

5-YEAR REVIEW

Palos Verdes Blue Butterfly

(Glaucopsyche lygdamus palosverdesensis)

GENERAL INFORMATION

Species: Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*), a butterfly subspecies

Date listed under the Endangered Species Act: July 2, 1980

Federal Register citation: USFWS 1980 (45 FR 44935)

Classification: Endangered

BACKGROUND

Under the Endangered Species Act of 1973, as amended (Act; 16 U.S.C. 1531 *et seq.*), the U.S. Fish and Wildlife Service (USFWS), referred to as “we” in this document, maintain lists of endangered and threatened wildlife and plant species (referred to as the List) in the Code of Federal Regulations (CFR) at 50 CFR 17.11 (for wildlife) and 17.12 (for plants). Section 4(c)(2)(A) of the Act requires us to review each listed species' status at least once every 5 years.

Most recent status review: USFWS. 2014. Palos Verdes Blue Butterfly (*Glaucopsyche lygdamus palosverdesensis*); 5-year Review: Summary and Evaluation. Carlsbad Fish and Wildlife, Department of the Interior. 31 pp.

We initiated a status review for the Palos Verdes Blue Butterfly in 2011. The review was finalized on January 9, 2014 and recommended no change in status.

Federal Register Notice citation announcing this status review: On January 27, 2020, we published a *Federal Register* notice announcing initiation of the 5-year review of this species, and the opening of a 60-day comment period to receive information (85 FR 4692; USFWS 2020, pp. 4692–4694). We received no information regarding the Palos Verdes blue butterfly.

ASSESSMENT

Information acquired since the last status review

This 5-year review was conducted by the USFWS Carlsbad Fish and Wildlife Office. Data for this review were solicited from the public and interested parties through a *Federal Register* notice announcing this review on January 27, 2020 (USFWS 2020a, pp. 4692–4693). We also contacted the California Department of Fish and Wildlife, Moorpark College, Palos Verdes Peninsula Land Conservancy (PVPLC), Urban Wildlands Group, and species experts to request any data or information we should consider in our review. Additionally, we conducted a literature search and a review of information in our files.

SUMMARY OF NEW INFORMATION SINCE 2014

Distribution

At the time of listing, the Palos Verdes blue butterfly was known to occur at three locations: San Ramon Reserve (previously referred to as Palos Verdes Drive East), Frank Hesse Memorial Park, and Agua Amarga Reserve (previously referred to as Agua Amarga Canyon) (Figure 1). These areas were designated as critical habitat for the species at the time of listing (USFWS 1980, pp. 44941–44942). All three locations were determined extirpated as of the 2014 5-year review (USFWS 2014, pp. 11–12).

In the 2014 5-year review, we reported the only remaining extant locations were the Defense Fuel Support Point San Pedro (DFSP) and Linden H. Chandler Preserve (Chandler Preserve), and that Malaga Dune was possibly extant (Figure 1). Annual reintroductions have been ongoing at the DFSP and Chandler Preserve (Figure 2). Annual reintroductions previously occurred at two other locations: Deane Dana Friendship Community Regional County Park (Friendship Park) and Trump National Golf Course (TNGC). The last release at Friendship Park was 2010 and the last release at TNGC was 2009. Reintroductions stopped at Friendship Park and TNGC because coastal sage scrub overgrowth rendered the habitat unsuitable (USFWS 2014, p. 12). In 2019, we also completed an amendment to the Palos Verdes blue butterfly recovery plan to provide quantitative recovery criteria for the subspecies (USFWS 2019, entire).

Since the last status review in 2014, we received survey reports from the PVPLC and Osborne Biological Consulting. These reports confirmed presence of Palos Verdes blue butterflies at reintroduction sites. Additionally, correspondence with California Department of Fish and Wildlife resulted in the removal of Element Occurrence numbers 7, 15, and 17 in the California Natural Diversity Database, because there were erroneous detections of the subspecies in the area; Element Occurrence number 19 was also shifted east to the correct site of Malaga Dune (Chang 2021, pers. comm.).

As detailed in Table 1, Palos Verdes blue butterfly have been reported at 17 historical locations. Of these, butterflies have only recently been observed at three locations (Chandler Preserve, DFSP, and Rolling Hills Preparatory School). Occupancy is unknown at three additional occurrences (Malaga Dune and two recent release sites at Alta Vicente and Filiorum Reserves). The remaining 11 locations are extirpated or presumed extirpated.

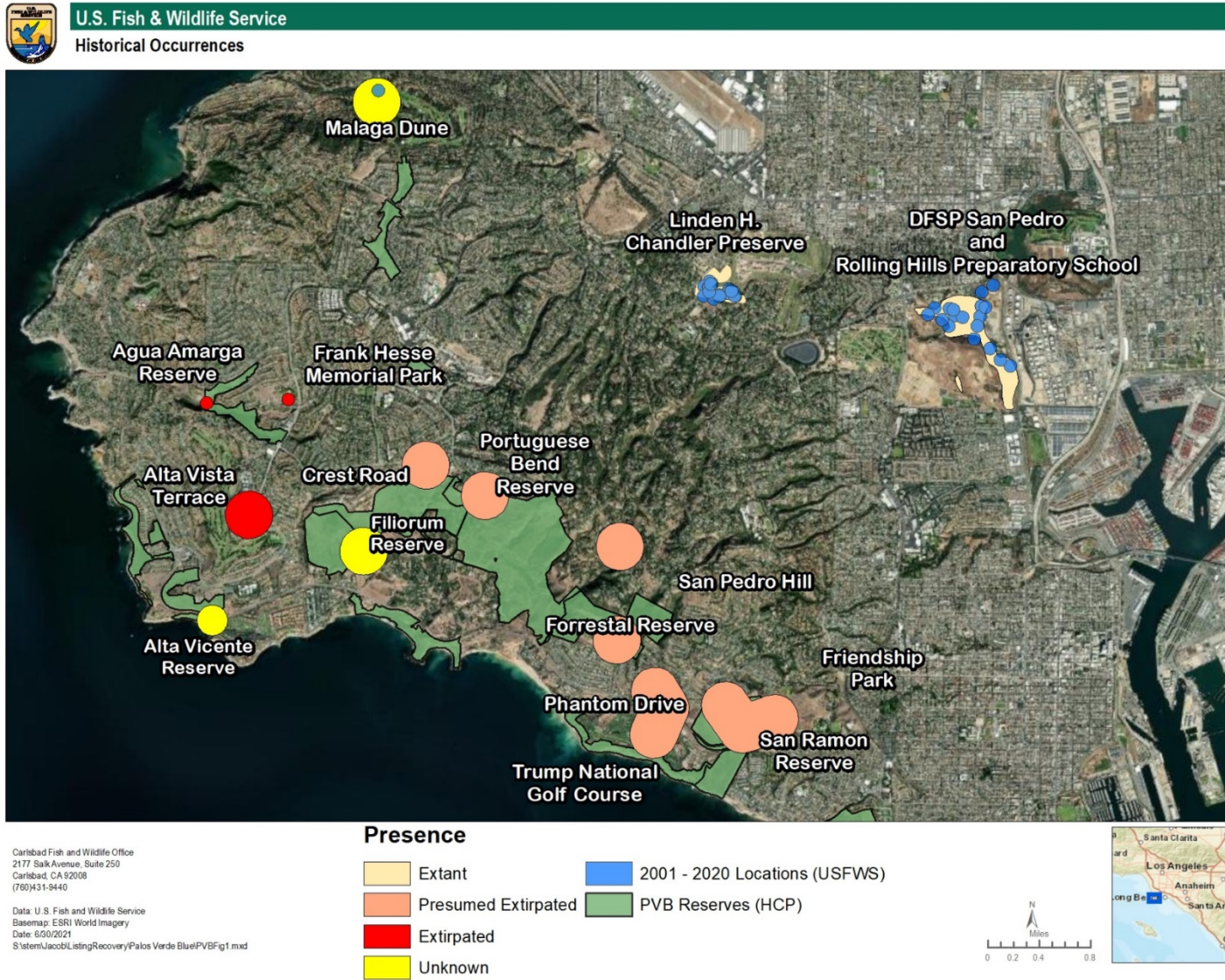
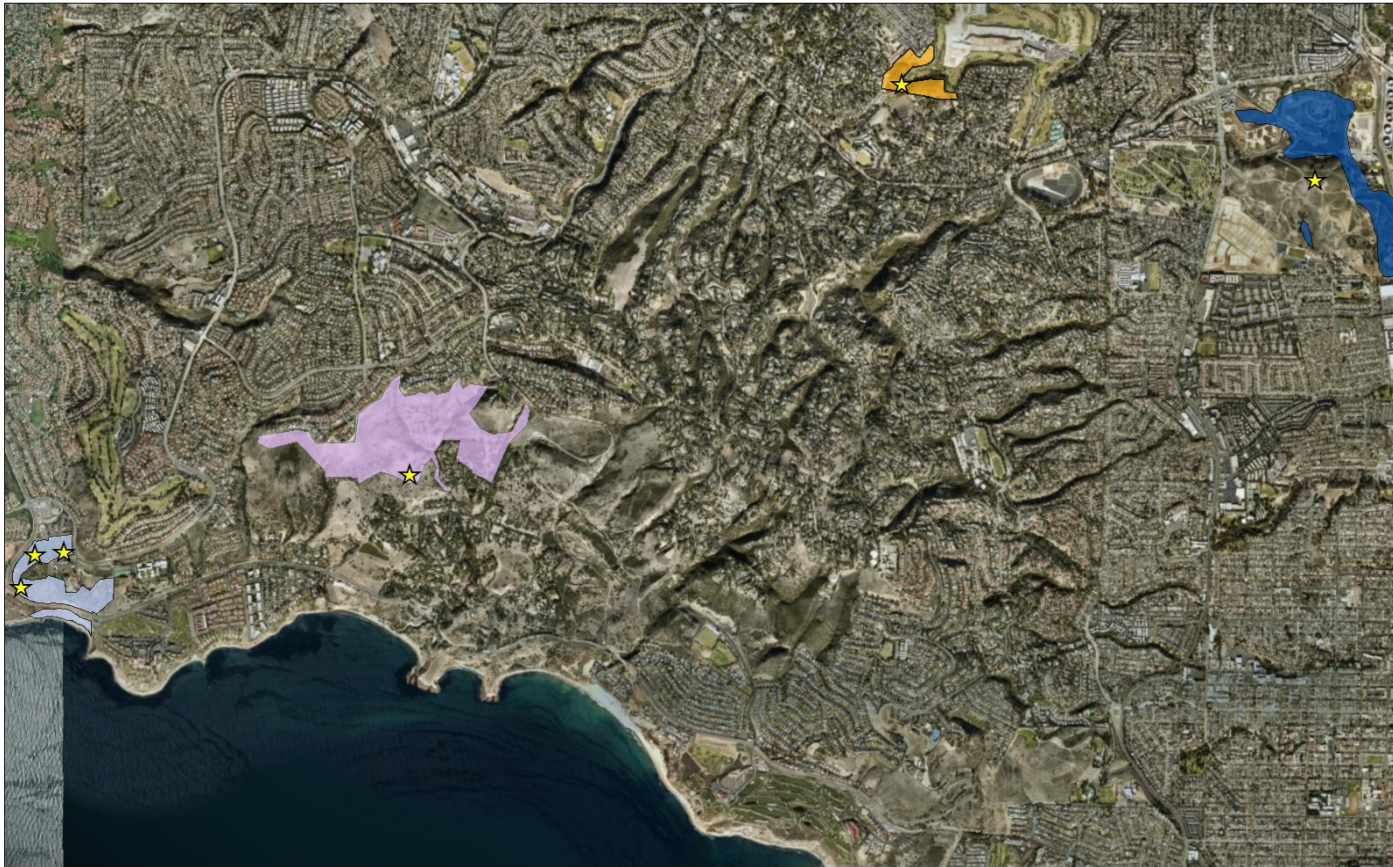


Figure 1. Historical occurrences, status of Palos Verdes Blue butterfly habitat areas, and reserves on the Palos Verdes Peninsula.



U.S. Fish & Wildlife Service
Reintroduction Sites



Carlsbad Fish and Wildlife Office
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Data: U.S. Fish and Wildlife Service
Base map: ESRI World Imagery
Date: 4/9/2021
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Reserve Name

- Alta Vicente (2020)
- Upper Filiorum Parcel (2020)
- Linden H. Chandler Preserve (2009 - 2020)
- DFSP San Pedro (2000 - 2020)
- PVB Release Sites

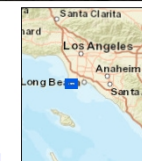
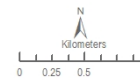


Figure 2. Historical releases of Palos Verdes blue butterfly.

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Table 1. Palos Verdes blue butterfly occurrence information.

Occurrence	Ownership	Status at Listing	Status in 2014	Status in 2021	Maximum # adults last observed/day (year)
Agua Amarga Reserve	Private Property	Extant ¹	Extirpated	Extirpated	1 (1979)
Alta Vicente Reserve	City of Rancho Palos Verdes	Unknown	Extirpated	Unknown (Recent release)	8 (2020), first release 2020
Alta Vista Terrace	Private Property	Unknown	Extirpated	Extirpated	Unknown (1984)
Frank Hesse Memorial Park	City of Rancho Palos Verdes	Extant ¹	Extirpated	Extirpated	Unknown (1983)
Malaga Dune	City of Palos Verdes Estates	Unknown	Unknown	Unknown	3 (2001)
Crest Road	Private Property	Unknown	Extirpated	Extirpated	Unknown
Filiorum Reserve	City of Rancho Palos Verdes	Unknown	Extirpated	Unknown (Recent release)	7 (2020), first release 2020
Portuguese Bend Reserve (formerly Portuguese Canyon)	Private Property	Unknown	Extirpated	Extirpated	Unknown
Forrestal Reserve (formerly Forrestal Drive)	City of Rancho Palos Verdes	Unknown	Extirpated	Extirpated	2 (1982)
Phantom Drive	Private Property	Unknown	Extirpated	Extirpated	Unknown
Trump National Golf Course	Private Property	Unknown	Presumed Extirpated	Presumed Extirpated	Unknown, last release 2009
Linden H. Chandler Preserve	County of Los Angeles	Unknown	Extant	Extant	6 (2020), last release 2020
San Pedro Hill	Private Property	Unknown	Extirpated	Extirpated	Unknown
San Ramon Reserve (formerly Switchbacks)	City of Rancho Palos Verdes	Extant ¹	Extirpated	Extirpated	Unknown (1984)

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Occurrence	Ownership	Status at Listing	Status in 2014	Status in 2021	Maximum # adults last observed/day (year)
Friendship Park	County of Los Angeles	Unknown	Presumed Extirpated	Presumed Extirpated	Unknown, last release 2010
DFSP San Pedro	Department of Defense	Unknown	Extant	Extant	7 (2021) (Longcore 2021, pers. comm.)
Rolling Hills Preparatory School (formerly Navy Housing Site)	Department of Defense	Unknown	Extant	Extant	6-7 (2021) (George 2021, pers. comm.)

¹ Designated as critical habitat.

Table 2. Palos Verdes blue butterfly habitat status and threats.

Occurrence	Ownership	Habitat Status	Threats and Other Comments
Agua Amarga Reserve	City of Rancho Palos Verdes	Potential for restoration	Surrounded by development
Alta Vicente Reserve	City of Rancho Palos Verdes	Potential for continued host plant planting	Long term (5+ years) threat of nonnative plant invasion
Alta Vista Terrace	Private Property	Developed	
Frank Hesse Memorial Park	City of Rancho Palos Verdes	Part of park has potential for restoration	CSS encroachment, nonnative plant invasion
Malaga Dune	City of Palos Verdes Estates	City Park, lower potential for restoration	CSS encroachment, nonnative plant invasion
Crest Road	Private Property	Potential for restoration	CSS encroachment, nonnative plant invasion
Filiorum Reserve	City of Rancho Palos Verdes	Potential for restoration and enhancement	Nonnative (mustard) growth in surrounding area

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Occurrence	Ownership	Habitat Status	Threats and Other Comments
Portuguese Bend Reserve	City of Rancho Palos Verdes	Potential for restoration and enhancement	Nonnative (mustard) growth in surrounding area
Forrestal Reserve	City of Rancho Palos Verdes	Part of preserve, potential for restoration	CSS encroachment, nonnative plant invasion
Phantom Drive	Private Property	Developed	
Trump National Golf Course	Private Property	Habitat overgrown (coastal sage scrub)	CSS encroachment, nonnative plant invasion
Linden H. Chandler Preserve	Palos Verdes Peninsula Land Conservancy	Occupied with potential for additional restoration	PVPLC expanded early successional habitat with hostplants. In 2020, milk vetch doubled and deerweed was at its highest since 2010 (Dalkey 2020)
San Pedro Hill	Private Property	Developed	
San Ramon Reserve	City of Rancho Palos Verdes	Potential for restoration	CSS encroachment, nonnative plant invasion
Friendship Park	County of Los Angeles	County Park, potential for restoration	CSS encroachment, nonnative plant invasion
DFSP San Pedro	Department of Defense	Potential for continued restoration	Decline in deerweed, CSS overgrowth (USFWS 2020b)
Rolling Hills Preparatory School	Rolling Hills Preparatory Academy	Occupied with management	Decline in deerweed, CSS overgrowth (USFWS 2020b)

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Threats

At the time of listing, habitat loss through urban development and habitat degradation through weed control practices were considered primary threats to the Palos Verdes blue butterfly. In 2014, we determined that impacts from development had been reduced and threats discussed in the 5-year review included habitat conversion through nonnative plant invasion and ecological succession, small population size, and climate change. These are still the primary threats today. As detailed in Table 2, many habitat areas have similar threats: coastal sage scrub (CSS) encroachment and nonnative plant invasion (Mohan *et al.* 2021, pers. comm.). To balance the goal of biological conservation and the threat of development, PVPLC has preserved over 648 hectares (ha) [1,600 acres (ac)] of habitat within the species' range since the time of listing (USFWS 2020b). The City of Rancho Palos Verdes Natural Communities Conservation Plan and Habitat Conservation Plan, permitted in 2020, covers approximately 608 ha (1,504 ac) of preserves (Rancho Palos Verdes 2019, p. 3-1). The best measures to reduce the primary threats remain vegetative management and captive propagation, which are both ongoing.

Conservation

In 2020, The Butterfly Project at Moorpark College, the captive rearing program operated by Dr. Jana Johnson, conducted reintroductions of Palos Verdes blue butterflies at two new sites: Alta Vicente Reserve and Filiorum Reserve (Johnson *et al.* 2020) (Figure 2). Captive-reared butterflies were released on April 18, 2020 and visited on April 20, 2020 (Dalkey 2020). The success of these reintroductions is not yet known. However, there is funding and an expectation for releases to occur in 2021 and 2022; release sites have not yet been confirmed.

Despite the recent releases, SARS-CoV-2 (COVID-19) has presented challenges to the captive rearing program at Moorpark College. COVID-19 has impacted multiple aspects of the program including: availability of labor, hands on management, and ability to conduct releases. As a result the continuity of the program has been disrupted, which has influenced how the butterflies are managed. More butterflies were released in 2020 compared to previous years, but they were released earlier due to COVID-19 (Johnson 2021, pers. comm.).

CONCLUSION

After reviewing the best available scientific information, we conclude that the Palos Verdes blue butterfly remains an endangered species. The evaluation of threats affecting the species under the factors in 4(a)(1) of the Act and analysis of the status of the species in our 2014 5-year review remains an accurate reflection of the species current status.

RECOMMENDATIONS FOR FUTURE ACTIONS

Since listing, efforts with partners have been made to conserve habitat across the Palos Verdes Peninsula, as nonnative plant invasion and ecological succession are primary threats to the

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species. Conserving and restoring habitat areas, as well as continuing the captive rearing program, has helped and will continue to aid in the conservation the species:

1. Continue to restore habitat areas that are host to present and future reintroductions (i.e., DFSP, Chandler, Alta Vicente, Filiorum, Lunada Canyon) through land scrapes, mowing, raking, hand removal of invasive plants, fill-in planting, seeding hostplant and nectar plants, and goat grazing where applicable.
2. Conduct annual surveys assessing hostplant abundance and distribution across DFSP and PVPLC preserves; assess suitability of additional release sites (i.e., White Point, Abalone Cove).
3. Continue the captive rearing program and release of butterflies at varying life stages at restored sites. Conduct annual butterfly monitoring to track success of reintroductions.
4. Encourage movement between habitat areas with connectivity. Possible connections include San Ramon Reserve, Friendship Park, and TNGC. Another potential connection is between Filiorum, Portuguese Canyon, and Three Sisters. Conduct restoration activities to improve habitat connectivity, such as planting foodplant on slopes to assist butterfly dispersal from one area to another.

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Longcore, T. 2021. Science Director, The Urban Wildlands Group. Video call correspondence to Weiss, Jacob, USFWS, Carlsbad Fish and Wildlife Office, Carlsbad, California. Dated March 23, 2021. Subject: Palos Verdes blue butterfly conservation update.

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FIELD OFFICE APPROVAL

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Approve

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