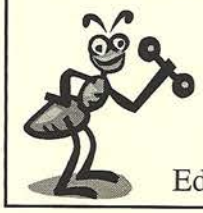
University of California, Riverside

No. 27, Winter 2007

Friends of the Entomology Research Museum



Newsletter

Editor: Alexis Park Proofing Editors: G. Ballmer, D. Hawks, R. Vetter, D. Yanega

Newsletter delay and apology

We must again apologize for the lapse in newsletters. I am entirely new to the editorial game and trying to get together the amount of material for even these short publications is sometimes quite a challenge. There were also a number of miscommunications and we apologize for the short notice on the Annual Meeting. You will notice that there is no retroactive request for 2006 dues at this time (though we do appreciate those who paid anyway). Since the newsletter has been very sporadic in release, we cannot in fairness request dues that are used primarily to offset the cost of printing and mailing the newsletter. I must reiterate that we always need material for the forthcoming issues of the newsletter, so please send things in!

Newsletters Online!

Back issues of the FERM newsletter are now available for online viewing! They can be accessed at the following URL:

http://entmuseum.ucr.edu/join_us_ferm.htm

FERM Annual Meeting!

Potluck Style

Saturday, February 3, 2006
6:30 PM, UCR Entomology Building

Guest Speaker: Dr. Christiane Weirauch

"Defense, Camouflage, and Predation: Glands in Assassin Bugs"

Our Annual Meeting will be February 3rd (Saturday) starting at 6:30 PM. Our speaker will be Dr. Christiane Weirauch, a new faculty member here in the UCR Department of Entomology. Dr. Weirauch's research focuses primarily on assassin bugs and their use of physical and chemical camouflage and mimicry.

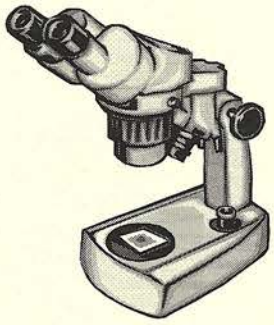
Note that this year's meeting will also be pot-luck, so please bring an entree you can share with others!

There will also be some Schmitt boxes and museum drawers for sale!

We hope to see you there!

The FERM Newsletter is published quarterly and contains articles written by FERM members. If you would like to submit an article, please send it as a Word/Wordperfect file using one of the following two methods: (1) an attachment via email to the editor (see below) or (2) a hard copy version on disk. Submissions will be published in the order they are received in accordance with space availability and relevancy to the FERM general readership. If you have questions please contact the FERM Newsletter editor:

Alexis Park (cscutellaris@yahoo.com)



NEWS FROM THE MUSEUM

by Doug Yanega, Senior Museum Scientist

It's been a long time since our last newsletter, but since it was a very bad field season, there has been relatively little happening in the museum over this time. Justin Betz, who had been doing point-mounting of microhymenoptera, left us to take up teaching high school biology, and his replacement, Andy Ernst, is working out just fine, churning through specimens as fast as we can get them dehydrated. This has necessitated a lot of labeling, and Genet Tulgetske has been helping us with this from time to time, and Rodrigo Krugner has been added to the labeling workforce. It was a slow year for taxonomist visitors to the ERM, as well, with most visits coming in conjunction with last year's FERM annual meeting (Evert Schlinger and Mike Irwin) and the interviews for the UCR insect systematist position (Sibyl Bucheli, Catherine Duckett, Christiane Weirauch, and Susan Weller). There was also a recent generous donation by Lewis and Betty Hogue, whose son Dan passed away in 2006; they gave their son's entire collection - the result of some 25 years' worth of collecting, mostly in So-Cal and Arizona - to the ERM. This includes a fair amount of display-quality material that will be used for Outreach and teaching purposes, and will be appreciated. Other than that, the primary influx of new material has been from expeditions and trapping in South America (Chile and Argentina).

With all the wasps being mounted, the Museum's regular database has accordingly grown to over 117,000 specimens, while the authority file now has stabilized (for the moment) at over 194,000 species names and nearly 30,000 genera. There is some possibility that in the coming year, the ERM may become involved in a multi-national initiative to catalog all of the world's bee species and inventory the bee holdings of many of the world's largest bee collections, including the ERM. We are especially looking forward to the arrival of the department's new insect systematist, Christiane Weirauch, whose expertise and interest in Hemiptera promises to lead to a substantial improvement in this portion of the Museum's holdings.

Got an idea for a FERM article???

Do you have anything buggy-related that might be of interest for the FERM newsletter? We really would be tickled pinkish if you would send "stuff" in to us. Remember, this newsletter won't have much in it unless we have material submitted from you folks that we can publish. Feel free to send in photos, articles, recent publications related to insect taxonomy or natural history and even stories about how the Entomology Research Museum has assisted you in your bug-related endeavors. Send them to cscutellaris@yahoo.com, preferably as attachments (not in email text). Additional information is on the front page of this newsletter.

Deadline for submission of material for next Newsletter is April 1st

Acroceridae in Fiji

Annual Meeting 2006 with Dr. Evert Schlinger

By Ken Osborne

Dr. Evert I. Schlinger, world authority on the acrocerid flies, visited UCR to give FERM members and Entomology faculty two exciting talks. On March 17, 2006, Ev gave a presentation on the Biology, Behavior, Biogeography, and Taxonomy of his beloved Acroceridae. This highly-anticipated presentation was enough to attract UCR Entomology faculty from outside the systematics disciplines!

Most acrocerids are rarely collected and many years are required to amass a small representative collection of a few token genera. These moderate to large-sized flies are often gaudy with metallic blues, greens and purples, and a weird humpbacked appearance. Ev presented many color drawings and a drawer of spectacular specimens – many painstakingly reared from their hosts (spiders, often of the suborder Mygalomorphae, such as tarantulas, trap-door spiders, and wolf spiders). One of the few common Californian genera, the bright green and blue *Eulonchus* - with a very long proboscis held under the body – uses trap-door spiders as a host. We learned that Acrocerids lay their eggs in very specific microhabitats associated with the spider hosts. One extremely rare fly was finally discovered by the hundreds, laying egg masses at the very tips of dry grass stems in a mountain meadow, at the very edge of vernal wetlands, at just the time when waters were drying up and the host (a semi-aquatic wolf spider) became abundant and concentrated in the same environment. Ev tells us that the first instar larvae are active triungulins which grab onto a passing spider and bore into its book lungs. Larvae may take years to mature and may spend years in an arrested state of development – the environmental cues or stimuli eliciting renewed development remain unknown. The Acroceridae are a very old group with world distribution – facts which bring us to the main theme of Ev's second presentation.

On March 18, at our annual FERM gathering, Ev lectured on the biogeography (of Diptera and Acroceridae) of the southern Pacific – Indian Ocean Basins with emphasis on the Fiji islands and Madagascar. Ev, often accompanied by his longtime dipterological friend and partner, Dr. Mike Irwin, and working through the Schlinger Foundation, has been undertaking large entomological faunal surveys focusing especially on the Fiji islands, New Zealand, and Madagascar. The efforts, pitfalls, and hurdles associated with negotiating collecting permits, sampling logistics, and land access were discussed. We heard about how some French biologists have looted the Madagascar collections leaving behind "trash" material they considered unimportant (one of these was a small, dull, old, moldy, grotesquely humpbacked acrocerid specimen that turned out to be a new genus!). After intense malaise trapping on Madagascar, some 50 species of acrocerids have been found, the majority as unique specimens. The Fiji archipelago with some 322 islands features two relatively large main islands. To date, Ev and Mike have visited a small number of these islands, focusing most of the collection effort (malaise traps) on the largest island, Viti Levu.

Fijian fauna includes most insect orders (lacking only a couple, such as Plecoptera and Grylloblattodea). Great excitement was expressed at the discovery of one acrocerid species now known from two specimens – one caught in the traps, the other found nearby as a larva within the host spider. One therevid species was also found in coastal dunes on the main island.

Ev observes that granitic island systems, such as Fiji, include acrocerids in their dipteran faunas, whereas volcanic archipelagos (much more recent in geologic evolution) consistently lack them. Ev hypothesizes that the acrocerids had a Gondwanan distribution and have since been carried far and wide by plate tectonics – hence the association with old (granitic) land masses.

Collecting Potential Pollinators of Lady Slipper Orchids

A Collecting Trip Report

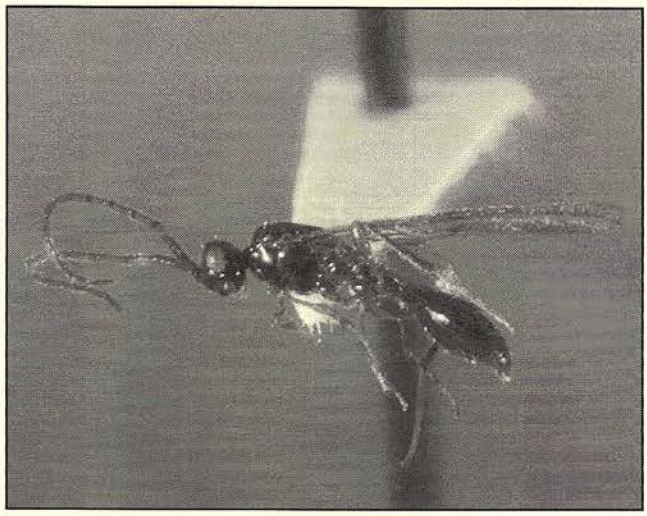
By Eugene Drake
genedrake@earthlink.net

On or about June 24, 2006 my wife and I headed north on US 395 up the east side of the Sierra Nevadas to collect a series of Belytinae without Stickup Special tangled in their tiny little body hairs. It helped that my wife needed to use some vacation before the end of the academic year.

Before I even got the pickup loaded, Doug Yanega, the friendly guy in the Entomological Museum, asked me to stop along the way and get samples of Creosote Bush for a friend of his in New York that had never smelled living creosote bush. O.K. Doug, just for you, I will sample the little green bushes on the 105 degree desert vistas. The first stop going north on US 395 was Bear Valley Road, and every 30 miles there after, until I was in the southern Owens Valley. Doug wanted this green brush cared for so that it could be used for PCR work at Rochester, New York. The green weeds were placed on ice and kept there for the rest of the 10 day trip. Each day Doug's green stink weeds looked up at me demanding ice. Ice! Ice! Ice!

On the brighter side of things, on the way north we stopped in Truckee to visit a family friend and watch the loonies try to cool off in Lake Tahoe. Remember the 105 degrees on the desert. Well, at 6,000 feet it was still 105 degrees and all the San Joaquin Valley "flat lander" types who were fleeing to the mountains were parked along the roads around Lake Tahoe trying to get their toes in the water. The traffic reminded me of the Rose Parade in Pasadena.

After leaving Truckee we headed north on State Route 89 toward Hobart Mills. This is forest country covering rolling hills with Ponderosa Pines, Douglas Fir, White Fir and Western Incense Cedar. Some of the finest trout streams in the state flow through the meadows. If you know western history, Hobart Mills was the source of much of the timber used during the silver boom at Nevada's Virginia City. As a child I carried an ox shoe found at Hobart Mills to school for show and tell. Then gave the ox shoe to the local history museum in Jackson, California. Sixty years later I am still giving specimens to museums. It all started at Hobart Mills! After Hobart Mills; we went north to Sierraville, the northern end of Highway 49, the Mother Lode Highway. Highway 49 passes through all of the principle gold rush towns on the western side of the Sierras. After Sierraville we headed for Blairsden: a rail road service town, for the now defunct Western Pacific Railroad's Feather River Route. Yet farther into the wilderness, we entered the town of Quincy. Quincy is home to two; count `em, two logging companies. They have logging trucks running on the highways as in my youth on the west side of the Sierras. This is a logging town and they know it. The economy is built around getting timber safely out of the mountains to build homes for "flat landers". I was still going deeper into the wilderness. Final destination for the week was a log cabin at Bucks Lake Lodge on the upper reaches of the Feather River. All this to trap a few Diapriid wasps for a paper on the genus *Cinetus*.



Cinetus n. sp., a potential pollinator of *Cypripedium fasciculatum*

Mind you these are important Diapriids. They have been implicated in the pollination of the rare Clustered Lady Slipper Orchid, *Cypripedium fasciculatum*. The states of California, Oregon, Washington, Idaho and Utah have placed this orchid on their Watch List for possible listing as rare and endangered. My problem, was that I wanted a series of *Cinetus* without Stickum Special all over their bodies before describing any new species involved. We had been informed that the orchids were to be blooming the last week of June. Why do you think I went through the desert going north collecting Doug's weeds? It sure wasn't because I like to smell creosote bush. I wanted a photo of a rare orchid flower for my computer screen wallpaper.

Clustered Lady Slipper Orchid, *Cypripedius fasciculatum*

That evening at Bucks Lake Lodge the e-mailed notes from Oregon pointing out the path to the study sight were retrieved and studied in detail. On Sunday morning I climbed into the pickup truck and headed back to the community of Meadow Valley, incorporated in 1852. I turned up a gravel road to the south and drove 2.5 miles into the forest where we stopped at a Douglas Fir tree with a yellow piece of sheet metal nailed about 15 feet up the tree. Yellow marks the spot. I hiked up the hill about 500 feet elevation, following blue plastic flagging, into a cluster of flowering Lady Slipper Orchids. Each orchid plant was serial numbered with a reference number on a nearby Douglas Fir tree. Now the work was to begin. I needed to get as many yellow pan traps serviced on this hill as I could deal with.

This brings us to the black moment! Somehow, one tool box didn't get into the pickup. That tool box contained the plastic catch retention bottles for the malaise traps, tent stakes for malaise trap support, and the shrimp nets used to sieve the catch from the water/soap solution in the yellow pans. Truckee was an hour away, but Quincy with 3,000 people was 8 miles away. Into town we went in search of wide mouth 500 ml Nalgene bottles, tent stakes and brine shrimp nets. There was a fly fishing shop on the east side of town which had the 500 ml Nalgene bottles. The "Feed and Tack" store a bit further east in East Quincy had the shrimp nets. The tent stakes were found in a backpack shop that was open 5 days a week and only from 10:00 A.M. to 4:00 P.M. Not bad for a morning of scrounging. It was time for lunch in Quincy. On the north side of the main drag in Quincy, across the street from the courthouse, there is a little place called "Pangaea Café and Pub". For a entomologist in a strange town, that sounded like a possibility.

The menu in Pangaea is printed on paper laminated to Masonite. Each menu contains a different scrap from a World Map laminated on a sea of brown Masonite next to the printed text. A novel idea. Lets try - "Spicy Thai Peanut Wrap - $9 - served warm, Pangaea's homemade Thai sauce, sauteed tofu, tempeh, basmati rice, onions, carrots, in a lettuce wrap". The menu advises "pair with Suebee juice, Stone 'Smoked Porter', or Red Wine." One the wall is a black sign with white letters, "Fizzy yellow beer is for wussies." On tap was Arrogant Bastard Ale and Pliney the Elder Ale. This is in a logging town in Northern California! On the front window is a sign, "We support the loggers." Somehow I wandered into Pangaea three times during my 5 days in the Quincy area. The Courthouse Café down the street a few doors also has acceptable food, but a "no wussies" sign on the wall. The Courthouse Café caters to the burger eating fellows in neck ties and white shirts; they have a Hot Turkey Sandwich on the menu. O.K.!

Now, back at the research sight above Meadow Valley, I had to haul yellow pan traps and 6 gallons of water for said traps along with a malaise trap 500 feet up to the ridge top on a pack frame. That afternoon I placed a malaise trap on top of the ridge and then started placing yellow pans. When 150 traps were placed it was time to call it a day and head into civilization and clean up before a friendly Sasquatch started becoming a reality and a life long friend. Folks, please remember the temperature is still above 100 degrees.

Gene's take on the "camel back" pack

With Tuesday morning came the reality of what I had done. I had pan traps all over the mountain above Meadow Valley that needed to be serviced. Up the mountain again! The malaise trap was in an unusual slumped position. On checking out the malaise trap it became quite apparent that a raccoon had spent part of his night looking for food in my trap array. There was no damage to the malaise trap except that it was on the ground, so up it went again. Trudging around the hill servicing yellow pans I found that several had been chewed as in "chewing gum." The 2 gallon reserve water jug I left on the hill was full of raccoon teeth holes. My little buddy was getting to be a pain.

Thursday was another low point. When the ridge top above Meadow Valley was crested, my malaise trap was on the ground. The tall end of the malaise trap was ripped out and the storage bottle full of alcohol was lacerated with raccoon teeth marks. My little buddy was a lush! The support pole on the malaise was bent, and tufts of raccoon body hair were trapped in the mess. One more day, little fellow, and you can have your mountain back. I need one more good catch. So the malaise trap was repaired, re-erected, and marked private property in a canine-like territorial display. The yellow pans were serviced and those chewed beyond use were replaced as needed. Please, little buddy, not tonight!

Friday morning all the pan traps and the malaise traps were retrieved without incident. Thirty, 4 ounce, jelly jars full of insects were packed along with malaise traps and yellow pans for the return trip. Oh, yes! Doug's stink weeds were still on ice in the truck.

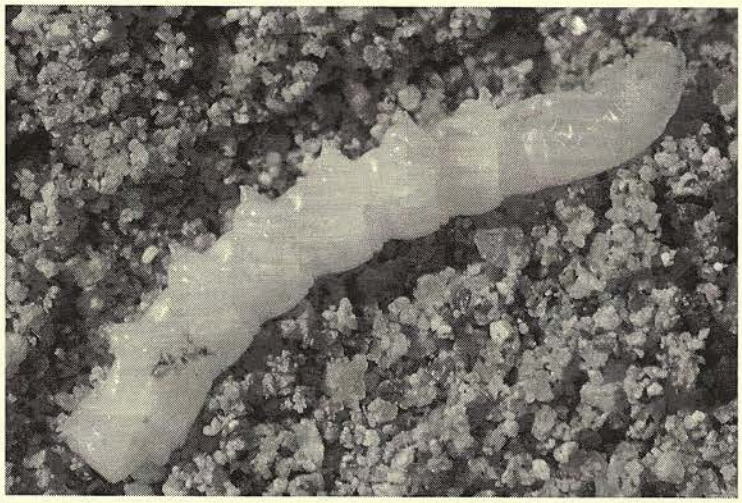
On return to Riverside the first stop was the Entomological Museum to give Doug his stink weeds. Next day Doug showed me a nice colorful Buprestid beetle still alive on his stink weeds. The little critter was carrying a sign "More Ice Please!". The museum was quite hot at 68 degrees F after a week of temperature approaching 32 degrees.

As I put this document together in mid-August I have placed about 300 labels on Belytinae wasps and the job is not finished. There are approximately 100 Proctotrupids that still need to be labeled. The true bees and Ichneumonoids have still to be mounted and labeled. Several hundred sawflies, Tenthredinoidea, went with Dr. John Heraty to the Hymatol meeting. Matt Buffington got about 100 Cynipoids for his work. There are some chromosomes with wings that need to be delivered to Serguei in the Entomological Museum. The Entomological Museum will certainly have a richer collection of Diapriidae. It was a good trip.

Doug Yanega is now working on a new aftershave - "Ode de Creosote."

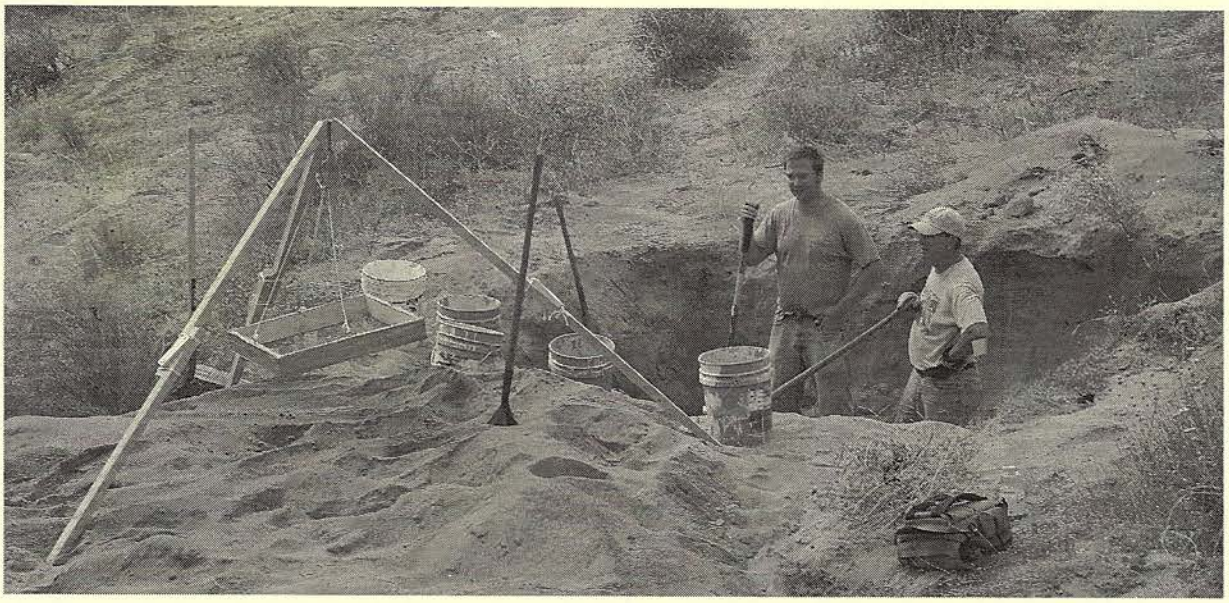
Digging for Giant Flower-loving Fly larvae (*Rhaphiomidas*)

By Greg R. Ballmer



One of the more controversial actions of the US Fish and Wildlife Service and the Secretary of the Interior was the decision during the Bush I Presidency in 1993 to list the Delhi Sands Giant Flower-loving Fly (*Rhaphiomidas terminatus abdominalis*) as an Endangered Species. This was the first instance of a dipteran being given legal protection under the Endangered Species Act. Although that action conferred desperately needed protection to this insect and other endemic species comprising the nearly extirpated Colton Dunes Natural Community, many aspects of the fly's biology were unknown at that time and remain so today. In order to gather and discuss known facts about the fly's biology and to stimulate appropriate further research, a number of "experts" were invited to attend a workshop in March 2006, "The Biology and Management of the Endangered Delhi Sands Flower-Loving Fly", sponsored by The Center for Conservation Biology and the Entomology Department of the University of California at Riverside. One idea resulting from that meeting was to study the biology of the immature stages using a surrogate species. A likely prospect was *R. trochilus,* which has a similar late summer flight period and inhabits dunes and sandy soils in California's Central Valley.

In late May 2006, five FERM members (Alex and Matthew Van Dam, Mike Irwin, Ken Osborne, and myself) convened on a site at Sand Ridge (Kern Co.) where *R. trochilus* was known to occur. We spent two days excavating and sieving approximately 1000 cubic feet of sand. Our "borrow pit" ultimately exceeded ten feet in depth, an effort which was rewarded by discovery of seven larvae believed to be our target species. Although there are no previously published descriptions of *Rhaphiomidas* larvae, aside from neonates, our larvae were unlikely to be of any other dipteran, based on size alone. Subsequent DNA analysis and comparison with that of adult *R. trochilus* by Matthew confirmed the specific identity. Many questions about the larval biology still remain to be determined, such as the length/longevity of the larval stage, number of instars, and food requirements.



Photographs by G.R. Ballmer

RECENT PUBLICATIONS BY FERM MEMBERS:

George, J. N. and R. Mattoni. 2006. *Rhaphiomidas terminatus terminatus* Cazier, 1985 (Diptera: Mydidae): notes on the rediscovery and conversation biology of a presumed extinct species. Pan-Pac. Ent. 82: 30-35.

Perez-Lachaud, G., **J. M. Heraty, A. Carmichael** and J.P. Lauchaud. 2006. Biology and behavior of *Kapala* (Hymenoptera:Eucharitidae) attacking *Ectatomma, Gnamptogenys*, and *Pachycondyla* (Formicidae: Ectatomminae and Ponerinae) in Chiapas, Mexico. Ann. Entomol. Soc. Amer. 99:567-576.

Vetter, R. S. and A. Mafra-Neto. 2006. Documentation and comments regarding identification of *Vespula vulgaris* (Linneaus) (Hymenoptera: Vespidae) in southern California mountains. Pan-Pac. Ent. 82: 36-45.

IF YOU ARE A MEMBER OF FERM AND HAVE RECENT PUBLICATIONS THAT INVOLVE ARTHROPOD TAXONOMY OR NATURAL HISTORY, PLEASE SUBMIT THE CITATION TO ALEXIS PARK.

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Dues and other contributions are payable by check to the **UCR Foundation,** noting "**Entomology Museum**" on the memo line on your check. (It is very important to note "Entomology Museum" in order for your donation to be deposited in the Friends' UCR Foundation account.)

photos by G. Ballmer©

***Mohavacris timberlakei* Rehn, 1948 (Tanaoceridae)**
by Greg Ballmer

As with many insects of the Mojave Desert, *Mohavacris timberlakei* is nocturnal and seldom seen. The male is pictured on top and the female is pictured underneath. The first specimens of this rare 'grasshopper' were collected by the late P.H.Timberlake along State Highway 138 at the western edge of the Mojave Desert in 1947. Rehn described the species a year later and placed it in the Tanaoceridae, a small family with just two genera and three species known from the deserts of Southern California. Tanaocerids resemble wingless grasshoppers (Acrididae), except for having very long antennae (as in katydids). The UCR Entomology Research Museum has specimens from near Baldwin Lake and the Mojave River Narrows, both at the southwestern margin of the Mojave Desert and not far from the Type locality. The specimens in the photos above were taken during 2006 in the Coso Mountains of southwestern Inyo County. The only known host plant is *Purshia glandulosa* (antelope bush) in the family Rosaceae.