

# Klein-Edwards Professional Services

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May 20, 2005

Ms. Alison Anderson  
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Carlsbad Fish & Wildlife Office  
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**Subject:** Results, and Conclusions of Quino Checkerspot Butterfly Monitoring on the Otay Lakes South Site Located in San Diego County, California.

FLITE Tours, Inc, BDA: Klein-Edwards Professional Services (KEPS) was retained by the U.S. Fish and Wildlife Service to conduct post-fire monitoring for the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino*) on the Otay Truck Trail site located in the County of San Diego, California. KEPS's surveys were conducted according to the U.S. Fish and Wildlife Service protocols for this species (USFWS 2002). A total of four (4) Quino checkerspot butterflies were detected on site. The sightings were as follows: 4 adults (2 males) on a hill east of the entrance to the DFG preserve which is also east of the glider port, 1 adult (1 male) hilltopping on a hill above an un-named canyon southeast of the glider port and 1 adult (1 male) on a series of hills due south of the central portion of the glider port. This report provides the results and conclusions of KEPS's 2005 surveys for the adult Quino checkerspot butterfly.

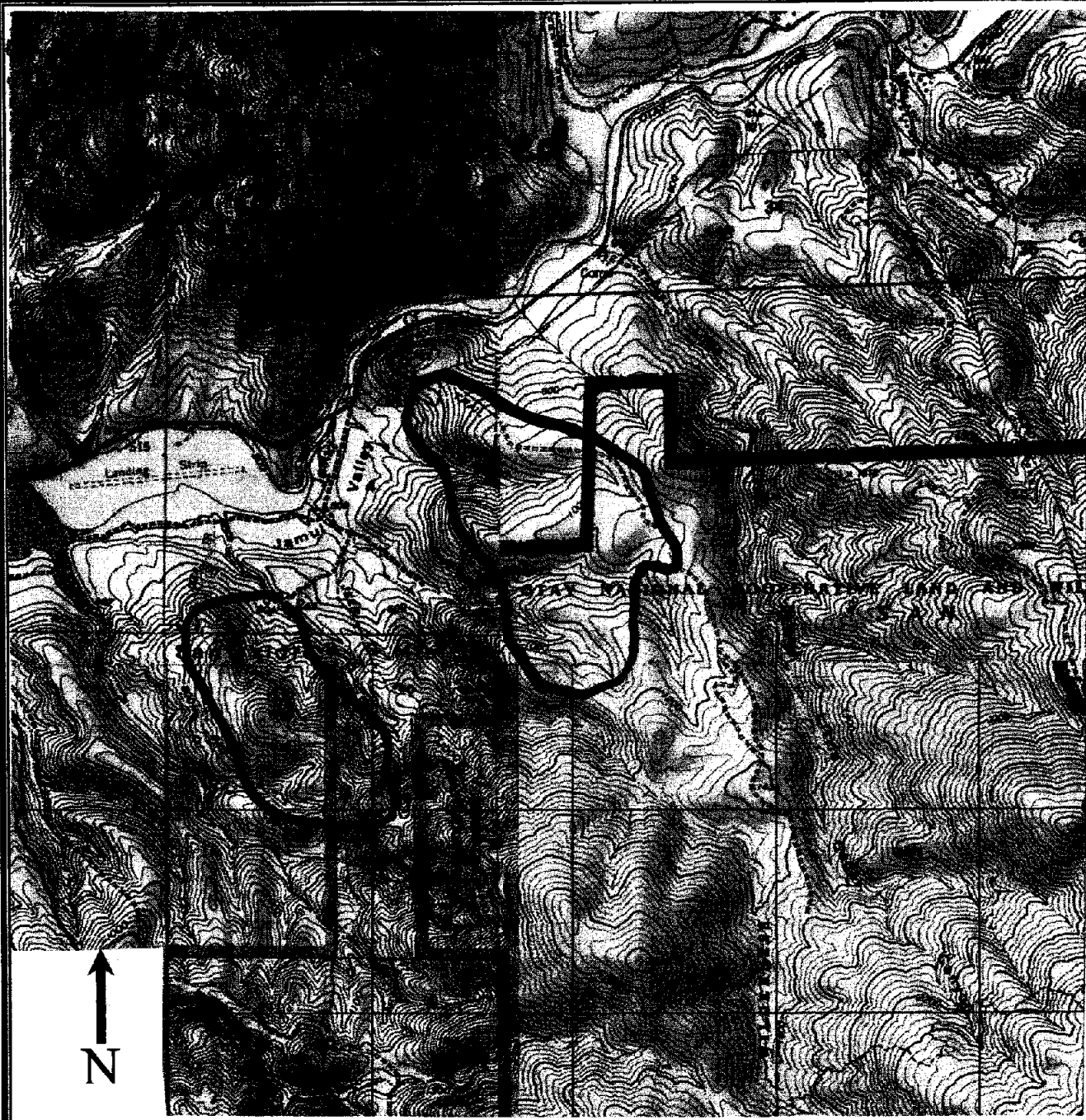
## Site Location and Description

The Otay Lakes South site is located on Otay Mountain in southern San Diego County, California. The scope of the survey areas were suitable areas on the northern slope of Otay Mountain and south of Otay Lakes Road south and east of the glider port (Nichols Landing). Monitored sites included all suitable hills and ridgelines within the U.S. Fish and Wildlife Service managed land, Bureau of Land Management (BLM) lands and California Department of Fish and Game (DFG) lands. The monitored area is within portions of the USGS 7.5' Jamul Mountains and Otay Mountains Quadrangles, Sections 4, 9 and 10 Township 18 South, Range 1 East. The site can also be found on The Thomas Guide for San Diego County 2005, Detail Map Page 1293, and Map Coordinates F-6 to J-7.

The fires of October 2003 removed the vegetation but new growth is sprouting back indicative of dense chaparral, mixed chaparral, annual grassland, and Tecate Cypress Woodland. The entire survey area monitored was removed during the fires and no refugia has been found.

Elevations on site range from approximately 600 feet above mean sea level (MSL) at the north central portion just south of the runway of Nichols Landing to over 1,400 MSL at the southeastern section near the base of the mountains just west of Little Cedar Canyon.

To the north is Otay Lakes Road and Nichols Landing to the west is DFG preserved mitigation lands called Village 15 to the east is a quarry under the management of Vulcan and to the south is



REGIONAL LOCATION  
ON USGS 1:24000 SCALE  
JAMUL MOUNTAINS QUADRANGLE

FIGURE 1

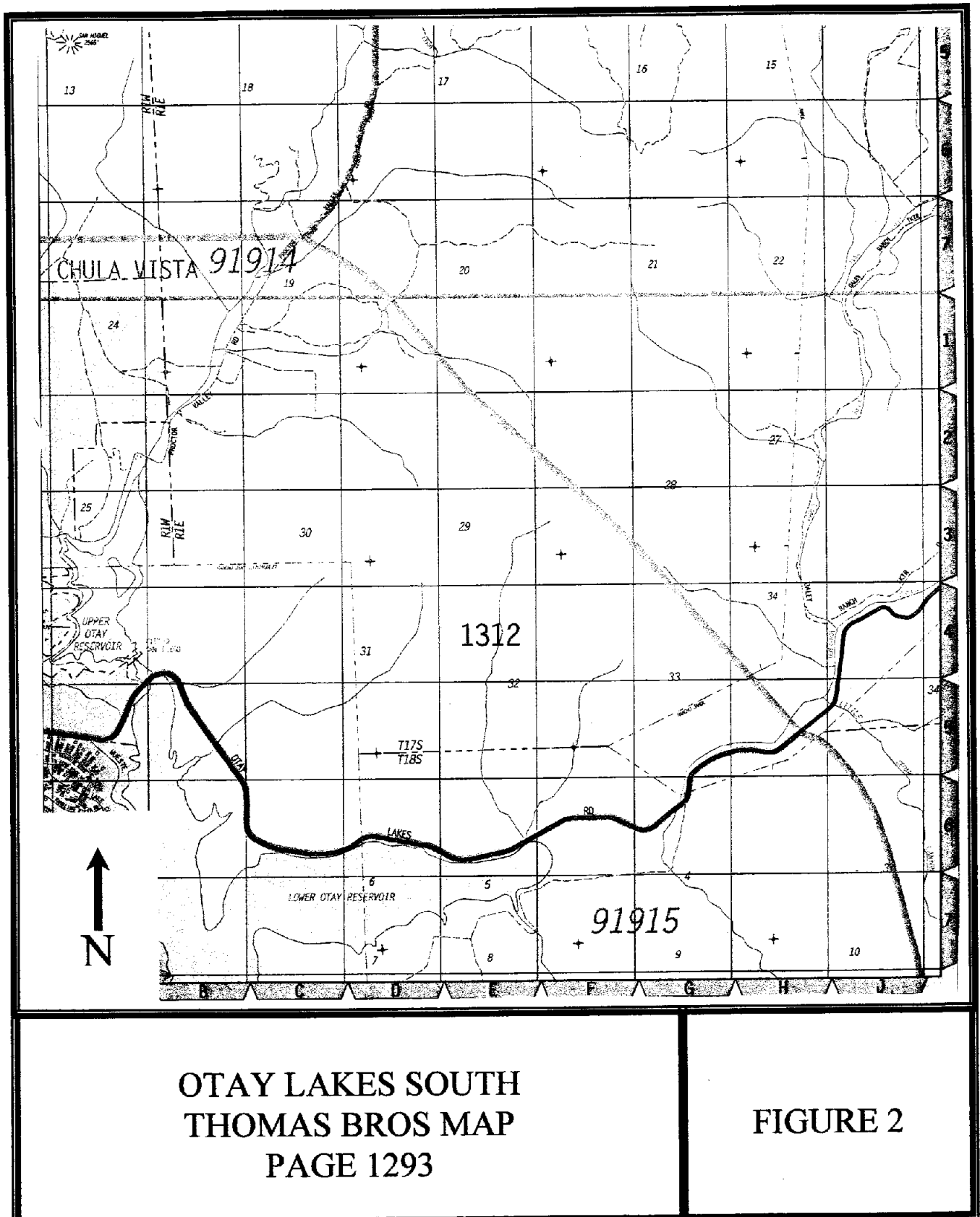


FIGURE 2

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Immediately south is the Wilderness designated lands under the management of the BLM. Also part of the eastern access is the lower portion of the Minnewawa Truck Trail.

#### Proximity to Known Quino Checkerspot Butterfly Sightings

There are recent historical records of QCB along the lower end of the Minnewawa Truck Trail at a hill which has been coined 'Klein Hill' due to the discovery of post-diapause quino caterpillars in March of 2004 by biologist Michael Klein. Mr. Klein also reported sighting 3 post-diapause caterpillars in this same location in January 2005. To the west within Village 15 are also recent quino sightings as well as to the north on the hills adjacent and north of Otay Lakes Road. Therefore it would be conceivable that the presence of adult quino would be high.

#### **Survey Methods**

Biologist Michael W. Klein (TE039305-2) conducted a protocol assessment of the site to evaluate continued suitability of these monitored areas as well as looking for host plant and nectar resources. At the same time Mr. Klein monitored for the presence of adult Quino checkerspot butterflies. Survey approach was to monitor the eastern and southeastern boundary east of a north-south drainage which drains into Dulzura Creek one day then all suitable hills and ridgelines west of the drainage to the edge of the Village 15 parcel on the second visit.

As part of gaining the required field hours, members of the BLM office in El Centro were supervised as well as Jane Higginson. The BLM supervised biologists from BLM El Centro were: Ellen Sherrill, Saul Alaroon-Farfan, Grace Desmaris and Angela Hyder.

**TABLE 1:**  
**OTAY LAKES SOUTH QUINO CHECKERSPOT BUTTERFLY SURVEY INFORMATION**

Date	Survey Hours	Weather Conditions	Purpose of Visit, Biologist(s)
2/03/05	0900-1210	Sunny; E at 4-25 mph with gusts 30+, 65-73°F. Ellen Sherrill, Saul Alaroon-Farfan, Grace Desmaris and Angela Hyder accompanied	Site Assessment along the eastern and southeastern section of the site. No Adults observed
2/27/05	0930-1500	Mostly Cloudy to Sunny, N at 5 mph, 54-67°F. Ellen Sherrill, Saul Alaroon-Farfan, Grace Desmaris, Angela Hyder and Jane Higginson accompanied	Site Assessment along the western and southwestern section of the site. No adults observed.
3/07/05	0900-1630	Sunny; calm to NW at 6 mph; 61-73°F. Saul Alaroon-Farfan and Angela Hyder accompanied	QCB adult presence search along eastern and southeastern section of the site. 3 male QCB observed.
3/16/05	1145-1545	Sunny to high clouds, W to NW at 6-9 mph, 75-72°F	QCB adult presence search along western and southwestern section of the site. 1 male QCB observed.

3/21/05	0900-1500	Partly Cloudy, calm to NW at 12 mph, 60-70°F. Ellen Sherrill accompanied.	QCB adult presence search along the eastern and southeastern section of the site. No QCB observed.
4/19/05	1300-1500	Partly Cloudy; SW at 5-19 mph; 62°F	QCB adult presence search along 'Klein Hill'. No Adults observed

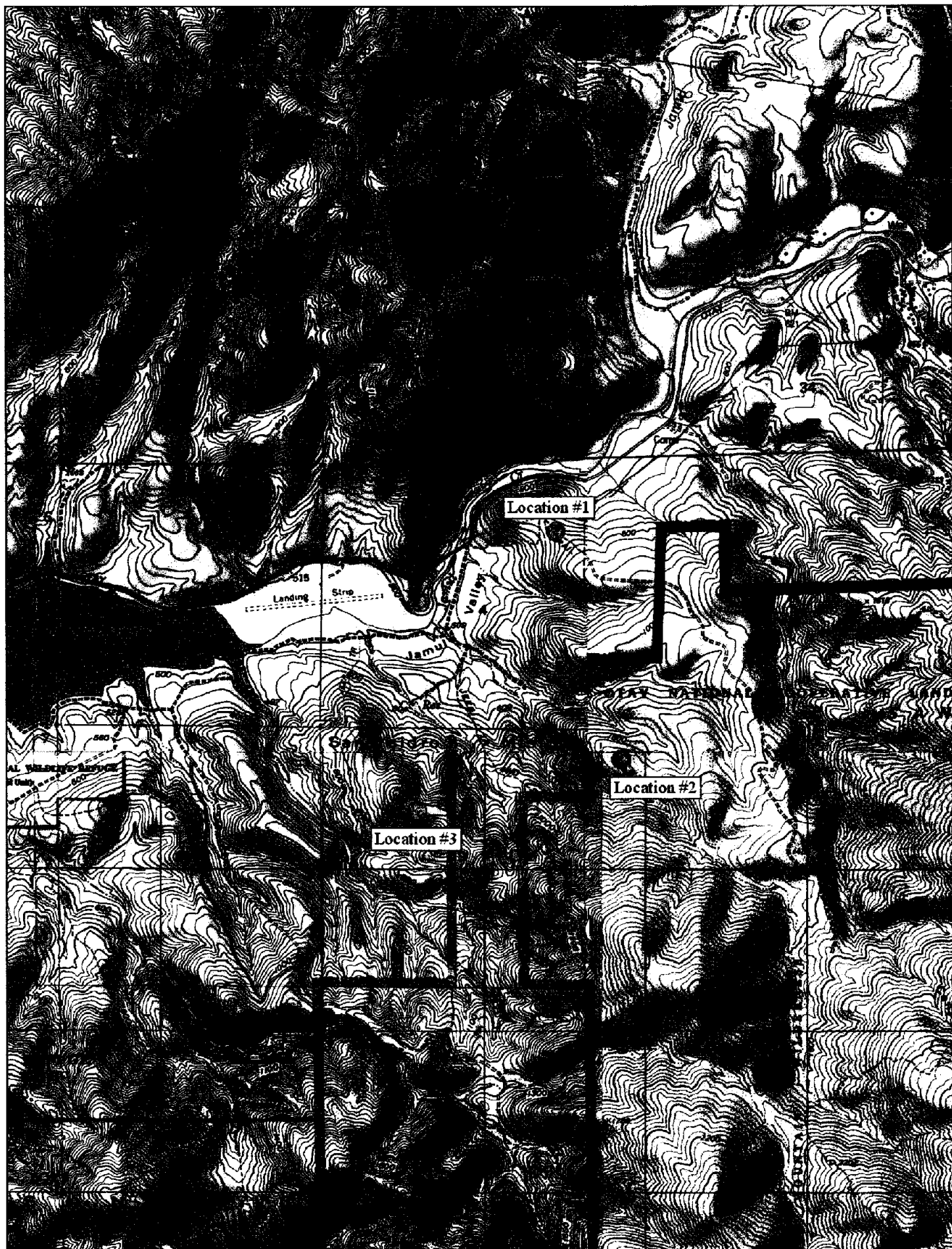
## Results

**A total of four (4) adult Quino Checkerspot butterflies were observed at 3 locations and are herein described below:**

Location #1 – Is located along the lower end of the Minewawa Truck Trail on the hill coined 'Klein Hill'. Two male quinos were observed patrolling the hilltopping and plantain patch on March 7<sup>th</sup>. GPS location is 11S 511446 3611080. The area is a small open hill with both primary and secondary hostplants. The hostplants were dwarf plantain (*Plantago erecta*) and purple owl's clover (*Castilleja exserta*). Saul Alaroon-Farfan and Angela Hyder were present on March 7<sup>th</sup> and observed the patrolling behavior for at least one hour. In conversations with Dr. Alison Anderson of the FWS this location has historically been monitored and confirmed occupied. This was a good opportunity for Mr. Alaroon-Farfan and Ms. Hyder to observe behavior and become familiar with suitable conditions for occupied habitats. This was the only time adults were observed at this location.

Location #2 – is located on a hilltop along a north-south drainage which drains into Dulzura Creek. This is a new location not previously mapped. GPS location is 11S 511853 3609668. One male quino was observed on March 7<sup>th</sup>. Saul Alaroon-Farfan independently observed the butterfly perched on a rock on this hilltop which was active with a diverse group of butterfly hilltopping behavior. Mr. Klein confirmed the observation. Upon confirming Mr. Alaroon-Farfan's sighting the male immediately began to fly around the hilltop and was continually attacked by territorial Red Admirals (*Vanessa atalanta*) and Painted Ladies (*Vanessa cardui*). After approximately 15 minutes it flew north and downslope and did not return after sitting there for an additional 45 minutes. No hostplants were observed on the hill but a large number of nectary plants were available as well as many open bare ground and rocks in which quino could perch. The nectar resources including but limited to popcornflower (*Plagiobotrys sp.*), forget-me-not (*Cryptantha sp.*), goldfields (*Lasthenia californica*) and blue dicks (*Dichelostemma capitatum*). This was the only day quino were observed on this hilltop.

Location #3 – is located on a small saddle area between two hills along the south and western portion of the site. This is a new location not previously mapped. GPS location is 11S 510596 3609357. One male quino was observed patrolling within the saddle within very open ground areas which contained many patches of dense plantain and owl's clover intermittently dispersed throughout. Along the slopes and the lower and southern of the hills are a large number of available nectar plants. Mr. Klein followed the butterfly for approximately ten minutes at which time he perched on the ground in an open spot. Mr. Klein attempted to photograph the butterfly but he would not allow Mr. Klein to get within twenty feet of it. The butterfly flew up and began its patrolling behavior again for approximately another fifteen minutes at which time he again



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perched on the same bare spot to rest. Again Mr. Klein attempted to get close enough to photograph him and again when Mr. Klein was within about twenty feet, he flew up and then flew quickly upslope to the higher of the hills and disappeared. This was the only time this butterfly was observed on this spot.

#### *Presence and Distribution of Larval Host Plants*

Dwarf plantain, the primary larval host plant for the Quino checkerspot butterfly within the region, was found at all but one location monitored during the adult flight season. Also, Nuttall's snapdragon (*Antirrhinum nuttallianum*) was found at 'Klein Hill' on the final visit. Purple owl's clover was also found at all but one location which was at the same location in which no hostplants were found.

#### *Diversity and Distribution of Adult Nectar Sources*

The nutrients from the fire and winter rains provided a diversity of nectar resources for the butterfly. Popcornflower and forget-me-not were found at every monitored location. Ground pink (*Linanthus dianthiflorus*), goldfields (*Lasthenia californica*), bluedicks (*Dichelostemma capitatum*) and early onion (*Allium praecox*) were also found at these locations.

#### *Open Soils*

Open soils and sparsely vegetated ground occur throughout the site due mostly to the October fires. Tuber and stump sprouting of shrub plants are occurring and with record winter rains, the currently open areas will once again contain dense cover. Many areas where the soils were open were in association to rocky areas.

#### *Availability of Ridgelines and Hilltops*

All of the monitored sites were in association to hilltops and ridgelines. As you walked south along the Minnewawa Truck Trail towards the base of the Mountain a few hills which are recovering from the fires contains tall and dense annual grasses. Searching for any open areas within these hills indicated that there were none. It is too early to tell but one of the hills may be marginally considered type converted to annual grassland and too dense to support quino populations. Most of the hills or ridgelines though were still fairly open and contained suitable conditions for them to be occupied.

#### *Dirt Roads*

On the eastern side of the site, the Minnewawa Truck Trail was the primary dirt road and is regularly driven by Border Patrol. On the western portion of the site is an east-west road at the base of the hills which accesses Village 15. Approximately one-half of the way through the east-west road is an old maintenance road which heads south and upslope. This old trail contains numerous deep eroded areas and appears not have been used in a number of years. The recovering vegetation is beginning to take back the road. Once you access the southern hilltops on either the east or west side of the site you encounter a series of small pack trails where you see visible signs of open ground. These pack trails were utilized to access all hilltops.

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A total of twenty-one butterfly species were detected over the course of the surveys.

**Scientific Name**

*Papilio zelicaon*  
*Pontia protodice*  
*Pieris rapae*  
*Anthocharis sara sara*  
*Anthocharis cethura*  
*Nathalis iole*  
*Strymon melinus*  
*Callophrys perplexa*  
*Callophrys augustus*  
*Leptotes marina*  
*Glaucopsyche lygdamus australis*  
***Euphydryas editha quino***  
*Nymphalis californica*  
*Vanessa atalanta*  
*Vanessa cardui*  
*Vanessa annabella*  
*Junonia coenia*  
*Erynnis brizo*  
*Erynnis funeralis*  
*Pyrgus albescens*  
*Heliopetes ericetorum*

**Common Name**

anise swallowtail  
checkered white  
cabbage white  
Pacific sara orange-tip  
desert orange-tip  
dainty sulphur  
gray hairstreak  
perplexing hairstreak  
brown elfin  
marine blue  
southern blue  
**quino checkerspot**  
California tortoiseshell  
red admiral  
painted lady  
west coast lady  
buckeye  
brizo duskywing  
funeral duskywing  
western checkered skipper  
northern white skipper

**Conclusions**

All of the monitored locations should continue to be suitable for the presence of quino. Even though the October 2003 fires impacted some of the sites, the presence of dirt roads will still provide conditions suitable for hilltopping butterflies as well as dispersing ones.

If you have any questions or comments regarding this report, please contact me directly at 619.282.8687.

Sincerely,

**KLEIN-EDWARDS PROFESSIONAL SERVICES**

Michael W. Klein Sr.

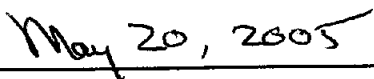


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I certify that the information in this survey report and attached exhibits fully and accurately represents my work

  
Michael W. Klein Sr.

  
Date

Permit # TE039305-2

**Quino Checkerspot Butterfly Surveys**

**Performed at the Otay Lakes South**

**San Diego County – 2005**

**APPENDIX 1**

**PHOTO PLATES OF THE TERRAIN,  
VEGETATION, AND SURVEY AREAS ONSITE**

## Otay Lakes South QCB Monitoring Site

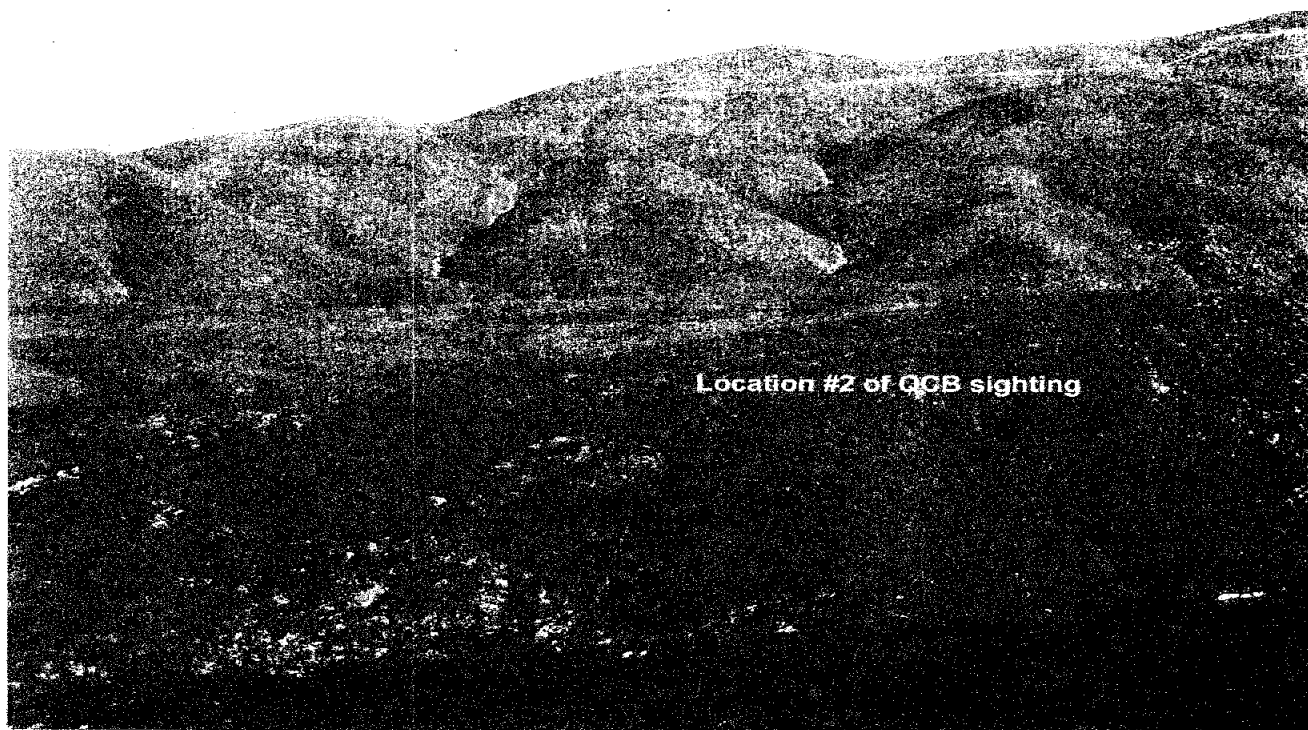


Location #1 of QCB sighting. This is 'Klein Hill' where 2 male quino were observed on March 7<sup>th</sup>.

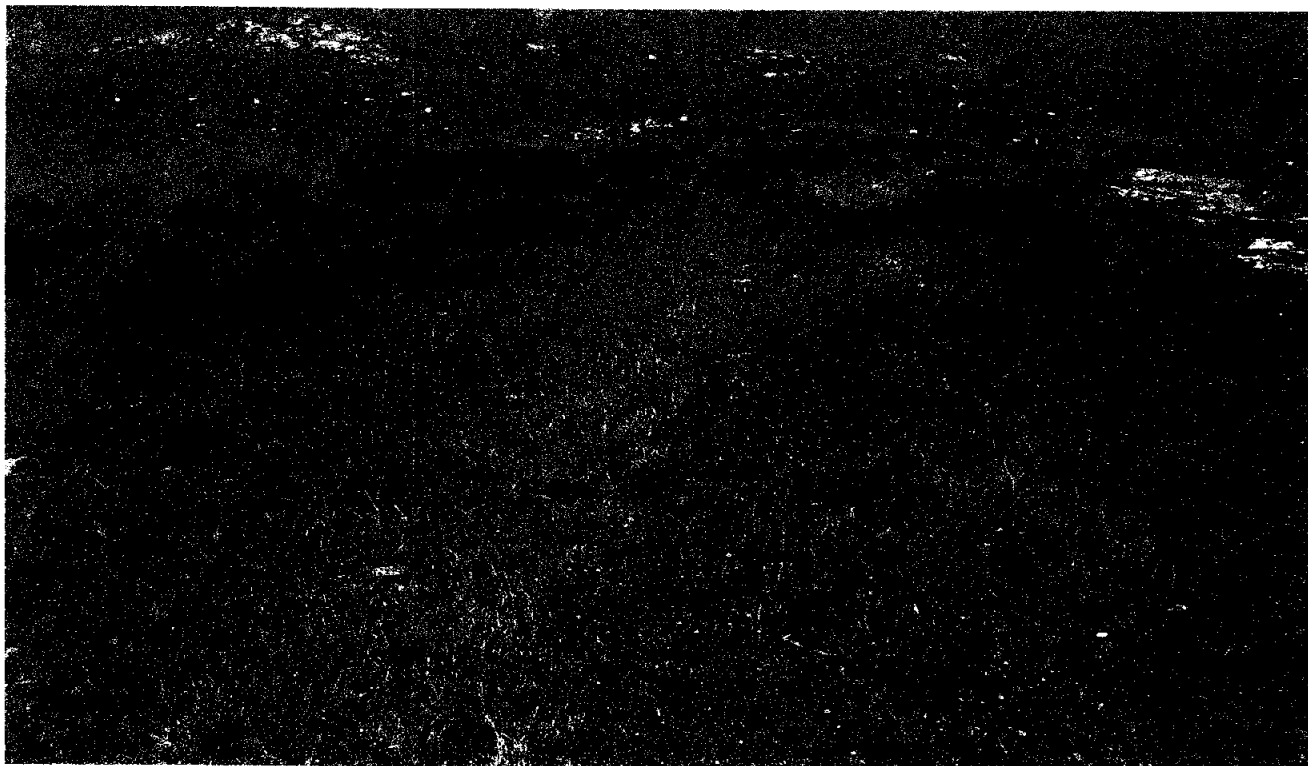


A closer look at the 'Klein Hill' occupied site from March 7<sup>th</sup>.

## Otay Lakes South QCB Monitoring Site

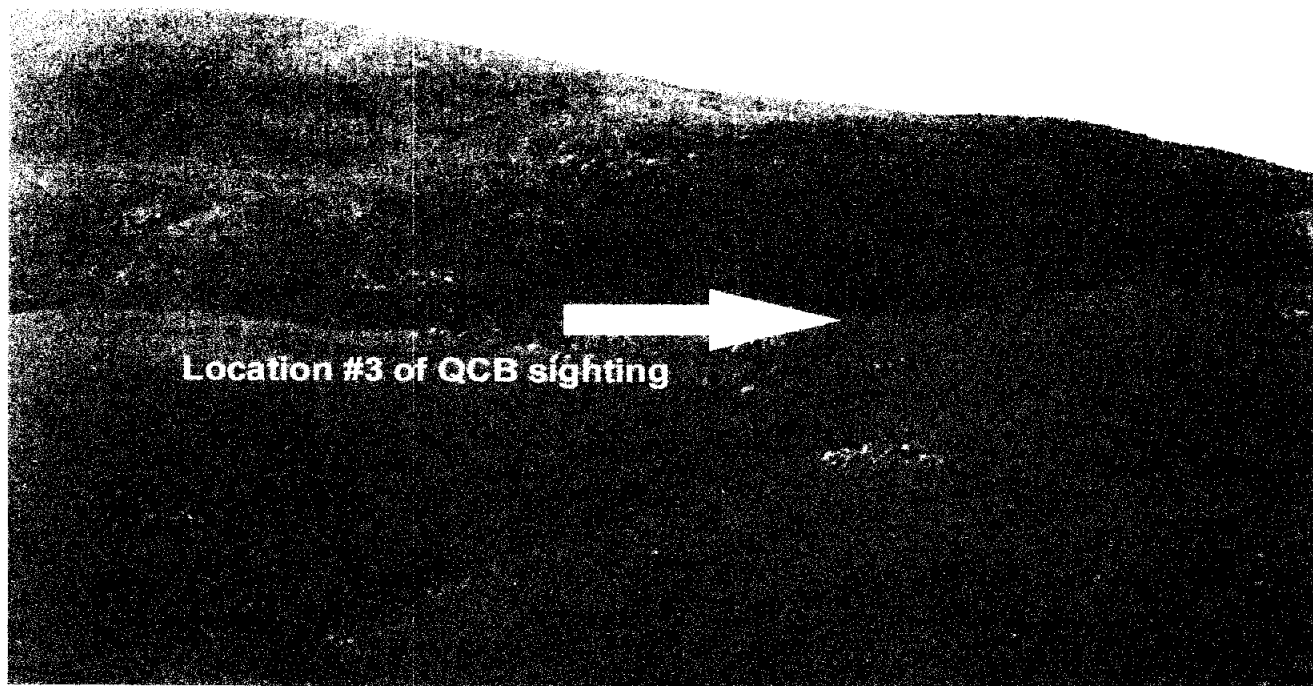


Location #2 of QCB sighting on hilltop above an-named drainage which drains into Dulzura Creek.  
Sighting was from March 7<sup>th</sup>.

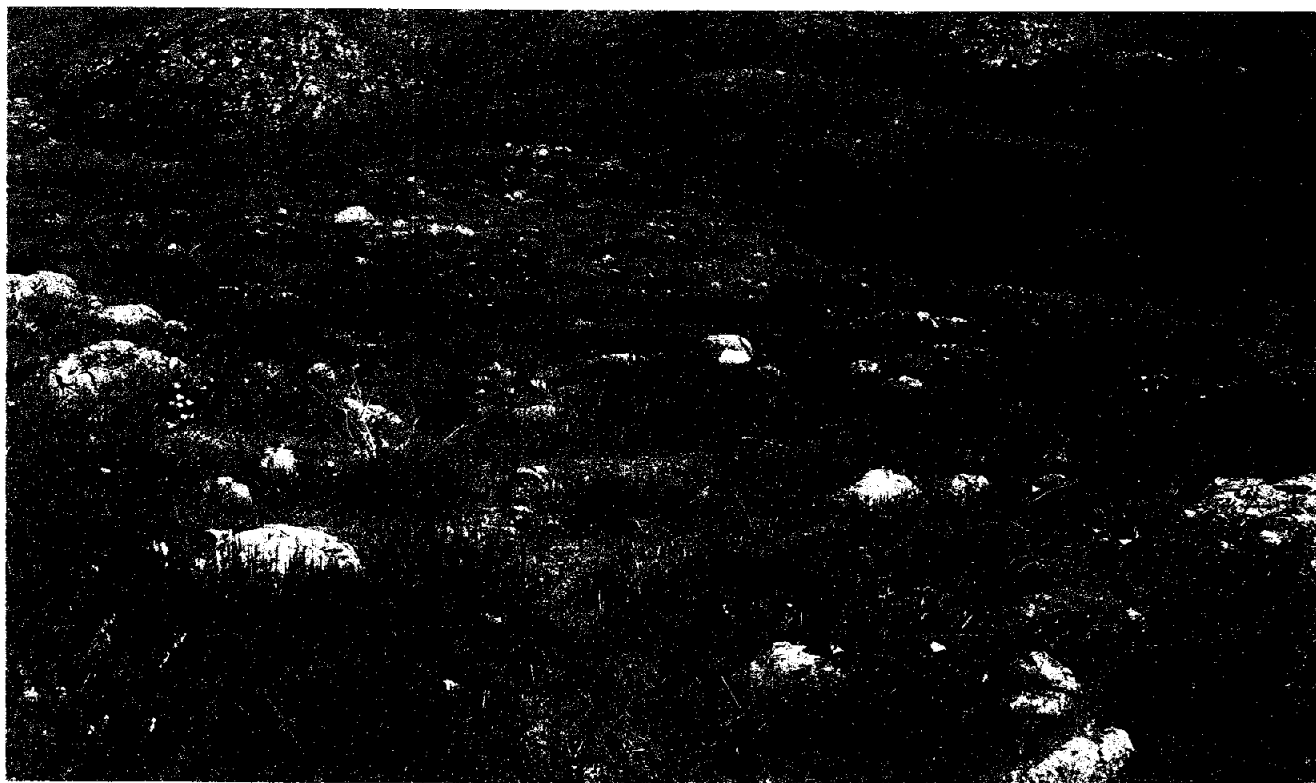


A close-up of the occupied Location #2 where a male quino was hilltopping.

## Otay Lakes South QCB Monitoring Site



Location #3 where QCB was observed. Notice it is on a saddle between two hills.



A close-up of the Location #3 occupied site. This is a new location. Notice the open patches.

## Otay Lakes South QCB Monitoring Site



Example of old maintenance road just south of Nichols Landing. This old road accessed Location #3.



The northern most hill just north of Location #3. Lots of erodium but plenty of rocks and there was open patch areas

**Quino Checkerspot Butterfly Surveys**  
**Performed at the Otay Lakes South Site**  
**San Diego County – 2005**

**APPENDIX 2**

**FLORAL COMPENDIUM**  
**PLANT SPECIES IDENTIFIED ONSITE**



## OTAY LAKES SOUTH FLORA COMPENDIUM

This list includes only those plants observed in flower. It is not an exhaustive list since the focus was for monitoring adult Quino Checkerspot Butterflies and the possible plants to be utilized by them to nectar on.

Non-native species are indicated with an asterisk (\*).

### DICOTS

#### ASTERACEAE - SUNFLOWER FAMILY

- Centaurea melitensis*  
tocalote
- Deinandra fasciculata*  
fascicled tarplant
- Eriophyllum confertiflorum*  
golden-yarrow
- Filago californica*  
California filago
- Gnaphalium californicum*  
California everlasting
- Gutierrezia sarothrae*  
broom matchweed
- Isocoma menziesii*  
coastal goldenbush
- Lasthenia californica*  
coast goldfields
- \**Sonchus asper* ssp. *asper*  
prickly sow thistle
- Viguiera laciniata*  
San Diego County viguiera

#### BORAGINACEAE - BORAGE FAMILY

- Cryptantha intermedia*  
common forget-me-not
- Eriodictyon trichocalyx*  
hairy yerba santa
- Phacelia cicutaria*  
caterpillar phacelia
- Phacelia grandiflora*  
large-flowered phacelia
- Phacelia parryi*  
Parry's phacelia
- Plagiobothrys* sp.  
popcornflower

#### BRASSICACEAE - MUSTARD FAMILY

- \**Brassica nigra*  
black mustard

#### *Caulanthus heterophyllus*

San Diego jewelflower

- \**Hirschfeldia incana*  
short-podded mustard
- \**Lepidium virginicum*  
wild peppergrass
- \**Raphanus sativus*  
radish

#### CARYOPHYLLACEAE - PINK FAMILY

- \**Silene gallica*  
common catchfly

#### CONVOLVULACEAE - MORNING-GLORY FAMILY

- Calystegia macrostegia*  
wild morning-glory
- \**Convolvulus arvensis*  
bindweed

#### FABACEAE - LEGUME FAMILY

- Lupinus bicolor*  
miniature lupine
- Lotus scoparius*  
deerweed

#### GERANIACEAE - GERANIUM FAMILY

- \**Erodium cicutarium*  
red-stemmed filaree
- \**Erodium moschatum*  
white-stemmed filaree

#### MALVACEAE - MALLOW FAMILY

- Malacothammus densiflorus*  
many-flowered bushmallow
- Sidalcea malvaeflora*  
checker mallow

#### ONAGRACEAE - EVENING PRIMROSE FAMILY

- Clarkia purpurea*  
winecup clarkia

OROBANCHACEAE - BROOMRAPE  
FAMILY

*Castilleja affinis*  
coast paint-brush  
*Castilleja exserta*  
purple owl's-clover

OXALIDACEAE - OXALIS FAMILY

*Oxalis albicans*  
California wood-sorrel  
\**Oxalis corniculata*  
creeping wood-sorrel

PAPAVERACEAE - POPPY FAMILY

*Dicentra chrysantha*  
golden ear-drops  
*Eschscholzia californica*  
California poppy  
*Papaver californicum*  
fire poppy

PHRYMACEAE - MONKEYFLOWER  
FAMILY

*Mimulus aurantiacus*  
bush monkey-flower

POLEMONIACEAE - PHLOX FAMILY

*Linanthus dianthiflorus*  
ground-pink

PORTULACACEAE - PURSLANE FAMILY

*Calandrinia ciliata*  
red maids  
*Claytonia perfoliata*  
miner's lettuce

PRIMULACEAE - PRIMROSE FAMILY

\**Anagallis arvensis*  
scarlet pimpernel  
*Dodecatheon clevelandii*  
Padres' shooting star

RANUNCULACEAE - BUTTERCUP  
FAMILY

*Delphinium cardinale*  
scarlet larkspur

RHAMNACEAE - BUCKTHORN FAMILY

*Ceanothus tomentosus*  
*Ramona lilac*

ROSACEAE - ROSE FAMILY

*Adenostoma fasciculatum*  
chamise

SOLANACEAE - NIGHTSHADE FAMILY

*Solanum xanti*  
chaparral nightshade

VERONICACEAE - VERONICA FAMILY

*Plantago erecta*  
dwarf plantain  
*Antirrhinum nuttallianum*  
violet or Nuttall's snapdragon

VIOLACEAE - VIOLET FAMILY

*Viola pedunculata*  
johnny-jump-up

MONOCOTS

AGAVACEAE - AGAVE FAMILY

*Chlorogalum pomeridianum*  
soap plant

ALLIACEAE - ONION FAMILY

*Allium praecox*  
early onion

LILIACEAE - LILY FAMILY

*Calochortus splendens*  
lilac mariposa-lily  
*Fritillaria biflora*  
chocolate lily

THEMIDACEAE - BRODIAEA FAMILY

*Dichelostemma capitatum*  
blue dicks

**Quino Checkerspot Butterfly Surveys**  
**Performed at the Otay Lakes south Site**  
**San Diego County – 2005**

**APPENDIX 3**

**FAUNA COMPENDIUM**

**IDENTIFIED ONSITE**

## OTAY LAKES SOUTH FAUNAL COMPENDIUM

### INSECTA - INSECTS

#### ODONATA - DRAGONFLIES & DAMSELFLIES

*Enallagma cyathigerum*

northern bluet

*Enallagma carunculatum*

tule bluet

*Sympetrum corruptum*

variegated meadowhawk

#### ORTHOPTERA - GRASSHOPPERS, CRICKETS & KATYDIDS

*Melanoplus sp.*

lubber grasshopper

*Trimerotropis pallidipennis*

pallid-winged grasshopper

*Gryllus sp.*

field cricket

#### HEMIPTERA - TRUE BUGS

*Murgantia histrionica*

harlequin bug

*Notonecta sp.*

backswimmer

#### HOMOPTERA - CICADAS, LEAFHOPPERS & ALLIES

Family *Cercopidae*

spittle bug

#### LEPIDOPTERA - BUTTERFLIES & MOTHS

*Hyles lineata*

white-lined spinx moth

Family *Arctiidae*

tiger moth sp.

*Autographa californica*

alfalfa looper

*Papilio zelicaon*

anise swallowtail

*Pontia protodice*

checkered white

*Pieris rapae*

cabbage white

*Anthocharis sara sara*

Pacific sara orange-tip

*Anthocharis cethura*

desert orangetip

*Nathalis iole*

dainty sulphur

*Callophrys perplexa*

perplexing hairstreak

*Callophrys augustus*

brown elfin

*Strymon melinus*

gray hairstreak

*Leptotes marina*

marine blue

*Glaucopsyche lygdamus australis*

southern blue

*Euphydryas editha quino*

quino checkerspot

*Nymphalis californica*

California tortoiseshell

*Vanessa atalanta*

red admiral

*Vanessa cardui*

painted lady

*Vanessa annabella*

west coast lady

*Junonia coenia*

common buckeye

*Erynnis brizo*

brizo duskywing

*Erynnis funeralis*

funereal duskywing

*Pyrgus albescens*

western checkered skipper

*Heliopetes ericetorum*

large white skipper

#### DIPTERA - GNATS, MIDGES & FLIES

*Holorusia hespera*

common crane fly

Family *Simuliidae*

black (buffalo) fly sp.

*Bibio sp.*

March fly

Family *Muscidae*  
muscid fly

Family *Albicapillus*  
bee fly sp.

*Conophorus* sp.  
bee fly sp.

Family *Tachinidae*  
tachinid fly sp.

*Metasyrphus americanus*  
syrphid fly

*Sphecomyia vittatum*  
syrphid fly

*Eristalis tenax*  
drone fly

*Parasarcophaga* sp.  
flesh fly sp.

#### COLEOPTERA - BEETLES

*Calosoma semilaeve*  
common calosoma

*Paracotalpa ursine*  
bear beetle

*Coccinella californica*  
California ladybird beetle

*Hippodamia convergens*  
convergent lady beetle

*Coccinella novemnotata*  
nine-spotted ladybird

*Eleodes* sp.  
stink beetle

#### HYMENOPTERA - ANTS, WASPS & BEES

Subfamily *Andreninae*  
mining bee

*Xylocopa californica*  
California carpenter bee

*Bombus crotchii*  
Crotch's bumblebee

*Apis mellifera*  
honeybee

#### REPTILES

#### IGUANIDAE - IGUANID LIZARDS

*Sceloporus orcutti*  
granite spiny lizard

*Uta stansburiana*  
side-blotched lizard

#### BOIDAE - BOAS

*Lichanura trivirgata*  
rosy boa

#### VIPERIDAE - VIPERS

*Crotalus viridis*  
western rattlesnake

#### BIRDS

#### ACCIPITRIDAE - HAWKS

*Circus cyaneus*  
northern harrier

*Buteo jamaicensis*  
red-tailed hawk

#### ODONTOPHORIDAE - QUAILS

*Callipepla californica*  
California quail

#### APODIDAE - SWIFTS

*Aeronautes saxatalis*  
white-throated swift

#### TROCHILIDAE - HUMMINGBIRDS

*Calypte anna*  
Anna's hummingbird

*Calypte costae*  
Costa's hummingbird

#### PICIDAE - WOODPECKERS

*Colaptes auratus*  
northern flicker

#### TYRANNIDAE

#### TYRANT

#### FLYCATCHERS

*Sayornis saya*  
Say's phoebe

*Tyrannus vociferans*  
Cassin's kingbird

#### CORVIDAE - JAYS & CROWS

*Corvus brachyrhynchos*  
American crow

*Corvus corax*  
common raven

#### ALAUDIDAE - LARKS

*Eremophila alpestris*  
horned lark

HIRUNDINIDAE – SWALLOWS

*Tachycineta bicolor*

tree swallow

*Petrochelidon pyrrhonota*

cliff swallow

AEGITHALIDAE – BUSHTITS

*Psaltiriparus minimus*

bushtit

TROGLODYTIDAE – WRENS

*Salpinctes obsoletus*

rock wren

*Catherpes mexicanus*

canyon wren

*Troglodytes aedon*

house wren

TURDIDAE – THRUSHES

*Sialia currucoides*

mountain bluebird

PARULIDAE - WOOD WARBLERS

*Dendroica coronata*

yellow-rumped warbler

*Geothlypis trichas*

common yellowthroat

EMBERIZIDAE - TOWHEES, AMERICAN  
SPARROWS & EMBIRIZID BUNTINGS

*Pipilo crissalis*

California towhee

*Chondestes grammacus*

lark sparrow

*Ammodramus savannarum*

grasshopper sparrow

*Melospiza melodia*

song sparrow

*Zonotrichia leucophrys*

white-crowned sparrow

ICTERIDAE - BLACKBIRDS, ORIOLES &  
ALLIES

*Agelaius phoeniceus*

red-winged blackbird

*Sturnella neglecta*

western meadowlark

*Icterus galbula*

Bullock's oriole

FRINGILLIDAE – FINCHES

*Carpodacus mexicanus*

house finch

*Carduelis psaltria*

lesser goldfinch

MAMMALS

LEPORIDAE - HARES & RABBITS

*Lepus californicus*

black-tailed jackrabbit

SCIURIDAE – SQUIRRELS

*Spermophilus beecheyi*

California ground squirrel

CANIDAE - WOLVES & FOXES

*Canis latrans*

coyote

*Urocyon cinereoargenteus*

gray fox

FELIDAE – CATS

*Lynx rufus*

bobcat

**Quino Checkerspot Butterfly Surveys**  
**Performed at the Otay Lakes South Site**  
**San Diego County – 2005**

**APPENDIX 4**

**COPIES OF SURVEY FIELD NOTES**

2/3/05 Klein Hill on Otay Mt QCB

Start: 0900, Sunny, E@4mph, 65°F

Stop: 1210, Sunny, E@25 mph to 30, 73°F

Beginning QCB Surveys. Will start on Klein Hill work  
South into BLM wilderness along lower ridgelines. Conditions

very good for QCB today. 9-50 winds are gusting 15+ mph on

mean top. Instead of performing a protocol adult

Birds	Plant	Insects
• HOFI	Grass	Cynipids
• NCHN	Wildflower	V. corollae (1)
• HOWR	Broomrape	14 phylloids (1)
• MOBL	Sagebrush	Uranophora meadow
• YRUA	Blueberries	muscid
• RCHA	Poppy grass	Army cat worm
• TRSU	monardella	Ichneumonid
• HOLA	cryptantha	C. e. australis (1)
• CORA	oaks	
	overland	
	purple poplars	
	Ceanothus fornicatus	
	violets	
	Shrubby stems	
	Scrub plant	
	Gold field	
	yellow yarrow	
	thyme	
	Isxoma	
	Poppy	
	Trifolium leucocorym	
	red maid	
	birdweed	
	ground pink	
	phacelia	

Survey I decided to

convert it to a site

assessment with

5 people from here

BLM for training with

me, it is just as important

to teach them site assessment

techniques. Winds continued

to be very strong and there

were times it was difficult to

even stand. When we got to

the ridgetop where larvae have

have previously been observed I

of course concluded that this ridge-

line is QCB suitable. We continued south along on road heading  
towards BLM wilderness area. An open grassy meadow on  
the west side of the road and immediately south of the volcano



2/3/05 Otay Lakes Rd QCB monitoring

Quarry showed dense tall grasses. There were some native annuals but the meadow was devoid of any shrubs. I have excluded this meadow for adult surveys. We continued south on the road and then headed SW to the ridge top due south of the QCB site. Winds were very strong and nothing was observed flying. We headed SW into a fairly steep drainage and crossed the drainage at a safe point. Instead of making it to the ridge top along this adjacent wooded hill we walked NW along the NE-facing slope heading back towards the parking area near the gate. We stopped at the opening of this drainage at 5 open burned areas. The nearest weed showed they come longer, tall grass & forbs. The ground was basically devoid of vegetation. It appears to have burned so much as to leave no seed base. Also it is possible the area was so dense, that no seed base was present. I concluded that it was not QCB suitable and excluded it. We got into the open lower level field just south of the gate. Most of the area is open with low growing vegetation and some native grasses. I also found large patches of Plantain with heteromesa dispersed throughout. This lower meadow is suitable for QCB and will be surveyed regularly.

Concluded assessment for the day. I will pick up where I left off and assess the hills to the south and west to those hills just south of the Nichols landing strip.

No QCB observed.

has suitable conditions for GCB. No HP but plenty of nectar

<u>plants</u>	<u>Insect</u>	<u>Birds</u>
CA Berry	• Syrphid *	AmCR *
Goldfinch	• 9-spotted ladybird	CoRA *
<del>W. Wren</del> (C)	• CRAB FLY	HOFL *
Caper Mite	• Stink Beetle	CAKI *
<del>if</del>	• V. Goodii (MONTANA) <sup>IN</sup>	WASP *
Chocchily	• A. melanocera	GRSP *
Tadpole Point	- Arctidae (TN)	LASP *
CAUF EVER	• P. zellerbachii (CA)	SESP *
<u>mammal</u>	• P. protuberans (TN) <sup>IN</sup>	YRWA *
Bobcat	• A. sara (MONTANA) <sup>IN</sup>	LEGO *
Coyote	• Conspicuous <sup>IN</sup>	SAPH *
Fox	• V. anasella (I)	HOLA *
Squirrel	• V. mearnsi	WENC *
<u>HERP</u>	• (MONTANA)	RWBL *
Rust Box	• J. Cooperii (TN)	RTHA *
US OFS 10 FT	• Anolis	POWR *
360 9951	• V. talant (I)	CATO *
<del>550</del>	• E. fernaldi (I)	ADHA *
SBLIZ	• Carp Pox	NOFL *
GSLIZ	• A. l. l. (TN)	
Wasp Rattle	• L. D. (I)	
	• P. albescens (I)	

resources. Western border  
boundary has an old maintenance  
trail heading south. Conditions  
suitable for GPS. HP found  
all along the road.  
Hills all along western edge are  
excellent for GCS. Many nuclear  
resources as well as plantains +  
castellaja. Plenty of hilltopping  
activity and worth making weekly  
visits. Many lower hills

are still decent for GDB although nectar resources are more limited and there is the lack of host plants. Some of the intense burned areas show little to no signs of vegetation and will consider excluding them from surveys. I will split this into 2 survey days with hills east of Main Creek (sw corner of landing strip) on a survey day

2/27/05 Otago Lakes GCB Survey

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and hills to the west of this creek another survey day. For field ID purposes, this creek in the un-named canyon in which Thorne's Hairstreak was initially discovered. It is a good and reasonable marker to split the surveys.

Saul + Angela from BLM. Doing the hills on the east of the creek. Going to be an exceptional day. 10:00 18003 observed on

Klein-Hell (105 0511446)

3611080 - 790'). He was

Patroling within the dense  
plantain patch. He was landing

on rocks to thermoregulate.  
Possibly too early to nest in field -  
in (shrub) nest to protect against

Left H/W margin in heat a few mins.  
1025 - a second male in the  
same area showed up. Butterfly

is in pristine condition. Looks  
very fresh. He is purchased on

and summing himself  
(1900-1977 2005-40 1121)

1505 - QCB on hilltop - med

hilltopping (115 51853  
3609608, 1177'  
The hill observed by Seel. I saw

it got blushed all the ground and  
had Admiral went after it. This is

will just exist at the income's upper  
limit.

Man  
512

5/16/05 - Gray Lakes QCB Monitoring.

1145, Sunny, W@6-8mph, 75°F

1545, High cirrus clouds, NW@9mph, 72°F

Monitoring the western hills of the creek which drains into Duluz Creek. I am calling this creek - Nichols Creek since it is just SE of the banding strip called Nichols Landing. I am only going to monitor the western and southern lower hills since these had the best conditions for QCB.

Painted Lady movement is still in major force with 30-45 butterflies/min moving ~~and~~ north.

#### Insects

- Gold Ladybird
- Gnats
- Muscids
- V. cardui (4,000 + 3,000)
- P. proterea (3,000 + 11,000) ♀11)
- Autographa (100 + 100)
- Vari. meadowhawk
- Bear Beetle
- Crows' Bumblebee
- V. atalanta (11)
- A. sara (2,000 31)
- Bandwing
- A. cetherea (311 ♀1)
- P. zelicaon (1)
- Bombardier
- Dances fly - N. blue
- QCB (31)
- E. funeralis (11)
- V. annabell (11)
- Crane Fly
- Convergent ladybird
- Spill bug
- Field cricket

The first of my hills still shows many open areas as well as rocks. Very little hilltopping with Pierids showing up. No plantain but some interspersed Owl's Clover. There are nectar resources and the erodium is beginning to set seed. I would expect it to eventually begin to dry out. 1310 - My second hill, which is higher elevation, has more butterfly activity both orange tips, common white + Arize Sandbush. There's more nectar resources available and rocky outcrops are more compact but there is also more grasses and other annuals creating a much more dense vegetative ground cover.

This makes this hill not a suitable for QCB than the first one.

3/16/05 Gray Lakes GCB monitoring

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Another issue with this hilltop is the NW breezes are strongest here are averaging 10-20 mph. I will see what kind of activity is on the leeward side. 1330- Male GCB on the SE slope between hills #2 + #3. He was moving up-slope towards the second hill. The area contains many open soil areas as well as rock outcrops. There is hostplant and sufficient diverse nectar resources. He would not let me get closer than 20'. Watched him continue to move up-slope perching on Urtica to gather nectar. Location - 11S 510596 3609357, 1044' elevation. Hill #3 was close to the quince sighting. It is much lower than #2 but there is sufficiently primary and secondary hostplants as well as a diverse selection of nectar resources. Of the 3 hills, this one has the highest potential for all stages of GCB in which to occupy. Remaining lower hills are too dense with annuals.



3/21/05 QCB monitoring on Gray Lakes

Ellen ~~Sag~~ Sherrill from BLM joining me today

0900, Partly Cloudy (40-50% clouds), no breeze, 60°F

1500, ✓ ✓ (30% clouds, NW @ 12 mph, 70°F

Monitoring the eastern hills, east of the Nichols' Creek. Conditions currently fine for QCB. When in the sun it is warm and many insects are flying.

#### Inverts

- Field crick
- Gnats
- A. cantans (1)
- P. pictus (M11)
- V. carolin (50+100)
- Vari. meadow
- Autographa (50+50)
- Bear beetle
- Banded wing
- Syrphid
- Drone fly
- Crouch's bumble
- Blue mud dauber
- H. hirtus
- V. annulata (1)
- H. confusus (M11 & 1)
- Calid. latipennis
- E. fumipennis (M11)
- A. meadow
- A. sara (M11)
- C. diadematus (1)
- J. coarctata (M11)
- N. ble (1)
- E. horvathi (1)
- N. bluet

0930 - go to the first area where quino were cleared

2 weeks ago and found none. Winds are picking up coming from the NW @ 8-12 mph. When the clouds move over the area it gets quite cool and all insect activity stops. Conditions for quino could be better but part of the monitoring is too obvious, conditions suitable for flying.

1330  
Clouds + winds beginning to hinder survey.  
We have checked all but hills east one. We are going to continue the monitoring on the last hill. Winds 15-20 mph.

1500 - Completed surveys: NO QCB.

4/19/05 Otay Lakes QCB Monitoring

Start: 1300, Partly Cloudy (50/50), SW @ 5-10 mph, 62°F

Stop: 1500, Partly Cloudy (50/50), SW @ 15-19 mph (hilltop),

Surveying the 'Klein Hill' spot. I have not been here in over a month.

The fields indicate significant drying of the erodium and bromes.

I parked down by the gate and will hike to the hilltop. Winds are gusting +15 mph down below. The hilltop may be too windy for butterfly activity. The QCB occupied area has the plantain completely dry. Nuttall's

Snapdragon has emerged with ~ 24 plants dispersed throughout the patch.

Winds up here are a steady 15-19 mph with periodic gusts to 23 mph.

Clouds are slowly moving to the east but conditions appear to be too cool

and windy to have any butterfly activity. I have been here almost

one hour and no butterflies have been observed. The deerweed is still

in bloom and so I would expect at least Funereal Duskywings. But they

are not even flying. Plants in flower on this hill are Nuttall's Snapdragon,

Carthamus Bells, deerweed and chamisa. I have searched many areas

for potential diapausing locations and have found none. My search includes

looking for silken shelters around or beneath shrubs, rocks or dense dry

annuals. With the exception of diapausing adults, quins may be finished

for the year on this hill. As I continued to walk north to the bend

in the road which takes you back to the gate meandering thru the open

areas, I have found more snapdragon. I am revising the number



4/19/05 Otay Lakes GCB Monitoring

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Birds

- RWBL CLSW
- LASP CURA
- BUOR CARI
- BULT HOLA
- HOFI WTSW
- COYE SLOH
- CASH

Inverts

- P. protuberans (3/11)
- Vori Meadens
- broadwing
- tulle dooness fly
- Sarcophagid
- Autographa (1)
- Calif ladybird
- E. Funerals (1)
- fieldcrick
- L. marina (1)

Plants

- manpessa
- loculata
- fraxinella turplent
- Antir nutalli
- winecup clarkia

Up to 1 200 plants. Many are within clumps of dried plantain. In my meandering, I flushed 1 Funeral duskywing who was perched on the ground next to some deer-weed. No other butterflies observed on this area.