

# Entomological Consulting Services, Ltd.

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27 October 2003

Dean Fitch  
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Physical Planning & Construction  
515 Swift Street  
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Re: Ohlone Tiger Beetle Monitoring for 2003 in Inclusion Areas A and D

Dear Dean:

This letter summarizes the findings of my monitoring activities on the Ohlone tiger beetle (*Cicindela ohlone*) (OTB)<sup>1</sup> at Inclusion Area A and Inclusion Area D of the UCSC campus lands<sup>2</sup>. Monitoring activities occurred between January 2003 and October 2003. In summary, no life stages or burrows of the OTB were observed in Inclusion Area D (IAD), while limited numbers of egg, larval and adult life stages of the beetle were observed in Inclusion Area A (IAA).

## SURVEY METHODS AND RESULTS

### Adult OTB Counts.

Recording of observed adult OTB was performed during monitoring activities on 10 different days between January 31<sup>st</sup> and April 17<sup>th</sup>, 2003. Observations were conducted for IAA while walking along six trail segments as illustrated in Figure 1. These trail segments were selected for the 2003 adult survey because OTBs have previously been observed along these same segments in prior years. The survey dates were January 31<sup>st</sup>, February 4<sup>th</sup>, 9<sup>th</sup>, 18<sup>th</sup>, March 6<sup>th</sup>, 8<sup>th</sup>, 23<sup>rd</sup>, and 28<sup>th</sup>, April 6<sup>th</sup>, and April 17<sup>th</sup>, 2003. Dr. Barry Knisley, Randolph-Macon College, assisted with the monitoring surveys on March 6<sup>th</sup> and 28<sup>th</sup>.

A total of 75 adult OTBs were observed on the first nine survey dates. No adult OTBs were observed during the last survey date. The lowest count was 2 adults on April 6<sup>th</sup> and the peak count was 14 adults on February 18<sup>th</sup>. Adult OTBs were not captured, marked, or otherwise handled, so some beetles may have been observed more than once on a particular survey date or on different survey dates. Observations for OTB were also

<sup>1</sup> OTB is listed in 2001 in the Federal Register of Endangered and Threatened Wildlife and Plants as endangered pursuant to the Endangered Species Act 1973, as amended.

<sup>2</sup> Five Inclusion Areas on the UCSC campus are described in the UCSC 1988 Long Range Development Plan. Inclusion Areas A and D occur in the southern portion of the main campus.

conducted on IAD on the same aforementioned dates and no adults were observed at IAD in 2003.

#### Larval Burrows.

The same six trail segments in IAA that were used for the adult surveys were checked for egg and larval burrows. In addition to the trail segments, surveys of barren or sparsely vegetated areas throughout the adjacent grassland were also checked for burrows. During the surveys, egg and larval burrows of the OTB were marked in the field with nails when they were first observed. A total of 84 burrows were identified with nails. These burrows were rechecked during subsequent site visits during the adult flight season and then once a month during May through October 2003. During July and August visits, 15 larval burrows that supported active larvae were marked with pre-numbered aluminum tags and positional coordinates for every burrow were obtained using a Trimble GPS unit. All of these burrows supported mature, third instar larvae of the OTB, with burrow diameters ranging from 5.0 to 6.5 mm. Most of these larvae remained active through the October site visit. Five larvae had plugged their burrows presumably to pupate. The locations of these 15 larval burrows are illustrated in Figure 1. (NOT INCLUDED IN HCP APPENDIX)

Surveys for larval burrows were also conducted at Inclusion Area D during the months of May through October. No larval burrows of the OTB were observed at IAD in 2003.

### DISCUSSION

The findings of the 2003 monitoring surveys indicate that very few OTBs complete their full life cycle (i.e., egg, 3 larval instars, pupae, and adult life stages) at Inclusion Area A. Indeed, adult OTBs were five times more abundant than mature 3<sup>rd</sup> instar larvae. This observation suggests that adults are immigrating into IAA from other nearby locations and that early stages of the OTB are developing primarily at other locations than IAA. Much of the ground in IAA, such as the seeps and the wallows between the mima mounds, remains saturated throughout most of the adult activity period. Portions of IAA with drier soils at this time of year (January through May) generally support a dense cover of herbaceous vegetation. Thus, the areas available for larval burrows in IAA appear to be primarily limited to drier portions of the trails.

If you have any questions about my report, please contact me.

Sincerely,



Richard A. Arnold, Ph.D.  
President

Attachment: Figure 1