



# ATBI QUARTERLY

Great Smoky Mountains National Park, Great Smoky Mountains Association, Friends of the Smokies, and Discover Life in America

## Message from the Chair

Peter White

On December 10th, we closed our 8th Annual Meeting in Gatlinburg, and a fun meeting it was. The theme of this year's meeting was partnerships. Our partnerships were on display: between taxonomy, ecology, conservation, education, and art; between scientists, educators, students, and the public; and between Great Smoky Mountains National Park, the Friends of the Smokies, the Great Smoky Mountains Association, Discover Life in America, and many other institutions.

For me, there were moments that were every bit as charismatic as the creatures we study. Here are a few memories (but let me be quick to apologize for the omission of other equally wonderful ones). If you were there, you heard Warren Wilson undergraduate Krystal McKelvey exclaim "Wow, this thing was huge! Eight hundred microns - a tardigrade nearly 1 mm long!" Another memory represents one of the themes that Sylvia Earle introduced in her keynote address. Sylvia noted that the age of exploration is not over but just beginning, and that we have learned an amazing amount in the last 25 years, and are poised to understand so much more. New tools and new expeditions are discovering the largely unknown life of our planet. On this theme we have the memory of Paul Bartels showing a high resolution image of one tardigrade in the process of consuming another, the claw of the latter visible in the gut of the former, thereby confirming its identification. Those present at that moment were a select group - no human being had ever seen a picture of that before and little is known about the life history of these creatures. More memories include Mark Wetzel noting "Hey, in this room it's okay to say you work on worms!" Through Paul Super we saw critters that live in bird feathers. From the mycological blitz we heard about the contest for the biggest mushroom. We learned that 10% of all protostelids are new to science. A new genus was announced (*Rexia*), named for our own researcher and board member Rex Lowe of Bowling Green State University. Aphid researchers showed us the difficulty of their task (5-8 morphological states for each species) and the interwoven nature of life (aphids carry 40 plant viruses, live on several host species, and play host to their own parasites). From our educators we saw pictures confirming that children are both closer to the ground (making it easier to get to the soil, under rocks, and in the mud) and closer to an intuitive sense of curiosity.

From Sylvia, we also were reminded that the National Park Service mission is to leave wildlife and scenery unimpaired for future generations. Indeed tardigrades are wildlife and diatoms are scenery! Sylvia also noted the importance of her first microscope. Through microscopes we see that diatoms and the clean water they inhabit are very much part of our scenery. Enthusiasm was everywhere at the meeting, and our sense of satisfaction has grown. We have learned much, and we now know more than anyone in the country how to carry out such surveys.

Peter White  
University of North Carolina  
Peter.White@unc.edu



Kemp Davis, Jr.

Peter White presents DLIA images to guest speaker Sylvia Earle.



Jeanie Hillen

DLIA development and marketing group meeting.



Jeanie Hillen

Demonstrating the use of Park mapping projects



Jeanie Hillen

Paul Bartels checks out one of Bobby Martin's microscopes.



#### New Board Member

Rex Lowe received his Ph.D. from Iowa State University and is currently a professor at Bowling Green State University. He studies algae, particularly diatoms, and has been conducting research in the Park since the mid-1970s. He has trained over 60 graduate students in algal taxonomy and ecology and is the author of over 100 scientific publications. Rex currently is the TWIG (taxonomic working group) leader of the small but very active algal TWIG that has major funding from the National Science Foundation. Rex and members of the algal TWIG will be in-residence for most of the summer in 2005. He encourages anyone who would like to be involved with the algal group to visit them at the ATBI house near the Cosby Campground to see what they are excited about. In addition to his research in the Park, Dr. Lowe also is engaged in algal research in the Great Lakes and on the South Island of New Zealand.



#### Science Advisory Panel

Dr. Dan Janzen, University of Pennsylvania  
Dr. Tom Lovejoy, The Heinz Center  
Dr. Ron Pulliam, University of Georgia  
Dr. Peter Raven, Missouri Botanical Garden  
Dr. Edward O. Wilson, Harvard University

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Chuck Cooper, Database Technician  
Charles Wilder, Web Technician

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#### New Board Member

Jim Lowe received a B.A. in botany from the University of Tennessee, an M.S. in entomology from the Ohio State University, and a Ph.D. in biology from Yale University, doing his dissertation on the flight and dispersal of the pine leaf aphid (as it was called then!) (*Adelgidae: Pineus pinifoliae*). He was employed for six years by the U.S. Forest Service at the Northeastern Forest Experiment Station in New Haven, Connecticut, doing research principally on biological evaluations of the spruce budworm, and writing pest reports and the like for distribution to the Northeastern states. It was here that he became a "forest entomologist and pathologist", after which he went on to the School of Forestry at the University of Montana for 30 years. When he retired, he and his wife traveled awhile and settled in Western North Carolina. Even though they both love the Montana mountains, they were determined to be as near to Great Smoky Mountains National Park as possible, a place that is dear to their hearts and heritage. Jim has been doing volunteer work for the ATBI and DLIA just about ever since.



#### New Board Member

Dennis McCarthy, who has a Ph.D. in ecology as well as a law degree, began his career as a park ranger at Grand Canyon National Park and the Blue Ridge Parkway. McCarthy worked for the Tennessee Valley Authority (TVA) for over 20 years as a field botanist, an environmental planner, the assistant to the Director of Environmental Quality, a speechwriter for the TVA Board of Directors, and the head of TVA's publications. Between careers at TVA, McCarthy was Executive Director of Peters Valley Craft Center, an art school operated in cooperation with the National Park Service, at Delaware Water Gap National Recreation Area. McCarthy retired from TVA in 1997 to take a position with the University of Tennessee's Energy, Environment and Resources Center, as Editor-in-Chief of *Forum for Applied Research and Public Policy*, an internationally recognized policy journal focusing on energy, the environment, and economic development. In the early 1990's, McCarthy and his wife formed McCarthy and McCarthy, a general civil-litigation law firm. In 2003, McCarthy left the University to devote full time to his law practice.

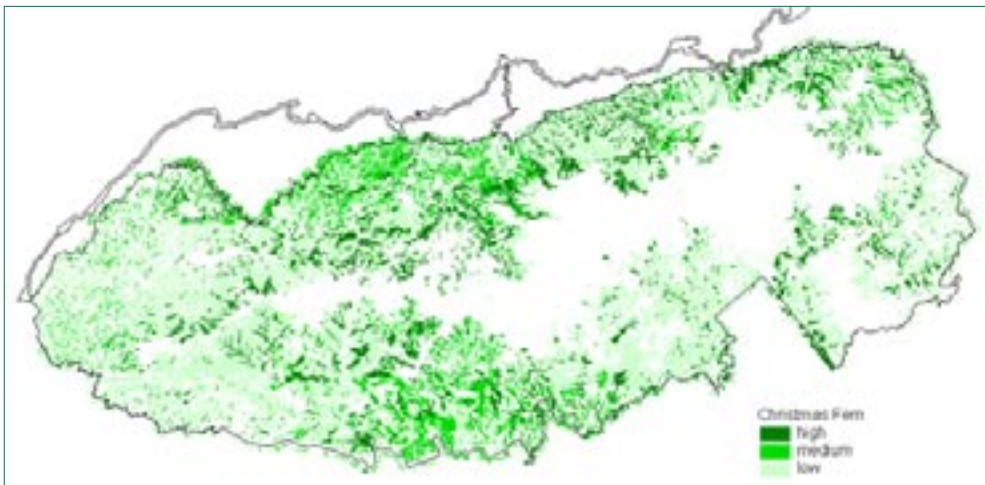


Figure 1: Predicted distribution map for Christmas fern, *Polystichum acrostichoides*.



Murray Evans

Christmas fern, the most common fern in the Park.

## Fern Forays 2004

Patricia Cox

There were four successful fern forays this past summer. The first was May 22 on trails in the Cades Cove area (Parsons Branch Road and Gregory Ridge Trail). There were 20 volunteers, including students from the University of Indiana, the University of Louisiana at Monroe, Haywood Community College, and other local residents. The second foray, June 12th, was conducted in the area of the Twentymile Ranger Station (Twentymile Creek Trail and Wolf Den Trail), and it was the first time that we encountered lightning, thunder, and lots of rain. This continued for about 1.5 hours, then the sun came out and it was a beautiful day. Due to the weather, we had fewer volunteers (12), but they came from as far away as Cincinnati, OH. We found a new record for the North Carolina side of the Park: *Decumaria barbara*, a vine in the Hydrangea family. We spent the night at the hostel in Fontana Village, and were probably the first group to actually enjoy watching the bats come out of the attic at dusk! July 10th was the date of the third foray, for which we had 16 volunteers and two Park interns mapping trails in the area known as the "Road to Nowhere". One interesting fern we found on the White Oak Branch Trail was *Lygodium palmatum*, a climbing fern which is known from only a few locations in the Park. The last foray of the summer was August 21st. Again, we were plagued by rain most of the day, but that didn't stop 14 volunteers from coming out to help map the Middle Prong and Sams Creek Trails in the area near Tremont.

To date, we have mapped 165 miles of 47 trails. With the help of Jessica Brown, DLIA intern, and Chuck Cooper, DLIA Database Technician, all the fern data have now been entered into an ACCESS database. Reports can now be generated and GIS probability maps can be produced with the help of Richard Schulz (NPS GIS Specialist). Preliminary data show that Christmas fern, *Polystichum acrostichoides*, is the most common fern in the Park with over 25,000 observations on 42 of the 47 trails. The next most common species is New York fern, *Thelypteris novaboracensis*, with 17,700 observations on 42 trails. A few of the more uncommon ferns we have found are *Trichomanes petersii* (10 observations on one trail), and *Lygodium palmatum* (five observations on two trails).

Figure 1 illustrates the type of maps that can be generated from the fern data. This preliminary map, developed by Richard Schulz, showing the probable distribution of Christmas fern was made by using the Vegetation Community Maps produced by the University of Georgia. More refined



Kemp Davis, Jr.

Group photo from foray 2 at Twentymile Ranger Station.



Kemp Davis, Jr.

Group photo from foray 3 along the "Road to Nowhere."

analyses can be made when other GIS layers are added to the data, such as slope, aspect, and shrub layer information. Darker shades on the map indicate a higher probability of finding plants in that area, and the lighter shades indicate a lesser probability. We can then go into the field to test these hypotheses. These GIS maps can be very useful in helping to fill in gaps for areas that are inaccessible to researchers.

Volunteers are a most important part of this project. This year we had 36 different individuals from seven states participate. THANK YOU!

Patricia Cox  
Tennessee Valley Authority, Heritage Program  
pbcox@tva.gov

# Pool and Pond Beetles of the Park

Charlie and Sue Staines

The Smoky Mountains are known for being wet. When people think of aquatic habitats in the Park they picture the numerous fast flowing streams; however, the pools, ponds, ditches, and flooded meadows are home to a variety of aquatic beetles not found in moving water.

Beetles from a number of families are found in aquatic habitats. In North America alone there are 10 families in which both larvae and adults of nearly all species are aquatic, three in which at least one life stage is aquatic, and two in which the larvae occur in water or in the underwater parts of plants. In addition, there are many species which burrow in wet mud and sand or hunt and hide under debris and stones at the water's edge. The majority of water beetles prefer shallow water, where they hide among aquatic plants and underwater debris near the shore. Few species are found in deep water and none are found in the open ocean, although there are five families which live in the intertidal zone of ocean beaches.

Our goal in the Park was to inventory the aquatic beetles in five families (Dytiscidae, Gyrinidae, Haliplidae, Hydrophilidae, Noteridae) by conducting field work mostly in the Metcalf Bottoms, Cades Cove, and Cataloochee areas. We also examined the literature for records and insect collections at the Park, the University of Tennessee, and the Illinois Natural History Survey. Following are general descriptions of the five families we hoped to encounter.

The family Dytiscidae (predaceous diving beetles) are found in flowing and still water habitats. Some species are predators and others are scavengers as larvae and adults. Larger species often feed on fish and small invertebrates, whereas smaller species are effective predators on invertebrates, especially mosquito larvae. The three larval instars, as well as adults, must surface for oxygen although there is circumstantial evidence that some species do not need to surface, perhaps being able to extract the oxygen they need directly from the water.

The family Noteridae (burrowing water beetles) is aquatic both as adults and larvae. They are either predators of small invertebrates, or scavengers. Both larvae and adults burrow through the substrate on the bottom of ponds, marshes, and temporary pools with emergent vegetation.

Many Gyrinidae (whirligig beetles) swim on the surface of ponds and pools. When disturbed they dive and scatter widely, often clinging to the roots of undercut stream banks. Adults are scavengers and feed on dead and dying insects floating on the water surface. Larvae are predaceous, feeding on other aquatic insects.

Haliplidae (crawling water beetles) are small, feeble swimmers, found most often crawling along submerged vegetation, such as mats of filamentous algae, on the edge of small ponds,

lakes or quiet streams. Some species are known to fly and have been captured in black-light traps. Adults are known to eat insect eggs, algae, and other plant material.

The Hydrophilidae (water scavenger beetles) are mainly aquatic, being found in stagnant pools, along the margins of lakes and ponds, shallow quiet water of streams, and springs. Aquatic species are predaceous as larvae, and either predaceous, omnivorous, or phytophagous (plant feeders) as adults. A number of aquatic species are important predators of mosquito larvae, and the largest species in the U.S., *Hydrophilus triangularis* (34-37 mm), has been reported as a pest in fish hatcheries.



Prior to our work, the literature and Park collections had records of 45 species of aquatic beetles in four families (Noteridae was not represented). Our records added 28 additional species and one family new to the Park. Our first day of collecting resulted in finding *Hydrocantha iricolor*, which represented not only a new species record for the Park, but the new family record (Noteridae) as well. One of the more unusual water beetles identified from collections was *Sperchopsis tessellata*, a species which is considered rare. It is one of the few hydrophilids found in clear, cool, flowing streams, and its preferred habitat is undercut gravelly or sandy stream banks. Even when it is found, the number of specimens is always small.

We plan on returning to the Park in 2005 to continue our work by adding to species lists and gathering ecological information on aquatic beetles.

Charlie and Sue Staines

Research Associate, National Museum of Natural History  
staines.charles@nsmnh.si.edu



## Water Color Exhibit by Nancy Lowe

Fernbank Museum of Natural History in Atlanta, GA will exhibit "Hidden Wonders: The Watercolors of Nancy Lowe", celebrating species collected for the ATBI. The exhibit opens January 29 and runs through June 19. The Fernbank Museum is a moderate-sized museum of natural history which has exhibited many major touring exhibits from the Smithsonian and the American Museum of Natural History. Concurrent with Nancy's ATBI watercolors exhibit will be a major exhibit on frog diversity, featuring almost 200 live frogs.

[www.fernbank.edu](http://www.fernbank.edu) 404-929-6300

# The When and Where of Ant Diversity in the Smokies

Robert R. Dunn and Nathan J. Sanders

One of the most striking results of the ATBI in Great Smoky Mountains National Park (GSMNP) is the accumulating number of species in a variety of taxa ranging from the slime molds to the pinnacle of ecological and evolutionary dominance – the ants. In the late 1930's, Arthur Cole, then a professor at the University of Tennessee, turned over rocks, busted up logs, and otherwise had a good ol' time as he conducted the first extensive survey of the ants of GSMNP (but only on the Tennessee side of the Park). Cole's work highlighted the ecology of individual ant species, but left many ecological stones unturned.

Recently, thanks to funding from Discover Life in America, we and a group of students from several universities have picked up where Cole and other myrmecologists (ant biologists) left off. Cole and others showed that, as with most groups, the ants are diverse and abundant in the Park. But now as part of our work to document the distribution of ants in the Smokies, we are finding that this diversity varies tremendously, and systematically, in space and time.

For example, we and our team of student researchers (Jaime Ratchford, JP Lessard, and Raynelle Rino) found that one square meter of leaf litter might contain more than 10 species of ants while another square meter may contain just one or two individual workers. Thanks to Chuck Parker's Herculean collecting, processing, and identifying efforts as part of his "How to Conduct an ATBI" study, we are learning that month-to-month variation in ant diversity and abundance is just as extreme as spatial variation. Like most arthropods, ant activity varies over the course of a year, and we now want to know what causes such tremendous variation from place to place and time to time (and we're actively pursuing these questions). One of the most striking results so far is that the rarest ant species in space and time tend to be concentrated where there are more species overall. This might have considerable implications for deciding where (and when) to sample in the future as these are the locations and times where we are likely to discover even more new Park records than we have already found.

Over the next several years, we hope to shed light on two major issues in GSMNP. First, we hope to help design future sampling studies that can best sample poorly known species in the Park and uncover the drivers of temporal and spatial variation in other groups. Second, and perhaps more importantly, we hope to identify the best spots for picnicking. For us, these will be the spots with the most ants, but to each her own.



Nathan Sanders

JP Lessard from McGill University and Raynelle Rino from Humboldt State University use a Winkler litter sifter near the Ramsey Cascades ATBI plot.



Nathan Sanders

Jaime Ratchford from Humboldt State University processes some of the samples at the University of Tennessee Field Station.

Robert R. Dunn, [rdunn@utk.edu](mailto:rdunn@utk.edu)  
Nathan J. Sanders, [nsanders@utk.edu](mailto:nsanders@utk.edu)  
University of Tennessee

## It's Now Easier to "Discover Life in America" on the World Wide Web!

Joe Henderson

The Discover Life in America web site ([www.dlia.org](http://www.dlia.org) or [www.discoverlifeinamerica.org](http://www.discoverlifeinamerica.org)) has been completely revamped, with a new look and feel and improved navigation. The new site debuted in November 2004. The design takes advantage of web techniques that greatly enhance the usability and accessibility of a wealth of information about the ATBI and the region.

Major new features include direct navigation links via fly-out menus on the left margin of each page and a flexible layout to let visitors size the display and text to meet their needs. (*Note: the new site is fully functional with most version 6 and above browsers and with Firefox*). In addition, a text parser provides users the option of displaying just the text on pages within the site, which can improve accessibility for users with vision challenges.

A site map which summarizes and links to the major topics is available in the new site, and provides the visitor with a rapid overview of the broad range of information available today. A search engine also has been added to the site. All of the pages are periodically indexed, and through the search engine interface the user can identify all pages that contain words or phrases of interest.

Significant work also has been done on the ATBI species pages. P.J. Nabors and Paul Super deserve great credit for the progress that has been made in updating the bird species pages and other species sets. Most species pages include descriptive information, photographs, distribution maps, and natural history information pertinent to the species. You can reach the species pages from the "ATBI" section of the navigation menus.

Joe Henderson

Information International Associates, Inc.

[jhenderson@infointl.com](mailto:jhenderson@infointl.com)



## Students Learn About Research

Paul Super and Michelle Prysby

High school interns were again hired in the summer of 2004, as part of a three-year grant from the Burroughs Wellcome Fund of Research Triangle Park, North Carolina. Twelve students from five North Carolina high schools worked as NPS employees four days per week from early June to the end of July. They assisted with field work while learning the basics of recording observations, collecting and preparing specimens, and summarizing their data at the end of the summer with both written and oral reports. A similar program for Tennessee high school students has been operated out of the Great Smoky Mountains Institute at Tremont since 2000 with a variety of funding sources, including DLIA and the Alcoa Foundation. Our hope is that this experience will lead many of these students into careers in science, and while they're at it, collect useful data for a better understanding of the Park's resources.

Some of the highlights for the 2004 field season included:

- Planthoppers and algae were collected from sites ranging from Twentymile to Cataloochee Valley for Drs. Charles Bartlett and Rex Lowe, respectively.
- Aquatic and dung beetles were collected from several areas for Dr. Charlie Staines. Thus far, at least four new Park records have been identified.
- Spiders were collected and identified, with the help of Jonathan Mays and Dr. Fred Coyle, at Purchase Knob and other locations. Sixty-three species were identified at Purchase Knob, including at least two new Park records.
- Over 1,500 individuals of over 130 species of moths were identified during five trap nights at two locations to provide seasonal and spatial distribution data.
- Fifty-eight individuals of three species of snakes were marked with patterns of clipped scales at Purchase Knob. Twenty-six geo-referenced observations of 11 species of reptiles were documented and provided to Dr. Ben Cash.
- Pitfall traps and baited hanging traps were operated at a burn site and unburned control site along the Noland Divide Trail. Of the 24 spider species identified during this study, 12 have been found only in the burned site and 12 only in the controls.
- Seven plant galls have been identified in the family Cecidomyiidae, representing the only records for this family in the Park.

Both Michelle Prysby and I are always looking for new projects that our interns can assist with. If we can be of help for even one day, or throughout the summer, please contact us at the numbers below.

Paul E. Super, [paul\\_super@nps.gov](mailto:paul_super@nps.gov), 828-926-6251

Michelle Prysby, [michelle@gsmiit.org](mailto:michelle@gsmiit.org), 865-448-6709

# Keynote Address from Dr. Sylvia Earle—A Summary

Jeanie Hilten



Dr. Sylvia Earle, marine biologist, National Geographic “Explorer in Residence”, Time magazine “Hero for the Planet”, ocean conservationist, and advocate for protection of biodiversity, spoke to a packed house at the 2004 ATBI Conference. Dr. Earle stressed that we need to think big about conservation of the earth—our life

support system—and maintain its integrity. She expressed her fascination with the “great miracles of life” and the crucial need to protect the legacy of the earth. She also saluted the ATBI as a beacon for all.

Dr. Earle has been involved with a wide array of organizations and projects for conservation: the Hart Research Institute (an inventory in the Gulf of Mexico), the World Wildlife Fund, the Conservation Fund, the Nature Conservancy, American Rivers, Census of Marine Life, and Sustainable Seas, among others. She also is a member of the National Park System Advisory Board, which is charged with analyzing where the National Parks are with science and where they should be. A report entitled *National Park Service Science in the 21st Century* was issued in March of 2004 (<http://nature.nps.gov/scienceresearch/index.htm>). This report suggests that National Parks be a part of an even larger system of protected areas—national, state, and local—all of which are vital. Also, the report recommends building an electronic encyclopedia of American natural history, and conducting species inventories “like in the Smokies”.

When the National Parks were first established, resources were brimming—clean and abundant. Now there are many threats to the diversity of life, in the oceans and elsewhere. Parks are much more than just aesthetically pleasing, and our charge is to maintain their integrity for all time. “Someone should speak for the fish and the moths and the slime molds and the tardigrades, or a big chunk of our future is gone missing”, says Dr. Earle. The National Parks should continue to give people an education on how nature has shaped our heritage, and can advocate to prevent the degradation or loss of that heritage.

As we think about how and why people become scientists, we know that certain “childlike” qualities—a sense of wonder, the adventure of exploration, curiosity, and questioning—must be a part of the development. Dr. Earle harkened back to her own upbringing and the freedom she had to go out and “get soggy and grubby”. It is a different and difficult world now, but “because we have National Parks, there is still the chance for kids (and everyone) to get grubby and experience the past, present, and future of natural earth”. Imagine if every kid has a microscope! As they learn and grow, they will “see a greater distance inward”.

The more we look at the biodiversity of the earth, the more we realize that we are just beginning our quest! When one water sample from Bermuda yields 1,000 species of bacteria, it hits home that we don’t need to look only skyward for new frontiers. Exploration is not a thing of the past. Now, we have a glimpse of “the magnitude of our ignorance”. For example, only 1-5% of the ocean has been explored. We should be inspired by where we are at this point in history.

Sylvia Earle concluded with both warnings and positive points. At this pivotal time in history, our accelerated knowledge also makes us more capable of disruption of ecosystems. The rate of destruction has increased rapidly. We have lost more in the last 25 years than in all human history; however, we can apply our knowledge to save what is left. Dr. Earle appealed to us all to ramp up what we are doing 100-fold. Let us invest in kids. Let us use our power and knowledge so that in the future, people will look back at us and say, “Thanks!”

Jeanie Hilten  
DLIA Administrative Officer  
[jeanie@dlia.org](mailto:jeanie@dlia.org)



## Where to Stay in North Carolina

The long-awaited renovation of researcher housing at Purchase Knob has begun. The peeling paint is gone, the roof is new, there are new windows, a new heating system, and the interior has been completely gutted. The building will not be available for researcher housing until spring of 2006, but when it is finished, it will still have beds for eight researchers in three rooms, kitchen and laundry facilities, restrooms upstairs and downstairs, a conference room, and the same great porch and views. For those of you wishing for a base of operations on the North Carolina side of the Park in 2005, five tent platforms are now available for use, located in the woods just behind the lab. These were built with grant money received from the National Park Foundation through a generous donation from Unilever. There are three 10' x 8' platforms and two 10' x 16' platforms, made of recycled plastic lumber, in part, and constructed by volunteer labor. You will need to provide your own gear; however, we do have one 9-person tent available for use by researchers. Also, if you use the tent platforms, you will have access to refrigerator and freezer space, the toaster oven, microwave, coffee-maker, and dry food storage areas in the house, as well as dry work space in the lab. You also will have access to flush toilets and sinks with running water, though there are no shower facilities. Researchers wishing to use a tent platform, or for use of the house in 2006, please contact Paul Super at 828-926-6251 or [paul\\_super@nps.gov](mailto:paul_super@nps.gov).



# Discover Life in America - All Taxa Biodiversity Inventory Events Calendar 2005



Discover Life in America coordinates many volunteer projects, scientific efforts, and educational programs. To become involved, please contact Jeanie Hilten, 865-430-4752 or [jeanie@dlia.org](mailto:jeanie@dlia.org), and visit our website at [www.dlia.org](http://www.dlia.org). We strongly encourage new volunteers to participate in the Orientation Day - Saturday, March 19, 2005.

**Friday, February 11: Deep Cleaning of the Cades Cove ATBI House.** Meet at 9:00am at the house, located behind the Cades Cove Ranger Station. We'll have a fine time sweeping, dusting, mopping, and more! DLIA will provide lunch, so sign up with Jeanie in advance.

**Saturday, March 19: Volunteer Orientation Day.** Sugarlands Training Room, 9:00am—4:30pm. This training day is designed for volunteers new to the All Taxa Biodiversity Inventory. Teachers and students are welcome. Both classroom and field sessions will be taught by DLIA and Park staff, and experienced DLIA volunteer leaders. Bring a lunch and rain gear. Space is limited so please register early with Jeanie.

**Friday, April 8—Sunday, April 10: Spring Awakenings Naturalist Weekend.** Great Smoky Mountains Institute at Tremont. Session titles include: Woodland Wildflowers, Naturalizing on the Wild Side, Cades Cove Behind the Scenes Adventure, and Smokies Sampler. For more details, visit the Tremont website, [www.gsmit.org](http://www.gsmit.org) or call 865-448-6709.

**Friday, April 15—Monday, April 18: Spring Photography Workshop.** Great Smoky Mountains Institute at Tremont. For more details, visit the Tremont website, [www.gsmit.org](http://www.gsmit.org) or call 865-448-6709.

**Saturday, May 7: ATBI Field Day.** Haywood Community College and Appalachian Highlands Science Learning Center, 9:00am—5:00pm. This workshop will demonstrate the many field, lab, and technical methods used by All Taxa Biodiversity Inventory scientists. We'll begin in the morning at Haywood Community College near Waynesville, NC and then go up to the Learning Center in the Park for the afternoon. Instruction will be aimed at helping volunteers become familiar with ways they can assist researchers in the field and in the lab. To sign up, contact Jeanie Hilten before the end of April.

**Friday, May 20: Discover Life in America Board Meeting.** Great Smoky Mountains Institute at Tremont, "Spruce-Fir" room, 9:00am—4:30pm.

**Saturday, May 21: Fern Foray.** Cataloochee trails. Botanists and volunteers continue this fifth year of mapping ferns of the Park. These forays are lots of fun, with enthusiastic participants and a chance to get up close and personal with ferns and other flora of the Smokies. Contact Dr. Patricia Cox, 865-632-3609 or [pbcox@tva.gov](mailto:pbcox@tva.gov)

**Wednesday, June 1—Wednesday, June 15 (tentative): Beetle Blitz.** This event will be operated out of the Sugarlands Training Room. Scientists and volunteers will search the Park's unique habitats at all elevations in this third Beetle (or Coleoptera) Blitz. There will be educational programs as part of this event as well. Contact Christopher Carlton or Victoria Bayless at Louisiana State University, 225-578-1838.

**Thursday, June 2—Sunday, June 5: Slime Mold Workshop.** Great Smoky Mountains Institute at Tremont. Sponsored by a grant from the Environmental Protection Agency, this weekend program with classroom, field, and lab sessions, will be taught by Dr. Steve Stephenson and other ATBI researchers. The workshop is directed to educators interested in investigating the fascinating world of "Eumycetozoans" (slime molds) and then using their knowledge to involve young people in scientific pursuits. Contact Susan Sachs, 828-926-6251 or [Susan\\_Sachs@nps.gov](mailto:Susan_Sachs@nps.gov)

**Sunday, June 12—Saturday, June 18: Smoky Mountain Science Teacher Institute.** Great Smoky Mountains Institute at Tremont. For more details, visit the Tremont website, [www.gsmit.org](http://www.gsmit.org) or call 865-448-6709.

**Saturday, June 11: Fern Foray.** Appalachian Trail/Sluice Gap/Smokemont. Contact Dr. Patricia Cox, 865-632-3609 or [pbcox@tva.gov](mailto:pbcox@tva.gov)

**Friday, July 15—Sunday, July 17 (tentative): Fern Foray.** Appalachian Trail/Spence Field, Thunderhead Mountain/Russell Field. Contact Dr. Patricia Cox, 865-632-3609 or [pbcox@tva.gov](mailto:pbcox@tva.gov)

**Saturday, September 10: Fern Foray.** Balsam Mountain area. Contact Dr. Patricia Cox, 865-632-3609 or [pbcox@tva.gov](mailto:pbcox@tva.gov)

**Friday, September 16—Sunday, September 18: Tennessee Environmental Education Annual Conference.** The meeting will be held at Carson Springs, Newport, TN and the focus is "Place Based Education". For details contact Judy Dulin, [JudyDulin@Sevier.org](mailto:JudyDulin@Sevier.org)

**Friday, October 28—Sunday, October 30: Fall Naturalist Weekend.** Great Smoky Mountains Institute at Tremont. Session titles include: Fungi of the Smokies, Black Bears, Geology of the Smokies, and Fall Potpourri. For more details, visit the Tremont website, [www.gsmit.org](http://www.gsmit.org) or call 865-448-6709.

April 11th is the deadline for submitting articles for the Spring issue of the ATBI Quarterly newsletter.  
Contact: Ruthanne Mitchell ([cwmitchell@ntown.com](mailto:cwmitchell@ntown.com)).

## A Selection of Photos from the Annual Meeting



Kemp Davis, Jr.

DLIA musicians at the ATBI-DLIA silent auction and reception (left to right, John Richardson, Jeanie Hilten, and Peter White).

Annual meeting attendees enjoyed a variety of ATBI-DLIA exhibits. All photos by Jeanie Hilten.