

Entomological Consulting Services, Ltd.

104 Mountain View Court, Pleasant Hill, CA 94523 • (925) 825-3784 • FAX 827-1809
bugdctr@home.com • www.ecsltd.com

New email address: bugdctr@attbi.com

31 January 2003

RECEIVED
FEB 08 2003

BY: _____

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

RE: 2002 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 2002 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 2002. However, during the 2002 activity periods of the other five insects, field studies were conducted at a number of locations in the Los Angeles area for ESB, Carmel Valley (Monterey County) to northern San Luis Obispo 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, to test a survey protocol procedure for presence-absence surveys, 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 my 2002 monitoring reports on the ESB for Chevron and LAX were previously sent to the Daniel Marquez of the Carlsbad Field Office. Reports for some of my surveys conducted in Santa Cruz County were previously transmitted to Colleen Sculley of your Ventura Field Office. With this annual permit report, I enclose copies of my remaining written reports for each of the other aforementioned surveys to the Ventura office of USFWS. My written report for monitoring surveys at the Quail Hollow Quarry has not yet been completed, but will be sent to Ventura shortly. 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 airport. Near the peak of the adult flight season, quadrat counts at Chevron and a block count at the airport 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).

Visual surveys for the SBB were conducted at a numbers of locations to document the presence or absence of the butterfly. In addition, mapping of food plants was performed at Rancho San Carlos (still in progress), Pt. Lobos State Reserve, and portions of the Los Padres National Forest using GPS and GIS technologies.

Short-term capture-recapture studies of the OTB were performed at Santa Cruz Gardens and Poliski-Gross properties. Adult beetles were capture, marked with a Sharpie pen using a dot code, and immediately released at the point of capture. Inclement weather limited these studies to only 14 days. Transect counts were used to monitor adults at other locations. Eggs and larvae and their respective burrows were monitored throughout the year at Marshall Field (UC Santa Cruz campus), Santa Cruz Gardens, Poliski-Gross, Glenwood, and Grey Whale State Park.

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 2002, all beetles were live trapped and released. Traps were operated for 13 nights at the Quail Hollow Quarry, but generally for one to three nights at locations where presence-absence surveys were conducted.

Transect counts were used to study the ZBWG at the Hanson Quarry and its Freeman mitigation site. No ZBWG were observed at the Cellular One site.

No voucher specimens were collected for any of my surveys of these insects in 2002. 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 each study location are included with the individual project reports.

Results.

The attached tables 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 2002 surveys.

ESB adults were observed at the Chevron refinery and Los Angeles International Airport. Estimated population numbers declined at both sites in 2002 compared to recent years.

Although adults of the SBB were plentiful during its 2002 flight season in the southern Big Sur area, I did not observe any butterflies at Point Sur, Point Lobos, Rancho San Carlos, or Garland Park (part of my surveys for Rancho San Carlos). No obvious reason for the absence of the butterfly at these locations was apparent. A number of new locations for the SBB were discovered during my surveys for the Los Padres National Forest.

A new population was observed at the Curran Ranch in Santa Cruz. Dr. Barry Knisley and I are preparing a manuscript for publication of our findings of the past few years on the OTB. A portion of these studies have been funded by Dr. Knisley's cooperative agreement with USFWS. A draft of our manuscript is enclosed, but additional information will be added as we complete our data analysis.

During my presence-absence surveys for MHJB, adult beetles were observed at the Cellular One antenna site, Dumas property, Geyer Quarry, Creekside Estates, 22 Blake Lane (Scotts Valley), Mandarino office site, Olympia Well Field, and the Broughton resident. MHJBs were also observed at the Quail Hollow Quarry. The report for my survey at Quail Hollow is still in preparation as I am developing a new procedure to estimate population numbers of the beetle using my 2002 survey results. It will be forwarded to the Ventura office as soon as I have completed the analysis.

ZBWG adults were observed only at the Hanson Quarry and Freeman property. The HCP monitoring for these sites utilized transects counts during the full adult season, late July through early November of 2002.

Planned Future Activities.

I expect to continue monitoring activities for the Hanson and Quail Hollow quarries in 2003 as required by their respective incidental take permits. ZBWG will be monitored at the Quail Hollow Quarry and MHJB at Hanson Quarry and Freeman mitigation site. Monitoring of both taxa will also continue at the Cellular One antenna site. 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 2003. At this time, I do not foresee any changes in the monitoring methods for the butterfly at either of these sites.

Finally, I plan to continue monitoring of the OTB at selected sites in 2003. 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 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 2002 or need additional information, please contact me.

Sincerely,



Richard A. Arnold, Ph.D.
President

✓
Cc: Amelia Orton-Palmer, Ventura Field Office
Daniel Marquez, Carlsbad Field Office

Attachments: Table 1-5

Enclosures: copies of survey reports (Ventura only)

Table 1. 2002 Survey Information for El Segundo Blue Butterfly (*Euphilotes battoides allyni*) for PRT-797233 (Richard A. Arnold) Annual Report (see maps of survey locations in Los Angeles County, CA in the cited reports)

Title of Project	Survey Location	Type of Survey	Observations	Report Date	Notes
Chevron's El Segundo Blue Monitoring	Chevron Refinery in El Segundo	Population monitoring using transect counts, quadrat counts, and seasonal population estimate	11 dates between 30 June and 3 Sept. - 2716 adults observed during transect counts; 21 July - 499 adults observed during quadrat counts; seasonal population estimate of 9,465 - 9,882 adult butterflies	Dec. 2002	Submitted to Carlsbad office of USFWS
Los Angeles Airport's El Segundo Blue Monitoring	Los Angeles International Airport in Los Angeles	Population monitoring, including transect counts, block counts, and seasonal population estimate	14 dates between 19 June and 24 Aug. - 1236 adults observed during transect counts; 14-18 July - 2,750 adults observed during block counts; seasonal population estimate of 51,725 - 54,002 adult butterflies	Nov. 2002	Submitted to Carlsbad office of USFWS

Table 2. 2002 Survey Information for Smith's Blue Butterfly (*Euphilotes enoptes smithi*) 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
Status of the Smith's Blue Butterfly at Pt. Lobos State Reserve	Carmel, Monterey County, CA	Presence-absence for the butterfly; mapped occurrences of <i>Eriogonum parvifolium</i>	None observed during 9 site visits between June 21 and Aug. 10, 2002	30 Oct. 2002	Submitted to Ventura office of USFWS
Status of the Smith's Blue Butterfly at Pt. Sur Lighthouse State Park	Big Sur, Monterey County, CA	Presence-absence for the butterfly	None observed during 6 site visits between July 9 and Aug. 26, 2002	30 Aug. 2002	Submitted to Ventura office of USFWS
Smith's Blue Butterfly Survey Protocol for the Los Padres National Forest	Greater Big Sur area and Los Padres National Forest in Monterey County and northern San Luis Obispo County, CA	Presence-absence for the butterfly	>346 adults observed at 69 locations between 9 July and 5 Aug. 2002	Nov. 2002	Submitted to Ventura office of USFWS

Status of Smith's Blue at Rancho San Carlos	Rancho San Carlos, Carmel Valley, Monterey County, CA	Presence-absence for the butterfly; mapped occurrences of <i>E. parvifolium</i> , <i>E. nudum</i> , and <i>E. elongatum</i>	None observed during 15 site visits in July, Aug., and Sept. 2002	No written report prepared	Surveys for <i>Eriogonum</i> still in progress; additional butterfly surveys to occur in summer of 2003; report to be prepared upon conclusion of 2003 surveys
South Coast Center of Esalen Institute	Big Sur, Monterey County, CA	Habitat assessment	None observed, but habitat present	31 Oct. 2002	Submitted to Ventura office of USFWS

Table 3. 2002 Survey Information for Ohlone Tiger Beetle (*Cicindela ohlone*) for PRT-797233 (Richard A. Arnold) Annual Report (see maps of survey locations in Santa Cruz County, CA, in the cited reports)

Title of Project	Survey Location	Type of Survey	Observations	Report Date	Notes
USFWS cooperative agreement with Barry Knisley for research on the Ohlone Tiger beetle	Santa Cruz Gardens subdivision in Soquel (near Thurber & Benson streets)	Population monitoring of adults via capture – recapture; monitored survival and growth of larvae; mapped larval burrows with GPS	168 adults marked and 48 recaptured between 21 Feb and 4 March	No written report yet	Results will be presented in ms. (in prep.) by Knisley and Arnold
Poliski-Gross residential project	Santa Cruz, at terminus of Meder St.	Population monitoring of adults via capture – recapture; monitored survival and growth of larvae; mapped larval burrows with GPS	165 adults marked and 1 recaptured between 21 Feb and 4 March	No written report yet	Results will be presented in ms. (in prep.) by Knisley and Arnold

UC Santa Cruz, Inclusion Area D Habitat Conservation Plan	UC Santa Cruz campus	Habitat assessment throughout 2000-acre campus; presence – absence surveys in areas of suitable habitat; transect counts and larval monitoring in Inclusion Area A and Marshall Field	Suitable habitat identified in Feb. 2002 report; counts and burrow info to be summarized in Knisley and Arnold ms.	Feb. 2002 habitat assessment only; no written report for adult & larval surveys	Submitted to Ventura office of USFWS; results in ms. (in prep.) by Knisley and Arnold
Curran Ranch residential project	Off of Hwy 1 at north end of Santa Cruz	Presence – absence	7 adults, 1 larva, and 3 larval burrows observed on 11 May 2002	Colin Herrick 7 June 2002	Submitted to Ventura office of USFWS
Wilder Quarry HCP update	Wilder Quarry off Hwy 1, north of Santa Cruz	Habitat assessment and presence – absence	None	Cheryl Tillotson 12 June 2002	Submitted to Ventura office of USFWS
Sky Park skate facility	City of Scotts Valley	Presence – absence	None	Laura Kuhn 5 May 2002	Submitted to Ventura office of USFWS
USFWS-OTB research	Glenwood site in Scotts Valley behind Siltanen Park and Vine Hill School	Population monitoring of adults; mapped and monitored larvae and their burrows		No written report	Results will be presented in ms. (in prep.) by Knisley and Arnold

USFWS-OTB research	Grey Whale portion of Wilder State Park	Population monitoring of adults; mapped and monitored larvae and their burrows		No written report	Results will be presented in ms. (in prep.) by Knisley and Arnold
Karnan Ewing office building	3500 Glen Canyon Road, Scotts Valley	Habitat assessment	No suitable habitat	June 2002	Submitted to the Ventura office of USFWS
APN 024-211-009	Green Hills Drive	Habitat assessment	No suitable habitat	May 2002	Submitted to the Ventura office of USFWS
Gateway South office and commercial project (Saris-Regis)	La Madrona Drive, Scotts Valley	Habitat assessment	No suitable habitat	April 2002	Submitted to the Ventura office of USFWS
Tosca Terrace, APNs 002-014-01 & 002-014-02	1463 High St., Santa Cruz	Habitat assessment	No suitable habitat	March 2002	Submitted to the Ventura office of USFWS
Santa Cruz Hills	Chaminade in Soquel	Presence-absence	None observed	May 2002	Submitted to the Ventura office of USFWS

**Table 4. 2002 Survey Information for Mt. Hermon June Beetle (*Polyphylla barbata*)
for PRT-797233 (Richard A. Arnold) Annual Report
(see maps of survey locations in Santa Cruz County in the cited reports)**

Title of Project	Survey Location	Type of Survey	Observations	Report Date	Notes
Sky Park skate facility	Sky Park in Scotts Valley	Presence - absence	None in a 3-night survey	Laura Kuhn 5 Aug. 2002	Submitted to the Ventura office of USFWS
Mt. Hermon Conference Center Master Plan	3 historic buildings on the conference center's grounds	Habitat assessment	No suitable habitat	Colleen Sculley 4 April 2002	Submitted to the Ventura office of USFWS
Geyer Quarry mitigation bank	Geyer Quarry	Presence - absence	35 adults on 6 nights between June 14 and June 28	Santa Cruz County Public Works 21 Oct. 2002	Submitted to the Ventura office of USFWS
Karnan Ewing office building	3500 Glen Canyon Road, Scotts Valley	Habitat assessment	No suitable habitat	June 2002	Submitted to the Ventura office of USFWS
APN 024-211-009 vacant land	Green Hills Drive, Scotts Valley	Habitat assessment	No suitable habitat	May 2002	Submitted to the Ventura office of USFWS
214 Blueberry Drive vacant lot	Scotts Valley	Habitat assessment	No suitable habitat	13 Aug. 2002	Submitted to the Ventura office of USFWS
Mayfield residence remodel	67 Forest Road, Mount Hermon	Habitat assessment	No suitable habitat	6 Aug. 2002	Submitted to the Ventura office of USFWS

Broesamle residence remodel	3 Pine Avenue, Mount Hermon	Habitat assessment	No suitable habitat	28 June 2002	Submitted to the Ventura office of USFWS
Folden residence	29 Forest Road, Mount Hermon	Habitat assessment	No suitable habitat	17 Jan. 2002	Submitted to the Ventura office of USFWS
Sands residence remodel	79 Forest Road, Mount Hermon	Habitat assessment	No suitable habitat	6 Aug. 2002	Submitted to the Ventura office of USFWS
Gateway South	La Madrona Drive, Scotts Valley	Habitat assessment	No suitable habitat	April 2002	Submitted to the Ventura office of USFWS
Sprague remodel	10 Glen Alpine Way, Mount Hermon	Habitat assessment	No suitable habitat	30 March 2002	Submitted to the Ventura office of USFWS
Creekside Estates (= College Heights)	Bean Creek Road, Scotts Valley	Presence -- absence	129 adults on 6 nights between June 15 and July 6	10 Sept. 2002	Submitted to the Ventura office of USFWS
Singley residential remodel	14 & 16 Plaza Drive, Mount Hermon	Habitat assessment	No suitable habitat	24 June 2002	Submitted to the Ventura office of USFWS
Granum Partners' office building	Glen Canyon & Mt. Hermon roads, Scotts Valley	Presence -- absence	None	5 Aug. 2002 Greg Eger, Granum Partners	Submitted to the Ventura office of USFWS
Apartment building	22 Blake Lane, Scotts Valley	Presence -- absence	5 adults on June 13	27 June 2002 Cliff Bixler	Submitted to the Ventura office of USFWS

Unknown, APN 022-172-036	12 Blake Lane, Scotts Valley	Habitat assessment	No suitable habitat	8 June 2002 Paul Lawton	Submitted to the Ventura office of USFWS
Residential subdivision	555 Sunridge Drive, Scotts Valley	Habitat assessment	No suitable habitat	28 June 2002 Jack Paul	Submitted to the Ventura office of USFWS
APN 022-732-14 office building	Scotts Valley Drive, Scotts Valley	Presence – absence	None on 3 nights	9 Aug. 2002 Tom Tansy	Submitted to the Ventura office of USFWS
Llennoc cabin remodel	8 Parkway, Mount Hermon	Habitat assessment	No suitable habitat	27 March 2002 William Mayfield	Submitted to the Ventura office of USFWS
Mitigation bank	Dumas property, Felton	Presence – absence	37 adults on June 14	6 Sept. 2002	Submitted to the Ventura office of USFWS
Mandarino Developments Inc. office building	Scotts Valley Drive, Scotts Valley	Presence – absence	1 adult on 3 nights	15 Aug. 2002 Mark Barber	Submitted to the Ventura office of USFWS
Water treatment facility	Olympia Well Field, Felton	Presence – absence	66 adults on June 15, 17, & 21	12 Aug. 2002 Al Haynes, SLVWD	Submitted to the Ventura office of USFWS
Residential subdivision	Schnell property off Hihn Road, Ben Lomond	Habitat assessment	Suitable habitat	No written report	Submitted to the Ventura office of USFWS
Catney horse barn APN 067-351-09	188 Brook Knoll Drive, Santa Cruz	Habitat assessment	No suitable habitat	9 Sept. 2002 Robert Hughes	Submitted to the Ventura office of USFWS

Residential remodel	25 Pine Avenue, Mount Hermon	Habitat assessment	Suitable habitat	6 Aug. 2002 Dave Sullivan	Submitted to the Ventura office of USFWS
Residential addition	116 Whispering Pines Court, Scotts Valley	Habitat assessment	No suitable habitat	7 Jan. 2003 Clare Turner	Submitted to the Ventura office of USFWS
APN 022-172-80 apartment	16 Blake Lane, Scotts Valley	Habitat assessment	No suitable habitat	1 July 2002 Marlyn Bergman	Submitted to the Ventura office of USFWS
Residential remodel APN 066-143-29	9 Pine Avenue, Mount Hermon	Habitat assessment	No suitable habitat	6 Aug. 2002 Lee Hansen	Submitted to the Ventura office of USFWS
APN 073-061-01 O'Connell property	Old Zayante School Road, Felton	Habitat assessment	Suitable habitat	7 Aug. 2002 Brian Cleary	Submitted to the Ventura office of USFWS
Broughton residence	225 Zayante School Road, Felton	Presence-absence	12 beetles trapped on June 15, 21, and 28	1 Oct. 2002 Joel Schwartz	Submitted to the Ventura office of USFWS
Quail Hollow Quarry HCP	Quail Hollow Quarry, Felton	Population monitoring	1220 males were trapped on 13 nights between May 29 and Aug. 15	Not yet written	Will be forwarded to Ventura office of USFWS

Table 5. 2002 Survey Information for Zayante Banded Wing Grasshopper (*Trimerotropis infantilis*)
 for PRT-797233 (Richard A. Arnold) Annual Report
 (see maps of survey locations in Santa Cruz County in the cited reports)

Title of Project	Survey Location	Type of Survey	Observations	Report Date	Notes
Broughton residence	225 Zayante School Road, Felton	Presence – absence	None during 6 visits between Aug. and Oct.	Jan. 2003 Joel Schwartz	Submitted to the Ventura office of USFWS
Hanson Quarry HCP	Felton sand plant off of Conference Drive	Population monitoring for HCP	184 adults observed during 15 transect counts between July 25 and Nov. 2	Dec. 2002	Submitted to the Ventura office of USFWS
Hanson Quarry HCP mitigation site	Felton, Freeman property	Population monitoring for Hanson's HCP (mitigation site)	68 and 156 adults observed during 15 counts of 2 transects between July 25 and Nov. 2	Dec. 2002	Submitted to the Ventura office of USFWS
Cellular One antenna site	Peak of Mt. Hermon	Presence – absence	None	Jan. 2003	Submitted to the Ventura office of USFWS
Geyer Quarry mitigation bank	Geyer Quarry	Presence – absence	2 adults during 12 visits between July 25 and Oct. 20	Santa Cruz County Public Works 21 Oct. 2002	Submitted to the Ventura office of USFWS
Karman Ewing office building	3500 Glen Canyon Road, Scotts Valley	Habitat assessment	No suitable habitat	June 2002	Submitted to the Ventura office of USFWS
APN 024-211-009	Green Hills Drive	Habitat assessment	No suitable habitat	May 2002	Submitted to the Ventura office of USFWS

Gateway South office-commercial project (Saris-Regis)	La Madrona Drive, Scotts Valley	Habitat assessment	No suitable habitat	April 2002	Submitted to the Ventura office of USFWS
---	---------------------------------	--------------------	---------------------	------------	--