

ECOLOGY AND EVOLUTIONARY BIOLOGY



EEB Alum Stan Malcolm (Ph.D. 1981) has been documenting a small section of the Air Line Trail in Hebron, Connecticut, for over four years. His web site (www.performance-vision.com/airline) offers in excess of 1,500 photos of the trail in all seasons. The cover of this newsletter provides a sampling of his work.

Letter from the Department Head

This has been a year of transition for the Department of Ecology and Evolutionary Biology. In January, I was appointed Department Head, succeeding Kent Holsinger, who served very ably as Acting Department Head for a year and a half after Greg Anderson took over as Vice Provost and Dean for Research and Graduate Education. Kent enjoyed a well-deserved sabbatical semester while I have been attending to departmental matters.

As this issue of the Newsletter demonstrates, this has been another very productive year for both our faculty and graduate students. Members of our faculty wrote or edited five major books that were published this year, an unusually high number for a science department in which the usual mode of publication is in scientific journals.

Several of these books, including my own on amphibian ecology and behavior and the *Connecticut Butterfly Atlas*, are the result of many years of work now coming to fruition. In addition, our faculty members have continued their tradition of producing important new scientific publications with more than 75 papers and book chapters published this year, along with others authored or co-authored by graduate students. These papers reflect the extraordinary diversity of our department with topics ranging from descriptions of many new species of shark parasites to phylogenetic studies of mosses and insects, studies of plant and animal morphology, research on the behavior and communication of ants, lacewings, spiders, moths, beetles, and frogs, paleontological studies of marine fossils, modeling the distribution of birds and other organisms at large spatial scales, and the application of ecological principles to conservation and management programs.

At the same time, our faculty and graduate students have continued their strong commitment to providing students with the highest quality educational experience to be found at any state university in the Northeast. Nearly all of our faculty members and our graduate teaching assistants routinely receive very high teacher ratings from students, and we continue to offer a wide range of courses for both undergraduate and graduate students. The number of undergraduates seeking research opportunities in faculty laboratories continues to increase, and an unusually large number of our undergraduates were awarded SURF (Summer Undergraduate Research Fund) grants to conduct research in sites as far away as Panama and South Africa. Our graduate students continued to excel in their presentations on research at another very successful EEB Graduate Student Symposium this spring and at professional meetings, where several students won best student paper awards. In addition, several members of our faculty were honored with awards for service or research contributions at the University and national level, and these are described in more detail in this issue.

As we enter a new academic year, we will begin the planning for a new building that eventually will replace the aging Torrey Life Sciences and, if all goes well, will reunite our department into a single research laboratory and office building, with additional renovated space eventually coming online to replace our current teaching classrooms and laboratories.

We appreciate the support of all of our alumni and friends, and we hope you will consider making a generous donation to one of our many funds set up to benefit the department and our research and teaching programs.



Dr. Kentwood D. Wells
Department Head

EEB ALUMNI COMPLETE COMPREHENSIVE GUIDE TO STATE PLANTS

Two UConn EEB alumni, **Kenneth J. Metzler**, '73 BS, '77 MS, and **Juliana Barrett**, PhD '89, have published the first book classifying all of the vegetation of Connecticut.

The Vegetation of Connecticut: A Preliminary Classification has been in preparation since the early 1990s and includes data collected by various ecologists, many of them UConn faculty and students, dating back 25 years.

“It took a lot longer than I thought it was going to take,” said Metzler. Both authors are plant ecologists and were graduate students in the Department of Ecology and Evolutionary Biology.

The book will be a useful guide for researchers, developers, land trusts, and towns as they consider the environmental impact of land use and resource management.

It will provide a comprehensive baseline against which environmental changes can be measured, said Barrett. It already shows that “there are many areas where there is heavy deer browsing and the whole shrub layer is nonexistent.”

Metzler is an environmental analyst with the State Geological and Natural History Survey of Connecticut, a division of the state Department of Environmental Protection (DEP), which published the book. Barrett, formerly director of the Nature Conservancy's Tidelands program, is an extension educator with Sea Grant at Avery Point.

The book's purpose was to classify all of Connecticut's plants in relation to the landscape where they exist, identifying the type of soil, land forms, and water flow in the area.

Deciduous forests, for example, are divided into subcategories of cold-deciduous, temporarily flooded cold-deciduous, and seasonally flooded cold-deciduous, and each of these has multiple categories of tree, shrub, and other plant layers and lists of where they are found in the state.

That approach was taught by the late Dr. Antoni W.H. Damman, a plant ecology professor at UConn who schooled generations of students in his systematic approach of sampling and analyzing plant data in the

context of habitat. He demonstrated that shrubs and herbaceous plants, rather than trees, were more reliable indicators of how vegetation responds to environmental change.

“He brought a lot of clarity to plant ecology,” said Metzler.

In the process, Damman was instrumental in teaching ecology students how to collect plant data, said Barrett.

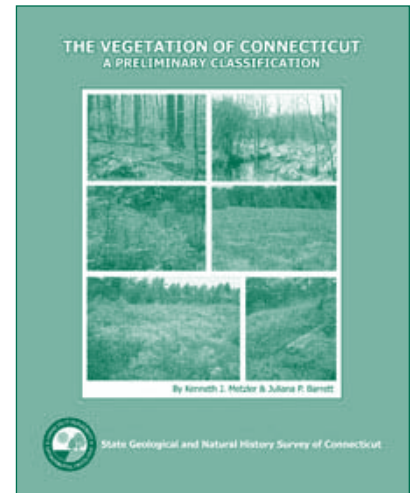
The new book is modeled after a national classification published in the late 1990s that is the standard for many federal agencies and the Ecological Society of America. It is the latest in a series of publications done by the state survey – on the minerals, flora, and the spiders of Connecticut, a bulletin that is considered the authoritative document on the spiders of eastern North America, Metzler said.

The last classification of Connecticut's vegetation was published in the early 1900s, and it did not cover the entire state, Metzler noted.

“It's a daunting task. You don't know where the holes are until you put it all together,” he said.

The book is dedicated to the memory of Antoni Damman, who died in 2000. Other ecologists in EEB cited by the authors for their help are John Silander, Jr., Leslie Mehrhoff, David Wagner, and Bernard Goffinet.

The book is available at the DEP Store, 79 Elm Street, Hartford, CT 06118-5127, (860) 424-3555, and at the UCONN CO-OP.



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UConn Traditions*

LITTLE BUT MIGHTY – MIGHTY SMART THAT IS!

When **Jadranka Rota** came to UConn from the University of Zagreb to study lepidopteran systematics (the science of classification of butterflies and moths) she could not have imagined that her research would eventually be posted on YouTube. The journey for a Croatian biology student, from her biology class at the University of Zagreb to YouTube is an interesting one.

Jadranka, a Ph.D. candidate in Dave Wagner's lab, and Dr. Wagner were conducting research in Costa Rica on the behavior of metalmark moths (*Brenthia hexaselena*) when they noticed some "weird" behavior on the part of the moths. Wagner's observation was that "they looked like jumping spiders" said Rota.

In the food chain jumping spiders are one notch above the moths. However, it appears the moths have developed a unique mechanism to avoid being a spider's next meal. The tiny moth, with a wing span of 8-10 mm (less than ¼ inch), can rotate two of its four wings out to the sides to mimic the menacing posture of its spider predator.

You may ask "just how menacing can a ¼" moth be?" Jadranka's experiments indicate they can be very menacing. A Plexiglas arena 10 x 5 x 4 cm was constructed for experiments to test the success of the moths that have developed this mimetic behavior against the spiders. In 77 trials to see whether the spider would catch the moth, the moth was successful at avoiding the spiders 72 times when the moths and spiders were evenly matched in size.

In 39 trials with larger jumping spiders, the metalmark was successful 29 times. A video of controlled experiments with moths that haven't developed the mimetic behavior is quickly viewed – it is over in seconds. Additional experiments showed jumping spiders often responded to the metalmark's behavior with territorial displays indicating they mistook the moths for their own kind.

In nature, cases of predator mimicry "are both exceptional and rare" wrote Rota and Wagner in a scientific paper entitled: "Predator Mimicry: Metalmark Moths Mimic Their Jumping Spider Predators." The research was published in December in the inaugural edition of the e-journal *PLoS ONE* – an ideal medium because it allowed them to link viewers to videos of their experiments.

So how do we get from a highly respected biological research publication to YouTube? Rota, stopping over at Heathrow Airport on her way home to Croatia for winter break, took a call from a *Live-Science* interviewer. From there the story was picked up by *National Geographic*, Fox News, and early in March, *Current Science*. The paper by these collaborators can be found at www.plosone.org. Click Evolutionary Biology and the paper's title noted above. Video 3 shows the control experiment; Video 4 shows the face off.

It was a short hop from here to YouTube where you can find the video at <http://neurophilosophy.word-press.com/2006/12/22/the-moth-in-spiders-clothing/>.

*Adapted from an article by Cindy Weiss
UConn Advance, April 2007*

EEB STUDENT RECEIVES SMITHSONIAN POSTDOCTORAL FELLOWSHIP

Dr. Jadranka Rota, Ph.D. 2007, will be leaving EEB in January, 2008 to continue her work on choreutids (metalmark moths) at the Smithsonian Institution in Washington, DC.

The Smithsonian Institution offers fellowships in fields that are actively pursued by the museums and research organizations of the Institution. These fellowships support research in residence at all Smithsonian facilities except the Smithsonian Astrophysical Observatory. For additional information, please go to the Smithsonian's Office of Research and Training site @ <http://www.si.edu/ofg/ofgapp.htm>.

KENTWOOD WELLS APPOINTED NEW HEAD OF ECOLOGY AND EVOLUTIONARY BIOLOGY

In January, Dean Ross MacKinnon appointed **Dr. Kentwood Wells** as the new Head of the Department of Ecology and Evolutionary Biology, succeeding Greg Anderson, who is currently serving as the Vice Provost and Dean for Research and Graduate Education, and Kent Holsinger, who served as Acting Department Head.

Dr. Wells did his undergraduate work in Zoology at Duke University and received his Ph.D. from Cornell in 1976. He then spent a year in Panama as a Postdoctoral Fellow at the Smithsonian Tropical Research Institute, living at the STRI field station on Barro Colorado Island. He arrived at the University of Connecticut in 1977, before the formation of the current Department, as a member of the Systematic and Evolutionary Biology Section of the Biological Sciences Group.

Kent has been a member of the Advisory Committee to the Department Head since the formation of the department in 1994 and helped to write the original mission statement for the new department. He also has served on several occasions as Acting Department Head as well as Chair of the Graduate Admissions and Awards Committee, Chair of the Courses and Curriculum Committee, the EEB representative to the CLAS Courses and Curriculum Committee, and a member of the General Education Oversight Committee that designed the new general education curriculum. Dr. Wells has also served on many faculty search committees and many departmental Promotion, Tenure, and Reappointment Committees, as well as the Dean's Advisory Council on Promotion and Tenure and a variety of other committees.

Since coming to the University of Connecticut, Kent has taught several different versions of introductory biology, as well as an undergraduate course in Biology of Vertebrates and upper-level classes in Vertebrate Social Behavior and Herpetology.

His research has focused on the behavioral ecology, communication, and reproductive biology of amphibians and has involved field work both in Connecticut and in Panama, Trinidad, and Puerto Rico. His 1977 review paper on "The social behaviour of anuran amphibians," published in *Animal Behaviour*, was designated a "Citation Classic" by the Institute for Scientific Information in

1991. He was elected a Fellow of the Animal Behavior Society in 1997.

He has served as an Associate Editor of *Herpetologica*, on the Editorial Boards of *Behavioral Ecology and Sociobiology* and *Copeia*, and as Herpetology Book Review Editor for *Copeia*. A short segment on his research on the vocal communication of treefrogs in Panama was featured in the David Attenborough television series on animal behavior, *The Trials of Life*, and his work with Dr. Ted Taigen on the energetics of calling in frogs has been written up in various newspaper articles, *Yankee Magazine*, and a book by Bernd Heinrich, *Running With the Antelope*. Dr. Wells has published about 60 scientific papers and book chapters on amphibian behavior and ecology, and is one of six authors of a textbook, *Herpetology*, published by Prentice Hall and now in its 3rd edition. Most recently, he has completed a massive volume entitled *The Ecology and Behavior of Amphibians* (University of Chicago Press, 2007), the product of more than 20 years of writing and research (see page 5).

When not doing field work on amphibians or writing about them, Kent devotes his time to his extensive collections of rare books and antiques. He recently became the editor of *The Magic Lantern Gazette*, a publication of the Magic Lantern Society of the United States and Canada, a group of collectors and scholars devoted to the origins and culture of the magic lantern, the forerunner of modern slide and movie projectors, as well as their more recent successors, such as computer projectors. This publication started in 1979 as a mimeographed newsletter edited by Kent's mother and has now become a journal for publication of serious scholarly work on magic lanterns, with full color covers, as well as serving as the newsletter of the society.

Kent's wife Marta, who received her Ph.D. in EEB, teaches in the Department of Ecology and Evolutionary Biology at Yale. She teaches a variety of courses, including Biology of Terrestrial Arthropods, Animal Behavior, Laboratory for Evolution, Diversity of Life, and Introductory Biology. They have two daughters, Camila and Gabriela, one of whom actually likes amphibians and reptiles.

EEB GREENHOUSE A SPECIAL PLACE TO VISIT

Now that the Fall weather has finally arrived, you may be thinking about a trip to a tropical island. Consider a trip to the EEB greenhouse for a mini-visit to the tropics. The greenhouse which consists of 10 rooms houses 2,300 species of plants representing ecosystems from the tropics to the desert. So special is the EEB greenhouse that it was featured on the March 26, 2007, premier of CPTV's (Connecticut Public Television) program Positively Connecticut with Diane Smith.

Clint Morse, plant growth facilities manager, says "the living plant collections at UConn are among the most diverse in the country. We have plants that are economically important, plants that are strange or odd, and ancient species that are nearly extinct." Morse notes that "our greenhouse is bigger than the islands some of these plants grow on."

"Every plant has a story" according to Morse "a plan of adaptation for survival." The plants in the collection represent every continent except Antarctica. There's the Sacred Flower of the Incas from Peru, the Tree Tumbo from Southern Angola which can live for 1,500 years, and the "bug" plant, *Roridula dentate*. While not quite the carnivorous plant from "Little Shop of Horrors" and Clint no Seymour, this plant is pseudo-carnivorous attracting insects by its fragrance allowing the "assassin bugs" not trapped by the sticky hairs of the plant to feed on the captured insects.

EEB graduate student **Susan Letcher**, a recipient of both a UCONN Outstanding Fellowship and NSF Graduate Fellowship, says visitors find the carnivorous plants of special interest. She is a docent for the greenhouse and says she believes "it's the idea that a plant can trap and feed on an animal" that visitors find interesting.

Other symbiotic relationships among the plants in the EEB greenhouse can be found as well. Susan says, "It's a fascinating system. For instance, some acacia trees excrete food bodies from their leaves and produce hollow thorns where ants live. In turn, the ants protect the plants from other predators."

The EEB greenhouse is open Monday – Friday 8:00 a.m. to 4:00 p.m. During the academic year, the greenhouse is open on Saturdays from 10:00 a.m. to 2:00 p.m. Student docents are available to answer questions. For more information, please go to the greenhouse's website at <http://flowrwww.eeb.uconn.edu/>.

Organized tours of the greenhouse are available to school groups, garden clubs and other interested groups during the week. These are typically about an hour in length and led by Greenhouse Staff or EEB Graduate Students. A fee is charged for these tours. Please contact Clinton Morse - 860-486-8941 for further details on all organized tours.

*Adapted from an article by Sherry Fisher
UConn Advance, January, 2007*

New Book on *The Ecology and Behavior of Amphibians*

After more than 20 years of research and writing, a new book by **Kentwood Wells**, *The Ecology and Behavior of Amphibians*, was published in September by The University of Chicago Press. The book of more than 1100 pages covers all aspects of the ecology and behavior of amphibians, from the physiological ecology of temperature and water relations to energetics, movements and orientation, communication, social behavior, reproductive biology, parental care, larval biology, the ecology of metamorphosis, predation, and community ecology, with a final chapter reviewing the current state of amphibian conservation around the world. With more than 9000 literature citations, the book is likely to be the definitive reference on amphibian ecology and behavior for the next generation.



**2007 AERGC
ANNUAL MEETING
HELD AT
UNIVERSITY OF
CONNECTICUT
JULY 30TH -
AUGUST 2ND, 2007**

The Department of Ecology & Evolutionary Biology, in conjunction with Plant Science, hosted the 2007 Annual Meeting of the Association of Educational and Research Greenhouse Curators July 30th - August 2nd.

CURRENT FACULTY

In October 2006, **Dr. Andy Bush** made a presentation at the Annual Meeting of the Geological Society of America in Philadelphia on the effects of sieving on the apparent ecologic composition of fossil assemblages. Following the GSA Meeting, Andy visited Devonian vertebrate



fossil sites in the Catskill formation in Pennsylvania. One of the sites visited was Red Hill, where some of the earliest tetrapods have been discovered.

Dr. Zoe Cardon published a new edited volume with co-editor Dr. Julie Whitbeck of University of New Orleans titled, *The Rhizosphere - An Ecological Perspective* (published by Elsevier).

With funding from the Connecticut Institute of Water Resources, she also began work with Dr. Shawn Burdette in UConn's Chemistry Department on development of new fluorescence-based sensors for monitoring compounds in soil solutions, and she received support from an anonymous donor to continue her investigations of water use in sagebrush rangelands of northern Utah.

As in the previous three summers, the National Science Foundation supported the work of one undergraduate through its "REU" (Research Experience of Undergraduates) program with Dr. Cardon in the field in Utah from May until August 2007.



Carl Schaefer

At the December 10, 2006 Annual Meeting of the Entomological Society of America (ESA) in Indianapolis, IN **Dr. Carl Schaefer** became the 190th Fellow of the ESA; he is also one of 45 Honorary Members. The Society itself has about 6100 members. For more information about the

ESA please go to: <http://www.entsoc.org>.

Dr. Carl Schlichting has been appointed Editor of a new journal devoted to review and synthesis in the field of evolutionary biology called "*Yearbook in Evolutionary Biology*," to be published by the New York Academy of Sciences.

Dr. Eric Schultz and his lab were busy with presentations this year. Eric presented work on sex differences in birth date in a live-bearing fish at the American Society of Ichthyologists and Herpetologists meeting at New Orleans last summer. **Joe Pereira** and Eric Schultz both presented talks at the 136th Annual Meeting of the American Fisheries Society at Lake Placid in September. Joe's talk detailed his work on winter flounder spawning sites; Eric spoke about the work he is doing with economists focusing on public valuation of fish passage projects such as fish ladders for river herring.

Eric went to Morelia, Mexico in November to present an invited talk at the Third International Symposium on Viviparous Fishes. He outlined work he is doing with a small army of undergraduates, testing various hypotheses for how the size of intromittent organs should vary with body size.

Justin Davis, a graduate student working in the Schultz lab, will have two crews on the Connecticut River this spring, for his work on the impact of striped bass predation on populations of migrating river herring. He and Eric received a grant from the Long Island Sound License Plate Program of the Connecticut DEP. This grant will support Justin's efforts to estimate via tag-recapture techniques how many striped bass are in the river during the herring migration season.

Steve Struble, a student in the BS/MS in Biodiversity and Conservation Biology program, received his degree in May. His research project documented the unique anatomy of an organ called the pseudobranch in a group of fishes that includes the livebearers and the killifishes. Steve spent a second season in a completely different field helping to protect the nesting shorebirds in the Cape Cod National Seashore this past summer.

Dr. Robert Thorson was on a "writing while hiding" sabbatical in the 2007 Spring Semester working on a book on kettle lakes along the glaciated fringe from Maine to Montana.

DLESE (The Digital Library for Earth System Education) recognized his websites by including them in their collection - among the list are lesson plans, information about stone walls, and much more.

DLESE is a collaborative effort to provide support and leadership in addressing the national reform agenda for science education, scientific literacy, and scientific discovery. They serve a broad audience of scientists, educators and learners working together to improve the quality and efficiency of teaching and learning about the Earth system at all levels. For more information about DLESE, please visit: <http://www.dlese.org>.

CURRENT FACULTY

New laboratory facilities at the Waterbury branch have enabled **Dr. Steve Trumbo** to bring to completion a number of projects on the behavior of burying beetles. Collaborating with undergraduates Gary Rothberger, Richard Valletta and Mark Brundage, burying beetles have been used as a model for the study of infanticidal takeovers, leading to publications in *Animal Behaviour*, *Ethology and Hormones & Behavior* and a presentation at The International Society for Behavioral Ecology in Tours, France.

The research has recently taken on a conservation perspective. A rather enigmatic species, *Nicrophorus pustulatus*, likely does not bury carrion at all but is instead a parasitoid of snake eggs. Collaboration with Garrison Smith, a Master's student from The University of Arizona, has demonstrated the sophisticated ability of this species to regulate brood size when exploiting snake eggs as a resource. *Nicrophorus pustulatus* could potentially impact populations of oviparous snakes in eastern North America.

Phylogenetic work by a UConn graduate, Derek Sikes, (PhD 2003) has identified the closest relatives of *N. pustulatus*, which need study for a similar parasitoid ecology. Derek, who is currently an assistant professor and curator of insects at The University of Alaska Museum, (additional information on Derek can be found in the EEB 2006 newsletter) continues productive work on burying beetles, publishing on conservation, natural history and phylogenetics.

In EEB's 2006 newsletter we announced the publication of **David Wagner's** book, *Caterpillars of Eastern North America: A Guide to Identification and Natural History*, with Princeton University Press.

The book has been so well received that it had been named a winner of a National Outdoor Book Award in the "Nature Guidebook Category." Other winners include David Attenborough (*Life in the Undergrowth*) and John Nielsen (*Condor: To the Brink and Back*). Additional information about these books and the awards can be found at: <http://www.isu.edu/outdoor/books/books06.htm>.

"The National Outdoor Book Awards (NOBA) is the outdoor world's largest and most prestigious book award program. It is a non-profit, educational program, sponsored by the NOBA Foundation, Association of Outdoor Recreation and Education, and Idaho State University."

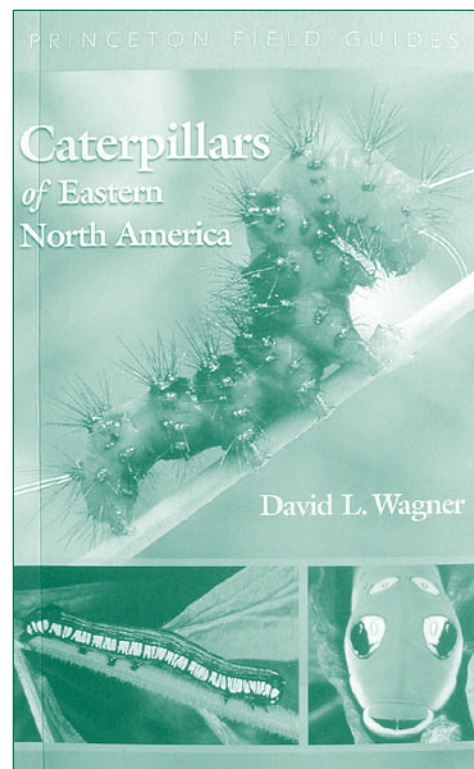
Dr. Charles Yarish has been selected to receive the 2007 Faculty Recognition Award at the Stamford Campus. The award recognizes sustained outstanding achievements in teaching, research, and/or service benefiting the Stamford Campus.

TWO EEB FACULTY PROMOTED TO PROFESSOR

At the April 10, 2007 meeting of the UConn Board of Trustees **Dr. Eldridge Adams** and **Dr. David Wagner** were promoted to full professor.

DR. JOHN COOLEY AWARDED GRANT TO STUDY CICADAS

Dr. John Cooley, EEB Assistant Professor-in-Residence was recently awarded nearly \$20,000 from National Geographic to map the locations of periodical cicadas in 2007 and 2008 using computer-based GPS data loggers and detailed base maps. His project entitled "Making modern maps of Magicicada emergences" will create a web-accessible database and will allow users to plot range maps from self-selected data points.



FACULTY GRANTS

The scope of research in which EEB faculty is engaged is clearly evident on the grants the Department has received since our last publication. The grants noted below are listed in order of date received:

EEB FACULTY PRESENTATIONS AND APPOINTMENTS

Crespi, Jean M. and Byrne, Tim.

Reactivation of Continental Margin Fracture Zones in the Modern Taiwan and Ancient Taconic Collisional Orogenic Belts.

Geological Society of America. Philadelphia, PA October 2006.

Cardon, Zoe G., Herron, Patrick M, Arango-Pinedo, C, and Gage, DJ.

Live reports from the soil grain - the promise and challenge of microbiosensors.

Invited speaker in special session "Towards a Predictive Understanding of Belowground Ecosystem Responses to Global Change."

Soil Science Society of America meetings, November 2006.

Dr. Cardon was appointed in May, 2006 Adjunct Associate Scientist at the Ecosystems Center, Marine Biological Laboratory at Woods Hole, MA.

Dr. Cardon will also serve as a Program Leader for the SAMSI (Statistical and Applied Mathematical Sciences Institute) Program on Environmental Sensor Networks in Research Triangle Park, NC.

Faculty	Organization	Title of Grant
Janine Caira	NSF	Collaborative Research: A Survey of the Elasmobranchs and their Metazoan Parasites of Indonesian Borneo (Kalimantan)
Peter Turchin	UC Riverside	Global State Formation: Modeling the Rise, Fall and Upward Sweeps of Large Polities in World History and the Global Future
Mike Willig	NSF	Spatial Variation in the Composition of Local Assemblages in the Luquillo Experimental Forest: A Metacommunity and Scale Sensitive Persepective
Chris Elphick	CT DEP/LIS	A Comprehensive Assessment of the Distribution of Saltmarsh Sharp-Tailed Sparrows in Connecticut
Elizabeth Jockusch	US DOA	Functional Genomic Analysis of Appendage Development in the Red Flour Beetle, <i>Tribolium castaneum</i>
	NSF	Hybridization and Evolution in Slender Salamanders (Plethodoridae: <i>Batrachoseps</i>)
Kent Holsinger	EPA	Has Atmospheric Nitrogen Disposition in the Northeast Contributed to the Loss of a Nitrogen-Fixing Plant Species? Exploring Mechanisms Underlying Loss of an Ecologically Important Functional Group from Suitable Habitat
John Silander	USDA	Genetic Variance for Invasiveness in Woody Ornamentals: The Role of Genotypic Differences versus Phenotypic Plasticity
	NSF	US-South Africa International Research Experience for Students – Biodiversity Hotspots: Ecological & Evolutionary Patterns and Process in the Cape Floristic Region: IRES
	UCONN Research Foundation	Evolution of Elephant Birds in Madagascar – What Can We Learn from Ancient DNA?
Charles Yarish	EPA/LISO	Live Bait Vector in LI Sound
Eric Schultz CO-PI Jason Vokoun, NRME	LISF	Population study of Connecticut River Bass
Donald Les w/EEB Grad Lori Benoit	LISF	Genetic study of <i>Hydrilla verticillata</i>
Don Les	CT DEP	Development of Molecular Methods to Distinguish Two Connecticut State Listed Aquatic Plants: <i>Potamogeton vaseyi</i> and <i>Potamogeton pusillus</i> subsp. <i>gemmaiparus</i> (Potamogetonaceae)
Robert Colwell	NSF	Integrating Ecological and Evolutionary Processes in Stochastic Biogeographical Models

WETLAND PLANT OF ANTIQUITY PROVIDING INSIGHT INTO CLIMATE CHANGE

A 5,200 year old plant specimen, *Distichia muscoides*, identified by **Don Les**, EEB professor and George Safford Torrey Herbarium director, is providing insight into climate change in Peru. The plant, the oldest flowering plant specimen in and among the newest additions to the herbarium, is a member of the rush family. This wetland plant “calibrates” a new study showing tropical warming in the high Andes of Peru. According to Les, more than 5,000 years ago an alpine glacier expanded quickly in an apparent sudden cold period.

The study, entitled “Abrupt Tropical Climate Change: Past and Present” by Les and 8 other collaborators was by published in June in the *Proceedings of the National Academy of Sciences*. The study shows a warming trend in an alpine region of Peru over the past 2,000+ years. The study was led by researchers at Ohio State University where Dr. Les earned his Ph.D.

Evidence used to document the warm-up was culled from three sources: photographic records of a dramatic retreat of the Quelccaya glacier during the period 1978 to 2000; an increase in the amount of heavy oxygen in the ice cap during the years 1900 to 2000, indicative of warmer conditions; and the presence of the plant which indicates the area’s climate was rapidly growing colder 5,000 years ago. In order to cover and preserve the plant, the ice had to be extending rapidly, says Les.

Radiocarbon-dated by a team of geologists at Ohio State University shows wet, boggy conditions existed in the area before the glacier advanced. Found by Ohio State researchers at the end of the now melting ice cap, and believing it might be an aquatic plant, the researchers contacted Les, an aquatic plant expert.

Although the plant was flattened by the ice layer, it was preserved fairly well and retained enough distinctive characteristics for Les to identify it.

Dr. Les noticed a specific braided pattern to the leaves on the plant remains sent to him and was able to identify the plant as a member of the rush family and then to the species – one that only grows in that area of Peru and where it is still prevalent today.

The specimen is now part of the George Safford Torrey Herbarium where it is available for study by other scientists. As the oldest plant in the collections, it takes a place of honor among the 175,000 plants, 750,000 specimens overall held by the collections. It also has been entered into the collections database and can be found at <http://collections2.eeb.uconn.edu/collections/chp.html>.

*Adapted from an article by Cindy Weiss
UConn Advance July, 2006*

In January, **Dr. Donald Les** was appointed by the faculty of Turku University, Finland to serve as “opponent” for the Ph.D. defense of Samuli Lehtonen. Lehtonen’s dissertation dealt with the systematics of *Echinodorus*, a genus of aquatic and wetland plants that contains several popular aquarium species. In the Finnish academic system, the opponent is selected as an expert in the area of study and conducts a rigorous public defense of the dissertation (known as the disputation), a formal event that lasts for several hours. The opponent also is the featured guest at a banquet (known as the Karonkka) held on the evening of the disputation.



Public disputation at Turku University – Dr. Les on the far left; Samuli Lehtonen on the far right

In January and February, Dr. Les also participated in a short graduate course on plant systematics offered at Turku University. His lectures included topics on aquatic plant systematics, nonindigenous hydrophytes, aquatic plant biogeography, molecular phylogenetics and aquatic plant evolution, and systematic problems presented by aquatic plants. Les was joined in the course by faculty lecturers from Stockholm University (Niklas Wahlberg) University of Helsinki (Jaakko Hyvönen), and Turku University (Hanna Tuomisto, Samuli Lehtonen).

NATIONAL ACADEMIC ADVISING AWARD GOES TO JENNIFER MURPHY

Jennifer Murphy, EEB Undergraduate Program Coordinator, was recognized for her academic advising at the 2007 National Academic Advising Association's (NACADA) regional meeting in New Hampshire. She received the Northeast Region One Academic Advising Excellence Award for Connecticut. Jennifer was also a runner-up for the 2007 Outstanding Student Advisement and Advocacy Award offered by UConn's Office of Undergraduate Education and Instruction.

Both awards were established to honor an advisor that exemplifies excellence in academic advising: one who engages, motivates and challenges students; who demonstrates a caring attitude toward them; who is accessible and responsive to their needs; and who helps them make difficult choices.

HOLSINGER WINS AWARDS

On April 17, 2007 **Dr. Kent Holsinger** was presented the "Service Excellence" award by the UConn Chapter of the American Association of University Professors (AAUP). The AAUP's Excellence Awards are presented annually for Teaching, Research, and Service and are intended to promote the faculty's continued commitment to teaching and scholarship.

In a ceremony held on May 14 in Washington, DC, Kent was awarded the 2007 Past Presidents Award from the American Institute of Biological Sciences (AIBS). The Past Presidents Award recognizes the services of the immediate past-president of AIBS.

Kent's affiliation with AIBS goes back more than a decade, with numerous board and committee appointments to cross-disciplinary projects, including the BioOne online journals initiative, the National Ecological Observatory Network, the Coalition on the Public Understanding of Science, and the Year of Science 2009.



Bob Capers making light measurements on one of Robin Chazdon's projects in Costa Rica. Photo by Robin Chazdon.

Bob Capers joined the herbarium staff as the Plant Collections Manager in May, 2007. Bob received his Ph.D. from the EEB Department in 2003 and held a two-year post-doctoral position with the Connecticut Agricultural Experiment Station in New Haven, conducting surveys of native and invasive aquatic plants in Connecticut lakes. He also has held teaching positions at Eastern Connecticut State University and Oklahoma State University.

In the herbarium, Bob's responsibilities are many. In addition to managing the herbarium's vascular and non-vascular plant collections, he oversees incoming and outgoing loans, maintains the herbarium's database and web site, trains students and volunteers, and assists with identification of native and non-native plant species.

After a year in Oklahoma, Bob said he was very much looking forward to returning to the EEB community and to a part of the country that has hills and naturally occurring lakes.

EEB FACULTY RECOGNIZED BY THE BOTANICAL SOCIETY OF AMERICA.

Dr. Gregory Anderson, **Dr. Kent Holsinger**, and **Dr. Gene Likens** were honored with the Botanical Society of America (BSA) 2006 "Centennial Award." The award was established for the BSA centennial meeting in 2006 to "acknowledge and honor outstanding service to the plant sciences and the Society." Other notable award winners include Dr. Peter Raven. For a full list of Centennial Award honorees, please go to www.botany.org/awards/centennial.php.

GRADUATE STUDENT HIGHLIGHTS

Trina Bayard, a 2nd year Ph.D. student working with Chris Elphick, is studying the influence of social cues and information on habitat selection behavior in an obligate salt marsh breeder, the saltmarsh sharp-tailed sparrow (*Ammodramus caudacutus*).

In 2007, Trina won the Cooper Ornithological Society Mewaldt-King award in support of research related to the conservation of birds, and the Garden Club of America Frances M. Peacock Award for research related to conservation of native birds and their habitat.

Trina plans to begin field work on her dissertation research this summer in central Connecticut salt marshes. Over the next few years she will explore relationships between social cues, habitat quality and reproductive success, and experimentally manipulate cues to test explicit hypotheses regarding the effects of these cues.

It is her hope that the results of this work will broaden conceptual understanding of habitat selection behavior and avian distribution patterns, as well as help to advance conservation and restoration science. Her research will also provide new information on the mechanisms that influence saltmarsh sharp-tailed sparrow population persistence in the core of its breeding range.

Just moments before we went to press, Trina received notification from the Animal Behavior Society that she had been awarded a student research grant which will support her work on the influence of social cues and information on habitat selection in the saltmarsh sharp-tailed sparrow.

“The Animal Behavior Society is a non-profit scientific society, founded to encourage and promote the study of animal behavior. ABS members are from all over the world, but primarily from North, Central, and South America.” For more information about the ABS please go to: <http://www.animalbehavior.org>.

Jessica Budke was awarded a second place in the 2007 Conant Botanical Images contest. She was awarded a \$250 Botany 2007 Student Travel Award

This award provides acknowledgement and travel support to BSA meetings for outstanding student work in the area of creating digital botanical images.

Susan Herrick is fortunate to have access to a privately owned pond in Lebanon CT to conduct her research. Here she will continue to study the influence of bullfrogs on the social behavior of green frogs.

Susan was awarded a Sigma Xi grant. The funds from the grant helped purchase a 24-hour recording system which was installed at the site. The information gathered by the recorder will allow Susan to determine the temporal patterns of the calling behavior of these species. She will continue to study habitat choices of Green frogs with and without Bullfrogs present, quantify the microhabitat choices the frogs make, as well as daily and seasonal movements within the pond. Egg-laying site choices will also be examined for both species. A search of other ponds this summer will provide comparative data on both egg-laying sites and calling sites.

In March 2007 **Jason Hill** won the Lynds Jones Award for Best Poster Presentation by a graduate student at the 87th Annual Meeting of the Wilson Ornithological Society held in Boston, MA.

Doctoral student **Kristiina Hurme** headed to Gamboa, Panama this summer to study parental care and tadpole schooling in the frog *Leptodactylus insularum*. *Leptodactylus insularum* tadpoles form dense aggregations that experience intense predation from both terrestrial and aquatic invertebrates, such as fishing spiders and giant water bugs. Females attend the eggs and dense aggregations of tadpoles, and lead these schools to different microhabitats in temporary ponds.

Kristiina received funding from the Smithsonian Tropical Research Institute to perform preliminary research on parental care during the summer of 2006. Based on her observations, she will test the effects of tadpole schooling and group size on oxygen availability, predation risk, growth and development rates and survival. In addition, she will examine parental care and female-offspring communication, as well as collect tissue samples for paternity analyses.

Kristiina will remain in Panama until early December.

EEB ANNOUNCES EXCELLENCE IN TEACHING AWARDS

The following EEB students were awarded the Department's Graduate Excellence in Teaching Awards. The previous newsletter went to print before we could honor our 2006 awardees; they are included below.

May 2006

Florian Reyda

Kira Sullivan Wiley

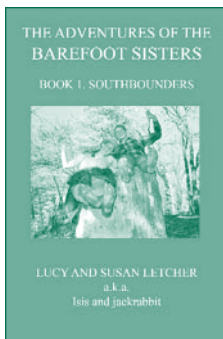
May 2007

Emily Getz Komisky

Susan Herrick

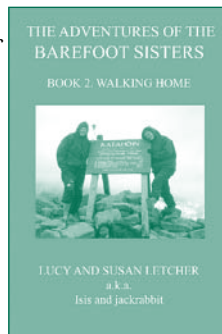
GRADUATE STUDENT HIGHLIGHTS

Susan Letcher, graduate student in lab, studies the role of woody vines in forest succession in northeastern Costa Rica. Funded by an NSF graduate fellowship. Susan spends half the year in Costa Rica and half in Connecticut. In July 2006, she presented a talk entitled “Stand structure and species composition of secondary forests in northeastern Costa Rica” at the Annual Meeting of the Association for Tropical Biology and Conservation, in Kunming, China. Along with her research, Susan has been involved in education and outreach activities: she is an active volunteer for the environmental education program at La Selva Biological Station in Costa Rica, and in Connecticut she works as a docent and tour guide in the UCONN greenhouse.



In addition to her scientific research and educational outreach, Susan is also an accomplished poet and author. She and her sister, Lucy, spent more than a year writing about their adventures hiking the Appalachian Trail twice, from Maine to Georgia and

back again. You can read their story in two books entitled: *The Adventures of the Barefoot Sisters, Book 1: Southbounders* and *The Adventures of the Barefoot Sisters, Book 2: Walking Home*. The books can be found at: <http://www.lulu.com/content/365969> - Book 1 and <http://www.lulu.com/content/366159> - Book 2



Susan was awarded first place in the Wallace Stevens Poetry Contest, part of UConn's 2007 Creative Writing Prize contest. The contest is sponsored annually by the Creative Writing Program and provides cash prizes to graduate and undergraduate students writing in the categories of poetry, prose, short fiction, non-fiction, and essays.



Nanci Ross

In May 2007, **Nanci Ross**, graduate student in Greg Anderson's lab, received the Society for Economic Botany's 2007 Schultes Award.

The Society for Economic Botany (SEB) offers an annual Richard E. Schultes student research award up to \$2500. The award is intended to help defray the costs of field work on a topic related to economic botany. For more information about SEB and the Schultes award please go to: <http://www.econbot.org>.

Krissa Skogen, Ph.D. student working in the Kent Holsinger lab has been accepted to the Environmental Leadership Program (ELP) Greater Boston Network Class of 2007.

“ELP's primary goal is to train and support the next generation of environmental leaders both within and beyond its flagship national initiative, the ELP Fellowship. We define emerging leaders as newly established environmental practitioners with fewer than 10 years of experience in the field. ELP's Regional Networks enable us to build on our national fellowship to serve a broader constituency of emerging environmental leaders and spark new ideas and solutions to pressing environmental problems in regions across the country.” (<http://www.elpnet.org/greaterbostonnetwork/about.php>)

In addition to ELP honors, Krissa receive a STAR (Science to Achieve Results) Graduate Research Fellowship from the EPA's National Center for Environmental Research (NCER) last summer for her research entitled: “Has Atmospheric Nitrogen Deposition in the Northeast Contributed to the Loss of a Nitrogen-Fixing Plant Species? Exploring Mechanisms Underlying Loss of an Ecologically Important Functional Group from Suitable Habitat.”

“NCER's STAR program funds research grants and graduate fellowships in numerous environmental science and engineering disciplines through a competitive solicitation process and independent peer review. The program engages the nation's best scientists and engineers in targeted research that complements EPA's own outstanding intramural research program and those of our partners in other federal agencies.” Additional information can be found at: <http://es.epa.gov/ncer/fellow>.

At 2007 Annual Meeting of The Society for Integrative and Comparative Biology Division of Vertebrate Morphology in Phoenix, AZ, **Diego Sustaita**, a graduate student in Margaret Rubega's lab, was awarded the D. Dwight Davis award, which recognizes important contributions to vertebrate morphology. A co-winner of the award was Cally Harper (UNC Wilmington).

Diego's talk, coauthored with Fritz Hertel (Cal. State Northridge), was entitled “Bite and grip performance in relation to killing behavior of North American accipiters and falcons.” The talk examined how the differences in actual bite and grip performances among these birds complemented previous musculoskeletal morphological analyses.

Diego's future work will involve studying feeding performance in shrikes in relation to their morphological and ecological variation.

GRADUATE STUDENT HIGHLIGHTS

Kathryn Theiss, who joined the Holsinger lab in 2005, studies orchid conservation in Madagascar. Her interest in orchids was fostered by former EEB member Dr. Pati Vitt when Kathryn was an intern at the Chicago Botanic Garden.

Kathryn received the 2006 Furniss Fellowship from the American Orchid Society which allowed her to travel to Madagascar twice so far. Only one fellowship is awarded each year, and it provides up to three years of support. In her first field season she discovered a new population of one of her target species, bringing the total known population number to eight.

In collaboration with Dr. Susan R. Kephart and Dr. Christopher T. Ivey, Kathryn is publishing an article entitled "Pollinator Effectiveness on Co-occurring Milkweeds (*Asclepias*; Apocynaceae, Asclepiadoideae)" in the forthcoming issue of *Annals of the Missouri Botanical Garden* which highlights the Apocynaceae symposium from the International Botanic Congress.

In addition, Kathryn helped lead Earthwatch volunteers studying pollination of several species of camas lilies in the Pacific Northwest and Sierra Nevada mountain range with Dr. Kephart and Dr. Shannon Datwyler over the past two years. This year she will be leading an Earthwatch-sponsored group of high school-age girls in the Sierra Nevadas with Dr. Datwyler.



Nic Tippery

Nic Tippery, a Ph.D. student working with Don Les, attended the American Botanical Society's Botany 2006 Centennial Conference at the California State University, Chico, CA where he presented the initial results of his work on the systematics of the aquatic plant family

Menyanthaceae. Funding for the trip was provided by the Ecology and Evolutionary Biology's Ronald Bamford Fund.

Nic co-authored a paper, published in the *American Journal of Botany*, with Dr. Les and EEB alum and new Plan Collections Manager, Robert Capers (Ph.D. 2003) on the identity and ecology of a recently established invasive plant, *Glossostigma cleistanthum*. Further work from his Research Assistantship with Dr. Les, on the systematics of the genus *Vallisneria*, will be published this year in *Systematic Botany*.

During the summer of 2006 Nic was busy helping to establish aquatic plants portion of Aton Forest, Inc. herbarium. Aton Forest is a 1,100 acre privately owned ecosystem field research station located in Norfolk, CT. It was created by Dr. Frank E. Egler in 1990 as a 501(c)(3) non-profit educational and scientific organization to ensure the perpetuation of the Aton Forest lands and the studies initiated there by

Dr. Egler. For additional information about Aton Forest and its research please go to: http://www.atonforest.org/frank_egler.htm.

This summer Nic scoured the Northeast for populations of *Nymphoides*, both the native *N. cordata* (Little Floatingheart) and non-native *N. peltata* (Floating Yellowheart) species.

In the summer of 2006 Robert Colwell and John Silander's graduate student, **Tsitsi McPherson**, successfully defended her M.S. thesis entitled "Tree species performance in a tropical forest: the role of soil nutrients and topography."

Following completion of her degree, Tsitsi was accepted into EEB's Ph.D. program and will remain under the supervision of John Silander and Robert Colwell. Her dissertation research, "Protecting Biodiversity in Guyana - a proposal for a flexible yet robust methodology for the design and evaluation of National Parks using spatially clustered data" focuses on using herbarium and museum data for conservation purposes in her native Guyana and across the Guiana Shield.

This summer Tsitsi divided her time between Washington D.C., London, and South Africa. In April she received Prance Fellowship in Neotropical Botany to spend 3 months at the Royal Botanic Gardens, Kew. In collaboration with Dr. Gwilym Lewis, her work will focus on extracting data from herbarium records.

Tsitsi then flew to South Africa to attend the Annual Meeting for The Society for Conservation Biology. She presented results from her Masters, "Using Existing Forestry and Ecological Data to Inform Conservation – The Need for Data to Serve Multiple Functions." Travel to South Africa was made possible by a Diversity Scholars Award from the American Institute of Biological Sciences and a grant from EEB's Center for Conservation Biology.

Tsitsi will be working with Dr. Mark Boyer, Political Sciences, and Dr. Robin Chazdon on the issue of conservation across national borders. This is especially pertinent to Guyana as nearly half of the country is claimed by either Venezuela or Suriname. This research was made possible with the financial assistance of a Center for Environmental Science and Engineering Multidisciplinary Research Award.

At the American Botanical Society Centennial meeting at California State University, Chico, CA July 28-August 2, 2006 EEB graduate student, **Norm Wickett**, received the A.J. Sharp Award for best student paper. The award was presented by the American Bryological and Lichenological Society for his presentation entitled, "Towards a complete chloroplast genome sequence of the non-photosynthetic liverwort (*Cryptothallus mirabilis*)."

EEB HERBARIUM FILING SYSTEM UPDATED

EEB graduate students **Sarina Lambert** and **Nic Tippery** undertook the laborious task of re-filing genera and species in the George Safford Torrey Herbarium. As part of this process, new family dividers were created. The updated filing system now corresponds to the herbarium's electronic database, BG-Base. As part of the re-filing project, Sarina and Nic determined the herbarium houses about 360 families and almost 3500 genera.

2007 SUMMER FELLOWSHIP ANNOUNCED

Four EEB graduate students were awarded 2007 Summer Fellowships by the Graduate School. The Fellowships are granted through the Multicultural and Outstanding Scholars Programs. The purpose of these fellowships is to help students maintain momentum in research during the time he/she is not taking classes or otherwise occupied.

Student	EEB Advisor
Maria Pickering	Janine Caira
Rachel Prunier	Kent Holsinger
Diego Sustaita	Margaret Rubega
Adam Wilson	John Silander

ENVIRONMENTAL LEADERSHIP AWARDS

Congratulations to the winners of UConn's 2006-2007 Environmental Leadership Awards for their proven dedication and outstanding contributions to a more environmentally aware and sustainable campus! Vice Provost Greg Anderson and Chief Operating Officer Barry Feldman presented the awards to the winners at special ceremony on April 24, 2007

Undergraduate Student - Logan Senack, ENVS Major

Special Recognition - Timothy Bleasdale

Graduate Student - Jessica Kukielka

Staff - Rebecca Gorin

Special Recognition - Mary Kegler, Suzy Staubach

Faculty - Dr. Richard Parnas

Special Recognition - Associate Professor Kristin Schwab

External Organization - Willimantic Waste Paper Co., Inc.

UConn Affiliated Group - Division of Athletics - Burton Family Football Complex / Mark R. Shenkman Training Center

Special Recognition - Water Pollution Control Facility - Facilities Operations

PHI BETA KAPPA

Congratulations to six students affiliated with the Ecology and Evolutionary Biology department who have been invited to join Phi Beta Kappa. Their names were released after the newsletter went to press. Phi Beta Kappa is the oldest (founded in 1776) and most prestigious academic honor society that recognizes scholarly achievement, good character, and broad cultural interests of students in the Liberal Arts and Sciences.

Students invited to join in 2006 include:

J. Stephen Ferketic (University Scholar, junior,

Biological Science/Political Science major)

Michelle Kelly (senior, Biological Sciences)

Keri Klink (senior, Biological Sciences)

Shannon Murray (senior, Biological Sciences/English)

Jadranka Rota (Ph.D. candidate, EEB)

Maura Temchin (junior, Biological Sciences)

After finishing her Ph.D. in Ecology last year, **Dr. Nancy LaFleur** is spending a year working with John Silander on a variety of projects. These include the Invasive Plant Atlas of New England, a transplant experiment investigating genotypic and phenotypic variation in the performance of woody ornamentals, as well as work focusing on modeling the distributions of invasive birds and plants. Next year, she will be working with Margaret Rubega and John Silander on a modeling project which will attempt to predict the effectiveness of starlings as dispersers of the seeds of Autumn Olive and Oriental Bittersweet.

UNDERGRADUATE STUDENT HIGHLIGHTS

Kofi Adomako-Ayisi (Adams lab) received a Center for Conservation and Biodiversity (CCB) award to assist with his research this summer studying ecological interactions of ant communities, specifically the invasive *Tetramorium sp.* Kofi, originally from Ghana, is a junior double majoring in MCB and EEB. In addition to his studies, he is also heavily involved with the UConn community. His involvement includes being a writing tutor for the Writing Center, a Community Assistant for various resident halls on campus, an active member of the African Student Association and most recently, a shareholder in the EEB community garden this summer.

Nelson Bricker (Wagner lab) is a senior majoring in Animal Science. He has been actively involved in the Wagner lab for a couple of years and has been integral in the work showing that power line corridors are critical habitats for the birds and the bees, butterflies and other wildlife. He recently presented his research at the 25th annual Biological Sciences Undergraduate Research Colloquium. His talk was titled "Power line corridors as critical habitats for pollinators" and he was awarded the Connecticut Museum of Natural History award for his talk. He plans continuing his work over the summer surveying pollinators in Connecticut. Nelson will be attending Purdue University's School of Veterinary Medicine in the fall.

EEB junior, **Leah Brown-Wilusz** (Schlichting lab) received a 2007 Summer Undergraduate Research Fellowship (SURF) award to help with her research investigating whether *Ambystoma maculatum* salamanders can detect predators while still in the egg. She will be setting up experiments to see whether *A. maculatum* eggs hatch faster or slower when raised with either caddisfly larvae (known *A. maculatum* egg predator) or *A. opacum* (known *A. maculatum* larvae predator), respectively.

Colleen Chambers (Simon lab) presented a poster at the 10th Annual Frontiers in Undergraduate Research this past April. Her poster "The evolution and systematics of cicadas in the genus *Amphipsalta*" detailed her plans for examining the COI and COII mitochondrial DNA genes to help understand the phylogenetical relationships of four New Zealand cicadas, *Amphipsalta zelandica*, *A. strepitans*, *A. cingulata* and *Notopsalta sericea*. Colleen hopes to be able to use the understanding of the evolution of these species to explain how land mass changes and glacial cycles may have affected their speciation and subsequent ranges throughout New Zealand. This detailed phylogeographical study will allow Colleen to determine how many refugia these species had during glacial maxima, and this will give clues to other biologists about where

forests were able to survive during the ice ages. Colleen is a junior majoring in Biological Sciences and received a 2007 SURF award to assist with her research this summer.

Senior **Charlene Cummings** (Adams lab) presented a poster at the 10th Annual Frontiers in Undergraduate Research titled "Organization of trail networks in a social insect." Charlene graduated this spring with a degree in biological sciences and plans to go to graduate school where she would like to do research in water borne diseases.

EEB junior and Honors Presidential Scholar, **Martha Diver** (Schultz lab), is working on her own project on intermittent organ size relationships in various species of livebearing mollies (in the genus *Poecilia*). She has received a 2007 SURF to continue her work this summer.

Senior EEB major **Ben Gahagan** (Schultz lab) received a 2006 SURF last summer (after the newsletter went to print) to test for factors influencing the timing of juvenile herring migration from their natal ponds out to the sea. He collected such a large set of samples for analysis that he has enlisted four other undergraduates to help him in return for independent study credits. He recently gave a poster presentation of this work at the 10th annual Frontiers in Undergraduate Research in April. His poster was titled "Juvenile alewife migration from a small coastal watershed." Ben will be entering the MS program in the Department of Natural Resources and Engineering next year to continue his research on these fish.

Katie Gherard (Schultz lab), a junior ENVS major, is working on an independent study in the Schultz lab investigating the juvenile growth of two coastal fishes of our area, tautog and cunner.

J. Stephen Ferketic (Silander lab) is a University Scholar double majoring in Biological Sciences and Political Science. His University Scholar project focuses on Sustainable Urban Conservation Planning. Last summer he received a 2006 SURF award to complete a stakeholder analysis project at the Macassar Dunes conservation area in Cape Town, South Africa. He spent the spring semester abroad studying Sustainable Coastal Resource Management in Brazil. While abroad, Steve was asked to analyze the interests of Cagarras stakeholders and propose a conservation justice approach to managing the Cagarras Archipelago. Steve was awarded a 2007 SURF as well as a CCB award to assist him with this research. Steve was also a Morris K. Udall Scholarship nominee this year.

UNDERGRADUATE STUDENT HIGHLIGHTS

Chris Field (Elphick lab) presented his poster “The vocal behavior of saltmarsh sharp-tailed sparrow” at the 10th Annual Frontiers in Undergraduate Research and is planning on writing up the research for publication. Chris is a student in the BS/MS program and will be graduating this spring.

EEB senior **Joseph Guzzardi** (Caira lab) presented his senior thesis research at the 25th Annual Biological Sciences Undergraduate Research Colloquium. His talk was titled “*Acanthobothrium* diversity in the round whiplay, *Himantura pastinacoides*, from Borneo” and he was awarded the Connecticut Museum of Natural History award for his talk. Results of Joe’s research gave rise to 6-7 newly described species of tapeworms, one of which he is planning on naming after his fiancée. Joe will be attending medical school at UConn in the fall.

EEB sophomore **Katherine Les** (Wells lab) studied tadpole schooling and parental care in the neo-tropical frog, *Leptodactylus insularum*, at the Smithsonian Tropical Research Institute in Panama this summer. Kathy received a 2007 SURF award to assist her with this research.

Chien Lo (L. Lewis lab) is a junior double majoring in EEB and MCB and was supported by a NSF PEET grant this summer. **Nicole Piatt** (L. Lewis lab) is a junior Biological Sciences major and Presidential Scholars student. Both students are involved in a project addressing the evolution of green algae that live in desert soils. They will be learning light microscopy, capturing digital images of the different strains, as well as obtaining DNA sequence data and doing phylogenetic analyses on these new data. The new data on South African desert algae will be compared to data obtained previously from North American deserts.

Biological Sciences major **Kerri Mocko** (Jones lab) presented her senior thesis research at the 25th annual Biological Sciences Undergraduate Research Colloquium. Her talk was titled “Leaf-stem allometric relationships across diverse growth forms of *Pelargonium* (Geraniaceae)” and she was awarded the Outstanding Senior in EEB award. Kerri was also selected for a NSF International Research Experience for Students grant to travel to South Africa this summer for five weeks and study *Pelargonium* in the field. She traveled to the Annual National Botanical Society of America Meeting in Chicago this July to present her research. Kerri is also a member of UConn’s Women’s Rowing team and was recently recognized as one of 10 Outstanding Senior Student-Athletes by The UConn Club. Kerri graduated this spring and plans on taking some time off before going to graduate school.

Sophomore Biological Sciences and Physics double major **Benjamin Plourde** (Chazdon lab) received a 2007 SURF as well as a CCB award to assist with his research this summer on his honors project “Assessing canopy closure in secondary wet tropical rainforests” at La Selva Biological Station.

Biological Sciences sophomore **Leroy Robinson** (Jockusch lab) is currently studying abroad in Granada, Spain. This summer he will be supported by a NSF REU grant to continue his research on the evolution of slender salamanders (Plethodontidae: *Batrachoseps*).

Logan Senack (Holsinger lab) presented his poster titled “Seed weight and germination of the rare plant, *Desmodium cuspidatum*, and two common *Desmodium* species” at the 10th Annual Frontiers in Undergraduate Research and at the Northeast Regional Sigma Xi Conference at Cornell University this past April. Logan also received a 2007 SURF award to expand upon this research into the summer looking at the reproductive biology of *Desmodium*. Logan is a junior ENVIS major who was nominated for a 2007 Morris K. Udall Scholarship and was awarded a 2007 Environmental Leadership Award from UConn for his “proven dedication and outstanding contributions to a more environmentally aware and sustainable campus.”

EEB junior, **Ben Toscano** (Schultz lab), has been working out techniques for high-speed videography of copulation in livebearing fishes in an effort to understand the biomechanics of bending in their intromittent organs.

Meghan Twohig (Caira lab) presented her senior thesis research at the 25th Annual Biological Sciences Undergraduate Research Colloquium and was awarded the Margaret F. Ertman award for the Outstanding Senior in Biological Sciences for her talk on “The ecology and systematics of the cestodes of the dwarf whiplay, *Himantura walga*.” Results of her research gave rise to 2 new species of tapeworms, one of which she plans on naming after her parents. This summer she received a NSF REU to complete her research and to write it up for publication. Meghan has an interest in conservation and has accepted an internship for the fall with PRETOMA in Playa Caletas, Costa Rica where she will participate in an endangered and threatened sea turtle conservation, research, and monitoring program. Meghan plans to attend graduate school following her Costa Rica internship.

ECOLOGY & EVOLUTIONARY BIOLOGY 15TH ANNUAL GRADUATE STUDENT SYMPOSIUM

The 15th Annual Graduate Student Symposium was held on Saturday, March 18, 2006. This all-day symposium provided graduate students an opportunity to present their research and to get feedback from fellow grads, prospective students, and faculty.

This year's symposium was a great success thanks to all who participated, organized and attended the event. CLAS Dean Ross MacKinnon gave the opening address which was followed by 19 talks given by EEB graduate students at various stages of their careers.

This year's talks showcased the diversity of the EEB department – ranging from mosses to fish, tapeworms to birds,

beetles to invasive plants, species-specific to community level studies – and also the many geographical localities where our graduates do their work, including Costa Rica, Panama, Australia, Senegal, and the west coast, southwest and northeastern US.

Attendees were entertained over lunch by the UCONN Taiko Traditional Japanese Drumming group, featuring EEB's very own Uzay Sezen. The Graduate Student Senate generously funded two session breaks and lunch. To read titles and abstracts from the presenters, please visit: <http://hydrodictyon.eeb.uconn.edu/department/grads/GradSymposia/2006/>.

FOUR EEB STUDENTS INDUCTED INTO PHI BETA KAPPA IN 2007

Congratulations to the four undergraduate students working in Ecology and Evolutionary Biology who have been invited to join Phi Beta Kappa.

Michael Cordiero is an Honors student majoring in Biological Sciences. He has been working with Chris Simon throughout his time at UCONN and has received four REU fellowships (January 2003, Summers 2003, 2004, 2005). Some of his research formed an important part of a recently accepted paper in *Systematic Biology*. Michael plans to attend medical school and obtain an M.D. in psychiatry.

Adam Leston has been doing research in EEB for two years, including a summer research fellowship last year. He has worked with Chris Simon on the phylogenetic relationships among three New Zealand cicada species in the genus *Rhodopsalta*. After graduation, Adam plans to pursue his interest in hiking and the outdoors by spending the summer on the Appalachian Trail.

Hillary O'Donnell is an Honors student majoring in Biological Sciences. She studied abroad during her fall semester

of her junior year in Australia where she learned about the local flora and fauna. She worked in John Silander's lab for her honors research project. She presented this work at the Annual Undergraduate Biology Research Colloquium in April. The title of her talk was "Effects of an invasive plant species, *Celastrus orbiculatus*, on soil composition and processes."

Jessica Watson, a New England Scholar, has gained a variety of entomological experience working in Dave Wagner's lab collecting insects and insect data. In addition, she spent a summer surveying insect diversity along CT power-line corridors in conjunction with a study on birds, bees and butterflies. Jessica has also completed independent studies in the UCONN biological collections during which time she learned about curation and worked on Coleoptera identifications. Currently she is gathering data on rare invertebrates. Jessica is still unsure if she wants to focus on research or teaching as a career. Upon her graduation next spring she is thinking of applying to a program to teach high school biology in New York City. An avid music lover, she plays drums and guitar in her free time.

CESE 2007 MULTIDISCIPLINARY ENVIRONMENTAL RESEARCH AWARDS

The Center for Environmental Sciences and Engineering (CESE) has named 25 recipients of its 2007 Multidisciplinary Environmental Research Awards for graduate students. These awards support innovative environmental collaborations that integrate research and education across two or more disciplines. EEB students and mentors are listed below:

Juan Arroyo

Department of Ecology and Evolutionary Biology

Mentors:

Robin Chazdon, Department of Ecology and Evolutionary Biology
Daniel Civco, Department of Natural Resources Management and Engineering

Project Title: A machine learning approach using hyperspectral imagery to detect logging recovery of lowland tropical forests in the San Juan-La Selva Biological Corridor, Costa Rica

Denise Burchsted

Department of Geoscience

Mentors:

Melinda Daniels, Department of Geography
Zoe Cardon, Department of Ecology and Evolutionary Biology

Project Title: Physical impact of beaver dominance in two northeastern Connecticut watersheds

Jessica Chau

Department of Civil and Environmental Engineering

Mentors:

Amyrossios Bagtzoglou, Department of Civil and Environmental Engineering
Michael Willig, Department of Ecology and Evolutionary Biology

Project Title: Physical constraints on bacterial diversity in soils

Christina Haska

Department of Marine Sciences

Mentors:

Charles Yarish, Department of Ecology and Evolutionary Biology
Senjie Lin, Department of Marine Sciences

Project Title: Multi-component evaluation to minimize the spread of aquatic invasive seaweeds and harmful algal bloom microalgae via live bait vectors in Long Island Sound

David Hoover

Center for Integrative Geosciences

Mentors:

Zoe Cardon, Department of Ecology and Evolutionary Biology
Guiling Wang, Department of Civil and Environmental Engineering

Project Title: Modeling the ecological effects of decreased frequency and increased intensity of precipitation events on grassland ecosystems: a first step toward understanding biosphere-atmosphere hydrologic feedbacks in the Tallgrass Prairie

Tsitsi McPherson

Department of Ecology and Evolutionary Biology

Mentors:

Mark Boyer, Department of Political Sciences
Robin Chazdon, Department of Ecology and Evolutionary Biology

Project Title: Application of the "public goods" concept to trans-boundary conservation – a case study of the proposed Guiana Shield Corridor

Cory Merow

Department of Ecology and Evolutionary Biology

Mentors:

John Silander, Department of Ecology and Evolutionary Biology
Philip Best, Department of Physics

Project Title: A statistical mechanistic approach to biodiversity modeling in the Cape Floristic Region

Kristen Myhrall

Center for Integrative Geosciences

Mentors:

Pieter Visscher, Center for Integrative Geosciences
Andrew Bush, Department of Ecology and Evolutionary Biology

Project Title: An evaluation of microbial metabolisms and community interactions in modern thrombolites from Highborne Cay, Bahamas and Green Lake, Fayetteville, NY

Piyumi Obeysekara

Center for Integrative Geosciences

Mentors:

Eric Schultz, Department of Ecology and Evolutionary Biology
Melinda Daniels, Department of Geography

Project Title: Integrating fluvial geomorphology and stream ecology: processes shaping the distribution of freshwater mussels in the Eightmile River, Connecticut

Nicola Plowes

Department of Ecology and Evolutionary Biology

Mentors:

Eldridge Adams, Department of Ecology and Evolutionary Biology
Sarah Frey, Department of Mathematics

Project Title: Self-organizing conflicts: modeling the spatio-temporal dynamics of territorial battles of the "pavement ant", *Tetramorium caespitum*

Nanci Ross

Department of Ecology and Evolutionary Biology

Mentors:

Gregory Anderson, Department of Ecology and Evolutionary Biology
Alexia Smith, Department of Anthropology

Project Title: The impact of ancient Maya home forest gardens on the modern tree species composition and biodiversity of Northwestern Belize

Adam Wilson

Department of Ecology and Evolutionary Biology

Mentors:

John Silander, Department of Ecology and Evolutionary Biology
Daniel Civco, Department of Natural Resources Management and Engineering

Project Title: Multi-spectral exploration of the Cape Floristic Region of South Africa fire, stress, and species recognition

The awards have three goals: (1) to give students state-of-the-art perspectives, tools, and capabilities to bridge the gaps between disciplines; (2) to provide substantive support for promising master's degree and doctoral students during the summer; and (3) to catalyze important, multidisciplinary environmental research by faculty.

ALUMNI HIGHLIGHTS

Kathleen (Kitty) Engelmann (Ph.D. 2004) accepted a position at the University of Bridgeport and began her duties this fall. Dr. Engelmann worked with Carl Schlichting to earn her doctorate degree.

Heather Fried (M.S. 2006) is teaching at East Lyme High School. Eric Schultz was her advisor while she earned her degree.

Michael Moody (Ph.D. 2005) an advisee of Don Les, recently accepted a position at the University of Western Australia.



Colin Young (Ph.D. 2005) helped launch a Spanish edition of a children's book entitled *Colin y Los Monos* in Guatemala City, Guatemala at the end of last year. It is the story of Dr. Young's childhood and his efforts to protect the then endangered Black Howler Monkeys in his hometown of Bermudian Landing, Belize. The Spanish version updates what Dr. Young has accomplished since the first book was printed nearly 18 years ago. The first edition of the book was published in Swedish and Dutch. There are plans to publish an English version and create a documentary based on the story.

Dr. Young is currently an Assistant Professor at Galen University in San Ignacio, Cayo, Belize, Central America.

PIOTR NASKRECKI'S PHOTOS EXHIBITED AT THE PHYLETISCHES MUSEUM

Piotr Nastrecki's (Ph.D. 2000) photographs were exhibited at the Phyletisches Museum in Jena, Germany beginning in April, 2007. The museum, which is located approximately 165 miles (265 km) southwest of Berlin, is presenting Dr. Nastrecki's photos for the first time in exhibition format.

Dr. Naskrecki's work focuses on small animals such as whip spiders and katydids from Costa Rica and reed frogs from Guinea. With more than 90% of the 1.2 million animal species the size of a fingernail or smaller the exhibit is appropriately titled, "The Smaller Majority" and highlights the beauty of creatures often overlooked.

SIX STUDENTS GRADUATE FROM EEB'S JOINT BS/MS DEGREE IN BIODIVERSITY AND CONSERVATION BIOLOGY PROGRAM

The EEB B.S./M.S. program is designed for people who want to get advanced (graduate level) training in biodiversity and conservation biology, but who do not necessarily need the extensive research training that would come with a thesis-based Master's degree in order to advance their careers. The emphasis is on providing advanced training in a broad base of topics relating to biodiversity and its protection, and on gaining workplace experience.

For further information about the B.S./M.S. program please email EEB's Undergraduate Program Coordinator, Jennifer Murphy at jennifer.murphy@uconn.edu

Fall 2006 Graduates: Lindsay Bowerman

Spring 2007 Graduates: Courtney Hamler
Chris Field
John Achilli
Stephen Struble
Krista Fisk

Ines Ibanez, a post-doctoral fellow in John Silander's lab, has accepted a tenure track position at the University of Michigan, Ann Arbor. Ines intends to begin her position at the University of Michigan in January 2008.

EEB GRADUATE MAKES HISTORY AT SUNY PLATTSBURG

Plattsburgh State has started the first student chapter of the **Botanical Society of America** (BSA) in the nation.

So far, there are eight students participating in the chapter, all of whom are currently enrolled in the plant diversity and evolution course of EEB alum **Dr. Christopher Martine** (Ph.D. 2005), assistant professor of biological sciences.

Of the eight students, five are biology majors and three are environmental science majors. Students in the chapter were given gift memberships funded by their major's department. "Interestingly, on the day that these students joined the society, they pushed the BSA's membership over 2400 for the first time - so these students have participated in two milestones already," said Martine.

The Botanical Society of America, created in 1893, is one of the world's largest societies devoted to the study of plants and allied organisms, and functions as an umbrella organization covering all specialties. It provides a forum to discuss research, plant science and plant biology.

As a graduate student at the University of Connecticut, Dr. Martine noted the society was trying to find more ways to incorporate students. Martine thought the idea of introducing a student chapter was a way to get undergraduate students involved in the BSA. "The number one benefit is for students to see what it is like to be part of a scientific community. The society provides students with access to research projects of established botanists around the world," said Martine.

"The annual BSA conference will be held in Chicago this summer," noted Martine. "I am hoping we can get a few students to the meeting to represent Plattsburgh State. It (the conference) would give students a chance to see how research is not only conducted but presented and give students an opportunity to learn from distinguished researchers." In addition,

said Martine, BSA conferences could also be a medium where students in the chapter could present their research to others.

Senior Carrienne Pershy, an environmental science major and the secretary of the student chapter, notes "It is a model for other schools to follow."



Photo credit: Katie Khouri

Adapted with permission from Cardinal Points, a publication by SUNY Plattsburgh

MOTH EXPERT PROVIDES CURATORIAL ASSISTANCE TO EEB'S BIOLOGICAL RESEARCH COLLECTIONS

This past year, EEB's Biological Research Collections benefited from the curatorial assistance of moth expert Eric Quinter, formerly a Scientific Assistant at the American Museum of Natural History in New York City.

Mr. Quinter is capable of identifying nearly every North American moth (other than the micro-moths) to species by sight, although his specialty is in moths that bore into the stems and roots of plants like sunflowers, goldenrods, and even bamboo. He has discovered numerous new species and has associated moths with their host plants by diligently and patiently observing life cycles in the field.

For the university, he identified over 3,000 owl moth (family Noctuidae) specimens, correcting many mistakes made by entomologists less knowledgeable than he. He also completed an inventory of all the specimens he identified, which was then entered into the collection's computerized database.

An individual determination label was placed on each of the specimens Mr. Quinter identified with the help of collections volunteer Kathy Clark. This label includes the scientific name of the species and the name of the person identifying it. These labels are extremely important; in case students or researchers examine two or more specimens that look very similar, there is no chance that the moths will end up filed under the wrong name in the collection, even if the person looking at the specimens becomes confused as to which moths came from which box. Such labels also make the collections a very valuable identification resource, because anyone wondering what species they have will be able to compare their unknown specimens with those authoritatively identified by Mr. Quinter.

The collection holds many more moths whose names need to be verified, and we hope to have Mr. Quinter help us again this coming year.

THE DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY GRATEFULLY ACKNOWLEDGES SUPPORT FROM THE FOLLOWING INDIVIDUALS

Ms. Helen Armstrong

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Dr. and Mrs. David Wagner

Drs. Kentwood and Marta Wells

Dr. Robert B. Witlatch

EEB STUDENTS WIN DISSERTATION RESEARCH FUNDING FROM NATIONAL SCIENCE FOUNDATION

In June 2006, **Maxi Polihronakis**, **Jadranka Rota**, and **Krissa Skogen** were awarded Doctoral Dissertation Improvement Grants in the Directorate for Biological Sciences (DDIG) from the National Science Foundation. Unfortunately, award notification reached Maxi, Jadranka, and Krissa after our previous newsletter went to press. In 2007, **Rachel Prunier** was added to the EEB list of prestigious award winners by receiving a DDIG of her own.

Maxi's research proposal is entitled "Understanding the Evolutionary Pat-

terns Contributing to Species Specific Male and Female Genitalia in a Group of Scarab Beetles."

Rachel's research proposal is entitled: "Exploring the Mode of Speciation in the South African Genus *Protea* (Proteaceae)"

Jadranka's research proposal is entitled: Systematics and Morphology of Metalmark Moths (Lepidoptera: Choreutidae)

Krissa's research proposal is entitled: Nitrogen Deposition and Population Dynamics of a Declining Nitrogen-fixing Plant Species

DDIG grants "provide partial support of doctoral dissertation research to improve the overall quality of research. Allowed are costs for doctoral candidates to conduct research in specialized facilities or field settings away from the home campus, to participate in scientific meetings, and to provide opportunities for greater diversity in collecting and creativity in analyzing data than would otherwise be possible using only locally available." Additional information about DDIG awards can be found at: <http://www.nsf.gov/index.jsp>.

DR. PETER RICH RETIRES FROM EEB DEPARTMENT



Dr. Peter Rich retired in June, 2007 from the EEB Department. Dr. Rich earned his Ph.D. at Michigan State University; he joined the Ecology and Evolutionary Department in 1972. For more than 35 years Dr. Rich devoted his

career to the study of limnology, particularly the interactions among physical, chemical, and biological properties of lakes and ponds.

During his teaching career, Dr. Rich taught courses in limnology, limnological methods, and ecology. He was a frequent consultant to local towns and other groups in helping them deal with the environmental health of local lakes.

He was a member of the American Society of Limnology and Oceanography, the Ecological Society of America, the International Association of Theoretical and Applied Limnology, and the American Association for the Advancement of Science among others.

At the time of his retirement, Dr. Rich was looking forward to continuing his research and spending time paddling on Connecticut ponds and lakes.

PROFESSOR CARDON TAKES POSITION AT THE MARINE BIOLOGICAL LABORATORY

Dr. Zoe Cardon has accepted a position as Adjunct Associate Scientist at the Ecosystems Center, Marine Biological Laboratory at Woods Hole, MA .



Dr. Cardon earned her Ph.D. at Stanford University. She came to EEB in 1997 from Bowdoin College where she was an Assistant Professor in the Biology Department. Her research focuses on ecosystem and plant physiological ecology, especially the influence of rhizodeposition on terrestrial carbon and nutrient cycling; plant function in fluctuating environments. She has received grants from NASA, NSF, Andrew Mellon Foundation and others.

In addition to her research and teaching responsibilities, Dr. Cardon was also the Associate Director for UCONN's Center for Integrative Geosciences. In addition, she served as the Center's Graduate Program Director.

Dr. Cardon will begin her position at the Ecosystems Center in January, 2008. Everyone in EEB wishes her well in her new career.

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