



From the Chair's Perspective

Greetings to alumni and friends of the Department of Entomology, Iowa State University. I have been serving as Chair of the Department of Entomology here at Iowa State since July 1999,



when I was appointed for a five-year term. I am a Professor of Entomology and Toxicology, and have been on the faculty in the department since 1978. Professor **Tom Baker** served as Chair for seven years (1992–1999) and remains on the Entomology faculty. Those were very good years for our department, and we appreciate Tom's excellent leadership. He initiated the Insect Zoo and plans for a butterfly house. One faculty member retired during those years, and *four* new ones were hired. The new additions and their capabilities have made it an exciting time of growth for us.

We currently have 21 faculty, 20 other permanent staff, 36 graduate students, 17 undergraduate students, nine postdocs, plus numerous student workers, interns, and visiting scholars. Our undergraduate major is as large as I can ever remember, and their Entomology Club is extremely active and promotes the department very well. We will have a comprehensive review of the department coming up in the spring, so we are entering a time of self-

study and assessment of where we are and where we should go over the next six years. Indeed, the impact of several hiring decisions in the next few years will be felt far into the future. As we revise our strategic plan, we realize the importance of being engaged with our students and our stakeholders through our programs of teaching, research and extension. Over recent years nearly all of the faculty have become involved in international programs, reflecting our awareness that we also need to be engaged at a global level.

In our near future, we will see one beautiful new facility for Entomology at ISU—it will be the Butterfly House at the Reiman Gardens (the new horticulture gardens south of the stadium). Construction of a new Conservatory will begin next spring, and it will include an all-glass 2500-sq. ft. butterfly house that will be the jewel of the gardens. There are also plans to demolish the ancient screen house/headhouse behind the Insectary and replace it with a metal building of equivalent size and function.

We are always excited when alumni come back to visit our department, so be sure to let us know if you have a chance to see us.

Joel Coats
Professor and Chair

New Faculty

Jeffrey Beetham joined the faculty in September 1998 and holds a joint appointment between the Departments of Entomology and Veterinary Pathology. Dr. Beetham arrived from the University of Iowa and has established a lab to conduct research on insect vectored protozoan parasites. Research is focused on characterizing differentially expressed surface proteins on insect-vectored protozoan parasites of mammals that are implicated in mediating vector-parasite and mammal-parasite interactions. Present studies involve RNA and DNA

analyses to investigate mechanisms of gene regulation in the sand fly-vectored parasite *Leishmania chagasi*. Beetham has also established an interdepartmental undergraduate program in Emerging Global Disease.



Jeffrey Beetham



New Faculty

Gregory Courtney joined the Entomology faculty in 1997 from Grand Valley State University, Allendale, Michigan. The focus of Courtney's research is the systematics and ecology of aquatic insects. Specific areas of study include the phylogeny of Diptera families; the morphology, phylogeny, biogeography, and historical ecology of aquatic insects; the biodiversity and conservation of aquatic habitats; and the use of aquatic insects as indicators of water quality. Dr. Courtney also oversees management of the Insect Zoo and the Butterfly House.



Insect Zoo and Butterfly House

The Entomology Department's Insect Zoo continues to be one of the more popular venues in town, and the long-term rewards of our efforts are starting to show. With more than 120 presentations to well over 5,000 people, 1999 proved to be another busy year for the Insect Zoo. Audiences, some visiting ISU and others interacting with our "road show," have ranged from preschool children to senior citizens, with most presentations being made to school groups (grades K-12). Our interactive "Zoo cam" (zoocam.ent.iastate.edu) allows people to view live displays via the internet and was among the more popular camera websites in the nation. We have also initiated collaboration with Blank Park Zoo in Des Moines that will benefit both facilities.

Perhaps the most exciting Insect Zoo news is that the Entomology department will play an important role in a new conservatory at Reiman Gardens. The \$9.6 million project currently is in the planning phase but should be completed by August 2002. The new facility will be connected to the existing Mahlstede Building and will include a conservatory, auditorium, café, gift shop, and butterfly flight house. The latter will be a 2,500 sq. ft., all-glass structure, with a circular walkway, water feature, and numerous tropical plants. A variety of exotic

and domestic butterflies will inhabit this tropical environment. Many of these butterflies will be reared in an adjacent support facility and greenhouse. This new facility will be an important part of the Entomology department's educational and outreach program.

Faculty/Staff Awards 1999 – 2000

Tom Baker was honored by being elected Fellow of the American Association for the Advancement of Science for his "pioneering studies contributing to an understanding of how flying insects locate sources of odor and for neuroethologically-based advances in understanding insect olfaction."

Joel Coats and graduate student **Christopher Peterson** were honored by the American Chemical Society with its "Newsmaker" award for their contributions in communicating chemistry to the public. They were cited for their efforts in communicating the results of their research on using compounds extracted from catnip to repel cockroaches. In presenting the award, the society said the ISU project generated media coverage that reached a potential audience of more than 17 million people. Dr. Coats is professor and chair of ISU's Department of Entomology. Chris is a graduate student from Marshalltown. The award was presented on Aug. 22 at the 220th National Meeting of the American Chemical Society in Washington, DC.

Elwood Hart received the Student Activities Center Outstanding Advisor Award for work with the Beta Beta Beta Biological Honor Society.

Larry Pedigo received the title of University Professor from Iowa State University. This title is awarded to senior faculty who have had a significant impact on the department and university in the areas of teaching, research, and professional service.

Jon Tollefson was awarded a Certificate of Appreciation by the National Areawide Integrated Pest Management Program for Corn Rootworm Across the United States Corn Belt, for recognition of a team effort resulting from a partnership with the Agricultural Research Service and other USDA Agencies, universities, and the private sector.



Wendy Wintersteen and **Richard Pope** have been awarded certificates by University Extension in recognition of the completion of 20 and 10 years of service to Extension respectively.

Student Awards 1999 – 2000

The 1999 Herbert Osborn Awards for Professional Performance were presented at the Entomology Department Holiday Party in December. The award in the M.S. student category was presented to **David Coyle** and the award in the Ph.D. student category was presented to **Timothy Nowatzki**.

Carol Fassbinder, an undergraduate student, has received several awards for her research on natural products for the control of varroa mites. These awards include a scholarship from the ISU Program for Women in Science and Engineering for outstanding achievement; the Fourth Place Award for the Intel Science Talent Search in 1999; First Place Army Award at the International Science Fair for which she was the United States Representative at Operation Cherry Blossom in Toyko, Japan in January 2000; winner of the National Junior Science and Humanities competition for which she traveled to London, England for the World Symposium in August 1999; and the Worldwide Young Researchers for the Environment Award for which she traveled to Hannover, Germany for the International WYRE competition in October 2000. Carol's research has also been featured in USA Today, in Ladies' Home Journal, and on Good Morning America. (See related article below – *Entomology Undergraduate Develops Method for Control of Honey Bee Mites*).

Alienor Gilchrist was awarded a Fulbright Fellowship to spend a year in the Ivory Coast conducting research on malaria. She is the first undergraduate at Iowa State University to receive this prestigious Fellowship. Alienor graduated in May after conducting research and her undergraduate honors project in the Beetham lab.

Timothy Nowatzki and **Anthony Boughton** were awarded first and second place prizes respectively in the Ph.D. Student Research Presentation Competition at the North Central Branch Entomological Society of America meeting held in Minneapolis in March.

Entomology Scholarship Drive

The Department of Entomology Student Awards and Scholarships Committee has initiated the "Entomology Scholarship Drive." The scholarship fund would provide one or two scholarships annually for incoming undergraduate students in Entomology. The department attracts deserving students who would be helped considerably by scholarships to assist them during their course of study. Such scholarships have also facilitated recruitment efforts in the past. With the continuing decline in the number of Entomology Departments in the country, we are eager to further increase the profile of Entomology at Iowa State University by strengthening undergraduate enrollment. The ISU Foundation will call Entomology alumni in the fall to seek support for this worthy cause. Entomology alumni and friends may also send checks directly to the ISU Foundation, 2229 Lincoln Way, Memorial Union, Ames, IA 50014.

The final Jean L. Laffoon Memorial Award for outstanding achievement was presented to **Gretchen Schultz** at the Entomology Department Holiday Party.

Colothdian Tate was awarded the George Washington Carver Fellowship from the Iowa State University Graduate College. This Fellowship is a 3-4 year appointment awarded to minority graduate students for research and academic achievement. Cloti is one of only five George Washington Carver Fellows currently on campus.

Bugs on TV

Iowa State University Entomology Club students were on TV last winter on "Ripley's Believe It or Not." Students were filmed creating and then chowing down on cricket Jell-O jigglers, chocolate-coated grasshoppers, and mealworm covered caramel apples.

Similar goodies are served to the public at the Annual Insect Horror Film Festival, which is held each fall and attracts much publicity. The Festival is put on by the Iowa State University Entomology Club.



Undergraduate Develops Method for Control of Honey Bee Mites

While many students at Iowa State become involved in research projects once they arrive at college, 19-year old **Carol Fassbinder**, an incoming sophomore at Iowa State, has been doing research on her family's honeybee colonies since she was twelve. Carol's parents, Robert and Kathryn, both graduates of Iowa State, became involved in the honeybee industry almost 27 years ago. Though her father started his career as an electrical engineer, he became interested in raising honeybees, initially as a hobby, and now considers himself a full-time beekeeper, operating 2,000 colonies in northeast Iowa.

Through close involvement in her family's business, Carol witnessed firsthand the widespread destruction that was caused when two parasites, *Acarapis woodi* (tracheal mite), and *Varroa jacobsoni* (varroa mite), invaded the Fassbinders' colonies about 10 years ago. Carol began to research the many perils of the honeybees in seventh grade, as a science fair project, and has been investigating controls for the mites for the last 6 years. Carol's main focus has been the varroa mite, due to the recent occurrence of widespread varroa resistance to fluvalinate, a pyrethroid that has been the only approved control for the mites since the parasite's establishment in the United States. Together with **Dr. Joel Coats** and **Justin Grodnitzky**, a graduate student in Entomology, Carol has been researching other controls for the mite. The emphasis of this research is on plant-

derived compounds called monoterpenoids, many of which have extremely low toxicities for both the honeybees and humans, and high toxicities to the mites, making their use in the honeybee colony a safer and more desired alternative to harsh synthetic compounds.

This ISU trio conducted laboratory analysis of the effects of monoterpenoid fumigation and contact toxicities toward the honeybee and *Varroa jacobsoni*, and also field studies of the effects of selected monoterpenoids (mainly naturally occurring acetates) on the honeybees and mites. A patent application is pending on this new technology. The goal is to have a more natural, monoterpenoid-based mite control agent on the market for beekeepers in the near future

Edward Knipling dies at 91

Dr Edward Knipling died of cancer on March 17 at his home in Arlington, VA. Dr. Knipling, who received masters and doctoral degrees in Entomology at Iowa State University, was best known for his pioneering work in helping to develop the sterile insect technique. He and his colleague Raymond Bushland used radiation to sterilize male screwworm flies, which were then released to mate with wild females. The unfertilized eggs failed to hatch and the screwworm fly population was eventually eliminated from North America, saving the livestock industry millions of dollars. This technique has been adapted in California and Japan to eradicate fruit flies, and in Africa to control the tsetse fly, the vector for human sleeping sickness.

Among other awards in recognition of his work, Dr. Knipling received the National Medal of Science in 1966, the Presidents Award for Distinguished Federal Civilian Service in 1971, and the prestigious Japan Prize from the Science and Technology Foundation in Japan in 1995. He was listed in 1999 by the Progressive Farmer magazine as one of 21 scientific pioneers who most shaped American agriculture in the last century.

Dr. Knipling devoted his career to pest management. He was former director of the Entomology Research Division of the Agricultural Research Service and spent more than 40 years with the USDA. He is survived by 5 children, 14 grandchildren, and 9 great-grandchildren.



The mite, *Varroa jacobsoni*, that has caused severe damage to the bee industry. SEM photograph by Carol Fassbinder.



Alumni News

Please let us know if you have information to share with friends and alumni of the Iowa State Entomology Department. Items could include job changes, honors and awards, personal notes. Please direct information to Bryony Bonning, Iowa State University, Entomology Department, 418 Science II, Ames, IA 50011-3222; Fax: 515-294-5957; E-mail: bbonning@iastate.edu

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Mixer at the National ESA Meeting

The Mixer for Alumni and Friends of the Iowa State University Department of Entomology at the Joint meeting of the Entomological Society of America and the Entomological Society of Canada to be held in Montreal, Canada will be held in the evening of Monday, December 4, 2000. Details of time and location for this event will be available at the meeting.

Visit our website: <http://www.ent.iastate.edu>.