

2.4 Hermes Copper (*Lycaena hermes*) – Category SL

Management Units with Known Occurrences

The Hermes copper butterfly is a rare butterfly found in the coastal sage scrub and southern mixed chaparral communities of San Diego County and northern Baja California, Mexico (Deutschman et al. 2010; Faulkner and Klein 2012). Colonies are closely confined to the vicinity of the host and larval food plant, spiny redberry (*Rhamnus crocea*) (Thorne 1963). Although the spiny redberry range extends outside of San Diego into Baja California and north to the Sierra Nevada foothills, Hermes copper is restricted to San Diego County where the temperature extremes are greater than other areas where the plant is found (Faulkner and Klein 2012). Hermes copper is generally found in habitat that supports redberry such as canyon bottoms and hillsides with northern exposure and well-drained soils (Marschalek and Deutschman 2008). Redberry plants need to be mature to support Hermes copper.

Adults prefer to nectar on California buckwheat (*Eriogonum fasciculatum*) but will also nectar on chamise (*Adenostoma fasciculatum*), golden yarrow (*Eriophyllum confertiflorum*), slender sunflower (*Helianthus gracilentus*), poison oak (*Toxicodendron diversilobum*), and the nonnative short-podded mustard (*Hirshfeldia incana*) (Faulkner and Klein 2012). The host and nectar plants should be in proximity to one another (Marschalek and Klein 2010). Hermes copper butterflies are rarely seen far from their host or nectar plants, with the butterflies forming distinct, independent colonies (Thorne 1963).

Hermes copper becomes less active when temperatures reach the mid-90s and will often perch on vegetation within shaded areas (Faulkner and Klein 2012). Similarly, the butterflies may remain inactive and perched when the seasonal marine layer blocks the morning sun.

A 3-year observation at Crestridge Ecological Reserve showed that Hermes copper may have the ability to extend winter diapause during times of extreme drought (Faulkner and Klein 2012). However, it is unclear if larvae are capable of secondary diapause during unfavorable years (Deutschman et al. 2011).

Hermes copper has been detected in MUs 3, 4, 6, 10, and 11 (see Table of Occurrences). There were only two occurrences in MU10 in the Cleveland National Forest. Hermes copper have been detected most often in MU3. These detections

have occurred at 11 preserves: Crestridge Ecological Reserve, Duncan Joseph E. and Bonnie M., Hollenbeck Canyon Wildlife Area, McGinty Mountain Ecological Reserve, McGinty Mountain Preserve, Mount Miguel Open Space, Rancho Jamul Ecological Reserve, San Diego National Wildlife Refuge, Skyline 244, Sycuan Peak Ecological Reserve, and Wright's Field (see online map: <http://arcg.is/2kU2NKH>).

Management Categorization Rationale

Hermes copper should be managed as a Species Management Focus Category SL Species due to a high risk of loss from Conserved Lands in the MSPA and because managing the general vegetation community alone will not ensure persistence of the species (see Vol. 1, Table 2-4). The high risk of loss is due to the small number of existing occurrences, high annual fluctuation in occurrence sizes, low rate of dispersal, and high risk of threat (see Vol. 3, App. 1, Species Profiles).

Hermes copper populations are currently limited to a small portion of San Diego County, which is a substantially smaller range than historic populations (Deutschman et al. 2011). While the species numbers do not fluctuate widely year to year, prolonged drought can reduce population numbers (Thorne 1963). Urban development and increased fire frequency are two substantial threats for the Hermes. "Fire is a large and potentially catastrophic force acting on Hermes copper populations" (Deutschman et al. 2011). New growth redberry, like that after a fire, is incompatible for sustaining Hermes larvae and recolonization of those sites may not occur (Marschalek and Klein 2010). Hermes have suffered from habitat loss and fragmentation as a result of urbanization (Faulkner and Brown 1993).

USFWS has found that listing the species is warranted; however, they are still reviewing data and compiling a thorough review (USFWS 2016).

Management and Monitoring Approach

The overarching goal for Hermes copper is to protect, enhance, and restore occupied habitat and historically occupied habitat and the landscape connections between them to create resilient, self-sustaining populations that provide for persistence over the long term (>100 years).

For the planning cycle of 2017–2021, the management and monitoring approach is the following:

- (1) Continue development of BMPs begun in 2013 for captive rearing Hermes copper at the San Diego Zoo.
- (2) Develop habitat suitability models for Hermes copper and the host plant (spiny redberry), and the primary nectaring plant (California buckwheat) under current and future climate change scenarios, and conduct fire risk modeling with different management scenarios to identify potential climate and fire refugia.
- (3) Complete a 5-year Hermes Copper Management Plan that includes the results from butterfly surveys and habitat assessments and genetic, marking, and translocation studies to develop a management strategy and to identify and prioritize site-specific management actions. Begin implementing high-priority management actions from the Hermes Copper Management Plan and monitor effectiveness of implementation.
- (4) Develop a monitoring plan to track long-term distribution, abundance, and phenology, and to assess habitats and threats at Hermes copper occurrences (see Table of Occurrences), and historically occupied and unoccupied high suitability sites across Conserved Lands in the MSPA. Begin implementing long-term monitoring as specified in the Hermes Copper Monitoring Plan.
- (5) Implement high-priority MSP 2018 Wildfire Ignition Reduction Plan measures to reduce the probability of ignition at most at-risk occurrences.
- (6) Continue surveys for adult Hermes copper (see Table of Occurrences) and habitat assessments begun in 2016 to document the butterfly's current distribution and abundance and to assess habitat and threats at survey sites.
- (7) Continue translocation experiments begun in 2014 to test the effectiveness of releasing eggs and larvae to repopulate the Hollenbeck Canyon Wildlife Area (see Table of Occurrences) where the original population was extirpated by fire and continue monitoring effectiveness of translocation.

- (8) For at least the first 3 years following a wildfire, use a standardized survey protocol to determine the status of Hermes copper occurrences impacted by fire and implement management actions identified by post-fire monitoring as necessary to protect and rehabilitate high-quality habitat to allow for recovery of occurrences impacted by wildfire.

For details and the most up-to-date goals, objectives, and actions, go to the MSP Portal Hermes Copper summary page: https://portal.sdmmp.com/view_species.php?taxaid=777791

Hermes Copper References

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