THE ENTOMOLOGICAL FOUNDATION

Fall 2010 Newsletter, Volume 7, Issue 3

In This Issue

Creating a Buzz about Science

Following the Entomological Foundation's successful educator workshop last year, participants were given the opportunity to apply for a mini-grant to implement the activities they learned during the workshop. We are pleased to announce that the Foundation's judging panel selected the following educators to receive the 2010 mini-grant of $500:

Shannon Unger, *Creepy Critters of Crooked Creek,* Marian University EcoLab, IN

Jeffrey Jones, *Teaching Science in the Elementary Classroom through Insects,* Purdue University/Purdue Extension-Marion County, IN

Jackie Hutchins, *Exploration of the Metamorphic Cycles with Insect Models,* Glenellen Elementary, TN

Deborah Gaff, *Introduction to the Arthropoda*, International School of Columbus, IN

Each grant recipient also has the opportunity to have someone from Purdue University and/or Dow AgroSciences come to their classroom to conduct a hands-on activity. Many thanks to Dow AgroSciences for sponsoring the mini-grant program.

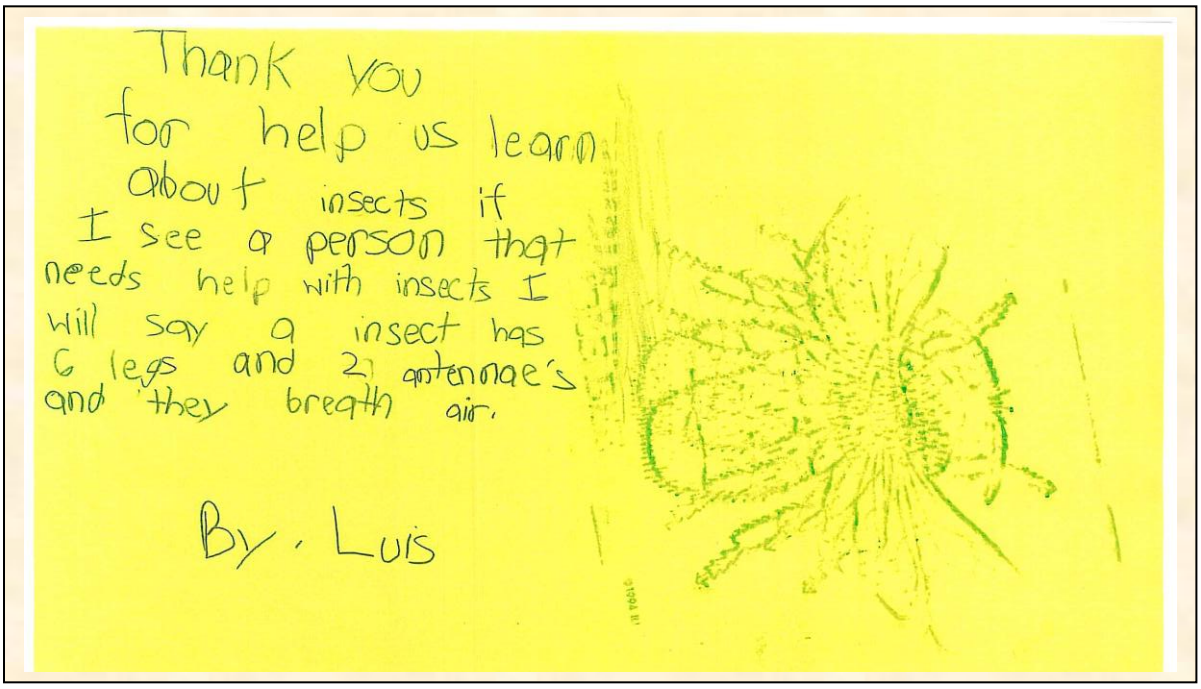
Entomological Foundation's Silent Auction

Each year the Entomological Foundation holds a Silent Auction during the Entomological Society of America's Annual Meeting to benefit the educational programs and services offered by the Foundation. To date items for this year's Auction include a custom made intarsia box created by Doug Dahlman, Eric Grissell's new book *Bees, Wasps, and Ants, The Indispensable Role of Hymenoptera in Gardens,* an antique print donated by Astri Wayadande, unique California wines donated by Gordon Frankie, custom made jewelry by Bonnie Pendleton, and more. Many thanks to Alyssa Anderson, James Cilek, Mary Rob Clarke, Doug Dahlman, Timothy Ebert, Gordon Frankie, Mike Goblirsch, Fiona Goggin, Eric Grissell, Ralph Holzenthal, Gail Kampmeier, LT Kok, Dennis and Leta Kopp, Patina Mendez, Katharine Patrick, Bonnie Pendleton, Marlin Rice, Michelle Smith, Charles Triplehorn, Tom Turpin, S. Bradleigh Vinson, Michelle Walters, and Astri Wayadande who have donated items for the Auction as of November 1st. We continue to seek items for the Auction. Contact April at april@entfdn.org or call (301) 459-9083 for more information. Suggestions for items include *airplane friendly* insect related items such as jewelry, photographs, and illustrations. Starting bids for most items range $5-$25.

Educational Youth Interactive Web Site Update

The new addition to our web site will focus on activities for 5th grade that teach children about the diversity of insects and the interesting and important roles they play in the environment. Many thanks to our Advisory Committee, Mary Kroll, Martha Lutz, and Ronda Hamm for their work on developing the program. If you know an educator who would be interested in pilot testing the new web site activities during the winter of 2011, please contact April at (301) 459-9083 or april@entfdn.org

RECIPIENT HIGHLIGHTS



April 25, 2010

I am a senior Girl Scout working on achieving my Gold Award, a community service project that requires a minimum of 65 hours of work. Drawing upon my own passion for biology, I decided to teach children ages six through eight various science lessons. One such lesson was designed to teach them about classification by answering the question, "What is an insect?" During this lesson children were able to study live crickets and brainstorm the characteristics that all insects share. Then, each child built their own model of an insect to demonstrate their new knowledge.

The children I taught are members of the Lawrence Boys and Girls Club. Lawrence, Massachusetts is a multi-ethnic, low-income community, so I needed to solicit all funds to purchase materials for the class.

When I contacted the Entomological Foundation, I was hopeful that I could receive a small grant to support my project. Although the Foundation lost its funding for the mini-grant program for which I was applying, the organization's volunteers generously sent donations of the materials I needed. I received an array of vials and containers to store the crickets and other insects that I collected, as well as a set of forceps for manipulating the insects. These materials were invaluable in other lessons as well, and will remain at the Boys and Girls Club for future use. The kids were so excited to work with real scientific tools, and this was only possible through the help of the Entomological Foundation with its generous volunteers.

Sincerely,
Emma Sundberg, MA

Entomological Foundation's Awards Dinner and Dance Update

The Entomological Foundation will present the Foundation's professional awards during its Awards Dinner and Dance. Through these awards, the Foundation recognizes the special educators and entomologists who have advanced the field of entomology and the quality of entomological education. Come join us for dinner in San Diego, California in the Golden Ballroom and celebrate the accomplishments of our Awards Dinner Honorees and the Foundation's professional award winners:

Entomological Foundation's Medal of Honor
Stan Beck, Fred Knapp, Larry Larson, James Oliver, Eldon Ortman, Bobby Pass, Lynn Riddiford, Robert C. Riley, Manya Stoetzel, and Charles Triplehorn. The Medal of Honor is the highest award presented by the Foundation and is given only to those who have attained preeminence in the field through outstanding contributions to the field of entomology.

Award for Excellence in Integrated Pest Management
Frank Zalom, Agricultural Experiment Station at the University of California, Davis

ESA President's Prize for Outstanding Achievement in Primary Education
Maureen Murphy-Foelkl, Chapman Hill Elementary in Salem, Oregon

ESA President's Prize for Outstanding Achievement in Secondary Education
Jennifer Chong, Saint Lawrence Academy High School in Santa Clara, California

Henry and Sylvia Richardson Research Grant
David Crowder, Department of Entomology at Washington State University

IPM Team Award
The Urban Ant Pest Management Alliance Team: Michael Rust, Donald Reierson, John Klotz, and Les Greenberg, University of California-Riverside; Mark Robertson, CA DPR; John Kabashima, UCCE Orange County; Cheryl Wilen, UCCE Statewide IPM; Patrick Copps, Orkin Pest Control; Herb Field, Lloyd Pest Control; and Keith Willingham, Western Exterminator Company. Three additional pest management companies participated as affiliate team members.

Recognition Award in Urban Entomology
Richard Redak, Department of Entomology at the University of California, Riverside

The Foundation's Annual Dinner pays tribute to individuals who have demonstrated outstanding support and commitment to entomology. The event also raises funds to support the Foundation's educational programs. Dress for the event is business casual. Contact April Gower, april@entfdn.org or see http://www.entfdn.org for event and ticket information.

Many thanks go to the following sponsors of this event as of November 1st - BASF, Bayer CropScience, Clarke Mosquito Control, Dow AgroSciences, Entomological Society of America, FMC, Fred Knapp, Sharron Quisenberry, Trece, Inc., University of Kentucky- Department of Entomology, and S. Bradleigh and Pat Vinson.

2010 AWARD RECIPIENT HIGHLIGHTS

The Entomological Foundation is pleased to announce its award winners for 2010. The Foundation's awards program recognizes outstanding students and professionals in entomology and recognizes educators who teach entomology in grades K-12. On the following pages you will learn about these outstanding students and entomologists along with outstanding educators working to excite young people about science through insects. The awards program is presented annually through support provided by our generous funding partners.

SUPPORTING EDUCATION IN INSECT SCIENCE

The Entomological Foundation recognizes excellence and supports continued education of students in entomology and related disciplines.

Stan Beck Fellowship
W. Vanessa Aponte-Cordero is a Ph.D. candidate at Pennsylvania State University, where she also received her M.S. degree in Entomology. Her research focuses on using chemical elicitors of induced resistance against pests of tomato plants in a commercial style high tunnel production system. She is studying the behavioral response of *Frankliniella occidentalis* on tomato plants whose defenses are activated at the seed level. Her research has shown that tomato plant defenses can be induced at the seed level and repel thrips under greenhouse conditions. As a pest management alternative, she is trying to understand the thrips behavioral response to plants treated at the seed level with different dosages of methyl jasmonate and compare them to commercial seed treatments. During her Master's graduate studies, she was diagnosed with Relapsing Remitting Multiple Sclerosis, an inflammatory disease of the central nervous system.

BioQuip Products Undergraduate Scholarship
Samantha Taylor is an undergraduate student at the Pennsylvania State University. Samantha has been fascinated with insects since she was a little girl. She is currently conducting research related to her honors thesis to determine if a synergistic effect exists between BT corn pollen and the neonicotinoid, clothianidin, when fed to honey bees by measuring their mortality, weight, and development of their hypopharyngeal glands. The goal of this experiment is to provide possible explanations as to why the widespread loss of honey bee colonies, known as Colony Collapse Disorder, is occurring. After earning her degree in biology and entomology, she plans to attend graduate school to expand her interest in entomology by achieving a Ph.D. in entomology.

Pioneer Hi-Bred International Graduate Student Fellowship
J. Megan Woltz is a Ph.D. student at Michigan State University, Department of Entomology. Her graduate research focuses on how insect predator-prey relationships and ecosystem services in agro-ecosystems are influenced by local vegetation and landscape characteristics. Specifically, she is examining how habitat management and landscape context impact predation on the soybean aphid, *Aphis glycines*. Megan's study involves the planting of flowering buckwheat strips along the edges of fields, then examining the diversity of predators and their impact on aphid numbers in the neighboring field. She is also studying how the presence and arrangement of key habitats in the landscape influence the movement of lady beetles through soybean fields, and the subsequent

effects on biocontrol. Her goal is to develop sustainable agricultural methods that allow conventional farmers to receive the maximum ecosystem services benefit from the surrounding landscape while also maximizing yield on land they have in crops.

RECOGNIZING EXCELLENCE AND ACHIEVEMENT IN EDUCATION AND INSECT SCIENCE

Award for Excellence in Integrated Pest Management
(Sponsored by Syngenta)
Dr. Frank Zalom is a Professor of Entomology, Extension Agronomist, and Entomologist in the Agricultural Experiment Station at the University of California, Davis. His current research focuses primarily on California specialty crops including tree crops (almonds, olives, prunes, peaches), small fruits (grapes, strawberries, caneberries), and fruiting vegetables (tomatoes), as well as international IPM programs. The IPM strategies and tactics he has developed include monitoring procedures, thresholds, pest development and population models, biological controls, and use of less toxic pesticides, which have become standard in practice and part of the University of California IPM Guidelines for these crops. His lab has responded to six important pest invasions in the last decade with research projects on glassy-winged sharpshooter, olive fruit fly, a new biotype of greenhouse whitefly, invasive saltcedar, light brown apple moth, and the spotted wing Drosophila. The results of these studies are reflected in Dr. Zalom's authored/co-authored 290 authored/coauthored refereed journal articles or book chapters and 340 extension publications. He was Director of the University of California's Statewide IPM Program for 16 years, and is Co-Chair of the APLU National IPM Committee.

Entomological Society of America's President's Prize for Outstanding Achievement in Primary Education
Maureen Murphy-Foelkl is a 3rd grade teacher at Chapman Hill Elementary in Salem, Oregon. Maureen's task in teaching entomology is to move the students toward making closer observations and more sophisticated understanding of insects, connecting or differentiating them. She unites local scientists to share their expertise and knowledge with her students. In her lesson plan *What's for Dinner? An Inquiry Lesson on Insect Food Sources,* students are introduced to the walking stick, an unfamiliar insect. Students focus on the process of scientific investigation while increasing their understanding of nonnative species. The program includes students preparing mini habitats for their walking sticks. As a group, students chart their inquiries, observations, and conclusions. Data are collected, results graphed and journaled then conclusions are presented to the class.

Entomological Society of America's President's Prize for Outstanding Achievement in Secondary Education
Jennifer Chong Claudio is the Science Department Chairperson and a Biology and Anatomy/Physiology teacher at Saint Lawrence Academy High School in Santa Clara, California. Jennifer began using insects as educational tools four years ago when she realized her biology students underappreciated insects as animals. She uses insects over other models for biology because they are easily observed in their natural environments and due to their availability. By the end of her lesson, *Invertebrate Investigation: An Entomological Lesson*, students are able to identify and describe at least four

characteristics of insects, explain how genetic variation affects organisms, and present an oral statement about their observations. This lesson includes having students send a postcard to their friends explaining what they learned.

Lillian & Alex Feir Graduate Student Travel Award
Genet Tulgetske is a Ph.D. candidate in the Entomology Department at the University of California, Riverside. Her research focused on investigating sex determination in a small parasitoid wasp by identifying and manipulating contributing factors such as temperature, age, genetic background, and endosymbiotic *Wolbachia* bacteria. The results may contribute to the development of more effective biological control programs by providing an understanding of the effects of mass rearing and culture practices on the sex ratios of parasitoid wasps. She will be presenting a 10-minute paper titled *Wolbachia penetrance and its relationship to bacterial density in parthenogenetic Trichogramma* at the ESA annual meeting. Genet has earned many awards, scholarships and grants to help fund her education and attendance at professional conferences.

Integrative Pest Management Team Award (Sponsored by Dow AgroSciences)
The Urban Ant Pest Management Alliance Team, the winner of this year's award, reduced the amount of pyrethroids used to control ants by at least 50% and developed strategies that prevent or significantly reduce the amount of insecticide in water runoff. Ants are one of the major pests around structures in urban environments. Commercial pest management companies throughout California report that 65-80% of their pest control services deal with ants. The use of pyrethroid insecticides has dramatically increased in the last 10 years causing unacceptable amounts of these insecticides to be detected in urban waterways. Reducing the frequency of applications, intentionally avoiding unnecessary application of pyrethroid insecticides, and using alternative low-impact treatments significantly reduced the insecticide runoff. Members of the Pest Management Alliance held two statewide conferences to demonstrate their findings and developed an ant website incorporating the latest information on ant identification and biology, and IPM techniques, both non-chemical and chemical measures. Team members include Michael Rust, Donald Reierson, John Klotz, and Les Greenberg, University of California-Riverside; Mark Robertson, CA DPR; John Kabashima, UCCE Orange County; Cheryl Wilen, UCCE Statewide IPM; Patrick Copps, Orkin Pest Control; Herb Field, Lloyd Pest Control; and Keith Willingham, Western Exterminator Company. Three additional pest management companies participated as affiliate team members.

Michael Rust

Donald Reierson

John Klotz

Les Greenberg

Mark Robertson

John Kabashima

Cheryl Wilen

Patrick Copps

Herb Field

Keith Willingham

Shripat Kamble Urban Entomology Graduate Student Award for Innovative Research

Ameya Gondhalekar is a Ph.D. candidate in Entomology at the University of Florida. He earned his B.S. in Agriculture Science (2003), and M.S. in Entomology (2005) from renowned agricultural universities in India. Before joining the Ph.D. program at the University of Florida, Ameya was working as a research assistant at the National Chemical Laboratory in Pune, India. His Ph.D research, under the guidance of Dr. Michael Scharf, examines insecticide toxicology and molecular physiology in the German cockroach. This work is important for understanding basic physiology, toxicology, insecticide resistance evolution, and resistance management in cockroaches from urban environments. Ameya's project is being conducted in collaboration with and supported by DuPont Inc.

Larry Larson Graduate Student Award for Leadership in Applied Entomology (Sponsored by Dow AgroSciences)

Diane Silcox is a Master's student in Entomology at North Carolina State University, soon to be entering the PhD program. Her MS research focused on characterizing the behavioral responses of mole crickets, pests of turfgrass, which enable them to escape or minimize exposure to insecticides applied in turf systems. She devised a procedure for radio-tracking individual mole crickets in the soil using micro-transmitters to understand mole cricket behavior to improve pesticide performance and reduce unnecessary use in the environment while saving turf managers time and money. As the President of the NCSU Entomology Graduate Student Association (EGSA), Diane is responsible for coordinating and overseeing the outreach activities of the department. She would like to work in academia with a teaching/extension appointment to teach students and the general public about basic and applied science relating to biology, insects, turfgrass, and integrated pest management.

Recognition Award in Urban Entomology (Sponsored by S.C. Johnson & Son)

Dr. Richard Redak is a Professor and Chair with the Department of Entomology at the University of California, Riverside. His recent research has emphasized developing disinfestation treatments and quarantine procedures for commercial nursery crops grown in California. This research is directed at preventing the movement of the glassy-winged sharpshooter from areas of its current urban distribution to areas where it threatens both additional urban landscapes as well as a variety of California's agricultural commodities, especially those involving grapes, almonds, and olives. Dr. Redak and members of his lab developed a comprehensive research program to describe various aspects of the life history of this insect and have developed quarantine strategies for its management and containment. The research set biological and cost effective protocols that allowed California's multi-billion dollar urban-based nursery industry to ship plant material to the markets throughout the country with minimal risk of introducing a dangerous insect disease vector. As this insect is a serious vector of many *Xylella* bacterial diseases (e.g., Pierce's disease of grapes, leaf scorch diseases of oleander, olive, almond, alfalfa, as well as multiple scorch diseases of urban trees and shrubs), Dr. Redak's research results have not only prevented the movement of the insect vector, but have also likely prevented numerous episodes of serious crop failures and further urban tree declines due to these diseases.

Henry and Sylvia Richardson Research Grant

David Crowder is a Postdoctoral Associate in the Department of Entomology at Washington State University. Dave's research is on the community ecology of biocontrol systems, examining the relationship between natural enemy biodiversity and natural control of the Colorado potato beetle. The central focus of his research is to determine whether the conservation of beneficial predators is most influenced by in-field strategies such as the planting of wildflower insectaries, or is primarily determined by the composition of surrounding habitats at the landscape level, as well as determining how predator abundance affects pest control. The results will be used to educate regional growers on conserving beneficial insects through local habitat modification, and /or strategies to engineer whole farms to maximize predator movement among crops. He has more than 20 papers published in publications including *PNAS, Journal of Animal Ecology, and Nature Biotechnology*.

Snodgrass Memorial Research Award

Seth Bybee's doctoral dissertation was titled *"Phylogenetics, evolution and systematics of Holodonata with special focus on wing structure evolution: morphological, molecular and fossil evidence".* It is a detailed study of the group Holodonata (the extant Odonata plus extinct fossil lineages). Dr. Bybee's research focused on the evolution of morphology associated with flight in the insect order Odonata and producing a reliable classification scheme based on the integration of molecular and morphological data within a single phylogenetic analysis. A major portion of his dissertation investigated the evolution of the odonate wing and assessed homology among the morphological characters for the entire lineage. Four out of six chapters of his dissertation have been published in peer-reviewed journals. Since graduating, his postdoctoral research has focused on the evolution of visual systems in *Heliconius* butterflies as well as the phenotypic variation found among wing pigments. He is currently a Postdoctoral researcher at Brigham Young University where his research focuses on higher level phylogenetics in Pancrustacea and the evolution of odonate visual systems

Starks Plant Resistance to Insects Graduate Student Research Award

Godshen Pallipparambil is a doctoral student of Dr. Fiona Goggin in the Department of Entomology at the University of Arkansas. His research is titled: Interactions of the *Mi*-mediated resistance in tomato with the potato aphid, *Macrosiphum euphorbiae* and zoophytophagous predators, *Orius insidiosus* and *O. pumilio*. His study used the electrical penetration graph technique to examine the impact of resistance on aphid feeding behavior and to analyze how the feeding behavior of resistance-breaking aphids differs from that of aphids that are effectively controlled by resistant cultivars. He also investigated the direct effects of *Mi*-mediated resistance on minute pirate bugs. His research also includes a study to localize *Mi*-mediated resistance in plant tissue using techniques like laser capture microdissection and in situ RT PCR.