April 28, 2022

Attn: Roger Bernstein
Vice President of Construction
Oppidan Investment Company
1100 Lincoln Avenue, Suite 382
San Jose, CA. 95125

**Subject: Biotic Assessment for the proposed Watermark at Santa Cruz Retirement Care for the Elderly Project, Santa Cruz, California**

Dear Mr. Bernstein,

At the request of Oppidan Investment Company, Ecosystems West conducted a biotic assessment for the proposed development of The Watermark at Santa Cruz Retirement Care for the Elderly (RCFE) facility on a portion of the property owned and managed by the Oblates of St. Joseph in Santa Cruz, California (APNs: 004-57-102 and 004-57-104). The project site is located on the former site of Gateway School and currently supports the closed campus, a remnant (degraded) urban farm and garden, and unmaintained landscaping (Figure 1).

The proposed project involves the demolition of the existing Gateway school and construction of a new RCFE community consisting of a wood frame, two story building with 59 assisted living units, 15 memory care units, two inclusionary units, support spaces and amenities. The proposed project will divide the approximately 6.9-acre site into two parcels. The new RCFE community will be located on a new approximately 3-acre parcel to the west. Access to the site will be off a single existing curb cut on Pelton Avenue and an existing curb cut on West Cliff Drive. The project will also include 38 parking spaces located on the south side of the property and be screened from Pelton Avenue with a new 20 feet wide landscape buffer.

The objectives of this assessment were to:

- Determine whether any sensitive habitats, plants or wildlife species occur on the site. In particular, the assessment evaluated whether heritage trees, coastal terrace prairie, breeding birds, roosting bats and/or monarch butterfly roosting habitat are present on the site;

- Provide a general characterization of the natural plant communities and/or habitat types on the site;

- Assess potential impacts of the proposed project to sensitive biological resources.

On 4 November 2019 and in late 2021, EcoSystems West visited the proposed Watermark at Santa Cruz (hereafter Watermark) senior housing project site to evaluate the potential for special-status biological resources including rare plants and wildlife and sensitive habitats including wetland and riparian areas.

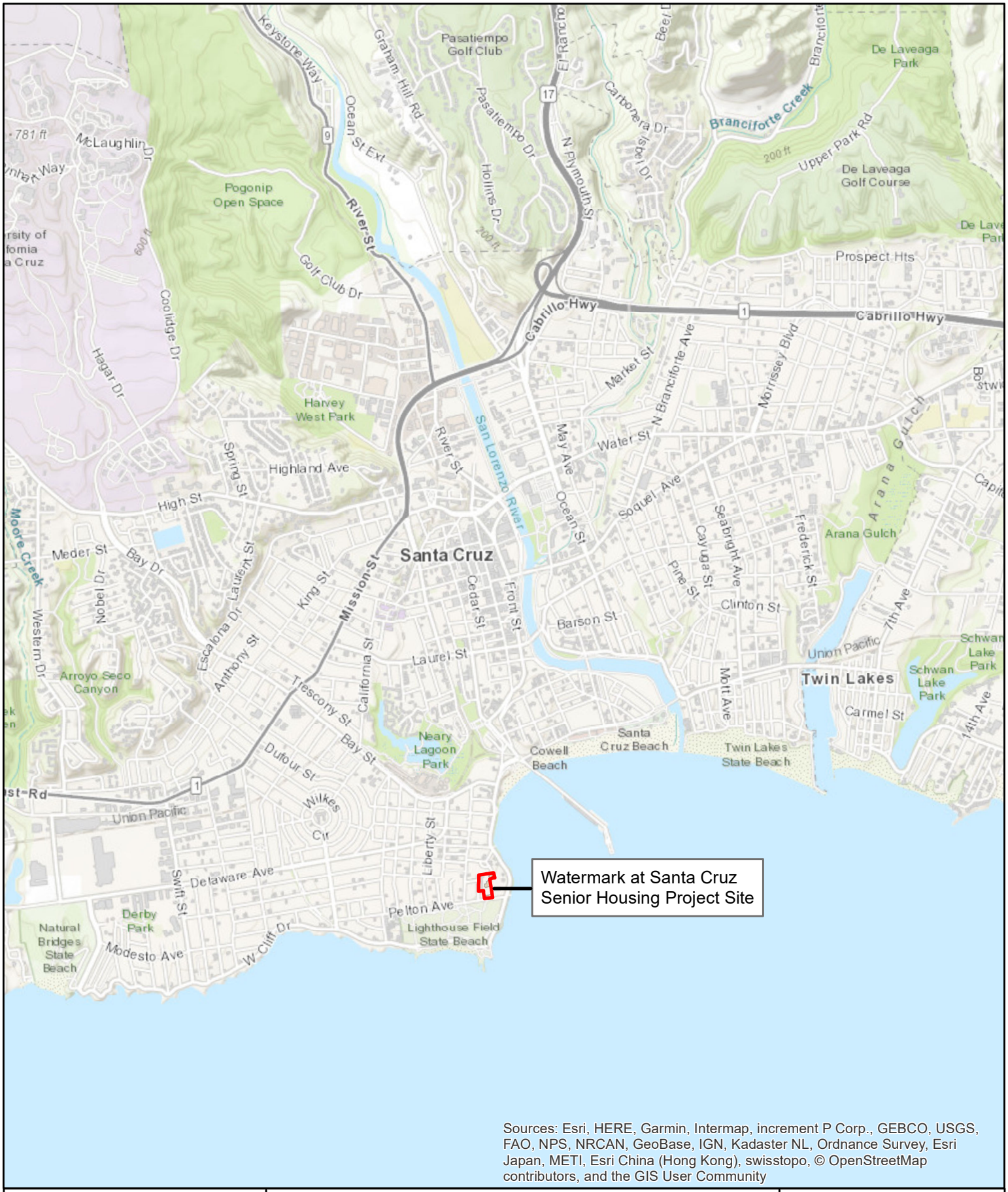


**Figure 1.**

**Watermark at Santa Cruz Senior Housing Proect Site Location**

0 0.25 0.5 1 Miles

1 inch = 0.5 miles

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The evaluation also included a site visit to a known monarch butterfly autumnal and overwintering roost site approximately 200 feet southwest of the project site in Lighthouse Field State Park. This area supports an approximately 0.95-acre grove of non-native Monterey cypress and blue gum eucalyptus that provides autumnal and winter roost habitat for thousands of migrating monarch butterflies annually. To determine whether monarch butterflies utilize the Watermark project area as autumnal and overwintering habitat, the site was revisited on seven occasions between 28 October and 17 December 2021 concurrent with roosting surveys at Lighthouse Field.

**PROJECT SITE CHARACTERIZATION**

The entire Watermark project site is currently developed as the former Gateway School campus and supports existing classroom buildings, landscaping, remnants of an urban farm and garden (most if not all of which are no longer present as of late 2021), and other infrastructure. The project site is bounded by Eucalyptus Avenue to the west, Pelton Avenue to the south, St. Joseph's Church and West Cliff Drive to the west, and a residential neighborhood to the North. There are no wildland areas with potential to support special-status plants as this site has been fully developed and actively used as a school campus for more than 50 years. Soils are mapped as Watsonville loam, a clayey "hydric" soil which is known to support wetlands and various special-status plant and wildlife species elsewhere including Santa Cruz tarplant (*Holocarpha macradenia*; FE, CNPS List 1B.1), San Francisco popcorn flower (*Plagiobothrys diffusus*; SE, CNPS List 1B.1), and Santa Cruz clover (*Trifolium buckwestiorum*; CNPS List 1B.1), and Ohlone tiger beetle (*Cicindela Ohlone*; FE). Nevertheless, due the developed and formerly maintained condition of vegetated areas within the project site, habitat for these species are not present within the project site and none of these species are documented to occur in Lighthouse Field State Park. A focused floristic study is not recommended for this project as there are no areas available to support special-status plants. No wetlands or other waters are present with the project area.

The project site supports three habitat types: developed, ornamental-landscaped (degraded), and ruderal grassland (Figure 2). Developed areas include the now dilapidated former Gateway School classroom buildings and paved areas. Landscaped areas include ornamental vegetation and remnants of an urban farm and garden maintained by the school. This garden contains raised planter beds with food crops and ornamental forbs, shrubs and trees. In November 2019, the Gateway School campus had only been closed for approximately 15 months, and much of the garden remained intact. However, by October 2021, conditions had degraded significantly and ornamental vegetation and food crops (e.g. tomatoes, squash, etc.) had largely been displaced by opportunistic weeds. Ruderal grassland areas are mowed by church staff and are comprised primarily of non-native Bermuda grass (*Cynodon dactylon*), white clover (*Trifolium repens*), and tall fescue (*Festuca arundinaceae*).

**RESULTS AND OBSERVATIONS**

***Monarch Butterfly***

The monarch butterfly was petitioned to be listed as a Threatened species under the federal ESA in 2014, and was under review by USFWS after a positive 90-day finding (USFWS 2014). In May 2019, the USFWS announced an extension of the deadline to determine whether the monarch butterfly warrants ESA protection. On December 15, 2020 the USFWS announced that the candidacy for listing was warranted but precluded by other earlier listed and more imperiled species. The monarch will remain a candidate for listing pending annual review of its status until a final decision is made.

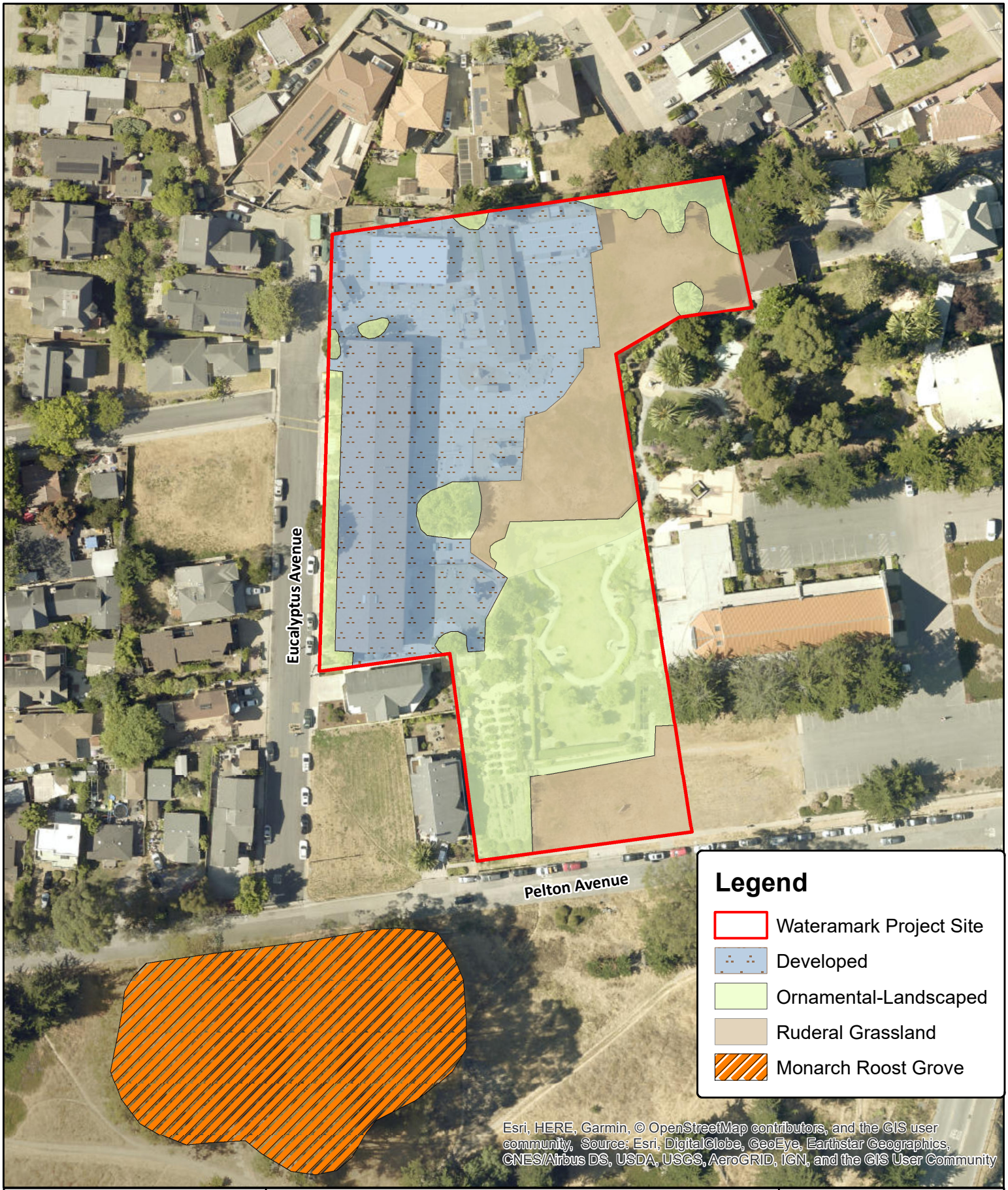


**Figure 2.**

**Habitat Types within the Watermark at Santa Cruz Senior Housing Proect Site**

0 62.5 125 250 Feet

1 inch = 100 ft

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The winter roost sites of the monarch butterfly are listed by NatureServe as imperiled/vulnerable (S2/S3) within California (CDFW CNDDB 2021). In the City of Santa Cruz 2030 General Plan the monarch butterfly is identified as a special-status species in Natural Resources and Conservation 2.4.1 and in Table 1, which lists avoidance and minimization measures (City of Santa Cruz 2012). By 2020, the overwintering monarch population has seen an overall decline of 99% in coastal California (Xerces 2021) and of 74% in less than the last 20 years (IELP and Xerces Society 2012, Pelton et al. 2016). Currently, the fall 2021 Thanksgiving Count estimated the overwintering coastal population to have rebounded to more than 200,000 monarchs statewide from a low of just 1,899 in 2020.

The life history of the monarch butterfly can be divided into two temporally defined periods: a spring/summer reproductive period and a fall/winter non-reproductive (wintering) period. During the spring and summer, monarchs exploit the widely distributed North American milkweed flora (*Asclepias* spp.) as food for their larvae. In the fall, the adult butterflies that are produced during the latter part of summer migrate to wintering habitats in coastal California or central Mexico to spend the winter months. Monarchs spend from 1 to 9 months as adults, depending on when they become reproductive. If they become reproductive immediately, they live 1-2 months as adults. Monarch adults that emerge from August through October typically migrate and overwinter before becoming reproductive the following spring. These monarchs live approximately 8-9 months as adults.

Monarchs arrive at overwintering sites in late September and the first half of October to form fall aggregations. By mid-November they form more stable aggregations, which persist through January or February (Pelton et al. 2016). The western monarch butterfly utilizes eucalyptus, Monterey pine, Monterey cypress, or redwood tree groves for winter roost sites, typically within 1.5 miles (2.4 kilometers) of the Pacific Ocean. Monarchs form aggregations in the foliage on the underside of peripheral branches. The suitability of the stand is determined by both abiotic and biotic factors including:

- periodic exposure to (dappled) sunlight (often southeast aspect);
- cool shady roost areas for periods of warm weather;
- primary and secondary wind protection;
- proximity to nectaries (fall or winter blooming flowers);
- humidity; and
- water sources.

Monarchs are ectothermic (i.e. “cold-blooded”) insects and typically emerge from a state of nocturnal torpor and begin to fly at temperatures around 55° F. Below this temperature, monarchs are unable to fly and are often killed or injured if dislodged from their roosts. Winter roost sites are sufficiently heterogeneous to permit shifts of roost location in accord with prevailing weather conditions and seasonal variation in insulation. The roost site consists of the trees upon which the butterflies cluster, as well as the surrounding trees that provide wind protection. In addition, overwintering habitat includes nearby nectar plants and water sources surrounding the roost site, although monarchs may fly some distance to obtain these resources (Pelton et al. 2016, Griffiths and Villablanca 2015).

A substantial autumnal and occasional overwintering monarch butterfly population occurs in a Monterey cypress and blue gum eucalyptus grove approximately 100 feet southwest of the proposed project site at Lighthouse Field State Beach. This population has been observed and regularly documented since 1990 (Sakai and Calvert), and annual population estimates have fluctuated significantly over that period. A recently documented trend indicating declining overwintering monarchs along the Pacific Coast has been observed locally in Santa Cruz and Lighthouse Field in particular. However, this grove remains one of the

more stable and important roost habitats and a management plan (Pelton et al 2017) has been developed to manage and enhance Lighthouse Field for long-term viability as a roost site.

### *Monarch Autumnal and Overwintering Roost Field Visits*

**2019**

During the November 2019 field visit, EcoSystems West observed hundreds of monarchs clustered (roosting) and flying within the grove and surrounding area. The majority of clustered individuals were on eucalyptus trees approximately 20-40 feet above the ground in the interior of the grove. We carefully evaluated trees within the entire Oblates of St. Joseph's property for the potential to support roosting monarch butterflies. No potential roost sites were identified within the proposed Watermark project site. However, several mature trees in other portions of the church property were determined to have limited potential to support roosting monarchs; a hedgerow of five Monterey cypress occurs immediately south of the existing cathedral building and two large cypress trees are situated adjacent to northeast corner of the project site. However, these mature trees lack lower, spreading limbs and most likely lack sufficient wind protection to serve as primary winter roost habitat, although monarchs may temporarily use these trees for temporary autumnal roosts during periods of suitable weather. While monarchs were observed roosting on trees within the Lighthouse Field grove, no monarchs were observed roosting in trees on the Watermark project site or St. Joseph's Church during the November 2019 filed visit. Numerous monarchs were observed flying within the site and nectaring on flowering ornamental plants within maintained gardens on the Church grounds. These gardens serve as an important nectaring location for the Lighthouse Field monarch population. Nectaring monarchs were also observed within the remnant Gateway School farm planned for removal. The current Watermark project plans propose to incorporate fall and winter flowering nectar plants as part of the landscaping palette. Plant species used as ornamental landscaping will include a palette of native and non-invasive exotic plants as recommended by Dr. Richard Arnold (consulting entomologist), and the Xerces Society (Appendix B). Species may include yarrow (*Achillea millefolium*), bush sunflower (*Encelia californica*), black sage (*Salvia mellifera*), rosemary (*Rosemarinus offinalis*), and blueblossom (*Ceanothus thyrsiflorus*).

EcoSystems West did not conduct a formal monarch roosting surveys during fall/winter 2019-20. However the Western Monarch Thanksgiving Count (Xerces Society) estimated 3,402 roosting monarchs in Lighthouse Field in late November 2019. Field observations during fall 2019 site visits and in 2021 did not disclose any observed butterflies roosting in trees on the project site, nor have monarchs been documented to roost onsite despite the close proximity to the Lighthouse Field. Nevertheless, autumnal and overwintering sites may vary both from year to year and within the roosting season and as noted above, monarch populations have been steadily declining. In addition, other factors (timing of winter rains, winter temperatures, canopy density, and adequate food supply for larva) also vary from year to year. Therefore, survey results from one year may not be predictive of monarch autumnal or overwintering occupation in subsequent years.

**2021**

Due to the dynamic interannual variability of monarch winter roost sites, formal autumnal and early winter roost surveys were conducted in fall and early winter 2021 from late October through mid-December (Table 1). EcoSystems West Senior Ecologist, Justin Davilla, conducted seven surveys at Lighthouse Field and the Oblates of St. Joseph Church site to determine the presence and abundance of roosting monarch butterflies. Site visits occurred early in the morning prior to the temperature reaching 55° F when monarchs would likely be clustered in a state of torpor. Surveys lasted from 75-120 minutes and consisted of using high powered binoculars to scan of the underside of lateral branches of eucalyptus,

Monterey cypress, and black acacia for clustering monarchs. Once temperatures exceeded 55 degrees F, flying monarchs were observed for potential nectaring behavior within the Watermark project area and adjacent church property.

No monarchs were observed roosting within the Watermark project area or Oblates of St. Joseph church grounds. During several site visits, monarchs were observed flying and nectaring on ornamental flowering shrubs within the maintained gardens on the church property which will not be disturbed as part of the proposed project. At Lighthouse Field, monarchs were observed during all but one site visit during a period of light to moderate precipitation. During the final visit on 17 December 2021, a total of 672 monarchs were counted clustering, sunning, and flying within the Lighthouse Field grove. This represents a substantial increase from the Xerces Society 2020 estimate of 50 individuals, but remains well below the historic average for this location.

**Table 1. 2021 Lighthouse Field Autumnal and Winter Roost Survey Results (EcoSystems West)**

| Date | Weather | Wind (mph) | Temp Start (F) | Temp End (F) | Clustered | Sunning | Flying | Loner | Total |
|---|---|---|---|---|---|---|---|---|---|
| 10/28/21 | Sunny | 3 NNE | 54 | 62 | 0 | 4 | 12 | 0 | **16** |
| 11/4/21 | Light Rain | 3-5 SSW | 53 | 57 | 0 | 0 | 0 | 0 | **0** |
| 11/18/21 | Fog | 1 NW | 53 | 58 | 0 | 0 | 6 | 0 | **6** |
| 11/29/21 | Sunny | 2 NNE | 52 | 59 | 0 | 7 | 10 | 0 | **17** |
| 12/10/21 | Mostly Sunny | 2-4 NNE | 48 | 56 | 408 | 8 | 5 | 0 | **421** |
| 12/17/21 | Sunny | 4 E | 43 | 56 | 630 | 25 | 10 | 7 | **672** |

Due to the lack of protection from prevailing wind, as well as the structure and orientation of the Monterey cypress or other trees on the church property adjacent to the Watermark project site, it is not expected for monarchs to use these areas as autumnal or winter roosts. Nevertheless, monarchs are present annually at moderate to high abundance within Lighthouse Field approximately 100 feet southwest of the parking area for the proposed project, and approximately 250 feet from proposed residential apartment buildings. Direct or indirect impacts to this grove, including removal of nearby wind buffer trees, could significantly impact roosting habitat. Currently, a hedgerow of five mature Monterey cypress south of the Oblates chapel provide protection to the Lighthouse Field roost sites from southerly winds. These trees are not planned for removal to accommodate the proposed Watermark RCFE project.

Due to fluctuations in annual monarch overwintering populations and the dynamic interannual utilization of roost sites, an additional fall/early winter preconstruction survey prior to commencing project activities by a qualified biologist may be required to determine if monarchs are present in or near the project site. In the unlikely event monarchs are determined to be present, or are roosting near the edge of the Lighthouse Field grove within 100 feet of project activities, the following best management practices (BMPs) would be recommended as conditions of approval:

- all roost trees including buffer trees will be retained;
- occupied roosts, including those present in Lighthouse Field will be buffered by 100 feet; and
- daily construction will begin after temperatures are above 55° F, so that butterflies have emerged from nocturnal torpor and are capable of flying and thereby avoiding being displaced by vibrations caused by building demolition, earthmoving, and other construction.
- Trucks and equipment should enter and exit the site along Pelton Ave from the east towards West Cliff Drive to minimize vibrations and exhaust impacts to the Lighthouse Field roosting sites.

***City of Santa Cruz Preservation of Heritage Trees and Shrubs***

The City of Santa Cruz Preservation of Heritage Trees and Shrubs Ordinance prohibits any activity that will significantly impact or remove a heritage tree or shrub without obtaining a permit from the City Parks and Recreation Department. Heritage trees and shrubs include any tree, grove of trees, shrub or group of shrubs, growing on public or private property within the city limits of the city of Santa Cruz which meet(s) the following criteria shall have the "heritage" designation:

A. Any tree which has a trunk with a circumference of forty-four inches (approximately fourteen inches in diameter or more), measured at fifty-four inches above existing grade;
B. Any tree, grove of trees, shrub or group of shrubs which have historical significance, including but not limited to those which were/are:
   1. Planted as a commemorative;
   2. Planted during a particularly significant historical era; or
   3. Marking the spot of an historical event.
C. Any tree, grove of trees, shrub or group of shrubs which have horticultural significance, including but not limited to those which are:
   1. Unusually beautiful or distinctive;
   2. Old (determined by comparing the age of the tree or shrub in question with other trees or shrubs of its species within the city);
   3. Distinctive specimen in size or structure for its species (determined by comparing the tree or shrub to average trees and shrubs of its species within the city);
   4. A rare or unusual species for the Santa Cruz area (to be determined by the number of similar trees of the same species within the city);
   5. Providing a valuable habitat; or
   6. Identified by the city council as having significant arboricultural value to the citizens of the city. (Ord. 94-01 § 2, 1994).

Exemptions are made for emergencies involving dead or diseased trees that pose an immediate danger to life or property. In these instances, pruning or removal of a heritage tree/shrub may be authorized by the director or by a responsible member of the police, fire, or public works department.

A total of 13 heritage size trees with a diameter greater than 14 inches were identified within the project site (see Watermark Landscape Plan). Of these, only one coast redwood (*Sequoia sempervirens*) is considered a native species. However, due to the urban location and solitary nature of this individual on a near-coastal terrace, it is presumed this tree was planted as an ornamental and is not a naturalized specimen. No heritage shrubs were identified within the project site. A heritage tree removal permit will be required by the City of Santa Cruz from the removal of any heritage tree. Planting of replacement trees will be required with the species composition and replacement ratio (typically 2:1) to be determined by the City Planning Department. Preliminary landscaping plans propose the removal of 6 heritage trees and planting of more than 50 native and non-invasive ornamental trees throughout the property, which will likely satisfy permit requirements for heritage tree removal.

***Nesting Birds/Roosting Bats***

All nesting birds of prey (i.e., hawks and owls), other native nesting birds and their occupied nests and individual birds of prey are protected by the California Fish and Game Commission Code (CFGC) (§ 3503 and 3503.5) (CFGC 2016). Special-status bird species receive additional protections, primarily for nesting activities. Suitable potential nesting habitat for special-status birds and other common avian species is present within or adjacent to the proposed Watermark project site in trees and structures. The breeding bird season occurs between February 15 and August 31.

While special-status bats are not expected to occur (Table 2), common roosting bat species are protected under the CFGC. These include CFGC Section 86; 2000; 2014; 3007; 4150, along with several sections under Title 14 of California Code of Regulations (CFGC 2006). Bats may utilize mature trees or cavities in existing buildings and structures, including abandoned classrooms with open or broken windows, within the project site for roosting. Bat maternity roosting occurs typically between May 1 and September 1, and winter hibernacula (shelter occupied during the winter by a dormant animal) for many bat species are found between November 1 and February 15.

- If feasible, conduct tree and vegetation removal and building demolition outside of breeding bird and bat maternity roost/winter hibernacula seasons, ideally between September 1 and November 1.

If vegetation/tree and building removal cannot take place during this time, a qualified biologist will conduct pre-construction a breeding bird survey no more than seven days prior to the initiation of project activities.

If nesting activity is observed, postpone tree removal and building demolition until the qualified biologist has determined that young birds have fledged. If work cannot be postponed, establish a species-specific buffer zone [such as are listed in the Nesting Bird Management Plan (PG&E et al. 2015)] around active nest trees and coordinate with agency representatives if special-status birds are present.

If no nesting activity is observed, conduct tree/vegetation and building removal activities as soon as possible after preconstruction surveys.

- During any season, prior to tree removal, a qualified biologist will conduct a preconstruction roosting bat survey to ensure that bats are not using crevices, peeling bark or foliage within trees slated for removal or cavities or other features in buildings to be demolished:

For any trees/snags and structures that could provide roosting space for cavity or foliage-roosting bats, the trees/snags and foliage shall be thoroughly evaluated to determine if bats are present. Visual inspection and/or acoustic surveys shall be utilized as initial techniques. If roosting bats are found, the biologist shall develop and implement acceptable passive exclusion methods in coordination with or based on CDFW recommendations. Exclusion shall take place during the appropriate windows (September 1 and November 1) to avoid harming bat maternity roosts and/or winter hibernacula.

  - If winter hibernacula are present authorization from CDFW would be required to evict bats.
  - If established maternity colonies are found, a minimum 300-foot buffer shall be established around the colony to protect pre-volant young from construction noise until the young can fly; or implement other measures acceptable to CDFW.
  - If a tree is determined not to be an active roost site for roosting bats, it may be immediately limbed or removed as follows:

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. 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. No logs or tree sections shall be dropped on downed limbs or limb piles that have not been in place since the previous day.

  - If the tree is not limbed or removed within four days of the survey, the survey efforts shall be repeated.
  - If no bats are present, remove trees immediately.
  - Buildings and structures should be removed immediately following a negative finding or permitted eviction of roosting bats.

**Table 2. Special-status bat species with potential to occur in the Watermark RFCE Project Area, Santa Cruz, California.**

| Species | Status Federal/State/WBWG | Habitat Requirements | Potential for Occurrence |
|---|---|---|---|
| Townsend's big-eared bat *Corynorhinus townsendi* | -/SSC/S2, HP | Roost sites are highly associated w/ caves and mines; buildings must offer "cave-like" features; known to roost in large tree hollows and under bridges (WBWG 2017). | **Not Expected** Suitable Townsend's big-eared bat roosting habitat appears to be absent within the Project Area; however, open windows into abandoned classrooms on the upper floor of the former Gateway School building may provide "cave-like" features for opportunistic bats. This species is highly sensitive to human disturbance including infrequent access to the building and is not typically found in urbanized areas similar to the project area. Nearest roost records are from buildings at Lockheed and Swanton Pacific Ranch north of Santa Cruz (CNDDB 2022a,b; Grout 2018). |
| pallid bat *Antrozous pallidus* | -/SSC/S3, HP | Roosts in rocky outcrops, cliffs, caves, mines, tree hollows, and structures such as bridges and buildings (WBWG 2017). Considered to be non-migratory (Bolster 2008). | **Not Expected** Pallid bats may roost in classrooms accessible by open windows in the former Gateway school building or other cavities and openings within the abandoned building. No trees with cavities were observed within the project area. This species is relatively sensitive to human disturbance and not typically found in urban environments. The closest occurrence record for the pallid bat is from the Soquel Demonstration Forest 10 kilometers (6.2 miles) east (CNDDB 2022a,b). |
| western red bat *Lasiurus blossevillii* | -/SSC/S3, HP | Migratory species that roosts in foliage, primarily in riparian and wooded habitats, especially edge habitats adjacent to streams or fields (WBWG 2017; Harvey et al. 1999; Pierson et al. 1997). In California this species is often associated with cottonwood trees and willows. | **Not Expected** Suitable riparian and woodland habitats are not present within the project area. Moreover, western red bat has not been recorded from Lighthouse Field or urban areas of Santa Cruz. The nearest record for the western red bat is from Moore Creek Reserve along the east branch of Moore Creek at Meder Street. (EcoSystems West 2004; Heady 2018). Also known from Swanton Pacific Ranch (Grout 2018). |
| fringed myotis *Myotis thysanodes* | -/-/S3S4, HP | Roost sites are primarily in crevices in caves, rocks, cliffs, buildings or mines, as well as in large trees with suitable structural characteristics (related to decay stage). Along the west coast the fringed myotis is associated with redwood forest (WBWG 2017; Pierson and Heady 1997). | **Not Expected** Suitable fringed myotis roosting habitat is limited to the abandoned classrooms on the upper floor of the decaying former Gateway School building. However, this species is mostly associated with redwood forest and riparian habitats not found in the vicinity of the project area; potential habitat may be present within the Biological Study Area. This species was detected at Swanton Pacific Ranch (Grout 2018). |
| long-legged myotis *Myotis volans* | -/-/S3, HP | Roosts primarily in large hollow tree snags, or live trees with exfoliating bark. Primarily a coniferous forest bat, it may also be found in riparian habitats (Warner and Czaplewski 1984). Also uses rock crevices, mines, and buildings. (WBWG 2017) | **Not Expected** Suitable large trees with snags and exfoliating bark are not present in the project area. No occurrences are documented from eucalyptus trees in Lighthouse Field. The nearest record for the long-legged myotis is from UCSC north campus (EcoSystems West 2004; Heady 2018). |

Please don't hesitate to contact Justin Davilla if you have any questions or require additional information.

Sincerely,

Justin Davilla, Senior Ecologist
EcoSystems West Consulting Group.

# Attachment A.

# Representative Photographs of the Proposed Watermark at Santa Cruz RFCE Project Site.

**Top.** Overview of the proposed Watermark at Santa Cruz Housing Project Site on the former Gateway School Campus at St. Joseph's Church (November 2019).

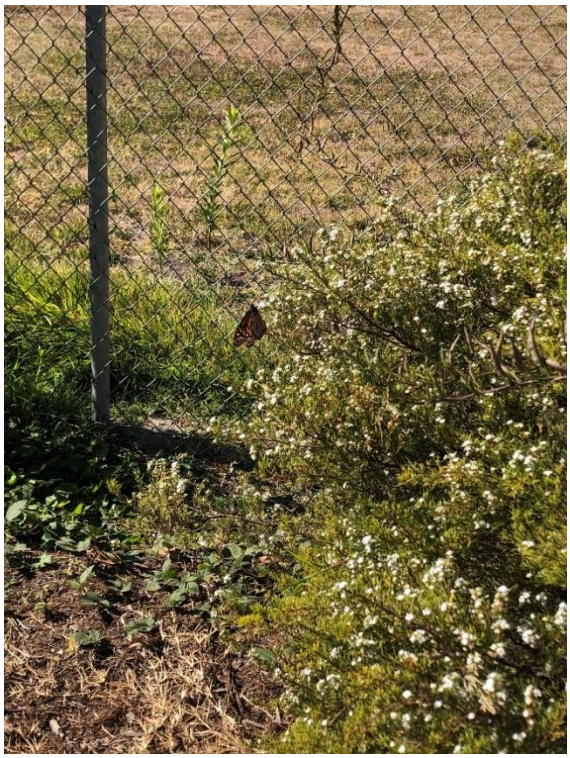
**Bottom.** Overview of Watermark site 2 years after abandonment of Gateway School Campus (December 2021).

**Top.** Hedgerow of mature Monterey cypress immediately southeast of the proposed Watermark project site.

**Bottom.** Monterey cypress immediately northeast of the proposed project site on the St. Joseph's Church property.

**Top.** Remnant Gateway School urban farm and garden on the Watermark project site (November 2019).

**Bottom.** Remnant urban farm and garden 2 years after abandonment of Gateway School Campus (December 2021).



**Top.** Potential cavity roost for bats and/or birds in the former Gateway School building.

**Bottom left.** Roosting monarchs on eucalyptus tree in Lighthouse Field State Park.

**Bottom right.** Nectaring monarch on ornamental shrub in Oblates of St. Joseph's garden immediately adjacent to the Watermark Project site.

# Attachment B.

# Xerces Society List of Monarch Nectar Plants For the Central California Coast

MONARCH NECTAR PLANTS

# California

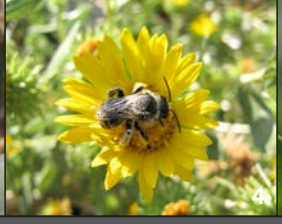
*Left to right: Monarch butterflies on rabbitbush, Pacific aster, and clustered together on eucalyptus in a California overwintering site.*

California is one of the most floristically biodiverse regions in the world, supporting unique plant communities such as prairie grasslands, chaparral, giant sequoia groves, and Joshua tree woodlands. The native plants that make up these communities in turn support an incredible array of insects and other animals, including the monarch butterfly. During spring and summer, monarchs leave hundreds of overwintering sites along the California coast and fan out across the western landscape to breed and lay eggs on milkweed (*Asclepias* spp.), the monarch's host plant. Several generations are likely produced during this time. In the fall, adults from throughout the western U.S. migrate back to overwintering sites in California and central Mexico, where they generally remain in reproductive diapause until the spring, when the cycle begins again.

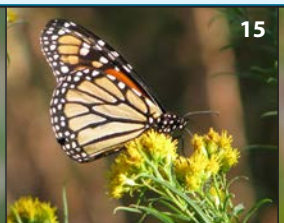
Once, millions of monarchs overwintered along the Pacific coast of California and Baja, Mexico. By 2018, the population of western monarchs hit a record low of less than 29,000 butterflies, which represents a 99.4% decline since the 1980's. The significant problems afflicting western monarchs include habitat loss, pesticide use, and climate change. Because of the monarch's migratory life cycle, it is important to protect and restore habitat across their entire range. Adult monarchs depend on diverse nectar sources for food during all stages of the year, from spring and summer breeding to fall migration and overwintering. Caterpillars, on the other hand, are completely dependent on their milkweed host plants. Inadequate milkweed or nectar plant food sources at any point may impact the number of monarchs that successfully arrive at overwintering sites in the fall.

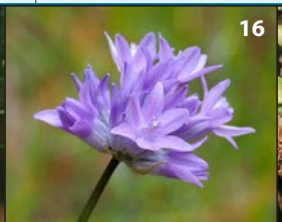
Providing milkweeds and other nectar-rich flowers that bloom where and when monarchs need them is one of the most significant actions you can take to support monarch butterfly populations. This guide features native California plants that have documented monarch visitation, bloom during the times of year when monarchs are present and are commercially available... This list is not exhaustive, but focuses on the plants that appear to be the most important for western monarchs. The list also includes moisture requirements, so that you can choose plants to create a drought-tolerant monarch garden, if needed. These species are well-suited for wildflower gardens, urban greenspaces, and farm field borders. Beyond supporting monarchs, many of these plants attract other nectar- and/or pollen-seeking butterflies, bees, moths, and hummingbirds. For a list of native plants that host butterflies and moths specific to your zip code see www.nwf.org/nativeplantfinder. The species in this guide will be adaptable to growing conditions across most of the state, but may be less suitable for planting in the High Sierras, Modoc Plateau, and Eastern Interior Desert regions. Please consult Calflora (www.calflora.org) for details on species' distributions in your specific area.

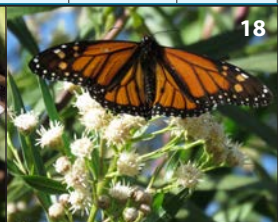
MONARCH JOINT VENTURE
XERCES SOCIETY for Invertebrate Conservation
GARDEN FOR WILDLIFE

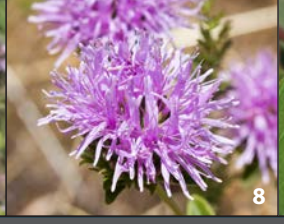


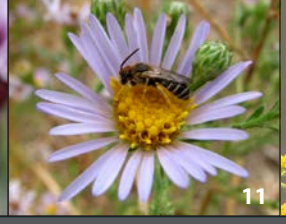

| Bloom | | Common Name | Scientific Name | Flower Color | Max. Height (Feet) | Water Needs Low, Med., or High |
|---|---|---|---|---|---|---|
| | | **Forbs** | | | | |
| Spring to Summer | 1 | Nettleleaf giant hyssop | *Agastache urticifolia* | Purple/red | 2 | L |
| | 2 | Yarrow | *Achillea millefolium* | White | 3 | L |
| Spring to Fall | 3 | Coastal sand verbena | *Abronia latifolia* | Yellow | 1 | L |
| | 4 | Gumplant | *Grindelia camporum* | Yellow | 4 | L–H |
| | 5 | Milkweed | *Asclepias* spp. | Pink/white/purple | 2–4 | L/M |
| | 6 | Oregon gumweed | *Grindelia stricta* | Yellow | 5 | H |
| | 7 | Western vervain | *Verbena lasiostachys* | Purple | 3 | L |
| Summer | 8 | Coyote mint | *Monardella villosa* | Pink/purple | 2 | L |
| | 9 | Indian hemp | *Apocynum cannabinum* | White/pink | 6 | M/H |
| | 10 | Mountain monardella | *Monardella odoratissima* | White/purple | 1 | L |
| | 11 | Pacific aster | *Symphyotrichum chilense* | Yellow/violet | 4 | L |
| Summer to Fall | 12 | Goldenrod | *Solidago* spp. | Yellow | 3 | L |
| | 13 | Smooth beggartick | *Bidens laevis* | Yellow | 3 | H |
| | 14 | Sunflowers | *Helianthus* spp. | Yellow | 5–8 | M |
| | 15 | Western goldentop | *Euthamia occidentalis* | Yellow | 6 | H |
| Winter to Spring | 16 | Bluedicks | *Dichelostemma capitatum* | Purple | 3 | L |
| Winter to Summer | 17 | Seaside fleabane | *Erigeron glaucus* | Purple | 2 | L |
| | | **Shrubs and Trees** | | | | |
| Year-round | 18 | Coyotebrush, mulesfat, desertbroom | *Baccharis* spp. | White/yellow/pink | 6–10 | L |
| Spring to Summer | 19 | Black sage | *Salvia mellifera* | Blue/purple | 6 | L |
| | 20 | Desert sage | *Salvia dorrii* | Purple | 4 | L |
| Summer to Fall | 21 | Common buttonbush | *Cephalanthus occidentalis* | White | 6 | H |
| | 22 | Rabbitbrush, goldenbush, mock heather | *Ericameria* spp. | Yellow | 4–8 | L |
| Winter to Spring | 23 | Manzanita | *Arctostaphylos* spp. | Pink/white | 1–30 | L/M |
| | 24 | Willow | *Salix* spp. | White | 20–50 | H |

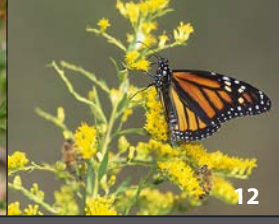













**Notes**

**PLEASE NOTE:** ***In general, milkweed should not be planted within 5 miles of the coast north of Santa Barbara, nor within 1 mile of the coast from Santa Barbara south. These areas are generally outside of milkweed's historical range and planting milkweed too close to overwintering sites may interfere with monarch migration and overwintering behavior.***

*This list was produced by the Xerces® Society.* www.xerces.org.

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All species perennials, unless otherwise noted. Monarchs can be found year-round in California.

Establishes better from transplant than seed. Tolerates clay soil and wet or dry conditions.

Tolerates clay soil and wet or dry conditions. Attractive to many insects.

Tolerates salt spray and prefers sandy soils. Can bloom year-round.

Tolerates clay soil and wet or dry conditions.

Monarch caterpillar host plant. *Likely entire genus is attractive to monarchs.*

Wetland / riparian.

Good butterfly plant. Tolerates seasonal flooding, sand and clay. Can be used for erosion control.

Requires good drainage.

Poisonous to humans, pets and livestock.

Does best at mid to high elevations. Attracts many species of butterflies.

Tolerates clay soils and wet or dry conditions. *Likely entire genus is attractive to monarchs.*

Important late-season forage for bees, butterflies, wasps, beetles, and more. *Likely entire genus is attractive to monarchs.*

Prefers wet areas and can be used in bioswales. Attracts beneficial insects and butterflies in the fall.

Excellent butterfly nectar plant. Attractive to many insects. *Likely entire genus is attractive to monarchs.*

Wetland-riparian. *Likely entire genus is attractive to monarchs.*

Attracts bees, butterflies, and hummingbirds. An early spring bloomer.

A great butterfly plant.

Easy to grow and attractive to many insects. *Likely entire genus is attractive to monarchs.*

Important butterfly and hummingbird plant. Quail eat the seeds.

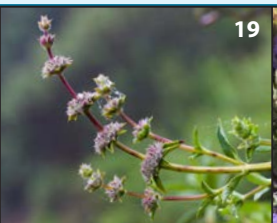
Very drought tolerant.

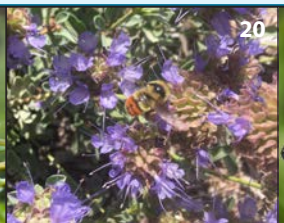
Fragrant, showy flowers that attract butterflies.

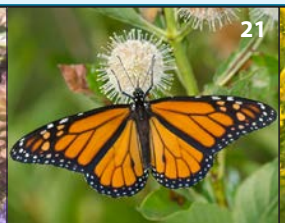
Great late season nectar source for bees and butterflies. Very drought tolerant. *Likely entire genus is attractive to monarchs.*

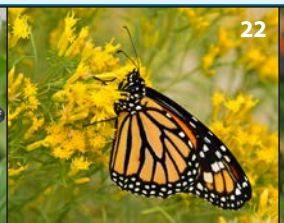
Some species/varieties are very drought tolerant. *Likely entire genus is attractive to monarchs.*

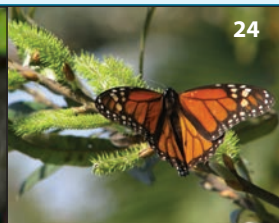
Tolerates sand and seasonal flooding. Important wildlife plant. *Likely entire genus is attractive to monarchs.*











## Planting for Success

Monarch nectar and host plants often do best in open, sunny sites. You can attract more monarchs by planting flowers in single species clumps and choosing a variety of plants that have overlapping and sequential bloom periods. Monarchs can be present year-round in California, so you may want to provide nectar plants for migrating and breeding monarchs from spring through fall, as well as milkweeds in the spring and summer.

### Why Plant Native?

Although monarchs use a variety of nectar plant species, including exotic invasives such as ice plant and cape ivy, we recommend planting native species. Native plants are often more beneficial to ecosystems, are adapted to local soils and climates, and help promote biological diversity. They can also be easier to maintain in the landscape, once established.

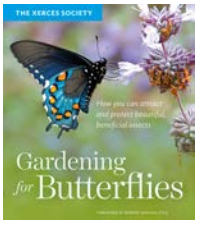
Tropical milkweed (*Asclepias curassavica*) is a non-native plant that is widely available in nurseries. This milkweed can persist year-round in mild climates, allowing monarchs to breed throughout the winter rather than going into diapause. Tropical milkweed may foster higher loads of a monarch parasite called OE (*Ophryocystis elektroscirrha*), which negatively impacts monarch health. **In general, milkweed should not be planted within 5 miles of the coast north of Santa Barbara, nor within 1 mile of the coast from Santa Barbara south. These areas are generally outside of milkweed's historical range and planting milkweed too close to overwintering sites may interfere with monarch migration and overwintering behavior.** Because of these implications, we recommend planting native milkweeds in areas where they historically occurred. You can read more about OE in this Monarch Joint Venture fact sheet: http://monarchjointventure.org/images/uploads/documents/Oe_fact_sheet.pdf.

## Protect Monarchs from Insecticides

Both insecticides and herbicides can be harmful to monarchs. Herbicides can reduce floral resources and host plants. Although dependent on timing, rate, and method of application, most insecticides have the potential to poison or kill monarchs and other pollinators. Systemic insecticides, including neonicotinoids, have received significant attention for their potential role in pollinator declines (imidacloprid, dinotefuran, clothianidin, and thiamethoxam are examples of systemic insecticides now found in various farm and garden products). Because plants absorb systemic insecticides as they grow, the chemicals become distributed throughout all plant tissues, including the leaves and nectar. New research has shown that some neonicotinoids are toxic to monarch caterpillars that are poisoned as they feed on leaf tissue of treated plants. You can help protect monarchs by avoiding the use of these and other insecticides. Before purchasing plants from nurseries and garden centers, be sure to ask whether they have been treated with systemic insecticides. To read more about threats to pollinators from pesticides, please visit: www.xerces.org/pesticides.

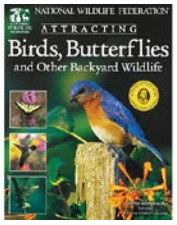
## Additional Resources

***Gardening for Butterflies* by The Xerces Society**




www.xerces.org/books

***Attracting Birds, Butterflies, and Other Backyard Wildlife***




http://bit.ly/1Xhxfgu

### From the Xerces Society

- ***Conservation Status and Ecology of the Monarch Butterfly in the U.S.:*** xerces.org/us-monarch-consv-report
- ***Guide to Milkweeds and Monarchs in the Western U.S.:*** xerces.org/western-us-monarch-guide
- ***Guide to California Native Milkweeds*:** xerces.org/ca-mw-guide
- **Milkweed Seed Finder:** xerces.org/milkweed-seed-finder

### Websites

- **The Xerces Society:** www.xerces.org/monarchs
- **Monarch Joint Venture:** www.monarchjointventure.org/resources
- **Natural Resources Conservation Service:** www.nrcs.usda.gov/monarchs
- **National Wildlife Federation:** www.nwf.org/butterflies

### Citizen Science Efforts in California

- **Xerces Society Western Monarch Thanksgiving Count:** www.westernmonarchcount.org
- **Xerces Society & USFWS Milkweed and Monarch Survey:** www.xerces.org/milkweedsurvey
- **Journey North:** www.learner.org/jnorth/monarch
- **Monarch Larva Monitoring Project:** www.mlmp.org
- **Project Monarch Health:** www.monarchparasites.org

## Data Sources

Nectaring data and observations, background information, and other contributions to this publication were taken from the published literature and generously provided by multiple researchers, gardeners, partners, and biologists. For the full list of data sources, please see the Monarch Nectar Guides page on our website (www.xerces.org/monarch-nectar-plants).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