



Summer 2007 Newsletter, Volume 4, Issue 2

EDUCATING CUBS THROUGH BUGS

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On May 19 the Entomological Foundation and more than 1,000 Cub Scouts participated in the Greater Washington, DC area Cub Scout Jamboree held at Camp William B. Snyder in Haymarket, Virginia. One of the day's events, *Cubs and Bugs Galore*, offered Cub Scouts, ages 7-10, and their leaders the opportunity to discover the exciting world of insects.

With the help of the Foundation's Counselors Dennis Kopp, USDA CSREES, and Rick Meyer, USDA CSREES, PAS, Cubs Scouts learned about insects, received fun, educational materials to take home, and much more. This experience was intended to peak the interest of Cub Scouts in their insect collecting projects and to stimulate interest in science.

The Foundation has been invited to participate in the event during 2008. If you would like to take part in next year's event or would like to share your educational materials, such as insect posters, insect identification cards, or hands-on activity guides, please contact April Gower at (301) 459-9083.

Many thanks to Dennis Kopp and Rick Meyer for their on-site participation in the event. Special thanks to Bayer Environmental Science; Ricardo Bessin, University of Kentucky; Ashleigh Morton, Purdue University; and M.O. Way, Texas A&M University for providing the Foundation with the educational materials distributed to all the Cub Scouts and their leaders during the event.

Foundation Announces New National Program to Educate Young People About Science Through Insects

The Entomological Foundation is happy to announce it has received funding to begin the first phase of development on a new program to educate young people about science through insects. The program, over the next few years, will contain four components: 1) a comprehensive Insect Science Education Kit for Teachers to facilitate delivery of entomology educational resources; 2) an Educational Youth Interactive Web Site to educate young people through interactive games, exercises, and quizzes based on grade level; 3) Professional Development Training through web-based videos to illustrate the power of using insects to teach and stimulate interest in science; and 4) Educator Recognition, a program to award mini-grants to K-12 educators who propose innovative, community-based one-year programs that enhance insect science education.

By expanding the types of educational materials that we offer and by making them more available and easier to use, our educational outreach program can become a primary vehicle for promoting insect science literacy and preparing the next generation of leaders in the entomological sciences. Many thanks to our funding partners BASF, Clarke Mosquito Control, Dow Chemical Foundation, DuPont Crop Protection, and Monsanto for their support of this program. Updates will be given as the program progresses.

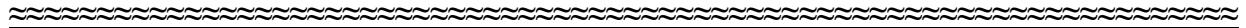


ENTDIGITAL LIBRARY UPDATE

The Entomological Digital Library team would like to thank all of you who recommended materials and resources for the library and who are helping to alert your colleagues about this initiative. As of June, 70 resources have been nominated to become part of the library.

Materials and resources available through the library will be targeted to educators and undergraduate and graduate science and non-science students. We hope through this library to encourage the use of insects as subjects and models for all biological subjects. To suggest quality materials for the library which are focused on one entomological idea, topic, or organism, please visit www.entlibrary.org.

This program is a component of the Biological Sciences Education Network Collaborative Biological Digital Library. Funding is provided by the American Association for the Advancement of Science. North Carolina State University, Clemson University, Iowa State University, and the Entomological Foundation are working together to provide educators and learners with one-stop electronic access to quality entomology educational materials and resources through the EntDigital Library.



RECIPIENT HIGHLIGHTS

The Foundation's office has been very busy this year filling requests from educators for free materials to help teach children about science through insects. Many thanks to all of you who have alerted your friends, family, and colleagues about the Foundation's outreach program and the opportunity to receive educational materials. Since January 1, 2007, more than 5,000 K-12 students and educators across North America received free educational materials from the Foundation. Most recently, requests have come from as far as Nigeria and as close as Virginia. Below is an excerpt from a letter received from an educator thanking our funding partners for providing this outreach opportunity:



Bug Day was great!!! I had a May Beetle for the kids to hold. Almost none of them wanted to hold it until I gave stickers to the ones who did. All of a sudden almost everyone wanted to hold it. Behold - the power of stickers to young children!!! (I gave a ladybug sticker to everyone.) They loved the bookmarks - thanks for sending them. I have already used the teachers' guide book twice. The students are from the ABC Pre School which is part of our local public school system. The children attending are all considered "high risk". Again, thanks so much for all your help....

4-H Program Assistant, Howard County, AR

Thank you for providing teachers in our district with resources. They really appreciate the materials you have to offer. Thank you very much to you and the Entomological Foundation for providing our teachers with these top of the line resources.... Elementary Science Consultant, Calgary, Alberta, Canada



EXPERIENCES FROM THE FIELD OF TEACHING

“Natural history, youth’s glorious study”

(Jean Henri Fabre)

By Dr. Martha Rosett Lutz

I love walking into a classroom full of children—if my arms are filled with cages of live insects and spiders. Live cargo almost guarantees instant and full attention from everyone I meet, which is great, because getting attention is the first cognitive event in learning. So far, nothing else I have found (not even free food!) has the magical appeal of live arthropods: caterpillars, tarantulas, big beetles (any kind will do), praying mantids, walkingsticks, cockroaches, and whatever else is available. Facilitating cognitive events involved in true learning is one of my primary responsibilities when I plan an outreach event. Fortunately, live insects make this easy.

When I walk into a room where children are already assembled, I pull out one of the more unusual specimens I have with me and introduce it briefly. If I have a chance to get set up first, I make sure that some large, unusual insect is strolling around on my shirt or arm when the audience first arrives. These strategies enhance that first step of getting the learners’ attention. The next cognitive event involves assisting the learners in selecting specific sensory input, plus diagnosing misconceptions. Accomplishing this is simple: I ask them how they can tell an insect from a spider, or ask if anyone can describe the life cycle of a typical insect.

My goal is to help the learners focus on defining characteristics of insects, plus some key differences between vertebrates and arthropods. I sometimes have younger students tap their elbows, and I ask them to tell me about the hard thing inside that they can feel through their skin. This leads to an interactive discussion of exoskeletons and molting. I show them shed cuticles to compare with live animals. I encourage them to gently tap a live insect (a large beetle works well) so they can feel the exoskeleton.

Throughout the presentation I weave in lively anecdotes about individual animals. Some tarantulas are shy, so I describe their personal habits to illustrate their bashful nature. Cockroaches are scavengers, so I portray them as “like small dogs: any food that falls on the floor belongs to them; but unlike dogs there is no barking or scooping to deal with.” This strategy satisfies another cognitive event in learning: helping the learners link their own lives and prior experiences with new information.

Another learning strategy is the *Earth Without Insects* group activity. I tell students that they already know more about insects than they realize. To demonstrate this, I ask them to break into small groups of 4-6 (preferably with adults available to assist very young students). They brainstorm the following scenario and questions.

Scenario: Imagine the Earth with **no insects**.

- 1— What would happen if all the insects on Earth just disappeared suddenly?
- 2— If you could magically remove all the insects from the Earth *right now*, what would the world look like after a year?
- 3— How would Earth be different from what we are used to?
- 4— What might stay the same?

Make a list of things that would be different, and decide which things would be better and which things would be worse than the way the planet is right now.

- 5— On the whole, is it good or bad for humans that there are insects on Earth?

While the groups work on these questions, I spend time with each group helping them discover how much they already know about insects. After 5-10 minutes I ask each of the questions aloud and solicit answers from the students. They usually recognize the effects of removing pollinators, disease vectors, and pretty butterflies, along with pests such as termites and ants. Occasionally someone will remember that insects are beneficial for removing dung and carrion, or for producing honey, beeswax, shellac, and dye. Rarely someone will mention biological control. After we discuss question 5, it is time for them to touch and hold live animals.

This combination is a powerful cognitive approach: get their attention, focus on specific information, diagnose prior knowledge, and generate links between prior experiences and new information. Making sure the students get up-close and personal with insects is a great way to promote the final step in real learning: subsuming a conceptual framework into long-term memory. Then there is the charisma factor: touching and holding live animals often causes some of the children to announce that they want to be entomologists! Maybe that wide-eyed child in your class will be part of the next generation of entomologists ... or part of a generation with a higher index of entomological literacy. Either way, we all win.

Larry Pedigo to be Honored by the Entomological Foundation

New in 2007, a Medal of Honor will be awarded to all individuals honored for their outstanding contributions to entomology by the Entomological Foundation during its Benefit Dinner. Dr. Larry Pedigo will be the first recipient of this honor at the Entomological Foundation's 15th Annual Benefit Dinner and Dance, in San Diego, California. Dr. Pedigo is being honored for his outstanding commitment to Entomology and his contributions in the areas of Integrated Pest Management, Bioeconomics, and Insect Population Ecology. Dr. Pedigo achieved the highly prestigious rank of University Professor at Iowa State University (Ames, Iowa) in 1999, where he distinguished himself on the basis of excellence and productivity over a career spanning 32 years, and brought recognition to his institution. Dr. Pedigo continues to serve as University Professor Emeritus. He has published prolifically throughout his career. His book, *Entomology and Pest Management* (Macmillan; now in the 5th edition) and the associated laboratory workbook have become the standard texts nationally and internationally for college-level instruction. In addition to these publications, he served as major advisor for 28 Ph.D. and 19 M.S. graduate students and provided mentorship to countless other students at the undergraduate and graduate (70 committees) degree levels. His mentorship has been recognized through many awards, including the Iowa State Mary Ellen White Graduate Faculty Award for Excellence as a Mentor of Graduate Students.

Dr. Pedigo has also contributed to the successful development and delivery of numerous undergraduate courses (including 6 new ones for Iowa State) and was Creator/Chair for the Pest Management Curriculum. He received numerous awards, including the North Central Branch C.V. Riley Achievement Award and Fellow of the Entomological Society of America. The breadth, depth, and reach of his accomplishments have far exceeded Iowa, the North Central Region, and the USA – his contributions in ecology, in advancing the economic injury level and threshold concepts and development of Economic-Injury Levels, in sampling, and in many other areas have become classics globally.

More information concerning the Benefit Dinner will be published on the Foundation's web site. For questions, please contact April Gower, (301) 459-9083, april@entfdn.org.



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