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31 January 2006

Permit Coordinator
Portland Regional Office
U.S. Fish & Wildlife Service
911 NE 11th Avenue
Portland, OR 97232-4181

RE: 2004 Annual Report for Permit #TE-797233-2, as amended, for
Palos Verdes Blue Butterfly, El Segundo Blue Butterfly, Smith's Blue Butterfly,
Ohlone Tiger Beetle, Mount Hermon June Beetle, & Zayante Band Winged
Grasshopper

Dear Sir/Madam:

This letter and its attachments constitute my annual report of activities for 2004 that were conducted under the above-noted permit for the following endangered insect taxa:

- a) Palos Verdes Blue butterfly (PVB);
- b) El Segundo Blue butterfly (ESB);
- c) Smith's Blue butterfly (SBB);
- d) Ohlone Tiger beetle (OTB);
- e) Mount Hermon June beetle (MHJB); and
- f) Zayante Band Winged grasshopper (ZBWG).

Introduction.

I did not perform any surveys on the PBV during 2004. However, during the 2004 activity periods of the other five insects, field studies were conducted at a number of locations in the Los Angeles area for ESB, Monterey County for SBB, Santa Cruz-Scotts Valley (Santa Cruz County) area for the OTB, and the greater Santa Cruz-Scotts Valley-Felton-Mt. Hermon-Ben Lomond portion of Santa Cruz County for MHJB and ZBWG.

Attached are five tables (one per taxon) that itemize the locations where my surveys occurred. My surveys were performed to evaluate the suitability of habitat(s) at parcels where various projects have been proposed, to determine the presence or absence of one or more of the above-noted insects, and for population monitoring of sites known to support these insects. The attached tables summarize information on each survey location, the type of survey performed, results of my surveys, date of the written report, and the USFWS office where my report was submitted.

Copies of all reports generated for the aforementioned studies are enclosed on the CD-ROM as pdf files. CNDDDB report forms for those surveys where the aforementioned species were detected have been sent directly to the California Dept. of Fish & Game.

Methodology.

Survey methods varied somewhat depending upon the purpose of a particular survey and the species under study. Transect counts were used to monitor abundance of the ESB at both the Chevron refinery and LAX. Near the peak of the adult flight season, quadrat counts at Chevron and a block count at LAX were also performed to tally the numbers of ESB adults (males and females) observed throughout all portions of both study sites. Results of the transect and block/quadrat counts are combined to estimate the seasonal population size of the ESB at both study sites. All three methods rely on visual observations of adult butterflies, i.e., no butterflies were captured or otherwise handled. Table 1 provides more details.

Visual presence-absence surveys for the SBB were conducted at Rancho San Carlos and Palo Corona Ranch in the Carmel Valley area, plus several locations in the Los Padres National Forest (vicinity of Big Sur and south of there). The butterfly was observed at several locations on both of the aforementioned ranches. In addition, mapping of food plants was performed at Rancho San Carlos and Palo Corona Ranch using GPS and GIS technologies. See Table 2 for more information about these surveys.

Transect counts were used to monitor OTB adults, plus eggs and larvae and their respective burrows were monitored throughout the year at Inclusion Area A and Marshall Field (UC Santa Cruz campus), Santa Cruz Gardens (Soquel), and Glenwood Preserve (Scotts Valley). Habitat assessments were performed at three additional sites and presence-absence surveys were conducted at two additional sites (Table 3).

Because they are nocturnal and attracted to lights, surveys of MHJB adults utilized black light traps, in which the beetles were live trapped and released within 1-2 hours after capture. As the adult females are flightless, they are not attracted to the light traps, so only adult males were trapped. At all locations where MHJB presence-absence or monitoring surveys were performed during 2004, all beetles were live trapped and released. Presence-absence or population monitoring surveys were conducted at the Cellular One antenna site on Mt. Hermon, the Quail Hollow Quarry, City of Santa Cruz water treatment facility, Santa Cruz County Horsemen's Association showground,s and the Valley Gardens Golf Course (Scotts Valley). Habitat assessment surveys were conducted at approximately 20 locations (Table 4).

Transect counts were used to study the ZBWG at the Hanson Quarry and its Freeman mitigation site. No ZBWG were observed during presence-absence surveys at the Cellular One antenna site on Mount Hermon or the Valley Gardens Golf Course in Scotts Valley. Habitat assessment surveys were conducted at 17 locations (Table 5).

No voucher specimens were collected for any of my surveys of these insects in 2004. Also, no individuals of any species were injured during capture or handling activities as authorized by my permit.

In general, my studies of these insects were conducted to determine presence/absence of these taxa at new locations, to evaluate potential impacts of proposed projects, to develop new information on the natural history of these insects that could be useful in their conservation and recovery, and to monitor their populations. The written reports for each study provide specific reasons for conducting these surveys at the respective study sites, describe my specific survey methods, present detailed results and discussion of my findings, and provides recommendations for habitat management and recovery of both species. Rather than attempt to summarize those details herein, I refer you to the respective report for each of these projects. Also, maps of most study locations are included with the individual project reports.

Results.

The attached tables, 1 – 5, summarize the results of my surveys. Please refer to the enclosed reports for more specific details on survey methods and findings for a particular survey. No individuals of the endangered insects were incidentally killed or injured. Maps and descriptions of the study sites are included in my survey reports. The remainder of this section highlights the findings of my 2004 surveys.

ESB adults were observed at the Chevron refinery and Los Angeles International Airport (Table 1). Estimated population numbers declined substantially at both sites in 2004 compared to population numbers of recent years.

Adults of the SBB were observed at a number of locations at Rancho San Carlos and Palo Corona Ranch during its 2004 flight season. Table 2 summarizes these observations. Adults were also observed at several locations in the Los Padres National Forest as part of a long term survey that I have been conducting for the U.S. Forest Service. A report that summarizes my findings will be prepared in 2006.

OTB adults were observed at three sites, Glenwood Preserve, Marshall Field and Inclusion Area A of the UC Santa Cruz campus. The attached Table 3 summarizes the numbers of beetles observed by study site. Egg and larval burrows were not tagged and monitored as in prior years to determine survival rates of these stages and emergence rates for adults of the 2005 brood. Unfortunately, my tags were vandalized at the Glenwood and Marshall Field (UC Santa Cruz campus) sites, so I was unable to continue collecting information about immature stages. In addition, Dr. Barry Knisley and I completed a 3-year study of the OTB (sponsored by USFWS). A copy of our final report was sent directly to the Ventura office by Dr. Knisley.

During my monitoring or presence-absence surveys for MHJB, adult beetles were observed at the Cellular One antenna site, Quail Hollow Quarry, City of Santa Cruz Water Dept. facility, Santa Cruz County Horsemen's Association showground, and the

Valley Gardens Golf Course (Table 4). Despite degraded habitat conditions at the latter three locations, adults were still observed.

ZBWG adults were observed only at the Hanson Quarry (Table 5). The HCP monitoring for this site utilized transects counts during the full adult season, late July through early October of 2004.

Planned Future Activities.

I expect to continue monitoring activities for the Hanson and Quail Hollow quarries in 2005 as required by their respective incidental take permits. MHJB will be monitored at the Hanson Quarry and Freeman mitigation site, while ZBWG will be monitored at the Quail Hollow Quarry. It is quite likely that other presence/absence surveys will arise for one or both of these species, but at this time I don't have any surveys scheduled.

I also expect to continue monitoring of the ESB at both the Chevron refinery and Los Angeles International Airport in 2005. At this time, I do not foresee any changes in the monitoring methods for the butterfly at either of these sites. Surveys for the SBB will continue to occur in portions of the Los Padres National Forest. Other locations will be added as clients request my assistance with surveys.

Finally, I plan to continue monitoring of the OTB at selected sites in 2005, namely Marshall Field (UCSC campus) and Glenwood Preserve (Scotts Valley). In particular, I will use transect counts to estimate population numbers, plus continue my studies of the larvae and their burrows.

Conclusions.

Each of the attached reports on the enclosed CD-ROM discusses my recommendations for future studies, recovery activities, and habitat management, as appropriate for each study site. I refer you to my attached reports for these details.

I look forward to the opportunity to continue working with these insects in the future to develop information relevant for their conservation. If you have any questions regarding my activities in 2004 or need additional information, please contact me.

Sincerely,

Richard A. Arnold, Ph.D.
President



Cc: Dave Pereksta, Ventura Field Office
Daniel Marquez, Carlsbad Field Office

Attachments: Tables 1-5

Enclosure: CD-ROM with individual survey reports (Carlsbad and Ventura)

Table 1. 2004 Survey Information for the El Segundo Blue Butterfly (*Euphilotes battoides allynii*) for PRT-797233 (Richard A. Arnold) Annual Report (see maps of survey locations in the cited reports)

Title of Project	Survey Location	Type of Survey	Observations	Report Date	Notes
Population and habitat monitoring for the ESB at Los Angeles International Airport	Los Angeles International Airport, Los Angeles, CA	Population and habitat monitoring	2,123 adult ESBs observed during 15 transect counts from June 23 to Sept. 1, 2004; 2,645 adults observed during block counts between July 22 and 27, 2004	December 2004	Submitted to Carlsbad office of USFWS
Population and habitat monitoring for the ESB at the Chevron Refinery	El Segundo, CA	Population and habitat monitoring	2,383 adult ESBs observed during 14 transect counts from June 23 through Sept. 1, 2004; 575 adults observed during quadrat counts on July 28, 2004	January 2005	Submitted to Carlsbad office of USFWS

Table 2. 2004 Survey Information for Smith's Blue Butterfly (*Euphilotes enoptes smithi*) for PRT-797233 (Richard A. Arnold) Annual Report

Title of Project	Survey Location	Type of Survey	Observations	Report Date	Notes
BSLT-Palo Corona Ranch	Palo Corona Ranch, Carmel Valley, Monterey County, CA	Habitat mapping	Adults observed at several locations on ranch	None	GIS layer of mapped buckwheat occurrences provided to Big Sur Land Trust
Rancho San Carlos	Rancho San Carlos, Carmel Valley, Monterey County, CA	Population and habitat monitoring	62 SBB adults observed at 27 of 106 locations between June 12 and July 15, 2004	May 2005	
Smith's Blue in the Los Padres National Forest	Various Monterey county locations in Los Padres National Forest	Presence-absence	Adults observed at several locations	None	Report for 3-year project will be prepared in 2006

Table 3. 2004 Survey Information for Ohlone Tiger Beetle (*Cicindela ohlone*) for PRT-797233 (Richard A. Arnold) Annual Report

Title of Project	Survey Location	Type of Survey	Observations	Region Date	Notes
Berg property (Curran Ranch), pending drilling permit for water well APN 059-041-24	640 & 650 Coast Rd, Santa Cruz, Santa Cruz County, CA	Habitat assessment	No larval burrows observed at site on Oct. 5, 2004 visit. Active larvae were observed at control site (Marshall Field).	12 October 2004	
Glenwood Preserve	Scotts Valley, Santa Cruz County, CA	Population monitoring	239 adult OTBs were observed during 11 of 12 visits from Feb. 10 through April 17, 2004. 347 active larval burrows were seen during a June visit.	December 2004	Prepared insect information sections of report. WRA submitted to USFWS.
Graniterock Wilder Sand Plant	Wilder Quarry, Santa Cruz County, CA	Presence/absence	None observed during 9 site visits from Feb. 14 through Apr. 17, 2004	10 June 2004	
Polo Ranch property	Scotts Valley, Santa Cruz County, CA	Presence/absence	None observed during 4 site visits from Mar. 14 through Apr. 17, 2004.	10 June 2004	
Santa Cruz Armory	DeLaveaga Park, Santa Cruz, Santa Cruz County, CA	Habitat assessment	None observed during site visit on Mar. 14, 2004. Active OTB and larvae seen at control site (Soquel).	7 April 2004	

Santa Cruz County Horsemen's Association - showgrounds	Graham Hill Rd (opposite Graham Hill Plaza shopping center)	Habitat assessment	No suitable habitat	17 August 2004	Same report includes habitat assessment for Mt. Hermon June beetle and Zayante Band Wing grasshopper
UC Santa Cruz, Digital Arts project site	University of California, Santa Cruz campus, Santa Cruz County, CA	Habitat assessment	No obvious signs of OTB presence at site on Dec. 28, 2004. Presence considered unlikely due to site soils, current site use, and previous campus-wide surveys.	4 January 2005	
UC Santa Cruz, Marshall Field	UC Santa Cruz campus, Santa Cruz County, CA	Population monitoring	521 adults observed during 11 site visits from Feb. 10 through Apr. 17, 2004; 326 active larval burrows observed during a June visit and most were still active in Sept. & Oct. visits.	10 November 2004	
UC Santa Cruz, Inclusion Area A and other areas (excluding Marshall Field)	University of California, Santa Cruz campus	Population monitoring	21 adults observed on 9 of 11 visits to IAA from Feb. 10 through Apr. 17, 2004; none were seen in the other surveyed areas	13 December 2004	

<p>OTB biology & conservation research report for USFWS</p>	<p>Areas of Santa Cruz (including UC Santa Cruz campus & Wilder State Park); Scotts Valley; and Soquel, in Santa Cruz County, CA</p>	<p>3-yr. (2002-2004) biology and conservation studies at 9 sites</p>	<p>Adults seen all 3 years. (Total of 1,087 in 2004.) Larvae and larval burrows seen all 3 years.</p>	<p>28 June 2004</p>	<p>Submitted directly to Ventura Office of USFWS. Co-authored with C. Barry Knisley.</p>
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Table 4. 2004 Survey Information for Mt. Hermon June Beetle (<i>Polyphylla barbata</i>) for PRT-797233 (Richard A. Arnold) Annual Report					
Title of Project	Survey Location	Type of Survey	Observations	Report Date	Notes
552 Bean Creek Rd APN 022-271-41	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	24 May 2004	
115 Blueberry Dr APN 021-292-03	Scotts Valley, Santa Cruz County, CA	Habitat assessment	Suitable habitat present on property; known habitat in neighborhood	4 November 2004	
251 Condor Ave APN 072-471-01	Ben Lomond, Santa Cruz County, CA	Habitat assessment	No suitable habitat	5 July 2004	
1492 Conference Dr APN 070-241-27	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat on proposed building site, but habitat nearby this property	12 October 2004	
300 Cress Rd APN 067-341-11	Santa Cruz, Santa Cruz County, CA	Habitat assessment	No suitable habitat	12 March 2004	
340 Cress Rd APN 067-341-28	Santa Cruz, Santa Cruz County, CA	Habitat assessment	No suitable habitat on proposed building site, but possible habitat nearby this property	9 July 2004	
5 Dana Ct APN 021-251-04	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	29 December 2004	
128 Ponderosa Ct APN 061-363-12	near Graham Hill Rd, Santa Cruz County, CA	Habitat assessment	No suitable habitat on proposed building site, but possible habitat nearby this property	13 April 2004	

4861 Scotts Valley Dr APN 022-072-32	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	12 March 2004	
301 Spreading Oak Dr APN 067-531-27	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat on proposed building site, but possible habitat nearby this property	11 November 2004	
255 Vista Robles Dr APN 077-311-06	Ben Lomond, Santa Cruz County, CA	Habitat assessment	No suitable habitat on proposed building site, but possible breeding habitat elsewhere on property	10 May 2004	
2053 Weston Rd APN 074-241-21	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	15 December 2004	
551 Winter Creek Rd APN 080-191-55	Bonny Doon, Santa Cruz County, CA	Habitat assessment	No suitable habitat	29 December 2004	
516 Zayante School Rd APN 073-051-15	Felton, Santa Cruz County, CA	Habitat assessment	No suitable habitat	20 April 2004	
Cellular One antenna site on Mt. Hermon	Mt. Hermon, Santa Cruz County, CA	Population monitoring	253 adult male MHJBs trapped on 11 visits from May 22 through Aug. 11, 2004.	December 2004	Submitted to Ventura Office, USFWS
Cingular Wireless-Oak Tree Villa joint pole site SF894-01	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat on proposed building site, but possible habitat in neighborhood of this site	28 September 2004	

Pinnacle Pass Shopping Center (Shanahan) APN 021-271-03 APN 021-271-04 APN 021-281-01 APN 021-281-02 APN 021-281-05 APN 021-281-06	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	15 June 2004	
Quail Hollow Quarry	near Olympia, Santa Cruz County, CA	Population monitoring	Adult male MHJBs trapped on 14 visits from May 22 through Aug. 17, 2004. Using seasonal population estimation technique for numbers trapped, the 2004 population estimate for all quarry habitat was 253,528 to 274,447 males.	December 2004	Region 1, USFWS, Portland, OR
Santa Cruz Water Dept.- city water treatment facility	715 Graham Hill Rd, Santa Cruz, Santa Cruz County, CA	Habitat assessment Presence/absence	Suitable habitat observed on initial visit, June 29, 2004. One adult male MHJB was trapped on July 1, 2004. (No further trap-visits were made.)	17 August 2004	
Santa Cruz County Horsemen's Association - showgrounds	Graham Hill Rd (opposite Graham Hill Plaza shopping center)	Presence/absence	2 adult male MHJBs trapped over 3 visits from June 23 through July 8, 2004 at just one of ten trap locations.	17 August 2004	
Sandhills Conservation & Management Plan	NA	NA	NA	June 2004	Prepared insect information sections of report.

UC Santa Cruz Digital Arts project site	University of California, Santa Cruz campus, Santa Cruz County, CA	Habitat assessment	No suitable habitat	4 January 2005	
Valley Gardens Golf Course	Scotts Valley, Santa Cruz County, CA	Presence/absence	26 adult male MHJBs trapped on 3 visits from June 1 through June 29, 2004 in 16 of 24 trap locations.	5 August 2004	

Table 5. 2004 Survey Information for Zayante Banded Wing Grasshopper (*Trimerotropis infantilis*) for PRT-797233 (Richard A. Arnold) Annual Report

Title of Project	Survey Location	Type of Survey	Observations	Report Date	Notes
552 Bean Creek Rd APN 022-271-41	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	24 May 2004	
115 Blueberry Dr APN 021-292-03	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	4 November 2004	
251 Condor Ave APN 072-471-01	Ben Lomond, Santa Cruz County, CA	Habitat assessment	No suitable habitat	5 July 2004	
1492 Conference Dr APN 070-241-27	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	12 October 2004	
300 Cress Rd APN 067-341-11	Santa Cruz, Santa Cruz County, CA	Habitat assessment	No suitable habitat	12 March 2004	
340 Cress Rd APN 067-341-28	Santa Cruz, Santa Cruz County, CA	Habitat assessment	No suitable habitat	9 July 2004	
5 Dana Ct APN 021-251-04	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	29 December 2004	
128 Ponderosa Ct APN 061-363-12	near Graham Hill Rd, Santa Cruz County, CA	Habitat assessment	No suitable habitat	13 April 2004	

4861 Scotts Valley Dr APN 022-072-32	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	12 March 2004	
301 Spreading Oak Dr APN 067-531-27	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	11 November 2004	
255 Vista Robles Dr APN 077-311-06	Ben Lomond, Santa Cruz County, CA	Habitat assessment	No suitable habitat	10 May 2004	
2053 Weston Rd APN 074-241-21	Scotts Valley, Santa Cruz County, CA	Habitat assessment	Potentially suitable habitat in parts of property; known historical occurrences in proximity of property	15 December 2004	
551 Winter Creek Rd APN 080-191-55	Bonny Doon, Santa Cruz County, CA	Habitat assessment	No suitable habitat	29 December 2004	
516 Zayante School Rd APN 073-051-15	Felton, Santa Cruz County, CA	Habitat assessment	No suitable habitat	20 April 2004	
Cellular One antenna site on Mt. Hermon	Mt. Hermon, Santa Cruz County, CA	Population monitoring	No suitable habitat	December 2004	Submitted to Ventura Office, USFWS
Cingular Wireless-Oak Tree Villa joint pole site SF894-01	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	28 September 2004	

Hanson Aggregates -- Felton Quarry & Freeman property	Scotts Valley -- Felton area, Santa Cruz County, CA	Population monitoring	480 ZBWG adults observed at both sites during 13 visits from July 31 through Oct. 5, 2004. The 2004 seasonal population size estimate was 3,063 to 3,658 at Felton and 8,297 to 9,852 at Freeman.	November 2004	Submitted to Ventura Office, USFWS
Pinnacle Pass Shopping Center (Shanahan) APN 021-271-03 APN 021-271-04 APN 021-281-01 APN 021-281-02 APN 021-281-05 APN 021-281-06	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	15 June 2004	
Sandhills Conservation & Management Plan	NA	NA	NA	June 2004	Prepared insect information sections of report.
Santa Cruz County Horsemen's Association -- showgrounds	Graham Hill Rd (opposite Graham Hill Plaza shopping center)	Habitat assessment	No suitable habitat	17 August 2004	
UC Santa Cruz Digital Arts project site	University of California, Santa Cruz campus, Santa Cruz County, CA	Habitat assessment	No suitable habitat	4 January 2005	

Valley Gardens Golf Course	Scotts Valley, Santa Cruz County, CA	Presence/absence	No suitable habitat	5 August 2004	
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