as funding allows. In addition, pilot projects and field experiments would be pursued to evaluate the effectiveness of the opportunity projects.

1. Monitor insect infestation within the monarch butterfly aggregations, overwintering sites, and roosts within the Ellwood Complex. Once infected trees are identified, they should be removed to prevent other trees from being infected. Tree removal would occur under the approval and supervision of a monarch biologist and at the appropriate time of year to avoid impacts to the butterflies.
2. Replace insect-infested trees with blue gum saplings within and outside the occupied areas as determined by the arborist and monarch biologist in order to prevent spread of the insect.
3. Plant eucalyptus trees in the understory of the occupied groves to offset the effects of trampling by visitors, under the direction of a monarch biologist.
4. Allow the natural build-up of leaf litter and downed-wood within the Ellwood Complex sites, per the direction of a monarch biologist. Consultation with the County Fire Department would be required.

Monarch Inventory and Monitoring

A monarch inventory and monitoring program could be implemented for the Open Space Plan Area in order to evaluate the condition of the population and groves; detect trends in butterfly health, number, and behavior; and to support awareness of butterfly migration. The program will be implemented as funding allows. The program could include the following activities at the Ellwood Complex sites:

- Existing and historic monarch overwintering sites in the Open Space Plan Area would be surveyed each year by a qualified biologist. Site surveys would occur at least three times a year, in the fall (late October), in mid-winter (December), and in late winter (late January).
- An annual inventory of the monarch population would be conducted. Monarch tagging would not occur as part of the population inventory.
- A comprehensive inventory of current monarch roosting trees would be conducted to map and characterize the occupied trees, including general information about size, density, and health.
- The sponsoring agencies would designate a monarch specialist who would coordinate all monarch research and inventory work in the Open Space Plan Area by educational and scientific entities. The sponsoring agencies would implement a monarch research and education permit program which would require groups or individuals interested in research or educational programs to apply for a permit. Educational programs involving contact with butterflies or off-trail activity would not be allowed unless a permit is obtained.

3.4.4 Management Goals and Policies

The following goal and policies will guide the overall implementation of the riparian Habitat Protection and Management Element of the Open Space Plan. The three sponsoring agencies will formally adopt these goals and policies into their local coastal programs. Management actions and projects by each agency associated with the implementation of the Open Space Plan within their jurisdiction must be consistent with these goals and policies.

Riparian Goal 1. Protect and enhance riparian habitats and watershed functions along drainages in the Open Space Plan Area.

Riparian Policy 2. Seek opportunities to enhance and restore riparian habitats provided they do not conflict with other existing ESHAs and monarch butterfly groves.

Riparian Policy 3. Initial riparian enhancement and restoration should focus on invasive plant removal, increasing native plant cover, improving habitat connectivity along drainages, reducing channel erosion, increasing bio-filtering functions of drainages, and increasing the diversity of native riparian plant species.

3.4.5 Resource Protection and Management

Trail and Public Access Plan

The designated trail system (see Section 4.2) would protect riparian habitat by closing trails that cross creeks. Trail closures across the creek would reduce sedimentation and erosion sources and offer potential restoration opportunities. Pedestrians would be urged to use other less damaging routes as some existing informal trails would be removed and revegetated. Trail closure opportunities would occur at three locations along Segment 1B as shown on Figure 7. These closures are designed to both minimize impacts to Devereux Creek and control public access in the monarch butterfly groves as designed in Section 3.2. Trails in the eucalyptus woodland paralleling Devereux Creek (Segments 1B and 2) will be limited to pedestrians. Signs at trailheads will urge visitors to remain on designated trails. The signs will also clarify trails within the eucalyptus groves are designed for pedestrian use only to both protect the butterflies and reduce erosion and sedimentation within Devereux Creek.

Habitat Enhancement and Restoration Opportunities

Initial opportunities for enhancement and restoration are proposed on the South Parcel Nature Park as follows:

Segment 6. The University is proposing riparian habitat enhancement and restoration on a portion of the South Parcel Nature Park, to be implemented in phases over several years, as shown on Figure 7 and in more detail on Figure 8. The project includes repair of eroded gullies using check dams and stabilizing banks and planting of native riparian species within an identified mitigation site for North Campus Faculty Housing development impacts.

- Invasive exotics will be removed from the drainages at the South Parcel Nature Park prior to grading and planting. Approximately 1,500 linear feet (totaling about 8 to 15 acres depending on availability of funds) of riparian habitat would be enhanced and restored on the South Parcel Nature Park. Enhancement and restoration opportunities are also available for re-vegetation of bare eroded areas with a dense cover of native plants to greatly reduce runoff volume and erosion by promoting increased soil absorption.

In addition to the above riparian restoration, the following opportunities to enhance and restore riparian habitat in the Open Space Plan Area will be considered during the implementation of the Open Space Plan as funding allows (see Figure 7 for locations):

- **Segment 1A.** Existing riparian habitats could be enhanced and restored through selective weeding and replanting with native riparian species on the banks of Devereux Creek. Removal of invasive, non-native species would precede vegetation restoration efforts. Unvegetated and eroded areas would be replanted with herbs, shrubs, and tree species. Erosion control matting would be used to protect the banks. This opportunity site includes approximately 800 linear feet of the creek.
- **Segment 2.** The steep and eroded banks where this tributary connects with the boundary of the Comstock Homes Development and the eucalyptus woodland could be restored through recontouring the banks, installing erosion control matting, and replanting with herbs, shrubs, and trees. This opportunity site is approximately 50 feet long.
- **Segments 8 and 9.** Existing riparian habitats could be enhanced through selective removal of invasive exotics and replanting with native riparian species on the bed and banks of the North and South Slough Fingers. The ice plant patches at the border of Devereux Road and the slough fingers are the focus of this opportunity site and include approximately 0.5 acre of riparian habitat enhancement.

For all opportunity projects, the restoration and enhancement sites would be protected from public access using low-profile barriers, fencing, and informational signs. Signs and fencing would be removed when restoration is complete. Riparian restoration and enhancement is not identified within Segments 3 through 5 and 7 at this time.

3.8.3 Management Goals and Policies

The following goal and policies will guide the overall implementation of the special status species element of this Open Space Plan. The three sponsoring agencies will formally adopt these goals and policies into their local coastal programs. Management actions and projects by each agency associated with the implementation of the Open Space Plan within their jurisdiction must be consistent with these goals and policies.

Species Goal 1. Protect and enhance habitat for special-status species in the Open Space Plan Area.

> **Species Policy 3.** To the extent feasible, re-introduce special-status plant species to the Open Space Plan Area as part of habitat enhancement and restoration projects.

4.1.1 Planning Context [excerpt]

The Coastal Act seeks to maximize public access to and along the coast, and to maximize public recreation opportunities within the Coastal Zone consistent with resource conservation and the protected rights of private property owners. The Coastal Act specifically addresses the need to distribute public access and recreation throughout an area to protect against overuse or crowding of any single area. It also focuses on the need to maintain, enhance, and, where feasible, restore the biological productivity of coastal resources. Three planning documents have been prepared that address local planning issues and implementation of the Coastal Act: the County Local Coastal Plan, the County's Goleta Community Plan (GCP), and the University's Long-Range Development Plan (LRDP). For the County, the Local Coastal Plan and GCP policies apply. For the University, the LRDP spells out its planning policies. The recently-incorporated City of Goleta does not yet have an adopted general plan or certified Local Coastal Program. Until such time as it does have these in place, Goleta's planning process is governed by the Coastal Act and the regulations of the Coastal Commission.

4.1.2 Public Access and Recreation Goals and Policies

The following Public Access and Recreation Goals and Policies will guide the implementation of the Open Space Plan. The sponsoring agencies will formally adopt these goals and policies into their local coastal programs. The City of Goleta will adopt these goals and policies as part of its initial local coastal program.

Management actions and projects by each agency associated with the implementation of the Open Space Plan within its jurisdiction must be consistent with these goals and policies.

Goals and Policies

Public Access Goal 1. Provide public access and passive recreation opportunities at the Open Space Plan Area compatible with natural resource protection and the preservation of undeveloped open space, and with the management programs of existing reserves and preserves.

Public Access Policy 1.1. Disperse public access and passive recreation throughout the Open Space Plan Area in order to avoid concentrations of public uses that could conflict with natural resource protection.

Public Access Policy 1.2. Integrate the trail system with existing managed areas and with proposed residential development.

Public Access Policy 1.3. Ensure that public access and public uses in the Open Space Plan Area do not adversely affect resources, programs, and management in the COPR.

Public Access Policy 1.4. Designate public parking for the Open Space Plan Area.

Public Access Policy 1.5. Monitor and evaluate the need to modify public access, recreation use patterns, and visitation levels if the carrying capacity is exceeded and/or significant environmental impacts are occurring.

Public Access Goal 2. Maintain the natural, undeveloped, and scenic character of the Open Space Plan Area while protecting coastal resources.

Public Access Policy 2.1. Use trail designs that minimize environmental impacts and are consistent with the character and ambience of natural open space.

Public Access Policy 2.2. Prohibit commercial equestrian operations in the Open Space Plan Area (the University Horse Boarders Association at the University stables on West Campus is not a commercial organization and will continue its present functions).

Public Access Policy 2.3. Prohibit commercial bicycling operations or other commercial recreation operations in the Open Space Plan Area.

Public Access Policy 2.4. Enforce existing dog leash policies, regulations, and ordinances of each sponsoring agency in their jurisdiction.

Public Access Goal 3. Maintain the overall historic public access and uses, while providing a variety of passive recreation uses throughout the Open Space Plan Area.

Public Access Policy 3.1. Maintain historic public access points to the Open Space Plan Area.

Public Access Policy 3.2. Establish and maintain a trail system that recognizes historic trails and uses while managing access to protect natural resources.

Public Access Policy 3.3. Manage public access to the Open Space Plan Area in a manner that minimizes conflict with adjacent land uses and neighbors.

Public Access Goal 4. Maintain a trail system that provides continuous east-west access across the entire Open Space Plan Area and reduces conflicts among multiple uses.

Public Access Policy 4.1. Provide a trail system and design that reduces conflicts among multiple users through routing, physical design, and managed access.

Public Access Policy 4.2. Provide for establishment, designation of segments, and construction of the Anza Trail and the California Coastal Trail within the Open Space Plan Area.

4.2.1 Overview

The public access and recreation element of this Open Space Plan is based on an integrated trail system (see Figure 12) providing extensive public access while protecting sensitive coastal resources. The trail system is based on the existing network of formal and informal trails in the Open Space Plan Area and COPR. Formal trails have been deliberately designed and improved under the auspices of the City of Goleta, County, University, or other land managers in the open space. Informal trails are existing pathways developed through repeated public use and are not part of a formal planning process. The Anza Trail and Coastal Trail are significant features of the trail system. As discussed in Section 4.2.2, the Anza Trail is part of an overall federal initiative, whereas the Coastal Trail is part of a state initiative. Within the Open Space Plan Area, the Coastal and Anza Trails form an east-west connection that extends from Isla Vista to Hollister Avenue in western Goleta (see Figure 13).

The trail system is primarily designed for pedestrians; however, trails to accommodate bicycles and equestrian uses are also included. Different trail types are proposed to accommodate these users (Figure 14). A variety of trails provide north-south connections across the Open Space Plan Area, extending from public roads on the north side of the Open Space Plan Area to the beach. The trail system links with trails and bike paths adjacent to the Open Space Plan Area, including the public trails on COPR (the Dune Pond Trail and the connecting trail in the northeast corner of the COPR). Portions of the proposed trail system may be inundated during periods of heavy rain. Alternatives for providing safe passage at such times are presented in Figures 15, 16, and 17 and include boardwalks, bridges, culverts, or alternative routing.

Certain trails will be closed because they traverse environmentally sensitive habitat areas (ESHAs) such as native grasslands, vernal pools, creeks, and/or dune scrub. Other trails will be closed because they are hazardous (i.e., gullies, eroding bluffs) and their continued use exacerbates these problems. In these situations, nearby parallel trails are maintained to provide similar access. In some cases, trails are closed because they are located parallel to, and in close proximity to, other trails. Two new trails are proposed within the Open Space Plan Area – a small trail that connects the southern end of the Comstock Homes Development to the Ellwood Mesa and the Anza Trail connection from the proposed Santa Barbara Shores parking facility (Figure 12).

The trail system will not reduce overall access in the Open Space Plan Area despite the trail closures. The trail closures subtly redirect users to adopt new routes; however, the new routes will be located in close proximity and convenience.

4.2.2 Trail Types by User Group

Pedestrians, Bicyclists, and Equestrians [Excerpt]

The trail system presented on Figure 12 shows the trails to be relocated, maintained or improved, or closed. These trails are color-coded by the four user groups: (1) pedestrians only; (2) pedestrians and bicyclists; (3) pedestrians and equestrians; and (4) pedestrians, bicyclists, and equestrians. All four user groups have access to the Anza Trail and Coastal Trail described below (see Figure 13). The Coastal Trail splits around the COPR allowing multi-use to the north along Venoco Road and pedestrian-only use along Sands Beach in order to minimize disturbances to COPR sensitive coastal resources. Trails will be designated for these user groups through the use of location and design, as well as by signs, maps, and public education. Trail closures will be indicated using a variety of possible methods depending upon the location, such as low-profile signs, vegetation, earthen berms, embedded logs or rocks, and plantings. On University lands, trail markers and low post-and-cable fencing may be used. Over time, closed trails will

be restored to natural vegetated conditions either through passive restoration (i.e., natural plant colonization) or by active restoration (i.e., grading, installing plants, and reseeding). A summary of the trail lengths in the Open Space Plan Area is provided below in Table 5.

Pedestrian-only trails, totaling about 5 miles, are restricted to the Ellwood monarch grove trails, in COPR, and at the University South Parcel Nature Park.

Table 5. Trail Lengths (feet) by Jurisdiction and Trail User

Trail Type by User Group	City of Goleta[1]	University[2]	County[3]	Total
Pedestrians	13,810	7,940	4,780	26,530
Pedestrians and Bicyclists	27,550	27,500	3,700	58,760
Pedestrians and Equestrians	0	1,000	0	1,000
Pedestrians, Bicyclists, and Equestrians	7,730	4,280	0	12,010
Total	49,090	40,720	8,480	98,300
Trails to be closed	28,700	37,710	200	66,600

[1] Includes Coronado Preserve; does not include trail through Comstock Homes Development or possible trail through Goleta Unified School District property.

[2] Includes public trails on COPR; does not include trail through Faculty Housing or Sierra Madre student housing.

[3] Includes Del Sol Vernal Pool Preserve and Camino Corto Open Space. Does not include trail connections with Ocean Meadows Residences.

5.3 FIRE AND EMERGENCY RESPONSE

Santa Barbara County provides the overall fire management and emergency response capabilities to the Open Space Plan Area. Station 11 is the first responder to any calls in the Open Space Plan Area. It is located on Storke Road and is primarily a paramedic unit. Station 17 on the University campus is available to assist in a response, as are Stations 14 (at Los Carneros Road) and 18 (at Gaviota). The University's Fire Marshall coordinates directly with the County Fire Department.

During a response, primary emergency access points to the Open Space Plan Area are located at Venoco Road and at the south end of Santa Barbara Shores Drive. Beach access is via Devereux Road and Sands Beach. Alternate access points include Phelps Road and generally all grade access from streets. For example, vehicles can reach the South Parcel Nature Park from Phelps Road through the golf course. Brush trucks can access the beach via the two main beach access points at Ellwood. Helicopter and marine rescue operations are also available as needed.

The Venoco Road is maintained by Venoco. The Santa Barbara Shores Drive access gate is maintained by the Santa Barbara Shores Homeowners Association which provides access to the County Fire Department. Emergency access is not restricted by flooding or other obstacles.

Fire crews use existing trails to reach fires and to provide emergency response. Water is brought onsite by the response vehicles. There are no water hookups in the interior portions of the Open Space Plan Area.

The County Fire Department's Vegetation Management Officer supervises fuel management programs countywide, including prescribed burns and weed abatement. In general, the County Fire Department issues notices to public and private landowners in the spring for brush clearing requirements. Normal fuel management setbacks are 10 feet from each side of roads and 30 feet from structures. Chippers, mowers, and various other mechanical tools are used for weed abatement; herbicides are not normally used. The County mechanically removes excess vegetation with mechanized mowers.

Most of the Open Space Plan Area is dominated by annual grasslands, which have a low fuel load. However, the eucalyptus groves contain a very high fuel load and fire risk. The Santa Barbara County Fire Department maintains a fuel break on the southern perimeter of the eucalyptus woodlands on the Ellwood Mesa. On the rest of the Mesa, the County mechanically removes excess vegetation along trails and the perimeter of the eucalyptus groves with mechanized mowers. Access to the Open Space Plan Area for emergency response is adequate and will not be altered by implementation of the Open Space Plan.

3. Community Wildfire Protection Plan

3.1.3 Ecological Enhancement

Although CWPPs often focus on actions needed within residential neighborhoods to reduce risks to life safety and property from wildfire, the development of this CWPP provides a strategic opportunity for the community to consider the ecological needs of the wildlands and open spaces. In fact, restoring the ecological resilience of a wildland vegetative area can be a very effective strategy for reducing the overall risk of wildfire to a community and its infrastructure. The open spaces or wildlands within and adjacent to Goleta are an important ecological resource for wildlife habitat as well as recreational enjoyment.

6.2.4 Natural and Cultural Resources

The reality is that the priority for fire protection is life safety first, followed by property then natural resources. The fire suppression actions taken to defend and protect life safety, structures, and infrastructure will not be the same for natural resources.

Wildfires in this area often burn through vegetation as a “stand replacement” fire. A stand replacement fire is a fire that either consumes or kills the majority of the dominant vegetation, thereby changing the structure and composition of the vegetation substantially. Unfortunately, most of the habitats (such as monarch butterfly aggregate sites) that are valued so greatly are extremely flammable.

How do we protect these important values? The best way to provide for the protection of values is through fuels treatment. Fuel treatments can reduce the threat of wildfire coming from human development towards critical habitat and reduce the wildfire severity.

6.3.10 Fuel Treatment Implementation Timing - Seasonality

Once a site’s prescription has been identified (including fuel treatment type and design tactics as well as knowledge of the priority ranking) the next consideration is timing of implementation. Seasonal limitations include rainy weather, which causes soil/site conditions that are not conducive to mechanical work. Some limited manual work may be an option during these wet conditions on a site-by-site basis. The hottest driest time-periods may also be a limitation for mechanical work due to hot machinery (i.e. exhaust systems) causing a wildfire ignition in dry grass, or metal scraping on a rock and sending sparks into dry grassy fuels potentially igniting a wildfire. In many cases, mowing type work may be necessary two to four times a year. Mowing after June would have to be carefully considered on a case-by-case basis depending on the growth, fire danger, and site conditions.

There are special operating circumstances in some of the designated ESHAs in Goleta. If a recommended fuel treatment falls within one of these areas, the project manager must strictly follow the guidelines specific to that ESHA. Regulatory information is found in the Goleta GP/CP and the City’s newly developed Monarch Butterfly Management Habitat Plan. The monarch butterfly ESHAs are of significance regarding fuel treatment priority in this CWPP. All work near butterfly aggregations areas is to be conducted between April 1 and September 15, outside of monarch butterfly overwintering season. Implementation work in the grove and habitat locations should be closely coordinated with a City-approved butterfly expert representative (or designee) and input from the SBCFD or a City-approved wildland fire specialist. GP/CP policy also specifies that vegetation management (i.e. fuels reduction work) should not be conducted during active nesting season of raptor species.

6.3.1 Existing Fuel Treatment Activities [excerpts]

The following list captures a summary of current and most commonly applied fuel treatments:

- Regional Open Space
  - o Mowing – mechanical mower equipment on annual herbaceous growth
  - o Shrub and tree maintenance – limbing, pruning, removal of dead/damaged vegetation
  - o Yard waste removal
  - o Flammable invasive vegetation removal
  - o Removal of decadent/dead shrubs/tree stumps o Chipping of dead/downed material
  - o Tree pruning

In areas where there is concern of re-sprouting potential after a tree removal treatment, a “stumpgrinder” can minimize this problem. The City owns one stump grinder and often contracts it out to various work sites where this technique is needed.

The timing and interval for fuel treatments generally varies by site type and vegetation type. The neighborhood parks are maintained by a contractor typically expected to do the work on a weekly basis throughout the growing months of the year (approximately March – October). Fuel treatments in the larger community parks and open space areas usually occurs two to four times a year. A complete and detailed list of each area and fuel treatment activity is available in Appendix F.

Tables 11, 12, and 14
Please see Tables 11, 12, and 14 from the Community Wildfire Protection Plan provided on the following pages.

Table 11 Summary of VMUs w/Open Spaces, Values at Risk, Proposed Activities, & Treatment Priorities

GP/CP Fig. 3-2 Map #s	VMU: Open Space/Park	Values At Risk	Proposed Activities: (Further treatment details in Tables 14 & 15)	Treatment Priority
	Ellwood Mesa:			
31	Campus Glen	Residences, monarch butterfly ESHA, recreation trails	Fuels reduction adjacent to residences; thin, prune, mow	**High**
33	Santa Barbara Shores (a)	Residences	Fuels reduction adj. to residences; prune, mow, thin-optional	**High**
33	Santa Barbara Shores (b)	Residences	Fuels reduction adj. to residences; prune, mow, thin-optional	**High**
34	Ellwood Mesa Open Space (Santa Barbara Shores Park)	Residences, powerlines, monarch butterfly ESHA, recreation trails	Fuels reduction adjacent to residences; thin, prune, mow; mow along edge of grove - non-developed portions	**High**
30	Ellwood Mesa Open Space (Sperling Preserve)	Residences, monarch butterfly ESHA, recreation trails	Fuels reduction adjacent to residences; thin, prune, mow; mow along edge of grove - non-developed portions	**High**
	Coronado:	(owned/operated by nonprofit private entities)		
32	Coronado Preserve	Residences, monarch butterfly ESHA, recreation trails	Fuels reduction adjacent to residences; thin, prune, mow	**High**
	Los Carneros:			
12	Lake Los Carneros Preserve	Residences - Interior & outside, offices, multiple ESHA types, heritage structures, Stow House, recreation trails, lake, picnic area	Continue current fuel reduction work; expand treatment work around interior structures; thin, prune, mow outside edges of preserve – emphasis: La Patera Lane vicinity	**High**
	Developed Inland:			
19	Andamar	Lawn, play equipment, picnic area, homes in vicinity	Continue current fuel reduction work: mowing	**Low**
27	Armstrong	Lawn, park play equipment, picnic area, homes in	Continue current fuel maintenance program	**Low**

Fuels Management Prescription Guidance
Undeveloped VMUS

Table 12 Prescription Guidance in Undeveloped VMUS

Location →	Primary Defense Zone (A) (0 – 30')*	Fuel Reduction Zone (B) (30' – 100')	Fuel Reduction Zone (C) (100' – 150' - applies to larger areas)
Fuel Type ↓	Based on Defensible Space PRC - 4291		Based on Firefighter Safety
Grass/ Forbs	Reduce fuel depth to 4 inches; methods include mowing, masticating, weed-whacking, biological browsing	Same treatment as (A); longer grass in isolated open areas is acceptable	Treatment may be needed in portions on a case by case basis
Surface dead/down material	Clear dead/down flammable materials; methods include raking, hand-piling/removal, masticating chipping/dispersal on site	Reduce dead/down flammable material to < 3" depth; methods same as (A); < 5 tons/acre in isolated logs acceptable.	Reduce heavier pockets of dead/down flammable material to < 5" depth; < 5-7 tons/acre in isolated logs acceptable.
Brush/ Shrub fuel	Remove to a spacing (between edges of brush) generally 2x brush height on <20% slopes; methods include masticating or hand-cutting, biological browsing	Same Treatment as (A); a pocket or clump of brush can be treated as one large shrub in more open site conditions.	Less intensive brush removal; with spacing approximately 10 ft; and more clumping of shrubs.
Trees Overstory (without brush understory)	Thin smaller trees leaving larger trees at 10-20 ft crown spacing (based on slope, tree size and type); reduce ladder fuels by pruning lower branches 6-15 ft up, or lower 1/3 of tree height on smaller trees; method likely hand-cut	Thin smaller trees leaving larger trees at approx. 10 ft crown spacing (based on slope, tree size and type); reduce ladder fuels by pruning lower branches 6 ft up, or lower 1/3 of tree height on smaller trees; method likely hand-cut.	Reduce ladder fuels by pruning lower branches of larger trees that have broken limbs, dead material etc. 6 ft up; method likely hand-cut.
Trees Overstory (with brush understory)	Thinning specs same as Trees Overstory without brush understory (A). Understory: remove brush ladder fuel; methods include masticating or hand-cutting	Thinning specs same as Trees Overstory without brush understory (B). Understory: remove brush ladder fuel; intermittent patches of shrubs and small trees in openings (non-canopy) is acceptable; methods include masticating or hand-cutting	Thinning specs same as Trees Overstory without brush understory (C). Understory: less intensive removal of brush ladder fuel; intermittent patches of shrubs and small trees in openings (non-canopy) is acceptable; methods include masticating or hand-cutting

*For further information specific to homeowner/structure mitigation measures. See Section 6.2.1

Table 14 Prescription Guidance for Butterfly Aggregation Areas Adjacent to Structures

Location →	Primary Defense Zone (A)*** (0 – 30')	Fuel Reduction Zone (B*** (30' – 100')
Fuel Type ↓	Based on Defensible Space PRC – 4291 and Firefighter Safety	
Grass/ Forbs	Reduce fuel depth to 4 inches; methods include mowing, masticating, weed-whacking, biological browsing	Same treatment as (A); longer grass in isolated open areas is acceptable.
Surface dead/down material	Clear dead/down flammable materials; methods include raking, hand-piling/removal, masticating chipping/dispersal on site	Reduce dead/down flammable material to < 3" depth; methods same as (A).
Brush/ Shrub fuel	Remove to a spacing (between edges of brush) generally 2x brush height on <20% slopes; methods include masticating or hand-cutting, biological browsing	Same Treatment as (A); a pocket or clump of brush can be treated as one large shrub in more open site conditions.
Trees Overstory without brush understory	Trim or thin only trees that do not provide protection to monarch butterfly aggregation sites* Thin smaller or unhealthy trees at 10 – 20 ft crown spacing (as determined by slope, tree size and type);Leave larger trees unless toppling hazard.** Reduce ladder fuels by pruning lower branches 6-15 ft up, or lower 1/3 of tree height on trees smaller than 18 ft..	Trim or thin only trees that do not provide protection to monarch butterfly aggregation sites* Thin smaller or unhealthy trees at approximately 10 ft crown spacing (as determined by slope, tree size and type);. Leave larger trees unless toppling hazard.** Reduce ladder fuels by pruning lower branches approximately 6 ft up, or lower 1/3 of tree height on trees smaller than 18 ft..
Trees Overstory with brush understory	Trim or thin only vegetation that does not provide protection to monarch butterfly aggregation sites* Thin small or unhealthy trees at 10-20 ft crown spacing (based on slope, tree size and type). Leave larger trees at 10 ft. crown spacing unless toppling hazard.**(Reduce ladder fuels by pruning lower branches 6-15 ft up, or lower 1/3 of tree height on smaller trees In understory: remove brush ladder fuel. Methods include masticating or hand-cutting.	Trim or thin only vegetation that does not provide protection to monarch butterfly aggregation sites* Thin small or unhealthy trees to approximately 10 ft. crown spacing. Leave larger trees unless toppling hazard.** Reduce ladder fuels by pruning lower branches approximately 6 ft up, or lower 1/3 of tree height on smaller trees. In understory remove brush ladder fuel. In non-canopied areas, noncontinuous patches of shrubs or small trees in openings is acceptable.. Methods include masticating or hand-cutting.

*As determined by the Goleta City Project Manager overseeing mitigation work in consultation with a City approved monarch butterfly specialist and a City approved wildland fire specialist.
**As determined by the Goleta City Project Manager and Goleta City arborist.
***For further information specific to homeowner/structure mitigation measures see Section 6.2.1.

Attachment 4:

California Coastal Commission Emergency Permit No. G-4-17-0048 and City Emergency Permit Application

STATE OF CALIFORNIA -- THE RESOURCES AGENCY
EDMUND G. BROWN, JR., *Governor*

CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
89 SOUTH CALIFORNIA ST., SUITE 200
VENTURA, CA 93001
(805) 585-1800

EMERGENCY PERMIT

Date: **September 26, 2017**

Permit No.: **G-4-17-0048**

Applicant: **City of Goleta**

Location: **Ellwood Mesa, City of Goleta (Santa Barbara County)**

Work Proposed: **One-time removal of 29 eucalyptus trees on Ellwood Mesa that are dead and/or at high risk of failure adjacent to four essential public trails in order to protect life and property from imminent danger. In addition, the emergency work includes the temporary closure of several public trail segments within the eucalyptus tree groves on Ellwood Mesa (marked with signs and symbolic fencing); four trail segments (portions of trail #6, 16, 18, and 25) will be re-opened following removal of the emergency tree removals and five other trails segments (portions of trail #16, 19, 23, 24, and 25) will remain temporarily closed until a Habitat Management Plan is approved through a follow-up permit and the fall hazard posed by the remaining dead and/or dying trees near those trail segments is abated.**

This letter constitutes approval of the emergency work you or your representative has requested to be done at the location listed above. I understand from the information submitted that an unexpected occurrence in the form of dead and dying eucalyptus trees at high risk of failure that are adjacent to public trails on the Ellwood Mesa and that constitute a risk to public health and safety. This occurrence requires immediate action to prevent or mitigate loss or damage to life, health, property or essential public services. 14 Cal. Admin. Code Section 13009. The Executive Director hereby finds that:

(a) An emergency exists which requires action more quickly than permitted by the procedures for administrative or ordinary permits and the development can and will be completed within 30 days unless otherwise specified by the terms of the permit;

(b) Public comment on the proposed emergency action has been reviewed if time allows; and

The work is hereby approved, subject to the conditions listed on the reverse.

Sincerely,

John Ainsworth
Executive Director

By: Steve Hudson
Title: Deputy Director

CONDITIONS OF APPROVAL

1. The enclosed form must be signed by the applicant and returned to our office within fifteen (15) days.

2. Only that work specifically described above and as more specifically described in the Commission's file for this Emergency Coastal Development Permit (CDP) Application, is authorized for the specific property listed above, subject to the conditions set forth below. Any additional work requires separate authorization from the Executive Director.

3. The work authorized by this permit must be completed within 120 days of the date of this permit, or as extended by the Executive Director through correspondence, and shall take place in a manner to minimize any potential damages to any resources, including Devereux Creek, and to minimize impacts to public access. Public access shall be maintained with the use of signs directing the public around the construction and tree fall hazard areas. The applicant shall also avoid adverse impacts to aggregating monarch butterflies and to live eucalyptus trees near the project site to the maximum extent feasible.

4. The work authorized by this emergency permit is temporary and limited to the one-time removal of 29 eucalyptus trees and the temporary closure of several trails segments. **Within twelve (12) months following completion of the proposed work, the permittee shall submit a complete regular Coastal Development Permit Application to the California Coastal Commission for a Ellwood Mesa Habitat Management Plan to address tree removal mitigation and restoration of the aggregation sites within the groves and a strategy for re-opening public trail segments in coordination with habitat management strategies and requirements. This deadline may be extended by the Executive Director for good cause through correspondence.**

5. In exercising this permit, the applicant agrees to indemnify and hold harmless the California Coastal Commission, and its agents and employees, from any liabilities or claims for damage to public or private properties or personal injury that may result to any party from the project authorized herein.

6. This permit does not obviate the need to obtain necessary authorizations and/or permits from other local, state and federal agencies.

IMPORTANT

The emergency work is considered to be temporary work done in an emergency situation, and a follow-up regular CDP must be obtained. A regular permit would be subject to all of the provisions of the California Coastal Act and may be conditioned accordingly.

If you have any questions about the provisions of this emergency permit, please call Michelle Wagner or Deanna Christensen at the Commission's Ventura Office at (805) 585-1800.

Enclosures: 1) Acceptance Form

CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
89 SOUTH CALIFORNIA ST., SUITE 200
VENTURA, CA 93001
(805) 585-1800

EMERGENCY PERMIT ACCEPTANCE FORM

Emergency Permit No. _____

Instructions: After reading the attached Emergency Permit, please sign this form and return within 15 days from the Permit's date.

I hereby understand all of the conditions of the emergency permit being issued to me and agree to abide by them. I understand that the emergency work is temporary and a regular Coastal Permit is necessary to make it a permanent installation.

_____
Signature of property owner or
Authorized representative

_____
Name

_____
Address

_____

_____

_____
Date of Signing

NIA COASTAL COMMISSION
CALIFORNIA ST., 2ND FLOOR
ENTURA, CA 93001

SANTA BARBARA
CA 931
29 SEP '17
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09/28/2017
Mailed From 93001
US POSTAGE

CITY OF GOLETA
CALIFORNIA
OCT 03 2017
RECEIVED

Laura Bridley
City of Goleta
130 Cremona Drive #B
Goleta, CA 93117

93117-551474

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105- 2219
VOICE AND TDD (415) 904- 5260
FAX (415) 904- 5400

APPLICATION FOR EMERGENCY PERMIT

PLEASE NOTE: The following information and attachments **must** be submitted in writing in order to receive an Emergency Permit (EP) pursuant to Section 30624(a) of the Coastal Act, or if not possible, by telephone or in person. If the emergency situation is such that a verbal authorization is given by the District Director to commence emergency work, the application for emergency permit should still be submitted by the property owner within 3 days of the disaster or discovery of the danger. A fee is required for an EP where the applicant is a private entity (see Permit Fee schedule). Public agencies do not have to pay a fee.

Please also note that an E P is a temporary authorization designed to allow the least amount of temporary development with the least potential for adverse coastal resource impacts necessary to abate the identified emergency. A follow-up Coastal Development Permit (CDP) must be obtained to authorize any development past the temporary period allowed by the EP. Otherwise, all emergency development must be removed and all affected areas restored to their prior condition or better, after consultation with California Coastal Commission staff, and consistent with the Coastal Act. In some instances, a permit may be needed for removal of the emergency development or restoration of the site. Failure to either obtain a follow-up CDP or remove the temporary development consistent with the Coastal Act and in compliance with the terms of this EP will constitute a knowing and intentional Coastal Act violation, which may result in formal enforcement action by the Commission.

1. September 22, 2017 (Date/Time) Request: ☐ in person ☐ by telephone ☒ by mail (email + overnight)

2. Rosemarie Gaglione, Goleta Public Works Director
Anne Wells, Advanced Planning Manager
Name(s) of Property Owners

Address: 130 Cremona Drive, Suite B
Goleta, CA 93117

Phone Number: (805) 961-7569 - Gaglione
(805) 961-7557 - Wells

Laura Bridley, Contract Planner
Name(s) of Representative(s)

Address: Same as Applicant - City Hall

Phone Number: (805) 896-2153

3. **Location** of Emergency and proposed location of work to be done under this EP:
7600 Block of Hollister Avenue - Ellwood Mesa - See Attachments B & D

4. Evidence of applicant's interest in property on which emergency work is to be performed: City Open Space

5. Assessor's Parcel Number: See Attachment D - map and APN's for work area

6. Contractor, or person(s) who will do emergency work/address/phone number (if different from representative): Mark Crane's Tree and Arborist Services;
P.O. Box 983, Goleta, CA 93116; Cell phone: 805-705-0170; office phone: 805-685-2320; add'l contractor may be needed - tbd

7. Nature and cause of emergency (description including evidence that an emergency exists, as defined in the Commission's regulations, 14 Cal. Code Regs Sec. 13009, , including any relevant documentation such as reports and photos. Attach additional pages as needed.): See Attachment A - need to remove dead and dying trees near public trails to limit fall and injury to public

8. The circumstances during the emergency that appeared to justify the course(s) of action taken, including the probable consequence of failing to take action: See Atttachment A

9. Method and preventive work required to address the emergency situation (e.g., rip rap, sandbags, etc.): See Attachment A

10. Timing of emergency work (estimate as to when work will be performed – generally a period of 24 to 72 hours after the emergency occurrence):
Before October 1 for four (4) trees closest to trails to remain open at Ellwood; then 4 - 6 weeks following; complete by 12-31-17

ATTACHMENTS – Please provide the following:

1. If time permits, evidence of approval by local planning department. City of Goleta emergency permit pending - Case 17-115 -EMP

2. Site plan showing proposed and existing development on the subject parcel. See Attachment B

3. Vicinity map (road map) with location of project site marked. For rural areas, please also provide a parcel map. See Attachments B and D

4. Site photos and any relevant reports supporting the existence of an emergency and the need for the proposed action.

Attachment A

PROJECT DESCRIPTION
Emergency Permit 17- 115-EMP

1.0 PROJECT SUMMARY

1.1 Background: Recent arborist studies commissioned by the City of Goleta have revealed the presence of more than one thousand standing dead and dying eucalyptus trees in the groves on Ellwood Mesa, a publicly accessible and popular open space in the western portion of the City's Coastal Zone that is well known for its seasonal monarch butterfly aggregations. Because these trees pose a hazard to the public due to risks of falling, the City took immediate action and closed all public trails in the eucalyptus groves in July 2017 pending abatement of the safety hazard. Following the trail closures, the City received significant input from the public and parties interested in protection of the monarch butterfly, urging that large-scale removal of the dead trees be delayed until a habitat management plan can be prepared. On September 7, 2017, the City Council directed that a limited number of dead tree removals be undertaken to restore safe public access to a small number of trails used for coastal access on Ellwood Mesa, and that the remaining trails stay closed until a habitat management plan is prepared and implemented.

1.2 Summary of Work: Per Council's directive, the proposed project includes emergency work anticipated for removal of 29 standing dead eucalyptus trees situated along the most essential trails through the eucalyptus groves. Related activities such as installing trail management signs and barriers and temporary allocation of parking spaces will be completed as part of this work. Attachment A shows the location of the trees and trails affected by this work. The trees are situated along trails 6, 16, 18, and 25 as described in the City's Open Space Element, and are illustrated in green on Attachment B, Emergency Permit Tree Work and Trail Plan for Ellwood Mesa. The 29 trees have been evaluated by a certified arborist (Cory Meyer, of Althouse and Meade), and have been assigned ratings of 0 (dead – 28 trees) or 1 (dying/hazardous – 1 tree) on a 0-10 rating scale used by the arborist (see Attachment C). These trees were identified for removal because they are the only 0 and 1-rated trees within 50 feet of the four essential trails. Under current conditions, the extensive presence of dead trees along the coastal trails constitutes an emergency. Some members of the public continue to use the trails within the eucalyptus grove for coastal access despite posted closures, and immediate action is warranted to protect the public from harm. Proposed emergency actions are described in detail in the sections that follow.

2.0 DETAILED PROJECT DESCRIPTION

The immediate work proposed is the removal of 29 trees and work to maintain temporary trail closures as shown on Attachment B, until hazardous conditions are abated. A detailed inventory of the dead trees to be removed has been completed by a certified arborist from consulting biologists Althouse and Meade and is provided in

Attachment C. The Assessor Parcel Numbers underlying the trail and tree work areas are provided in Attachment D.

2.1 Timing

The City intends to implement the project as soon as possible. Importantly, there are 4 dead trees (see Attachment B) that require removal and are near butterfly aggregation sites, which the City desires to remove prior to the butterfly aggregation season (*i.e.,* these trees will be removed prior to October 1). The remaining removals would be performed as promptly as possible thereafter, and are expected to take 1-2 months to complete. Any tree work after October 1st will occur in coordination with the City's biologist to ensure that aggregating monarch butterflies are protected from impacts during the dead tree removals. If tree removal work continues after February 1 (not anticipated), a biologist will conduct pre-activity nesting birds surveys and would monitor any detected nesting sites to ensure that they are not affected by nearby tree removal activities.

Following the emergency removal of the 29 dead trees, the City will develop a Habitat Management Plan that will be vetted with the public, various City boards and commissions, and outside regulatory agencies, which may include the Coastal Commission, the California Department of Fish and Wildlife, the Central Coast Regional Water Quality Control Board, the U.S. Army Corps of Engineers, and the U.S. Fish and Wildlife Service. Currently, the City anticipates preparing a draft habitat management plan for approval within one year, with permitting and environmental review to follow. Some trails could remain closed for up to three years, considering the time needed for plan preparation, final approval, and implementation to the point where all trail hazards have been abated. It is important to note that immediate removal of the 29 dead and hazardous trees will not foreclose on any viable alternatives or constrain the development of the Habitat Management Plan.

2.2 Trail Access

Currently, all trails within the eucalyptus groves on Ellwood Mesa are closed to the public, with signage clearly posted. Following implementation of the proposed emergency dead tree removals, four of the trails (Trails 6, 16, 18, and 25) would be re-opened to the public upon verification from the City's Public Works department that hazardous conditions are no longer present along the trails. The remaining public trails on Ellwood Mesa would remain closed until a Habitat Management Plan is prepared and safety hazards are abated. This process is anticipated to last up to three years, although there is some uncertainty regarding the permitting timeline. Closed trails would be marked with signs, and may be symbolically fenced (split-rail or similar). Attachment B illustrates the locations of trails that would remain closed until the Habitat Management Plan is completed, permitted, and implemented to the point where fall hazards along trails have been abated.

2.3 Staging and Access

Access and staging of tree crews will occur in locations closest to the work areas, taking into consideration impacts to habitat. Most of the dead trees to be removed are located along the margins of the eucalyptus grove and would be accessed from the nearest suitable location outside the grove. These locations are generally within annual grassland areas, where parking of equipment for a short duration will not have lasting habitat impacts. Final routes of access to each tree will be determined in the field, with guidance from a biological monitor, who will ensure that impacts to living trees and other vegetation are minimized. For the trees along trail segments 18 and 25, the existing sewer line road along the northern side of Devereux Creek will be used for staging to the maximum extent feasible because the road is wide enough to accommodate equipment and is previously disturbed and fully compacted.

A portion of the parking area off of Hollister Avenue will be reserved for work crews; however, this area will be limited to five spaces and carpooling will be required. Worker vehicle parking in unpaved areas is not proposed.

2.4 Proposed Methods for Removing Dead/Hazardous Trees

During the dead tree removals, best professional standards will be employed at all times. The use of hand tools and small equipment will be required when feasible to minimize impacts. The City's methods for the emergency tree removals will be included in the contractor's bid specifications. Generally, the trees would be removed as follows:

- Securing areas where tree removal work will be conducted from public access during the time that work is being conducted. Ensuring the safety of workers and the community at large is of paramount importance.
- Construction notification signs will be posted at the staging and access areas alerting the public to the presence of heavy equipment and tree work.
- Whenever possible, trees will be removed by sectioning and lowering to the ground by rope. Care will be taken to prevent trees from falling onto any living trees or understory shrubs.
- Trees shall be cut to ground level and stumps left in place, except in specific cases as directed by the Certified Arborist where re-sprouting may be possible. In such cases, trees may be cut 6-12 inches above ground level.
- Branches and cut wood will be chipped in place where feasible, and trunks or large branches too large to chip will be laid on the forest floor or cut to appropriate length and used as trail barriers.
- Beyond the 29 dead/dying trees illustrated on Attachment B, no trees will be removed. The tree removal contractor will not be expected, nor authorized, to make determinations regarding whether or not additional trees should be removed.

- Cut material will be processed promptly and will not be stockpiled on-site. The City may retain certain cut portions (rounds) of trees near the work area to function as barriers to achieve limited trail access.
- Onsite construction vehicles (small tracked equipment such as Bobcat or similar) may be used and will minimize soil disturbance to the extent practicable. Any marks, rutting or other soil disturbance will be repaired by the contractor before they leave the site. Existing roads and dirt paths will be utilized for access.

2.5 Environmental Protection During Project Implementation

The bid specifications will include requirements for a Construction Manager to ensure environmental protection measures, including, but not limited to, the items described below.

- **Monitoring by City-approved Biologist, Arborist and/or Environmental Monitor –** The City will contract with these consultants to provide biological compliance inspections, monitor tree removal work by an ISA-certified arborist and make recommendations regarding tree health and treatment, in coordination with the project Construction Manager.
- **Environmental Monitor –** A professional contracted by the City to oversee compliance with environmental conditions during project implementation.

Proposed protective measures include, but are not limited to, the following:

- Worker environmental sensitivity training will be conducted for all onsite workers prior to start of work. Training will be provided by the City and the City's consulting specialists including representatives from Althouse and Meade.
- Pre-construction nesting bird surveys will be conducted by the City's biologist prior to start of work. If nesting birds are observed, tree removal will avoid the nesting area and a protective buffer at the recommendation of the City-approved biologist.
- Butterfly aggregation surveys will be conducted if work activities are proposed within 300 feet of an aggregation site between the months of October through March. Tree removal activity will avoid all active aggregation sites, including a protective buffer, at the recommendation of a City-approved biologist, in consultation with the Althouse and Meade biologist.
- A City-approved arborist will use Althouse and Meade's data to mark the trees to be removed. The markings will be paint or flagging and will be apparent at all times. If paint fades or flagging is removed, the arborist will remark the trees prior to any/all removals.
- The contractor will be directed to take extreme care to ensure that non-target trees are not inadvertently damaged during the tree removals. A City-approved

arborist will be onsite to ensure that the removals are consistent with the Althouse and Meade tree survey results. The arborist will maintain daily logs noting the tree number and progress.

- Soil disturbance will be minimized and appropriate erosion controls will be used.
- Construction equipment staging, fueling, and storage areas shall be located outside of the eucalyptus groves (the outer dripline plus 5 feet), and no closer than 100 feet from Devereux Creek. Localized staging along the sewer line road north of Devereux Creek is permissible when removing trees along trail 25, as the road represents the least environmentally damaging staging area for this location.
- Equipment utilized for tree removals will not create ruts in the soil or cause soil erosion on the trails, roads, or undisturbed ground. Wooden boards or other protective devices (rubber matting) should be placed within groves and under heavy equipment to distribute the weight of any heavy machinery used during removal (trucks, cranes, etc.).
- Pesticides and herbicides will not be used.
- Fire suppression equipment will be onsite at each work area.
- The City's onsite arborist and/or environmental monitor will work with the Contract Manager in an effort to minimize tree removal impacts to adjacent habitat and public access.
- No work will be done on red flag days to ensure fire safety. The tree removal contractor will monitor wind speeds for public and worker safety.

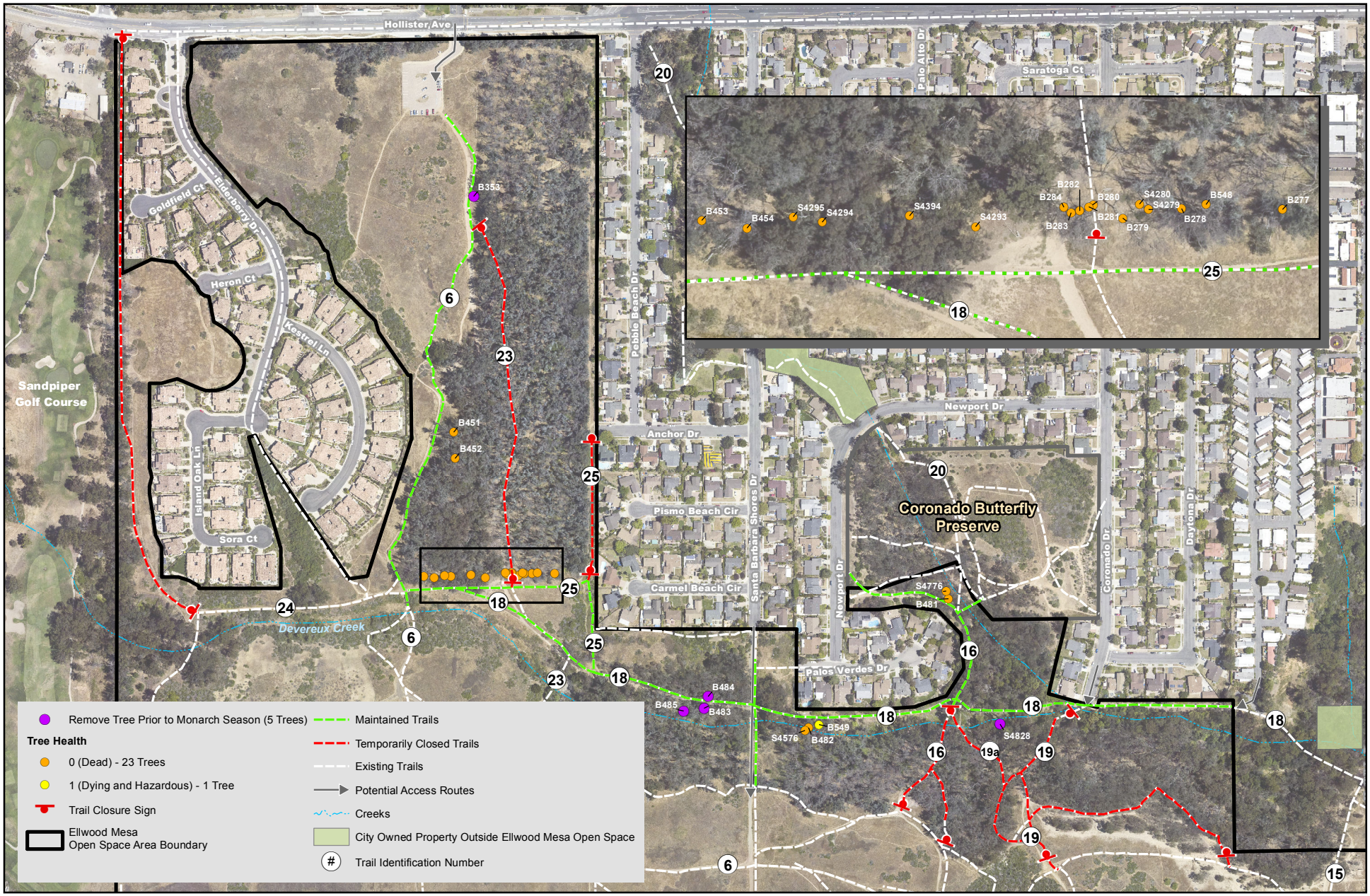
2.6 Unforeseen Circumstances

Trails and aggregation sites would be periodically monitored to identify and address any new safety concerns, such as trees that may present a fall risk. If additional tree removals are needed, follow-up action by the City Council and Coastal Commission, including possibly a subsequent emergency permit, may be needed.

2.7 Schedule and Logistics

The work in the Emergency Permit will begin as soon as Coastal Commission approval is obtained and a contractor is procured, anticipated in late September 2017. Work is scheduled to conclude by December 31, 2017. Although the actual work schedule may vary, work will typically be scheduled during daylight hours (7:00 a.m. until 7:00 p.m.), Monday through Saturday.

Attachment B: Emergency Permit Tree Work and Trail Plan for Ellwood Mesa



0 200 400 600 800 1,000 Feet

N

City of Goleta
Ellwood Grove Restoration

ALTHOUSE AND MEADE, INC.
BIOLOGICAL AND ENVIRONMENTAL SERVICES

Map Updated: September 18, 2017 10:59 AM
Last Edited by: jacqueline

Attachment C - Ellwood Mesa 29 trees to be removed

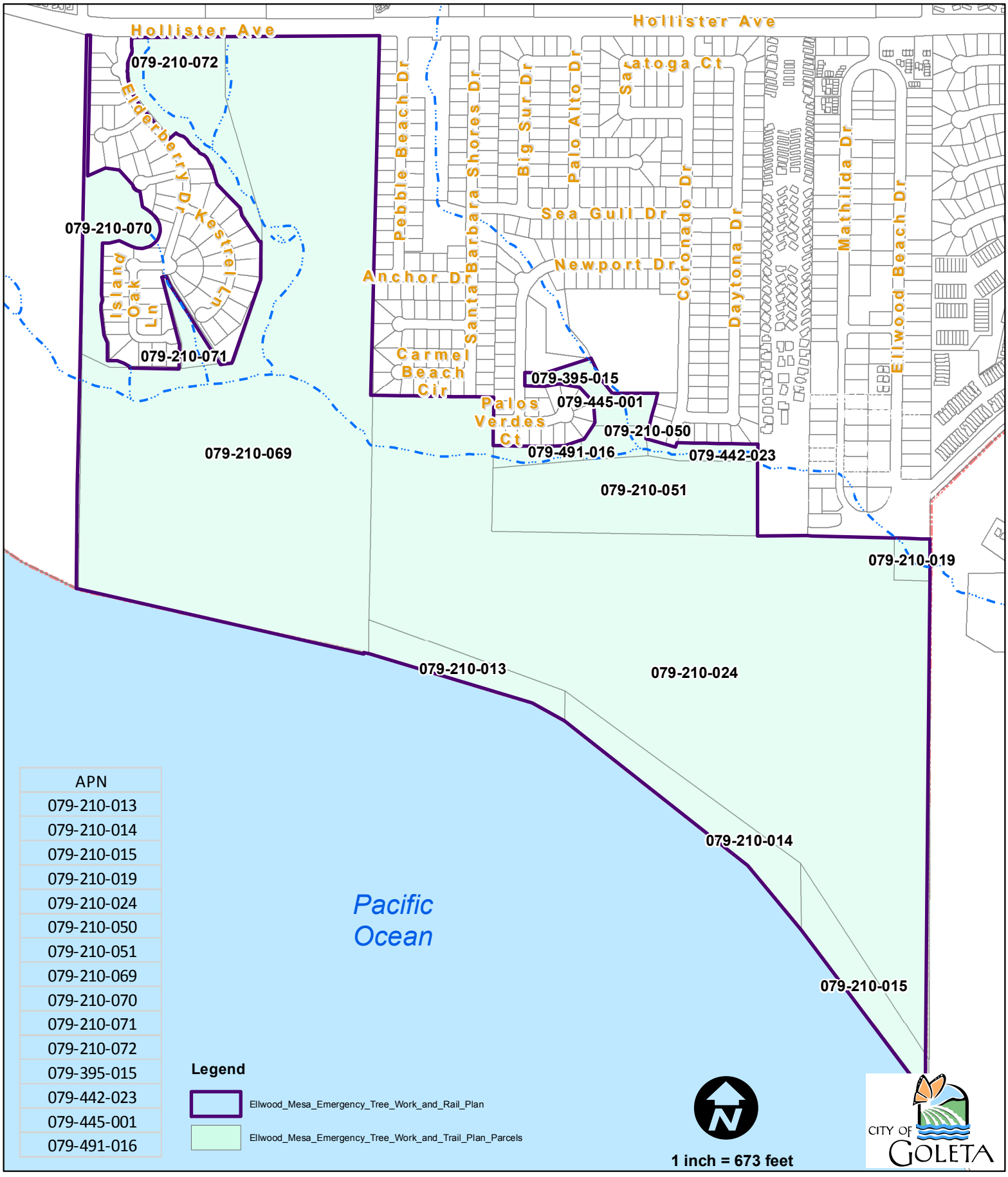
	Tree ID	Location	Date	Height (ft.)	Health (1-10)	Latitude	Longitude	DBH (in)	DBH2 (in)	DBH3 (in)	DBH4 (in)
1	b277	Ellwood North	8/2/2017	70	0	34.42468	-119.89551	15.0			
2	b278	Ellwood North	8/2/2017	65	0	34.42468	-119.89477	19.0	11.0		
3	b279	Ellwood North	8/2/2017	60	0	34.42467	-119.89476	11			
4	b280	Ellwood North	8/2/2017	55	0	34.42469	-119.89478	10.0	6.0		
5	b281	Ellwood North	8/2/2017	45	0	34.42469	-119.89481	21.0	10.0		
6	b282	Ellwood North	8/2/2017	30	0	34.42468	-119.89480	6.0	3.0	5.5	5.0
7	b283	Ellwood North	8/2/2017	50	0	34.42468	-119.89482	14.0	13.0	6.0	
8	b284	Ellwood North	8/2/2017	65	0	34.42469	-119.89487	14.0	12.0	5.0	
9	b353n	Ellwood North	7/25/2017	50	0	34.42811	-119.89642	8.5			
10	b451	Ellwood North	8/2/2017	85	0	34.42596	-119.89093	14.0	15.0	12.0	
11	b452	Ellwood North	8/2/2017	90	0	34.42573	-119.89098	20.0			
12	b453	Ellwood North	8/2/2017	80	0	34.42466	-119.89099	9.0	17.0		
13	b454	Ellwood North	8/2/2017	75	0	34.42464	-119.89104	9.0	3.5	15.0	15.0
14	b481	Coronado	8/2/2017	50	0	34.42447	-119.89121	12.0	6.0		
15	b482	Ellwood Main	8/2/2017	65	0	34.42329	-119.89139	16.0			
16	b483	Ellwood West	8/2/2017	75	0	34.42346	-119.89124	55.0			
17	b484	Ellwood West	8/2/2017	65	0	34.42357	-119.89128	8.0	9.0	7.0	
18	b485	Ellwood West	8/2/2017	75	0	34.42344	-119.90015	10.0			
19	b548	Ellwood North	8/25/2017	50	0	34.42469	-119.89571	7.0	4.5		
20	b549	Ellwood Main	8/26/2017	60	1	34.42332	-119.89261	25.0	2.5	7.0	2.0
21	s4279	Ellwood North	8/25/2017	30	0	34.42468	-119.89585	10.0			
22	s4280	Ellwood North	8/25/2017	55	0	34.42469	-119.89587	8.0	9.0		
23	s4293	Ellwood North	8/25/2017	50	0	34.42465	-119.89627	6.5	4.0		
24	s4294	Ellwood North	8/25/2017	60	0	34.42466	-119.89665	16.0			
25	s4295	Ellwood North	8/25/2017	60	0	34.42467	-119.89672	6.5	2.0		
26	s4394	Ellwood North	8/25/2017	25	0	34.42467	-119.89644	6.5			
27	s4576	Ellwood Main	8/26/2017	50	0	34.42327	-119.89276	19.5			
28	s4776	Hollister	8/31/2017	25	0	34.42454	-119.89122	4.0			
29	s4828	Ellwood Main	8/31/2017	25	0	34.42333	-119.89063	12.5			

Althouse and Meade, Inc.
1602 Spring Street
Paso Robles, CA 93446

By: 

Cory Meyer ISA Certified Arborist WE 7678-A

ATTACHMENT D - ELLWOOD TREE WORK AND APN'S



APN
079-210-013
079-210-014
079-210-015
079-210-019
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079-210-050
079-210-051
079-210-069
079-210-070
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