Interim Core Map Documentation for the Callippe Silverspot Butterfly

Version 1
Review Completed: February 2026
Core Map Developer: Center for Biological Diversity

Species Summary

The callippe silverspot butterfly was protected under the Endangered Species Act (ESA) in 1997 and is currently listed as endangered. This species' host plant is the California golden violet (*Viola pedunculata*), which is found exclusively within grassy hills surrounding California's San Francisco Bay. The only consistently observed population of the callippe silverspot is located on San Bruno Mountain in San Mateo County. However, other populations have been observed at Sears Point, Ferrari Ranch, the Cordelia Hills at Kings/Swett Ranches, Ridge Top Ranch, and near Lake Herman Boulevard. At the time of listing, there was also a population at a city park in Alameda county, but it is now believed to be extirpated. Pesticides are not commonly used in the areas which are known to support the callippe silverspot butterflies. However, pesticide spray drift could threaten the butterfly's populations on San Bruno Mountain and in other locations. Herbicide use has been shown to reduce pupae produced by similar butterfly species.

Review Notes

The developers created this core map using the U.S. Environmental Protection Agency's (EPA) process available at: https://www.epa.gov/endangered-species/process-epa-uses-develop-core-maps-pesticide-use-limitation-areas. EPA reviewed the core map and documentation and evaluated if: (1) the map and documentation are consistent with the agency's process; (2) areas included or excluded from the core map are consistent with the biology, habitat, and/or recovery needs of the species; (3) data sources are documented and appropriate; and (4) the GIS data and mapping process are consistent with the stated intention of the developer. EPA agrees that this map is a reasonable depiction of core areas for this species and was consistent with the agency's mapping process. This documentation was not prepared by EPA, and EPA may have edited this documentation for clarity or other purposes. Some views included in this documentation may not necessarily be the views of EPA or its staff.

The core map developed for this species is considered interim and has not yet been reviewed by the U.S. Fish and Wildlife Service (FWS) species expert(s). This core map incorporates information developed by FWS and made available to the public. EPA intends to use this core map to develop pesticide use limitation areas (PULAs). This core map may be revised in the future after FWS species experts review the map or as additional relevant information becomes available.

Description of Core Map

The core map for the callippe silverspot consists of 39,915 acres of known occupied area with San Mateo, Solano, and Sonoma Counties in California. The core map is biological information type based on known locations determined after review of FWS documents. In San Mateo County, the callippe silverspot's core map consists of the San Bruno Mountain area that is managed by San Mateo County Parks. In Solano County, the callippe silverspot is known from multiple areas of public and private lands

(see Appendix 1 for descriptions of known areas) and after review of the known locations, the Center deemed that the ECOS polygon for the Solano County populations was sufficient with no refinement required. In Sonoma County, the core map consists of Sear Point which is managed by the Solano Land Trust.

The developer assigned a "limited" (2) best professional judgment classification because it consists of the species' range refined down to known locations. This core map does not replace or revise any range or designated critical habitat developed by FWS for this species.

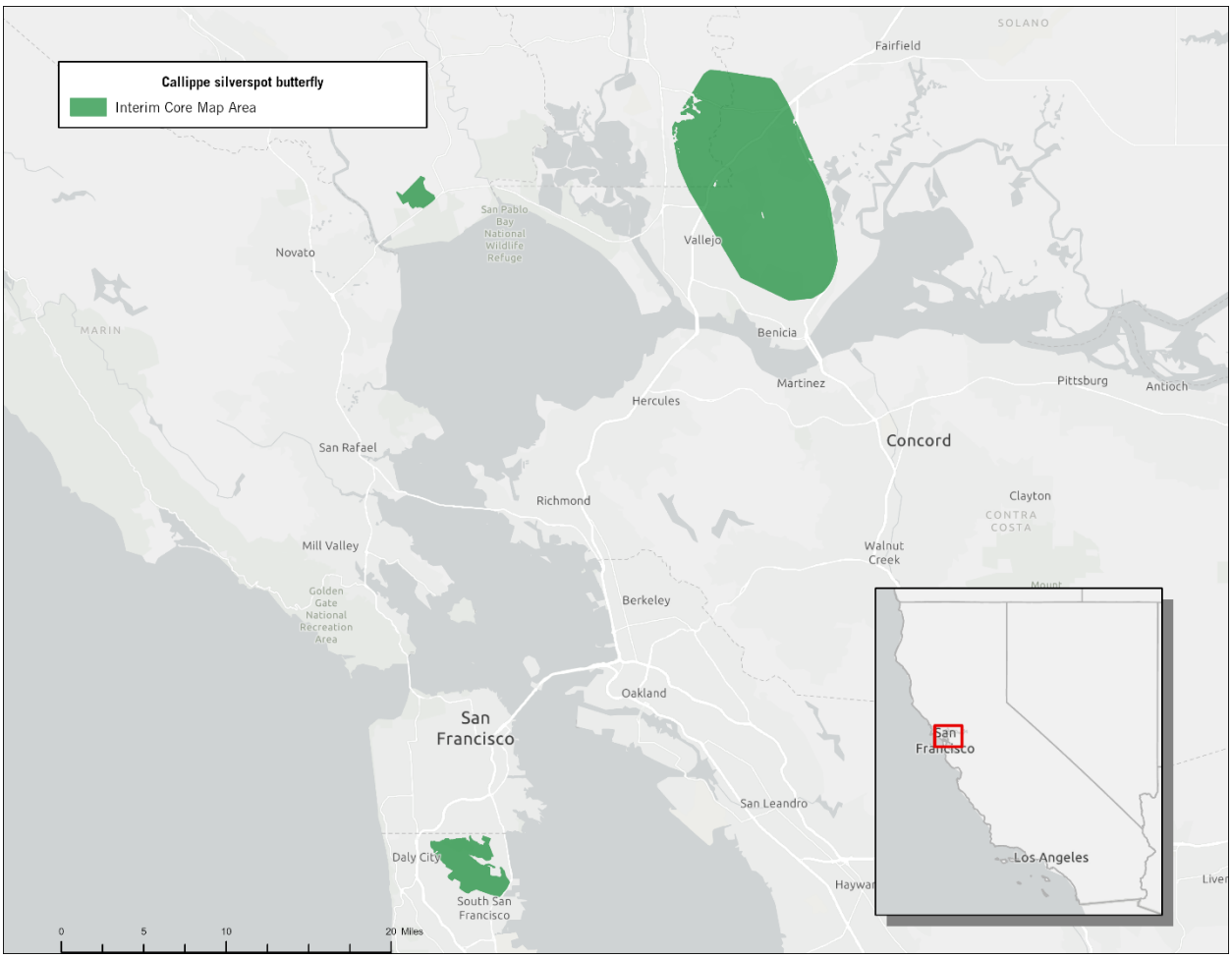

Figure 1. Interim core map for the callippe silverspot butterfly (approximately 39,915 acres).

Table 1. Percentage of Interim Core Map Represented by NLCD Land Covers and Associated Example Pesticide Use Sites/Types.

Example pesticide use sites/types	NLCD Land Cover (Value)	% of core map represented by landcover
Forestry	Deciduous Forest (41)	0%
Forestry	Evergreen Forest (42)	1.6%
Forestry	Mixed Forest (43)	.8%
Agriculture	Pasture/Hay (81)	0%
Agriculture	Cultivated Crops (82)	.1%
Mosquito adulticide, residential	Open space, developed (21)	4.3%
Mosquito adulticide, residential	Developed, Low intensity (22)	5.8%
Mosquito adulticide, residential	Developed, Medium intensity (23)	6.8%
Mosquito adulticide, residential	Developed, High intensity (24)	.7%
Invasive species control	Woody Wetlands (90)	.3%
Invasive species control	Emergent Herbaceous Wetlands (95)	.4%
Invasive species control	Open water (11)	.3%
Invasive species control	Grassland/herbaceous (71)	55.8%
Invasive species control	Scrub/shrub (52)	22.8%
Invasive species control	Barren land (rock/sand/clay; 31)	.3%
Total Acres	Interim Core Map Acres	~39,915

Evaluation of Known Location Information

The Center evaluated descriptions of locations provided in FWS documentation, from the California Natural Diversity Database (CNDDB), and the San Bruno Mountain Habitat Conservation Plan. The location information presented in FWS documents was the primary source of location information. The 2025 5-Year Review and 2020 Species Status Assessment provided the best descriptions of known locations. FWS documents reference multiples sources of location information such as contracted survey results, personal communication, CNDDB data, and citizen science surveys (such as iNaturalist). The Center considered FWS' review of location information to be comprehensive and up to date, so the Center did not evaluate additional location information.

CNDDB data is considered reliable and is referenced in FWS documents, but CNDDB data was used in a supplementary manner to confirm location selection. No core map points were based on CNDDB data as no usage agreement exists to use precise location information.

The San Bruno Mountain Habitat Conservation Plan (Figure 7 in the Plan) (San Mateo County Parks Department 2008 p. 52) provided a useful map of the known occupied and surveyed areas of San Bruno Mountain.

Approach Used to Create Core Map

The Center developed the core map for the callippe silverspot butterfly with a combination of known location information and the ECOS range map. The Center considered the ECOS range map to be relatively refined and designates occupied areas at the sub-county level that include a relatively small amount of non-habitat and unoccupied habitat. Generally, the Center attempts to refine the map as much as practicable based on known occupied areas or habitat features, but will use the ECOS range map when only a minimal reduction in areas can be achieved.

The ECOS range map consists of three areas with one area each in San Mateo, Solano, and Sonoma Counties. The approach to each of the three areas is outlined below.

San Mateo County
San Bruno Mountain and the adjacent Guadalupe Hills are the most consistently occupied habitat area for the callippe silverspot. San Bruno Mountain is a county park managed the San Mateo County Parks. The ECOS range map identifies the area of San Bruno Mountain relatively precisely. The Center's review of the San Bruno Mountain Habitat Conservation Plan (Figure 7 of the plan) (San Mateo County Parks Department 2008 p. 52) identified a very precise map of the known occupied and surveyed areas of San Bruno Mountain. Therefore, the georeferenced HCP Figure 7 map was used as the basis for the core map in this area because it easily refined the ECOS range map, the occupied area is precisely known, and the urban areas on the periphery of the park are not suitable habitat for callippe silverspots.

Solano County
FWS documents and CNDDB data indicate that callippe silverspots are considered extant in at least four general areas of Solano County which include: the King Ranch (managed by Solano Land Trust), Ridge Top Ranch (a wildlife conservation bank), the hills above Lake Herman Road (private lands), and the Ferrari Ranch (managed by Solano Land Trust) (FWS 2020 pp. 41-42). These four areas are in addition to other recently observed areas such as Eastern Swett Ranch, Vallejo Swett Ranch, Blue Rock Springs Corridor Park, Hiddenbrooke Open Space, and 0.9 miles northeast of the I-80 interchange at Columbus Blvd. (FWS 2025 pp. 2-3). Most of these areas could be identified as areas of public land described in PADUS. However, some are based on vague descriptions and could not be easily associated with areas of public or private land. All the Solano County areas are near each other and are well within the dispersal distance of callippe silverspots. To reduce the uncertainty introduced by arbitrarily identifying suspected occupied areas, the Center determined that the ECOS polygon for Solano County encompassed all the described areas with an acceptable amount of non-habitat and potential habitat. Therefore, the Center used the simpler ECOS polygon in this area.

Sonoma County
The Sonoma County portion of the ECOS range map consists largely of potential habitat in the undeveloped hills above San Pablo Bay NWR. Review of the 2025 5-Year Review indicated that callippe silverspot butterflies are only currently found at Sears Point. Sears Point is managed by Solano Land Trust, SLT retains 900-acre portion upland of San Pablo Bay NWR. Sears Point is a clearly defined area of public land in the Public Areas Database (PADUS); therefore the PADUS boundaries for Sears Point was used as the basis of the core map. Using only the Sears Point area significantly reduced the size of the ECOS range map in Sonoma County.

Discussion of Approaches and Data that were Considered but not Included in Core Map

Range Map Approach for Core Map
The ECOS range map for this species is targeted and narrow with relatively small areas of non-habitat and unoccupied habitat. However, using available location information, the range map could be tailored further to exclude some areas of non-habitat and unoccupied habitat. As discussed in the above section, the occupied areas in San Mateo and Sonoma Counties were refined with location information. The range area in Solano County could not be meaningfully reduced because of the location uncertainty of some observations and the proximity of the known locations to each other.

Critical Habitat Approach for Core Map
A core map based on critical habitat was rejected because the FWS has not designated critical habitat for the callippe silverspot butterfly.

Habitat Modeling Approach for Core Map
A core map based on modeled habitat was rejected because sufficient location information was available to describe the known locations. Furthermore, there is no known habitat model available for the callippe silverspot.

Other sources of information reviewed but not included
Location information from the CNDDB was evaluated, but these locations were not included in the core map. The CNDDB data includes only a subset of currently occupied areas. FWS documents contained a full review of known sites and referenced CNDDB data. The Center has also made a conscious effort to not rely on CNDDB data to create core maps when other data is available due to the terms of use of CNDDB data.

Appendix 1. Information Compiled During Step 1 for the Callippe Silverspot Butterfly

1. **Recent FWS documents/links**

- FWS. 1980. Endangered and Threatened Wildlife and Plants; Reproposal of Critical Habitat for One Species of Butterfly. Federal Register 45 FR 20503. Available at https://www.govinfo.gov/content/pkg/FR-1980-03-28/pdf/FR-1980-03-28.pdf#page=63
- FWS. 2020. Species Status Assessment for Callippee Silverspot Butterfly (Speyeria callippe callippe) Version 1.0. Available at https://iris.fws.gov/APPS/ServCat/DownloadFile/272441
- FWS. 2020. 5-Year Review Callippe Silverspot Butterfly (Speyeria callippe callippe). Available at https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/2998.pdf.
- Environmental Conservation Online System (ECOS). 2025. Available at https://ecos.fws.gov/ecp/species/2964
- FWS. 2025. 5-Year Review Callippee Silverspot Butterfly (Speyeria callippe callippe). Available at https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/29085.pdf.
- FWS. 2025. Recovery Plan for Callippe Silverspot Butterfly (Speyeria callippe callippe). Available at https://ecos.fws.gov/docs/recovery_plan/Callippe%20Silverspot%20Recovery%20Plan.pdf

Other References

- San Mateo County Parks Department. 2008. San Bruno Mountain Habitat Conservation Plan 2007. Available at https://www.smcgov.org/media/72416/download?attachment.

2. **Background information**

Status: Federally listed as Endangered 12/1997

Resiliency, redundancy, and representation (the 3Rs):
Overall 3R status
"As of the 2024 SSA report, the subspecies has one population in moderate condition (San Bruno Mountain, San Mateo County) and three populations in low condition (Sears Point, Sonoma County; Ferrari Ranch, Solano County; and, Cordelia Hills, Solano County). As the population with highest resiliency currently, the San Bruno Mountain population contributes the most to viability of the callippe silverspot butterfly. For redundancy, there are currently four populations spread over three counties. Because of the distribution, it is unlikely that a single catastrophic event could negatively impact all populations. The populations are all genetically unique, and thus all provide genetic variation that may confer adaptive capacity to the subspecies. This genetic variation contributes to representation for the subspecies. Maintaining multiple resilient populations within each of the three counties where the subspecies is currently found is important for its viability." (FWS 2025 p. 4)

Resilience
"Resiliency describes the ability of the species to withstand stochastic disturbance events, an ability that is associated with habitat quality and demographic characteristics (Figure 7). Resilient populations rely on the same habitat resources as individuals. Because the flight period is variable between years (and potentially sites), habitat must have nectar sources with staggered blooming

phenology so that adults in a population can find nectar throughout the flight period (Arnold 2007, p. 4). Because Callippe silverspot butterflies are strong fliers, grasslands size is important in maintaining resilient populations. Topography within these grasslands is important, as described above in Habitat, although specific microtopographic characteristics are unclear.

Demographic indicators that might suggest population resiliency are related to abundance, fecundity (the ability to produce offspring), movement, and connectivity. Because the entire population of butterflies is replenished each year, abundance is important because the number of adults determines the potential for eggs, larvae, and pupae in the subsequent generation. The number of eggs produced by individual females varies, and could be related to nectar sources. In an experimental study, food availability to females of the congeneric (same genus as the Callippe silverspot) Mormon silverspot butterfly (Speyeria mormonia) correlated with fecundity (Boggs and Ross 1993, p. 436). We include larval movement as a need because thatch build-up threatens the ability of larvae to move between host plants for feeding (see Habitat Loss and Degradation below). Connectivity between habitat features is important for population resiliency, and when possible it is important to maintain connectivity between populations for gene flow." (FWS 2020 pp. 21-23).

Representation

"Representation describes the ability of a species to adapt to changing environmental conditions, which is related to the breadth of genetic and ecological diversity within and among populations. For the Callippe silverspot butterfly, we assessed species representation based on genetic diversity based on a recent genetic study. This study found that Callippe silverspot butterfly populations are genetically represented in the Bay Area across three counties: San Bruno Mountain in San Mateo County, Sears Point in Sonoma County, and a complex of populations in Solano County. The study supports the idea that the San Bruno Mountain, Sears Point, and Solano County complex of populations, are genetically distinct, thus maintaining resilient populations across all three areas is recommended rather than trying to homogenize the species across the remaining localities (Hill 2018, pp. 31-32). Because of urbanization, it is unlikely that historical gene flow and population structure will ever be restored across the range of the species. Mixing with other Speyeria callippe subspecies, in addition to fragmentation, may have contributed to genetic differences between the callippe silverspot butterfly populations." (FWS 2020 p. 23).

Redundancy

"Redundancy describes the ability of a species to withstand catastrophic events, an ability that is related to the number, distribution, and resilience of populations. Extirpation of historical Callippe silverspot butterfly populations has reduced redundancy for the species. An example of a potentially catastrophic event that might affect the Callippe silverspot butterfly is a high intensity wildfire. Populations with large sizes and across diverse topography are necessary at both San Bruno Mountain and Sears Point to safeguard against catastrophic events. In the complex of Solano County populations, resilient populations should be maintained at multiple locations to ensure redundancy. Connectivity between these Solano County populations can help repopulate any areas affected by wildfires." (FWS 2020 p. 23).

Habitat:

"The habitat for the Callippe silverspot butterfly was described in the listing as native grasslands and associated habitats in the San Francisco Bay area (62 FR 64306-64320). Essential features of Callippe silverspot habitat include: grasslands and associated habitats with proper topography; hilltops for mating congregations; larval host plants; and nectar sources (Service 2009a, pp. 7- 8). Fog is also included in the Service (2009, p. 8) description of essential habitat features; we have included a

discussion of fog in Grasslands below, but do not consider it to be an ecological need for the species." (FWS 2020 p. 14).

"The larvae feed exclusively on California golden violets (Viola pedunculata). Adults rely on nectar sources available throughout their flight period (primarily mid-May – mid-July with a few occasionally observed as early as April or as late as early August), and both males and females congregate on hilltops for mating opportunities." (FWS 2020 p. 6).

Relevant Pesticide Use Sites
Potential pesticide exposure sites could include:

- Treatments of invasive plants and animals in conserved areas
- Drift from nearby orchard and other cropland pesticide use
- Livestock treatments for parasites (internal and external) on livestock that graze in occupied areas
- Drift or runoff from ornamental use and residential use in nearby urban areas

The 2020 SSA states that pesticide exposure could harm callippe silverspot butterflies in multiple ways and that "Pesticides, including both insecticides and herbicides, pose a potential threat to the Callippe silverspot butterfly. At the time of listing, the use of insecticides was considered a threat to the butterfly if used in proximity to occupied habitat."

Relevant Recovery Criteria and Actions
Recovery Criteria from the 2025 Recovery Plan
Delisting Criteria
The following criteria indicate that the callippe silverspot butterfly may be considered for delisting:
1. There are at least four to five populations of the callippe silverspot butterfly, with at least one population in each of the three counties where the subspecies is currently found (San Mateo, Solano and Sonoma Counties). Whether four or five populations are needed depends on the condition of the populations (see next criterion).
2. Biennial or annual monitoring has shown that at least one of the five or two of the four populations under criterion 1 are in high condition, and the remaining populations are in at least moderate condition as defined by the most recent SSA. The moderate conditions must be met in each year of monitoring during a 20-year period that includes at least two normal precipitation cycles, and the high conditions must be met in at least 4/5 of those years, including each of the last four years of the period (or the last two monitoring years for biennial monitoring).
3. Each population under criterion 1 occurs in habitat that is protected by a legally binding or otherwise demonstrated commitment. The area of protected habitat is greater than or equal to the area of grassland habitat listed in the high condition category of the SSA (486 ha as of the 2024 SSA report) and includes important hill-topping habitat for mating.
4. Protected habitat under criterion 3 is managed to reduce threats to the callippe silverspot butterfly, and to maintain open grassland habitat with sufficient host and nectar resources. This can include the implementation of habitat management or grazing management plans. Long-term management is assured and financially sustainable." (FWS 2025 pp. 6-7).

Recovery Actions
Actions described in the 2025 Recovery Plan
The following actions are necessary to meet the recovery criteria:

1. Manage habitat that supports the butterfly in the long-term to maintain grassland communities with a sufficient density of host plants, appropriate levels of thatch, and diverse native nectar sources available in sufficient quantities throughout the butterfly's flight period (Priority 1). Management plays a direct role in reducing three of the biggest threats to the callippe silverspot butterfly: grassland conversion to scrub, thatch, and the establishment of non-native plant species that outcompete the butterfly's host plant. Management is also important for improving conditions and increasing abundances of the butterfly's host plant and nectar resources. Management is thus needed to increase population resiliency in all populations and to maintain representation and redundancy of the subspecies throughout its range. Management of habitat will incorporate research findings from recovery action two.
2. Conduct research to better understand the species' resource needs and to guide conservation efforts (Priority 2). There are currently gaps in our knowledge about how to recover the callippe silverspot butterfly and what a recovered state looks like for the subspecies. Research is important for filling in these gaps. Research should focus on obtaining more precise estimates of the host and nectar resources needed to support resilient populations. It should also focus on improving management of the butterfly's habitat. A major research question is whether disturbance regimes, such as grazing or prescribed fire, can be implemented and used to increase the butterfly's nectar and host resources, and to reduce the amount of thatch and non-native plant species. Other research questions are how to augment and reintroduce populations of the butterfly and how to successfully restore the butterfly's host plant through outplanting, seeding, or transplanting. Research should be conducted concurrently with monitoring and management so that management plans are updated as more becomes known about how to manage habitat for the subspecies.
3. Create and implement a protocol for range-wide surveys and monitoring (Priority 2). Range-wide monitoring of the callippe silverspot butterfly is important for evaluating the effectiveness of its management, tracking progress towards recovery, and detecting and preventing population declines. Monitoring is also an integral component of adaptive management, and monitoring results should be used to inform and update management plans.
4. Protect currently unprotected habitat where callippe silverspot butterflies occur, and potential habitat where they can be reintroduced if needed (Priority 3). Protecting habitat is important for addressing the threat of habitat loss and for maintaining resiliency in populations of the callippe silverspot butterfly that occupy private land. Acquiring or otherwise protecting land for a fifth population will likely be necessary to reach a total of five total populations under recovery criteria one and two.
5. Augment or establish populations of the callippe silverspot butterfly, as needed (Priority 3). Population augmentation is an important tool for increasing adult abundance and population resiliency of low condition populations, which make up three out of four of the butterfly's populations as of the 2024 SSA report. In addition, the establishment of an additional population will be needed to reach a total of five populations under recovery criteria one and two." (FWS 2025 pp. 8-9).

Description of Species Range (Figure A1-1)
The historic range of the callippe silverspot butterfly is hilly grasslands around the San Francisco Bay area in California with observations in Alameda, Monterey, San Francisco, San Mateo, Santa Clara, Solano, Sonoma, and Stanislaus counties (FWS 2020 p. 6).

The 2025 5-year review states that there are four extant populations (see Figure A1-1): Cordelia Hills (Solano Co.), Ferrari Ranch (Solano Co.), San Bruno Mountain (San Mateo Co.), and Sears Point (Sonoma Co.) (FWS 2025 pp. 3-6). More information on the extent of these populations can be found in the next section.

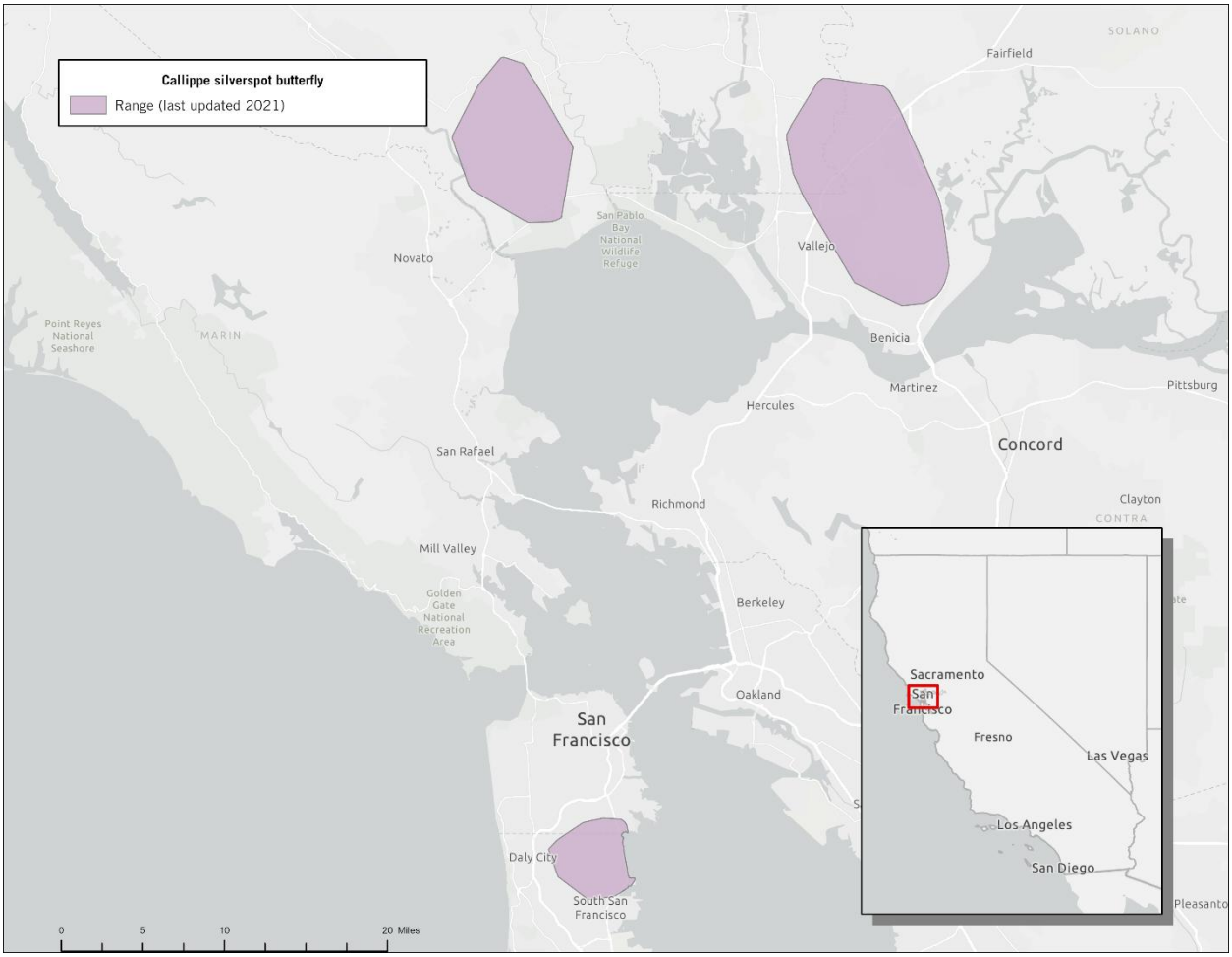

Figure A1-1. ECOS Range for the Callippe silverspot butterfly (https://ecos.fws.gov/ecp/species/3779). The total ECOS range is approximately 63,400 acres.

Description of Critical Habitat

The callippe silverspot does not have designated critical habitat. FWS proposed, but never finalized, critical habitat (Figure A1-2) in 1980 in the Guadalupe Valley and San Bruno Mountain areas near San Mateo, California (FWS 1980).

Figure A1-2. Proposed critical habitat for the callippe silverspot in the Guadalupe Valley and San Bruno Moutain areas near San Mateo, California. Map taken from proposed critical habitat document (FWS 1980).

3. Known Locations/Occurrence Data

The callippe silverspot butterfly can currently be found in San Mateo, Solano, and Sonoma Counties in California (FWS 2025 p. 4). The general occupied area is depicted in Figure A1-3.

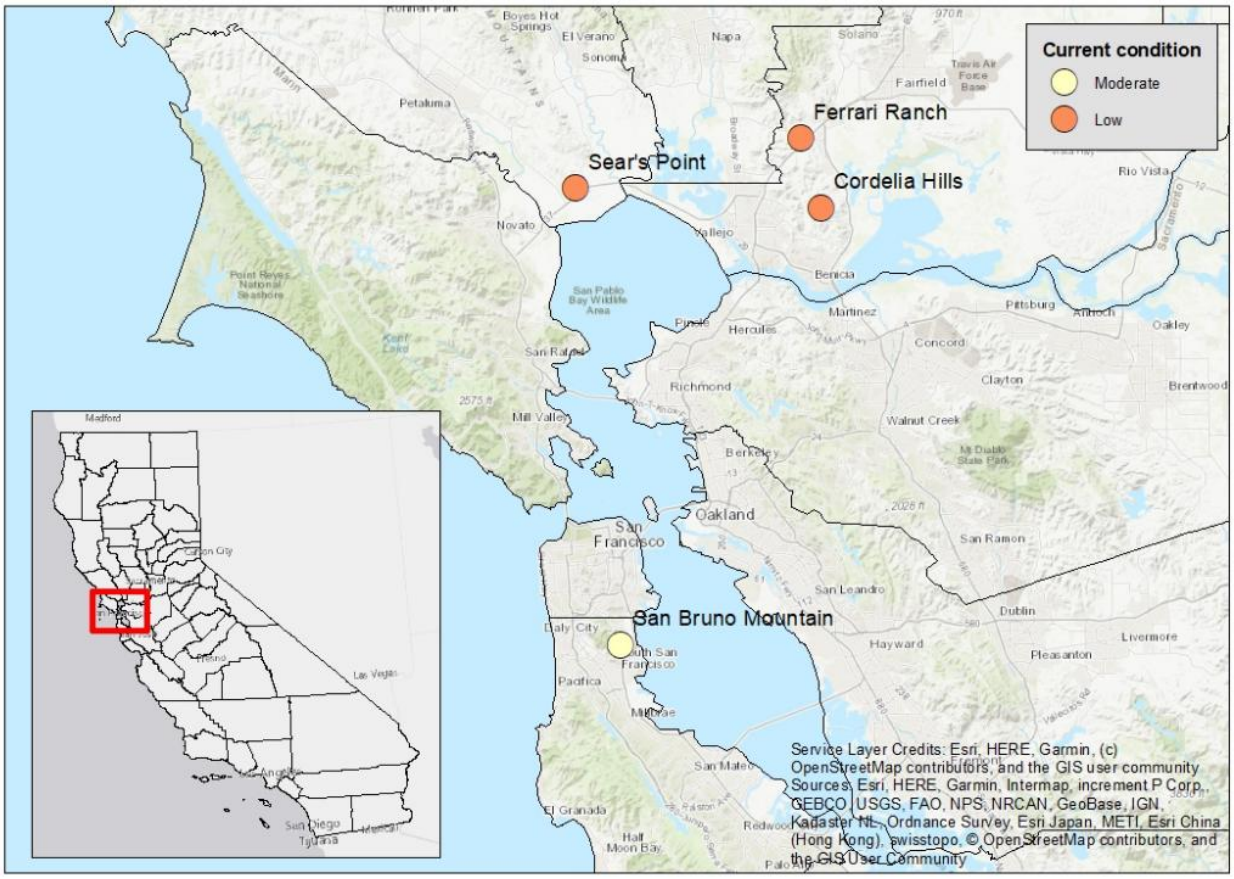

Figure A1-3. General occupied areas of the callippe silverspot in California. Figure taken from the FWS's 2020 Species Status Assessment (page 50).

San Mateo County

1) Guadalupe Hills Zone: an area bounded on the north and east by the Gaudalupe Canyon Parkway, on the south by North Hill Drive, the railroad tracks, and West Hill Drive, and on the west by the dirt road extending from West Hill Drive to Guadalupe Canyon Parkway.
2) San Bruno Mountain Zone: The largest populations are at San Bruno Mountain, managed by San Mateo County Parks; approximately 75 percent of the population is on the Southeast Ridge. An area bounded on the west by a line extending from the fork in the quarry access road to the junction of Kearney Street and Hillside Boulevard, on the south by Hillside Boulevard, Randolph Avenue, and the south San Francisco city limit, on the east by Bayshore Highway, and on the north by the quarry access road, the three-pol powerline to its intersection with the 900 foot contour, then by a line from this intersection east to Bayshore Highway.

Solano County

The "Cordelia Hills" population consists of three localities that include:

1) King Ranch
    a. Contiguous with Swett and Eastern Swett Ranches (which are managed by Solano Land Trust)
2) Ridge Top Ranch
    a. Ridge Top Ranch Wildlife Conservation Bank
3) Hills above Lake Herman Blvd

a. Private property near the Braito Open Space and Tourtelot Open Space, and Lake Herman Recreation Area (City of Benicia).

Ferrari Ranch

The Ferrari Ranch is a 283-acre preserve managed by the Solano Land Trust. It is directly east of Lynch Canyon Open Space and bordered by highways on the north and south. Ferrari Ranch has been monitored every 5 years since 2016 and the species is still found there in low numbers (FWS 2025b p. 11).

Sonoma County

Sear Point is managed by Solano Land Trust, SLT retains 900-acre portion upland of San Pablo Bay NWR.

Appendix 2. GIS Data Review and Method to Develop Core Map (Step 3)

The core map type for this species is based on biological information, including known locations in the FWS 2020 5-YR Review. The populations are named: Cordelia Hills, Ferrari Ranch, San Bruno Mountain and Sears Point. It was determined to use FWS's callippe silverspot butterfly occupied range area that covers both the Cordelia Hills and Ferrari Ranch populations. The revised 2008 San Mateo County Parks Department San Bruno Habitat Management Plan 2007 Figure 7 showing the distribution of callippe silverspot habitat on San Bruno Mountain was used for the San Bruno Mountain population. The Sears Point Ranch area was used for the Sears Point population. The interim core map shape files are contained in "EPA_Callippe_silverspot_butterfly_Poly.shp".

1. **Dataset References and Software**

- FWS Species Range (last updated 06/10/2021) https://ecos.fws.gov/ecp/species/3779
- U.S. Geological survey. *National Land Cover Database 2024 (NLCD 2024)*
- https://www.mrlc.gov/downloads/sciweb1/shared/mrlc/data-bundles/Annual_NLCD_LndCov_2024_CU_C1V1.zip
- USGS (Protected Areas Database US) PAD-US file Version 4.0 https://www.usgs.gov/programs/gap-analysis-project/science/pad-us-data-download
- World UTM Grid: https://services.arcgis.com/P3ePLMYs2RVChkJx/arcgis/rest/services/World_UTM_Grid/FeatureServer
- San Mateo County Active Parcels (downloaded 10/9/2025) https://gis-data-downloads.s3-us-west-1.amazonaws.com/SAN_MATEO_COUNTY_ACTIVE_PARCELS.zip
- 2008 Revised County of San Mateo San Bruno Mountain Habitat Management Plan 2007. figure 7 (pdf) file:///C:/Users/lmawhinney/Downloads/San%20Bruno%20Mountain%20Habitat%20Management%20Plan%202008-1_0.pdf
- Software used: ArcGIS Pro version 3.5.3

2. **Datasets Used in Core Map Development**

Datasets used are described above.

3. **Core Map Development**

3.1 Export and create a .tif file of figure 7 of the 2008 revised 2007 San Bruno Mountain Habitat Conservation Plan and geo-reference the image.

3.2 Manually select San Mateo County parcels that reside along the border of the geo-referenced image. Export the parcels to a feature class named, "SanBrunoParcels".

3.3 Create a copy of the template EPA polygon feature class for callippe silverspot butterfly, name it "Callippesilverspotbutterfly_poly".

3.4 Use the trace option under the create feature tool to trace the parcels edges to create a polygon that is represented in figure 4.13. Update the description field to "Revised 2008 San Mateo County Parks Department San Bruno Habitat Management Plan 2007 figure 7 geo-referenced and digitized the Distribution of Callippe silverspot habitat on San Bruno Mountain (based on Grassland Extent)".

3.5 Use the definition query to filter the USGS PAD-US feature where “Unit Name” is equal to “Sears Point Ranch”. Copy and paste the “Sears Point Ranch” feature to “Callippesilverspotbutterfly_poly”. Update the description field to “USGS PADUS 4.0 Sears Point Ranch”.

3.6 Copy and paste the callippe silverspot butterfly FWS range to “Callippesilverspotbutterfly_poly”. Use the “Edit Vertices” tool to remove vertices that created polygons that encircle the San Bruno Mountain and Sears Point populations. Update the description field to “US Fish & Wildlife Services' Callippe silverspot butterfly occupied range area limited to one area that encompasses Ferrari Ranch and Cordelia Hills populations. (last update on 06/10/2010)”.

3.7 Use the “Pairwise Erase” tool to remove features of EPA’s “CultivatedAreas_Over25acres” from “Callippesilverspotbutterfly_poly”. This will create a feature class named, “Callippesilverspotbutterfly_poly_Erase_25”.

3.8 Use EPA’s QA/QC process to remove small, disconnected patches less than 2 acres. In this process features classes “Callippesilverspotbutterfly_poly_Erase_25_Buf”, “Callippesilverspotbutterfly_poly_No2Acre”, and “Callippesilverspotbutterfly_poly_Final” are created.

3.9 Update attributes and “Calculate Geometry” of the “Callippesilverspotbutterfly_poly_Final” feature class.

3.9.1 Use the “Calculate Field” tool to update fields as below.

a) CommName = " Callippe silverspot butterfly”
b) SciName = “Speyeria callippe callippe”
c) EPA_Code = “430”
d) FWS_Code = " I019”
e) Heritage = “0”
f) ECOS_WebPg = “https://ecos.fws.gov/ecp/species/I019”

3.9.2 Use the “Calculate Geometry” tool to update the “Acres” field with US Survey Acres under the NAD_1983_UTM_Zone_10N coordinate system.

3.10 Use the “U.S. Geological survey. *National Land Cover Database 2024 (NLCD 2024)”* as the basis to determine percentage of interim core map represented by NLCD Land Cover type. Use the “Extract by Mask” tool with the NLCD as the input raster and the “Callippesilverspotbutterfly_poly_Final” as the mask data. The output is named, “NLCD_MaskArea1”. Use the “Tabulate Area” tool to determine the count of area for each NLCD code. With a newly double type field named “Per, use the “Calculate Field” option to enter the formula “(!Count! / 179593)*100”. Review results and input into (Table 1. Percentage of Interim Core Map Represented by NLCD Land Covers and Associated Example Pesticide Use Sites/Types.)