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RE: Site Assessment for Quino Checkerspot Butterfly
Santa Susana Field Laboratory (SSFL) Area IV,
Ventura County, California

INTRODUCTION

The federally listed endangered Quino Checkerspot Butterfly (QCB), *Euphydryas editha quino*, has been recorded from northern Los Angeles County to northern Baja California, Mexico. Historically, populations occupied Los Angeles, Orange, Riverside, and San Diego Counties in southern California and it was considered one of the more abundant spring flying butterfly species in the region. Since the 1950s, the number of known populations has been reduced significantly and it is currently found in isolated colonies in Riverside and San Diego Counties. There are no records of this butterfly from Ventura County for at least the last 70 years. Reasons for the species decline, leading to its listing as endangered in 1997, include removal of habitat, fires, grazing, larval host plant reduction caused by invasive plant competition, introduced predators and parasites, pollution, drought, and perhaps a number of other factors. In the face of these factors taken together, the insect has been unable to recover in sufficient numbers to maintain its historic population size.

Although there are no recent records of Quino Checkerspot Butterflies from Ventura County, the U.S. Fish and Wildlife Service considers the species as potentially resident in Ventura County, and thus requires site assessments for the species in suitable habitats. If larval host plants are present, protocol adult surveys may be required during the anticipated flight season (February to May in most years), with weather the determining factor for initiation and termination of surveys. Larval surveys are sometimes conducted, but are more difficult and require additional USFWS permits.

Area IV of the Santa Susana Field Laboratory was surveyed for the presence of QCB larval host plants, including species of native plantain (*Plantago* spp.), owl's clover (*Castilleja exserta*), Chinese houses (*Collinsia* spp.), white snapdragon (*Antirrhinum coulteri*), and bird's beak (*Cordylanthus littoralis*). The primary larval hosts are *Plantago erecta*, *Castilleja exserta*, and more recently recognized, *Collinsia* species. Secondary larval hosts, such as *Antirrhinum* and *Cordylanthus* species, will be utilized by larvae when the primary host plants are no longer available, either at the end of the spring

season before the caterpillars enter diapause, or the following spring when they break diapause. Adult nectar sources are important and include many species of both annual and perennial flowering plants.

RESULTS

The Santa Susana property contains a number of factors that are indicators of potential QCB habitat. These include areas of open soils, dirt roads, rock outcrops, adult nectar sources, and larval host plants. Of most importance is the presence of the primary larval host plant, *P. erecta.* This plant occurs in eight scattered locations on the site, and typically in isolated situations on the surfaces of exposed sandstone outcrops (see attached figure). The *Plantago* does not form extensive "mats" as seen in known occupied sites, but typical patches observed at the Santa Susana property support 20-30 individual plants mixed with grasses and other more invasive vegetation such as *Erodium.* The largest patch observed (#8 on the attached figure), in the northwestern corner of the site had several hundred individuals of *Plantago erecta* in a small area. By late March of 2010, the *Plantago* was drying out and would no longer be available to feeding QCB larvae if present. Secondary or alternate larval hosts were not found in association with Plantago. No *Plantago* was found, as would be expected from similar sites, along dirt roads or in open fields at SSFL Area IV.

Dead *Cordylanthus littoralis* plants from the previous year were encountered on hillsides in the designated critical habitat for Braunton's milk-vetch, but no germinating plants were seen during the March 29, 2010 site visit. I was informed by Tom Mulroy of SAIC that vegetative seedlings of *C. littoralis* were observed in early May in the same area where we had observed the dead plants in late March. (This was within the designated Critical Habitat for *Astragalus brauntonii*). No *C. exserta* were recorded. In one corner of the property (along the easternmost boundary with Area III), some *Antirrhinum coulterianum* and a few *Collinsia parryi* were documented by Carl Wishner (personal communication, Tom Mulroy). None of these plants were found growing near the eight locations for *P. erecta* and therefore could not be utilized by either pre- or post-diapause QCB larvae as a secondary or alternate host plant if the caterpillars had previously been feeding on *Plantago.*

Adult nectar sources are not a limiting factor for QCB. Numerous composites, buckwheat, and many annuals are available, both in natural and restored areas of the property.

OPINION

As previously discussed, there are both physical and biological factors on the site that are elsewhere known to support QCB colonies. However, it is unlikely that the site currently, or in the recent past, supports populations of this butterfly species. Much of the site has been impacted by roads, construction, fires, and other activities that has

reduced and greatly fragmented and degraded the habitat. Primary larval host plants populations are few, small, and often widely separated from each other. Potential secondary larval hosts are uncommon or absent from the site, and are not in close proximity to the primary larval hosts. Historically, QCB has not been recorded from

Ventura County and in recent years has only been recorded from southern California in Riverside and San Diego Counties. It would be nearly impossible for QCB to establish new colonies given the distance from extant populations. It is possible to have disjunct populations of QCB, but current understanding of the biology and distribution of this insect leads to the opinion that individuals or colonies would not be found on this site.

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