University of California, Riverside

No. 34, Winter 2011

Friends of the Entomology Research Museum

Newsletter

Editor: D. Yanega; Proofing Editors: G. Ballmer, D. Hawks

FERM: Friends of the Entomology Research Museum is a UCR campus sponsored support group whose membership is open to students, faculty, staff, and the general public. Annual dues are ten dollars. Membership privileges include the annual meeting, newsletter, and other occasional meetings and events including field trips and lectures by entomologists and other naturalists.

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

The FERM Newsletter is published approximately semi-annually and contains articles written by FERM members. If you would like to submit an article, please send it as a Word or RTF 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, Doug Yanega: dyanega@ucr.edu

FERM ANNUAL MEETING
Sat., January 29, 6 PM

The 2011 Annual FERM meeting and Potluck Dinner will be held on January 29th, a Saturday, at the U.C.R Entomology Bldg. foyer and large conference room.

Setup starts at 5:00pm

Dinner at 6:00

Lecture at 7:00

What to bring: something for yourself and 3 others. FERM will provide cups, plates, utensils, some snacks, drinks.

This year's Meeting will be headlined by **Dr. Brian Brown** from the LACM (Natural History Museum of Los Angeles County). The title for the talk will be:

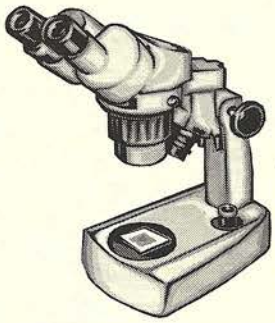
"Off with their heads: A new type of decapitation in the Phoridae (Diptera) and other novelties from recent research"

Dr. Brown is a native Canadian who obtained his PhD at the University of Alberta under Dr. George Ball. After a two-year postdoc at the Smithsonian, he came to the LACM, where he has been a curator for the past 18 years. His research is on the systematics, phylogeny, and behavior of the incredibly diverse fly family Phoridae, especially the parasitoids known as ant-decapitating flies. He does much of his work in the tropics, and also works on fossil (amber) phorids. He is the Head Editor for the recently-published 2-volume Manual of Central American Diptera.

If you ever wanted to know how flies could decapitate fire ants, here's your big chance to get the inside scoop! Come meet our new FERM officers, too, and say farewell to the old ones. See you there!

NEWS FROM THE MUSEUM

by Doug Yanega, Senior Museum Scientist



It's been a long while since the last newsletter (an unhappy trend), and quite a lot has happened over the past year. My colleague John Ascher (from the American Museum of Natural History in Noo Yawk) and I were awarded a 1.3 million-dollar grant from the National Science Foundation to develop a network of databases for 10 of the country's bee collections – UCR and the AMNH, plus UC Davis, UC Berkeley, the LACM, the California State Collection (in the CDFA facilities in Sacramento), Cornell, UConn, Utah State, and Rutgers. At UCR we had already databased some 70,000 of Timberlake's bees, so we had a head start on our end, and what we have been doing on the new grant has been databasing other people's collections – UCR is the processing center for the LACM, the CSCA, and UC Berkeley, and we've been working on the bumblebees from these collections first. We've hired on Keve Ribardo, a former senior curatorial assistant at the California Academy of Sciences, to deal with the bulk of the specimen sorting and data entry, while I do specimen identifications and error-checking. What has been done so far is all available online as part of the Discover Life website dataset, and we even have a FaceBook page for the project, which is called DBCNet (for Digital Bee Collection Network).

Chris (Topher) Jordan continues working on the slide-mounted parasitic wasps, and has even started in on some of the pinned material of the same groups represented on the slides (in some cases, specimens from the same exact series as the slide-mounted specimens; when you can have over 100 wasps emerge from a single host, one has many options). Various students, especially Colin Umeda, have done a lot of work organizing and collating the teaching collection materials, and that all looks a lot better now. We still have our two "temporary" workers, Cole Watson and Jennifer Thieme, hard at work mounting and labelling our backlog of tiny specimens – working so hard, in fact, they have almost cleaned us out, and we're now struggling a little to get more specimens to put into the pipeline. We've also had a few great recent donations, notably from Gordon Pratt and Jeremiah George.

The Museum's regular database has grown tremendously, as a result of all this, including many records of specimens that do not belong to us; we now have some 319,000 records, which is 66,000 new records since the last update, making it the biggest yearly increase since the database was begun in 2000. Speaking of substantial, the rain that we're having this winter promises to yield a few good field trips this spring (very much like last year), and we hope folks can get out and collect lots of insect specimens.

FERM Annual 2010 - The year in review

by Gene Drake

For the 2010 Annual Meeting FERM member Dr. Gordon Pratt (who also happens to be a member of the University of California, Riverside associate staff) stepped forward and presented us with an interesting talk on the habitat required and native plants utilized by the rare Quino Checkerspot Butterfly, *Euphydryas editha quino*. For those of you that didn't get to the meeting; the Quino Checkerspot larvae feed on *Plantago* and *Orthocarpus* plant species living on clay soils in open sunshine. In days of old to qualify as an expert, the speaker must have had several carousels of Kodachrome slides and travel more than 25 miles to get to the meeting. Gordon had the photos and they were taken more than 25 miles from the auditorium where the lecture was presented. By proclamation; Dr. Pratt is therefore an expert on the topic. Gordon has published a few papers on the species, but that is beside the point. I for one had no idea that Quino Checkerspots would be interested in host plants at the 2 leaf/cotyledon stage of development. As FERM president, I wish to thank Dr. Pratt for an interesting presentation.

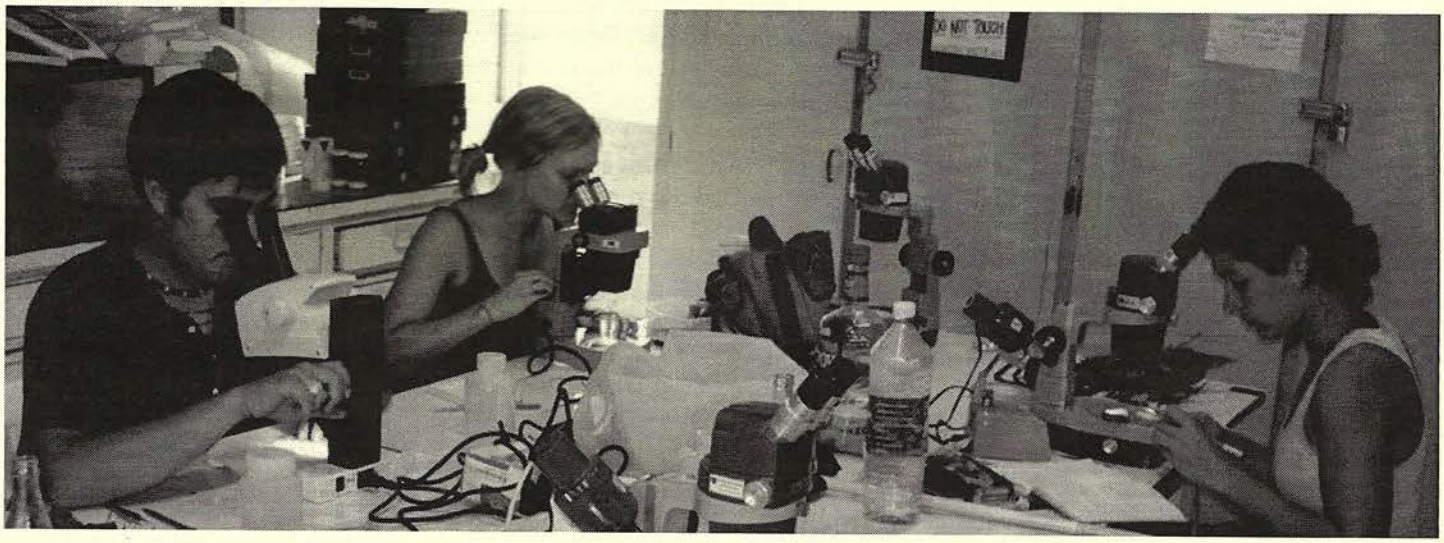
With Dr. Pratt volunteering to do the annual guest speaker address at the FERM dinner, we were able to save the cost of bringing a speaker from a distant land. Yes, FERM's budget is still not quite enough to bring speakers from distant lands. We have enough to print the newsletters and run the annual meetings, but not a whole lot more, and we have not seen a major bank balance change in several years. If we attempted to put on an annual meeting in the style of old and bring a speaker from Arizona, Nevada or northern California (nearly anywhere that required a plane ticket) we could be bankrupt at the end of the meeting. The minimum FERM renewal of $10 does not really allow grant funding of trips for graduate student to finish their thesis. FERM purchased a microscope 4 or 5 years ago that has been used regularly by visiting professionals to prepare notes for their projects. That was a great purchase, and hopefully some day we'll be in a position to do that sort of thing again. We've also benefited a great deal from being able to hire student helpers in the museum, but that used up much of the nest-egg. Unfortunately due to the economic situation, donations to FERM are recently few and far between. Funding for graduate student trips was put on hold and will continue so unless something changes drastically. Some years are simply not vintage years in the insect business or any other business; unfortunately, with the Governor's new budget cutting deep into the University, 2011 might not be an improvement.

A Dominican Adventure

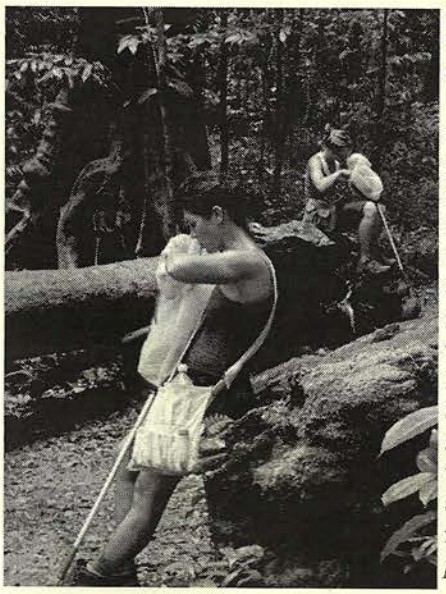
by John Heraty

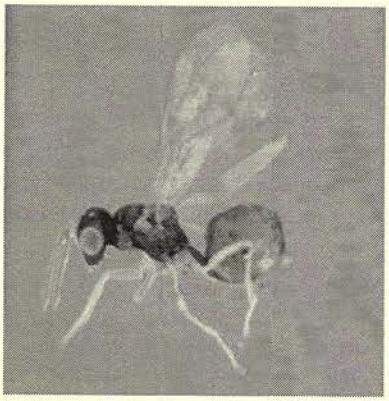
The Commonwealth of Dominica is a small island in the Lesser Antilles, a mere 291 square miles, but a luxurious Caribbean island with tremendous topographical and ecological diversity. Nicknamed the "nature island", this is one of the youngest islands in the Antilles that still retains some volcanic activity; it attains a height of 1447 meters at the peak of Mount Diablotins and is traversed by a network of trails and reserves that make it accessible for collecting, and importantly, you can actually get an official collecting permit (at a fair price and with a research application). With a population of just over 70,000 people, the island also remains one of the most unspoiled habitats in the Caribbean.

So, why were we there in May 2010? A "team" of John Heraty, Elizabeth Murray (PhD, UCR), Laura Varone (USDA Biological Control Laboratory, Hurlingham, Argentina) and Brendan Morris (undergraduate, Texas A&M) had their second chance on the island to study the biology of the eucharitid parasitoid, *Orasema minutissima*, which attacks the Little Red Fire Ant, *Wasmannia auropunctata*. The LRFA is one of the most destructive and invasive insects on islands in the Pacific Ocean. As well as being a noxious human pest with a nasty sting, the ant also impacts native biodiversity when its numbers reach large proportions, as was first evidenced in the Galapagos Islands. *Orasema* is a common wasp throughout the Caribbean, but we know virtually nothing about its host associations, local abundance, life history and impact on the LRFA. In May of 2009 and 2010, we were able to make the first trips to study these wasps.



Notably, Dominica is a very difficult place to collect. Waterfalls, swimming holes, hidden beaches, spectacular vistas and the "Crazy Coconuts" bar all act as deterrents to focused collecting. Of course there is also the local rum punch. However, we persevered. During the approximately 6 weeks of collecting over two years, we were able to observe most of the biological habits of the wasps, including oviposition into fern leaves and broad-leaf plants, potential 'foraging' of the 0.1 mm larvae by the adults ants, with larvae presumably carried back to the host ant larva as a prey item, and finally development on the ant pupa. All very typical traits for Eucharitidae. Morphological studies by one UCR undergraduate, Jasmine Soto, uncovered three discrete size classes of *Orasema* that are correlated with different host ants (*Wasmannia* versus *Pheidole*). Molecular studies by another undergraduate student, Jessica Ortiz, showed that the different size morphs are all the same species, both in Dominica and throughout the Caribbean.





Are these parasitoids an effective biological control agent? By yellow pan trapping and monitoring peanut butter bait stations, we found that *Orasema* occur across the island in virtually every habitat type (except beaches) and were common wherever *Wasmannia* was abundant. *Wasmannia* appear to have lower population densities in Dominica than in the Galapagos, but we need new comparative numbers to assess this. A 2 week trip in July 2010 to Costa Rica was made by John Heraty, Jason Mottern and Rebeccah Waterworth to try and collect the mainland equivalents of *Orasema minutissima* and *O. costaricensis*, but without luck (of course a lot of other chalcidoids met their maker on that trip). Another trip is planned in May 2011 to try again for *Orasema*, and also to collect the dinosaur equivalent of one group of eucharitid parasites from the Chirripo range in southern Costa Rica that was found in the INBIO collection in San Jose; *Carletonia panamensis*.

Winter Stoneflies

by Gene Drake

What are Stoneflies? Stoneflies are simply water-going cockroaches! Another definition is - Fish Bait! My first contact with Stoneflies was in about 1948 as a 6 year old trying to catch bigger trout than my father. I discovered one large Stonefly nymph; let's say a *Calineuria* or *Hesperoperla*, was good for one large Brown Trout on a one to one basis. Stoneflies and your author have been forever bonded by this fact. Oh! Yes, the Stoneflies I now use (when fly fishing for trout) are made with bits of artificial fur, chicken feathers, nylon floss and a tad of lead wire wrapped around a hook. For whatever reason; the fish deceived by the artificial Stoneflies are landed and usually released to fight another day.

There are several genera of winter emerging Stoneflies that were left in the mountains of southern California by the northern retreat of the last Ice Age; these populations are true relict populations, isolated from their congeners by several hundred miles. Out of the collection of genera involved, in southern California *Capnia* and *Isocapnia* are the most interesting at this point. Adult *Capnia* are dark brown or black in color and 6 mm to 12 mm long. The abdomen is equipped with two terminal caudal filaments. The males are usually about half the size of the females. Species determination is usually dependent on the structure of the male epiproct (external genitalia). The female subgenital plate also holds some useful characters for species determination. To date DNA sequencing has not been used in the genus *Capnia*. Adults of most species emerge in February and crawl out of the water onto snow where mating takes place in a few minutes. Protandry exists in the southern California populations.

In the genus *Capnia* the females drop their eggs into the stream from a tree twig over the stream flow. The eggs are white in color and probably a large number of eggs are left on the snow surface near the stream, to be washed into the stream by the flow of melting snow in the Spring of the year. The newly hatched nymphs burrow into the sand and spend most of the remainder of their nymphal life in the hyporheic zone of the stream. Their diet appears to be decaying plant material. In one situation in Montana, water coming from a drinking water well located 30 feet from a stream flow had *Capnia* nymphs. The nymphs obviously travel great distances laterally in the hyporheic zone. The nearly mature nymphs emerge from the hyporheic zone and collect in leaf packs trapped between rocks along the stream shore line. In the last 2 weeks of nymphal existence they consume large quantities of decaying parenchyma leaf tissue. The leaf veins are left uneaten, leaving a nice leaf skeleton. Mature *Capnia* nymphs preferred feeding on leaves of Aspen, Willow or Poplar species.

The local species of *Capnia* have some sort of diapause mechanism that allows them to put off development and emergence in especially dry years. The *Capnia* population in Trabuco and Silverado Canyons in Orange County follow this pattern. Both streams were dry for 2 seasons 4 and 5 years ago. On the return of flowing water; adults emerged in good numbers to mate and start a new generation. The species identity of this *Capnia* population is still unsettled in spite of one paper written on the topic last spring. This species definitely belongs to the *C. californica* species group, but it does not match up with *C. ventura*; geologically, its closest relative. Our Trabuco Canyon *Capnia* population most closely resembles *C. roguensis* from southern Oregon, which leaves a small population disjunct from the main population by 1,000 miles. DNA sequencing may help solve the identity of the Trabuco Canyon population of *Capnia*.

Dr. Kenneth Stewart of the University of North Texas and I have a paper in the drawer waiting for the rearing of males of *Capnia coyote* this winter. This paper will eventually describe the nymphs, male and female, of 5 species of endemic southern California *Capnia* belonging to 5 different species groups in the genus. In response to the following question in my doctor's office: "Hey, old timer; how old are you and what are you doing with yourself?" When the snow falls in the local mountains your author starts tramping the creeks of California looking for winter emerging stoneflies. To the naive it should be quite a picture. A gray haired fellow smartly stepping out wearing 5 mm insulated fisherman type waders with a kick net and white plastic 24 inch square black & white photo processing trays tucked under one arm, headed out into the wilderness, behaving like it is totally normal. Yet "normal" people don't spend a day sitting in ice water sorting insect nymphs. The primary target this last year was mature nymphs of winter emerging *Capnia* spp. in southern California not documented in prior publications. When the male nymph of *C. coyote* is finally documented the paper will go to press, but *C. coyote* is relatively rare in the sections of streams so far sampled, and with low numbers of individuals and protandry, documenting the male nymph of *C. coyote* has become a problem. The 2010/2011 season has started out moist, which should get *Capnia* nymphs buried in the hyporheal zone of the stream, ravenously feeding in leaf packs trapped between stones at stream side. The final nymphal exuviae will be left within inches of the waterline often on stream side snow. If anyone wants to accompany me on a winter stonefly trip send me an e-mail to the address listed on the newsletter masthead. The water is usually about 38 degrees F in the winter and the snow is a tad cooler. The other side of the coin, you will get sunburned before you know what has happened.

(ctd. from previous)

Why work on *Capnia*? They appear to be excellent indicators of environmental pollution. They apparently must have clean water to survive. One problem; the mature nymphs and adults are only available for a few weeks during the winter months each year. Interestingly; *Mesocapnia* - the sister genus - survives in some of the most polluted water in southern California; that being the water outflow from Crystal Lake in Los Angeles County. *Mesocapnia frisoni* can be collected from the spring seep in the horse corral at Mountain Center on San Jacinto Mountain. That one fact leaves a fellow scratching his head wondering what is going wrong.

University of California field stations visited in 2010

In late May of 2010 all of the North American Stonefly workers got together at Sagehen Creek Field station about 25 miles north of Truckee on California highway 89. This is a rustic facility with emphasis on Aquatic Ecology and Forestry. The most interesting tool featured at Sagehen creek was the tunnel below stream level so that Lahounten Cutthroat trout swim and feed at human eye level. It's a looking glass into stream life. There are several bunkhouses which sleep 6 people on military style racks. The shower rooms are rustic but serviceable with boy/girl sides. There is a cafeteria with good food; vegetarian dishes are prepared by prior arrangement. There is one lecture hall. Two new resident houses are set up for family visits. Yours truly and several others found a new species of Chloroperlidae (Green Stoneflies) of the genus *Alloperla* during our visit.

In September my pickup truck found its way to the U.C. Forestry Camp outside the community of Meadow Valley. Yellow pan traps and malaise traps were placed for parasitic wasps; Diapriidae in particular. This facility is entirely forestry oriented, although there are actually several trout streams nearby. They have a cafeteria and several bunk houses with individual rooms. There is a lecture hall available and an amphitheater with fire pit. This is a rustic facility, but totally adequate for forestry teaching and research. There are several nice Bed and Breakfast facilities in nearby Quincy. Quincy has three good eating facilities; the best being Pangaea, followed by the Court House Grill. The restaurant Pangaea can stuff some chicken into a crepe with some local veggies and top it with their own Secret Sauce then put a glass of Rogue River Ale alongside the dish and the day is finished up in royal style. Pangaea serves the finest beers and ales produced on the west coast and a major part of the veggies used are local grown. If you are late for dinner at Pangaea; tuff luck, they only have about 45 seats. Many of the locals spend the evening sipping ale and watching the ball games. There is standing room only by 7:00 PM. The Court House Grill has ordinary "gray colored" necktie food served with coffee and cream. Loggers Breakfast is done early in the morning at the Thunder House. Don't go into the Thunder House unless you plan on taking on at least 1,000 to 1,500 calories. They don't serve city folk portions at the Thunder House. However, if you are going to tramp around tall mountains placing yellow pan taps there is no need to go short on the first meal of the day. There is a no name Starbuck's clone across the street from Pangaea for the coffee and donut munchers.

All of the parasitic Hymenoptera collected on these trips will be mounted, sorted and find their way into the Entomology Research Museum collection. Serguei Triapitsyn has already checked out his allotment of "Flying Chromosomes" or - as he likes to call them - Mymarids, collected earlier this year. He simply smiled and thanked me for the documentation of additional new species.

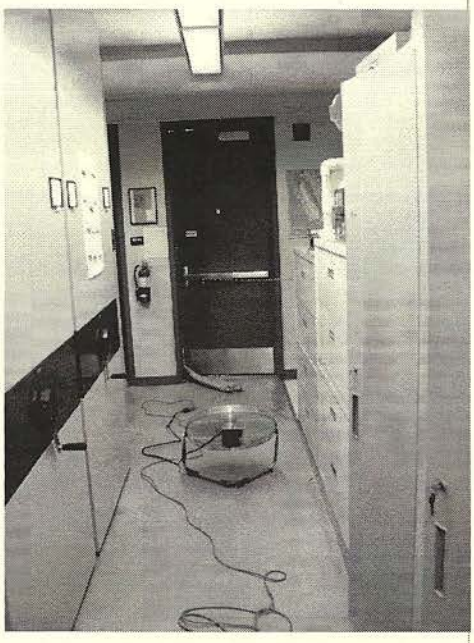
As we close out the year 2010 I can only hope that all of you grow up to be irascible old Entomologists gleefully pursuing insects and insect research projects. Far too many Entomologists never get to be old or irascible; and that is truly a shame. By some quirk of modern statistics my name was chosen by 2 different academic institutions with studies on adult human longevity. They want to know what I eat and drink as well as how many trees I climb each week. One institution has promised to follow me for the next 20 years and I am going to do my very best to cooperate with them for the next 20 years. I will do my best to represent Entomologists in a good light.

NEW ART FOR THE MUSEUM

At left, you can see your newsletter Editor holding his new prized possession, a quillwork creation by grad student Jason Mottern, a larger-than-life depiction of a *Goliathus* scarab. It is composed of dozens and dozens of small strips of black or white paper, meticulously rolled, crimped, and laid down on edge and glued carefully in place, something to put even the most diehard jigsaw puzzle addict to shame. It will be jealously guarded but available for public viewing, and unlike many things in my office, it will NOT have anything stacked on top of it.

INSECT MUSEUM FUMIGATED FOR INSECTS

Oh, the irony. Yes, the ERM building had termites, and with our very own departmental termite expert, Mike Rust, signing off on the endeavor, we were shut down on December 13th. The planning and preparation were probably the hardest and most time-consuming part of the whole deal, as there are a LOT of different people, campus offices, and bureaucracy that actually are involved in the day-to-day running of any campus building. Not to mention, of course, that there are a number of people who work in the building, including the Medical Entomology folks. They had their hands full, as they maintain several live insect cultures (especially mosquitoes), all of which had to be temporarily moved into the insectary. After all, any treatment capable of killing termites is NOT going to be very good for one's mosquitoes. As for Serguei and myself, we had it a lot easier; simply remove anything intended for human consumption (of which there wasn't much), and open all of the cabinets in the compactors. The funny thing is that the way the compactors work, if you open the doors to a set of cabinets, you can't then close that aisle completely, meaning the next aisle you go to will be narrower than usual – and after repeating the process for several aisles, you end up squeezing down the last aisle sideways to reach and open the door handles. A little bit awkward, but if there were any carpet beetles lurking in the collection, they aren't lurking any more.



Once we had gotten the rooms prepared, the fumigators came in and set up their equipment; lots of fans to circulate the air, and a remote sensor to monitor the levels of the fumigant (sulfuryl fluoride). Everything that could be opened was opened - windows, doors, filing cabinets, desks, even some of the ceiling tiles. In short order, they had everything set, and we were evicted from the building as workers climbed onto the roof and started rolling out the tarps. Given the rather unique architecture of the Museum building, the tent construction required a lot of awkward maneuvering and lots and lots of clips to attach various tarps to one another, but they managed to stitch something together in fairly short order. Then they started pumping in the poison, laced with an irritant (akin to tear gas) initially - in case someone was hiding in the building - and for the next three days no one went in without a gas mask. It looked a lot like a circus tent - a circus tent filled with poison gas. Serguei set up shop in the insectary, while I moved into the Heraty lab while everyone else was in San Diego for the ESA conference (and finals had ended the previous week so there were no classes scheduled), so the disruption was fairly minimal. It didn't take long for a few critters from outdoors to start showing up inside, such as fungus gnats and fruit flies, and - thanks to the folks upstairs - mosquitoes. Some things never do change.

At any rate, here's hoping that we don't need to go through this again for another decade or two!

Our best wishes...

Long-time FERM member and supporter Bob Van Patten recently suffered a very serious accident, crashing his ultralight a few weeks after he retired from UCR's Physical Plant. Bob is lucky to be alive, and his injuries were such that recuperation will be long and difficult, and we hope you'll join us in extending our best wishes to Bob and his family.

FERM Book Donation from member Rich Little (not THAT Rich Little!)

by Gene Drake

Around the time of our 2010 annual meeting we had books donated by various benevolent persons; some of whom just happen to be members of FERM. Richard Little, of the San Luis Obispo County, Agriculture Commissioner's Office apparently turned over his entire personal library of Entomology reference books. Richard and your President go back many years together in the pursuit of insects. He started his career in Entomology as an insect trapper; as in "Medfly Trapper" on my payroll working near the airport in Los Angeles County. After about 2 seasons of that duty he asked me about studying Entomology as a life's work. He was given my usual admonishment: "You can make a better living in other professions". However, he was hooked, so I then suggested that he go up to U.C. Riverside and talk to the staff about a Bachelor's program. Richard spent a summer or two on my payroll, fly trapping in the Riverside area. In about 3 years he finished his Entomology degree. The State Department of Agriculture, Plant Quarantine people hired Richard to work in the Riverside office. Day after day on the road, in a different motel every night and a telephone in his ear all day long was not Richard's thing. Part of his responsibility was State Plant Quarantine activity in San Luis Obispo County. Richard fell in love with San Luis Obispo County and joined the staff in the San Luis Obispo, County Agricultural Commissioner's Office. I believe as you read this he is the Assistant Agricultural Commissioner. Richard is now a full time administrator, yes a bean counter - in that capacity he gave up his Entomology books. Well done Richard, and a belated thanks!

Renew Your Membership and/or Join FERM.

While we realize that you have not been hearing much from us (it's been extremely hard to convince people to contribute articles for the newsletter), we've been careful - as always - not to spend anything we don't need to, saving to build up enough money to start up curation/collection grants again. Our outgoing treasurer may not have gotten everyone's checks cashed in a timely manner, and we do sincerely apologize for this; rest assured our new treasurer won't be carrying on that particular tradition. The bottom line, as pointed out before, is that money donated to FERM will be put to good use, and is greatly appreciated.

To those of you who have been kind enough to contribute your dues recently, we are very grateful, and for the rest of you we include below the usual dues renewal form, which we hope you'll send in soon. Thanks very much!

Friends of the Entomology Research Museum
2011 Membership Form

☐ Check here if you are renewing (renew by July each year)

Name _____

Address _____

Telephone _____ Email _____

MEMBERSHIP CATEGORIES:		**Please Check**
Basic Membership	$10.00	☐
Sustaining Member	$25.00+	☐
Donor	$100.00+	☐
Benefactor	$500.00+	☐
Patron	$1000.00+	☐

Submit your membership form and dues to:

Keve Ribardo, Treasurer
Friends of the Entomology Research Museum
Department of Entomology
University of California
Riverside, CA 92521-0314

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.)

Acknowledging FERM star contributor: John D. Pinto

by Serguei V. Triapitsyn

It has not been long since long-standing FERM member and UCR Entomology Professor John Pinto moved to his retirement hub at Waldport, Oregon. John continues to be a FERM member and one of the major and most enthusiastic contributors of high-quality specimens to the museum. He maintains a Malaise trap on his property (see photo) and also collects using other methods, and has sorted, mounted, and labeled thousands of great specimens from Oregon. He did the same with numerous specimens he collected in Western Australia and other exotic locations while working at UCR, and sorted to genera the recent acquisitions of Trichogrammatidae (Hymenoptera). During his visits to UCR John also curates the collection of Meloidae (Coleoptera). Being the world authority on the taxonomy of both families of such different nature, John has helped the museum tremendously by leaving behind and continuing to improve the two great collections, both world-class (our trichogrammatid collection is by far the largest and best identified in the world and the meloid collection is one of the world's best).

Earlier this year, John completed curating the South American Meloidae collection that he purchased (and FERM sponsored) a few years ago from Alfredo Ugarte of Chile for $1200. A total of 1105 specimens have been cleaned, pinned and labeled from envelopes; all have been identified to genus and many to species when feasible. Altogether, the collection, housed in about 10 drawers, represents 15 genera and c. 75 species of Meloidae, a good number of them temperate Neotropic endemics mainly from Chile (a few are from Argentina). Our meloid beetle holdings for North America are excellent as would be expected, but we also have good representation from the Palaearctic region and Africa, thanks to John's trades with Marco Bologna from Italy, the late Zoltan Kaszab from Hungary, and others. Our weak area before this purchase was South America. So this was a good opportunity to gain needed representation from temperate South America. The region is a hot spot for meloid diversity, taxa showing interesting parallels to our southwestern taxa, and the group remains poorly known down there - virtually none of the genera in the area have ever been revised - so the material will be valuable for future workers. We are indebted to John for his hard work, dedication, and time, and wish him best in his entomological endeavors in the future.

Got an idea for a FERM article???

More than ever, we need YOUR contributions for the FERM newsletter! Remember, this newsletter won't have much in it unless we have material from you folks that we can publish. Feel free to send in photos, articles, websites, recent publications related to insects and even stories about how the ERM has assisted you in your bug-related endeavors. We're especially looking for travelogues of collecting trips abroad, especially if you can give a talk to a FERM meeting—we'd really like to go back to having more than one meeting per year!! Send them to dyanega@ucr.edu, preferably as attachments (not in email text). Additional information is on the front page. THANKS!

Sweltsa californica (Plecoptera: Chloroperlidae)

Photo by G.R. Ballmer, text by Gene Drake

This issue's featured insect, *Sweltsa californica* (Jewett) 1965, is in the family Chloroperlidae, commonly called Green Stoneflies. This species occurs in the southern Sierra Nevada Mountains and (together with the locally endemic *S. continua* and *S. pacifica*) in the San Jacinto and San Bernardino ranges. All three *Sweltsa* species require clear mountain streams and are important in the diet of rainbow trout, especially in the later part of the nymphal stage, while actively crawling to the shore line to emerge, and when fluttering over the water surface as adults. Fly fishermen know these "hatches" well and time their spring fishing activity to "match the hatch". The old English "Gray Hackle Yellow" wet fly was probably an early attempt to match *Sweltsa*-like stoneflies, as described in "Fishing with an Angle" by Dame Julia in 1420, probably the first treatise on fly-fishing techniques written in any language.

Adult *Sweltsa* emerge from the water primarily in the months of June and July, with the first males appearing a few days before the females (protandry); this individual was photographed in September. Shortly after emerging, males move to streamside vegetation and drum the tips of their abdomens on the substrate to announce their readiness to get on with the mating ritual. Unmated females signal their receptiveness by drumming a reply. A duet ensues with each male moving toward an answering female; at each twig fork in the vegetation the male waits for the female to reply before moving up the correct branch. Fertilized eggs are dropped into the water from overhanging vegetation and apparently hatch shortly thereafter. The nymphs are voracious predators of smaller arthropods, which they swallow whole. Nearly mature *Sweltsa* nymphs can engulf whole chironomid midge larvae nearly their own size.