NOTICE OF MEETING

CITY OF PACIFIC GROVE

BEAUTIFICATION AND NATURAL RESOURCES COMMISSION REGULAR MEETING AGENDA

Tuesday, February 18, 2025, 4:00 P.M.

Council Chamber – City Hall – 300 Forest Avenue, Pacific Grove, CA

Under the Brown Act, public comment for matters on the agenda must relate to that agenda item and public comments for matters not on the agenda must relate to the subject matter jurisdiction of this legislative body. This is a warning that if a member of the public attending this meeting remotely or in-person violates the Brown Act by failing to comply with these requirements of the Brown Act, then the Mayor or Chair may request that speaker be muted. If a member of the public attending this meeting in-person engages in disruptive behavior that disturbs the orderly conduct of the meeting, they may be removed from the meeting after a warning, pursuant to Council Policy 000-17.

PACIFIC GROVE MEETINGS ARE CONDUCTED IN PERSON AT CITY HALL COUNCIL CHAMBER AND VIRTUALLY.

PLEASE NOTE THE MEETING WILL PROCEED AS NORMAL EVEN IF THERE ARE TECHNICAL DIFFICULTIES ACCESSING ZOOM. THE CITY WILL DO ITS BEST TO RESOLVE ANY TECHNICAL ISSUES AS QUICKLY AS POSSIBLE.

JOIN THE ZOOM WEBINAR TO PARTICIPATE LIVE AT:
https://www.cityofpacificgrove.org/Zoom_BNRC

Please click here for directions to dial into the meeting audio.

AGENDA

1. **CALL TO ORDER**

2. **APPROVAL OF AGENDA**

3. **COMMISSIONER, SUBCOMMITTEE, AND STAFF ANNOUNCEMENTS (City-Related Items Only)**

4. **COUNCIL LIAISON ANNOUNCEMENTS**

5. **GENERAL PUBLIC COMMENT**
   General Public Comment must deal with matters subject to the jurisdiction of the City and the Beautification and Natural Resources Commission that are not on the Regular Agenda. Comments from the public will be limited to three minutes and will not receive Beautification and Natural Resources Commission action. Comments regarding items on the Regular Agenda shall be heard prior to Beautification and Natural Resources

Commission's consideration of such items at the time such items are called. Whenever possible, written correspondence should be submitted to the Beautification and Natural Resources Commission in advance of the meeting, to provide adequate time for its consideration.

A. Written General Public Comment

6. **APPROVAL OF THE MINUTES**

A. January 2025 Minutes
Reference: Marty Dunn, Secretary
Recommended Action: Receive minutes.

7. **REGULAR AGENDA**

A. Selection of Officers
Reference: Christine Walkingstick, Chair
Recommended Action: Select a Chair, Vice Chair, and Secretary.

B. Fencing Municipal Code Revision Concept
Reference: Christine Walkingstick, Chair
Recommended Action: Receive presentation, discuss.

C. George Washington Park Biological Assessment
Reference: Daniel Gho, Public Works Director/Deputy City Manager
Recommended Action: George Washington Park Biological Assessment

D. George Washington Park Recommendations to City Council
Reference: Christine Walkingstick, Chair
Recommended Action: Receive Presentation; Discussion; Motion to move GWP recommendations forward to Council; Take other action related to this topic.

E. BNRC Input on City Council Goal Setting
Reference: Matt Mogensen, City Manager
Recommended Action: Recommend three top goals of the BNRC for the Council Goal Setting Process.

A. **PUBLIC HEARINGS**
For public hearings involving a quasi-judicial determination by the Beautification and Natural Resources Commission (BNRC), the proponent may be given 10 minutes to speak and others in support of the proponent's position may be given three minutes each. A designated spokesperson for opposition to the item may be given 10 minutes to speak and all others in opposition may be given three minutes each. Very brief rebuttal and surrebuttal may be allowed in the sole discretion of the BNRC. In public hearings not involving a quasi-judicial determination by the BNRC, all persons may be given three

minutes to speak on the matter.

9. **NEXT MEETING - March 18th, 2025 at 4pm**

10. **ADJOURNMENT**

NOTICE OF ADA COMPLIANCE: Pursuant to Title II of the Americans with Disabilities Act (Codified At 42 United States Code Section 12101 and 28 Code of Federal Regulations Part 35), and Section 504 of the Rehabilitation Act of 1973, the City of Pacific Grove does not discriminate on the basis of race, color, religion, national origin, ancestry, sex, disability, age or sexual orientation in the provision of any services, programs, or activities. The City of Pacific Grove does not discriminate against persons with disabilities. City Hall is an accessible facility. A limited number of assisted listening devices will be available at this meeting. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to this meeting or provide the requested agenda format.

Agenda No.6 A

CITY OF PACIFIC GROVE

300 Forest Avenue, Pacific Grove, California 93950

AGENDA REPORT

TO: HONORABLE CHAIR AND MEMBERS OF THE BEAUTIFICATION AND NATURAL RESOURCES COMMISSION

FROM: Marty Dunn, Secretary

MEETING DATE: 02/18/2025

SUBJECT: January 2025 Minutes

RECOMMENDATION

Receive minutes.

Attachments

BNRC Minutes January 2025

Minutes of the
BEAUTIFICATION AND NATURAL RESOURCES COMMISSION
Tuesday, 21 January 2025, 4:00 P.M.
Council Chamber – City Hall – 300 Forest Avenue, Pacific Grove, CA

1. CALL TO ORDER: Chair Walkingstick called the meeting to order at 4PM. Commissioners Gorman, Wooten, Myers, Brisson and Dunn present; Commissioner Lee absent.

2. AGENDA: Approved.

3. COMMISSIONER, SUBCOMMITTEE, and STAFF ANNOUNCEMENTS
Commissioner Gorman reported that BNRC's climate action and adaptation planning subcommittee's recommendation to City Council was approved at council's last meeting, and that the city will enter an agreement with Blue Strike Environmental for the Climate Action and Adaptation Planning Services. Also, the US Fish and Wildlife Service is proposing listing the monarch butterfly under the Endangered Species Act. Public comment is open from now until March 12th, and can be submitted electronically or in writing.

Commissioner Brisson shared a count of the monarchs (low—fewer than 100 in December) and again urged a call to action, especially in re pesticide use. She suggested pesticide use should be on a BNRC agenda this year. Harbor seal pupping should start on 1 March; there are currently fewer than 110 in the cove, 57 of which are pregnant females. One premature birth has been reported. She requested the social media alerts and signage along the rec trail be repeated again this season. She and Chair Walkingstick attended a recent COAST meeting where the subject was about an initiative to add the Point Pinos Lighthouse Reservation as a National Historic District.

Chair Walkingstick noted that the Monterey Fire Department will be announcing a wildfire community response and preparedness plan. She also mentioned the need for donations to victims of the SoCal fires, and gave a brief update on the Moss Landing conflagration. The postponed presentation on sea otters will take place at the February BNRC meeting. Also at the next meeting, there will be discussion of subcommittee formation for the 2025.

DRAFT

4. COUNCIL LIAISON ANNOUNCEMENTS
Environmental Program Manager (EPM) Fuerst thanked Commissioners Lee and Myers for their service on BNRC and then introduced Lori McDonnell, BNRC's new council liaison. She reported that the biological assessment of George Washington Park should be ready for the council's 19 February meeting. The construction at Fountain and Lighthouse is wrapping up and new outdoor dining guidelines have been approved; new permits for the businesses will be issued. Cynthia Garfield was appointed to fill the vacancy on council. Ms. McDonnell asked people to consider—and submit— ideas for new council goals in February.

5. MINUTES
The October November minutes were approved.

6. GENERAL PUBLIC COMMENT
None.
7A. Tree Appeal, 105 20th Street

EPM Fuerst reminded the commission that BNRC can affirm, deny or modify the city arborist's recommendations. City staff has recommended a denial of the appeal to remove the two palm trees. Mr. Fuerst presented a video overview of the trees in question, and owners Mr. and Mrs. Annereau each spoke of their safety concerns around the trees. Lisa Ciani called in to express her support for removing the trees. and commissioners further discussed the issue. A motion to deny the appeal was made and approved, 5-1 (Commissioner Dunn dissenting).

8A. Pacific Grove Cares

Public Works Director Dan Goh introduced Peggy Gibbs, the founder of this new 501(c)(3) non-profit in the community. The purpose of Pacific Grove Cares (PGC) is to restore, maintain and improve public landscapes around town. Volunteers presently number about 20 and are the core of this group, though some local professionals might need to be hired for specific help on occasion. The first target areas are Chase Park West and the frontage strip around the Stillwell sign at Caledonia Park. Plantings will focus on natives and will come from PG's list of approved species; irrigation will be provided where needed. Ms. Gibbs, a professional fundraiser, reported that local restaurateur Kevin Phillips has donated $5K to this effort.

Public comment included Lisa Ciani's advice to use plants specific to the coastal zone, and to be sensitive to the archeological/ancestral significance of the some of the areas. Jane Haines contributed her appreciation for PGC, and spoke up for the protection of the creatures in the areas considered.

Commissioners' comments were overwhelmingly favorable and included suggestions to consider using gopher baskets, to include drought-tolerant and pollinator plants in the mix, and to be mindful of baby bird season as well as the use of pesticides. Commissioner Gorman queried the possible replacement of the 'ugly' fencing in front of Stillwell Park, to which Ms. Gibbs responded with the hope that the new landscaping would obscure it.

A motion to accept PG Care's proposed projects was unanimously approved.

B. Beautification of Lighthouse Avenue Medians

EPM Fuerst presented a slide show of the most prominent medians along Lighthouse, all of which contain one or more iconic cypress trees. Past attempts to spruce up the ground under the trees have been unsuccessful due to maintenance challenges and the roots and asphalt base under the medians. Some feel that dead/dying plants look worse than bare spaces under the trees. Lisa Ciani spoke against planting under the trees. Mike Gibbs wondered how the trees can stay upright with the asphalt underlay. Commissioner Myers suggested getting rid of the asphalt as a potential future capital project. Commissioner Gorman asked about expanding the planting wells under some of the trees and/or adding new soil, but Mr. Gho replied that that would be a very extensive project. What about wood chips, queried Ms. Brisson. Ms. Wooten said, "These trees are 70 years old. Let them be.' Chair Walkingstick remarked that the trees are healthy, and that Shop Scape could provide color highlights downtown negating the need for planting under the trees.

Jane Haines called in to thank Ms. Wooten for responding to her letter about the condition of some of the mailboxes around town.

The meeting was adjourned promptly at 6 PM.

9. NEXT MEETING - February 18th, 2025 at 4 p.m.

Respectfully submitted,
Marty Dunn
Recording Secretary

DRAFT

CITY OF PACIFIC GROVE

300 Forest Avenue, Pacific Grove, California 93950

AGENDA REPORT

TO: HONORABLE CHAIR AND MEMBERS OF THE BEAUTIFICATION AND NATURAL RESOURCES COMMISSION

FROM: Christine Walkingstick, Chair

MEETING DATE: 02/18/2025

SUBJECT: Selection of Officers

RECOMMENDATION

Select a Chair, Vice Chair, and Secretary.

DISCUSSION

Officer Elections

At the beginning of the first meeting following February 1 (or at any time the Chairperson is vacant) the Chairperson must be elected by the committee., Charter committees must elect a Chairperson, or Chair, to serve a one-year term (PGMC § 3.02.050). This is also the practice of other Committees.

At this first meeting following February 1 any committee member may call the meeting to order and ask for nominations for the office of Chair. Committee members may nominate themselves or any other member; no second is required. Once nominations are complete, a vote on the nominees in the order of nomination is taken.

Each voting member of the Committee shall have one vote. The nominee receiving votes from a majority of the members in attendance shall be declared the winner. If no member receives a majority, the process shall be repeated, except in the event of a tie between the top two vote-getters, in which case a run-off shall be held.

The member nominated as Chair assumes the office of Chair immediately.

Using the same procedure, the Chair conducts nominations and voting for a Vice Chair. If the Committee decides to appoint a Secretary, then the Chair shall conduct nominations and voting for a Secretary. The Museum Board must elect a secretary, however, other committees may choose not to do so.

Chairperson

The Chair has responsibility for:

- Presiding over meetings, i.e. meeting protocol and recognizing when others may speak
- Setting the agenda
- Calling special meetings (if staff resources are available)
- Alerting Vice Chair, council liaison, and staff liaison of their upcoming absence

• Signing Committee documents • All Committee recommendations to City Council
• Appearing before City Council on behalf of the Committee The Chair may only speak on behalf of the committee on a topic where an action was taken by a vote.

Vice-Chair
The Vice-Chair assumes the Chair's duties in their absence. The Vice-Chair shall succeed the Chair if the Chair vacates office before the term is completed and shall serve the unexpired term. A new Vice-Chair shall be elected at the next regular meeting or as soon thereafter as practical.

Secretary
If the Secretary is appointed by the Committee, the Secretary is responsible for meeting minutes to be included in the agenda packet at the next meeting.
Staff liaison assumes responsibility for minutes if the Secretary is unable to do so, or if no Secretary is appointed.

Action minutes, which do not include commentary, are recommended.

Agenda No.7 B

CITY OF PACIFIC GROVE

300 Forest Avenue, Pacific Grove, California 93950

AGENDA REPORT

TO: HONORABLE CHAIR AND MEMBERS OF THE BEAUTIFICATION AND NATURAL RESOURCES COMMISSION

FROM: Carmelita Garcia PG Deer Awareness

MEETING DATE: 02/18/2025

SUBJECT: Fencing Municipal Code Revision Concept

RECOMMENDATION

Receive presentation, discuss.

DISCUSSION

Presentation from Carmelita Garcia of PG Deer Awareness requesting formation of a BNRC subcommittee to examine and make recommendations on current Municipal Code regarding fencing, especially as it pertains to wildlife (eg. deer).

Attachments

Presentation

PGMC 23.64.130

Chapter 23.90
LOCAL COASTAL PROGRAM
IMPLEMENTATION PLAN

Chapter 23.70
COMMUNITY DEVELOPMENT
PERMIT REVIEW
AUTHORITIES AND
PROCEDURES

Chapter 23.08
DEFINITIONS

FENCING
February 18, 2025

Presented by: C. Garcia, President
PG Deer Awareness Resource

Chapter 23.29
CONDOMINIUM AND COMMUNITY
HOUSING CONVERSIONS

23.29.050
Application requirements.

THIS PRESENTATION CONTAINS SENSITIVE PHOTOS OF DEER

23.64.135 Prohibited fences.

Prohibition. It is unlawful for any person to erect or maintain a fence constructed completely or in part of any of the following: wires carrying an electric current of greater than 0.006 amperes (six milliamperes), razor ribbon, barbed wire, **wooden fence spikes**, broken glass, protruding nails or **spikes** or any other like or similar material or device designed to cause trauma when touched. While not prohibited, chain link fences are discouraged for aesthetic reasons.

23.64.130 Height limits – Fences, hedges, or other visual obstructions.

D. Definitions.

"Deer fence" means fencing used **specifically to prevent the passage of deer.**

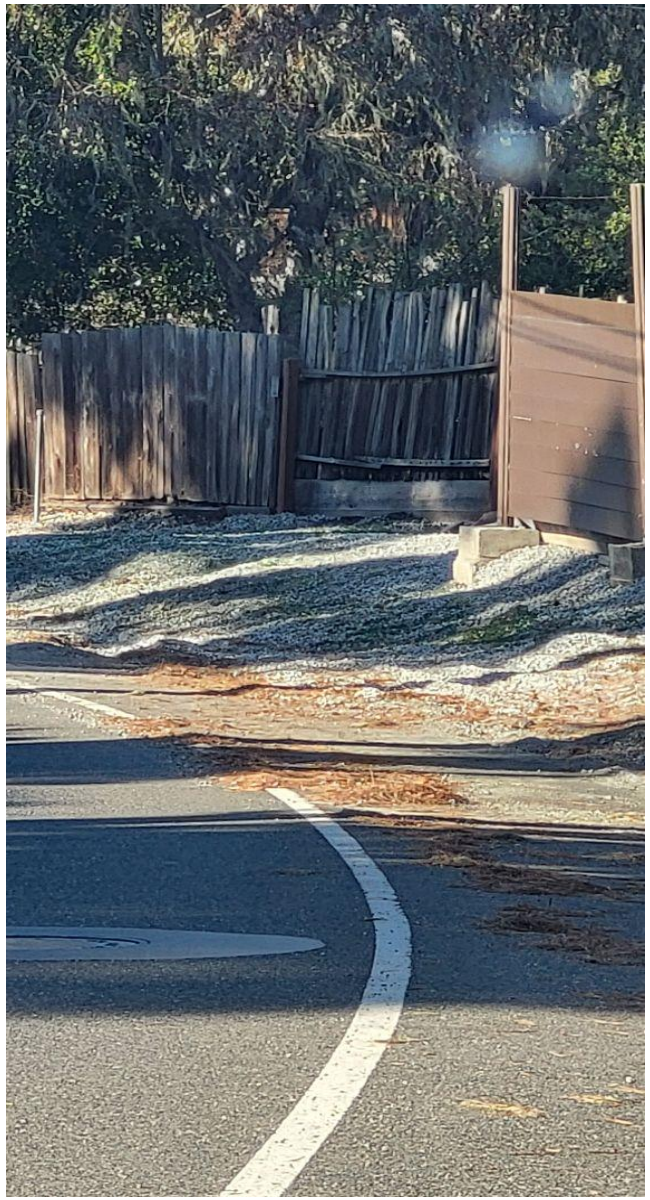
"Fence" means any vertical structure, not integral to any building, used as a barrier to define boundaries, to prevent the passage of people and animals, and/or screen off or enclose a portion of property, not including structures, or portions of structures, designed to support a roof, awning, or other horizontal structure, such as the wall of a building. Wing walls or other extensions of a building wall that do not support the building shall be included in the definition of a fence for purposes of this title.

23.64.130 Height limits – Fences, hedges, or other visual obstructions.

(a) Fences, hedges, screen plantings, or other visual obstructions (other than allowed garden structures) are hereafter limited to four feet in height forward of the front yard setback line, six feet in height on the front yard setback line, and six feet in height to the rear of the front yard setback along the property lines and within required setback areas.



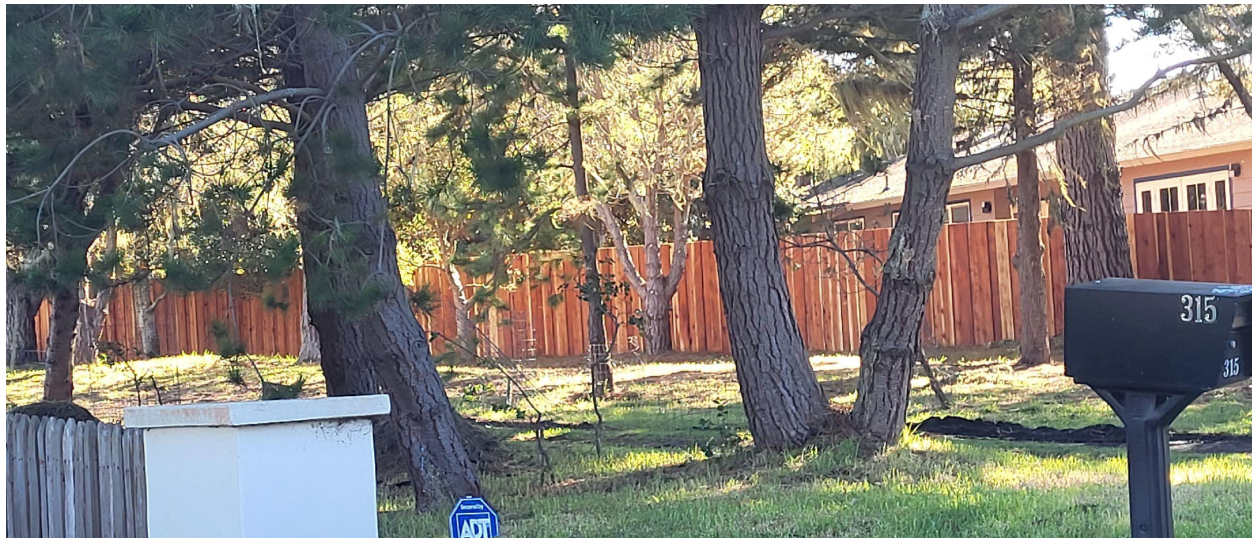
Image Credit C. Garcia

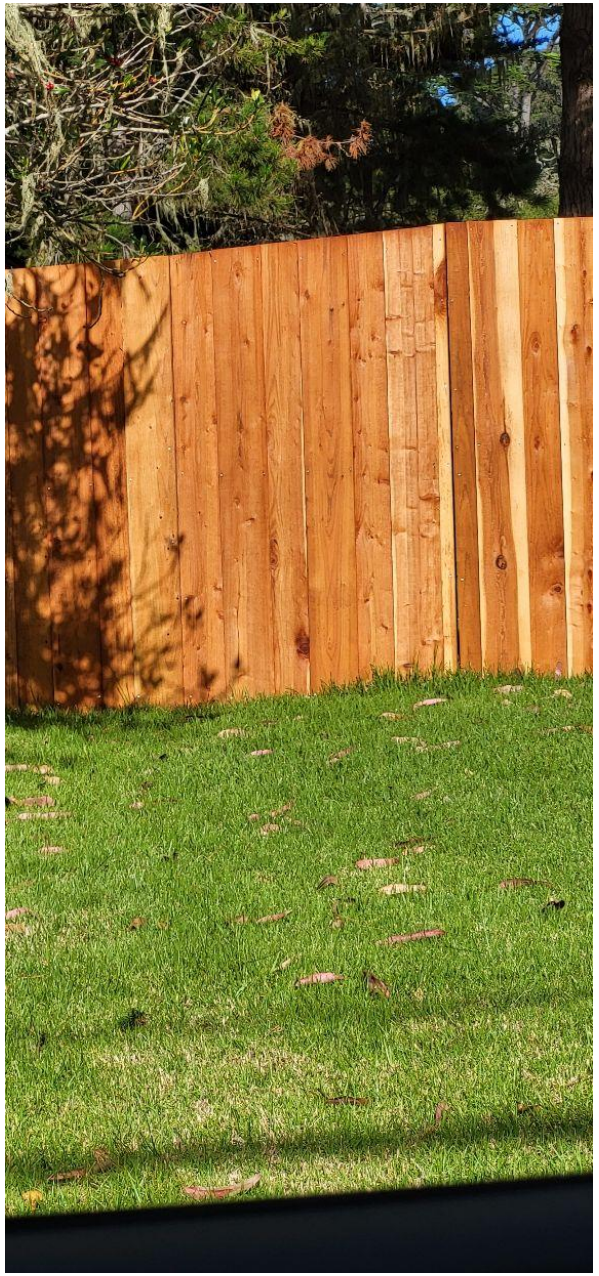






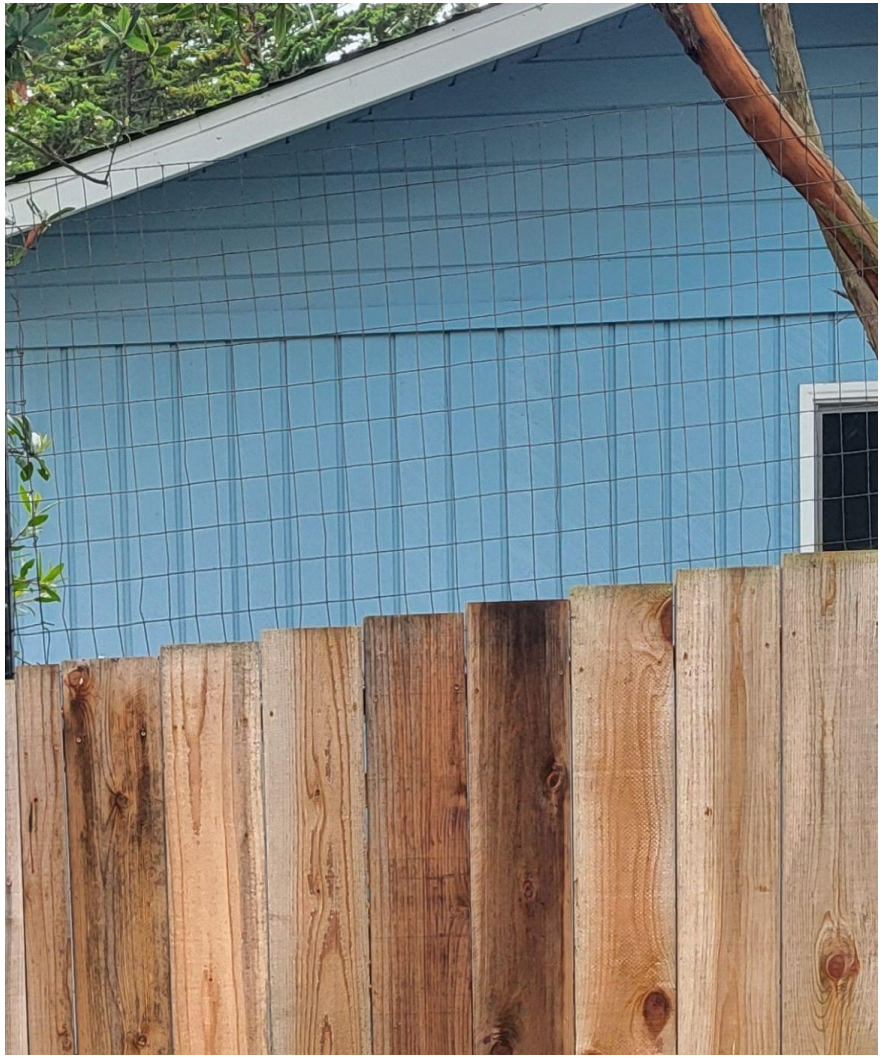



315
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<u>23.64.130 Height limits – Fences, hedges, or other visual obstructions</u>.

(2) The following materials, or materials of similar aesthetics and durability, shall be used: two-inch by four-inch or four-inch by four-inch galvanized metal wire, with wrapped (not welded) joints for durability, in black, green or metallic finishes, or transparent or semi-transparent aviary mesh screen, in black or green.

23.64.130 Height limits – Fences, hedges, or other visual obstructions

Deer fencing may be constructed with wood, metal, or fiberglass posts or attached at the top of an existing, and otherwise conforming, fence.













Small mesh openings can easily trap a deer's antlers or hooves, causing them to struggle and potentially injure themselves trying to free themselves.

Temporary plastic mesh fences take a toll on the environment. Since they're made of plastic materials, they're not biodegradable and tend to last longer in ecosystems past their usefulness

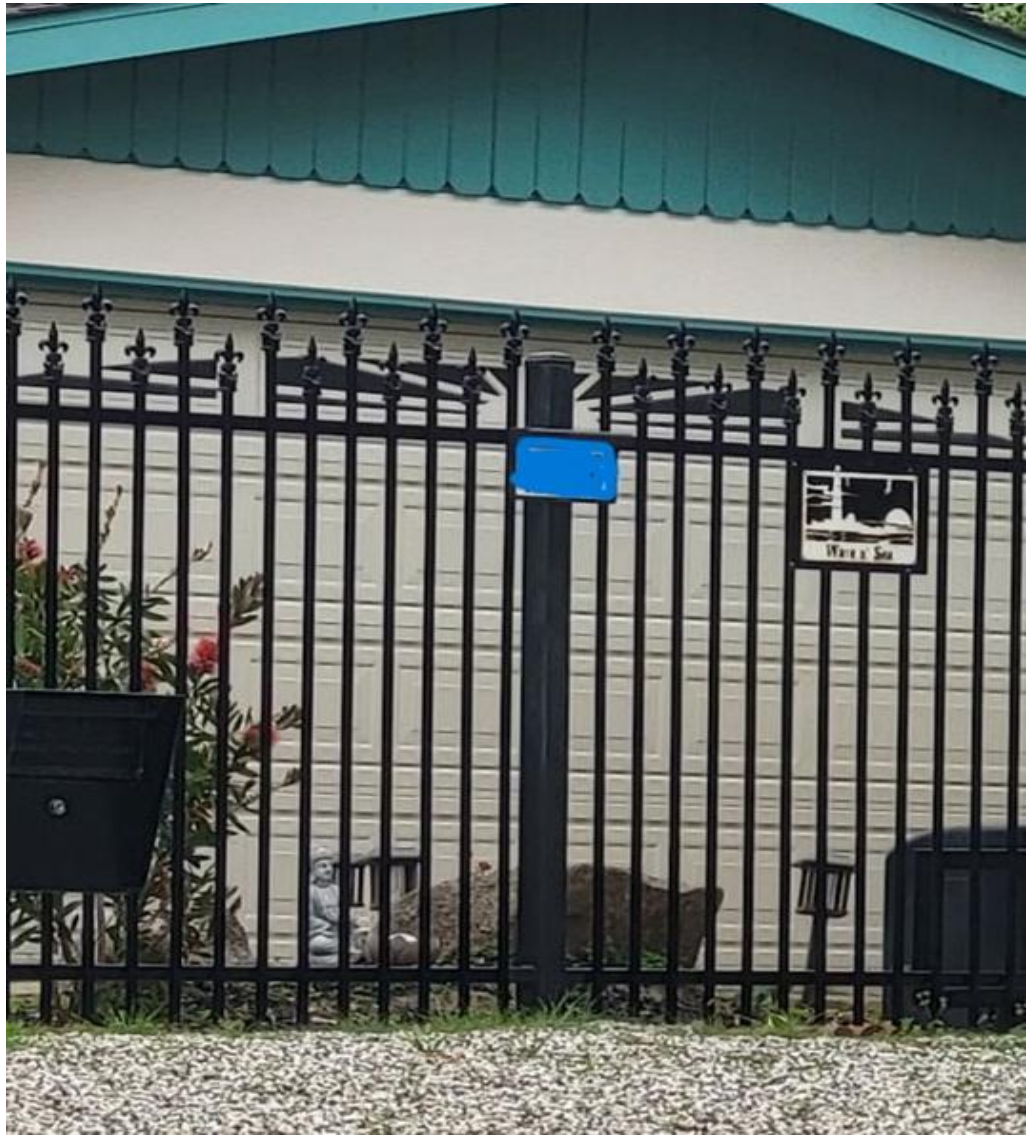






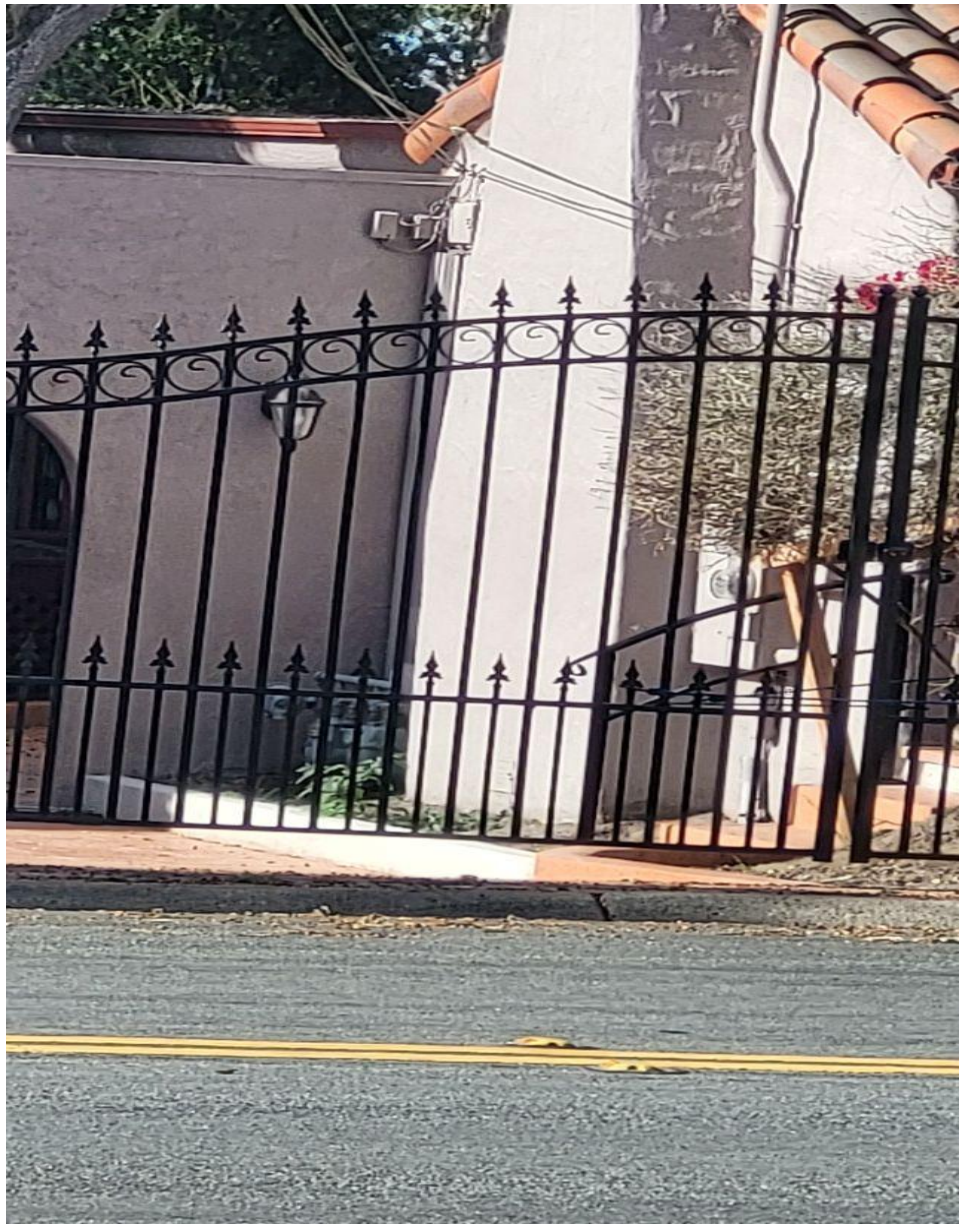


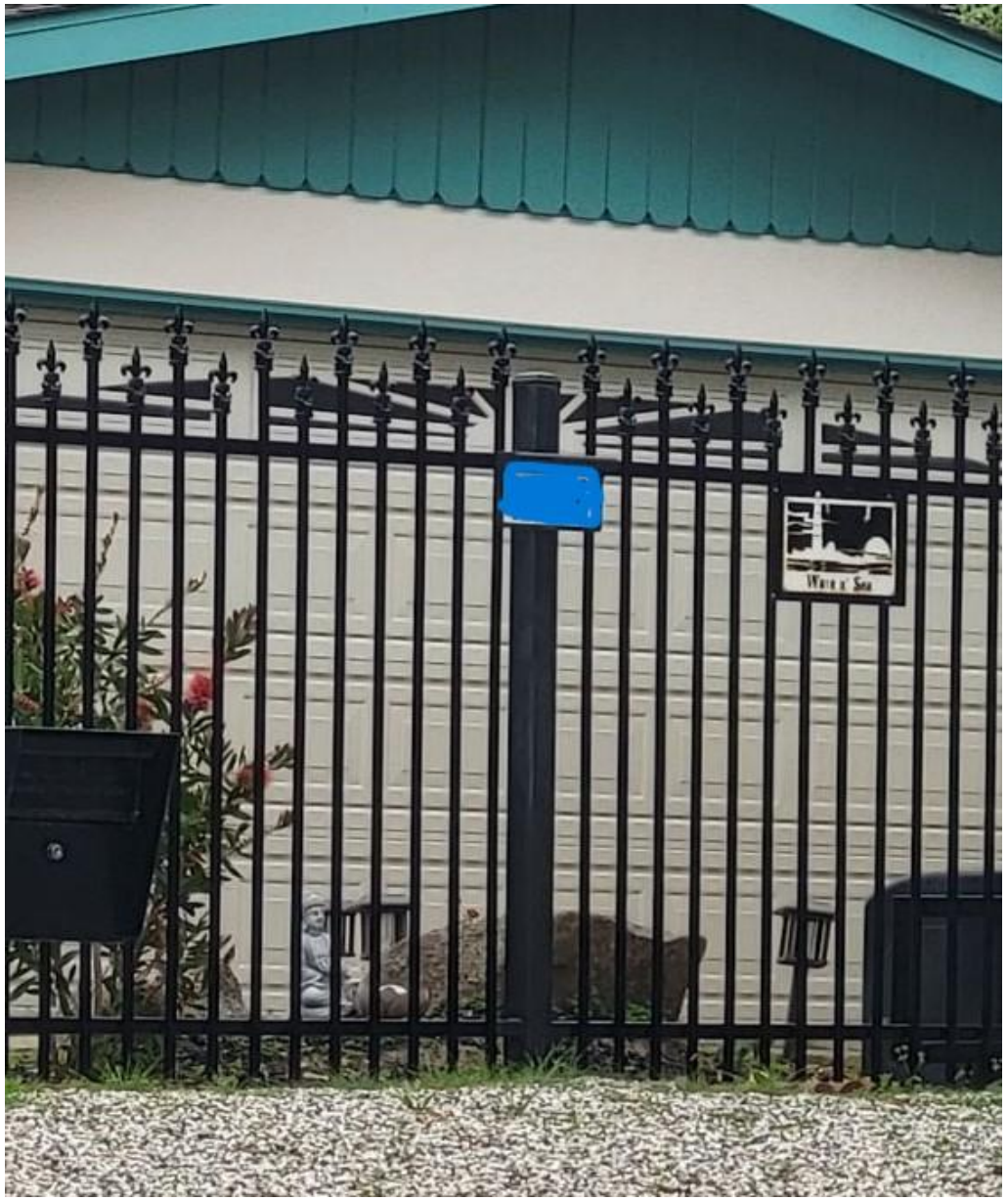
Photo of the fencing along the Asilomar that surrounds the golf course.



Metal rail fencing is particularly hazardous for deer, who manage to squeeze most of their bodies through the narrow spaces between bars before getting their hips stuck.





















Netting can negatively impact pollination in a number of ways, including:

Restricting pollinators: Netting can limit the movement of pollinators, which can reduce pollination effectiveness and pollinator health.

Entangling pollinators: Some types of netting can trap pollinators, such as honeybees.

Increasing humidity: Netting can increase humidity, which can lead to the need for more fungicides, which can harm fruit set and honeybees.











THE VALUE OF KNOWLEDGE

A fence was being built, that did not meet the criteria outlined in the Municipal Code.

Code Compliance Aly Ballash was contacted and a request was made for her to look at the fence.

Officer Ballash visited the site, provided information regarding fencing in Pacific Grove, and suggested the individual visit the Community Development Department.

Some days later, the fence was in full compliance with the Municipal Code.

This demonstrates the value of knowledge when one has it and the importance of follow-up and follow-through.

WHAT IS OUR ASK?



Image Credit J. Montanez

Create a sub-committee of the BNRC to review the current Municipal Code regarding fencing and consider the following:

Consolidate all the fencing code into one Chapter for easier access

Not allow the following type of fencing:
pointed fencing
wire fencing
netting (including netting for construction sites)
fences built on top of existing walls

Fencing stakes are not to be more than one- inch apart

For the protection of wildlife, particularly deer, request property owners to flatten fences that have sharp points (voluntary)

Provide some sort of staff oversight to ensure the MC is being followed (when permits are issued (no matter what type of permit) make sure the applicant has a copy of the fencing brochure)

PG Deer Awareness would be happy to distribute the new brochure at the Farmer's Market

Re-design or create a new educational fencing brochure making it more friendly toward Pacific Grove's wildlife

Thank you very much for allowing P G DEER AWARENESS RESOURCE to present



Image Credit S. Cook

We are here to assist you however we can



Image Credit C. Garcia

23.64.130 Height limits – Fences, hedges, or other visual obstructions.

(a) Fences, hedges, screen plantings, or other visual obstructions (other than allowed garden structures) are hereafter limited to four feet in height forward of the front yard setback line, six feet in height on the front yard setback line, and six feet in height to the rear of the front yard setback along the property lines and within required setback areas.

(b) Exceptions Pertaining to Corner Lots. The purpose of this subsection is to promote traffic safety by maintaining unrestricted visibility at corners.

(1) Corner Lots Whose Intersecting Corner Property Lines Are Two Straight Lines. The height limit for a fence, hedge, screening or other visual obstruction for a corner lot whose intersecting corner property lines are two straight lines shall not exceed three feet in height within an area represented by a triangle whose apex is the property corner nearest the intersection and whose other two vertices are points located 20 feet away from the apex as shown in Figure 1.

(2) Corner Lots Whose Intersecting Corner Property Lines Are Found Along a Curve. The height limit for a fence, hedge, screening or other visual obstruction for a corner lot whose corner property lines are found along a curve shall not exceed three feet in height within the area of a polygon whose apex is the midpoint of the arc at the corner and whose furthermost vertices are points located 20 feet away from the apex as shown in Figure 2.

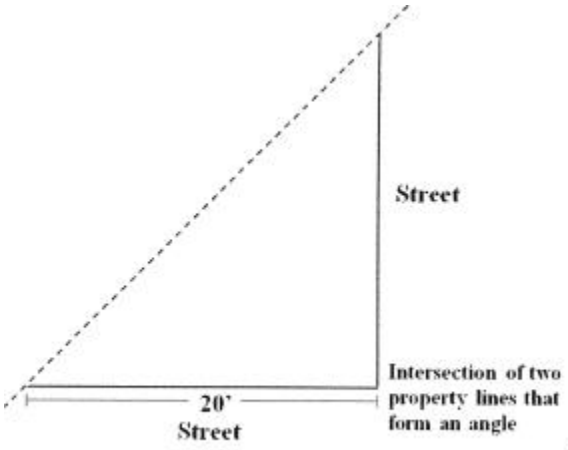


Figure 1

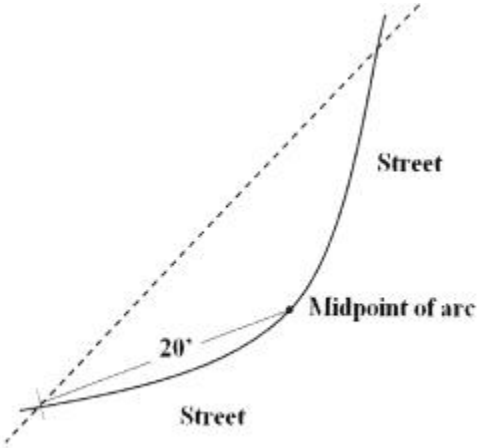


Figure 2

(3) In the event that a corner lot has intersecting corner property lines that do not precisely conform to the characteristics defined in this section, the chief planner shall define the area in which no visual obstruction shall exceed three feet in height in a manner so as to prevent a traffic hazard.

(c) A tree shall not be considered a visual obstruction. However, to maximize unrestricted visibility, a property owner shall be required to trim trees in areas covered by this section, as directed by the chief planner.

(d) Exceptions Pertaining to Deer Fencing. The purpose of this subsection is to allow for protection of property from deer.

(1) Deer fencing may be permitted up to six feet in height along the front property line to the front of any dwelling if an administrative use permit is first obtained.

(2) The following materials, or materials of similar aesthetics and durability, shall be used: two-inch by four-inch or four-inch by four-inch galvanized metal wire, with wrapped (not welded) joints for durability, in black, green or metallic finishes, or transparent or semi-transparent aviary mesh screen, in black or green.

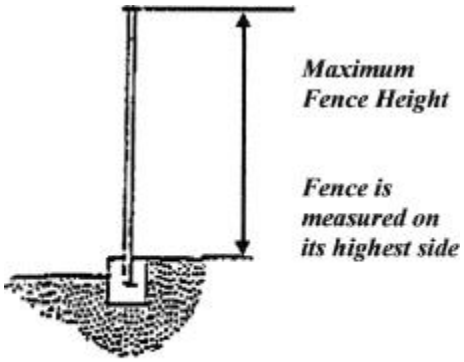
(3) Deer fencing may be constructed with wood, metal, or fiberglass posts or attached at the top of an existing, and otherwise conforming, fence.

(e) Exceptions Pertaining to Fences on Retaining Walls.

(1) For retaining walls located on a property line, a fence constructed on top of the wall shall be measured from the grade level on the higher side, as shown in Figure 3, with a combined height limited to four feet in height forward of the front yard setback line along the property lines, and six feet in height to the rear of the front yard setback along the property lines. From the lower side, the combined height shall be limited to six feet in height forward of the front yard setback line along the property lines and eight feet in height to the rear of the front yard setback along the property lines.

(2) For retaining walls located entirely on a single property, a fence constructed on top of a retaining wall shall be measured from the grade level of the same property, with a combined height limited to four feet in height forward of the front yard setback line and six feet in height to the rear of the front yard setback.

(3) If a fence is on one property and the retaining wall on the abutting property, regardless of the retaining wall height, and as measured from the grade level on the property where the fence is located, the maximum fence height is limited to four feet in height forward of the front yard setback line and six feet in height to the rear of the front yard setback, as measured from the grade level of the property upon which the fence is located.



FENCE AT PROPERTY LINE

Figure 3

(f) A height greater than otherwise allowed in this section may be permitted if an administrative use permit is first obtained. [Ord. 12-003 § 11, 2012; Ord. 1884 N.S. § 1, 1993; Ord. 210 N.S. § 11-141(1)(b)(2), 1952].

CITY OF PACIFIC GROVE

300 Forest Avenue, Pacific Grove, California 93950

AGENDA REPORT

TO: HONORABLE CHAIR AND MEMBERS OF THE BEAUTIFICATION AND NATURAL RESOURCES COMMISSION

FROM: Daniel Gho, Public Works Director/Deputy City Manager

MEETING DATE: 02/18/2025

SUBJECT: George Washington Park Biological Assessment

RECOMMENDATION

Receive the George Washington Park Biological Resources Report

DISCUSSION

In 1925, the City of Pacific Grove purchased the pine forest land, now known as George Washington Park (GWP), from Del Monte Properties Company for $10. While there were no deed restrictions, the land was used as a park. In 1948, voters passed an ordinance officially designating the space for recreational use.

Today, GWP is a 20-acre urban forest, home to the largest contiguous Monterey pine forest in the City. Spanning six city blocks and surrounded by residential zones, the park provides habitat for diverse plant and animal species and offers both passive and active recreation opportunities.

In 1999, the City developed a George Washington Park Master Plan (1999 GWP Master Plan) to guide park management with goals to:

- Preserve and enhance the park's natural character
- Protect park resources
- Improve visual quality/ appearance, and
- Promote accessibility

PROPOSED 2022 GWP FOREST MANAGEMENT PLAN

In 2019, staff sought formal direction on GWP maintenance. Staff presented various mechanical, manual, and biological strategies to improve safety and reduce fire risk, to the BNRC and City Council.

At their September 18, 2019 meeting, City Council directed staff to develop a new GWP management plan to build community consensus on short- and long-term forest maintenance strategies, with funding allocated for this effort via the FY21/22 Capital Improvement Plan.

The draft 2022 GWP Forest Management Plan (FMP) was prepared by Dudek. This plan was brought to the BNRC and subsequently City Council for review in October 2022 and September 2023 respectively.

The FMP provided specific management activities, execution methods, and an implementation blueprint

with the intention of fostering a healthier forest. It was to replace the 1999 GWP Master Plan, and contained updated data, strategies, and solutions that reflect current conditions and challenges.
The BNRC and Council objected the FMP due to CEQA concerns, and Council directed staff to proceed with a Biological Assessment of the park.

2024 Biological Resources Report
In accordance with the Council's direction and their approved 2023-2024 Goals & Work Plan, staff initiated a year-long biological assessment performed by Denise Duffy and Associates (DDA). The final Biological Resources Report (Attachment 1) summarizes the surveys, methods, findings, and impact assessment, along with avoidance and minimization measures to inform a future CEQA document for park forest management. A CEQA analysis will be conducted once a new management plan is developed.

The assessment revealed no major surprises. DDA did not identified any previously undocumented special-status species, except for the Western red bat (a California species of special concern, but not threatened or endangered). A portion of GWP is host to a federally listed plant species, the Yadon's Piperia. The entire park assessment did not show indications of any additional Yadon's Piperia, beyond the previously documented occurrence.

The report also addresses impacts and mitigation measures related to nesting birds and raptors, bats and roosting habitats, overwintering monarch butterflies, Monterey pine, Yadon's Piperia, and the Monterey pine forest.

Ultimately, this report provides vital information that can help serve as the backbone for the development of an updated, comprehensive forest and park management plan.

2024 Community Wildfire Protection Plan
This Community Wildfire Protection Plan (CWPP) has been developed by the Monterey Fire Department, in coordination with the Cities of Monterey, Carmel-by-the-Sea, and Pacific Grove, with input and direction from interested parties, agency representatives, and community members.
The CWPP serves as a fire protection planning document and outlines the community's physical characteristics, wildfire hazards, assets at risk, risk reduction strategies, vegetation management projects, and action plans to mitigate wildfire threats. The plan area covers the entire city, including GWP. Although the CWPP provides specific fuel reduction, vegetation management and defensible space recommendations for GWP, it is not a comprehensive plan to address forest health.

Consequently, the newly approved CWPP, along with the Biological Resources Report, 2022 FMP and 1999 GWP Master Plan, will inform and be vital inputs to a comprehensive management plan that balances ecosystem health and fuel reduction. It is anticipated that City staff will commence the development of a new GWP management plan, which will come back to the BNRC for review and consideration at a future date.

Attachments

GW Biological Resources Report

George Washington Park
Biological Resources Report



December 30, 2024

Prepared for
City of Pacific Grove
300 Forest Avenue
Pacific Grove, CA 93950

Prepared by

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

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1.0 INTRODUCTION

George Washington Park (GWP) is an approximately 20-acre forested urban park that contains the largest contiguous area of Monterey pine (*Pinus radiata*) forest within the City of Pacific Grove (City). The park is located in the western portion of the City and is surrounded by residential lots and streets (**Figure 1**). The park supports habitat for both common and rare flora and fauna and provides passive and active recreation opportunities for residents and visitors. The City proposes to update the existing Master Plan (City of Pacific Grove, 1999) for the park and to implement recommendations of the 2021 Forest Management Plan (FMP; Dudek, 2022) (the Project).

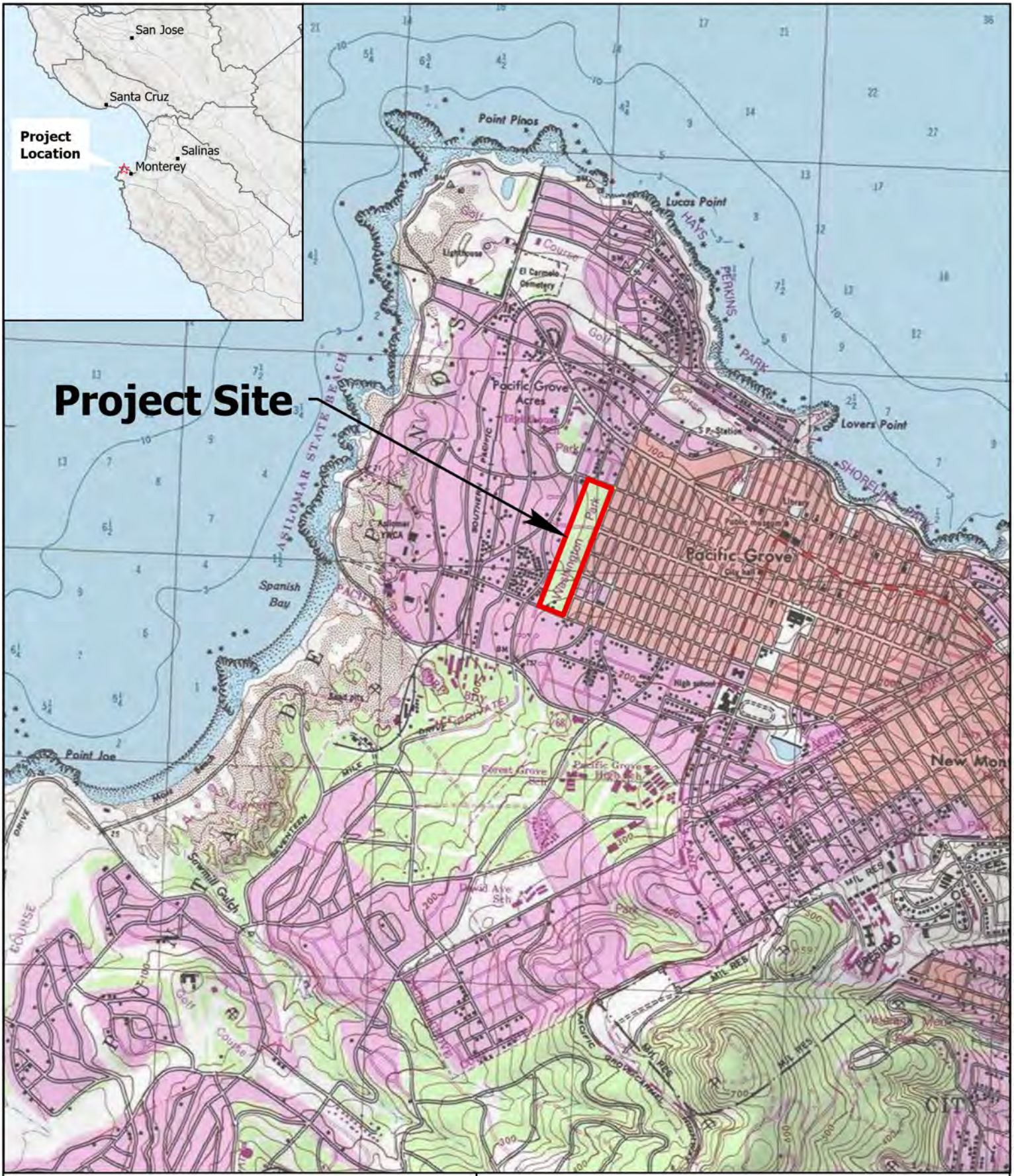
Denise Duffy & Associates, Inc. (DD&A) completed a biological assessment of the entire park to determine if sensitive biological resources are present or have the potential to occur within and in the vicinity of the site. The assessment was performed over the course of all four seasons during 2024. This report describes the existing biological resources within the project site, including any special-status species or sensitive habitats which occur or have the potential to occur in the area. This report assesses the potential impacts to biological resources that may result from implementation of the FMP, and recommends appropriate avoidance, minimization, and mitigation measures to reduce those impacts to a less than significant level in accordance with the California Environmental Quality Act (CEQA).

1.1 Background

The FMP was prepared to address necessary improvements to management of forest resources in the park, which include reduction of wildfire risk, restoration and enhancement of the Monterey pine forest ecosystem, and maintenance of the trail system for public use and safety. According to both the FMP and the existing Master Plan, the Monterey pine forest in the park has suffered impacts from historic overuse and soil compaction, drought, as well as pests and pathogens including pitch canker disease (*Fusarium circinatum*), dwarf mistletoe (*Arceuthobium* sp.), bark beetles, and invasion by non-native plant species. A combination of these factors as well as fire suppression, has led to a shift in the forest composition represented by a predominance of large old Monterey pine trees, a lack of sufficient new Monterey pine seedlings and saplings to regenerate and maintain healthy mid-canopy forest structure, and an increasing density of coast live oak (*Quercus agrifolia*). Additionally, the current condition of the forest in the park presents a relatively high fire risk due to an overaccumulation of flammable woody debris and dried thatch from a thick understory layer of non-native annual grasses. Habitat conditions for certain species, perhaps most notably overwintering Monarch butterflies (*Danaus plexippus*), are also in decline.

1.2 Project Location and Setting

GWP is located in a residential area within the City (**Figure 1**). The park is divided into four management zones (Zone 1 – 4) with Zone 1 generally consisting of an approximately three-acre recreational area in the southern section of the park that includes a baseball field, restrooms, playground, and picnic areas. Zones 2 – 4 consist of forested areas in a natural condition with a series of unimproved walking trails (**Figure 2**). GWP is bounded by Sinex Avenue towards the south, Short Street towards the north, Alder Street towards the east and Melrose Street towards the West. Pine Avenue crosses through the middle section of the park and forms the boundary between Zone 3 and 4. The Project site is located within Assessor's Parcel Numbers (APN) 006-561-001-000, 006-441-001-000, and 006-331-010-000 and the U.S. Geological Survey 7.5-minute Monterey quadrangle. The site is located outside of the Coastal Zone.



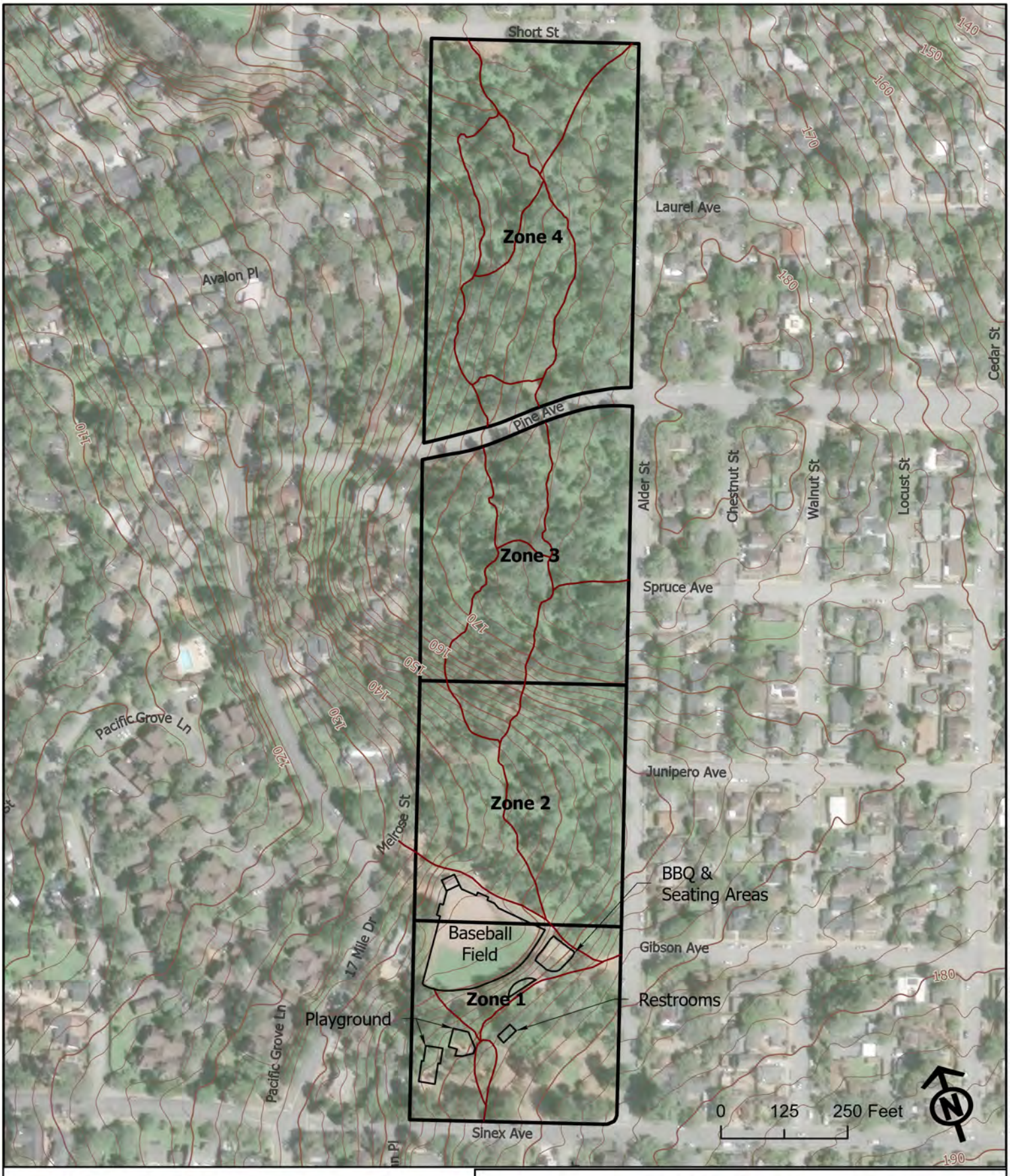
Project Location Map

George Washington Park Biological Resources Report

Denise Duffy and Associates, Inc.
Planning and Environmental Consulting

Date	Figure
12-2024	1
Scale 1:24,000	

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Management Zones
Trails
Park Features

Site Plan

George Washington Park Biological Resources Report

Denise Duffy and Associates, Inc.
Planning and Environmental Consulting

Date 12-2024
Scale 1 in = 250 ft

Figure 2

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On average, topography slopes gently from east to west with elevations ranging from approximately 134 feet above mean sea level (amsl) in the western portion of Zone 2 up to approximately 176 feet amsl in the northeastern corner of Zone 4. Slope aspect ranges from northwest to southwest facing. The lowest elevation areas are found in Zone 2 where a broad and shallow dip in the topography occurs across Zones 1 and 2 in an approximately east-west orientation. The landscape in Zones 3 and 4 is more elevated due to its position along the western aspect of a broad, gently sloping hill.

1.3 Project Description

As outlined in the FMP, forest management within the park is expected to include three main actions: reduction of wildfire risk, restoration of forest health and structure, and management of trails and improvement of public safety. These activities will be performed throughout the park. However, Zones 2 - 4 are characterized by undeveloped Monterey pine forest and will likely be the focus of most management activities. Although Zone 1 is designated for more active recreational use, mature coast live oak, Monterey pine, and Monterey cypress (*Hesperocyparis macrocarpa*) trees are scattered throughout and therefore may still require some forest management actions.

Fire Hazard Reduction

Fire hazard reduction will involve periodic removal of flammable vegetation and/or debris within approximately 100 feet of residential structures. Because the park is surrounded by residential areas, these activities will occur within a buffer zone around the entire perimeter of the park but will not occur in the interior portions. According to the FMP, vegetation management activities will align with CAL FIRE defensible space requirements and will include:

- Cutting or mowing tall annual grasses and annual herbaceous vegetation to four inches in height or less;
- Removing dead trees and woody shrubs;
- Removing fallen dead trees and tree parts that are 6 inches in diameter or smaller;
- Bucking and scattering fallen dead trees or tree parts larger than 6 inches diameter;
- Trimming off lower branches on mature trees to create 10 feet of space between the ground and lower branches;
- Removing shrubs and thickets within the dripline of a mature tree; and
- Selective removal of small oaks to improve horizontal spacing.

Implementation methods will be selected by the City but both use of light mechanical equipment and hand crews is proposed by the FMP. Light mechanical equipment would include a skid steer loader to masticate woody understory vegetation, mow herbaceous vegetation, and/or transport larger logs with a grapple attachment. Hand crews would perform vegetation management using power equipment including chain saws, mowers, and weed whips as well as hand saws, pruners, and loppers. Removed material would likely be fed into a chipper parked on nearby residential streets and used on site as mulch. Management of understory vegetation may also be performed using goat grazing supervised by a herder.

Forest Restoration and Enhancement

Forest restoration and enhancement activities are proposed for the interior portion of the park in Zones 2 – 4. According to the FMP, management activities will focus on creating conditions that promote Monterey pine regeneration and will occur in up to 16, ¼-acre plots situated in areas with less than 50% canopy closure, predominantly annual herbaceous understory vegetation and nearby mature Monterey pine and coast live oak trees. Forest restoration and enhancement activities are expected to include:

- Selective felling of dead and dying overstory trees;
- Removing concentrations of dead and downed logs, or cutting and scattering on site;
- Mowing grass and herbaceous vegetation and removing understory woody surface vegetation;
- Raking and removing/reducing the pine needle and leaf litter layer to expose mineral soil to improve conditions for Monterey pine seedling recruitment; and
- Planting/caging/maintaining tree plantings of up to 50 trees per site.

Safety and Trail Maintenance

Occasional forest maintenance activities along trails within Zones 2 – 4 and throughout the active recreation areas of Zone 1 may be necessary to maintain safe conditions for the public. These activities may include:

- Trimming overhead broken tree branches with a potential for falling on trails;
- Removal of hazard trees in the vicinity of trails, park facilities, or along adjacent streets; and
- Removal of fallen limbs or tree trunks that block trails or impact park facilities.

2.0 METHODS

2.1 Personnel and Survey Methods

DD&A performed a series of field surveys over the course of 2024 in all four zones of GWP to thoroughly document natural resources throughout all four seasons. Multiple surveys were appropriately timed to accurately detect and identify plants during their peak bloom periods and to assess the potential presence of special status wildlife. Surveys included traversing the project site along a series of walking transects to identify general and sensitive habitat types, identifying all plant species to the intraspecific taxon necessary to eliminate them as being special-status species, and identifying potential habitat for special-status plant species. Concurrently, multiple reconnaissance-level wildlife habitat surveys were conducted to identify suitable habitat and observe any special-status wildlife species. Data collected during the surveys were used to assess the environmental conditions of the project site and its surroundings, evaluate environmental constraints at the site and within the local vicinity, and provide a basis for recommendations to minimize and avoid impacts.

The survey area was evaluated for botanical resources following the applicable guidelines outlined in *Guidelines for Conducting and Reporting Botanical Inventories for Federally listed, Proposed and Candidate Plants* (U.S. Fish and Wildlife Service [Service], 2000), *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (California Department of Fish and Wildlife [CDFW], 2018), and California Native Plant Society (CNPS) *Botanical Survey Guidelines* (CNPS, 2001). Additional details on field surveys are provided below.

2.2 Data Sources

Prior to conducting field work, DD&A reviewed literature and data sources to determine the occurrence or potential for occurrence of special-status species within the survey area as follows:

- Current agency status information from the Service and CDFW for species listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA), and those considered CDFW "species of special concern," including:
    - California Natural Diversity Database (CNDDB) occurrences reports from the Monterey 7.5-minute U.S. Geological Survey (USGS) quadrangle and the four surrounding quadrangles, including Marina, Seaside, Mt. Carmel, and Soberanes Point (CDFW, 2024b; **Appendix A**); and
    - Service IPaC Resource List (Service, 2024a; **Appendix B**).
- The CNPS *Inventory of Rare and Endangered Vascular Plants of California* (CNPS, 2024);
- The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA-NRCS, 2024);
- The National Wetlands Inventory Wetlands Mapper (Service, 2024b); and
- The National Hydrographic Dataset (USGS, 2022).

From these resources, a list of special-status plant and wildlife species known or with the potential to occur within or adjacent to the project site was created (**Appendix C**). This list presents these species along with their legal status, habitat requirements, and a brief statement of the likelihood to occur. Other site-specific documents were reviewed including the 1999 Master Plan, the FMP, and technical reports relevant to monarch butterfly prepared by Creekside Science (2011, 2023).

2.2.1 Botany

Vegetation types identified in *A Manual of California Vegetation* (Sawyer et al., 2009) were utilized to determine if vegetation types identified as sensitive on CDFW's *California Natural Communities List* (CDFW, 2024a) are present within the project site. Information regarding the distribution and habitats of local and state vascular plants was also reviewed (Howitt and Howell, 1964 and 1973; Munz and Keck, 1973; Baldwin et al., 2012; Matthews and Mitchell, 2015; Jepson Flora Project, 2022). All plants observed within the project site during the evaluation were identified to species or intraspecific taxon necessary to eliminate them as being special-status species using keys and descriptions in *The Jepson Manual: Vascular Plants of California, Edition 2* (Baldwin et al., 2012) and *The Plants of Monterey County an Illustrated Field Key* (Matthews and Mitchell, 2015). Scientific nomenclature for plant species identified within this document follows Baldwin, et al., (2012); common names follow Matthews and Mitchell (2015). Dominant species within each habitat were noted. Dominant plant species are those which are more numerous than their competitors in an ecological community or make up more of the biomass; generally, the species that are most abundant. Most ecological communities are defined by their dominant species.

The California Invasive Plant Council (Cal-IPC) Inventory (Cal-IPC, 2024) was reviewed to determine if any plant species identified within the project site are listed as invasive by the Cal-IPC Inventory.

Occurrences of non-native invasive plant species were mapped using handheld GPS equipment. In addition, a list of plant species observed during botanical surveys was compiled (**Appendix D)**.

2.2.2 Wildlife

The following literature and data sources were reviewed: CDFW reports on special-status wildlife (Remsen, 1978; Williams, 1986; Jennings and Hayes, 1994; Thelander, 1994; Thomson et Al, 2016); California Wildlife Habitat Relationships Program species-habitat models (Zeiner et al., 1988 and 1990); and general wildlife references (Stebbins, 1972, 1985, and 2003).

2.3 Focused Field Surveys

Focused Botanical Surveys and Vegetation Mapping

Focused surveys for special-status plants were conducted on April 16 and July 10, 2024, to allow identification of potentially occurring spring blooming and summer blooming species with special attention given to the species with a moderate occurrence potential (**Appendix C**). The known occurrence of Yadon's piperia (*Piperia yadonii*) was also visited on January 18, 2024, to inventory the number of individuals with basal leaves and install protective cages on several individuals to prevent herbivory and allow complete identification during the summer bloom period. The location of the Yadon's piperia occurrence was also mapped using handheld GPS equipment with sub-meter accuracy. When possible, nearby known reference populations of special status plants were visited to confirm timing of the bloom period.

DD&A performed vegetation mapping throughout the park over a series of field visits on April 16, June 4, June 18, July 10, and August 23, 2024. Vegetation mapping consisted of a visual evaluation of 84 plots, each approximately 1,000 square feet (sf) in size, that were evenly divided throughout the park. At each plot aerial coverage of the upper canopy layer, the middle canopy layer, and the understory vegetation was estimated by cover class. Canopy closure was grouped into categories of sparse (10-25%), open (25-40%), moderate (40-60%), and dense (>60%). The most dominant tree species within the canopy were noted at each plot. Understory vegetation was grouped into cover classes of <1%, 1-5%, 5-15%, 15-25%, 25-50%, 50-75%, and >75% and dominant species were noted at each plot. This data was used to identify and map the dominant species within the upper canopy, middle canopy, and understory vegetation layers. In addition, occurrences of invasive non-native plant species were mapped using handheld GPS equipment with sub-meter accuracy.

Focused Wildlife Surveys

In addition to the reconnaissance-level wildlife and habitat surveys, several focused wildlife surveys were performed as part of this study. These included avian point count surveys, field surveys for candidate special status bumble bees, and a focused habitat assessment and series of seasonal surveys for bats.

Avian point count surveys were on conducted on June 19, July 10, and August 23, 2024, at 20 monitoring stations located along two north-south transects oriented along the long-axis of the park. Avian surveys were performed to provide additional baseline wildlife data and inform implementation of avoidance measures for nesting birds. Point-count survey methodology was adapted from Ralph et al., (1993, 1995) and consisted of counting all species of birds observed or heard during a period of five minutes per survey location within a 25-meter radius. A 25-meter radius was used instead of a 50-meter radius due to the forested condition of GWP, which limits the line-of-sight distance. Data from the avian point count surveys is summarized in **Appendix E**.

Field surveys for bumble bees were conducted concurrently with vegetation mapping activities on April 16, June 4, June 18, July 10, and August 23, 2024. Bumble bee surveys were photographic in nature and did not involve handling and animals. Survey and habitat assessment methodology is described in detail in **Appendix F**.

Given the potential for Project activities to affect potential bat roosting or maternity colony habitat, focused surveys for bats were performed by bat specialist Nick Fisher in all areas of GWP. Bat surveys consisted of a daytime habitat assessment, which identified potential bat roosting features and flyway areas, and a series of seasonal night emergence and foraging surveys using a passive acoustic detector (Wildlife Acoustics Song Meter Mino Bat unit) and a series of walking transects with a hand-held acoustic detector (Wildlife Acoustics Echometer 2 Pro and Batbox baton). The daytime habitat assessment was performed on June 6, 2024, and night surveys were conducted on June 6, July 27, October 10, and November 18, 2024. The survey timing targeted the breeding season (late March – September), the dispersal period of maternity colonies (September – October) and the post-dispersal period. A detailed description of methodology is provided in the Bat Survey Results Memo (**Appendix G**).

Wetlands

Although a formal wetland delineation was not performed, an assessment for the presence of potentially jurisdictional wetlands and waters within the survey area was performed on July 16, 2024 in accordance with the requirements set forth in *The Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual* (1987 Manual; Wetland Training Institute, 1995) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Supplement; ACOE, 2008). The assessment included collected of two paired samples located in a topographic low area along the boundary of Zone 1 and Zone 2 to determine if dominant wetland vegetation, wetland soils, or wetland hydrology is present (**Appendix H**). This area was selected for evaluation because it occupies the lowest landscape position in GWP and therefore has the highest likelihood for retention of water and formation of wetland conditions.

2.4 Definitions

2.5 Special-Status Species

Special-status species are those plants and animals that have been formally listed or proposed for listing as endangered or threatened or are candidates for such listing under the ESA or the CESA. Listed species are afforded legal protection under the ESA and CESA. Species that meet the definition of rare or endangered under the CEQA Section 15380 are also considered special-status species. Animals on the CDFW's list of "species of special concern" (most of which are species whose breeding populations in California may face extirpation if current population trends continue) meet this definition and are typically provided management consideration through the CEQA process, although they are not legally protected under the ESA or CESA. Additionally, the CDFW also includes some animal species that are not assigned any of the other status designations on their "Special Animals" list; however, these species have no legal or protection status.

Plants listed as rare under the California Native Plant Protection Act (CNPPA) or included in CNPS California Rare Plant Ranks (CRPR) 1A, 1B, 2A, and 2B are also treated as special-status species as they meet the definitions of Sections 2062 and 2067 of the CESA and in accordance with CEQA Guidelines Section 15380. In general, the CDFW requires that plant species on CRPR 1A (Plants presumed extirpated

in California and Either Rare or Extinct Elsewhere), CRPR 1B (Plants rare, threatened, or endangered in California and elsewhere), CRPR 2A (Plants presumed extirpated in California, but more common elsewhere); and CRPR 2B (Plants rare, threatened, or endangered in California, but more common elsewhere) of the CNPS *Inventory of Rare and Endangered Vascular Plants of California* (CNPS, 2024) be fully considered during the preparation of environmental documents relating to CEQA. CNPS CRPR 4 species (plants of limited distribution) may, but generally do not, meet the definitions of Sections 2062 and 2067 of the CESA, and are not typically considered in environmental documents relating to CEQA. While other species (i.e., CRPR 3 or 4 species) are sometimes found in database searches or within the literature, these were not included within the analysis as they did not meet the definitions of Section 2062 and 2067 of the CESA.

Raptors (e.g., eagles, hawks, and owls) and their nests are protected in California under Fish and Game Code Section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy the nest or eggs of any such bird except otherwise provided by this code or any regulation adopted pursuant thereto." In addition, fully protected species under the Fish and Game Code Section 3511 (birds), Section 4700 (mammals), Section 5515 (fish), and Section 5050 (reptiles and amphibians) are also considered special-status animal species. Species with no formal special-status designation but thought by experts to be rare or in serious decline may also be considered special-status animal species in some cases, depending on project-specific analysis and relevant, localized conservation needs or precedence.

2.6 Sensitive Habitats

Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species, areas of high biological diversity, areas supporting rare or special-status wildlife habitat, and unusual or regionally restricted vegetation types. Vegetation types considered sensitive include those listed on CDFW's *California Natural Communities List* (i.e., those habitats that are rare or endangered within the borders of California) (CDFW, 2024a), those that are occupied by species listed under the ESA or are critical habitat in accordance with the ESA, and those that are defined as Environmentally Sensitive Habitat Areas under the California Coastal Act. Specific habitats may also be identified as sensitive in city or county general plans or ordinances. Sensitive habitats are regulated under federal regulations (such as the Clean Water Act and Executive Order 11990 – Protection of Wetlands), state regulations (such as CEQA and the CDFW Streambed Alteration Program), or local ordinances or policies (such as city or county tree ordinances and general plan policies).

2.7 Regulatory Setting

The following regulatory discussion describes the laws and ordinances that may be applicable to the project.

2.7.1 Federal Regulations

Federal Endangered Species Act

Provisions of the ESA of 1973 (16 USC 1532 et seq., as amended) protect federally listed threatened or endangered species and their habitats from unlawful take. Listed species include those for which proposed and final rules have been published in the Federal Register. The ESA is administered by the Service or National Oceanic and Atmospheric Administration Marine Fisheries Service (NMFS). In general, the NMFS is responsible for the protection of ESA-listed marine species and anadromous fish, whereas other listed species are under Service jurisdiction.

Section 9 of ESA prohibits the take of any fish or wildlife species listed under ESA as endangered or threatened. Take, as defined by ESA, is "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Harm is defined as "any act that kills or injures the fish or wildlife…including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife." In addition, Section 9 prohibits removing, digging up, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction. Section 9 does not prohibit take of federally listed plants on sites not under federal jurisdiction. If there is the potential for incidental take of a federally listed fish or wildlife species, take of listed species can be authorized through either the Section 7 consultation process for federal actions or a Section 10 incidental take permit process for non-federal actions. Federal agency actions include activities that are on federal land, conducted by a federal agency, funded by a federal agency, or authorized by a federal agency (including issuance of federal permits).

Clean Water Act

The U.S. Army Corps of Engineers (ACOE) and U.S. Environmental Protection Agency (EPA) regulate discharge of dredged and fill material into waters of the U.S. under Section 404 of the CWA. Waters of the U.S. are defined broadly as waters susceptible to use in commerce (including waters subject to tides, interstate waters, and interstate wetlands) and other waters (such as interstate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds) (33 CFR 328.3). Potential wetland areas are identified as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils conditions."

Under Section 401 of the CWA, any applicant receiving a Section 404 permit from the USACE must also obtain a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB). A Section 401 Water Quality Certification is issued when a project is demonstrated to comply with state water quality standards and other aquatic resource protection requirements.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 prohibits killing, possessing, or trading migratory birds except in accordance with regulation prescribed by the Secretary of the Interior. Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of the MBTA. The USFWS is responsible for overseeing compliance with the MBTA.

2.7.2 State Regulations

California Endangered Species Act

The CESA was enacted in 1984. The California Code of Regulations (Title 14, §670.5) lists animal species considered endangered or threatened by the state. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. Section 2080 of the Fish and Game Code prohibits "take" of any species that the commission determines to be an endangered species or a threatened species. "Take" is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." A Section 2081 Incidental Take Permit from the CDFW may be obtained to authorize "take" of any state listed species.

California Native Plant Protection Act

The CNPPA of 1977 directed CDFW to carry out the legislature's intent to "preserve, protect and enhance rare and Endangered plants in the State." The CNPPA prohibits importing rare and Endangered plants into California, taking rare and Endangered plants, and selling rare and Endangered plants. The CESA and CNPPA authorized the Fish and Game Commission to designate endangered, threatened, and rare species and to regulate the taking of these species (§2050-2098, Fish and Game Code). Plants listed as rare under the CNPPA are not protected under CESA; however, these plants may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research.

California Fish and Game Code

Birds. Section 3503 of the Fish and Game Code states that it is "unlawful to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Section 3503.5 prohibits the killing, possession, or destruction of any birds in the orders Falconiformes or Strigiformes (birds-of-prey). Section 3511 prohibits take or possession of fully protected birds. Section 3513 prohibits the take or possession of any migratory nongame birds designated under the federal MBTA. Section 3800 prohibits take of nongame birds.

Fully Protected Species. The classification of fully protected was the state's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish (§5515), mammals (§4700), amphibians and reptiles (§5050), and birds (§3511). Most fully protected species have also been listed as threatened or endangered species under the more recent endangered species laws and regulations. Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

Species of Special Concern. As noted above, the CDFW also maintains a list of wildlife "species of special concern." Although these species have no legal status, the CDFW recommends considering these species during analysis of project impacts to protect declining populations and avoid the need to list them as endangered in the future.

Lake or Streambed Alteration. Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW's jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne) is California's statutory authority for the protection of water quality and applies to surface waters, wetlands, and groundwater, and to both point and nonpoint sources. Under the Porter-Cologne, the State Water Resources Control Board (State Board) has the ultimate authority over State water rights and water quality policy. However, Porter-Cologne also establishes nine RWQCBs to oversee water quality on a day-to-day basis at the local/regional level. The project site is located within Region 3 – Central Coast RWQCB. Porter-Cologne incorporates many

provisions of the federal CWA, such as delegation to the State Board and RWQCBs of the National Pollutant Discharge Elimination System (NPDES) permitting program.

Under Porter-Cologne, the state must adopt water quality policies, plans, and objectives that protect the state's waters for the use and enjoyment of the people. Regional authority for planning, permitting, and enforcement is delegate to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. The Porter-Cologne sets forth the obligations of the State Board and RWQCBs to adopt and periodically update water quality control plans (basin plans). The act also requires waste dischargers to notify the RWQCBs of such activities through filing of Reports of Waste Discharge (RWD) and authorizes the State Board and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to RWD requirements and WDRs for broad categories of "low threat" discharge activities that have minimal potential for adverse water quality effects, when implemented according to prescribed terms and conditions.

The term "Waters of the State" is defined by Porter-Cologne as "any surface water or groundwater, including saline waters, within the boundaries of the state." The RWQCB protects all waters in its regulatory scope but has special responsibility for wetlands, riparian areas, and headwaters, including isolated wetlands, and waters that may not be regulated by the ACOE under Section 404 of the CWA. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program, which regulates discharges of fill and dredged material under Section 401 of the CWA and the Porter-Cologne.

California Essential Habitat Connectivity Project

In 2010, CDFW and the California Department of Transportation (Caltrans) commissioned a team of consultants to produce a statewide assessment of essential habitat connectivity using the best available science, data sets, spatial analyses and modeling techniques. The goal was to identify Essential Habitat Connectivity Area (EHCA), which are large remaining blocks of intact habitat or natural landscape and model linkages between them that need to be maintained, particularly as corridors for wildlife. Over sixty federal, state, local, tribal and non-governmental organizations collaborated in the creation of a statewide wildlife habitat connectivity map using a GIS-based modeling approach, an assessment of the biological value of identified connectivity areas, and a strategic plan that helps varied end users interpret and use the statewide map and outlines a methodology necessary for completing connectivity analyses at finer spatial scales.

2.7.3 Local Regulations

Definition of Protected Trees

The City municipal code chapter 12.20.020 provides definitions for five categories of protected trees that require a permit for removal. Three of these definitions are relevant to GWP and include, 1) native trees which include all Gowen cypress, regardless of size, and all coast live oak, Monterey pine, shore pine, Torrey pine, and Monterey cypress over six inches in trunk diameter, measured at 54 inches above grade; 2) monarch butterfly habitat trees, including all trees within 100 yards of Monarch butterfly sanctuaries, (including the documented historic clustering site at GWP); and 3) public trees, including all trees on public property six inches in trunk diameter, measured at 54 inches above grade.

Pruning and Removal of Protected Trees

Municipal code chapter 12.20.040(c) prohibits pruning or removal of protected trees in monarch butterfly habitat, except as "prescribed in the approved Monarch sanctuary habitat management plan or upon a finding by the city council that such is necessary for proper maintenance of the site or for public health, safety, or welfare". Therefore, the City does not need to issue itself a permit for removal of trees in GWP but shall adhere to the recommendations of the Monarch Sanctuary Habitat Management Plan, or other documentation approved by city council, such as the FMP. Chapter 12.20.040(d) specifies that pruning or removal of trees within 100 yards of a monarch sanctuary "shall be prohibited during the months of October through April unless deemed necessary by the city arborist and confirmed by the public works director for public health, safety, or welfare".

3.0 RESULTS

3.1 Vegetation Surveys

The field surveys and mapping determined that three vegetation types occur within GWP in addition to developed areas. Acreages are summarized in **Table 1,** and each is described in greater detail below. A complete list of plant species observed during the 2024 surveys is provided as **Appendix D**.

Table 1. Summary of Vegetation Types

Vegetation Type	Survey Area (Acres)
Monterey pine forest	15.52
Mixed woodland (managed)	2.77
Ruderal/Disturbed (managed)	0.59
Developed park facilities	0.93
Total	**19.81**

<u>Monterey Pine Forest</u>

- *A Manual of California Vegetation* classification(s): *Pinus radiata* Forest Alliance
- CDFW *California Natural Communities List*: Sensitive

The majority of GWP consists of Monterey pine forest, which is dominated by an upper canopy formed by mature Monterey pine (**Figure 3**). The density of the upper canopy is generally sparse, and in some areas, the upper canopy layer is absent. Along the southern boundary of the park in Zone 1 and in several other edge areas, Monterey cypress lines the park edge along streets. However, Monterey cypress does not occur within the interior areas of GWP, and the study area lies outside of the historic native range of the species, which indicates the cypress trees were originally planted. Coast live oak is very common in GWP and contributes to the mid-canopy along with some smaller Monterey pines. Coast live oak is the dominant mid-canopy species (i.e. > 50% relative canopy cover) in large portions of the park (**Figure 3**) and occurs beneath the upper canopy of Monterey pine. Although coast live oaks occur, the presence of Monterey pine at ≥30% canopy cover defines the community as Monterey pine forest (Sawyer et al., 2009). Woody shrubs including coffeeberry (*Frangula californica*), sticky monkey flower (*Diplacus aurantiacus*) and toyon (*Heteromeles arbutifolia*) are occasionally found throughout the park.

The understory layer is not particularly diverse and is dominated by a combination of native vines including poison oak (*Toxicodendron diversilobum*) and California blackberry (*Rubus ursinus*) or non-native grasses. Non-native annual grasses grow vigorously at this location and most commonly include rattlesnake grass (*Briza major*) and slender wild oat (*Avena barbata*). Ripgut brome (*Bromus diandrus*) and perennial

ryegrass (*Festuca perennis*) are also common throughout the understory. In and around Zone 1, the non-native perennial grass species kikuyu grass (*Pennisetum clandestinum*) and panic veldt grass (*Ehrharta erecta*) are common. In isolated areas, patches of native herbaceous species dominated by hedge nettle (*Stachys bullata*) occur. The distribution of dominant understory vegetation types is shown on **Figure 4**.

Monterey pine forest in GWP provides suitable habitat for a variety of wildlife including but not limited to black-tailed deer (*Odocoileus hemionus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), western gray squirrel (*Sciurus griseus nigripes*), a variety of bat species, and numerous small mammal species. Focused bat surveys detected ten species of bats utilizing the Monterey pine forest in GWP. Mountain lion (*Puma concolor*) have been sighted in Pacific Grove and may occasionally travel through GWP. Many species of birds are known to utilize the Monterey pine forest. According to eBird data, some of the most common birds observed in GWP include but are not limited to scrub jay (*Aphelocoma californica*), chestnut-backed chickadee (*Poecile rufescens*), acorn woodpecker (*Melanerpes formicivorus*), American crow (*Corvus brachyrhynchos*), oak titmouse (*Baeolophus inornatus*), pygmy nuthatch (*Sitta pygmaea*), brown creeper (*Certhia americana*), house finch (*Haemorhous mexicanus*), song sparrow (*Melospiza melodia*), California towhee (*Melozone crissalis*), spotted towhee (*Pipilo maculatus*), and dark-eyed junco (*Junco hyemalis*).

Raptors commonly observed in GWP include red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and turkey vulture (*Cathartes aura*). Raptors less commonly observed in GWP include cooper's hawk (*Accipiter cooperii*), peregrine falcon (*Falco peregrinus*), osprey (*Pandion haliaetus*), sharp shinned hawk (*Accipiter striatus*), great-horned owl (*Bubo virginianus*), and white-tailed kite (*Elanus leucurus*) (eBird, 2021). More information on avian and bat species from focused field surveys is provided in **Section 3.3**.

Mixed Woodland (managed)

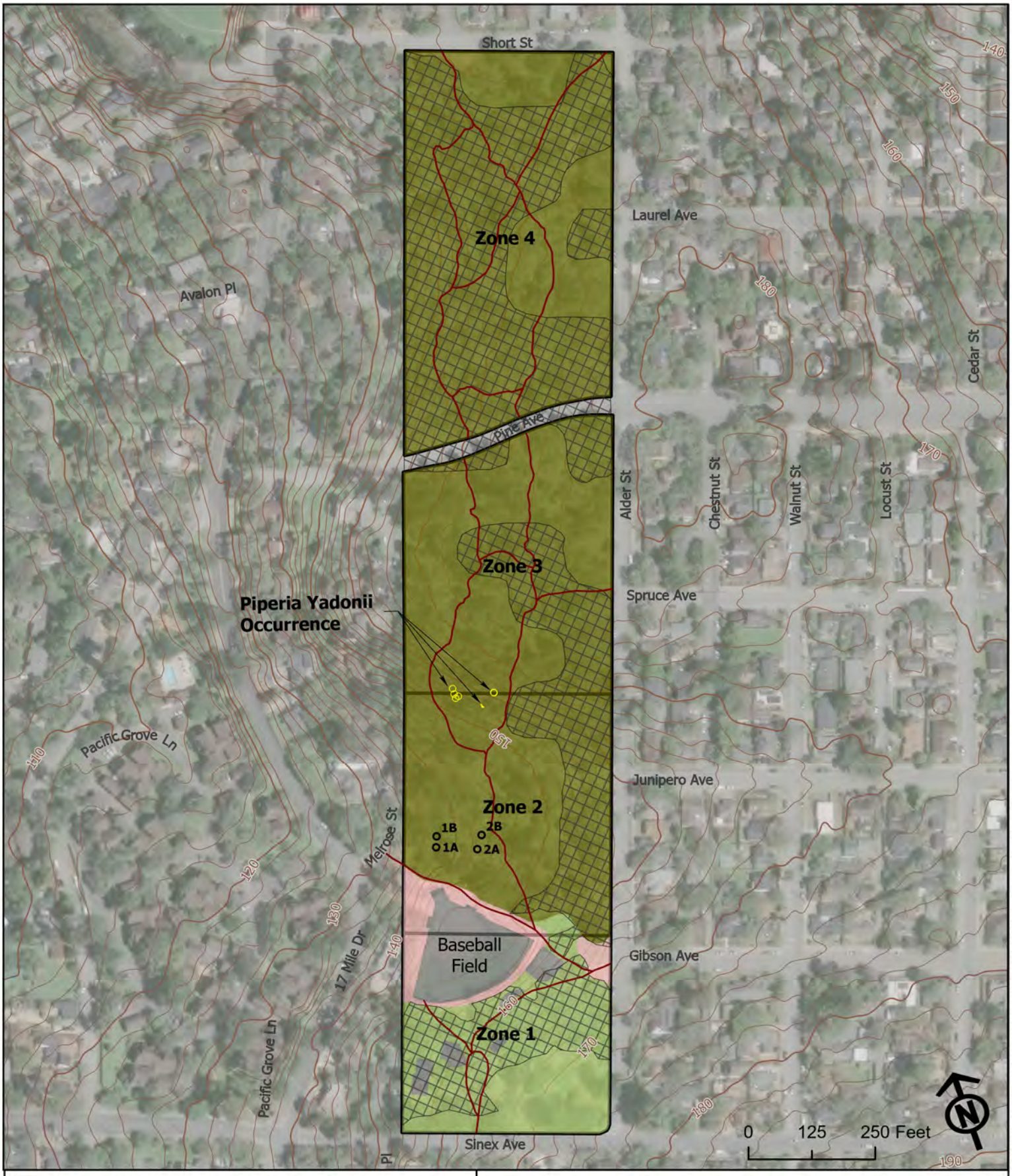
- *A Manual of California Vegetation* classification(s): None
- CDFW *California Natural Communities List*: Not Sensitive

Mixed woodland in GWP is concentrated in Zone 1 within and around areas that are managed for active recreation. The canopy is dominated by coast live oak, with occasional Monterey pines and Monterey cypress trees forming an upper canopy along the margins of Zone 1. The understory is managed by the City and kept mostly free of vegetation to allow access and permit recreational activities. Many areas are mulched with wood chips. Therefore, the herbaceous and woody understory vegetation that is present in other areas of GWP is lacking and only a sparse cover of non-native annual and perennial grasses occurs. However, this habitat is still regularly utilized by wildlife including a variety of birds that forage in the oak canopy; multiple species of bats including big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionyteris noctavagans*), California myotis (*Myotis californicus*), and Mexican free-tailed bat (*Tadarida braziliensis*); and black-tailed deer.

Ruderal/Disturbed (managed)

- *A Manual of California Vegetation* classification(s): None
- CDFW *California Natural Communities List*: Not Sensitive

Ruderal areas are characterized by regular human disturbance and consist primarily of non-native plant species. Ruderal vegetation at GWP occurs along the margins of the baseball field and in several open areas within Zone 1. The oak and/or Monterey pine canopy is lacking, the understory vegetation is sparse, and



Management Zones
Trails
Wetland sample

Special Status Species

Piperia yadonii (1 plant)
Piperia yadonii (10 plants)

Vegetation Types

Monterey pine forest
Managed mixed woodland
Managed ruderal/disturbed
Developed
Oaks Dominant in Mid-Canopy

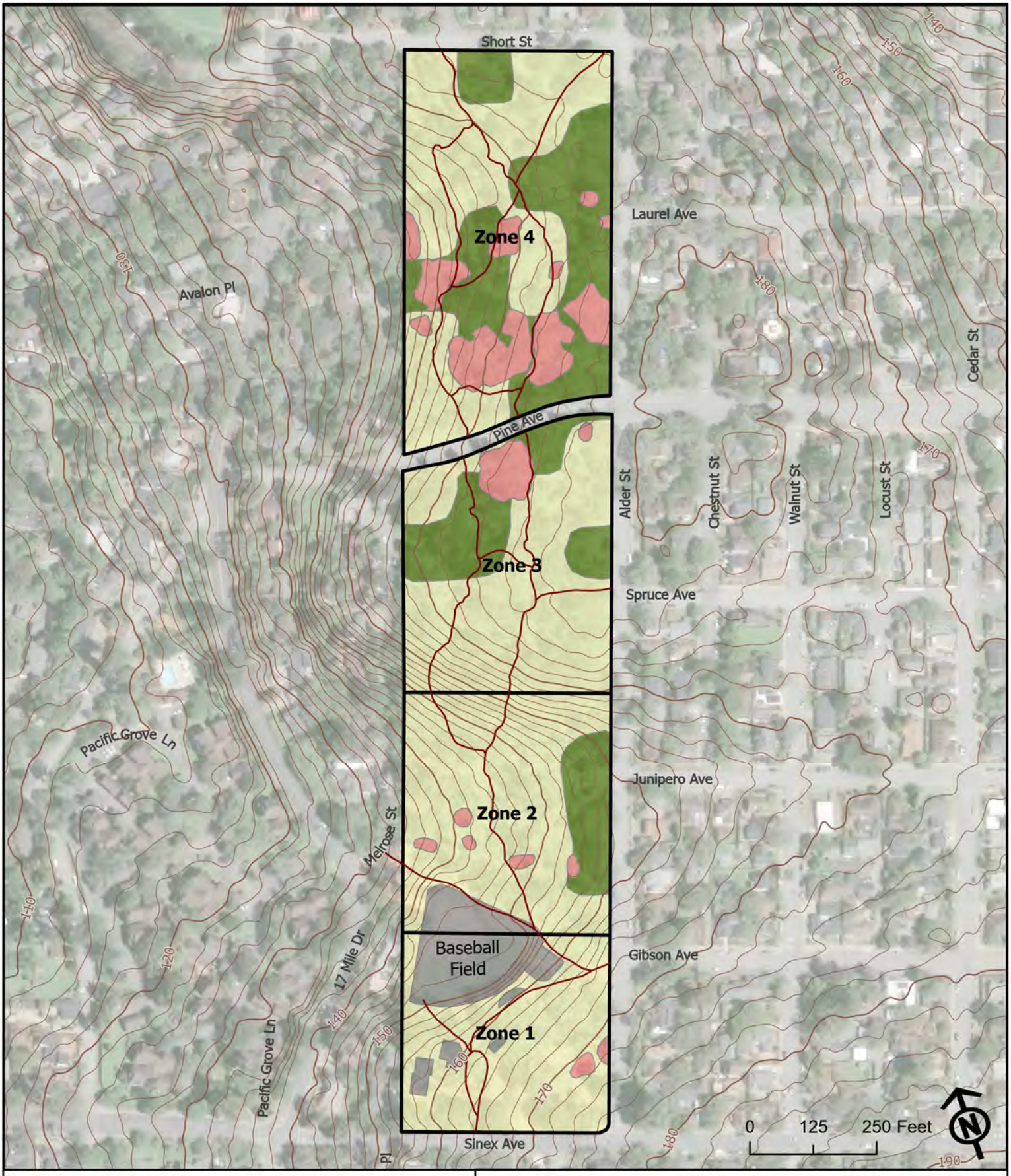
Vegetation Types & Special Status Plants

George Washington Park Biological Resources Report

Denise Duffy and Associates, Inc.
Planning and Environmental Consulting

Date: 12-2024
Scale: 1 in =250 ft
Figure: 3

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Management Zones

Trails

Dominant Understory Vegetation

- Developed
- Native shrub/vine
- Non-native grass
- Non-native shrub/vine

Understory Vegetation Map

George Washington Park Biological Resources Report

Denise Duffy and Associates, Inc.

Planning and Environmental Consulting

Date: 12-2024

Scale: 1 in = 250 ft

Figure 4

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the ground is often covered by woodchips. Ruderal areas are subject to regular maintenance, which keeps vegetation limited to herbaceous species that include non-native annual grasses, panic veldt grass, and kikuyu grass. Several Pride of Madeira (*Echium candicans*) shrubs and Monterey pine saplings occur in this area as well as several large Monterey cypress trees, which line the park edge.

Developed Park

- *A Manual of California Vegetation* classification(s): None
- CDFW *California Natural Communities List*: Not Sensitive

Portions of Zone 1 consist of a developed park landscape. These areas include the picnic and play area, BBQ equipment, restrooms, seating areas, the baseball field and associated structures, and adjacent unimproved pathways.

3.2 Invasive Non-Native Plants

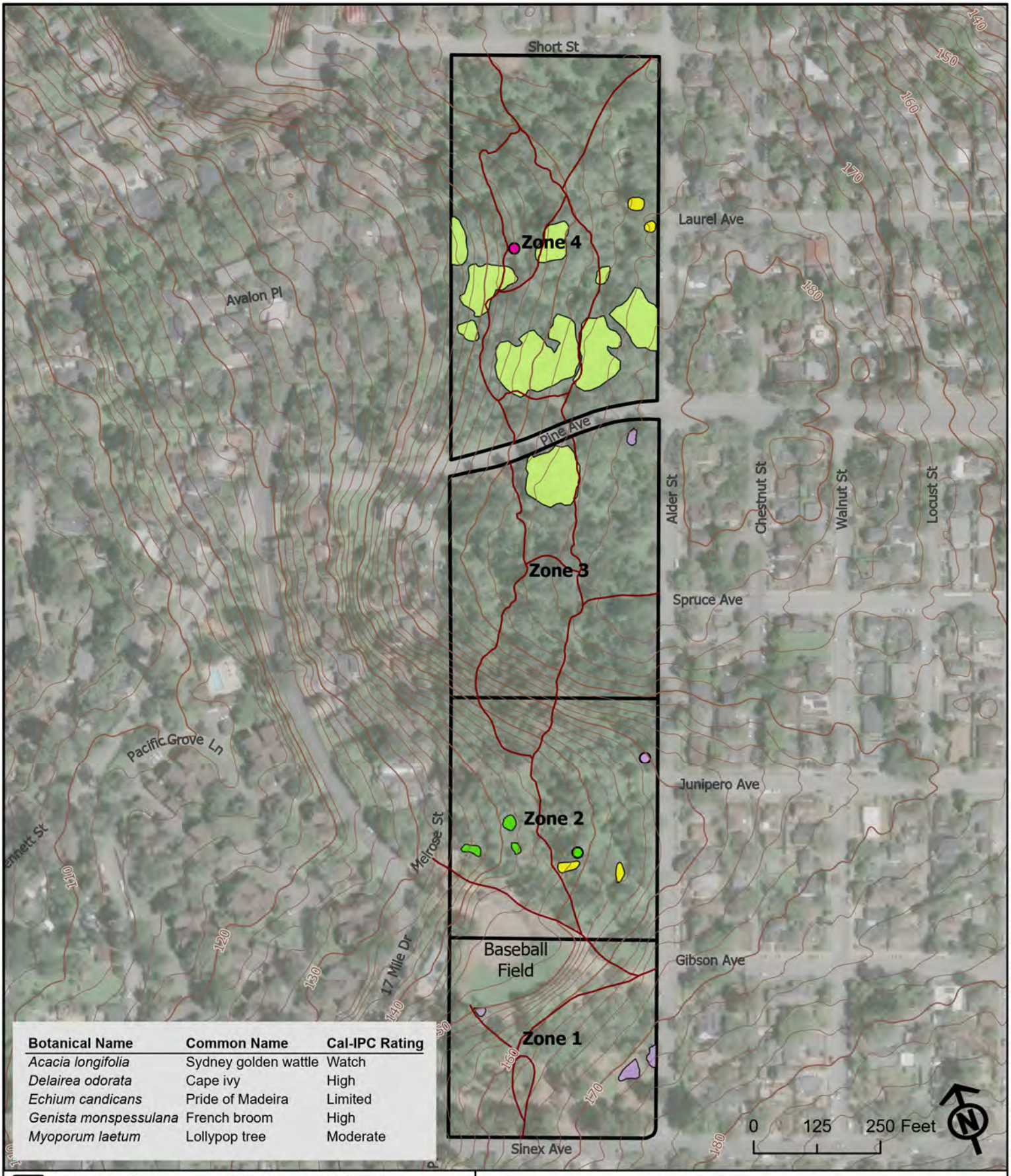
Invasive non-native plant species occur in some areas of GWP and include relatively extensive areas of Cape ivy (*Delairea odorata*) in Zones 3 and 4, Sydney golden wattle (*Acacia longifolia*) in Areas of Zone 2 north of the baseball field, French broom (*Genista monspessulana*) in Zone 2, scattered individuals of lollypop tree (*Myoporum laetum*), and patches of Pride of Madeira around the park edges (**Figure 5**). As noted above, non-native annual grasses dominate the understory vegetation in most areas of GWP (**Figure 4**), with the most common species being rattlesnake grass, slender wild oat, ripgut brome and perennial ryegrass. Non-native annual grasses grow vigorously where they occur at GWP and form a thick thatch layer that competes with native seedlings and creates a fire hazard. Some invasive non-native perennial grasses also occur and include panic veldt grass and kikuyu grass. These two species are concentrated in Zone 1 in the vicinity of the baseball field and in the managed ruderal understory areas of Zone 1.

3.3 Wildlife Surveys

Focused wildlife surveys performed by DD&A included avian point count surveys, surveys for bumble bees, and seasonal surveys for bats. GWP is a well-known birding location and avian surveys performed by DD&A confirmed that a variety of passerine species are common and abundant throughout most areas of the park. The most frequently sighted species included dark-eyed junco, spotted towhee, acorn woodpecker, song sparrow, and chestnut-backed chickadee. Acorn woodpeckers are a common sight in GWP as they use the abundant dead Monterey pine snags as granary trees. Songbirds are most often spotted foraging throughout the tree canopies, especially within coast live oak, and understory vegetation. Both ground-nesting and tree-nesting species occur in the park. Raptors, including red-shouldered hawk and red-tailed hawk, were observed perching on high Monterey pine limbs and soaring over the site, although no raptor nesting behavior or nest sites were observed. Data is summarized in **Appendix E**.

Surveys for bumble bees performed concurrently with vegetation mapping and special status plant surveys found areas of flowering plants within the Monterey pine forest understory that could be utilized by bumble bees. The most bumble bee activity was noted during July, when several dozen individuals were observed on a patch of flowering stinging phaecelia (*Phaecelia malvifolia*). Based on hair color marking patterns, these bumble bees were determined to not be the special status candidate species Crotch bumble bee (CBB; *Bombus crotchii*) or western bumble bee (WBB; *Bombus occidentalis*) and are most likely Vosnesensky bumble bee (*Bombus vosnesenskii*), a species commonly reported in the area. Additional discussion of WBB and CBB is provided in the Bumble Survey Results Memo (**Appendix F**).

Focused seasonal bat surveys discovered that numerous bat species utilize GWP. A total of 1,121 bat vocalizations were detected using acoustical equipment, with the most activity occurring during the June



Botanical Name	Common Name	Cal-IPC Rating
Acacia longifolia	Sydney golden wattle	Watch
Delairea odorata	Cape ivy	High
Echium candicans	Pride of Madeira	Limited
Genista monspessulana	French broom	High
Myoporum laetum	Lollypop tree	Moderate

Management Zones

Trails

Invasive Plant Species (<5 Individuals)

- Lollipop tree
- Pride of Madeira
- Sydney golden wattle

Invasive Plant Species (>5 Individuals)

- Cape ivy
- French broom
- Pride of Madeira
- Sydney golden wattle

Invasive Plant Species

George Washington Park Biological Resources Report

Denise Duffy and Associates, Inc.

Planning and Environmental Consulting

Date 12-2024

Scale 1 in = 250 ft

Figure 5

Path: C:\JWandkeGIS\GIS_Projects\2023-78 George Washington Park Bio\2023-78 George Washington Park Bio.aprx

and July surveys, with activity tapering off in October. No vocalizations were recorded in November. A total of ten bat species were identified, including one detection of western red bat (*Lasiurus blossevillii*), a California species of special concern. Some of the more common bat species detected include California myotis, big brown bat, and silver haired bat. Additional details are provided in the discussion of western red bat below and in the Bat Survey Results Memo (**Appendix G**).

A complete list of wildlife species observed during 2024 at GWP is provided as **Appendix D**.

3.4 Special-Status Species

Published occurrence data within the project area and surrounding USGS quadrangles were evaluated to compile a table of special-status species known to occur in the vicinity of the survey area (see "Methods"). Each of these species was evaluated for their likelihood to occur within and immediately adjacent to the survey area (**Appendix C**). Only the special-status species that are known to or have been determined to have a moderate or high potential to occur within or immediately adjacent to the survey area are discussed below. All other species evaluated are unlikely to occur or have a low potential to occur based on the species-specific reasons presented in **Appendix C**, are therefore unlikely to be impacted by the project, and are not discussed further.

3.4.1 Special Status Wildlife Species

Western Red Bat

The western red bat is a CDFW species of special concern. This species occurs in California, Arizona, and New Mexico, south to South America (Cryan, 2003). In California, western red bats occur from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts. Although this species is migratory, western red bats are known to reside in California year-round and there is evidence that California populations do not migrate out of the state (Cryan, 2003). Western red bats are associated with forests and woodlands from sea level up through mixed conifer forests; however riparian areas appear to be favored, particularly willows, cottonwoods, and sycamores (Western Bat Working Group, 2005). Roost sites are often in edge habitat adjacent to streams, fields, or urban areas. Preferred sites are hidden from above, with few branches below, and have ground cover of low reflectivity. This nocturnal species emerges from roosting sites one to two hours after dark (AGFD, 2003) and feeds over a variety of habitats, including grasslands, shrublands, open woodlands, forests, and croplands. Moths, beetles, crickets, and cicadas are the typical prey species. Western red bats are typically a solitary species, but they often feed with other bat species, may migrate in groups (AGFD, 2003), and may form nursery colonies. Mating occurs in the fall and sperm is stored over winter. Fertilization occurs in the spring and gestation is 80 to 90 days. One to five young are born in mid-May to early July; however, most litters have two or three. During the rearing period, females may move the young between roost sites. Young are capable of sustained flight after approximately three to six weeks.

One Western red bat call was detected during the fall migration period on October 10, 2024, acoustical survey at GWP. Suitable foraging and roosting habitat for Western red bat occurs throughout GWP in Monterey pine forest, especially in Zones 2 – 4, where abundant trees and standing dead snags with roosting habitat occur. Roosting habitat features include exfoliating bark, woodpecker holes, crevices, and cavities (**Appendix G**). If present, project activities that involve removal of trees or standing dead snags could impact roosting or maternity colonies of western red bat.

Northern California Legless Lizard

The Northern California legless lizard (*Anniella pulchra*) is a CDFW species of special concern. This fossorial (burrowing) species typically inhabits sandy or loose (friable) soils. Habitats known to support Northern California legless lizard include, but are not limited to, coastal dunes, valley and foothill grasslands, chaparral, and coastal scrub at elevations from near sea level to approximately 1,800 meters (6,000 feet). The Northern California legless lizard forages on invertebrates beneath the leaf litter or duff layer at the base of bushes and trees or under wood, rocks, and slash in appropriate habitats. The diet of this species likely overlaps to some extent with that of juvenile alligator lizards and perhaps some other salamanders. This species may be preyed upon by alligator lizards, snakes, birds, and small mammals. Little is known about the specific habitat requirements for courtship and breeding; however, the mating season for this species is believed to begin late spring or early summer, with one to four live young born between September and November.

Northern California legless lizard is relatively common in the Asilomar dunes and Point Piños dunes and is documented by several CNDDB occurrences at those locations. One CNDDB record (Occurrence #375) for Northern California legless lizard exists in the southwestern corner of GWP (Zone 1), where one individual was found in sandy soil in 2017. DD&A did not observe any California legless lizards during the field surveys, but did not perform focused surveys for this species. Although the species has been documented in GWP, the habitat conditions are not the typical dune scrub or sandy riparian wash habitats commonly associated with this species. The proposed project activities do not involve soil disturbance and therefore would be unlikely to impact Northern California legless lizard.

Monarch butterfly

The monarch butterfly is proposed for listing under FESA and has special local and regional importance. They are the only known insect in the world that make an annual, back-and-forth, long-distance migration. Each fall monarch butterflies fly west and south to the same overwintering sites, and frequently to the same trees, in coastal California conifer and Eucalyptus groves and high-altitude Mexican conifer forests. In California, the butterflies cluster in these sites from approximately October to February. A dwindling number of groves along the California coast have the characteristics necessary to support overwintering monarch butterflies. Monarch butterflies generally overwinter in stands of eucalyptus or Monterey pine and selected groves are often in a canyon or drainage where butterflies have a source of water. Specific microclimate conditions within the groves are necessary for monarch butterfly use. Overwintering groves generally have more stable temperatures (i.e., less variation between day and night temperatures), less direct sunlight, less wind, and more moisture in the air than groves not used by monarch butterflies. In the spring monarch butterflies depart their wintering grounds, flying north and east throughout North America to search for milkweed plants (*Asclepias* sp.), on which the females lay their eggs. The migrating butterflies die soon after they lay eggs. Monarchs migrating towards overwintering habitat are reliant on “autumnal roosts” and “nectaring bivouacs.” Autumnal roosts generally host smaller populations in the fall and early winter and typically support one or more varieties of milkweed, the primary food source of monarch butterflies. These areas serve as important feeding habitats where monarchs replenish their fat reserves before winter sets in. Nectaring bivouacs are areas which may have a consistent flow of monarchs in and out of the site, as butterflies nectar and return to their clusters elsewhere. Monarch butterflies are threatened by conversion of grassland habitat to agriculture, exposure to insecticides, herbicide use, and loss/senescence of overwintering sites in California and Mexico (Service, 2023).

GWP is a known historic overwintering site for monarch butterfly and is monitored annually. GWP is also identified as designated monarch butterfly sanctuary in City municipal code chapter 12.20.020 and is defined as: "That portion of land bordered on the east and west by Alder Street and Melrose Avenue, respectively, on the north by Pine Avenue, and on the south by the imaginary extension of Junipero Avenue westerly from Alder to Melrose". The historic overwintering site lies in Zone 3, approximately between Pine and Spruce Avenue (CNDDB Occurrence #89, Xerces Society site #2934). Overwintering monarch butterflies were reported at this location as early as the 1960's and were reported to utilize both mature and smaller Monterey pines, some coast live oak as well as California lilac (*Ceanothus thyrsiflorus*). This site lies approximately 0.4 mile southeast of the well-known Monarch Grove Sanctuary, one of the top monarch butterfly overwintering sites along the central-California coast. During the 2020 monarch butterfly population crash, no monarch butterflies were observed at the Monarch Grove Sanctuary during the Thanksgiving count. The population has since rebounded with 6,608 overwintering monarchs counted at the Monarch grove sanctuary during the 2023 Thanksgiving count (Creekside Science 2024). No overwintering groupings of monarch butterflies have been observed at the GWP site since 2011 when 61 butterflies were counted. The last substantial count of overwintering monarch butterflies in GWP was recorded in 2006 with 11,795 butterflies recorded (Creekside Science, 2023). Count records in the CNDDB, which date back to the 1960's fluctuate between zero and thousands of overwintering butterflies counted. Overwintering butterflies at this location are reported to utilize primarily Monterey pine (CDFW, 2023b).

The historic overwintering site at GWP may no longer be as favorable for monarch clustering as it once was due to the loss of shelter from wind caused by mortality of Monterey pines. The coverage of overstory Monterey pine within the historic overwintering site and in areas towards the south and west have resulted in increased exposure during strong wind events. Regeneration of new trees that can potentially restore wind protection is occurring in some areas but needs to be bolstered by active management activities. The site could also benefit from improved winter sheltering in the mid-story canopy layer provided by additional young Monterey pines, coast live oak, California lilac and toyon (Creekside Science, 2023).

DD&A did not observe any clusters of overwintering monarch butterflies in GWP during surveys performed on January 9 and 18, 2024, when on the same dates, clustering monarch butterflies were observed in abundance at the Monarch Grove Sanctuary. Only two monarch butterflies were observed in flight in GWP on the January 18, 2024, site visit. However, due to the historic presence of overwintering monarch butterflies at the site and the habitat conditions, the site could potentially support overwintering monarch butterflies in the future and therefore this species has a high potential for occurrence. If present, forest management activities could potentially impact overwintering monarch butterflies.

Nesting Raptors and Other Protected Avian Species, including White tailed kite

Raptors, their nests, and other nesting birds are protected under California Fish and Game Code. While the life histories of these species vary, overlapping nesting (approximately February through August) and foraging similarities allow for their concurrent discussion. Most raptors are breeding residents throughout most of the wooded portions of the state. Stands of live oak, riparian deciduous, or other forest habitats, as well as open grasslands, are used most frequently for nesting. Breeding occurs February through August, with peak activity May through July. Prey for these species includes small birds, small mammals, and some reptiles and amphibians. Many raptor species hunt in open woodland and habitat edges.

Raptors and other nesting birds could potentially utilize a wide variety of locations to construct nests throughout GWP. Suitable nesting locations include tree canopies in both Monterey pines, coast live oaks

and other trees or large shrubs; standing dead Monterey pine snags; understory shrubs and thickets of California blackberry or poison oak; and in piles of woody debris or clumps of grass. Raptors would most likely utilize the taller Monterey pines or standing dead Monterey pine snags for nesting sites. White-tailed kite, which has been observed in GWP (Dudek, 2022; eBird, 2021), could potentially utilize tall Monterey pines as nesting sites. Avian surveys performed by DD&A found abundant songbird activity throughout all areas of GWP (see **Appendix E**), with some displays of nesting behavior and observations of juvenile birds. No nesting raptors were observed, although red shouldered hawk and red-tailed hawk were observed during avian surveys and a great horned owl was noted during night bat survey work. Project activities performed during the breeding and nesting seasons could impact raptors or other nesting birds through the nest abandonment or the incidental loss of fertile eggs or nestlings.

3.4.2 Special-Status Plant Species

Monterey Pine

Monterey pine is a CNPS CRPR 1B species. This evergreen tree occurs in closed-cone coniferous forests at elevations from 25-185 meters. Only four native stands of this species exist in the world. One stand is found on Guadalupe Island off Baja California. The other three stands are all within California at Año Nuevo, Cambria, and the Monterey Peninsula. Monterey pines are introduced in many areas, including in New Zealand where it is used as a plantation crop. Only one-half of the species' historical extent remains undeveloped on the Monterey Peninsula. Monterey pines are threatened by development, genetic contamination, pine pitch canker disease, and forest fragmentation, especially in the Del Monte Forest on the Monterey Peninsula.

As described above, Monterey pine forest characterizes GWP and this species is found throughout the park. According to data collected for the FMP, 32 percent of the trees within the forest in GWP consist of Monterey pine and are represented across all size classes measured between 3 inches to >32 inches diameter. The park also lies within the Monterey pine CNDDB Occurrence #4, which corresponds to the approximate native range of the species in the Monterey Peninsula area (CDFW 2024b). Forest management activities are designed to benefit Monterey pine and the project does not propose to remove healthy non-hazard Monterey pines nor substantially affect the critical root zone of individual trees. However, Monterey pines could potentially be impacted during forest management activities if individual Monterey pine seedlings, saplings, or mature trees are accidentally damaged or killed.

Yadon's Piperia

Yadon's piperia is a federally endangered, CNPS CRPR 1B species. This perennial herb in the Orchidaceae family blooms from May to August and is found in closed-cone coniferous forest, maritime chaparral on sandy soils, and coastal bluff scrub at elevations from 10-510 meters. Overall, this species favors a well-drained, sandy soil substrate with podzolic conditions, and areas that retain moisture during the rainy season but are not subject to inundation (V.Yadon in litt. 2002). As in some other plant taxa, individual orchids that flower in one year may not have the necessary energy reserves to flower in the following year. As a result, an unknown proportion of a population may be dormant in any given year, thus making it difficult to track population dynamics through monitoring of population size (Wells 1991, Rasmussen 1995, A. Graff in litt. 2002). However, it would be expected that some percentage of a resident population would flower in any given year. As a result, while it may be difficult to track population dynamics in any given year, determining presence or absence for a specific area is not.

Yadon's piperia is known from GWP and is included as a non-specific occurrence in the CNDDB (Occurrence #4), which includes the entire park and lacks any specific data (CDFW, 2024b). Following the wet winter of 2022/23, Yadon's piperia was observed in GWP near on a gentle, southwest-facing slope in the southern portion of Zone 3. These plants were flagged and protected with deer browse cages by a citizen. During 2024 botanical surveys, DD&A confirmed the location of the plants marked during 2023 but did not discover additional occurrences of Yadon's piperia. DD&A counted 16 Yadon's piperia based on the presence of basal leaves on February 29, 2024, and verified six blooming Yadon's piperia on July 10, 2024 (**Figure 3**). Project activities have the potential to impact Yadon's piperia by trampling, cutting, or removal of individual plants.

3.5 Sensitive Habitats

Monterey Pine Forest & Habitat for Special Status Species

Monterey pine forest is considered sensitive under CDFW's *California Natural Communities List* (CDFW, 2024c). It also supports potential overwintering habitat for Monarch butterfly, a population of Yadon's piperia, habitat for California legless lizard, and habitat for bats, including Western red bat, a California Species of Special Concern. Approximately 15.5 acres of Monterey pine forest is present within the survey area. One of the primary purposes of the project is to improve the Monterey pine forest habitat and the project does not propose removing any healthy non-hazard trees or substantially affecting the critical root zones of individual trees. However, Monterey pine forest could potentially be impacted if an accident during project activities were to result in the release of hazardous materials from equipment or result in the removal or death of Monterey pine seedlings, saplings, or larger trees.

Wetlands and Waters of the U.S.

No potentially jurisdictional waters of the U.S. or State were identified within the survey area and the two paired sample locations did not meet the wetland parameters as defined by the ACOE 1987 Manual or the Supplement. All three wetland parameters of vegetation, soil, and hydrology must be met for a resource to be potentially under the jurisdiction of ACOE. Although the topographic low area where the two paired samples were located may seasonally retain runoff and promote growth of some facultative wetland plant species, such as common velvet grass (*Holcus lanatus*), perennial ryegrass, field sedge (*Carex praegracilis*), and California blackberry, there is not sufficient hydrology present to support potentially jurisdictional wetlands or waters and none of the wetland indicators for vegetation, soils, or hydrology were met. This finding is also supported by the visual assessment of the site as well as data from the National Wetlands Inventory (USFWS, 2024b) and soil survey maps (USDA, 2024), which do not map wetlands or hydric soil units at the site. Therefore, the project does not have potential to impact wetlands or waters of the U.S. Wetland data sheets are provided as **Appendix H** and sample locations are shown on **Figure 3**.

3.6 Protected Trees

The City ordinances pertaining to protected trees at GWP are summarized in **Section 2.7.3**. The majority of trees in GWP occur inside of or within 100 yards of the designated monarch butterfly sanctuary and therefore are protected as monarch butterfly habitat trees. The remaining trees in GWP are protected because they are trees on public property. The City would not be required to issue itself a permit for removal of protected trees as part of an approved forest management plan, but would be required to adhere to the restrictions on removals of trees inside of and within 100 yards of a designated monarch butterfly sanctuary. This would limit tree removal to those recommended for removal by the Monarch Sanctuary Habitat

Management Plan (Creekside Science, 2011) or those approved by city council for proper maintenance of the site, or for public health, safety, or welfare.

3.7 Habitat Connectivity and Nursery Sites

The California Essential Habitat Connectivity Project (California Department of Transportation [Caltrans] and CDFW, 2020) identifies large remaining blocks of intact habitat or natural landscape and models linkages between them to provide a basis for management of these important areas, particularly as corridors for wildlife. The California Essential Habitat Connectivity Project does not identify the project site as containing a modeled essential connectivity area. GWP does contain potential nursery sites for nesting raptors and other avian species, multiple species of bats, and the historic Monarch butterfly overwintering site. The project has the potential to impact nursery sites for avian species, bats, and Monarch butterfly as described in the above sections.

4.0 IMPACT THRESHOLDS

The following section describes potential impacts to sensitive biological resources that may result from the project. In accordance with Appendix G of CEQA Guidelines, an impact is considered to be significant and require mitigation if it would result in any of the following:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or the U.S. Fish & Wildlife Service (Service);

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or the Service;

c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling hydrological interruption, or other means;

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native nursery sites;

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Recommendations are included in the next section to avoid or minimize impacts to sensitive biological resources.

5.0 IMPACTS AND MITIGATION

The Project has the potential to impact several special-status wildlife and plant species, sensitive Monterey pine forest habitat, as well as nesting raptors and other avian species. Mitigation measures that reduce these potential impacts to a less-than-significant level in accordance with CEQA are provided below.

Special Status Species

Potential Impact 1*:* The project site provides potential nesting habitat for raptors and birds listed by the MBTA and protected by CDFG Code. The project site contains suitable nesting habitat for both ground and tree-nesting species. Project activities during the breeding and nesting seasons could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment within the survey area. Implementation of BIO-1 will reduce the potential for impacts to nesting raptors and other protected avian species.

> ***BIO 1:*** Project activities that may directly (e.g., vegetation removal and trimming, tree removal, removal of standing dead trees or snags) or indirectly affect (e.g., noise) nesting raptors and other protected avian species shall be timed to avoid the breeding and nesting seasons (February 1 through September 15).
>
> If project activities must occur during the breeding and nesting season (February 1 through September 15), a qualified biologist shall conduct pre-activity surveys for nesting raptors and other protected avian species within 300 feet of the proposed work area. Pre-activity surveys should be conducted no more than seven days prior to the start of work during the early part of the breeding season (February through April) and no more than 14 days prior to the initiation of these activities during the late part of the breeding season (May through August).
>
> If raptors or other protected avian nests are identified during the pre-activity surveys, the qualified biologist shall notify the project proponent and an appropriate no-disturbance buffer shall be imposed within which no project activities or disturbance would take place until the young of the year have fledged and are no longer reliant upon the nest or parental care for survival, as determined by a qualified biologist.
>
> When possible, leave snags in place and remove only the tops of dead trees to retain habitat for cavity nesting birds.

Potential Impact 2*:* The project site provides suitable habitat for special-status bat species. Suitable foraging and night roost habitat as well as day, colonial, or maternal roost habitat for these species is present within the project site. Project activities, including vegetation removal, tree removal or trimming, or removal of standing dead trees or snags, may result in direct and indirect impacts to these species if these species are using the site for day, night, or maternity roosts. Direct impacts include mortality of individuals or roost disturbance, while indirect impacts include loss of habitat. This is a potentially significant impact that can be reduced to a less than significant level with implementation of the mitigation measure recommended below.

> ***BIO 2:*** To the extent practical limbing/tree removal operations should occur between September 1 and November 1 to avoid bat maternity roosts and winter hibernacula. When possible, leave snags in place and remove only the tops of dead trees to retain habitat for bats. If tree limbing/tree removal operations must occur outside the period of September 1 through November 1, a survey for bats shall be conducted by a qualified biologist no more than 14 days prior to initiation of the work as follows:

i. The biologist shall determine if bats are utilizing the site for roosting. For any trees/snags/buildings that could provide roosting space for cavity or foliage-roosting bats, potential bat roost features shall be thoroughly evaluated to determine if bats are present. Visual inspection and/or acoustic surveys shall be utilized as initial techniques.

ii. If roosting bats are found, the biologist shall develop and implement passive exclusion methods. If feasible, exclusion shall take place during the appropriate windows (September 1 and November 1) to avoid harming bat maternity roosts and/or winter hibernacula.

iii. If established maternity colonies are found, the maternity colony shall not be disturbed and a buffer shall be established around the colony to protect pre-volant young from construction disturbances until the young can fly.

iv. If a tree is determined not to be an active roost site for roosting bats, it may be immediately limbed or removed as follows:

    a. If foliage roosting bats are determined to be present, limbs shall be lowered, inspected for bats by a bat biologist, and chipped immediately or moved to a dump site if necessary.

    b. Alternately, limbs may be lowered and left on the ground until the following day, when they can be chipped or moved to a dump site, if necessary. No logs or tree sections shall be dropped on downed limbs or limb piles that have not been in place since the previous day.

Potential Impact 3: GWP is a known historic overwintering site for monarch butterfly, a species of local and regional importance and a proposed species for listing under FESA. The proposed reforestation activities are designed to enhance the Monterey pine forest habitat and improve conditions within GWP for overwintering monarch butterflies and no removals of healthy trees, except for some limited thinning of coast live oak, is proposed. GWP is also a designated monarch butterfly sanctuary, is monitored annually by the City's monarch butterfly consultant, is protected by the City municipal tree ordinances that limits tree removal inside of and within 100 yards of designated monarch butterfly sanctuaries, and prohibits tree removal within designated monarch butterfly sanctuaries between the months of October through April unless deemed necessary by the city arborist and confirmed by the public works director for public health, safety, or welfare. However, project activities such as removal of woody understory vegetation for fire hazard reduction or tree removals deemed necessary by the City could impact overwintering monarch butterflies. If monarch butterfly is listed as threatened or endangered by the Service, impacts would constitute take of a species covered by FESA. This is a potentially significant impact that can be reduced to a less than significant level with implementation of the mitigation measure recommended below.

BIO 3a: Adhere to the municipal ordinances (chapter 12.20.040) that limit tree removal inside of and within 100 yards of designated monarch butterfly sanctuaries and prohibit tree removal in these same areas during the months of October through April.

BIO 3b: If tree removal or other vegetation management is deemed necessary by the City during the monarch butterfly overwintering season (October through April), pre-activity surveys shall be performed no more than seven days prior to initiation of work to confirm absence of clustering monarch

butterflies. Surveys shall be performed in the early morning when temperatures are below 55° F in calm conditions that are favorable to clustering of monarch butterflies. Surveys shall not be performed during periods of high winds and/or precipitation. If clustering Monarch butterflies are present, no forest management activities, with the exception of planting or maintenance of forest restoration plantings, shall be allowed to proceed within 100 yards of the clustering site and may only be performed in the period outside of the overwintering season (May 1 – September 30).

Potential Impact 4: Monterey pine a CNPS CRPR 1B species, naturally occurs throughout the project site and is within its native range. Although forest management activities are designed to benefit Monterey pine, healthy seedlings, saplings, or mature trees could potentially be impacted or killed by accidental trimming, trampling, or removal. This is a potentially significant impact that can be reduced to a less than significant level with implementation of the mitigation measure recommended below.

BIO 4a: Vegetation management activities shall avoid areas where Monterey pine seedlings are naturally regenerating, avoid reforestation plantings of Monterey pine and refrain from removing or damaging Monterey pines. Prior to initiating work, sensitive reforestation and/or areas of Monterey pine regeneration shall be marked for avoidance using colored flagging by a qualified biologist, forester, or arborist. Healthy Monterey pines shall not be removed, unless deemed necessary by the City for public safety or as specified by the FMP and/or Monarch sanctuary habitat management plan or other documents approved by city council. If Monterey pines are removed or killed as a result of project activities, they shall be replaced in appropriate areas of GWP at a minimum 1:1 ratio as part of the forest restoration component of the proposed project.

Potential Impact 5: Yadon's piperia, a federally endangered and CNPS CRPR 1B species, is known to occur within the project site. Project activities may result in impacts to individual plants as a result of trampling, cutting, or removal. This is a potentially significant impact that can be reduced to a less than significant level with implementation of the mitigation measure recommended below.

BIO-5a*:* Each year when forest management activities are planned within suitable habitat (Zones 2 – 4), the proposed work areas shall be surveyed for Yadon's piperia prior to initiation of the work. Surveys shall be performed during the appropriate time of year when Yadon's piperia can be detected.

BIO-5b*:* To avoid impacts to the known Yadon's piperia occurrence and any other occurrence detected during surveys specified by BIO-5a, no fire hazard reduction or forest restoration activities shall be performed within a 50-foot buffer any identified Yadon's piperia occurrences. A biological monitor will supervise the installation of protective fencing or flagging around a 50-foot buffer whenever project activities occur within 150 feet of the occurrence. If grazing animals are utilized for vegetation management, the biological monitor shall supervise installation of an electric or other exclusionary fence around a 50-foot buffer of the occurrence. The site will be monitored at least once per week until project activities within 150 feet of the occurrence are complete to ensure that the protective fencing remains intact. Protective fencing/flagging shall be removed after project activities are completed.

Sensitive Habitats

***Potential Impact 6*:** The Monterey pine forest vegetation alliance is identified as sensitive on CDFW's *California Natural Communities List* (CDFW, 2024a) and provides habitat for the special status species discussed above. Vegetation management and restoration activities will have a beneficial impact on this sensitive habitat. However, unauthorized impacts to Monterey pine forest could occur if an accident during project activities were to result in the release of hazardous materials from equipment or result in the removal or death of Monterey pine seedlings, saplings, or larger trees. This is a potentially significant impact that can be reduced to a less than significant level with implementation of BIO 4a and the mitigation measures recommended below.

BIO 6a: All refueling, maintenance, and staging of equipment and vehicles shall occur outside of the Monterey pine forest habitat and shall be properly contained.

BIO 6b: Only lightweight, limited access equipment shall be allowed within the Monterey pine forest habitat that overlaps with the 100-foot fuel reduction buffer zone along the perimeter of GWP and along the existing trail system. All other work within interior areas of the Monterey pine forest within Zones 2 – 4 shall be performed on foot using hand tools, including activities associated with managed grazing.

BIO 6c: Living native vegetation shall only be cut when absolutely necessary for fire hazard reduction and only as prescribed by the FMP and/or Monarch sanctuary habitat management plan or other documents approved by city council. Native vegetation that needs to be trimmed as part of fire hazard reduction shall be cut at ground level rather than removed by the roots.

BIO-6d: All invasive non-native plants that are removed during forest management and restoration work shall be bagged or otherwise contained and off hauled to the municipal landfill for proper disposal.

Wildlife Migratory Corridors and Nursery Sites

Potential Impact 7: Project activities will not impact wildlife migratory corridors linkages but fire hazard reduction and invasive plant species removal may temporarily impede the use of nursery sites by removing understory vegetation, woody debris, dead trees and/or snags that could be utilized by nesting avian species or bats. However, vegetation management and fire hazard reduction would be limited to the 100-foot buffer zone and invasive plant species removal would occur in only localized areas, leaving adjacent habitat intact. After fire hazard reduction and invasive plant removal activities, native vegetation will likely regrow. Potential impacts to avian and bat nursery sites will be avoided through implementation of BIO-1 and BIO-2. Forest restoration activities performed as part of the proposed project will improve conditions for overwintering Monarch butterflies and all of GWP, including the historic Monarch butterfly overwintering site, will be protected via the City's tree protection ordinance that applies to designated Monarch butterfly sanctuaries. Therefore, the mitigation outlined above reduces potential impacts to a less-than-significant level and no further mitigation is required.

Local Policies and Ordinances

The project does not conflict with any local policies and ordinances protecting biological resources. The project will adhere to the City of Pacific Grove municipal tree protection ordinances, which include protection of trees inside of and within 100 yards of designated monarch butterfly sanctuaries, including GWP. No further mitigation is required.

Conservation Plans

The project does not conflict with any provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

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APPENDIX A

California Natural Diversity Database Report

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Monterey (3612158) OR Marina (3612167) OR Seaside (3612157) OR Mt. Carmel (3612147) OR Soberanes Point (3612148))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Actinemys pallida southwestern pond turtle	ARAAD02032	Proposed Threatened	None	G2G3	SNR	SSC
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Allium hickmanii Hickman's onion	PMLIL02140	None	None	G2	S2	1B.2
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Anniella pulchra Northern California legless lizard	ARACC01020	None	None	G3	S2S3	SSC
Aphyllon robbinsii Robbins' broomrape	PDORO040Q0	None	None	G1	S1	1B.1
Arctostaphylos edmundsii Little Sur manzanita	PDERI04260	None	None	G2	S2	1B.2
Arctostaphylos hookeri ssp. hookeri Hooker's manzanita	PDERI040J1	None	None	G3T2	S2	1B.2
Arctostaphylos montereyensis Toro manzanita	PDERI040R0	None	None	G2?	S2?	1B.2
Arctostaphylos pajaroensis Pajaro manzanita	PDERI04100	None	None	G1	S1	1B.1
Arctostaphylos pumila sandmat manzanita	PDERI04180	None	None	G1	S1	1B.2
Astragalus tener var. titi coastal dunes milk-vetch	PDFAB0F8R2	Endangered	Endangered	G2T1	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	Candidate Endangered	G4	S2	SSC
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G2G3	S1S2	
Bombus occidentalis western bumble bee	IIHYM24252	None	Candidate Endangered	G3	S1	
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Castilleja ambigua var. insalutata pink Johnny-nip	PDSCR0D403	None	None	G5T2	S2	1B.1
Central Dune Scrub Central Dune Scrub	CTT21320CA	None	None	G2	S2.2	
Central Maritime Chaparral Central Maritime Chaparral	CTT37C20CA	None	None	G2	S2.2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Centromadia parryi ssp. congdonii Congdon's tarplant	PDAST4R0P1	None	None	G3T2	S2	1B.1
Charadrius nivosus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S3	SSC
Chorizanthe minutiflora Fort Ord spineflower	PDPGN04100	None	None	G1	S1	1B.2
Chorizanthe pungens var. pungens Monterey spineflower	PDPGN040M2	Threatened	None	G2T2	S2	1B.2
Clarkia jolonensis Jolon clarkia	PDONA050L0	None	None	G2	S2	1B.2
Coelus globosus globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
Collinsia multicolor San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2	1B.2
Cordylanthus rigidus ssp. littoralis seaside bird's-beak	PDSCR0J0P2	None	Endangered	G5T2	S2	1B.1
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Coturnicops noveboracensis yellow rail	ABNME01010	None	None	G4	S2	SSC
Cypseloides niger black swift	ABNUA01010	None	None	G4	S3	SSC
Danaus plexippus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	Candidate	None	G4T1T2Q	S2	
Delphinium californicum ssp. interius Hospital Canyon larkspur	PDRAN0B0A2	None	None	G3T3	S3	1B.2
Delphinium hutchinsoniae Hutchinson's larkspur	PDRAN0B0V0	None	None	G2	S2	1B.2
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
Ericameria fasciculata Eastwood's goldenbush	PDAST3L080	None	None	G2	S2	1B.1
Eriogonum nortonii Pinnacles buckwheat	PDPGN08470	None	None	G2	S2	1B.3
Eryngium montereyense Fort Ord button-celery	PDAPI0Z150	None	None	G1	S1	1B.1
Erysimum ammophilum sand-loving wallflower	PDBRA16010	None	None	G2	S2	1B.2
Erysimum menziesii Menzies' wallflower	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Eumetopias jubatus Steller sea lion	AMAJC03010	Delisted	None	G3	S2	
Euphilotes enoptes smithi Smith's blue butterfly	IILEPG2026	Endangered	None	G5T2	S2	
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Gilia tenuiflora ssp. arenaria Monterey gilia	PDPLM041P2	Endangered	Threatened	G3G4T2	S2	1B.2
Hesperocyparis goveniana Gowen cypress	PGCUP04031	Threatened	None	G1	S1	1B.2
Hesperocyparis macrocarpa Monterey cypress	PGCUP04060	None	None	G1	S1	1B.2
Horkelia cuneata var. sericea Kellogg's horkelia	PDROS0W043	None	None	G4T1?	S1?	1B.1
Horkelia marinensis Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
Hydrobates homochroa ashy storm-petrel	ABNDC04030	None	None	G2	S2	SSC
Lasiurus cinereus hoary bat	AMACC05032	None	None	G3G4	S4	
Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3T1	S2	FP
Lavinia exilicauda harengus Monterey hitch	AFCJB19013	None	None	G4T3	S3	SSC
Layia carnosa beach layia	PDAST5N010	Threatened	Endangered	G2	S2	1B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Lupinus tidestromii Tidestrom's lupine	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
Malacothamnus involucratus Carmel Valley bushmallow	PDMAL0Q0B1	None	None	G3T2Q	S2	1B.2
Malacothrix saxatilis var. arachnoidea Carmel Valley malacothrix	PDAST660C2	None	None	G5T2	S2	1B.2
Microseris paludosa marsh microseris	PDAST6E0D0	None	None	G2	S2	1B.2
Microtus californicus halophilus Monterey vole	AMAFF11036	None	None	G5T1	S2	
Monardella sinuata ssp. nigrescens northern curly-leaved monardella	PDLAM18162	None	None	G3T2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Monolopia gracilens woodland woollythreads	PDAST6G010	None	None	G3	S3	1B.2
Monterey Cypress Forest Monterey Cypress Forest	CTT83150CA	None	None	G1	S1.2	
Monterey Pine Forest Monterey Pine Forest	CTT83130CA	None	None	G1	S1.1	
Monterey Pygmy Cypress Forest Monterey Pygmy Cypress Forest	CTT83162CA	None	None	G1	S1.1	
Northern Bishop Pine Forest Northern Bishop Pine Forest	CTT83121CA	None	None	G2	S2.2	
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Oncorhynchus mykiss irideus pop. 9 steelhead - south-central California coast DPS	AFCHA0209H	Threatened	None	G5T2Q	S2	SSC
Pelecanus occidentalis californicus California brown pelican	ABNFC01021	Delisted	Delisted	G4T3T4	S3	
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G4	S4	SSC
Pinus radiata Monterey pine	PGPIN040V0	None	None	G1	S1	1B.1
Piperia yadonii Yadon's rein orchid	PMORC1X070	Endangered	None	G1	S1	1B.1
Plagiobothrys uncinatus hooked popcornflower	PDBOR0V170	None	None	G2	S2	1B.2
Potentilla hickmanii Hickman's cinquefoil	PDROS1B370	Endangered	Endangered	G1	S1	1B.1
Ramalina thrausta angel's hair lichen	NLLEC3S340	None	None	G5?	S2S3	2B.1
Rana boylii pop. 6 foothill yellow-legged frog - south coast DPS	AAABH01056	Endangered	Endangered	G3T1	S1	
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Reithrodontomys megalotis distichlis Salinas harvest mouse	AMAFF02032	None	None	G5T1	S2	
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S3	
Rosa pinetorum pine rose	PDROS1J0W0	None	None	G1Q	S1	1B.2
Sidalcea malachroides maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
Sorex ornatus salarius Monterey shrew	AMABA01105	None	None	G5T1T2	S1S2	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Stebbinsoseris decipiens Santa Cruz microseris	PDAST6E050	None	None	G2	S2	1B.2
Sulcaria spiralifera twisted horsehair lichen	NLT0042560	None	None	G3G4	S2	1B.2
Taricha torosa Coast Range newt	AAAAF02032	None	None	G4	S4	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Tortula californica California screw moss	NBMUS7L090	None	None	G2G3	S2?	1B.2
Trifolium buckwestiorum Santa Cruz clover	PDFAB402W0	None	None	G2	S2	1B.1
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Trifolium polyodon Pacific Grove clover	PDFAB402H0	None	Rare	G1	S1	1B.1
Trifolium trichocalyx Monterey clover	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	

Record Count: 92

APPENDIX B

IPaC Resource List

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

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Location

Monterey County, California



Local office

Ventura Fish And Wildlife Office

(805) 644-1766
(805) 644-3958

FW8VenturaSection7@FWS.Gov

2493 Portola Road, Suite B
Ventura, CA 93003-7726

https://www.fws.gov/Ventura

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Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an

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office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
California Condor Gymnogyps californianus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered
California Least Tern Sterna antillarum browni Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Least Bell's Vireo Vireo bellii pusillus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5945	Endangered
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Amphibians

NAME	STATUS

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California Red-legged Frog Rana draytonii — Threatened
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/2891

California Tiger Salamander Ambystoma californiense — Threatened
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/2076

Fishes

NAME	STATUS
Tidewater Goby Eucyclogobius newberryi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Smith's Blue Butterfly Euphilotes enoptes smithi Wherever found There is **proposed** critical habitat for this species. https://ecos.fws.gov/ecp/species/4418	Endangered

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

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Flowering Plants

NAME	STATUS
Clover (tidestrom''s) Lupine Lupinus tidestromii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4459	Endangered
Coastal Dunes Milk-vetch Astragalus tener var. titi Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7675	Endangered
Hickman's Potentilla Potentilla hickmanii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6343	Endangered
Marsh Sandwort Arenaria paludicola Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2229	Endangered
Monterey Clover Trifolium trichocalyx Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4282	Endangered
Monterey Gilia Gilia tenuiflora ssp. arenaria Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/856	Endangered
Monterey Spineflower Chorizanthe pungens var. pungens Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/396	Threatened

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NAME	STATUS
Yadon's Piperia Piperia yadonii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4205	Endangered

Conifers and Cycads

NAME	STATUS
Gowen Cypress Cupressus goveniana ssp. goveniana Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8548	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

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Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management

- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

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Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence

score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

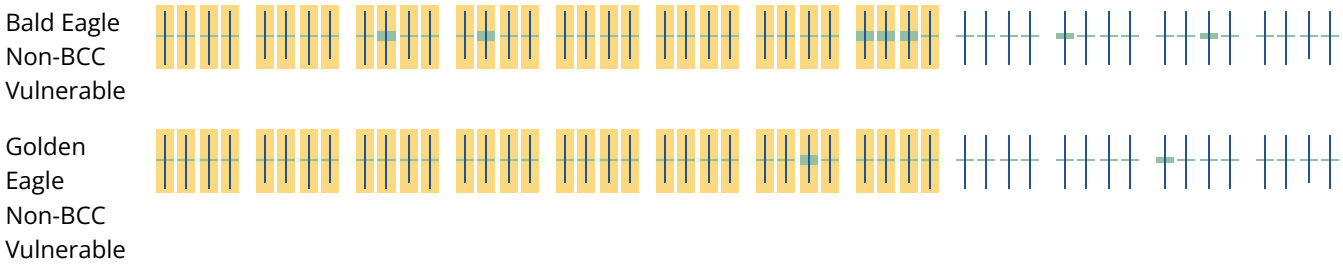
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to

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migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15

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Bald Eagle *Haliaeetus leucocephalus* — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* — Breeds Apr 1 to Aug 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8

Black Oystercatcher *Haematopus bachmani* — Breeds Apr 15 to Oct 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9591

Black Skimmer *Rynchops niger* — Breeds May 20 to Sep 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5234

Black Swift *Cypseloides niger* — Breeds Jun 15 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8878

Black Tern *Chlidonias niger* — Breeds May 15 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3093

Black Turnstone *Arenaria melanocephala* — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Bullock's Oriole *Icterus bullockii* — Breeds Mar 21 to Jul 25

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

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California Gull Larus californicus — Breeds Mar 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Clark's Grebe Aechmophorus clarkii — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Marbled Godwit Limosa fedoa — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

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Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Scripps's Murrelet Synthliboramphus scrippsi — Breeds Feb 20 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Willet Tringa semipalmata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

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Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in

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your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

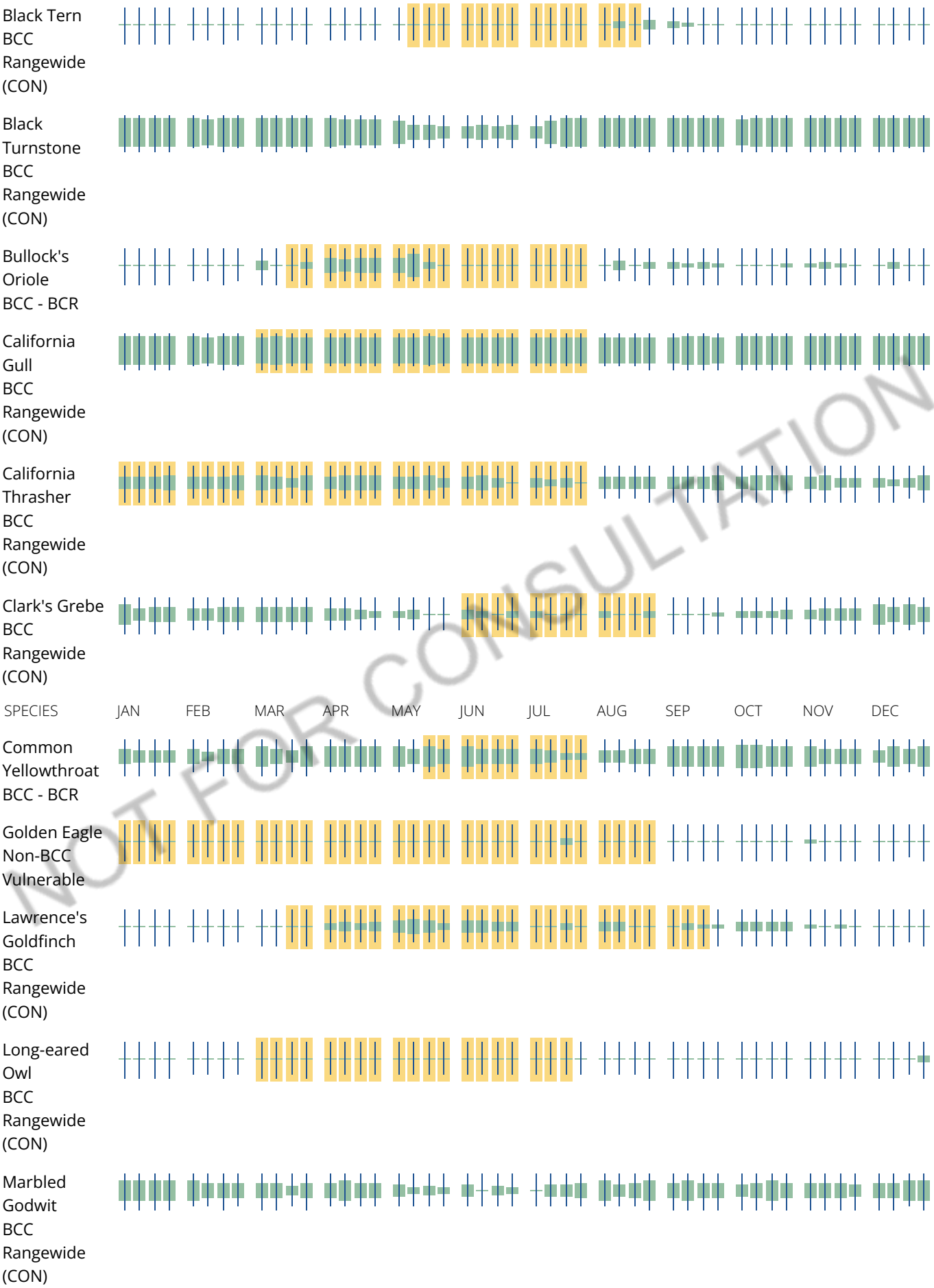
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

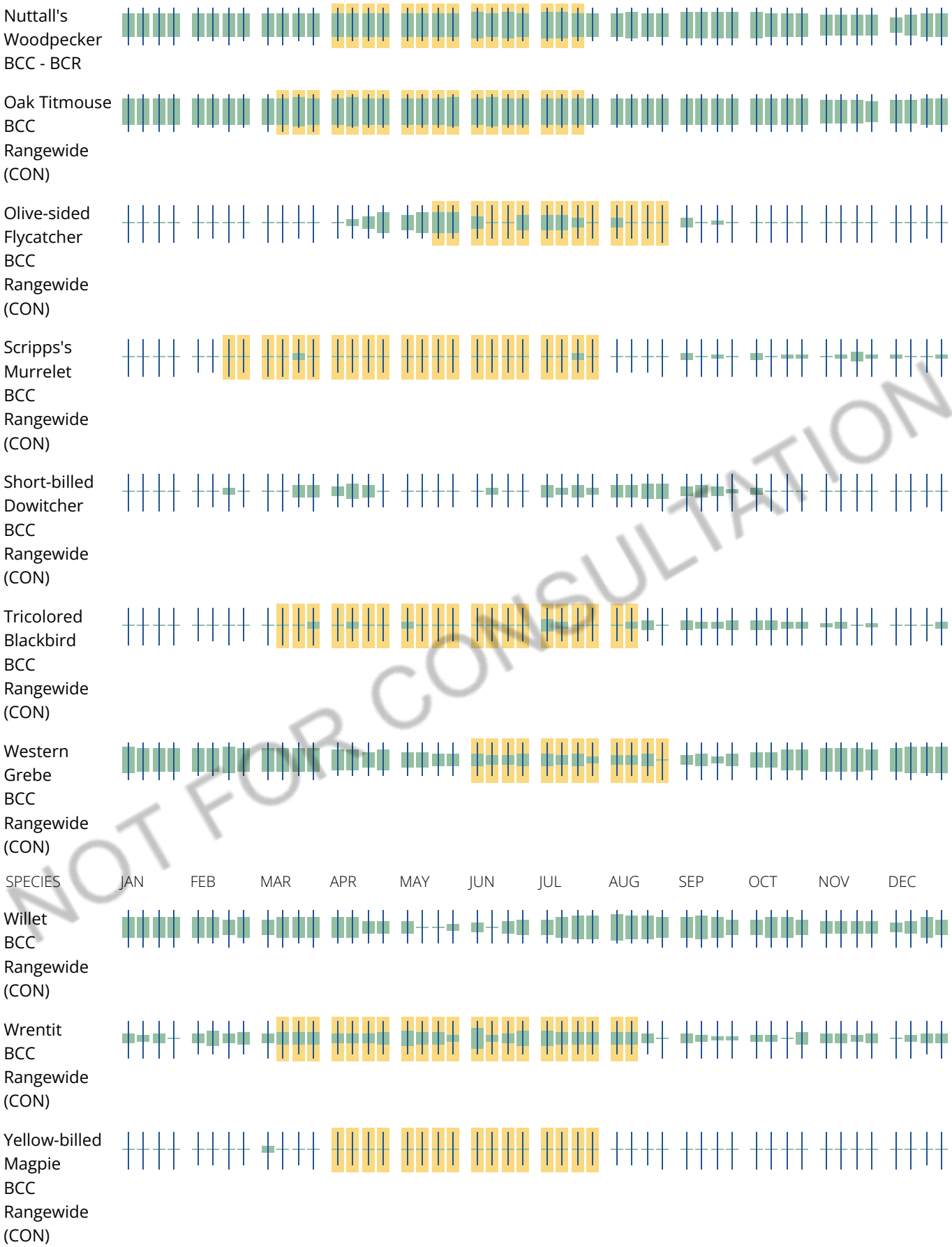
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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Tell me more about conservation measures I can implement to avoid or minimize impacts to

migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

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What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of

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data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

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Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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APPENDIX C

Special-Status Species Table

Special-Status Species Table

USGS quadrangles: Monterey, Marina, Seaside, Mt. Carmel, Soberanes Point.

Species	Status (USFWS/ CDFW/ CNPS)	General Habitat	Occurrence Potential within Survey Area
MAMMALS			
Corynorhinus townsendii Townsend's big-eared bat	-- / CSC / --	Found primarily in rural settings from inland deserts to coastal redwoods, oak woodland of the inner Coast Ranges and Sierra foothills, and low to mid-elevation mixed coniferous-deciduous forests. Typically roost during the day in limestone caves, lava tubes, and mines, but can roost in buildings that offer suitable conditions. Night roosts are in more open settings and include bridges, rock crevices, and trees.	**Low** Suitable foraging habitat is present in the project site. No day or maternity roosting habitat present within the project site. The CNDDB reports one occurrence of this species within the quadrangles reviewed, located approximately nine miles west of the project site. This species was not detected during 2024 acoustic bat surveys.
Lasiurus blossevillii **Western red bat**	-- / CSC / --	Roosting habitat includes trees and sometimes shrubs in forests and woodlands from sea level up through mixed conifer forests. Roost sites are often in edge habitats adjacent to streams, fields, or urban areas. Feeds over a wide variety of habitats, including grasslands, shrublands, open woodlands and forests, and croplands.	**Present** Suitable foraging and roosting habitat is present throughout the project site, especially within Zones 2-4. This species was detected during 2024 acoustic bat surveys.
Sorex ornatus salarius Monterey shrew	-- / CSC / --	Mostly moist or riparian woodland habitats, and within chaparral, grassland, and emergent wetland habitats where there is a thick duff or downed logs.	**Unlikely** No suitable riparian woodland habitat is present within the survey area. CNDDB occurrences from the Monterey Peninsula are >80 years old.
Taxidea taxus American badger	-- / CSC / --	Dry, open grasslands, fields, pastures savannas, and mountain meadows near timberline are preferred. The principal requirements seem to be sufficient food, friable soils, and relatively open, uncultivated grounds.	**Unlikely** No suitable grassland habitat is present within the survey area.
BIRDS			
Agelaius tricolor Tricolored blackbird (nesting colony)	-- / ST / --	Nest in colonies in dense riparian vegetation, along rivers, lagoons, lakes, and ponds. Primarily found within willow riparian and emergent wetland habitats. Forages over grassland or aquatic habitats.	**Low** No suitable wetland, riparian, or grassland habitat is present within the survey area.

Species	Status (USFWS/ CDFW/ CNPS)	General Habitat	Occurrence Potential within Survey Area
Athene cunicularia Western burrowing owl	-- / SC / --	Year-round resident of open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. Frequents open grasslands and shrublands with perches and burrows. Use rodent burrows (often California ground squirrel) for roosting and nesting cover. Pipes, culverts, and nest boxes may be substituted for burrows in areas where burrows are not available.	**Low** The survey area lacks open habitat and small mammal burrows preferred by Western burrowing owl.
Brachyramphus marmoratus Marbled murrelet (nesting)	FT / SE / --	Occur year-round in marine subtidal and pelagic habitats from the Oregon border to Point Sal. Partial to coastlines with stands of mature redwood and Douglas-fir. Requires dense mature forests of redwood and/or Douglas-fir for breeding and nesting.	**Unlikely** No suitable redwood forest or Douglas fir habitat is present within the project site.
Charadrius alexandrinus nivosus Western snowy plover	FT / CSC / --	Sandy beaches on marine and estuarine shores, also salt pond levees and the shores of large alkali lakes. Requires sandy, gravelly or friable soil substrate for nesting.	**Unlikely** No suitable beach or shore habitat within the project site.
Coccyzus americanus occidentalis Western yellow-billed cuckoo	FT / SE / --	Inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, slow-moving watercourses, backwaters, or seeps. Willow almost always a dominant component of the vegetation.	**Unlikely** No suitable riparian habitat within the project site.
Coturnicops noveboracensis Yellow rail	-- / CSC / --	Wet meadows and coastal tidal marshes. Occurs year round in California, but in two primary seasonal roles: as a very local breeder in the northeastern interior and as a winter visitor (early Oct to mid-Apr) on the coast and in the Suisun Marsh region	**Unlikely** No suitable marsh habitat within the project site.
Cypseloides niger Black swift	-- / CSC / --	Regularly nests in moist crevice or cave on sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons. Forages widely over many habitats.	**Unlikely** No suitable cliff habitat within the project site.
Elanus leucurus **White-tailed kite (nesting)**	-- / CFP / --	Open groves, river valleys, marshes, and grasslands. Prefer such areas with low roosts (fences etc.). Nest in shrubs and trees adjacent to grasslands.	**Moderate** Moderate nesting potential for white-tailed kite is present in the project area within Monterey pine forest. This species has been observed in GWP in 2019 (Dudek, 2023).

Species	Status (USFWS/ CDFW/ CNPS)	General Habitat	Occurrence Potential within Survey Area
Gymnogyps californianus California condor	FE / SE / --	Roosting sites in isolated rocky cliffs, rugged chaparral, and pine covered mountains 2000-6000 feet above sea level. Foraging area removed from nesting/roosting site (includes rangeland and coastal area - up to 19-mile commute one way). Nest sites in cliffs, crevices, potholes.	**Unlikely** No suitable habitat within the project site.
Hydrobates homochroa Ashy storm-petrel	-- / CSC / --	Tied to land only to nest, otherwise remains over open sea. Nests in natural cavities, sea caves, or rock crevices on offshore islands and prominent peninsulas of the mainland.	**Unlikely** No suitable habitat within the project site.
Laterallus jamaicensis coturniculus California black rail	--/ ST&CFP/ -	Inhabits freshwater marshes, wet meadows & shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that does not fluctuate during the year & dense vegetation for nesting habitat.	**Unlikely** No suitable marsh habitat within the project site.
Riparia riparia Bank swallow (nesting)	-- / ST / --	Nests colonially in sand banks. Found near water; fields, marshes, streams, and lakes.	**Unlikely** No suitable bank and aquatic habitat within the project site.
Vireo bellii pusillus Least Bell's vireo (nesting)	FE / SE / --	Riparian areas and drainages. Breed in willow riparian forest supporting a dense, shrubby understory. Oak woodland with a willow riparian understory is also used in some areas, and individuals sometimes enter adjacent chaparral, coastal sage scrub, or desert scrub habitats to forage.	**Unlikely** No suitable riparian habitat within the project site. The nearest CNDDB occurrence is 21 miles away along Pajaro River.
Sternula antillarum browni California least tern	FE / SE / --	Prefers undisturbed nest sites on open, sandy/gravelly shores near shallow-water feeding areas in estuaries. Sea beaches, bays, large rivers, bars.	**Unlikely** No suitable habitat within the project site.
REPTILES AND AMPHIBIANS			
Ambystoma californiense California tiger salamander	FT / ST / --	Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Need underground refuges and vernal pools or other seasonal water sources.	**Unlikely** No suitable grassland habitat or seasonal water sources are present within or adjacent to the survey area. The nearest CTS occurrence is 7 miles from the site. This distance exceeds the known movement capability of CTS (1.3 miles).

Species	Status (USFWS/ CDFW/ CNPS)	General Habitat	Occurrence Potential within Survey Area
Anniella pulchra **California legless lizard** (includes *A. p. nigra* and *A. p. pulchra* as recognized by the Department)	-- / CSC / --	Requires moist, warm habitats with loose soil for burrowing and prostrate plant cover. Often forages in leaf litter at plant bases. May be found on beaches, sandy washes, and in woodland, chaparral, and riparian areas.	**Present** Documented in the southwest corner of GWP by CNDDB Occurrence 375 where one individual was found in 2017 in an area of sandy soil. The project activities do not propose soil disturbance and therefore are unlikely to impact this species.
Emys marmorata western pond turtle	FC / CSC / --	Associated with permanent or nearly permanent water in a wide variety of habitats including streams, lakes, ponds, irrigation ditches, etc. Require basking sites such as partially submerged logs, rocks, mats of vegetation, or open banks.	**Unlikely** No suitable aquatic habitat is present within or adjacent to the survey area.
Phrynosoma blainvillii Coast horned lizard	-- / CSC / --	Associated with open patches of sandy soils in washes, chaparral, scrub, and grasslands.	**Low** No suitable chaparral, scrub, or grassland habitat is present within the survey area. Known from Former Fort Ord, approximately 7 miles from project site.
Rana boylii Foothill yellow-legged frog	FE / SE / --	Partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats, including hardwood, pine, and riparian forests, scrub, chaparral, and wet meadows. Rarely encountered far from permanent water.	**Unlikely** No suitable riverine habitat is present within the survey area.
Rana draytonii California red-legged frog	FT / CSC / --	Lowlands and foothills in or near permanent or late-season sources of deep water with dense, shrubby, or emergent riparian vegetation. During late summer or fall adults are known to utilize a variety of upland habitats with leaf litter or mammal burrows.	**Low** There are no known occurrences within 1.0 mile (1.6 km), the known dispersal distance of the species. The nearest CNDDB occurrence is 2.4 miles southwest of the survey area in Seal Rock Creek. No freshwater aquatic resources occur within 300 meters of the survey area.
Taricha torosa Coast Range newt	-- / CSC / --	Occur mainly in valley-foothill hardwood, valley-foothill hardwood-conifer, coastal scrub, and mixed chaparral, but is known to occur in grasslands and mixed conifer types. Seek cover under rocks and logs, in mammal burrows, rock fissures, or man-made structures such as wells. Breed in intermittent ponds, streams, lakes, and reservoirs.	**Unlikely** No suitable breeding habitat is present within or adjacent to the survey area to support this species. The nearest CNDDB occurrence is approximately 7.5 miles away in the Santa Lucia range.

Species	Status (USFWS/ CDFW/ CNPS)	General Habitat	Occurrence Potential within Survey Area
FISH			
Eucyclogobius newberryi Tidewater goby	FE / -- / --	Brackish water habitats, found in shallow lagoons and lower stream reaches. Tidewater gobies appear to be naturally absent (now and historically) from three large stretches of coastline where lagoons or estuaries are absent and steep topography or swift currents may prevent tidewater gobies from dispersing between adjacent localities. The southernmost large, natural gap occurs between the Salinas River in Monterey County and Arroyo del Oso in San Luis Obispo County.	**Not Present** No suitable habitat within the project site.
Lavinia exilicauda harengus Monterey hitch (Pajaro/Salinas hitch)	-- / CSC / --	Found only within the Pajaro and Salinas River systems. Can occupy a wide variety of habitats, however, they are most abundant in lowland areas with large pools or small reservoirs that mimic such conditions. May be found in brackish water conditions within the Salinas River lagoon during the early summer months when the sandbar forms at the mouth of the river.	**Not Present** No suitable habitat within the project site.
Oncorhynchus mykiss irideus Steelhead-central California coast.	FT / -- / --	Coastal perennial and near perennial streams, with suitable spawning and rearing habitat and no major barriers.	**Not Present** No suitable habitat within the project site.
INVERTEBRATES			
Bombus crotchii Crotch bumble bee	-- / SC / --	Occurs in open grassland and scrub at relatively warm and dry sites. Requires plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle, which is from early February to late October. Generally nests underground, often in abandoned mammal burrows. Within California this species is known to occur in the Mediterranean, Pacific Coast, Western Desert, as well as Great Valley and adjacent foothill regions.	**Not Present** There are no CNDDB occurrences of this species within the quadrangles reviewed; however, this species has been observed in Carmel Valley in 2022, approximately 26 miles southeast of the project site. Project site is within the current range of this species but does not contain its preferred grassland or scrub habitat. This species was not observed during focused bumble bee surveys performed in 2024 (**Appendix F**).

Species	Status (USFWS/ CDFW/ CNPS)	General Habitat	Occurrence Potential within Survey Area
Bombus occidentalis Western bumble bee	-- / SC / --	Found in a range of habitats, including mixed woodlands, farmlands, urban parks and gardens, montane meadows, and prairie grasslands. Requires plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle, which is from early February to late November. Generally nests underground, often in abandoned mammal burrows.	**Not Present** Project site supports suitable mixed woodland habitat with flowering plants but lies outside the current known range of this species. Three CNDDB records exist from the Monterey Peninsula, but all are more than 50 years old. This species was not observed during focused bumble bee surveys performed in 2024 (**Appendix F**).
Branchinecta lynchi Vernal pool fairy shrimp	FT / -- / --	Associated with vernal pool/grasslands from near Red Bluff (Shasta County), through the central valley, and into the South Coast Mountains Region. Require ephemeral pools with no flow.	**Unlikely** Vernal pools are absent from the project site.
Danaus plexippus **Monarch butterfly**	FC / -- / --	Overwinters in coastal California using colonial roosts generally found in eucalyptus, pine, and acacia trees. Overwintering habitat for this species within the Coastal Zone represents ESHA. Local ordinances often protect this species as well.	**Present** The survey area contains suitable overwintering sites for this species. A historic overwintering site is documented in Zone 3 of GWP as CNDDB Occurrence 89, Xerces Society Site #2934. Overwintering monarch butterflies have not been observed here since 2006.
Euphilotes enoptes smithi Smith's blue butterfly	FE / -- / --	Most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz Counties. Plant hosts are *Eriogonum latifolium* and *E. parvifolium*.	**Unlikely** No suitable habitat is present within the survey area. The plant host species were not identified during 2024 surveys.
PLANTS			
Allium hickmanii Hickman's onion	-- / -- / 1B	Closed-cone coniferous forests, maritime chaparral, coastal prairie, coastal scrub, and valley and foothill grasslands at elevations of 5-200 meters. Bulbiferous perennial herb in the Alliaceae family; blooms March-May.	**Not Present** Project site contains suitable closed-cone coniferous forest habitat. Numerous CNDDB occurrences within Monterey pine forest on the Monterey Peninsula, the nearest of which is approximately 1.4 miles to the southeast. Not observed within the project site during 2024 botanical surveys.

Species	Status (USFWS/ CDFW/ CNPS)	General Habitat	Occurrence Potential within Survey Area
Aphyllon robbinsii Robbins' broomrape	-- / -- / 1B	Coastal bluff scrub and coastal dunes in sandy or loose soils at elevations of 0 - 100 meters. Annual plant that is parasitic on *Eriophyllum staechadifolium*.	**Not Present** No suitable habitat within the survey area. Host plant species absent from survey area. Not observed within the project site during 2024 botanical surveys.
Arctostaphylos edmundsii Little Sur manzanita	-- / -- / 1B	Coastal bluff scrub and chaparral on sandy soils at elevations of 30-105 meters. Evergreen shrub in the Ericaceae family; blooms November-April.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Arctostaphylos hookeri ssp. *hookeri* Hooker's manzanita	-- / -- / 1B	Closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub on sandy soils at elevations of 85-536 meters. Evergreen shrub in the Ericaceae family; blooms January-June.	**Not Present** Not observed within the project site during 2024 botanical surveys.
Arctostaphylos montereyensis Monterey manzanita	-- / -- / 1B	Maritime chaparral, cismontane woodland, and coastal scrub on sandy soils at elevations of 30-730 meters. Evergreen shrub in the Ericaceae family; blooms February-March.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Arctostaphylos pajaroensis Pajaro manzanita	-- / -- / 1B	Chaparral on sandy soils at elevations of 30-760 meters. Evergreen shrub in the Ericaceae family; blooms December-March.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Arctostaphylos pumila Sandmat manzanita	-- / -- / 1B	Openings of closed-cone coniferous forests, maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub on sandy soils at elevations of 3-205 meters. Evergreen shrub in the Ericaceae family; blooms February-May.	**Not Present** Not observed within the project site during 2024 botanical surveys.
Arenaria paludicola Marsh sandwort	FE / SE / 1B	Known from only two natural occurrences in Black Lake Canyon and at Oso Flaco Lake. Sandy openings of freshwater of brackish marshes and swamps at elevations of 3-170 meters. Stoloniferous perennial herb in the Caryophyllaceae family; blooms May-August.	**Not Present** Project site is not near the two known occurrences. Not observed within the project site during 2024 botanical surveys.
Castilleja ambigua var. insalutata Pink johnny-nip	-- / -- / 1B	Coastal prairie and coastal scrub at elevations of 0-100 meters. Annual herb in the Orobanchaceae family; blooms May-August.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.

Species	Status (USFWS/ CDFW/ CNPS)	General Habitat	Occurrence Potential within Survey Area
Centromadia parryi ssp. *congdonii* Congdon' tarplant	-- / -- /1B	Valley and foothill grassland on alkaline soils at elevations of 0-230 meters. Annual herb in the Asteraceae family; blooms May-November.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Chorizanthe minutiflora Fort Ord spineflower	-- / -- / 1B	Sandy openings of maritime chaparral and coastal scrub at elevations of 55-150 meters. Only known occurrences on Fort Ord National Monument. Annual herb in the Polygonaceae family; blooms April-July.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Chorizanthe pungens var. *pungens* Monterey spineflower	FT / -- / 1B	Maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland on sandy soils at elevations of 3-450 meters. Annual herb in the Polygonaceae family; blooms April-July.	**Not Present** Known from nearby dune and coastal bluff habitats at Asilomar Dunes and Point Pinos, but project site lacks open sandy areas preferred by this species. Not observed within the project site during 2024 botanical surveys.
Clarkia jolonensis Jolon clarkia	-- / -- / 1B	Cismontane woodland, chaparral, riparian woodland, and coastal scrub at elevations of 20-660 meters. Annual herb in the Onagraceae family; blooms April-June.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Collinsia multicolor San Francisco collinsia	-- / -- / 1B	Closed-cone coniferous forest and coastal scrub, sometimes on serpentinite soils, at elevations of 30-250 meters. Annual herb in the Plantaginaceae family; blooms March-May.	**Not Present** Suitable habitat in closed-cone coniferous forest within the survey area. Not observed within the project site during 2024 botanical surveys.
Cordylanthus rigidus ssp. *littoralis* Seaside bird's-beak	-- / SE / 1B	Closed-cone coniferous forests, maritime chaparral, cismontane woodlands, coastal dunes, and coastal scrub on sandy soils, often on disturbed sites, at elevations of 0-425 meters. Annual hemi-parasitic herb in the Orobanchaceae family; blooms April-October.	**Not Present** Suitable habitat in closed-cone coniferous forest within the survey area. Not observed within the project site during 2024 botanical surveys.
Delphinium californicum ssp. *interius* Hospital Canyon California larkspur	-- / -- / 1B	Openings in chaparral, coastal scrub, and mesic areas of cismontane woodland at elevations of 230-1095 meters. Perennial herb in the Ranunculaceae family; blooms April-June.	**Not Present** No suitable habitat within the survey area. Survey area outside of elevation range of species. Not observed within the project site during 2024 botanical surveys.

Species	Status (USFWS/ CDFW/ CNPS)	General Habitat	Occurrence Potential within Survey Area
Delphinium hutchinsoniae Hutchinsons' larkspur	-- / -- / 1B	Broadleaved upland forest, chaparral, coastal scrub, and coastal prairie at elevations of 0-427 meters. Perennial herb in the Ranunculaceae family; blooms March-June.	**Not Present** No suitable habitat within the survey area. Survey area outside of elevation range of species. Not observed within the project site during 2024 botanical surveys.
Ericameria fasciculata Eastwood's goldenbush	-- / -- / 1B	Openings in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub on sandy soils at elevations of 30-275 meters. Evergreen shrub in the Asteraceae family; blooms July-October.	**Not Present** Suitable habitat in closed-cone coniferous forest within the survey area. Not observed within the project site during 2024 botanical surveys.
Eriogonum nortonii Pinnacles buckwheat	-- / -- / 1B	Chaparral and valley and foothill grassland on sandy soils, and often on recent burns, at elevations of 300-975 meters. Annual herb in the Polygonaceae family; blooms May-September.	**Not Present** No suitable habitat within the survey area. Survey area outside of elevation range of species. Not observed within the project site during 2024 botanical surveys.
Eryngium montereyense Fort Ord button-celery	-- / -- / 1B	Vernally moist swales and vernal pools in valley and foothill grassland surrounded by maritime chaparral and coast live oak woodland on marine sedimentary substrate at elevations or 120-180 meters. Perennial herb in the Apiaceae family; blooms March-May.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Erysimum ammophilum Coast wallflower	-- / -- / 1B	Openings in maritime chaparral, coastal dunes, and coastal scrub on sandy soils at elevations of 0-60 meters. Perennial herb in the Brassicaceae family; blooms February-June.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Erysimum menziesii Menzies' wallflower	FE / SE / 1B	Coastal dunes at elevations of 0-35 meters. Perennial herb in the Brassicaceae family; blooms March-September.	**Not Present** No suitable habitat within the survey area. Known from nearby dune and coastal bluff habitats at Asilomar Dunes and Point Pinos, but project site lacks open sandy areas preferred by this species. Not observed within the project site during 2024 botanical surveys.
Fritillaria liliacea Fragrant fritillaria	-- / -- / 1B	Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland, often serpentinite, at elevations of 3-410 meters. Bulbiferous perennial herb in the Liliaceae family; blooms February-April.	**Not Present** Not observed within the project site during 2024 botanical surveys.

Species	Status (USFWS/ CDFW/ CNPS)	General Habitat	Occurrence Potential within Survey Area
Gilia tenuiflora ssp. arenaria Sand gilia	FE / ST / 1B	Openings in maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub on sandy soils at elevations of 0-45 meters. Annual herb in the Polemoniaceae family; blooms April-June.	**Not Present** Known from nearby dune habitats at Asilomar Dunes, but project site lacks open sandy areas preferred by this species. Not observed within the project site during 2024 botanical surveys.
Hesperocyparis goveniana Gowen cypress	FT / -- / 1B	Closed-cone coniferous forest and maritime chaparral at elevations of 30-300 meters. Evergreen tree in the Cupressaceae family. Natively occurring only at Point Lobos near Gibson Creek and the Huckleberry Hill Nature Preserve near Highway 68.	**Not Present** Not observed within the project site during 2024 botanical surveys.
Hesperocyparis macrocarpa **Monterey cypress**	-- / -- / 1B	Closed-cone coniferous forest at elevations of 10-30 meters. Evergreen tree in the Cupressaceae family. Natively occurring only at Cypress Point in Pebble Beach and Point Lobos State Park; widely planted and naturalized elsewhere.	**Present** The survey area is outside of the historic native occurrences of Monterey cypress mapped by the CNDDB. Monterey cypress trees are found within GWP but are naturalized individuals and are not afforded the same management protections as Monterey cypress trees in native stands.
Horkelia cuneata ssp. sericea Kellogg's horkelia	-- / -- / 1B	Closed-cone coniferous forests, maritime chaparral, and openings in coastal scrub on sandy or gravelly soils at elevations of 10-200 meters. Perennial herb in the Rosaceae family; blooms April-September.	**Not Present** Suitable habitat in closed-cone coniferous forest within the survey area. Not observed within the project site during 2024 botanical surveys.
Horkelia marinensis Point Reyes horkelia	-- / -- / 1B	Coastal dunes, coastal prairie, and coastal scrub on sandy soils at elevations of 5-350 meters. Perennial herb in the Rosaceae family; blooms May-September.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Lasthenia conjugens Contra Costa goldfields	FE / -- / 1B	Mesic areas of valley and foothill grassland, alkaline playas, cismontane woodland, and vernal pools at elevations of 0-470 meters. Annual herb in the Asteraceae family; blooms March-June.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Layia carnosa Beach layia	FE / SE / 1B	Coastal dunes and coastal scrub on sandy soils at elevations of 0-60 meters. Annual herb in the Asteraceae family; blooms March-July.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.

Species	Status (USFWS/ CDFW/ CNPS)	General Habitat	Occurrence Potential within Survey Area
Lupinus tidestromii Tidestrom's lupine	FE / SE / 1B	Coastal dunes at elevations of 0-100 meters. Perennial rhizomatous herb in the Fabaceae family; blooms April-June.	**Not Present** No suitable habitat within the survey area. Known from nearby dune habitats at Asilomar Dunes, but project site lacks open sandy areas preferred by this species. Not observed within the project site during 2024 botanical surveys.
Malacothamnus palmeri var. *involucratus* Carmel Valley bush mallow	-- / -- / 1B	Chaparral, cismontane woodland, and coastal scrub at elevations of 30-1100 meters. Deciduous shrub in the Malvaceae family; blooms May-August.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Malacothrix saxatilis var. *arachnoidea* Carmel Valley malacothrix	-- / -- / 1B	Chaparral and coastal scrub on rocky soils at elevations of 25-1036 meters. Perennial rhizomatous herb in the Asteraceae family; blooms June-December.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Microseris paludosa Marsh microseris	-- / -- /1B	Mesic areas of closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grasslands at elevations of 3-300 meters. Perennial herb in the Asteraceae family; blooms April-June (July).	**Not Present** Marginal habitat in low-lying areas of closed-cone coniferous forest within the survey area. Not observed within the project site during 2024 botanical surveys.
Monardella sinuata ssp. *nigrescens* Northern curly-leaved monardella	-- / -- /1B	Chaparral, coastal dunes, coastal scrub, and lower montane coniferous forest (ponderosa pine sandhills) on sandy soils at elevations of 0-300 meters. Annual herb in the Lamiaceae family; blooms April-September.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Monolopia gracilens Woodland wollythreads	-- / -- / 1B	Chenopod scrub and valley and foothill grassland on sandy soils at elevations of 60-800 meters. Annual herb in the Asteraceae family; blooms: February-May.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Pinus radiata **Monterey pine**	-- / -- / 1B	Closed-cone coniferous forest at elevations of 25-185 meters. Evergreen tree in the Pinaceae family. Only three native stands in CA, at Ano Nuevo, Cambria, and the Monterey Peninsula; introduced in many areas.	**Present** Monterey pines within the survey area belong to CNDDB Occurrence 4, which identifies the native range of this species within the Monterey Peninsula and the surrounding area.

Species	Status (USFWS/ CDFW/ CNPS)	General Habitat	Occurrence Potential within Survey Area
Piperia yadonii **Yadon's rein orchid**	FE / -- / 1B	Sandy soils in coastal bluff scrub, closed-cone coniferous forest, and maritime chaparral at elevations of 10-510 meters. Annual herb in the Orchidaceae family; blooms May-August.	**Present** Non-specific CNDDB Occurrence 4 includes all of GWP. This species observed during 2023 and marked by City of Pacific Grove and confirmed by DD&A during 2024 botanical surveys.
Plagiobothrys uncinatus Hooked popcorn flower	-- / -- / 1B	Chaparral, cismontane woodlands, valley and foothill grasslands on sandy soils; elevation 300-760 meters. Annual herb in the Boraginaceae family, blooms April-May.	**Not Present** Survey area outside of elevation range of species. Not observed within the project site during 2024 botanical surveys.
Potentilla hickmanii Hickman's cinquefoil	FE / SE / 1B	Coastal bluff scrub, closed-cone coniferous forests, vernally mesic meadows, and freshwater marshes and swamps at elevations of 10-149 meters. Perennial herb in the Rosaceae family; blooms April-August.	**Not Present** Suitable habitat in closed-cone coniferous forest within the survey area. Not observed within the project site during 2024 botanical surveys.
Ramalina thrausta Angel's hair lichen	-- / -- / 2B	North coast coniferous forest on dead twigs and other lichens. Epiphytic fructose lichen in the Ramalinaceae family. In northern CA it is usually found on dead twigs, and has been found on *Alnus rubra*, *Calocedrus decurrens*, *Pseudotsuga menziesii*, *Quercus garryana*, and *Rubus spectabilis*. In Sonoma County it grows on and among dangling mats of *R. menziesii* and *Usnea* spp.	**Not Present** No suitable habitat is present within the project site. Not observed within the project site during the 2024 botanical surveys. None of the host species are present within the project site.
Rosa pinetorum Pine rose	-- / -- / 1B	Closed-cone coniferous forest at elevations of 2-300 meters. Shrub in the Rosaceae family; blooms May-July. Possible hybrid of *R. spithamea*, *R. gymnocarpa*, or others; further study needed.	**Not Present** Suitable habitat in closed-cone coniferous forest within the survey area. Not observed within the project site during 2024 botanical surveys.
Stebbinsoseris decipiens Santa Cruz microseris	-- / -- / 1B	Broadleaved upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and openings in valley and foothill grassland, sometimes on serpentinite, at elevations of 10-500 meters. Annual herb in the Asteraceae family; blooms April-May.	**Not Present** Suitable habitat in closed-cone coniferous forest within the survey area. Not observed within the project site during 2024 botanical surveys.

Species	Status (USFWS/ CDFW/ CNPS)	General Habitat	Occurrence Potential within Survey Area
Sulcaria spiralifera Twisted horsehair lichen	-- / -- / 1B	California North Coast coniferous forest at elevations of 0–30 meters. Often found on conifers, including *Picea sitchensis, Pinus contorta var. contorta, Pseudotsuga menziesii, Abies grandis*, and *Tsuga heterophylla*. Fruticose lichen in the Parmeliaceae family.	**Not Present** No suitable habitat is present within the project site. Not observed within the survey area during the 2024 botanical surveys. None of the host species are present within the project site.
Tortula californica California screw moss	-- / -- / 1B	Valley and foothill grassland and chenopod scrub on sandy soils at elevations of 10-1460. Moss in the Pottiaceae family.	**Not Present** No suitable habitat is present within the project site. Not observed within the survey area during the 2024 botanical surveys.
Trifolium buckwestiorum Santa Cruz clover	-- / -- / 1B	Broadleaved upland forest, cismontane woodland, and margins of coastal prairie on gravelly soils at elevations of 105-610 meters. Annual herb in the Fabaceae family; blooms April-October.	**Not Present** Survey area outside of elevation range of species. Not observed within the project site during 2024 botanical surveys.
Trifolium hydrophilum Saline clover	-- / -- / 1B	Marshes and swamps, valley and foothill grassland (mesic, alkaline), and vernal pools at elevations of 0-300 meters. Annual herb in the Fabaceae family; blooms April-June.	**Not Present** No suitable habitat within the survey area. Not observed within the project site during 2024 botanical surveys.
Trifolium polyodon Pacific Grove clover	-- / SR / 1B	Closed-cone coniferous forest, coastal prairie, meadows and seeps, and mesic areas in valley and foothill grassland at elevations of 5-120 meters. Annual herb in the Fabaceae family; blooms April-June.	**Not Present** Suitable habitat in closed-cone coniferous forest within the survey area. Not observed within the project site during 2024 botanical surveys.
Trifolium trichocalyx Monterey clover	FE / SE / 1B	Sandy openings and burned areas of closed-cone coniferous forest at elevations of 30-240 meters. Annual herb in the Fabaceae family; blooms April-June.	**Not Present** Suitable habitat in closed-cone coniferous forest within the survey area. Not observed within the project site during 2024 botanical surveys.

STATUS DEFINITIONS:

Federal

FC = federal candidate species for listing under ESA
FE = listed as Endangered under ESA
FT = listed as Threatened under ESA
-- = not listed

State

SC = state candidate species for listing under CESA
SE = listed as Endangered under CESA
ST = listed as Threatened under CESA
SR = listed as Rare under CESA
CSC = CDFW Species of Special Concern
CFP = California Fully Protected Species
-- = not listed

California Native Plant Society

1B = List 1B species; rare, threatened, or endangered in California
2B = List 2B species; rare, threatened, or endangered in California but more common elsewhere

POTENTIAL TO OCCUR

Present – known occurrence of species within the site; presence of suitable habitat conditions; or observed during field surveys
High – known occurrence of species in the vicinity from the CNDDB or other documentation; presence of suitable habitat conditions
Moderate – known occurrence of species in the vicinity from the CNDDB or other documentation; presence of marginal habitat conditions
Low – species known to occur in the vicinity from the CNDDB or other documentation; presence of low quality habitat conditions
Unlikely – species not known to occur in the vicinity from the CNDDB or other documentation; no suitable habitat is present
Not Present – species not observed during surveys

APPENDIX D

List of Flora and Fauna Observed

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George Washington Park Biological Resources Report
Plant Species Observations - 2024

Common Name	Botanical Name	Status	Cal IPC	2024 DD&A	1999 Master Plan	2022 Forest Management Plan
Bailey acacia	*Acacia baileyana*				x	
Sydney golden wattle	*Acacia longifolia*		Watch list	x	x	
black acacia	*Acacia melanoxylon*		Limited			x
common yarrow	*Achillea millefolium*			x	x	
dandelion	*Agoseris aparagioides*			x	x	
bent grass	*Agrostis spp.*			x	x	
belladonna lily	*Amaryllis belladonna*			x		x
Norfolk Island pine	*Araucaria excelsa*				x	
western dwarf mistletoe	*Arceuthobium campylopodum*					x
shaggy bark manzanita	*Arctostaphylos tomentosa*				x	
sterile capeweed	*Arctotheca prostrata*					x
mugwort	*Artemisia douglasiana*					x
slender wild oat	*Avena barbata*		Moderate	x	x	x
wild oat	*Avena fatua*		Moderate			x
coyote brush	*Baccharis pilularis*				x	
common borage	*Borago officinalis*					x
field mustard	*Brassica rapa*		Limited			x
rattlesnake grass	*Briza maxima*		Limited	x	x	x
golden brodiaea	*Brodiaea lutea*				x	
California brome	*Bromus carinatus*			x	x	
rescue grass	*Bromus catharticus*			x		
ripgut brome	*Bromus diandrus*		Moderate	x		x
softchess	*Bromus hordeaceus*		Limited	x		x
foxtail chess	*Bromus madritensis*			x	x	
tufted pine grass	*Calamagrostis koelerioides*				x	
Pacific reed grass	*Calamagrostis nutkaensis*				x	
globe lily	*Calochortus albus*				x	
milk maids	*Cardamine californica*				x	
sand mat	*Cardionema ramosissimum*					x
Italian thistle	*Carduus pycnocephala*		Moderate	x		x
sand dune sedge	*Carex pansa*			x	x	
clustered field sedge	*Carex praegracilis*					x
Hottentot fig	*Carpobrotus edulis*		High	x	x	
California lilac	*Ceanothus thyrsiflorus*			x	x	x
wavyleaf soap plant	*Chlorogalum pomeridianum*			x		
rockrose	*Cistus sp.*				x	
miner's lettuce	*Claytonia perfoliata*			x	x	
yerba buena	*Clinopodium douglasii*			x	x	x
jubata grass	*Cortaderia jubata*		High		x	
montbretia	*Crocosmia crocosmiiflora*				x	
dogtail grass	*Cynosurus echinatus*		Moderate	x		
broom	*Cytisus scoparius*		High			x
Cape ivy	*Delairea odorata*		High	x		x
hair grass	*Deschampsia sp.*				x	
blue dicks	*Dichelostemma capitatum*				x	
sticky monkey flower	*Diplacus aurantiacus*			x	x	x
wood fern	*Dryopteris arguta*				x	
pride of Madeira	*Echium candicans*		Limited	x	x	x
panic veldtgrass	*Ehrharta erecta*		Moderate	x		x

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Common Name	Botanical Name	Status	Cal IPC	2024 DD&A	1999 Master Plan	2022 Forest Management Plan
giant wild rye	*Elymus condensatus*			x	x	x
creeping ryegrass	*Elymus triticoides*					x
flax-leaved horseweed	*Erigeron bonariensis*			x		
Canadian horseweed	*Erigeron canadensis*			x		x
lizard tail	*Eriophyllum staechadifolium*				x	
red-stemmed filaree	*Erodium circutarium*				x	
rat-tail fescue	*Festuca myuros*		Moderate	x	x	
perennial ryegrass	*Festuca perennis*		Moderate	x		x
red fescue	*Festuca rubra*				x	
sweet fennel	*Foeniculum vulgare*		Moderate	x		
California coffeeberry	*Frangula californica*			x	x	x
goosegrass	*Galium aparine*			x		x
California bedstraw	*Galium californicum*			x		
French broom	*Genista monspessulana*		High	x	x	
dove's foot geranium	*Geranium molle*			x		
English ivy	*Hedera helix*		High	x		x
Monterey cypress	***Hesperocyparus macrocarpa***	**-/-/1B**		x	x	x
toyon	*Heteromeles arbutifolia*			x	x	
velvet grass	*Holcus lanatus*		Moderate	x		
meadow barley	*Hordeum brachyantherum*			x		
foxtail barley	*Hordeum muriun*			x		x
witch's teeth	*Hosackia gracilis*			x		
English holly	*Ilex aquifolium*		Limited	x	x	
Douglas iris	*Iris douglasiana*			x	x	
common bog rush	*Juncus hesperius*			x		
salt rush	*Juncus lescurii*					x
Mexican rush	*Juncus mexicanus*			x		
Pacific pea	*Lathyrus vestitus*			x	x	x
hairy honeysuckle	*Lonicera hispidula*			x	x	x
yellow bush lupine	*Lupinus arboreus*				x	
wild cucumber	*Marah fabacea*			x	x	x
bur clover	*Medicago polymorpha*		Limited		x	
lollypop tree	*Myoporum laetum*		Moderate	x		x
redwood sorrel	*Oxalis oregana*				x	
Bermuda buttercup	*Oxalis pes-caprae*		Moderate	x	x	
kikuyu grass	*Pennisetum clandestinum*		Limited	x	x	
stinging phacelia	*Phacelia malvifolia*			x		
branching phacelia	*Phacelia ramosissima*					x
Monterey pine	***Pinus radiata***	**-/-/1B**		x	x	x
Yadon's piperia	***Piperia yadonii***	**FE/-/1B**		x	x	
flowering plum	*Prunus sp.*			x	x	
cottonbatting plant	*Pseudognaphalium stramineum*					x
western brackenfern	*Pteridium aquilinium*			x	x	x
coast live oak	*Quercus agrifolia*			x	x	x
Califoria buttercup	*Ranunculus californicus*				x	
chaparral currant	*Ribes malvaceum*				x	x
pink flowering currant	*Ribes sanguineum glutinosum*				x	
California blackberry	*Rubus ursinus*			x	x	x
curly dock	*Rumex crispus*			x		
coast redwood	*Sequoia sempervirens*			x	x	x

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Common Name	Botanical Name	Status	Cal IPC	2024 DD&A	1999 Master Plan	2022 Forest Management Plan
blue-eyed grass	*Sisyrinchium bellum*				x	
Douglas' nightshade	*Solanum douglasii*			x		
hedge nettle	*Stachys bullata*			x	x	x
chickweed	*Stellaria media*			x		
creeping snowberry	*Symphoicarpos mollis*			x	x	
poison oak	*Toxicodendron diversilobum*			x	x	x
nasturtium	*Tropaeolum majus*				x	
evergreen huckleberry	*Vaccinium ovatum*				x	
vetch	*Vicia sp.*			x	x	
calla lily	*Zantedeschia aethiopica*			x	x	
Fremont's star lily	*Zigadenus fremontii*				x	

Notes:
FE - Federal endangered
1B = List 1B species; rare, threatened, or endangered in California

APPENDIX D
George Washington Park Biological Resources Report
Wildlife Species Observations - 2024

Common Name	Scientific Name	Status
	Birds	
Scrub jay	*Aphelocoma californica*	
Oak titmouse	*Baeolophus inornatus*	
Great horned owl	*Bubo virginianus*	
Red tailed hawk	*Buteo jamaicensis*	
Red shouldered hawk	*Buteo lineatus*	
Anna's hummingbird	*Calypte anna*	
American crow	*Corvus brachyrhynchos*	
Stellar jay	*Cyanocitta stelleri*	
Nuttall's woodpecker	*Dryobates nuttallii*	
Pacific slope flycatcher	*Empidonax difficilis*	
House finch	*Haemorhous mexicanus*	
Dark-eyed junco	*Junco hyemalis*	
Hairy woodpecker	*Leuconotopicus villosus*	
Acorn woodpecker	*Melanerpes formicivorus*	
Song sparrow	*Melospiza melodia*	
California towhee	*Melozone crissalis*	
Band tailed pigeon	*Patagioenas fasciata*	
Spotted towhee	*Pipilo maculatus*	
Chestnut-backed chickadee	*Poecile rufescens*	
Bushtit	*Psaltriparus minimus*	
Black phoebe	*Sayornis nigricans*	
Townsend's warbler	*Setophaga townsendi*	
Pygmy nuthatch	*Sitta pygmaea*	
Lesser goldfinch	*Spinus psaltria*	
Collared dove	*Streptopelia decaocto*	
European starling	*Sturnus vulgaris*	
Tree swallow	*Tachycineta bicolor*	
Bewick's wren	*Thryomanes bewickii*	
Hutton's vireo	*Vireo huttoni*	
Mourning dove	*Zenaida macroura*	
	Mammals	
Coyote	*Canis latrans*	
Big brown bat	*Eptesicus fuscus*	
Silver-haired bat	*Lasionyteris noctavagans*	
Hoary bat	*Lasiurus cinereus*	
Western red bat	***Lasiurus frantzii***	**CSC**
Western small-footed myotis	*Myotic ciliolabrum*	
California myotis	*Myotis californicus*	
Little brown bat	*Myotis lucifugus*	
Yuma myotis	*Myotis yumanensis*	
Black tailed deer	*Odocoileus hemionus*	
Western pipistrelle	*Parastrellus hesperus*	
Western gray squirrel	*Sciurus griseus*	
Mexican free-tailed bat	*Tadarida braziliensis*	
	Invertebrates	
Vosnesensky bumble bee	*Bombus vosnesenskii*	
Monarch butterfly	***Danaus plexippus***	**FC**

Notes:
CSC = CDFW Species of Special Concern
FC = federal candidate species for listing under ESA

APPENDIX E

Avian Survey Results

Appendix E
George Washington Park Biological Resources Report
Summary of Avian Point Count Data

Table 1. Summary of Total Avian Species Diversity

Zone	Shannon Diversity	Species Richness
Zone 1	2.35	14
Zone 2	2.42	16
Zone 3	2.35	16
Zone 4	2.53	16
All Zones Combined	2.65	26

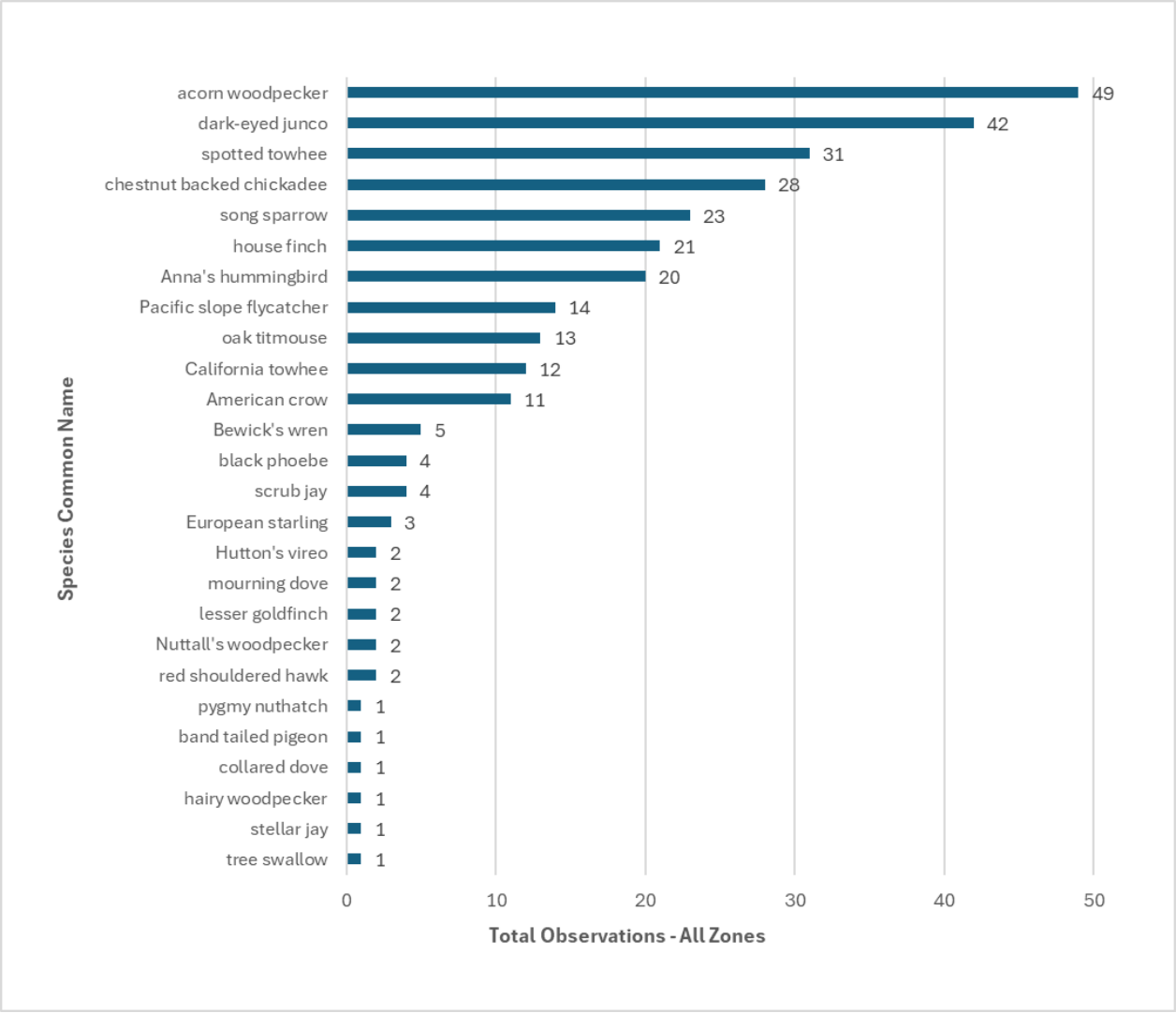


Figure 1. Summary of Total Point Count Observations

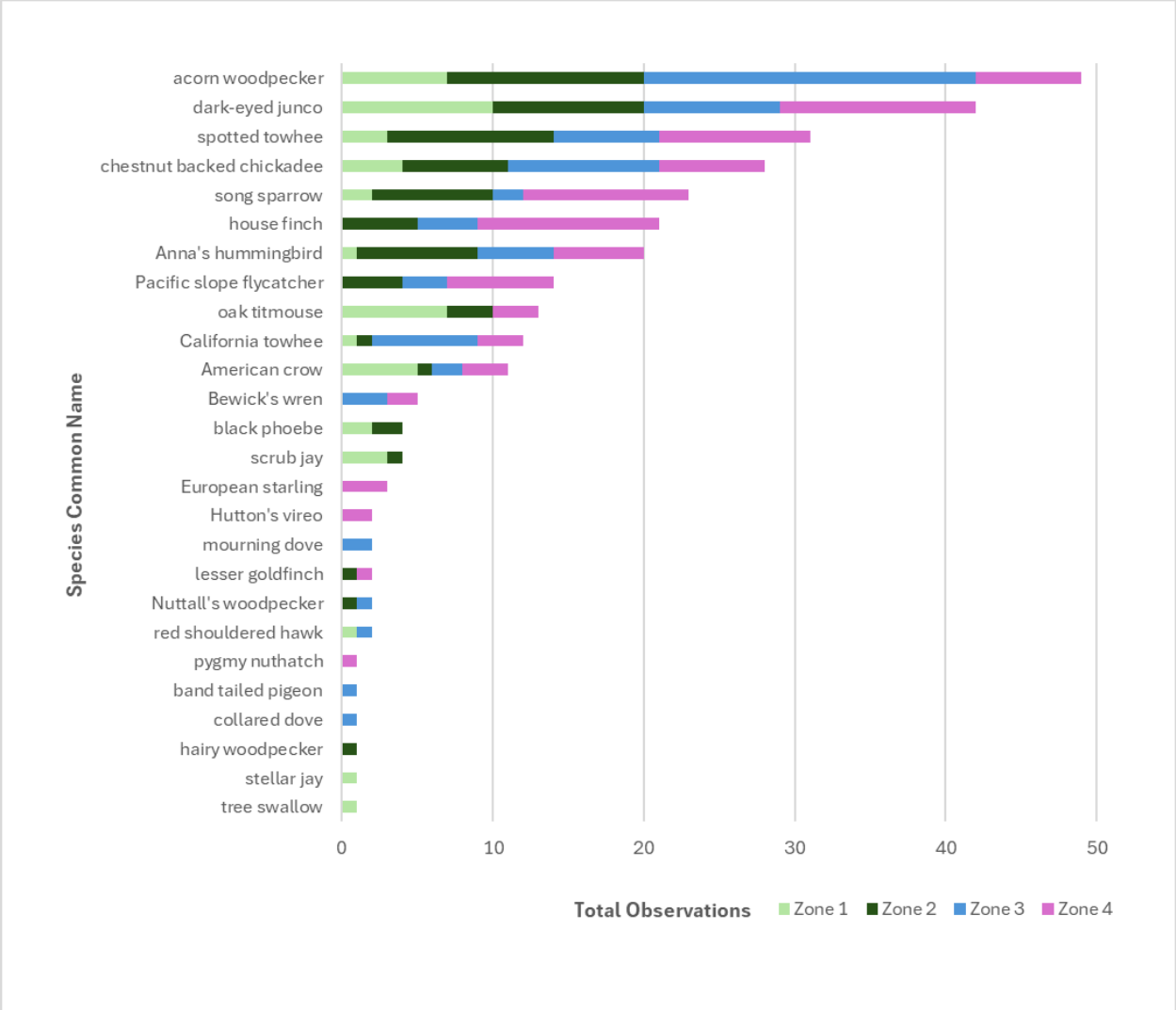


Figure 2. Summary of Total Point Count Observations by Zone

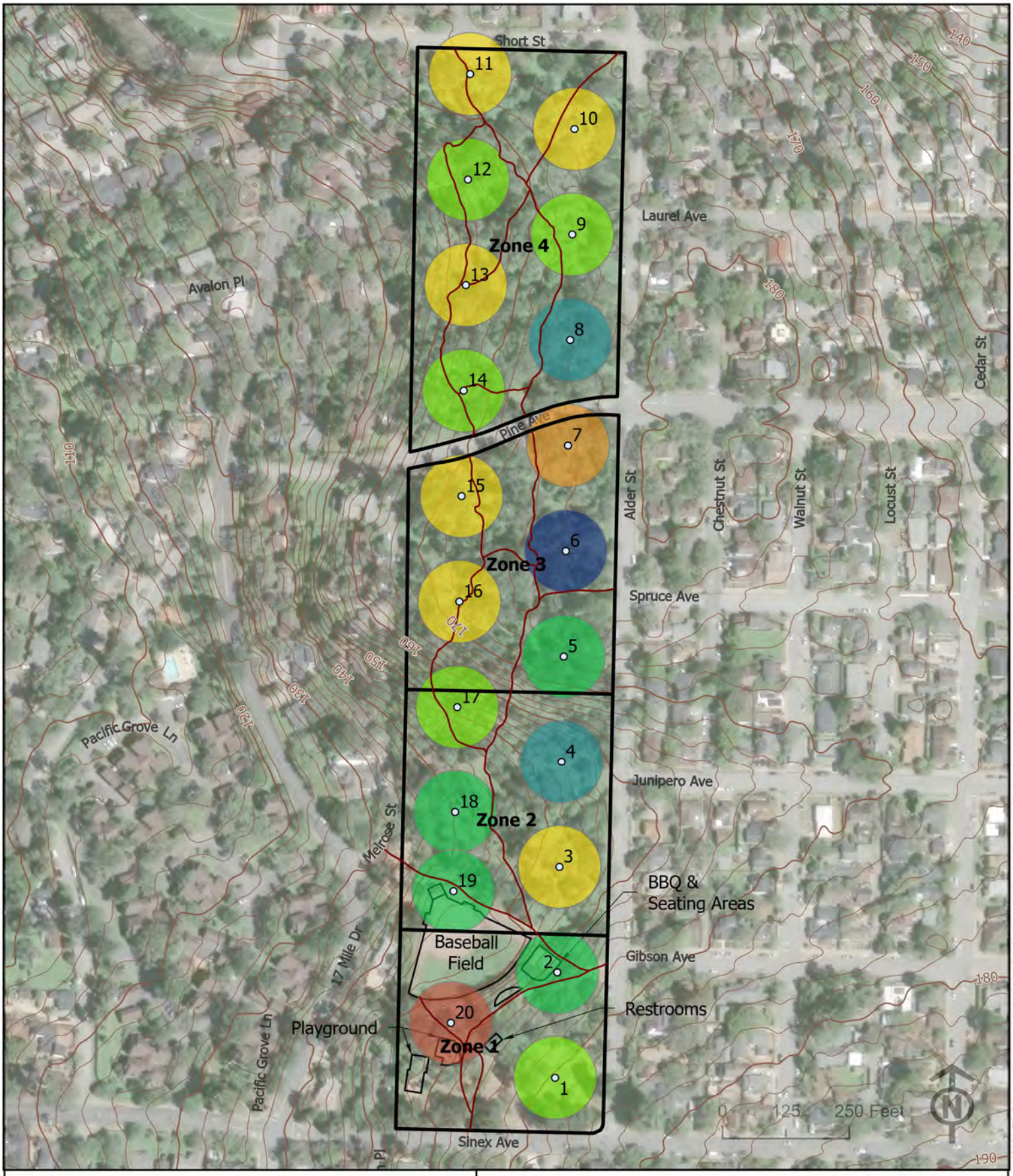
Table 2. Summary of Avian Point Count Data – Totals by Zone

Species Common Name	Zone 1	Zone 2	Zone 3	Zone 4	Sum
tree swallow	1	0	0	0	1
stellar jay	1	0	0	0	1
hairy woodpecker	0	1	0	0	1
collared dove	0	0	1	0	1
band tailed pigeon	0	0	1	0	1
pygmy nuthatch	0	0	0	1	1
red shouldered hawk	1	0	1	0	2
Nuttall's woodpecker	0	1	1	0	2
lesser goldfinch	0	1	0	1	2
mourning dove	0	0	2	0	2
Hutton's vireo	0	0	0	2	2
European starling	0	0	0	3	3
scrub jay	3	1	0	0	4
black phoebe	2	2	0	0	4
Bewick's wren	0	0	3	2	5
American crow	5	1	2	3	11
California towhee	1	1	7	3	12
oak titmouse	7	3	0	3	13
Pacific slope flycatcher	0	4	3	7	14
Anna's hummingbird	1	8	5	6	20
house finch	0	5	4	12	21
song sparrow	2	8	2	11	23
chestnut backed chickadee	4	7	10	7	28
spotted towhee	3	11	7	10	31
dark-eyed junco	10	10	9	13	42
acorn woodpecker	7	13	22	7	49
Total	**48**	**77**	**80**	**91**	**296**

Notes:

Point Count Station Area (hectares)	0.20
Number of Stations	20
Total Area (hectares)	4.00
Total Area (acres)	9.88

Stations 25m radius, 5-minute observation period
Survey Dates: 6-19-24, 7-10-24, 8-23-24
Excludes flyovers



Management Zones
Trails
Avian Point Count Station

Avian Station 25m Radius
Species Richness
5
6
7
8
10
11
12

Avian Point Count Locations

George Washington Park Biological Resources Report

Denise Duffy and Associates, Inc.
Planning and Environmental Consulting

Date 12-2024
Scale 1 in = 250 ft
Figure E

Path: C:\JWandkeGIS\GIS_Projects\2023-78 George Washington Park Bio\2023-78 George Washington Park Bio.aprx

APPENDIX F

Bumble Bee Survey Results

Bumble Bee Survey Results
George Washington Park

December 2024

Background

Denise Duffy & Associates (DD&A) performed focused photographic surveys during 2024 for candidate special-status bumble bees at George Washington Park (GWP) in Pacific Grove, Monterey County, California. The purpose of the surveys was to assess habitat conditions for bumble bees and determine if western bumble bee (WBB; *Bombus occidentalis*) or Crotch's bumble bee (CBB; *Bombus crotchii*) is present. Both species are state candidate endangered. The project site lies within the historic range of WBB and the current range of CBB. The surveys were conducted as part of a biological resources study performed at GWP to support environmental analysis of proposed forest management activities within the park.

The proposed forest management activities within the approximately 20-acre forested park include fire hazard reduction within approximately 100 feet of residential structures, restoration of Monterey pine forest in select areas, and maintenance of the existing trail system. The park is divided into four management zones. Zone 1 consists of active recreational facilities that include a baseball field, picnic area, playground, restrooms and adjacent areas where understory vegetation is kept at a minimum. Zones 2 – 4 consist of areas of passive recreational use with unimproved footpaths that meander through the natural woodland habitat.

Records Review

The records search performed as part of the biological resources study utilized the California Natural Diversity Database (CNDDB), Bumblebeewatch.org, and the California Bumble Bee Atlas (CABBA) observations dataset. These resources did not identify any known recent occurrence of WBB or CBB in the vicinity of GWP. One 1937 observation of WBB is reported from the CNDDB from Point Piños, approximately 0.80-miles northwest of the project site. No CBB observations are present in the CNDDB within the quadrangles reviewed; however, CBB has been reported from Hastings Reservation approximately 26 miles southeast of the project site in 2022 (pers. comm. Leif Richardson of the Xerces Society for Invertebrate Conservation, 2023).

Survey Methods

No state approved protocol presence/absence survey methodology currently exists for these two species. However, CDFW recently released a Survey Consideration document (CDFW, 2023) which provides methods to consider during a presence/absence survey effort. Survey methods were derived from the CDFW Survey Consideration document and consisted of both a habitat assessment and field photographic surveys. However, no bumble bees were captured or handled, and the identification relies on photographs of bumblebees on vegetation. Surveys were conducted when bumble bees are likely to be active (The Xerces

Society, 2020; USFWS, 2019). As shown in Table 1 of the Survey Considerations publication, the highest detection windows for WBB and CBB are April-September and April-August, respectively.

Habitat Assessment

Habitat for bumble bees was assessed over the course of April through September 2024 at GWP concurrently with vegetation surveys using methods identified in Xerces Society (2020) and USFWS (2019). The entire park was traversed on a series of meandering transects oriented along the long axis of the park. The habitat assessment included identifying native and non-native flowering resources available and estimating percent cover; generally assessing plant species richness and diversity; and documenting presence of nesting resources available including small-mammal burrows, piles of woody debris, fallen logs, or rock piles. The assessment also included vegetation mapping and documentation of the various uses and management practices at the site.

Photographic Surveys

Surveys for bumble bees were performed between April and September of 2024, which includes the period when most plant species in GWP are in peak bloom. A total of five surveys were performed totaling 16.8 hours of surveyor effort. Surveys were performed during the morning to mid-day hours between approximately 9 am and 2 pm and followed similar meandering transects to those noted above of the habitat assessment. However, the surveys focused on areas of suitable habitat with flowering plants present in the Monterey pine forest understory; an area of approximately 5.6 acres. The survey area was searched visually for flowering plants and foraging bumble bees as well as potential nesting resources. When bumble bees were encountered, photographs were collected of individuals resting on or feeding on nectar from as many angles as possible to facilitate identification.

Photographs were reviewed in the office to the level necessary to either identify or exclude the individuals as being WBB or CBB. The following resources were utilized to identify bumble bees captured during the survey:

- Pocket Guide to Identifying the Western Bumble Bee (The Xerces Society, 2021),
- Guide to Bumble Bees of the Western United States (Koch et. al., 2012),
- Bumble Bees of North America, An Identification Guide (Williams et. al., 2014), and
- Bumblebeewatch.org.

Table 1 outlines the survey dates, areas, weather conditions, timing, and duration of each survey.

Table 1. Survey Information

Date	Site	Temp (°F)	Wind Speed (mph)	Cloud Cover	Start Time	End Time	Total Person Hours
4-16-24	George Washington Park	60	7	0%	9:15 am	1:15 pm	4.0
6-4-24	George Washington Park	65	3	0%	9:35 am	12:40 pm	3.1
6-18-24	George Washington Park	62	1	0%	9:40 am	12:30 pm	2.8
7-10-24	George Washington Park	60	calm	80%	9:20 am	11:50 am	2.5

Date	Site	Temp (°F)	Wind Speed (mph)	Cloud Cover	Start Time	End Time	Total Person Hours
8-23-24	George Washington Park	65	5	0%	8:35 am	1:00 pm	4.4
						Total	**16.8**

Results

Vegetation and Floral Resources

The area surveyed consists of an urban forested park dominated by Monterey pine forest. Mature Monterey pines (*Pinus radiata*) form an upper canopy layer with coast live oak (*Quercus agrifolia*) dominating much of the mid-canopy layer. Other vegetation types consist of oak woodland within the managed recreational zone of the park, as well as ruderal/disturbed areas and developed recreational features including a baseball field, picnic area, and playground (**Table 2**). Understory vegetation is a mosaic of non-native grasses, native and non-native herbs, and woody vines. Non-native grasses are primarily rattlesnake grass (*Briza major*), slender wild oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), and perennial ryegrass (*Festuca perennis*). Patches of the non-native vine Cape ivy (*Delairea odorata*) also occur. Dominant native understory species include poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), and hedge nettle (*Stachys bullata*). Site usage is primarily passive recreational (walking along unimproved trails). Suitable habitat with flowering plants present in the Monterey pine forest understory occupies an area of approximately 5.6 acres, which is comprised of native flowering plants including California blackberry, hedge nettle, sticky monkey flower (*Diplacus aurantiacus*) and Pacific pea (*Lathyrus vestitus*) and non-native flowering plants consisting primarily of cape ivy and Pride of Madeira (*Echium candicans*).

Table 2. Summary of Vegetation Types

Vegetation Type	Survey Area (Acres)	Area with Suitable Floral Resources (Acres)
Monterey pine forest	15.52	5.6
Mixed woodland (managed)	2.77	0
Ruderal/Disturbed	0.59	0
Developed Park	0.93	0
Total	**19.81**	**5.6**

Table 3 lists the flowering plants observed during each survey event. Areas with flowering plants occur in isolated patches and are not widespread throughout the understory vegetation due to large areas that are dominated by thick growth of non-native annual grass. The most common flowering plants observed were California blackberry, Cape ivy, and hedge nettle.

Table 3. Floral Resources Identified During Surveys

Survey Date	Botanical Name	Common Name	Estimated Mean %Cover in Survey Area
4-16-24	*Carduus pycnocephala*	Italian thistle	1-5%
4-16-24	*Lathyrus vestitus*	Pacific pea	1-5%
4-16-24	*Rubus ursinus*	California blackberry	15-25%
4-16-24	*Stachys bullata*	Hedge nettle	5-15%
4-16-24	*Vicia* sp.	Vetch	1-5%
6-4-24	*Carduus pycnocephala*	Italian thistle	1-5%
6-4-24	*Delairea odorata*	Cape ivy	5-15%
6-4-24	*Rubus ursinus*	California blackberry	15-25%
6-4-24	*Echium candicans*	Pride of Madeira	1-5%
6-4-24	*Erodium circutarium*	red-stemmed filaree	1-5%
6-4-24	*Stachys bullata*	Hedge nettle	5-15%
6-18-24	*Delairea odorata*	Cape ivy	5-15%
6-18-24	*Echium candicans*	Pride of Madeira	1-5%
6-18-24	*Phacelia malvifolia*	Stinging phacelia	1-5%
6-18-24	*Rubus ursinus*	California blackberry	15-25%
6-18-24	*Stachys bullata*	Hedge nettle	5-15%
7-10-24	*Delairea odorata*	Cape ivy	5-15%
7-10-24	*Echium candicans*	Pride of Madeira	1-5%
7-10-24	*Phacelia malvifolia*	Stinging phacelia	1-5%
7-10-24	*Rubus ursinus*	California blackberry	15-25%
7-10-24	*Stachys bullata*	Hedge nettle	5-15%
8-23-24	*Delairea odorata*	Cape ivy	5-15%
8-23-24	*Diplacus aurantiacus*	Sticky monkey flower	1-5%
8-23-24	*Rubus ursinus*	California blackberry	15-25%
8-23-24	*Stachys bullata*	Hedge nettle	5-15%

Potential Nesting Locations

Potential nesting locations observed included small mammal burrows, which occur infrequently, piles of dead and downed wood of variable size, and pine needle and oak leaf duff. No bumble bees were observed entering or exiting small mammal burrows or piles of wood during the surveys.

Land Use/Management

Currently, vegetation is managed in Zone 1 to maintain a park-like setting with minimal understory vegetation. This management action includes application of wood chip mulch and cutting/removal of understory vegetation as well as removal of downed woody debris and trash removal. The tree canopy in this area is generally left unmaintained. Turf in the baseball field is irrigated and mowed. Zones 2 – 4 are not currently managed with the exception of trimming vegetation along walking trails, removing hazard limbs in the vicinity of walking trails, and periodic trash removal.

Bumble Bee Observations

As noted above, no bumble bees were captured during the surveys. Bumble bee capture requires a Memorandum of Understanding (MOU) with CDFW. Only photographic methods were utilized. In general, few bumble bees were observed during the surveys and in most cases only one individual was observed. The most activity was observed on the June 19 survey, when between 20 and 30 individuals were observed visiting a patch of stinging phaecelia (*Phacelia malvifolia*) in flower. Based on the characteristics of the bumble bees observed in the field (**Table 4**), and the identifying characteristics of WBB and CBB, none of the individuals observed were WBB or CBB, and they are likely Vosnesensky bumble bee (*Bombus vosnesenskii*). Photographs are provided as **Attachment A**. While the WBB and CBB have several color forms, the following general characteristics were evaluated:

WBB

- Hair of the face and top of head predominantly black, sometimes yellow intermixed,
- 3rd abdomen segment (T3) usually with at least a few scattered yellow hairs,
- If 2nd and 3rd abdomen segments (T2-3) entirely black, then 5th and 6th (T5-6) are extensively white or yellow-orange, and
- Hair on the upper side of the thorax between the wings with a black band or at least a large black central spot.

CBB

- Hair of the upper side of the head at the front black, but at the back yellow,
- 1st abdomen segment (T1) predominantly black, T2 broadly yellow often with black in the front-middle,
- 5th abdomen segment often red, but sometimes black.

Table 4. Summary of Bumble Bee Observations

Observation Information				Hair Color							
Photo #	**Date**	**Site**	**Host Plant**	**Face & Head**	**T1**	**T2**	**T3**	**T4**	**T5**	**T6**	**Thorax between wings**
1-3	6/19/24	GWP	Stinging phaecelia	Yellow	Black	Black	Black	Yellow	Black	Black	Black
4-5	7/10/24	GWP	Annual grass stem	Yellow	Black	Black	Black	Yellow	Black	Black	Black

Note: See Attachment A for photographs

Discussion/Conclusion

WBB and CBB require flowering plants that provide adequate nectar and pollen throughout the colony's life cycle, which is from early February to late November. Certain areas of the Monterey pine forest understory at GWP contain native and non-native flowering plants that could provide pollen and nectar during this time period. However, although WBB was formerly common from the Pacific coast to the Colorado Rocky Mountains; populations from central California to southern British Columbia, Canada and west of the Sierra-Cascade Ranges have declined sharply since the late 1990s (Koch et. al., 2012; Williams et. al., 2014). In California the species is largely restricted to high elevations sites in the Sierra Nevada. GWP is within the current range of CBB (CDFW, 2023). However, current literature on the species indicates that CBB is now primarily found in coastal southern California and a few areas around Sacramento (Hatfield and Jepson, 2021). Additionally, CBB typically occurs in grassland and scrub habitats (Williams et al., 2014) as opposed to the woodland habitat of GWP.

Bumble bees were observed at GWP during the peak flight season of the WBB and CBB; however, none of the individuals exhibited the color characteristics of the WBB or CBB and all individuals photographed were excluded as being WBB or CBB. Therefore, although the project site may provide marginal habitat for these species, the survey results and the currently restricted range for these species suggest that WBB and CBB are not present. As such, the project is unlikely to impact WBB or CBB and no further action is required.

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ATTACHMENT A

Bumble Bee Photographs



Photo 1. June 18, 2024. Bumble bee on stinging phaecelia



Photo 2. June 18, 2024. Bumble bee on stinging phaecelia



Photo 3. June 18, 2024. Bumble bee on stinging phaecelia



Photo 4. July 10, 2024. Bumble bee on grass stem



Photo 5. July 10, 2024. Bumble bee on grass stem (same individual as Photo 4)

APPENDIX G

Bat Survey Results Memo

November 26, 2024

Nick Fisher
104 Claremont Terrace
Santa Cruz, California 95060

George Washington Park Project
Bat Survey Results Memo

This bat survey and results memorandum summarizes the methods and results; and provides conclusions and recommendations for George Washington Park in the City of Pacific Grove, Monterey County, California.

In accordance with the foundational Master Plan and the Forest Management Plan (Dudek, 2012), qualified bat specialist (biologist) Nick Fisher conducted surveys at George Washington Park, in Pacific Grove to determine bat species present and provide appropriate avoidance/minimization measures to be implemented during the proposed forest management activities. All four distinct management zones were surveyed, including the trees adjacent to the trail system and within the fire hazard reduction zone.

The biologist was provided maps within the project documents, by John Wandke (Senior Scientist, Denise Duffy & Associates) illustrating management zones in Map 1 and fire hazard zone in Map 2.

Methods

The bat roost survey was conducted in two phases—a daytime habitat assessment and a nighttime emergence survey completed by the biologist. The first phase involved a daytime habitat assessment (daytime survey) of the entire park to identify general potential bat roosting features including any suitable trees, snags, and structures. The daytime survey also identified locations with specific flyways and areas of higher bat roost suitability in order to inform the nighttime acoustic detection surveys.

The second phase involved nighttime emergence/foraging surveys (nighttime survey) which were utilized to determine the species of bats present and relative level of bat activity in the vicinity. These nighttime surveys were conducted seasonally. The survey timing was conducted during the breeding season (late March through September), during dispersal of maternity colonies (September through October) and after dispersal.

Prior to survey execution, on January 18, 2024, Nick Fisher (biologist) had a field meeting with John Wandke (Senior Scientist, Denise Duffy & Associates) at George Washington Park for a general orientation of the survey area, to discuss survey goals, and to assist in developing a scope for the surveys.

Daytime Survey

On June 6, 2024, the biologist conducted a daytime survey to assess trees and structures for bat usage and suitability.

Binoculars were utilized to visually inspect the exterior of trees for occupying bats; and signs of roosts, which include, guano, insect parts, and dead bats. Trees were also examined for

furrowed bark, hollows, and appropriate foliage. Any suitable features identified during the daytime habitat assessment survey were noted for further investigation.

Nighttime Survey

Nighttime surveys to determine species identification, and activity level were conducted. For nighttime surveys both active and passive methods of acoustic detection were employed. In the active method, the biologist with a handheld detector transected through the survey location during the emergence of bats early in the evening. For the passive method, a detector was located at a fixed location for the duration of the night without the biologist present.

On each survey night, a passive acoustic detector was positioned within one of the four management zones as depicted in Map 1. Also, on each survey night the biologist conducted a meandering pedestrian acoustic transect within two management zones utilizing the existing trail system, the fire hazard reduction zone, and overland travel. Each survey night, the transects were conducted within the same management zone as the passive detector and within an additional adjacent management zone in the following schedule:

- June 6, 2024: passive detector management zone 3, active detector management zones 3 and 4
- July 27, 2024: passive detector management zone 2, active detector management zones 1 and 2
- October 10, 2024: passive detector management zone 4, active detector- management zones 3 and 4
- November 18, 2024: passive detector management zone 1, active detector management zones 1 and 2

The nighttime surveys started at least 30 minutes prior to sunset and extended to one hour following sunset. The biologist was positioned with a clear view of the sky to observe the movement of bats as best as possible. Auditory frequencies in kilohertz (kHz) collected by the acoustic detectors were utilized by the biologist to identify the species of bat (when possible), and to identify behaviors, such as foraging and social calls. Additionally, acoustic detectors document the level of bat activity for a specific survey night within the vicinity of a sampling site or transect. Acoustic detectors utilized included one Wildlife Acoustics Song Meter Mini Bat unit for passive detection; and a Wildlife Acoustics Echometer 2 Pro and a Batbox Baton that allows the listener to hear the ultrasound produced by echolocating bats aiding in active detection.

Bat Survey Results

Daytime Survey

During the daytime habitat assessment, zones 2, 3, and 4 were determined to have higher bat roosting suitability than zone 1 due to the higher density of trees/snags, height, size class, and species. Monterey pine (*Pinus radiata*) was more dominant in zones 2, 3, and 4 than in zone 1. In addition, Monterey pine rather than coast live oak (*Quercus agrifolia*) was observed to have more suitable roosting features such as furrowed bark, woodpecker holes, cavities, and especially exfoliating bark. Also, Monterey pine had more standing snags that were taller than in zones 2, 3, and 4. Roosting bats tend to prefer larger and taller trees compared to random trees (Fabianek, et al., 2015). In contrast, zone 1 was dominated by coast live oak.

For the two potential bat roosting structures, the restroom and the baseball concession building, there were no bats or bat signs such as guano and bug parts observed on the interior or exterior.

Nighttime Survey

Bats were visually observed and acoustically detected during the year in three nighttime visits for the spring, summer and fall conducted on June 6, July 27, and October 10, 2024. The fourth late fall visit yielded no visual sightings, and no calls detected.

The ten bat species detected during the surveys include:

Vespertilionidae (evening bats)

- big brown bat (*Eptesicus fuscus*)
- Western red bat (*Lasiurus frantzii*)
- silver-haired bat (*Lasionyteris noctavagans*)
- hoary bat (*Lasiurus cinereus*)
- California myotis (*Myotis californicus*)
- Western small-footed myotis (*Myotis ciliolabrum*)
- little brown bat (*Myotis lucifugus)*
- Yuma myotis (*Myotis yumanensis*)
- Western pipistrelle (*Parastrellus hesperus*)

Mollosidae (free-tailed bats)

- Mexican free-tailed bat (*Tadarida braziliensis*)

For acoustic monitoring as documented in Table 1, a total of 1,121 calls were recorded during the year, most of the calls were recorded in the spring (461 calls) and summer (469 calls). In contrast, for the fall fewer calls were recorded (191 calls) and late fall zero calls were recorded.

Visual observations indicate the majority of the bats were foraging and transiting around trees on the trail system especially away from the edge of the forest and streets.

Conclusions

Habitat

The habitat quality of George Washington Park is of medium quality, due to an abundance of trees and snags with suitable roost features such as exfoliating bark, woodpecker holes, crevices, and cavities. However, there was a lack of water features such as creeks and ponds within the park for bats to drink and the surrounding area is developed residential homes which lacks optimal connectivity to other forested areas. Due to an abundance of higher quality tree features, zones 2, 3, and 4 are more suitable for bats than zone 1. For the size of the forest stand within the park, there is an exceptional amount of bat activity.

The overall bat activity was fairly high in the spring and summer with the total number of calls during each of these two visits remarkably similar. Activity dropped off in the fall, due to the time of year when bat activity slows down at the tail end of the maternity and pup-rearing season.

In general, the trail system is a good flyway and forage location for bats, especially on the interior of the forest away from the edge and streets.

Special Status Species

No bats species in California are currently listed as federal or state threatened or endangered. Certain species of bats are listed as California Department of Fish and Wildlife (CDFW) species of special concern.

Another state protection is the California Fish and Game Code which states; FGC § 4012 (a) A mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a nongame mammal. A nongame mammal may not be taken or possessed except as provided in this code or in accordance with regulations adopted by the commission.

Westen red bat was the only species of special concern that was detected during the survey. Only one call was recorded for this species in the fall detected during fall migration.

Pallid bats call in the range of 30 kHz and there were a few ambiguous calls documented that may represent this species, therefore making it possible that pallid bats utilize the park.

Townsend's big-eared bat is unlikely to roost within the park. Due to the lack of bats or bat signs observed on the interior or exterior such as guano and bug parts, structures including the restroom and baseball concessions building were deemed unsuitable for bats. The structures are ruled out for Townsends's big eared bat habitat, since these bats utilize buildings or large cave-like cavities. These types of cavities are lacking within the tree stands, however, not every tree was examined for hollows within the park.

Incidental species encountered include mule deer, coyote, great-horned owl, pygmy nuthatch, acorn woodpecker, dark-eyed junco, house finch, lesser goldfinch, American crow, spotted towhee, chestnut-backed chickadee, song sparrow, Nutall's woodpecker, downy woodpecker, California towhee, and Anna's hummingbird.

Two project area maps, photographs, and a table of bats detected during the survey effort follow the text below.

Recommendations

1. When possible, leave snags in place and remove only the tops of trees to provide habitat for bats.

2. Except in cases of emergencies, limit tree removal and trimming activities outside bat maternity season (April 15 through August 31) for special status species as designated by CDFW. When possible, tree removal and trimming should take place after the young are volant, between September 1 through November 1 and after hibernation, March 1 through April 15.

3. If tree removal/trimming cannot take place during dispersal, September 1 through November 1, a qualified biologist should investigate trees for signs of bats and/or roosting bats prior to tree removal/trimming activities. Methods employed by the biologist should be visual and include acoustic monitoring to determine species, number, and roost status.

a. If no bats are observed roosting within the trees slated for removal, no further recommendations are warranted.

b. If bats are present in a tree and it is found that an active maternity roost of a colonial roosting species is present, the roost shall not be disturbed during the maternity season (April 15 to August 31) or until the maternity roost has dispersed. A suitable buffer should be installed for avoidance.

    i. If the maternity roost tree must be removed within the maternity season the biologist will formulate a bat exclusion plan in conjunction with CDFW.

4. If trees removal/trimming must occur during hibernation, November 2 through February 28, a qualified biologist shall investigate trees for bat habitat prior to tree removal/trimming activities.

    a. If potential bat habitat is present, consult with CDFW.

Map 1.



SOURCE: Bing Maps 2021, Monterey County

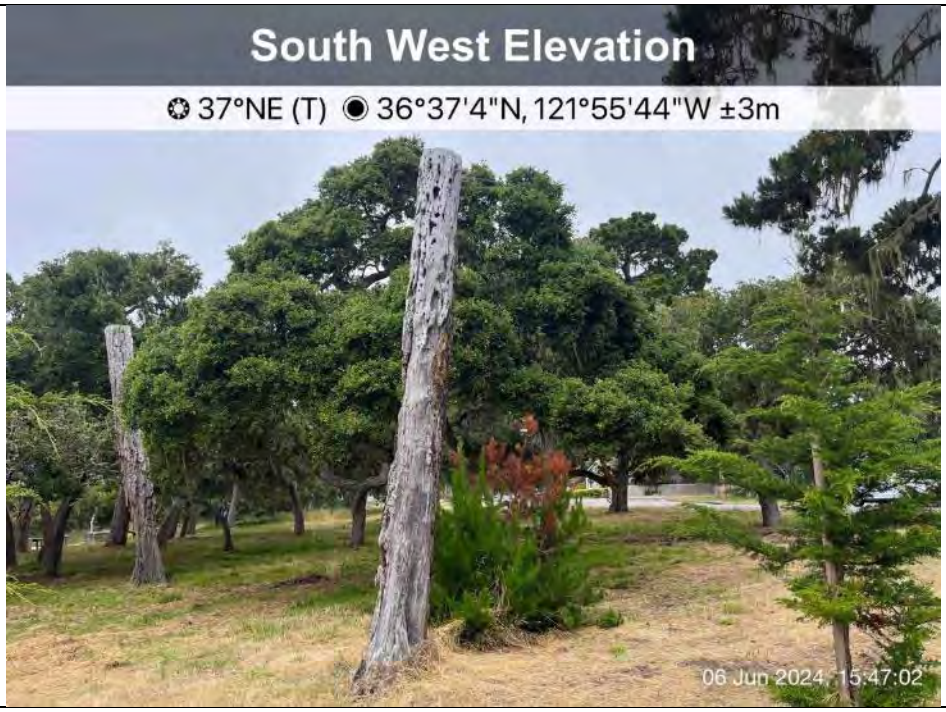
DUDEK

Map 2.

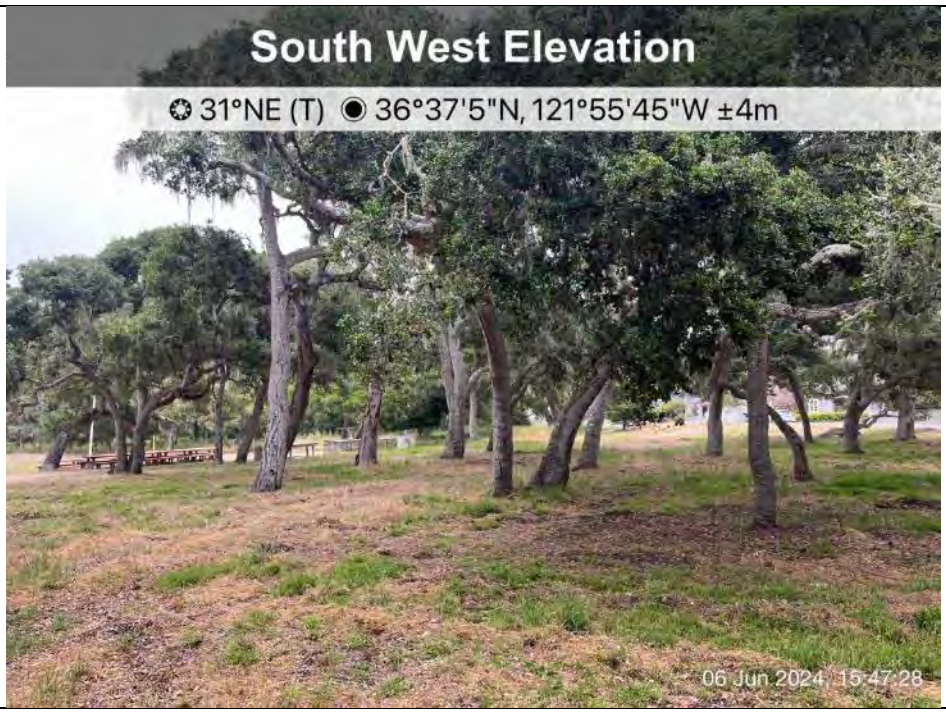

Heacock Ave
Pico Ave
Lighthouse Ave
Pacific Ave
Avalon Pl
Short St
Crocker Ave
Evergreen Rd
Laurel Ave
Dennett St
Pine Ave
Grove Acre Ave
17-Mile Dr
Spruce Ave
Congress Ave
Junipero Ave
Sinex Ave
Gibson Ave
19th St
Project Boundary
George Washington Park
Adjacent Structure
Fire Hazard Reduction Zone



Photograph 1: A representative view facing west within zone 3 of George Washington Park during an initial orientation. Note the space around the trail which is conducive for a bat flyway.



Photograph 2: A northeast view bat suitable snags within zone 1 in George Washington Park which was dominated by Coast live oak (*Quercus agrifolia*) during the daytime survey.



Photograph 3: A northeast view of zone 1 which was dominated by Coast live oak (*Quercus agrifolia*). Note photograph taken during the daytime survey.



Photograph 4: A view of the baseball concession building in zone 2 that was determined to be unsuitable for bats.



Photograph 5: A representative view of zone 2 and placement of a passive acoustic bat detector during the nighttime survey. Note the bat detector in the top of the stump camouflaged in lichen.



Photograph 6: A representative view of zone 4 and placement of a passive acoustic bat detector during the nighttime survey. Note the bat detector in the fallen tree camouflaged in lichen and sticks.



Photograph 7: A representative view of zone 1 and placement of a passive acoustic bat detector during the nighttime survey. Note the bat detector on the top corner of the dugout roof.



Photograph 8: A representative view of the north end of zone 4 and the border of the fire hazard reduction zone.

Table 1

Acoustic Bat Detections within the Vicinity of Survey Sites for George Washington Park		
Date	**Number of Detections**	**Species or Acoustic Frequency[1]**
Management Zone 3, Passive (Song Meter Mini Bat Detector)		
June 6, 2024	50	Big brown bat (*Eptesicus fuscus*)
June 6, 2024	1	Silver-haired bat (*Lasionycteris noctivagans*)
June 6, 2024	1	Hoary bat (*Lasiurus cinereus*)
June 6, 2024	119	California myotis (*Myotis californicus*)
June 6, 2024	1	Small footed myotis (*Myotis ciliolabrum*)
June 6, 2024	2	Yuma myotis (*Myotis yumanensis*)
June 6, 2024	2	Western pipistrelle (*Parastrellus Hesperus*)
June 6, 2024	2	Unidentified calls in the 30 (kHz) frequency group
Management Zone 3 & 4, Active (Echo Meter 2 Pro Bat Detector)		
June 6, 2024	93	Big brown bat
June 6, 2024	17	Silver-haired bat
June 6, 2024	99	California myotis
June 6, 2024	2	Mexican free-tailed bat (*Tadarida braziliensis*)
June 6, 2024	1	Unidentified calls in the 20 (kHz) frequency group
June 6, 2024	71	Unidentified calls in the 30 (kHz) frequency group
June 6, 2024	**461**	**Total number of calls for both detectors during visit**
Management Zone 2, Passive (Song Meter Mini Bat Detector)		
July 27, 2024	91	Big brown bat

[1] Recorded echolocations that were not identified to species are reported as their frequency in kilohertz (kHz).

Acoustic Bat Detections within the Vicinity of Survey Sites for George Washington Park		
Date	**Number of Detections**	**Species or Acoustic Frequency[1]**
July 27, 2024	149	Silver-haired bat
July 27, 2024	1	Hoary bat
July 27, 2024	6	California myotis
July 27, 2024	20	Unidentified calls in the 30 (kHz) frequency group
July 27, 2024	2	Unidentified calls in the 40 (kHz) frequency group
Management Zone 1 & 2, Active (Echo Meter 2 Pro Bat Detector)		
July 27, 2024	51	Big brown bat
July 27, 2024	30	Silver-haired bat
July 27, 2024	16	California myotis
July 27, 2024	16	Mexican free-tailed bat
July 27, 2024	86	Unidentified calls in the 30 (kHz) frequency group
July 27, 2024	1	Unidentified calls in the 50 (kHz) frequency group
July 27, 2024	**469**	**Total number of calls for both detectors during visit**
Management Zone 4, Passive (Song Meter Mini Bat Detector)		
October 10, 2024	15	Hoary bat
October 10, 2024	21	Silver-haired bat
October 10, 2024	14	California myotis
October 10, 2024	9	Western pipistrelle
October 10, 2024	5	Mexican free-tailed bat
October 10, 2024	3	Unidentified calls in the 20 (kHz) frequency group
October 10, 2024	3	Unidentified calls in the 40 (kHz) frequency group
October 10, 2024	1	Unidentified calls in the 50 (kHz) frequency group
Management Zone 3 & 4, Active (Echo Meter 2 Pro Bat Detector)		

Acoustic Bat Detections within the Vicinity of Survey Sites for George Washington Park		
Date	**Number of Detections**	**Species or Acoustic Frequency[1]**
October 10, 2024	4	Big brown bat
October 10, 2024	1	Western red bat (*Lasiurus blossevillii*)
October 10, 2024	23	Hoary bat
October 10, 2024	15	Silver-haired bat
October 10, 2024	4	California myotis
October 10, 2024	27	Small footed myotis
October 10, 2024	2	Little brown bat (*Myotis lucifugus*)
October 10, 2024	8	Yuma myotis (*Myotis yumanensis*)
October 10, 2024	5	Western pipistrelle (*Parastrellus Hesperus*)
October 10, 2024	7	Mexican free-tailed bat
October 10, 2024	5	Unidentified calls in the 20 (kHz) frequency group
October 10, 2024	6	Unidentified calls in the 30 (kHz) frequency group
October 10, 2024	4	Unidentified calls in the 40 (kHz) frequency group
October 10, 2024	9	Unidentified calls in the 50 (kHz) frequency group
October 10, 2024	**191**	**Total number of calls for both detectors during visit**
Management Zone 1, Passive (Song Meter Mini Bat Detector)		
November 18, 2024	0	No calls were recorded
Management Zone 1 & 2, Active (Echo Meter 2 Pro Bat Detector)		
November 18, 2024	0	No calls were recorded
November 18, 2024	**0**	**Total number of calls for both detectors during visit**
	1121	**Total number of calls for all visits**

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APPENDIX H

Wetland Data Sheets

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: George Washington Park | City/County: Pacific Grove/Monterey County | Sampling Date: 07/16/2024
Applicant/Owner: City of Pacific Grove | State: CA | Sampling Point: 1A
Investigator(s): JW | Section, Township, Range: 00, T15S, R1W
Landform (hillslope, terrace, etc): hillslope | Local relief (concave, convex, none): concave | Slope (%): 2
Subregion (LRR): C | Lat: 36.61931 | Long: -121.929492 | Datum: NAD83
Soil Map Unit Name: Baywood Sand | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	____	No	X	
Hydric Soil Present?	Yes	____	No	X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes	____	No	X	**within a Wetland?** Yes ____ No X

Remarks:
Sample point located in a topographic low area, approximately 100 feet north of baseball field. Area collects more runoff than adjacent areas due to its landscape position, but lacks dominant wetland vegetation, hydric soils, and hydrology indicators.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus radiata* / Monterey pine	10	Yes	NI
2. *Quercus agrifolia* / Coast live oak, Coast live oak, Encina	5	Yes	NI
3. *Acacia longifolia* / Golden wattle, Sydney golden wattle	5	Yes	NI
4.			
	20	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5-ft)			
1. *Holcus lanatus* / Common velvetgrass, Common velvet grass	30	Yes	FAC
2. *Lolium perenne* / Perennial rye grass	30	Yes	FAC
3. *Carex praegracilis* / Field sedge, Black creeper or freeway se	10	No	FACW
4. *Briza maxima* / Rattlesnake grass, Rattlesnake grass, Large	10	No	NI
5. *Ehrharta erecta* / Upright veldt grass, Panic veldt grass	5	No	NI
6.			
7.			
8.			
	85	= Total Cover	

Woody Vine Stratum (Plot size: 30-ft)			
1. *Rubus ursinus* / California blackberry	15	Yes	FAC
2.			
	15	= Total Cover	

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	75	x 3 =	225
FACU species	0	x 4 =	0
UPL species	35	x 5 =	175
Column Totals:	120 (A)		420 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Facultative plant species present, but the dominance test is not met.

SOIL

Sampling Point: 1A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	100					Sandy Loam	
12-18	10YR 5/3	98	5YR 4/6	2	C	M	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Redox features present in soil sample, but soil profile does not meet depth requirements of any of the hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology indicators absent. Location may experience periods of saturation during wet winter periods, but not of sufficient duration for formation of hydrology indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: George Washington Park | City/County: Pacific Grove/Monterey County | Sampling Date: 07/16/2024
Applicant/Owner: City of Pacific Grove | State: CA | Sampling Point: 1B
Investigator(s): JW | Section, Township, Range: 00, T15S, R1W
Landform (hillslope, terrace, etc): hillslope | Local relief (concave, convex, none): concave | Slope (%): 2
Subregion (LRR): C | Lat: 36.619365 | Long: -121.929465 | Datum: NAD83
Soil Map Unit Name: Baywood Sand | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	____	No	X	
Hydric Soil Present?	Yes	____	No	X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes	____	No	X	**within a Wetland?** Yes ____ No X

Remarks:
Sample is located in a landscape position several feet higher than sample 1A.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus radiata* / Monterey pine	30	Yes	NI
2. *Quercus agrifolia* / Coast live oak, Coast live oak, Encina	20	Yes	NI
3.			
4.			
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5-ft)			
1. *Briza maxima* / Rattlesnake grass, Rattlesnake grass, Large	90	Yes	NI
2. *Holcus lanatus* / Common velvetgrass, Common velvet gras	2	No	FAC
3. *Lolium perenne* / Perennial rye grass	2	No	FAC
4.			
5.			
6.			
7.			
8.			
	94	= Total Cover	

Woody Vine Stratum (Plot size: 30-ft)			
1. *Toxicodendron diversilobum* / Poison oak, Western poison o	10	Yes	FACU
2. *Rubus ursinus* / California blackberry	5	Yes	FAC
	15	= Total Cover	

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 20.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	9	x 3 =	27
FACU species	10	x 4 =	40
UPL species	140	x 5 =	700
Column Totals:	159 (A)		767 (B)

Prevalence Index = B/A = 4.82

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Vegetation is typical of Monterey pine forest

SOIL

Sampling Point: 1B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 3/1	100					Sandy Loam	
6-14	2.5Y 4/3	100					Sndy Clay Lm	
14-18	10YR 7/2	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No hydric indicators or redox features present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology is absent.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: George Washington Park | City/County: Pacific Grove/Monterey County | Sampling Date: 07/16/2024
Applicant/Owner: City of Pacific Grove | State: CA | Sampling Point: 2A
Investigator(s): JW | Section, Township, Range: 00, T15S, R1W
Landform (hillslope, terrace, etc): hillslope | Local relief (concave, convex, none): concave | Slope (%): 2
Subregion (LRR): C | Lat: 36.61922708 | Long: -121.92923498 | Datum: NAD83
Soil Map Unit Name: Narlon loamy fine sand | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area**
Wetland Hydrology Present?	Yes		No	X	**within a Wetland?** Yes ____ No X

Remarks:
Sample location in topographic low area. Area may experience seasonal periods of saturation, which promotes the presence of some facultative plant species, but is not sufficient to create wetland conditions.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acacia longifolia* / Golden wattle, Sydney golden wattle	20	Yes	NI
2. *Quercus agrifolia* / Coast live oak, Coast live oak, Encina	10	Yes	NI
3.			
4.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Holcus lanatus* / Common velvetgrass, Common velvet grass	30	Yes	FAC
2. *Lolium perenne* / Perennial rye grass	30	Yes	FAC
3. *Elymus glaucus* / Blue wildrye, Blue or western wild-rye	10	No	FACU
4.			
5.			
6.			
7.			
8.			
	70	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1. *Rubus ursinus* / California blackberry	40	Yes	
2.			
	40	= Total Cover	

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	10	x 4 =	40
UPL species	70	x 5 =	350
Column Totals:	140 (A)		570 (B)

Prevalence Index = B/A = 4.07

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Hydrophytic vegetation is not dominant. Vegetation is typical of Monterey pine forest.

SOIL

Sampling Point: 2A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/2	100					Sandy Loam	
10-18	10YR 5/3	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Soil lacks hydric indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators are absent

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: George Washington Park | City/County: Pacific Grove/Monterey County | Sampling Date: 07/16/2024
Applicant/Owner: City of Pacific Grove | State: CA | Sampling Point: 2B
Investigator(s): JW | Section, Township, Range: 00, T15S, R1W
Landform (hillslope, terrace, etc): hillslope | Local relief (concave, convex, none): convex | Slope (%): 2
Subregion (LRR): C | Lat: 36.61929191 | Long: -121.92917666 | Datum: NAD83
Soil Map Unit Name: Baywood Sand | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Sample location in landscape position several feet higher than sample 2A.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus radiata* / Monterey pine	30	Yes	NI
2.			
3.			
4.			
	30	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Toxicodendron diversilobum* / Poison oak, Western poison o	20	Yes	FACU
2.			
3.			
4.			
5.			
	20	= Total Cover	

Herb Stratum (Plot size: 5-ft)			
1. *Briza maxima* / Rattlesnake grass, Rattlesnake grass, Large	80	Yes	NI
2. *Lolium perenne* / Perennial rye grass	5	No	FAC
3. *Elymus glaucus* / Blue wildrye, Blue or western wild-rye	5	No	FACU
4.			
5.			
6.			
7.			
8.			
	90	= Total Cover	

Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	25	x 4 =	100
UPL species	110	x 5 =	550
Column Totals:	140 (A)		665 (B)

Prevalence Index = B/A = 4.75

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Vegetation is typical of Monterey pine forest.

SOIL

Sampling Point: 2B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/3	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Hydric soil indicators are absent.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators are absent.

CITY OF PACIFIC GROVE

300 Forest Avenue, Pacific Grove, California 93950

AGENDA REPORT

TO: HONORABLE CHAIR AND MEMBERS OF THE BEAUTIFICATION AND NATURAL RESOURCES COMMISSION

FROM: Christine Walkingstick, Chair

MEETING DATE: 02/18/2025

SUBJECT: George Washington Park Recommendations to City Council

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RECOMMENDATION

Receive Presentation; Discussion; Motion to move GWP recommendations forward to Council; Take other action related to this topic.

DISCUSSION

"At the February 19th City Council Meeting, the City Council will hold a discussion on the current City Wildfire Protection plans and efforts, and will also discuss near future efforts to lessen the threats from wildfires in our wild land interface areas**.** ***Also discussed with be the biological findings of a yearlong study in George Washington Park. These findings will be part of the consideration for future wildfire prevention maintenance efforts.***" ~ City Manager's Report February 7th, 2025

Being GWP is rich is with Natural Resources, any and all of the BNRC's recommendations regarding environmental and wildlife considerations, fire concerns, maintenance, clearly defining George Washington Park and its value are all worth considering with any potential updates to the GWP plan and submitting to City Council for the February 19th meeting.

The 2024 GWP/ Trees and Landscaping Subcommittee, composed of Chair Walkingstick and Commissioner Gorman, will be presenting the initial stages of a concept for George Washington Park to present to City Council if approved by the Commission. The attached map takes into consideration, biologically sensitive areas, fire, recreation, beautification and curb appeal, reforestation and natural, native landscaping.

Without elimination of the current "zones," or better named "areas," three layers would be added onto the map working from the outside perimeter inward to the heart of the park. Outside perimeter being Sinex/Alder/Pine Melrose and Short/Alder/Pine/Melrose.

Layer 1: Fire Break Recreation Trail. Outside perimeter. Yellow.

- DG (permeable surface) recreation trail that works as an additional fire break, eliminates invasive grasses and weeds, aligning with 1999 GWP Master Plan.
- ADA compatible
- More enjoyable for passive recreation users who want to enjoy the park without entering into the wild

land section.
- Instant curb appeal.
- Long term cost effectiveness. Less maintenance and mowing.

Layer 2: Natural Landscape layer: Second Layer. Light Green.

- Opportunity for reforestation
- Native pollinator friendly plantings
- Volunteer opportunities
- Picnic Grove; Parallel to Sinex Ave.
- Relaxation Benches

Layer 3: Wild Land Layer: Third Layer. Dark Green.

- Protect environmentally sensitive areas
- Keep intact wildlife habitat
- Monarch restoration effort
- Emergency maintenance only
- Reforestation where necessary
- Enjoyable recreation for bird watchers, hikers, deep forest nature lovers

Note: Current trails and recreation equipment (i.e. ball field, playground equipment and bathroom) to be kept and properly maintained.

Map is not to scale and layer lines could be adjusted based on the newly released Biological Report, new fire codes being implemented by the State and input from the new City Forester.

Attachments

GWP Layer Concept Map CWalkingstick

1999 George Washington Park Master Plan

2022 Draft George Washington Park Forest Management Plan

George Washington Park
Layer Concept Map 2025

- Perimeter Trail
- Natural Landscape
- Interior Wildland

Short St.

Pine Ave.

Melrose St.

Alder St.

17 Mile Dr.

Sinex Ave.

Agenda Item No. 7B

Master Plan for George Washington Park

City of Pacific Grove

Compiled by the Natural Resources Committee
& City Forester, Frank Ono

July - 1999

Agenda Item No. 7B

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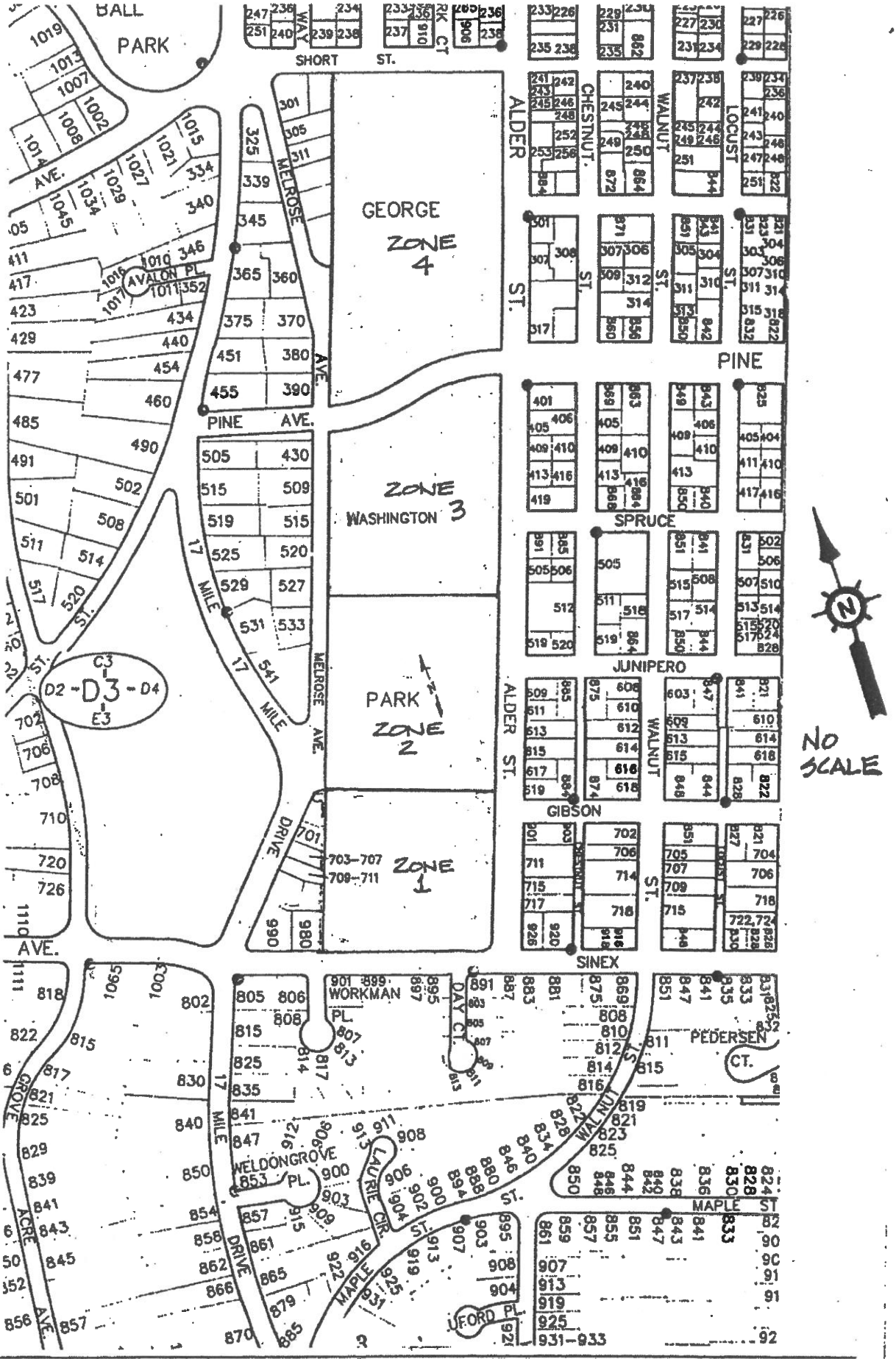
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Agenda Item No. 7B



Agenda Item No. 7B

Introduction

Agenda Item No. 7B

BACKGROUND

George Washington Park (GWP) consists of a natural forested area of 20 acres located in the west central portion of Pacific Grove on the Monterey Peninsula (36° 30' latitude, 121° 50' longitude). It is six blocks long, roughly north and south, and has varying widths which average close to two city blocks. It is bounded on the north by Short Street, on the east by Alder Street, on the south by Sinex Avenue, and on the west by Melrose Street in places and in other places by private property which fronts on Melrose Street. Only one road, Pine Avenue, crosses through the park. It is located approximately one-third of the distance south of the north boundary. To facilitate recreation, accessibility and resource management discussions, the park has been divided into four zones (see map on page 1):

Zone 1 is the southernmost portion of the park and encompasses the approximately 4 acre day use area managed by the Recreation Department as a high use recreation area. It includes restrooms, picnic grounds with both single and multiple user grills, a ball field and snack bar that is used in conjunction with ball games.

Zone 2 stretches from the ball field to the Southern boundary of the traditional butterfly "Cluster Site". This area is a ravine with steep user defined trails. It should be kept in a natural state to provide a transition zone from the active high use recreation area to the natural forest areas of the other zones.

Zone 3 begins at the top of the ravine, extends to Pine Ave and encompasses the historical monarch butterfly "Cluster Site". It is primarily native forest and should be managed to preserve its value as monarch habitat while at the same time accommodating visitors drawn to the Park to witness the overwintering butterflies.

Zone 4 is the northern portion of the Park which stretches from Pine Ave. to Short Street. We should encourage only passive recreation use in this area so as to sustain its remaining native forest and resident wildlife and provide visitors with a quiet, natural experience unavailable in the other more highly used zones.

A number of native birds, squirrels and other mammals live in the park. The Park is located in the oldest known area for monarch overwintering in California. Natural vegetation consists principally of Monterey pines, Coast live oaks and a number of other species of trees, shrubs, poison oak, and some flowers and native grasses. In some places the forest canopy is closed and there are open spaces under the trees and very few shrubs. In other places the where the forest canopy is open, there are a good many shrubs and thicket areas which are difficult to walk through. Scattered throughout the park are a number of standing dead trees. The City recognizes the value of these trees as wildlife habitat and the City Forester will carefully consider their removal following the guidelines of the attached document, Hazard Tree Risk Management for the City of Pacific Grove

The objectives of the management of this park must be to carry out the purposes for which GWP was established. Management of the area must be carried out in such a way that its pleasures are preserved and enhanced, and that its features are conserved and preserved for the benefit and enjoyment of present and future generations; recognizing at the same time, that this 20-acre park with its included day use area is too small an area for maintaining unaltered forest conditions.

Agenda Item No. 7B

PARK HISTORY

"The natural history of the Washington Park forest parallels that of the other remaining forested portions of the Monterey Peninsula. The forest had been subjected to hundreds of years of constant disturbance from various human activities. Although the native Costanoan people regularly ran fire through this area, it was during the Spanish era that much of the forest was converted to open range for grazing cattle. Since grassland and browse species are not important in the terrestrial ecosystem at Washington Park, grazing impact was probably light and the forest recovered. In about 1850 the forest was logged; the area burned one or more times and then was used for cattle grazing again. With the exception of a few oak trees, most of the [marketable] trees were removed during this time.

"Few, if any, fires occurred in the area subsequent to logging and the burning that shortly followed. Cattle grazing effectively reduced fire potential in the area until they were removed sometime prior to 1900. By then, the area supported scattered 50-year-old pines that had become established in the ashes following earlier logging. Pine and oak seedlings became widely established after the cattle were removed. Today these pines, together with an expanding understory of oak trees, comprise the Washington Park forest.

"The city purchased the pine forest land comprising Washington Park from Del Monte Properties Company in 1925 for ten dollars. Although there were no deed restrictions on the use of the property, the city used it as a park, and it was known as 'Municipal Park,' 'Forest Park,' and 'George Washington Park.' Over the years, there was talk about using the property for purposes such as a trail camp, a campground, or business. Pacific Grove citizens have long supported its use as a park. In 1948, the voters of Pacific Grove passed an initiative ordinance to limit the use of the property to a recreational park. The City of Pacific Grove now manages Washington Park for visitor use and its natural resources."[1]

It is the City of Pacific Grove's objective to protect and enhance Washington Park's natural resources. If the declining forest stand of Washington Park remains unmanaged, the Monterey pines, and the monarch habitat along with them, will continue to deteriorate.

RELATIONSHIP TO OTHER DOCUMENTS

One of the principal documents used in creating portions of this master plan is the Conceptual Plan for the Conservation and Management Program for [George] Washington Park, (CPCMPWP) published by The Monarch Project (an endeavor of the Xerces Society, a non-profit group dedicated to the conservation of rare invertebrates and their habitats), in February, 1990. The report was accepted by the City in 1990, and has formed the basis for the past decade of management decisions governing the park's natural resources. That document should be used in conjunction with this current management plan for in-depth understanding of the topics excerpted in this plan within the section entitled Environmental Considerations. A complete copy of the CPCMPWP is available at the Department of Public Works.

Also referenced in this plan are the City's Integrated Pest Management Plan and Hazard Tree Management Plan, both of which are on file in the Department of Public Works office.

[1] The Monarch Project, Conceptual Plan for the Conservation and Management Program for Washington Park, February 1990, page 6.

Goals and Objectives

Agenda Item No. 7B

The following goals and objectives are intended to provide guidance for future conservation and management of George Washington Park. These goals should be implemented as feasible and as funding is available.

GOAL 1: RETAIN AND ENHANCE THE EXISTING CHARACTER OF THE PARK.

Maintain four distinct management zones within the park. (These zones are illustrated in the map on page 1).

Zone 1 covers the southern-most portion of the Park and encompasses an area of approximately 4 acres which is managed by the Recreation Department as a high-use, daytime recreation area. Maintain existing day use area without expansion.

Zone 2 is a broad ravine which covers the area from the ball field to the southern boundary of the historic Monarch butterfly habitat. It is primarily native forest of predominately mixed Monterey pine and Coast live oaks and contains steep user-defined trails along the northern hillside leading to the butterfly habitat.

Zone 3 begins at the top of the ravine and extends northward to Pine Avenue. It encompasses the historical Monarch butterfly habitat including the "cluster site". It is primarily native forest predominantly comprised of Monterey pine and Coast live oak.

Zone 4 covers the northern portion of the park between Pine Avenue and Short Street and is also a primarily native forest. While it contains a mix of tree species, principally Monterey pine and California live oak, the live oak are the most dominant in number.

GOAL 2: PROTECT PARK RESOURCES

1. Achieve a balance between maximizing the protection of valuable park resources and maximizing public enjoyment of the park.
2. Restore and enhance park resources to a healthy state to ensure the aesthetic enjoyment and protection of habitat areas and forest resources.
3. Protect, restore and enhance environmentally sensitive habitat areas.
4. Preserve and enhance the existing park environment to protect forest and recreational resources.
5. Retain natural land forms to preserve scenic and habitat values where feasible.
6. Install protective barriers where necessary to protect, preserve and enhance park resources.

GOAL 3: PROTECT AND ENHANCE THE VISUAL QUALITY AND APPEARANCE OF THE PARK

1. Protect and enhance the scenic and visual quality of the park by promoting activities which provide for proper preservation, restoration and maintenance of the forest and recreation facilities.
2. Protect and enhance the natural character of the park by coordinating the use of appropriate landscape materials.
3. Assure that the design and materials of such items as signs, benches and trash containers are appropriate to the character of the park area in which they are located.
4. Enhance, preserve and restore the natural conditions of the historic Monarch butterfly habitat and other forested areas of the park.
5. Allow new signs only as necessary for education, public safety and/or environmental protection. Encourage the use of graphic symbols for the convenience and safety of non-English speaking visitors.

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GOAL 4: PROMOTE A BARRIER-FREE PARK

1. Maximize opportunities to provide barrier-free accessways and viewing areas for people with limited mobility.
2. Provide and clearly mark parking areas to accommodate people with limited mobility.
3. Maintain trails suitable for persons with disabilities, as defined in the Americans with Disabilities Act (ADA), where reasonable and feasible.
4. Where feasible, grade trail improvements according to ADA standards to accommodate visually or mobility impaired persons.
5. Integrate accessibility into the overall design program to ensure that the components work together, for example, to ensure safe and comfortable movement between parking and trails. An accessible parking space loses its value if the trail and viewing area are not barrier free, and vice versa.
6. Provide representative sections of the park experience which are entirely accessible and user friendly, recognizing that not all portions of the park can safely and feasibly be made accessible and that access improvements should be sensitive to the natural character and scenic qualities of the park.
7. Provide benches that are wide enough and placed at the appropriate height to accommodate the placement of a wheelchair next to the bench or the transfer of a wheelchair user to the bench.
8. Assure that signs are designed, and facilities are appropriately signed, to accommodate the visually impaired by using large print, easy-to-read fonts, delineated surfaces, simple messages and maps where necessary.
9. Prepare and distribute a handout which would include a map of the entire park that shows ADA access points, viewing areas, parking spaces, grades of streets and trails, placement of benches and trash cans. For the visually impaired, prepare a large print version and/or audio tapes.

Environmental Considerations

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"Monterey pine (*Pinus radiata D.Don*) occurs naturally along the coast of mainland California in three disjunct populations: Ano Nuevo, Monterey, and Cambria. There are also two island populations, on the Cedros and Guadalupe Islands off the coast of Baja California... The largest Monterey pine stand occurs on and adjacent to the Monterey Peninsula, covering about 4,000 hectares... .

"The health and vigor of different individual Monterey pine stands on the Monterey Peninsula vary from one another, depending on such environmental factors as soil type, soil depth, exposure, distance from the coast, rainfall, pathogens, and degree of human disturbance... In the short-term, however, each stand fluctuates, as individual trees or groups of trees die and are replaced by their seedlings. In this process it may appear to the uninformed observer that the forests are declining when in fact they are surviving, but not at a high level of health and vigor. A key to long-term vigorous survival is the forest's ability to regenerate itself, and it is here that human influence can impact the continued survival of the Monterey pine forest."[2]

The following topics are thoroughly explained and discussed in The Monarch Project, Conceptual Plan for the Conservation and Management Program for Washington Park, February 1990. This report was accepted by the City Council in 1990, and forms the basis for the past decade of management decisions governing the park's natural resources. That document should be used in conjunction with this current management plan for in-depth understanding of the following topics, which have been excerpted below:

TERRAIN AND VEGETATION

GWP "slopes gently at approximately two to five percent towards the west. Soils are generally Tangair fine sand with some Narlon sandy loam. Many Pacific Grove residents and visitors use the park, as evidenced by the labyrinthine matrix of paths throughout the forest. The monarch roosting sites in the park attract a plethora of visitors every year, who come to view the phenomenon of clustering monarchs. That this unique forest is actually suffering from overuse is demonstrated by the exposed tree roots along many of the beaten paths. Uncontrolled, indiscriminate use of the park by visitors is damaging the root systems of the pines, inducing stress and making the pines susceptible to bark beetle infestation and other pests.

"The vegetated, gently sloping areas pose no erosion problems, However, the prolific trail network throughout the park shows exposed bare soil and tree roots in many areas. This exposure suggests that erosion presents a potential hazard to tree health and vigor. Drainage from Junipero and Gibson Avenues used to be heavy, and a drainline was installed in 1998 running from Alder Street to Melrose Avenue to capture surface water and run it underground.

"The forest of Washington Park is dominated by a mature overstory of Monterey pine and a dense understory of coast live oak. Other native understory species include a variety of shrub and herbaceous plants... (See Appendix C for Plant Species List.)

"The native shrub and herbaceous layer once spread more widely and continuously throughout Washington Park than it now does. Native species are trampled by pedestrian foot traffic, and are seriously threatened by the spread of invasive exotic vegetation, particularly the annual grasses, rattlesnake grass (*Briza major*) and ripgut (*Bromus diandrus*). These grasses grow rapidly during the rainy season and by April form a dense cover more than two feet high that inhibits the establishment of slower growing native species, including Monterey pine seedlings. The dense understory of exotic annual species is the prime factor prohibiting pine seedling establishment. The diverse array of native understory species are also unable to compete against the invasive grasses and in time are displaced.

"Soils, drainage and climatic factors make Washington Park an ideal site for Monterey pine as evidenced by the landmark trees, which make up about 20 percent of the total number of Monterey pines. The pine and coast live oak form a mature, even-aged stand, meaning that the dominant trees were established at about the same time. The site is currently stocked at close to 100 percent, with occasional openings in the tree canopies. The mature pine canopy is open and the oaks exhibit a

[2] The Monarch Project, Conceptual Plan for the Conservation and Management Program for Washington Park, February 1990, page 5.

resplendent, closed canopy. The forest provides wildlife habitat, especially to cavity-nesting birds utilizing snags (standing dead trees).

"Several pines of unknown origin have been planted over the years in the picnic area and around the park perimeter along Alder Street, Short Street, and Pine Avenue... The City should examine the possibility of removing and replacing them with native Monterey pine or another native species... Monterey pines outside the park, particularly on the western and northern sides, serve to buffer the park's forest from direct exposure to the wind and other climatic influences. Since these trees are gradually being cut down (and are not commonly replaced) the health of the Washington Park forest and its suitability as monarch habitat may be adversely affected. Regeneration, critical to continuation of short-lived pine species, is sparse to non-existent. The lack of new growth is a major contributor to the decline of the monarch overwintering habitat.

"The health of the pines in Washington Park is in serious decline. Approximately 10 per cent of the pines are dead or dying and those remaining pines are under considerable stress and declining. [*NOTE: In the nine years since the Monarch Project report, pitch canker has become rampant on the Monterey Peninsula. Estimates of the current (1999) rate of infection range from 80-90%: Katy Travaille, Natural Resources Committee*] The oaks, on the other hand, can be described as "thrifty" at this point in time, that is, in good but not vigorous health, and not obviously declining. If the present trend continues uninterrupted, the coast live oak will be the dominate tree in the park in about 20 years. However, if the soil compaction problem is left unadvised, the quality of the environment for supporting the oaks would degrade as well."[3]

Forest Succession

"The Washington Park forest is going through a successional change in which the pines are old and dying out and the oaks are filling in. Coast live oak has two characteristics that give it a competitive advantage over Monterey pine. First, it has a long life span of 150-300 years, whereas the Monterey pine, with an average life of 80 to 100 years, is short-lived. Second, the coast live oak reproduces well in shade, whereas shade suppresses Monterey pine regeneration. In the absence of any type of disturbance to control the growth of the oak, the pine forest will generally move toward an oak forest climax. Under natural conditions where intense wildfires periodically kill and thin out mature oaks, and where browsing activity of deer suppress the growth of young oaks, the pine forest can maintain itself indefinitely. But since fire has essentially been removed as an ecological force and deer rarely use the park, there is no longer a controlling factor in the successional process and therefore the forest would naturally, in time, culminate as oak woodland.

"The situation in Washington Park recalls the problems experienced in Sequoia National Park where overuse resulted in serious decline of the giant sequoias. Washington Park is covered by a labyrinthine, uncontrolled trail system and excessive visitor use causes severe soil compaction and soil erosion which has exposed roots in some areas. Soil compaction stresses the tree and invites pathogen infestation... The stressed pines are vulnerable to several biological problems and the beetle infestation is of epidemic proportions and requires immediate attention."[4]

The ravages of the rampant spread of pitch canker throughout the pine forest of the Monterey Peninsula is very apparent in Washington Park. Unless something is done to arrest the progress of the disease and control the invasive exotics which inhibit the regeneration of the pine forest, the park will continue in its succession of pine-to-oak-woodland, and the overwintering population of monarch butterflies will be lost.

"Fortunately, the same mitigation measures employed at Sequoia National Park are transferable to this site. The soil compaction must be treated and any further damage avoided by establishing a controlled trail system. This trail system will be designed to carry a significant number of park visitors while minimizing soil compaction and root damage. Furthermore, because regeneration is woefully lacking, encouragement of natural regeneration (seeds established on site) and artificial regeneration (seeds gathered on site and propagated elsewhere, then planted) are recommended to ensure continuance of the stand.

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[3] The Monarch Project, Conceptual Plan for the Conservation and Management Program for Washington Park, February 1990, pages 7 and 8.

[4] The Monarch Project, Conceptual Plan for the Conservation and Management Program for Washington Park, February 1990, pages 8.

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MONARCH HABITAT CHARACTERISTICS

"In selecting overwintering habitats, migrant monarch butterflies in the fall search out areas near the California coastline characterized by a very special subset of climatic variables that provide them protection from desiccation (drying out), starvation, and freezing while at the same time providing enough sunny days for them to warm up sufficiently to be able to fly, mate, and search for nearby nectar supplies. The proper set of conditions are known as the "microclimatic envelope.

"Proximity to the Pacific Ocean protects the butterflies from severe freezing and provides high humidity; tree cover and topography protect them from wind exposure; and a south and/or westerly exposure of the grove provides them access to direct rays of the sun for thermoregulation, i.e. orienting to the direct rays of the sun that allows them to warm rapidly and attain flight threshold on cool winter days. It is therefore extremely important that microclimatic data be gathered in Washington Park while the butterflies are still selecting the area in order to maintain and enhance the microclimatic envelope through future management of the site. The single most important basis for the long-term survival of Washington Park's monarch habitat is accurate biological information.

"At Washington Park, monarch butterflies aggregate in the northeast portion of the southern rectangle of the park. Here the butterflies form clusters each year in an area approximately 700 square meters within the forest of Monterey pine. The forest is dominated by the pines and includes many old trees of about 30 meters in height with a predominance of smaller, mature trees at approximately 20 meters in height. Coast live oaks with a height of up to approximately 10 meters are also abundant. Monarchs cluster only on the smaller, mature trees and do not use the coast live oaks or the tallest pines. The tallest pines are close to senescence, and will die off soon, as eventually will the younger ones they now cluster on. As noted, there is little or no regeneration of the pines from seeds. Hence the importance of planting new trees.

"To the south of the overwintering aggregations, the pines thin out considerably. The oaks and pines in that area once bore larger amounts of epiphytic lichen, or lichen living in the air. The combination of a thinner stand of trees and less lichen suggests that the overwintering habitat is subjected to greater winds now than in the past, a significant and growing deterrent to overwintering.[*NOTE: As of the 1999 writing of this Management Plan, it appears that the microclimatic conditions that supported GWP's overwintering butterflies have deteriorated to the point that the forest can no longer support large quantities of overwintering monarchs. We have included this segment of the CPCMPWP to encourage management which will, in time, bring back the forest to conditions which can sustain traditional monarch butterfly populations: Katy Travaille, Natural Resources Committee*]

The Overstory Canopy: Cover And Insulation

"Research in Mexico has established that overwintering forest density at 250-800 trees per hectare and basal areas of 25-85 meters squared per hectare are most effective for monarch overwintering. These figures suggest a mature, climax forest community with active regeneration.

"The overstory canopy in monarch overwintering habitats should be predominantly closed and formed by mature, reproductive trees at heights of approximately 10 to 30 meters. A closed canopy reduces temperature loss at night and insulates the forest from excessive heating during the day. Temperatures within closed canopy forests are significantly warmer at night and cooler during the day than those in adjacent clearings or open canopy forests. Closed canopy forests are also more humid and retain moisture better that open forests.

"The closed canopy shields the interior of the overwintering habitat from direct sunlight and makes excessive monarch movement less necessary and less likely. Monarchs must establish an energy balance between conserving sufficient stored fat as an energy source to power movements that may be necessary to escape excessively cold ground temperatures and predators. An excessively open canopy makes it more likely that monarchs will be (a) dislodged from their clusters during storms; (b) subject to greater predation from birds and mice, (c) forced to expend valuable fat stores to fuel movement back to clusters, and (d) subject to involuntarily increased body temperatures, by exposure to direct sunlight that also expends fat reserves."[5]

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[5] The Monarch Project, Conceptual Plan for the Conservation and Management Program for Washington Park, February 1990, pages 9 and 10.

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The Understory Vegetation: Sustenance And Shelter

"The understory is a second, too frequently underrated, factor in creating a successful overwintering habitat. The understory should include a diverse collection of plants which have varying heights, so that the plant cover is somewhat redundant of the protection provided by larger trees. Thus, as the large trees age and their lower branches become more barren, the understory still provides shelter and protection from winds. The mingling of tall pine and lower oak in Washington Park provides a good example of this, but it needs to be maintained and enhanced. However, in Washington Park there is a paucity of lower ground vegetation in the monarch habitat.

"Monarchs use understory vegetation within and near overwintering habitat as a substrate to crawl up onto from the ground and sometimes as a source of flower nectar. The understory also helps shelter clustered monarchs from excessive winds. Understory plants tend to reduce heat loss and, by providing insulation on the ground, reduce excessive warming.

"Overall, the understory helps to regulate the microclimate, increases humidity and makes water available to monarchs through condensation. Monarchs need to escape from the ground onto understory vegetation and tree trunks in order to avoid mouse predation and possible freezing temperatures from cold air drainage. Where visitors to monarch overwintering sites are numerous, understory vegetation also helps monarchs avoid being trampled to death and limits visitor access. Overall, the understory at Washington Park is clearly insufficient and unable to fulfill these basic requirements for overwintering monarchs.

PROBLEMS IN FOREST HEALTH

"Currently the pine stand in Washington Park is rapidly declining with about 10 percent of the trees dead or dying. At the current rate of decline, the pine stand will essentially be dead in ten to twenty years. The long term recovery of the pine stand is dependent on the regeneration of the pines through seedling establishment and a return to health of some of the large trees. The current obstacles to regeneration are the dense understory of primarily weedy species and the serious problem of soil compaction. The current seed supply, which is adequate, falls and germinates in the weedy understory and on the compacted soil. The seedlings die in the understory due to competition with the weeds and on the compacted soils due to lack of root penetration.

Soil Compaction

"There are two primary sources of soil compaction in Washington Park: visitor use and the impact of rain on bare mineral soil. Pedestrian and bicycle traffic tend to create paths of bare mineral soil with a heavily compacted layer extending down through the soil profile for several inches. The sheer number of annual visitors in Washington Park and the lack of pedestrian path control ensures that significant soil compaction will continue to occur. Once a path has lost its cover of organic matter, raindrops striking the soil tend to increase compaction and reduce aeration of the soil even further.

"Soil compaction causes a range of problems in the park, including loss of soil aeration, forest disease and insect problems, and surface erosion... .

"Rainwater doesn't sufficiently penetrate compacted soils, leading to an additional set of problems. Instead of entering the compacted soil, rainwater collects on the surface and flows away downhill causing surface erosion. The trees suffer from a lack of soil moisture since insufficient rain water penetrates the compacted soil to replace the water the trees utilize for growth. The soil washing away in surface erosion exposes tree roots, as can be seen in Washington Park. Soil compaction has stressed the pines and invited a beetle infestation of epidemic proportions."[6]

[6] The Monarch Project, Conceptual Plan for the Conservation and Management Program for Washington Park, February 1990, pages 10 and 11.

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Pitch Canker

In 1990 the authors of Monarch Project Report said that though pitch canker had been identified 40 miles north of Pacific Grove in Santa Cruz County, they saw no evidence of the disease in GWP. Since that time pitch canker has spread rampantly throughout the Peninsula, and has become the most significant factor in the forest's decline.

Pitch canker is caused by a fungus (*Fusarium subglutinans forma specialis pini*). It was first identified in California in 1986, and has now spread throughout large areas of coastal California. It is spread by insects that feed and reproduce on pines. This includes the Monterey pine cone beetle (*Conophthorus radiatae*) and several species of both twig beetles (*Pityophthorus spp.*) and engraver beetles (*Ips spp.*), all of which are native to California.

"The infections which result from feeding by twig and cone beetles lead to the girdling of young branches. The death of these infected branches weakens the tree and provides substrate suitable for breeding by twig beetles. Beetles emerging from infected branches commonly carry the pathogen and may proceed to establish new infections. Engraver beetles can introduce the pathogen into larger branches and ultimately the bole or the main trunk of the tree. Bole cankers further weaken the tree and render it more prone to engraver beetle attacks. Death of the affected tree often follows, which in turn enhances the reproductive opportunities for both Ips and Pityophthorus species.

"Although it is most conspicuous as a disease of mature trees, pitch canker can also affect seeds and seedlings. Seeds collected in pitch canker-infested areas commonly carry the pathogen, even where they originate from cones on unaffected branches. Infected seeds may fail to germinate or germinate to produce infected seedlings. Infected seedlings may die shortly after germination or survive without obvious symptoms for several months. Consequently, both seed and seedlings can serve as vehicles for dispersal of the pathogen... . Moreover, we have confirmed the ability of *F. s. pini* to survive in litter and in soil. Consequently, the potential for pitch canker to contribute to seeding mortality will continue to increase concomitantly with the incidence of disease in mature trees, which constitute the principal source of the inoculum found on and in the soil... ."[7]

"The occurrence of fire would enhance the prospects for regeneration. In addition to opening Monterey pine's serotinous cones and freeing space for the establishment of younger trees, fire sanitizes the top layer of soil, greatly reducing the levels of fungal inoculum and thereby minimizing pitch canker-induced seedling mortality. Fire, and or alternative treatment that mimics the effects of fire may enhance regeneration by reducing F.s.pini inoculum during the critical years when young trees are most susceptible to the disease."[8]

All wood from downed trees or hazard trees felled in the park should be considered to harbor the pitch canker fungus. In order to slow the spread of the disease, Pacific Grove citizens should be discouraged from gathering wood and storing it next to living pine trees or transporting it to uninfected areas.

There is presently no cure for this devastating disease. There is some evidence that the occurrence of naturally resistant genotypes within the native pine population may offer the Monterey pine a chance to successfully adapt to the pitch canker pathogen. Though the use of fire as a management tool for GWP has been dismissed in the past as too dangerous and drastic, it may be the only way to preserve the forest in GWP. Studies are currently being conducted on the use of small controlled burns as a regeneration tool in the pine forests of Pebble Beach and elsewhere in local State Parks. Based on the success of these studies, NRC encourages the consideration of small mosaic burns in the park to regenerate the pine forest and enhance pitch canker-resistance.

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[7] Thomas R. Gordon, Karen R. Wikler, Andrew J Storer, and David L. Wood, Fremontia: A Journal of the California Native Plant Society, Vol. 25, No.2, April 1997, page 7.

[8] Thomas R. Gordon, Karen R. Wikler, Andrew J Storer, and David L. Wood, Fremontia: A Journal of the California Native Plant Society, Vol. 25, No.2, April 1997, page 9.

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Pest Infestation: Beetles

In Washington Park, two genera of bark beetles are common, *Ips* and *Dendroctonus*. "These beetles primarily attack trees weakened by stress. Stress can be caused by soil compaction, root injury, old age, competition from other trees or weeds, or insufficient water or too little or too much of some other agent. Vigorous healthy pines usually resist beetles by producing abundant amounts of pitch when the beetles try to bore in. The pitch hampers the insects' invasion and impedes their development beneath the bark... Compounded by the old age of the stand, [current] beetle infestation is attributable to several factors, including: 1) root damage from construction activity within and on the perimeter of the park; 2) soil compaction and mechanical injury to roots from increased visitor use of the park, particularly in the area where the butterflies congregate, and from vehicles driven through the park; 3) increased competition for available soil, water, and nutrients by exotic plants; and 4) changes in forest microclimate as a result of deforestation occurring around the periphery of the park.

"Any measures that can be taken to prevent pines from becoming stressed will reduce the likelihood of serious losses from bark beetles. Such measures should include prohibiting or minimizing any activity which would damage tree roots, and reducing soil compaction and preventing reoccurrence of compaction around trees.

"Recognizing that an infestation is in progress and that the forest and, therefore, the monarch butterfly population is vulnerable to severe tree loss, remedial action should be taken soon to control the infestation. Heavily infested trees or dying trees should be promptly removed or debarked.

"Removal of infested bark is the best manual method of beetle population control, and will improve the general health of the forest quickly. The bark, which harbors the beetles, should be removed from standing and fallen dead trees to the greatest extent possible. Both the bark and the fallen dead trees will then be chipped for use as mulch on the designated trail system."[9]

The control of beetles through the use of insecticides is not recommended in GWP as it could adversely affect the monarchs.

Pest Infestation: Other Pathogens

"Western gall rust (*Endocronartium harknessii*) is ubiquitous throughout the Monterey Peninsula and is responsible for deformation and wind breakage of trunks and large branches in mature trees, and significant mortality in small trees. The western gall rust fungus produces round branch and stem galls which eventually girdling the tree (remove strips of bark around its circumference). Trees usually survive branch girdling, however they are eventually killed by stem girdling.

"Another stem disease, [Coastal]dwarf mistletoe (*Arceuthobium [littorum]*) is also widespread over the Monterey population and affects pines of all ages, though primarily those of sapling size. Mistletoe infested trees are weakened and thus become more susceptible to insect attack... .

"Washington Park also contains a large stand of coast live oak, which hosts a common pathogen called oak root fungus (*Armillaria mellea*). It infects the roots of all oak trees in Washington Park. Under normal conditions this fungus is not harmful to the tree. Oaks typically are infected over their lives and remain in balance with the fungus unless the environment changes. Summer irrigation and soil compaction are two of the environmental changes that can promote the fungus infection to the detriment of stand health. If the soil compaction around oak trees in Washington Park is allowed to continue, then the fungus could seriously infect the roots and eventually kill some or many of the oaks. The proposed program taking measures to alleviate and prevent further soil compaction will benefit those oak trees currently affected by it."[10]

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[9] The Monarch Project, Conceptual Plan for the Conservation and Management Program for Washington Park, February 1990, page 12.

[10] The Monarch Project, Conceptual Plan for the Conservation and Management Program for Washington Park, February 1990, page 13.

Restricted Activities

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CONCEPT

The concept for listing specific activities to be prohibited within the park on a seasonal or on-going basis is to ensure the continued health of park flora and fauna, particularly the overwintering Monarch butterflies and their remaining historic habitat. Emergency vehicles and emergency maintenance or repairs are excepted from these prohibitions at the City Manager's discretion.

MANAGEMENT GUIDELINES

These guidelines are presented in order to protect the existing park vegetation, and any future restoration, as well as overwintering Monarch butterflies and their historic habitat.

1. Prohibit the use of gasoline-powered equipment in the Monarch butterfly roosting sites while Monarch butterflies are in residence.
2. As asphalt continues to radiate heat after application and heat changes the microclimate within the historic Monarch butterfly roosting site, prohibit asphalt work near historic Monarch butterfly roosting sites within Zone 3.
3. Because soil compaction is detrimental to forest vegetation, prohibit driving of trucks or other heavy equipment into the park within Zones 2, 3, and 4, except in emergencies as determined and sanctioned by the City Manager.
4. Limit the driving of trucks or other heavy equipment into the park within Zone 1 only as needed for repair and maintenance of recreational facilities as determined by the Department of Public Works and the Recreation Director.
5. Since bicycle traffic also contributes to soil compaction and erosion, prohibit bicycle traffic in Zones 2, 3, and 4.

Hazard Tree Management

CONCEPT

Standing dead trees in and of themselves do not necessarily impose significant risk to public safety or property and, along with the dead wood (coarse woody debris) on the forest floor, they form a critical component in the ongoing replenishment of forest soils, and provide food and habitat for a variety of birds, insects, small mammals and other vertebrates.

MANAGEMENT GUIDELINES

1. Periodically inspect trees within the park for risk to public safety or property.
2. In accordance with the City's Hazard Tree Risk Management Plan (HTRM), evaluate trees that are suspected of posing a significant risk using Tree Hazard Evaluation guidelines published by the International Society of Arboriculture. (Reference copies of the HTRM are available from Public Works.)
3. Take remedial action as deemed necessary.

Pest Management and Control of Non-Native Plants

Agenda Item No. 7B

CONCEPT

The City of Pacific Grove General Plan prohibits the unsafe use of chemical pesticides and herbicides and also requires that City personnel using approved pesticides and herbicides be properly trained and licensed for their use. The City's Public Works Department has implemented an Integrated Pest Management Plan (IPM) to best comply with General Plan mandates and to deal with critical decisions concerning pest problems. An IPM is designed to minimize the use of pesticides and herbicides, and implement a balanced program of sound ecological practices to control those pests which occur. Trained personnel identify pests and their symptoms, and consider what interrelation of cultural practices, environmental conditions, biology of plants pests, and beneficial organisms are present before prescribing and administering remedial measures. Those measures may include cultural, mechanical, physical, biological and/or chemical controls.

MANAGEMENT GUIDELINES

1. Prohibit application of biocides and/or herbicides year-round in the historic Monarch butterfly roosting sites within Zone 3.
2. Apply biocides and/or herbicides with known residual effects, prior to September 1 in Zones 1, 2, and 4.
3. During the months when monarch butterflies are in residence, historically from October to April, prohibit application of biocides and/or herbicides anywhere within the park.
4. Remove poison oak around park perimeter and in Zone 1 due to high recreational use in that area. However, as poison oak is a valuable source of food and cover for wildlife and discourages off-trail passage by visitors to the park, control poison oak in all other zones only where it encroaches on authorized trails.
5. In all other dealings with pests found to occur within the Park, including non-native plants such as pampas grass, French broom, ice plant, etc., consult the Integrated Pest Management [Plan] for Use by Public Works Personnel on Pacific Grove's Parks, Open Spaces and Public Facilities and follow the guidelines set out therein. (Reference copies of the IPM are available from Public Works.)

Fire Management

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CONCEPT

"The key to fire management in an urban forest setting is to control the fuel load within the forest and to provide adequate safeguards against the introduction of fire from outside the park."[12]

MANAGEMENT GUIDELINES

The following measures are intended to reduce the risk of a catastrophic fire within the park:

1. Manage understory levels to prevent a localized buildup of dead plant materials.
2. As live understory plants and grasses are valuable to the monarch butterfly habitat, remove only excess dead material and plant rubbish, particularly within Zones 2, 3 and 4.
3. Monitor yearly buildup of live brush.
4. Remove live brush buildup as needed as determined by City Public Works and Fire Department personnel in consultation with a forest ecologist and monarch butterfly experts. Special attention should be given to understory requirements for monarch butterfly habitat.
5. Remove all standing dead trees smaller than six inches in diameter at breast height, and chip for use as mulch on park trails.
6. Mulch open areas as needed to inhibit the growth of weed species.
7. Mow a five to ten foot wide strip in grassy areas along roads to provide protection against fires from cigarettes and similar ignition sources. Mowing should be done once or twice in both the spring and summer and no vegetation other than grasses should be cut.
8. Establish a 30 foot fuel break around the perimeter of the park by removing all dead material (trees, shrubs and grasses) within this area. On pines within the area, remove branches to a height of eight feet about the ground. Live shrubs should be retained.
9. Post signs in the picnic area in Zone 1 prohibiting fires outside of the barbecue pits provided.
10. During times of critical fire danger, City Public Works and Recreation staff, in consultation with City Fire Department personnel, may wish to prohibit smoking and fires of any kind within the park as conditions warrant.
11. If the results of small controlled burns elsewhere on the Peninsula warrant, consider future use of this method to foster reduction of pitch canker and promote natural regeneration of the pine forest within the park. Controlled burns do not have to be done by City personnel. California Division of Forestry will perform controlled burns on private property at no cost; they also accept the liability.

[12] The Monarch Project, Conceptual Plan for the Conservation and Management Program for Washington Park, February 1990, page 24.

Recreation Plan

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CONCEPT

To allow active recreation use in the 4.3 acre day use area (Zone 1) in a manner best in keeping with the character of the overall park and community needs, while preserving to the utmost, the natural environment. The park should continue to create the illusion of being as far removed from the urban scene as possible.

MANAGEMENT GUIDELINES

The 4.3 acre day use area (Zone 1) should be an extension of the park proper, and as such, be maintained in as much of a natural state as its intended use will permit.

Priorities

1. The existing day use area should not be expanded.
2. Any trail plan will not interfere with any present or future plan use of this area.
3. Only authorized vehicles will be allowed in the park and all parking shall be on the park perimeter.
4. The approved 1993 4.3 acre drawing shall be used as the site map for future use of the area.
5. All dead limbs and trees which appear to be extremely hazardous should be trimmed or felled and removed. Any tree removed shall be replaced, within one year at the latest, with at least a one gallon tree.
6. All non-indigenous plants and poison oak should be removed.
7. All playground equipment, picnic areas and restrooms shall be maintained in a non-hazardous condition with weekly inspections. Maintenance work shall be provided as necessary.
8. A service club could help with major maintenance at intervals of no more that two years.

ADA Access

Agenda Item No. 7B

CONCEPT

As outlined in the goals for this document, the City of Pacific Grove believes that George Washington Park should be made accessible so that individuals with varying levels of disabilities can enjoy the park's recreational opportunities and natural beauty. Efforts to do so began in 1993 with improvements to the picnic areas and playground in Zone 1. This plan is intended to continue those accessibility improvements without compromising the natural beauty of the park or damaging the fragile ecosystem that supports overwintering monarch butterflies.

MANAGEMENT GUIDELINES

Priorities

The priorities for improving accessibility within the park, as listed below, were drafted by the A.D.A.C.A.C. and approved in January, 1999. The A.D.A.C.A.C. would work with the Recreation and Public Works Departments to:

1. Provide at least one whole access restroom within the park in Zone 1.
2. Provide whole access to the Youth Ball Diamond area in Zone 1.
3. Provide whole access to the Group Picnic area within Zone 1.
4. Provide resources for the development of the Park Master Trails Plan as outlined below.

Trail System Development Review

The Washington Park trail system was developed by the City's Monarch Habitat Restoration, Natural Resources, and Americans with Disabilities Compliance Committees in conjunction with the Recreation Department, Public Works and the City's ADA advisor. We have sought advice and incorporated information from the following government agencies: The Department of Justice's Federal Register, Vol. 56, No 144, (1991), The Recreation Access Advisory Committee's Recommendations for Accessibility Guidelines: Recreational Facilities and Outdoor Developed Areas (1994), The State of California Department of Parks and Recreation's Access to Parks Guidelines (1993), The Pacific Disability and Business Technical Assistance Center, and the California State Community Access Network.

Trail Plan

Accessible trails throughout George Washington Park should follow the specifications provided in the State of California Department of Parks and Recreation's Access to Parks Guidelines. Trails should allow visitors to the park to have reasonable access to its various natural and recreational experiences while also protecting the park's remnant stand of Monterey pine forest and one of California's most significant examples of aboriginal monarch butterfly overwintering habitat.

1. Have the Pacific Grove Recreation Department develop and the Pacific Grove Public Works Department maintain ADA accessible trails, bathrooms and other recreation facilities in the high use recreation area of Zone 1.
2. Sign the trails through Zone 2 as "Most Difficult" since the topography makes development of formal ADA-accessible trails impractical there.
3. Zone 3 is the prime area in which to develop an easily ADA accessible trail and rest area. If the monarchs return to the Park in the future, visitors with (and without) disabilities will be able to find the butterflies easier with less impact on the forest. If the butterflies do not return to over winter in the Park, this area contains a representative sample of native Monterey Pine forest plant and bird species and could be developed as a an educational nature trail. The City should strive for a high degree of accessibility here by constructing a boardwalk or lining the trail with logs and building up a firm walking surface with decomposed granite or ADA approved stabilized mulch. Signed Handicapped Parking should be available at the entrance to this trail. Junctions with the natural area cross trails necessitate constructing ramp transitions and would be signed to give visitors the information they need to determine whether they would be able to negotiate alternate

routes. This portion of the trail system should be designed by a qualified engineer who is knowledgeable in accessibility issues and sensitive to the delicate environmental requirements of the butterfly habitat.

4. Keep the trails in Zone 4 in their current natural condition to encourage quiet passive recreation. Create 2 wheelchair accessible curb cuts and trail heads with designated Handicapped Parking, one on Alder Street near the corner of Pine, and the other on Short Street across from Bentley Street. The existing use trail which connects these points is nearly level with only two areas of exposed roots which could be mulched to prevent a tripping hazard. Sign both ends of this trail as having a moderate degree of difficulty.

Agenda Item No. 7B

Fencing

CONCEPT

"Forest entomologist Dr. Clifford P. Ohmart wrote, '...all uses [in natural areas] are simply not compatible in every situation. A given type of natural environment can only sustain so much impact by people, no matter how well-regulated this impact is, before it is affected by it.'

"Washington Park has entertained unrestricted human use for so long that the impacts from it have now seriously degraded the forest and the monarch habitat. The best and only hope that the park and its monarch habitat will survive is if the most important areas are well-protected. The choice now is between completely unrestricted use on the one hand, and the very survival of the forest on the other"[12]

GUIDELINES

The use of eyebolt-and-cables to delineate the main butterfly cluster site has been successful in controlling aimless wandering through the damaged understory. Since its installation, there has been marked improvement in the survival and growth of young restoration plantings. However, maintenance has proved problematic as vandalism has been a recurring problem necessitating repeated repairs by public works. We recommend that a more permanent solution to the problem of habitat degradation be installed.

1. Construct a rustic split rail fence around the park perimeter with openings to the managed trail system.
2. Post signs at entry points informing the public about the need to stay on designated trails to preserve the health of the forest.

[12] The Monarch Project, Conceptual Plan for the Conservation and Management Program for Washington Park, February 1990, page 16.

Revegetation Plan

Agenda Item No. 7B

The following Revegetation Plan (pages 18-23) was prepared by Bruce Cowan in February, 1992, after the 1991 consultation visit by butterfly scientist Dr. Lincoln P. Brower, Dept. of Zoology, University of Florida. It was intended to supplement Dr. Brower's comments and serve as a guideline for the restoration of natural habitat in George Washington Park to encourage recolonization of overwintering monarch butterflies.

EXISTING CONDITIONS

The park contains a stand of aging Monterey pines with most of the foliage at the top. These trees do not provide sufficient windbreak for monarch butterflies. Few young pines are growing under the old trees due to several factors:

- An extended period of fire suppression.
- Excessive shading and root competition from mature trees.
- An understory of coast live oak which may shade out pine seedlings. In many places the oaks are on their way to becoming the dominant tree.
- Groundcovers of mostly introduced weedy annual grasses and other weeds compete excessively with newly germinated pine seedlings and other native plants.

Steps have already been taken to correct some of these factors by planting young pines and creating mulched trails throughout the park.

The native understory vegetation has changed over the years due to intensive use of the park, including trampling, mowing to reduce fire hazard, and deliberate or accidental introduction of a number of exotic species, such as genista or French broom (*Genista monpessulanus*), annual grasses--mainly ripgut (*Bromus diandrus*), rattlesnake grass (*Briza maxima*), foxtail (*Hordeum murinum ssp. loporinum*), and ryegrass (*Lolium spp.*); ornamental plants such as English ivy (*Hedera helix*), montbretia (*Tritonia*), and yellow oxalis or Bermuda buttercup (*Oxalis pescaprae).*

Some of the tougher native species, including poison oak (*Toxicodendron diversilobum),* blackberry (*Rubus ursinus*) and hedge nettle (*Stachys bullata*) still remain in the park. Many of the other native species have either become scarce or have been eliminated.

The native understory that once existed can be estimated by comparing Washington Park with Rip Van Winkle Park, which is much less disturbed. In addition to poison oak, blackberry and hedge nettle, the groundcover in Rip Van Winkle Park contains a number of fragile species, including creeping snowberry (*Symphoricarpos mollis*), Douglas iris (*Iris douglasiana*), sticky monkey flower (*Mimulus aurantiacus*), yerba buena (*Satureja douglasii*), wood strawberry (*Fragaria vesca)* and milkmaids (*Cardamine californica*). These plants are highly subject to trampling, and they do not compete well with weedy annual grasses. Most of the grasses in Rip Van Winkle Park are native species, except near the edges.

Larger shrubs in Rip Van Winkle Park include blueblossom ceanothus (*Ceonothus thyrsiflorus*), toyon (*Heteromeles arbutifolia*), coffeeberry (*Rhamnus californica*), huckleberry (*Vaccinium ovatum),* currant (*Ribes malvaceum*) and pink flowering currant (*Ribes sanguiem glutinosum*). A few coffeeberry and ceanothus remain in Washington Park, but the ceanothus are dying out due to aging and excessive shading. This species reseeds itself mainly after fires.

Both species of Ribes are probably less abundant in Rip Van Winkle Park than they once were, partly due to heavy deer browsing. They no longer occur naturally in Washington Park; however, they are extremely important species as nectar source for monarch butterflies and overwintering Anna's hummingbirds, being the only native shrubs that bloom abundantly during the winter months. Chaparral currant blooms mainly from November to February, and pink flowering currant blooms abundantly from mid January to mid March. Monarch butterflies and Anna's hummingbirds are frequently observed feeding on these shrubs. [*NOTE: Since Bruce Cowan's Revegetation Plan was written in 1992, both species of currants have been planted in the butterfly roosting area and have survived deer browsing to mature and flower; Katy Travaille, Natural Resources Committee.*]

Blue blossom ceaothous blooms in early March, and provides a possible nectar source for butterflies at the end of their overwintering period.

Shaggy bark manzanita (*Archtostaphylos tomentosa*) also blooms in late winter, and may provide some food source. However, most of the habitats in Washington Park are presently too shady for this species to flourish.

Agenda Item No. 7B

CONCEPT

Restoration of habitat in Washington Park should include four objectives:

1) Restore the overall health of the forest.
2) Retain the natural character of the park.
3) Recreate habitat more favorable to monarch butterflies.
4) Provide for passive recreational use only, except in designated locations such as picnic areas and the baseball field.

To retain the natural character of the park, exotic species--including weeds--should be eliminated as much as feasible, and only native species should be planted.

To recreate butterfly habitat, native plants that provide nectar sources should be planted extensively. Also, meadows of low-growing native grass should be planted in the middle of the "magic circles" (see Brower report) for moisture. Pine trees should be planted to provide windbreaks, but in a way that allows for sunny openings. Oaks may need to be thinned.

To provide for passive recreational use, designated trails should be installed, and native groundcovers protected from trampling.

MANAGEMENT GUIDELINES

Eradicating Non-Native Plants

Though different methods apply for different species, the principles of eliminating undesirable exotics or weeds are the same. These are:

1) Kill or remove existing plants before they produce or disperse seeds. It is important to let none go unnoticed; each plant missed can produce enough seeds to quickly undo previous eradication efforts.
2) If existing weeds have gone to seed, remove the material as carefully as possible to prevent dispersal of the seeds. Note: A "weedeater" is efficient at cutting weeds to reduce fire hazard, but it can also disperse the seeds far and wide and can quickly enlarge weed infestations.
3) Eliminate seedlings each year that sprout from existing seed sources in the soil until all viable seeds have been exhausted. The amount of time required may vary considerably between species.

Establishing a good cover of native perennial shrubs, herbaceous plants and grasses will also help to suppress weeds. However, native annual wildflowers are generally non-competitive and are soon overrun with weeds unless:

1) Existing soil conditions favor the wildflowers over weeds. This may be the case where natural soil has been left undisturbed, but not where imported topsoil has been spread.
2) Weeds have not been introduced.
3) Careful and continued maintenance is done to control weeds. In a large area this is often impractical; therefore early eradication and prevention of weed introductions is of utmost importance.

Pampas grass

Pampas grass is a giant grass with large feathery plumes produced in late summer or early fall. Each plume has hundreds of thousands of seeds that quickly disperse in the wind. If plumes have already formed they should be clipped and disposed of in plastic garbage bags. Small pampas grass plants can be easily dug out, but large ones may be killed with a non-persistent systemic herbicide (ex. a 1 or 2 percent solution of Roundup or other herbicide containing isopropylamine salt of glyphosate), as recommended by a licensed Pest Control Advisor. It is best applied when the plants are vigorously growing in June or July prior to producing seed plumes. Pampas grass has leaves like

saw blades that can inflict deep cuts. Protective clothing, gloves and goggles should be worn when handling it.

Seed viability is short term, and once existing plants and the current and following year's crop of seedlings has been eliminated, future control involves finding and eliminating occasional new pioneers before seeds are produced.

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Genista/French broom

Eradicating genista (upright shrubs 3 to 8-feet tall recognized by clover-like leaves on spindly stems, yellow pea like flowers in spring, and small bean-like seed pods) from any property is a long term commitment. Small ones are easily pulled. Large ones can be cut at the base, but sometimes re-sprout. Seedlings, which may appear in the thousands, can be hoed out or covered with thick mulch such as bark chips. It is important to locate and remove new seedlings and young shrubs before they have produced seeds; each pioneer seedling removed is a preventive measure against a new infestation. Genista should be removed only before or during flowering stage not while containing seed pods, as the seeds are likely to scatter and spread the infestation. Young seedlings may be pulled at any time. Since existing seeds in the soil may be viable for at least 50 years, genista must be controlled on a yearly basis.

English Ivy

English ivy (*Hedera helix*) is an invasive plant in forested areas where the soil is sufficiently deep and moist to sustain it. It was most likely established in Washington Park by birds, which eat the berries and pass the seeds. It can grow thick enough on the ground to eliminate most native ground covers, and competes well with weeds. Ivy also climbs trees and can eventually shade out much of the tree's foliage, weakening it. In those areas where it occurs in Washington Park it forms a dense cover and climbs both pines and oaks.

Ivy shows some resistance to herbicides, even Roundup, and may require repeated sprayings to kill it. Removing small patches by hand is not too hard; however some of those patches at Washington Park are large enough to make removal difficult.

At the very least, the ivy should be contained and not allowed to climb the trees. The arboreal parts of the ivy can be killed by cutting through all the stems of ivy near the base of the tree, and either pulling the ivy out of the tree or leaving it to die. This should be done on a yearly basis as long as the ivy remains.

Ice plant

Ice plant may be rolled like a carpet and the roots cut to free it, but sheer weight makes removal cumbersome for all but small patches. It does not re-sprout from the roots; however, since any piece containing succulent foliage may re-root in place and continue growing, it is important to pick up all the pieces. Spraying with a non-persistent systemic herbicide (ex. a 1 or 2 percent solution of Roundup or other herbicide containing isopropylamine salt of glyphosate), as recommended by a licensed Pest Control Advisor more easily controls large patches. The dead ice plant looks unsightly, but usually decomposes within two years.

Numerous ice plant seedlings may reappear, especially where ice plant or dead ice plant mulch has been removed; these seedlings are easily pulled by hand or dislodged with a hula hoe and raked up. Dead ice plant mulch left on the ground helps prevent weed invasions until native plants have a chance to fill in, and seems to discourage re-invasions of ice plant seedlings.

Tough perennial weeds

Kikuyu grass, Bermuda grass, Bermuda buttercup (*oxalis*) and certain other perennials may be controlled by spraying with a non-persistent systemic herbicide (ex. a 1 or 2 percent solution of Roundup or other herbicide containing isopropylamine salt of glyphosate), as recommended by a licensed Pest Control Advisor, according to directions on the label. The systemic herbicide reacts best on plants that are vigorously growing. Control will be most successful if the target species has been fertilized and irrigated prior to spraying, and if spraying is done during the season of most rapid growth. One or more follow-up sprayings may be needed to achieve complete eradication.

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Annual weeds

Ripgut grass, rattlesnake grass, foxtail, annual sow thistle and most annual weeds are easily pulled by hand or hoed. However, such weeds left on the ground can re-root and continue growing. On a large scale such intensive hand weeding is often impractical. These weeds can often be controlled initially by removing old weed growth and applying a pre-emergent herbicide in the fall months just as the rainy season begins. Scattered weeds that appear can be spot-sprayed or hand pulled. If no weeds are allowed to set seed it may be possible to discontinue the pre-emergent applications after two or three years and simply do careful hand weeding and/or selective spraying, especially where the goal is to re-establish native vegetation from seed. However, a few annual weeds such as bur clover have seeds with long term viability that can persist in the soil for decades; these will need to be controlled on a yearly basis for an indefinite period.

Annual weeds can usually be suppressed by applying thick mulches of bark chips, pine needles or leaves over the bare soil, or simply letting the natural leaf litter accumulate.

Due to the size of Washington Park and the cost of spraying, chemical control may not be practical. Roundup, which is relatively harmless to humans and animals, must be sprayed during winter before the weeds go to seed. If spraying is done on a large scale, it should be done during years that monarch butterflies have not established overwintering sites in the park. Spot spraying of individual weeds or small patches could be done at any time.

If large scale weed control is not practical, then weeds should be pulled by hand around individual young trees and plants, and a mulch should be spread around the base of each plant.

Suggested Plantings

Any species in the ***List of Appropriate Plants*** (See page 22) may be used. However, it is suggested unless weed eradication is feasible, the majority of the plantings should be native shrubs and groundcovers which provide nectar sources for the butterflies and are able to compete with existing weeds.

Both species of currants (*Ribes*) are important nectar sources for monarch butterflies. They are attractive, easy to grow from cuttings, and adapt well to partially shaded environments. Hundreds of these may be planted. Note: these may need protection from deer when small.

Blue blossom ceanothus should be reintroduced into habitats that are not too shady. Again these may provide a late source of nectar.

Douglas iris is probably not a good nectar source, but the plants are attractive and tough enough to withstand mild abuse and compete somewhat with weeds. Patches of Douglas iris may be used extensively.

Creeping red fescue (*Festuca rubra*) is a native grass that is often used as a component of lawn grasses in partially shaded areas. Planted alone it forms a meadow of attractive fine-leafed grass. This species is probably the best for use in the "magic circles". The sprinkler used to provide water for the butterflies may also be used to keep the grass green during summer. Red fescue is somewhat drought tolerant, however, and may survive without irrigation once established. Occasional mowing during the growing season will help to keep it low and suppress annual weedy grasses.

Exotic Nectar Sources

A wide variety of non-native flowering plants that bloom during winter months may be considered as nectar sources for the butterflies. The best one seems to be Pride of Madeira (*Echium candicans*), a shrub with large purple spikes of tiny flowers. Monarch butterflies are highly attracted to this plant.

Other species are included in a small brochure entitled Nectar Sources for the Monarch Butterfly Overwintering in P.G. [available from Friends of the Monarchs organization.].

The planting of these non-natives in Washington Park is not appropriate to preserving the natural character of the park. However, these plants may be very appropriate for private residences surrounding the park. A volunteer program encouraging the use of these plants may be effective.

LIST OF APPROPRIATE NATIVE PLANTS

Agenda Item No. 7B

	Scientific Name	Common Name	Suggested Spacing
A.	**Trees**		
	Pinus radiata	Monterey Pine	15'
B.	**Shrubs**		
*	*Arctostaphylos tomentosa*	Shaggy-bark Manzanita	6'
	Baccharis pilularis var. consanguineum	Coyote Brush	6'
*	*Ceanothus thyrsiflorus*	Blue Blossom Ceanothus	10'
	Heteromeles arbutifolia	Toyon	10'
	Lonicera hispidula	Hairy Honeysuckle	4'
	Lupinus arboreus	Yellow Bush Lupine	8'
	Mimulus aurantiacus	Sticky Monkey Flower	4'
	Rhamnus californica	Coffeeberry	8'
*	*Ribes malvaceum*	Chaparral Currant	6'
*	*Ribes sanguineum glutinosum*	Pink Flowering Currant	6'
	Rosa californica	California Wild Rose	6'
*	*Rubus ursinus*	California Blackberry	4'
	Symphoricarpos mollis	Creeping Snowberry	4'
	Vaccinium ovatum	Huckleberry	8'
C.	**Perennials**		
	Achillea borealis	Yarrow	3'
	Agrostis spp.	Native Bent Grass	2'
	Aquilegia formosa	Western Columbine	2'
	Artemisia douglasiana	Mugwort	3'
	Aster chilensis	Common California aster	3'
	Bromus carinatus	California Brome	seeded
	Calamagrostis koelerioides	Tufted Pine Grass	seeded
	Calamagrostis nutkaensis	Pacific Reed Grass	seeded
	Calochortus albus	White Globe Lily	1'
	Calystegia (Convolvulus) cyclostegius	Coast Mourning Glory	3'
*	*Cardamine californica var. integrifolia*	Milkmaids	1'
	Carex pansa	Sand Sedge	2'
	Chlorogalum pomeridianum	Soap Root	4'
	Deschampsia spp.	Hair Grass	1'
*	*Dichelostemma (Brodiaea) pulchella*	Blue Dicks	1'
	Dryopteris arguta	Wood Fern Rye	6'
	Erigeron glaucus	Seaside Daisy	3'
	Festuca rubra	Red Fescue	seeded
	Fragaria vesca	Wood Strawberry	1'
*	*Iris douglasiana*	Douglas Iris	3'
*	*Lathyrus vestitus*	Pacific Pea	3'
	Marah fabaceus	Manroot/Wild cucumber	6'
	Pteridium aquilinum	Bracken Fern	
	Satureja douglasii	Yerba Buena	2'
	Sisyrinchium bellum	Blue-eyed Grass	1'
	Stachys bullata	Hedge Nettle	1'
	Stipa pulchra	Purple Needlegrass	2' or seeded
	Triteleia ixioides (Brodiaea lutea)	Golden Brodiaea	1'
*	*Zigadenus fremontii*	Star Lily	2'
D.	**Annuals or Biennials**		
	Clarkia lewesii	Fairwell to Spring	seeded
	Collinsia heterophylla	Chinese Houses	seeded
	Eschscholzia californica	California Poppy	seeded
	Montia perfoliata	Miner's Lettuce	seeded

* **Possible nectar source**

References for Revegetation Plan

Agenda Item No 7B

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Howitt, Beatrice F. and John Thomas Howell, 1996. The Vascular Plants of Monterey County, California. University of San Francisco Press.

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The Monarch Project, 1990. Conceptual Plan for the Conservation and Management Program for Washington Park, 10 Southwest Ash Street, Portland, Oregon. Report accepted by City Council, January 2, 1991. Excerpted recommendations approved for implementation by City Council, November 17, 1992.

Agenda Item No. 7B

GEORGE WASHINGTON PARK
PLANT SPECIES LIST

Botanical Name	Common Name	Native	Non-local Native	Exotic
Trees				
Acacia baileyana	Bailey Acacia			X
Araucaria excelsa	Norfolk Island Pine			X
Cupressus macrocarpa	Monterey Cypress		X	
Ilex aquifolium	English Holly			X
Pinus radiata	Monterey Pine	X		
Prunus sp.	Flowering Plum			X
Quercus agrifolia	Coast Live Oak	X		
Sequoia sempervirens	Coast Redwood		X	
Shrubs				
Acacia longifolia	Sydney Golden Wattle			X
Arctostaphylos tomentosa	Shaggy-bark Manzanita	X		
Baccharis pilularis var. consanguineum	Coyote Brush	X		
Ceanothus thyrsiflorus	Blue Blossom Ceanothus	X		
Cistus sp.	Rockrose			X
Genista monospessulanus	French Broom			X
Mimulus aurantiacus	Sticky Monkey Flower	X		
Echium candicans	Pride-of-Madeira			X
Eriophyllum staechadifolium	Lizard-tail	X		
Heteromeles arbutifolia	Toyon	X		
Lonicera hispidula	Hairy Honeysuckle	X		
Lupinus arboreus	Yellow Bush Lupine		X	
Rhamnus californica	Coffeeberry	X		
Ribes malvaceum	Chaparral Currant	X		
Ribes sanguineum glutinosum	Pink flowering Currant	X		
Rosa californica	California Wild Rose	X		
Rubus vitifolius	California Blackberry	X		
Symphoricarpos mollis	Creeping Snowberry	X		
Toxicodendron diversiloba	Poison Oak	X		
Vaccinium ovatum	Huckleberry	X		
Perennials				
Achillea borealis	Yarrow	X		
Agoseris apargioides	Dandelion	X		
Agrostis spp.	Native Bent Grass	X		
Avena barbata	Wild Oak			X
Briza major	Rattlesnake Grass			X
Bromus carinatus	California Brome	X		
Bromus diandrus	Ripgut			X
Bromus rubra	Red Foxtail			X
Calamagrostis koelerioides	Tufted Pine Grass	X		
Calamagrostis nutkaensis	Pacific Reed Grass	X		

Botanical Name	Common Name	Native	Non-local Native	Non-local Exotic
Perennials				
Calochortus albus	White Globe Lily	X		
Cardamine californica var. integrifolia	Milkmaids	X		
Carex pansa	Sand Sedge	X		
Carpobrotus edulis	Hottentot Fig			X
Claytonia perfoliata	Miner's Lettuce	X		
Cortaderia jubata	Pampas Grass			X
Crocosmia crocosmiiflora	Montbretia			X
Deschampsia spp.	Hair Grass	X		
Dichelostemma (Brodiaea) pulchella	Blue Dicks	X		
Dryopteris arguta	Wood Fern	X		
Elymus condensatus	Giant Wild rye	X		
Erodium cicutarium	Red-stemmed Filaree	X		
Festuca rubra	Red Fescue	X		
Iris douglasiana	Douglas Iris	X		
Lathyrus vestitus	Pacific Pea	X		
Marah fabaceus	Manroot/Wild Cucumber	X		
Medicago hispida	Bur Clover			X
Oxalis oregona	Redwood Sorrel		X	
Oxalis pes-caprae	Bermuda Buttercup			X
Pennisetum clandestinum	Kikuyu Grass			X
Piperia yadonii	Yadon's Piperia	X (endangered species)		
Pteridium aquilinum var. pubescens	Bracken Fern	X		
Ranunculus californicus	California Buttercup	X		
Satureja douglasii	Yerba Buena	X		
Sisyrinchium bellum	Blue-eyed Grass	X		
Stachys bullata	Hedge Nettle	X		
Stellaria media	Chickweed			X
Stipa pulchra	Purple Needlegrass	X		
Triteleia ixioides (Brodiaea lutea)	Golden Brodiaea	X		
Tropaeolum majus	Nasturtium			X
Zantedeschia aethiopica	Calla Lily			X
Zigadenus fremontii	Star Lily	X		
Vicia sp.	Vetch	X		
Vulpia myuros var. hirsuta	Foxtail Fescue			X

Forest Management Plan

George Washington Park

JULY 2022

Prepared for:

CITY OF PACIFIC GROVE
2100 Sunset Drive
Pacific Grove, California 93950
Contact: Daniel Gho

Prepared by:

DUDEK

1630 San Pablo Avenue, Suite 300
Oakland, California 94612
Contact: Jeremy Cawn

Scott Eckhardt
Urban Forester

Jeremy Cawn
Urban Forester

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
City	City of Pacific Grove
FMP	Forest Management Plan
Park	George Washington Park

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Executive Summary

This Forest Management Plan (FMP) describes the management strategies that the City of Pacific Grove will take in the approximately 17-acre forested area of George Washington Park (Park) over the 5-year FMP timeframe to reduce wildfire hazard to the homes surrounding the Park and to restore healthy forest conditions to the interior of the Park. This FMP was developed to meet the City of Pacific Grove's goals of reducing the risk of a destructive wildfire spreading in the Park and to improve the overall forest health within the forested area of the Park.

Development of this FMP included a forest inventory, which was used to describe the current vegetative conditions within the forest, determine the wildfire hazards in the areas near the surrounding homes, and map the trail system in the forested area. The data collected during the inventory was used to identify and map conditions, such as composition, health, and disease, throughout the forested area of the Park.

George Washington Park is a 20-acre urban park with a 17-acre Monterey pine–coast live oak forest. The forested area of the Park is unique in that it contains relatively natural forest conditions in an urban area and that it contains a Monterey pine (*Pinus radiata*)–dominated forest, a forest type with a range limited to the California coastal area. The composition of the forest overstory is in the process of transitioning away from Monterey pine dominance to oak dominated because of limited pine reproduction and a dense layer of surface and understory vegetation. The dense layer of surface vegetation, mainly non-native grasses, also creates a wildfire hazard by forming a continuous layer of readily ignitable fuel on the forest floor.

The forested areas of the Park are threatened by several factors that are driving the transition from a pine forest to an oak forest, decreasing overall forest health, and increasing the risk of destructive wildfire. Drought and the closely related wildfire risk are the most prevalent in the forested areas, but they impact all the vegetation. Insect infestations and disease infections are most directly impactful to the Monterey pine in the forest, degrading tree health and killing mature trees. Invasive vegetation is indirectly impactful on the entire forest overstory and understory vegetation by competing for moisture in the soil and preventing tree and shrub reproduction on the forest floor.

This FMP describes management strategies for the forested area of the Park to address the decline in Monterey pine trees in the forest overstory and to reduce of the risk of destructive wildfire spreading through the Park. It recommends vegetation management activities applied to overstory, understory, and surface vegetation. Specific recommendations are divided into to two categories. The first recommendation is to conduct vegetation management actions in an area around the perimeter of the forested area of the Park to reduce the risk of a destructive wildfire by reducing the overall volume of surface vegetation and to reduce the risk of fire moving from the surface to the tree canopy by trimming or removing vegetation on the forest surface. The second recommendation is for vegetation management within the Park interior to create conditions that are conducive to the reproduction and development of new trees. In addition to the recommendations, a timeline is provided that describes the forest management activities and when they should occur over the FMP's 5-year timeline.

George Washington Park is a unique natural feature of Pacific Grove. The strategies described in this FMP are intended to help maintain the forested area of the Park in a healthy and safe condition for the enjoyment of nearby residents and the community.

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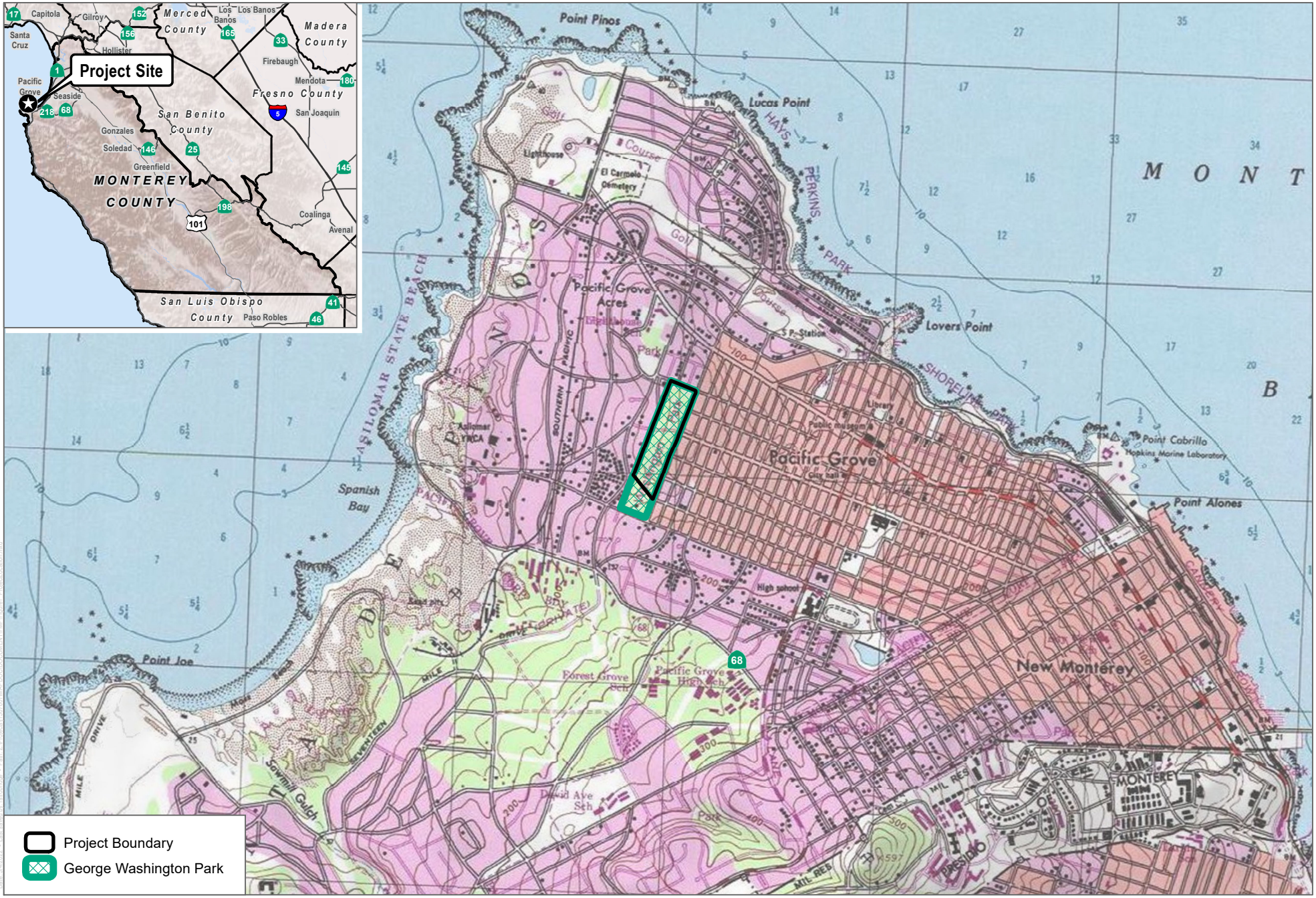
1 Introduction

George Washington Park (Park) is a 20-acre park located on the west side of Pacific Grove, California. The Park is composed of an approximately 3-acre developed recreation area and an approximately 17-acre natural forest area. The developed area of the Park is largely covered with well-spaced mature oak trees, and the forested area contains a Monterey pine–coast live oak forest. The Park is surrounded by a residential neighborhood (see Figure 1, Project Location).

The forested area of the Park is changing in composition and tree size, moving from a pine tree–dominant forest to an oak tree–dominant forest. Forest management activities in the forested areas of the Park have been primarily focused on removing dead or hazardous trees and reducing the buildup of flammable vegetation. Because the Monterey pine (*Pinus radiata*) element of the forest is reliant on disturbance for regeneration (e.g., low-intensity fire), there has been a gradual transition away from a forest where pine trees are the dominant trees to a forest where oak trees are the dominant trees as the mature pines die without suitable replacement. The forested area of the Park is also at risk from threats that are increasing stress on all the trees, regardless of species, such as drought, insects, and disease. Ongoing drought, combined with an overall warmer, dryer climate, not only threatens the health of the forest, but also increases the risk of a destructive wildfire occurring within the Park.

This Forest Management Plan (FMP) identifies general practices and Plan-specific management recommendations to address the City of Pacific Grove's goal of creating a safe and healthy forest in George Washington Park. The goals, objectives, and recommendations identified in this FMP are based on existing conditions observed in the Park and have been designed to reduce the risk of a destructive wildfire spreading out of the Park and to promote overall forest health in the Park, because a healthier forest is more resilient to threats. Finally, this FMP includes a treatment prescription and timetable for the City of Pacific Grove (City) to create its desired conditions within the Park.

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SOURCE: USGS 7.5-Minute Series Monterey Quadrangle

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FIGURE 1

Project Location

George Washington Park Forest Management Plan

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2 Overview of Objectives, Scope, and Goals

2.1 Objectives

The City of Pacific Grove desires to have a safe and healthy forest in George Washington Park, one that can be sustainably maintained by the City. To achieve this goal, three objectives were developed for the management of the forested areas within the Park:

1. Reduce the risk of wildfire to the surrounding community by reducing or removing flammable vegetation in the Park that is within 100 feet of homes.
2. Improve forest health and foster a forest with a healthy distribution of trees ages and sizes by reducing competition from surface vegetation and encouraging tree regeneration.
3. Improve the safety of Park users and residents by removing trees that have a high likelihood of failing and causing injury or property damage.

This FMP provides direction for achieving these three objectives.

2.2 Scope

The scope of this FMP covers the forested area of George Washington Park that begins north of the baseball diamond and ends at the border of the Park along Short Street. The management recommendations in this FMP are divided into two strategies relating to location in the Park and the objective to be achieved. The first strategy is to create a wildfire risk reduction zone along the perimeter of the forested area where the goal is to maintain the vegetation in a condition that minimizes the risk of a high-intensity wildfire spreading throughout the Park. The second strategy is to create a forest restoration zone in the interior of the forested area where the goal is to maintain conditions to support a healthy Monterey pine–oak forest. The recommendations described for each zone are specific to the management objectives for the zone.

The timeframe for the FMP is 5 years, which is suitable to accomplish the FMP's management recommendations for wildfire risk reduction and to establish the conditions required for successful forest restoration. The goals, objectives, and recommendations contained in this FMP should be reviewed at the end of the 5-year timeframe, following a re-evaluation of the Park's forested areas and an evaluation of the success of the management activities recommended in this FMP. Following such a review, revisions to FMP goals, objectives, and/or recommendations may be necessary to reflect forest conditions within the Park at that time.

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3 Methods

3.1 Forest Inventory

3.1.1 Inventory Plots and Plot Location

To assess the composition and condition of the forest in George Washington Park, Dudek foresters conducted an inventory of the trees and vegetation in the forested area of the Park. The foresters measured approximately 20% of the forested area of the Park. The measured area was divided evenly among 14 measurement plots, with each plot covering an area of approximately 0.25 acres. Working with Dudek GIS specialists, the 14 plots were laid out on a map of the Park, with the plots evenly spaced and well-distributed across the entire forested area, and located a minimum of 50 feet from the edge of the Park, road, or developed area of the Park. Figure 2, Forest Inventory Plot Locations, is a map of the plot locations.

3.2 Field Visits

Dudek's foresters conducted an inventory of the forest on October 5 and 8, 2021. Each of the 14 pre-determined plots was visited during the inventory. At each plot, Dudek foresters pinned the plot center with a marking pin and measured out 59 feet from the pin to the north, east, west, and south to establish the plot's borders. Within the plot boundaries, Dudek foresters measured all of the trees that were larger than 3 inches in diameter at standard height (4.5 feet above the ground). For each measured tree Dudek foresters recorded the following data:

- **Diameter:** Tree diameter at standard height was measured at 4.5 feet above the ground using a diameter tape. Tree diameters were visually estimated when trunks were inaccessible due to poison oak (*Toxicodendron diversilobum*) vines.
- **Height:** Tree height was measured with a clinometer at a baseline of 66 feet from the tree trunk. Tree heights were visually estimated for nearby trees when a similar-sized tree had been measured with the clinometer.
- **Condition:** Tree condition was assessed based on the overall health of the tree (e.g., live crown ratio, presence of disease or infestation) and overall structure. Trees were graded on a scale from "Excellent" to "Dead."
- **Species:** Tree species was recorded.

In addition, Dudek foresters recorded the following data at each plot:

- **Tree Regeneration Information:** Trees that were smaller than 3 inches in diameter were counted and had their species identified.
- **Forest Surface Composition:** Plant species composition and the percentage of the surface area of the plot they covered were taken.
- **Flammable Vegetation:** Flammable vegetation types and estimates of fuel loads were recorded.
- **Photographs:** Photos were taken facing north, east, south, and west.

During a separate site visit on September 23, 2021, Dudek foresters walked the perimeter of the forested zones of the Park to identify dead or trees with significant defects that could potentially fail and strike one of the surrounding roads or nearby structures.

3.3 Data Analysis

After the 14 plots were inventoried, the data collected was analyzed to obtain the following forest characteristics:

- **Basal area** is a measure of the cross-sectional area (in square feet) of the trees on a unit of land. For this FMP, basal area is provided as the cross-sectional area of the trees per acre. Basal area is a useful measurement for determining forest density, and forest density is an indicator of forest health and productivity.
- **Quadratic mean diameter** is the average diameter of the trees measured on a per-acre basis. Quadratic mean diameter is preferred in forestry because it better represents the average diameter of the trees in a forest, particularly when the forest is composed of larger, mature trees.
- **Trees per acre** is the count of the number of trees per acre. Trees per acre is another measurement of forest density.
- **Average tree height** is the average height of the trees in the forest on a per-acre basis. Average height is a useful measurement of tree age, and when organized by species, helps to understand the structure of a forest.
- **Species composition** measures the unique tree species observed and a count of each tree by species at each plot. This data is then used determine the composition of the forest by zone by comparing the number of trees observed by species to the number of trees counted.
- **Regeneration** is the number of seedlings counted at each plot. The data collected at each plot is summed with the regeneration data from the three adjacent plots to get the number of seedlings per acre.
- **Forest surface** composition was determined based on the plant species identified and recorded for each plot during the inventory, and by the data recorded during the biological resource assessment.
- **Fire behavior fuel models** were determined by visual estimation and photographic comparison with the fuel mode descriptions in the Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model (Brugan and Scott 2005).



SOURCE: Bing Maps 2021, Monterey County

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FIGURE 2

Forest Inventory Plot Locations

George Washington Park Forest Management Plan

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4 Summary of Current Forest Conditions

4.1 General Description

George Washington Park is located within Pacific Grove and is situated between 140 and 180 feet above sea level. The Park is bordered by Short Street to the north, Alder Street to the east, Sinex Avenue to the south, and Melrose Street/17 Mile Drive to the west. The Park is rectangular in shape, covering 20 acres. The Park is divided by Pine Street, an east/west street that separates the Park into a north and south section, with the south section being the larger of the two. The Park has been divided by the City into four zones (1–4) (Figure 3, Project Site), with Zone 1 being the southern zone and Zone 4 being the northern zone. The zones vary in size; Zone 4 is the largest, Zones 2 and 3 are roughly equal in size, and Zone 1 is the smallest. Zone 1 contains developed recreation sites, including a playground, ballfield, picnic facilities, and restrooms. Zones 2, 3, and 4 are generally unimproved forest land. There are several trails that run roughly south to north through the forested area, as well as benches and trash cans along the perimeter of the forested area.

Adjacent land uses consist of residential development composed entirely of single-family homes. Most of the homes are separated from the Park by a public street, with the exception of two rows of homes on the west side of the Park: one near the northern border of the Park and the other at the southern border of the Park.

4.2 History

The current forest that covers George Washington Park has its origins in the 1850s when the area that comprises the Park was last logged and burned. Cattle were grazed on the site following logging until they were removed sometime before the end of the century. By 1925, when the City purchased the land containing the present-day boundaries of the Park, the property supported a Monterey pine forest with an expanding understory of oak trees. In 1948, the City passed an ordinance to limit the use of the property to a recreational park (City of Pacific Grove 1999).

Recent management of the forested area of the Park has been focused on maintaining a safe environment for Park users and nearby residents. Management activities performed by the City include the removal of downed trees, slash (i.e., the treetops, limbs, and other woody material left behind after tree work), and logs. Standing dead trees have been removed that are within striking distance of the structures near the Park or trails within the Park. On an annual basis, surface vegetation within 50 feet of the Park borders is weed-whacked or mowed. The City has planted new trees at several locations throughout the forested area of the Park in the last 20 years, including a cluster of Monterey pine trees on the east side of Zone 4 and a cluster of Canary Island pine (*Pinus canariensis*) trees near the south border of Zone 2.

In addition to managing the vegetation in the forest, the City has also maintained the trail system that traverses the Park. Designated trails have been reconstructed in areas of excessive wear and vegetation, particularly poison oak, that has encroached on a designated trail has been cut back. Old trails and unofficial trails that impact the forest have been decommissioned and blocked with logs or piled cut material.

The City's forest management work has been supplemented by volunteer activities. Volunteer gardeners have completed several vegetation management projects within the forested area, including establishment of a native plant area and several successful Monterey pine plantings (or transplanting).

4.3 Geology, Topography, and Soils

4.3.1 Geology

The underlying geologic units of the Park are quaternary alluvium and marine deposits from the Pliocene to Holocene epoch, between the present time and 1.6 million years ago. The quaternary alluvium deposits are generally young and made up of unconsolidated sand, silt, and clay-bearing material. The Park is located on a marine terrace (CGS 2021).

4.3.2 Topography

The Park property occupies a portion of the west-facing slope and the ridgeline of a gentle (2% to 8%), low-elevation ridge that runs from Huckleberry Hill to the ocean. The Park has a predominantly west-facing aspect, and elevations in the Park generally run from lowest to highest moving from west to east. However, there is a hill located in the middle of the Park near the corner of Pine Street and Alder Street. This hill creates a noticeable "hump" on the terrain when moving from south to north through the Park, and near the hill the aspect changes from west-facing to north- or south-facing, depending on which side of the hill a viewer is on.

4.3.3 Soils

Soils within the Park are composed of three soil types, all characterized as being predominantly sandy soils and being of a similar parent material: clayey marine deposits derived from sedimentary rock or stabilized sands (NRCS 2021). A detailed description of the soil types found within the Park can be found in Appendix A.

4.4 Climate

Pacific Grove, California, is in a warm-summer Mediterranean climate that is defined by temperate, wet winters, and warm or hot dry summers (Seager et al. 2019). Pacific Grove has an average daytime high temperature of 69°F in the summer and 60°F in the winter. Average daytime low temperatures are 54°F in the summer and 44°F in the winter. Precipitation averages approximately 20 inches per year, with January being the wettest month of the year. Prevailing winds are out the west and west-northwest (WRCC 2021).



SOURCE: Bing Maps 2021, Monterey County

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FIGURE 3

Project Site

George Washington Park Forest Management Plan

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4.5 Vegetation Forest Types and Wildlife Habitat Relationships

4.5.1 Forest Description

The forested areas of George Washington Park contain one forest or vegetation type: a Monterey pine forest. Within the forested zones of the Park, Monterey pine exists as the dominant tree, with mature pine trees forming an open, discontinuous canopy in the forest overstory. Below the pine trees is a generally continuous mid-story canopy, predominantly made up of coast live oak (*Quercus agrifolia*) trees with scattered smaller Monterey pines and several other tree species.[1] As a result of the combined pine and oak canopies, the forested area of the Park is a predominantly closed canopy forest. Areas of open canopy forest are present, notably in the portions of the forest where there has been recent mature pine tree loss. The understory and surface vegetation in the forested area varies, ranging from minimal surface vegetation in heavily shaded areas, to areas of continuous grass and thickets of native vines and low shrubs (poison oak, California blackberry [*Rubus ursinus*], wild cucumber [*Cucumis anguria*]) in forest canopy openings. Areas of non-native grasses are the most common component of the understory throughout the forest. Dead and down trees are present throughout the forested zones of the Park, with two areas of concentrated dead and down trees: near the south border of Zone 2 and near the corner of Pine Avenue and Melrose Street in Zone 4.

4.5.2 Wildlife

Wildlife species observed or expected to occur in the Park are those that are adapted to forested lands, Monterey cypress–Monterey pine stands, and urban landscapes with moderate human activity. Western fence lizard (*Sceloporus occidentalis*) was the only amphibian or reptile species observed during the site visit, although common species such as Sierran tree frog (*Pseudacris sierra*), gopher snake (*Pituophis catenifer*), and western rattlesnake (*Crotalus oreganus*) are also likely to occur. Common bird species observed included black phoebe (*Sayornis nigricans*), red-shouldered hawk (*Buteo lineatus*), Anna's hummingbird (*Calypte anna*), California scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), dark-eyed junco (*Junco hyemalis*), and California towhee (*Melozone crissalis*). Black-tailed deer (*Odocoileus hemionus*) were observed in the Park during the forest inventory. The Park is within the historic overwintering range for monarch butterfly (*Danaus plexippus*), which were observed during the site visits.

Tables 1 and 2 describe the special-status plant and animal species native to the region that have the potential to occur within the Park. A detailed description of the special-status plants and wildlife with the potential to be present within the Park is provided in Appendix B.

[1] Other tree species observed included toyon (*Heteromeles arbutifolia*), coast redwood (*Sequoia sempervirens*), and acacia. These tree species make up a very minor component of the forest.

Table 1. Potential to Occur: Special-Status Plants

Scientific Name	Common Name	Habitat/Blooming Period/Elevation (feet)	Potential to Occur
Allium hickmanii	Hickman's onion	Closed-cone coniferous forest, Chaparral (maritime), coastal prairie, coastal scrub, valley and foothill grassland/ perennial bulbiferous herb/Mar–May/ 16–655	**Moderate potential to occur.** The closest known occurrences is within 1.3 miles of George Washington Park (Park). Bulb species can persist in understory for a long time. There is suitable habitat.
Arctostaphylos hookeri ssp. *hookeri*	Hooker's manzanita	Closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub; sandy/ perennial evergreen shrub/Jan–June/ 197–1,755	**Moderate potential to occur.** The closest known occurrences is within 0.1 miles of the Park. There is suitable habitat.
Arctostaphylos pumila	sandmat manzanita	Closed-cone coniferous forest, chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub; sandy, openings/ perennial evergreen shrub/Feb–May/ 10–675	**High potential to occur.** There are three known locations of this species within 0.5 miles of the Park. There is suitable habitat for this species.
Castilleja ambigua var. *insalutata*	pink Johnny-nip	Coastal prairie, coastal scrub/annual herb (hemiparasitic)/ May–Aug/0–330	**Low potential to occur**. California Natural Diversity Database (CNDDB) Occ. No. 12 for the Monterey Quad overlaps the Park, and the population is noted as presumed extant. However, the Park does not contain much suitable habitat.
Chorizanthe pungens var. *pungens*	Monterey spineflower	Chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy/annual herb/ Apr–June(July–Aug)/ 10–1,475	**Low potential to occur**. CNDDB Occ. No. 17 for the Monterey Quad overlaps the Park and the population is noted as presumed extant. However, the Park does not contain much suitable habitat.
Clarkia jolonensis	Jolon clarkia	Chaparral, cismontane woodland, coastal scrub, riparian	**Low potential to occur**. CNDDB Occ. No. 13 for the Monterey Quad overlaps the Park, but the population is extirpated. The closest extant

Table 1. Potential to Occur: Special-Status Plants

Scientific Name	Common Name	Habitat/Blooming Period/Elevation (feet)	Potential to Occur
		woodland/annual herb/Apr–June/ 66–2,165	population is more than 7.5 miles from the Park.
Collinsia multicolor	San Francisco collinsia	Closed-cone coniferous forest, coastal scrub; sometimes serpentinite/ annual herb/ (Feb)Mar–May/ 98–902	**High potential to occu**r. CNDDB Occ. No. 1 for the Monterey Quad overlaps the Park, and the population is noted as presumed extant. There is suitable habitat.
Cordylanthus rigidus ssp. *littoralis*	seaside bird's-beak	Closed-cone coniferous forest, chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub; sandy, often disturbed sites/annual herb (hemiparasitic)/Apr–Oct/0–1,685	**Low potential to occur.** The Park does have suitable habitat. However, the closest known extant occurrences are more than 5.3 miles away.
Delphinium hutchinsoniae	Hutchinson's larkspur	Broadleafed upland forest, chaparral, coastal prairie, coastal scrub/ perennial herb/Mar–June/0–1,400	**Low potential to occu**r. CNDDB Occ. No. 9 for the Monterey Quad overlaps the Park, and the population is noted as presumed extant. However, the Park does not contain much suitable habitat.
Ericameria fasciculata	Eastwood's goldenbush	Closed-cone coniferous forest, chaparral (maritime), coastal dunes, coastal scrub; sandy, openings/perennial evergreen shrub/July–Oct/98–900	**Low potential to occur.** The Park does have suitable habitat. The closest known occurrences are 0.5 miles away.
Gilia tenuiflora ssp. *arenaria*	Monterey gilia	Chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub; sandy, openings /annual herb/Apr–June/0–150	**Moderate potential to occur.** There are four known occurrences within 0.5 miles of the Park. However, suitable habitat would be most likely in forest canopy openings.
Hesperocyparis macrocarpa	Monterey cypress	Closed-cone coniferous forest/	**Not expected to occur.** This species is present in the Park but is not naturalized. This species only occurs in two natural stands in Monterey

Table 1. Potential to Occur: Special-Status Plants

Scientific Name	Common Name	Habitat/Blooming Period/Elevation (feet)	Potential to Occur
		perennial evergreen tree/N.A./33–100	County (not in the Park). The species is widely planted and naturalized elsewhere on the coast and beyond.
Horkelia cuneata var. *sericea*	Kellogg's horkelia	Closed-cone coniferous forest, chaparral (maritime), coastal dunes, coastal scrub; sandy or gravelly, openings/ perennial herb/Apr–Sep/33–655	**Moderate potential to occur**. CNDDB Occ. No. 8 for the Monterey Quad overlaps the Park, and the population is noted as presumed extant. There is suitable habitat, especially along forest edges and in canopy openings.
Layia carnosa	beach layia	Coastal dunes, coastal scrub (sandy)/annual herb/ Mar–July/0–195	**Low potential to occur**. There are two known occurrences within 0.5 miles of the Park. However, the Park does not contain much suitable habitat.
Lupinus tidestromii	Tidestrom's lupine	Coastal dunes/ perennial rhizomatous herb/Apr–June/ 0–330	**Low potential to occur**. There are seven known occurrences within 1 mile of the Park. However, the Park does not contain much suitable habitat.
Malacothamnus palmeri var. *involucratus*	Carmel Valley bush-mallow	Chaparral, cismontane woodland, coastal scrub/ perennial deciduous shrub/Apr–Oct/ 98–3,605	**Moderate potential to occur**. CNDDB Occ. No. 20 for the Monterey Quad overlaps the Park, and the population is noted as presumed extant. However, the Park does not contain much suitable habitat.
Microseris paludosa	marsh microseris	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland/ perennial herb/Apr–June(July)/16–1,160	**High potential to occur**. CNDDB Occ. No. 3 for the Monterey Quad overlaps the Park, and the population is noted as presumed extant. There is suitable habitat for this species.
Monardella sinuata ssp. *nigrescens*	northern curly-leaved monardella	Chaparral (SCR Co.), coastal dunes, coastal scrub, lower montane coniferous forest (SCR Co., ponderosa pine sandhills); sandy/ annual herb/ (Apr)May–July(Aug–Sep)/0–985	**High potential to occur**. CNDDB Occ. No. 4 for the Monterey Quad overlaps the Park, and the population is noted as presumed extant. There is suitable habitat for this species.

Table 1. Potential to Occur: Special-Status Plants

Scientific Name	Common Name	Habitat/Blooming Period/Elevation (feet)	Potential to Occur
Pinus radiata	Monterey pine	Closed-cone coniferous forest, cismontane woodland/ perennial evergreen tree/N.A./82–605	**Present.** This species is present in the Park and is within the CNDDB occurrence of its estimated historic range on the Monterey peninsula. The species is widely planted and naturalized elsewhere.
Piperia yadonii	Yadon's rein orchid	Coastal bluff scrub, closed-cone coniferous forest, chaparral (maritime); sandy/perennial herb/(Feb)May–Aug/33–2,475	**Present.** CNDDB Occ. No. 4 for the Monterey Quad states that there is a known population in the Park.
Potentilla hickmanii	Hickman's cinquefoil	Coastal bluff scrub, closed-cone coniferous forest, meadows and seeps (vernally mesic), marshes and swamps (freshwater)/perennial herb/Apr–Aug/33–490	**Moderate potential to occur**. There is a known occurrence within 0.6 miles of the Park. There is suitable habitat.
Ramalina thrausta	angel's hair lichen	North coast coniferous forest; on dead twigs and other lichens/fruticose lichen (epiphytic)/ N.A./246–1,410	**Moderate potential to occur**. There is a known occurrence within 1.4 miles of the Park. There is suitable habitat.
Rosa pinetorum	pine rose	Closed-cone coniferous forest, cismontane woodland/ perennial shrub/ May,July/7–3,100	**Moderate potential to occur**. There are two known occurrence within 0.6 miles of the Park. There is suitable habitat.
Trifolium hydrophilum	saline clover	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools/annual herb/ Apr–June/0–985	**Low potential to occur**. CNDDB Occ. No. 20 for the Monterey Quad overlaps the Park. This based on a 1907 herbarium collection. However, the Park does not contain much suitable habitat.
Trifolium polyodon	Pacific Grove clover	Closed-cone coniferous forest, coastal prairie, meadows and seeps, valley and foothill grassland; mesic,	**Moderate potential to occur**. There is a known occurrence within 0.5 miles of the Park. There is suitable habitat.

Table 1. Potential to Occur: Special-Status Plants

Scientific Name	Common Name	Habitat/Blooming Period/Elevation (feet)	Potential to Occur
		sometimes granitic/ annual herb/Apr–June (July)/16–1,390	
Trifolium trichocalyx	Monterey clover	Closed-cone coniferous forest (sandy, openings, burned areas)/annual herb/Apr–June/98–1,000	**Moderate potential to occur**. There are several known occurrences within 2 miles of the Park. There is suitable habitat.

Source: CDFW 2021

Table 2. Potential to Occur: Special-Status Animals

Row Labels	Common Name	Potential to Occur
Amphibians		
Taricha torosa (Monterey Co. south only)	California newt	**Low potential to occur**. Although George Washington Park (Park) contains suitable oak forest habitat to support this species, there is no aquatic breeding features to support this species. Additionally, there are no California Natural Diversity Database (CNDDB) occurrences for this species within 5 miles of the Park (CDFW 2021).
Reptiles		
Anniella pulchra	northern California legless lizard	**High potential to occur**. The Park contains suitable woodland habitat with sandy soils to support this species. This species was documented within the southwest corner of the Park in 2017 (Occ. No. 375) (CDFW 2021).
Birds		
Elanus leucurus (nesting)	white-tailed kite	**Moderate potential to nest on site**. The Park contains several suitable nesting trees for this species (e.g., *Quercus* spp., *Pinus* spp.), but foraging habitat is limited and the Park is surrounded by residential development. There are no CNDDB occurrences for this species within 5 miles of the Park (CDFW 2021).
Corynorhinus townsendii	Townsend's big-eared bat	**Moderate potential to occur**. Although the Park contains suitable coniferous and deciduous forest habitat, limestone caves, lava tubes, and built structures are absent from the site for roosting. However, the species may forage on the site from time to time. There are no documented CNDDB occurrences of this species within 5 miles of the Park (CDFW 2021).
Lasiurus blossevillii	western red bat	**High potential to occur**. The numerous trees on the Park are suitable for roosting by this species.

Table 2. Potential to Occur: Special-Status Animals

Row Labels	Common Name	Potential to Occur
Invertebrates		
Danaus plexippus pop. 1	monarch butterfly	**Present.** The Park contains suitable habitat for this species, and the species was observed on site during the October 2021 site visit. Additionally, numerous observations of this species has been made from 1960–2014 (Occ. No. 89) (CDFW 2021).

4.6 Current Forest Conditions

On October 5 and October 8, 2021, Dudek foresters performed an inventory of the forested areas in Zones 2, 3, and 4. Measurements were taken at 14 pre-determined inventory plots that were evenly distributed throughout the three forest zones. The data recorded during the inventory and the conclusions drawn from this data are the basis for the management strategies described in Chapter 6 of this FMP. Below is a description of the current forest conditions.

4.6.1 Forest Composition

The overall species composition of the forest in the Park consists of Monterey pine, accounting for 32% of the trees, and cost live oak, accounting for 67% of the trees. The other tree species present account for only 1% of the trees in the forest. Species composition varies by zone. In Zone 2, Monterey pine comprises 39% of the forest, coast live oak comprises 56%, and other tree species comprise 5% of the forest. Zone 2 is the only zone where tree species other than Monterey pine or coast live oak were recorded. In Zone 3, Monterey pine comprises 41% of the forest, and coast live oak comprises 59% of the forest. Zone 4 is noticeably different from the other two zones, with Monterey pine composing only 21% of the forest and coast live oak composing 79% of the forest (Table 3).

Table 3. Forest Composition by Zone

Species	Total Number	Zone 2	Zone 3	Zone 4
All	414	109	123	182
Pine	132	43	50	39
Oak	277	61	73	143
Other	5	5	0	0

4.6.2 Tree Age and Size

All age and size classes are represented within the forested zones of the Park. The distribution of age and size classes differs between the pine and oak trees. Pine trees within the Park are represented evenly across the different age and size classes, while most of the oak trees are in the smaller age and size classes (Tables 4a–4c). Regeneration[2] is present throughout the forest, occurring in scattered patches. Oak regeneration is more abundant and appears to be the result of natural seeding. Pine regeneration is less abundant and appears to be the result of

[2] Trees less than 3 inches in diameter were classified as regeneration.

deliberate planting or transplanting efforts[3] (Table 5). All the observed regeneration occurred in openings in the forest canopy where sunlight can reach the forest floor.

Table 4a. Tree Diameter Class (Quadratic Mean Diameter): Zone 2

Species	3 to 8 (Diameter in Inches)	9 to 14 (Diameter in Inches)	15 to 20 (Diameter in Inches)	21 to 26 (Diameter in Inches)	27 to 32 (Diameter in Inches)	>32 (Diameter in Inches)
All	45	31	17	12	2	2
Pine	11	7	12	9	2	1
Oak	33	23	3	1	0	1
Other	1	1	1	2	0	0

Table 4b. Tree Diameter Class (Quadratic Mean Diameter): Zone 3

Species	3 to 8 (Diameter in Inches)	9 to 14 (Diameter in Inches)	15 to 20 (Diameter in Inches)	21 to 26 (Diameter in Inches)	27 to 32 (Diameter in Inches)	>32 (Diameter in Inches)
All	43	41	19	14	5	1
Pine	9	15	9	12	4	1
Oak	34	26	10	2	1	0
Other	0	0	0	0	0	0

Table 4c. Tree Diameter Class (Quadratic Mean Diameter): Zone 4

Species	3 to 8 (Diameter in Inches)	9 to 14 (Diameter in Inches)	15 to 20 (Diameter in Inches)	21 to 26 (Diameter in Inches)	27 to 32 (Diameter in Inches)	>32 (Diameter in Inches)
All	60	68	23	16	10	5
Pine	9	3	7	8	9	3
Oak	51	65	16	8	1	2
Other	0	0	0	0	0	0

Table 5. Forest Regeneration – Tree Seedlings Observed by Species

Species	All Zones	Zone 2	Zone 3	Zone 4	Per Acre
Pine	48	16	26	6	3
Oak	177	127	37	13	10
Other	0	0	0	0	0

[3] Based on personal communications with City staff and residents encountered during the inventory.

4.6.3 Tree Health

Overall tree health for the forested zones of the Park is generally fair to good, with approximately 67% of the pines and 82% of the oaks being observed to be in fair or good condition. Trees in poor condition account for 17% of both the pine and oak trees. Dead standing trees account for 17% of the pine trees inventoried and 1% of the oak trees. Tree health varies by zone, with pine trees in fair or good condition composing 86% of the forest in Zone 2, but decreasing to 80% in Zone 3, and 75% in Zone 4. Oak tree health is more varied than pine, with oak trees in fair to good condition composing 87% in Zone 2, increasing to 96% in Zone 3, and then decreasing to 75% in Zone 4. Dead trees are evenly distributed across the three forested zones (Tables 6a–6d). The reasons for the distribution of tree health and a specific discussion of the threats to the forest is provided in Chapter 5, Summary of Potential Forest Threats, of this FMP. Photographs of pine and oak trees for health condition categories are included in Appendix C.

Table 6a. Forest Tree Health by Zone: All Zones

Species	Good Condition	Fair Condition	Poor Condition	Dead
Pine	44	45	22	21
Oak	88	139	47	3
Other	5	0	0	0

Table 6b. Forest Tree Health by Zone: Zone 2

Species	Good Condition	Fair Condition	Poor Condition	Dead
Pine	14	18	6	5
Oak	25	27	8	1
Other	5	0	0	0

Table 6c. Forest Tree Health by Zone: Zone 3

Species	Good Condition	Fair Condition	Poor Condition	Dead
Pine	16	17	10	7
Oak	38	32	3	0
Other	0	0	0	0

Table 6d. Forest Tree Health by Zone: Zone 4

Species	Good Condition	Fair Condition	Poor Condition	Dead
Pine	14	10	6	9
Oak	25	80	36	2
Other	0	0	0	0

4.6.4 Stand Density

The number of trees growing in a forest at any point in time shapes the look and character of a forest. Competition among trees has a powerful effect on the growth, health, resiliency, and character of a forest. It affects trees individually, but also as a forest, of which each tree is a part. Therefore, it is important to be aware of the degree of competition influencing trees within a stand. Stand density is a good indicator of this competition being based on tree diameter and the number of trees per acre (Maguire and Withrow-Robinson 2018).

Stand density for the forested zones varies based on tree species. Zones 2 and 3 have relatively similar stand density for pine trees (43–50 trees per acre) and oak trees (61–73 trees per acre). Zone 4 differs, with a lower stand density for pine trees (26 trees per acre) and a higher stand density for oak trees (95 trees per acre). A typical mature Monterey pine stand has a stand density of 32 to 49 trees per acre, and oak trees constitute 25% to 50% of trees in the stand (McDonald and Laacke 1990). Young Monterey pine trees are a component in a typical mature pine forest, but are noticeably absent from the forested zones in the Park, particularly in Zone 4 (see Table 7).

Table 7. Average Trees Per Acre by Species and Zone

Species	All Zones	Zone 2	Zone 3	Zone 4
Pine	38	43	50	26
Oak	79	61	73	95
Other	1	5	0	0

4.7 Summary of Conditions

The trees in the forested areas of the Park are generally in fair to good condition. The forest overstory is predominantly Monterey pine for most of the forested area; however, many of these mature pines are at the end of the typical lifespan, and are in decline due to multiple environmental stresses, including insects, disease, and climate. Pine trees are generally absent from the mid-story and understory, so there are no maturing pine trees to replace the mature trees that die and fall out of the crown. This is particularly noticeable in Zone 4, where mature pines are a scattered and widely separated component of the overstory. In the absence of pine regeneration, the oak tree component in the mid-story is becoming the dominant forest canopy tree. Oak trees are abundant and well represented across all age and size classes, and have a healthy distribution, with more small young trees than older trees. The oak tree component appears less impacted by insect and disease threats than the pine component.

Tree regeneration within the forested areas of the Park is limited. Natural pine regeneration appears to be rare, and, based on conversations with City staff and residents, is supplemented by City and Park volunteer tree planting projects. Natural oak regeneration is more abundant than pine, but is limited to small patches in the Park, mainly in Zones 2 and 3. There appears to be an adequate seed source on the mature trees for natural regeneration of both pine and oak trees. Competition from surface vegetation, particularly the dense layer of grass, inhibits the establishment of new trees.

Overall Forest Condition Summary

- Monterey pine overstory is made up of trees reaching the end of their natural lifespan
- Monterey pine is generally absent from the mid-story and is absent in regeneration
- Monterey pine trees per acre/stocking levels are near the bottom of their typical range and are dropping because of lack of regeneration

- Relatively open stands of mature pine is typical for the species, but it is accompanied by young pine trees growing in the openings
- Oak trees are becoming the dominant tree cover in the Park
- Oak trees are well represented across all age classes and shows a more healthy distribution, with more young small trees than older trees
- Oak tree health and vigor are overall good, and in many areas there is a high density of trees
- Oak tree regeneration is better than pine, but still limited to patches
- Surface vegetation, particularly non-native grasses, outcompete tree seedlings and prohibit regeneration on the forest floor

Forest inventory data tables that display the individual tree measurements and tree data summaries for each zone are provided in Appendix D.

4.8 Fire Environment

4.8.1 Fire History

Information about fires in the Park and the surrounding area was obtained from the Monterey Fire Department and by reviewing CAL FIRE's Fire and Resource Assessment Program (FRAP) database. Monterey Fire Department has not recorded any vegetation fires within the Park in the last 2 years (Personal Communication MFD 2021). A search of the FRAP database revealed no recorded wildfires have occurred within the Park since 1900 (CAL FIRE 2018).

4.8.2 Fuel Model and Fuel Loads

Forests are assessed for their wildfire potential by looking at the dominant vegetation cover present on the forest surface and in the forest canopy. When assessing wildfire potential, all vegetation present that could burn is described as fuel. The assessment is made by estimating which vegetation would be the most important to the spread of the fire (the primary carrier), and the volume of this type of vegetation that is present. The observed primary carrier and the estimated fuel volume are then compared to fire behavior models created by the U.S. Forest Service to provide a description of the anticipated wildfire potential.

The primary carriers of a wildfire are the small, flashy fuels present on the surface. Within the forested area of the Park there are two primary surface fuels that would allow a wildfire to spread when conditions permitted fire growth: the areas with continuous annual herbaceous plant and grass cover, and the areas with continuous pine needle cast and hardwood leaf litter. These two fuel types are described below.

TU1 – Low Load Dry Climate Timber–Grass–Shrub

The primary carrier of fire in the TU1 model is a low load of grass and/or shrub with litter. Spread rate is low; flame length low. TU1 represents the heavily shaded areas within the forested zones of the Park where fallen leaf litter and pine needles cover most of the forest floor.

GR4 – Moderate Load, Dry Climate Grass

The primary carrier of fire in the GR4 model is continuous, dry-climate grass; fuel bed depth (height of grass) is about 2 feet. Spread rate is moderate; flame length is low. GR4 represents the open and shade-dappled areas of the forested zones where a continuous layer of grass or other annual herbaceous plants cover most of the forest floor.

Of the two fuel models, GR4 was the most common in the Park, with 13 out of the 14 plots (Plots 1–13) supporting a dominant annual grass cover. Plot 14 was the only plot meeting the criteria for TU1.

Standing dead and fallen dead trees would contribute to a wildfire but are not well described by the standard fuel models. Throughout the forested zones of the Park there are standing and fallen dead trees, sometimes occurring individually, but more often occurring in clumps. From forester observations during the inventory, the fallen dead trees can be divided into two categories: the large pine trees that have already lost all their needles and branches are generally in an advanced stage of decomposition and lying on the ground, and the smaller fallen oak trees (or large broken pieces of the tree's crown) that are smaller in diameter but have retained their branches except for the smallest branches; these trees and portions of trees are generally less decayed and are in loose piles. Accumulations of dead and fallen trees were observed in Plots 2, 12, and 16.

4.8.3 Field Assessment

It is expected that the continuous grass layer on the forest surface will allow a wildfire to spread across the forested zones of the Park. The public streets around the perimeter of the Park, and Pine Street that cuts through Zones 3 and 4 are expected to present barriers to the spread of surface fire in the Park. Throughout all three forested zones, there is a limited understory of woody vegetation and there is adequate space between the tree crowns and the surface vegetation to prevent a surface fire from moving into the tree crowns. Occasional torching is possible where piles of deadwood or fallen trees lie beneath a standing tree.

4.8.4 Fire Hazards

Potential ignition sources for a wildfire include cigarettes; arson; sparks from automobiles, lawnmowers, and landscaping equipment; and unattended cooking fires. High-voltage powerlines are present along the west side of the Park, and a downed wire or equipment failure are potential ignition sources near these wires.

4.8.5 Fire Hazard Severity Zones

The Park and the surrounding neighborhoods are not within a CAL FIRE designated High Fire Hazare Severity Zone. The nearest High Fire Hazard Severity Zone begins approximately 0.3 miles to the southwest by the Rip Van Winkle Open Space area (CAL FIRE 2018). Between the Park and nearest High Fire Hazard Severity Zone is a developed residential area without the continuous flammable vegetation that could spread a wildfire to the Park.

4.9 Recreation

Zone 1, the developed area at the south end of the Park, contains most of the built structures, including picnic tables, barbecue grills, restrooms, a large play structure, and a baseball field. The forested zones of the Park contain some changes, including a trail system that runs south/north, several benches around the perimeter of the forested area of the Park, and several native habitat restoration enclosures. The trail system consists of two main trails that run the south to north length of the Park, and several accessory trails that connect the main trails to each other or connect a main trail to one of the adjacent streets. Several unofficial or casual trails are present in forested areas, mainly forming connections between the two main trails.

5 Summary of Potential Forest Threats

The trees within the forested zones of George Washington Park are subject to a variety of threats. The impact of each threat on forest health varies by tree species, age, and size, and existing condition of the tree. The condition of the trees in the forested areas are generally the result of several threats whose impacts are cumulative. As a result, there is not a single dominant threat to the forested area of the Park.

5.1 Climate

5.1.1 Drought

Drought is a recurring feature of California's climate. Recent drought events include a 5-year drought in 2012–2016, and a 3-year drought in 2007–2009, as well as the current drought event that began in 2020. Monterey County is currently experiencing severe drought (D2) conditions (NIDIS 2022).

Drought is the most prevalent threat to the trees within the Park. Drought or water stress results in reduced photosynthesis, which reduces a tree's growth rate, reduces the ability of the tree to make and store energy reserves, reduces the tree's ability to compartmentalize wounds, and reduces the amount of energy the tree has for defense, predisposing it to infestation or infection by damaging insects and diseases.

The effects of drought are visible on Park trees by leaf or needle drooping, a sparse crown, branch tip dieback, and leaf drop. Pine and oak trees within the Park are both being affected by drought, with 18% of the pines showing signs of significant drought stress and 10% of the oaks showing signs of significant drought stress.

Drought conditions also increase the risk of a destructive wildfire spreading in the forested areas of the Park.

5.1.2 Wildfire

Wildfire is another recurring feature of California's climate. Increases in wildfire frequency and severity are correlated to periods of drought. No recorded wildfires have occurred within the Park; however, several large wildfires have occurred nearby and have burned through similar vegetation as present in the Park.

Conditions that would support the spread of a wildfire in the Park occur after the annual grass and herbaceous plants have cured, generally in the late spring and persisting until the area receives significant rainfall in the fall. During drought years, the time of year available for wildfire to spread lengthens.

5.2 Insects

Red Turpentine Beetle

Red turpentine beetle (*Dendroctonus valens*) is a bark beetle that attacks several species of pine trees, including Monterey pine. Red turpentine beetles attack trees by tunneling into the inner bark of the tree where they then mate and lay eggs, and the offspring feed on tree as well. Red turpentine beetles occasionally kill Monterey pine trees; more commonly, the beetle attacks trees that are already stressed or in poor health and so are at an increased risk of dying (Owen 2003).

Pine trees infested with red turpentine beetles are identifiable by the pitch tubes, which are piles of pink and white granular material present on the lower half of the trunk. Beetle infestations are assessed by looking at the overall tree health and the number of fresh or active pitch tubes on the trunk. Old pitch tubes, ones that are yellow or brown, are a sign of a successful resistance to the attack by the tree and are not a concern.

Evidence of red turpentine beetle infestation was observed on 20 (15%) pine trees during the inventory, with Zone 2 having the most frequent occurrence of infestations. Of the trees that were observed to be infested, 15% appeared to be heavily infested. Red turpentine beetle does not infest coast live oak.

Red turpentine beetles are also a vector for Pitch Canker disease, described below.

5.3 Disease

Dwarf Mistletoe

Dwarf mistletoe is a small, leafless plant that parasitizes the stems of pine trees, extracting water and nutrients from the host tree. Dwarf mistletoe suppresses growth and reduces vigor in infected trees, and can kill pine trees outright. Mortality from mistletoe is more common in younger trees than mature trees; however, infected mature trees rarely overcome the parasite (Sinclair and Lyon 2005).

Pine trees infested with mistletoe are identifiable by the yellowish aerial shoots growing out the branches in the tree crowns and on the tree trunk. Other signs are swellings on the small, infected branches and branch dieback. Many of the pines infected with mistletoe in the Park have aerial shoots growing out of the trunk near ground level.

Evidence of dwarf mistletoe infection was observed on 20 (15%) pine trees during the inventory, with Zone 3 having the greatest number of infected trees. Dwarf mistletoe infestation is limited to the Monterey pine trees and does not infect coast live oak.

Pitch Canker

Pitch Canker is fungal disease that infects several species of pine trees in California. The disease was first identified in native Monterey pine forests in the mid-1980s, where it quickly spread. Pitch Canker infections attack trees by creating cankers around the circumference of branches and stems, girdling them, and ultimately leading to dieback in the portions of the tree above the canker. Monterey pines have varying levels of susceptibility to the disease, with some trees being seriously harmed or killed while others can persist. Because Pitch Canker has been present in the area for more than 30 years, it is likely that the most susceptible trees in the Park have already succumbed to the disease, and the remaining pines have some degree of resistance (Sinclair and Lyon 2005). The California State Board of Forestry has designated a zone of Pitch Canker infestation that includes most of coastal California including the area the park is located in (UC IPM 2021).

Pitch Canker disease is identifiable by the large swollen areas (the canker) on the trunk and branches, plus the copious amount of pitch that is exuded by the canker. Brown needles and dieback in the branch tips are other signs of an infection.

Evidence of Pitch Canker infection was observed on 8 (6%) pine trees during the inventory, with Zones 2 and 4 having the greatest number of infected trees. Pitch Canker disease is limited to species of pine, and does not infect coast live oak trees.

5.4 Invasive Plants

Grasses

The surface vegetation within the forested zones of the Park is dominated by several species of non-native, invasive annual grasses, including rattlesnake grass (*Briza maxima*), ripgut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), and panic veldt grass (*Ehrharta erecta*). These grasses have formed a continuous and dense layer of surface vegetation that outcompetes pine and oak seedlings for space and resources. The dense layer of grass also inhibits the germination of seedlings. These are annual grasses whose stems go dormant and dry out during the summer, creating a large volume of flammable vegetation.

Non-native grasses are easily identified during the summer months by their yellowish-brown stems and their abundance on the forest floor. Non-native grasses were observed at all 14 measurement plots and generally covered 75% or more of the forest surface.

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6 Management and Maintenance Recommendations for Promoting Forest Health and Minimizing Risk Over the Next 5 Years

Management activities within the forested areas of the Park are divided into two categories: management actions for reducing flammable vegetation and management actions for improving forest health/restoring a healthy distribution of pine tree age classes/improving tree regeneration. A description of trail management activities is also provided in this section.

6.1 Fire Hazard Reduction

Fire hazard reduction activities will be conducted within 100 feet of the homes surrounding the Park. The management area is "U"-shaped and generally forms a 30- to 40-foot-wide strip around the perimeter of the Park, beginning on the east side of the Park at Gibson Avenue, wrapping around the north end of the Park, and ending on the west side of the Park near the intersections of 17 Mile Drive and Melrose Drive. The width of the strip widens to 100 feet at the northwest corner of the Park where there is a strip of homes that back up to the Park boundary (Figure 4). Within this strip, vegetation management actions will be performed that adhere to CAL FIRE's defensible space requirements. These include the following:

- Cutting or mowing tall annual grasses and annual herbaceous vegetation to 4 inches in height or less
- Removing dead trees and woody shrubs
- Removing fallen dead trees and tree parts that are 6 inches in diameter or smaller
- Cutting up and scattering fallen dead trees or tree parts larger than 6 inches in diameter
- Trimming off lower branches on mature trees to create 10 feet of space between the ground and lower branches
- Removing shrubs, bushes, and thickets within the dripline of a mature tree

Some small oak tree removal is recommended to improve horizontal spacing.

The condition of the vegetation within 100 feet of the adjacent homes should be evaluated on an annual basis. Mowing annual grasses will be needed yearly; however, other activities will be needed on an as-needed basis. Fire hazard reduction activities should be performed in the later spring/early summer, preferably after the annual vegetation has started to cure but before the hottest and driest times of the year.

6.2 Forest Restoration

Forest restoration activities will be conducted in the interior of the Park, on the inside on the fire hazard reduction zone (Figure 5). The management area is composed of two rectangles divided by Pine Street. The rectangles are approximately 300 feet wide. Within this area, management activities will be focused on creating conditions favorable for tree regeneration. Treatment actions will be performed on 12 to 16 plots, each with a radius of 60 feet (0.25-acre plot). Treatment sites will be selected based on the surface vegetation, crown closure, and the availability of nearby mature trees to serve as seed sources. The ideal site will have predominantly grass or annual vegetation on the surface, a canopy with less than 50% closure, and several mature pine and oak trees nearby. Treatment sites will be separated from each other by at least 100 feet. Figure 6 shows the recommended reforestation and tree planting sites (Figure 6). Treatment actions include the following:

- Felling dead and dying overstory trees
- Removing concentrations of dead and down logs (individual logs can remain); removal off site is an option, or logs can be cut up and scattered on site
- Mowing grass and herbaceous cover and removing understory woody surface vegetation
- Raking and removing/reducing the pine needle and leaf litter layer to expose mineral soil

All of the reforestation actions described above will be performed on the initial treatment on each plot to prepare the site for tree planting or to allow natural regeneration from nearby mature trees. The site preparation work will be done in the late spring/early summer to have the site ready for cone and acorn drop later in the year. Tree plantings can be used on sites that may be ideal for pine or oak regeneration but lack a seed source, or if the City desires to improve the odds of successful regeneration. Tree plantings should take place January through March when the soil is moist. Twenty-five to 50 trees planted at each site is ideal (MacLaren 1993); it is acceptable to plant fewer trees at each site, but more than the recommended amount will likely result in overcrowding.

Follow up treatments will consist of annual weed whacking/mowing and supplemental water during unusually dry or hot weather. Deer cages, fences, or other protective measures may be needed to protect new trees from grazing.

Section 6.4 of this FMP provides general timetables for completing the recommended management actions throughout the year and over a period of 5 years.



SOURCE: Bing Maps 2021, Monterey County

DUDEK

0 200 400 Feet

FIGURE 4

Fire Hazard Reduction Zone

George Washington Park Forest Management Plan

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SOURCE: Bing Maps 2021, Monterey County

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FIGURE 5

Reforestation Zones

George Washington Park Forest Management Plan

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SOURCE: Bing Maps 2021, Monterey County

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FIGURE 6

Tree Planting Locations

George Washington Park Forest Management Plan

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6.3 Trails Management

A trails management strategy and trail maintenance will be performed on the trail systems within the forested areas of the Park. The City has identified the two south/north trails that begin at the baseball field and end on the north side of the Park at Short Street as the Park's official main trails. A connector trail, that begins at Alder Street and runs west to one of the main trails, is also part of the official trail system. The forested area of the Park contains several casual or unofficial trails created by Park users. These trails serve as connectors between the two main trails or connectors to the roads surrounding the Park. Unofficial trails will not be maintained by the City and may be blocked if continued use is detrimental to the soil or vegetation along the trail. The official main trails are shown in Figure 7.

Trail maintenance work will be performed with the goal of maintaining the current main trail location and a width that permits use by pedestrians and cyclists, with a minimum width of 4 feet. Maintenance activities will consist of the following:

- Removing fallen trees and branches that are blocking a trail.
- Cutting back tree branches, shrubs, and vines that encroach the trail.
- Repairing the trail surface. This includes leveling the trail surface, installing water diversion features, or adding new trail surface material. When available, wood chips produced by the removal of woody vegetation during fire hazard reduction or forest restoration work can be repurposed for use on the trails and spread onto the trail, particularly on areas of excessive wear.
- Blocking unofficial trail connections with downed or cut logs.
- Felling dead or hazardous trees that are likely to fall onto the trail.

Trail maintenance work will be performed on an as-needed basis and based on comments or requests from trail users. Dudek recommends that City staff walk the trail system at least once per year to assess trail conditions and determine if there is a need to block an unofficial trail.

6.4 Five-Year Management and Maintenance Schedule

Annual Work Schedule

Annual goals for fire risk reduction and forest restoration are provided in the annual work schedule and in Table 8.

Action	Description	Target Date Range
Inspection	Walkthrough of the fire risk reduction area	March–May
Grass and Annual Removal	Mowing or cutting annual plants and grasses	May–June
Dead Tree Removal	Felling standing dead trees	January–June
Tree Trimming	Trimming lower branches of trees and woody shrubs	May–July
Woody Debris Removal	Removing fallen trees and piles of broken branches and safely disposing them	January–June

Action	Description	Target Date Range
Understory Thinning	Removing woody shrubs and thickets beneath midstory trees	January–June
Dead Vegetation Removal	Removing dead woody vegetation, shrubs, bushes, thickets, and small trees	January–June

Actions	Description	Target Date Range
Inspection	Walking through the forest and identifying restoration sites	January–May
Plot Layout	Laying out and mapping forest restoration sites	January–May
Site Preparation	Removing surface vegetation and raking soil. Trimming lower branches of trees and woody shrubs	May–September
Planting	Installing new seedlings or planting prepared seeds	January–March
Site Maintenance	Controlling grass and annual vegetation, supplemental water, protection from grazing	April–October

Five-Year Work Schedule

The 5-year timetable for Goals 1 and 2 is provided in Table 8.

Table 8. Goals 1 and 2 Five-Year Timetable

Goal	Action	Zone 2	Zone 3	Zone 4	2022	2023	2024	2025	2026	2027
Reduction										
Wildfire Risk Reduction	Inspection	X	X	X	X	X	X	X	X	X
Wildfire Risk Reduction	Mowing	X	X	X	X	X	X	X	X	X
Wildfire Risk Reduction	Tree Felling			X	X					
Wildfire Risk Reduction	Woody Debris Removal	X	X	X	X					
Wildfire Risk Reduction	Tree Trimming	X	X	X	X					X
Wildfire Risk Reduction	Brush Removal		X		X				X	

Table 8. Goals 1 and 2 Five-Year Timetable

Goal	Action	Zone 2	Zone 3	Zone 4	2022	2023	2024	2025	2026	2027
Restoration										
Reforestation	Inspection	X	X	X	X	X	X	X	X	X
Reforestation	Plot Layout	X	X	X	X					
Reforestation	Site Preparation	X	X	X	X	X		X		X
Reforestation	Tree Planting	X	X	X	X	X		X		X
Reforestation	Site Maintenance	X	X	X	X	X	X	X	X	X

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SOURCE: Bing Maps 2021, Monterey County

DUDEK

0 200 400 Feet

FIGURE 7

Main Trail System

George Washington Park Forest Management Plan

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7 Materials and Labor Needed to Reach Management and Maintenance Recommendations Over the Next 5 Years

7.1 Treatment Methods

Several treatment methods are available to achieve the management goals described in Chapter 6 of this FMP. A combination of treatment methods is not only acceptable but is likely the optimal choice because it allows the City to pick the most effective method for each task and allows some flexibility if one option is not available.

Described below are treatments methods suited to the conditions in the forested zones and the goals. Also included is a recommended treatment plan based on observations of the forest and of treatment methods that have been successful elsewhere in Monterey County.

7.1.1 Mechanical

Only light mechanical equipment is recommended for operating in the forested zones because of the conditions in the Park and the location of the Park in a residential neighborhood. A tracked or rubber-wheel skid steer (e.g., bobcat) is small enough to operate efficiently within the Park. Skid steers can equip a variety of attachments that enable them to complete many of the treatment actions, including a mulcher or masticator head for removing brush and small trees plus processing the cut material, a grapple for carrying cut material, and a mower for cutting annuals and grass. The equipment operator will need be briefed on proper work procedures, cut material disposal, and equipment cleaning because the Park lies in a Pitch Canker Zone of Infestation where the intent is to minimize the likelihood that the disease (or the beetle that aids in its transmission) would be transported to area where the infection is not present.

Pros

- Quickly able to treat heavy fuel loads over large areas
- One piece of equipment can complete many of the management actions
- Poison oak is not an issue

Cons

- Expensive
- Can create soil compaction and soil damage, particularly if used when the soil is wet
- Needs a large, safe working space
- Hand crews needed to perform tree trimming, tree felling, and cutting up large logs

Neutral

- The most cost-effective use of mechanical equipment is to perform all the fire hazard reduction and forest restoration site preparation at the same time; however, this would result in performing some of the work at a less-than-ideal time of year.

7.1.2 Manual

Hand crews will be equipped with powered equipment such as chain saws, mowers, and weed whips, as well as hand tools such as hand saws, pruners, loppers, and shears. Hand crews can perform all the treatment actions described in the FMP, and will likely be used even if other methods are selected. Hand crews will need to work with a chipper parked on the nearest street while they are performing fire hazard reduction work. Crews will need to be briefed on proper processing, disposal of chips, and equipment cleaning because the Park lies in a Pitch Canker Quarantine Zone and because of the presence of bark beetles.

Pros

- Minimal damage to soil and remaining vegetation
- Can perform all the treatment actions
- Generally, not disruptive to other Park uses

Cons

- Areas of poison oak may not be treated or may cost significantly more to treat
- May require multiple hand crew contractors to complete all the treatment actions
- Expensive

7.1.3 Biological

Grazing is an effective method for treating surface vegetation and low-growing woody vegetation. Goat grazing is used in California for resource management and the most widely available in the area. Goats will graze on a variety of vegetation, including grasses, annual herbaceous plants, and small woody shrubs. They will also eat poison oak. Grazing will not address the tree trimming or down woody debris removal needs. Grazing also takes the longest to complete, sometimes taking a week or longer to complete what mechanical methods could complete in 1 day.

Pros

- Low impact on the soils and mature trees
- Will consume nearly all the herbaceous, grass, and woody shrubs species present
- Effective at controlling surface vegetation on large areas
- Animal movement and grazing exposes mineral soil

Cons

- Logistical needs, including fencing, access to water, and trailer access to treatment areas
- Goats will eat tree seedlings and other desirable plants if not protected

- Have a specific time window for when they will consume different types of plants
- Goats will graze on small trees and shrubs, but hand crews are still needed to perform tree trimming, tree felling, and cutting up large logs
- Grazing contractors have a minimum acreage requirement

7.1.4 Chemical

Selective and non-selective herbicides are useful for controlling the growth of undesirable vegetation. Properly applied herbicides are effective at controlling understory vegetation, particularly when dealing with aggressive invasive grasses and annuals. Herbicide use is not recommended for fire hazard reduction because it does not accomplish fuel reduction objectives, but it could be used on as-needed basis for forest restoration site preparation and maintenance to control the abundant non-native grasses present throughout the Park. A licensed pesticide applicator is required to perform any treatment application.

Pros

- Cost effective
- Provides effective control of aggressive invasive plants

Cons

- Considerable social stigma associated with herbicide use, even when done properly
- Other treatment methods still required for fire hazard reduction work and woody debris removal

7.1.5 Prescribed Fire

Monterey pine cones are serotinous, opening and releasing their seeds in the heat generated from a fire or high air temperatures. Fire also prepares an ideal seed bed for the new trees to become establish (Cope 1993). Low-intensity fire is also effective at controlling understory vegetation. Finally, a well-performed prescribed fire substantially reduces the risk of wildfire occurring for several years.

Pros

- Accomplishes multiple treatment actions in one treatment
- Most effective method for reducing fire hazard and reducing woody debris

Cons

- Carries the risk of fire escape
- Requires a great deal of planning to properly carry out
- Some site preparation is needed pre and post burn
- Has specific personnel, equipment, and environmental requirements that must be met to be performed

7.1.6 Recommendations

Dudek's recommended treatment method is to use a combination of hand crews to remove the large dead trees and downed trees (6 inches in diameter or greater) and then use goats to remove the surface and small understory vegetation. Goats are highly effective at consuming surface and understory vegetation, and in combination with the hand crews, removing the larger woody material will create an effective buffer around the Park while minimizing soil disruption. The main drawback of relying on goats is timing, because goats graze different vegetation types at different times of year, and goats need several days to several weeks to cover an entire treatment area. If there is limited time to complete the fire hazard reduction work, then the recommended treatment method is to use mechanical treatments for performing the fire hazard reduction work within the Park. The ideal treatment strategy is to have the surface and understory chipped or masticated by a lightweight skid steer or mini-excavator. Hand crews would then be used to cut and remove large, downed trees (typically over 9 inches in diameter or greater) or standing dead trees. Hand crews would also need be used in the monarch butterfly and sensitive habitat areas.

The ideal treatment method for the forest restoration work is to have the site preparation work be completed with a combination of hand crews to remove the large dead trees and downed trees, and then use goats to remove the surface and small understory vegetation. The goats would be allowed to graze the areas surrounding each plot and within the plot boundaries to help control the encroachment of competing vegetation within each tree planting site. The tree planting and follow up tree care work would be performed by hand crews.

7.2 Treatment Plan

7.2.1 Fire Hazard Reduction

Fire hazard reduction work will begin with an assessment of the vegetation within the fire hazard reduction zone, followed by a walkthrough with a vendor, if one is used. This assessment should be done in the spring; April is ideal, but there is some flexibility for earlier or later in the season depending on the weather. The treatment actions begin with the mowing/cutting of grass and annuals as soon as they cure, usually in April or May. Tree felling, tree trimming, and cut material removal is performed next. While mid-summer is the preferred time to trim coast live oak trees and winter is the preferred time to trim pine trees, it is acceptable to trim both the pines and oaks in the early summer for fire hazard reduction. Fire hazard reduction work should be completed prior to the onset of hot, dry conditions and the arrival of high fire danger. The initial treatment will likely require the most work to meet the defensible space requirements. Follow-up treatments for most years will be limited to mowing/cutting the grass and annuals, with tree trimming needed every 5 to 10 years. Dead tree removal and brush/small tree removal will likely be performed during the initial treatment and then on an as-needed basis.

Fire hazard reduction will be accomplished with a combination of hand crews and grazing. Hand crews will be used to perform all the treatment actions within 100 feet of the homes on Melrose Street that back up to the Park. This method is preferred because it ensures that the work can be scheduled and performed regardless of the condition of the vegetation for grazing or when the onset of hot and dry weather occurs. Hand crews will perform the tree trimming, dead tree removal, and woody debris removal on the remainder of the wildfire hazard reduction zone. Cut woody material will be chipped and used on site, but not spread within 30 feet of a wooden fence. All flammable vegetation will be raked away from private property fences. A permit will need to be obtained prior to trimming or removing trees within the Park.

Grazing will be used to control the surface vegetation and thickets of poison oak, blackberry, and wild cucumber.

7.2.2 Forest Restoration

Forest restoration will be accomplished using hand crews and grazing. Hand crews will be used to remove standing dead trees, raking accumulated leaf litter, and planting trees. Hand crew work will be limited to the area within the plot or, in the case of dead tree felling, the trees that have a high potential to fall into the reforestation plot. Cut woody material will be left on site, provided it is resting on the ground and not obstructing a plot or trail. Grazing will be performed over the entire forest reforestation zone, with the exception of the areas specified for exclusion (wildlife habitat, native plant restoration sites, existing reforestation sites).

Forest restoration work will begin with an assessment of the forest restoration zone. This includes determining the plot locations and mapping their location for the reforestation actions. The assessment should be followed up with a walkthrough of the zone with the tree service vendor and grazing vendor. If supplemental tree planting will be performed, then the trees should be ordered in the spring to ensure there is sufficient stock available. Appendix E contains a list of local nurseries that stock or can order Monterey pine. Treatment action will begin with the site preparation work. Depending on contractor availability, either the hand crews or grazing can begin first. Site preparation is not as time sensitive as the fire hazard reduction work, but it may be more cost effective to have the hand crews perform all the work at one time. Tree planting will take place in the fall after the first sufficient rainfall.

The initial site preparation will likely require the most work. Follow up treatments will depend on whether trees are being allowed to regenerate naturally or if trees will be planted. On natural regeneration sites, follow-up site maintenance will be limited to controlling surface vegetation and raking the topsoil to keep the seed bed in optimal condition. On planted sites or after natural regeneration has occurred, follow-up site maintenance will include controlling surface vegetation and installing protection from browsing; supplemental watering may be needed throughout the summer if drought conditions persist.

Initial forest restoration treatments do not need to be completed for all the plots in the same year. It is acceptable to perform treatment actions on a few of the plots each year over a period of several years until all the plots have been treated. However, it is not recommended to partially treat one plot, specifically not to partially plant a plot over a period of several years because the oldest trees have a high probability of outcompeting and overtopping the later plantings, limiting the growth potential or killing the younger trees.

7.2.3 Biological Resource Protection

As previously described, there are three special-status plants and four special-status wildlife species that are known to be present within the forested area of the Park or have the potential to occur within the Park or in the vicinity. Forest treatment actions will be implemented in a manner that either avoids impacting the special-status species or minimizes unavoidable impacts to special-status species. Described below are protection measures for each special-status species or special-status group.

7.2.3.1 Special-Status Plants

To protect special-status plant species, it is recommended that appropriately timed surveys be conducted prior to vegetation removal activities by a qualified botanist at the appropriate period when these species are evident and identifiable. If special-status plant species are observed during the surveys, it is recommended that the individuals

or populations be flagged with high-visibility flagging and completely avoided. If avoidance is not feasible, a species-specific mitigation plan should be prepared that describes the measures to be implemented to reduce and mitigate unavoidable impacts to special-status plants.

A detailed description of the protective measures to be implemented for each identified species is provided the Biological Constraints report that is attached to this FMP (Appendix B).

8 Conclusion

George Washington Park is a community park within a residential neighborhood. Approximately three-quarters of the Park is covered with a natural Monterey pine–coast live oak forest. This forested area is trending toward a decline of Monterey pine as the dominant tree in the overstory. Monterey pine decline is due to several accumulative factors (e.g., drought, insects, disease) and the lack of young pines in the understory to replace the mature pines as they die. Coast live oak trees are more abundant than the pine trees and have a better distribution of trees sizes and age. Oak trees are filling in the gaps in the tree canopy created by the loss of mature pine trees; however, these replacement oaks do not reach the diameter or height of the pines they are replacing. There are four main threats affecting the forested zones in the Park, with drought being the most widespread and having the greatest impact. Drought has an added impact in that it increases the risk of a destructive wildfire spreading through the forested area of the Park. Disease and insects are also damaging agents, but their impact is primarily on the pine trees. Competition from surface vegetation is impacting the structure and composition of the forest by limiting natural regeneration but is not impacting the health of existing trees.

The City is interested in improving the health and safety of the forested area, and has created two management goals for the forested area: first is to maintain the vegetation along the perimeter of the Park to reduce the risk of a destructive wildfire in the Park spreading to nearby homes, and second is to encourage the development of a healthy forest on the interior of the Park by creating conditions that are optimal for the growth of new trees.

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Appendix A
Soil Types

Soils in George Washington Park

Soils present within the park a primarily composed of sand and are typical of the soils that were formed from sedimentary rock. Below is a description of the soil types present within the park. This information was obtained from the Natural Resource Conservation Service (NRCS) Web Soil Survey (WSS).

Baywood sand, 2 to 15 percent slopes (BbC)-Consists of somewhat excessively drained soils that formed in stabilized sand dunes. In a representative profile the surface layer is dark grayish brown and brown, slightly acid and medium acid sand 21 inches thick. Below this is pale brown, slightly acid sand 6 inches thick. It is underlain by very pale brown, slightly acid sand that extends to a depth of more than 60 inches.

Permeability is rapid, and the available water capacity is 2.5 to 3 inches. Roots penetrate to a depth of more than 60 inches.

Baywood sand soils in the park are limited to a small area on the west side of the park near the ballfield and account for 13% of the soils in the park by area.

Narlon loamy fine sand, 2 to 9 percent slopes (NcC)- This is a gently sloping and moderately sloping soil on dissected marine terraces. The Narlon series consists of somewhat poorly drained soils that formed on uplands in soft marine sediments. In a representative profile the surface layer is gray, medium acid loamy fine sand about 3 inches thick. The subsurface layer is white, mottled, medium acid and slightly acid loamy fine sand 10 inches thick. The subsoil is light brownish gray, gray, and light gray, mottled, very strongly acid clay 40 inches thick. The substratum is mottled white, extremely acid weathered sandstone. Permeability is very slow, and the available water capacity is 2 to 3 inches. Most roots penetrate to a depth of 12 to 24 inches, but some tree roots penetrate very deeply into cracks.

Narlon loamy fine sand, 2 to 9 percent slopes soils are the dominant soil type and account for 51% of the soils in the park by area.

Narlon loamy fine sand, 15 to 30 percent slopes (NcE)- This is a strongly sloping and moderately steep soil on uplands. The Narlon series consists of somewhat poorly drained soils that formed on uplands in soft marine sediments. In a representative profile the surface layer is gray, medium acid loamy fine sand about 3 inches thick. The subsurface layer is white, mottled, medium acid and slightly acid loamy fine sand 10 inches thick. The subsoil is light brownish gray, gray, and light gray, mottled, very strongly acid clay 40 inches thick. The substratum is mottled white, extremely acid weathered sandstone. Permeability is very slow, and the available water capacity is 2 to 3 inches. Most roots penetrate to a depth of 12 to 24 inches, but some tree roots penetrate very deeply into cracks.

Narlon loamy fine sand, 15 to 30 percent slopes soils occur in two bands near the hilltop located at the corner of Pine St. and Alder St. These soils account for 36% of the soils in the park by area.

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Appendix B
Biological Constraints Report

1630 SAN PABLO AVENUE, SUITE 300
OAKLAND, CALIFORNIA 94612
T 510.601.2500 F 510.601.2501

May 10, 2022 13676

Office of the City Clerk
City of Pacific Grove
300 Forest Avenue
Pacific Grove, California 93950

Subject: *Biological Resources Constraints Assessment for the Proposed Management Plan for Forested Area of George Washington Park, Pacific Grove, Monterey County, California*

Dear Sir or Madam:

At the request of the City of Pacific Grove, Dudek conducted a biological resources assessment for the approximately 17-acre proposed Forest Management Plan (Plan) site within George Washington Park (project site or site) in the City of Pacific Grove, California. In October 2021, Dudek biologists conducted a literature review of various resource databases and followed up with reconnaissance-level field surveys to identify and describe existing biological resources, including natural vegetation communities, aquatic resources (e.g., wetlands), sensitive natural communities, and potential habitat for special-status plant and wildlife species. This letter report summarizes our findings and identifies potential biological resource constraints to Plan activities. Recommendations to avoid or minimize impacts to biological resources are also provided.

Project Site Location and Description

The project site is approximately 17-acres of undeveloped parks land within the George Washington Community Park east of 17 Mile Drive in the central limits of the City of Pacific Grove (Figure 1, Project Location and Figure 2, Project Site).

The project site is in Sections 13 and 14 of Township 18S and Range 1W of the Monterey U.S. Geological Survey 7.5-minute quadrangle. The approximate center of the project site corresponds to 36.620564 north latitude, and 121.928463 west longitude.

At the time of the site visits, the project site consisted largely of undeveloped parkland with the exception of a community baseball field, restroom facility, and playground at the southern boundary of the site. A review of historical Google Earth imagery shows that the site has historically remained undisturbed. The site is currently surrounded by residential development in all directions. The Rip Van Winkle Open Space is located south of the project site, and the Monarch Butterfly Sanctuary is located northwest of the project site.

Topography of the project site is gently sloping, with the steepest section at the northeast corner averaging 180 feet above mean sea level. Monterey County experiences a Mediterranean climate with warm, dry summers and cool, wet winters. The average annual daytime temperature in the general vicinity of the site is 65°F, and the average minimum temperature is approximately 48°F (WRCC 2021). Average annual precipitation in the general vicinity of the site is 19.73 inches, nearly all of which falls from October to April (WRCC 2021). Coastal fog and fog drip contributes to a small amount of precipitation in the months between May and October.

DUDEK
1630 SAN PABLO AVENUE, SUITE 300
OAKLAND, CALIFORNIA 94612
T 510.601.2500 F 510.601.2501

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Methods

Literature Review

Special-status species potentially present on the project site were identified through a literature search of the following sources: U.S. Fish and Wildlife Service's Information for Planning and Consultation (IPaC) (USFWS 2021), California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2021a), and the California Native Plant Society's Inventory of Rare and Endangered Plants of California (CNPS 2021). Searches of the above-referenced databases were completed for the Monterey and four surrounding U.S. Geological Survey 7.5-minute quadrangles: Seaside, Soberanes Point, Marina, and Mt. Carmel.

For this report, special-status plant and wildlife species are defined as those that are (1) listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act; (2) listed or candidates for listing as threatened or endangered under the California Endangered Species Act; (3) designated as Fully Protected under the California Fish and Game Code; (4) designated as a California Species of Special Concern by CDFW; or (5) assigned a California Rare Plant Rank (CRPR) of 1A, 1B, 2A or 2B by the California Native Plant Society. The CRPR system includes six rarity and endangerment ranks for categorizing plant species of concern, as follows:

- CRPR 1A – Plants presumed to be extinct in California
- CRPR 1B – Plants that are rare, threatened, or endangered in California and elsewhere
- CRPR 2A – Plants presumed to be extinct in California, but more common elsewhere
- CRPR 2B – Plants that are rare, threatened, or endangered in California, but more common elsewhere
- CRPR 3 – Plants about which more information is needed (a review list)
- CRPR 4 – Plants of limited distribution (a watch list)

Plants with CRPR 1A, 1B, 2A, or 2B may qualify as endangered, rare, or threatened species within the definition of California Environmental Quality Act (CEQA) Guidelines Section 15380. CDFW recommends that potential impacts to CRPR 1 and 2 species be evaluated in CEQA review documents. In general, CRPR 3 and 4 species do not meet the definition of endangered, rare, or threatened pursuant to CEQA Guidelines Section 15380, but these species may be evaluated on a case-by-case basis.

Field Reconnaissance

Following the literature review, Dudek Urban Forestry Specialist Michele Laskowski and Biologist Emily Scricca determined the potential for special-status species to occur within the project site. Determinations were based on a review of habitat types, soils, and elevation preferences, as well as the known geographic range of each species. For example, if the project site is within the elevation range of a particular plant species, but a specific soil type for that species was not present, the species was determined to have "low potential to occur" on the project site. Species were considered "not expected to occur" when the project site was clearly outside the known geographic range of the species or when potential habitat was absent from the project site.

Ms. Laskowski performed a tree inventory and special-status plant habitat assessment on the project site on October 5, 2021, from 9 a.m. to 4 p.m. and on October 8, 2021, from 9:00 a.m. to 4:00 p.m. Weather during the

site visits was overcast with an ambient temperature of approximately 65°F. The survey consisted of walking the entire site on foot and recording field notes on observed vegetation and wildlife species and habitat suitability for special-status plants.

Ms. Scricca performed a biological field reconnaissance of the project site on October 21, 2021, from 10:30 a.m. to 12:30 p.m. Weather during the site visit was partly cloudy, with an ambient temperature of approximately 65°F at the start and 72°F at the completion of the field visit. The site visit included mapping vegetation communities and land cover types present on the project site and assessing habitat for special-status wildlife species. The visit was conducted on foot to ensure visual coverage of the entire project site. Field notes and an aerial photograph (Google Earth Pro 2021) with an overlay of the project boundary were used to map vegetation communities and record any sensitive biological resources while in the field. Representative project site photographs are included in Attachment A.

All plant species were identified to the lowest taxonomic group possible. Nomenclature for plant species follow the Jepson Manual, Vascular Plants of California, Second Edition (Jepson Flora Project 2021).

Wildlife species detected by sight, calls, tracks, scat, or other signs were recorded into a field notebook. The project site was scanned with and without binoculars to aid in the identification of wildlife. Wildlife species not observed but expected to use the project site were identified based on known habitat preferences and regional distribution.

No formal wetland delineation or focused surveys for special-status plant or animal species were conducted. The field visit was sufficient to generally describe aquatic features on the project site that could be subject to regulation by the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and/or CDFW.

Existing Conditions

Vegetation Communities and Land Cover Types

The project site is mostly undeveloped parkland except for a community baseball field, restroom facility, and playground at the southern boundary of the site. This area is surrounded by dirt pedestrian trails and scattered picnic tables mixed amongst individual coast live oak (*Quercus agrifolia),* Monterey cypress (*Hesperocyparis macrocarpa*), Monterey pine (*Pinus radiata*), and coast redwood (*Sequoia sempervirens*) trees.

The remainder of the site is dominated by the Monterey cypress – Monterey pine stands (*Hesperocyparis macrocarpa – Pinus radiata* Forest & Woodland Semi-Natural Alliance) (Figure 3, Vegetation Communities and Land Cover Types). This vegetation community is dominated by a Monterey cypress and Monterey pine overstory with a lower canopy dominated by coast live oak. Common understory vegetation includes a shrub layer that is sparse to intermittent and an herbaceous layer that is sparse to grassy. Monterey cypress – Monterey pine stands have been planted as windbreaks, groves, or individual trees and are naturalized in coastal areas. Because of their artificial origin, they do not contain a global or state rarity ranking.

Soils and Hydrology

According to the U.S. Department of Agriculture Natural Resources Conservation Service (USDA 2021), three soil types occur within the project site: Baywood sand, 2 to 15 percent slopes; Narlon loamy fine sand, 2 to 9 percent slopes; and Narlon loamy fine sand, 15 to 30 percent slopes (see Figure 4, Soils). The project site mostly consists of the Narlon loamy fine sand complex; the Baywood sand soil type is found along the southwestern boundary of the site, north of the baseball field. The Narlon loamy fine sand complexes are considered to be poorly drained hydric soils with a very high runoff class. Baywood sand in non-hydric, although hydric inclusions may occur. None of the soil types are known to support edaphic special-status plant species (i.e., the soils of the site are neither serpentine nor alkaline).

The project site lies within the Soberanes Creek-Frontal Pacific Ocean Hydrologic Unit (HUC 12 180600060203) (Figure 5, Hydrologic Setting). An unnamed drainage is located approximately 0.25 miles south of the project site, originating from within the Rip Van Winkle Open Space, and ultimately drains into the Pacific Ocean, a traditional navigable water of the United States. According to the U.S. Geological Survey National Hydrography Dataset (USGS 2021), predefined waters of the United States or state are absent from the project site.

Plant and Wildlife Species Observed

Most vegetation on the project site consists of native or naturalized species; 47 species of plants (28 native [60%] and 19 non-native [40%] species) were recorded on the site (see Attachment B). The field visit was conducted late in the growing season when many plants are not evident or identifiable. As such, floristic surveys conducted at the appropriate time of the growing season would likely yield a greater number of identifiable species. The understory vegetation observed on the project site included annual grasses such as ripgut brome (*Bromus hordeaceus),* big quakinggrass (*Briza maxima*), wild oats (*Avena barbata/fatua*), perennial rye grass (*Festuca perennis*), mouse barley (*Hordeum murinum)* and others. Perennials, subshrubs and shrubs include blackberry (*Rubus ursinus*), toyon (*Heteromeles arbutifolia*), poison oak (*Toxicodendron diversilobum*), monkey flower (*Diplacus aurantiacus*), western brakenfern (*Pteridium aquilinum*), English ivy (*Hedera helix*), hedgenettle (*Stachys bullata*), broom (*Cytisus scoparius*), vining honeysuckle (*Lonicera hispidula*), and others.

Wildlife species observed or expected to occur on the project site are those that are adapted to forested parklands, Monterey cypress – Monterey pine stands, and urban landscapes with moderate human activity. Western fence lizard (*Sceloporus occidentalis*) was the only amphibian or reptile species observed during the site visit, although common species such as Sierran tree frog (*Pseudacris sierra*), gopher snake (*Pituophis catenifer*), and western rattlesnake (*Crotalus oreganus*) are also likely to occur. Common bird species observed included black phoebe (*Sayornis nigricans*), red-shouldered hawk (*Buteo lineatus*), Anna's hummingbird (*Calypte anna*), California scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), dark-eyed junco (*Junco hyemalis*), and California towhee (*Melozone crissalis*). Scat belonging to black-tailed deer (*Odocoileus hemionus*) was observed throughout the project site. A full list of wildlife species observed during the site visit is included in Attachment C.

Results

Special-Status Plant and Wildlife Species

Special-Status Plant Species

Results of the CNDDB, California Native Plant Society, and IPaC database searches revealed 75 special-status plant species as historically or potentially occurring in the site vicinity (Attachment D, Special-Status Plant Species Potential to Occur). Of these, 31 were eliminated from consideration because they were CRPR rankings of 3 and 4. This narrowed the list to include plants that are state and federally listed and/or with a CRPR of 1 or 2.

Each of the remaining 44 species were evaluated based on suitable habitat or edaphic conditions (i.e., alkaline or serpentine soils), or the sites' location outside of their known range and the proximity of known populations to the project areas. The site supports planted Monterey cypress but is outside the range of naturally occurring stands at Cypress Point and Point Lobos State Park near Carmel with a CRPR of 1B.2; therefore, this species is not expected to occur. Two special-status plant species are known to occur on or near the project site: Monterey pine (*Pinus radiata*) and Yadon's rein orchid (*Piperia yadonii*). Four species were determined to have a high potential to occur in the project site. Those include sandmat manzanita (*Arctostaphylos pumila*), San Francisco collinsia (*Collinsia multicolor*), marsh microseris (*Microseris paludosa*), northern curly-leaved monardella (*Monardella sinuata* ssp. *nigrescens*). The status of these species is briefly discussed below.

Marsh microseris has a CRPR of 1B.2 and is a perennial herb with a high potential to occur on the site. It occurs in closed-cone coniferous forest, cismontane woodland, and coastal scrub habitat. The project site overlaps an area of known occurrence of this species. A historical occurrence comprised of four collections at unspecified locations in "Pacific Grove" from 1906 to 1956 overlaps much of Pacific Grove, including the project site (Occ. No. 3; CDFW 2021a).

Native Monterey cypress has a CRPR of 1B.2 and is limited to two stands at Cypress Point and Point This species occurs on the project site but is naturalized and therefore the on-site trees are not considered special-status plants. The species is widely planted and naturalized elsewhere on the coast and beyond.

Native Monterey pine has a CRPR of 1B.1 and is present on the project site. The trees in this location are within the estimated historic range of this species as mapped by the CNDDB (Occ. No. 4) (CDFW 2021a) and are naturally occurring. The species is widely planted and naturalized elsewhere. Records provided by the City of Pacific Grove indicate that this stand of Monterey pine has been present on the site since the beginning of the twentieth century.

Northern curly-leaved monardella has a CRPR of 1B.2 and is a perennial herb with a high potential to occur on the site. This species occurs in chaparral, lower montane coniferous forest, coastal scrub, and coastal dunes. The collection source for the CNDDB occurrence of this species in the area is from 1932, so the location description is based on a best guess (Occ. No. 4) (CDFW 2021a). It is likely to be found on stabilized dunes in the vicinity.

Sandmat manzanita has a CRPR of 1B.2 and is a perennial evergreen shrub with a high potential to occur on the site. This species has three known populations within 0.5 miles of the project site. Within those locations the species has been extensively mapped and a noted increase in population density from 2004 to 2015 (Occ. Nos. 9, 14, and 20) (CDFW 2021a).

San Francisco collinsia has a CRPR or 1B.2 and is an annual herb with a high potential to occur on the site. This species occurs in closed-cone coniferous forest and coastal scrub habitat. A historical occurrence composed of a 1903 collection at an unspecified location overlaps a 1-mile-radius area centered on Pacific Grove, including the project site (Occ. No. 3; CDFW 2021a). The site provides high-quality habitat for this species.

Yadon's rein orchid is federally endangered with the CRPR or 1B.1. It is a perennial herb that is known to occur in closed cone coniferous forest, coastal bluff scrub and chaparral. It is known to occur on the project site (Occ. No. 4) (CDFW 2021a) and there are multiple occurrences in the vicinity. It has been noted as occurring in the understory of Monterey pine within patchy but dense *Calamagrostis nutkaensis* (CDFW 2021a). It was noted that the roadside mowing and vehicles parking along the road are a threat to this species.

Because the site visits were conducted outside of the blooming period for the above-mentioned plant species, most of these species would not have been evident or identifiable during the site visit.

Special-Status Wildlife Species

Based on the results of the CNDDB and IPaC database searches and field reconnaissance, Dudek identified 33 special-status wildlife species as occurring or potentially occurring in the region of the project site (Attachment E, Special-Status Wildlife Species Potential to Occur). Of these, 28 species were eliminated from consideration due to the absence of suitable habitat and/or the project site's location outside of their known range. The remaining species have some potential to occur within or near the project site and are described in more detail below.

Northern California Legless Lizard

Northern California legless lizard (*Anniella pulchra*) is a California species of special concern. This species is a fossorial (i.e., burrowing) animal and is found primarily in areas with sandy or loose soils, where they typically are found beneath leaf litter and in the soil (Holland and Goodman 1998; Morey 2000). This species may be found in sparsely vegetated areas in a variety of habitats, including beach dunes; chaparral; California sagebrush scrub; oak woodlands; pine forests; pine–oak woodland; sandy washes; and stream terraces with sycamores, cottonwoods, or oaks (Morey 2000; Stebbins 2003; Holland and Goodman 1998).

This species was documented within sandy soil within the southwest corner of the project site in 2017 (Occ. No. 375) (CDFW 2021a). The project site contains suitable woodland habitat with sandy soils to support this species. This species was not observed in the study area during the site survey; however, there is high potential for it to be present.

White-Tailed Kite

The white-tailed kite (*Elanus leucurus*) is a California Fully Protected species. It generally occurs in low-elevation grassland, wetland, oak woodland, low shrub, open woodlands, or savannah habitats. This species also uses fencerows, irrigation ditches with residual vegetation, and freeway edges and medians. Nests are constructed in a variety of trees, with coast live oak perhaps the most common, and placed high in the crown on thin branches (Peeters and Peeters 2005).

White-tailed kite has a moderate potential to nest within the project site. The project site contains suitable nest trees (*Quercus* spp., *Pinus* spp., etc.); however, foraging habitat is marginal due to the lack of open habitat and

density of trees on the site, and the site is immediately surrounded by residential development. This species was not observed during any of Dudek's site visits and has not been documented in the CNDDB within 5 miles of the project site (CDFW 2021a). However, there are several recent eBird observations of this species within and adjacent to the project site from 2015 to 2021, including one observation from 2019 within the middle of the project site (eBird 2021).

Special-Status Bats

Townsend's big-eared bat *(Corynorhinus townsendii*) is a California Species of Special Concern that is known to roost in limestone caves and lava tubes, man-made structures, and tunnels. This species inhabits deciduous forests and riparian habitat. The project site does not contain suitable roosting habitat for this species due to the lack of human-made structures and caves on site. However, there is moderate potential for this species to occasionally forage on site and roost within the structures adjacent to the project site. Because the project site is surrounded by urban development and subject to frequent human disturbance, Townsend's big-eared bat is unlikely to occur in large numbers, if present.

The numerous trees on the site provide suitable roosting habitat for special-status (e.g., western red bat) and common foliage-roosting bat species. Additionally, many of the trees on site contain hollowed-out cavities in which common bat species may roost.

Signs of roosting bat occupancy (i.e., guano or staining) were not observed within the project site during the field visit.

Special-Status Butterflies

The monarch butterfly (*Danaus plexippus pop. 1*) is a candidate species for listing under the federal Endangered Species Act. This species is known to inhabit wind-protected tree groves with nectar sources and nearby water sources.

The project site contains suitable habitat for this species, and there are numerous documented occurrences of this species within the site from 1960 to 2014 (Occ. No. 89) (CDFW 2021a). Additionally, this species was observed within the project site during the October site visits.

This project site is within the historic overwintering range for this species. There is a growing body of research that examines the characteristics that create suitable overwintering habitat for this species. Loss of overwintering habitat is one among several identified stressors that may be driving the monarch population decline. The Xerces Society recognizes the Pacific Grove Sanctuary, approximately 900 feet northwest of the site, among the top ten highest priority overwintering sites remaining in California (Xerces Society 2020).

Nesting and Migratory Birds

In California, all native active bird nests (with eggs or young) are protected by provisions in the federal Migratory Bird Treaty Act of 1918 and Sections 3503 and 3503.5 of the California Fish and Game Code. The trees and shrubs within and adjacent to the project site provide suitable nesting habitat for several native local and migratory bird species.

Potentially Jurisdictional Aquatic Resources

The project site does not support any aquatic resource features that may be regulated by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act, San Francisco Bay Regional Water Quality Control Board under

Section 401 of the Clean Water Act or California Porter-Cologne Act, and/or CDFW under Section 1602 of the California Fish and Game Code.

Sensitive Natural Communities

Sensitive natural communities are vegetation communities that are of limited distribution statewide or within a county or region. A list of sensitive natural communities in California is maintained by CDFW (2021b) based on rarity of and threats to these communities in California. Impacts on high-quality occurrences of sensitive natural communities are typically considered significant under CEQA.

The project site consists of one vegetation community—Monterey cypress – Monterey pine stands—which is not listed as a sensitive vegetation community under the California Natural Community List (CDFW 2021b).

Protected Trees

Chapter 12.20.020 of the City of Pacific Grove's municipal code describes five categories of protected trees:

(1) Native Trees. All Gowen cypress, regardless of size; all Coast live oak, Monterey cypress, Shore pine, Torrey pine, and Monterey pine six inches or greater in trunk diameter, measured at 54 inches above native grade.

(2) All Other Private Trees. In addition to subsection (a)(1) of this section, all other Trees on private property, regardless of species, 12 inches or greater in trunk diameter, measured at 54 inches above native grade.

(3) Monarch Butterfly Habitat Trees. All Trees in or within 100 yards of designated Monarch sanctuaries. For the purposes of this title, the following sites are designated as Monarch sanctuaries, serving as official Pacific Grove Monarch butterfly over-wintering sites:

  (A) Monarch Grove Sanctuary. That portion of land bordered on the east and west by Ridge Road and Grove Acre Avenue, respectively, on the south by Short Street, and on the north by the northerly boundary of assessor's parcel numbers 006-361-30-031, -032, -033, and -034, extended from Grove Acre easterly to Ridge Road.

  (B) Washington Park Site. That portion of land bordered on the east and west by Alder Street and Melrose Avenue, respectively, on the north by Pine Avenue, and on the south by the imaginary extension of Junipero Avenue westerly from Alder to Melrose.

(4) Public Trees. All Trees on Public Property six inches or greater in trunk diameter, measured at 54 inches above native grade, and all Street Trees, regardless of size.

(5) Designated Trees. All Trees that are otherwise Protected and will be impacted as a result of Development, both proposed for Pruning or Removal and where the Development will impact the Critical Root Zone of the Tree that requires protection during construction, and all Trees otherwise identified—during Development or otherwise—for special protection by the property owner. Trees that are proposed to be Removed as part of a Development project shall be processed as part of the community.

Based on the forest inventory conducted by Dudek foresters, about two-thirds of the trees present within the project site would qualify as a protected tree by being a native tree (category 1), a public tree (category 2) or a Monarch Butterfly Habitat Tree (category 3) and being over 6 inches in diameter.

Summary of Site Constraints and Recommendations

The implementation of the proposed project could potentially be constrained by the following biological resources present or potentially present within or immediately adjacent to the project site.

Special-Status Plants

As described above, two special-status plants are known to occur within the project site: Monterey pine and Yadon's rein orchid. Additionally, four special-status plants have a high potential to occur in within the project site: sandmat manzanita, San Francisco collinsia, marsh microseris, and northern curly-leaved monardella. Vegetation removal activities associated with project implementation could directly impact these species, if present. To protect special-status plant species, Dudek recommends that a qualified botanist conduct appropriately timed special-status plant surveys prior to vegetation removal activities at the appropriate period when these species are evident and identifiable. If any special-status plants are identified, they should be flagged with high-visibility flagging and completely avoided. If avoidance is not feasible, a species-specific mitigation plan should be prepared that describes the measures to be implemented to reduce and mitigate unavoidable impacts to special-status plants.

Special-Status Wildlife

Four special-status wildlife species—Northern California legless lizard, white-tailed kite, Townsend's big-eared bat, and monarch butterfly—have potential to occur on or in the vicinity of the project site.

Northern California Legless Lizard. As previously described, the project site provides suitable habitat for Northern California legless lizard, and this species has historically been documented within the project site. Proposed vegetation removal activities could disturb habitat for this species, and potentially impact individual Northern California legless lizards. To prevent impacts to Northern California legless lizards, Dudek recommends that a qualified biologist conduct a pre-activity survey for this species no more than 7 days prior to the start of project activities. The survey shall consist of gently raking any loose soil, sand, or leaf litter with a wooden rake until all Northern California legless lizards are found. Any Northern California legless lizards found within the project site shall be relocated to similar habitat outside of the area of impact.

White-Tailed Kite and Other Nesting and Migratory Birds. As previously described, the project site provides suitable nesting habitat for white-tailed kite and other native bird species. If project activities occur during the nesting season (typically defined by CDFW as February 15 to September 1), direct impacts to white-tailed kite and nesting and migratory birds could occur through destruction of active nests. Additionally, prolonged loud vegetation removal noise and increases in human activity could disturb nesting birds, resulting in nest abandonment or failure. To protect white-tailed kite and nesting and migratory birds, Dudek recommends that a pre-activity nesting bird survey be conducted by a qualified biologist within 10 days prior to vegetation removal or ground-disturbance activities to determine if any native birds are nesting on or near the site (including a 250-foot buffer for white-tailed kite and other raptors). If any active nests are observed during surveys, a suitable avoidance buffer will be determined by the qualified biologist based on species, location, and planned project activity. These nests would be avoided until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist.

Townsend's Big-eared Bat and Other Roosting Bats. As previously described, the project site provides suitable foraging habitat for Townsend's big-eared bat, and suitable roosting habitat for foliage-roosting, and cavity-roosting

bat species. If project activities require the removal of trees during peak activity timeframes when young or overwintering bats may be present (generally March through April and August through October), such activities could directly impact active bat roosts. To avoid impacts to active bat roosts, Dudek recommends that tree removals occur outside peak activity timeframes to the extent practicable. Additionally, it is recommended that daily restrictions on the timing of any work activities should be limited to daylight hours to reduce disturbance to roosting (and foraging) bat species.

Finally, Dudek recommends that a biologist with demonstrated experience conducting bat habitat assessments and roost surveys conduct a focused survey of subject trees within 30 days of the commencement of vegetation management activities. The survey should include a determination on whether active bat roosts are present on or within 50 feet of the project site. If Townsend's big-eared bat is detected to be roosting within the project site, CDFW should be contacted for additional instruction. If a non-breeding and non-wintering common bat colony is found, the individuals shall be evicted under the direction of a qualified biologist to ensure their protection and avoid unnecessary harm. If a maternity colony or overwintering colony is found within the project site, then the qualified biologist shall establish a suitable work-free buffer around the location. The buffer shall remain in place until the qualified biologist determines that the nursery is no longer active.

Monarch Butterfly. As previously described, Monarch butterfly has been documented within the project site, and the species may use the project site for overwintering, nectar foraging and possible larval rearing should host plants occur within the site. Because the Monarch butterfly is a candidate species for listing under the federal Endangered Species Act (ESA), it does not currently receive any legal protection under Section 9 of the ESA but any direct impacts to individuals or their host plants would be considered significant under CEQA. However, the City would be required to adhere to the management restrictions for tree removal inside of and within 100 yards of a Monarch Sanctuary. This would include limiting removals to the prescriptions in the approved Monarch Habitat Management plan and prohibiting the removal or pruning of trees during the months of October through April. Therefore, direct impacts to any Monarch butterflies potentially overwintering on the site are not expected.

Protected Trees

Approximately two-thirds of the trees on the site meet the criteria for protection under Chapter 12.20 of the City's municipal code. The City would not be required to obtain a permit to remove trees within the park as part of City-approved forest management plan. However, the City would be required to adhere to the management restrictions for tree removal inside of and within 100 yards of a Monarch Sanctuary. This would include limiting removals to the prescriptions in the approved Monarch Habitat Management plan and prohibiting the removal or pruning of trees during the months of October through April. Tree pruning on protected trees is permitted provided no more than 25% of the live crown is removed during any treatment.

All tree pruning and removal work would be required to take place outside of the nested periods of listed threatened, endangered, or special status species as specified by CDFW or U.S. Fish and Wildlife Service.

Please contact me if you have any questions regarding the content of this report.

Sincerely,



Emily Scricca
Biologist

Att.: *Figures 1-5*
Attachment A, Representative Photographs of the Project Site
Attachment B, Plant Species Compendium
Attachment C, Wildlife Species Compendium
Attachment D, Special-Status Plant Species Potential to Occur
Attachment E, Special-Status Wildlife Species Potential to Occur

cc: *Matt Ricketts, Dudek*
Jeremy Cawn, Dudek

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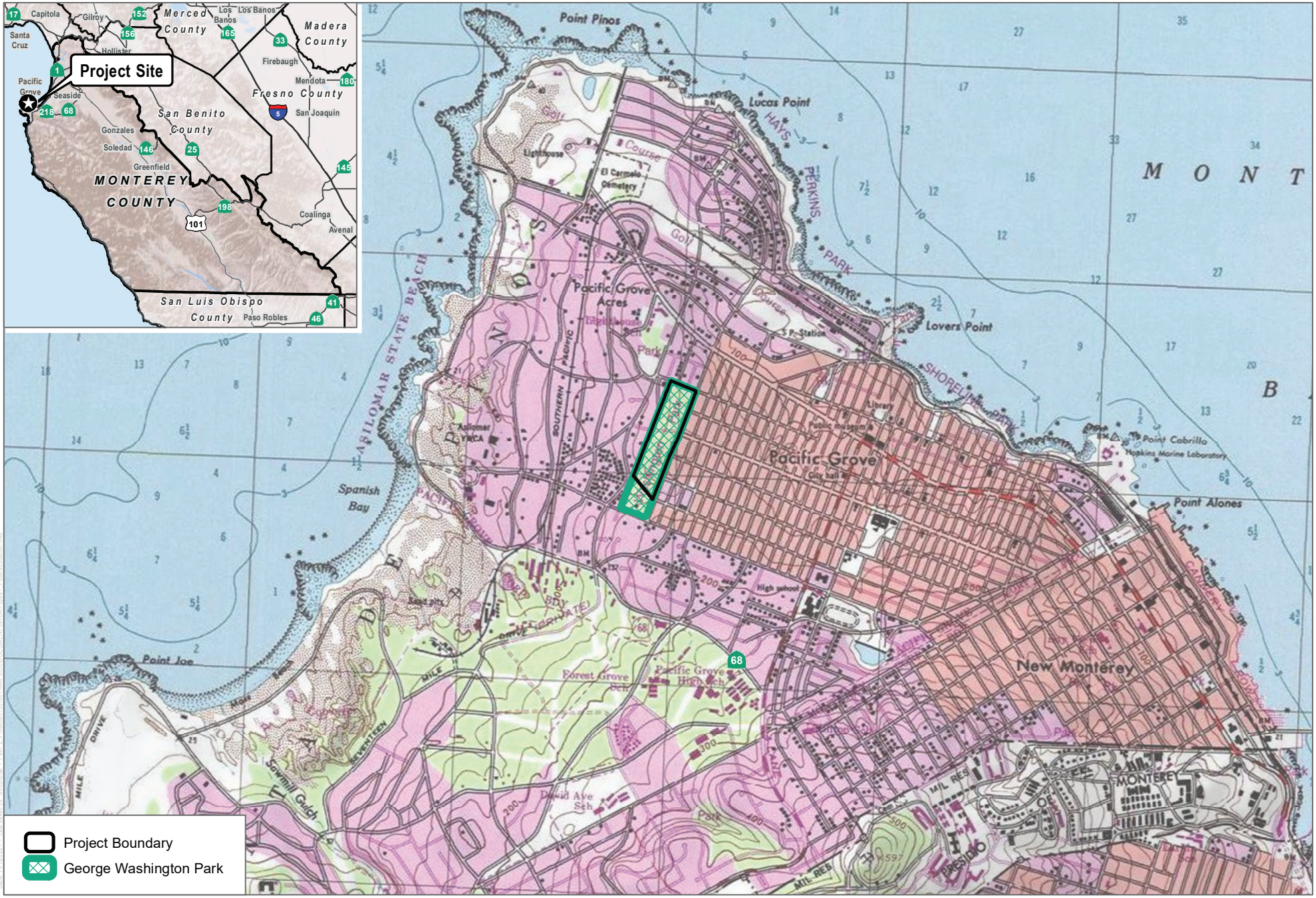
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SOURCE: USGS 7.5-Minute Series Monterey Quadrangle

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Biological Resources Constraints Assessment for the Proposed Management Plan for Forested Area of George Washington Park, Pacific Grove, Monterey County, California



SOURCE: Bing Maps 2021, Monterey County

DUDEK

0 200 400 Feet

FIGURE 2

Project Site

Biological Resources Constraints Assessment for the Proposed Management Plan for Forested Area of George Washington Park, Pacific Grove, Monterey County, California



SOURCE: Bing Maps 2021, Monterey County

DUDEK

0 200 400 Feet

FIGURE 3

Vegetation Communities and Land Cover Types

Biological Resources Constraints Assessment for the Proposed Management Plan for Forested Area of George Washington Park, Pacific Grove, Monterey County, California



SOURCE: Bing Maps 2021, USDA NRCS, Monterey County

DUDEK

0 200 400 Feet

FIGURE 4

Soils



SOURCE: Bing Maps 2021, NHD, Monterey County

DUDEK

0 500 1,000 Feet

FIGURE 5

Hydrology

Biological Resources Constraints Assessment for the Proposed Management Plan for Forested Area of George Washington Park, Pacific Grove, Monterey County, California

Attachment A

Representative Photographs of the Project Site



View of the project site from the southwest corner of the site, facing northwest



View of the project site from the center of the site, facing northeast



View of the project site from the center of the site, facing north



Acorn woodpecker granary tree within the project site



View of the project site from the center of the site, facing north



Sandy soil within the project site that is suitable for Northern California legless lizard



Old, inactive stick bird nest within a coast live oak tree within the project site



Potential bat roosting habitat within a cavity of an oak tree within the project site

Attachment B

Plant Species Compendium

Vascular Species

Eudicots

ANACARDIACEAE – SUMAC OR CASHEW FAMILY

Toxicodendron diversilobum – poison oak

ARALIACEAE – GINSENG FAMILY

* *Hedera helix* – English ivy

ASTERACEAE – SUNFLOWER FAMILY

* *Arctotheca prostrata* – no common name

Artemisia douglasiana – Douglas' sagewort

* *Carduus pycnocephalus* – Italian plumeless thistle
* *Delairea odorata* – Cape-ivy

Erigeron canadensis – Canadian horseweed

Pseudognaphalium stramineum – cottonbatting plant

BORAGINACEAE – BORAGE FAMILY

* *Borago officinalis* – common borage
* *Echium candicans* – pride of Madeira

Phacelia ramosissima – branching phacelia

BRASSICACEAE – MUSTARD FAMILY

* *Brassica rapa* – field mustard

CAPRIFOLIACEAE – HONEYSUCKLE FAMILY

Lonicera hispidula – pink honeysuckle

CARYOPHYLLACEAE – PINK FAMILY

Cardionema ramosissimum – sandcarpet

CUCURBITACEAE – GOURD FAMILY

Marah fabacea – California man-root

FABACEAE – LEGUME FAMILY

* *Acacia melanoxylon* – blackwood
* *Cytisus scoparius* – broom

Lathyrus vestitus – Pacific pea

FAGACEAE – OAK FAMILY

Quercus agrifolia – coast live oak

GROSSULARIACEAE – GOOSEBERRY FAMILY

Ribes malvaceum – chaparral currant

LAMIACEAE – MINT FAMILY

Clinopodium douglasii – yerba buena

Stachys bullata – California hedgenettle

PHRYMACEAE – LOPSEED FAMILY

Diplacus aurantiacus – bush monkeyflower

RHAMNACEAE – BUCKTHORN FAMILY

Ceanothus thyrsiflorus – blue blossom

Frangula californica – California coffee berry

ROSACEAE – ROSE FAMILY

Heteromeles arbutifolia – toyon

Rubus ursinus – California blackberry

RUBIACEAE – MADDER FAMILY

Galium aparine – stickywilly

SCROPHULARIACEAE – FIGWORT FAMILY

* *Myoporum laetum* – myoporum

VISCACEAE – MISTLETOE FAMILY

Arceuthobium campylopodum – western dwarf mistletoe

Ferns and Fern Allies

DENNSTAEDTIACEAE – BRACKEN FAMILY

Pteridium aquilinum – western brackenfern

Gymnosperms and Gnetophytes

CUPRESSACEAE – CYPRESS FAMILY

Hesperocyparis macrocarpa – Monterey cypress

Sequoia sempervirens – redwood

PINACEAE – PINE FAMILY

Pinus radiata – Monterey pine

Monocots

AMARYLLIDACEAE – AMARYLLIS FAMILY

* *Amaryllis belladonna* – belladonna lily

CYPERACEAE – SEDGE FAMILY

Carex praegracilis – clustered field sedge

JUNCACEAE – RUSH FAMILY

Juncus lescurii – salt rush

POACEAE – GRASS FAMILY

* *Avena barbata* – slender oat
* *Avena fatua* – wild oat
* *Briza maxima* – big quakinggrass
* *Bromus diandrus* – ripgut brome
* *Bromus hordeaceus* – soft brome
* *Ehrharta erecta* – panic veldtgrass

Elymus condensatus – giant wild rye

Elymus triticoides – creeping ryegrass

* *Festuca perennis* – perennial rye grass
* *Hordeum murinum* – mouse barley

* signifies introduced (non-native) species

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Attachment C

Wildlife Species Compendium

Wildlife Species – Birds

Bushtits

Aegithalidae—Long-Tailed Tits and Bushtits

Psaltriparus Minimus—Bushtit

Creepers

Certhiidae—Creepers

Certhia Americana—Brown Creeper

Flycatchers

Tyrannidae—Tyrant Flycatchers

Sayornis Nigricans—Black Phoebe

Hawks

Accipitridae—Hawks, Kites, Eagles, and Allies

Buteo Lineatus—Red-Shouldered Hawk

Hummingbirds

Trochilidae—Hummingbirds

Calypte Anna—Anna's Hummingbird

Jays, Magpies and Crows

Corvidae—Crows and Jays

Aphelocoma Californica—California Scrub-Jay

Corvus Brachyrhynchos—American Crow

Cyanocitta Stelleri—Steller's Jay

Pigeons and Doves

Columbidae—Pigeons and Doves

Zenaida Macroura—Mourning Dove

Titmice

Paridae—Chickadees and Titmice

Poecile Rufescens—Chestnut-Backed Chickadee

Wood Warblers and Allies

Parulidae—Wood-Warblers

Setophaga Townsendi—Townsend's Warbler

Woodpeckers

Picidae—Woodpeckers and Allies

Melanerpes Formicivorus—Acorn Woodpecker

Dryobates Nuttallii—Nuttall's Woodpecker

Dryobates Pubescens—Downy Woodpecker

New World Sparrows

Passerellidae—New World Sparrows

Junco Hyemalis—Dark-Eyed Junco

Melozone Crissalis—California Towhee

Zonotrichia Atricapilla—Golden-Crowned Sparrow

Invertebrates

Butterflies

Nymphalidae—Brush-Footed Butterflies

Adelpha Bredowii—California Sister

Danaus Plexippus—Monarch

Vanessa Annabella—West Coast Lady

Mammals

Hares and Rabbits

Leporidae—Hares and Rabbits

Sylvilagus Bachmani—Brush Rabbit

Squirrels

SCIURIDAE—SQUIRRELS

Sciurus Griseus—Western Gray Squirrel

* *Sciurus Niger*—Eastern Fox Squirrel*

Ungulates

Cervidae—Deers

Odocoileus Hemionus—Mule Deer

Reptiles

Lizards

Phrynosomatidae—Iguanid Lizards

Sceloporus Occidentalis—Western Fence Lizard

* Signifies Introduced (Non-Native) Species

Attachment D

Special-Status Plant Species Potential to Occur

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur	PTO
Agrostis lacuna-vernalis	vernal pool bent grass	None/None/1B.1	Vernal pools (mima mounds)/annual herb/Apr–May/ 377–475	**Not expected to occur.** The site is outside of the species' known elevation range.	N
Allium hickmanii	Hickman's onion	None/None/1B.2	Closed-cone coniferous forest, Chaparral (maritime), Coastal prairie, Coastal scrub, Valley and foothill grassland/perennial bulbiferous herb/ Mar–May/16–655	**Moderate potential to occur.** The closest known occurrences is within 1.3 miles of the project site. Bulb species can persist in understory for a long time. There is suitable habitat.	M
Arctostaphylos edmundsii	Little Sur manzanita	None/None/1B.2	Coastal bluff scrub, Chaparral; sandy/ perennial evergreen shrub/Nov–Apr(May)/ 33–345	**Not expected to occur.** Closest known occurrence to a project site is over 7.25 miles away. The project site does not contain suitable habitat.	N
Arctostaphylos hookeri ssp. *hookeri*	Hooker's manzanita	None/None/1B.2	Closed-cone coniferous forest, Chaparral, Cismontane woodland, Coastal scrub; sandy/ perennial evergreen shrub/Jan–June/197–1,755	**Moderate potential to occur.** The closest known occurrences is within 0.1 miles of the project site. There is suitable habitat.	M
Arctostaphylos montereyensis	Toro manzanita	None/None/1B.2	Chaparral (maritime), Cismontane woodland, Coastal scrub; sandy/perennial evergreen shrub/ Feb–Mar/98–2,395	**Not expected to occur.** Closest known occurrence to a project site is over 4.8 miles from theproject site. There is no suitable habitat.	N

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur	PTO
Arctostaphylos pajaroensis	Pajaro manzanita	None/None/1B.1	Chaparral (sandy)/ perennial evergreen shrub/Dec–Mar/ 98–2,490	**Not expected to occur.** While there is a known occurrence within 1 mile of the project site. There is no suitable habitat for this species.	N
Arctostaphylos pumila	sandmat manzanita	None/None/1B.2	Closed-cone coniferous forest, Chaparral (maritime), Cismontane woodland, Coastal dunes, Coastal scrub; sandy, openings/ perennial evergreen shrub/Feb–May/ 10–675	**High potential to occur.** There are three known locations of this species within 0.5 miles of the project site. There is suitable habitat for this species.	H
Arenaria paludicola	marsh sandwort	FE/SE/1B.1	Marshes and swamps (freshwateror brackish); sandy, openings/perennial stoloniferous herb/ May–Aug/10–560	**Not expected to occur.** The project sites do not contain suitable habitat.	N
Astragalus tener var. *titi*	coastal dunes milk-vetch	FE/SE/1B.1	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie (mesic); often vernally mesic areas/annual herb/Mar–May/ 3–165	**Not expected to occur.** The project sites do not contain suitable habitat.	N
Castilleja ambigua var. *insalutata*	pink Johnny-nip	None/None/1B.1	Coastal prairie, Coastal scrub/annual herb (hemiparasitic)/ May–Aug/0–330	**Low potential to occu**r. CNDDB Occ. No. 12 for the Monterey Quad overlaps the project site and the population is noted as presumed extant. However, the project site does not contain much suitable habitat.	L

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur	PTO
Centromadia parryi ssp. *congdonii*	Congdon's tarplant	None/None/1B.1	Valley and foothill grassland (alkaline)/ annual herb/May–Oct(Nov)/0–755	**Not expected to occur**. The project sites do not contain suitable habitat. The closest occurrence is over 10 miles away.	N
Chorizanthe minutiflora	Fort Ord spineflower	None/None/1B.2	Chaparral (maritime), Coastal scrub; Sandy openings/annual herb/Apr–July/ 180–490	**Not expected to occur**. The project sites do not contain suitable habitat. The closest occurrence is over 7 miles away.	N
Chorizanthe pungens var. *pungens*	Monterey spineflower	FT/None/1B.2	Chaparral (maritime), Cismontane woodland, Coastal dunes, Coastal scrub, Valley and foothill grassland; sandy/ annual herb/Apr–June(July–Aug)/ 10–1,475	**Low potential to occur**. CNDDB Occ. No. 17 for the Monterey Quad overlaps the project site and the population is noted as presumed extant. However, the project site does not contain much suitable habitat.	L
Clarkia jolonensis	Jolon clarkia	None/None/1B.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/annual herb/Apr–June/ 66–2,165	**Low potential to occur**. CNDDB Occ. No. 13 for the Monterey Quad overlaps the project site however the population is extirpated. The closest extant population is over 7.5 miles from the project site.	L
Collinsia multicolor	San Francisco collinsia	None/None/1B.2	Closed-cone coniferous forest, Coastal scrub; sometimes serpentinite/annual herb/(Feb)Mar–May/ 98–902	**High potential to occur**. CNDDB Occ. No. 1 for the Monterey Quad overlaps the project site and the population is noted as presumed extant. There is suitable habitat.	H

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur	PTO
Cordylanthus rigidus ssp. *littoralis*	seaside bird's-beak	None/SE/1B.1	Closed-cone coniferous forest, Chaparral (maritime), Cismontane woodland, Coastal dunes, Coastal scrub; sandy, often disturbed sites/annual herb (hemiparasitic)/ Apr–Oct/0–1,685	**Low potential to occur.** The project sites does have suitable habitat. However the closest known extant occurnaces are over 5.3 miles.	L
Delphinium californicum ssp. *interius*	Hospital Canyon larkspur	None/None/1B.2	Chaparral (openings), Cismontane woodland (mesic), Coastal scrub/perennial herb/ Apr–June/640–3,590	**Not expected to occur.** The site is outside of the species' known elevation range.	N
Delphinium hutchinsoniae	Hutchinson's larkspur	None/None/1B.2	Broadleafed upland forest, Chaparral, Coastal prairie, Coastal scrub/ perennial herb/ Mar–June/0–1,400	**Low potential to occur**. CNDDB Occ. No. 9 for the Monterey Quad overlaps the project site and the population is noted as presumed extant. However, the project site does not contain much suitable habitat.	L
Ericameria fasciculata	Eastwood's goldenbush	None/None/1B.1	Closed-cone coniferous forest, Chaparral (maritime), Coastal dunes, Coastal scrub; sandy, openings/perennial evergreen shrub/ July–Oct/98–900	**Low potential to occur.** The project sites does have suitable habitat. The closest known occurrences are 0.5 mile away.	L
Eriogonum nortonii	Pinnacles buckwheat	None/None/1B.3	Chaparral, Valley and foothill grassland; sandy, often on recent burns/annual herb/(Apr)May–Aug(Sep)/984–3,195	**Not expected to occur.** The site is outside of the species' known elevation range.	N

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur	PTO
Erysimum ammophilum	sand-loving wallflower	None/None/1B.2	Chaparral (maritime), Coastal dunes, Coastal scrub; sandy, openings/perennial herb/Feb–June/ 0–195	**Not expected to occur.** There is not suitable habitat for this species	N
Erysimum menziesii	Menzies wallflower	FE/SE/1B.1	Coastal dunes/ perennial herb/ Mar–Sep/0–115	**Not expected to occur.** While there are a few known occurrences within 0.5 mile of the project site. This species has specific habitat requirements and the project site does not contain suitable habitat.	N
Fritillaria liliacea	fragrant fritillary	None/None/1B.2	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland; Often serpentinite/perennial bulbiferous herb/ Feb–Apr/10–1,345	**Not expected to occur.** This species has specific habitat requirements and the project site does not contain suitable habitat.	N
Gilia tenuiflora ssp. *arenaria*	Monterey gilia	FE/ST/1B.2	Chaparral (maritime), Cismontane woodland, Coastal dunes, Coastal scrub; sandy, openings/ annual herb/ Apr–June/0–150	**Moderate potential to occur.** There are 4 known occurrences within 0.5 mile of the project site. However, suitable habitat would be most likely in forest canopy openings.	M
Hesperocyparis goveniana	Gowen cypress	FT/None/1B.2	Closed-cone coniferous forest, Chaparral (maritime)/ perennial evergreen tree/N.A./98–985	**Not expected to occur.** Closest known occurrence to a project site is over 3.7 miles from the project site. This species is an evergreen tree so would be easily detected if it was present.	N

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur	PTO
Hesperocyparis macrocarpa	Monterey cypress	None/None/1B.2	Closed-cone coniferous forest/ perennial evergreen tree/N.A./33–100	**Not expected to occur.** This species is present in the project site but is naturalized. This species only occurs in two natural stands in Monterey County (not in the project site). The species is widely planted and naturalized elsewhere on the coast and beyond.	N
Horkelia cuneata var. *sericea*	Kellogg's horkelia	None/None/1B.1	Closed-cone coniferous forest, Chaparral (maritime), Coastal dunes, Coastal scrub; sandy or gravelly, openings/ perennial herb/ Apr–Sep/33–655	**Moderate potential to occu**r. CNDDB Occ. No. 8 for the Monterey Quad overlaps the project site and the population is noted as presumed extant. There is suitable habitat especially along forest edges and in canopy openings.	M
Horkelia marinensis	Point Reyes horkelia	None/None/1B.2	Coastal dunes, Coastal prairie, Coastal scrub; sandy/ perennial herb/ May–Sep/16–2,475	**Not expected to occur.** The project sites do not contain suitable habitat and there are no known occurrences nearby.	N
Lasthenia conjugens	Contra Costa goldfields	FE/None/1B.1	Cismontane woodland, Playas (alkaline), Valley and foothill grassland, Vernal pools; mesic/ annual herb/ Mar–June/0–1,540	**Not expected to occur.** The project sites do not contain suitable habitat and there are no known occurrences nearby.	N
Layia carnosa	beach layia	FE/SE/1B.1	Coastal dunes, Coastal scrub (sandy)/annual herb/ Mar–July/0–195	**Low potential to occu**r. There are two known occurrences within 0.5 miles of the project site. However, the project site does not contain much suitable habitat.	L
Lupinus tidestromii	Tidestrom's lupine	FE/SE/1B.1	Coastal dunes/ perennial rhizomatous herb/Apr–June/ 0–330	**Low potential to occu**r. There are seven known occurrences within 1.0 mile of the project site. However, the project site does not contain much suitable habitat.	L

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur	PTO
Malacothamnus palmeri var. *involucratus*	Carmel Valley bush-mallow	None/None/1B.2	Chaparral, Cismontane woodland, Coastal scrub/perennial deciduous shrub/ Apr–Oct/98–3,605	**Moderate potential to occu**r. CNDDB Occ. No. 20 for the Monterey Quad overlaps the project site and the population is noted as presumed extant. However, the project site does not contain much suitable habitat.	M
Microseris paludosa	marsh microseris	None/None/1B.2	Closed-cone coniferous forest, Cismontane woodland, Coastal scrub, Valley and foothill grassland/ herb/Apr–June(July)/ 16–1,160	**High potential to occu**r. CNDDB Occ. No. 3 for the Monterey Quad overlaps the project site and the population is noted as presumed extant. There is suitable habitat for this species.	H
Monardella sinuata ssp. *nigrescens*	northern curly-leaved monardella	None/None/1B.2	Chaparral (SCR Co.), Coastal dunes, Coastal scrub, Lower montane coniferous forest (SCR Co., ponderosa pine sandhills); Sandy./ annual herb/(Apr)May–July(Aug–Sep)/0–985	**High potential to occu**r. CNDDB Occ. No. 4 for the Monterey Quad overlaps the project site and the population is noted as presumed extant. There is suitable habitat for this species.	H
Pinus radiata	Monterey pine	None/None/1B.1	Closed-cone coniferous forest, Cismontane woodland/perennial evergreen tree/ N.A./82–605	**Present.** This species is present in the project site and is within the CNDDB occurrence of its estimated historic range on the Monterey peninsula.The species is widely planted and naturalized elsewhere.	P
Piperia yadonii	Yadon's rein orchid	FE/None/1B.1	Coastal bluff scrub, Closed-cone coniferous forest, Chaparral (maritime); sandy/perennial herb/(Feb)May–Aug/33–2,475	**Present.**CNDDB Occ. No. 4 for the Monterey Quad states that there is a known population in the project site.	P

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur	PTO
Potentilla hickmanii	Hickman's cinquefoil	FE/SE/1B.1	Coastal bluff scrub, Closed-cone coniferous forest, Meadows and seeps (vernally mesic), Marshes and swamps (freshwater)/perennial herb/Apr–Aug/ 33–490	**Moderate potential to occur**. There is a known occurrence within 0.6 miles of the project site. There is suitable habitat.	M
Ramalina thrausta	angel's hair lichen	None/None/2B.1	North Coast coniferous forest; On dead twigs and other lichens/fruticose lichen (epiphytic)/ N.A./246–1,410	**Moderate potential to occur**. There is a known occurrence within 1.4 miles of the project site. There is suitable habitat.	M
Rosa pinetorum	pine rose	None/None/1B.2	Closed-cone coniferous forest, Cismontane woodland/perennial shrub/May,July/ 7–3,100	**Moderate potential to occur**. There are two known occurrence within 0.6 miles of the project site. There is suitable habitat.	M
Trifolium buckwestiorum	Santa Cruz clover	None/None/1B.1	Broadleafed upland forest, Cismontane woodland, Coastal prairie; gravelly, margins/annual herb/ Apr–Oct/344–2,000	**Not expected to occur**. The site is outside of the species' known elevation range.	N
Trifolium hydrophilum	saline clover	None/None/1B.2	Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools/annual herb/ Apr–June/0–985	**Low potential to occur**. CNDDB Occ. No. 20 for the Monterey Quad overlaps the project site. This based on a 1907 herbarium collection. However, the project site does not contain much suitable habitat.	L

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur	PTO
Trifolium polyodon	Pacific Grove clover	None/SR/1B.1	Closed-cone coniferous forest, Coastal prairie, Meadows and seeps, Valley and foothill grassland; mesic, sometimes granitic/ annual herb/Apr–June(July)/16–1,390	**Moderate potential to occu**r. There is a known occurrence within 0.5 miles of the project site. There is suitable habitat.	M
Trifolium trichocalyx	Monterey clover	FE/SE/1B.1	Closed-cone coniferous forest (sandy, openings, burned areas)/annual herb/Apr–June/ 98–1,000	**Moderate potential to occu**r. There is are several known occurances within 2 miles of the project site. There is suitable habitat.	M

Attachment E

Special-Status Wildlife Species Potential to Occur

Row Labels	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Amphibians				
Ambystoma californiense pop. 1	California tiger salamander - central California DPS	FT/ST, WL	Annual grassland, valley–foothill hardwood, and valley–foothill riparian habitats; vernal pools, other ephemeral pools, and (uncommonly) along stream courses and man-made pools if predatory fishes are absent	**Not expected to occur.** The project site lacks grassland, vernal pool, and ephemeral pool habitat to support this species. There are no California Natural Diversity Database (CNDDB) occurrences for this species within 5 miles of the project site (CDFW 2021).
Rana boylii	foothill yellow-legged frog	None/SSC, SE	Rocky streams and rivers with open banks in forest, chaparral, and woodland	**Not expected to occur.** The project site lacks rocky streams and rivers to support this species. The nearest CNDDB occurrence for this species is approximately 1.5 miles southwest of the project site in Sawmill Gulch (CDFW 2021).
Rana draytonii	California red-legged frog	FT, BCC/SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	**Not expected to occur.** The project site lacks suitable stream wetland, livestock pond and emergent vegetated habitat to support this species. The nearest CNDDB occurrence is approximately 2.4 miles southwest of the project site in Seal Rock Creek (CDFW 2021).
Taricha torosa (Monterey Co. south only)	California newt	None/SSC	Wet forests, oak forests, chaparral, and rolling grassland	**Low potential to occur.** Although the project site contains suitable oak forest habitat to support this species, there is no aquatic breeding features to support this species. Additionally, there are no CNDDB occurences for this species within 5 miles of the project site (CDFW 2021).
Reptiles				
Actinemys marmorata	northwestern pond turtle	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	**Not expected to occur**. The project site lacks stream, pond, lake and reservoir habitat to support this species. The nearest CNDDB occurrence is approximately 0.8 miles southeast of the project site in Pacific Grove Reservoir (CDFW 2021).

Row Labels	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Anniella pulchra	northern California legless lizard	None/SSC	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils	**High potential to occur.** The project site contains suitable woodland habitat with sandy soils to support this species. This species was documented within the southwest corner of the project site in 2017 (Occ. No. 375) (CDFW 2021).
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	**Not expected to occur.** The project site does not contain suitable open sandy and coastal scrub habitat to support this species. Additionally, there are no CNDDB occurences for this species within 5 miles of the project site (CDFW 2021).
Birds				
Agelaius tricolor (nesting colony)	tricolored blackbird	None/SSC, ST	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberrry; forages in grasslands, woodland, and agriculture	**Not expected to nest or forage.** The project site lacks freshwater emergent wetland nesting habitat and grassland foraging habitat for this species. Additionally, there are no CNDDB occurences for this species within 5 miles of the project site (CDFW 2021).
Athene cunicularia (burrow sites & some wintering sites)	burrowing owl	None/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	**Not expected to nest or forage.** The project site lacks grassland and open scrub habitat for this species. The nearest CNDDB occurrence is approximately 3.5 miles southeast of the project site (CDFW 2021).
Brachyramphus marmoratus (nesting)	marbled murrelet	FT/SE	Nests in old-growth coastal forests, forages in subtidal and pelagic habitats	**Not expected to nest or forage.** The project site lacks old-growth forest to support this species. Additionally, there are no CNDDB occurences for this species within 5 miles of the project site (CDFW 2021).

Row Labels	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Charadrius alexandrinus nivosus (nesting)	western snowy plover	FT/SSC	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	**Not expected to nest or forage.** The project site lacks sandy marine and estuarine shore habitat to support this species. The nearest CNDDB occurrence for this species is approximately 4.6 miles east of the project site (CDFW 2021).
Coturnicops noveboracensis	yellow rail	None/SSC	Nesting requires wet marsh/sedge meadows or coastal marshes with wet soil and shallow, standing water	**Not expected to nest or forage.** The project site lacks wet marsh/sedge meadow habitat to support this species. The nearest CNDDB occurrence for this species is approximately 0.9 miles northwest of the project site (CDFW 2021).
Cypseloides niger (nesting)	black swift	None/SSC	Nests in moist crevices, caves, and cliffs behind or adjacent to waterfalls in deep canyons; forages over a wide range of habitats	**Not expected to nest or forage.** The project site lacks moist crevices, caves and cliffs behind waterfalls to support this species. Additionally, there are no CNDDB occurences for this species within 5 miles of the project site (CDFW 2021).
Elanus leucurus (nesting)	white-tailed kite	None/FP	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands.	**Moderate potential to nest on site.** The project site contains several suitable nesting trees for this species (*Quercus* spp., *Pinus* spp., etc.), however, foraging habitat is limited and the project site is surrounded by residential development. There are no CNDDB occurences for this species within 5 miles of the project site (CDFW 2021).
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	**Not expected to nest or forage.** The project site lacks dense riparian habitat to support this species. Additionally, there are no CNDDB occurences for this species within 5 miles of the project site (CDFW 2021).

Row Labels	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Gymnogyps californianus	California condor	FE/FP, SE	Nests in rock formations, deep caves, and occasionally in cavities in giant sequoia trees (Sequoiadendron giganteus); forages in relatively open habitats where large animal carcasses can be detected	**Not expected to nest or forage.** The project site lacks rock formations, deep caves, and open habitat to support this species. Additionally, there are no CNDDB occurences for this species within 5 miles of the project site (CDFW 2021).
Laterallus jamaicensis coturniculus	California black rail	None/FP, ST	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations	**Not expected to nest or forage.** The project site lacks tidal marsh and wet meadow habitat to support this species. The nearest CNDDB occurrence for this species is approximately 1.2 miles southwest of the project site (CDFW 2021).
Oceanodroma homochroa (nesting colony)	ashy storm-petrel	None/SSC	Nests on rocky offshore islands on talus slopes, rock walls, sea caves, cliffs, and under piles of driftwood; they do not excavate their own nesting burrows	**Not expected to nest or forage.** The project site lacks rocky talus slope habitat to support this species. Additionally, there are no CNDDB occurences for this species within 5 miles of the project site (CDFW 2021).
Pelecanus occidentalis californicus (nesting colonies & communal roosts)	California brown pelican	FPD/FP, SCD	Forages in warm coastal marine and estuarine environments; in California, nests on dry, rocky offshore islands	**Not expected to nest or forage.** The project site lacks coastal marine and estuarine habitat to support this species. The nearest CNDDB occurrence for this species is approximately 1.2 miles southwest of the project site (CDFW 2021).
Riparia riparia (nesting)	bank swallow	None/ST	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	**Not expected to nest or forage.** The project site lacks riparian, lacustrine and coastal habitat to support this species. Additionally, there are no CNDDB occurences for this species within 5 miles of the project site (CDFW 2021).

Row Labels	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Sternula antillarum browni (nesting colony)	California least tern	FE/FP, SE	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats	**Not expected to nest or forage.** The project site lacks shallow estuary and lagoon habitat to support this species. Additionally, there are no CNDDB occurences for this species within 5 miles of the project site (CDFW 2021).
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	**Not expected to nest or forage.** The project site lacks dense riparian habitat to support this species. Additionally, there are no CNDDB occurences for this species within 5 miles of the project site (CDFW 2021).
Fishes				
Eucyclogobius newberryi	tidewater goby	FE/None	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River	**Not expected to occur.** Aquatic habitat to support this species is absent from the project site.
Lavinia exilicauda harengus	Pajaro/Salinas hitch	None/SSC	Found in Pajaro and Salinas river systems, both tributary to Monterey Bay.	**Not expected to occur.** Aquatic habitat to support this species is absent from the project site.
Oncorhynchus mykiss irideus pop. 9	steelhead - south-central California coast DPS	FT/None	Coastal basins from Redwood Creek south to the Gualala River, inclusive; does not include summer-run steelhead	**Not expected to occur.** Aquatic habitat to support this species is absent from the project site.

Row Labels	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Mammals				
Corynorhinus townsendii	Townsend's big-eared bat	None/SSC	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	**Moderate potential to occur.** Although the project site contains suitable coniferous and deciduous forest habitat, limestone caves, lava tubes, and man-made strcutres are absent from the site for roosting. However, the species may forage on the site from time to time. There are no documented CNDDB occurences of this species within 5 miles of the project site (CDFW 2021).
Eumetopias jubatus	Steller (=northern) sea-lion	FPD/SSC	Beaches, ledges, and rocky reefs	**Not expected to occur.** Habitat for this species is absent from the project site.
Lasiurus blossevillii	Western red bat	None/SSC	Roosts primarily in trees, typically adjacent to open fields or streams, which are protected above and open below for foraging; prefers habitat edges and mosaics with trees. Winter range includes western lowlands and coastal regions south of San Francisco Bay.	**High potential to occur.** The numerous trees on the project site are suitable for roosting by this species.
Sorex ornatus salarius	Monterey shrew	None/SSC	Saltmarsh, riparian, wetlands, uplands of Salinas River Delta	**Not expected to occur.** Saltmarsh and riparian habitat for this species is absent from the project site. This species has been documented in the vicinity of Monterey (CDFW 2021).
Taxidea taxus	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	**Not expected to occur.** The project site is too densely forested to support this species, and grassland/coastal scrub habitats are absent from the site. This species has been documented in the vicinity of Seaside (CDFW 2021).

Row Labels	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Invertebrates				
Branchinecta lynchi	vernal pool fairy shrimp	FT/None	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats	**Not expected to occur.** Vernal pool and ephemeral freshwater habitats to support this species is absent from the project site.
Danaus plexippus pop. 1	monarch butterfly	FC/None	Wind-protected tree groves with nectar sources and nearby water sources	**Present.** The project site contains suitable habitat for this species, and the species was observed on site during the October 2021 site visit. Additionally, numerous observations of this species has been made from 1960-2014 (Occ. No. 89) (CDFW 2021).
Euphilotes enoptes smithi	Smith's blue butterfly	FE/None	Sand dunes, scrub, chaparral, grassland, and their ecotones	**Not expected to occur.** The project site does not contain suitable sand dune, scrub, chaparral, or grassland habitat to support this species. The nearest documented CNDDB occurrence of this species is approximately 4 miles southeast of the project site (CDFW 2021).

Methods

Literature Review

Special-status species potentially present on the project site were identified through a literature search of the following sources: U.S. Fish and Wildlife Service's Information for Planning and Consultation (IPaC) (USFWS 2021), California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2021a), and the California Native Plant Society's Inventory of Rare and Endangered Plants of California (CNPS 2021). Searches of the above-referenced databases were completed for the Monterey and four surrounding U.S. Geological Survey 7.5-minute quadrangles: Seaside, Soberanes Point, Marina, and Mt. Carmel.

For this report, special-status plant and wildlife species are defined as those that are (1) listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act; (2) listed or candidates for listing as threatened or endangered under the California Endangered Species Act; (3) designated as Fully Protected under the California Fish and Game Code; (4) designated as a California Species of Special Concern by CDFW; or (5) assigned a California Rare Plant Rank of 1A, 1B, 2A or 2B by the California Native Plant Society. The California Rare Plant Ranking (CRPR) system includes six rarity and endangerment ranks for categorizing plant species of concern, as follows:

- CRPR 1A – Plants presumed to be extinct in California
- CRPR 1B – Plants that are rare, threatened, or endangered in California and elsewhere
- CRPR 2A – Plants presumed to be extinct in California, but more common elsewhere
- CRPR 2B – Plants that are rare, threatened, or endangered in California, but more common elsewhere
- CRPR 3 – Plants about which more information is needed (a review list)
- CRPR 4 – Plants of limited distribution (a watch list)

Plants with CRPR 1A, 1B, 2A, or 2B may qualify as endangered, rare, or threatened species within the definition of California Environmental Quality Act (CEQA) Guidelines Section 15380. CDFW recommends that potential impacts to CRPR 1 and 2 species be evaluated in CEQA review documents. In general, CRPR 3 and 4 species do not meet the definition of endangered, rare, or threatened pursuant to CEQA Guidelines Section 15380, but these species may be evaluated on a case-by-case basis.

Field Reconnaissance

Following the literature review, Dudek Urban Forestry Specialist Michele Laskowski and Biologist Emily Scricca determined the potential for special-status species to occur within the project site. Determinations were based on a review of habitat types, soils, and elevation preferences, as well as the known geographic range of each species. For example, if the project site is within the elevation range of a particular plant species, but a specific soil type for that species was not present, the species was determined to have "low potential to occur" on the project site.

Species were considered "not expected to occur" when the project site was clearly outside the known geographic range of the species or when potential habitat was absent from the project site.

Ms. Laskowski performed a tree inventory and special-status plant habitat assessment on the project site on October 5, 2021 from 9 a.m. to 4 p.m. and on October 8, 2021 from 9 a.m. to 4 p.m. Weather during the site visits was overcast with an ambient temperature of approximately 65°F. The survey consisted of walking the entire site on foot and recording field notes on observed vegetation and wildlife species and habitat suitability for special-status plants.

Ms. Scricca performed a biological field reconnaissance of the project site on October 21, 2021, from 10:30 a.m. to 12:30 p.m. Weather during the site visit was partly cloudy, with an ambient temperature of approximately 65°F at the start and 72°F at the completion of the field visit. The site visit included mapping vegetation communities and land cover types present on the project site and assessing habitat for special-status wildlife species. The visit was conducted on foot to ensure visual coverage of the entire project site. Field notes and an aerial photograph (Google Earth Pro 2021) with an overlay of the project boundary were used to map vegetation communities and record any sensitive biological resources while in the field. Representative project site photographs are included in Attachment A.

All plant species were identified to the lowest taxonomic group possible. Nomenclature for plant species follow the Jepson Manual, Vascular Plants of California, Second Edition (Jepson Flora Project 2021).

Wildlife species detected by sight, calls, tracks, scat, or other signs were recorded into a field notebook. The project site was scanned with and without binoculars to aid in the identification of wildlife. Wildlife species not observed but expected to use the project site were identified based on known habitat preferences and regional distribution.

No formal wetland delineation or focused surveys for special-status plant or animal species were conducted. The field visit was sufficient to generally describe aquatic features on the project site that could be subject to regulation by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and/or CDFW.

Existing Conditions

Vegetation Communities and Land Cover Types

The project site is mostly undeveloped parkland except for a community baseball field, restroom facility, and playground at the southern boundary of the site. This area is surrounded by dirt pedestrian trails and scattered picnic tables mixed amongst individual coast live oak (*Quercus agrifolia),* Monterey cypress (*Hesperocyparis macrocarpa*), Monterey pine (*Pinus radiata*), and coast redwood (*Sequoia sempervirens*) trees.

The remainder of the site is dominated by the Monterey cypress – Monterey pine stands (*Hesperocyparis macrocarpa – Pinus radiata* Forest & Woodland Semi-Natural Alliance) (Figure 3, Vegetation Communities and Land Cover Types). This vegetation community is dominated by a Monterey cypress and Monterey pine overstory with a lower canopy dominated by coast live oak. Common understory vegetation includes a shrub layer that is sparse to intermittent and an herbaceous layer that is sparse to grassy. Monterey cypress – Monterey pine stands have been

planted as windbreaks, groves, or individual trees and are naturalized in coastal areas. Because of their artificial origin, they do not contain a global or state rarity ranking.

Soils and Hydrology

According to the U.S. Department of Agriculture Natural Resources Conservation Service (USDA 2021), three soil types occur within the project site: Baywood sand, 2 to 15 percent slopes; Narlon loamy fine sand, 2 to 9 percent slopes; and Narlon loamy fine sand, 15 to 30 percent slopes (see Figure 4, Soils). The project site mostly consists of the Narlon loamy fine sand complex; the Baywood sand soil type is found along the southwestern boundary of the site, north of the baseball field. The Narlon loamy fine sand complexes are considered to be poorly drained hydric soils with a very high runoff class. Baywood sand in non-hydric, although hydric inclusions may occur. None of the soil types are known to support edaphic special-status plant species (i.e., the soils of the site are neither serpentine nor alkaline).

The project site lies within the Soberanes Creek-Frontal Pacific Ocean Hydrologic Unit (HUC 12 180600060203) (Figure 5, Hydrologic Setting). An unnamed drainage is located approximately 0.25 miles south of the project site, originating from within the Rip Van Winkle Open Space, and ultimately drains into the Pacific Ocean, a traditional navigable water of the United States. According to the U.S. Geological Survey National Hydrography Dataset (USGS 2021), predefined waters of the United States or state are absent from the project site.

Plant and Wildlife Species Observed

Most vegetation on the project site consists of native or naturalized species; 47 species of plants (28 native [60%] and 19 nonnative [40%] species) were recorded on the site (see Attachment B). The field visit was conducted late in the growing season when many plants are not evident or identifiable. As such, floristic surveys conducted at the appropriate time of the growing season would likely yield a greater number of identifiable species. The understory vegetation observed on the project site included annual grasses such as ripgut brome (*Bromus hordeaceus),* big quakinggrass (*Briza maxima*), wild oats (*Avena barbata/fatua*),perennial rye grass (*Festuca perennis*), mouse barley (*Hordeum murinum)* and others. Perennials, subshrubs and shrubs include blackberry (*Rubus ursinus*), toyon (*Heteromeles arbutifolia*), poison oak (*Toxicodendron diversilobum*), monkey flower (*Diplacus aurantiacus*), western brakenfern (*Pteridium aquilinum*), English ivy (*Hedra helix*), hedgenettle (*Stachys bullata*), broom (*Cytisus scoparius*), vining honeysuckle (*Lonicera hispidula*) and others.

Wildlife species observed or expected to occur on the project site are those that are adapted to forested parklands, Monterey cypress – Monterey pine stands, and urban landscapes with moderate human activity. Western fence lizard (*Sceloporus occidentalis*) was the only amphibian or reptile species observed during the site visit, although common species such as Sierran tree frog (*Pseudacris sierra*), gopher snake (*Pituophis catenifer*), and western rattlesnake (*Crotalus oreganus*) are also likely to occur. Common bird species observed included black phoebe (*Sayornis nigricans*), red-shouldered hawk (*Buteo lineatus*), Anna's hummingbird (*Calypte anna*), California scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), dark-eyed junco (*Junco hyemalis*), and California towhee (*Melozone crissalis*). Scat belonging to black-tailed deer (*Odocoileus hemionus*) was observed throughout the project site. A full list of wildlife species observed during the site visit is included in Attachment C.

Results

Special-Status Plant and Wildlife Species

Special-Status Plant Species

Results of the CNDDB, California Native Plant Society, and IPaC database searches revealed 75 special-status plant species as historically or potentially occurring in the site vicinity (Attachment D, Special-Status Plant Species Potential to Occur). Of these, 31 were eliminated from consideration because they were CRPR rankings of 3 and 4. This narrowed the list to include plants that are state and federally listed and/or with a CRPR of 1 or 2.

Each of the remaining 44 species were evaluated based on suitable habitat or edaphic conditions (i.e., alkaline or serpentine soils), or the sites' location outside of their known range and the proximity of known populations to the project areas. The site supports planted Monterey cypress but is outside the range of naturally occurring stands at Cypress Point and Point Lobos State Park near Carmel with a CRPR of 1B.2; therefore, this species is not expected to occur. Two special-status plant species are known to occur on or near the project site: Monterey pine (*Pinus radiata*) and Yadon's rein orchid (*Piperia yadonii*). Four species were determined to have a high potential to occur in the project site. Those include sandmat manzanita (*Arctostaphylos pumila*), San Francisco collinsia (*Collinsia multicolor*), marsh microseris (*Microseris paludosa*), northern curly-leaved monardella (*Monardella sinuata ssp. nigrescens*). The status of these species is briefly discussed below.

Marsh microseris has a CRPR of 1B.2 and is a perennial herb with a high potential to occur on the site. It occurs in closed-cone coniferous forest, cismontane woodland, and coastal scrub habitat. The project site overlaps an area of known occurrence of this species. A historical occurrence comprised of four collections at unspecified locations in "Pacific Grove" from 1906 to 1956 overlaps much of Pacific Grove, including the project site (Occ. No. 3; CDFW 2021a).

Native Monterey cypress has a CRPR of 1B.2 and is limited to two stands at Cypress Point and Point This species occurs on the project site but is naturalized and therefore the on-site trees are not considered special-status plants. The species is widely planted and naturalized elsewhere on the coast and beyond.

Native Monterey pine has a CRPR of 1B.1 and is present on the project site. The trees in this location are within the estimated historic range of this species as mapped by the CNDDB (Occ. No. 4) (CDFW 2021a) and are naturally occurring. The species is widely planted and naturalized elsewhere. Records provided by the City of Pacific Grove indicate that this stand of Monterey pine has been present on the site since the beginning of the 20th Century.

Northern curly-leaved monardella has a CRPR of 1B.2 and is a perennial herb with a high potential to occur on the site. This species occurs in chaparral, lower montane coniferous forest, coastal scrub and coastal dunes. The collection source for the CNDDB occurrence of this species in the area is from 1932 so the location description is based on a best guess (Occ. No. 4) (CDFW 2021a). It is likely to be found on stabilized dunes in the vicinity.

Sandmat manzanita has a CRPR of 1B.2 and is a perennial evergreen shrub with a high potential to occur on the site. This species has three known populations within 0.5 mile of the project site. Within those locations the species has been extensively mapped and a noted increase in population density from 2004 to 2015 (Occ. Nos. 9, 14, and 20) (CDFW 2021a).

San Francisco collinsia has a CRPR or 1B.2 and is an annual herb with a high potential to occur on the site. This species occurs in closed-cone coniferous forest and coastal scrub habitat. A historical occurrence comprised of a 1903 collection at an unspecified location overlaps a 1-mile-radius area centered on Pacific Grove, including the project site (Occ. No. 3; CDFW 2021a). The site provides high-quality habitat for this species.

Yadon's rein orchid is federally endangered with the CRPR or 1B.1. It is a perennial herb that is known to occur in closed cone coniferous forest, coastal bluff scrub and chaparral. It is known to occur on the project site (Occ. No. 4) (CDFW 2021a) and there are multiple occurrences in the vicinity. It has been noted as occurring in the understory of Monterey pine within patchy but dense *Calamagrostis nutkensis* (CDFW 2021a). It was noted that the roadside mowing and vehicles parking along the road are a threat to this species.

Because the site visits were conducted outside of the blooming period for the above-mentioned plant species, most of these species would not have been evident or identifiable during the site visit.

Special-Status Wildlife Species

Based on the results of the CNDDB and IPaC database searches and field reconnaissance, Dudek identified 33 special-status wildlife species as occurring or potentially occurring in the region of the project site (Attachment E, Special-Status Wildlife Species Potential to Occur). Of these, 28 species were eliminated from consideration due to the absence of suitable habitat and/or the project site's location outside of their known range. The remaining species have some potential to occur within or near the project site and are described in more detail below.

Northern California Legless Lizard

Northern California legless lizard (*Anniella pulchra*) is a California species of special concern. This species is a fossorial (i.e., burrowing) animal and is found primarily in areas with sandy or loose soils, where they typically are found beneath leaf litter and in the soil (Holland and Goodman 1998; Morey 2000). This species may be found in sparsely vegetated areas in a variety of habitats, including beach dunes; chaparral; California sagebrush scrub; oak woodlands; pine forests; pine–oak woodland; sandy washes; and stream terraces with sycamores, cottonwoods, or oaks (Morey 2000; Stebbins 2003; Holland and Goodman 1998).

This species was documented within sandy soil within the southwest corner of the project site in 2017 (Occ. No. 375) (CDFW 2021a). The project site contains suitable woodland habitat with sandy soils to support this species. This species was not observed in the study area during the site survey; however, there is high potential for it to be present.

White-Tailed Kite

The white-tailed kite (*Elanus leucurus*) is a California Fully Protected species. It generally occurs in low-elevation grassland, wetland, oak woodland, low shrub, open woodlands, or savannah habitats. This species also uses fencerows, irrigation ditches with residual vegetation, and freeway edges and medians. Nests are constructed in a variety of trees, with coast live oak perhaps the most common, and placed high in the crown on thin branches (Peeters and Peeters 2005).

White-tailed kite has a moderate potential to nest within the project site. The project site contains suitable nest trees (*Quercus* spp., *Pinus* spp., etc.), however foraging habitat is marginal due to the lack of open habitat and

density of trees on the site, and the site is immediately surrounded by residential development. This species was not observed during any of Dudek's site visits and has not been documented in the CNDDB within 5 miles of the project site (CDFW 2021a). However, there are several recent eBird observations of this species within and adjacent to the project site from 2015-2021, including one observation from 2019 within the middle of the project site (eBird 2021).

Special-Status Bats

Townsend's big-eared bat *(Corynorhinus townsendii*) is a California Species of Special Concern that is known to roost in limestone caves and lava tubes, man-made structures, and tunnels. This species inhabits deciduous forests and riparian habitat. The project site does not contain suitable roosting habitat for this species due to the lack of man-made structures and caves onsite, however, there is moderate potential for this species to occasionally forage on site and roost within the structures adjacent to the project site. Because the project site is surrounded by urban development and subject to frequent human disturbance, Townsend's big-eared bat is unlikely to occur in large numbers, if present.

The numerous trees on the site provide suitable roosting habitat for special-status (e.g., western red bat) and common foliage-roosting bat species. Additionally, many of the trees on site contain hollowed out cavities in which common bat species may roost.

Signs of roosting bat occupancy (i.e., guano or staining) were not observed within the project site during the field visit.

Special-Status Butterflies

The monarch butterfly (*Danaus plexippus pop. 1*) is a candidate species for listing under the federal Endangered Species Act. This species is known to inhabit wind-protected tree groves with nectar sources and nearby water sources.

The project site contains suitable habitat for this species, and there are numerous documented occurrences of this species within the site from 1960-2014 (Occ. No. 89) (CDFW 2021a). Additionally, this species was observed within the project site during the October site visits.

This project site is within the historic overwintering range for this species. There is a growing body of research that examines the characteristics that create suitable overwintering habitat for this species. Loss of overwintering habitat is one among several identified stressors that may be driving the monarch population decline. The Xerces Society recognizes the Pacific Grove Sanctuary, approximately 900 feet northwest of the site, among the top ten highest priority overwintering sites remaining in California (Xerces 2020).

Nesting and Migratory Birds

In California, all native active bird nests (with eggs or young) are protected by provisions in the federal Migratory Bird Treaty Act of 1918 and Sections 3503 and 3503.5 of the California Fish and Game Code. The trees and shrubs within and adjacent to the project site provide suitable nesting habitat for several native local and migratory bird species.

Potentially Jurisdictional Aquatic Resources

The project site does not support any aquatic resource features that may be regulated by the USACE under Section 404 of the Clean Water Act, San Francisco Bay RWQCB under Section 401 of the Clean Water Act or California Porter-Cologne Act (Porter-Cologne), and/or CDFW under Section 1602 of the California Fish and Game Code.

Sensitive Natural Communities

Sensitive natural communities are vegetation communities that are of limited distribution statewide or within a county or region. A list of sensitive natural communities in California is maintained by CDFW (2021b) based on rarity of and threats to these communities in California. Impacts on high-quality occurrences of sensitive natural communities are typically considered significant under the California Environmental Quality Act (CEQA).

The project site consists of one vegetation community, Monterey cypress – Monterey pine stands, which is not listed as a sensitive vegetation community under the California Natural Community List (CDFW 2021b).

Protected Trees

Chapter 12.20.020 of the City of Pacific Grove's municipal code describes five categories of protected trees;

(1) Native Trees. All Gowen cypress, regardless of size; all Coast live oak, Monterey cypress, Shore pine, Torrey pine, and Monterey pine six inches or greater in trunk diameter, measured at 54 inches above native grade.

(2) All Other Private Trees. In addition to subsection (a)(1) of this section, all other Trees on private property, regardless of species, 12 inches or greater in trunk diameter, measured at 54 inches above native grade.

(3) Monarch Butterfly Habitat Trees. All Trees in or within 100 yards of designated Monarch sanctuaries. For the purposes of this title, the following sites are designated as Monarch sanctuaries, serving as official Pacific Grove Monarch butterfly over-wintering sites:

  (A) Monarch Grove Sanctuary. That portion of land bordered on the east and west by Ridge Road and Grove Acre Avenue, respectively, on the south by Short Street, and on the north by the northerly boundary of assessor's parcel numbers 006-361-30-031, -032, -033, and -034, extended from Grove Acre easterly to Ridge Road.

  (B) Washington Park Site. That portion of land bordered on the east and west by Alder Street and Melrose Avenue, respectively, on the north by Pine Avenue, and on the south by the imaginary extension of Junipero Avenue westerly from Alder to Melrose.

(4) Public Trees. All Trees on Public Property six inches or greater in trunk diameter, measured at 54 inches above native grade, and all Street Trees, regardless of size.

(5) Designated Trees. All Trees that are otherwise Protected and will be impacted as a result of Development, both proposed for Pruning or Removal and where the Development will impact the Critical Root Zone of the Tree that requires protection during construction, and all Trees otherwise identified- during Development or otherwise- for special protection by the property owner. Trees that are proposed to be Removed as part of a Development project shall be processed as part of the community.

Based on the forest inventory conducted by Dudek foresters, about two-thirds of the trees present within the project site would qualify as a protected tree by being a native tree (category 1), a public tree (category 2) or a Monarch Butterfly Habitat Tree (category 3) and being over 6 inches in diameter.

Summary of Site Constraints and Recommendations

The implementation of the proposed project could potentially be constrained by the following biological resources present or potentially present within or immediately adjacent to the project site.

Special-Status Plants

As described above, two special-status plants are known to occur within the project site (Monterey pine, and Yadon's rein orchid). Additionally, four special-status plants have a high potential to occur in within the project site (sandmat manzanita, San Francisco collinsia, marsh microseris, and northern curly-leaved monardella). Vegetation removal activities associated with project implementation could directly impact these species, if present. To protect special-status plant species, Dudek recommends that a qualified botanist conduct appropriately timed special-status plant surveys prior to vegetation removal activities at the appropriate period when these species are evident and identifiable. If any special-status plants are identified, they should be flagged with high-visibility flagging and completely avoided. If avoidance is not feasible, a species-specific mitigation plan should be prepared that describes the measures to be implemented to reduce and mitigate unavoidable impacts to special-status plants.

Special-Status Wildlife

Four special-status wildlife species—Northern California legless lizard, white-tailed kite, Townsend's big-eared bat, and monarch butterfly—have potential to occur on or in the vicinity of the project site.

Northern California legless lizard. As previously described, the project site provides suitable habitat for Northern California legless lizard, and this species has historically been documented within the project site. Proposed vegetation removal activities could disturb habitat for this species, and potentially impact individual Northern California legless lizards. To prevent impacts to Northern California legless lizards, Dudek recommends that a qualified biologist conduct a pre-activity survey for this species no more than 7 days prior to the start of project activities. The survey shall consist of gently raking any loose soil, sand, or leaf litter with a wooden rake until all Northern California legless lizards are found. Any Northern California legless lizards found within the project site shall be relocated to similar habitat outside of the area of impact.

White-Tailed Kite and Other Nesting and Migratory Birds. As previously described, the project site provides suitable nesting habitat for white-tailed kite and other native bird species. If project activities occur during the nesting season (typically defined by CDFW as February 15 to September 1), direct impacts to white-tailed kite and nesting and migratory birds could occur through destruction of active nests. Additionally, prolonged loud vegetation removal noise and increases in human activity could disturb nesting birds, resulting in nest abandonment or failure. To protect white-tailed kite and nesting and migratory birds, Dudek recommends that a pre-activity nesting bird survey be conducted by a qualified biologist within 10 days prior to vegetation removal or ground-disturbance activities to determine if any native birds are nesting on or near the site (including a 250-foot buffer for white-tailed kite and other raptors). If any active nests are observed during surveys, a suitable avoidance buffer will be determined by

the qualified biologist based on species, location, and planned project activity. These nests would be avoided until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist.

Townsend's Big-eared Bat and Other Roosting Bats. As previously described, the project site provides suitable foraging habitat for Townsend's big-eared bat, and suitable roosting habitat for foliage-roosting, and cavity-roosting bat species. If project activities require the removal of trees during peak activity timeframes when young or overwintering bats may be present (generally March through April and August through October), such activities could directly impact active bat roosts. To avoid impacts to active bat roosts, Dudek recommends that tree removals occur outside peak activity timeframes to the extent practicable. Additionally, it is recommended that daily restrictions on the timing of any work activities should be limited to daylight hours to reduce disturbance to roosting (and foraging) bat species.

Finally, Dudek recommends that a biologist with demonstrated experience conducting bat habitat assessments and roost surveys conduct a focused survey of subject trees within 30 days of the commencement of vegetation management activities. The survey should include a determination on whether active bat roosts are present on or within 50 feet of the project site. If Townsend's big-eared bat is detected to be roosting within the project site, CDFW should be contacted for additional instruction. If a non-breeding and non-wintering common bat colony is found, the individuals shall be evicted under the direction of a qualified biologist to ensure their protection and avoid unnecessary harm. If a maternity colony or overwintering colony is found within the project site, then the qualified biologist shall establish a suitable work-free buffer around the location. The buffer shall remain in place until the qualified biologist determines that the nursery is no longer active.

Monarch Butterfly. As previously described, Monarch butterfly has been documented within the project site, and the species may use the project site for overwintering, nectar foraging and possible larval rearing should host plants occur within the site. Because the Monarch butterfly is a candidate species for listing under the federal Endangered Species Act (ESA), it does not currently receive any legal protection under Section 9 of the ESA but any direct impacts to individuals or their host plants would be considered significant under CEQA. However, the City would be required to adhere to the management restrictions for tree removal inside of and within 100 yards of a Monarch Sanctuary. This would include limiting removals to the prescriptions in the approved Monarch Habitat Management plan and prohibiting the removal or pruning of trees during the months of October through April. Therefore, direct impacts to any Monarch butterflies potentially overwintering on the site are not expected.

Protected Trees

Approximately two-thirds of the trees on the site meet the criteria for protection under Chapter 12.20 of the City's municipal code. The City would not be required to obtain a permit to remove trees within the park as part of City approved Forest Management Plan. However, the City would be required to adhere to the management restrictions for tree removal inside of and within 100 yards of a Monarch Sanctuary. This would include limiting removals to the prescriptions in the approved Monarch Habitat Management plan and prohibiting the removal or pruning of trees during the months of October through April. Tree pruning on protected trees is permitted provided no more than 25% of the live crown is removed during any treatment.

All tree pruning and removal work would be required to take place outside of the nested periods of listed threatened, endangered, or special status species as specified by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

Please contact me if you have any questions regarding the content of this report.

Sincerely,



Emily Scricca
Biologist

Att.: *Figures 1-5*
Attachment A, Representative Photographs of the Project Site
Attachment B, Plant Species Compendium
Attachment C, Wildlife Species Compendium
Attachment D, Special-Status Plant Species Potential to Occur
Attachment E, Special-Status Wildlife Species Potential to Occur

cc: *Matt Ricketts, Dudek*
Jeremy Cawn, Dudek

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Appendix C
Site Photos



Photo Number 1. Plot 1 looking north



Photo Number 2. Plot 2 looking east



Photo Number 3. Plot 3 looking south



Photo Number 4. Plot 4 looking west



Photo Number 5. Plot 6 looking north



Photo Number 6. Plot 8 looking south



Photo Number 7. Plot 11 looking west



Photo Number 8. Plot 14 looking north

Appendix D

Forest Inventory Data Forms

Forest Inventory Data, Zone 2, Plots: 2, 4, 14, 12								
Tree #	Species	Diameter (inches)	Height (inches)	Condition	Notes	Evidence of Beetle Infestation? Y/N	Evidence of Pitch Canker Infection? Y/N	Basal Area
1	Monterey Pine	19	50	Poor	Pitch Tubes, Cankers, Frass	Y	Y	1.96894815
2	Coast Live Oak	10	25	Fair		N	N	0.545415
3	Coast Redwood	21	30	Good	3 stems: 6,6,9	N	N	2.40528015
4	Coast Live Oak	10	20	Fair		N	N	0.545415
5	Monterey Pine	7	25	Good	Pitch Tubes, Cankers	Y	Y	0.26725335
6	Monterey Pine	9	25	Good		N	N	0.44178615
7	Monterey Pine	6	30	Good		N	N	0.1963494
8	Coast Live Oak	9	15	Fair		N	N	0.44178615
9	Coast Live Oak	6	25	Good		N	N	0.1963494
10	Coast Live Oak	4	20	Fair		N	N	0.0872664
11	Coast Live Oak	7	15	Fair		N	N	0.26725335
12	Coast Live Oak	4	15	Fair		N	N	0.0872664
13	Coast Live Oak	7	15	Fair		N	N	0.26725335
14	Monterey Pine	20	35	Dead		N	N	2.18166
15	Monterey Pine	22	25	Dead		N	N	2.6398086
16	Monterey Pine	4	15	Good		N	N	0.0872664
17	Monterey Pine	16	45	Good	Old Pitch tubes, branch tip dieback	Y	N	1.3962624
18	Monterey Pine	6	30	Good	Branch tip dieback	N	N	0.1963494
19	Monterey Pine	5	25	Fair	Dead top, branch tip dieback	N	N	0.13635375
20	Monterey Pine	5	10	Dead		N	N	0.13635375
21	Monterey Pine	19	50	Fair	Branch tip dieback	N	N	1.96894815
22	Monterey Pine	33	75	Fair		N	N	5.93956935
23	Coast Live Oak	4	10	Fair		N	N	0.0872664
24	Monterey Pine	12	40	Good		N	N	0.7853976
25	Monterey Pine	7	35	Fair	Pitch Tubes, Branch Tip Dieback	Y	N	0.26725335
26	Monterey Pine	7	25	Good		N	N	0.26725335
27	Monterey Pine	12	30	Fair		N	N	0.7853976
28	Monterey Pine	25	75	Poor	Mistletoe, 50% dieback, Pitch tubes	Y	N	3.40884375
29	Monterey Pine	25	75	Fair	Frass, Beetle exit holes, Branch tip dieback	Y	N	3.40884375
30	Monterey Pine	10	40	Good		N	N	0.545415
31	Monterey Pine	17	55	Fair	Branch Tip Dieback	N	N	1.57624935
32	Golden Wattle (Acacia)	6	10	Good		N	N	0.1963494
33	Monterey Pine	23	55	Poor	Heavy Pitch Streamers on trunk	N	Y	2.88524535
34	Coast Live Oak	43	20	Good	5 Stems:6,12,9,8,8	N	N	10.08472335
35	Monterey Pine	19	55	Fair		N	N	1.96894815
36	Monterey Pine	20	45	Fair		N	N	2.18166
37	Coast Live Oak	5	10	Good		N	N	0.13635375
38	Monterey Pine	18	50	Fair	Branch dieback	N	N	1.7671446
39	Coast Live Oak	12	20	Good		N	N	0.7853976
40	Monterey Pine	27	70	Good	Branch tip dieback	N	N	3.97607535

Forest Inventory Data, Zone 2, Plots: 2, 4, 14, 12								
Tree #	Species	Diameter (inches)	Height (inches)	Condition	Notes	Evidence of Beetle Infestation? Y/N	Evidence of Pitch Canker Infection? Y/N	Basal Area
41	Toyon	9	20	Good		N	N	0.44178615
42	Toyon	18	25	Good	3 Stems: 7,6,5	N	N	1.7671446
43	Coast Live Oak	6	20	Fair		N	N	0.1963494
44	Coast Live Oak	6	15	Dead		N	N	0.1963494
45	Coast Live Oak	7	15	Poor	Hypoxolon conk, Trunk decay	N	N	0.26725335
46	Coast Live Oak	5	15	Good		N	N	0.13635375
47	Coast Live Oak	7	15	Fair		N	N	0.26725335
48	Coast Live Oak	12	25	Fair	Internal decay, Branch decay, bark staining	N	N	0.7853976
49	Coast Live Oak	10	20	Good		N	N	0.545415
50	Coast Live Oak	7	20	Fair		N	N	0.26725335
51	Coast Live Oak	13	30	Good		N	N	0.92175135
52	Coast Live Oak	11	30	Good		N	N	0.65995215
53	Coast Live Oak	8	30	Fair		N	N	0.3490656
54	Coast Live Oak	12	35	Fair	Dieback in the crown, sparse crown	N	N	0.7853976
55	Coast Live Oak	15	35	Fair	Sparse crown	N	N	1.22718375
56	Coast Live Oak	10	10	Poor	Broken top	N	N	0.545415
57	Coast Live Oak	8	10	Poor	Broken top	N	N	0.3490656
58	Coast Live Oak	8	15	Poor	Broken top	N	N	0.3490656
59	Toyon	23	35	Good	5 Stems:6,4,5,4,4	N	N	2.88524535
60	Coast Live Oak	10	35	Fair	poor vigor	N	N	0.545415
61	Coast Live Oak	14	35	Fair	poor vigor	N	N	1.0690134
62	Coast Live Oak	4	10	Good		N	N	0.0872664
63	Coast Live Oak	6	15	Fair		N	N	0.1963494
64	Monterey Pine	13	45	Poor	Mistletoe, small crown, high crown	N	N	0.92175135
65	Monterey Pine	17	55	Poor	Pitch tubes, mistletoe	Y	N	1.57624935
66	Monterey Pine	22	55	Dead		N	N	2.6398086
67	Monterey Pine	22	55	Fair		N	N	2.6398086
68	Coast Live Oak	7	15	Good		N	N	0.26725335
69	Monterey Pine	6	40	Fair	Pitch tubes, branch dieback, damage on lower trunk	Y	N	0.1963494
70	Monterey Pine	25	80	Good		N	N	3.40884375
71	Coast Live Oak	7	10	Fair		N	N	0.26725335
72	Coast Live Oak	6	10	Fair		N	N	0.1963494
73	Monterey Pine	27	75	Fair	Conks, Pitch tube, internal decay	Y	N	3.97607535
74	Monterey Pine	19	50	Good		N	N	1.96894815
75	Coast Live Oak	7	25	Fair		N	N	0.26725335
76	Coast Live Oak	8	10	Poor	Dead top	N	N	0.3490656
77	Coast Live Oak	8	25	Fair		N	N	0.3490656
78	Coast Live Oak	4	10	Good		N	N	0.0872664
79	Coast Live Oak	6	10	Good		N	N	0.1963494
80	Coast Live Oak	12	45	Poor	Branch tip dieback, dead top	N	N	0.7853976

Forest Inventory Data, Zone 2, Plots: 2, 4, 14, 12								
Tree #	Species	Diameter (inches)	Height (inches)	Condition	Notes	Evidence of Beetle Infestation? Y/N	Evidence of Pitch Canker Infection? Y/N	Basal Area
81	Monterey Pine	5	10	Good		N	N	0.13635375
82	Coast Live Oak	11	30	Good		N	N	0.65995215
83	Monterey Pine	14	50	Fair	Pitch tubes, damage to trunk	Y	N	1.0690134
84	Coast Live Oak	9	25	Good		N	N	0.44178615
85	Coast Live Oak	5	15	Good		N	N	0.13635375
86	Coast Live Oak	13	35	Good		N	N	0.92175135
87	Coast Live Oak	12	30	Good		N	N	0.7853976
88	Monterey Pine	21	60	Fair	Pitch tubes	Y	N	2.40528015
89	Coast Live Oak	10	20	Fair		N	N	0.545415
90	Coast Live Oak	10	20	Fair		N	N	0.545415
91	Coast Live Oak	14	25	Fair	Sapsucker/woodpecker damage	N	N	1.0690134
92	Coast Live Oak	6	20	Poor		N	N	0.1963494
93	Coast Live Oak	18	35	Good		N	N	1.7671446
94	Coast Live Oak	14	35	Good		N	N	1.0690134
95	Coast Live Oak	5	15	Fair		N	N	0.13635375
96	Coast Live Oak	24	35	Fair	2 Stems: 9, 15	N	N	3.1415904
97	Coast Live Oak	12	30	Good		N	N	0.7853976
98	Monterey Pine	15	60	Fair	Canopy raised, small crown	N	N	1.22718375
99	Monterey Pine	14	40	Dead		N	N	1.0690134
100	Coast Live Oak	4	10	Good		N	N	0.0872664
101	Coast Live Oak	5	15	Good		N	N	0.13635375
102	Coast Live Oak	3	5	Good		N	N	0.04908735
103	Coast Live Oak	11	40	Poor		N	N	0.65995215
104	Monterey Pine	26	60	Good	2 Stems: 8,18	N	N	3.6870054
105	Monterey Pine	18	60	Fair	Branch tip dieback	N	N	1.7671446
106	Monterey Pine	8	20	Fair		N	N	0.3490656
107	Coast Live Oak	17	25	Good	2 Stems: 8,9	N	N	1.57624935
108	Coast Live Oak	5	10	Good		N	N	0.13635375
109	Monterey Pine	15	50	Poor	Thin crown	N	N	1.22718375
Count All	*109*	*Average Height All*	*31*	—	*QMD All*	*14.2*	—	—
Count Pine	*43*	*Average Height Pine*	*45*	—	*QMD Pine*	*17.5*	—	—
Count Oak	*61*	*Average Height Oak*	*21*	—	*QMD Oak*	*11.1*	—	—
Count Other	*5*	*Average Height Other*	*17.2*	—	*QMD Other*	*16.8*	—	—
TPA	*109*	—	—	—	—	—	—	—
Total BA	**120.2312826**	**71.6457144**	**40.88976**	**7.695806**	**—**	**—**	**—**	**—**
Avg BA	*1.10303929*	*1.666179405*	*0.670324*	*1.539161*	—	—	—	—

Forest Inventory Data, Zone 2, Plots: 2, 4, 14, 12								
Tree #	Species	Diameter (inches)	Height (inches)	Condition	Notes	Evidence of Beetle Infestation? Y/N	Evidence of Pitch Canker Infection? Y/N	Basal Area
Tree Diameter Distribution (by diameter inches)								
	3 to 8	9 to 14	15 to 20	21 to 26	27 to 32	>32		
All	43	31	17	12	2	2		
Pine	11	7	13	9	2	1		
Oak	32	23	3	1	0	1		
Other	0	1	1	2	0	0		

Forest Inventory, Data Zone 3, Plots: 11, 13, 15, 16								
Tree #	Species	Diameter at Standard Height (inches)	Height (inches)	Condition	Notes	Evidence of Beetle Infestation? Y/N	Evidence of Pitch Canker Infection? Y/N	BA
1	Monterey Pine	15	75	Good		N	N	1.23
2	Monterey Pine	23	85	Fair	Branch tip dieback, mistletoe	N	N	2.89
3	Monterey Pine	23	100	Poor	Sparse crown, Branch tip dieback	N	N	2.89
4	Coast Live Oak	12	25	Good		N	N	0.79
5	Coast Live Oak	8	20	Fair		N	N	0.35
6	Coast Live Oak	11	15	Fair	Trunk decay	N	N	0.66
7	Monterey Pine	24	100	Fair	Damage on trunk, Pitch tubes	Y	N	3.14
8	Monterey Pine	21	85	Fair	Mistletoe	N	N	2.41
9	Monterey Pine	17	85	Good	Dieback in upper half of the crown	N	N	1.58
10	Coast Live Oak	5	15	Good		N	N	0.14
11	Coast Live Oak	8	20	Good		N	N	0.35
12	Coast Live Oak	7	15	Fair	Internal decay	N	N	0.27
13	Monterey Pine	24	75	Fair	Mistletoe, pitch tubes, branch tip dieback	Y	N	3.14
14	Coast Live Oak	10	15	Fair	2 Stems:5,5	N	N	0.55
15	Coast Live Oak	28	40	Good	3 Stems: 10,10,8	N	N	4.28
16	Coast Live Oak	4	15	Good		N	N	0.09
17	Coast Live Oak	8	15	Poor	Damage to tree top	N	N	0.35
18	Coast Live Oak	19	25	Fair	3 Stems: 4,7,8	N	N	1.97
19	Monterey Pine	8	60	Poor	Small live crown	N	N	0.35
20	Coast Live Oak	12	20	Fair	2 Stems: 7,5, Decay in Branches	N	N	0.79
21	Coast Live Oak	16	35	Good	2 Stems: 7,9	N	N	1.4
22	Coast Live Oak	10	40	Fair	Internal decay	N	N	0.55
23	Coast Live Oak	7	30	Good		N	N	0.27
24	Coast Live Oak	10	15	Good		N	N	0.55
25	Monterey Pine	33	70	Dead		N	N	5.94
26	Monterey Pine	14	45	Poor	Sparse crown, Branch tip dieback	N	N	1.07
27	Monterey Pine	18	60	Fair	Dieback	N	N	1.77

Forest Inventory, Data Zone 3, Plots: 11, 13, 15, 16								
Tree #	Species	Diameter at Standard Height (inches)	Height (inches)	Condition	Notes	Evidence of Beetle Infestation? Y/N	Evidence of Pitch Canker Infection? Y/N	BA
28	Monterey Pine	17	65	Dead		N	N	1.58
29	Monterey Pine	7	35	Fair	Pitch tubes	Y	N	0.27
30	Monterey Pine	8	30	Good		N	N	0.35
31	Monterey Pine	6	30	Good		N	N	0.2
32	Monterey Pine	11	45	Dead		N	N	0.66
33	Coast Live Oak	14	30	Good	2 Stems: 11, 3	N	N	1.07
34	Coast Live Oak	6	15	Poor	Fungal conks	N	N	0.2
35	Coast Live Oak	5	20	Good		N	N	0.14
36	Coast Live Oak	10	20	Good		N	N	0.55
37	Coast Live Oak	7	20	Fair		N	N	0.27
38	Coast Live Oak	3	10	Good		N	N	0.05
39	Coast Live Oak	8	10	Fair	Decay in branches	N	N	0.35
40	Coast Live Oak	12	20	Fair	2 Stems: 6,6, decay in trunk	N	N	0.79
41	Coast Live Oak	10	15	Fair		N	N	0.55
42	Monterey Pine	14	55	Good	Pitch tubes	Y	N	1.07
43	Coast Live Oak	21	20	Fair	4 stems: 9,5,4,3	N	N	2.41
44	Monterey Pine	8	45	Good		N	N	0.35
45	Coast Live Oak	4	15	Poor		N	N	0.09
46	Monterey Pine	12	35	Poor	Branch dieback	N	N	0.79
47	Coast Live Oak	7	15	Fair		N	N	0.27
48	Monterey Pine	23	85	Good	Mistletoe	N	N	2.89
49	Monterey Pine	23	85	Fair	Mistletoe	N	N	2.89
50	Monterey Pine	29	90	Good	Mistletoe	N	N	4.59
51	Monterey Pine	21	70	Fair	Mistletoe	N	N	2.41
52	Monterey Pine	28	85	Fair	Mistletoe	N	N	4.28
53	Coast Live Oak	18	30	Good	2 Stems: 9,9	N	N	1.77
54	Coast Live Oak	6	20	Fair		N	N	0.2
55	Monterey Pine	13	55	Poor	Mistletoe, branch tip dieback, small crown	N	N	0.92
56	Coast Live Oak	19	30	Fair	2 stems: 11,8	N	N	1.97
57	Coast Live Oak	13	20	Fair	Damage to trunk	N	N	0.92
58	Coast Live Oak	14	15	Fair	2 stems: 7,7	N	N	1.07
59	Coast Live Oak	14	15	Good	2 stems: 7,7	N	N	1.07
60	Monterey Pine	14	40	Dead		N	N	1.07
61	Monterey Pine	9	45	Dead		N	N	0.44
62	Monterey Pine	22	90	Good	Mistletoe	N	N	2.64
63	Monterey Pine	16	35	Poor	Broken top, Mistletoe	N	N	1.4
64	Coast Live Oak	5	15	Good		N	N	0.14
65	Coast Live Oak	5	20	Good		N	N	0.14
66	Coast Live Oak	19	35	Good	2 stems: 11, 8	N	N	1.97
67	Coast Live Oak	18	20	Fair	2 Stems: 9,9, Broken top	N	N	1.77

Forest Inventory, Data Zone 3, Plots: 11, 13, 15, 16								
Tree #	Species	Diameter at Standard Height (inches)	Height (inches)	Condition	Notes	Evidence of Beetle Infestation? Y/N	Evidence of Pitch Canker Infection? Y/N	BA
68	Monterey Pine	25	70	Dead		N	N	3.41
69	Monterey Pine	11	35	Poor	Branch tip dieback	N	N	0.66
70	Coast Live Oak	10	20	Good		N	N	0.55
71	Coast Live Oak	11	20	Good		N	N	0.66
72	Monterey Pine	15	55	Good	Old Pitch Tubes	Y	N	1.23
73	Coast Live Oak	13	35	Fair	Decay in Trunk	N	N	0.92
74	Monterey Pine	16	70	Good	Pitch tubes, Branch tip dieback, pitch streamers on trunk	Y	Y	1.4
75	Monterey Pine	9	45	Good	Branch tip dieback	N	N	0.44
76	Coast Live Oak	15	15	Good	2 Stems: 9,6	N	N	1.23
77	Monterey Pine	14	65	Poor	Small crown, Dead top	N	N	1.07
78	Coast Live Oak	23	25	Good	2 Stems:14, 9	N	N	2.89
79	Monterey Pine	12	45	Fair	Small crown, branch dieback	N	N	0.79
80	Monterey Pine	32	70	Poor	dead top	N	N	5.59
81	Monterey Pine	6	20	Fair	Branch tip dieback	N	N	0.2
82	Monterey Pine	6	35	Fair		N	N	0.2
83	Monterey Pine	11	50	Good		N	N	0.66
84	Monterey Pine	18	65	Poor	Dead top, small crown, branch dieback	N	N	1.77
85	Monterey Pine	6	20	Good		N	N	0.2
86	Monterey Pine	9	30	Fair	Trunk Damage	N	N	0.44
87	Monterey Pine	13	35	Fair	Damage to trunk and crown	N	N	0.92
88	Coast Live Oak	14	20	Good	2 stems: 8,6	N	N	1.07
89	Coast Live Oak	5	20	Fair		N	N	0.14
90	Coast Live Oak	8	20	Good	2 Stems:5,3	N	N	0.35
91	Coast Live Oak	5	20	Fair		N	N	0.14
92	Monterey Pine	14	45	Good		N	N	1.07
93	Coast Live Oak	11	30	Good	Damage to crown	N	N	0.66
94	Coast Live Oak	10	35	Good		N	N	0.55
95	Coast Live Oak	7	15	Fair	Damage to trunk	N	N	0.27
96	Coast Live Oak	7	20	Fair		N	N	0.27
97	Coast Live Oak	6	20	Fair	Damage to crown	N	N	0.2
98	Monterey Pine	24	65	Dead		N	N	3.14
99	Coast Live Oak	11	35	Good		N	N	0.66
100	Coast Live Oak	11	35	Good	Damage to crown	N	N	0.66
101	Monterey Pine	22	70	Good		N	N	2.64
102	Coast Live Oak	8	15	Fair	Damage to crown, Decay in branches	N	N	0.35
103	Coast Live Oak	18	35	Good	2 Stems: 6,12	N	N	1.77
104	Monterey Pine	27	75	Fair	Dieback, overmature tree	N	N	3.98
105	Coast Live Oak	11	35	Fair	Thin crown	N	N	0.66
106	Coast Live Oak	5	20	Fair	Decay in trunk	N	N	0.14

Forest Inventory, Data Zone 3, Plots: 11, 13, 15, 16								
Tree #	**Species**	**Diameter at Standard Height (inches)**	**Height (inches)**	**Condition**	**Notes**	**Evidence of Beetle Infestation? Y/N**	**Evidence of Pitch Canker Infection? Y/N**	**BA**
107	Coast Live Oak	15	20	Good	2 stems:9,6	N	N	1.23
108	Coast Live Oak	7	15	Good		N	N	0.27
109	Coast Live Oak	9	20	Good		N	N	0.44
110	Coast Live Oak	16	20	Good	2 Stems:10,6	N	N	1.4
111	Coast Live Oak	12	35	Good		N	N	0.79
112	Coast Live Oak	9	30	Good		N	N	0.44
113	Monterey Pine	16	60	Fair	Pitch streamers on trunk, Pitch tubes, cankers	Y	Y	1.4
114	Coast Live Oak	6	20	Fair		N	N	0.2
115	Coast Live Oak	4	10	Fair		N	N	0.09
116	Coast Live Oak	8	25	Good		N	N	0.35
117	Coast Live Oak	8	25	Good		N	N	0.35
118	Coast Live Oak	8	25	Fair		N	N	0.35
119	Coast Live Oak	7	15	Fair	Decay in trunk	N	N	0.27
120	Coast Live Oak	3	10	Fair		N	N	0.05
121	Monterey Pine	8	50	Fair	Broken top	N	N	0.35
122	Coast Live Oak	9	10	Good	Branch decay, bent over top-previously hit by larger tree	N	N	0.44
123	Coast Live Oak	5	15	Good		N	N	0.14
Count All	*123*	*Average Height All*	*37*		*QMD All*	*14.4*		
Count Pine	*50*	*Average Height Pine*	*59*		*QMD Pine*	*17.8*		
Count Oak	*73*	*Average Height Oak*	*22*		*QMD Oak*	*11.4*		
Count Other	*0*	*Average Height Other*	*0*		*QMD Other*	*0.0*		
TPA	*123*							
Total BA	**138.5736**	**86.6719**	**51.90169**					
Avg BA	*1.126615*	*1.733438*	*0.710982*					
Tree Diameter Distribution (by diameter inches)								
	3 to 8	9 to 14	15 to 20	21 to 26	27 to 32	>32		
All	43	41	19	14	5	1		
Pine	9	15	9	12	4	1		
Oak	34	26	10	2	1	0		
Other	0	0	0	0	0	0		

Forest Inventory Data Zone 4, Plots: 1, 3, 6, 7, 8, 9								
Tree #	Species	Diameter at Standard Height (inches)	Height (inches)	Condition	Notes	Evidence of Beetle Infestation? Y/N	Evidence of Pitch Canker Infection? Y/N	Basal Area
1	Coast Live Oak	9	20	Fair	Broken Top	N	N	0.44179
2	Coast Live Oak	8	20	Poor	2 Stems: 8,5, branch tip dieback	N	N	0.34907
3	Monterey Pine	20	60	Good		N	N	2.18166
4	Coast Live Oak	5	15	Fair		N	N	0.13635
5	Coast Live Oak	5	15	Fair		N	N	0.13635
6	Coast Live Oak	4	15	Poor		N	N	0.08727
7	Coast Live Oak	4	10	Poor		N	N	0.08727
8	Coast Live Oak	7	35	Fair		N	N	0.26725
9	Coast Live Oak	8	20	Good	2 stems:5, 3	N	N	0.34907
10	Coast Live Oak	21	35	Good	2 stems: 12, 9	N	N	2.40528
11	Coast Live Oak	15	35	Good		N	N	1.22718
12	Coast Live Oak	8	15	Poor	Hypoxylon canker	N	N	0.34907
13	Coast Live Oak	12	30	Fair		N	N	0.78540
14	Coast Live Oak	7	15	Fair	Decay in trunk	N	N	0.26725
15	Coast Live Oak	7	20	Fair	Damage to trunk with sprout growth	N	N	0.26725
16	Coast Live Oak	22	30	Fair	2 stems: 13, 9, dieback	N	N	2.63981
17	Coast Live Oak	22	30	Fair	2 stems,: 13,9	N	N	2.63981
18	Coast Live Oak	8	30	Fair		N	N	0.34907
19	Monterey Pine	16	20	Dead		N	N	1.39626
20	Monterey Pine	8	35	Poor	Dead top	N	N	0.34907
21	Monterey Pine	21	85	Poor	Broken top with regrowth, pitch streamers on trunk	N	Y	2.40528
22	Coast Live Oak	6	15	Poor		N	N	0.19635
23	Coast Live Oak	4	10	Poor		N	N	0.08727
24	Coast Live Oak	16	25	Fair	Decay in crown	N	N	1.39626
25	Coast Live Oak	9	30	Poor	Dieback in crown	N	N	0.44179
26	Monterey Pine	30	35	Dead		N	N	4.90874
27	Coast Live Oak	11	30	Good		N	N	0.65995
28	Coast Live Oak	8	25	Fair		N	N	0.34907
29	Coast Live Oak	9	30	Fair		N	N	0.44179
30	Monterey Pine	34	130	Good		N	N	6.30500
31	Monterey Pine	18	60	Good	Old Pitch tubes	Y	N	1.76714
32	Monterey Pine	17	60	Dead		N	N	1.57625
33	Coast Live Oak	4	10	Fair		N	N	0.08727
34	Coast Live Oak	7	15	Poor		N	N	0.26725
35	Coast Live Oak	6	10	Good		N	N	0.19635
36	Coast Live Oak	6	25	Fair		N	N	0.19635
37	Coast Live Oak	9	30	Poor	Trunk damage	N	N	0.44179
38	Coast Live Oak	7	30	Fair	Dieback in crown	N	N	0.26725
39	Coast Live Oak	7	30	Fair		N	N	0.26725
40	Coast Live Oak	6	30	Poor		N	N	0.19635

Forest Inventory Data Zone 4, Plots: 1, 3, 6, 7, 8, 9								
Tree #	Species	Diameter at Standard Height (inches)	Height (inches)	Condition	Notes	Evidence of Beetle Infestation? Y/N	Evidence of Pitch Canker Infection? Y/N	Basal Area
41	Coast Live Oak	7	30	Fair		N	N	0.26725
42	Coast Live Oak	4	15	Poor		N	N	0.08727
43	Coast Live Oak	7	30	Fair	Dieback in crown	N	N	0.26725
44	Coast Live Oak	6	25	Poor	Dieback in crown	N	N	0.19635
45	Coast Live Oak	13	40	Good		N	N	0.92175
46	Coast Live Oak	22	30	Fair	2 Stem:10, 12, previously uprooted and fell over-has compensated & is stable	N	N	2.63981
47	Coast Live Oak	9	30	Fair		N	N	0.44179
48	Coast Live Oak	13	30	Good		N	N	0.92175
49	Coast Live Oak	7	25	Fair	Trunk Decay, Branch Decay	N	N	0.26725
50	Coast Live Oak	12	35	Fair		N	N	0.78540
51	Coast Live Oak	14	35	Fair	Branch Decay	N	N	1.06901
52	Coast Live Oak	8	30	Good		N	N	0.34907
53	Coast Live Oak	9	30	Fair	Trunk Decay, Branch Decay	N	N	0.44179
54	Monterey Pine	14	40	Dead		N	N	1.06901
55	Monterey Pine	39	80	Fair	Thin Crown, Branch tip dieback	N	N	8.29576
56	Monterey Pine	26	70	Fair	Dead top, Dieback in crown, unbalanced crown	N	N	3.68701
57	Monterey Pine	14	55	Poor	Significant Dieback	N	N	1.06901
58	Coast Live Oak	15	35	Fair		N	N	1.22718
59	Coast Live Oak	13	35	Good		N	N	0.92175
60	Monterey Pine	30	80	Fair	Branch tip Dieback	N	N	4.90874
61	Coast Live Oak	9	30	Fair		N	N	0.44179
62	Coast Live Oak	6	15	Fair	2 Stem: 3,3	N	N	0.19635
63	Coast Live Oak	14	35	Good	Decay in Trunk	N	N	1.06901
64	Coast Live Oak	5	15	Poor		N	N	0.13635
65	Coast Live Oak	9	20	Fair	Damage on trunk, decay in trunk, broken top	N	N	0.44179
66	Coast Live Oak	18	35	Fair	2 Stems: 10, 8	N	N	1.76714
67	Coast Live Oak	8	30	Fair		N	N	0.34907
68	Coast Live Oak	5	15	Fair		N	N	0.13635
69	Coast Live Oak	14	35	Fair		N	N	1.06901
70	Coast Live Oak	12	20	Fair	2 stems: 6,6	N	N	0.78540
71	Coast Live Oak	8	25	Fair		N	N	0.34907
72	Coast Live Oak	9	35	Fair	Decay in Trunk	N	N	0.44179
73	Coast Live Oak	7	30	Fair		N	N	0.26725
74	Coast Live Oak	5	10	Fair	Dead top	N	N	0.13635
75	Coast Live Oak	14	30	Fair	Conks, decay in branches	N	N	1.06901
76	Monterey Pine	23	60	Poor	! Increased Risk of falling on to trail	N	N	2.88525
77	Coast Live Oak	4	10	Poor	Significant Decay	N	N	0.08727
78	Coast Live Oak	12	30	Good		N	N	0.78540
79	Coast Live Oak	20	30	Fair	2 Stems: 7,13, Branch Decay	N	N	2.18166

Forest Inventory Data Zone 4, Plots: 1, 3, 6, 7, 8, 9								
Tree #	Species	Diameter at Standard Height (inches)	Height (inches)	Condition	Notes	Evidence of Beetle Infestation? Y/N	Evidence of Pitch Canker Infection? Y/N	Basal Area
80	Coast Live Oak	4	15	Fair		N	N	0.08727
81	Coast Live Oak	13	35	Good		N	N	0.92175
82	Coast Live Oak	25	30	Fair	3 Stems: 10,8,7	N	N	3.40884
83	Coast Live Oak	14	30	Fair	2 Stems: 8,6, Thin Crown	N	N	1.06901
84	Coast Live Oak	14	30	Fair	2 Stems: 9,5, Dieback in the crown, Large Dead Branches	N	N	1.06901
85	Coast Live Oak	13	30	Fair	2 Stems: 6,7, dieback in the crown, thin crown	N	N	0.92175
86	Coast Live Oak	5	20	Poor		N	N	0.13635
87	Coast Live Oak	10	30	Fair		N	N	0.54542
88	Coast Live Oak	14	35	Good		N	N	1.06901
89	Coast Live Oak	13	35	Fair		N	N	0.92175
90	Coast Live Oak	10	30	Fair		N	N	0.54542
91	Coast Live Oak	6	15	Poor	Decay in Trunk	N	N	0.19635
92	Coast Live Oak	17	35	Fair	2 Stems: 12,5, Thin crown, decay in branches	N	N	1.57625
93	Coast Live Oak	8	20	Good		N	N	0.34907
94	Coast Live Oak	18	20	Good	Decay in Branches	N	N	1.76714
95	Coast Live Oak	14	25	Fair	Decay in Branches, Dieback in Crowns	N	N	1.06901
96	Coast Live Oak	9	20	Fair	Large Cavity on Trunk, Decay in Trunk	N	N	0.44179
97	Coast Live Oak	11	25	Good		N	N	0.65995
98	Coast Live Oak	11	20	Fair		N	N	0.65995
99	Coast Live Oak	9	20	Fair		N	N	0.44179
100	Coast Live Oak	23	30	Fair	2 Stems: 11,12	N	N	2.88525
101	Coast Live Oak	13	30	Good		N	N	0.92175
102	Coast Live Oak	13	25	Fair	Large Cavity on Trunk, Decay in Trunk	N	N	0.92175
103	Coast Live Oak	6	15	Dead	Decay in Trunk, Dead Top	N	N	0.19635
104	Coast Live Oak	5	10	Poor	Large Cavity on Trunk, Decay in Trunk	N	N	0.13635
105	Coast Live Oak	12	30	Fair	Thin Crown	N	N	0.78540
106	Coast Live Oak	11	30	Poor	Thin Crown, Woodpecker activity	N	N	0.65995
107	Coast Live Oak	14	30	Poor		N	N	1.06901
108	Coast Live Oak	14	35	Good	Decay in trunk	N	N	1.06901
109	Coast Live Oak	10	30	Poor		N	N	0.54542
110	Monterey Pine	26	50	Good		N	N	3.68701
111	Coast Live Oak	34	35	Good	2 Stems: 17, 17	N	N	6.30500
112	Coast Live Oak	13	15	Poor	Decay in Trunk and Branches	N	N	0.92175
113	Coast Live Oak	11	20	Fair		N	N	0.65995
114	Coast Live Oak	9	20	Fair	Thin crown	N	N	0.44179
115	Coast Live Oak	13	15	Poor	2 stems: 9,4, Decay in trunk	N	N	0.92175
116	Monterey Pine	3	15	Good		N	N	0.04909
117	Monterey Pine	4	15	Good	canker on trunk with pitch streamers	N	Y	0.08727
118	Coast Live Oak	10	30	Poor	Decay in trunk. Dieback in crown	N	N	0.54542
119	Coast Live Oak	6	15	Dead		N	N	0.19635

Forest Inventory Data Zone 4, Plots: 1, 3, 6, 7, 8, 9								
Tree #	Species	Diameter at Standard Height (inches)	Height (inches)	Condition	Notes	Evidence of Beetle Infestation? Y/N	Evidence of Pitch Canker Infection? Y/N	Basal Area
120	Monterey Pine	7	30	Good		N	N	0.26725
121	Monterey Pine	8	30	Good	Large canker on trunk, pitch tubes	Y	Y	0.34907
122	Monterey Pine	8	30	Good		N	N	0.34907
123	Monterey Pine	8	30	Good		N	N	0.34907
124	Coast Live Oak	29	30	Fair	2 Stems: 14,15, Decay in trunk and branches	N	N	4.58694
125	Coast Live Oak	9	15	Poor	Broken top	N	N	0.44179
126	Coast Live Oak	23	30	Fair	2 stems: 13, 10, Decay in trunk	N	N	2.88525
127	Coast Live Oak	8	20	Poor		N	N	0.34907
128	Coast Live Oak	12	20	Fair	Decay in trunk	N	N	0.78540
129	Coast Live Oak	12	25	Fair	2 stems: 4,8	N	N	0.78540
130	Coast Live Oak	16	35	Fair	Thin crown	N	N	1.39626
131	Coast Live Oak	15	35	Poor	Dead top	N	N	1.22718
132	Coast Live Oak	7	20	Poor	broken top, decay in branches	N	N	0.26725
133	Coast Live Oak	14	35	Fair	Thin crown, poor vigor	N	N	1.06901
134	Coast Live Oak	14	35	Fair	Decay in branches	N	N	1.06901
135	Coast Live Oak	12	30	Poor	Thin crown	N	N	0.78540
136	Coast Live Oak	16	35	Fair	Decay in branches	N	N	1.39626
137	Coast Live Oak	13	35	Fair		N	N	0.92175
138	Coast Live Oak	10	20	Poor	Decay in branches	N	N	0.54542
139	Coast Live Oak	13	20	Fair	Decay in trunk, Broken top	N	N	0.92175
140	Monterey Pine	18	35	Fair		N	N	1.76714
141	Coast Live Oak	12	30	Fair	Thin crown	N	N	0.78540
142	Coast Live Oak	5	10	Poor		N	N	0.13635
143	Coast Live Oak	9	30	Fair		N	N	0.44179
144	Coast Live Oak	38	40	Good	2 Stems: 16, 22	N	N	7.87579
145	Coast Live Oak	24	25	Poor	2 Stems: 12,12, Thin crown, Decay in branches	N	N	3.14159
146	Monterey Pine	21	60	Good		N	N	2.40528
147	Monterey Pine	16	60	Poor	Significant dieback	N	N	1.39626
148	Monterey Pine	28	70	Good		N	N	4.27605
149	Coast Live Oak	10	25	Fair		N	N	0.54542
150	Coast Live Oak	6	20	Poor		N	N	0.19635
151	Monterey Pine	28	20	Dead		N	N	4.27605
152	Coast Live Oak	15	30	Fair		N	N	1.22718
153	Monterey Pine	22	70	Fair	Thin crown, branch tip dieback	N	N	2.63981
154	Coast Live Oak	6	15	Fair		N	N	0.19635
155	Monterey Pine	30	95	Fair	Heavy mistletoe infestation, small crown, branch tip dieback, damage on trunk	N	N	4.90874
156	Monterey Pine	31	65	Dead		N	N	5.24144
157	Coast Live Oak	13	15	Good	2 Stems: 6,7	N	N	0.92175
158	Monterey Pine	28	40	Fair	Broken branches, mistletoe, branch tip dieback	N	N	4.27605

Forest Inventory Data Zone 4, Plots: 1, 3, 6, 7, 8, 9								
Tree #	**Species**	**Diameter at Standard Height (inches)**	**Height (inches)**	**Condition**	**Notes**	**Evidence of Beetle Infestation? Y/N**	**Evidence of Pitch Canker Infection? Y/N**	**Basal Area**
159	Coast Live Oak	10	20	Poor	Conks, dead top	N	N	0.54542
160	Monterey Pine	24	55	Poor	Thin crown, branch tip dieback, mistletoe	N	N	3.14159
161	Coast Live Oak	13	35	Fair	Decay in trunk	N	N	0.92175
162	Coast Live Oak	18	35	Good		N	N	1.76714
163	Coast Live Oak	17	35	Good		N	N	1.57625
164	Coast Live Oak	8	20	Fair	Decay in trunk	N	N	0.34907
165	Coast Live Oak	4	10	Poor	Significant dieback, decay in trunk, conks	N	N	0.08727
166	Coast Live Oak	8	20	Fair	Damage to crown, broken branches	N	N	0.34907
167	Coast Live Oak	12	25	Fair		N	N	0.78540
168	Monterey Pine	18	70	Dead		N	N	1.76714
169	Coast Live Oak	7	10	Poor	2 Stems: 5, 2	N	N	0.26725
170	Coast Live Oak	17	25	Good	Decay in trunk	N	N	1.57625
171	Monterey Pine	29	40	Dead		N	N	4.58694
172	Monterey Pine	24	55	Dead		N	N	3.14159
173	Monterey Pine	30	75	Fair	Mistletoe, branch dieback, thin crown	N	N	4.90874
174	Coast Live Oak	11	25	Fair		N	N	0.65995
175	Coast Live Oak	9	20	Fair		N	N	0.44179
176	Coast Live Oak	14	30	Poor	Thin crown, Branch tip dieback	N	N	1.06901
177	Monterey Pine	14	50	Good		N	N	1.06901
178	Monterey Pine	4	20	Fair	Mistletoe	N	N	0.08727
179	Monterey Pine	7	35	Fair	Mistletoe	N	N	0.26725
180	Coast Live Oak	15	25	Good	2 stems: 7, 8	N	N	1.22718
181	Coast Live Oak	19	30	Fair		N	N	1.96895
182	Monterey Pine	33	80	Good	Old pitch tubes	Y	N	5.93957
Count All	*182*	*Average Height All*	*31*		*QMD All*	*15.2*		
Count Pine	*39*	*Average Height Pine*	*53*		*QMD Pine*	*22.1*		
Count Oak	*143*	*Average Height Oak*	*25*		*QMD Oak*	*12.7*		
Count Other	*0*	*Average Height Other*	*0*		*QMD Other*	*0.0*		
TPA	*120*							
Total BA	**230.3615**	**104.0379**	**126.3236**					
Avg BA	*1.265722*	*2.667639*	*0.883382*					

Tree Diameter Distribution (by diameter inches)								
	3 to 8	9 to 14	15 to 20	21 to 26	27 to 32	>32		
All	60	68	23	16	10	5		
Pine	9	3	7	8	9	3		
Oak	51	65	16	8	1	2		
Other	0	0	0	0	0	0		

Appendix E
Local Tree Nurseries

Local Tree Nuseries	
Griggs Nursery 831.626.0680	9220 Carmel Valley Rd. Carmel, CA 93923 info@griggsnursery.com
Drought Resistant Nursery 831.375.2120	850 Park Ave, Monterey, CA 93
Blue Moon Native Garden 831.659.1990	Carmel Valley, CA info@bluemoonnative.com
Rana Creek Wholesale Nursery 831.659.2830	7480 Williams Ranch Rd, Carmel, CA 93923 www.ranacreeknursery.com

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Agenda No.7 E

CITY OF PACIFIC GROVE

300 Forest Avenue, Pacific Grove, California 93950

AGENDA REPORT

TO: HONORABLE CHAIR AND MEMBERS OF THE BEAUTIFICATION AND NATURAL RESOURCES COMMISSION

FROM: Matt Mogensen, City Manager

MEETING DATE: 02/18/2025

SUBJECT: BNRC Input on City Council Goal Setting

RECOMMENDATION

Recommend three top goals of the BNRC for the Council Goal Setting Process.

DISCUSSION

City Council Policy 000-26, Community Goals, provides the guidance that following a general election all newly elected Council will prepare a set of Council goals and accompanying strategies during the first quarter of the calendar year (January 1-March 31) that will be pursued over the next two fiscal years (FY 24/25 & 25/26). The intention of the Council Goals and Work Plan are to provide a unified leadership and shared vision for medium to long-term future needs and service demands of the City. Goals are adopted to meet the vision and community/organizational needs, and work plan strategies are implemented to support the goals adopted. In addition, the Plan provides for accountability through deliverable milestones and assists with budget and work effort prioritization.

In preparation for this year's goal setting process, all Boards, Commissions and Committees of the City are being provided the opportunity to present their input. This input will be sent to the City Council for their consideration when developing their goals for the next two years. To facilitate this input, staff is requesting that this body discuss proposed goals and make a formal recommendation to the Council within the following guidance and parameters:

- Recommendations should include no more than three goals for the City Council to consider.
- Proposed goals should be realistic, measurable, and achievable over no more than two years.
- The proposed goals should also be in keeping with the stated mission statement of the Committee or Commission as stated either in the Municipal Code or the handbook.

Recommendations from BCCs will be presented to the City Council for their consideration in the goal setting process.

Attachments

ANNUAL BNRC GOALS 2024

ANNUAL BNRC GOALS 2024

1. WASHINGTON PARK/TREES AND PLANTINGS ON PUBLIC LAND *[Rebecca, Christine, Jennifer]*

1.1. Support and coordinate with City, Environmental Manager, PG Natural History Museum, and volunteers for continued organized planting, watering and weeding efforts within GWP.

1.2. Collaborate with the City Council on GWP Master Plan update, establishing GWP as a preserve.

1.3. Create an open relationship with the Recreation Board to organize recreation and natural resources cohesive vision.

1.4. Work with City on signage for Washington Park.

1.5. Update literature, brochures, etc. on PG flora and fauna for public dissemination.

1.6. Organize tree data census and/or current tree count presentation.

1.7. Tree planting incentive project.

1.8. Review and work with City Council on Chapter 12 Tree Ordinances.

1.9. Submit Capital Improvement Project to fund tree planting on city property.

2. MONARCH SANCTUARY *[Christine, Andrée, Cathy]*

2.1. Attend and support sanctuary events/meetings, and be kept abreast of all matters concerning the sanctuary.

2.2. Receive reports (Creekside Report, museum/volunteer reports) early and preferably biannually, to review/recommend time-sensitive management decisions.

2.3. Promote native pollinator plantings, and discourage the use of pesticides and herbicides city-wide.

3. **WILDLIFE PROTECTION** *[Andrée, Rebecca, _____]*

3.1. Initiate and engage in city and community partnerships that support our wildlife and their habitats.

3.2. Invite/agendize speakers to inform and educate BNRC, the city, and public about wildlife and their habitats.

3.3. Recommend updates to wildlife and habitat protection as needed, especially along the coastal road and trail, and during sensitive breeding seasons.

3.4. Promote public education of wildlife through city social media, signage, etc.

3.5 Review wildlife ordinances, code compliance. and violations, and collaborate with PG Police/CSO's to mitigate wildlife disturbance.

4. **CLIMATE ACTION AND ADAPTATION PLAN** *[Susan, Cathy, Jennifer]*

    4.1. Support and participate in the Council Climate subcommittee.

5. **PLASTIC POLLUTION/LITTER/WASTE REDUCTION** *[Marty, Rebecca, Cathy]*

    5.1. Request periodic update from Public Works on recycling, composting, and litter control efforts throughout the city to identify specific action items for BNRC.

    5.2. With Public Works, create communication initiatives to encourage public to play larger role in city cleanliness, including litter, recycling, food waste composting and coordinate with other entities working on similar initiatives.

    5.3. Support PG Volunteer Coordinator cleanups of heavily trafficked areas, parks, and beaches (PG Clean Team) by promoting regular occurring events.

INACTIVE SUBCOMMITTEES

6. **SHORELINE** [Local Coastal Program]][Land Use Plan and Implementing Ordinances] [Shoreline Management Plan]
7. **WATER** [Area of Special Biological Significance]
8. **PUBLIC ART** [Acceptance of Art Policy]
9. **INTEGRATED PEST MANAGEMENT** [IPM]
10. **COMMUNITY ENGAGEMENT/ EDUCATION/ORGANIZATIONAL MATTERS**