

**MEMORANDUM of AGREEMENT for MITIGATION**

between

**MONTEREY PENINSULA REGIONAL PARK DISTRICT**

and

**MONTEREY-SALINAS TRANSIT DISTRICT**

This AGREEMENT is made by and between Monterey Peninsula Regional Park District (“MPRPD”), P. O. Box 223340, Carmel, CA, 93922, and the Monterey-Salinas Transit District (“MST”), 19 Upper Ragsdale Drive, Suite 200, Monterey, CA, 93940, hereafter collectively referred to as the “Parties.” The Parties enter into this Agreement to provide support for the conservation projects described herein.

RECITALS

A. MPRPD is a special district of the State of California. The mission of MPRPD is to acquire and maintain open space in the District for preservation and use, working with partners and the community, for public benefit, enjoyment, and environmental protection.

B. MST is a special district of the State of California. The mission of MST is advocating and delivering quality public transportation as a leader within our community and industry.

C. MST desires to compensate for impacts to special-status species and sensitive habitat as required by the MST SURF! Busway and Bus Rapid Transit Project Initial Study/Mitigated Negative Declaration (“IS/MND”) and Biological Opinion (“BO”) issued by the U.S. Fish and Wildlife Service (“USFWS”) in accordance with the California Environmental Quality Act (“CEQA”) and federal Endangered Species Act (“ESA”), respectively.

D. In accordance with the IS/MND and BO, MST may fund habitat enhancement projects that benefit impacted species and habitat as compensatory mitigation.

E. “Compensatory Mitigation” is the conservation, restoration, enhancement, and/or creation of special-status species habitat and sensitive habitat. For the purposes of this Agreement, the primary special-status species and sensitive habitat considered for compensatory mitigation are the Smith’s blue butterfly (*Euphilotes enoptes smithi*; SBB), Monterey spineflower (*Chorizanthe pungens* var. *pungens*; CHPUP), and dune scrub habitat. A minimum total mitigation area of 2.89 acres is required, which represents 0.42 acres of required mitigation for SBB, 2.43 acres of required mitigation for CHPUP, and 0.04 acres of required mitigation for dune scrub habitat.

F. “Project” is the restoration, enhancement, and creation of SBB, CHPUP, and dune scrub habitat on MPRPD property). The project will restore at least 2.89 acres at the Marina Dunes Preserve (“MDP”), which is owned and managed by MPRPD and located at 3325 Dunes Drive, Marina, CA 93933. MST’s role in the Project is to provide funding to MPRPD to implement restoration, enhancement, and creation activities according to the Habitat Restoration Plan (Appendix A), specifically within the Restoration Areas (“RA”) 4 and 11 as shown in Attachment 1. If needed, mitigation for CHPUP may also occur in a portion of the 9.37-acre RA-2.

## AGREEMENT

Now, therefore, in consideration of the foregoing recitals and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. SCOPE OF WORK. MPRPD shall furnish all necessary materials, labor, equipment, and supplies to complete Project planning, implementation, and maintenance and monitoring over the "Performance Period." The Performance Period shall begin on the "Effective Date" as outlined in Section 4 and end consistent with Section 5 "Completion Date." MPRPD is responsible for the following major work categories related to implementation of the Project under this Agreement, per the Habitat Restoration Plan (Appendix A):

a. Task 1 – Implementation of the Habitat Restoration Plan: MPRPD shall implement the restoration and maintenance activities following the prescriptions described in the Habitat Restoration Plan (Appendix A).

b. Task 2 – Monitoring and Reporting. MPRPD will follow the monitoring, maintenance, and adaptive management activities described in the Habitat Restoration Plan for 5 years with success monitoring of vegetative cover and species richness conducted pre- and post-restoration implementation.

c. Task 3 – Project Management. MPRPD shall provide oversight and project controls to ensure successful implementation of the Habitat Restoration Plan during the Performance Period.

2. ANNUAL REPORTS. MPRPD shall provide annual reports to MST, which are projected to occur beginning in 2026 and end by 2030. Annual reports are due no later than March 15<sup>th</sup> of the previous year. Therefore, the first annual monitoring report is expected to be provided by March 15, 2026, based on restoration implementation beginning in 2024 and requiring one year.

3. STATUS REPORTS. MPRPD shall provide correspondence to MST as major milestones are met. Major milestones include implementation of Tasks 1-3 in Section 1 of this Agreement.

4. EFFECTIVE DATE. The effective date of this Agreement is the date of the last signature below.

5. COMPLETION DATE. The Project will commence upon the Effective Date of this Agreement. Per the Habitat Restoration Plan, the project implementation and performance period are five (5) years ("Performance Period"). The Project will be deemed complete upon implementation of activities as outlined in the Habitat Restoration Plan during the Performance Period and delivery of a Final (Year 5) Annual Report as provided by MPRPD. The Parties anticipate the Final Annual Report will be provided between 2030-2031. Any delay in the Final Annual Report shall be agreed upon in writing by the Parties.

6. FUNDING. MST shall release \$115,600 to MPRPD to fund project implementation over the Performance Period. Any changes to the scope during the Performance Period shall be approved in writing by MST prior to implementation to ensure the required CEQA mitigation measures and USFWS BO measures are met. MST will provide funding within 30 days of the Effective Date of this Agreement.

7. MANAGEMENT RESERVE. MST shall maintain a \$17,340 Management Reserve (15% of total implementation cost, not including inflation) for funding of unrealized implementation, monitoring, or maintenance costs reasonably required to implement the Habitat Restoration Plan or fulfill MST mitigation requirements. MPRPD shall provide written justification explaining the specific conditions that warrant a funding release from the Management Reserve. MPRPD shall provide said written justification to MST for review and approval, which should not be unreasonably withheld, no less than 60 days in advance of requested funding release date. If approved, MST shall provide funding within 20 days of the requested date.

8. NO GUARANTEES OR WARRANTIES. MPRPD will undertake the actions identified in this Agreement's Scope of Work. The parties acknowledge that MPRPD does not guarantee attainment of performance targets or ecological results of any kind under this Agreement. In the event that project Funding or the Management Reserve is not sufficient to pay for activities either outlined in the Habitat Restoration Plan or are reasonably required to meet MST mitigation requirements, MPRPD shall provide written justification explaining the specific conditions that warrant additional funding to MST for review and approval.

9. INDEMNIFICATION: MPRPD shall defend, indemnify, and hold harmless MST, its officers, employees, and agents from any claims, liabilities, and damages arising out of the acts or omissions of MPRPD, its officers, employees, and agents while undertaking the Project. "Undertaking the Project" is defined as the actions identified in the Agreement's Scope of Work, any other actions MPRPD is obligated to take under this Agreement, as well as any actions related to advancing or completing the Project.

10. INTERPRETATION AND HEADINGS. The language of this Agreement shall in all cases be simply construed according to its fair meaning and not strictly for or against any Party. Headings of the sections of this Agreement are for the purposes of convenience only and the words contained in such headings shall in no way be held to explain, modify, amplify, or aid in the interpretation, construction, or meaning of the provisions of this Agreement.

11. MODIFICATION. This Agreement is not subject to modification except in writing by the Parties and any attempted modification not in compliance with this requirement shall be void. The Parties shall use their good faith efforts to complete any modifications within ninety (90) days after the initial request is made for modification by the requesting Party.

12. NOTICES. All notices, demands, or requests from one Party to another may be electronically mailed, personally delivered, sent by facsimile, sent by recognized overnight delivery service, sent by mail, certified or registered, postage prepaid, return receipt requested, or by electronic mail, to the persons at the addresses set forth below. Notice shall be deemed given five (5) days after deposit in the United States mail as described above. Parties may from time to time specify an alternate address in writing and it shall be effective at the time of personal delivery, facsimile transmission, mailing, or electronic mailing.

Monterey-Salinas Transit District  
Carl Sedoryk  
General Manager/CEO  
19 Upper Ragsdale Drive, Suite 200

Monterey Peninsula Regional Park District  
Dr. Rafael Payan  
General Manager  
P.O. Box 223340

Monterey, CA 93940  
(831) 264-5001  
csedoryk@mst.org

Carmel, CA 93922  
(831) 372-3196 ext. 101  
[payan@mprpd.org](mailto:payan@mprpd.org)

13. **SUCCESSORS AND ASSIGNS.** This Agreement and each of its covenants and conditions shall be binding on and shall inure to the benefit of the Parties and their respective successors and assigns.
14. **COUNTERPARTS.** This Agreement may be executed by the Parties in several counterparts, each of which shall be deemed to be an original executed document.
15. **NO PARTNERSHIPS.** This Agreement shall not make or be deemed to make any Party of this Agreement an agent for or the partner of any other Party.
16. **GOVERNING LAW.** This Agreement shall be governed by and constructed in accordance with the laws of the State of California.
17. **NON-EXCLUSIVE AGREEMENT.** This Agreement is non-exclusive and both MST and MPRPD expressly reserve the right to contract with other entities for the same or similar services.
18. **CONSTRUCTION OF AGREEMENT.** MST and MPRPD agree that each party has fully participated in the review and revision of this Agreement and that any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not apply in the interpretation of this Agreement or any amendment thereto.
19. **INTEGRATION.** This Agreement, including the exhibits any documents incorporated by reference, represent the entire Agreement between MST and MPRPD with respect to the subject matter of this Agreement and shall supersede all prior negotiations, representations, or agreements, either written or oral, between MST and MPRPD as of the effective date of this Agreement.
20. **SEVERABILITY.** If any of the provisions contained in the Agreement are held illegal, invalid, or unenforceable, the enforceability of the remaining provisions shall not be impaired thereby. Indemnities shall survive termination of the Agreement for any cause. If a part of this Agreement is valid, all valid parts that are severable from the invalid part remain in effect. If a part of this Agreement is invalid in one or more of its applications, the part remains in effect in all valid applications that are severable from the invalid applications.
21. **AUTHORITY.** Any individual executing this Agreement on behalf of MST or MPRPD represents and warrants hereby that he or she has the requisite authority to enter into this Agreement on behalf of such party and bind the party to the terms and conditions of this Agreement.

IN WITNESS HEREOF, the Parties hereto have executed and delivered this Agreement as of the last date set forth below.

Monterey-Salinas Transit,  
a Special District of the State of California

Monterey Peninsula Regional Park District,  
a Special District of the State of California

By \_\_\_\_\_  
Carl Sedoryk  
General Manager/CEO  
Monterey-Salinas Transit District

By \_\_\_\_\_  
Dr. Rafael Payan  
General Manager  
Monterey Peninsula Regional Park District

ATTACHMENT 1  
Habitat Restoration Plan  
Surf! Mitigation at Marina Dunes Preserve

# Habitat Restoration Plan

## MST Surf! Mitigation at Marina Dunes Preserve

February 28, 2024

**Prepared for:**

Monterey-Salinas Transit  
19 Upper Ragsdale Drive, Suite 200  
Monterey, CA 93940

**Prepared By:**



Denise Duffy & Associates, Inc.  
Contact: John Wandke  
947 Cass Street, Suite 5  
Monterey, CA 93940

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# 1 Introduction

This Habitat Restoration Plan (Plan) provides methodology to restore, maintain, and monitor habitat for Smith’s blue butterfly (*Euphilotes enoptes smithi*), Monterey spineflower (*Chorizanthe pungens* var. *pungens*) and coastal dune scrub at Marina Dunes Preserve (MDP) in Marina, California as mitigation for 2.89 acres of total impacts to these resources associated with the Monterey Salinas Transit (MST) SURF! project (project). Use of portions of MDP to mitigate for project impacts is expected to be covered by a Memorandum of Agreement (MOA) between MST and Monterey Peninsula Regional Park District (MPRPD). Site-specific restoration measures are provided herein and include a description of mitigation requirements; a definition of target species, plant community, and location of areas to be restored; a native plant species planting palette; site preparation and planting specifications; plant establishment maintenance, invasive non-native plant species control, success criteria, monitoring/reporting requirements, and adaptive management measures.

In addition to addressing mitigation requirements for the project, this Plan aligns with and supports biological goals of the Marina Dunes Preserve Restoration Action Plan (“RAP”) (Burluson Consulting, Inc. 2021). Specifically, biological goals of the RAP supported by this Plan include:

- *Improve native habitat value by increasing the quantity and diversity of native species; and*
- *Expand the corridor of restored dunes around Monterey Bay.*

The biological goals of the RAP will be achieved through implementation of the following actions as prescribed by this Plan:

- Restoration of coastal dune scrub through removal and control of invasive non-native plants, especially iceplant (*Carpobrotus edulis*); revegetation of treated areas with a diversity of appropriate and locally sourced native plant species, and performance of monitoring and maintenance to guide the restored areas towards a stable, self-sustaining condition. These actions will expand the area of restored dunes at the preserve, increase native cover and diversity, minimize invasive non-native plants, improve habitat for both common and rare flora and fauna, reduce fragmentation by connecting with adjacent restored habitat areas, and aid in returning the aesthetic character of the dunes to their native condition.
- Enhancement of Smith’s blue butterfly habitat by removing and controlling invasive non-native plants, including iceplant; and protecting and expanding populations of their host plant, coast buckwheat (*Eriogonum latifolium*).
- Expansion of favorable conditions for Monterey spineflower recruitment and growth through removal and control of invasive non-native plants that out-compete Monterey spineflower for space.

## 1.1 Mitigation Site Location

The mitigation site(s) are located in Restoration Areas (RA) 2, RA-4 and RA-11 in MDP. MDP is an approximately 62-acre property owned by MPRPD and located within the City of Marina. MDP is accessed by Dunes Drive and lies within the Coastal Zone on assessor parcel numbers (APN) 033-192-038-000, 033-192-035-000, and 033-192-039-000. It is bounded by the Sanctuary Beach Resort in the south, CEMEX property in the north, and Dunes Drive towards the east. The beach and Pacific Ocean lie towards the west (**Figure 1**).

## 1.2 Existing Habitat Conditions

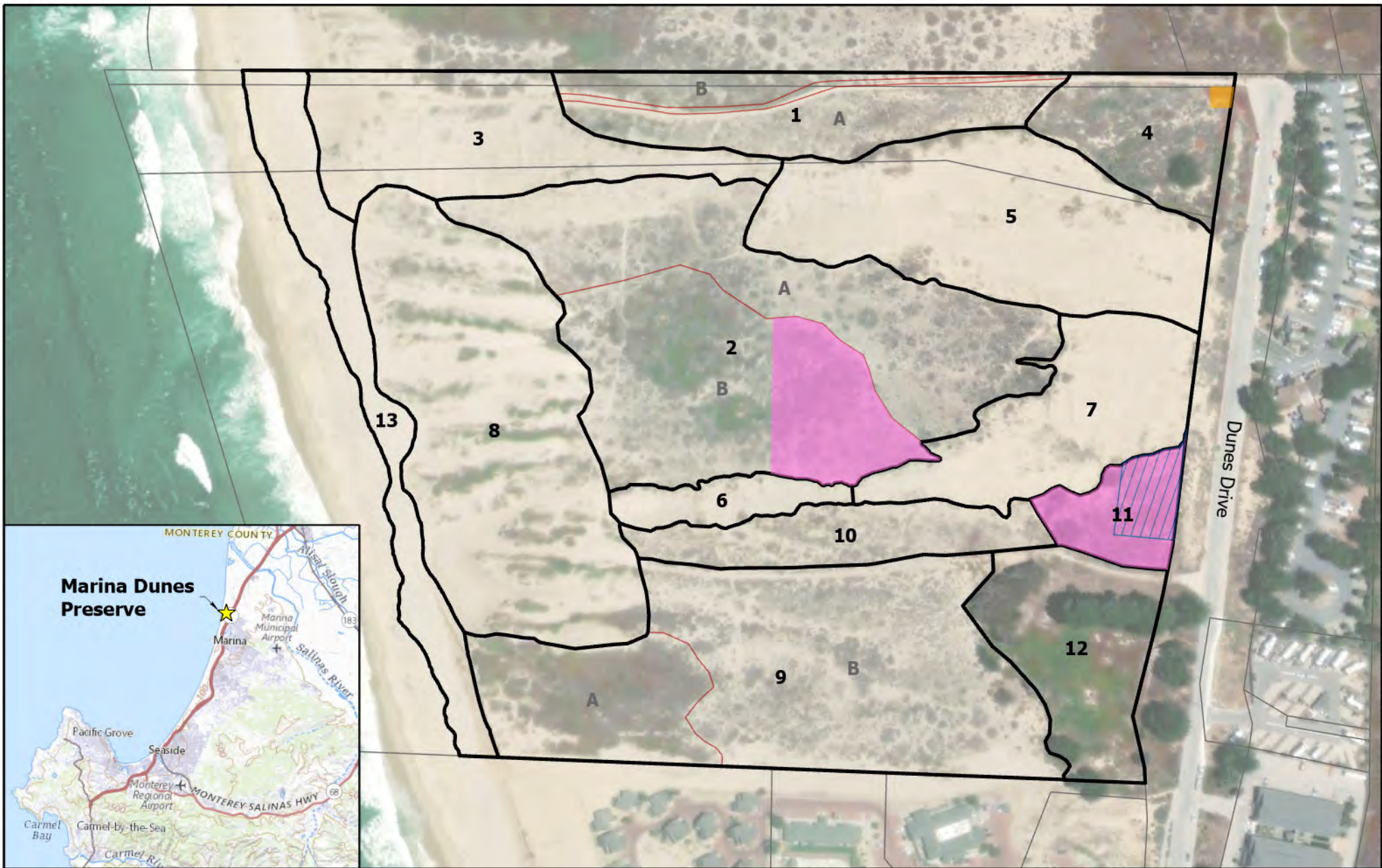
MDP consists of well-developed coastal dune morphology that includes the foredune, mid-dune ridges, and back dune environments. These areas are home to a variety of special-status species including Smith's blue butterfly, California legless lizard (*Anniella pulchra*), Western snowy plover (*Charadrius nivosus nivosus*), Monterey spineflower, sand gilia (*Gilia tenuiflora* ssp. *arenaria*), and Yadon's wallflower (*Erysimum yadonii*) (Burleson Consulting, 2021). Dune habitat has been threatened by invasive non-native plants, especially Hottentot fig or iceplant, and trampling caused by uncontrolled access. The site has been undergoing restoration and protection since approximately 2005 (Burleson Consulting, 2021).

## 1.3 Restoration Requirements

In 2021, the MST Board of Directors approved the Initial Study/Mitigated Negative Declaration (IS/MND) and Mitigation, Monitoring, and Reporting Program (MMRP) in accordance with the California Environmental Quality Act (CEQA). A Biological Opinion (BO) was issued by the U.S. Fish and Wildlife Service (USFWS) on October 3, 2022. This Plan has been prepared in compliance with Mitigation Measures BIO-1.7 (Smith's Blue Butterfly Avoidance and Restoration), BIO-1.8 (Special-Status Plant Avoidance and Restoration), and BIO-2.11 (Dune Scrub Restoration) of the approved MMRP, and in compliance with the reasonable and prudent measures identified in the BO issued by the USFWS. These project conditions require that impacts to Smith's blue butterfly, Monterey spineflower, and dune scrub be replaced at a 3:1 success ratio for the acreage or individuals impacted (depending on the resource impacted) and a Restoration Plan shall be prepared by a qualified biologist and implemented. The plan shall include, but is not limited to, the following:

- A description of the baseline conditions of the habitats within the work site, including the presence of any special-status species, their locations, and densities;
- Procedures to control and/or eliminate non-native invasive species within the work site;
- A detailed description of on-site and/or off-site restoration areas, salvage of seed and/or soil bank, plant salvage, seeding and planting specifications, which may include, but is not limited to, an increased planting ratio to ensure the 1:1 success ratio, if required by the USFWS; and
- A monitoring program that describes annual monitoring efforts which incorporate success criteria and contingency plans if success criteria are not met.

In addition, the BO requires that the final draft of the restoration plan is submitted to the USFWS for review and approval.



- Restoration Areas (1 - 13)
- Restoration Subareas (A/B)
- MST Mitigation Areas**
- Smith's blue butterfly (0.42 Ac)
- Coastal dune scrub (0.04 Ac)
- Monterey spineflower (2.43 Ac)
- Parcels

0 125 250 Feet



## Restoration Site Plan

Marina Dunes Preserve  
MST Surf! Mitigation



**Denise Duffy and Associates, Inc.**

Planning and Environmental Consulting

Date  
2-2024

Scale  
1 in = 250 ft

Figure  
**1**

Based on the mitigation measures required by the MMRP under CEQA and reasonable and prudent measures required by the BO, MST is requesting assistance from the MPRPD in fulfilling the mitigation requirements for the following:

- Monterey spineflower – approximately 2.43 acres required for mitigation
- Smith’s blue butterfly – approximately 0.42 acre required for mitigation
- Dune scrub habitat – approximately 0.04 acre required for mitigation

## 1.4 Responsible Party and Implementation

All elements of dune restoration detailed herein will be funded by:

Monterey-Salinas Transit  
19 Upper Ragsdale Drive, Suite 200  
Monterey, CA 93940

Dune restoration will be implemented by:

Monterey Peninsula Regional Park District (MPRPD)  
4860 Carmel Valley Road  
Carmel, CA 93922

MPRPD will be responsible for procuring a qualified habitat restoration contractor and biological consultant to implement restoration, perform monitoring and prepare annual monitoring reports using mitigation funding provided by MST.

## 2 Implementation Plan

The following subsections detail materials and methods required for restoration of habitat at MDP in portions of RA-2, RA-4, and RA-11 to mitigate for project impacts to Smith’s blue butterfly, Monterey spineflower, and coastal dune scrub habitat. Areas proposed for restoration in RA-4 and RA-11 exclude an approximately 65-foot-wide strip along Dunes Drive that lies on an adjacent parcel under different ownership. It should also be noted that RA-2 is currently utilized as mitigation for Smith’s blue butterfly under an agreement between PG&E and MPRPD but is not used for Monterey spineflower mitigation. RA-4 and RA-11 are not associated with any existing mitigation agreements. Restoration areas are shown on **Figure 1**.

### 2.1 Restoration and Mitigation Areas

#### *Smith’s blue butterfly*

The required 0.42 acres of mitigation for Smith’s blue butterfly will be achieved through habitat restoration within portions of Restoration Area (RA)-11, a 1.83-acre area of rear dune habitat. Use of RA-11 as a restoration and mitigation area is appropriate due to the presence of coast buckwheat, one of the food plants of Smith’s blue butterfly. Additionally, Smith’s blue butterfly was detected in nearby restoration areas during summer 2021 (Burlison Consulting, 2022).

The existing population of coast buckwheat in RA-11 is threatened by encroachment of iceplant and other invasive non-native plants. Therefore, restoration of Smith’s blue butterfly habitat in RA-4 will include eradication of iceplant; propagation and planting of coast buckwheat container stock as well as other native rear-dune species; and control of other non-native invasive plants, especially narrowleaf iceplant (*Conicosia pugioniformis*), follow-up control of resprouting Sydney

golden wattle (*Acacia longifolia*), and annual grasses such as riggut brome (*Bromus diandrus*). Planting of coast buckwheat will be focused around the margins of existing coast buckwheat patches to extend the existing Smith's blue butterfly habitat.

#### *Monterey spineflower*

Mitigation for 2.43 acres of Monterey spineflower impacts will be accomplished through habitat restoration within 0.98 acres of RA-11, which will overlap with the Smith's blue butterfly mitigation described above, and habitat restoration within approximately 1.45 acres of RA-2. RA-2 consists of mid-dune habitat that is threatened by encroachment of iceplant. Restoration of conditions that promote colonization and expansion of Monterey spineflower will focus on eradication of iceplant. The disturbance created by iceplant removal and the expansion of areas of open sand will promote favorable conditions for Monterey spineflower. Monterey spineflower will likely naturally expand into these areas but may be supplemented by broadcast seeding.

#### *Coastal dune scrub*

Mitigation for 0.04 acres of impacts to coastal dunes scrub will be achieved through habitat restoration in a portion of RA-11. Coastal dune scrub restoration will be located in the northeastern corner of RA-11, which is currently an area of coastal dune scrub dominated by coyotebrush (*Baccharis pilularis*), iceplant, and non-native annual grasses. Restoration treatments will be similar to those of Smith's blue butterfly and Monterey spineflower and will include eradication of iceplant and control of other invasive non-native plants but will also include a more diverse planting palette of rear dune species.

The anticipated restoration areas are summarized in **Table 1** and shown on **Figure 1**.

**Table 1 –Restoration Areas**

<b>Restoration Area</b>	<b>Total Available Area (Ac)</b>	<b>Area (Ac) Used for Mitigation</b>
RA-2	9.37	
<i>Monterey spineflower</i>		1.45
RA-4	2.07	
<i>Coastal dune scrub</i>		0.04
RA-11	1.83	
<i>Monterey spineflower</i>		0.98
<i>Smith's blue butterfly</i>		0.42
<b>Total</b>	<b>13.27</b>	<b>2.89</b>

## **2.2 Invasive Weed Management**

Invasive plant species shall be removed from the revegetation areas. Target invasive weed species include iceplant, narrow leaf iceplant, and riggut brome. These target species and other invasive non-native species with a Cal-IPC rating of 'moderate' or 'high' shall be removed from the restoration area when found. Weed control activities shall be timed so that removal is performed before plants have flowered and produced viable seed. Removed weeds shall be hauled off site for proper disposal at a green waste facility.

### **2.2.1 Herbicide Use**

Invasive weed management will rely on manual removal methods first. However, if herbicide treatment is necessary, the application shall be timed for maximum effect while using the least amount of herbicide possible; typically, during periods of active growth or when weeds are in the seedling stage. Herbicide use shall target specific invasive non-native plants through a spot-spraying approach of individual plants, mats, or clumps/groupings and shall not be applied by broadcast spraying. Herbicide application(s) shall be timed so that target weeds are killed prior to seed production. Herbicides shall not be used within 20 feet of Monterey spineflower plants.

Herbicide treatment shall be implemented according to the following best management practices (BMPs):

- An individual certified by the California Department of Pesticide Regulation (CDPR) shall be contracted to implement invasive species removal via herbicide treatment. Herbicide shall only be applied by persons certified by the CDPR.
- Individuals applying herbicides shall be knowledgeable of dune plant species and be capable of distinguishing between native plants and the target non-native species. Care shall be exercised to avoid overspray and damage to non-target plants.
- All reasonable precautions shall be taken to protect the environment and human health and safety. Herbicides shall be applied in an environmentally safe manner. Herbicide use shall be directed narrowly at the target organism to avoid broad impacts on the ecosystem.
- All conditions of herbicide labels shall be followed.
- Herbicides shall not be applied during or within 24 hours prior to rain.
- Drift shall be avoided by not applying herbicides under windy conditions (e.g., >10 miles per hour) and by using ground-based applicators, low tank pressures, and spray nozzles adjusted for larger droplet sizes, or other methods recommended by the licensed individual. Extra caution will be used when winds are between 5 and 10 miles per hour.
- Herbicides shall not be mixed, loaded, rinsed, or stored near aquatic or other sensitive resources.

### **2.3 Planting Plan**

Following initial removal of invasive non-native plants, planting and seeding of native dune scrub species will occur as detailed below.

#### **2.3.1 Native Seed Collection & Plant Propagation**

Seed and propagules will consist of local genetic stock collected from MDP by individuals familiar with dune ecology and restoration. Seed and propagule collection must be initiated over the course of the year prior to a given revegetation event. Seeds will be stored properly in a cool and dry location and delivered to a native plant nursery for propagation. The native plant nursery shall adhere to best management practices for the reduction of plant and soil-borne pests and pathogens.



### 2.3.2 Native Plant Species List

The plant palette consists of native dune scrub species that are representative of existing intact habitat at MDP. Native plant species to be used for restoration shall be derived from local collections within dune habitat at MDP as described above. The native plant species to be installed within the restoration areas and their relative proportions (**Table 2**) are informed by recommendations of the RAP and a review of site conditions by DD&A during January 2024. Plants will be propagated in ‘Ray leach’ stubby cones or similar. Depending on availability and propagation success, the species list may be modified by removal of certain species and/or addition of other appropriate native dune plant species found in adjacent habitat.

**Table 2 - Native Plant Species Planting Palette**

Botanical Name	Common Name	Container Size	Spacing	Quantity
<b>Smith's blue butterfly Mitigation - RA-11 (0.42 Acres)</b>				
<i>Eriogonum latifolium</i>	coast buckwheat	Ray leach tube	Clusters of 10, 36"	500
<b>Monterey spineflower Mitigation - RA-2 (1.45 Acres) &amp; RA-11 (0.98 Acres)</b>				
<i>Chorizanthe pungens</i> v. <i>pungens</i>	Monterey spineflower	Seed	Hand broadcast	0.3 lbs
<b>Coastal Dune Scrub Mitigation - RA-4 (0.04 Acres)</b>				
<i>Artemisia pycnocephala</i>	beach sagewort	Ray leach tube	Clusters of 3, 36"	25
<i>Ericameria ericoides</i>	mock heather	Ray leach tube	Clusters of 3, 36"	25
<i>Eriogonum latifolium</i>	coast buckwheat	Ray leach tube	Clusters of 3, 36"	25
<i>Phacelia ramosissima</i>	branching phacelia	Ray leach tube	Clusters of 3, 36"	25

### 2.3.3 Planting Methods

Planting shall occur after several winter rain events have moistened the sand to a depth of at least six inches and shorter photoperiods and cooler daily temperatures reduce the stress on new plants (typically November – February). When feasible, planting will be scheduled during periods of cool weather when precipitation is forecasted. Installing container stock during the winter when the sand is moist maximizes the odds of success, especially in the absence of an irrigation system. Planting in the early fall prior to the onset of winter rainfall should be avoided. During this time of year, daily temperatures are warmer, the photoperiod is longer, and sand is dry to a greater depth due to the absence of rainfall in a Mediterranean climate.

Planting shall occur in areas where invasive non-native plant removal has been completed. Planting is not necessary where existing healthy dune vegetation is already present. Following the determination of plant layout, plants will be installed by hand digging a planting pit in the sand, carefully extracting the plant from the container with minimal root disturbance, placing the plant so it is sitting vertically in the hole and backfilling and compressing the sand around the plant by hand. Care should be exercised to not break off or bend the root ball during planting.

### 2.3.4 Monterey Spineflower Seeding Methods

The preferred method for installation of Monterey spineflower is by broadcast seeding in the fall. Collected Monterey spineflower seed is simply broadcasted by hand over areas of open sandy soil and raked in by hand. Monterey spineflower should not be seeded into areas of thick vegetation cover or dead iceplant thatch.

### 2.3.5 Irrigation

An irrigation system is not recommended as a component of this Plan. Plant establishment will be achieved with natural rainfall and the winter timing of plant installation. Depending on weather conditions and moisture conditions in the sand, plants may be watered in by hand at the time of planting. If an extended period of dry or warm winter weather occurs, new plantings may be watered by hand to improve establishment.

## 3 Maintenance

Following completion of the initial restoration activities described above, the maintenance period will commence and will continue for a period of five years. Maintenance of the restoration area will consist of regular inspections, removal of invasive non-native weeds, supplemental watering if necessary, and replanting if necessary. Maintenance inspections shall be performed on at least a monthly basis and will identify areas where focused work is required. Maintenance activities during the final two years of the five-year maintenance and monitoring period shall be limited to weed control with no installation of supplemental planting or application of irrigation so that a self-sustaining plant community can be verified, unless otherwise directed by an adaptive management decision (see **Section 4.2.3**).

## 4 Monitoring and Reporting Plan

### 4.1 Success Criteria

The goal of dune restoration at MDP is to restore self-sustaining habitat conditions for Smith's blue butterfly, Monterey spineflower, and coastal dune scrub. Final Year 5 criteria necessary to confirm project success are provided below in **Table 3**. Progress towards meeting final success criteria shall be evaluated throughout the duration of the monitoring and reporting program.

**Table 3 - Success Criteria**

Restoration Area	Final Success Criteria
<b>Smith's blue butterfly (RA-11)</b>	
Average absolute percent <i>E. latifolium</i> cover	≥1%
<b>Monterey spineflower (RA-2, RA-11)</b>	
Presence/absence	Present
<b>Coastal Dune Scrub (RA--4)</b>	
Average absolute percent native cover	≥25%
Average absolute percent non-native cover*	<10%

Notes

\* - Non-native species listed by the California Invasive Plant Council as "moderate" or "high"

### 4.2 Monitoring Schedule

It is expected that initial planting will be completed during mid-winter to early spring with the first annual spring monitoring event to occur one calendar year later. Monitoring and reporting will occur for a period of five years or until final success criteria are met. Annual monitoring events for the quantitative measurement of vegetation cover will occur during the spring when most annual and perennial species are in an active stage of growth and are identifiable to species.

#### **4.2.1 Vegetation and Coast Buckwheat Cover**

Average absolute percent cover of native and non-native vegetation as well as bare ground will be evaluated using the point-intercept method along a series of permanent 20-meter transects. A 20-meter transect length is appropriate for this site because the areas to be restored and monitored are relatively small. A minimum of four transects will be located in each area. During the first monitoring event, transects will be placed randomly within the restoration area and will be marked in the field and mapped using GPS so they can be located during future years.

At each transect, a pin will be placed at ½-meter intervals and the intersecting plant species, bare ground/sand or dead plant material/thatch is recorded. Percent cover is calculated for each individual species by summing the total number of “hits” of each species, dividing by the total number of possible points (40 for a 20 meter transect) and multiplying by 100. Cover of bare ground and dead plant material/thatch is calculated using the same method. Total cover for native and non-native species is calculated by summing the cover values of native and non-native species. Mean cover for the entire restoration site is the average of all transect results for each respective category of native, non-native, dead plant material/thatch, or bare ground.

#### **4.2.2 Monterey Spineflower Monitoring**

Presence of Monterey spineflower will be monitored by conducting meandering walking transects throughout the applicable mitigation areas. Transects will be spaced so that at least 60% visual coverage of the mitigation area is achieved. Presence of Monterey spineflower may be documented by photographs and/or by mapping.

#### **4.2.3 Adaptive Management**

Remedial adaptive management measures may be initiated if after the third year of monitoring the progress of revegetation does not appear to be on track to meet final success criteria. Adaptive management can be defined as a structured, iterative approach to decision making in a changing or uncertain environment. An adaptive management strategy allows informed adjustments to the restoration strategy that are based on monitoring data and observations in order to increase the potential to achieve final success criteria. Examples of remedial action may include but are not limited to replanting or reseeding to correct deficient native cover and/or survival rates, modifying the native plant palette, modifying the irrigation approach, adding browse protection measures, modifying or increasing the intensity of weed control efforts and/or installing devices to control erosion or promote capture of windblown sand.

### **4.3 Reporting**

Annual monitoring reports shall be based on field observations and measurements as described in this section. A total of five annual monitoring reports, including the final report, shall be submitted to the MPRPD and MST. Following review and approval by MPRPD and MST, MST shall submit the reports to USFWS, pursuant to the terms and conditions of the BO. The monitoring reports shall include, but not be limited to, the following information:

- The methods used and results of the data collection from annual spring quantitative measurements of vegetation cover;
- Dates and descriptions of all maintenance activities conducted during the reporting period and the entire monitoring period, including but not limited to the amount and frequency of weed control;

- Description of the general health and vigor of the restored vegetation;
- Description of any pests or circumstances substantially affecting the restored vegetation;
- Description of any changes in the physical environment since the end of the previous reporting period and since the beginning of the monitoring period; and
- Recommendations for further maintenance and management that may be necessary for maintaining the success criteria in this Plan.

Recommendations made in each monitoring report shall be carried out in a timely manner after approval. Follow-up of maintenance and management shall be documented and summarized in subsequent monitoring reports. A final report shall be submitted by MPRPD to MST at the end of the monitoring period and shall include a cumulative analysis, summary of the data collected throughout the duration of the monitoring period, and a definitive statement as to the success of the revegetation based on the success criteria.

In accordance with the BO, MST must submit all interim reports by their due dates and the final report to USFWS Ventura Office electronically via email within 90 days following completion of the project. The final report must describe all activities that were conducted under the biological opinion, including conservation measures that were described in the proposed action and required under the terms and conditions, and discuss any problems that were encountered in implementing conservation measures or terms and conditions and any other pertinent information. The final report must also include the following information:

1. The total amount of Monterey spineflower, seacliff and coast buckwheat, and Yadons' piperia removed during project objectives.
2. The number of Smith's blue butterfly observed, captured and relocated during the project, and the number killed or injured during project activities, if any; and the dates and times of capture, mortality, or injury.
3. The number of seacliff or coast buckwheat plants relocated during the project and the location the plants were relocated to.

If it is determined that the revegetation has not been successful at the fifth year of monitoring, a supplemental report shall be prepared that identifies the causes of failure and suggests measures that will achieve success, and the monitoring period shall be extended one year. At the end of this extended period, an additional report shall be prepared as described above. This report shall satisfy the same criteria as outlined above for the final report. If at the end of the extended monitoring period the report indicates the success criteria have not been met, the monitoring shall be extended again, and the process repeated until success is achieved.

## 5 References

Burleson Consulting. 2021. Restoration Action Plan for Marina Dunes Preserve. Prepared for Monterey Peninsula Regional Parks District, Monterey, California.

Cal-IPC. 2024. California invasive plant inventory. California Invasive Plant Council: Berkeley, California. Available at: <https://www.cal-ipc.org/plants/inventory/>