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19 April 2000

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**FISH AND WILDLIFE
SERVICE**

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VENTURA, CA**

RE: Glenwood Project Site in Scotts Valley, CA
Ohlone Tiger Beetle Report

Dear Kerry:

This letter reports on the findings of my field study that was conducted during the spring of 2000 at the Glenwood project site in Scotts Valley, CA for the Ohlone Tiger beetle ("OTB"), *Cicindela ohlone*, (Coleoptera: Cicindelidae). I also conducted surveys for Opler's Longhorn moth ("OLM"), *Adela oplerella* (Lepidoptera: Incurvariidae). The primary purposes of my study were to update the status of both insects at the project site and to determine how the adult and larval life stages of the OTB are now utilizing the available habitat compared to the findings of my 1996 study.

Background information on both species was presented in my 1996 report (Arnold 1996) for the Glenwood site. Rather than repeat that information herein, I refer you to my earlier report. In addition, the recent proposed listing of the OTB (U.S. Fish & Wildlife Service 2000) provides some new information on the OTB. To the best of my knowledge, no new information on OLM has been published since my 1996 report.

Project Site.

The Glenwood project site measures approximately 200 acres and is located immediately north of the Vine Hill School and Siltanen Park, between Glenwood Drive and Tabor Drive in Scotts Valley. A second smaller parcel lies immediately west of Glenwood Drive and north of the new high school site. My surveys were focused on the parcel immediately north of the school and park as this is the area where the OTB and OLM had previously been observed. This portion of the site is characterized by several prominent hills and side slopes that are bisected by a low-lying meadow, Glenwood Drive, and Carbonera Creek, which flows through the meadow. Figure 1 is a topographic and wetland map of the site that was prepared by Kelley & Associates Environmental Sciences, Inc.

Grassland covers much of the site and is characterized by introduced annual grasses and weedy forbs, plus several natives of a remnant bunch grassland plant community. Other plant communities observed at the site included coastal sage scrub, riparian, and freshwater pond (i.e., a man-made reservoir), seasonal wetland, and mixed

deciduous-coniferous woodland. The current land use is as pasture for a small number of horses.

Survey Methods.

I visited the Glenwood site seven times between February 20th and April 4th, 2000. I spent a total of 36 hours searching for adults and burrows of the OTB as well as adults and larval food plants of the OLM. Searches for adults of both insects were conducted during the warmest part of each day, typically between 10:00 am and 5:00 pm. A handheld thermometer was used to measure ambient air temperature at about three feet above ground. Similarly, a handheld wind meter was used to measure wind speed. All searches for both insects were conducted during warm weather with sunny or partly cloudy skies and no or only light winds.

During my first site visit, I hiked throughout all portions of the site to determine if any changes in habitat conditions had occurred since my 1996 study. Since site conditions had not significantly changed since 1996, my searches for the OTB focused primarily in those portions of the site identified as OTB #1 and OTB#2 as illustrated in Figure 1.

When the larval food plant, *Platystemon californicus* (Papaveraceae), of the OLM began to flower in March, I searched the grassland portions of the site to identify where it grew. These areas were revisited on subsequent survey dates to search for adults of the OLM.

As each OTB adult was observed, its approximate location was noted on a site map. Each detected beetle was continuously observed until the beetle flew or scurried away and was lost from sight. Throughout the duration of each observation, various behaviors were noted. The duration of each observation was measured in minutes using a stopwatch. No beetles were captured or otherwise handled. The locations of beetle burrows were also noted.

Results and Discussion.

A total of 211 OTB adults were observed during my seven site visits. Since the beetles were not marked to facilitate individual identification, it is possible that some individuals were observed more than once during a single day or on different days during the study period. The number of adult beetles observed daily ranged from 14 on February 20th to 59 on March 10th. The last beetles, 15, were observed on April 4th. I suspect that OTBs continued to be active for at least 10 days beyond April 4th, but I was unable to monitor their activity after that date because of an emergency medical condition that required me to terminate my study. A series of late season storms and cooler than normal temperatures that occurred for several consecutive days in mid-April may have terminated the OTB's seasonal activity period in 2000 even though in some years I have observed adults until late April or early May. Although I was unable to continue observing adults until the end of their activity period, I have no reason to suspect that other sectors of the site would be used in the latter portion of their activity period.

All OTB adults were observed in the area designated as OTB #1 in Figure 1. No OTB adults or burrows were observed at OTB #2 (Figure 1) where potential burrows had been observed in my 1996 study. Figure 2 is a blown-up portion of OTB#1 which illustrates the boundaries of all adult observations. Figures 3, 4, and 5 are photographs that illustrate habitat conditions at OTB #1.

Eighteen of the adult OTBs immediately flew away upon initial detection. The remaining 193 OTBs were observed for a total 20.1 hours. Thus, the average observation time was 6.25 minutes/individual, and the shortest continuous observation time was 1.25 minutes while the longest was 24.5 minutes. Also, since I did not capture or otherwise handle any adult beetles, I could not reliably sex all observed individuals.

Adults were active when ambient air temperatures measured 59° F or greater, and when winds were less than 11 mph. Site visits were made on days that were generally sunny and warm, with air temperatures as high as 82° F. Beetle activity was greater when temperatures were warmer and winds were non-existent or at low speeds (< 5mph).

Several behaviors of adult beetles were observed, including scurrying around on the ground, basking to thermoregulate, cleaning their legs, inspecting and attacking potential prey (spiders, ants, a ground beetle larva, and a moth caterpillar), mating, digging, crawling into and out of burrows, and flying. The vast majority of OTB observations occurred in areas characterized by bare or sparsely-vegetated ground. At OTB #1, bare ground is evident along several foot or horse trails, while sparsely-vegetated areas are dominated by low-growing vegetation rather than dense and taller annual grasses (Figures 3 – 5).

Burrows of the OTB were observed at OTB #1 in areas of bare ground and sparse vegetation. Burrows were more frequently noted around the perimeter of barren areas, immediately adjacent to the base of bunch grasses or other vegetation rather than in open, exposed areas. The distribution of burrows at OTB #1 coincides with that of the adult distribution as illustrated in Figure 2. No OTB burrows were observed at OTB #2 during my surveys in 2000.

The larval food plant of the OLM continues to grow at locations OLM #1 – OLM #6, as identified in Figure 1 of my 1996 report. During my 2000 survey, one new location of the OLM's larval food plant was discovered. It is identified as OLM #7 in Figure 2, which is located on a side slope below OTB #2. Approximately 90 individuals of *Platystemon californicus* were noted growing at this location in 2000. As I frequently visited OTB #2 during my 1996 survey and did not observe the OLM's food plant there, the food plant appears to have colonized this slope since my 1996 survey. Adult OLMs were observed only at OLM #1 during my 2000 surveys, so the remaining six locations at the site appear to support only the larval food plant.

Conclusions and Recommendations.

OTB adults and burrows were observed throughout a larger area at OTB #1 than during my 1996 survey. Figure 2 illustrates the area at OTB #1 in which adults and

burrows were observed. No OTB adults or potential burrows were observed in other portions of the Glenwood project site during my surveys in 2000.

One new location for the larval food plant of OLM was discovered during my 2000 survey (OLM #7 in Figure 2). In 2000, adult moths were observed only at OLM #1 as identified in my 1996 survey report (Figure 1).

For these reasons, as well as the possible recognition of the OTB as a threatened or endangered species, I suggest that the project be designed to avoid these habitat locations for both insects as identified in Figures 1 and 2. Such action would avoid direct impacts to both species and would probably eliminate the need for an incidental take permit from the U.S. Fish & Wildlife Service should the OTB become listed as endangered or threatened.

As I have not seen the proposed development plan for the site, I am not familiar with specific project details. However, I am aware that the City of Scotts Valley would like to use those portions of the project site that lie immediately north of the existing Siltanen Park for expansion of park and recreation activities. Based on the findings of my 2000 survey, the area west of the OTB habitat (Figure 2) and east of Carbonera Creek could be used for park activities. Once the City of Scotts Valley identifies its specific park plans, I can provide suggestions about buffer dimensions and measures to prevent indirect impacts to the OTB and its habitat. Other recommendations, as presented in my 1996 report, still apply and should be observed.


References.

Arnold, R.A. 1996. Status survey report on the Ohlone Tiger beetle and Opler's Longhorn moth at the Wood Brook site in Scotts Valley, California. Report prepared for Kelley & Associates Environmental Sciences, Inc. 12 pp. & map.

U.S. Fish & Wildlife Service. 2000. Endangered and threatened wildlife and plants; proposed endangered status for the Ohlone Tiger beetle, *Cicindela ohlone*, proposed rule. Federal Register 65:6952-6960.

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

Sincerely,

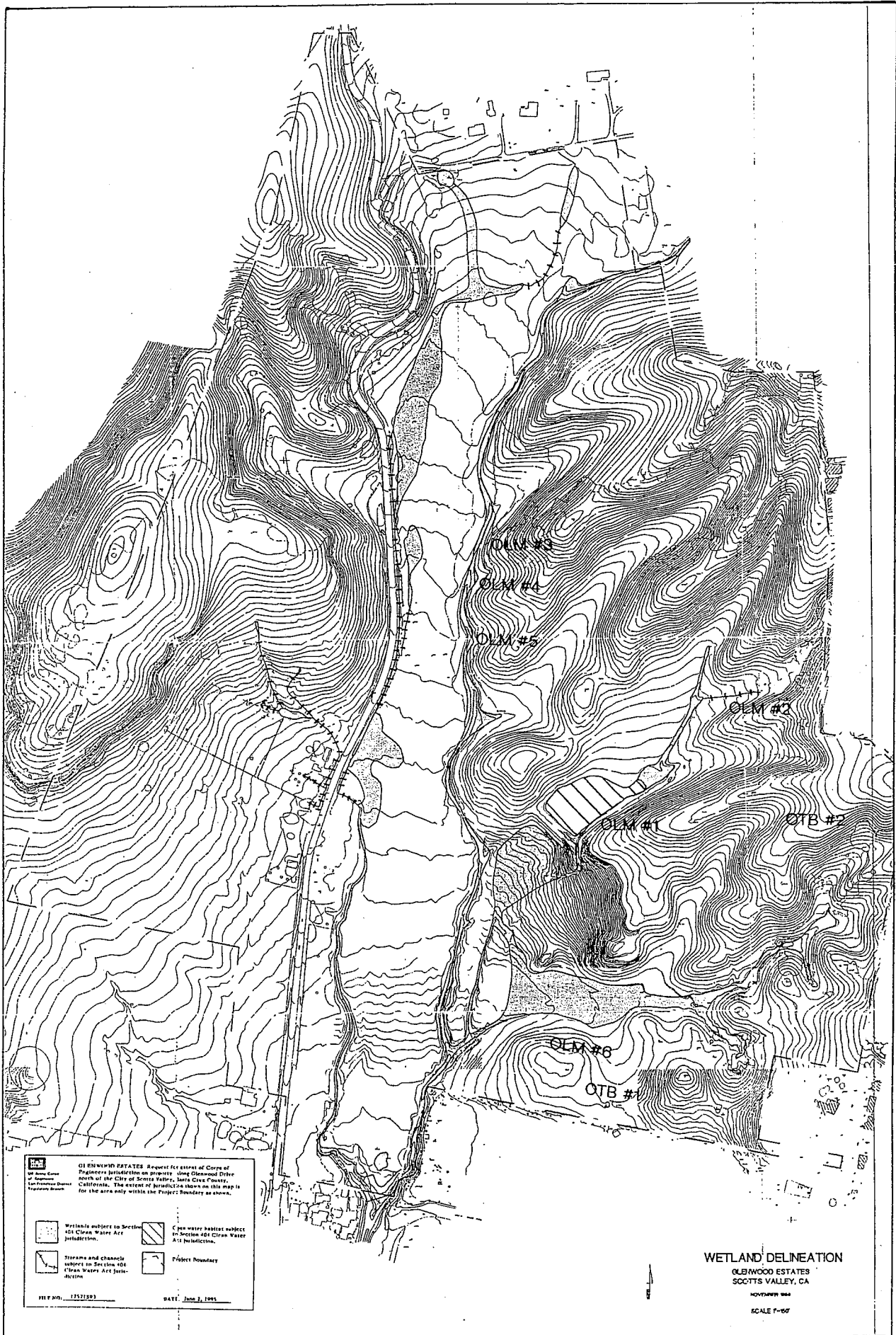


Richard A. Arnold, Ph.D.
President

Attachments: Figures 1 –5 (maps and site photos)

Figure 1. Locations of observations of Ohlone Tiger beetles (OTB #1 - #2)

and Opler's Longhorn moth (OLM #1 - #6) and their habitats.



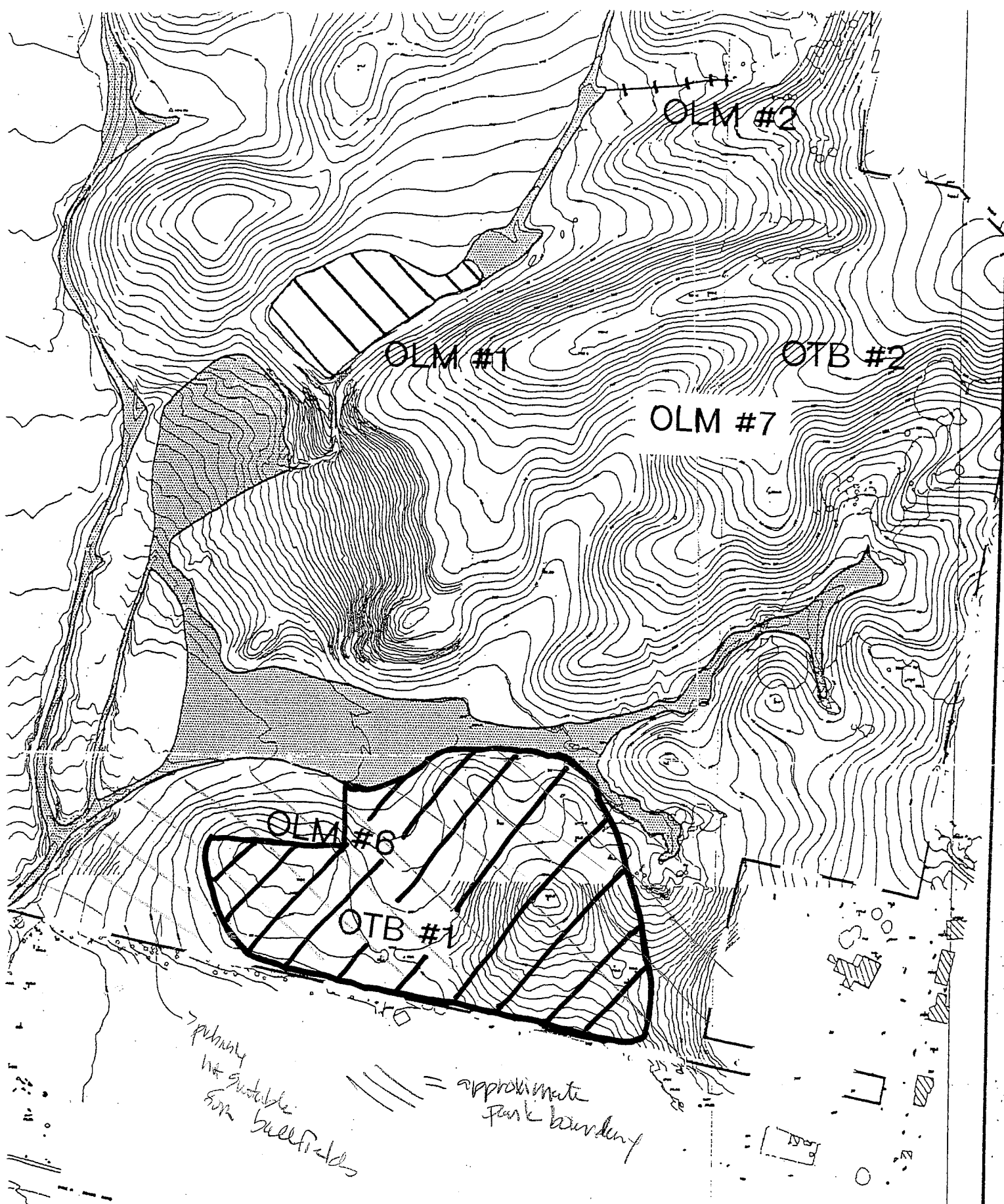


Figure 2. Boundaries of OTB #1 (hatching) and location of OLM #7.

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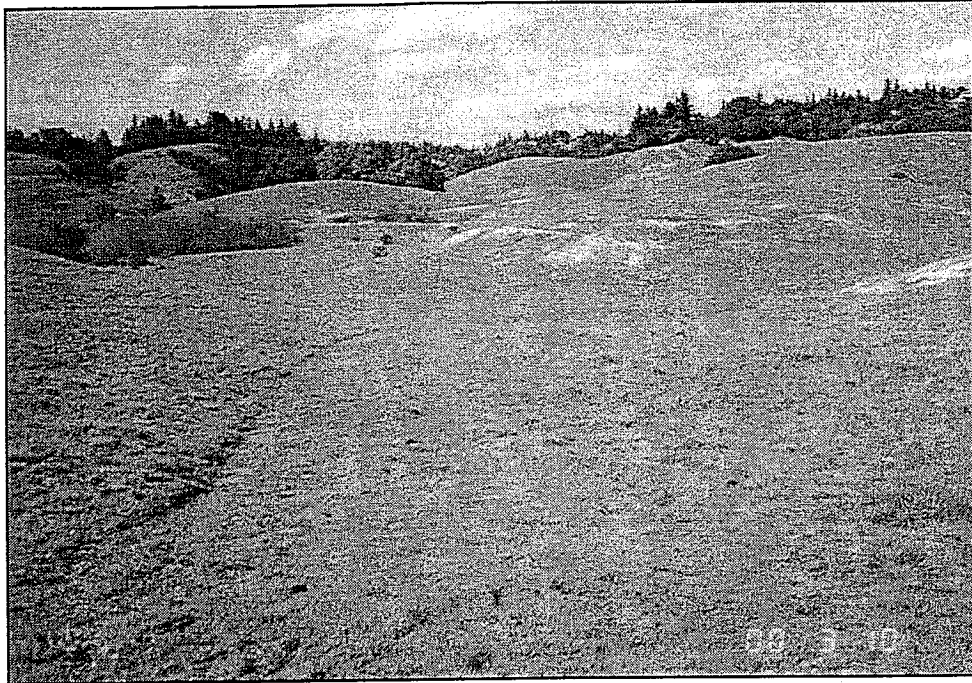


Fig. 3 OTB #1 in foreground

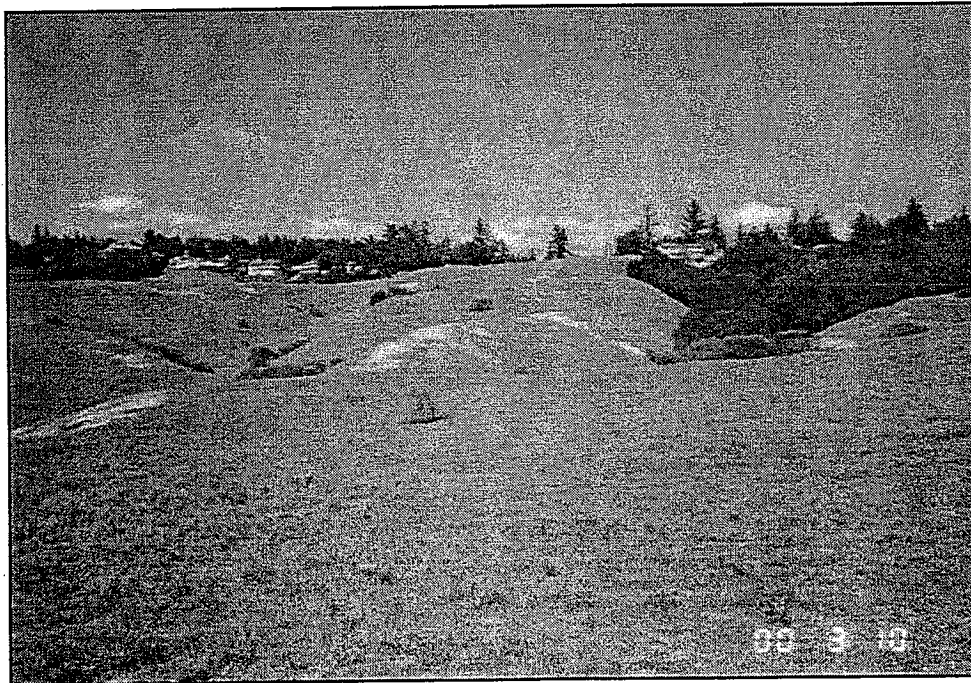


Fig. 4 OTB #1 in foreground

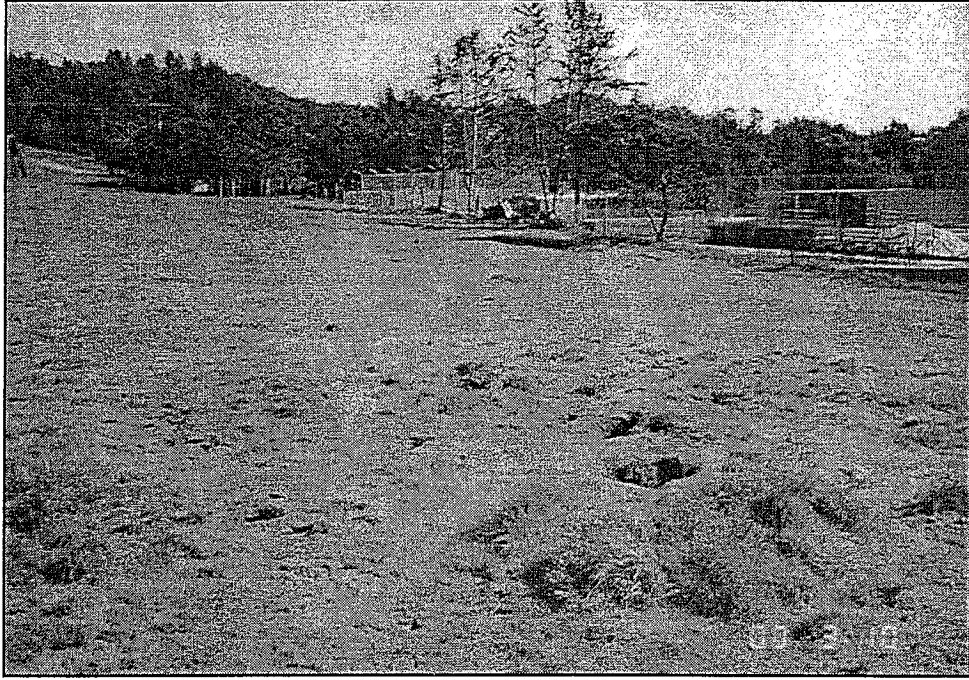


Fig. 5 OTB #1 (looking east) immediately north of Siltanen Park