

Friends of the Entomology Research Museum



Newsletter



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FERM Social Event!

Date: Saturday, 7 July 2007

Time: Noon to night

Place: Ken Osborne residence at
6675 Avenue Juan Diaz, Riverside
(north side of Santa Ana River, at the
end of Riverview Drive)

Semi pot-luck. We will provide refreshments, beverages, coffee, a barbeque, and digital slide projection equipment.

Features: beginning in the afternoon, periodical informal, fun, non-technical talks will be presented by Gordon Pratt, Greg Ballmer, John Heraty, Ken Osborne, Lee Shoemaker, and (we hope) others. We will be running malaise traps, bait trap, yellow pan traps, and black lights for daytime and evening collecting. Those so inclined may come out to swing their nets for great collecting in Ken's back yard or along the riparian habitats of the river just 100 meters outside the back gate.

For questions or to RSVP, contact Ken at Euproserpinus@msn.com or (951) 360-6461.

Editor's Note:

It has come to my attention that the last FERM newsletter available (#26) at the website given below was for some reason posted prior to the actual mailing of the snail mail version and, even more oddly, is incomplete. We will try to rectify this as soon as possible and keep the archive up to date.

This issue of the newsletter is dedicated to and features an article about founding member of FERM, Dr. Martin Barnes. Other members of FERM who passed away during the past year are Dr. Theodore Fisher, Mr. Arthur Strong, and Mr. Milton Irvine. We welcome articles about the lives of members of FERM who no longer are with us.

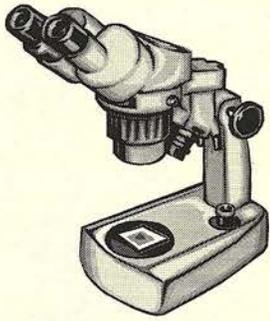
Newsletters Online!

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 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 two very bad field seasons in a row now (ah, the wonders of record-breaking droughts), so little has been happening in the museum other than the processing of trap samples (especially from Argentina and Guatemala), and loan activity.

Andy Ernst has been working like a fiend, still churning through specimens at a steady pace, and hard to keep supplied. We're hoping to keep him on a little longer, but it looks like he'll be moving over to John Heraty's lab when the summer break arrives. Do-Hyoung Kim has been doing an excellent job with the labelling, and between the two of them there have been several thousand specimens processed and moved into the collection in the last several months. John Pinto's enormous collection of Trichogrammatidae (the second best in the world) has finally been moved entirely into the ERM, as other faculty members reclaimed his lab space, and Dr. Pinto himself returned briefly to Riverside recently and helped curate some of this material. We also had a major in-house curatorial effort by Roger Burks, who sorted the unsorted Pteromalidae (and a fair bit of the Eulophidae), a monumental and complicated task, given the amount of material and the taxonomic difficulties in these groups of wasps. This was truly a major accomplishment, and one of the most significant contributions ever from one of the students assigned to museum duty. There have been only a few outside visitors recently, the most notable of which was Bob Zuparko (who is affiliated with both UC Berkeley and the California Academy of Sciences), who worked extensively with the ERM's encyrtid wasps, as part of his project to document the Encyrtidae of California.

With all the specimens being mounted, the Museum's regular database grew to nearly 125,000 specimens, and a recent initiative finally prompted the inclusion of the slide and alcohol databased specimens into the main database, so the combined file contains over 132,000 records now. This includes some 7,000 slides from the NSF-funded *Aphytis* remounting project (hundreds of slides mounted in Hoyer's medium, which had badly deteriorated over the years), the data for which had been buried in an incompatible data format for about 8 years, until salvaged recently with the help of Ed Plummer, working in the UCR Herbarium. We're hoping to get a follow-up grant to continue the remounting, as the original project was only enough to work through the type material - there are many thousands of specimens left still to be processed. So, while there may be little new material from California coming in, the museum is still making headway on several fronts.

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 October 1st****

Report on the 2007 FERM Annual Meeting

by Ken Osborne

On February 3rd, Dr. Christiane Weirauch presented our annual FERM potluck gathering with "Defense, Camouflage, and Predation: Glands in Assassin Bugs (Heteroptera: Reduviidae)". This talk explored the gamut of pheromone systems among the Hemiptera, pheromone dispensing structures and their utility in systematics, especially among the Reduviinae or assassin bugs. Many pores from which pheromones are emitted are revealed clearly by thin cuticular tubular structures leading from gland cells to the exterior cuticle. Dense packs of microscopic structures resembling the heads of golf clubs are associated with dissemination of gooey resins in assassin bugs. These resins function in the collection of debris used in camouflage. In other taxa, the resins likely protect against predation on the bug and facilitate capture and control of prey.

In *Zelus*, these resins are produced only by later instar bugs. Females coat their egg masses in resin (likely functioning as an anti-parasitoid screen). The first instar hatchlings – lacking resin glands – obtain their first resin by manual application from the egg mass source! Chemical evolution appears to have reached a zenith within a group of Australian Reduviids of the genus *Ptilocnemus*. These gaudy, specialist bugs, each more elaborate than the next with conspicuously fringed hind tarsi, attract ants to a gland (the external armature looks like the mouth of a lamprey) located on the second abdominal sternite. While the ant investigates, the bug stabs it from above with its proboscis.

Another of Christiane's passions is systematics of certain plant bugs of the family Miridae. Here in California, where mirids are especially diverse, we expect that she will find much work to do. We look forward to hearing more on her research on this group.

At the end of our meeting, FERM President, Ken Osborne, presented Cissy Pratt (through Gordon) a gift certificate for a stay at the Mission Inn as acknowledgment for all of the hard work she has done in preparing FERM repasts.

RECENT PUBLICATIONS BY FERM MEMBERS:

Hespenheide, H.A. 2006. New species and new records of *Neotrachys odenberger* (Coleoptera: Buprestidae). *Pan-Pacific Entomologist* 82(2): 223-241.

Westcott, R.L. & **H.A. Hespenheide**. 2006. The description of a new species of *Agrilus*, with distributional records and taxonomic and biological notes for Agrilinae and Trachyinae (Coleoptera: Buprestidae) of Mexico and Central America. *Zootaxa* 1367: 1-35.

Hespenheide, H.A. & L.M. LaPierre. 2006. A review of *Pseudolechriops* (Coleoptera: Curculionidae: Conoderinae). *Zootaxa* 1384: 1-39.

Ubick, D. & **R.S. Vetter**. 2005. A new species of *Apostenus* from California, with notes on the genus (Araneae: Liocranidae). *J. Arachnol.* 33: 63-75.



FERM's Contribution to Arachnology

by Rick Vetter

In the publication section of this issue, you will find the listing of a paper regarding the newly described species of *Apostenus californicus* Ubick and Vetter. FERM had a major contribution in the discovery of this species as detailed below.

First, regarding this new spider, it is found in oak leaf litter and is common above 4000 foot elevation once you actually start looking for it. It is a small brown spider (about 3 mm body length) with striped legs. Most of the specimens in the study were collected by myself and other FERM members (Tom Prentice, Gene Drake) as we sifted oak leaf litter. Specimens were also collected in pan traps set on top of leaf litter by Chris Hartley from Georgia who visited southern California looking for latridiid beetles.

One interesting aspect about this spider is that it was previously unknown yet it is fairly common in the mountains surrounding heavily populated southern California. Specimens were taken in Forest Falls, Seven Oaks, Jenks Lake, Lake Fulmor near Idyllwild, etc. Yet before I started looking for it, no arachnologist knew that it existed and only one other collection made prior to this discovery was sitting in a collection anywhere. Another interesting aspect that makes this discovery so special is that this was the first collection of the genus *Apostenus* in the Western Hemisphere. The other nine species are known from Europe, the Canary Islands, Mongolia and Sierra Leone. Although some people might think that this would be an introduced species, it is not found in disturbed habitat associated with humans which is where most non-native species are found. *Apostenus californicus* is found in pristine montane areas separated by inhabitable low elevation areas devoid of oak trees (i.e., the Banning Pass, the Mojave Desert) and is most likely a relictual species. Gene Drake found immature specimens all the way up near Independence in Inyo County which is separated from the southern California mountains by the very large high desert, making dispersal to distant mountain ranges highly unlikely.



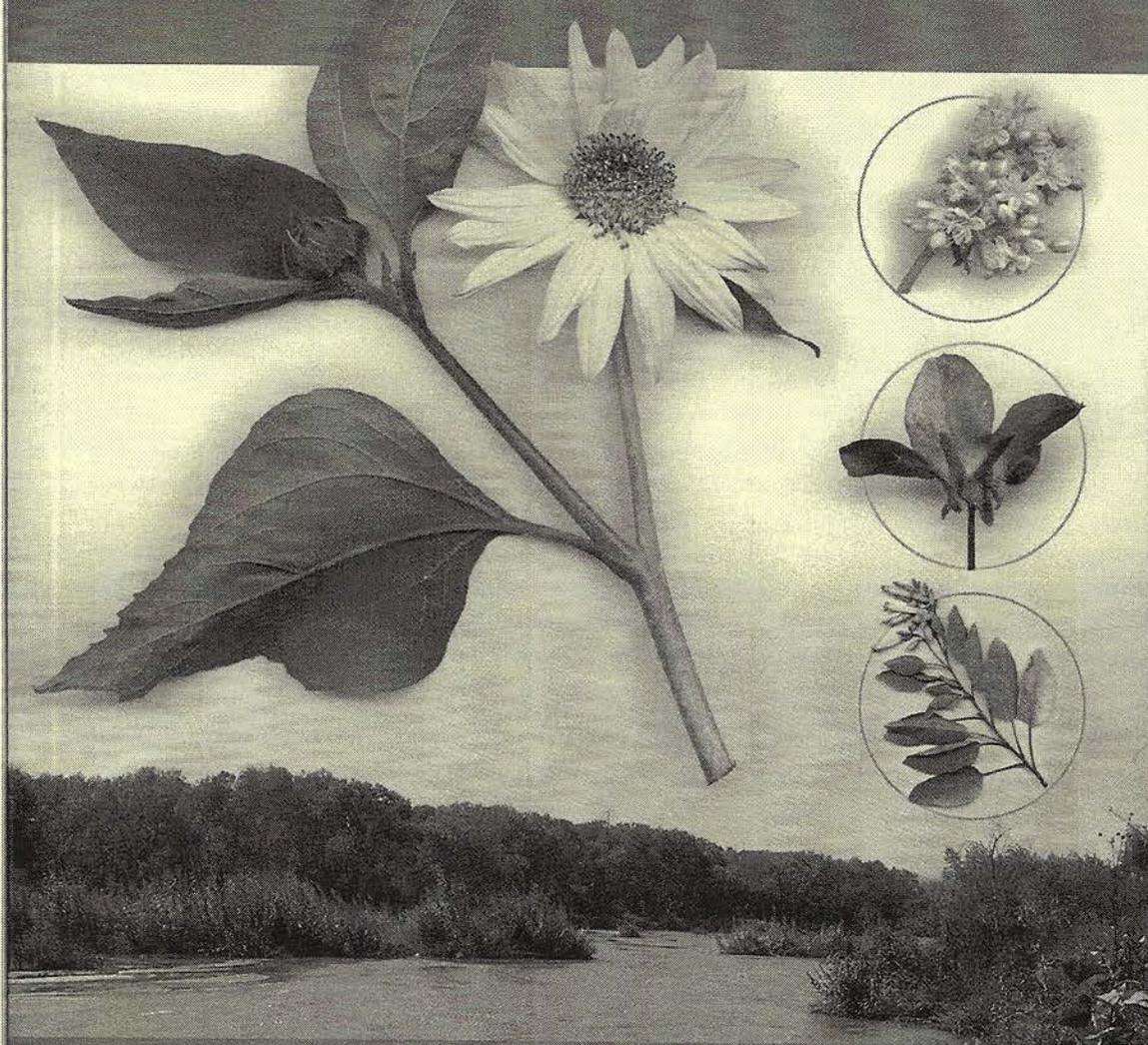
Okay, now for FERM's role in the discovery. The first male and female specimens were discovered on a hike on 7 Jan 2001. Gordon Pratt led a few of us up Cedar Springs trail out of Garner Valley as we were hosting world-renown animal behaviorist John Alcock, who was the speaker at the FERM annual meeting the night before. The type locality for this species is the top of the Cedar Springs trail where it crosses the Pacific Coast trail and overlooks Palm Springs to the north. The oak tree under which the holotype and paratypes were collected was a deciduous oak, *Quercus kelloggi*, which was devoid of leaves because it was winter. Because I was not very learned about oaks at the point and had spent most of my day sampling under scrub oaks, Gordon pointed to the leafless *Q. kelloggi* at the top of the trail and said those famous words, "That's an oak tree there." The rest is history as I collected the type specimens in the moist oak leaf litter. I also collected a few females on the same day in non-deciduous oak, but having both sexes allowed Darrell Ubick of the California Academy of Sciences to explain to me why I couldn't key this spider out using the available key: it was unknown in the western hemisphere. I was very excited about this discovery and wanted to go back to the Cedar Springs trail to get more specimens but the winter rains came, dumping snow in the mountains and I couldn't get back up to the trail until March when I had to clear snow off the oak leaves in order to get leaf duff.

So thanks to Gordon Pratt and John Alcock, a new spider genus has been added to the list of North American spiders.

FLORA *of the* SANTA ANA RIVER

AND ENVIRONS

WITH REFERENCES TO WORLD BOTANY



OSCAR F. CLARKE

DANIELLE SVEHLA · GREG BALLMER · ARLEE MONTALVO

See next page for details

Flora of the Santa Ana River and Environs, With References to World Botany

Oscar F. Clarke, Danielle Svehla, Greg Ballmer, and Arlee Montalvo

The recently published **Flora of the Santa Ana River and Environs, with References to World Botany**, by Oscar F. Clarke, Danielle Svehla, Greg Ballmer, and Arlee Montalvo (515 pp, Heyday Press, Berkeley) covers the lowland plants (below 3000 ft elevation) of the Santa Ana River watershed. This is not an ordinary regional flora, but rather an encyclopedic compendium of botanical information including plant relationships, vertebrate and invertebrate associations, anthropological uses, and plant origins. The majority of illustrations (in full color) were created using a digital flat-bed scanner; other images include standard photographs, reprinted illustrations from other works, and original art. Even the book's organization breaks the mold for popular floral works, as the contents are organized to reflect phylogenetic relationships.

The Santa Ana River is central to the regional ecology of the greater Los Angeles Basin -Inland Empire area. The river's mainstem and tributaries drain about 2400 sq. miles, linking the Santa Ana, San Bernardino, San Gabriel, and San Jacinto Ranges, plus Chino Hills, with the sea shore and provide the most extensive network of wildlife habitat linkages in Cis-montane Southern California. Diverse habitats within the Santa Ana River watershed support a proportionately great diversity of plant species. The text deals with 1365 taxa, of which 496 are exotic. About 900 of the more frequently encountered and/or biologically most significant species are illustrated. In addition to the images, plant identification aids include thumbnail image shortcuts, character tables, more traditional family keys, and text clues for species separation.

This work reflects the personal knowledge and philosophy of Oscar F. Clarke, who grew up in Colton and spent most of his adult life working at the Citrus Experiment Station and its successor, UCR. Oscar initially aspired to become an ornithologist under the tutelage of Wilson Hanna, a noted oölogist. Oscar's botanical career was launched when, as a teenager, Hanna asked him to help identify the plants that local birds were using for nesting purposes. Oscar learned that plant classification relied heavily on the structures of their reproductive organs and that helped solidify his belief that plant morphology reflects phylogenetic (evolutionary) relationships. Oscar also learned that biological evolution provided a powerful framework for understanding the relationships among all living things and that realization has provided the dominant paradigm in his "natural philosophy". It also validated Oscar's broad additional interests in entomology, ornithology, etc.

Oscar's botanical career was given a boost when he was chosen by Prof. Frank Vasek to establish the UCR Herbarium in 1966 and served as its first Curator until his retirement in 1978. After retirement, Oscar's interests in natural history led him to explore other regions of Planet Earth, including extended journeys through Europe, South America, Africa, and Australia, and shorter excursions to Mexico and Thailand. Work on the SAR book began slowly in the late 1980s, with frequent interruptions for travel. Work accelerated rapidly with the recruitment of the three co-authors who provided technical cyber-skills, fresh energy, and enthusiasm. The recruitment of a publisher (Heyday Books) and a firm production schedule led to completion in late 2006 and publication in early 2007.

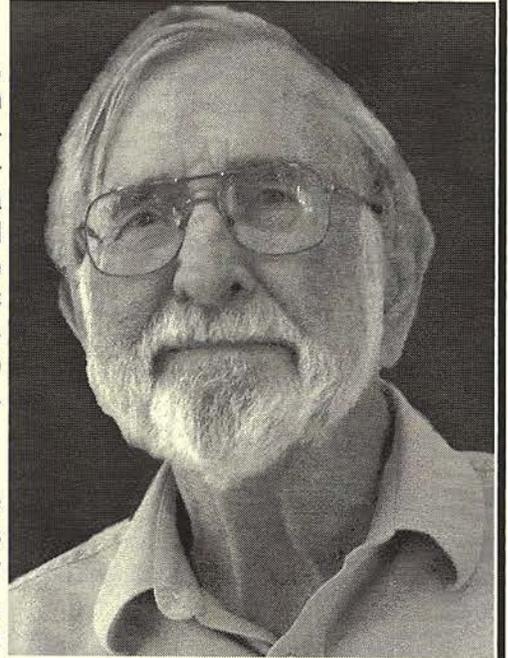
Martin M. Barnes

1920-2007

Dr. Martin M. Barnes, UCR Professor Emeritus and founding member of FERM, passed away at age 86 on Sunday, April 22, 2007, in Riverside. During his university career, Martin achieved national and international recognition for his research on the control of arthropod pests of almonds, apples, grapes, and walnuts. He published his first paper on control of codling moth in 1944, while still a student at Cornell University. Upon graduation in 1946, Martin married Julia Butts and moved to Riverside, CA to begin his career at the Citrus Experiment Station.

Martin McRae Barnes was born on 3 August 1920 in Calgary, Alberta, Canada, but spent his early years on cotton plantations in Louisiana and Arkansas where the Barnes family had lived for generations. His family moved to San Gabriel, California, in 1927. As a teenager, Martin took summer jobs in the laboratory of Joe Wilcox, a USDA entomologist (and noted asilid taxonomist), which launched him on a career in entomology. After attending Pasadena City College for two years, Martin transferred to UCLA for one year and then to UC Berkeley, where he graduated with highest honors in 1941. Martin began graduate studies at UCB, but transferred in March 1942 to a PhD program at Cornell, where his research focused on insect pest management in apple orchards of western New York.

Martin and Julia, who died in 1987, raised four children in the home they built in 1954 on Prince Albert Drive. He was devoted to his family and very proud of their accomplishments. Martin is survived by sons Wayne Morris of University City, MO, Martin Killian of Vers, France, and Brian McRae of Fairbanks, AK, daughter Delia Elizabeth of Berkeley, CA., and eleven grandchildren.



Martin Barnes in 2005. Photo: D.C. Hawks

During his 45 years of research, first as an economic entomologist at the Citrus Experiment Station and then as a professor at UCR, Martin worked on a variety of problems in entomology and plant pathology, always with a focus on the practical needs of agriculture. Much of Martin's research (often in collaboration with graduate students) involved the codling moth, a major pest of apples and pears, and included the morphology of the female sex pheromone gland, the sense organs of the mouthparts, host race formation, baseline susceptibility to insecticides, detection using synthetic sex pheromone lures, and insecticidal control.

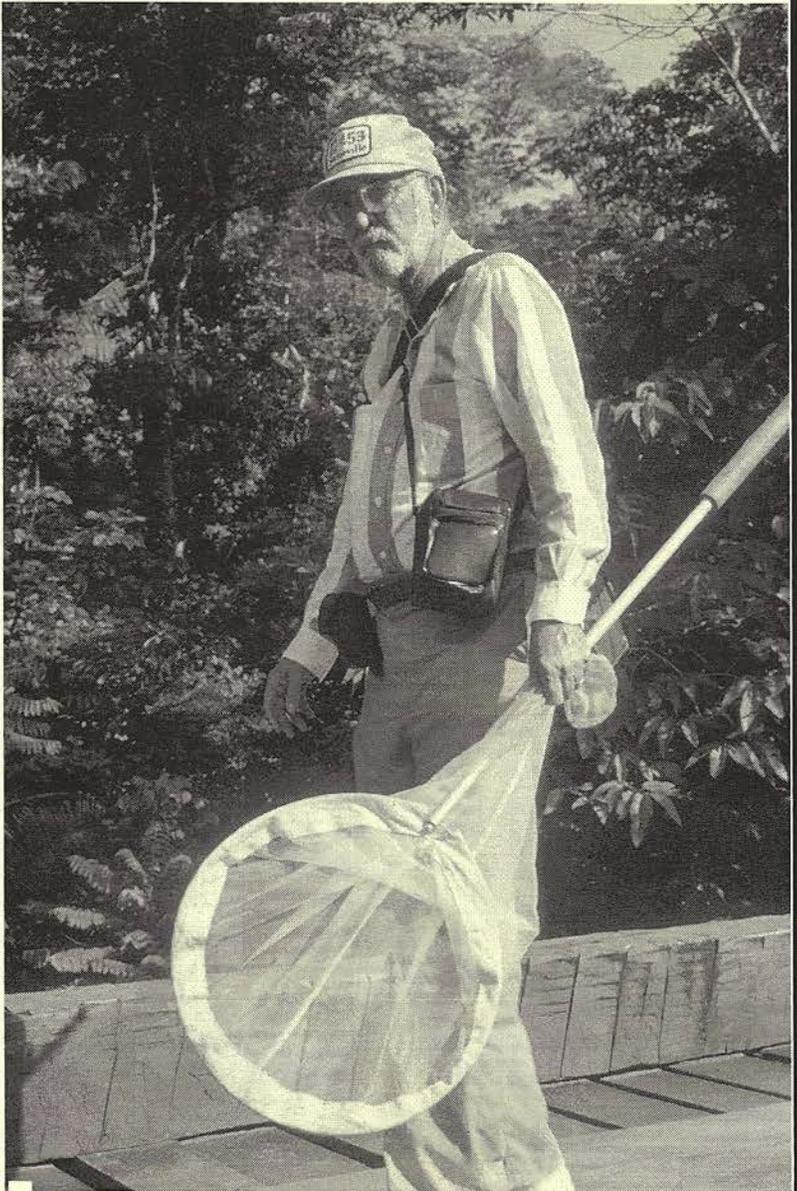
Early in his career Martin solved a problem that had resulted in significant losses in production in many of California's choice wine grape vineyards since the 19th Century. While other investigators at UC Davis and Berkeley had diagnosed an eriophyid mite as the cause of symptomatic growth malformations and low yield, Martin demonstrated that the problem was actually related to time of winter pruning and boron deficiency. Midwinter pruning advanced the time of leafing earlier in spring, before the vines had time to acquire sufficient boron, a trace element essential for plant growth. This study proved valuable in agriculture far beyond California. In 1966, Martin moved with his family to Santiago, Chile, to introduce entomology research practices at the University of Chile through a Ford Foundation program. When Martin knocked on the door of a wine grower in southern Chile to request permission to examine his grapevines, the farmer recognized his name and invited him into the house to show him a reprint copy of the boron-deficiency paper, which he said had saved his vineyard.

At UCR, Martin directed 8 M.S. theses and 12 Ph.D. dissertations and chaired the Executive Committee of the College of Natural and Agricultural Sciences. He authored 70 research papers, several book chapters, and over 100 technical and popular publications. (continued on next page)

Dr. Barnes served the Entomological Society of America (ESA) as a member of the Governing Board, as Chair of Section F, as both member and Chair of the Editorial Board of the Journal of Economic Entomology, on several national committees, and as a committee member, Program Chair, and President of the Pacific Branch of the ESA. He was elected a Fellow of the American Association for the Advancement of Science in 1957, elected a Fellow of the ESA in 1991, and awarded Honorary Membership in 1996. He retired from UCR as a full professor in 1991 after 45 years of service.

Martin was a staunch supporter of branches of entomology outside of his primary research field, including the systematics division, the perpetual 'poor man' of the department. During his brief stint as Entomology Department Chair during 1988, Martin's strong advocacy helped to ensure construction of the Entomology Research Museum Building, which ensued soon thereafter. The Museum Building finally ensured a home for the department's insect collection, whose cabinets had been in hallways and scattered rooms throughout the main Entomology Building.

Even in retirement, Martin continued to serve the university community. In 1993, when a new USDA Soil Salinity Laboratory on campus was threatened by the discovery on the proposed construction site of a newly discovered and potentially endangered species (see insert on Ruth's cuckoo bee), Martin was tasked with helping to organize the "Cuckoo Bee Task Force". The CBTF, comprised primarily of students and departmental staff on loan from their supervisors, discovered other localities for the bee, thereby disproving its endangered status and allowing the construction project to proceed. Martin later helped to create the Friends of the Entomology Research Museum and served as its first Treasurer.



Martin Barnes on the Rio Pardo Bridge, near Fazenda Rancho Grande, Rondonia, Brazil, 14 November 1990. Photo: G.R. Ballmer

Martin enjoyed traveling, and after his retirement he visited Africa, Alaska, Central Asia, Cuba, Europe, and Central and South America. He participated with members of FERM on several insect collecting and natural history trips to Arizona, Texas, Costa Rica, Honduras, Brazil, and the Galapagos Islands. In 1990, Martin joined Greg Ballmer, Guy Bruyeya, David Hawks, and Elois Hawks on an especially memorable trip to the Amazonian rainforest in Rondonia, Brazil. For years after that trip, he enjoyed telling "Brazil stories", including how he had "buck fever" during his first attempt to net a specimen of a large, iridescent blue *Morpho* butterfly. He was successful, and this specimen now resides in the UCR Entomology Museum.

Martin's activities diminished after suffering a stroke in 2003, but he continued to live at home until February 2006, and enjoyed going out to dinner and the company of his friends and family until shortly before his death.

Submitted by Greg Ballmer & David Hawks



photo by G. Ballmer[®]

***Holcopasites ruthae* Cooper 1991 (Apidae)**
by Greg Ballmer

Holcopasites ruthae, aka Ruth's cuckoo bee (Apidae), is rarely observed and was only recently discovered (1991) on the UCR campus by Dr. Kenneth Cooper, UCR Emeritus Professor, who named it in honor of his wife, Ruth. Whereas most bees construct their own nests and provision them with pollen to feed their larvae, cuckoo bees are cleptoparasitic in the nests of other bees and therefore do not construct nests or gather pollen. Ruth's cuckoo bee deposits its eggs in the nests of *Calliopsis pugionis* (Andrenidae), while the host bee is away from the nest gathering pollen. Upon hatching, the *H. ruthae* larva kills the host's egg and then feeds on the pollen stores. Both Ruth's cuckoo bee and its host are univoltine, flying during April and May. Although generally rare, *H. ruthae* is most abundant in association with immense nest aggregations of *C. pugionis* in heavy clay soil along the margins of Mystic Lake in the Northern San Jacinto Valley. Both species are able to survive periodic inundation (up to three months) when the lake expands during the rainy season.

The late Dr. Martin Barnes headed a task force that investigated the proposed endangered status of this bee when the construction of the USDA Soil Salinity Laboratory at UCR threatened its apparently limited habitat (it was known originally only from that single site on campus). The task force found several other populations of this rare bee and thus permitted the construction of the Laboratory at the University, and received a special award from the US Fish & Wildlife Service in recognition.