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MEMO

To: Katie Thoreson and Dana York, Caltrans

Cc: David Bise, AECOM

Re: Hwy. 1, Salmon Creek Bridge and Albion River Bridge Replacement Projects in Albion (Mendocino County), California
Report on 2015 Surveys for Two Endangered Butterflies

This memo reports the results of 2015 field surveys that were conducted to determine the presence or absence of two federally-listed, endangered butterflies, the Lotis Blue (*Lycaeides idas lotis*) and Behrens Silverspot (*Speyeria zerene behrensi*), at the location of the Salmon Creek Bridge and Albion River Bridge Replacement Projects on Hwy. 1 in Albion (Mendocino County), California. Field surveys for these butterflies were also conducted during 2014, the results of which were summarized in a memo dated 26 September 2014 (Arnold, R.A. 2014. Report on 2014 surveys for two endangered butterflies for the Highway 1, Salmon Creek Bridge Replacement Project). The 2014 memo contains background information on both endangered butterflies. During 2015 the butterfly survey area was expanded north of Albion Ridge Road to include areas within the Albion River Bridge project's study area. Boundaries of survey areas on the east and west sides of Highway 1 (Figure 1) were based on access permissions from the property owners.

Survey Methods

During the spring and summer of 2015, field surveys were conducted on April 17, 18, 29, and 30, May 15, 16, 29, and 30, June 12 and 13, July 4, 5, 17, 18, and 19, and August 8 and 9 by Dr. Robert Jensen and Dr. Richard Arnold. Survey procedures included hiking throughout accessible properties within the proposed projects' Butterfly Survey Area (BSA) that supported suitable habitat to visually detect and identify adult butterflies. Binoculars were used to scan properties that were not accessible as well as steep coastal bluffs from good vantage points. Larval food plants for both butterflies were examined for immature stages and signs of larval feeding damage.

The locations of larval food plants for both butterflies that were previously observed within the Salmon Creek Bridge project's BSA were confirmed during 2015 surveys. When new food plant locations were observed they were mapped using a Trimble GPS unit.

Since the surveys were undertaken during the fourth consecutive year of drought, a known population of the endangered Myrtle's Silverspot (*Speyeria zerene myrtleae*) at Shell

Beach, south of Jenner in Sonoma County, was checked as part of each site visit during June, July, and August to confirm that adult silverspots were active. Both the Behrens and Myrtle's Silverspots have similar adult flight periods. This location was used as the reference population because no individuals of the Behrens Silverspot were observed during 2014 at its only known location near Pt. Arena.

Ideally a known reference population for the Lotis Blue would have been utilized to determine the appropriate times to survey for this butterfly. Because there are no known locations that still support the Lotis Blue, the dates of historical records and observed flowering of spring wildflowers guided the timing for 2015 site visits.

Results and Discussion

As in 2014 no life stages of either endangered butterfly were observed during 2015 surveys. The 2015 survey period included all of the historically known flight season for the Lotis Blue. Historically, adults of the Lotis Blue were active when its larval food plant, *Hosackia gracilis*, flowered. The first surveys on April 17 and 18 coincided with the first observed flowering individuals of *H. gracilis*. Even though the timing of the site visits coincided with the flowering period of *H. gracilis*, which was also quite abundant in the northeastern portion of the ESL, no Lotis Blues were found.

Adults of the endangered Myrtle's Silverspot were active at the Shell Beach reference site during our survey visits to the Salmon Creek and Albion project area in June, July, and August. During the last visit in August only a few individuals were observed at Shell Beach and their wings were quite faded and frayed, indicating that the flight season would be ending shortly. Since the flight season appeared to be concluding earlier than normal, surveys were not performed during the latter portion of August or in September of 2015.

No adults of the Behrens Silverspot were observed during our surveys at Salmon Creek and Albion despite the presence of known nectar plants. For example, *Erigeron glaucus* was observed flowering, especially on coastal bluffs, but binocular surveys of these bluffs did not yield any sightings of the silverspot. Similarly, *Hypochaeris radicata* was widely scattered and abundant within the coastal prairie portions of the BSA, in particular northeast and northwest of Salmon Creek. Other favored nectar plants, *Cirsium vulgare*, *Silybum marianum*, and *Senecio vulgaris* were observed within the BSA, but in somewhat limited numbers.

During the 2015 surveys *Viola adunca* and *Hosackia gracilis* were observed at a couple of new locations in the northwestern portion of the BSA, just south of the Albion River (Figure 1). However, all of these new locations support only small numbers of the food plants. Due to their proximity they were combined into a single larger polygon, one per foodplant species, for mapping purposes. No food plants growing at these new locations or other places within the

BSA exhibited signs of larval feeding damage by either endangered butterfly. Similarly, no immature stages of either butterfly were observed.

Conclusions

Even though the aforementioned BSA for Salmon Creek Bridge and Albion River Bridge replacement projects represents potential habitat for both endangered butterflies due to the presence of their larval food plants, presence-absence surveys conducted during 2014 and 2015 did not find any evidence that either butterfly currently occupies these project areas. Indeed, the limited occurrence of *Viola adunca* within the BSA suggests that if the Behrens Silverspot does use this area it would probably be more for adult foraging than larval development. In contrast, the abundance of *Hosackia gracilis* suggests that the BSA might provide breeding habitat for the Lotis Blue; however, no life stages of this butterfly were observed. Based on the results of two years of presence-absence and habitat assessment surveys, I conclude that neither the Lotis Blue nor the Behrens Silverspot occurs within these project areas at this time.

If you have any questions regarding my survey or this report, just contact me.

Sincerely,

Richard A. Arnold

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Figure 1: Food plant map

Figure 1. Butterfly Survey Area for the Highway 1 - Salmon Creek and Albion Bridge Replacement Projects and Occurrences of Larval Foodplants for the Endangered Lotis Blue and Behrens Silverspot Butterflies