

**BIOTIC & GEOLOGIC
RECONNAISSANCE AND INVENTORY
OF SIERRA LOS AJOS**

01-06 AUGUST 1998

Barbara Alberti
Taylor Edwards
Jessa Fisher
Florentino Garza
Floyd Gray

Martín Haro
Matt Iles
Robert Miller
Carl Olson
Yar Petryszyn

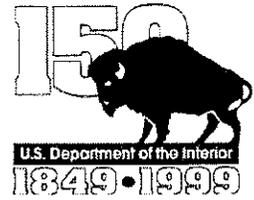
Dave Prival
Stephen Russ
Mike Schroff
Cecil Schwalbe
Dale Turner





United States Department of the Interior

NATIONAL PARK SERVICE
Coronado National Memorial
4101 East Montezuma Canyon Road
Hereford, AZ 85615



IN REPLY REFER TO:
L3215

August 20, 1999

José María Guerra Limón
Director, Reserva Forestal Ajos-Bavispe
Dr. Paliza no.67
Entre Campodónico y Marsella
Col. Centenario, Hermosillo, Sonora
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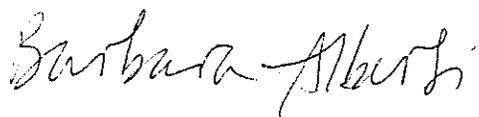
Dear José Maria:

Attached are four copies of trip reports, maps and data sheets for the biotic and geologic reconnaissance and inventory of the Sierra los Ajos conducted 1-7 August 1998. I have assembled information submitted by Cecil Schwalbe, Floyd Gray, Carl Olson, Yar Petryszyn and Stephen Russ, Michael Schroff, Dale Turner, Dave Prival, and Taylor Edwards. Slides taken by Cecil Schwalbe during the trip are also enclosed, they include images of animals collected, scenic views and the survey team in action. Dale Turner also did a search of the University of Arizona herpetological collection for records of specimens collected in the Ajos area. A hand-written summary of the results of that search is provided.

I'm sure that all of the participants would be happy to assist you in your efforts to manage the resources of the reserve. I have included a list with their current email addresses and phone numbers, should you wish to contact them in the future. (Stephen Russ has recently moved and should be contacted through Yar. Matt Iles joined us during the trip, however he should be contacted separately for information regarding his land use study. Jessa Fischer is no longer working with the National Park Service.)

I hope that these documents will prove useful to you and your staff as you continue gathering information about the Ajos-Bavispe Reserve. I apologize for the delay in getting them to you. It was a wonderful trip and we all enjoyed getting to know the area. I would especially like to thank Martín and Florentino for their assistance and hospitality.

Sincerely,



Barbara Alberti
Resources Management Specialist

Enclosures

**PARTICIPANTS IN THE BIOLOGICAL SURVEY OF THE SIERRA DE LOS AJOS
1-7 AUGUST 1998**

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Cecil R. Schwalbe
Barbara N. Alberti
1998

Journal/Itinerary

Biotic reconnaissance and inventory of Sierra Los Ajos, Sonora, Mexico

1-7 Aug 1998

Trip Participants: Barbara N. Alberti (Coronado National Memorial); Taylor A. Edwards, Carl A. Olson, Matt D. Iles, Yar Petryszyn, David B. Prival, Dale S. Turner (UA); Floyd Gray, Robert J. Miller (USGS, UA); Jessa Fisher (Chiricahua National Monument); Stephen Russ; Michael J. Schroff; Cecil R. Schwalbe (USGS, CPSU/UA); Florentino Garza, Martin Haro (Reserva Forestal Sierra los Ajos, Buenos Aires y la Purica)

01 Aug

Carl Olson, Dave Prival, and Dale Turner converged on CRS house at 0800h to load my Montero and Dale's truck. At 0918h Dale and Dave departed for Naco; Carl and I copied data sheets at Kinko's and stopped by campus to drop off draft letter and proposal for Phil Rosen to send to the Malpais Borderlands Group.

101,150.1 mi. CRS Montero at CRS house, leaving 0930h for UA. Phone message at office indicated that Reston could not wait until we returned from trip to look at slides for inclusion in USGS web site. CRS labeled slides and wrote letter to Sandy Sherman that captions would be forthcoming upon our return.

163.3 leaving Smith's at Speedway and Kolb 1200h.

_____ Border Patrol office on Naco Highway ca. 1400h Tucson time (MST); all subsequent times will be Sonora local time (MDT)

278.6 ~2 mi south of Naco

285.9 turned east on Highway 2

300.0 met Martin, Florentino, and Matt at abandoned cafe across road from road to Sierra Los Ajos, departed through locked gate 1632h.

304.2 locked gate (biome is semi-desert grassland with oaks on ridges)

306.2 passed junction on right to campsite

306.4 can see ranch house on left

306.6 gate

307.7 grama grass blooming

308.7 gate

310.2 white gate at perennial stream with bigtooth maple (*Acer grandidentatum*), sycamore (*Platanus wrightii*), alder (*Alnus oblongifolia*), walnut (*Juglans major*); sign says "Rancho Las Cabanas - privada"

310.7 lake dam in Cañon Evans

311.0 gate closed at running creek; Yar collected chanterelle mushroom

311.2 saw 7 (6-8) *Ambystoma rosaceum*, paired lucanids, stagmomantis, Litaneutria, asilids

314.4 steel-posted gate

- 314.7 camp at Instituto Nacional de Ecologica, Reserva Forestal Nacional, Sierra los Ajos, Buenos Aires y Purica. Time 1950 hrs. Campsite called Los Ajos Nuevos on map. Several of us hiked the creek down by the road below camp from approximately 2120 to 2200h. We collectively saw 13 AMRO in small pools (Air temperature at 1.5m was 20.4 C at 2139h), with 4 adult bellostomatids. Horsehair worms were common in the creek; they mostly were a reddish or brown color, unlike the white ones CRS used to see in Scotia Canyon and elsewhere in the 1980s. Back to camp at about 2200h for delicious steaks prepared by Floyd. It rained later in the evening.

02 Aug

- 314.7 leaving camp 0950h local time
- 316.3 1005h hatchling *Sceloporus jarrovi* (SCJA)
- 316.5 took left fork at junction to Puerto Tanano (to right)
- 316.8 junction to left, we stayed on road straight ahead, SCJA 1031h, subadult
- 317.1 unknown lizard (suspected *Sceloporus scalaris*) escaped into *Nolina*, Carl collected diplocentrid scorpions
- 317.2 baby SCJA, 3 adult SCJA
- 317.3 hatchling and young female SCJA
- 317.6 two striped plateau lizards (*Sceloporus virgatus*): subadult male caught by CRS at 1100h; adult female in shed caught by Taylor Edwards
- 318.0 large ladybug aggregation
- 319.0 (South of where Frijolito Canyon crosses road.) Yar, Carl, Florentino, BNA and CRS hiked down canyon, Bob and Floyd hiked down the road to map it and inspect the geology; Taylor and Mike hiked up canyon. Road paralleled stream for short while. CRS counted 29 Tarahumara salamanders (*Ambystoma rosaceum*) in a pool about 2 x 3 x 0.4 m (deep). Did not count salamanders in a slightly larger pool surrounded by down vegetation. Stream goes underground about 40 m below road crossing and resurfaces about 0.25 mi downstream. CRS saw no more salamanders below where the flow went underground near the road crossing. There were many (up to 50 in a pool ca. 2 x 3 x 0.5 m) caddis fly larvae in cases in the creek. Florentino and CRS hiked downstream. Alder and white fir (*Abies concolor*) were abundant. CRS photographed Florentino amid young white fir. We hiked about 1/3 mile downstream and then turned around. About 0.1 mile below the road crossing there is a side canyon (to right as CRS was hiking back toward the car at the road crossing) with nice pools cascading down a steep canyon. No tadpoles or salamanders in the pools (one 3 x 4 x 0.7 m deep; another 2 x 2.5 x 0.5 m deep). There was a very attractive yellow evening primrose about 3 feet tall. CRS photographed some of the pools and connecting waterfalls. One subadult female SCJA on rocks 1250h. We met back at road crossing for lunch. Taylor caught two *Crotalus willardi* (CRWI) along the canyon just west of Frijolito. We processed the small male CRWI (bag + snake = 49.2 g; bag = 12.5 g, thus snake mass = 36.7 g), then photographed the small snake before releasing it. We took the larger snake in bag to camp with us.
- 318.0 leaving what we thought was Cañon Frijolito, but subsequently found to be a separate, small side canyon just to the south.
- 318.6 turn around at Mariano (Las Borregas)

- 319.4 (=318.0) what we thought was Frijolito Canyon, but is just south of Frijolito.
 320.0 mourning cloak butterfly
 320.1 3 juvenile SCJA
 320.1 to 320.6 3 more SCJA
 320.6 junction to La Sal to right, we stayed left (straight)
 _____ one large adult SCJA in dead tree
 320.9 Puerto Tanano junction, turn left towards La Hoya
 321.4 adult male Mearns quail and one chick LOR; Martin called the male back to the vehicle using a chick distress call. It was fascinating to watch.
 322.4 road ended in open meadow below Las Flores. We flipped rocks and logs for about 20 minutes, then headed for home at 1730h.
 323.8 Puerto Tanano, back at road to camp (= 320.9)
 325.4 junction with road to corrals below camp (we took right fork back to camp)
 325.5 camp 1826h. Floyd cooked another winner -- chicken breasts. CRS searched the rock house after dark looking for leaf-toed geckos with no success.

03 Aug

- 0759h local time: Air temperature at 1.5m = 18.8, surface temperature (damp soil) = 20.1
 325.5 1032h local time, leave camp: Cecil, Barb, Dale, Florentino.
 327.3 1057 Puerto Tanano (jct. to La Hoya to right, we went straight. Photos from just below Puerto Tanano looking east at Sierra el Tigre in far background and Mexican Pine-Oak woodland with Cerro Pelon (?) in background.
 327.5 jct. take right fork.
 327.6 jct. to La Sal to left, we went straight.
 328.1 jct. to La Sal on left, called campamento in notes of yesterday (02 Aug.) This is the best way to La Sal.
 328.7 old jacalito (small house) on right made of logs and tar paper.
 328.8 (point A) Nine SCJA on road since we left camp. This is the lunch spot of yesterday (02 Aug.)
 329.0 took leaf specimens of an oak that Florentino believes to be *Quercus coccolobifolia*. Venation appears similar to netleaf oak (*Q. reticulata*) but leaf margins are entire, not toothed as in *Q. reticulata*.
 329.4 photos looking east and northeast over Mariano (Las Barregas), and of Florentino on road walking down to stream. Foreground is Chihuahua pine (*Pinus leiophylla* var. *chihuahuana*), Arizona white oak (*Q. arizonica*), silverleaf oak (*Q. hypoleucoides*), manzanita (*Arctostaphylos pungens*), Schotts yucca (*Yucca schottii*). Background is southwest facing slope with Apache pine (*P. engelmannii*) and oaks. Looking east, the west facing slopes are *P. engelmannii* with a few Douglas firs (*Pseudotsuga menziesii*), white firs and some bright green trees, possibly madrones (*Arbutus arizonae*) or bigtooth maple (*Acer grandidentatum*). Finished photos at Roll 3 exp. 17.
 329.5 (Point B on map) Las Barregas (where we ended trip yesterday, 02 Aug.) Large mushroom on log, non-edible we assume, since Yar didn't take it yesterday.
 329.6 1322h. Large boulder in road that had to be jacked out of the way, took almost an hour to move it. Collected scorpion. Photo to west.

- 329.9 (point C) 1335h. Photos looking northeast with Cerro Magallanes in background and northwest at pine-oak woodland.
- 330.4 1350h lunch stop until 1435h, collected two different hemipterins, black with white spots, that looked like beetles. Continued on through area with Gambel oak (*Q. gambelii*) and birchleaf buckthorn (*Rhamnus betulaefolia*), walnut, maple, ash.
- 330.8 1500h, Las Flores. GPS (uncorrected) 30 56' 07.0"N, 109 56' 04.0"E, 2150m. Abandoned road on right (not very obvious) to area of old lumber mill. (On map marked as Las Flores with a square.) Found backpack sprayer, about a year old?
- 331.2 burned area from last year probably. Pine-oak. Light rain.
- 331.5 (Point D) Photos looking east over Cañon Canas with fingers of burned areas in mid-ground. Bajío Blanco is small valley below burned areas with road through it. Finished Roll 3.
- 331.6 (Point E) GPS 30 56' 07.7"N, 109 56' 03.5"E, 2132m. Photos of fire, burned Huachuca agave (*Agave parryi* var. *huachucensis*), resprouting *Q. arizonica*, with *Bouvardia glaberrima* and *Verbena* in bloom. Last exposure: Roll 4, exp. 9. Continue driving through area with hairy mountain mahogany (*Cercocarpus breviflorus*), vine that looked like Virginia creeper, western wallflower (*Eryssimum capitatum*), lots of *Bouvardia*, *Lotus oroboides*, verbena and unknown yellow flower.
- 332.8 jct. with road to Los Jacalitos which we followed to right approximately 50m when we could clearly see shack ahead approx. 60m. Florentino got out to check status of people living in house. 30 55' 08.9"N 109 55' 32.6"E, 2132m. Signs of very recent habitation, therefore we turned around and continued on the road to the right, following contours.
- 333.0 barbed wire fence gate open, left open.
- 333.9 closed gate, which we left open at Florentino's request.
- 335.0 (point F) 1705h, GPS 30 53' 41.3"N, 109 55' 05.1"E, 2197m. Jct with old logging road south of Cerro la Nevada. Photos looking southwest, north-northwest, and trees. *Pinus engelmannii* and bracken fern understory.
- 335.0 1730h turn around to return north to camp.
- 335.7 jct with two old logging roads we hadn't noticed on the way down, both go west and we took the right most fork to go north (straight) up the hill. The road contoured around Cerro la Nevada.
- 336.1 *Q. mcvaughii* specimen taken amidst *Pinus engelmannii*. Also took specimen of a pine [*Pinus ponderosa* or *P. durangensis quinquefoliata* (as previously identified from Cerro la Nevada by University of Mexico botanists for Florentino)].
- 336.2 gate, left open per Florentino, to let out trespass cattle.
- 336.3 old logging road off to left that we hadn't previously noted.
- 336.6 (point G) GPS 30 54' 40.3"N, 109 55' 13.9"E, 2112m. Photos of storm over valley looking northeast. Continue on road as it came down off ridge looking for road marked on map which seems to cross the mountain range east to west, but we couldn't find it.
- 337.1 gate open.
- 337.3 jct. with turn off to Los Jacolitos, which is down to left, we contour right.
- 337.5 photos of storm to the east. Finished Roll #4.
- 339.1 old road leads off to right, we stay straight.

- 339.5 heavy rain begins, with hail, thunder and lightning. Four (4) SCJA seen since lunch to here: four painted redstarts seen; heard two different hummingbirds (probably broadtailed and Anna's), Stellar's and Mexican Jays, and an unknown, orangish, warbler-sized bird.
- 340.5 1845h back at point B, Mariano (Las Barregas).
- 342.1 use left fork in road.
- 342.2 road meets back from detour.
- 342.5 jct. with La Sal road that goes down to right, then detour to right fork which is steep but fewer rocks.
- 342.8 Puerto Tanano.
- 344.4 jct. with old road which goes down to corrals below camp.
- 344.5 1938h, arrive back at camp, tired of driving!

04 Aug

Camp: 0710h local time: air temperature at 1.5m = 14.7° C; air temperature at 5 mm = 14.8° C; surface temperature (damp soil) = 15.1° C; wind 1-3 miles/hour; high, thin cloud cover approximately 20%. 0715h, sun hits tops of trees on slope west of camp.

Vegetation notes. West-facing slope with rock house, baños: Evergreen oak woodland dominated by Arizona white oak, silverleaf oak, alligator juniper (*Juniperus deppeana*). Principal understory plants are manzanita, brickellia and a large bunch grass (cf *Muhlenbergia* sp.) with some young Chihuahua pine; verbena, purple morning glory, and low-growing (less 30 cm tall) evening primrose (*Oenothera* sp.) in bloom. The east-facing slope west of camp is dominated by silverleaf oak and Chihuahua pine (assessed with binoculars from baños). At road crossing below camp, Cañon Evans flows east-north-east (60 degrees). Riparian vegetation at crossing dominated by sycamores and alders, with two spindly cottonwoods (*Populus fremontii*) by the road crossing and a larger cottonwood about 75 m upstream); understory dominated by Prunus thicket (in fruit) with some Arizona grape (*Vitis arizonica*). There is a larger evening primrose (1-1.5 m tall) in bloom near creek.

CRS spent morning photographing animals. Carelessly allowed the small vejovid scorpion with babies on her back to escape under large boulder; Carl caught her again that night using blacklight. CRS Nikon FE2 acting up; it sounded as if the shutter speed was being dictated by the low ambient light instead of the automatic flash setting being used. Indeed, all of those photos turned out to be wasted, since most were shot at shutter speeds longer than ½ second. Luckily the flash worked properly for at least some photographs of all species, although the 2/3 of a roll shot of the twin-spotted rattlesnake caught near the corrals below camp became only one photograph worth keeping. [Note to Dave Prival: the Sonoran mountain kingsnake collected in Evans Canyon had 39 body triads and 7 tail triads].

It began raining as we ate lunch. Worked on notes until rain stopped. Carl, Mike, and Cecil hiked up Evans Canyon. CRS photographed wasp killing a moth at the corral circa 1630h; Carl collected both. At 1714h in the snake traps connected by the aluminum flashing drift fence there were 1 juvenile mountain spiny lizard, 1 adult mountain skink, 1

carpenter ant, 16 large harvestmen, and 4 small harvestmen (either young ones or a different species from the larger ones). Nothing significant in the other traps (one field cricket in the trap at the small rock outcrop). Carl and Mike searched the canyon bottom upstream; between 1720 and 1800h Cecil searched the north-facing slope for active snakes or lizards, spending about ½ that time flipping rocks and logs; he saw 4 mountain spiny lizards before the rain began again about 1805h.

05 Aug

- 0726h (local time) Air temp at 1.5m=13.6°C, at 1cm=14.5°C, Surface temp=15.8°C in wet soil; wind <2mph, no clouds; sun hit tops of trees on west slope at 0723h.
- 344.5 0950h (local time) leave camp: Cecil, Barb, Dale, Dave, Florentino in Montero and Yar, Carl, Steve, Mike, Martin in GSA Bronco.
- 346.3 1013h Puerto Tanano, turn right to go south towards la Hoya area. Take right forks twice to avoid rocky areas, otherwise no other junctions.
- 347.8 (point H on map) 1036h stop in saddle just past junction where road to corrals and Hoya del Packard turns off downhill to right (west). Seven (7) SCJA seen since we started (4 adult, 3 Juv.) All GPS points in UTM: 599322N, 3423712E, 2166m.

1057h begin hike up to Cerro Las Flores. Took another GPS location on limestone not far above vehicles to confirm our position. 599473N, 3423620E, 2375m. CRS saw 2 juvenile SCJA on limestone ridge with Arizona white oak, squawbush (*Rhus trilobata*), alligator juniper, with occasional walnuts and Apache pines. 1110h, another hatchling SCJA. Found large (>4 inches long) centipede (*Scolopendra polymorpha*) and bract fungi under log.

1024h, adult male tarantula (*Aphonopelma chalcodes*), with black legs and red abdomen was moving on the ground; CRS photographed fangs with Florentino holding spider. Clouds now building. Western wallflower (*Eryissimum*) in bloom, a beautiful orange. Trees seen along the early part of walk as we climbed included *Abies concolor*, *P. engelmannii*, *Q. gambelii*, velvet ash (*Fraxinus velutina*). *Rhamnus betulaefolia*, identified by Florentino, has clusters of red berries and was incorrectly identified as *Prunus serotina* on 02 Aug (notes corrected). Yar gave us a mushroom lesson and Cecil and Barb tried one of the yellow *Boletus* with tubular gills that didn't turn blue quickly when damaged. Yellow-eyed juncos heard everywhere. Photos taken of white fir and white pine, *Pinus flexilis* with cones and dripping pitch. Also photographed Ponderosa pine and gambel oak and Cerro Pelon (looking northwesterly at southeast slope). Cecil and Barb collected samples of flowers and vegetation along the way. Cecil was flipping rocks and Barb was looking for trilobites on limestone. (Point I) Field of irises (*Iris missouriensis*) GPS 599583N, 3422943E, 2400m. Barb picked up a geode-like rock for Floyd and Bob which had little round holes all over it and a very light smooth disk shaped rock. Cecil also found a cone shaped rock and a small lightweight rock (Barb's rock with the little round holes and Cecil's cone-shaped rock were identified by Floyd as different types of fossilized coral). Photos of southeast side of Cerro Pelon; looking west and southwest at dam. Photo looking north from ridge below northeast end of Cerro las Flores. End of roll #5. Start roll #6 taking another photo looking north from same place.

Photo of cream bush (*Holodiscus dumosus*) on northwest facing slope of Cerro las Flores.

Photos from northwest slope looking north and north-northeast off east flank of Cerro Pelon; and west of dam; northwest of western flank of Cerro Pelon. More *Holodiscus* photos on northwest facing slope; Barb and Mike going up slope; crown-beard penstemon; log with *Eryssimum* and *Penstemon* just below peak; Mike, Barb, Carl in front of *Holodiscus* with *Eryssimum* and Indian paintbrush (*Castilleja* sp.) in front of it.

1450h, arrive at peak of Cerro las Flores. GPS 599692N, 3422118E, 2450m. Photos in all directions. Five SCJA on rocks near top of peak. On north side of peak, dominant trees are gambel oak, white pine, some white fir (check photos). CRS photographed the landscape view from both sides of the peak. Huachuca agave, mountain mahogany, shrub-form gambel oak, and cream bush (see photos) dominated vegetation on south facing slope. Mike identified commonly seen vine-like shrub as *Fendlera rupicola*, but that species not listed in the flora of the range. Carl caught an adult bunch grass lizard, (*Sceloporus slevini* formerly *S. scalaris slevini*), about 100m below peak on north slope; photographed lizard and habitat, released lizard. Yar and Steve caught an adult Madrean alligator lizard (*Elgaria kingii*) about 75m below the bunch grass lizard; photographed lizard and habitat, released lizard.

1530h Start down to vehicles, dropping into drainage but couldn't find trail. Mike and Barb found trail but not a very good one. CRS bushwhacked down ridge, intercepting the road down toward Frijolito. Road was in good condition for the 200m below the ridge. 1645 h Barb and Mike arrive at vehicles, last of group. Dave and Steve released Sonoran mountain kingsnake and short-horned lizard where they were captured in the Hoya del Packard.

- 347.8 1812h Leaving saddle in vehicle.
- 348.7 Photos of "mosaic" limestone conglomerate.
- 349.2 Puerto Tanano, Barb got out to walk home.
- 350.9 back in camp. It rained again on us.

06 Aug

0810h local time: air temperature at 1.5 m = 13.8° C, air temperature at 5 mm = 14.1° C, surface temperature (wet soil) = 14.6°C. CRS photographed the skink and the salamander. We released the camp ridgenose at the corral below camp.

- 350.9 leaving Los Ajos Nuevos camp, 1028h local time
- 352.1 short-horned lizard, live on road (hit by truck) 1040h (took it to see if it would live; it seemed to recover and it was returned to collection site by Martin and Florentino).
- 354.7 lake (photographed lake and horse)
- 355.1 lesser earless lizard (*Holbrookia maculata*, HOMA) live on road 1110h
- 355.4 approximately 20 green sunfish (*Lepomis cyanellus*) and 4 largemouth bass (*Micropterus salmoides*) in creek below lake at locked gate. [bagre = catfish; lovina = bass].
- 356.1 subadult female HOMA 1128h
Tibicen cicada song 1130h
- 357.8 male HOMA on rocks by road, *Pogonomyrmex* nests

- 358.3 adult male tree lizard (*Urosaurus ornatus*) on bedrock shelf above stream, 1152h
- 358.4 male HOMA on rock 1156h
- 360.5 Stephen and Yar saw Clark spiny lizard (*Sceloporus clarkii*) in oak tree
- 360.6 female HOMA 1221h
- 360.8 gravid female collared (*Crotaphytus collaris*) lizard on rock by road, 1225h
- 361.0 male HOMA 1228h
- 361.9 standing water in wash by road; identified *Scaphiopus* cf. *couchi* tadpoles (with two legs)
- 364.6 locked gate at Highway 2
- 375.1 suspected HOMA
- 379.5 turned left on Highway 2 junction to Naco
- 389.1 U.S./Mexico border
- 389.6 turned right at junction with Dominguez Street, Naco, AZ
- 393.0 Border Patrol building on Naco Highway
- 397.5 Bisbee circle 1440h Tucson time
- 493.7 CRS house, 1600h Tucson time

Amphibian and Reptile Species Observed on the BioReserve August 1-6, 1998Amphibians:

<i>Ambystoma rosaceum</i>	Tarahumara salamander	in pools in Cañon Evans and canyon south of Frijolito
<i>Hyla arenicolor</i>	Canyon treefrog	5 tadpoles in one pool in Cañon Evans above camp (see Dale Turner's notes for details)

Reptiles:

<i>Crotalus pricei</i>	Twin-spotted rattlesnake	1 at corral near camp; 1 at Cerro Las Flores peak
<i>Crotalus willardi</i>	Ridge-nosed rattlesnake	camp, Cañon Evans above camp, canyon south of Frijolito (5 total seen on trip)
<i>Elgaria kingii</i>	Madrean alligator lizard	1 below peak of Cerro Las Flores
<i>Eumeces callicephalus</i>	Mountain skink	Cañon Evans near corral below camp
<i>Phrynosoma hernandesi</i> (formerly <i>P. douglasi hernandesi</i>)	Short-horned lizard	Hoya del Packard
<i>Sceloporus jarrovi</i>	Mountain spiny lizard	almost everywhere, on rocks, trees
<i>Sceloporus slevini</i> (formerly <i>S. scalaris slevini</i>)	Bunchgrass lizard	1 below peak of Cerro Las Flores
<i>Sceloporus virgatus</i>	Striped plateau lizard	near camp; on road to Mariano (3 total)
<i>Thamnophis cyrtopsis</i>	Black-necked garter snake	skin found in Cañon Evans above Camp

Additional Species of Amphibians and Reptiles seen below Reserve while driving out 06 Aug

<i>Cnemidophorus cf. sonorae</i>	Sonoran spotted whiptail	(see Dale's, Taylor's notes)
<i>Cnemidophorus cf. uniparens</i>	Desert grassland whiptail	at gate at Highway 2 (Taylor)
<i>Holbrookia maculata</i>	Lesser earless lizard	common at and below lake to Highway 2
<i>Sceloporus clarkii</i>	Clark's spiny lizard	1 seen by Stephen and Yar
<i>Scaphiopus cf. couchi</i>	Couch's spadefoot	Dale saw tadpoles in grasslands pool
<i>Urosaurus ornatus</i>	Tree lizard	1 seen 6mi above Hwy 2 gate

GEOLOGY REPORT
Sierra los Ajos, 1-7 August 1998

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The following is a list of fossil species identified in the Sierra los Ajos area.

From the Escabrosa Limestone (collected near the lake):

Silicified brachiopods: *Crananea sp.*, *Composita sp.*, *Spirifer centronatus ladronensis* Armstrong, *Dielasma* (or *Beecheria*) *chouteauensis* Weller.

The fauna is typical of the Caloso Formation of west central New Mexico, and the *D. chouteauensis* Weller is known from both the former and the member A of the Keating Formation of the Escabrosa Group in southwestern New Mexico and southeastern Arizona. The age is early Osagean (or late Early Mississippian).

Sample 1330-AT (Dave Prival's sample)

Lime wackestone with crinoid ossicles and a silicified rugose coral (probably Mississippian age Escabrosa Limestone)

Sample SLA16 From the Martin Formation (or Martin Ls), Frasnian (early Devonian)

16a *Phillipastraea sp.* (silicified colonial rugose coral)

16b *Alveolites sp.* (silicified laminar tabulate coral & silicified colonial rugose coral of Frasnian type)

16c *Cyrtospirifer sp.* (brachiopod)

16d silicified solitary rugose coral

16e fine-ribbed atrypid brachiopod

SLA8--coarse-grained micaceous sandstone

plant debris, small undeveloped bivalves, gastropods, possible Mesozoic (perhaps Cretaceous)

06 August 98:

Vehicle mileage noted at each gate and fork in road from Evans Canyon camp down to Hwy 2.
Geological features noted along the road.

- 73.7 Leave camp at 1032 hrs.
- 74.1 gate posts
- 74.65 sandstone shale
- 75.1 limestone
- 75.4 sequences SW dipping approx. $\sim 38^\circ$
- 76.2 old tractor
- 76.3 conglomerate cliffs; limestone in bed
- 76.4 road forks, stay right
- 76.8 conglomerate
- 76.9 volcanic material with granite boulders
- 77.3 tuffs or limestone; shale in stream
- 77.4 gate; 350/42
- 77.5 limestone at lake
- 77.6 road forks, stay right
- 77.7 dam and houses
- 77.8 historical marker
- 77.9 conglomerate sandstone
- 78.05 shale lens in conglomerate gravels; stay right, old road forks to left
- 78.1 road forks, stay left
- 78.2 house and locked gate
- 78.8 road forks, stay left
- 78.9 volcanic tuffs at top of section
- 79.25 volcanic flows; road forks, stay left
- 79.4 road forks, stay left
- 79.7 locked gate
- 80.8 road forks, stay right
- 81.3 rock sample collected
- 81.6 andesite interlayered with granite cobbled conglomerate, sample collected
Sonoran whiptail (*Cnemidophorus sonorae*) and Lesser earless lizard (*Holbrookia maculata*), photo voucher by Dale
- 81.8 unlocked gate
- 82.1 stay left, ranch road forks to right, picnic area on left
- 84.15 locked gate
- 84.65 road forks, stay right
- 85.00 road forks, stay to the right (straight)
- 85.05 stay left, road joins from right
- 85.75 road forks, stay left
- 86.0 road forks (twice), stay left
- 86.1 unlocked gate, stay straight
- 87.25 1255 hrs, locked gate at Hwy. 2.

ENTOMOLOGICAL NOTES

Sierra los Ajos Biological Survey

Aug. 1-6, 1998

Carl A. Olson

Note: Family names referred in notes end in -idae, subfamilies end in -inae Genus and species will be underlined. Most orders will end in -ptera.

Aug. 1, 1998

Cafe meeting site with Florentino Gara and Martin Haro, south of Naco

Along roadside were Nightshade with larval and adult Leptinotarsa decimlineata, (Coleoptera: Chrysomellidae) and also saw a Cassidinae (Chrysomellidae), genus Charidotella.

During the drive in, at the location where Matt Iles needed assistance, Stagmomantis sp. and Yersiniops sp. (**Mantodea**: Mantidae) were observed as well as a mating pair of stag beetles Pseudolucanus mazma (**Coleoptera**: Lucanidae).

Blacklight set up and started running after dark 2130 hrs (Sonoran time) for several hours.

Aug. 2, 1998

Drove to area determined to be the base of Frijolito Canyon. The area we were in was riparian with big-toothed maples abundant. Stream was intermittent with mosses abundant on the downed logs, ferns noted and few polypores seen. Noted in flight were Papilio multicaudata (2-tailed swallowtail), Battus philenor (pipevine swallowtail), Adelpha bredowii eulalia (CA. Sister) and a few dragonflies & damselflies. Along stream on downed log, larvae and pupae of Cypherotylus californicus were observed and photographed. Orb-weaving spiders were quite abundant. Springtails (**Collembola**) abundant under bark of fallen trees, but strangely no Aradidae (hemipterans normally found under tree bark) were seen. Caddisfly stone cases (Limnephilidae) were seen in the water. A new scorpion was collected here, Uroctonus huachuca, smaller than the scorpions around camp. But with large pedipalp bases.

On trip back to camp, we detoured and went to the top of Frijolito Canyon, fairly open area where grasshoppers abounded, Trimerotropis spp. And several Jerusalem crickets (Stenopelmatus sp.) were found.

Dale Turner and Dave Prival collected in Evans Canyon in vicinity of Los Ajos Nuevos campsite and found the large scorpion Diplocentrus spitzeri, a smaller dark scorpion Vejoivis vorhiesi, and a centipede Scolopendra polymorpha.

That evening I blacklighted for several hours and got similar results although the adult caddisflies and midges were more numerous.

Aug. 3, 1998

Went to top of Frijolito canyon for short stop, observed many Phoebis sennae (Pieridae) Satyridae, and typical fly pollinators (Syrphidae, Bombyliidae) plus biting flies (Tabanidae) around wildflowers.

Steve Russ, Yar Petryszyn, Martin Haro and I hiked into Hoya de Packard, Yar & Martin taking high road, Steve and I going into canyon following streambed, which had pools but was very intermittent. In pools both stone limnephilid caddis cases and leaf cases of Phylloicus aenus were seen, plus common water strider and the water scavenger beetle (Hydrophilidae) Tropisternus ellipticus were observed. Encountered many mushrooms along route. Under metal found a solpugid, Eremobates sp. Butterflies observed included 2-tailed swallowtail, CA. Sisters 2 spp. of skippers and the common wood satyre. Most interesting were the ant colonies of Formica fusca found under same rocks with termite colonies, with no antagonistic behaviors noted. Found oak galls on white oak, several ladybird beetle aggregations, again abundant orb-weaving spiders, but now bowl & doily spiders easily noticed. On return trip on high road, noticed a scarab larva (Dynastinae) on top of rocks being accosted by tiphiid wasp, Tiphia uvalde. Also collected a pompilid, Cryptocheilus sp. with its prey item, a dictynid spider (prob. Dictynus sp.).

Started blacklighting at 2100 hr at camp but rain had slowed activity. Did have Polyphemus fly in about 2200 hrs, a pair of Pachysphinx, and the same compliment of noctuids, arctiids and geometers were at light. A narrow-winged katydid also came in tonight.

Jessa Fisher, Steve Russ and I took the portable blacklights and went towards the stream searching for scorpion activity. None were out on surface, but turning rocks we found 3 specimens of Vejovis vorheisi, one a female with young on her back which we brought back live for photos later.

Aug. 4, 1998

Stayed at camp for photos down towards stream. Papilionids, skippers and nymphalids already seen during trip were noted. When the Vejovis female escaped, we looked under the concrete bench and discovered a black widow (Latrodectus prob. hesperus) with two egg sacs, which we then photographed. Rains came about lunchtime but let up so we could work streamside and collect. First saw Vespula pennsylvanica tangling with moth, Alypiodes bimaculatus. Later observed an ammophiline wasp flying off with green caterpillar. In stream whirlygig beetles (Gyrinus plicifer) dominated surface with backswimmers (Notonecta kirbyi) filling in the water channels beneath surface. A storm moved in and prohibited me from capturing a large aeschnid dragonfly. The lighting was poor and I couldn't get a good look at colors to identify it. Under rocks along the way Mike Schroff or I found the scorpions Diplocertrus & Vejovis. Noted the grassy area was filled with Arhapha cicindelloides, both nymphal and adult stages, plus the other largid Largus cinctus. The nymph of this species is blue with a red central dot, and was seen in various sites on trip also. Wild grapes were vining along the streamside and an associated beetle Macroductylus uniformis was collected. Ants certainly dominated the soil under rocks.

At dusk I went to the meadows near stream and collected fireflies near the bat nets. They had a seven flash pattern, with the first four flashes up and down, the last 3 long and sweeping away from me. The specimens are extremely small, but the flashes were very intense and large.

Started blacklight late, as weather was cool and very damp. The large fulgorids came in, a few moths typical of the area, but very little activity. Went back to areas to find the Vejois vorheisi scorpions and collected several, returned and shut down blacklight about 2215 hrs when rains started in earnest.

Aug. 5 1998

Drove to base of Cerro las Flores and started hiking through the trees about 1100 hrs. Lots of butterflies out, with 2-tailed swallowtails, typical skippers and the addition of painted ladies (Vanessa cardui) in fair numbers. Interesting finds along the climb included Amblycheila barroni, a large black tiger beetle, Harpalus caliginosus, a cosmopolitan carabid distributed from Canada southward, Jerusalem crickets under rocks, ants abound, and Lygaeus reclivatus found on blooms of Holodiscus dumosus. At the summit the bushes were masses of ladybird beetles, Hippodamia convergens. Turned many rocks and collected representative ant species noted in list. They were the dominant insects along the hike with spiders as obvious, mostly orb-weavers. A very unique phenomenon was observed both here and in Hoya del Packard, ants (Formica fusca) and termites (Reticulitermes tibialis) living and actively encountering each other under the same rock with no antagonistic behaviors.

While waiting for everyone to get down to the vehicles, I heard cicadas which I would think were Tibicen.

No blacklighting at camp this night due to heavy rains.

Aug. 6, 1998

Pack up and exited. Dale Turner brought several insects that were trapped in his lizard traps, including a bristletail (Archaeognatha). Stopped at gates and near streamside where dragonflies noted. Most info in Cecil Schwalbe's notes.

If not identified to even genus, specimen noted as Sp. #. Thanks to George Bradley, UA EEB Dept., for Scorpiones identifications, John O. Stierman, UA grad student, for Tachinidae identifications, Dr. Frank Ramberg, UA Dept. of Veterinary Sciences, for Elateridae identifications and John Friel, UA Grad student, for Solifugae identification.

Key to numbers in bold face associated with insects in following list:

- 1** Aug. 1, 1998 Evans Canyon, Los Ajos Nuevos blacklighting
- 1a** Aug. 1, 1998 Evans Canyon outside reserve
- 2** Aug. 2, 1998 Los Ajos Nuevos blacklight
- 2a** Aug. 2, 1998 Los Ajos Nuevo, general collecting Dale Turner, Steve Russ
- 2b** Aug. 2, 1998 Base, Frijolito Cyn, general collecting w/Cecil, et al
- 2c** Aug. 2, 1998 Mariano (Los Borregas)
- 2d** Aug. 2, 1998 Top of Frijolito Canyon
- 3** Aug. 3, 1998 Los Ajos Nuevos blacklighting
- 3a** Aug. 3, 1998 Hoya del Packard w/ Steve Russ, Yar, Martin
- 3b** Aug. 3, 1998 Las Barregas w/ Cecil, Barb
- 4** Aug. 4, 1998 Los Ajos Nuevos blacklighting
- 4a** Aug. 4, 1998 Gen. Collecting at dusk, camp
- 4b** Aug. 4, 1998 Gen. Collecting near Camp w/ Cecil & Mike Schroff
- 4c** Aug. 4, 1998 Cerro Pelon by Jessa Fisher
- 4d** Aug. 4, 1998 Cave in Evans Cyn, Dave Prival
- 5** Aug. 5, 1998 Hike up Cerro Las Flores w/ Cecil, Mike et al
- 5a** Aug. 5, 1998 Evans Canyon, gen coll by Taylor Edwards
- 6** Aug. 6, 1998 Los Ajos Nuevos, Dale Turner traps
- 6a** Aug. 6, 1998 Evans Cyn, near and outside Reserve, observations

Class Hexapoda

Archaeognatha

Sp. 1 6

Coleoptera

Anobiidae

Caenocara oculata (Say) 1

Cantharidae

Sp. 1 1, 2, 5

Carabidae

Amblycheila barroni Rivers 5

Anisotarsus mexicanus Dejean 5

Calathus gregarius Dejean 2c, 5, 6

Harpalus caliginosus (Fabricius) 5

Lebia marginicollis Dejean 2b

Lebia viridis Say 4c

Lebia sp. 1 2

Lebia sp. 2 2

Panagaeus sallei Chaudoir 4b

Pasimachus viridans LeConte 5a

Selenophorus sp. 2b

Synuchus dubius (LeConte) 5

Sp. 1 2

Cerambycidae

Arhopalus aspertus (LeConte) 1

Enaphalodes niveitectus Horn 3

Hypexilis pallida Horn 1

Obrium constricticolle Schaeffer 2

Prionus californicus Motschulsky 3

Rhopalophora longipes Casey 5

Tragosoma depsarius (Linnaeus) 2

Chrysomellidae

Kuschelina tenuilineata Horn 5

Kuschelina sp. 4b

Miraces placida (Horn) 5

Ophraea rugosa Jacoby 2b

Phaedon cyanescens Stal 5

Physonota sp. 4c

Spintherophyta violaceipennis (Horn) 2a

Xanthonia villosula (Melsheimer) 1, 2

Cleridae

Cymatodera oblita Horn 1

Cymatodera tricolor Skinner 1

Enoclerus bimaculatus Skinner 3, 4b

Phyllobaenus arizonica Schaeffer 2

Coccinellidae

Hippodamia convergens Guerin 2b, 5

Cucujidae

Charaphloeus flavosignatus (Schaeffer) 2

Curculionidae

Conotrachelus integer Casey 1, 2

Eugnamptus nigriventris Schaeffer 2

Eugnamptus punctatus Pierce1, 2

Eugnamptus sp. 2

Myrmex basalis (Schaeffer) 1

Nicentrus situlus Casey 5

Scolytinae

Sp. 1 5

Dytiscidae

Agabus lugens (LeConte) 3a

Elateridae

Atopus sp. 1

Athous arizonicus VanDyke 2, 3

Hemicrepidius sp. 2b

Megapenthes apacheorum Becker 2

Megapenthes sp. 1

Melanotus similis Kirby 1

Orthostethus caviceps Schaeffer 2

Endomychidae

Epipocus unicolor Horn 4b

Erotylidae

Cypherotylus californicus (Lacordaire) 2a, 2b

Gyrinidae

Gyrinus plicifer LeConte 4b

Hydrophilidae

Berosus moerens Sharp 2

Berosus stylifer Horn 1

Tropisternus ellipticus (LeConte)(observed) 3

Lampyridae

Adult sp. 1 4a

Larva 2c

Lucanidae

Pseudolucanus mazma (LeConte)1a

Lycidae

Lycus loripes Chevrolat 2b

Plateros nigerrimus Schaeffer 4

Meloidae

Epicauta segmenta (Say) 6a

Melyridae

Attalus foveiventris Fall2c

- Trichochrous varius Casey 5
- Mordellidae
Sp. 1 2
- Nitidulidae
Lobiopa falli Parsons 1, 2
Pallodes nr. pallidus Beauvois 2
Pallodes plateosus Schaeffer 1, 2
- Phengodidae
Mastinocerus opaculus Horn 1
- Scarabaeidae
Ancognatha manca LeConte 1, 2, 3
Anomalacra clypealis (Schaeffer) 2
Aphodius claudus Fall 2
Coscinocephalus cribrifrons (Schaeffer) 2d, 3a, 5
Cyclocephala dimidiata Burmeister 2
Diplotaxis arizonica Schaeffer 2
Diplotaxis brevicollis LeConte 1
Diplotaxis magna Bates 2
Diplotaxis tarsalis Schaeffer 1, 3
Isonychus arizonensis Howden 1
Macrodaetylus uniformis Horn 4b
Orizabus clunialis (LeConte) 1,2
Phyllophaga bilobata Saylor 2
Phyllophaga huachuca Saylor 1
Phyllophaga latidens Schaeffer 2, 3
Phyllophaga opaca Moser 2
Phyllophaga vetula (Horn) 2
Plusiotis beyeri Skinner 2
Plusiotis gloriosa LeConte 1, 2, 3
Trox plicatus Robinson 1
Dynastinae (larvae) 3a
- Silphidae
Nicrophorus mexicanus Matthews 5a
- Staphylinidae
Homaetarsus sp. 4b
Philonthus sp. 3a
Platydracus phoenicurus (Nordmann) 6
- Tenebrionidae
Eleodes compressitarsis Blaisdell 5
Eleodes dissimilis Blaisdell 2a,2b,2c, 2d, 3a, 4b, 5, 6
Stenomorpha marginata (LeConte) 3, 5, 6
- Lagriinae
Statira sp. 1

Collembola

Entomobryidae (observed under bark) **2b,2d,3a,5**

Diptera

Asilidae

Machimus griseus Hine **1, 4**

Efferia sp. **4b**

Bombyliidae

Villa (Hemipenthes) sinuosa (Osten Sacken) **4b**

Dolichopodidae

Sp. 1 **1**

Sepsidae

Sp. 1 **5**

Syrphidae

Baccha clavata (Fabricius) **4b**

Eristalis stipator Osten Sacken **5**

Sp. 1 **5**

Tabanidae

Stenotabanus flavidus (Hine) **2, 2b**

Tabanus erythraeus (Bigot) **2b**

Tabanus morbosus Stone **3a**

Tachinidae

Chaetogaedia sp. **4b**

Gaediopsis sp. **5**

Leschenaultia sp. **2b**

Lespesia sp. **1**

Paradejeania rutiliodes (Jaenicke) **2b**

Pelatachina meadi **1**

Phorocera sp. **1**

Rhachoepalpus olivaceus Townsend **5**

Tephritidae

Euaresta bellula Snow **2**

Rhagoletis sp. **2**

Trypeta fractura (Coquillet) **2**

Therevidae

Sp. 1 **1**

Tipulidae

Sp. 1 **4b**

Heteroptera

Coreidae

Archimerus indecorus Walker **2c**

Catorhintha guttula (Fabricius) **3a**

Gerridae

Aquarius remigis (Say) **2b, 3**

Largidae

Arhapse cicindeloides Herrich-Schaeffer 2b, 3a, 3b, 4b, 5
Largus cinctus Herrich-Schaeffer 2a, 2b, 4b

Lygaeidae

Lygaeus reclivatus Say 5

Miridae

Phytocoris hopi Knight 5

Sp. 1 1, 2, 5

Notonectidae

Notonecta kirbyi Hungerford 4b

Pentatomidae

Banasa packardi Stal 1

Banasa subcarnea VanDuzee 1

Brochymena sp. Nymph 4

Chlorocoris flaviviridis Barber 3a

Euschistus biformis Stal 3a

Lineostethus tenebricornis (Ruckes) 4b

Reduviidae

Acholla ampliata Stal 1

Apiomerus crassipes (Fabricius) 2, 2b

Castolus ferox (Banks) 2, 3

Narvesus carolinensis Stal 3

Pselliopus inermis (Champion) 4b

Rhopalidae

Jadera haematolona (Herrich-Schaeffer) 5

Homoptera

Aphididae

Pemphigus populitransversus Riley 2a

Cicadellidae

Marganana suilla (Ball) 1

Norvellina sp. 4

Sp. 1 2

Flatidae

Ormenis sp. 2

Gyponini

Genus unknown 1

Cicadidae

Tibicen sp. (heard the song) 5a, 6a

Fulgoridae

Alphina glauca (Metcalf) 1, 4

Issidae

Picumna chinai Doering 2b, 2d, 3a

Hymenoptera

Apidae

Apis mellifera Linnaeus 4b

Braconidae

Sp. 1 **2b**

Cynipidae

Disholcopsis n. sp. Host: Quercus oblongifolia twigs

Neuroterus sp. Host: Quercus arizonica leaves

Formicidae

Acanthomyops latipes **3a**

Aphaenogaster texana Emery **2a, 2b, 5**

Camponotus modoc Wheeler **2d**

Camponotus ocreatus Emery **2a**

Camponotus vicinus Mayr **2a, 5**

Formica fusca **2c, 2d**

Leptothorax rugatulus Emery **2a**

Liometopon sp. **5**

Monomorium sp. **5**

Myrmecosystus sp. 1 **4b**

Neivamyrmex nigrescens (Cresson) **5**

Pheidole sp. 1 **4b**

Pheidole sp. 2 **4b**

Pogonomyrmex barbatus (F. Smith) **6a**

Sp. 2 **2**

Halictidae

Evylaeus sp. **5**

Ichneumonidae

Ichneumon sp. **3a**

Netelia sp. **1, 2**

Triptognathus sp. 1 **5**

Triptognathus sp. 2 **5**

Mutillidae

Sphaerophthalma sp. 1 **1, 2**

Sphaerophthalma sp. 2 **2**

Sp. 1 **2**

Pompilidae

Anoplius relativus (Fox) **3a**

Cryptocheilus sp. **3a**

Sphecidae

Ammophila placida Smith **3a**

Tiphiidae

Tiphia roda Allen **2b**

Tiphia uvalde Allen **3a**

Vespidae

Polistes canadensis navajoe Cresson **4b**

Vespa pennsylvanica (Saussure) **2, 2b, 3a, 4b**

Isoptera

Rhinotermitidae

Reticulitermes tibialis Banks **3a, 5**

Lepidoptera

Arctiidae

Caralis arizonensis (Rothschild) 1, 2, 3, 4Bertholdia trigona (Grote) 1, 2, 4Holomelina ostenta (Henry Edwards) 2Opharus muricolor (Dyar) 2

Geometridae

Holochroa dissociaria (Hulst) 2Nacophora cristifera (Hulst) 1, 2, 3Stamnodes formosata (Strecker) 1, 2

Hesperiidae

Autochton cellus (Boisduval & LeConte) 2cPoanes taxiles (Edwards) 3aThorybes pylades (Scudder) 2c, 4b, 5

Lasiocampidae

Gloveria arizonensis Packard 3

Limacodidae

Prolimacoses trigona (Henry Edwards) 2Sibine sp. 1

Lycaenidae

Celastrina argiolus cinerea (Edwards) 2b

Noctuidae

Acontia tetragona Walker 2Agriopodes tybo Barnes 1Alypiodes bimaculatus (Herrich-Schaeffer) 4b (being eaten by *Vespula*)Emarginea sp. 1, 2Euxoa manethusa 2Gerra serorsa Grote 1, 2Gerrodes minatea Druce 1, 4Hexorthodes accurata (Henry Edwards) 2Loxagrotis albicosta (J. B. Smith) 1Miselia glaciata (Grote) 2Panopoda rigida (Smith) 1, 2Tarachidia alata (Smith) 1Ursogastra lunata Smith 2

Sp. 1 4

Notodontidae

Astylis biedermani (Skinner) 1Furcula nivea (Neumoegen) 1

Nymphalidae

Adelpha bredowii eulalia (Doubleday)(observed) 2b, 3Limenitis astyanax arizonensis Edwards 3aNymphalis antiopa (Linnaeus) 2b, 5 (observed)Vanessa cardui (Linnaeus) 5

Oecophoridae

- Ethmia discostrigella (Chambers) 1, 2, 3, 4
Papillionidae
Battus philenor (Linnaeus) (observed) 2b, 3
Papilio multicaudatus Kirby 3, 5
Pieridae
Phoebis sennae (Linnaeus) 5 (Observed)
Eurema mexicana (Boisduval) 6a
Psychidae
Case only 4b
Pyralidae
Desmia funeralis (Huebner) 1
Diathrausta reconditalis (Walker) 2
Saturniidae
Antheraea oculatea (Neumoegen) 2
Hyalophora gloveri (Strecker) 3
Satyridae
Euptychia rubricata cheneyorum Chermock 3a
Sphingidae
Eumorpha typhon (Klug) 2
Hemaris diffinis (Boisduval) 5
Hyles lineata (Fabricius) 1
Manduca floristan (Cramer) 1
Pachysphinx occidentalis (Edwards) 1, 3
Poanias myops (J.E. Smith) 1
Sphinx dollii Neumoegen 1
Mantodea
Mantidae
Stagmomantis sp. 1a, 5a
Yersiniops solitarium (Scudder) 1a, 3a, 5
Neuroptera
Chrysopidae
Sp. 1 3b
Odonata
Aeschnidae
Aeschna multicolor Hagen 6a
Anax junius Drury 6a
Calopterygidae
Heterina vulnerata Hagen 6a
Coenagrionidae
Argia tonto Calvert 2b
Cordulegastridae
Cordulegaster diadema Selys 2b
Libellulidae
Libellula croceipennis Selys 6a
Libellula saturata Uhler 6a

Orthoptera

Acrididae

- Brachystola magna (Girard) 6a
- Melanoplus desultorius Rehn 5
- Trimerotropis cyaneipennis Bruner 5
- Trimerotropis inconspicua Bruner 2d, 3a
- Trimerotropis modesta Bruner 2d
- Sp. 1 5

Gryllacrididae

- Ceuthophilus sp. 1 4d
- Ceuthophilus sp. 2 6
- Ceuthophilus sp. Nymph 2d
- Pristoceuthophilus arizonae Hubbell 3a
- Stenopelmatus sp. 2d, 5

Gryllidae

- Gryllus assimilis (Fabricius) 1,3a
- Sp. 1 2d
- Sp. 2 5

Tettigoniidae

- Arethaea gracilipes papago Hebard 3, 4b
- Eremopedes ephippiatus Scudder 1a, 2a, 4b
- Scudderia mexicana (Saussure) 4b

Phasmida

Bacunculidae

- Pseudosermyle straminea Scudder 3a

Trichoptera

Calamoceratidae

- Phylloicus aeneus (Banks) 1

Limnephilidae

- Cases in stream 2b

Class Arachnida

Acari (mites) on Nicrophous

Araneae (spiders)

Argiopidae (observed at all sites)

Dictynidae

- Prob. Dictyna sp. 3a

Salticidae 3a, 5

Theraphosidae

- Aphonopelma sp. 5a

Theridiidae

- Latrodectus prob. hesperus 4b

Opiliones (Daddy-long-legs)

Scorpiones (scorpions)

Diplocentridae

Diplocentrus spitzeri Stahnke 2a, 4b, 5a

Veejovidae

Uroctonus huachuca Gertsch & Soleglad 2b

Vaejovis vorheisi Stahnke 2a, 3b, 4, 4b, 5

Solifugae (solpugids)

Eremobates sp. 3a

Sp. 1 2a

Class Diplopoda (millipedes) 3a, 5

Class Chilopoda (centipedes)

Scolopendromorpha

Scolopendridae

Scolopendra polymorpha 2a

MAMMAL SURVEY REPORT

SIERRA DE LOS AJOS, MEXICO
AUGUST 1-6, 1998
BY YAR PETRYSZYN AND STEPHEN RUSS

OVERVIEW

- 8/1/98 Sat Arrived at the Reserve in the late afternoon.
- 8/2/98 Sun Visually surveyed by day, set-up rodent traps by evening, set-up and monitored 2 mist nets at night.
- 8/3/98 Mon Checked rodent traps in the morning, visually surveyed by day, monitored 2 mist nets at night.
- 8/4/98 Tue Checked rodent traps in the morning, visually surveyed by day, monitored 2 mist nets at night.
- 8/5/98 Wed Checked rodent traps in the morning, visually surveyed by day, monitored 2 mist nets at night. Picked-up traps in the afternoon due to rain.
- 8/6/98 Thurs Departed the Reserve mid-morning

Rodents

Only one species of rodent was captured. We captured five *Peromyscus eremicus*. Three were male (one had its testes descending). Two were female (one was pregnant). Except for the pregnant female (which weighed 27 grams) they all weighed between 18 and 19 grams. Three of them were caught in rocky outcrops of the Oak-Juniper above camp and two were caught in the riparian area below camp.

One hundred fifty-one Sherman traps were set to capture rodents.

- Eighty traps were set in the Oak-Juniper forest above the camp.
(Some of these traps were placed on the forest floor. Others traps were placed next to rocky out crops. And, some traps were placed in or along a wet drainage.)
- Forty traps were set in a riparian area.
(They were placed between the stream and the lower edge of the meadow below the camp.)
- Ten traps were set next to rocky out-crops.
(They were placed at the upper edge of the meadow below the camp.)
- Five traps were set in the meadow below camp.
- Sixteen traps were set in the camp.

Bats

No bats were captured after mist netting for four consecutive nights. One or two bats were seen on most evenings flying over the meadow below camp at dusk. They were not identified.

One bat was identified while sleeping (in the day) in a long narrow split of a small Oak tree. Yar Petryszyn was able to identify it as a Big Brown Bat, *Eptesicus fuscus*.

Two mist nets were set-up across road between the campsite and stream to capture bats. Water was prevalent. Therefore, we tried to utilize potential flyways.

- A 30 foot net was set up across the road at the upper end of the meadow.
- A 20 foot net was set up across the road next to the stream at the lower end of the meadow.

Other Mammals

A total of 13 mammal species were identified. No vouchers were taken. All species listed in this report were either captured and released, directly observed, or signs of them were directly observed, by us or one or more of the individuals in our group, to whom we extend our gratitude for their vigilance and assistance.

MAMMAL SPECIES LIST

1. <i>Eptesicus fuscus</i>	Big Brown Bat	Observed
2. <i>Sylvilagus sp.</i>	Cottontail Rabbit	Observed
3. <i>Spermophilus variegatus</i>	Rock Squirrel	Observed
4. <i>Sciurus arizonensis</i>	Arizona Gray Squirrel	Observed
5. <i>Thomomys sp.</i>	Pocket Gopher	Signs: Burrows
6. <i>Peromyscus eremicus</i>	Cactus Mouse	Captured
7. <i>Neotoma sp.</i>	Woodrat	Signs: Middens
8. <i>Urocyon cinereoargenteus</i>	Common Gray Fox	Observed
9. <i>Ursus americanus</i>	Black Bear	Signs: Foot prints
10. <i>Mephitis mephitis</i>	Striped Skunk	Observed
11. <i>Felis concolor</i>	Mountain Lion	Signs: Scat
12. <i>Odocoileus virginianus</i>	White-tailed Deer	Observed. Signs: 3 separate antlers and scat
13. <i>Tayassu tajacu</i>	Collard Peccary	Signs: Lower jaw bone

**BIRD OBSERVATIONS OF THE SIERRA DE LOS AJOS
FOREST RESERVE: 1-6 AUG 1998**

Michael Schroff

The following report and species list refer to confirmed species sightings during the preliminary biological survey of the northernmost areas of the Sierra los Ajos Forestry Reserve. This does not intend to present a comprehensive list of species in the area but rather those encountered during the survey period. Regular surveys throughout the year would be required to represent the species possible within the forest reserve.

The species list presents those birds encountered in regular morning walking surveys in the headquarters camp area, and on midday visits to outlying areas. Species were detected by sight identification and/or calling or singing. Regular survey walks were undertaken between the hours of 0500 and 0730 on 2-6 August. The walk began from camp north along road down to reserve boundary gate, then back south along watercourse to a point ca 1km above headquarters camp (as far as time would allow). Birds were recorded as seen and those species listed as "regular" refer to species seen on this survey walk. Later in the day, different groups moved to explore areas above the camp. On 3 August I walked the areas of upper Frijolito Canyon with T. Edwards to look for species in the moist woodlands along the watercourse. August 5 found me on a group hiking to Cerro las Flores to offer further encounters with the bird species more common to the upper elevations of the reserve. Notes were made on any species seen along the road as we traveled in the reserve and out to the highway.

Further surveys over the seasons will turn up many more species of birds. Permanent transects could be set up to allow input as to abundance and seasonality of species.

I thank all the members of the survey group for their expertise and input. I would be delighted to answer any questions and would appreciate any input on the contents of this report.

**BIRD SPECIES DETECTED IN THE SIERRA LOS AJOS
FOREST RESERVE, 1-7 AUGUST, 1998**

Cathartes aura. Turkey vulture. Regularly seen, particularly in soar over ridges above headquarters camp.

Accipiter cooperii. Cooper's hawk. Males and females seen regularly over watercourse and in woodland.

Cyrtonyx montezumae. Montezuma quail. Single sighting of adult male and chick along road from C. las Flores, 5 AUG.

Columba fasciata. Band-tailed pigeon. Sightings and calls at upper elevations of steep wooded slopes of Frijolito Canyon, 3 AUG, and Cerro las Flores, 5 AUG.

Zenaida macroura. Mourning dove. Seen in lower elevation scrub between reserve boundary and main highway. Not seen in reserve.

Trogon elegans. Elegant trogon. Calls regular, pair seen foraging daily along watercourse. Uses riparian woodland and conifers.

Caprimulgus vociferus. Whip-poor-will. Calls daily, especially dusk and pre-dawn hours. Nest with adult and single young reported by J. Fisher, 5 AUG.

Cordeiles minor. Common nighthawk. Courtship flight observed by Y. Petryszyn, 4 AUG, Camp area.

Selasphorus platycercus. Broad-tailed hummingbird. Regularly seen in open areas along watercourse and on higher scrubby slopes.

Colaptes auratus. Northern (Red-shafted) flicker. Common in all woodland areas surveyed, generally foraging in small groups.

Myiodynastes luteiventris. Sulphur-bellied flycatcher. Regular along watercourse.

Myiarchus tuberculifer. Dusky-capped flycatcher. Seen in dense woodland along watercourse and in higher elevations of Frijolito Canyon.

Myiarchus cinerascens. Ash-throated flycatcher. Seen foraging in lower elevation scrub between reserve boundary and highway. Not seen on reserve.

Cyanocitta stelleri. Steller's jay. More common in higher elevations of reserve surveyed. Group passed through camp area daily.

Aphelocoma ultramarina. Mexican jay. Commonly seen in all oak woodlands surveyed. Regular in camp area.

Parus wollweberi. Bridled titmouse. Common oak woodland sightings, often in mixed flocks.

Sitta carolinensis. White-breasted nuthatch. Seen regularly in both deciduous and conifer woodland.

Troglodytes aedon. House wren (Brown-throated wren). Adult scolding cowbird, steep slopes in upper Frijolito Canyon, 3 AUG, and C. las Flores 5 AUG.

Thryomanes bewickii. Bewick's wren. Seen and heard singing in oak and riparian woodland.

Turdus migratorius. American robin. Seen once; several sang daily on steep slopes (early morning) above headquarters camp area.

Vireo solitarius. Solitary vireo. Regular early morning feeder in camp area woodlands. Mixed flock feeding.

Dendroica nigrescens. Black-throated Gray Warbler. Seen at camp by Dave Prival, 02 AUG.

Myioborus pictus. Painted redstart. Common in oak and riparian woodland.

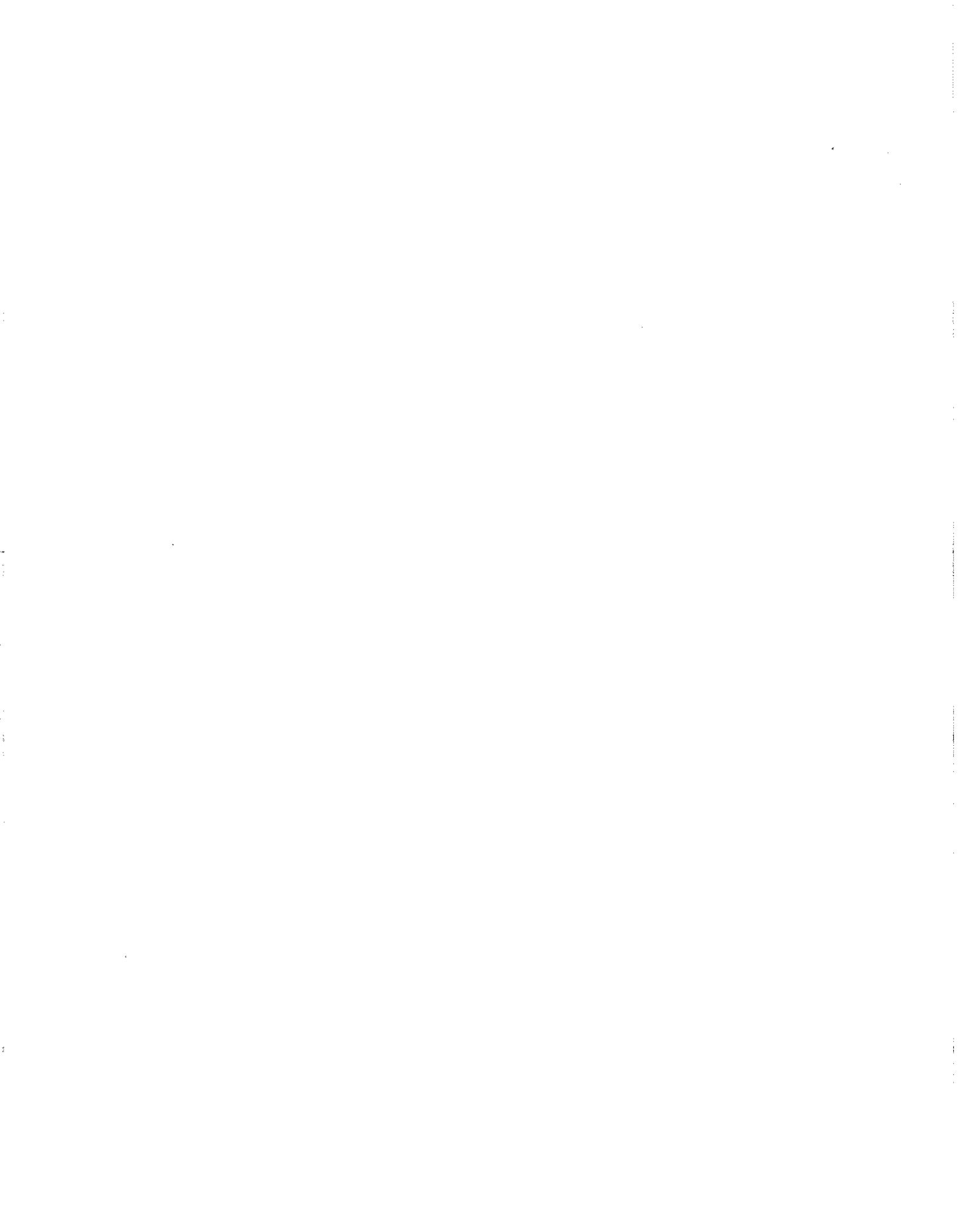
Pheucticus melanocephalus. Black-headed grosbeak. Regularly seen near watercourse below headquarters camp. Nest found in Sycamore over water in same area.

Pipilo erythrophthalmus. Rufous-sided towhee. Regular in shrubs and trees near watercourse.

Junco phaeonotus. Yellow-eyed Junco. Commonly seen in conifer and oak woodland areas.

Molothrus ater. Brown-headed cowbird. Single male seen upper elevations of Frijolito Canyon, scolded by House wren, 3 AUG.

Icterus galbula. Northern (Bullock's) oriole. Pair seen three times along watercourse below camp.



Biological Survey of the Sierra los Ajos, Sonora
Dale Turner

(All times reported in Tucson time, despite different time zone in Sonora.)

1 August 1998

- 0759h, 000.0 mi. tripmeter, odometer 172,413.6 mi. Departed my house in Toyota. Picked up Dave at his place, gear from Cecil's, and headed south.
- 1013h *Crotalus atrox*, DOR on Hwy 90, 0.1mi S of French Joe Cyn. Rd.
- ~1120h Arrived Border Patrol station in Naco, AZ. Most people there or arrived soon after. Message arrives via Border Patrol agent that Cecil just leaving Tucson. The assembled masses disperse for lunch.
- 1420h We head for the border in a convoy, Cecil and Carl having finally arrived. Painless border crossing then headed toward Cananea through the tail end of what had been a heavy rain in places.
- 1530h, 155.5 We met Martin, Florentino, and Matt at a decrepit roadside cafe on Mex. Hwy 2, circa Km 61, just across the road from the locked gate on the dirt road leading S into Cañon Evans in the Sierra de los Ajos. Just W of the gate was an orange and white power transformer station. After a few minutes of introductions and the inevitable large-group slowness, we headed S in a convoy of 7 vehicles.
- 165.6 *Ambystoma rosaceum*, ~10 large larvae in pool beside road.
As we took a break from the slow, bumpy ride, Martin shared the news that 3880 ha of private land near the lake, including 3 houses, is for sale at U.S. \$65/ha (thus \$252,200).
- 1845h, 169.0 Arrived at the camp, approx. 0.3mi inside boundary gate of the Reserva Forestal Nacional. The road in had many rough stretches, including passing across the stream many times and occasionally following the stream bottom for lengthy portions.
- After dark, a group of us spent ~45 min. searching for herps downstream from the camp. A few more *Ambystoma rosaceum* larvae were the only finds.

2 August 1998

- 0917h $T_{1.5m}=21.2^{\circ}\text{C}$, $T_{1cm}=21.2^{\circ}\text{C}$, $T_s=20.7^{\circ}\text{C}$. I set out with Dave and Steve to explore the canyon bottom and sides upstream from camp.
- 0947h *Sceloporus virgatus* female, captured when she ran from under a piece of sheet metal, 200m E of camp.
- ~1045h Shed snake skin, in pieces under a log and nearby rock. Later identified by Cecil as *Thamnophis cyrtopsis*.
- 1050h *Sceloporus jarrovii* juv.
- 1100h Pool with 5 *Hyla arenicolor* tadpoles and 4 *Ambystoma rosaceum* larvae, 300m upstream from camp. Close to UTM coord. (from GPS): N0599000, E3426902.
- 1105h Pool with 15 *Ambystoma rosaceum* larvae.
- 1107h 2 *Sceloporus jarrovii* juv.
- 1125h *Sceloporus jarrovii* adult male, captured
- 1140h *Sceloporus jarrovii* juv.
- 1150h 2 *Sceloporus jarrovii* juv.
- 1230h $T_{1.5m}=25.8^{\circ}\text{C}$, $T_{1cm}=27.7^{\circ}\text{C}$, $T_s=30.4^{\circ}\text{C}$

- 1247h *Sceloporus jarrovi* juv.
 1254h *Sceloporus jarrovi* adult
 1256h *Sceloporus jarrovi* adult. I arrived back at camp, slightly ahead of the others.
 1300h I found *Crotalus willardi* adult male, coiled under shade of retaining wall in the middle of camp. SVL=395mm, tail=45.74mm, mass=52g, 3 rattle segments, broken distal segment, 23 stripes with #5 incomplete. (Measured by Dave on 8/3/98.)
 1443h I found *Crotalus willardi* juvenile female (? - Dave thought male, but found it too small to probe), crawling in grass 5m from stream, 20m from edge of camp. $T_{1.5m}=25.9^{\circ}\text{C}$, $T_{1cm}=27.2^{\circ}\text{C}$, $T_s=29.9^{\circ}\text{C}$. SVL=216mm, tail=20.71mm, 7.8g, 1 rattle segment, broken, 18 stripes with 3 broken. (Measured by Dave on 8/3/98.)
- In the afternoon, I worked with Dave, Steve, and Jessa to install 8 funnel traps and 1 pitfall trap, using 2 drift fences and natural barriers.
- 1735h Dave found *Crotalus pricei* adult male, 1m from stream, ~250m upstream from camp. UTM coord. (from GPS): N0599000, E3426902. Snake was crawling on the surface as a light rain started falling.
 1955h Dave and I set off to search area downstream.
 ~2030h back in camp, having seen no vertebrates.

3 August 1998

Morning trap check found nothing but spiders.

- 0808h *Sceloporus virgatus* on rocks by corral, 150m upstream from camp.
 0932h I departed camp with Cecil, Barb, and Florentino in Cecil's vehicle, odometer 325.5 mi. We headed S, uphill, along the main road that got quickly worse than the incoming stretch.
 327.3 took left fork at Y intersection. Took photos of view to SW.
 327.4 photos of view to SW, with Cerro Pelon in background.
 327.5 took right fork at Y
 327.6 straight at T intersection
 328.1 straight at T intersection (S is primary road to La Sal)
 328.7 jacalito - small house made of logs and tar paper - old and collapsed
 328.8 stream crossing at Cañon Mariano (Las Borregas). Together, we'd seen 9 *Sceloporus jarrovi* since camp. Around the next bend in road was a large boulder in a narrow spot above a steep drop. We spent an hour moving it, first using Cecil's tow strap (broke it) and then his hydraulic jack, accompanied by much digging, sweating, and many bad jokes.
 1510h Only 3 more *Sceloporus jarrovi* this afternoon, all juveniles.
 1542h, 332.8 Los Jacalitos, a cabin in a wooded saddle. Many signs of current occupation, but nobody visible.
 1633h, 335.0 turned around on ridge of Cerro la Nevada. Photos. Shortly after starting back, collected needles and cones for Felger from isolated stand of *Pinus ponderosa* (var. *arizonica*?) on ridge.
 1838h arrived back in camp, after driving through lightning, rain, and hail.

4 August 1998

2 trogons calling back and forth in canyon around camp.
 Photos of snakes.

- 1000h Dave and I head out SW from camp, to explore slopes of Cerro Peña Blanca.
 1001h *Sceloporus jarrovii* - 1 adult, 1 juv.
 1004h *Sceloporus jarrovii* juv.
 1006h *Sceloporus virgatus* by corral, hunting in leaves on ground beside rock wall. Nothing in traps.

1022h $T_{1.5m}=25.9^{\circ}\text{C}$, $T_{1cm}=28.3^{\circ}\text{C}$, $T_s=30.1^{\circ}\text{C}$

1038h *Sceloporus virgatus*

Many hectares of ridgetop and N-facing slopes show evidence of a hot fire approx. 10 years ago. Regrown in dense thickets of manzanita and oak.

1210h $T_{1.5m}=27.3^{\circ}\text{C}$, $T_{1cm}=33.2^{\circ}\text{C}$, $T_s=36.1^{\circ}\text{C}$

1326h lunch on peak to SE of Cerro Peña Blanca, N0597500, E3425580.

1345h close lightning, half-inch hail, and heavy rain convinced us to leave, so we headed down into the upper end of Cañon Evans.

1348h *Sceloporus jarrovii* juv.

Long scramble down a steep slope through dense brush in heavy rain with the crashing of nearby lightning. An intense afternoon.

~1445h rain stopped as we reached the bottom of Cañon Evans. Two lovely little waterfalls were cascading down the head of the canyon. Walking downstream we reached the leading edge of the flow - water burbling, chattering, splashing along into a streambed that was damp but not flowing. We walked with the leading edge, daring it to dampen our boots, pausing to cheer each new cataract brought to life and each plunge pool suddenly filled. Best were the cascades down large rock faces, where damp ferns became glittering rivulets and standing grasses bent beneath the current, as a quiet scene became filled with joyous whitewater noise.

1515h *Sceloporus jarrovii* juv., watching the stream fill from a large rock beside it.

1610h Florentino and Martin passed above us, headed upstream.

1625h Dave caught a *Crotalus willardi* on the edge of a limestone outcrop. The snake had been wrapped around several small branches (twigs, really) about 6 inches off the ground. It didn't rattle or move before he grabbed it. SVL 465mm, tail 56mm, 62 g, 5 rattle segments incl. basal. UTM: N0598899, E3425984.

1650h heavy rain started again, so we quit playing with the snake, put it back and headed for camp.

1720 arrived camp. Cecil had pulled one each *Sceloporus jarrovii* and *Eumeces callicephalus* from the same funnel trap.

5 August 1998

Traps had no vertebrates in morning check, but 5 large belastomatid beetles in the funnel trap in stream.

0850-0934h Most of us travelled in two vehicles to a saddle between Cerro Pelon and Cerro las Flores. On the way we saw 7 *Sceloporus jarrovii* - 4 adults, 3 juv.

0945h $T_{1.5m}=22.1^{\circ}\text{C}$, $T_{1cm}=22.7^{\circ}\text{C}$, $T_s=25.9^{\circ}\text{C}$. We started hike up Cerro las Flores.

1030h *Sceloporus jarrovii* adult

1034h *Sceloporus jarrovii* juv.

1102h Rock squirrel, *Spermophilus variegatus*, with a gray bushy tail.

1232h I reached peak of Cerro las Flores, saw *Sceloporus jarrovii* juv.

- 1233h *Sceloporus jarrovi* adult. Remains of an antenna tower litter the peak, along with 3 large rock cairns that supported guy wires for it.
- 1250h Martin found a *Crotalus pricei* on peak, on the surface beside some broken rock slabs. Female, SVL=499mm, tail=40mm, mass=123g, 5 rattle segments incl. basal, distal rattle broken, no food or embryos obvious. UTM: N0599700, E3422214.
 $T_{1.5m}=19.9^{\circ}\text{C}$, $T_{1cm}=22.3^{\circ}\text{C}$, $T_s=28.9^{\circ}\text{C}$.
- We celebrated by eating lunch on the peak, with great views to N and E.
- 1307h *Sceloporus jarrovi* juv.
- 1410h *Sceloporus jarrovi* juv.
- ~1425h Steve and Yar caught an adult *Gerrhonotus kingii* down 200m NW from peak.
- 1440h Carl caught an adult female *Sceloporus scalaris* (slevini) down 150m NW from peak.
- 1447h *Sceloporus jarrovi* juv.
- ~1450h Barb saw *Sceloporus jarrovi*
- 1630h I arrived at the vehicles. Some folks already there, others straggled in later.
- 1713h we all departed
- 1800h arrived at camp. Florentino said road was built in the 1930s for logging for the mines at Cananea. The camp area was used for lime production, burning limestone in huge hornos that still exist as collapsing chimneys with walls of stone, 3 courses thick.

6 August 1998

Took habitat photos of riparian strand in the canyon. Nothing vertebrate in traps. With help, I removed them all. Several hours spent packing.

1030h, 169.0 we departed in a convoy

Quick stop along way for photos of oak/juniper hillsides.

1210h, 176.8 *Cnemidophorus sonora*, *Holbrookia maculata*, caught and photographed.

Photos of oak savanna.

1250h, 179.8 tadpoles (*Scaphiopus couchii*?) in ephemeral pool in grasslands

1302h, 182.4 reached Hwy 2, said our goodbyes

1328, 197.1 turned N off Hwy 2 onto road to Naco.

Uneventful border crossing, lunch in Bisbee, photos of Whetstones from E side of valley.

1640h, 313.9 arrived home, after dropping Dave at his house. Odometer 172727.5

SIERRA DE LOS AJOS TRIP - AUGUST 1998
DAVE PRIVAL

All times are local time (Sonoran).

See end of field notes for all snake measurement data.

1 August 1998

1119 - Roadkill *Crotalus atrox* in Arizona along Highway 90, 0.1 miles south of French Joe Canyon Road.

1830 - At least four *Ambystoma rosacea* in Evans Creek near road to camp.

1952 - Arrive at camp.

2 August 1998

1031 - Heading up Evans Canyon from camp with Dale Turner and Steve Russ.

Relative humidity = 71%.

T (1.5 meters) = 21.2° C

T (1 cm) = 21.2° C

T (substrate) = 20.7° C

Clouds = 80%

1047 - Observed probable juvenile *Gerrhonotus kingii*. I caught a glimpse of a banded gray tail on the stream side of the corral just upstream from camp. There was a mass of barbed wire between the lizard and me. I was unable to relocate the lizard.

1052 - Sulphur-bellied flycatcher observed.

1102 - *Sceloporus jarrovi* observed while walking near creek.

1138 - Captured small gray scorpion under rock about 1 m from stream. Location is about 0.5 miles upstream from camp in Evans Canyon.

1148 - *S. jarrovi* on rock by stream.

T (1.5 meters) = 24.8° C

T (0.5 cm) = 29.0° C

T (substrate) = 30.5° C

Clouds = 25%

Sunny and warm after overcast, wet, cool early morning.

1219 - Juvenile *S. jarrovi* on rocks about 20 m from creek.

1223 - Juvenile *S. jarrovi* on rocks about 6 m horizontal and 8 m vertical from creek.

1258 - *S. jarrovi* on rock about 25 m from creek.

1301 - Juvenile *S. jarrovi* on rock about 2 m from creek.

1303 - Captured black beetle with red spot on back on rock about 10 m from stream. Juniper-oak woodland.

1402 - Juvenile *S. jarrovi* on rocks of lime kiln in tributary of Evans Canyon just upstream from camp.

1410 - End search. Back at camp. Spent about 40% of search period within 5 m of stream. 90% searching while walking, 10% cover turning.

- 1530 - Observing birds from camp. Have seen painted redstart, white-breasted nuthatch, bridled titmouse, black-throated gray warbler, turkey vulture, and gray-breasted jay.
1634 - Searching for herps upstream from camp in Evans Canyon.
1645 - Juvenile *S. jarrovii* on corral fence.
1648 - 1 juvenile *S. jarrovii* and 1 adult *S. jarrovii* on rock wall near corral.
1651 - End search. Back at camp.
1705 - Juvenile *S. jarrovii* on rocks near camp.
1835 - Captured *Crotalus pricei* in rain. Found while searching for place to put funnel trap.

Clouds = 90%
T (1.5 meters) = 22.5° C
T (0.5 cm) = 23.0° C
T (substrate) = 23.0° C
Relative humidity = 82%
Rained for about 10 minutes.

Location: Evans Canyon about 1 m from stream. Observed snake crawling when I was about 2 m away. Snake did not rattle. Location is about 1/5 mile upstream from camp on west bank of stream. Snake attempted to crawl under an outcrop rock, but could not find enough room so it continued crawling upslope and I was able to catch him.

Area Characteristics: Within 1 m, exposed bedrock = 60%, soil = 40%, leaf litter = 35%.

Nearest plants: Mostly bunchgrasses. Also abundant forbs.

Trees and shrubs: *Alnus* spp., *Quercus* spp., *Yucca* spp., *Vitis (arizonica?)*, *Platanus wrightii*

- 2010 - Starting search for herps in Evans Canyon upstream from camp.
2030 - End search. Back at camp.

PHOTO 1-4: Juvenile *Crotalus willardi* captured by Dale Turner.

3 August 1998

PHOTO 5-6: Dragonfly

- 1147 - Starting search for herps and rocks at road on west side of Cerro Pelon with Floyd Gray and Bob Miller.

T (1.5 meters) = 26.8° C
T (0.5 cm) = 27.6° C
T (substrate) = 29.8° C
Relative humidity = 40%
Clouds = 10%

Occasional light breezes. Sunny and warm.

- 1233 - Juvenile *S. jarrovii* on tree near limestone outcrop west of Cerro Pelon.
1245 - Large *S. jarrovii* in crack in *Pinus (ponderosa?)*.
1322 - *S. jarrovii* on *Quercus* tree.
1331 - Juvenile *S. jarrovii* on limestone outcrop.
1332 - Juvenile *S. jarrovii* on limestone boulder.
1339 - Juvenile *S. jarrovii* on limestone boulder along road.

- 1530 - Starting search for herps and rocks in Hoya del Packard with Floyd Gray and Bob Miller.
1553 - *S. jarrovii* in dead agave in dry canyon bottom.
1620 - 3 larval *Ambystoma rosacea* in pools in canyon along with about 20 caddisfly larvae.
Caddisflies are mostly in cemented rock cases, but a few are in leaf cases.
1632 - PHOTO 7 & 8: Hoya del Packard canyon.
1635 - Observed solitary bat under limestone overhang. Bat flew away before I could identify it.
1720 - Captured green leaf-mimicking bug in canyon bottom.
1725 - Bob Miller found a *Lampropeltis pyromelana*. I captured it.
T (1.5 meters): 24.9° C
T (0.5 cm): 23.0° C
T (substrate): 21.5° C
Relative humidity: 48%
Found on leaf litter next to limestone boulder. Boulder is about 0.5 m tall. Location is about 8 m from dry canyon bottom. Under *Acer* spp. Snake was apparently resting next to the boulder. Bob backed off quickly when he saw the snake to keep from scaring it away. The snake climbed upslope next to the boulder and I was able to sneak up on it and catch it easily.
PHOTO 9: *L. pyromelana* capture site.
~1800 - End search. Back at vehicle. For the day, 95% of search time involved searching while walking, 5% cover turning.

4 August 1998

- PHOTO 10-16: *L. pyromelana*
PHOTO 17-32: *C. pricei* and *C. willardi*
PHOTO 33: *C. pricei* capture site.

- 1130 - Starting search for herps in Evans Canyon with Dale Turner. We will head west over up to the ridge, then up to Peña Blanca peak, then back down a tributary to upper Evans Canyon and then to camp.
T (1.5 meters) = 25.9° C
T (1 cm) = 28.3° C
T (substrate) = 30.1° C
Relative humidity = 33%
1144 - *S. jarrovii* and *S. virgatus* on limestone outcrop in tributary of Evans Canyon near camp.
1316 - On ridge leading up to Peña Blanca peak.
T (1.5 meters) = 27.3° C
T (1 cm) = 33.2° C
T (substrate) = 36.1° C
Relative humidity = 30%
1357 - At sandstone-conglomerate outcrop. Below here we were at limestone outcrops. UTM coordinates: 0597770 N, 3426058 E.
1413 - Limestone outcrops again on north side of Peña Blanca near eastern peak.
1430 - Collected horn coral fossil about 30 m from eastern peak.
1433 - On top of Peña Blanca eastern peak. Raining.

UTM coordinates: 0597500 N, 3425580 E.

1601 - Rain turned into intense hail/thunderstorm. Storm finally is over. We are in a tributary of Evans Creek. It is the tributary that leads east into Evans Canyon from Peña Blanca, intersecting Evans south of camp. We are watching the leading edge of a "flash flood" move down the canyon at about 1 mile per hour.

PHOTOS 34 & 35: Before and after stream front.

1725 - Captured *Crotalus willardi* on side of limestone outcrop. Location is about 30 m south of tributary creek bed, close to the intersection with Evans Canyon. Snake was wrapped around a thin, dead branch. Snake was about 6 inches off the ground. It did not see me before I grabbed it, so it did not rattle.

T (1.5 meters) = 21.9° C

T (snake location ~ 6 inches above ground) = 21.3° C

T (substrate) = 21.0° C

Relative humidity = 72%

UTM coordinates: 0598899 N, 3425984 E.

For the day, spent 95% of search time searching while walking, 5% cover turning.

5 August 1998

1115 - Starting search for herps on saddle north of Flores Peak. Heading up to Flores Peak with most of group.

1125 - A herp with a gray tail, probably a *Gerrhonotus kingii*, darted out from under a rock in front of me into a large clump of bunchgrass and dead leaves. Could not relocate or capture lizard.

1135 - Juvenile *S. jarrovi* on dead wood.

1148 - Juvenile *S. jarrovi* on rotting tree.

1156 - Rufous-sided towhee calling in *Quercus* tree.

1202 - Adult *S. jarrovi* on rock near large *Agave*.

1250 - Stellar's jay calling on top of *Pinus* tree.

1328 - Adult *S. jarrovi* on rocks near Flores Peak.

1336 - Adult *S. jarrovi* in rock crevice near peak.

1339 - Juvenile *S. jarrovi* basking on rock near peak.

1341 - Juvenile *S. jarrovi* basking on rock near peak.

1349 - At top of Cerro las Flores.

1350 - Jose Martin Haro Rodriguez found a *Crotalus pricei*. Captured by me. Snake was originally next to a large limestone rock. Rock measurements about 1 m x 1 m x 10 cm. It crawled underneath the rock. We moved the rock and captured snake.

Slope is facing NE. Nearest plants to capture site are *Eriogonum jamesii*, *Cercocarpus breviflorus*, and *Prunus (serotina?)*. Also *Holodiscus dumosus* and *Quercus gambelii* are nearby.

T (1.5 meters) = 19.9° C

T (1 cm) = 22.3° C

T (substrate) = 28.9° C

UTM coordinates: 0599700 N, 3422214 E.

PHOTO 12: *C. pricei* capture site.

PHOTO 13: View to NW from Flores Peak.

PHOTO 14-18: *C. pricei*

PHOTO 19-20: *Gerrhonotus kingii*

1635 - Heading back down to vehicle.

1730 - Returning *Phrynosoma douglassii* and *Lampropeltis pyromelana* to capture sites in Hoya del Packard. For the day, spent 90% of search time searching while walking, 10% cover turning.

6 August 1998

1136 - Leaving camp for Tucson. All herps returned to capture locations.

1410 - At highway. Observed *Cnemidophorus sonora*, *Holbrookia maculata*, and *Scaphiopus* spp. tadpole on the way down.

1730 - Arrive Tucson.

LIST OF HERPS OBSERVED DURING TRIP:

Within Reserve Boundary:

Ambystoma rosacea

Hyla arenicolor tadpole (probable)

Crotalus pricei

Crotalus willardi

Gerrhonotus kingii

Eumeces callicephalus

Phrynosoma douglassii

Lampropeltis pyromelana

Sceloporus jarrovii

Sceloporus scalaris

Sceloporus virgatus

Thamnophis cyrtopsis skin (probable)

Outside Reserve Boundary:

Cnemidophorus sonora

Crotaphytus collaris

Holbrookia maculata

Scaphiopus spp. tadpole (probable)

Crotalus pricei

Captured: 2 August 1998 at 1835 by Dave Prival.

Sex: female

Snout-vent length: 416 mm

Tail length: 32.25 mm

Rattle: 10 rattle segments, broken

Rattle width: Basal seg. = 4.94 mm, Seg. #2 = 4.95 mm, Seg. #3 = 5.11 mm, Seg. #4 = 5.09 mm, Seg. #5 = 4.85 mm, Seg. #6 = 4.95 mm, Seg. #7 = 4.66 mm, Seg. #8 = 4.46 mm, Seg. #9 = 3.97 mm, Seg. #10 = 3.83 mm

Rattle length: 23.69 mm

Head width: 14.09 mm

Head length: 20.97 mm

Mass: 41 g

Other notes: No food bolus or embryos detected.

Crotalus pricei

Captured: 5 August 1998 at 1350. Found by Jose Martin Haro Rodriguez. Captured by Dave Prival.

Sex: female

Snout-vent length: 499 mm

Tail length: 40 mm

Rattle: 5 segments, broken

Mass: 123 g

Other notes: No food bolus or embryos detected.

Crotalus willardi

Captured: 2 August 1998 at around 1400 by Dale Turner.

Sex: male

Snout-vent length: 395 mm

Tail length: 45.74 mm

Rattle: 3 segments, broken

Rattle width: Basal seg. = 5.36 mm, Seg. #2 = 4.87 mm, Seg. #3 = 3.48 mm

Rattle length: 11.7 mm

Head width: 14.00 mm

Head length: 21.82 mm

Mass: 52 g

Other notes: No food bolus. 23 white bars. 5th from head is incomplete.

Crotalus willardi

Captured: 2 August 1998 at 1543 by Dale Turner.

Sex: Looks male, but snake is so small I can't probe him so sex is just a guess.

Snout-vent length: 216 mm

Tail length: 20.71 mm

Rattle: 1 segment, broken

Rattle width: 2.13 mm

Rattle length: 2.16 mm

Mass: 7.8 g

Other notes: Small food bolus detected. 18 white bars, 3 of which are incomplete.

Crotalus willardi

Captured: 2 August 1998 by Taylor Edwards.

Sex: female

Snout-vent length: 431 mm

Tail length: 37.20 mm

Rattle: 6 segments, broken

Rattle width: Basal = 5.88 mm, Seg. #2 = 5.82 mm, Seg. #3 = 6.06 mm, Seg. #4 = 5.55 mm, Seg. #5 = 4.88 mm, Seg. #6 = 4.12 mm

Rattle length: 16.03 mm

Head width: 15.72 mm

Head length: 25.54 mm

Mass: 59.5 g

Other notes: No food bolus or embryos detected.

Crotalus willardi

Captured: 4 August 1998 at 1725 by Dave Prival.

Sex: male

Snout-vent length: 465 mm

Tail length: 56 mm

Rattle: 5 segments, broken

Mass: 62 g

Lampropeltis pyromelana

Captured: 3 August 1998 at 1725. Found by Bob Miller. Captured by Dave Prival.

Sex: male probably. Difficult to probe accurately due to writhing by snake.

Snout-vent length: 550 mm

Tail length: 110.65 mm

Mass: 55.5 g

Other notes: No food bolus detected. Several bands are connected.

Lampropeltis pyromelana

Captured: 4 August 1998 (?) by Taylor Edwards.

Sex: male probably. Difficult to probe accurately due to writhing by snake.

Snout-vent length: 675 mm

Tail length: 136 mm

Other notes: 38 body bands, 9 tail bands. Bands # 23 and # 24 are connected.

TAYLOR EDWARDS' FIELD NOTES - SIERRA LOS AJOS

(See attached map for locations of Points A-D and 1-6)

2 AUG 98

SEGMENT 1 Drove from Point A (camp) to Point C (near lower Frijolito Canyon.) Saw *Sceloporus jarrovii* (1), *S. virgatus* (1) (tree lizard was likely a Spiny lizard)

SEGMENT 2 Explored drainage east of Frijolito Canyon & road intersection. *Crotalus willardi* (2), *Ambystoma rosaceum* (1), larvae 2 cm, very wet, lush draw. More water than Frijolito. Fast moving, unbroken stream; did not go to top.

TIME BUDGET:

- 30% - cover turning wood
- 20% - cover turning rock
- 5% - shine cracks
- 45% - visual search

Ate lunch at Point C. Drove from Point C, to Point B (Puerto Tanano), to Point D (saddle east of C. Pelon.) to scope out for tomorrow. Evening spent at camp. Some herping at corral, stream.

3 AUG 98

SEGMENT 3 Spent ~ 3 hours searching rock outcrops at Point D. Mainly limestone, only *Sceloporus jarrovii* found (23 total for area). Both north & south facing areas are oak/pine. On and off cloud cover.

TIME BUDGET:

- 50% - cover turning rock
- 10% - shine cracks
- 25% - cover turning wood
- 15% - visual search (found deer antler)

SEGMENT 4 Went SE from Point D around small peak to Frijolito Canyon. Very productive for lizards. Good looking area for further searching (much geologic complexity and fallen wood) at canyon edge, dropped down.

TIME BUDGET:

- 20% - cover turning rock
- 10% - shine cracks
- 10% - turning wood
- 60% - visual

SEGMENT 5 Hiked down Frijolito Canyon. At top of canyon, lush area with Spruce and Fir, perennial seep, multi-level canopy, beautiful, rich soil. Water quickly goes under ground and continues to appear and disappear throughout the canyon. Pools ~1/3 of the way down with >43 *Ambystoma rosaceum*. Open patches throughout. Not terribly steep. Several flat rock "sheets" with flowing water. Ended at road ~ 50 meters west of yesterday's lunch Point C. Deer skull found

(and bones). Walked from Point C to Point B. Picked up by vehicle shortly afterwards, returned to camp. Rain.

04 AUG98

SEGMENT 1 Drove from camp to Point B. Stopped once to check lizard sighting.

SEGMENT 2 Walked from Point B part way up road (toward Point D) and cut off to the top of C. Pelon. Saw one young buck in velvet. Found one antler. Found fossil with bivalve. Temps taken at 13:15 hr at top peak: $T_{1.5m} = 22.4^{\circ}$ $T_{ground} = 33.2^{\circ}$ (rock surface) $T_{1cm} = 33.3^{\circ}$ RH = 51%

SEGMENT 3 Headed down north flowing drainage from the top of Cerro Pelon into Evan's Canyon and back to camp. At ~1/3 of the way (Point 3), steep canyon with cliff walls began and constant flow of water started, top pool was coffin shaped, 8 feet length, 3 feet depth. Five *Ambystoma rosaceum*, two of which were > 8 cm. Salamanders found in successive pools throughout, side canyon (Point 4) had four salamanders at starting pool. *Lampropeltus pyromelana* (LAPY) found ~ 1/2 km from camp. Entire canyon full of water and very lush. Appears productive.

LAPY DATA:

Male, SV = 75 mm, Tail = 136mm, 38 body bands, 9 tail bands.
Anomalies at 9/10 and 23/24.

05 AUG 98

SEGMENT 9 Walked from camp (Point A) up to top pool in Evan's Canyon (Point 3). Ten *Ambystoma rosaceum* found in top pool, (where five were seen yesterday) and two large ones (78 cm) not seen today. Other sightings: Cooper's Hawk, Javelina jaw found in stream.

SEGMENT 10 From Point 3 returned to Point 4 and explored side canyon. Foreleg of deer found and lots of puma scat. Small cave entrance found but unable to get into (breeze coming out of it). Cave located ~ 50m up side canyon from Point 4 on right: UTM N0599238, E3425343. Side canyon ended at rough trail leading to road, just south of Point B. Headed north on road and dropped back into side canyon at another branch. More *Ambystoma rosaceum* found in secluded pool in this other channel. Returned to Point 4 and back to camp. Point 6 leads up another lush side canyon to west. Trail there and small rock fort foundation. Tree study going on at this intersection. Left unexplored.

Seg#	Who	TmeSt	TimeE	Tot	Mt1	Mt2	Mt3	Habitat	Herp#s	Location/Notes
Ex: 1.		1121	1204	23	1= 40%	9= 40%	2= 20%	Grassland with thick Lehmanns LG	1-14m	Walked from gate on E. Forest Lane to boundary along road
2 1	TE + group	~ 10:00	12:00	2hr	90% 10	10% 1		oak woodland Pine	3	Driving from camp to Pt. C
2 2	TE + Martin	12:00	13:45	1:45	30% 2-w 20% 2-rk	45% 1	5% 4	oak/pine Riparian	3	Side Draw @ road 50m E of Frijolito rd.
3 3	TE & Mike	12:30	14:15	1:45	50% 2-rk	10% 4 15% 1	25% 2-wd	oak woodland, -saddle-	11	area around pt. D. Rock outcrops.
1/3 4	TE & Mike	15:00	15:45	:45	20% rk 2	10% 2-wd 10% 4	60% 1	oak/pine	11 12	Pt. to Frijolito Cyn. Top
1/3 5	TE & Mike	15:45	17:50	2:05	30% 2-wd	30% 2-rk	40% 1	Riparian Cyn.	43 (Salmonids)	Frijolito Cyn, starting @ pt Top, going to road.
1/4 6	TE & Jessa	10:40	11:00	:20	95% 10	5% 1		oak/pine	2	walking from pt. B to the top of Pelon Driving from pt. A to pt. B
1/4 7	TE & Jessa	11:00	14:00	3:00	1- 80%	2-w 20%		oak woodland up to exposed peak	4	walking from pt. B to the top of Pelon peak
1/4 8	TE & Jessa	14:00	18:30	4:30	1- 45%	2-w 25% 2-rk 25%	4- 5%	Riparian Cyn.	11 + 53 Salmonids	walking down from pelon peak through drainage to evan's cyn. Back to camp.
5 9	TE & MATT	09:38	14:00	4:22	2-rk- 30%	2-wd 20%	1-30% 4-5% 6-15%	Riparian Cyn	17 + 45 Anura	Walked from pt. A (camp) to Pt. 3 up evan's Cyn.
1/5 10	TE & MATT	14:00	17:30	3:30	1-30% 6-30%	2-wd- 20%	2-rk- 20%	Riparian Cyn	6	Pt 3 to pt. 4 and traveled up side cyn to road & back to pt. 4. Returned to camp through Evan's Cyn.

Methods: 1=While walking, visual search 2=Cover-turning, r=rk, w=wood, o=other (describe) 4=Shine crack 5=Calling 6=Look in water 7=Look in trees 8=_____, 9= scan with binoculars 10=Other (describe) driving

2. HERP TIME/AREA CONSTRAINED SEARCH DATA SHEET

Site Sierra los Ajos Day 2 Mo Aug Yr 98 Scientist TAYLOR E.

Page 1 of 5

	Seg	#	Spp.	Met. Time	UTM1	UTM2	Mth	Habitat Description	Notes (include location)
2 Aug	1	1 m	UROR	1109			1	On road; on rocks; in rock crack, etc.	About 100 m south of gate at top of E. Forest Lane. Basking
	1	1	*UROR(?)	10:34			10	on Stump	Driving to Barregas Barregas Cyn.
	1	1	Sc Ja	10:40			10	on tree	" Between road section B & C
	1	1	Sc Ja	10:42			1	in rocks	" " "
	2	1	Am Ro	12:10			6	in fast flowing H ₂ O. Shallow pool T _{H₂O} = 15.6°C	in Frijolito Cyn. Salamander larvae. legs just developing. 2cm length
	2	1	Cr Wi	12:20			1	on leaf litter, 21m from rocks. ~5m from stream	in Frijolito Cyn. ~120m from Road. Moving, in open
	2	1	Cr Wi	13:32			1	on leaf litter. 25m from rocks on slope. Drainage to stream 25m to H ₂ O	in Frijolito Cyn. Moving, in open
3 Aug	3	1	Sc Ja	12:38			4	In rock crack, limestone	North Facing rock outcrops at pt. D
	3	1	Sc Ja	12:40			4	In crack	" "
	3	1	Sc Ja	13:00			4	In rock crack	" "
	3	1	Sc Ja	13:04			2 rtk	In rock crack	" "
	3	1	Sc Ja	13:05			1	on rocks	" "
	3	1	Sc Ja	13:07			1	on rocks	" "
	3	1	Sc Ja	13:28			1	on rocks	South Facing rock outcrops at pt. D
	3	1	Sc Ja	13:29			1	on rocks	" "
	3	1	Sc Ja	13:44			2 wd.	under wood	" "
	3	1	Sc Ja	13:50			1	on rocks	" "

Methods: 1=While walking, visual search 2=Cover-turning, r=rtk, w=wood, o=other (describe) 4=Shine crack 5=Calling 6=Look in water 7=Look in trees 8=_____, 9=scan with binoculars 10=Other (describe) Driving

Species Observed: UROR = Urosaurus ornatus, etc. Others: _____

* UROR, 10:34, WAS MOST LIKELY A SCJA. SEEN FROM VEHICLE ON STUMP

* 1st draw east of Frijolito
* see back pt. 1
* " "

Crotalus Willardi

12:20. Frijolito Canyon.

$T_a = 16.2^\circ$ $T_g = 16.8^\circ$ $T_{oi} = N/A$

Rel. Humidity 80%

SU length 359 mm

Tail 31 mm

Rattle 11 mm

4 segments

Tip of button gone

FEMALE

Cr W:

13:32

$T_g = 20.1^\circ$ $T_{oi} = 19.8^\circ$ $T_a = 18.4^\circ$

RH 75%

~~Collected~~

returned @ 17:52, 2 AUG 98

2. HERP TIME/AREA CONSTRAINED SEARCH DATA SHEET

Site Sierra los Ajos Day 3 Mo Aug Yr 98 Scientist Taylor E.

Page 2 of 5

Seg	#	Sp.	Time	UTM1	UTM2	Mth	Habitat Description	Notes (include location)
1	1 m	UROR	11:09			1	On road; on rocks; in rock crack, etc.	About 100 m south of gate at top of E. Forest Lane. Basking
3	1	Scja	14:02			2 rk	under rock	South Facing rock outcrops @ pt. D
4	1	Scja	15:02			4	in rock cracks	Walking From pt. D around South side of peak to Frijolito Cyn.
4	1	Scja	15:04			2 rk	Under rock	"
4	1	Scja	15:06			1	on rocks	"
4	1	Scja	15:06			1	on rocks	"
4	1	Scja	15:10			1	on rocks	"
4	1	Scja	15:11			1	on rocks	"
4	1	Scja	15:12			1	on rocks	"
4	1	Scja	15:15			1	on rocks	"
4	1	Scja	15:20			1	on rocks	"
4	1	Scja	15:21			1	on rocks	"
4	1	Scja	15:28			1	on rocks	"
4	1	Scja	15:41			1	on rocks	"
5	25	Am Ro	16:47			6	In Pool of H ₂ O. < 2m Diameter 230cm @ Deepest pt.	In Frijolito Cyn. 1st pools after parental seep. ~ 2cm larvae. No rearers other larvae counted
5	18	Am Ro	16:50			6	" "	in consecutive pools downstream

Methods: 1=While walking, visual search 2=Cover-turning, r=rk, w=wood, o=other (describe) 4=Shine crack 5=Calling 6=Look in water 7=Look in trees 8=_____, 9= scan with binoculars 10=Other (describe)

Species Observed: UROR = *Urosaurus ornatus*, etc. Others: _____

2. HERP TIME/AREA CONSTRAINED SEARCH DATA SHEET

Site Los Ajos Day 4 Mo Aug Yr 98 Scientist JAY

Page 3 of 5

Seg	#	Sp.	Time	UTM1	UTM2	Mth	HabitatDescription	Notes (include location)
1	1 m	UROR	1109			1	On road; on rocks; in rock crack, etc.	About 100 m south of gate at top of E. Forest Lane. Basking
6	1	Scja	10:50			10	Basking on stump	Driving From pt. A to pt. B
6	1	Scja	10:55			10	In rock crack	" "
7	1	Scja	13:05			1	Pressing body tightly against rock surface	Top of Pelon peak.
7	3	Scja	13:45			1	on rocks	Seen by Jenna @ pelon peak
8	1	Scja	14:17			1	on log	walking down drainage to Evans Cyn from pelon peak
8	1	Scja	14:20			1	on rocks	" "
8	1	Scja	14:20			1	on rocks	" "
8	1	Scja	14:28			1	on rocks	" "
8	1	Scja	16:02			1	on rocks	" "
8	1	Scja	16:02			1	on rocks	" "
8	1	Scja	16:02			1	on rocks	" "
8	1	Scja	16:25			1	on rocks	" "
8	1	Scja	16:30			1	on rocks	" "
8	1	Scja	16:30			1	on rocks	" "
8	53	Am ro	16:33- 17:45			6	in pools, starting at pt. 3 & successive pools to pt. 5	Evans Canyon, pt. 3. start of pooling water. 5 seen in head of Side Cyn, pt. 4
8	1	La py	17:51			1	on ground in open. Traveling across litter.	pt. 5 in Evans Cyn. ~.5 km south of camp.

Methods: 1=While walking, visual search 2=Cover-turning, r=rock, w=wood, o=other (describe) 4=Shine crack 5=Calling 6=Look in water 7=Look in trees 8=_____, 9=scan with binoculars 10=Other (describe) while Driving

Species Observed: UROR = *Urosaurus ornatus*, etc. Others: _____

2. HERP TIME/AREA CONSTRAINED SEARCH DATA SHEET

Site Los Ajos Day 5 Mo Aug Yr 98 Scientist Jay

Page 4 of 5

Seg	#	Sp.	Time	UTM1	UTM2	Mth	HabitatDescription	Notes (include location)
1	1 m	UROR	1109			1	On road; on rocks; in rock crack, etc.	About 100 m south of gate at top of E. Forest Lane. Basking
9	1	Scja	9:45			1	on rocks	up Evans' cyn starting @ pt. A to pt. 4
9	1	Scja	9:47			1	on rocks	" "
9	1	Scja	11:31			2-r	under rock	" "
9	1	Scja	11:32			2-r	under rock	" "
9	1	Scja	11:44			2-r	under rock	" "
9	1	Scja	11:46			2-r	under rock	" "
9	1	Scja	11:56			1	on Stump	" "
9	1	Scja	12:02			1	on ground	" "
9	1	Scja	13:06			1	on rock	" "
9	1	Scja	13:35			1	on Tree	" "
9	1	Scja	13:37			1	on rock	In between pt. 4 & pt. 3
9	1	Scja	13:40			1	on rock	" "
9	1	Scja	13:43			1	on rock	" "
9	2	Scja	13:48			1	on rocks	" "
9	2	Scja	13:56			1	on rocks	" "
9	45	Amro	9:50 14:00			6	in H ₂ O	In ponds up Evans' cyn between pt. A & pt. 3, 10 Famb in Top pool, pt. 3

Methods: 1=While walking, visual search 2=Cover-turning, r=rk, w=wood, o=other (describe) 4=Shine crack 5=Calling 6=Look in water 7=Look in trees 8=_____, 9=scan with binoculars 10=Other (describe)

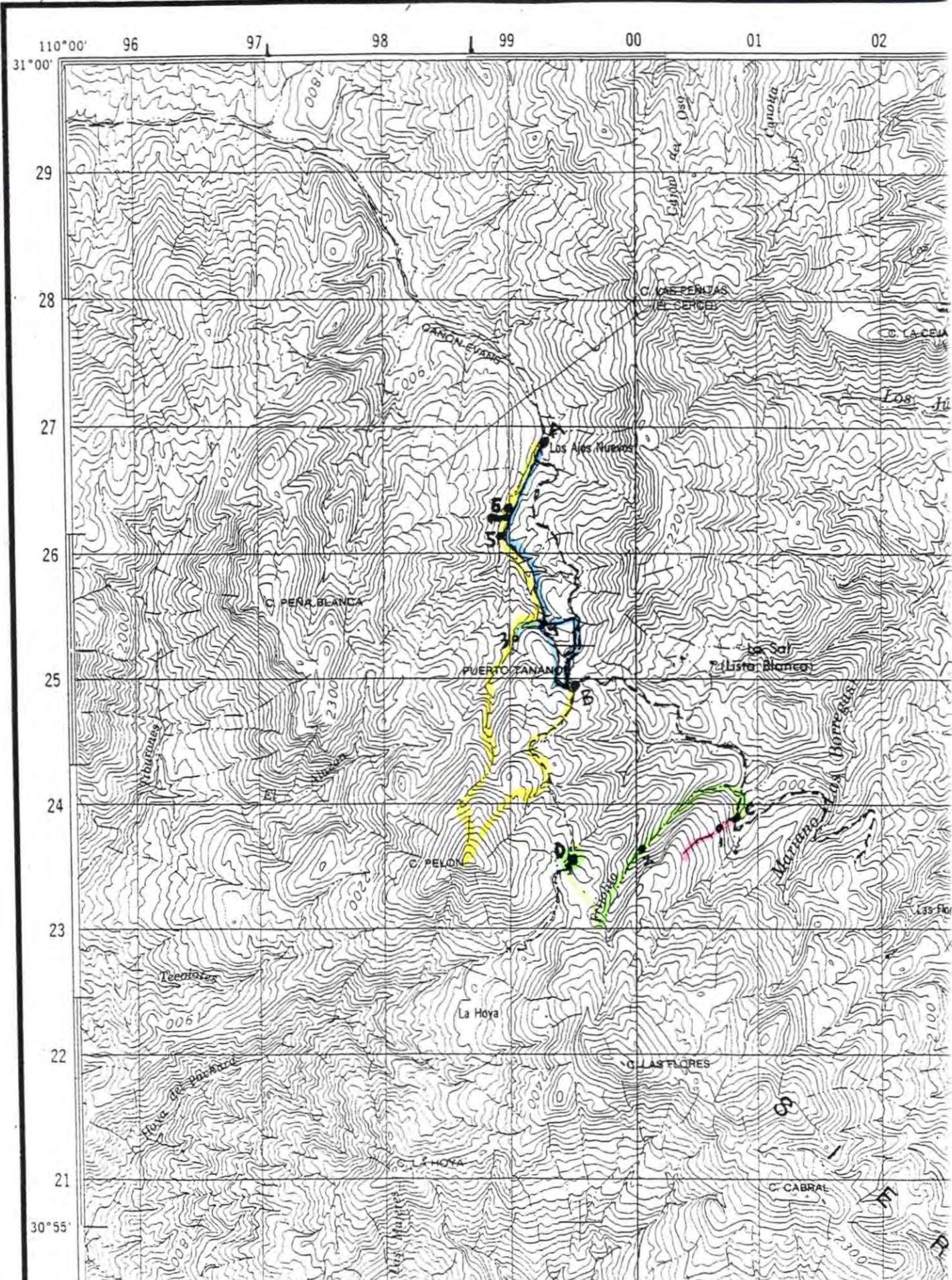
Species Observed: UROR = Urosaurus ornatus, etc. Others: _____



ESTADOS UNIDOS MEXICANOS

Taylor Edwards - Survey Routes

- 8/2/98
- 8/3/98
- 8/4/98
- 8/5/98



ESTADOS UNIDOS MEXICANOS

DAVE PRIVAL

03 AUG 98

05 AUG 98

SCHWALBE/ALBERTI

