



# Entomology Newsletter 2001-2002



University of Illinois at Urbana-Champaign



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Cover photo of exotic soybean aphid by Dave Voegtlin, Illinois Natural History Survey  
Newsletter design by Jana Waite, School of Integrative Biology  
2002 Department of Entomology University of Illinois at Urbana-Champaign

# Message from the Head

May Berenbaum



OUR goal of returning to an annual alumni newsletter slipped by the wayside as 2001 raced by before I could wrestle it to the ground. Thus, this newsletter will cover about 22 months (all at no additional cost!). As always, the first topic of concern is reorganization, even 5 years after the fact. This was a transition year, in which the entomology rubric for courses was co-listed with the IB rubric; next year we'll all have to learn new numbers, a daunting prospect to those of us who still are a little fuzzy on the old ones. It's also our first year without an entomology option—the College informed us that no undergraduate options would be permitted within the new integrative biology major. In my view, this is a spectacularly bad idea; the undergraduate option costs virtually nothing to run and it provided us close contact with a handful (admittedly never very many) of extraordinary undergraduates, many of whom went on to achieve all kinds of distinction (including a Churchill Fellowship and Entomological Society of America awards). It seems to me that cutting the options takes choice and diversity away from the students—the two things that land grant universities are all about. I'm determined, however, to explore routes for recreating, redesigning, and/or reinstating an entomology undergraduate program on campus for the few enterprising souls who feel that the best undergraduate education in biology comes with six legs.

Always a consideration for a small department is staffing, and, economic doldrums notwithstanding, 2001-2002 were growth years for us. We were extremely fortunate to receive a \$1.25 million gift from our generous alumnus Roy Barker and his wife Mary Lou—two very remarkable people!—to endow the Kearns, Metcalf and Flint Chair in Insect Toxicology. A selection committee was appointed to identify candidates and campus visits will take place during this

academic year. We also hired an outstanding faculty member in the relatively new field of invasion biology—specifically, Andrew Suarez, former master's student with Scott Robinson at UIUC who went on for doctoral and postdoctoral work within the University of California system. We're happy to bring him back to his Midwest roots (his family is from Chicago). Andy's appointment is split between Entomology and Animal Biology, to accommodate his interests that extend in various directions through trophic webs.

The annual joint meeting of the Society for the Study of Evolution and the Society of Systematic Biology was held for the first time here. The local arrangements committee for the Evolution 2002 meeting consisted almost entirely of Entomology faculty and affiliates—cochairs May Berenbaum and Stewart Berlocher, along with department members Jim Whitfield and Sydney Cameron, affiliate Kevin Johnson, and Ken Paige and Stephen Downie (who have both collaborated with Entomology faculty). In case anyone missed the point, the logo for the meeting, not inappropriately, was the western corn earworm, *Diabrotica virgifera*, on a soybean leaf, illustrating evolution in action (years of rotating corn and soybeans have apparently selected for corn rootworms that oviposit in soybean fields). In connection with the meeting, Stewart organized a splendid display highlighting Illinois contributions to the study of evolution—including Mazon Creek fossils (with Karlene Ramsdell's help) and Darwin's correspondence with Benjamin Walsh, first State Entomologist of Illinois.

We look forward to seeing alumni at the annual meeting in Fort Lauderdale and we look forward to the challenges that 2003 will bring (including that of getting the newsletter back to an annual schedule!).

# Barkers Endow Insect Toxicology Chair

ROY J. and Mary Lou Criss Barker, of Tucson, AZ, established the “C.W. Kearns, C.L. Metcalf, and W.P. Flint Endowed Chair in Insect Toxicology” in September 2001. This gift will support an endowed faculty position in the Department. A search committee has been established to seek excellent candidates for this chair.

Roy J. Barker (Ph.D. Entomology 1953) grew up on a Missouri farm plagued with fleas, flies, armyworms, and grasshoppers. An entomology 4-H Club introduced him to the book *Destructive and Useful Insects* by C.L. Metcalf and W.P. Flint, professors of entomology at the University of Illinois. Barker attended the University of Missouri on a Sears-Roebuck Scholarship (\$15 a month) and, after serving in World War II as an army cannoneer, graduated in agricultural chemistry. He applied to the graduate

program in chemistry at Illinois. Denied admission to that program, he was encouraged by C.W. Kearns, a pioneer in the field of insect toxicology at Illinois, to take graduate chemistry courses and major in entomology. A grant to study metabolism of DDT in house flies funded Barker’s Ph.D. thesis. He explored biological magnification of DDT by earthworms and says it “established my reputation in the booming insecticide industry as a trouble maker.” He enjoyed a career in industry as well as in basic research. In retirement, Barker has been a civil air patrol pilot, a Silver Beaver Scoutmaster, and a volunteer naturalist with the U.S. Forest Service.



Roy Barker



Mary Lou Criss Barker earned a B.S. in home economics from Madison College (VA) in 1953 and an M.S. in deaf education from Gallaudet College (Washington, DC) in 1964. She taught deaf students in Virginia, Arizona, and California. She also taught first and second graders in Tucson public schools and began playing the organ during her teaching career. She is still playing for church services in her retirement. Several projects, including working with school children, make retirement as busy as “working.”

The Barkers believe that Entomology is well situated to take advantage of expertise in chemistry, natural history, and biology to give the world safer and more effective insect pest management. The Department and the University are truly fortunate to have such loyal alumni and friends.

May Berenbaum and Roy Barker at the Arizona Sonoran Desert Museum, Tucson, March 2002.

# Faculty

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## May Berenbaum



Berenbaum

MY professional life seems to be dictated by alliteration—coevolution as the central theme, with an emphasis on caterpillars and coumarins. Along those lines, among the ongoing projects in the lab are examinations of Canadian swallowtail metabolism of coumarins by Weimin Li, of coumarin-regulated gene expression in *Papilio* species by Becca Petersen and Cindy McDonnell (using, of course, CAT-reporter constructs), of corn earworm detoxification of plant allelochemicals by Xianchun Li, of carotenoid sequestration in webworms by Mark Carroll, and of *Conium maculatum* alkaloid toxicity by Katy Lustofin. Even the new Fullbright postdoctoral associate in the lab fits in alliteratively—Eva Castells has just begun to investigate *Culex* mosquito metabolism of leaf leachates. The always remarkable Art Zangerl and I have now expanded our 20-year-long study of webworms and wild parsnip to include cow parsnip (*Heraclium lanatum*), a native North American host acquired after European webworms colonized this country; we've found that the presence of a chemically distinct alternate host can disrupt phenotype matching between webworms and wild parsnips, in a resounding confirmation of John Thompson's theory of the geographic mosaic of coevolution. And we're also involved in an ongoing collaboration with Evan DeLucia, of Plant Biology, determining the effects of carbon dioxide on herbivory and photosynthesis in soybeans.

In 2001 and 2002, the alliteration even extended to travel. Although we didn't travel the seven C's, as it were, we did go to Canada twice—once during spring break 2001 to Calgary and Edmonton, to give seminars (and, through the kindness and incredible generosity of "Nature Nut" John Acorn, introduce our midwestern daughter

to mountains and cross-country skiing) and once in October 2001, to give a talk at the annual meeting of the Entomological Society of Canada (and introduce our midwestern daughter to bodies of water more breathtaking than the Saline Ditch). Perhaps the most memorable professional trip was the least alliterative one—spring break 2002 took us to Las Vegas, Nevada, where, at the invitation of Dr. Steve Roberts, I gave the Juanita Greer White annual lecture in biology and where, afterwards, Richard and Hannah and I could see the various and very sundry sights, including, among others, magic shows, Siberian white tigers, fake volcanoes, an Impressionist art exhibit, a fake Empire State Building, pyramid, and Eiffel Tower, and two different ventriloquist shows. Afterward, we headed south to University of Arizona, where I gave another seminar, and along the way, we saw the Hoover Dam, the Grand Canyon (to introduce our midwestern daughter to very large holes in the ground), and Glen Oak Canyon (near Sedona, site where "Kingdom of the Spiders" and innumerable other insect fear films were shot). In Tucson, a special treat was a personal tour of the Desert Museum, courtesy of Roy Barker, our department's distinguished alumnus and generous benefactor. Roy, an amazing naturalist, appears to be personally acquainted with every insect in the state of Arizona.

And, of course, no year would now be complete without a visit to the annual Vent Haven Ventriloquism Convention in Fort Mitchell, Kentucky, where Hannah performed at the Junior Open Microphone session and wowed the crowd by making Whiskers the Cat cough up a hairball without moving her lips. And just in case you get the impression that I never go anywhere that isn't somehow connected to entomology, rest assured that I even found enough entomological content at the ventriloquism

convention to write a Buzzwords column about it for the American Entomologist!

## Stewart Berlocher

THINGS are still busy at the Berlocher's. Paul is 4 and Austin is 9, but it seems like more. Austin is still active in Cub Scouts, but has also developed a major interest in Taekwondo. Paul loves imitating his big brother, and being incredibly active.

Research is going pretty well. Remarkably, we keep getting more and better evidence that the apple host race of *Rhagoletis pomonella* is genetically distinct from the ancestral hawthorn race. We may even be on the track of a "speciation gene."

Life in Urbana is good, and as I tried to say in my rather cryptic note in the last newsletter, you can even get enchiladas here now. Regards to all my former students out there, and don't be strangers.

## Sydney Cameron

I'VE been in the Department for a year and I love it! Although it's been busy enough that I've barely had time to catch my breath, the activities have been challenging and fun. I arrived to a newly renovated (humongous effort by many) lab (half of the old Metcalf lab) and office. Thanks to the efforts of all involved it was easy to set up and get to work right away.

As my research focuses on the behavior and systematics of the non-*Apis* tropical corbiculate bees (bumble bees, stingless bees and orchid bees), I spent 2 weeks last October on the Tambopata River in the Peruvian Amazon studying recruitment behavior with three students. We learned that foragers of the Amazonian bumble bee (*Bombus transversalis*) enlist other foragers in the colony to leave the nest in search of food. This study was the initial phase of research to test the hypothesis that complex communication systems in bees, such as those found in honey bees and some sting-

less bees, evolved in a tropical environment. Our findings in Peru (in press, *Apidologie*) led to an NSF proposal (in collaboration with Lars Chittka, University of London) to carry out the next stage of the research—to find out if foragers returning to the colony pass on information to nestmates about the location of a food source.

I am also involved in molecular phylogenetic analyses of orchid bee and bumble bee relationships. I was awarded a Research Board grant to initiate a phylogeographic study of the large orchid bees (*Eulaema*) endemic to the Chocó region of Colombia; however, that project is on hold until the political situation in the region improves. I am working with Kevin Moulton (North Carolina State) on the development of a new nuclear gene that can be applied to ongoing analyses of phylogenetic relationships among the corbiculate bees.

I have two new students, both of whom think bees are cool. Heather Hines arrived last March from the University of Iowa, fresh from a double major in biology and anthropology, to work on bumble bee systematics and ecology. She spent the first half of the summer learning how to raise bumble bees and the second half traipsing through the Pyrenees and Turkey in search of bumble bee species. In the company of Pierre Rasmont (University of Brussels) she brought back 50 (yes 50!) new species for the phylogeny project. We are constructing a worldwide phylogeny of the genus (240 species), which will lay the groundwork for comparative studies of behavior. We are working on this project with Paul Williams of the Natural History Museum in London. My second student, John Kane, came from UC-San Diego by way of a year's experience working for a biotech company in California. As an undergrad, John spent some time studying stingless bees in Costa Rica, and is getting his feet wet in the lab by sequencing diverse genera of stingless bees. John is an accomplished pianist and has promised to give us a concert before the bees take over his life.



Berlocher



Cameron

## Faculty (continued)

The year finished up with a collecting expedition to the Tibetan Plateau of south-western China (Sichuan Province) in the company of Jim Whitfield, Paul Williams, and Xuexin Chen (Zhejiang University). Heather beat us on the species count, but we were still extraordinarily successful in bringing home 37 of the 45 species known from that region. It was a fantastic trip—an ideal way to end a great year.

### Fred Delcomyn



Delcomyn

WEARING the two hats of an Entomology faculty member and Director of the School of Integrative Biology can be challenging, to say the least. One of the challenges is to explain to faculty the rationale for constraints that being in a School may put on departmental activities. This is not always easy. The flip side, pointing out the benefits for the department, is considerably more pleasant. This year, with the search for a suitable candidate to fill the C.W. Kearns, C.L. Metcalf and W.P. Flint Endowed Chair in Insect Toxicology in full swing, it is nice to be able to point out that the School of Integrative Biology and the other departments in the School will contribute substantially toward the startup costs associated with bringing in a prominent new faculty member, making it possible for us to recruit the best possible person for the Chair without Entomology having to worry about breaking the bank.

Research continues to progress. A collaboration with Chang Liu, a faculty member in Electrical and Computer Engineering, established several years ago, has received nice publicity recently, mostly due to Chang's efforts. The collaboration has the objective of developing a biologically mimetic sensor to be used for robots. The sensor is designed to emulate a class of sense organs called hair cell receptors, one type of which is prominent in insects. Using the biological structure as a model, Chang has designed a device that will sense fluid flow and that has great potential in a variety

of applications. Write-ups have appeared recently in *The Economist* and *Forbes ASAP*.

On the home front, the big news is that after 28 years in the same home, Nancy and I moved last year. The impetus was the proliferation of apartment buildings in our neighborhood. We now live a bit south of Urbana on 5 acres, half wooded and half that we will turn into wetlands and prairie. Talk about a change in life style!

### Susan Fahrbach

THE past 2 years have offered the pleasures of major tasks completed and new projects initiated. Much of what consumed my attention was only indirectly related to research. I spent much of fall 2002 writing a competitive renewal proposal for our HHMI education grant and then spent the winter and spring worrying that my efforts had been inadequate. Happily, HHMI has agreed to send us another \$1.7 million for the next 4 years. Only 44 of 189 invited applications were funded!

Also on the education front, Evan DeLucia and I received a \$400,000 NSF award to initiate an Undergraduate Mentoring in Environmental Biology Program. Nine students entered the program this summer and all had productive field seasons...so I guess someone is doing research.

I also developed the new IB 150 course and taught it both semesters of the 2001-2002 academic year. In spring I doubled up on IB 150 and Insect Physiology (ENTOM 310), which was definitely an interesting challenge. But it was hard to feel overburdened because of the happy news of the award of high priority to the Honey Bee Genome Project (see Gene Robinson's write up for details!).

Early summer also brought the publication of the massive 5-volume *Hormones, Brain, and Behavior* (Academic Press), for which I served as co-editor. The past years have also seen the development of the first Brain Awareness Week activities on campus, an event I hope eventually becomes as well-



Fahrbach

established as the Insect Fear Film Festival.

In the lab, Anne-Marie Cziko helped us develop protocols to use a robot to perform in situ hybridization, Rodrigo Velarde initiated new studies of nuclear hormone receptors in the honey bee brain, Joe Sullivan went to medical school, Kym Rosiak finished her dissertation research and graduated, and Nyla Ismail, a new neuroscience program student, started some intriguing studies on neurochemical regulation of structural plasticity in the honey bee brain.

Summer 2002 brought meetings in Sapporo, Japan, and Oxford, UK. Past, present, and future Illini (the future in the person of Andy Suarez) were well represented at these meetings, causing me to reflect once again how fortunate we are to have such outstanding colleagues and students.

## Bettina Francis

IT is a real pleasure to this note that this update comes from the 6th floor of Morrill Hall! I moved in January 2000, with the usual amazement at how much junk I had saved in a mere 10 years (and the usual decision to hold on to most of it, “just in case”). My sons have also moved again in the interim—considerably farther than I! Alex and Elaine finished their 3-year stay in Hong Kong this summer, and are now at Purdue University, where Alex has an assistant professorship in Speech and Hearing Science. The “two body problem” has been temporarily resolved because Elaine will have a visiting appointment in the English department beginning in January. It is wonderful to have them so close. Meanwhile, Theo stayed in Dallas for only 4 months before moving to New York to work for the *Wall Street Journal*. There is nothing dramatic to report about my research, which proceeds extremely slowly. We have not yet solved the question of how nitrofen causes its unusual constellation of malformations; on the other hand, I have not given up yet! Nitrofen itself made headlines across Germany last summer, when it

contaminated huge quantities of supposedly “organic” meat. Apparently it is legally used on wheat in Poland, and treated wheat was somehow fed to animals on “organic” farms in eastern Germany. I am also continuing to study the effects of dietary constituents on DNA with Lane Rayburn, but our focus has shifted from contaminants to dietary supplements (the so-called nutraceuticals) and their interactions with chemotherapeutic agents. This project has some practical applications, since apparently people with cancer are more likely than most other segments of the population to use nontraditional medicines.

## Larry Hanks

THE big news in the Hanks lab is that the first two students to leave the lab have landed jobs. Rob Moore completed his master’s degree last fall and is now a medical entomologist for the US Army stationed in San Antonio, TX. Rob will soon move to Maryland where his work will focus on West Nile virus in the northeastern US. Jodie Ellis finished her master’s thesis this spring and has accepted a position as gypsy moth coordinator and educator for the Department of Entomology at Purdue University, West Lafayette, IN. The job is a perfect fit for Jodie, combining public relations, teaching, and research, and she is thriving. The Purdue people rave about her every time I see them. It is enormously gratifying for me to see students moving on, launching their careers, and applying their entomological training.

Our research program has continued to develop, despite losing two from our ranks. John Tooker, the most senior student in the lab, has produced several publications. John’s dissertation research focuses on gall wasps that inhabit the stems of *Silphium* species in prairies. My second most senior student, Matt Ginzl, is also progressing on the research front. Matt studies the reproductive behavior and semiochemicals of longhorned beetles. Peter Reagel completed



Francis



## Faculty (continued)

his master's research project on aggregation and mate location behavior in the red milkweed beetle, another longhorned beetle. He has shifted gears in his dissertation research, studying interguild interactions among natural enemies of armored scale insects. Emerson Lacey is nearing completion of his master's research on mating behavior and semiochemicals of another longhorned beetle, the red-headed ash borer. Graduate student Ashley Bennett will be completing her master's this fall. She is conducting an experiment funded by USDA-NRI that evaluates the potential for suppressing infestations of herbivorous insects by encouraging natural enemies with flowering forbs that provide nectar and pollen for the adults. Erin Grossman is in the process of writing her master's thesis and is determined to finish this fall so she can join her husband who now has a job in Maryland. Erin is an NRES student and has been studying how the physical structure of ornamental landscapes influences vigor of ash trees and resistance to herbivorous insects.



Robertson



Robinson

On the personal front, my wife Jean and I have almost completely adapted to the Midwest and only whine about the winter during January and February, rather than from October to April. In fact, we are so well adapted that we have produced two Midwestern children: Rebecca turns 4 in October and Mason is 15 months old. Both are blissfully unaware of mountains and dry heat.

### Hugh Robertson

THE past 2 years have seen my laboratory focus even more on the molecular basis of insect olfaction, while reducing our efforts on transposons. Our transposon work now involves studies of a series of 10 genes in the human and other mammalian genomes derived from transposons. One of these is just 50 Myr old, while another is 90 Myr old, and in these two cases we can study the transformation of the transposon to host gene.

Our work on insect olfaction now involves

a variety of projects on odorant receptor proteins. Thus Ph.D. student Harland Patch continues working with our only receptor from *Manduca sexta*, as well as a couple from the honey bee. We've been involved in studies of the molecular evolution of the entire insect chemoreceptor superfamily of odorant and gustatory receptors revealed by the *Drosophila melanogaster* genome sequences, as well as those in the recently finished *Anopheles gambiae* genome (140-150 proteins each). Ph.D. student Lauren Kent has joined the lab to study the latter. Other projects concern chemoreceptors in corn rootworms and other insects, as well as nematodes.

My 16-year-old stepson, Gabriel, is taking driving lesson so we are entering that interesting transition. Our 4-year-old daughter, Erica, finally has permission to climb into the treehouse on her own and is loving it. We had a great month-long trip around Alaska this summer and went to South Africa to visit my family last summer (2001).

### Gene Robinson

GREETINGS! The past 2 years have seen intensified activity towards putting the new and amazingly powerful science of genomics to work to understand the marvelous complexity of honey bee social behavior. We now have a "gene chip" that can monitor the activity of about half of the bee genes, and are starting to use it to discover which, and how many, genes change their activity to orchestrate behavior. Our initial findings are very exciting and promise to change the way we think about behavior. It seems to be heavily dependent upon genomic activity, to a much greater extent than anyone imagined. Encouraged by these developments, I spearheaded an effort to gain approval for the "whole enchilada"—the complete sequencing of the honey bee genome. With department colleagues Susan Farhbach and Hugh Robertson and an international consortium, a White Paper was submitted to the National Human Genome Research Institute. On May

22, 2002, we learned that the honey bee was among six organisms selected for genome sequencing! We are all very excited about the amazing prospects for discovery now open to us all. The study of the genetic basis of social behavior is a frontier area and we believe that the honey bee can make important contributions. Other highlights included two trips to Japan for conferences and a quick trip to Denmark to plan a new research collaboration. A special personal milestone was reached this year—our oldest son, Aaron, who as a toddler used to enjoy riding in our lab cart up and down the halls on occasional visits to Morrill Hall, turned 16, and yes, you guessed it, is no longer riding a cart but instead driving a car.

## James G. Sternburg (emeritus)

THE *Field Guide to the Butterflies of Illinois*, written by John Bouseman and me, has been very well received. We have been encouraged to prepare a guide to the saturniid moths of Illinois, to be published by the Illinois Natural History Survey, and it is now in press. With James Wiker, an authority on skippers, we are working on a field guide to the Illinois species of these difficult butterflies. We have photographs of museum specimens of all the Illinois species, and photographs of about half of them in nature. We expect to complete the text this fall to be submitted for review.

## Gil Waldbauer (emeritus)

IN the last newsletter I told you that my fourth book, *Millions of Monarch, Bunches of Beetles, How Bugs Find Strength in Numbers*, had been published by Harvard University Press in March 2000. Since all play and no work makes Gil a dull boy, I continue to write and can be found in my little office in Morrill Hall almost any day of the week, except when I am off on a birding trip. My fifth book, *What Good Are Bugs? Insects in the Web of Life*, partially

written when I last reported to you in the Entomology Newsletter, is now almost complete. In fact, I've already sent the corrected page proof back to my editor at Harvard University Press. The last thing I will have to do with *What Good Are Bugs?* will be checking the index that I will soon receive from the professional indexer who has worked with me since my first book, which came out in 1996. Now I am keeping busy with my sixth book. I don't know what its title will be, but it will be a series of essays on pest insects— not just any pest, but species that are particularly interesting and give me the opportunity to make an important biological point about evolution, reproduction, survival, feeding, ecology, the nature of pest insects, and the principles of their control. I have written six of the 20-25 essays, and will soon send an outline and a few sample essays to my publisher for approval.

I am not always writing. Most weekends, especially during the migration, I go birding in some of my favorite spots in central Illinois. At least once a year I travel to one or more birding "hot spots" in North America. On St. Paul, one of the Pribilof Islands in the Bering Sea, I saw 13 species of birds that were new to my "life list." At a state park in the lower Rio Grande Valley of Texas I saw another bird that was new to me, the blue bunting, which occasionally strays across the border from Mexico. Trips to the mid-Atlantic coast, Florida, and Lakes Ontario and Erie in Ontario yielded no lifers, but were a delight because I was with a good friend and saw many interesting birds.

## Jim Whitfield

IT seems incredible to me now that it has been only 1 year since we arrived to settle in the newly (or I should say for that time nearly) completed insect systematics laboratories that replaced the Metcalf lab across from May's area. The transition was thankfully a smooth one, in which not only ourselves, but a team of three graduate



Sternburg



Waldbauer



Whitfield

## Faculty (continued)

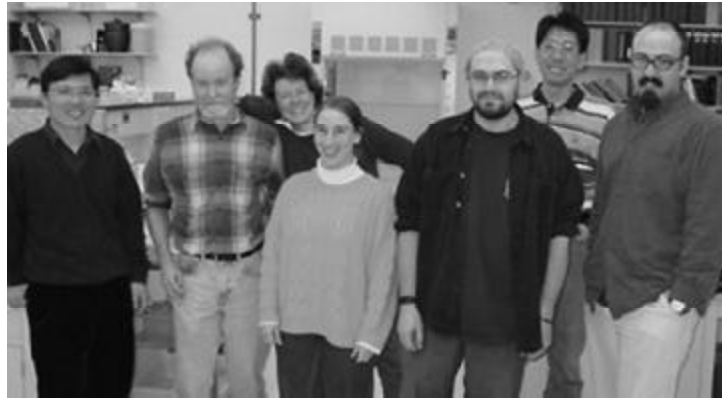
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students, a postdoc, and two active federal grants made it safely and happily to Illinois. It has indeed been an eventful year from the get-go, starting with teaching Insect Classification to an oversize class within 3 days of arrival, and ending the year with a month-long scientific expedition to China! In between, the Whitfield lab found time for research visits to museums and fieldwork on several continents, conducting morphology-based and molecular systematic research on parasitoid wasps and associated viruses, helping host the Evolution 2002 meetings (in which I co-organized a workshop on Network Methods in Phylogeny), and getting involved with the Program in Ecology and Evolutionary Biology and systematics activities at the Survey and across campus.

From a research perspective, the main projects in the lab this year were to examine the coevolution between polydnaviruses and braconid wasps using DNA sequence data (with postdoc Alice Michel-Salzat); to conduct systematic revisions of the wasp family Euanthidae (Andy Deans) and the braconid wasp genera *Deuterixys* (with Maria-Teresa Oltra at the University of Valencia), *Diolcogaster* (Won-Young Choi), *Hypomicrogaster* (Alejandro Valerio), *Microplitis*, and *Mirax*

(Alejandro); and to establish some collaborative projects on neotropical parasitoid wasp diversity with Mike Sharkey from the University of Kentucky and Dan Janzen from the University of Pennsylvania. A 6-month stay in the lab by Dr. Xuexin Chen from Zhejiang University led not only to collaborative taxonomic projects but to his accompanying us on part of the China fieldwork. With the usual NSF panels and editorial duties, it has all added up to a packed year! (Not to mention moving houses.)

As fall 2002 begins, we have a new USDA-funded project starting (on the development of interactive identification keys for parasitoids in the genus *Cotesia*), and I am co-teaching Principles of Systematics; Alejandro and Won-Young are TAing or assisting with courses. We have had to say goodbye (at least temporarily) to Alice and her husband Fabien, but look forward to interactions with Sydney Cameron's growing contingent of students, as well as with the larger systematics and evolution and entomological communities on campus. I for one also look forward to more frequent guitar-playing gatherings with Stewart Berlocher, Larry Hanks, and Jeff Haas!



# Awards and Recognition

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## Faculty and Affiliates

**May Berenbaum:** National Associate, National Academy of Sciences/National Research Council; elected Fellow, Entomological Society of America

**Susan Fahrbach:** Elected Fellow, American Association for the Advancement of Science.

**Michael Gray:** 2002 Senior Faculty Award for Excellence in Extension, College of Agricultural, Consumer & Environmental Sciences, University of Illinois

**Sue Ratcliffe:** Professional Staff Award for Excellence in Innovation and Creativity

**Rob Wiedenmann:** Service Recognition Award

## Graduate Student Awards

**Andres Deans:** Herbert Holdsworth Ross Memorial Fund Award

**Lesley S. Deem:** Ellis MacLeod/DuPont Award for Outstanding Teaching by a Graduate Student in the Department of Entomology

**Jodie A. Ellis:** Program in Ecology & Evolutionary Biology Travel Grant

**Matthew D. Ginzl:** Francis M. & Harlie M. Clark Research Support Grant; Herbert Holdsworth Ross Memorial Fund Award; Program in Ecology & Evolutionary Biology Travel Grant

**Jeffrey S. Heilveil:** Francis M. & Harlie M. Clark Research Support Grant

**Becca Petersen:** Entomological Foundation Lillian & Alex Feir Travel Grant, NSF Graduate Student Travel Award, Dissertation Research Grant, Proctor & Gamble Company Graduate Student Research Award Finalist, Graduate College Conference Travel Grant

**Sheila A. Lyons-Sobaski:** Harold C. & Sonja L. Labinsky Award

**David Schulz:** Eastern Apicultural Society Student Award, Entomological Foundation Lillian & Alex Feir Travel Grant, 2002 Eickwort Award (IUSSI)

**John F. Tooker:** Harley J. Van Cleave Fellowship; Philip W. Smith Memorial Fund Award; Program in Ecology & Evolutionary Biology Travel Grant

**Amy L. Toth:** Francis M. & Harlie M. Clark Research Support Grant; John G. & Evelyn Hartman Heiligenstein Outstanding Teaching Assistant in Biology 120; Program in Ecology & Evolutionary Biology Summer Research Grant; Program in Ecology & Evolutionary Biology Travel Grant; Program in Ecology & Evolutionary Biology Symposium Awards, Best Doctoral Presentation

**Alejandro A. Valerio:** Francis M. & Harlie M. Clark Research Support Grant

**James N. Zahniser:** Herbert Holdsworth Ross Memorial Fund Award

## Undergraduates

**Lori Kae Schwab:** 2002 Pfizer Summer Undergraduate Research Fellowship Award (one of only two students selected from the University of Illinois), Undergraduate Excellence Award, Entomological Society of America

**Katarzyna Jez:** Entomology Undergraduate Achievement Award, SIB

## Staff Award

**Jacqueline S. Bowdry:** 15-year Service Award

**Steven R. Buck:** 2002 Chancellor's Distinguished Staff Award

**Letitia L. Cundiff:** 10-year Service Award

## Teachers

Ranked Excellent by their Students for Life Sciences Courses Taught in Spring, Summer & Fall 2001

Barbra-Ria Barrido, Ashley Bennett, May Berenbaum, Kate Best, Julie Cianfrogna, Erin Grossman, Larry Hanks, Terry Harrison, Jeffrey Heilveil, Emerson Lacey, Robert Novak, Peter Reagel, Katharina Rothwangl, Amy L. Toth, James Whitfield

# In Search of Tibetan Bumble Bees

Sydney Cameron



BESIDES possessing a fascinating social system and serving as model organisms for research on foraging behavior, division of labor, recruitment, and mimicry, bumble bees have taken me around the world to some of the remotest regions on the planet. Twenty-five years ago when I made my first trip into the Amazon Basin of Peru to study birds (bugs were an unknown to

me then), little did I know that one day I would return to the same area to carry out research on a little known species of bumble bee (*Bombus transversalis*, the Amazonian bumble bee), found only in Amazonia.

However, lest you think the Amazon is remote, visit the Tibetan Plateau of Sichuan in southwestern China! Sparsely populated by Tibetan cowboys, yaks, and the occasional Buddhist lama (as in Dalai Lama) on a motorcycle, northwestern Sichuan is wild and mountainous. The Chinese call Sichuan the 'Heavenly Kingdom,' a reference to its bountiful resources, spectacular rivers and mountains, and rich culture spanning more than 2500 years of human history. Home to the protected giant panda, golden langur, and snow leopard, northwestern Sichuan also possesses among the largest and most diverse bumble bee faunas on earth. This was a critical collecting destination for my lab, which plans to complete a worldwide

phylogeny of the bumble bees over the next 3 years.

We began our collecting expedition in mid-July: me, Jim Whitfield, and Paul Williams of the Natural History Museum in London. We arrived in the provincial capitol of Chengdu and connected with a Chinese collaborator, Dr. Tang Ya of the Chengdu Institute of Biology, who had arranged car and driver, and a route that would take us over 3700 km of primitive roads and maximize the number of species we would bring home.

It was a glorious 2 weeks, traveling along mostly unpaved roads through high grassland valleys (3500–4000 m elevation) blanketed in wildflowers as far as the eye (or binoculars, for that matter) could see. Some of the valleys are 70 km wide and run on for hundreds of km, with only the occasional yak herd or black tents of the nomadic Goloks to interrupt the sweeping vistas across the immense space to distant mountains. The vastness of these flowering meadows is incomprehensible, even while standing in their midst. The hum of bumble bees is a familiar and comforting sound way out there.

In this setting, we collected 37 of the 45 known species of bumble bees in southwestern China. The flowers are as diverse as the bees, including the highest diversity of *Pedicularis* (lousewort) in the world, along with *Aconitum* (monkshood), *Delphinium* (larkspur), edelweiss, and many others. Collecting by day, stopping in small villages for the night, we covered 3700 km from Chengdu, north over the Qionglai Shan range to Zöige near the Gansu border, east to the Min Shan mountains and south through the country of the Qiang people along the Min He River.



Our route climbed over several high (>4000 m) passes into alpine meadows surrounded by distant mountains with stunning glaciers. In the early spring these high passes are covered in miles of flowering *Rhododendron*.

Everyone delighted in the spicy food (watch out for the flower peppers!), for which this region of China is famous, although we

drew the line at pickled yak meat, yak milk, and butter tea. The vegetables were the real treat; many of them we could not identify but enjoyed nonetheless. This is but a small glimpse of the vast Tibetan landscape of southwestern China, but for anyone searching out distant landscapes, relatively untouched and unchanged by the modern world, I guarantee you a grand adventure.



# For the Love of Insects

Gil Waldbauer

UNIVERSITY professors love their work, and many keep on working even after they retire—so it was with me. I always felt that I was being paid to do my hobby, to immerse myself in the study of natural history, my passion since early childhood. How could I give that up?

I had always thought that scientists should do more to acquaint the general public with the processes of research and how the new discoveries help people to understand themselves and their world. In this time of runaway population growth and consequent environmental degradation, it is important that people other than biologists understand biology, especially evolution and ecology. In *Millions of Monarchs and Bunches of Beetles*, I wrote: “Evolution is the central and unifying concept of biology, the science of life, the science through which we seek to understand ourselves and our fellow creatures, to know where we came from, what we are, and how we are inextricably bound to all other life on earth.”

I soon decided to write a book that would be intelligible to non-biologists, and that would give people at least a glimpse of what biology is all about. I would write about what I know best, the natural history and ecology of insects. I would tell interesting stories, but also use insects to illustrate biological principles.

I began during a sabbatical leave not long before I retired. I had always found writing to be enjoyable, but I soon found that writing for non-biologists is not as easy as writing for biologists who understand the basics of the science and the arcane scientific jargon. With some difficulty I learned to give what I hope are clear and readily understandable—although sometimes simplified—explanations of biological principles and to translate much of the jargon into ordinary English. But who would publish the book when I

finished it? I did not want my manuscript to arrive unannounced and be consigned to a pile of other manuscripts that had “come in over the transom.” First I went to bookstores to find out who was publishing books like the one I was writing. I made a list of ten. Then I went to our wonderful reference library to see what I could find out about these publishers. I called the science editors of all ten publishers and explained my scientific credentials and that I was writing a popular book on the biology of insects. Would they be interested in seeing an outline and a few sample chapters? Almost all of them said yes.

After receiving the materials, Princeton University Press said it would publish my book if I “made it more scientific.” I said no thank you because that would put my book out of reach of the general public. Harvard University Press accepted my manuscript just as it was. They have published so far three of my books: *Insects Through the Seasons*, *Birder’s Bug Book*, and *Millions of Monarchs and Bunches of Beetles*.

I just finished going over the page proof of *What Good are Bugs*, *Insects in the Web of Life*. It will be out next March. I am still writing because I love it. I have written several chapters of my next book, which will be a series of 20 or so essays on pest insects that are particularly interesting because they illustrate some principle of biology in general or entomology in particular.

Harvard University Press has been wonderful. My editor, the best at the press, has greatly improved my manuscript. The book designer has produced beautiful books. She won first prize at the New England Book Fair for her design of the *Birder’s Bug Book*. Because all the people at Harvard University Press have been wonderfully helpful I recently turned down an offer to do a book for another publisher.



## Jackie Bowdry

FIRST I would like to thank all of you who were so supportive and understanding during my medical leave. Though, I'm not all the way out of the woods yet, I can't complain. A special thanks to Dottie Nadarski, who put her leadership ability to the forefront and kept our office functioning without interruption. I value and respect her as a co-worker and as a person. Dottie definitely has the right stuff. Also, to the one who got away—Leta Nugent—thanks for your organizational skills and willingness to share them with us. Until we meet again.

## Todd Fulton

I'VE worked in the insectory for 14 years. I took the job as a student and have just stuck with it. I work full time at Carle as an R.N. with Dr. Donna Beck, who specializes in pediatric infectious diseases, and Dr. Ben Robbins, who specializes in pediatric cardiology. I have four children. Chad (25) is married and a Champaign Co. deputy. Andy (22) is currently searching for his purpose. Rachel (19) is in school here to become a forensic pathologist and works part-time at CVS as a pharmacy technician. Kelly Marie is 10 going on 20. She loves softball, reading, and is in band. My wife Vickie is also a nurse and works for Health Alliance. She loves gardening, is a habitual house cleaner, and is the love of my life. In my free time I enjoy the outdoors—hunting, fishing, and I'm actually starting to enjoy “yard work.”

## Dottie Nadarski

WHEN I walked into the Department of Entomology in January 1993 as an extra-help secretary I was informed that I would



Bowdry, Nadarski,  
and Nugent  
(l to r)

be employed for a couple of weeks. I can hardly believe that almost 10 years have passed. I became a permanent part-time secretary in May 1994. My secretarial duties have changed over the years, but I still look forward to coming to work every day. I feel fortunate to work with the faculty, staff, and graduate students here. In 1993 my daughter Mary was in 2nd grade; in June 2003, she will graduate from high school and hopefully be a student here at Illinois. My daughter Kathy, in kindergarten in 1993, will get her driver's license in July 2003. Time flies! My husband Bob is the general manager for Worden-Martin Lincoln, Mercury, and GMC in Champaign.

## Leta Nugent

I started at the Department in late February 2002. In the short time that I have been here, I have learned many things about the University and about entomology. I would like to convey a big thank you to the staff for all of their help, support, and laughs. Without them I would still feel like a fish out of water. Also, thank you to the faculty and students for your support and keeping me busy. I've enjoyed my stay in Entomology and look forward to what the future holds.



# Affiliates and Other Academics

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## Samuel N. Beshers

THIS summer I became the Program Coordinator for Neuroscience, a large and active interdisciplinary program that involves several faculty and students from Entomology as well as numerous other departments on campus. I continue to be associated with Gene Robinson's lab, and since the last newsletter have collaborated on a model of division of labor in honey bees and a review paper on models of division of labor in social insects. I am combining insights gained through these efforts with experimental studies on leafcutting ants to explore new directions in the study of division of labor, from models of individual behavior to colony life history strategies. ENTOM 301 was offered again in summer 2002; in its 4th year the course drew 21 students, all of them well above average, who enjoyed learning about insects in class and in the field, and doing their own research projects with ants.



Beshers



Eastman

## Eva Castells

I think it's better to admit it from the beginning: I'm not an entomologist. Even worse, I've never taken an entomology class nor have I been particularly interested in insects. But offered the opportunity to work with May Berenbaum after completing my Ph.D. in plant ecology, I didn't hesitate. I've been interested in chemical ecology and the coevolutionary processes between plants and herbivores and I think spending a 2-year postdoctoral position in Berenbaum's lab is going to be a wonderful and productive time. I am studying the alkaloid patterns of poison hemlock (*Conium maculatum*) in plants experiencing a variety of herbivory regimes to learn more about plant-insect coevolution. I also am studying the effects of phenolic compounds leached from litter on cytochrome P450s in mosquito larvae,

taking advantage of the knowledge and expertise of Berenbaum's lab on P450s but pursuing a new line of research which promises to be really exciting.

I was born and raised in Barcelona, with a mild Mediterranean climate where good food and culture are almost always available. I love to travel as much as I can. I've been to Alaska a couple of times, and, before coming here, to Okayama (Japan) where Francesc, my husband, was holding a postdoctoral position, and where our son Gil was born. We all expect to have a great time in C-U.

## Chris Dietrich

MY family and I recently made the jump across the ideological divide, moving from our home of 7 years in NW Champaign to 903 S. Race St. in the heart of Urbana. With postdoc Roman Rakitov and students Jesse Albertson and Jamie Zahniser, I am continuing work on the phylogeny and classification of leafhoppers and treehoppers (Membracidae). Study of rainforest canopy fogging samples indicates that there are approximately 118,000 undescribed species of membracoids in the tropics. Based on our current average output of 127 new species described per year, it should only take us about 930 years to finish a monograph of the world fauna of this group.

## Cathy Eastman

MY research is in the areas of alternatives to pesticides, management of pest complexes in vegetable systems, and insect-weed and insect-pathogen interactions. With collaborators at the Illinois Natural History Survey and the University of Illinois, we are starting a long-range research and education program on pest management and production

concerns in organic vegetable systems. Part of this research will be conducted on a newly designated Survey field site near the University's Cruse Vegetable Research Farm. Evaluation of different approaches to optimize the process of the 3-year transition from conventional to organic production will be one of our research objectives.

## Michael Gray

I'VE been at Illinois since March 1988. My primary appointment is in the Department of Crop Sciences, with responsibilities split between applied research and IPM extension and outreach programs. In April 2001, I became grants manager for the USDA-CSREES North Central Region IPM Competitive Grants Program. In May 2002, I also became Associate Head for Crop Sciences.

In March 2002, I became President of ESA's North Central Branch. This upcoming year, I'm looking forward to working with Robert Wiedenmann, who is serving as program chair for the NCB meeting to be held in Madison, WI, on March 23-26, 2003. Kevin Steffey and I completed our service as program chairs for the National ESA meeting in San Diego, CA, on December 9-12, 2002. It was a great experience and a grand opportunity to meet many new entomologists from around the globe!

I've continued to focus research efforts on the change in the oviposition behavior of the western corn rootworm. Since the mid 1990s, western corn rootworms in east central Illinois have included soybean fields as suitable egg-laying sites. Traditionally, cornfields were the primary oviposition targets. Because corn rootworm larvae cannot survive on soybean roots, crop rotation worked very well as a cultural management strategy for this univoltine pest of corn.

Students working on aspects of the variant western corn rootworm's biology include Erica Carlson (interactions of soybean cyst nematode with western corn rootworm), Chris Pierce (influence of crop development on western corn rootworm oviposition), and

Jared Schroeder (influence of wheat on western corn rootworm oviposition). In May 2002, Silvia Rondon completed her Ph.D. and accepted a postdoctoral position at the University of Florida, Gainesville.

## Kevin Johnson

I'VE recently received NSF grants to work on louse (Phthiraptera) systematics. The first project uses molecular and morphological data to reconstruct a phylogeny for avian Ischnocera (feather lice). This phylogeny will be used to study major niche shifts in feather lice. The second project is a taxonomic and phylogenetic revision of the feather louse family Gonioididae to examine coevolutionary history with their hosts. I have also expanded my work to examine the origin of parasitism in lice, by exploring the phylogenetic relations of Phthiraptera with respect to Psocoptera (book and bark lice).



Gray



Johnson

## Jim B. Nardi

I'M involved in several research projects dealing with cellular and molecular aspects of insect biology: the molecular characterization of olfactory binding proteins of insect antennae; the specialization of midgut cells for pheromone synthesis in bark beetles; the development of rapid and specific immunological method for analysis of mosquito blood meals; the surface proteins of insect hemocytes that mediate the cellular immune response of insects to parasitoids and other foreign bodies; and the microbes found in alimentary tracts of soil arthropods and their roles in nutrient cycling.



Nardi



Nitao

## James Nitao

THIS legendary Berenbaum Lab alum returned home for a 1-year stint to isolate and identify metabolites of furanocoumarin detoxification in parsnip webworms. Need-

## Affiliates (continued)

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Onstad

less to say, he became an integral and indispensable member of the laboratory, getting his hands into all kinds of things, including coauthoring a paper debunking the carbon/nutrient balance hypothesis (*Oikos*), a paper reporting the identification of the aforementioned metabolites (*J. Chemical Ecology*), and a manuscript on the effect of pollen donor on fruit photosynthesis. Alas, his stay was too short. Now he's a reviewer at the Food and Drug Administration's Center for Veterinary Medicine. His group is responsible for regulating how pharmaceutical companies manufacture drugs for animals.

### David Onstad

I am working in the Department of Natural Resources and Environmental Sciences. My primary activities over the past few years focus on insect resistance management for corn insects. My wife, Dawn Dockter, recently returned to graduate school to work on her Ph.D. degree while studying mayflies.



Schneider

### Daniel Schneider

I have been continuing my work on the metapopulation ecology of zebra mussels in river ecosystems, examining the relation between larval dispersal and adult populations of the zebra mussel in the Illinois and Hudson River. I recently finished a project on the history of ecology, where I examined the political context of aquatic biologist and entomologist Stephen Forbes' groundbreaking work on the "Lake as a Microcosm." I showed how Forbes' research was influenced by the local fishing cultures where he worked and turn-of-the-century controversies around the agricultural development of the floodplain of the Illinois River.



Solter

### Leellen (Lee) Solter

STUDIES of host specificity and host-pathogen interactions of microsporidia are

continuing in the insect pathology lab at the Illinois Natural History Survey. This group of single-celled, eukaryotic parasites has recently been genetically aligned with entomopathogenic fungi. Our host specificity testing of gypsy moth microsporidia has moved from the lab to the field, but since we don't have permission yet to release them in North America, we are conducting fieldwork in Slovakia (where the gypsy moth and the microsporidia are indigenous) to determine effects on nontarget lepidopteran species. We are collaborating with the U.S. Forest Service and scientists from Slovakia and Bulgaria. We are still conducting lab studies to describe microsporidian species that parasitize gypsy moths and to explore genetic changes that occur in isolated host populations. Gernot Hoch, a postdoctoral fellow from Universität für Bodenkultur, Vienna, Austria, has spent the past year in the lab studying the effects of a polydnavirus, released by a parasitic braconid wasp during oviposition, on the development of microsporidian disease in the gypsy moth host. A new direction has been the evaluation of nematode pathogens for use as biological control agents of the Asian longhorned beetle. Postdoc Declan Fallon is evaluating strains of five species of nematodes for ability to kill and mature in the beetle larvae, as well as testing the cottonwood borer as a laboratory host to substitute for the quarantined ALB.

On a personal note, my husband Philip and I can no longer procrastinate doing much-needed repairs on our home; stripping paint has become our major extracurricular pastime. Our son Ravi, now 16, avoids conscription by playing soccer and claiming excessive homework assignments.

### Kevin L. Steffey

I was elected Vice President-Elect of the Entomological Society of America for 2001-2002 and served as ESA Program Co-Chair with Mike Gray for the 2001 annual meeting.

I continued investigations of the extent

and management of western corn rootworm larval damage in corn planted after soybeans, areawide management of western corn rootworms, surveys of alfalfa fields for presence of alfalfa blotch leafminer (with Rob Wiedenmann and Jon Lundgren, INHS), and impact of soybean aphids on soybeans in Illinois. I am also Executive Editor, *Pest Management & Crop Development Bulletin* and directed the effort to redesign and repopulate the IPM web site.

I welcomed son, Joshua, home on July 30, after he had served 2 years in the Peace Corps in Russia. I also married Barbra Ria Barrido on August 31, 2002.

## Dave Voegtlin

THE past 2 years have been considerably busier than expected, due primarily to the arrival of the soybean aphid in North America. This aphid, a native of China, Korea, and possibly Japan, has proved to be rather unpredictable. I have had the opportunity to be involved in a wide range of research relating to this species. As with other exotic invaders there are questions regarding movement, economic impact, seasonal biology, and taxonomy. As a specialist in aphids I have been the regional identification resource. After it became clear that the aphid was here to stay, classical biological control efforts were proposed and I had the opportunity to spend 2 weeks in Japan in July 2001 and almost 4 weeks there in August 2002 searching for natural enemies of the soybean aphid. One parasite species, *Aphelinus albopodus*, was successfully established in quarantine facilities in Delaware after each trip as well as three species of flies.

Since the middle 1980's I have been working with scientists in Costa Rica by providing identifications of aphids collected primarily in trapping programs associated with epidemiological studies. They recently obtained funding to publish a guide to the winged aphids of Costa Rica. I wrote descriptions and took photographs of about 60 species that are most commonly encoun-

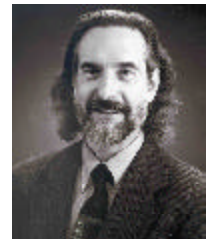
tered there and in adjacent countries in Central America. My colleagues translated it into Spanish (the text will be in both languages) and it should be out soon.

## Rick Weinzierl

MY current students are Kelly Cook and Erin Marlow. Kelly is studying the population dynamics of the corn flea beetle, the vector of Stewart's bacterial wilt of sweet corn. Her goal is to refine the criteria used to predict the likelihood of Stewart's wilt outbreaks by better understanding the recovery of beetle populations following heavy mortality in harsh winters. Erin is studying the response of corn earworm moths (oviposition) and larvae (survival) to wild-type tomatoes high in sesquiterpene carboxylic acids. These tomatoes might be used as trap crops to divert egg-laying from commercial tomato cultivars.



Voegtlin



Weinzierl

## Robert N. Wiedenmann

IN my laboratory at the Illinois Natural History Survey, we conduct basic and applied research on biological control of insects and weed pests, and on the biology of parasitic and predaceous insects. Over the past 6 years, we have worked on biological control of purple loosestrife, an invasive wetland weed, using chrysomelid beetles. The project is showing signs of success at a number of wetland sites throughout the state. Related to this, a master's student in my lab has been determining the effects of invasion of wetlands by loosestrife on the nesting success of wetland birds. We also have studied garlic mustard, another invasive weed, to get background data on the plant prior to the eventual introduction of weed biological control agents. Another recent project has been to determine effects of transgenic crops on coleopteran natural enemies, such as ground beetles and ladybird beetles. I still am looking at parasitic Hymenoptera that attack stem-boring Lepi-



Wiedenmann

## Affiliates (continued)

doptera and continue to be interested in the use of novel host-parasite associations for biological control.

### Ed Zaborski

IN the Center for Economic Entomology, Illinois Natural History, I conduct research on the ecology of soil invertebrates. I am investigating the influence of insecticides and transgenic crops on soil invertebrate (especially soil mites and earthworms) and decomposition processes in corn production systems. The soil is dominated by the decomposer food web, which derives most of its food and energy from dead plant residues. The quality of crop residues is thus likely to influence the soil invertebrate community and its participation in important processes like decomposition and nutrient cycling.



Zaborski

With Raymond Cloyd, I'm studying the ecology and interactions of fungus gnats, *Bradysia* spp., and their natural enemies—especially the predatory soil mite *Hypoaspis miles*—in greenhouse floriculture systems. Ana Cabrera (master's student, NRES) is developing methods to investigate the lethal and sublethal effects of greenhouse pesticides on *H. miles*, as well as investigating the effect of different prey on *H. miles* life cycle and reproduction.



Zangerl

I am also interested in the potential use of soil invertebrates, especially soil mites, in environmental assessment. Their community structure may be very sensitive to environmental disturbances, offering a potential monitoring tool for managing and improving soil quality. Carmen Ugarte (master's student, NRES) is comparing different approaches to using predatory mesostigmatid mites for biological monitoring.

I am working with a group of researchers and extension educators at the Survey and the University to develop, in collaboration with organic producers and other stakeholders in Illinois, a broad research program to address technical, social, and marketing problems faced by the rapidly growing

organic food sector, and to provide an education opportunity for interested students.

### Art Zangerl

THIS year I made a number of adjustments in the direction of my research. Although the parsnip webworm and wild parsnip remain the focus, new technologies are being applied to their study. I've taken the plunge into molecular biology, attempting to isolate and characterize the functions of genes in both organisms that mediate their interaction. The first line inquiry revolves around the role of cytochrome P450s, which are employed by the insect to detoxify furanocoumarins and by the plant to make them (almost half of the synthesis steps are P450-mediated). Two promising genes, one from the insect and one from parsnip, have been isolated and are being expressed in yeast to determine the functions of the proteins for which they code. Another project involves the mapping of plant defense responses and photosynthesis in response to herbivores and was inspired by the recent availability of a chlorophyll fluorescence-imaging instrument that allows high resolution mapping of gross photosynthesis. Indeed, photosynthesis outside damaged regions of the leaf can be impacted, and in parsnips this effect is associated with furanocoumarin induction (recently published in *Proceedings of the National Academy of Sciences*). Last year also marked the end of a project to identify factors that influence how tightly webworms and parsnips interact. We determined that the tightness of the interaction varies among populations and is weakest when a chemically similar alternate host is present or when plant populations contain a high frequency of especially furanocoumarin-rich phenotypes. These and other results from this project form the basis for a new grant application seeking to understand how the parsnip-webworm interaction has evolved over time both here and in its native European setting.

# Bee and Beekeeping Short Course

THE 6th University of Illinois Bees and Beekeeping Short Course was held August 17-18, 2002. About 30 people from Illinois, Iowa, Missouri, and Wisconsin came to learn about the latest developments in beekeeping and gain new insights and appreciation of the bees themselves.

The course is directed by Gene Robinson, and is funded by the Department of Entomology, the School of Integrative Biology, the Center for Economic Entomology at the Illinois Natural History Survey, and the Office of Outreach, College of ACES. Michelle Elekonich, a postdoctoral research associate in the Robinson Lab, was the course coordinator and department graduate students and postdoctoral associates again served as able instructors of both field and laboratory activities.



One highlight of the short course was the opportunity for participants to act as “scientist-citizens” and perform a real experiment that we designed just for them. Another highlight was the participation of Marla Spivak, University Minnesota, a noted apiculture extension expert.

Participants also enjoyed the opportunity to indulge in a French-style honey tasting, which is a delicious and effective way of teaching how strikingly different each and every honey can be.



# Illinois Entomologists in the News



May Berenbaum

Ecologists agree: We're no smarter than nature.

*BioMedNet News*. Aug. 7, 2001.

Hidden damage of insect bites. *Science*. Aug. 10, 2001.

New research fuels debate over genetic food altering. *The New York Times*. Sept. 9, 2001.

Butterfly balls. *The Economist*. Sept. 22, 2001.

Earworm tricks plants into making themselves tastier. *Scripps Howard News Service*. April 17, 2002.

No tickling. *Science News* 161:294. May 11, 2002.

Researchers picture key to plant growth (with Evan DeLucia and Art Zangerl). *The News Gazette*. June 24, 2002.

Adoring nature, till it bites us in the back. *The New York Times*. Aug. 21, 2002.

Fred Delcomyn

Touchy, touchy. *The Economist*. Aug. 10, 2002.

Duane McKenna (alumnus)

Florida's butterflies threatened by changing ecosystem. *The Daytona Beach News Journal*. Sept. 22, 2002.

Robert Novak

African team studies local mosquito fight. *The Times-Picayune*. July 22, 2001.

Hugh Robertson

Assaulting the mosquito's sense of smell.

*ScienceDaily*. Nov. 28, 2001.

The nose knows. *ABCNews.com*. Nov. 29, 2001.

U of I researcher studies how mosquitoes smell. *St. Louis Post-Dispatch*. Oct. 3, 2002.

Scientists targeting mosquito population. *The News Gazette*. Oct. 5, 2002.

Gene Robinson

Senior bees up all night caring for larvae.

*Science News* 159:257. April 28, 2001.

Honeybees show a little gene activity goes miles and miles. *The New York Times*. May 7, 2002.

Learning from the bees to get ZZZs. *Business Week*. May 7, 2001.

Dogs, chimps and bees are endorsed in high-stakes gene-mapping contest. *The Wall Street Journal Online*. Feb. 28, 2002.

Honeybees in a mite more than trouble.

*Washingtonpost.com*. May 14, 2002.

More species chosen for genome project.

*Washingtonpost.com*. May 23, 2002.

Sweet deal for bee gene-mappers (also Hugh Robertson, Susan Fahrbach, May Berenbaum, and Fred Delcomyn). *The News Gazette*. June 16, 2002.

Honeybee sequencing: One honey of an idea.

*The Scientist* 16(13):22. June 24, 2002.

Genetic beeline. *The Times* (London). July 29, 2002.

Nathan Schiff (alumnus)

Why fly into a forest fire? Its one way to meet a

lot of great bugs. *Science News* 159:140-141.

March 3, 2001.

John Tooker

Loda prairie provides study of insect life. *Paxton*

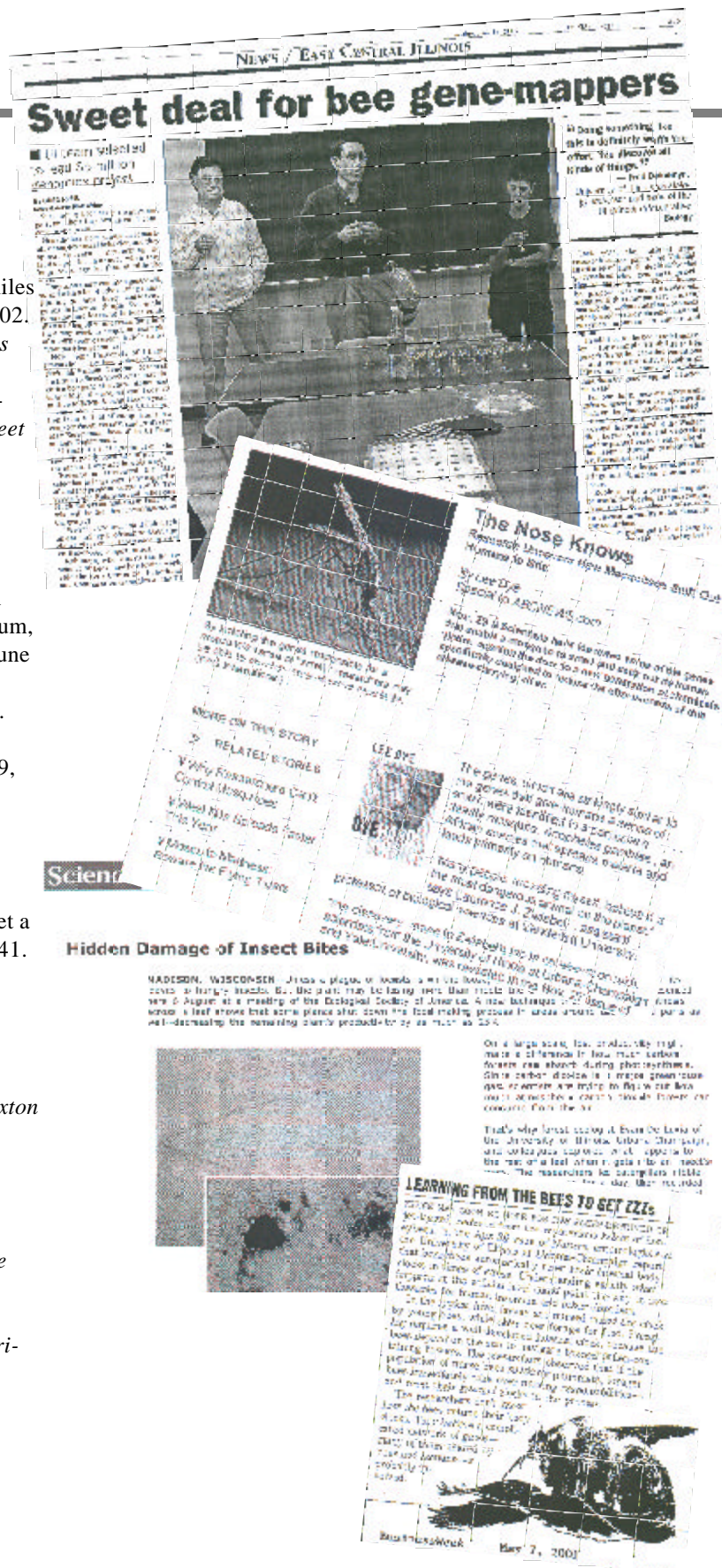
*Daily Record*. Nov. 13, 2000.

Jim Whitfield

The world's oldest genetic engineers. *Science*

*Now*. May 28, 2002.

Unmenschliche Tentenkniker. *Wissenschaft-Online* (German version of *Scientific American*), June 3, 2002.





# Colloquium Speakers in 2001

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## Spring

- Gene Robinson**, U. of Illinois at Urbana-Champaign, "From society to genes with the honey bee."
- John D. Hatle**, Illinois State U., "Physiological ecology of the canalized phase of egg production in grasshoppers."
- Herman K. Lehman**, Hamilton C., "Regulation of neurotransmitter synthesis in an insect nervous system."
- Barry R. Pittendrigh**, Purdue U., "Negative-cross resistance in the control of insect populations."
- Christopher M. Comer**, U. of Illinois at Chicago, "Steering insect behavior: The antennae and multi-modal neuronal circuitry for guidance of movement."
- George Heimpel**, U. of Minnesota, "Ecology of sugar feeding in parasitoids."
- Kenneth F. Raffa**, U. of Wisconsin-Madison, "Predator exploitation of prey chemicals associated with feeding and mating: What's an herbivore to do?"
- Dawn M. Wesson**, Tulane U., "The Asian tiger mosquito in New Orleans: An invasive exotic in the Big Easy."
- Raymond A. Cloyd**, U. of Illinois at Urbana-Champaign, "Does plant size influence natural enemy foraging success?"
- Frank H. Collins**, U. of Notre Dame, "The *Anopheles gambiae* genome project."
- Huey Hing**, U. of Illinois at Urbana-Champaign, "Dock-pak signaling: Axon guidance and olfactory map development in *Drosophila*."
- Thomas M. Clark**, Indiana U.-South Bend, "Integrative and regulatory aspects of insect epithelial transport."
- William O. Ballard**, The Field Museum, "Three genomes, one arena: Co-evolution or conflict in *Drosophila simulans*."
- Barbara L. Thorne**, U. of Maryland, "Reproductive dynamics and development plasticity of basal Isoptera."
- Uriel Kitron**, U. of Illinois at Urbana-Champaign, "Ticks, mosquitoes, and triatomids: Spatial and temporal dispersion patterns and disease transmission processes."

## Fall

- Elisa Vinuela**, Purdue U., "Side-effects of pesticides on beneficial organisms."
- Walter S. Sheppard**, Washington State U., "Honey bees of the Tien Shan Mountains: Evolutionary implications and apicultural possibilities."
- Julie Alipaz**, U. of Illinois at Urbana-Champaign, "Incipient speciation in *Drosophila melanogaster*."
- Markus Friedrich**, Wayne State U., "Molecular phylogenetics caught in a spider web? Recent results and hypotheses regarding arthropod phylogeny and body plan evolution."
- Linda S. Raynor**, Cornell U., "Can one account for taste in predatory wasps? Behavior and fitness consequences of consuming chemically defended caterpillars."
- Daniel J. Howard**, New Mexico State U., "Genetic aspects of reproductive isolation between the ground crickets *Allonemobius fasciatus* and *A. socius*?"
- Michael R. Strand**, U. of Wisconsin-Madison, "Regulation of insect cellular immune responses and the counterstrategies of metazoan parasites."
- Stephen C. Welter**, U. of California-Berkeley, "Consequences of crop domestication on tritrophic interactions in four cropping systems," and "Area-wide pheromone mating disruption of the codling moth."
- Weimin Li**, U. of Illinois at Urbana-Champaign, "Molecular analysis and functional characterization of lepidopteran cytochrome P450's involved in insect plant interactions."
- David J. Schulz**, U. of Illinois at Urbana-Champaign, "Biogenic amines and division of labor in honey bees."

## Spring

- Hugh M. Robertson**, U. of Illinois at Urbana-Champaign, "Comparative insect genomics: Olfactory receptors in *Anopheles gambiae* and gene loss in *Drosophila*."
- Anja Weidenmuller**, Arizona State U., "Climate control in bumble bee nests—the response threshold concept revisited."
- James B. Woolley**, Texas A & M, "Cryptic species in the *Aphelinus varipes* complex: Morphological differentiation, reproductive isolation and host-switching." and "Evolution of unusual biologies in the parasitic wasp family Aphelinidae."
- Nathan M. Schiff**, USDA Forest Service, "Aspects of sawfly biology: Sterol utilization and an unusual form of locomotion."
- Marc Tatar**, Brown U., "Neuroendocrine control of insect aging."
- Robert C. Venette**, Midwest Ecological Risk Assessment Center, "Invaders that suck: Soybean aphids in the North Central US."
- Paula K. Kleintjes**, U. of Wisconsin, "Butterflies, elk and aspen: Is there a connection?"
- Kelly S. Johnson**, Ohio U., "Insect digestive strategies and the biochemical environment of the gut"
- Margaret K. Thayer**, The Field Museum, "Austral rove beetles: What could they tell us about Austral biogeography?"
- Robert L. Jeanne**, U. of Wisconsin-Madison, "Information and specialization in *Polybia occidentals*: How a complex insect society organizes labor."
- Yehuda Ben-Shahar**, U. of Illinois at Urbana-Champaign, "Foraging, a cGMP-dependent protein kinase gen, and behavioral plasticity in the honey bee and fruit fly."
- John A. Breznak**, Michigan State U., "Symbiotic interactions between termites and their hindgut microbes."

## Fall

- Xianchun Li**, U. of Illinois at Urbana-Champaign, "Molecular definition of multiple resistance in *Helicoverpa zea*."
- Sedonia Sipes**, Southern Illinois U., "Host choice in specialist bees: A phylogenetic perspective."
- Joel R. Coats**, Iowa State U., "Plant terpenes versus the arthropods."
- Jeff Scott**, Cornell U., "Cytochrome P450 mediated insecticide resistance: Molecular mechanisms and evolutionary plasticity."
- Steve Roberts**, U. of Nevada-Las Vegas, "Insect flight energetics and kinematics: Insights from environmental, developmental and behavioral perspectives."
- Ken Haynes**, U. of Kentucky, "Aggressive chemical mimicry by a bolas spider."
- Jacob Friedman**, Tel Aviv U., "Chemotypic differentiation in indigenous populations of *Foeniculum vulgare*."
- David Wise**, U. of Kentucky, "Managing and manipulating complex food webs: Biocontrol of crop pests with spiders and beetles."
- John H. Law**, U. of Arizona, "The rusty mosquito."
- Robert W. Lichtwardt**, U. of Kansas, "*Harpellales* (Trichomycetes): Unusual fungal symbionts in insect guts."
- Steven Rissing**, Ohio State U., "Studies on the evolution of cooperation among non-relatives in starting ant colonies."
- Kevin Holston**, U. of Illinois at Urbana-Champaign, "Systematics research on *Thereva Latreille* (Diptera: Therevidae): From taxonomic exercise to biological enterprise."
- Karlene Ramsdell**, U. of Illinois at Urbana-Champaign, "Odorant-binding protein of *Rhagoletis* and *Diabrotica virgifera*."

# Graduate Students

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## Yehuda Ben-Shahar



Ben-Shahar

I recently received my Ph.D. in Entomology at Illinois. I'm continuing my studies of genes and their control of behavior as a postdoctoral fellow in the Robinson group, where I did my thesis work. For my Ph.D., I studied the involvement of a cGMP-dependent protein kinase (PKG) pathway in regulating behavioral plasticity of the worker honey bee, *Apis mellifera*. In collaboration with Marla Sokolowski, University of Toronto, I studied interactions of natural allelic polymorphisms in a PKG gene with environmental variations that lead to profound changes in behavior of larval and adult fruit flies. My honey bee work was published in *Science*.

My wife Sarah and I will soon move to Iowa City where I have a postdoctoral position with Michael Welsh, an HHMI investigator at the University of Iowa Medical Center. Sarah will finish her medical degree while I pursue insect behavior and the genes that control it using *Drosophila melanogaster* as a model.



Bennett

## Ashley Bennett

I am a master's student and an Illinois native. In May 2000, I graduated from Millikin University with a B.S. in biology. As an undergraduate, I became interested in entomology, which led me to the University of Illinois. I joined the Hanks lab and am currently interested in designing ornamental landscapes that control insect pests by encouraging their natural enemies. Our study focuses on the effect that floral density has upon population regulation of the plant feeding pests pine needle scale and evergreen bagworm. We planted four species of perennial flowering plants (white clover, goldenrod, euphorbia, and coreopsis) around pine trees that were infested with the



Carroll

herbivores. Three densities of flowers were used: no flowers, a low density, and a high density of flowers. Preliminary results from data collected during summer 2001 indicate that rates of predation and parasitism were significantly greater in study plots having higher densities of flowers, enhancing biological control of the pests.

## Mark Carroll

I am originally from Florida, where I received a B.A. from the New College of USF after completing an undergraduate thesis on ichthyotoxic compounds in red mangrove leaves. These interests in chemical ecology directed me to Illinois to work with May Berenbaum and Art Zangerl, who have indulged my varied interests in plant-insect interactions. In 1997, I completed my master's research on the use of host plant esters as olfactory cues by parsnip webworms.

My doctoral research examines how dietary carotenoids affect the physiology and behavior of insect herbivores under oxidative stresses presented by phototoxic plant secondary compounds and UV light. I have conveniently focused on the interaction between parsnips and parsnip webworms as my model system, given the importance of phototoxic furanocoumarins in this interaction. Webworms that consume the carotenoid lutein show a greater behavioral tolerance of photoactivating UVA light and enhancement of their cytochrome P450 detoxification system. Whether these trends occur in other lepidopterans is not known. To provide a little ecological context for my work, I plan to make comparisons between webworms collected from populations under different UV light regimes in the montane west. On a related note, maybe someday I will be able to tell you why lepidopteran testes are often bright red, orange, or yellow (hint: it's probably not aposematism).

In my personal life, I am happily pursuing a second childhood with daughter Alyssa (6), who tells everyone that her dad makes silly caterpillar pies. When I'm not actively wearing the daddy hat or graduate student hat, I move around town by land (running), sea (swimming in a pool, as a substitute), or on my bicycle (not much exercise benefit, but quite enjoyable).

## Won Young Choi

I am from Taegu City, South Korea. My wife Kyong In Suh earned a Ph.D. in entomology on the systematics of parasitic Hymenoptera. We have a daughter, Jung Yoon (4), who also likes insects!!! I earned my B.S. and M.S. in biology and zoology at Yeungnam University, South Korea. For my M.S. degree, I studied systematics of Korean eucoilid wasps. I am a Ph.D. student working with Jim Whitfield, focusing on the systematics of the New World *Diolcogaster* (Microgastrinae: Braconidae). I like hiking and photography, especially insects, plants, and my daughter. So I regularly go out to parks around C-U with my family and enjoy my hobbies.

## Andy Deans

A Boston, MA, native and a new graduate student in the department, I am quickly adapting to life in the Midwest. I began my Ph.D. in spring 2001, 6 months ahead of my advisor Jim Whitfield. My research focuses on the systematics of ensign wasps (Evaniiidae). I am revising the genera of the world and using molecular and morphological characters to construct a phylogeny for the family. It will be interesting to reexamine the placement of this family within the Hymenoptera—a great mystery in wasp evolution. When not focusing on research, I enjoy painting, drawing, web design, birding, attending to my cichlids, and cycling through the hill-less(!) prairie.

## Colin Favret

FOR the past 3 years I have been the insect collection manager at the Illinois Natural History Survey. One particularly engaging front has been the coalescence of various parts of a large specimen database project, currently focusing on the aquatic orders; the data associated with over 10% of the seven million prepared specimens in the collection have been computerized, and the specimen locality data will soon be interactively mappable on the internet.

Research-wise, I am finishing my Ph.D. studies on the systematics of *Cinara* aphids of pinyon pines. I have uncovered several stages of speciation using molecular, morphometric, and ecological data. This work has opened up new avenues of inquiry and I expect to continue working with *Cinara* after my degree. I also have side projects involving Illinois aphids and the insect collection database.



Choi



Deans

## Casey Funderburk

AFTER completing my B.S. in biology at Ball State University in 2000, I spent the better part of a year surveying the invertebrates and amphibians of Canyonlands National Park with the USGS. Anxious to continue my education, I began my master's studies at Illinois in fall 2001. Last year was a tough one for me in a number of ways—namely, adjusting to life as a grad student and dealing with the death of my father. I am currently developing my thesis project, and I am very busy with coursework and TA responsibilities. This year is off to a better start, and I am looking forward to beginning my research. In my spare time, I do my best to pursue my other lifelong passion—seeing new places! Since I've been living here in the exciting cornfields of C-U, I've been fortunate to have had the opportunity to do quite a bit of traveling (including the UK, Germany, Canada, and the northwest US).



Favret



Funderburk

## Students

(continued)

### Matthew Ginzel



Ginzel

I am a Ph.D. candidate studying with Larry Hanks. I'm interested in mate location and recognition strategies of longhorned beetles and the association between behavior in the adult and host requirements of the larvae. Reproductive behavior in cerambycids is correlated with the condition of the larval host plant; whether hosts are healthy, moribund, or dead. My dissertation research includes a study on the reproductive behavior of a number of cerambycid species that have different larval host requirements. A recently fallen (moribund) tree represents an ephemeral and unpredictable resource, with the prime subcortical tissues being rapidly degraded by a variety of wood-feeding insects. The first larvae to colonize a host will have access to the best nutrition, selecting for efficient host location strategies and rapid oviposition by adults. I have found that adults whose larvae require moribund hosts are mutually attracted to volatiles emitted from the fallen tree. Once on the host, males randomly search for mates and recognize females by contact pheromones. Males only mate with females after contacting them with their antennae. Adults of a number of beetles that oviposit on live hosts, however, encounter each other while feeding away from the larval host but also rely on contact pheromones for mate recognition. We have identified the contact pheromone of *Xylotrechus colonus*, a crepuscular beetle that preferentially attacks moribund hickories and I'm involved in identifying the pheromone of a number of other species.

I am also involved in a collaborative project with Larry Hanks and Ken Paige on the invasive Asian longhorned beetle. We have beetles from Chicago, New York, and four regions of China. By comparing variation in mtDNA sequences, we hope to determine the origin of the Chicago population.

During my free time, my wife Christine and I enjoy camping, swimming, and playing a variety of outdoor sports.

### Erin Grossman

AS a member of Larry Hank's lab, I am finishing my master's degree in NRES. My research studies the impact of tree water stress on insect herbivory in urban ecosystems. I hope to graduate in December 2002. This has already been a busy year for me. I got married on August 3, 2002, to Daniel Otto, a fellow entomologist and my best friend. He moved to Maryland shortly after the wedding and I look forward to moving out east this December as well. We enjoy reading great books, hiking, traveling, and collecting books and toys. I also am an avid needleworker and can't wait to find all the best yarn shops in Maryland.

### Patrick Halbig

I started at Illinois in fall 2002 and am working in Robert Novak's laboratory on West Nile and malaria-related projects. My previous academic experience includes work at the University of California, Berkeley (B.S.) and the London School of Hygiene and Tropical Medicine (M.Sc.). My master's research involved control strategies in north-west Iran against *Phlebotomus* sandfly spp. that transmit *Leishmania* to humans. I have also worked on the augmentative release strategy for parasitoids such as *Trichogramma*. Basically, I like parasites, predators, parasitoids, etc. My personal interests include collecting vinyl, thinking about probabilities, rooting for the Athletics, and, of course, sorting specimens.

### Terry Harrison

I am a Ph.D. student in May Berenbaum's lab. My research interest is biosystematics of microlepidoptera, especially Gelechioidea and Yponomeutoidea. I am co-authoring the fascicle on momphine Coleophoridae for the *Moths of America North of Mexico* series, and my dissertation project is a biodiversity



Grossman



Harrison

inventory of microlepidoptera in western Illinois hill prairies, with an aim toward testing hypotheses of optimal reserve design for that biotic system.

## Jeffrey Heilveil

I am a doctoral candidate, starting my 4th year in the program. I'm interested in answering population-level questions in aquatic ecosystems. Currently, I am examining the effects of habitat degradation on two species of Megaloptera, using microsatellite analysis. When I'm not in the Berlocher lab, I enjoy cooking and spending time with my wife, Amy.

## Heather Hines

I haven't traveled far to begin my first year of graduate school. After an upbringing in a small farming community in northeast Iowa, I received a B.A. in biology and anthropology in December 2001 from the University of Iowa. I studied the relationship between landscape-level floral resource availability and bumble bee diversity in Stephen Hendrix's lab. I was also involved with projects on the evolution of cockroach reproductive strategies with Barbara Stay.

I am generally interested in the ecology, evolution, and behavior of bees. For my M.S., I am particularly intrigued by questions related to the evolution and diversification of bumble bees. Upon discovery of Sydney Cameron's project to develop a phylogeny of the bumble bees of the world using molecular and morphological data, I shucked my plans to take time off and in March 2002 moved to C-U to begin graduate work in her lab. I have been sequencing for the project and in late July and August traveled to Turkey and the Pyrenees to collect additional bumble bee species. In August I spent a few weeks toning my bee identification skills at "The Bee Course" in Portal, AZ.

In my spare time I enjoy reading, spend-

ing time in nature, traveling, relaxing with family and friends, and photography.

## Reed Johnson

I grew up in Missoula, MT, but recently I've come from a master's program in biology at Wake Forest University in Winston-Salem, NC. My master's research took me to Archbold Biological Station, in central Florida, where I looked at the chemical defense and effectiveness of mimicry in an arctiid wasp-mimic moth, *Syntomeida ipomoeae*. I hope to continue looking at the intersection between the Lepidoptera and defensive plant compounds as I begin working toward a Ph.D. with May Berenbaum.



Heilveil



Hines

## John Kane

MOST recently from southern California, I spent a large part of my childhood in southern Ireland where I developed most of the peculiarities which led me here. I received my bachelor degree in ecology from UC-San Diego, and am interested in studying bee behavior and evolution. I am interested in working with stingless bees, having previously worked with colonies of *Trigona fulviventris* in central Costa Rica. Stingless bees have a large and startling array of behaviors, and there is still much to be learned of their evolutionary histories.

Outside of the sciences I enjoy long-distance bicycling, reading, and music. I play and compose for the piano, and look forward to acquainting myself with the musical life of Illinois, as well as, perhaps, some of the people here.



Johnson



Kane

## Lauren Kent

I am a 3rd-year graduate student in the department and a new addition to Hugh Robertson's lab. I have begun work on putative gustatory receptor genes of the malaria mosquito, *Anopheles gambiae*, and



Kent

## Students (continued)



Lacey

will be trying to figure out where and when they are expressed in the insect. My other research interests include effects of symbionts on vector competence in mosquitoes.

I am from Connecticut, but came to the Midwest to attend Washington University in St. Louis where I received my B.A. in biology. I really miss the hills and beaches of the East Coast, but I think the trade-off is definitely worth it! Drawing, painting, camping, hiking, tennis, and falling asleep outside on a sunny day are among the things that make me happy, if I can get the time.

### Emerson Lacey



W. Li

THE road to enlightenment and an education has been long and grueling. I endured a long stint in creative writing and in biology at Southern Illinois University-Carbondale. Some soul searching, several odd jobs, and a twist of fate led me to entomology in Urbana. I joined the department in 1998 and Larry Hanks' lab in spring 2000. Finally, the elusive master's degree is in sight. I'm interested in the ecology of longhorned beetles. My research focuses on the chemical communication, host finding, and general biology of the red-headed ash borer, *Neoclytus acuminatus*. My master's thesis will describe the chemical calling behavior of the males and the recognition of females by males. I also teach when not exploring the arthropod inhabitants of dead trees. I have served as teaching assistant for May Berenbaum's "Insects in Society," Bob Novak's "Medical Entomology," and Larry Hanks' "Introduction to Entomology."

When not on the trail of an elusive beetle or student, I enjoy camping, hiking, my pets, live music, quiet nights at home, and long walks in the park.

### Weimin Li

I am a Ph.D. candidate in May Berenbaum's lab. Originally from SW China, I spent 7 years in Shanghai for my bachelor and

master's degree in entomology. I joined the Berenbaum lab in 1997 and have been studying the interaction of insect herbivores and plants ever since. My research focuses on investigating the transcriptional regulation and function/structure relationship of cytochrome P450s (a vast family of detoxification enzymes) responsible for metabolism of plant allelochemicals, including furanocoumarins, in swallowtail butterflies. I hope to graduate and start my postdoctoral work very soon.

### Xianchun Li

I'M a Ph.D. student in May Berenbaum's lab working on molecular definition of multiple resistance in *Helicoverpa zea*. I have completed two major steps toward my doctoral degree this year. I passed my prelim exam in the spring, and I gave my exit seminar in the fall. My doctoral research has been very productive this year, with three papers published, including one in *Nature*. I am currently busy with my last batch of metabolism assays. Hopefully, I will move into next phase—thesis writing and defense—soon.

### Jonathan Lundgren

I received a bachelor's degree in biology and a master's degree in entomology from the University of Minnesota. My thesis research involved the use of parasitoid natural enemies of lepidopteran cabbage pests as a control tactic, the biology of *Trichogramma* spp., and quality control in commercial insectaries. While at Minnesota, I had affiliations with USDA/APHIS and the Minnesota Department of Agriculture.

I am pursuing a doctoral degree with Rob Wiedenmann. My interests include the ecology of insect natural enemies and invasive species, and the unintended consequences of pest control methods. My thesis research involves investigating the compatibility of anti-rootworm transgenic corn varieties and



Lundgren

coccinellid (*Coleomegilla maculata*) and carabid (*Poecilus chalcites*) predators. Concurrently, I'm conducting research on the statewide distribution of the alfalfa blotch leafminer, an exotic pest of alfalfa new to Illinois, and the role of parasitoids implemented in its biological control. Since arriving in Illinois in 2001, I have fostered relationships with the US Forest Service, Illinois Department of Natural Resources, Illinois Natural History Survey, and the Champaign County Forest Preserve District, as well as several area schools.

## Katy Lustofin

I'VE been continuing my research on the interaction between poison hemlock and *Agonopterix alstroemeriana*, an introduced lepidopteran that feeds on poison hemlock. My research this past year has focused more on the insect physiology and toxicology aspects of the interaction. I hope to start doing some toxicology work with Bettina Francis this winter, possibly on chickens (only 2 legs, but they still have wings!).

Research aside, it has been a good year. I passed my prelims in the spring and am taking my last class this semester. My dog, Claire, and I joined the Boneyard Dogs Agility Club, a fun way to get exercise and work on obedience. I also planted my first garden this spring.

## Sheila Lyons-Sobaski

WHILE I am formally a Ph.D. student in Plant Biology, I am affiliated with Entomology because my advisor is Stewart Berlocher. Why does a plant biologist have connections with entomology? Well, my first advisor decided to pursue his research at another university so I looked to Stewart to take me on as his student, not only because the plants I study are pollinated by insects and because I was his research technician several years before, but because of our common interests in population genetics.

My dissertation research is a population genetics study of *Sabatia campestris*, commonly known as prairie rose gentian (or Texas Star if you're a Texan like Stewart is), which is a state-endangered species in Illinois. Using microsatellite genetic markers, I'm interested in better understanding how genes disperse in time and space. In particular, I am interested in how important the soil seed bank is in conserving alleles especially as this pertains to rare and endangered species. Since prairie rose gentian is endangered in Illinois but relatively abundant in southern states, I am also investigating regional population genetic differences in this species.

On a personal note, I am married to Steve Sobaski and we live in rural Monticello in one of the old Robert Allerton houses with our three wonderful cats, Emma, Seamus, and Buster.

## Cindy McDonnell

I am beginning my 3rd year of graduate school in entomology. For the past year, I have been working on my master's degree in the labs of May Berenbaum and Mary Schuler. My thesis project is to determine the transcriptional regulation of a cytochrome P450 gene from tiger swallowtail by its promoter region. I am also investigating the activation of a P450 gene from black swallowtail by heterologous transcription factors from *Drosophila* and mammals to better characterize putative regulatory elements within its promoter. I am funded by the Environmental Council as an Environmental Toxicology scholar and by the Cell and Molecular Biology Training Grant. With the guidance of these programs, I have been developing an interest in molecular origins of responses to environmental toxins, including plant secondary chemicals and environmental pollutants.

In my spare time I try to unpack boxes in my new house that I share with another grad student. I was recently elected EGSA president and do not yet know to what extent that



Lustofin



Lyons-Sobaski



McDonnell



## Students (continued)

will consume me. I also enjoy volunteering at the Common Ground Food Co-op and supporting local establishments in downtown Champaign.

### Bridget O'Neill



O'Neill

I'M a 1st-year graduate student in May Berenbaum's lab looking forward to designing a master's project on insect-plant interactions. I am originally from New Hampshire and received my B.A. in biology from Boston University in 2000. After spending the past 2 years studying diabetic retinopathy, I decided I really missed insects and labs with windows. In my free time I like to travel, camp, hike, cook, and take photographs.



Patch

### Harland Patch

SINCE 1998 I have been working with Hugh Robertson to elucidate the molecular aspects of insect olfaction. My original project focused on genes related to oviposition preference in the black swallowtail butterfly, *Papilio polyxenes*. It has since blossomed into a small menagerie of insect olfaction. My *Papilio* studies have now been extended to include a putative olfactory receptor in *Manduca sexta*, the tobacco hornworm, and in conjunction with Gene Robinson's research group, a number of olfactory receptors from a honey bee EST project.



Petersen

### Becca Petersen

IT'S remarkable how someone who grew up in the former Canal Zone in the Republic of Panama ended up in Illinois. It all began with my undergraduate studies in vector biology and mosquito phylogenetics at the University of Notre Dame. During my summers back home in the tropics, I worked at the Smithsonian Tropical Research Institute studying the phylogenetics of marine and terrestrial invertebrates. After earning my bachelor's in biology, I joined the



Pierce

Berenbaum lab. I collaborated with Mary Schuler in Cell and Structural Biology to investigate the tissue distribution of cytochrome P450 monooxygenase genes and P450-mediated metabolism of natural plant toxins in the black swallowtail for my master's thesis. This led me to investigate a mechanism to account for the variation in P450 gene expression. For my doctorate, I am characterizing the transcriptional regulation of *CYP6B1*, a P450 gene that encodes a principal detoxification enzyme mediating resistance to host plant toxins in the black swallowtail caterpillar. Transcription, and hence expression, of this gene is differentially and combinatorially induced and inhibited by natural plant chemicals and environmental pollutants; these regulatory networks interfere with each other probably due to competition for promoter binding sites. In addition, comparison with the regulation of expression of a well characterized mammalian cytochrome P450 gene has revealed that the pattern of regulation of detoxicative genes is conserved in distantly related taxa. Although I have benefitted greatly from a co-advisorship by two dynamic scientists and really enjoyed my time in Illinois, I will graduate this spring and am looking into postdoctoral opportunities for next fall. This year is a big one for me for another reason as well: I'm (finally!) marrying my best friend, Ryan Brown, after 10 years of dating.

### Christopher Pierce

WHAT a difference 2 years make! At this time 2 years ago, I had just finished my first year of research and was beginning to go through samples from my second summer. In 2002, the Evolutionary Biology meeting held at the University of Illinois used the western corn rootworm as their model and mascot due to its resistance to cultural and chemical control. To date, I have officially finished my field research and have been studying for prelims, which I plan on taking and passing this October, and have been

writing my dissertation. My thesis focused on seasonal oviposition patterns of the western corn rootworm variant that has expanded its ovipositional sites into other crops, as well as looking at how corn and soybean phenology affect dispersal and oviposition of this new variant of western corn rootworm. I plan on defending, depositing, and graduating by this May. Therefore, if any alums of this fine department are looking to hire an outstanding individual in the field of Integrated Pest Management, I'm your man.

## Karlene Ramsdell

AGAIN this year, I remain a typical North Side of Chicago urbanite with rural pretensions. Research has gone well and completion of the Ph.D. is on the horizon. Amazingly (to me anyway) there is no hymenopteran component. The primary research focus is odorant-binding proteins of *Rhagoletis*. I'm not quite convinced that *Rhagoletis* are more interesting than a generalist parasitoid; however, they have their own special charm. In addition to being jumping-spider mimics and frequently holding center stage in discussions of sympatric speciation, they are economic fruit pests. Surely this combination of attributes will make my future research eminently fundable! On the whole, it's been a good year for research and personal satisfaction from other interests. The Evolution Meeting, held at Illinois this summer (thanks, May and Stewart), provided a rare opportunity for me to acquaint others with some slightly older Illinois natives, Mazon Creek fossils. The star of the show was the enigmatic Illinois state fossil, the Tully Monster.

## Peter Reagel

I received my B.S. from Illinois in 1996, and completed my M.S. last year in the lab of Larry Hanks. For my master's, I studied the mating system of the red milkweed

beetle, *Tetraopes tetrophthalmus* (Forster) (Coleoptera: Cerambycidae). Both plant quality and the presence of female beetles appear to influence the accumulation of mated pairs of beetles on milkweed stems. I found no evidence that male beetles were attracted to female beetles by long-range pheromones; rather, they accumulated by spending more time on milkweed stems on which they contacted female beetles. I am continuing to work in the Hanks lab for my Ph.D., which is on conservation biological control of pine needle scale, *Chionaspis pinifoliae* (Fitch) (Homoptera: Diaspididae). I am interested in both the influence of plant community on arthropod natural enemies and competition between groups of predators and parasitoids. I will also be studying the behavior of predators and parasitoids of pine needle scale to better understand how they utilize these scales as prey. Along with watching insects, I like to read mythology and walk.

## Katharina Rothwangl

IN 2000, I received by B.A. in zoology from the University of Texas, Austin. After taking all of the entomology classes offered at UT (three at the time), I realized that entomology is what I wanted to pursue. I came to Illinois in 2001 for that purpose. I'm starting my 2nd year as a graduate student in the lab of Raymond Cloyd. My research focuses on chronic effects of insect growth regulators on the citrus mealybug parasitoid, *Leptomastix dactylopii*. If all goes according to plan, I will complete my M.S. degree this summer. In my free time I enjoy going to concerts, watching really bad horror or sci-fi movies, and of course, spending time outside when it's not insanely cold (don't forget, came here from Texas!).

## Daniela Takiya

I moved to Urbana-Champaign from Rio de Janeiro in August 2001 searching for more



Ramsdell



Reagel



Rothwangl



Takiya

## Students (continued)



Tooker



Tzovolos



Valerio

leafhoppers to study with Chris Dietrich. It's not that there are not enough leafhoppers in Brazil to study, but here I've been learning about their relationships using molecular tools, which are not so commonly used by insect systematists in Brazil. My research concerns the higher-level phylogeny of a cosmopolitan leafhopper group based on morphological and DNA sequence data. In the New World, where these leafhoppers are more diversified, they have been spotted as a major threat to agricultural and ornamental crops and this seems to be one good reason why my studies are mainly funded by a Brazilian government research agency.

I am still adapting to the quietness of C-U. I miss the big city events and the diverse rhythms, landscapes, foods, and people of my country. Besides that, I am truly enjoying the coursework and facilities at Illinois. What I love most in life is traveling, especially if it involves collecting or visiting museum collections. This past year, I collected bugs in Mexico, visited my family and friends in Rio and Manaus, and went through some museum collections in Europe; for the next couple years there are plans to collect in Peru, Costa Rica, Venezuela and Mexico again! But, there is only one place I would rather be: looking at the flooded canopy and sunset on any river beach of the Rio Negro.

### John Tooker

I continue to work toward my Ph.D. under the supervision of Larry Hanks. My research centers on the endophytic insect community living in flowering stems of four prairie perennials in the genus *Silphium*. The great majority of insects in these stems are gall wasps (Cynipidae) and their parasitoids (Eurytomidae, Ormyridae) and I have had the pleasure of characterizing the community of insects that live in these stems as well as identifying some of the selective pressures that determine where insects of different species occur in the stems. I am interested in trophic interactions and chemi-

cal ecology and have been characterizing the impact of gall wasps on their host plants, identifying some of the chemicals that gall wasps use to find mates and host plants, and cues that parasitoids use to find their hosts. During the course of this work, I have drifted into some speciation work (with help from the Berlocher lab) because I have stumbled on to host races, and possibly a cryptic species complex, with sub-populations of gall wasps specializing on different species of *Silphium*. In my spare time, I enjoy being outdoors, exercising, and relaxing with my splendid wife.

### Nick Tzovolos

I am a 2nd-year master's student with Dave Voegtlin at the Illinois Natural History Survey. We have been conducting baseline invertebrate surveys in the Calumet region of Chicago, formerly one of the richest wetlands on the Great Lakes. This is being done in conjunction with other projects in the region looking at all aspects of biological conservation and land rehabilitation. I received my B.Sc. from the University of Guelph, Canada, where I was the last student in the country to get an undergraduate specialization in entomology. When I'm not fending off feral dogs or avoiding tripping over corpses in Calumet, I enjoy canoeing, camping, and fishing with my wife Sandy.

### Alejandro Valerio

MY name is Alejandro Valerio and I am doing my Ph.D. at this amazing university! My field of study is systematics under the vigilant sight of Jim Whitfield. My project research is the revision of the "known" Neotropical genus *Hypomicrogaster* (Hymenoptera: Braconidae: Microgastrinae). So far more questions than answers, a new prescription of glasses, and some brushes during collecting trips. As an official foreigner from Costa Rica I should say this place is too flat!

## Rodrigo Velarde

I am working on my Ph.D. under the supervision of not one, but two advisors: Susan Fahrback and Gene Robinson. I received my B.S in agricultural sciences from Illinois in 1997. I immediately started my M.S. working on the artificial induction of diapause in chrysomelids used as biological control agents under the guidance of Robert Wiedenman. I am interested in how genes, hormones, and other physiological factors influence the neuronal development in social insects. My Ph.D. project involves the study of the role of nuclear hormone receptors in the honey bee brain, and in particular in the development of the mushroom bodies. I am also interested in other aspects of honey bee postembryonic development and division of labor.

## Jamie Zahniser

OVER the past year, I've focused on gaining experience with a large subfamily of leafhoppers, the Deltocephalinae. My current project is a cladistic analysis using morphology of this subfamily and several other closely related (probably embedded) subfamilies. My training has taken me on a few interesting collecting trips—to California and to Mexico—and some other (not so exotic) trips to my hometown, Pittsburgh, and to other localities in Illinois and across the U.S. Collecting insects has provided the perfect reason to travel and to do some extended camping—two things I really like to do! When not doing research, I have been spending time on classes, my teaching-related responsibilities, and what I can muster of a social life.



Velarde



Zahniser

## Recent Graduates

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### Master of Science

- Kay Edly.** 2001. Habitat and diet selection of *Acroneuria lycorias* (Plecoptera: Perlidae)
- Terry Harrison.** 2001. Rutaceae-feeding *Agonopterix* (Elachistidae) in Illinois.
- Robert Moore.** 2001. Dispersal and population regulation of the evergreen bagworm, *Thyridopteryx ephemeraeformis* (Haworth) (Lepidoptera: Psychidae).
- Peter Reagel.** 2001. Aggregation behavior and mate location in the red milkweed beetle (Coleoptera: Cerambycidae).
- Jodie Ellis.** 2001. An evaluation of conservation biological control of evergreen bagworm (Lepidoptera: Psychidae).
- Martin Hauser.** 2001. Revision of the genus *Ammonaios* Irwin & Lyneborg 1981 (Diptera: Therevidae).
- Dmitri Novikov.** 2001. Diversity and composition of the insect fauna of Kyrgyz grasslands, with special reference to Auchenorrhyncha (Hemiptera).

### Doctor of Philosophy

- Marianne Alleyne.** 2001. Physiological factors determining host suitability of lepidopteran stemborers for parasitization by *Cotesia flavipes*-complex parasitoids (Braconidae: Hymenoptera).
- David Schulz.** 2001. The role of octopamine in the regulation of division of labor in honey bee colonies.
- Joseph Sullivan.** 2001. The effects of allatectomy on flight in honey bees.
- Yehuda Ben-Shahar.** 2002. cGMP-dependent protein kinase, behavioral plasticity, and foraging in honey bees and fruit flies.
- Honghong Zhang.** 2002. Induced walking behavior of *Rhopalosiphum padi* L. (Homoptera: Aphididae).

# Entomology Graduate Student Association

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THE Entomology Graduate Student Association (EGSA) is a registered student organization on campus. Our mission is to unite the graduate student effort in outreach, academic, and social endeavors, facilitate communication between students and faculty, orient new graduate students, help organize and execute the Insect Fear Film Festival, and, of course, try to take over the world. We meet several times each semester. We use the meetings to organize activities, bounce around ideas for future plans, and enjoy delicious pizza.

We took two group camping trips. One was a collecting trip to the Larue-Pine Hills area of southwest Illinois and another a back-packing trip to One Horse Gap in the southeastern corner of the state. If nothing else, these trips introduce out-of-state students to some of the other Illinois that doesn't include Chicago or row crops. Our intramural softball team, the "Bombardier Beetles," was a crackpot group of players with high ambitions, but a low winning percentage.

The children's art contest at the past two Insect Fear Film Festivals has allowed the EGSA to promote the macabre talents of the future entomologists. Spearheaded by Jodie Ellis and Harland Patch, the contest has added a new element to the association's successful efforts to continue a tradition. As always, the whole group puts forth a mighty effort to entertain the masses and introduce them to the world of the insects (be they small or be they huge mutants terrorizing the populace).

The fall of 2002 has seen a molting of the previous larval officers into the beautiful butterflies that are the new elected officers of the EGSA. Cindy McDonnell is the new President. She has the charge of leading the group into the future. Andy Deans keeps the minutes and counts the hours as the secretary. Alejandro Valerio is in charge of guarding our considerable coffers. Matt Ginzel and John Lundgren round out the cabinet as GSAC representative and faculty rep, respectively. Whatever the future holds, the EGSA will continue to reflect the efforts of the graduate students both within the department and in the community.



# Insect Expo: 1999-2002

INSECT Expo is evolving while maintaining its tradition of taking science (particularly insect science) to the public using a primary/middle school format in different venues. Volunteers from the Illinois Natural History Survey, University of Illinois, and various state and community organizations continue to support the event. With more upgraded and interactive displays than ever, participants learn principles of insect biology while having fun doing such activities as the Bee Waggle Dance, Predator Game, Spider Web Toss, Pheromone Frenzy Game, and cuddling big bugs at the Insect Zoo.

Insect Expo '99 debuted at Shawnee Community College in southern Illinois on April 22-23 when the show went "on the road." After the organizing team took a break in 2000, we went south again in spring 2001. Expo '99 and '01 were major events for the southern area schools and more than 50 high school students participated each year as volunteers at the displays. Enthusiastic volunteers, indeed!

In 2002, we combined the Insect Expo with the Insect Film Fear Festival in the lobby of Krannert Auditorium. With a theme of "Alien Insects," Expo '02 hosted a large and steady stream of families for the entire day, ending just in time for the start of IFFF.

The organizing committee extends their thanks and best wishes to charter member, Susan Ratcliffe, whose original idea and efforts to host an annual Insect Expo in the Champaign-Urbana area met with enormous success and set the stage for subsequent events.

Insect Expo '03 will take place in southern Illinois. We currently plan one event a year, alternating between southern and central Illinois. We hope to continue our tradition of



an Expo that includes sponsors, contributors, and volunteers from the entire University of Illinois entomology community. Please contact any of the organizing committee members for information about joining the committee and/or volunteering for future Expos. Your participation in this fun and valuable event is welcomed!

## Organizing committee members

Michael Jeffords, (217) 333-5986,  
jeffords@uiuc.edu  
Carie Nixon, (217) 244-9417, c-nixon@uiuc.edu  
Susan Post, (217) 244-9417,  
spost@mail.inhs.uiuc.edu  
Lee Solter, (217) 244-5047, l-solter@uiuc.edu

## Recent sponsors

Illinois Natural History Survey: Center for Economic Entomology and Center for Biodiversity  
University of Illinois: Department of Entomology, Natural Resources & Environmental Sciences, Crop Sciences, and Veterinary Pathobiology

# 18th Annual Insect Fear Film Festival

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IN 2001, national media attention was less intense than usual—"The Daily Show" from Comedy Channel inquired about coming but didn't, probably because we're not offensive enough (one recent show featured squeezable dolls dressed in lederhosen that make flatulent sounds and the Germans they offend). Again, we had visitors who traveled if not the seven seas then at least a few interstates to get here—the Thomas Say club from Purdue and Festival stalwart Nathan Schiff, who came from Stoneville, MS. Back for the first time in 8 years was the children's insect art contest, which was accompanied by real prizes and a traveling trophy. Over 250 entries were received from schools in Champaign County; three judges, including emeritus professor Gilbert Waldbauer, were faced with difficult decisions. Artwork remained on display at the Orpheum Children's Science Museum after the festival.

Our 18<sup>th</sup> festival featured the most ubiquitous animals on the planet—the beetles, or, as we like to call them, the Fab 350,000. Given that about  $\frac{1}{3}$  of all insects are beetles, or members of the order Coleoptera, and that  $\frac{3}{4}$  of all animals are insects, that means about 1 of every 4 animals on the planet is a beetle. With so many species, it's not surprising that beetles are a diverse lot—in fact, if there's a way to make a living as an insect, there's a beetle doing it.

Hollywood finds beetles useful, too. Our first feature was an animated film called *The Magic Voyage*, a Bavarian production made in 1991 (actually a sequel to *In Der Arche Ist der Wurm Drin*). It chronicles the adventures of Pico the woodworm, who accompanies Christopher Columbus on his historic voyage of discovery. In this film, based I hear on a true story, Pico is the one who convinces Columbus that the world is round (by nibbling off the corners of a square globe). Taxonomically, this is a challenging

film. "Woodworm" is the common name for a variety of beetles that infest wood, including the common furniture beetle *Anobium punctatum*, or the deathwatch beetle *Xestobium rufovillosum*, or the lyctid powderpost beetle *Lyctus brunneus*. Given that Pico bores through ship timbers, he might even be a lymexylonid, a ship timber beetle. Why assigning a name is difficult is Pico himself—there is absolutely nothing even vaguely insectan about his morphology (and that carrot-like nose makes him look more like an animated snowman than anything else). Also complicating the matter is his dialogue. Early in the film he declares, "I used to be a bookworm, I sat upon the shelf/I read about exotic lands I yearned to see myself"—some of the anobiid stored product pests are called bookworms. But then, when he meets Marilyn, his firefly girlfriend, who says "I've never met an insect like you before," he replies "You see, I'm a woodworm—I'm not an insect at all." I guess something was lost in translation. Pico is voiced by former child actor Corey Feldman, whose film career of late consists mainly of making films with titles followed by numbers—*Ninja Turtles 3*, *Dream a Little Dream 2*, *Meatballs 4*.

Before the feature were two shorts—*Sniffles and the Bookworm*, a Warner Brothers short featuring the larval stage of an anobiid beetle (mostly an excuse to pun on book titles), and *Baeus*, by Bruno Bozzetto, who also created *Self-Service*, about mosquitoes; *Baeus* is about a beetle who falls in love with a jilted housewife and uses magic to transform himself into a human.

Our second feature was *The Applegates*, or *Meet the Applegates*, a satire/science fiction/comedy (and probably a few more genres). Difficulty characterizing it may have had something to do with its less than stellar box office performance. The film opens with the

explanation, “The Brazilian cocorado bug was survived in the Amazon rain forest for millions of years. Unfortunately, the destruction of the forest by land developers threaten the very existence of this undiscovered species. But these creatures are not mere garden variety insects. They’re really big and they’ve got an attitude—enough so that, after seeing a Dick and Jane primer used by missionaries for teaching the native people to read, they assume human form and go off to infiltrate a typical American town with a typical American nuclear plant (you get the picture). They’re so in tune with human behavior that they even mispronounce “nuclear” as “nucular.” As Dick is Ed Begley Jr., best known as one of the very few Hollywood celebrities who drives an electric car (other credits include *Transylvania 6-5000*, *Amazon Women in the Moon*, voices in *Scooby-Doo and Scrappy Do*). The identity of the cocorado bug is a mystery; physical appearance, with raptorial legs and elongated prothorax they look like praying mantids; with their diet of Butterfingers candy bars and rancid garbage from the dumpster behind the 7-11 they resemble cockroaches. But when the exterminator brings a specimen (the Applegates’ dog) to the university, one Professor Fishpaw pronounces the cocorado bug to be a species of South American beetle. By the way, be careful doing a web search; apparently, “apple-gate” is some kind of gay sex euphemism.

Before the feature was an excerpt from an outstanding documentary—*Cane Toads, An Unnatural History*, directed and written by Mark Lewis, first shown in 1988. The cane toad *Bufo marinus* was deliberately introduced into North Queensland, Australia in 1935 to control two species of sugar cane beetles, the Frenchi and the greyback sugar cane grub *Lepidoderma albohirtum*. Unfortunately, the cane toads really didn’t come into contact with the grubs, but they took to Australia; with no known natural enemies (they’re poisonous), they’re now a plague unto themselves in most of Queensland,

northern New South Wales, and eastern Northern Territory.

The final film was *The Relic* (1997), directed by Peter Hyams (also directed *Time Cop*, *Stay Tuned*, *Capricorn One*). This film is the most tenuously connected to insects. A mysterious shipment of fungus-infected leaves arrives at the Chicago Museum of Natural History from field anthropologist John Whitney in Brazil (again) around the same time a boat with the crew mysteriously murdered is found floating in Lake Michigan. The crate attracts the attention of Dr. Margo Green (Penelope Anne Miller), self-described “evolutionary biologist,” who is vying for a grant from the wealthy Blaisedales, due in the museum imminently for a major fund-raiser. She’s competing with the unscrupulous Dr. Greg Lee. You know when the museum guard heads to the men’s room to smoke a joint that something bad will happen. It does (special effects, by the way, are by Stan Winston, who won an Oscar for *Jurassic Park*). Some large powerful brain-eating creature is loose (actually, hypothalamus-eating creature). This, however, is not enough to dissuade museum officials from holding the gala preview as planned (not realizing that having your brain ripped out of your cranium might discourage donors). Soon Dr. Green, the world’s most versatile evolutionary biologist, analyzes the chemistry of the fungus and realizes that it’s “loaded with animal hormones!” Dr. Green also gets a sample of monster tissue and manages to analyze its DNA (on an auto-comparator) in less than half an hour on a machine that not only gives the species identity as *Homo sapiens* but also flashes a nice photo of the particular human whose DNA it is.

Where do beetles fit in? Like most major natural history museums, this one houses a colony of dermestid beetles. The species in the film is *Dermestes pompinus*, and, after it eats some fungus infected Brazilian plant tissue, its DNA ends up in a surprising place.





# 19th Annual Insect Fear Film Festival

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AT 19, the UIUC insect fear film festival is the longest running university-sponsored celebration of insects in the country; not only has it inspired insect fear film festivals on other campuses (including Penn State, Purdue, Washington State and Iowa State), but it has also inspired other fear film festivals in C-U—the University of Illinois Computer Fear Film Festival (also about bugs but of a different sort. To me they don't seem scary—after all, how many alien arthropods will go away if you just shut them off and turn them back on again?). This year, what with Enron, national recession, and Al Qaeda, national news attention was less, but we did get some inquiries. Most interesting was the one from Tina Nguyen, Arcwelder Films, who is working on a 13-part documentary series for *Animal Planet* on animal phobias. She emailed me January 24, wanting to know what was “in store for this year's Insect Fear Film Festival. Do phobics ever dare attend this event? And by any chance, do you know of anyone with a serious phobia of insects/spiders? Our immediate goal is to find a clinical phobic who is willing to let us document his/her experience during treatment...Participants in this series will be treated with the utmost sensitivity. We are taking care to protect our phobic subjects from harm or embarrassment, and we will not place any phobic in an in vivo situation without medical supervision.” So, this isn't *Fear Factor* (but there's no \$50,000 prize, either). Again, we have visitors who have traveled great distances to get here—Mississippi, Wisconsin, and Washington.

Back again was the children's insect art contest, which for the first time had corporate sponsors and even neater prizes. Last year we had about 250 entries; this year, a total of 350 entries came from schools throughout Champaign County; judges Kim Walden, Christina Nordholm, and Brad Scofield had their work cut out for them.

Notwithstanding their unlikely biology, invading aliens remain popular movie fare. People are frightened by large, menacing, nonindigenous species and they enjoy soundly thrashing these alien enemies. Truth be told, though, it's the small, unobtrusive aliens that are really wreaking havoc with the planet and they're not so easily vanquished by guns, missiles, or bazookas. Of the many forms of global environmental change, among the most insidious is the movement of invasive species from native to nonnative areas. Impacts of global warming are subtle, difficult to document, and highly debatable; killer bees, Japanese beetles, red imported fire ants and gypsy moths are in your face (or at least your front lawn).

Our 19th annual festival featured almost 40 years of Hollywood's concept of alien arthropod invaders. A common theme—if you want to avoid alien arthropods, stay out of deserts (all three features involved an alien invasion in a desert-like setting). *The Zanti Misfits* is a memorable episode from the 1963 season of the television show *Outer Limits*. Alien ant-like creatures from the planet Zanti want to use Earth as their own private Alcatraz—a place to exile their incorrigible criminal element. They threaten to destroy Earth unless there's compliance so the town of Morgue, CA (which probably already has an image problem) is selected [filmed at the Vasquez Rocks formations outside Los Angeles]. A place is cordoned off by General Hart and his troops to await the landing but, unfortunately, in good sci-fi fashion, trespassers violate the perimeter (runaway party girl Lisa Lawrence and her psychopathic boyfriend Ben Garth, the first of many psychopathic characters played by Bruce Dern). Suffice it to say he meets a bad end and the Zantis run amuck, taking over the command post after history professor Steven Grave, official historian of interplanetary events, kills one with a rock (he

already established his character or lack of it by killing an ant at the very beginning). The problems with this film are the improbabilities—if you can kill them with a rock, how threatening can they be? And why can't the humans just outrun them? Things to note: stop motion animation with four models seen in closeup, each with different facial expressions and hair distributions, was by Al Hamm, who worked on *Mighty Joe Young* and *Speedy AlkaSeltzer*. So, if you thought *Speedy Alka Seltzer* was scary...

Before *The Zanti Misfits* was a terrible cartoon—*Sectaurs Invasion of Skall Island*. The *Sectaurs* was a television cartoon series developed almost exclusively to sell Transformers for Coleco. It's about the distant planet Symbion, where warriors that are telepathically bonded to each other and to their insect companions fight to survive. In this episode, Skall Island is invaded by Gen. Spyrax of the Dark Domain, telebonded to insect companion Spiderfly and equipped with a venom tipped whip, who sends in fighter ant eggs that somehow escape the notice of the fundamentally good but not-too-bright inhabitants of the Shining Realm. The voice of Dargon was provided by Dan Gilvezan, who also provided the voice of Dr. LePetomaine in the *Rugrats*. Read along with this educational cartoon, such dialogue as "I'm surrounded by incompetent vermin!" and "Only a miracle could save them now."

Our second film had the biggest budget and the most attractive cast. Unfortunately, it's one of those movies in which the reviews are more entertaining than the film. This is a loose adaptation of a 1959 novel by Robert Heinlein of the same name, directed by Paul Verhoeven, shortly after his triumph in *Showgirls*. It depicts the lives of high school graduates in a fascist future world about to embark on military service when Earth is viciously attacked by a flying asteroid aimed at Buenos Aires by the arachnid denizens of the planet Klendathu. The film focuses on the ensuing war with the bugs on their home turf. This plot provided lots of opportunities

for puns— e.g., *New York Times*: "No bugs too large for this SWAT team." Mostly, it was an opportunity for scathing reviews. *Newsweek*: called it an "Empty videogame of a movie about interplanetary pest control." *Washington Post* reviewer Rita Kemperly writes "*Starship Troopers*... It's exactly like *Star Wars*—if you subtract a good story, sympathetic characters, intelligence, wit and moral purpose."

About the best thing in the movie are the special effects—Phil Tippett was responsible for the Velociraptors in *Jurassic Park* and won an Oscar for his work in *Return of the Jedi*; on this film he worked with a staff of 100. This film had over 200 CGI scenes, compared to *Jurassic Park*'s 50. According to *Premiere* (Nov. 1997), "more ammunition has been used on this shoot, claims weapons coordinator Rock Galotti, than on any in the history of film."

Problems with the film are legion. As Rita Kempley points out "While it would have made more sense to bomb Klendathu with DDT, the grunts attack the resilient arthropods on foot with glorified M16s." We didn't even do this in the Gulf War. The trophic structure—unless they eat sand, there's nothing on planet Klendathu for a food chain to be based on. The plot—how do bugs which don't use weapons or build structures or even wear clothing have the technology to direct an asteroid across the galaxy to hit Buenos Aires? The arachnids themselves—Tippett is an amateur paleontologist who knows a lot about dinosaurs but not about arachnids. On the up-side? Five minutes into the movie, a giant bug grabs somebody. No waiting till the third reel here. And no insects were killed in the making of the movie; the scene with kids stomping on Madagascar hissing cockroaches involved simulated killing and mustard packets.

First, though, was a real treat— Episode 41 of *Space Ghost Coast to Coast*. *Space Ghost* was a 1960s Hanna Barbera cartoon featuring a superhero space ghost and his two kid



John Hildebrand, Regents professor and director, Arizona Research Laboratories, University of Arizona, in his 19th IFFF t-shirt, and ChaCha.

companions (and their pet monkey Blip). The show had a checkered history, moving networks during the 1970s when public outcry put a stop to superhero animated cartoons. It was resurrected by Cartoon Network, which redubbed and re-engineered episodes to turn *Space Ghost* into an intergalactic talk show host, with whom real celebrities would interact. Space Ghost has as an Ed McMahon-like sidekick, his former archrival, the evil Zorak, giant alien mantis. Episode 41 is *Zorak, Here Is Your Life!* which recounts the life of the evil Mantis. Guests include Dr. Maxcy Nolan, a genuine entomologist from the University of Georgia, and Steve Arnold, a genuine exterminator from Peachtree Pest Control. The episode recounts his life from the moment he was born into a small family made even smaller by disgusting acts of cannibalism to his present position today.

Finally, last and perhaps least, was *Spiders* (2000). Festival stalwarts will remember director Gary Jones's earlier effort in this genre—*Mosquito* (involving mosquitoes that

ingest alien blood and grow to enormous proportions and get dispatched with, among other things, chainsaws). There must have been a lot of alien blood left over from that film because in *Spiders*, alien DNA is injected by government scientists into funnel web spiders on the space shuttle (because conditions of zero G are more like those on the unspecified alien's unspecified home planet) to develop a military super-weapon. The movie follows college journalist Marcy's efforts to get to the bottom of the government coverup before she and her two (unfortunate) fellow journalists Slick and Jake get killed by the resulting giant spiders.

Actors? No one you're likely to have heard of. One crowd scene extra, however, is Dr. Craig Reid, an alumnus of the Department, wearing kung fu slippers and a t-shirt. He used everything he learned here at Illinois to simulate fear as he fled from a 30-foot white cardboard X that would be replaced by a CGI spider.

## 2002 Midwest Institute for Biological Control

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THE 2002 Midwest Institute for Biological Control short course, "Biology of Parasitic Hymenoptera: Implications for Biological Control," was held at the Illinois Natural History Survey and the University of Illinois June 23-26, 2002. Midwestern scientists covered aspects of parasitoid biology that determine host range and parasitoid specificity and relate these topics to the use of parasitic Hymenoptera for biological control. The Institute is designed for graduate students, specialists and others interested in biological control.

The 2002 Institute included laboratory and classroom exercises covering evolution and natural history of parasitic Hymenoptera,

mechanisms and models of host location, egg allocation and sex ratio, larval parasite development, host immune response, and application and use of parasitic Hymenoptera for biological control.

The Midwest Institute for Biological Control is an ongoing educational project developed by members of the North Central Regional Committee on Biological Control of Pests (NCR-125). Approximately 275 students have participated in the 11 Institute courses held annually since 1991. This year's organizers were Marianne Alleyne and Rob Wiedenmann (Illinois Natural History Survey).

# 2002 LAS Alumni Achievement Award

IT'S a pleasure to announce that John Law (Ph.D. 1957) received a 2002 LAS Alumni Achievement Award for outstanding professional achievement. Although Dr. Law earned his doctoral degree from Biochemistry working with H.E. Carter, over his very distinguished 50-year career, the field in which his impact is most strongly felt is entomology.

Dr. Law was a principal founder of the field of insect biochemistry. Beginning his research career at Harvard, he made major contributions to the understanding of lipid chemistry. By the mid-1960s, he became interested in biochemical processes in insects and made fundamental discoveries, including characterizing biosynthesis, transport, and metabolism of juvenile hormone, a critical hormone regulating metamorphosis; elucidating pheromone biosynthesis in honey bees and other social insects; describing cocoonase, the enzyme that allow moths to emerge from their cocoons; identifying and characterizing vitellogenins, proteins involved in egg production in a wide range of insect taxa; characterizing proteins involved in lipid transport throughout the hemolymph (blood) in a wide range of insect taxa; elucidating pigment synthesis and transport; and characterizing iron metabolism in insects.

Virtually every major developmental process in insects is characterized by distinctive biochemistry and the details of that distinctive biochemistry, in most cases, was first elucidated by Dr. Law. He continues to build on that foundation, such that, today, insects serve as a models for understanding many biochemical processes, even in vertebrates.

Dr. Law has also assumed a leadership role within the academic community. At the University of Arizona, he served as head of Biochemistry, director of the Biotechnology Center, and associate dean of the Office of Instruction in the College of Agriculture.

His greatest impact, from the perspective of entomology, has been to co-found the prestigious Center for Insect Science. In the late 1980s, Dr. Law recognized that entomology as a discipline had to be better integrated into the life sciences. The Center brought together basic scientists with a shared interest in insects as



study organisms, providing a model for entomology programs nationwide. The Center has been instrumental in showcasing the development of molecular entomology, by instituting the first conference series in the area.

Dr. Law has been actively engaged in promoting molecular entomology in the developed and the developing world. He served, for example, on the governing board of the International Centre of Insect Physiology and Ecology in Nairobi, Kenya, the premier institution conducting entomological studies in Africa, and as consultant to the Chinese Provincial Universities Development Project (1987-88). Collaborations with Czech scientists earned him the Jan Evangelista Purkinje Medal from the Academy of Sciences of the Czech Republic, and he received an honorary doctorate from Sofia University.

In the U.S., his contributions to the discipline run the full gamut, encompassing service on panels, editorial boards, study sections, advisory boards, organizing committees, review teams, and the like, and are too numerous to recount here. In terms of editorial posts alone, he has served on the boards of over a dozen journals!

The LAS Alumni Achievement Award is given to an individual who has "demonstrated the values derived from a liberal arts and sciences education." As a member of the National Academy of Sciences, a Fellow of the Entomological Society of America, and a Fellow of the American Association for the Advancement of Science, he has earned recognition and accolades from the national scientific community. It seems only appropriate that he has at last earned recognition from his intellectual hometown; we're proud of him and congratulate him!

Bettina Francis,  
May Berenbaum,  
John Law, Susan  
Fahrbach, Fred  
Delcomyn, Sydney  
Cameron, and Jim  
Whitfield at a  
recent reception in  
Dr. Law's honor.

# Alumni

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**John F. Anderson** (Ph.D. 1963). Chasing, collecting, and testing mosquitoes for viruses. Have probably cultured more isolates of West Nile virus than any other laboratory. I am also overseeing the construction of a new building which will have one floor designated as a biosafety level 3 laboratory. This laboratory will enable us to conduct transmission experiments with mosquitoes and ticks. Other Entomology alums at the Connecticut Agricultural Experiment Stations are Mark McClure, Chris Maier, and Charlie Vossbrinck.



Andy Chen and David Denlinger

**Christine Armer** (M.S. 1996). My dissertation research is on biological control of the Colorado potato beetle with insect-parasitic nematodes. I started out interested primarily in the organismal-level ecology of the system, but I've gotten involved in chemical ecology to try to

determine the chemical defenses of the Colorado potato beetle to attacking pathogens. I am hoping to learn whether the potato beetle sequesters toxic glycoalkaloids from the potato plants on which it feeds. I have found that a toxic protein in the potato beetle's hemolymph negatively affects the nematodes, and am currently attempting identification of the protein to see if it is leptinotarsin, a protein that Ting Hsiao (another Entomology alum) originally isolated. I successfully defended my dissertation research (focusing on the potential for biocontrol of the beetle with nematodes) several weeks ago, and am staying in town to continue research on the chemical aspects of the nematode-beetle interaction. Although the first few years of rainy, gray days in Corvallis didn't favorably impress me, I've now actually like the town; with my husband having a good job nearby and with my continuing to learn here, I just might stay for a while longer. I'd love to get back to the Midwest for a postdoc or faculty position, so you may be seeing more of me in the future!

**Thomas A. Baughman** (Ph.D. 1997). I have continued in my 13th year as an environmental toxicologist with the Illinois Department of Public Health, West Chicago Regional Office

(about 30 miles west of Chicago). I do health assessments of Superfund waste sites and deal with many chemical problems, including insecticide sampling in homes following insecticide misapplications (in support of our structural pest control staff), mercury spills in homes and schools, indoor air problems, and groundwater contamination. I enjoy it because I like helping people, and I also like helping the environment. The variety also keeps things interesting.

At home, I like spending time with my wife, Theresa, and our children, Nathaniel (7) and Jennifer (3). We enjoy biking (more than 2,000 miles last year), camping, cross-country skiing, hiking, snowshoeing, and walking, and I also still do my before-church 9-mile run on Sundays. This summer, we visited my mom in Colorado. We hiked at Rocky Mountain National Park and biked in the Frisco-Dillon-Keystone Area on beautiful paved bike paths. Our yard backs up to a forest preserve and the Fox River Bike Trail, and we love it. Nathaniel has turned into quite a cyclist and can go 43 miles in a day on his 20-inch, 6-speed mountain bike. He also likes racing (and leaving in the dust) 12-year-olds on the bike path, after he's already cycled 20-30+ miles. He put more than 2,000 miles on his bike last year. He's only 7—what will he do when he's our size?!?! Lance Armstrong watch out! He also enjoys soccer and recently surprised me by beating me at chess. Jennifer is getting very fast on her feet and may be following in Nathaniel's footsteps. Recently, she got a bath from Grandma. So she wouldn't get water in her eyes during hair washing, Grandma said, "Look for the spider on the ceiling." Jennifer looked up and said, "There it is!" There *was* a spider on the ceiling!

**Murray Blum** (B.S. 1952, M.S. 1953). I completed a 1-year writing project for a UNESCO program on sex pheromones in plants and animals. You can't believe what the seaweeds are doing! I developed a teaching program at a reserve for elementary school students in the Andes of Ecuador (with wife Ann who did the hard work). Teaching the Rangers about pheromones—in Spanish—was an uncertain step for science! I acted as an insect tour guide at

various nature centers—what fun! I have also been conducting research on insect compounds as bird repellents, patented compounds for ant larval control, and am writing a paper on why insects are wondrous.

**Andrew C. Chen** (M.S. 1972, Ph.D. 1976). I was transferred to Kerrville, TX, in January, 2002, still doing the same kind of research with ARS-USDA. Folks upstairs feel that I can be more effective with the group in Kerrville. That's the way federal research operates. Kerrville is in the beautiful Texas Hill Country, nice place to retire to. But after living in College Station for 23 years, it is hard to pull up the roots and leave.

On the family side, my son Lyndon was married in December, 2001, a week after the ESA annual meeting in San Diego. My daughter-in-law, Carolyn, is a sweet young lady in her last year of medical school at UCLA. They live in Los Angeles, although after 10 years he is getting tired of the big city. They are trying to move to a smaller city for Carolyn's residency next year. My daughter, Amber, went to Japan to teach English for a year after she graduated from Rice last year. She just got back in August and is now looking for a job. My wife Pat still works at Texas A&M.

**Robert W. Clegern** (M.S. 1966, Ph.D. 1972). Since the 2000 Newsletter I continue to teach one course in environmental science at University of Maryland University College, consult in pest management, and buy/sell antiques. Linda's and my time is also consumed by the wonderful old house we are renovating. It's on the original Baltimore Washington Turnpike, and we are researching its history as we find time (chains and shackles were found in the dirt floor of the basement by a previous owner). It's a very interesting house.

**Joel Coats** (M.S. 1972, Ph.D. 1974). I'm currently in my 4th year as chair of the Department of Entomology at Iowa State University. This year we had a comprehensive departmental review, as well as some budgetary challenges and discussions of reorganization. I know many other departments have been facing similar challenges recently, and it helps to discuss the questions with others who have experienced them. My toxicology research group continues to address two main areas for investigation: plant-derived insecticides and

insect repellents, and environmental fate and effects of pesticides, including work on the Bt protein-toxins in soil and crop residue. The recent opportunity to present the Alumni Seminar was a nice chance for me to meet most of the "new" faculty in the department and to visit with several colleagues and faculty I've known for many years. Our kids are in their 20's, and the dispersal of progeny is progressing rapidly. I hope to see more friends at the Illinois alumni mixer at the national ESA meetings in the future.

**Michael Cohen** (Ph.D. 1991). After 8 fascinating years at the International Rice Research Institute (IRRI) in the Philippines, I returned to Canada in April 2002. I was fortunate to get one of the few entomology positions at a Canadian university, in the Department of Biological Sciences at the University of Alberta, Edmonton. Out of the frying pan, into the freezer, as it were...but it's great to be back in Canada after many years as an expatriate. I last lived here in 1986, before going to Illinois. My research at IRRI focused on host plant resistance to rice insect pests and resistance management for Bt rice, but I've decided to switch back to insect molecular biology for my new research in Alberta. I'm teaching a course in insect physiology and biochemistry for upper-level undergraduates, and so have been doing a lot of reminiscing lately about the physiology course we took at Illinois and those lectures from Stanley, Judy, and Fred!

**Lenny Dintenfuss** (B.S. 1980). As I have not contributed to the newsletter before, I'll mention that after having received a B.S. in entomology from Illinois in 1980, I went on to earn M.S. (Texas Tech 1982) and Ph.D. (University of Kentucky 1987) degrees in entomology. Since 1988, I have worked for what is now known as Dow AgroSciences, first as a field biologist and later as a Discovery Research Biologist. After 14 years of being a practicing economic entomologist, I decided to apply my experience in a different way: I'm now a business analyst in Dow AgroSciences' R&D Information Management group, translating research users' needs for company databases into language that our programmers can understand.



May Berenbaum and Joel Coats (distinguished alumni seminar speaker, 2002)

## Alumni (continued)

On the personal side, I live in Indianapolis with my partner of 19 years, Katie Crossen, and our two cats (who are much better entertainment than television). Other personal interests include playing violin in a community orchestra and repairing, restoring, and riding '70s-era 10-speed bicycles.

**Tobias F. Dirks** (Ph.D. 1971). Perhaps some do not know that Judy passed away in 1989. This has been a tragic loss to the children and me. She died of complications from asthma. In 1995, I finally became a grandfather. Now I have six grandchildren—five boys and one girl. After Judy's death, I put much effort into my job at Dalton State College to get a salary level which would allow a comfortable retirement. In 1997 I retired after 31 years of teaching and research. Now I am occupied with being a designated certified operator for wood-destroying organisms at Best Pest Control in Dalton, GA. This involves consultation work and some sales activity as well as the responsibility of meeting the standards of the license.

Otherwise, I still maintain a big garden, and have the problems associated with owning rental properties. In 2000, I married Judy Darlene. We live in a home at the base of Blue Mountain and enjoy it very much. Judy operates a custom draperies business, and I help her with the woodworking required for making cornice boards and hangings.

**John L. Eaton** (B.S. 1962, Ph.D. 1966). I retired from Virginia Tech January 1, 2002, after 18 years in entomology and 13 years in the Graduate School. My entomological career was centered around studies of moth ocelli and moth anatomy. In the Graduate School I had the pleasure of being a part of the team that conceived and implemented required electronic theses and dissertations (ETDs) at VT. Many graduate schools around the country have joined this effort, but I must add Illinois is not yet among them. My retirement, which I am enjoying tremendously, is kept busy with family, grandkids, put off projects, travel, and hunting and fishing. Peg and I continue to reside in our home overlooking the New River.

**David L. Evans** (Ph.D. 1978). I am currently professor at Penn College. Previously I was at the University of Maryland (1978-1981), the American University of Beirut (1981-1986), and chief ranger of the Massachusetts State

Parks (1986-1990). I've authored more than 20 refereed research articles and many books, guides, and websites published and paid for by various organizations and companies. I currently write an anatomy and physiology weekly column for a reserved (paid!) website. I am married (Henriette al Khuwayri) with two fine children, 9 and 17.

**Susan (Wesley) Fisher** (B.S. 1977, M.S. 1979). My research and teaching efforts are still in the realm of environmental toxicology with emphasis on determining critical body residues for narcotic contaminants. I still work in exotic species especially on zebra mussels and round gobies. Two years ago, I took on a half-time administrative assignment, secretary of the University Senate. I am reminded of Stanley Friedman every time I have to convince the provost that he can't redefine tenure without consulting with the faculty. I am grateful that my education at Illinois not only entailed academic excellence but grounding in the academic values we hold dear.

On the home front, Scott and I are about to celebrate our 21st wedding anniversary and we've been busy: four biological kids and three adopted special-needs kids who came from various third world countries. It's a total immersion life but a good one. All the kids and I play the violin; we let Scott tag along as the piano player when we go on the road. We hope to see you on one of our many return trips to C-U.

**Mohammed Farooqui** (M.S. 1975, Ph.D. 1979). I graduated from Entomology in 1979, where I worked with the late Robert L. Metcalf. My doctoral research focused on the metabolism and toxicology of DDT analogs in house flies. Since I graduated from Illinois, I served as a postdoctoral fellow at the University of Texas Medical Branch at Galveston for 5 years. I've been at the University of Texas Pan American, Edinburg, since 1984. During the last 18 years, I have received many honors and awards, including the outstanding faculty award in professional achievement and the University of Texas Chancellor's award in teaching excellence. I served as the Director of Minority Biomedical Research Support Program for 8 years. I brought in over \$1.2 million in extramural grants for research in toxicology. I have over 30 publications and 50 presentations. Many of my students are now medical doctors



David Evans

or Ph.D. scientists at many institutions. Currently I am serving as professor and chair of the Department of Biology.

**Frank A. Fraembs** (M.S. 1958). My wife, Janet, and I volunteer at Lincoln Log Cabin State Historic Site. The Visitor Center is now complete and is of world-class quality. I invite you all to come to spend some time in 1845!

**Susan Halbert** (M.S. 1975, Ph.D. 1979). The Florida State Collection of Arthropods is very thankful to have received a large grant from NSF to vastly improve our storage capacity for insects. During the past year, we have been sorting our previous overflow of identified specimens into their new homes. The project has already greatly improved accessibility of valuable material. Florida continues to see more than its share of new exotic insect species. Although most of our identifications are routine, every now and then, something new shows up. Identification and decisions about management or containment strategies can be challenging.

**Drew Hissong** (M.S. 1991). After completing my Ph.D. in molecular biology at the University of North Carolina, Chapel Hill, I obtained a law degree from Case Western Reserve University in Cleveland, OH, in 1999. I have been an associate with the intellectual property law firm of Sughrue Mion, PLLC, for the past 3 years. I specialize in the preparation and prosecution of patent applications in the fields of biotechnology, chemistry and pharmaceuticals. I prepare legal opinions for clients and assist clients in interference proceedings before the U.S. Patent and Trademark Office, as well as litigation in jurisdictions throughout the U.S.

**John M. Kingsolver** (M.S. 1956, Ph.D. 1961). I retired from USDA in 1990 and now am a volunteer and research associate of the Florida Department of Agriculture in Gainesville. I help curate the enormous collection of beetles in their museum and do a little research on beetle classification especially in the family Bruchidae (seed beetles).

**Phillip Lewis** (B.S. 1985, MS. 1989). After a 3-year postdoc investigating weed biocontrol agents in Texas with ARS, I've made a number of big changes. In May I began a 'permanent'

position with APHIS and moved into the totally different culture here in New England. The job involves control of invasive exotics like the Asian longhorn beetle, but includes work on controlling the western spread of Japanese beetle and gypsy moth populations. And in addition to the busy summer research season, in June I bought a house and got married to Jenny Forsberg. It's been hectic, but we're both enjoying life here on the Cape—come by and visit some time!



Harry Bottenberg  
and Mickey  
McGuire

**Eric S. McCloud** (Ph.D. 1995). I have been at the Department of Biology, University of Southern Indiana for the last 5 years, where I teach a wide range of courses including introductory botany, zoology, and principles of biology, as well as ecology, entomology, plant physiology, and environmental science. I'm currently developing a course on the science and ethics of global change with another faculty member in the philosophy department. My research continues to focus on inducible plant responses to herbivores. For the past couple of years, I've been involved in road running and I will run my first marathon in Chicago during October. At home, I have a Bonsai and a fat, lazy cat.

**Bruce A. McPheron** (M.S. 1980, Ph.D. 1987). In the past 2 years, I have made a transition from my academic home in Penn State's Department of Entomology to an administrative role as Associate Dean for Research and Graduate Education in Penn State's College of Agricultural Sciences. I have maintained my laboratory and still advise two Ph.D. candidates on genetic/ecological aspects of tephritid fruit flies. However, I've now given up my teaching role (general entomology for undergraduates, a general education course in entomology, and insect taxonomy, borrowing heavily from the style of the late Dr. McLeod). I will miss the teaching aspect.

My wife, Marilyn, works in International Agriculture at Penn State and spent last January in Moscow and the Ukraine. She looks forward to going back this winter. Son Neale is a senior at Millersville University, majoring in molecular biology and minoring in psychology and biochemistry. He continues to run competitively, having been all-conference



## Alumni (continued)

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in the 800-m and 1500-m for the past 2 years. Daughter Brenna is in the 8th grade and loves music (piano, saxophone, guitar at present) and art.

**David C. Newton** (Ph.D. 1967) is Vice President Emeritus for Personnel, Connecticut State University. In retirement I do occasional labor arbitration cases and maintain two not-for-profit web sites.

**Bill Rapp** (M.S. 1945). I have been retired since 1983 and am busy as I was when I worked! We do quite a lot of traveling. I still do a lot of collecting in the Finger Lakes regions. Most of my research and study is on spiders and terrestrial isopods. I have recently published several papers on terrestrial isopods.



Kelly Cook and  
Chris Pierce

**Hilary Reno** (Ph.D. 2000). I completed my M.D. in May 2002. Just prior to graduation from medical school, I was selected as an exchange student by University of Illinois-Chicago College of Medicine. I completed a rotation in palliative care/hospice at King's College, London, U.K. I started my residency in internal medicine at Washington University Barnes Jewish Hospital in June. I have started making contact with infectious disease faculty and local researchers in arboviruses and malaria. My husband Shaun is teaching English at St. Louis community colleges.

**Sherri Sandberg-Ransom** (B.S. 1980, M.S. 1987). I moved to Davis, CA, after completing my M.S. with May Berenbaum in 1987. I received my teaching credentials in 1988 and have taught ever since. I teach biology and a course that is a mixture of biology and chemistry that has an environmental education focus. I have been part of a program called FARMS that accepts six students from Davis High to learn about sustainable agriculture through monthly field trips and a research project. I am also part of another program called SLEWS that I take 30 students to work on a farmer's land to do habitat restoration and water quality improvement projects. We do this five times over the school year. I have two children: a daughter, Linnea (9), and a son, Sylvan (5). They both love insects and seek out corn ear worms in the sweet corn we buy at the Davis

Farmer's Market. We love to go camping and have explored the Sierras, the Monterey Bay area, the California redwoods, and the volcanoes and rivers of Oregon. My husband Mike is currently a computer programmer with the College of Agriculture at UC-Davis and was formerly in international agriculture development with the Peace Corps in Nepal. We also have two labrador retrievers.

**Alan Schroeder** (Ph.D. 1990). From 1999 to 2002, I traveled to Namibia three times, Tanzania twice, Rome three times, Madagascar twice, Burkina Faso, Ethiopia, Senegal, South Africa, Botswana, Denmark, Sweden, Finland, Burma, Thailand, Laos, Canada, Mexico, Nicaragua, Brazil, and Bolivia. Half of this was for fun and half for work. I am still trying to get into Bhutan. Recently, I was seen flying a 1946 Stinson 'Tail-Dragger' over glaciers and ice field in Alaska, landing on remote beaches in Prince William Sound, and catching silver salmon and rainbow trout in the wilderness. I actively maintain my pilot's license, and enjoy aerobatic flying. I also dance semi-professionally with a Mexican folkloric group. I have a complete Mariachi outfit and we perform dances from Guadalajara, the heart and soul of Mexican culture. I won two awards during this time: a Presidential Citation for Outstanding Achievement from the University of Delaware (where I earned my B.S. and M.S.), in recognition of exemplary professional and public service activities; and an Outstanding Merit Award from USDA's Agricultural Research Service, Office of International Research Programs, where I served at the International Center for Maize and Wheat Improvement (where I learned Mexican folkloric dance as the only Gringo in our 24-member dance group). I worked on agricultural research programs and locust plagues in Africa from 1991 to 2001 for our government. In 2001, I left the government after 11 years of service, to follow my fiancée, Dr. Sonia Ortega, as she advances her career as an NSF Program Director, on detail to the University of New Mexico. In Washington, at NSF, she ran the Presidential Faculty Fellows Award, the Director's GK12 Program, and the NATO Postdoctoral Fellowships Program, among others. She now works with the NSF-funded Long Term Ecological Research networking initiative at UNM, on education and international issues. Sonia is also a pilot

(she got me into flying) and performs Mexican folkloric dances with me. We'll be in Albuquerque until at least September 2003, and plan to get married out here. I started a consulting business, Noetecs International Consulting, which I am still getting off the ground. Sonia and I have 12 wonderful nieces and nephews, two god-children, two step-children, and one grand niece, all of whom we visit as much as possible and we spoil as much as we can. And, we are supporting one niece in her Ph.D. program in Iowa. We love visitors, and if any of you will be traveling through Albuquerque in 2002 or 2003, stop by and visit! Nuestra casa es su casa. You are most welcome.

**Keith R. Solomon** (M.S. 1972, Ph.D. 1973).

Sandra and I celebrated the arrival of their first grandchild in January 2002, a daughter born to Fiona. This year has been a very busy year with family activities and enjoying our new grandchild, but has also been a very interesting and stimulating year in terms of science. Research is moving in new directions in assessing the potential impacts and risks associated with contaminants in surface waters, including pesticides and pharmaceuticals. I was very pleased to receive the American Chemical Society International Award for research in agrochemicals at their 223rd national meeting in Orlando, FL, on April 8, 2002. This meeting was also an opportunity to renew old acquaintances with alumni from Illinois, including Joel Coats and Herb Nigg.

**Susanne Timmermann**, a postdoctoral alum of the Berenbaum lab (1998), is a supervisor of quality control for GAB-Biotechnology in Germany. The firm does environmental testing of pest control technologies.

**F.R. Voorhees** (M.S. 1968, Ph.D. 1969). Hi to all my friends and UI people everywhere! We all know that careers change repeatedly—I have not worked as an entomologist in many years. I am currently supervisor of the Medical Technology Program at Central Missouri State University.

**Charles R. Vossbrinck** (Ph.D. 1987). The Vossbrinck family is doing OK. Our oldest daughter, Alice, who was born when I was a graduate student in Stanley Friedman's lab, is a senior in high school this year. She is look-

ing for colleges to attend this fall. Kate (15) is concentrating on social matters and has put things like homework on the side burner. Madeline, in 8th grade, is doing well in her studies. Henry has recently celebrated his 10th birthday and is progressing well. He has developed a charming personality but can be stubborn at times. My wife, Bettina, has recently quit her job as a research associate in the Department of Pathology at Yale University to spend more time organizing family matters. I just turned 50 and it is going well so far. I got a recliner and spent about 30 minutes listening to classical music in it. I guess now I need a new bicycle. Work at the Connecticut Agricultural Experiment Station in New Haven is going well. I can dedicate my time to any research that I care to undertake and I am teaching part-time at Quinnipiac University which is one of the many institutes of higher learning nearby. I guess we are all pretty happy but now as things are settling down we grow sad thinking that our children will be leaving someday. I guess the key is to enjoy the present.

**Phillip L. Watson** (Ph.D. 1979). I have been a

professor at Ferris State University since fall 1981. My teaching responsibilities include seven different courses—entomology, natural history of invertebrates, forensic biology, environmental biology, insect pest management, field studies in horticulture, and ecology. I have received two Fulbright fellowships, one to Botswana and one to Vietnam. I have also been involved with setting up research and teaching cooperations with other U.S. universities and institutions in several countries, Costa Rica, Belize, Colombia, South Africa, Botswana, and Vietnam. I currently have one textbook, *Quick Notes in Environmental Science*, that is published by Kendall Hunt. My wife Maureen is a professor and librarian in the Michigan College of Optometry at Ferris State University. We have two sons: Alex, who is a sophomore in college, and Scott, who is trying to readjust to life as a junior in a U.S. high school after our recent extended stay in Vietnam.



Dennis Fielding  
and Gail  
Kampmeier

# Obituary

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**Kenneth Lee Knight** died on 8 July 2001 after a period of ill health in his retirement residence in Palm Harbor, FL. With his passing, one of the premier mosquito taxonomists of the 20th century, and an outstanding office and gentleman in the finest U.S. Navy tradition was lost.

Ken was born on a farm near Saunemin, IL, on 16 March 1915. His undergraduate education was received at Illinois Normal University (now Illinois State University), where in 1937 he received a B.Ed. degree in biology. At the University of Illinois, Urbana, Ken earned M.S. and Ph.D. degrees in entomology, in 1939 and 1941, respectively.

In the summer of 1941, Ken joined the Navy as an Ensign and was sent to the Malaria Survey Unit, Marine Base, New River, North Carolina (now Camp Lejeune) for training duty. In June 1942, he was ordered to Efate Island, New Hebrides as the entomologist for the first WWII malaria control unit to be based in the South Pacific. Ken was Area Entomologist in charge of malaria control in the New Hebrides and Solomon Islands, including Guadalcanal, until 1943. In 1944, Ken rotated stateside to the Bureau of Medicine and Surgery, Department of the Navy, Washington, D.C., and was assigned to Naval Medical Research Unit No. 2. Working with Dr. Lloyd Rozeboom, Ken completed extensive taxonomic studies of the *Anopheles punctulatus* complex of malaria vectors in the South Pacific and the mosquito fauna of the Philippines.

After the war, Ken brought his extensive mosquito collections to the U.S. National Museum where he worked in the laboratory of Alan Stone. Together, they described many new mosquito species and produced the monumental taxonomic reference, "A Synoptic Catalogue of the Mosquitoes of the World." Additional assignments from 1946 to 1954 included the National Naval Medical Center in Bethesda, MD and Naval Medical Research Unit No. 3 in Cairo, Egypt. In 1954, Ken was reassigned to Washington, D.C., to oversee all of the Navy's vector control programs. Additionally, he was assigned responsibility for recruitment and detailing of the officer scientists of the Medical Service Corps of the Bureau of Medicine and Surgery, Dept. of the Navy.

Following a 4-year tour in Washington, during which time he was promoted to Captain, USN,

Ken was reassigned to Camp Lejeune Marine Corps Base, Jacksonville, NC, as the Executive Officer of the USN Medical Field Research Laboratory. At the end of this tour of duty, Ken retired in 1962 to accept a position as associate professor in the Dept. of Zoology and Entomology, Iowa State University, Ames. He taught courses in medical entomology, mentored graduate students, and continued research on mosquito oviposition site selection previously initiated at Camp Lejeune. He was soon promoted to professor. Also, while at Iowa State, Ken began collaboration with the Army-supported South East Asia Mosquito Project, U.S. National Museum, on taxonomic studies of aedine mosquitoes of that area of the world.

In 1966, Ken joined the Dept. of Entomology, Univ. of Georgia, Athens, as a professor to teach insect systematics and to serve as curator of the Fattig Insect Collection. In 1968, he received an offer to be the head of the Dept. of Entomology at North Carolina State University and he and family moved to Raleigh that year. As head, Ken continued work on mosquito systematics and biology through advising graduate students. Additional extensions of his work with mosquito systematics came through the influence of colleagues. The eminent mosquito systematist Dr. John N. Belkin encouraged Knight to issue a newsletter on mosquito systematics, which eventually became the American Mosquito Control Association's *Mosquito Systematics*, the principal outlet for publication of taxonomic studies of the Culicidae. In 1971, Ken in collaboration with Alan Stone began a revision of the 1959 synoptic catalog of mosquitoes, and a new catalog was published in 1977 and a supplement volume was issued in 1978 through the Thomas Say Foundation of the Entomological Society of America. Another colleague, Dr. Botha de Meillon, encouraged Ken to pursue his longtime interest in mosquito morphology by developing a comprehensive glossary of anatomical terms for mosquitoes. With support from the NIH's National Library of medicine, Ken and postdoctoral research associate Dr. Ralph Harbach published the *Taxonomists' Glossary of Mosquito Anatomy* in 1980. This reference is still considered to be the most authoritative source for information on mosquito anatomy.

Dr. Kenneth Knight retired as head of Entomology at N.C. State University in 1980. During his career, Dr. Knight published over 120 peer-reviewed research articles, numerous book chapters and authored several books. He served as President of the American Mosquito Control Association (AMCA) in 1973-74 and President of the Entomological Society of America (ESA) in 1975. For his work on mos-

quitoes, Dr. Knight was awarded the AMCA's Medal of Honor in 1982 and the John N. Belkin Memorial Award in 1983. For his career-long involvement in the affairs of the ESA, he was elected as a Honorary Member in 1983.

Adapted (with permission) from obituary by Charles S. Apperson, 2002, *Amer. Ent.* 48:189-190.

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