

ATBI Quarterly
Discover Life in America
1314 Cherokee Orchard Road
Gatlinburg, TN 37783
865-430-4758
www.dlia.org



Non-Profit Org.
US POSTAGE
PAID
Knoxville, TN
Permit No. 475

CALENDAR OF EVENTS 2008

Mark these events on your calendar and stay tuned for more details and other programs. See the website at www.dlia.org for more detailed information. To learn about DLIA's volunteer opportunities and to sign up for activities, contact Heather MacCulloch, 865-430-4758 or Heather@dlia.org.

Saturday, March 15, 2008: Volunteer Appreciation Day, Twin Creeks Pavilion, 11:00am-4:00pm. A program for all volunteers will be held at the Twin Creeks Pavilion, Gatlinburg, TN. Learn about the ATBI, the "Project Teams", lab and field methods, backcountry safety, and in general, meet the people involved with the project and see how you can help. Please call to pre-register so we know how many to expect.

Saturday, May 17, 2008: Volunteer Orientation Day, NC side, 10:00am-4:00pm. A program for new volunteers or a refresher for "seasoned volunteers" will be held at Haywood Community College, Waynesville, NC. Learn about the ATBI, the "Project Teams", lab and field methods, backcountry safety, and in general, meet the people involved with the project and see how you can help. Limited space, so register early.

Saturday, May 31, 2008: Fern Foray #1. Volunteers join with botanists to inventory and map the ferns of the park. This project is in its eighth year. This is a tentative date for this event. Please call Heather at DLIA for more information or contact Pat Cox, pbcox@tva.gov.

Monday, June 9- Saturday, June 14, 2008: Diptera Week with "Blitz". Details to come.

Saturday, June 28, 2008: Fern Foray #2. This is a tentative date for this event. Please call Heather at DLIA for more information or contact Pat Cox, pbcox@tva.gov.

Citizen Science Event in July: Twin Creek Science Center. Details to come.

Saturday, August 30, 2008: Fern Foray #3. This is a tentative date for this event. Please call Heather at DLIA for more information or contact Pat Cox, pbcox@tva.gov.

Wednesday, December 3 thru Friday, December 5, 2008: 12th Annual ATBI Conference. Please mark your calendars for this most important event. This gathering of scientists, volunteers, teachers, students, and park managers will celebrate this year's accomplishments in biodiversity research and education. This year's event promises to be bigger and better than ever. More details coming soon.

DISCOVER LIFE IN AMERICA

Winter 2008

Volume 9, No. 1

ATBI Quarterly

In partnership with Great Smoky Mountains National Park-Great Smoky Mountains Association-Friends of the Smokies



Letter from new Executive Director

Greetings from the New Executive Director . . .

Allow me to introduce myself, my name is Todd Witcher and I am the new Executive Director here at Discover Life in America. I bring with me over twenty years of experience in science, education, and management. My most recent role was manager of school programming at Ijams Nature Center.

I'm very excited to join DLIA and honored to have the opportunity to work with the staff, board, NPS staff, scientists and volunteers who have made DLIA what it is today. I want to thank Jeanie Hilten for her diligent work as Executive Director and wish her the best in her new role as Special Events Coordinator for the Smoky Mountain Convention and Visitors Bureau. I also want to compliment the DLIA staff and board for their efforts in

successfully managing the organization during the period of transition. Dr. Ernie Bernard, Chuck Cooper and Heather MacCulloch deserve special recognition for their outstanding efforts in their roles as Board Chairman and DLIA staff respectively.

DLIA has accomplished an enormous amount in its first 10 years of existence including the discovery of over 5000 species new to the park and a remarkable 874 species new to science. As impressive as this is, we must vigorously move forward to ensure continued success. **THERE IS SO MUCH MORE TO DISCOVER!**

As the new Executive Director, I am committed to lead DLIA in the highest quality research, programming and resource development. I will strive to enhance existing partnerships while developing new relationships to



meet emerging needs.

In special recognition of those who have donated time and resources to DLIA, we are hosting a Volunteer Appreciation Day on March 15, 2008. This event is scheduled from 11:00 AM to 4:00 PM at the Twin Creeks Pavilion. I hope to see everyone there and encourage your continued support of DLIA, and the continuation of fascinating new discoveries in the Great Smoky Mountains National Park.

Sincerely,
Todd P. Witcher
Executive Director
Discover Life in America

TAXA TALLY

New to Science = 874
New to the Park = 5,207

Becky Nichols
Park Entomologist

2007 DLIA/ATBI Conference a BIG Success!



The 11th Annual DLIA/ATBI Conference was held at the Garden Plaza Hotel in Gatlinburg, Tennessee on

December 3 – 5, 2007. This year's conference was a great success with over 100 attendees, a successful teacher education day, and presentations and posters from over thirty distinguished speakers. Mark your calendars for next year's conference Dec. 3-5, 2008.



Photos by Kemp Davis

DISCOVER LIFE IN AMERICA

Winter 2008

UPDATE FROM THE BOARD CHAIR

The foundation of Discover Life in America and the All Taxa Biodiversity Inventory is the grand effort of hundreds of scientists and thousands of volunteers ("citizen-scientists") to the goal of finding all the known forms of life in Great Smoky Mountains National Park. The fruits of this effort can be viewed at many different levels: from the simple wonder of a six-year-old eyeball to eyeball with a praying mantis; the pleasurable bewilderment at trying to understand how so many species can survive in small places; the processes of eating and being eaten in the most complex food webs in the temperate world; the relationship of what happens with the discovery of new creatures in the Southern Appalachians to the biological health of the Earth. The results of the ATBI will help us to understand how to manage our biodiversity treasury and

become better stewards of our natural resource heritage. The Smokies DLIA has achieved remarkable things in its 10-year existence – more than 5,000 species found that never before had been seen in the Park, and more than 800 species never before seen on Earth. This progress continues unabated, with new discoveries being made every week, sometimes every day.

As Discover Life in America enters its second decade of discovery, I am reminded frequently of the selfless devotion that all of its participants continue to make. Volunteers give untold hours to all aspects of the process, such as scientist assistance (collecting, tending traps, hauling essential equipment either on their backs or by llama) and photography. Others provide resources that help DLIA and the ATBI function,

including printing services, refreshments for volunteers, and accommodations for scientists. The scientists themselves travel to the Park and maintain themselves on personal funds or outside grant funds, just to be here and participate in the ATBI. Many volunteers and scientists, and all of the Board of Directors also make financial contributions that help DLIA fulfill its lofty mission of finding every species that lives in the Park, and applying those discoveries to sound environmental management.

Ernest C. Bernard
Chairman
Board of Directors
Discover Life in
America



bird records in the ATBI database. This represents over 30% of all of our ATBI data.

Please see our current database at:

http://www.dlia.org/atbi/science/atbi_database.shtml

Remember to check future newsletters, our website, and the database internet page above for information on newly-added data.

Website

After almost three years with DLIA, Charles Wilder decided to leave at the end of the year to pursue other interests. Best wishes to Charles! We are currently looking for a website person. If you have any suggestions please call or email Todd at 865-430-4757 or Todd@dlia.org.

would like to get all of our fantastic volunteers together to say "hello, thank you, how have you been?", etc. We will also be having training activities for "new and old" volunteers. Please come join us on Saturday, March 15, 2008 at the Twin Creeks Pavilion from 11am – 4pm. You can RSVP to Heather@dlia.org, or call Heather at 865-430-4758.

Please check the calendar of events and www.dlia.org for important dates.

Database and Technology

Chuck Cooper, Data Technician

During the last half of 2007, the technology staff participated in the search for a new Executive Director, in the physical move of office furnishings and computer equipment from our former "Horse Barn" offices to a historic house, just up the hill, duly named "The ATBI House," took part in the beginnings of the formation of a national ATBI database, and made preparations for the 2007 Annual ATBI Conference in Gatlinburg.

An update to our website database content will be coming later this year.

Along with our normal infusion of new research data from 2007, this year we will be updating our ATBI database's

vertebrate data. This includes animals with backbones such as mammals, amphibians, reptiles and fishes. Much of this data

is from older collecting efforts and is in need of databasing. At this point the data is stored in three main ways: in Park paper files, in the Park museum's curated specimen collections and database, and in various computer files. One notable exception to the paucity of vertebrate data is the submissions received from bird collectors and observers. We currently have just over 75,000



DLIA Volunteers

Heather MacCulloch Volunteer Coordinator

Hello DLIA Volunteers and Supporters,

It has been a while and now is the time for reconnection! We are excited as this new year begins! DLIA has undergone several changes in the past year with board member changes and the addition of our new Ex-



ecutive Director, Todd Witcher. Although certain things have been in disconnect recently, this is a "heads-up" to get all of our volunteers and supporters back together again. We have a few events planned this year and are looking forward to the research field season. Our first event is scheduled for Saturday, March 15, 2008. This day will serve as a Welcome Back event. We

Tremont Ecological Expedition Explores Raven Fork Gorge

Jason Love

Citizen Science Director-Great Smoky Mountains Institute at Tremont

In August 2006, myself and three other Tremont staff members journeyed to the headwaters of Raven Fork, collecting specimens and identifying flora and fauna as part of the All Taxa Biodiversity Inventory (ATBI). The Raven Fork is the wildest and least-explored stream in the Smokies, if not the entire Appalachian chain. Old growth Red Spruce and Eastern Hemlock, rare lichens, and ample Brook Trout were just a few of the organisms inventoried from last year's expedition.

The memories of that expedition inspired a return to the Raven Fork, this time to the most rugged portion of the river – Raven Fork Gorge. Ninety-seven percent, or roughly 14,000 acres, of the Raven Fork Watershed in the park is old growth, having never seen the farmer's plow or logger's saw. The Raven Fork Gorge is unique in that the underlying geology is igneous, instead of metamorphic or sedimentary like the rest of the park. The unique igneous geology provides an ideal base for the discovery of new park species . . . if you



can get there. Out of the 900 miles of trails in the park, only 3.5 miles, and no roads, traverse the Raven Fork. Bushwacking, wading, and rock hopping are the primary means of travel in the gorge.

In August 2007, myself and Tremont staff members Jeremy Lloyd, Michael Matzko, Ken Voorhis, as well as recent Maryville College graduate Ben Taylor, University of Georgia PhD candidate and millipede/earthworm specialist Bruce Snyder, and recent Heritage High School graduate Robin Voorhis, met at the Hyatt Ridge Trailhead in the southeastern corner of the park. We used campsite #47, which is situated adjacent to the Raven Fork at the upper head of the gorge, as a base camp, making day excursions into the gorge and adjacent tributaries. Highlights from the expedition include unnamed 80 foot waterfalls, high elevation wetlands, new locations of the federally threatened Rock Gnome Lichen, and collections of earthworms, millipedes, lichens, and other organisms that have a high probability of being species new

to the park, or even species new to science.

Approximately 160 water mite specimens were given to Dr. Andrea Radwell, University of Arkansas, for identification. The water mite collection represented 26 records, 15 genera, and an estimated 22 species, adding valuable information for these understudied organisms. We also collected an unusual moss, which turned out to be the rare Appalachian Rhizomnium Moss, identified by Dr. Paul Davison, University of North Alabama. Bruce Snyder identified approximately 10 species of millipedes and 5 species of earthworms. Three of the earthworms were exotic, but one of the earthworms might be a new species, pending further investigation. All of us were amazed by the rugged beauty of the area and gained a renewed appreciation of the park and the wide array of life that fills its borders. We would like to thank the Alcoa Foundation for supporting Tremont's Ecological Expedition.



High School Students Rediscover a Lost Species



It's a complicated story known to only a select few who study a small, wingless soil insect known as a springtail. In 1951, a researcher in New York found and described a new species of springtail he named *Pogonognathellus nigrinus*. This particular springtail is rather large and conspicuously purple in color but it was never found anywhere else again, so in 1964, it was invalidated as a species name.

In 2004, a group of Cherokee High School students, working under the direction of staff at the Appalachian Highlands Science Learning Center, were sampling for soil invertebrates as part of the All Taxa Biodiversity Inventory (ATBI) in Great Smoky Mountains National Park. A team of soil scientists working on a new soil survey for the park had let staff know that there was a

particularly nutrient rich area near Cherokee with a very different soil type to others in the park. That day, the students were collecting for Dr. Ernie Bernard of the University of Tennessee who studies apterygotes; primitive, wingless insects which include springtails. About 50 springtails were forwarded onto Dr. Bernard who, along with graduate student Kelly Felderhoff, began identifying the springtails. In an email written by Dr. Bernard he exclaimed "These insects are amazing. They're purple with white rings on their antennae. Earlier this month, three of us went down there and sampled intensively in a search for more of them, but did not find any." They suspected they might have a new species to science but would need another specimen, kept alive to preserve its true coloration, to be positive.

Several times over the next three years, Kelly went back out to the same spot,

searching for the elusive purple springtail with no success. This winter, Susan Sachs, Education Coordinator for the Appalachian Highlands Science Learning Center, suggested taking the current class of Cherokee High School students out in the field as assistants. On a cool February morning, after an hour of searching, the students went back to school leaving Kelly with at least one possible match. After hours at the microscope, Kelly determined that the students had located *Pogonognathellus nigrinus*. The once invalidated species from New York not only has been validated, but with a significant increase in its range. From here, we will go back to the soil map to determine if there might be other potential site locations... and we are definitely taking students from Cherokee High School to assist in the sampling.

**Susan Sachs, Education Coord.,
App. Highlands Science Learning
Center and Kelly Felderhoff, UT
Knoxville**