PETITION

Ohlone Tiger Beetle

Received in Ventura Field Office: April 30, 1997

FAXed to Regional Office: May 12, 1997

FAXed to WO (TE): May 19, 1997

Grey
2817 Smith Grade Road
Santa Cruz, CA 95060
408-429-7487

April 25, 1997

FISH AND WILDLIFE SERVICE

APR 30 1997

RECEIVED
VENTURA, CA

Carl Benz
U.S. Fish and Wildlife Service
Ventura Field Office
2493 Portola Road, Suite B
Ventura, CA 93003

Dear Mr. Benz,

This is a formal petition for the Service to emergency list the Ohlone Tiger Beetle (*Cicindela Ohlone*) as Endangered under the provisions of the Endangered Species Act (50 CFR 424.20).

It is my firm opinion, along with others, that the Service now has sufficient documentation to warrant the listing of this beetle as endangered. After sufficient surveying of potential habitat in the central coast, we feel that the beetle is restricted to five populations in the vicinity of Santa Cruz, Soquel, and Scotts Valley, California. The beetle appears to be limited to areas of relatively in-tact coastal prairie grassland in clay soils with underlying Santa Cruz Mudstone. Surveys have included many areas of various types of grassland and other communities throughout the central coast of California. To answer USFWS concerns about populations occurring in San Mateo County, I have analyzed historical photos and determined that large areas of that county have been type converted to grassland and would thereby not be habitat. In many cases, I have personally surveyed areas of grassland to come to the conclusion that there is no viable habitat amongst the many acres that may appear to have grassland, very few areas have any native species- the only ones that appeared to have clay soils and/or potential open habitat for the beetle were surveyed as part of the 1995 surveys. Of the extant five populations, four are now threatened immediately with destruction, as follows:

1) Glenwood Hills, Scotts Valley: Currently, there are proposals for a ballfield, a school, and residential development in the immediate vicinity of the population. Weedy grasses are encroaching into the last remaining habitat as the grazing regime of the area is decreased. Grazing is scheduled to cease altogether with the proposed development.

2) Winkle Avenue, Soquel: There is a draft EIR currently under revision for a residential development of this parcel. Because the beetle is not currently listed, the EIR does not consider impacts to the species. Weedy grasses are encroaching on the habitat.

3) Pogonip Park, Santa Cruz: This area is City Park land and City planners are considering the beetle during their Master Plan development for this area. Funding is limited, however, for active management against the encroachment of weeds into the trails and open spaces that the beetle requires.

4) Bombay Corporation Lands, Moore Creek Watershed, City of Santa Cruz: There is an EIR being prepared for developing the parcel into residential housing. Grazing animals have been removed from large areas of the parcel which are responding with a tremendous growth of European grasses, destroying the habitat of the beetle.

5) Marshall Fields (UCSC), Gray Whale Ranch, on Empire Grade, Santa Cruz County: There are new threats to this population as the Department of Parks and Recreation is being transferred ownership of Gray Whale Ranch, previously in private ownership. The area that the beetle uses is slated for a parking lot and a trail network open to mountain bikes. Significant areas of potential habitat have been destroyed by trail closure (i.e., discing by tractor) initiated by State Parks in expectation of opening the park. Use of the trail system which is habitat to the beetle is expected to increase from virtually no use to hundreds of bicycles per day during peak season. This and the Bombay Corporation lands are the two largest colonies of the beetle and impacts to this population are of extreme concern.

The threats to the Gray Whale Ranch/UCSC population listed here are a recent development, other threats were listed in my letter to the Service dated 23 January, 1997. This letter was accompanied by field survey data from 1995 supporting the need for listing the species as endangered. The original field data submitted by Randall Morgan should also be considered for listing the species. At this time, agreement is unanimous amongst experts that this listing is warranted.

At this time, the estimated number of individuals of the species is between 2,000 and 10,000 adults in any given year (Randall Morgan, pers. comm., 1997).

I enclose copies of my previous letter and data along with the previous letter requesting listing of the species by Randall Morgan. I have spoken to the Curator of Coleoptera Dave Kavenaugh with the California Academy of Sciences and it is his strong opinion that the beetle warrants listing- you may have received correspondence from him supporting listing of the species. I also refer the Service to Dick Arnold (510-825-3784) who is familiar with the species after years of focused surveys for it.

Very Sincerely Yours,

Grey

cc. Randall Morgan
David Cavenaugh
Bruce Elliott, CDFG
Kim Tschantz, County of Santa Cruz Planning Department

Grey
2817 Smith Grade
Santa Cruz, CA 95060
408-429-7487

FISH AND WILDLIFE SERVICE

Carl Benz
U.S. Department of Interior
Fish and Wildlife Service
Ventura Field Office
2493 Portola Rd. Suite B
Ventura, California 93003

JAN 27 1997
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VENTURA, CA

23 January, 1997

Dear Mr. Benz,

Enclosed you will find the results of an extensive survey for the Ohlone Tiger Beetle. The survey was conducted during the spring of 1995 in an attempt to better quantify what experts already strongly suspected: that the beetle is extremely limited in distribution. The results support this suspicion.

Accordingly, I request that the United States Fish and Wildlife Service reconsider the species for an emergency listing as endangered. All of the known populations are now extremely threatened.

There is new information regarding the habitat needs of- and threats to- the species. This information is in response to Service rationale for declining listing during the previous petition.

On the subject of more clearly identifying Ohlone tiger beetle habitat requirements, surveys have been completed in most habitat types occurring in the central coast of California. Year long surveys at three week intervals for the last 7 years have not discovered the tiger beetle in the following habitats of Santa Cruz County: coastal ponderosa pine forest, maritime chaparral, foothill and mixed conifer woodland, coastal dunes, coastal bluffs, alkali wetland, alkali grassland, riparian woodland, and riparian scrub (Randall Morgan, pers. comm.). Extensive surveys have also taken place as part of the CEQA environmental review process in areas of proximity to known Ohlone tiger beetle populations. In all, approximately 15 locations have been surveyed in a variety of habitat types including forested, ruderal, and grassland communities. None of these surveys have documented the species (Richard Arnold, pers. comm.).

Other tiger beetle species are restricted to habitat types with gaps in the vegetation allowing them to forage efficiently for prey. Usually, each species is restricted to a peculiar type of community. For instance, *Cicindela oregona* requires alkali soils near open water. The survey results for the Ohlone tiger beetle have shown a similar pattern.

The species has only been found on loam or sandy loam with a high clay content. In every case, this soil overlays a rock formation called Santa Cruz Mudstone, a formation peculiar to the central coast of California. The habitat of the beetle is wet meadow which includes a large component of California oatgrass (*Danthonia californica*), Purple needlegrass (*Nassella pulchra*), as well as a diverse array of native forbs. This type of grassland would best be described as coastal terrace prairie which the California Department of Fish and Game lists as a habitat of special concern, noting that there are fewer than 2,000 acres remaining. The foraging habits of many tiger beetles require open areas devoid of vegetation in which to stalk prey. The type of grassland that the Ohlone tiger beetle has been found in has areas of bunch grasses with mixed forbs with sparse vegetation between bunches. Trails bisect these meadows and provide the beetles with areas for hunting. Beetles flushed from the

trails will navigate on wing only a short distance from the trails to return slowly on foot to the open foraging habitat of the trail itself. This need for open trail area in areas of native bunch grass and native forb grassland is ıcial for the beetle.

Burrows containing larval Ohlone tiger beetles have been located in a close proximity to the adult beetles in known beetle habitats. Mapping of burrow locations at the Winkle Avenue, Soquel site has been submitted to U.S. Fish and Wildlife Service and will show the proximity of burrows to areas known to be inhabited by adults. The density of burrows decrease with increasing vegetation cover. The burrows are up to 18" in depth and differ from burrowing bee chambers in that they initially descend straight down.as opposed to a sharp angel in the case of burrowing bees (Richard Arnold, pers. comm.).

Besides the threats of housing and school development proposals, the largest threat to the beetle is the invasion of exotic invasive weed species. These are changing the structure of the central coast's grasslands at a quick pace. Annual grasses have traditionally been the factor which has decreased native biological diversity in meadowlands. In many areas, native species have remained in coastal grasslands where grazing animals have kept non-native weeds at bay, often providing habitat for unusual and sometimes rare species (see Edwards, in The Four Seasons, vol. 10, #1, Dec., 1995). Grazing animals and human foot traffic are essential at keeping areas of grassland free of weedy vegetation, thereby providing tiger beetles with foraging and larval habitat. As grazing becomes less economically important, the remaining diverse grassland areas are succumbing to weedy vegetation. More recently than the annual grass invasion, threats to grasslands include: French broom (*Genista monspessulana*), velvet grass (*Holcus lanatus*), tall fescue (*Festuca arundinacea*), and other, perennial exotics. These are now threatening wet meadow areas that have been buffered from the annual invasives by lengthy inundation. The tiger beetle is found in such areas.

e following are the known threats to the species at the various locations (see map, Appendix B):

Occurrence #1. Terrace above Winkle Ave., Soquel

The entire site is threatened at this time by a proposed housing development. A proposal for this project has been received by the U.S. Fish and Wildlife Service, Ventura, California office.

Occurrence #2. Westside Greenbelt Lands, Santa Cruz

The site is threatened by a development proposal, exotic invasive weeds, and mountain bike traffic. A proposal for this development is in front of the Santa Cruz City Planning Department at this time. Grazing animals have been removed from large areas of this grassland, allowing the encroachment of annual grasses upon the areas of bare soil that the tiger beetles inhabit. French broom also threatens the grassland. Ongoing mountain bike traffic has been noted to crush the beetles in the narrow trails that they inhabit.

Occurrence #3. UCSC upper campus- "Marshall Fields", Santa Cruz

These grassland areas are currently being invaded by velvet grass (*Holcus lanatus*) and tall fescue (*Festuca arundinaceae*). Also, the University is experiencing increasing mountain bike use and plans on developing areas of these fields for a publicized mountain bike thoroughfare (Larry Pageler, UCSC Transportation Services representative, pers. comm.). The largest open space in the grassland has recently been paved with gravel, making the habitat unavailable for tiger beetle burrow creation and foraging. The adjacent, previously privately held habitat (a.k.a. Gray Whale Ranch) is transferring into the State Park system in the spring of 1997 and will see greatly increased mountain bike traffic as well as the final cessation of grazing animals.

Occurrence #4. Glenwood Drive area, Scotts Valley

re is currently a new proposal for a high school and ballfields by the City of Scotts Valley for this site. Also, as the land is now fenced and signed against trespass, there is less foot traffic which kept open trails for tiger beetle habitat. The decrease in grazing animals has led to an increase in weedy, European grasses and a further loss of habitat.

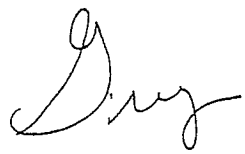
Occurrence #5. Pogonip Greenbelt, Santa Cruz

There are currently proposals for development of a museum, gardens, parking lots, and campgrounds in the area. Bermuda grass is rapidly invading the habitat, and grazing animals are proposed to be entirely removed from the habitat.

In conclusion, I note that all tiger beetle experts familiar with this species are at this time in agreement with the conclusions I have drawn: that the Ohlone tiger beetle is extremely limited in its distribution and population sizes and that a listing by the Service of this species as endangered is warranted at this time. I hope that our survey results and other information that I have submitted further illustrates the rarity of this species.

I would like to thank you and the Service for your time and attention to this matter. If I can be of any more assistance, please don't hesitate to contact me. I look forward to hearing about any further action on this species as it occurs.

Sincerely Yours,



Grey

Methods

Surveys were conducted by five biologists during March and April of 1995: John Pritchard, Alice Cascorbi, Ian Neubauer, Polly Goldman, and Grey. These surveyors attended workshops on Ohlone Tiger Beetle identification and survey techniques. These workshops were conducted by Randall Morgan and Grey who each have had many hours of field experience identifying and surveying for the beetle. In addition, Ms. Cascorbi accompanied Richard Arnold in his field work at the Winkle Avenue site, noting characteristics of larval burrows. The Empire Grade site was the field training site at which surveyors were tested for their proficiency at the survey. Survey sites were chosen by examining aerial photos of Northern Monterey, Santa Cruz, and San Mateo Counties. Areas of extensive grassland were assigned to individual surveyors who were provided with topographic maps and data sheets.

Surveys consisted of walking paths and roads in grassland locations while visually scanning the area immediately ahead, to a distance of ten to fifteen feet, of the surveyor. Surveys were conducted during favorable weather conditions with warm temperatures and sunshine. Surveys lasted a minimum of fifteen minutes.

Results

Surveys began on March 8, 1995 and continued through April 21, 1995. Total survey time was 45 hours, 29 minutes. Twenty one sites were surveyed. One additional location was discovered for the beetle, at Pogonip Park, in the City of Santa Cruz.

Survey results are summarized in Appendix A.

APPENDIX

A

SURVEY RESULTS TABLE

	Date name	Time	Beetles?	Name of Area	Description of Area	weather	#beetles	height of grass	% grass cover	pathways-type, #	Soil type	linear arc. surveyed	total time survey ed
6	3/6 J.P.	12:15 pm	no	Cascade Ranch, S. San Mateo Co. "Coppock Pond", grazed area, diversity of grasses, native forbs, some bare areas----- trail to ocean through very nice native moist prairie	grassland hills adjacent to reservoir grassland flat trail to ocean	sunny cool windy	na	6"-12"	95%	dirt roads	clay loam	1800m	1 hr.
6	3/12 J.P.	1:30 pm	no	"	see above	cloudy cool windy	na	"	"	"	"	2400m	1 hr.
5	3/3 J.P.	1:45 pm	no	Pogonip Park, City of Santa Cruz	flat hilltop grassland near clubhouse	hazy, cool breezy	na	3"-6"	95%	footpaths, horse trails	clay loam	3700m	1 hr.
5	3/17 J.P.	2:15 pm	yes	"	clubhouse area and upper area by Coolidge Drive	sunny & warm	7	"	"	"	"	2800m	1 hr.
5	3/26 J.P.	2:00 pm	no	"	"	sunny warm breezy	na	"	"	"	"	3200m	1 hr.
7	3/27 J.P.	12:00 pm	no	New Brighton State Beach, Santa Cruz Co	grassland mostly flat	sunny warm	na	6"	95%	dirt roads footpaths	clay	1200m	45 min.
8	4/2 J.P	11:30 am	no	Garrapata State Park, Monterey Co.	Ridge top grassland hillside, coastal scrub canyon, redwoods	sunny warm windy	na	6"	99%	footpaths	rocky claycy	11,000m	2 hrs.
9	3/17 J.P.	11:00 am	no	Bel Mar Development, Santa Cruz Co.	oak woodland above Hwy 1	sunny warm	na	6"	10%	dirt roads	sandy clay	1500m	30 min.
9	3/26 J.P.	12:00 pm	no	"	"	"	"	"	"	"	"	300m	15 min.
10	3/26 J.P.	1:00 pm	no	College Drive, Soquel	small pasture next to creek	sunny warm	na	24"-36"	100%	none	clay	300m	15 min.
11	3/17 J.P.	11:30 am	no	San Andreas Road, Santa Cruz Co.	oak grassland with cows, 2 ridges and valley	sunny warm	na	3"-6"	99%	cow paths	clay	1200m	45min.
11	3/26 J.P.	12:30 pm	no	"	"	"	"	"	"	"	"	1000m	40min.
11	3/27 J.P.	11:00 am	no	"	"	"	"	"	"	"	"	1200m	45min.
12	3/12 D.N.	2:00 pm	no	Above Bituminous Quarry, Smith Grade, Santa Cruz Co.	*Danthonia californica*, *Bromus carinatus* grassland	partly cloudy, some wind	na	6"-1'	50%	1 foot path	clay	1/10km	10min.
13	3/12 D.N.	2:15 pm	no	Baldwin Creek watershed, Smith Grade, Santa Cruz Co.	Mixed annual and perennial grassland with forbs	"	"	"	75%	2 foot paths	clay	2/10km	30min.
13	3/12 D.N.	2:45 pm	no	Baldwin Creek watershed, Smith Grade, Santa Cruz Co.	"	"	"	"	"	3 foot paths	"	2/10km	30min.
14	3/12 D.N.	3:30 pm	no	Baldwin Creek watershed, Smith Grade, S.CR.	Non-native grassland bordered by shrubs and mixed evergreen forest	"	"	"	"	1 dirt road	clay and sand	.5 km	1 hr.
15	3/16 D.N.	2:00 pm	no	Laguna Creek watershed, Smith Grade, Santa Cruz Co.	*Danthonia californica* and annual grass prairie	sunny	"	"	100%	1 dirt road	sandy clay	1/10 km	20 min.
13	4/2 D.N.	12:00 pm	no	Baldwin Creek watershed, Smith Grade, S.CR	Mixed annual and perennial grassland with forbs	sunny	"	"	75%	foot paths	clay	.5 km	1/2 hr.

	Date name	Time	les?	Name of Area	Description of Area	eather	#beetles	height of grass	% grass cover	pathways- type, #	Soil type	linear survey	al ne urvey ed
(13	4/5 D.N.	11:00 am	no	Baldwin Creek watershed, Smith Grade, Santa Cruz Co.	Mixed annual and perennial grassland with forbs	sunny	"	"	75%	foot paths	clay	.5 km	"
2	3/3 P.G.	3:00 pm	no	Moore Creek watershed, Empire Grade, Santa Cruz Co.	grazed grassland, very wet	sunny, windy, ~60F	na	1"	0-50%	2-4 cow paths	sandy	4 km	1 hr.
2	3/6 P.G.	2:00 pm	yes	"	grazed grassland with flowers	sunny, windy ~60F	1	0"	0%	cow trail- 6' wide	sandy, wet	2 km	1.5 hr.
2	3/6 P.G.	3:30 pm	yes	"	"	"	2	1"	50%	foot path	sandy	2 km	30 min.
2	3/15 P.G.	12:00 pm	yes	"	"	sunny, windy, ~70F	2	2"	"	cow paths	sandy	2 km	30 min.
16	3/25 P.G.	3:00 pm	no	Cave Gulch watershed, Empire Grade, Santa Cruz Co.	ungrazed and grazed coastal prairie	sunny, windy cold, ~60F	na	10"	100%	foot path	clay	4 km	2 hrs.
16	3/26 P.G.	4:00 pm	no	"	"	sunny, windy, ~70F	na	"	"	"	"	"	1.5 hrs.
1	3/24 AC	12:40 pm	no	Winkle Ave., Soquel (previously known location)	ungrazed coastal prairie with diverse native species including *Danthonia californica*	partly cloudy,~60F	na	.5"-2"	50%	dirt road	clayey	700m	20 min.
1	3/27 AC	1:40 pm	yes	"	"	sunny, ~88F	6	"	"	"	"	"	70 min.
1	4/1 AC	11:15 am	yes	"	"	sunny, windy, ~80F	1	"	"	"	"	"	45 min.
1	4/9 AC	4:05 pm	no	"	"	sunny, breezy, ~76F	na	"	"	"	"	"	10 min.
1	4/12 AC	11:30 am	no	"	"	sunny, breezy, ~80F	na	"	"	"	"	350m	30 min.
3	4/1 AC	12:40 on	yes	Marshall Fields, UCSC Empire Grade, Santa Cruz Co. (a previously known location)	ungrazed coastal prairie with diverse native species including *Danthonia californica*	hot, sunny no clouds	27	.5"-1'	50%	footpath	clay	450m	30 min.
17	3/19 AC	4:00 pm	no	Morgan Ranch, Carmel Valley Road Monterey Co.	coastal prairie with many native species	partly cloudy, ~60F	na	.5"-10"	50%	dirt road	clayey	1200m	1.5 hrs.
17	3/30 AC	1:30 pm	no	"	"	"	"	"	"	"	"	"	"
17	4/1 AC	5:15 pm	no	"	"	hazey, ~80F	na	"	"	"	"	"	1.25 hrs.
18	3/24 AC	1:20 pm	no	vacant lot near known Winkle Ave. site, Soquel	coastal prairie with less diversity and more weeds than adjacent reference site	sunny, breezy, ~60F	na	2"	50-100%	dirt road	clayey	225m	20 min.
18	3/27 AC	3:40 pm	no	"	"	sunny, ~88F	"	"	"	"	"	300m	30 min.
18	4/11 AC	11:00 am	no	"	"	sunny, ~80F	"	"	"	"	"	"	"

map locations (appendix B)	Date name	Time	Beetles?	Name of Area	Description of Area	weather	#beetles	height of grass	% grass cover	pathways-type, #	Soil type	linea. surveyed	total time survey ed
19	3/28 AC	2:30 pm	no	North side of Schwan Lake, Live Oak Avenue, City of Live Oak	coastal prairie with french broom in patches	sunny, ~82F	na	2"-5"	50%	footpaths	clayey	850 m	45 min.
19	4/21 AC	2:30 pm	no	"	"	synny, ~80F	"	"	"	"	"	"	30 min.
20	3/8 G	2:00 pm	no	Arana Gulch Greenbelt Land, City of Santa Cruz N. of Yacht Harbor	coastal prairie with good patches of Danthonia/Stipa, also weedy areas	sunny, breezy 60F	"	4"-1'	70-100%	footpaths	clayey	1500m	1 hr.
20	3/21 G	12:30 pm	"	"	"	sunny, ~60F	"	"	"	"	"	"	"
20	4/10 G	2:00 pm	"	"	"	sunny, breezy 70F	"	"	"	"	"	"	1.5 hr.
21	3/11 G	3:30 pm	no	DeLaveaga Park, City of Santa Cruz	native grass dominated coastal prairie surrounded by mixed oak woodland	mostly sunny, breezy, 65F	"	3-5"	0-80%	wide, bare areas, footpaths, roads	clay and sandy loam	4000m	3 hrs.
21	3/17 G	2:00 pm	no	"	"	sunny, 70F	"	"	"	"	"	"	2 hrs.
21	4/14 G	3:00 pm	"	"	"	sunny,~70F	"	"	"	"	"	"	3 hrs.
6	3/12 G.	3 pm	no	Cascade Ranch, S. San Mateo Co.	"Coppock Pond", grazed area, diversity of grasses, native forbs, some bare areas----- trail to ocean through very nice native moist prairie	cool, overcast, breezy	na	Pond= 3" Ocean trail=6" -1'	Pond=50 % Ocean=8 5%	Pond=cow, foot trails Ocean=road, foot trail	sandy clay loam	2000m	2 hrs.
6	4/6 G	2:30 pm	no	"	"	sunny, windy 60F	"	4-12"	"	"	"	"	30 min.

Abreviations:

JP = John Pritchard
PG = Polly Goldman
DN= Dylan Neubauer
AC = Alice Cascorbi
G = Grey

" = inches
' = foot

hr (s) = hour(s)
min = minutes

F = Degrees Farenheit

APPENDIX

B

MAPS OF KNOWN POPULATIONS
AND
SURVEYED AREAS

Salinas
Marina
Landing Strip
EL TUCHO
Indian Head Beach
CITY LANDS OF MONTEREY
Monterey Peninsula Country Club
Hartnell College (East Campus)
Airport
EL ALISAL
NACIONAL
East Garrison
Harris Point
Armiley Hill
Elliott Hill
Leary Hill
Sandstone Ridge
Mayhew Lake
Old Hilltown
Spreckels
LLANO DE BUENA VISTA
Camp McCallum
Spence
Point Pinos
Lighthouse
Lovers Pt
PACIFIC GROVE
STATE MARINE GARDENS FISH REFUGE
ASILOMAR STATE BEACH
Pacific Grove
Pt Cabrillo
Pt Alones
Spanish Bay
Seaside
New Monterey
Monterey
FORT ORD
Marnis Hill
MILITARY
RESERVATION
BUENA VISTA
Del Rey Oaks
USNPGS
Municipal Airport
Monterey Peninsula College
Huckleberry Hill
Watts Hill
Laguna Seca Raceway
Laguna Seca Regional Park
Laguna Seca Ranger Station
Chualar
ENCINAL
SOUTH
PESCADERO
SAUCITO
LAGUNA SECA
Jacks Peak County Park
Arrowhead Point
Carmel-by-the-Sea
Carmel Pt
Carmel Bay
CARMEL RIVER STATE BEACH
CALIFORNIA SEA OTTER GAME REFUGE
SAN JOSE Coral
SUR CHIQUITO
CRSB
Whalers Knoll
Sand Hill
Rat
Huckleberry Hill
Vierras Knoll
Bird Island
CSOGR
Cypress Highlands
JAMES MEADOWS
CORRAL DE TIERRA
Toro Park
Reservoir
Tularcitos
Tularcitos Creek
Corral de Tierra
Los Huecos
Los Huecos Corner
Springs
SANTA LUCIA
SANTINOS DE LOS ORRICOS
17
FEET (4) 1 575 1 W 1 150 60 1 600 R 1 E 1 175 1 625 81 45′ R 2 E 1 200 1 650 82 1 225 R 3 E 1 675 1 250 83 R 4 E 1 700
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MILES 1 0 1 2 3 4 5 6 7 8 9 10 11 12 13
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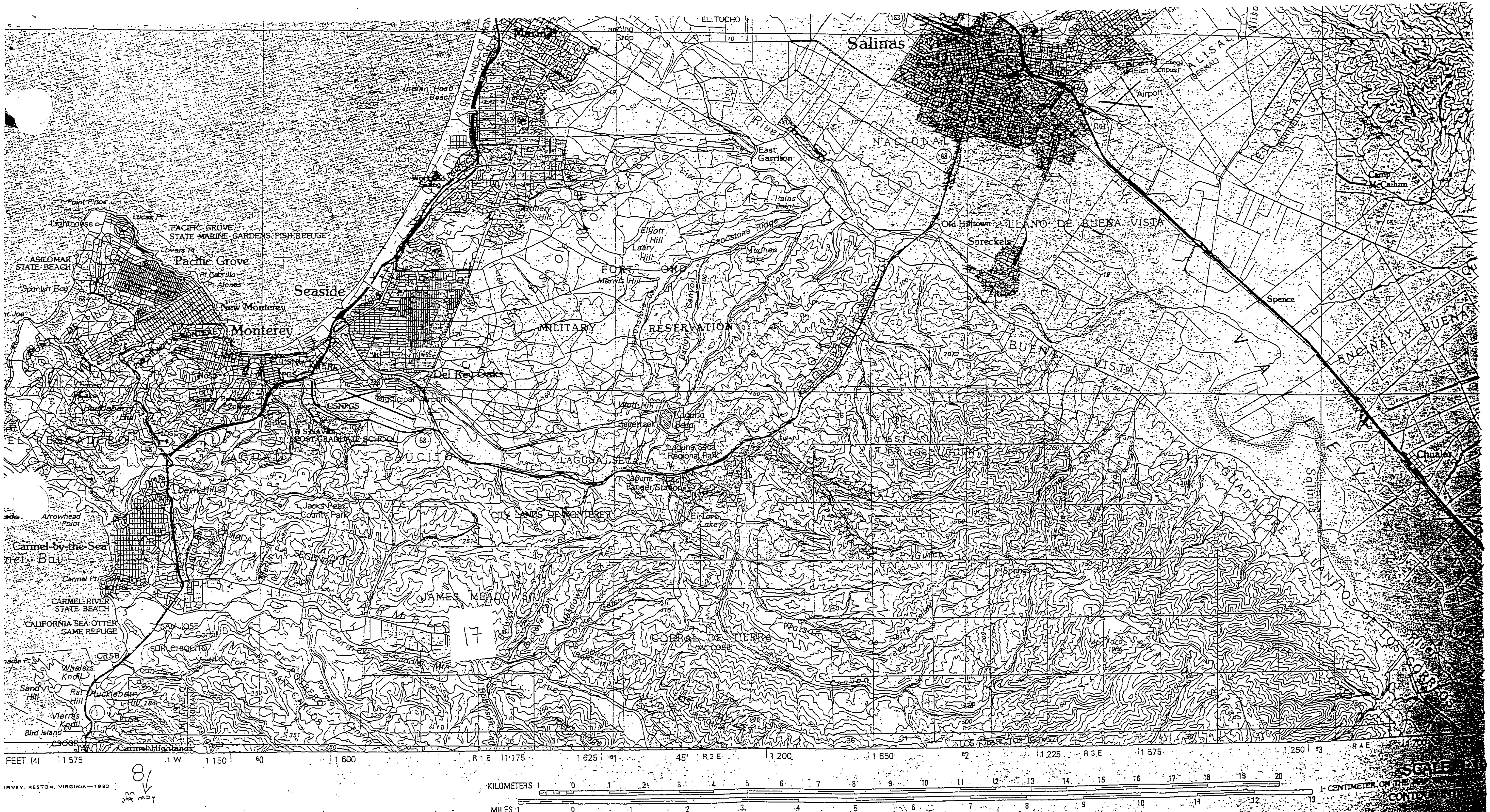
81

 Salinas
EL TUCHO
Landing Stop
Marina
Indian Head Beach
CITY LANDS OF MONTEREY
East Garrison
NACIONAL
Camp McCallum
Point Pinos
Lighthouse
Lucas Pt
PACIFIC GROVE STATE MARINE GARDENS FISH REFUGE
ASILOMAR STATE BEACH
Pacific Grove
Lovers Pt
Pt Cabrillo
Pt Alones
Spanish Bay
Seaside
New Monterey
Monterey
Elliott Hill
Leary Hill
FORT ORD
Mudhen Lake
Marnis Hill
MILITARY RESERVATION
Old Hilltown
LLANO DE BUENA VISTA
Spreckels
Spence
BUENA VISTA
ENCINAL Y BUENA
Del Rey Oaks
Municipal Airport
USNPGS
U S NAVAL POST GRADUATE SCHOOL
Huckleberry Hill
Laguna Seca
LAGUNA SECA
Laguna Seca Regional Park
Laguna Seca Ranger Station
El Toro Lake
Chualar
Jacks Peak County Park
CITY LANDS OF MONTEREY
Arrowhead Point
Carmel-by-the-Sea
Carmel Bay
Carmel Pt
CARMEL RIVER STATE BEACH
CALIFORNIA SEA OTTER GAME REFUGE
JAMES MEADOWS
17
CORRAL DE TIERRA
SAN JOSE
SUR CHIQUITO
CRSB
Whalers Knoll
Sand Hill
Huckleberry Hill
Vierras Knoll
Bird Island
CSOGR
Carmel Highlands
GUADALUPE
LLANITOS DE LOS CORRALES
Salinas
Airport
El Alisal
Hartnell College (East Campus)
FEET (4)
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1 175
1 625
45'
R 2 E
1 200
1 650
1 225
R 3 E
1 675
1 250
R 4 E
SCALE
RVEY, RESTON, VIRGINIA—1963
8
KILOMETERS 1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
MILES 1 0 1 2 3 4 5 6 7 8 9 10 11 12 13
1 CENTIMETER ON THE
CONTOUR

FISH AND WILDLIFE SERVICE

Randall Morgan
3500 North Main St.
Soquel, CA 95073

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VENTURA, CA

12 February 1993

U.S.F.W.S. Regional Office
Eastside Federal Complex
911 NE 11th Ave.
Portland, Oregon 97232-4181

RE: Ohlone Tiger Beetle

I hereby petition the U.S. Fish and Wildlife Service to list *Cicendela* n.sp. (Ohlone Tiger Beetle) as an endangered species under the federal Endangered Species Act. A manuscript by Richard Freitag, David Kavanaugh and R. Morgan describing the morphology, habitat and range of this beetle has been submitted for publication (copy enclosed). Initial taxonomic judgements of Drs. Freitag and Kavanaugh were that this form was distinct from *C. purpurea* at least at the subspecific level based on external morphology and phenology. Later examination of male and female genitalia convinced them that it deserved specific rank.

This species is known only from three locations within a radius of approximately three miles in Santa Cruz County California. Habitat requirements appear to be very specialized and limited in extent. Two of the three populations are currently threatened by proposed residential developments, particularly the type locality in Soquel. The third population is subject to mortality caused by the increasingly heavy bicycle traffic along the trail where the adult beetles congregate.

More detailed information on habitat, occurrences and threats can be found in the enclosed manuscript, map and letters. Please contact me if necessary at (408)475-2212 or at the above address.

Sincerely,

R. Morgan

cc: Ventura Field Office

FISH AND WILDLIFE SERVICE

Randall Morgan
3500 N. Main St.
Soquel, CA 95073

APR 30 1997
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2 July 1992

Christopher D. Nagano
U.S. Fish & Wildlife Service
2800 Cottage Way, Room E-1823
Sacramento, CA 95825

Re: Santa Cruz County endemic *Cicindela*

Dear Chris,

Here is the information you requested on the recently discovered tiger beetle in Santa Cruz County. The enclosed map shows all collection localities known to me of the two local species (and I would be interested to hear if you are aware of others). The three numbered locations are the only places where the endemic form has been found so far. I first noticed these beetles in 1990 above Winkle Ave. near Soquel (#1). In 1991 and 1992 I searched a number of other similar-appearing habitats and found two additional populations near Santa Cruz (#2 & 3). Several potential habitats in the area have yet to be checked.

Habitat requirements seem to be fairly narrow. All three populations are in remnant stands of open native grassland with *Danthonia californica* and *Stipa pulchra,* on level or nearly level sites with a poorly-drained pale clay or sandy clay soil which bakes very hard after the winter rains cease, and where the grass is low and sparse enough to allow for some bare ground (trails and trampled areas seem to be attractive). Two plants which may be useful as "indicator species" are *Perideridia gairdneri* and *P. kelloggii.* Both of these are uncommon in the region, but one or both are present at each of the three known endemic *Cicindela* sites and at most of the "suitable-appearing" sites shown on the map.

Roughly estimating from USGS maps, there appears to be on the order of 15,000–20,000 acres of grassland remaining in Santa Cruz County; however the specialized conditions described above obtain in only a small minority of this total, possibly not more than 200–300 acres. Nearly all of this is concentrated around the coastal "midcounty" area, the most heavily urbanized portion of the county. Much of Santa Cruz, Live Oak, and part of Capitola were built on these clay-based marine terrace grasslands.

Occurrence #1. Terrace above Winkle Ave., Soquel

Strip of habitat ca. 200 m. long. Entire site threatened by proposed residential development ("Santa Cruz Gardens Unit 12"), although currently under temporary conservation easement placed on the site by the County (to protect rare plant habitat) when it approved Units 10 and 11. Unit 9, which was built out in 1987, contained habitat essentially identical to that of Unit 12, presumably as did some of the earlier units which share the same topography and soil.

Occurrence #2. Terraces west of Meder St., Santa Cruz

Habitat along ca. 1 km. stretch, mostly within the Younger Ranch just outside the Santa Cruz City limit. Currently under a benign regimen of grazing which has kept the habitat in good condition; future plans not known. Part of population extends into University property (UCSC has

development plans for this area, but I was recently told this may not materialize after all, at least not soon). Another extension of the population (and a large area of potential habitat not yet checked for the beetle) is on an adjacent property within the city limit, recently bought by a Fresno-based company. Temporary Greenbelt protection of this property expires this year, and biotic studies are now underway on a development proposal called "University Estates."

Occurrence #3. UCSC upper campus, east of Empire Grade

Patch of habitat ca. 200 m. across. Early campus expansion plans for this site have been abandoned. At present the only significant hazard here is the stream of recreational mountain-bikers who use the trail frequented by the beetles. During cool spells or while mating, the beetles are slow to react, and vulnerable. On my first visit I noticed two crushed individuals, and saw another having to dodge two cyclists in rapid succession. A crushed pair, presumably victims of mountain bikes, was also found at Occurrence #2.

Suitable-appearing habitat areas yet to be checked:

- "University Estates" site (discussed above)
- Grey Whale Ranch. West of Occurrence #3. A few patches of grassland here look quite promising, but access is restricted. A biological assessment by LSA has recently been issued for a subdivision here to be called "La Cumbre." Public hearings have not yet been held on this.
- Graham Hill Road. Good-looking but small patch of habitat. Being invaded by French Broom (*Cytisus monspessulanus*). One previous development proposal here fell through, and I believe there is another in the works but I have no details.
- Tan property, Soquel. Fairly large patch of habitat, but being invaded by French Broom and Eucalyptus. Proposed residential development (I believe called "Tan Heights") has not yet begun the formal environmental review process, although preliminary studies have been done on the rare plants there.

I hope this will answer most of your questions. Let me know if you need more. Thanks for your interest.

Sincerely,

RM

R. Morgan
408-475-2212

FISH AND WILDLIFE SERVICE

APR 30 1997

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Ohlone Tiger Beetle (*Cicindela ohlone*) Surveys, 1990-1994

Prepared by R. Morgan, March 1994

All locations in Santa Cruz County believed to contain habitat suitable for *C. ohlone* were surveyed for this species at least once between 1990 and 1994. Several outlying sites in non-native grassland (indicated by an asterisk [*])were surveyed because conditions looked suitable otherwise and no native grasslands exist nearby. One suitable-appearing native grassland (Site No. 20) was found in southern San Mateo County, but no tiger beetles were observed there. See Freitag *et al.* 1993 (The Coleopterists Bulletin 47(2):113-120) for a description of this species' known habitat.

Because the adult beetles are found mainly along paths and trails, the "habitat" surveyed was quantified by linear rather than areal measurement. Distances were estimated from U.S.G.S. 7½' topographic maps. Sections of habitat greater than 100 m with no beetles found were counted as unoccupied habitat. All surveys were conducted on sunny days, between 11:00 a.m. and 3:00 p.m. Pacific Standard Time.

Observers: R. Morgan, David Suddjian, Bryan Mori, Isaac Field, Deborah Eddy, Pat Smith, Grey, Dylan Neubauer.

Site no.	Location	Habitat surveyed (km)	Occupied habitat (km)	Max. no. of *C. ohlone* observed (approx.)	Survey date(s)[1]	Observers
1	near Winkle Ave., Soquel (type locality)	0.6	0.4	28	3 Mar 93	RM, BM
2	w. side of Santa Cruz, s. of U.C.S.C. campus	4.2	1.9	34	4 Mar 94	RM,DS BM,G,DN
3	upper U.C.S.C. campus and Gray Whale Ranch[2]	1.6	0.7	40	14 Apr 93	RM,PS, DS,IF

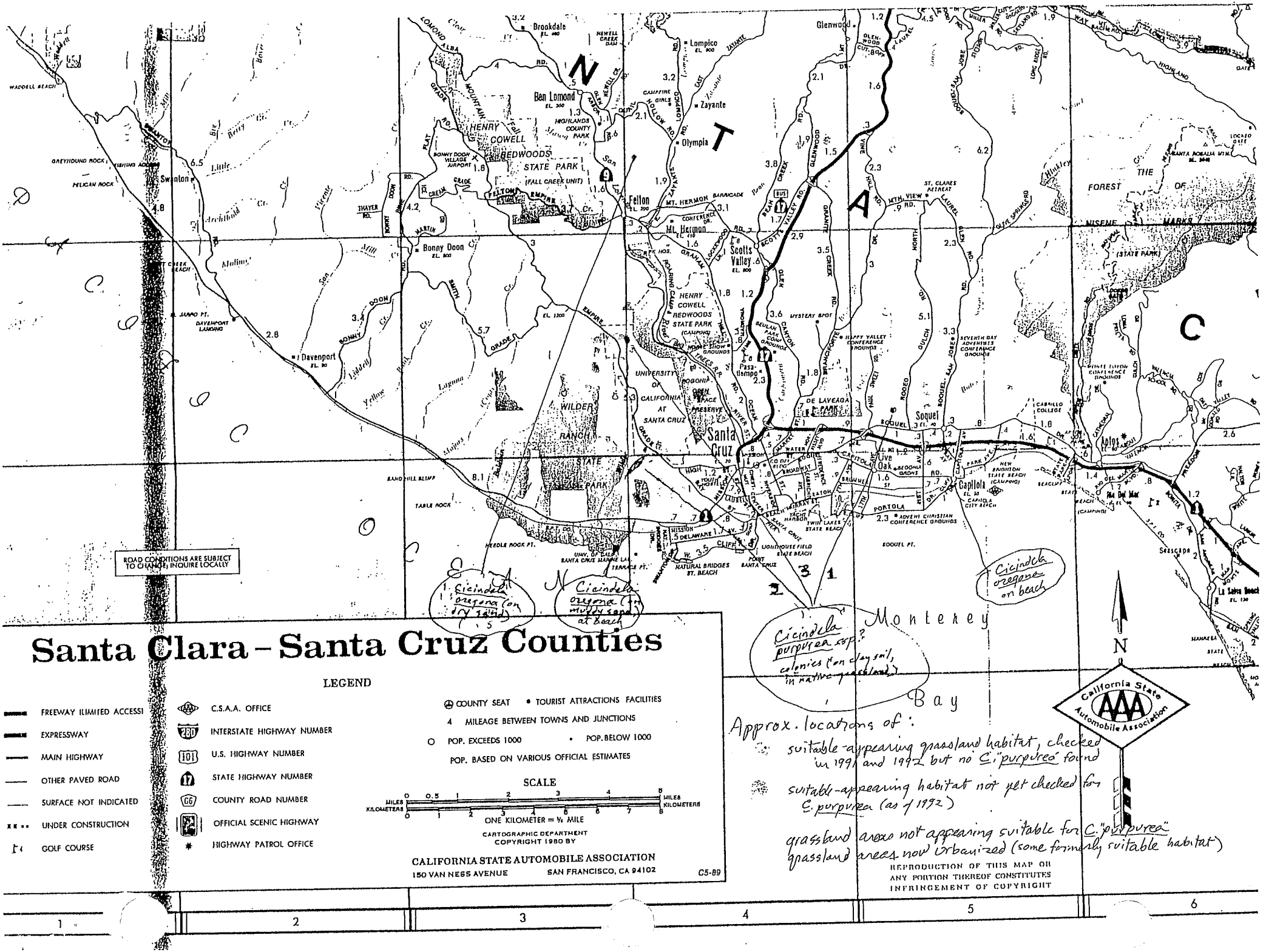
4	n. of Vine Hill School Rd., Scotts Valley	0.7	0.4	10	19 Mar 93	RM,DS
5	n. of Casa Way, Scotts Valley	0.7	--	--	26 Feb 90 18 Mar 90 26 Feb 91 22 Mar 91 19 Mar 93	RM
6	n. of Navarra Dr., Scotts Valley	0.4	--	--	10 Feb 90 7 Mar 90 1 Apr 90 3 Apr 92	RM,DE
7	Fairway Dr., Soquel	0.6	--	--	11 Feb 91 6 & 22 Mar 91 16 Apr 91	RM
8	O'Neill Ranch and vicinity, Soquel	2.3	--	--	25 Feb 92 10 Mar 94	RM
9	Seascape grasslands	1.2	--	--	22 Feb 91 15 Mar 91 4 Apr 91 23 Feb 92 18 Mar 92	RM
10	Graham Hill Showground	0.8	--	--	14 Feb 93 5 & 29 Mar 93 19 Apr 93	RM
11	Pogonip Open Space	1.5	--	--	3 Mar 94	RM
12	Watsonville Municipal Airport	2.5	--	--	24 Feb 94 14 Mar 94	RM

13	Soda Lake*	0.4	--	--	24 Feb 94	RM
14	Last Chance Rd.*	1.0	--	--	4 Mar 94	RM,DS
15	"Bitumen Rd."*	1.6	--	--	5 & 13 Mar 94	G,DN
16	s. of Molino Creek*	1.9	--	--	6 Mar 94	RM
17	Wilder Ranch S.P.*	1.7	--	--	6 Mar 94	RM
18	Back Ranch Rd.*	1.2	--	--	7 Mar 94	DN
19	e. of Rodeo Gulch, Sec. 34, T 10S, R1W	0.8	--	--	10 Mar 94	RM
20	Año Nuevo S.R., just n. of Cascade Creek (San Mateo Co.)	1.2	--	--	7 Mar 94	G,DN
	Total Area	26.9	3.4 (12.6%)			

Notes:

1. Only the date of the high count is listed for sites with *C. ohlone*. All dates are listed for sites where the species was not found.

2. The portion of this site on the Gray Whale Ranch has not been surveyed to date.


Santa Clara – Santa Cruz Counties
LEGEND
FREEWAY (LIMITED ACCESS)
EXPRESSWAY
MAIN HIGHWAY
OTHER PAVED ROAD
SURFACE NOT INDICATED
UNDER CONSTRUCTION
GOLF COURSE
C.S.A.A. OFFICE
INTERSTATE HIGHWAY NUMBER
U.S. HIGHWAY NUMBER
STATE HIGHWAY NUMBER
COUNTY ROAD NUMBER
OFFICIAL SCENIC HIGHWAY
HIGHWAY PATROL OFFICE
COUNTY SEAT
TOURIST ATTRACTIONS FACILITIES
MILEAGE BETWEEN TOWNS AND JUNCTIONS
POP. EXCEEDS 1000
POP. BELOW 1000
POP. BASED ON VARIOUS OFFICIAL ESTIMATES
SCALE
MILES
KILOMETERS
ONE KILOMETER = ⅝ MILE
CARTOGRAPHIC DEPARTMENT
COPYRIGHT 1980 BY
CALIFORNIA STATE AUTOMOBILE ASSOCIATION
150 VAN NESS AVENUE SAN FRANCISCO, CA 94102
C5-89
ROAD CONDITIONS ARE SUBJECT TO CHANGE; INQUIRE LOCALLY
Brookdale
Lompico
Glenwood
Ben Lomond
Zayante
Olympia
Felton
Mt. Hermon
Scotts Valley
Bonny Doon
Davenport
Swanton
Soquel
Capitola
Aptos
Santa Cruz
HENRY COWELL REDWOODS STATE PARK
WILDER RANCH STATE PARK
NISENE MARKS (STATE PARK)
Monterey Bay
Approx. locations of:
suitable-appearing grassland habitat, checked in 1991 and 1992 but no C. "purpurea" found
suitable-appearing habitat not yet checked for C. purpurea (as of 1992)
grassland areas not appearing suitable for C. "purpurea"
grassland areas now urbanized (some formerly suitable habitat)
Cicindela oregona on dry sand
Cicindela oregona (?) muddy sand at beach
Cicindela oregona on beach
Cicindela purpurea ssp.? colonies (on clay soil, in native grassland)
California State Automobile Association
REPRODUCTION OF THIS MAP OR ANY PORTION THEREOF CONSTITUTES INFRINGEMENT OF COPYRIGHT

LAKEHEAD UNIVERSITY

er Road, Thunder Bay, Ontario, Canada P7B 5E1

Department of Biology
Telephone (807) 343-8460
Fax (807) 343-8023

FISH AND WILDLIFE SERVICE

July 14, 1992

APR 30 1997

RECEIVED
VENTURA, CA

Mr. R. Morgan
3500 North Main Street
SOQUEL, California 95073
USA

Dear Randy:

RE: SANTA CRUZ COUNTY *CICINDELA PURPUREA* NEW SUBSPECIES (CALIFORNIA ENDEMIC)

Cicindela purpurea is a boreal tiger beetle that ranges broadly across southern Canada and northern United States. Southward extensions of the range exist in western North America where populations are largely fragmented and isolated from each other because of mountainous terrain. Many of these southwestern populations, particularly those beside the Pacific coast, have acquired unusual characteristics in body coloration, colour pattern and pubescence, as well as in size and shape of body parts. The remarkably beautiful tiger beetle that you have recently collected is undoubtedly a new subspecies of *C. purpurea*. It represents one of a few more undescribed west coast forms of this species, and reflects the diverse richness of cicindelid taxa in that region.

Like so many of California's creatures, this species exists in specialized and restricted environments. It is well known that slight alterations of complex habitats almost always result in the obliteration of most resident organisms, and tiger beetles are especially sensitive. Indeed they are initial bioindicators of minor disturbances. I hope you will do what you can to see that these sites are protected from urbanization or other threats.

Sincerely,

R. FREITAG, Ph.D.
Professor

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FISH AND WILDLIFE SERVIC

APR 3 0 1997
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California Academy of Sciences

Department of Entomology

30 June 1992

Mr. Christopher D. Nagano
Entomologist
U.S. Fish and Wildlife Service
Sacramento Field Office
2800 Cottage Way, Room E-1823
Sacramento, CA 95825

Dear Mr. Nagano:

I'm writing to let you know that, during his recent visit with me here at the California Academy of Sciences, Dr. Richard Freitag and I examined the tiger beetle specimens from a locality in Soquel that had been sent to me by Mr. Randall Morgan, a Soquel resident. We are convinced that these specimens represent at least a distinct subspecies, perhaps even a distinct species, which is undescribed. We have given this new form a high priority for description and publication and expect to submit the manuscript describing it by the end of 1992. We will designate the Soquel collection site as type locality for this new form.

It is our understanding that the site in which these specimens were found and collected is undergoing a planning review for possible development; and we are concerned for the future of this newly discovered form. It is likely restricted to the limited grassland habitat from which all known specimens have been taken. I believe that Mr. Morgan can provide you with more details on the distributional limits of both the beetle and its habitat.

I should mention that Dr. Freitag is a professional insect systematist with more than 25 years experience with tiger beetles on a worldwide basis, with special expertise on the species of western North America. I am curator of beetles (Coleoptera) at the California Academy of Sciences, have more than 20 years of experience with the systematics of carabid beetles, the group which includes tiger beetles, and have published more than 30 scientific papers on this group. We therefore feel confident in our recognition of this new form as something undescribed and distinct.

We will keep you advised of our progress on this project; and we hope that your office will be able to look into the nature and degree of threat to the population of this new tiger beetle in Soquel from impending development activities.

Yours sincerely,

David H. Kavanaugh
Curator of Coleoptera

California Academy of Sciences · Golden Gate Park · San Francisco, California [illegible]
[illegible]
Home of Steinhart Aquarium and Morrison Planetarium