

# ATBI QUARTERLY

Great Smoky Mountains National Park, The Natural History Assoc., Discover Life in America, and Friends of the Smokies

James Murray



Central Missouri State University students: Kenny Snell (left), Buck Counts (middle), and Melissa Skrabal (right) with complete climbing gear.



## CONTENTS

Tree Canopy Myxomycetes	1
Note from Vice-Chair	2
Nancy Lowe's Illustration	2
Biodiversity Is Us	3
Protista Pursuit	4
Taxa Table	4
Bat Blitz	5
Soil Scientists	5
Lepidoptera Blitz	6
Annual Conference	8
Updated Calendar, News, etc.	9
Biodiversity Beach Blast	10
Two New Native Plants	11
Two New Exotics	11
ATBI Research Permits	11
Special "Thank You's"	12
Editor's Corrections	12

## TREE CANOPY MYXOMYCETES: OUTSTANDING SCHOLAR AND THESIS AWARD

This research project began with a grant from the National Science Foundation Biotic Surveys and Inventories Program to investigate the tree canopy biodiversity (myxomycetes, macrofungi, mosses, liverworts and lichens) in the Park. Additional support from Discover Life in America has enabled the research team to include tardigrades, molluscs, and insects. One of the objectives of this project was to involve undergraduate and graduate students, a multidisciplinary research team of volunteers, and Park interns. Student climbers from Central Missouri State University climbed a total of 240 trees representing 35 species during two three-week periods in June, July and August of calendar years 2000 and 2001. Kenneth L. Snell (Kenny) was the graduate student and project leader who was in charge of all phases of the field and laboratory research.

Kenny recently completed his graduate master's thesis entitled, "Vertical Distribution and Assemblages of Corticolous Myxomycetes on Five Tree Species in the Great Smoky Mountains National Park." Corticolous myxomycetes were studied in relation to their association with certain tree species and height of occurrence in the canopy. Results suggest that the myxomycete community composition among these tree species is similar, but occurrence and abundance of certain myxomycete species are related to differences in pH. This is the first study to characterize myxomycete communities of tree canopies. Eighty-four myxomycete species were identified, including 30 species not previously known to occur in the Park.

Kenny was nominated for the Reid Hemphill Outstanding Scholar Award based on scholarship, research and citizenship. Also, his thesis was nominated for the Graduate Thesis Award. Nominees were selected by a committee in the College of Arts and Sciences, and final selections were made by a university-wide committee. Kenny represented the Department of Biology as the winner of both awards. He received two plaques and cash awards in a special Graduate Awards Reception. His thesis will be presented at the Fourth International Congress on Systematics and Ecology of Myxomycetes in August 2002 as part of the symposium on "Tree Canopy Biodiversity of Myxomycetes and Corticolous Myxomycetes" to be held in Meise, Belgium. I will remember his athleticism in climbing trees, his leadership skills in working with all of the undergraduate student projects, his many hours scanning moist chambers to record myxomycete species, his computer expertise in organizing our tree canopy database, but most of all, his night excursions where he taught me how to collect myxomycete fruiting bodies with a flashlight.

Harold W. Keller  
Central Missouri State University  
keller@cmsu1.cmsu.edu



#### Science Advisory Panel

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

#### Board of Directors

Dr. Frank Harris - Chairman  
Oak Ridge National Laboratory

Dr. Peter White - Vice-Chair  
University of North Carolina-Chapel Hill

Mary H. Johnson - Vice-Chair  
Interstate Development Company

Tom Rogers - Secretary  
Orkin

David Scanlon - Treasurer  
Great Smoky Mountains  
Natural History Assoc.

Peter Alden, Concord, MA  
Glenn Bogart, Pi Beta Phi Elementary School  
George Briggs, North Carolina Arboretum  
Dr. Michael Donoghue, Yale University  
Kevin Fitz Patrick, Media Divide Productions  
Dr. Patty Gowaty, University of Georgia  
Dr. Steve Hubbell, University of Georgia  
Dr. Michael E. Irwin, University of Illinois  
Dr. Norm Johnson, Ohio State University  
Dr. Michelle Lakly, Zoo Atlanta  
Dr. Rex Lowe, Bowling Green State University  
Dr. John Morse, Clemson University  
Dr. John Pickering, University of Georgia  
Dr. Susan Riechert, University of Tennessee  
Dr. Mike Sharkey, University of Kentucky  
Elizabeth Skillen, University of Georgia  
Dr. David Wagner, University of Connecticut

#### Staff:

Jeanie Hilten, Administrative Officer, DLIA  
Emily Jones, Development Coordinator,  
Friends of the Smokies

## A Note from the Vice-Chair

Peter White

As a biologist, it is easy to fall in love with the Smokies. The rugged slopes, array of habitats, and rich old-growth forests—the best left in the East—harbor a biological diversity that is alluring and thrilling in the potential for discovery. As the results come in with the latest e-mail from Keith Langdon or Becky Nichols, even at this stage of the project when we are seeking to increase and solidify a funding base that is not yet sufficient, my first reaction is always scientifically sophisticated: “Wow!” or “Amazing!” or some such erudite and highly publishable scientific jargon.

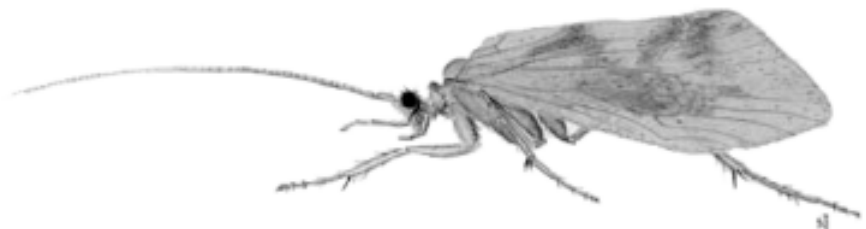
Our planet is teeming with living things and yet we stand in such ignorance of our co-inhabitants. The creatures harbor an array of genes and an arsenal of chemicals for dealing with life’s processes and problems. Sometimes we will discover a substance critical even to the narrow and selfish benefit of our own species, but more generally we will learn about something that characterizes our planet uniquely, the process of evolution. Evolution’s ingenuity and creativity are beyond human imagination. We will also learn in more detail the effects of our own species on the earth’s living beings—and better ways to protect them in one of America’s great national parks.

The image I leave you with is this—under foot, under that rock, around that bend in the trail, beneath the waterfall and in every gram of soil is a world to discover. Thank you for your interest and continued support.

Peter S. White  
University of North Carolina at Chapel Hill  
pswhite@unc.edu

Peter White is Vice-Chair of Discover Life in America and Co-Chair of the Science Committee for the All Taxa Biodiversity Inventory in Great Smoky Mountains National Park. He is a professor at the University of North Carolina at Chapel Hill and director of the University’s North Carolina Botanical Garden.

Congratulations to new and re-elected DLIA officers, at left.



Nancy Lowe’s illustration of *Neophylax kolodskii*

# Biodiversity is Us

Dan Janzen

Note (by Keith Langdon): The National Park Service is considering expansion of the ATBI endeavor. On June 10-11, 2002, the Washington Office of the National Park Service held a meeting of 45 people at the Buckhorn Inn near Gatlinburg, TN. With the need to accelerate global inventories of biodiversity on everyone's mind, the purpose was to assess the contributions of the Smokies' ATBI and to discuss potential areas of future collaboration in all-species inventories. Discussions were with other park staffs from around the country, the NPS Washington Office, DLIA, the All Species Foundation, the National Park Foundation, and other non-profits and agencies.

At this writing, a report on the meeting has not yet been compiled, but there was widespread support for the NPS taking a leading role in the US to develop more such inventories, especially at other NPS units. Look for a more comprehensive treatment of this topic in the next issue of the Quarterly.

The keynote was by Dr. Dan Janzen, whose leadership at the University of Pennsylvania and in Costa Rica is the reason why the NPS got involved in ATBIs. Dan's enthusiastic perspective was, as usual, a major ingredient in the success of the conference. He has some observations of his own, below:

There is a friendly revolution in the National Park Service. The working title of the Great Smokies ATBI strategy meeting: "Biodiversity is Us." One can only guard the castle so long before being overcome by desire to discover who lives in it. "Discover Life in America," the name of the ATBI's non-government organization, says it all. The NPS — our nation's most explicit guardian of wilderness — already has the raw materials to take conservation to its next logical step. To truly insure its survival into perpetuity, we do need to KNOW what is our biodiversity.

There was a room full of "Smoky the Bears" listening to each other and admiring the bold beginning and bumbling successes of biodiversity understanding by the Smokies' five-year old ATBI. They recounted their germinating thoughts of expanding the process from the Smokies and Point Reyes National Seashore to such disparate areas as the National Capitol Region and the deserts of the southwest. They heard and saw their local and national administrators — with mixed admiration and trepidation— give their blessings to this backyard biodiversity moon shot. Enthusiasm is at the roots of all things good.

Were this meeting to have taken place in the 1970-1980s, the most recent heydays of field biology, the average age in the room would have been over 45, 95% would have been

male, and the mumbling under the breath would have been "I ain't going to sign a research permit for all them butterfly collectors." Today the room was packed with newbies, there was a 50:50 sex ratio, and the first question was "Well, if we are going to embark on finding everything in all the parks, the first item to buy is an internet connection for every single employee." Suddenly we have a vision of national parks as not only to soak up and admire, but to read on and between the lines, and to learn from. And once they are in that book today called the internet, everyone can read from them. Our parks have always been tourist destinations and uneasy keepers of that which goes bump in the night— varmint. But what we understand we no longer fear, and the Library of Congress — if you are literate — is more than a tour stop. If you don't want to read, it is a big stack of thin sheets of firewood.

The Smokies' ATBI is a first pass in a progression to deep biodiversity understanding of all of our national parks. This inevitably reaches out to the taxosphere— that guild of taxonomists, parataxonomists, apprentices, museums and all their accumulated knowledge and megapower of biological inference that comes from understanding what is related to what, and how to tell things apart. The taxosphere provides the words and the syntax to read wild biodiversity. They are essential infrastructure to a moth blitz, bat blitz and mushroom blitz. But can the NPS ask the taxosphere to spend the life of a person cleaning up the taxonomic tangle surrounding the 20 species of daddy-long-legs in the Great Smokies? Not really. But the 400 species of daddy-long-legs, and their friends and relations, in ALL of our national parks? Now we are talking a career opportunity. Now multiply by 100.

Our NPS now has a profound and intellectually rich process with which to partner with national parks in the Mexicos, Costa Ricas, Chinas and Swedens of the world. Imagine a globe connected through understanding wildland biodiversity — perched in their national parks, sprinkled across their countrysides, and all on view through the internet displayed on your high resolution TV set in your living room.

Dan Janzen  
Department of Biology  
University of Pennsylvania  
& Technical Advisor to the Area de Conservacion  
Guanacaste, Costa Rica  
djanzen@sas.upenn.edu



Milt Butterworth

## Protista Pursuit

Jeanie Hilten  
and Tom Rogers

Twenty-five researchers and volunteers participated in the ATBI's first "Protista Pursuit" June 27-30, 2002. The effort, coordinated by Tom Rogers, was made possible by the loan of excellent microscopes and digital cameras from

Bobby Martin of  
Martin Microscopes

Bobby Martin of Martin Microscope Company, along with scopes and centrifuges from Dr. Patricia Cox of the University of Tennessee Botany Department.

The purpose of the quest was to collect from the Park's streams, seeps, waterfalls, and springs in order to get a preliminary idea of the protista biodiversity in the Smokies. Volunteers obtained samples from ten localities on both the Tennessee and North Carolina sides of the Park and from a range of elevations. Photographers Milt Butterworth and Rebecca Shiflett took pictures of activities both in the field and in the lab.

After the specimens were brought to the Sugarlands Training Room, volunteers prepared slides and examined the remarkable array of life under the microscopes—iridescent diatoms, shimmering emerald algae, the lone, ever-evasive gastrotrich, euglenoids, rotifers, and many other cilia or flagella-waving protozoans. Exclamations of wonder punctuated the room as the "protista pursuers" glimpsed this tiny amazing world.

Organisms were photographed through the microscopes using digital cameras. The volunteers captured over 1,000 images which Tom Rogers will sort and send to the experts for identification. These undoubtedly include many new Park records. More details will be forthcoming as the scientists send back information. For more details about the event, contact Tom Rogers <trogers@rollinscorp.com>. Another Protista Pursuit will most likely be held in the spring of 2003.



Susan Mckosky

Diatom

TAXON	SPECIES NEW TO SCIENCE	SPECIES NEW TO PARK
Microsporidia	1	4
Slime molds	14	110
Fungi	1 (new genus)	6
Algae	42	210
Plants	0	12
Protozoans	0	10
Nematomorpha (horse hair worms)	0	3
Nematodes (roundworms)	1	2
Mollusks (snails, slugs, mussels)	3	4
Tardigrades (waterbears)	0	19
Annelids (segmented worms)	4	14
Crustaceans (copepods, crayfish, etc)	25	6
Millipedes	1	1
Paupods (small arthropods)	2	31
Arachnids (spiders, mites, ticks)	39	482
Symphylans	3	1
Collembola (springtails)	37 (1 new genus)	97
Diptera (primitive insects)	0	1
Ephemeroptera (mayflies)	3	0
Odonata (dragonflies, damselflies)	0	19
Blattodea (cockroaches)	0	1
Plecoptera (stoneflies)	0	3
Homoptera (hoppers)	0	1
Neuroptera (lacewings, antlions, fishflies, dobsonflies, etc.)	0	8
Coleoptera (beetles)	2	0
Mecoptera (scorpionflies)	2	1
Siphonaptera (fleas)	1	0
Diptera (flies)	42	129
Trichoptera (caddisflies)	10	46
Lepidoptera (moths and butterflies)	53 (1 new tribe for NA)	658
Hymenoptera (bees, wasps, ants)	3	0
Amphibians	0	2
Mammals	0	1
TOTALS	289	1882

Please direct taxa table questions or comments to  
Becky Nichols, Park Entomologist <becky\_nichols@nps.gov>





## Bat Blitz

Keith Langdon and Becky Nichols

During the week of 17-21 June, 15 bat specialists descended on the Smokies to assist the Park in understanding more about its bats. They not only were discovering which species occur in which parts of the Park and at what abundance level, they also were trying to discover what other species are associated with them. Bats were examined for external parasites, micro-samples of their blood were drawn to search for blood-borne parasites, and fecal samples and a few strands of hair also were taken from some species before their release.

The blitz was led by Dr. Jackie Bellwood, formerly of the Cincinnati Nature Center, and Dr. Mick Harvey of Tennessee Tech University, and included participants from the US Fish and Wildlife Service, US Forest Service, North Carolina State Museum of Nature, East Kentucky Power Company, and graduate research students from several universities. Park Wildlife Specialist Bill Stiver, who has worked on the Park's bats for several years, ably assisted the bat blitz folks. Cades Cove, Parson Branch Road, Forge Creek Road, Whiteoak Sink, Greenbrier, and Cosby all were sampled using long rectangular nets called "mist nets" in which the bats were caught. The nets were placed over streams or across roads where bats "patrol" for insects. Anabat detectors also were used. These detectors use microphones and laptop computers to analyze the bats' navigational ultrasonics to help determine the species of bat while it is flying nearby.

Researchers from the US Forest Service's Southern Research Station at Clemson University focused their efforts on learning more about the federally endangered Indiana bat. A lactating female Indiana bat was captured, and by attaching a very small transmitter they were able to locate the daytime roost tree, which was a beetle-killed shortleaf pine (33.1 cm dbh, 16.6 m height) on a south-facing slope with loose bark. It appeared that approximately four Indiana bats were using the same bark flaps. Emergence counts were made on the roost every evening from 18-25 June, and the numbers of bats emerging each night were 15, 11, 11, 8, 10, 7, 10, and 8.

A full report with details of species caught during the blitz will be presented in the fall issue of the Quarterly.

## USDA-NRCS Soil Scientists Identify 20 New Soil "Species" in the Park

Anthony Khiel

A comprehensive soil survey is being conducted in Great Smoky Mountains National Park. This project was started in the fall of 1998 and to date, approximately half of the land area of the Park has been inventoried and mapped. The field soil scientists have been focusing on inventorying the soils on representative areas of all the major geologic formations and their associated landscapes. This has led to the discovery of 20 new "species" of soils. These new species are located on floodplains, stream terraces, and steep uplands and cover the range of elevations in the Park.

The majority of these species are located in the higher elevations (above 4,600 feet) and are the result of the combination of unique geology as well as climate that is induced by the high elevation. This unique combination of metasedimentary geology (sandstone and slate) and cold

### Metasedimentary definition:

A sedimentary rock that has been subject to some degree of meta-morphism. These are the sandstones and shales that were deposited in fairly level beds that were then acted upon by heat and pressure during the mountain building process that formed the Appalachians.

climate do not exist outside of the Park in the Southern Blue Ridge Mountains. These high elevation soils have organi-

cally enriched surface layers due to the cold climate and, for the most part, have low natural fertility. This organically enriched layer in the soil is where nutrients are recycled for plant and animal use. This leads to a delicate natural balance that does not respond well to major land disturbances.

The soil scientists inventorying the soils in the Park are employees of the US Department of Agriculture-Natural Resources Conservation Service (NRCS) and work on this project as part of a cooperative agreement with the National Park Service. NRCS offices are located in Sevierville, Tennessee, and Waynesville, North Carolina. Please feel free to contact Anthony Khiel in Sevierville if you have questions related to the soil survey or if we can be of any assistance to the research that you are conducting in the Park.

Anthony Khiel

USDA - Natural Resources Conservation Service  
akhiel@tn.nrcs.usda.gov



# Lepidoptera Blitz Nets 860 and Counting

David L. Wagner and Brian Scholtens



Rebecca Shiffert

Kara LeNoir and Thanh Lay, students from St. Mary's School in Oak Ridge, searching for caterpillars.



Rebecca Shiffert

Dave Wagner speaking to ATBI volunteer groups from Pi Beta Phi and Great Smoky Mountains Institute at Tremont.



Wes Blich

DLIA volunteers setting up intercept trap on Gregory Bald.

On 9 June, 2002, 30 lepidopterists, more than two dozen volunteers, and two llama teams set out all across Great Smoky Mountains National Park with the goal of seeing how many species of butterflies and moths could be collected, sorted, and identified in 24 hours. The team's arsenal included nearly 40 Leroy Koehn blacklight traps, generator powered mercury vapor lights, light sheets, bait traps, and pheromone traps. Volunteers used beating sheets to collect caterpillars, and leafminer searches were conducted by flashlight through all hours of the night. Net-collecting during the day, and especially at dusk, yielded several diurnal and crepuscular micros that are not normally seen at light.

Drawn by the lure of doughnuts and a bottomless pot of coffee, the sleep-deprived team assembled at the Sugarlands Visitor Center outside of Gatlinburg early Monday morning to begin poring through the moths, likely more than 50,000 in number. By 3:00 pm—at the end of the first day—783 species of Lepidoptera had been sorted, and most identified to species. The second day—where the focus was on data collection and vouchering—added another 85 species to the initial tally (see table). The total is still creeping upward as dissections are being made and the immatures collections yield adults. Likely the one-day total will approach 890—a significant proportion of the entire lepidopteran fauna of eastern North America or more than 1/3 of the known fauna for the entire state of Kentucky! Approximately 133 species were recorded from the Park for the first time. We estimate 51 species are undescribed, nearly all of which are gelechioids and tineoids.

Not surprisingly, the Noctuoidea richness (262 species), a number down 30 from the previous late-July blitz, was more than twice that found for any other superfamilial group. Following in importance were the Geometroidea (125 species) and Pyraloidea (105 species). Given the thoroughness of the sampling, we feel these numbers are fairly representative of the true numbers (proportions) to be expected in deciduous forest ecosystems across much of the East. Although three people worked on the gelechioid families, the number we recorded (76 species) is felt to be low—gelechioids are simply too small and too numerous to be thoroughly inventoried in 48 hours. Likely there were closer to 100 species flying in the Park during our visit.

Using the bombycoids, notodontids, and butterflies as yardsticks, we were able to record 47% (44%, 62%, and 48% respectively) of the known Great Smoky Mountains species in a single day. Using this percentage to extrapolate across all taxa and using 100 species as an estimate for the gelechioids present on 9 June, one would expect a total of somewhere around 2,000 species for the Park. Other back-of-the-envelope calculations suggest a higher number, around 2,500 species.

This year we placed a decided emphasis on sampling the Park's highest elevations which are under threat from high atmospheric pollution levels and which will probably be

TAXON	total species seen	new park records	number believed undescribed
Primitives through Tineoidea excluding miners (Davis, Wagner)	32	ca.9	ca. 7
Leafminers (Wagner, Davis)	66		
Gelechioidea (Hodges, Bucheli, Lee)	76	ca. 55	ca. 34
Yponomeutoidea, Zyaenoidea, etc. (Powell)	20	13	ca. 3
Tortricoidea (J. Brown, D. Wright)	87	24	ca. 2
Pyraloidea (Scholtens, Rota)	105	15	ca. 1
Geometroidea (Sullivan, Ferguson, Covell, Canfield)	125	4	1
Noctuoidea (Adams, Nelson and others)	262	11	1
Bombycoidea, etc. (Pogue)	43	1	0
Rhopalocera (Scholtens)	47	1	0
TAXON	860	133	51

severely affected by global warming. Llamas transported traps and batteries to four high elevation balds, volunteers sampled a fifth, and the number of traps set out along Clingmans Dome Road by Leroy Koehn and the Kentucky lepidopterists insured that the whole of the road was visible from space that night!

The Blitz also had a strong educational and outreach component. One prospective graduate student and five Ph.D. students participated. More than 70 school kids from the surrounding area had a chance to see aspects of the



Becky Nichols

Sandy Sgrillo of Smoky Mountain Llama Treks and two of her llamas (Banana Man and J.J.) heading up Gregorys Bald Trail.



Jeanie Hihen

Don Davis (right) of the Smithsonian and his son, Steve Davis (left). Looking on is Ann Hitchcock of the NPS (right).



Rebecca Shiffert

John Brown - USDA, Washington DC





Jeanie Hilten

Michael Pogue - USDA (Wash. DC) and Don Wright (back) of the University of Cincinnati.

blitz, work with some of the specimens, sample for caterpillars, and interact with a handful of the scientists and graduate students. An e-mail from one of the teachers indicated that things went so well that she wouldn't be surprised to learn that one or two career lepidopterists had hatched that day.

The Dollywood Company helped fund many of the outreach activities. A second grant from Discover Life in America provided honoraria and travel awards for several of the participants.

A meeting of the All Species Foundation and the National Park Foundation was timed so that visiting luminaries could see a blitz in action. Dan Janzen ambled through as did National Park administrators from Washington and representatives from several National Parks around the country that are looking at the Great Smoky Mountains' "All Taxa Biodiversity Inventory" as a model for the country's National Park System. We are told that the visitors were very favorably impressed with our effort and especially what the "swat" team was able to accomplish.

The event attracted substantial attention from the media. It made the cover of the Knoxville-News-Sentinel two days running (again, James Adams was our cover boy), there was an AP release, and Scholtens made National Geographic News. Wade Gibbs, a writer from Scientific American, covered the whole of the two-day event.

Think of the blitz as a head-long, full-tilt taxonomic workshop where one could see adults and immatures of much of the East's lepidopteran biodiversity in a single day -- a frenetic 100-meter dash into the world of moths and butterflies. It was a lot of chaos, an entomophobe's worst nightmare, and a unique and wonderful mix of science, education, outreach, and fun for all those who attended.

Dave Wagner  
University of Connecticut  
dwagner@uconnvm.uconn.edu

Brian Scholtens  
College of Charleston  
scholtensb@cofc.edu

## ATBI-DLIA Annual Conference

December 4-7, 2002

The Glenstone Lodge - Gatlinburg, Tennessee

Presenting the adventure of discovery in  
Great Smoky Mountains National Park and beyond

Hosted by the National Park Service, Friends of the Smokies, Great Smoky Mountains Natural History Association, and Discover Life in America.

### Tentative Schedule

#### Wednesday, December 4

Photography Workshop: 1:00pm—6:00pm

Register with Kevin Fitz Patrick, <media3@gte.net>

#### Thursday, December 5

General Sessions and Guest Speakers: 8:00am—5:00pm

Social: 6:00pm—10:00pm

#### Friday, December 6

General Sessions and Guest Speakers: 8:00am—5:00pm

Biodiversity Auction, music, food: 6:00pm until ??

#### Saturday, December 7

DLIA Board Meeting: 9:00am—2:00pm

### Registration Form

Return to Jeanie Hilten, DLIA, 1314 Cherokee Orchard Rd., Gatlinburg, TN, 37738, or e-mail to [jeanie@discoverlife.org](mailto:jeanie@discoverlife.org)

Name:

Address:

City:

State:

Zip:

Phone:

e-mail:

(We offer this conference at no charge, but are glad to accept donations! Contribution: \_\_\_\_\_). Discover Life in America, Inc. is a not-for-profit organization.



## Updated Calendar, News, and etc.

### Jeanie Hilten

Friday, July 26 - Sunday, July 28: **"Myxo Blitz"** Slime Mold Bio-Quest at Great Smoky Mountains Institute at Tremont. Meals, lodging and meeting/work space provided for the weekend at a special rate of \$150.00. Contact Dr. Steve Stephenson <sstephenson@mail.fscwv.edu> or call 304-367-4158. To reserve a spot at Tremont, contact Jeanie Hilten <jeanie@discoverlife.org>.

Saturday, July 27: **"Fern Foray IV"** on the North Carolina side of the Park. Meet at the Smokemont Ranger Station at 9:30am. Contact Dr. Patricia Cox <pcox@utk.edu> or call 865-974-6225.

Friday, October 4 - Sunday, October 6: **"Bloomquist Biological Foray"** (bryophytes) at Purchase Knob, NC. Contact Ken McFarlan at the University of Tennessee, 865-974-2256.

Saturday, November 9: **Discover Life in America Volunteer Fall Potluck Picnic** at Purchase Knob, NC, 12:00pm—5:00pm. DLIA will provide hot dogs, burgers, and drinks.

Wednesday, December 4 - Saturday, December 7: **DLIA-ATBI Annual Conference**, Glenstone Lodge, Gatlinburg, TN. Photo workshop will be Wednesday, general sessions Thursday and Friday, fund-raising auction Friday night, and Board meeting Saturday morning. The conference presents the research done on the ATBI over the past year, along with volunteer and education programs. See page 8 for details and registration form.

### Discover Life in America Interns

We are fortunate to have the help of three interns this summer. Brian Merritt is a biology major at Coker College in South Carolina, but hails from Blount County, TN, and has a good knowledge of Great Smoky Mountains National Park. Brian is assisting Ian Stocks collecting samples from the ATBI plots and then sorting the arthropods to the order level at the Twin Creeks lab, in addition to working on bees with his college advisor, Pat Lincoln. Scott Steinbrueck is a senior in conservation biology at Warren Wilson College and comes from Pennsylvania. His projects include helping with several "Bio Quests," contacting ATBI scientists about their work, and studying tardigrades with his advisor, Dr. Paul Bartels. Lindsey Pach is completing her Master's in

Communications from the University of Tennessee. She is from the Chicago area, took her undergraduate degree at Indiana University and studied in Seville, Spain. Lindsey is working with Emily Jones on DLIA press releases, the new website, a new brochure, and generally getting the word out about the ATBI. Thank you, Brian, Scott, and Lindsey!

### Wish List

Below are a few items that we need. If you can find these donations for us, please contact Jeanie Hilten.

- vacuum cleaner
- washer and dryer for the Cosby ATBI house
- digital cameras
- laser printer

### New Website for Discover Life in America and the ATBI

We hope that by the time you read this, DLIA's new website will be online. Norm Johnson at Ohio State University has pulled together a well-organized site structure for the many aspects of Discover Life and the ATBI. Contact Norm Johnson <johnson.2@osu.edu> for the new Discover Life website address (URL). When you go to the old home page at [www.discoverlife.org](http://www.discoverlife.org) you will be referred to the new website. Thanks to John Pickering and his students at the University of Georgia for hosting the initial site over the last few years.



DLIA's Jeanie Hilten sorting during the Lep Blitz

Milt Buttenworth

## Biodiversity Beach Blast, Pig Pulling and an Evening in the Rainforest Three Great Events to Raise Money for ATBI

Emily Jones

This fall, Discover Life in America will launch two new fundraisers. We will also hold our second annual Biodiversity Auction during the week of the ATBI-DLIA conference. This year the auction will take place on Friday night in a wonderful new location, Rainforest Adventures in Sevierville. This will give us the opportunity to invite folks from the Sevierville and Knoxville communities and expand the event.

Fundraising events are an excellent way to introduce the ATBI to new people and to involve donors and volunteers. They give folks a chance to relax, have a great time, and get to know each other in a social setting while supporting a good cause. As we wind down the summer, we will have a pool party, *The Biodiversity Beach Blast*, which will be great fun for the whole family. In October, we'll host a *Pig Pulling and Picking Party*, featuring great food, and traditional and bluegrass music. An elegant *Night in the Rainforest* will cap off the ATBI-DLIA Conference in December.

DLIA hopes you can attend one or all of these events and that you will bring your friends and family. Each event needs the help of volunteers so if you love to throw terrific parties or want to learn more about special events, please give Emily Jones a call. There is a job for everyone who wants to help. Emily Jones can be reached at Friends of the Smokies (865) 453-2428 or [fotsej@bellsouth.net](mailto:fotsej@bellsouth.net)

Save these dates:

Oct. 12, 2002 - Pig Pulling and Picking Party

Dec. 6, 2002 - A Night in the Rainforest



Rebecca Shiflett and llama on a trek for the Lep Blitz

Jeanie Hillen



You are Invited to  
Discover Life in America's  
End of Summer  
Biodiversity Beach Blast

- \* Hot tunes for dancing!
- \* Cold beverages for adults and kids!
- \* Assorted edible species for dipping and dunking!
- \* And great games and prizes for kids of all ages!

Where: Poolside at the Holston Hills Country Club, 5300 Holston Hills Rd. Knoxville, TN

When: Saturday August 24, 9:00 pm to midnight

What: A pool party with music, games for the kids, and lots of great refreshments!

Who: You and your family. Kids are welcome—in fact we think they will love it! Lifeguards will be on duty.

Why: To raise money and have a great time! Proceeds will benefit the All Taxa Biodiversity Inventory in Great Smoky Mountains National Park

Cost is \$20 per person or \$50 per family

Please RSVP to Emily Jones at  
Friends of the Smokies  
by August 21, 2002  
(865) 453-2428  
or  
[fotsej@bellsouth.net](mailto:fotsej@bellsouth.net)



## Two New Native Plants Confirmed For the Smokies

Keith Langdon and Becky Nichols

The Illinois Natural History Survey has relayed to us that they have confirmed two rare native plants from their work in the west end of the Park this spring: the Mercury spurge (*Euphorbia mercurialina*) and the Serrated skullcap (*Scutellaria serrata*). The spurge was found in the Tennessee section of the Park and the skullcap in the North Carolina section of the Park. Both have rarity status in adjacent states and are locally rare enough to have been overlooked by botanists for decades. The Park's botanical staff are very impressed with the entire team of botanists from the Illinois Natural History Survey, especially Rick Phillippe and Mary Ann Feist who led the crew, and look forward to their next visit.

### Note to Authors

Authors are encouraged to submit news briefs and research articles for publication. Drawings, maps, and photos illustrating your text should be sent by e-mail as digital images. Please contact our newsletter coordinator, Ruthanne Mitchell, for specifications and guidelines. You may contact her at [cwmitchell@ntown.com](mailto:cwmitchell@ntown.com). The deadline for the autumn issue of the ATBI Quarterly is Sept. 30.

### DLIA T-Shirts, Mugs, and Mousepads

The Sugarlands Visitor Center store operated by the Great Smoky Mountains Natural History Association (NHA) sells the Discover Life T-Shirts, mugs, and mousepads. Stop in the store and purchase DLIA items which will benefit the All Taxa Biodiversity Inventory.

[www.smokiesstore.org](http://www.smokiesstore.org)

## Two New Exotics

Keith Langdon

The lepidopterists in the recent bio-blitz found European skippers (*Thymelicus lineola*) in the Cataloochee section of the Park. This small yellow butterfly has been expanding its range since it was introduced into southeastern Canada decades ago. Fortunately, its larvae feed on an exotic grass "Timothy" (*Phleum pratense*), so this could actually be good news for Park managers. There is some concern based on the super abundance this species can achieve when the adults emerge. They tend to out-compete native pollinators at the many different plants they visit for nectar.

The European yellow underwing (*Noctua pronuba*) was also found during the blitz. It is spreading rapidly down into the US from its release site in the Maritime Provinces of Canada. It was caught at several locations in the Park during the blitz, and is now as far south as Georgia. Less is known about its feeding habits, but it can be quite common and bears watching. We thank Dr. Brian Scholtens and Dr. James Adams for this information.

Keith Langdon

GSMNP Inventory and Monitoring Branch Chief  
[Keith\\_Langdon@nps.gov](mailto:Keith_Langdon@nps.gov)

## ATBI Research Permits

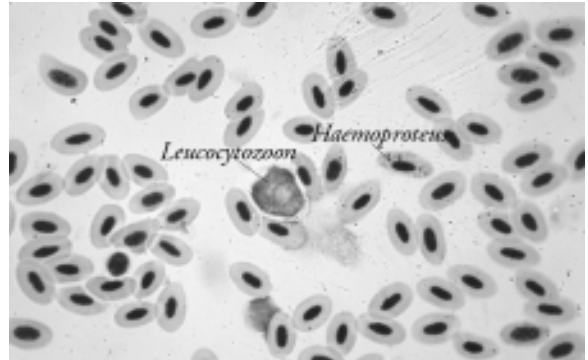
Keith Langdon

NPS Inventory & Monitoring office manager Janice Pelton reports that so far in 2002, there are 82 permits issued for ATBI-related work in Great Smokies. Since like-minded potential permit holders are encouraged to team up, the number of principal investigators and co-investigators currently stands at ~260. Some of this number is graduate students working towards their thesis/dissertation. There are nearly 150 total permits issued thus far in 2002. If you are considering applying for a permit at the Smokies or any other NPS park, please go online at <http://science.nature.nps.gov/research> or for questions contact Janice at 865-430-4740 or [janice\\_pelton@nps.gov](mailto:janice_pelton@nps.gov).

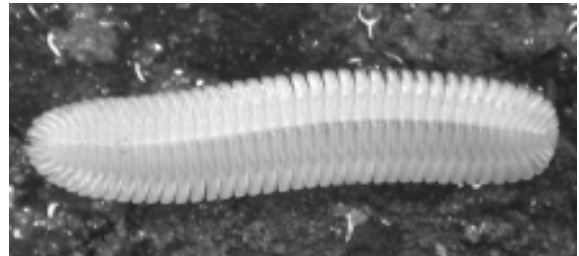
## Special “Thank You’s”

Discover Life in America wishes to extend a few extra special “Thank You’s” to some of our scientists, volunteers, and Park staff who have made wonderful contributions to the ATBI this summer: Dave Wagner and Brian Scholtens for their tireless efforts organizing and conducting the Lepidoptera Quest. Bobby Martin of Martin Microscope Company for the loan of seven fine scopes and cameras for the Protista Pursuit. Tom Rogers, DLIA Board Secretary and volunteer science/taxonomy team leader, for organizing and leading one “BioQuest” after another, from millipedes to protista. Patricia Cox of the University of Tennessee for loan of additional microscopes from the Botany Department and for her leadership of the Fern Forays. Kevin Fitz Patrick for donation of a laptop computer to DLIA and for his excellent coordination of the volunteer photographers. Rebecca Shiflett for hours of time spent as field and lab photographer and for her boundless enthusiasm. Kemp Davis, Jr., Milt Butterworth, and Joe Conn for terrific photography and participation in many other activities. Jim and Betsy Froyd for hosting DLIA scientists, taking care of special arrangements for them and making them feel welcome. Nancy Lowe for her wonderful illustrations of the creatures of the ATBI. Keith Langdon, Becky Nichols, Chuck Parker, and Ian and Stephanie Stocks for their generous donations of time and expertise above and beyond the call of duty. Mike Farley and Gary Horne (both of NPS) for save-the-day computer rescues.

## Editor’s corrections to spring newsletter



The photo above which indicates bird parasites with arrows should have illustrated Paul Super’s [Bird-watching Up Close and Personal](#) on p.7.



Ernest C. Bernard photograph of *PetasERPES* sp. illustrated Tom Roger’s article about the [Millipede March](#) on page 1.

**ATBI QUARTERLY**  
DISCOVER LIFE IN AMERICA  
1314 Cherokee Orchard Road  
Gatlinburg, TN 37738

Non-Profit Org.  
US POSTAGE PAID  
Knoxville, TN  
Permit No. 127



Printed on recycled paper