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FISH AND WILDLIFE
SERVICE

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VENTURA, CA

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

RE: 2005 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 2005 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).

My annual report covers activities that were performed during the period of January through December of 2005.

Introduction.

I did not perform any surveys on the PVB during 2005. However, during the 2005 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.

With this annual permit report, I enclose copies of my written reports for each of the surveys to the Carlsbad and Ventura field offices of USFWS. Every survey report was converted to a pdf file and the enclosed CD-ROM includes these reports. CNDDDB report forms for those surveys where the aforementioned species were detected have been sent directly to the California Dept. of Fish & Game.

I should note that my 2005 monitoring report on the ESB for the Chevron Refinery in El Segundo has not yet been completed. Similarly, my 2005 monitoring report for the ZBWG at Quail Hollow Quarry has yet to be completed. Copies of both reports will be transmitted to the Carlsbad and Ventura field offices as soon as they have been completed.

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 performed to tally the numbers of ESB adults (males and females) observed throughout both study areas. 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). A short-term weed management plan was also prepared for LAX, to improve overall habitat quality for the ESB.

Visual presence-absence surveys for the SBB were conducted at the Tin House Road project site within Julia Pfeiffer Burns State Park south of Big Sur and several locations within the Los Padres National Forest. My surveys for the national forest are part of a longer project for the US Forest Service. A written report for this project will be prepared after the 2006 field season has concluded. During 2005, I completed a four-year study of the Smith's Blue for USFWS in which a geographic information system and various layers (soils, geology, vegetation types, etc.) were utilized to predict location where the buckwheat food plant and butterfly would occur. Also, I worked on the HCP for the Post Ranch Inn. Copies of this document are on file at the Ventura Field Office.

Transect counts were used to monitor OTB adults, plus eggs and larvae and their respective burrows were monitored throughout the year at Marshall Field (UC Santa Cruz campus), Glenwood Preserve (Scotts Valley), and Grey Whale State Park. A presence-absence survey was conducted at Wilder Sand Plant (operated by Graniterock, but no beetles were observed). UC Santa Cruz student, Nick Early, and I did some scraping studies at Grey Whale to open small patches of bare ground to benefit the OTB. Habitat assessments were performed at two properties where projects are proposed.

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 2005, all beetles were live trapped and released. Traps were operated for 19 nights at the Hanson Quarry and its Freeman mitigation site (both in Felton). Presence-absence surveys were conducted on three nights at two locations. Habitat assessments were conducted at 20 properties, including a new acquisition for Henry Cowell Redwoods State Park.

Transect counts were used to study the ZBWG at the Quail Hollow Quarry. I will submit this report once it has been completed. Habitat assessments were performed at 21 sites.

No voucher specimens were collected for any of my surveys of these insects in 2005. 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 in 2005. 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 2005 surveys.

ESB adults were observed at the Chevron refinery and Los Angeles International Airport (Table 1). Estimated population numbers increased substantially at both sites in 2005 compared to population numbers of 2004. My Chevron report has not yet been completed, so I will forward it to the Carlsbad Field office as soon as it is available.

Adults of the SBB were observed at a number of locations in the Los Padres National Forest and the Tin House Road portion of Julia Pfeiffer Burns State Park during its 2005 flight season (Table 2). My surveys at the Los Padres National Forest were part of a four year project for the Forest Service that will conclude in the fall of 2006 (the due date for my written report)..

OTB adults were monitored at several of sites in 2005 (Table 3). The record rainfall totals and extended rainy period into the spring months adversely affected all OTB populations, as numbers were generally down from prior years at all sites. Also, grazing management activities at a few sites seem to be adversely affecting the beetle as the grazing promotes low growing plant taxa that are colonizing patches of bare ground preferred by the OTB adults and larvae. For example, I did not observe any beetles at the Poliski-Gross property in 2005. I did not perform formal monitoring there, but did briefly check the beetle population a few times during the adult and larval activity periods. Similarly at the Glenwood Preserve, numbers of OTB adults and larvae, as well as the occupied area of habitat declined over 50% for the second consecutive year. At Marshall Field on the UC Santa Cruz campus, beetle numbers were not only down, but the population has largely shifted off of the former bike trails and into an area of recent pig rooting activity. Although the university has posted protective fencing and information signs to protect the beetle along the trails, the reduced trail usage by humans has allowed vegetation to colonize the formerly bare ground, which has displaced the OTB. I also supervised a student at UC Santa Cruz, Nick Early, whose senior thesis expanded upon earlier studies that I had performed to clear vegetation from small areas of ground to benefit the OTB.

During my monitoring or presence-absence surveys for MHJB, adult beetles were observed at the Cellular One antenna site, Hanson Quarry, and Freeman mitigation site. The Cellular One site was used as a control while performing presence-absence surveys at other locations. While performing a biotic assessment for the new acquisition to Henry Cowell Redwoods State Park, I observed 14 dead MHJB adults at various locations within the boundaries of this property. Habitat assessments were performed at several properties as described in Table 4).

ZBWG adults were observed only at the Quail Hollow Quarry in 2005 (Table 5). The HCP monitoring for these sites utilized transects counts during the full adult season, late July through early November of 2005. The report for my survey at Quail Hollow is still in preparation. It will be forwarded to the Ventura Field office as soon as I have completed the analysis.

Planned Future Activities.

I expect to continue monitoring activities for the Hanson and Quail Hollow quarries in 2006 as required by their respective incidental take permits. ZBWG will be monitored at the Hanson Quarry and Freeman mitigation site, while MHJB 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 2006. At this time, I do not foresee any changes in the monitoring methods for the butterfly at either of these sites. I will continue my surveys on Forest Service lands south of Big Sur in 2006. Surveys at other locations are likely to occur as clients request my assistance.

Finally, I plan to continue monitoring of the OTB at selected sites in 2006, namely Marshall Field (UCSC campus), Glenwood (Scotts Valley), and Grey Whale State Park.. In particular, I will use transect counts to estimate population numbers.

Conclusions.

Each of the attached reports discusses my recommendations for future studies, recovery activities, and habitat management, as appropriate for each study site. I refer you to the enclosed CD-ROM that has copies of my survey 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 2005 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

Enclosures: CD-ROM with copies of survey reports (Carlsbad and Ventura)

Table 1. 2005 Survey Information for the El Segundo Blue Butterfly (*Euphilotes battoides allyni*) 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	2,653 adult ESBs observed during 14 transect counts from June 19 to Aug. 19, 2005; 5,560 adults observed during block counts from July 15 and 21, 2005	Jan. 2006	Submitted to Carlsbad office of USFWS
ESB preserve weed management plan for Los Angeles International Airport	Los Angeles International Airport, Los Angeles, CA	Id areas for short term weed control activities	Occurred outside of butterfly's adult flight season so no individuals were observed	February 2005	
Population and habitat monitoring for the ESB at the Chevron Refinery	El Segundo, CA	Population and habitat monitoring		Not yet completed	Will be submitted to Carlsbad office upon completion

Table 2. 2005 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
Marina RV Park expansion site	Marina, Monterey County, CA	Habitat assessment Presence/absence	No SBB adults or larvae observed during 4 visits from June 21 through Aug. 5, 2005	15 August 2005	
Post Ranch Inn	Big Sur, Monterey County, CA	None in 2005			HCP work
Smith's Blue Research – predicting occurrence in Santa Lucia Mtns using GIS model	Coastal Monterey County, CA between Carmel Valley south to Lopez Point		(Predictive model, despite certain limitations, led to discovery of several new populations of SBB.)	October 2005	Submitted to USFWS, Ventura office.
US Forest Service -Smith's Blue 2003-2006	Various in Los Padres National Forest	Presence/absence	Adults observed at several locations	Fall 2006	
Tin House Rd trail conversion project site	Julia Pfeiffer Burns State Park, Monterey County, CA	Presence/absence	217 adult SBB seen on 3 of 4 visits from July 3 through July 24, 2005	12 August 2005	

Table 3. 2005 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	Report Date	Notes
340 Highview Ct APN 059-051-14	Santa Cruz, Santa Cruz County, CA	Habitat assessment	No favorable habitat; no OTB adults or burrows observed during site visit on March 6, 2005. OTB were active at known nearby site on same day.	1 May 2005	
4303 Scotts Valley Dr APN 022-172-73	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	26 September 2005	
Glenwood Preserve	Scotts Valley, Santa Cruz County, CA	Population monitoring	79 adults observed on 16 days between Jan 21 and April 25; 167 larval burrows were observed	November 2005 (draft)	Part of the Glenwood Preserve 2005 Monitoring Report prepared by WRA, Inc.
Graniterock Wilder Sand Plant	Wilder Quarry, Santa Cruz County, CA	Presence/absence	None observed during 10 site visits from Jan. 30 through April 25, 2005	6 May 2005	
Gross-Poliski residential project	terminus of Meder St., Santa Cruz, Santa Cruz County, CA	Presence/absence	No formal survey in 2005, but checked this site a few times during adult and larval activity periods. No life stages observed.	None	
UC Santa Cruz, Marshall Field	UC Santa Cruz campus, Santa Cruz County, CA	Population monitoring	236 adults observed during 15 of 17 site visits from Jan. 24 through April 25, 2005; 134 active larval burrows observed during July 1 visit.	30 September 2005	

Table 3. 2005 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	Report Date	Notes
Wilder State Park – Grey Whale area scraped habitat study	Santa Cruz, Santa Cruz County, CA	Abundance surveys	Adults seen from March 4 through April 15, 2005 in natural habitats along transects. Adults also seen in experimental scraped habitat, but other environmental factors determine extent of use of this artificially-created habitat.	2 June 2005 (Nick Earley, UCSC student)	

Table 4. 2005 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
8100 Azalea Dr APN 073-082-11	Felton, Santa Cruz County, CA	Habitat assessment Presence/absence	Marginal habitat observed. None were trapped over 3 visits from June 21 through July 26, 2005. MHJB were active at control site.	10 June 2005 12 August 2005	
224 Hidden Glen Dr APN 067-533-04	Scotts Valley, Santa Cruz County, CA	Habitat assessment	Suitable habitat observed	16 April 2005	
8575 Hihn Rd APN 072-122-16	Ben Lomond, Santa Cruz County, CA	Habitat assessment	No suitable habitat	26 December 2006	
600 Lockhart Gulch APN 070-271-10	Scotts Valley, Santa Cruz County, CA	Habitat assessment	Marginal habitat observed	19 September 2005	
495 Lockewood Lane APN 021-071-01 APN 021-071-02	Scotts Valley, Santa Cruz County, CA	None	No survey in 2005 since 2 adults were seen in 2001 during a survey for the prior property owner, Dr. Bruce Dunn	November 2005	HCP admin. draft 1.0 submitted to Ventura Field Office
670 Lockewood Lane APN 067-581-20	Scotts Valley, Santa Cruz County, CA	Habitat assessment	Suitable habitat observed	31 May 2005	
131 Lunar Ct APN 021-092-08	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	11 July 2005	

Table 4. 2005 Survey Information for Mt. Hermon June Beetle (*Polyphylla barbata*) for PRT-797233 (Richard A. Arnold) Annual Report

Title of Project	Survey Location	Type of Survey	Observations	Report Date	Notes
Madrone Dr property APN 073-071-36	Felton, Santa Cruz County, CA	Habitat assessment	Suitable habitat observed	15 June 2005	
8120 Madrone Dr APN 073-081-14	Felton, Santa Cruz County, CA	Habitat assessment	Suitable habitat observed	2 June 2005	
300 Oak Creek Blvd APN 022-732-31	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	14 July 2005	
1330 Quail Hollow Rd APN 077-311-29	Ben Lomond, Santa Cruz County, CA	Habitat assessment	Suitable habitat observed; probable adverse impacts from grading and excavation already done	9 August 2005	
4303 Scotts Valley Dr APN 022-172-73	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	26 September 2005	
Sood (4421 Scotts Valley Dr)	Scotts Valley, Santa Cruz County, CA	Habitat assessment Presence/absence	Marginal habitat observed. None were trapped over 3 visits from June 21 through July 27, 2005. MHJB were active at control site.	21 March 2005 12 August 2005	
APN 022-172-21					
4650-4652 Scotts Valley Dr APN 022-491-15 APN 022-491-16	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	3 August 2005	

Table 4. 2005 Survey Information for Mt. Hermon June Beetle (*Polyphylla barbata*) for PRT-797233 (Richard A. Arnold) Annual Report

Title of Project	Survey Location	Type of Survey	Observations	Report Date	Notes
5311 Scotts Valley Dr APN 022-31-14	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	31 July 2005	
155 Spreading Oak Dr APN 067-531-08	Scotts Valley, Santa Cruz County, CA	Habitat assessment	Suitable habitat observed on portions of property	26 December 2005	
Sterling Ct lot APN 021-251-16	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	20 June 2005	
7940 E. Zayante Rd 073-091-01	Felton, Santa Cruz County, CA	Habitat assessment	No suitable habitat	20 October 2005	
7805 W. Zayante Rd APN 071-241-01	Felton, Santa Cruz County, CA	Habitat assessment	No suitable habitat	23 March 2005	
Cowell Redwoods State Park expansion property	Just north of existing park off Graham Hill Rd, near Scotts Valley, Santa Cruz County, CA	Biotic assessment	Known occurrences of MHJB here; 14 dead beetles observed during 6 field surveys from June, July, & August	19 October 2005	
Erba Lane property	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	14 July 2005	

Table 4. 2005 Survey Information for Mt. Hermon June Beetle (*Polyphylla barbata*) for PRT-797233 (Richard A. Arnold) Annual Report

Title of Project	Survey Location	Type of Survey	Observations	Report Date	Notes
Hanson Aggregates-Felton Quarry & Freeman property mitigation site	Felton, Santa Cruz County, CA	Monitoring	2840 adult males were trapped over 19 visits from May 21 through Aug. 30, 2005 at quarry; 1653 adult males were trapped over 18 visits at mitigation site through same time period. The seasonal population model estimate for MHJB males is 1,310,093 to 1,411,839 for the entire quarry and 860,679 to 927,523 for the entire Freeman property, with similar population range estimates for female beetles.	November 2005	Submitted to the Ventura & Portland offices of USFWS

Table 5. 2005 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
8100 Azalea Dr APN 073-082-11	Felton, Santa Cruz County, CA	Habitat assessment	No suitable habitat	10 June 2005	
224 Hidden Glen Dr APN 067-533-04	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	16 April 2005	
8575 Hihn Rd APN 072-122-16	Ben Lomond, Santa Cruz County, CA	Habitat assessment	No suitable habitat	26 December 2006	
600 Lockhart Gulch APN 070-271-10	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	19 September 2005	
670 Lockewood Lane APN 067-581-20	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	31 May 2005	
131 Lunar Ct APN 021-092-08	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	11 July 2005	
Madrone Dr property APN 073-071-36	Felton, Santa Cruz County, CA	Habitat assessment	Suitable habitat observed for ZBWG	15 June 2005	
8120 Madrone Dr APN 073-081-14	Felton, Santa Cruz County, CA	Habitat assessment	No suitable habitat	2 June 2005	

Table 5. 2005 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
300 Oak Creek Blvd APN 022-732-31	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	14 July 2005	
1330 Quail Hollow Rd APN 077-311-29	Ben Lomond, Santa Cruz County, CA	Habitat assessment	Potential suitable habitat observed for ZBWG; possible adverse impacts from grading and excavation already done	9 August 2005	
4303 Scotts Valley Dr APN 022-172-73	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	26 September 2005	
Sood (4421 Scotts Valley Dr) APN 022-172-21	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	21 March 2005	
4650-4652 Scotts Valley Dr APN 022-491-15 APN 022-491-16	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	3 August 2005	
5311 Scotts Valley Dr APN 022-31-14	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	31 July 2005	
155 Spreading Oak Dr APN 067-531-08	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	26 December 2005	

Table 5. 2005 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
Sterling Ct lot	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	20 June 2005	
APN 021-251-16					
7940 E. Zayante Rd	Felton, Santa Cruz County, CA	Habitat assessment	No suitable habitat	20 October 2005	
073-091-01					
7805 W. Zayante Rd	Felton, Santa Cruz County, CA	Habitat assessment	No suitable habitat	23 March 2005	
APN 071-241-01					
Cowell Redwoods State Park expansion property	Just north of existing park off Graham Hill Rd, near Scotts Valley, Santa Cruz County, CA	Biotic assessment Presence/absence	Known past sightings of ZBWG here; successional vegetation changes have occurred & no suitable habitat now observed. No ZBWG found in presence/absence visits on July 26 and Aug. 5, 2005.	19 October 2005	
Erba Lane property	Scotts Valley, Santa Cruz County, CA	Habitat assessment	No suitable habitat	14 July 2005	
Quail Hollow Quarry	Felton, Santa Cruz County, CA	Population monitoring		Feb. 2006 (expected)	Report will be sent to the Ventural Field Office upon its completion