



**NABN: North American Biospeleology Newsletter # 53** June 2006  
Published by the Biology Section of the National Speleological Society

### **NSS Biology Section Officers**

**NABN Editor:** Dr. Katharina Dittmar de la Cruz, Department of Molecular Biology, University of Wyoming, 1000 E. University Avenue, Laramie, Wyoming, 82071, Email: [katharinad@gmail.com](mailto:katharinad@gmail.com)

**Executive Secretary:** Dr. Megan Porter, Department of Biological Sciences, University of Maryland, Baltimore County, 1000 Hilltop Circle, Baltimore, Maryland, 21250, Email: [porter@umbc.edu](mailto:porter@umbc.edu).

**Treasurer:** Dr. Daniel Fong, Department of Biology, American University, 4400 Mass. Ave., N.W., Washington, D.C. 20016-8007, E-mail: [dfong@american.edu](mailto:dfong@american.edu).

---

### **Membership Information**

For information about the Biology Section, contact the Executive Secretary. To join the Biology Section, send membership dues to the treasurer (\$5.00 per year, \$6.00 per year international, checks payable to the NSS Biology Section), along with your name, NSS number, address, and a brief personal statement of biospeleological interests.

---

### **Editor's comments....**

Welcome to our 53th issue of NABN! As always, a couple of brief announcements:

1. I changed address. Since the first of May I am working in the Molecular Biology Lab at the University of Wyoming. The new contact is indicated above.
2. During the BioSection Meeting at the Bellingham Convention I will take a couple of minutes to introduce you to the idea of hosting the NABN as an online publication. If there are any questions or suggestions beforehand, please feel free to contact me at the above mentioned email.

NABN will publish news of general interest to the biospeleological community, such as short abstracts/introductions of publications, news from the field (surveys, expeditions etc.), upcoming events and deadlines, letters to the editor, and biospeleological reference lists. As NABN is a flexible medium, any suggestions are welcome and should be submitted to the editor at [katharinad@gmail.com](mailto:katharinad@gmail.com), subject: NABN. I strongly encourage everybody to submit news, information, or research abstracts. Until further

notice each edition of NABN will also be posted on Bill Elliotts **NEW** website: [http://www.utexas.edu/tmm/sponsored\\_sites/biospeleology/](http://www.utexas.edu/tmm/sponsored_sites/biospeleology/).

Best wishes and remember to cave softly! Katharina

## BioSpeleo Info

### [Bill Elliott's website with new address!](#)

For everybody who doesn't know it yet: Bill Elliott's website has moved to the following address: [http://www.utexas.edu/tmm/sponsored\\_sites/biospeleology/](http://www.utexas.edu/tmm/sponsored_sites/biospeleology/). Check out the new pages, with more photos of cave animals, photos of cave biologists at work, bibliographies, cave gates we have known (see Explore Biospeleology link), and more. Please send him your news, photos, abstracts, PDFs, etc..

### [New "cave" with new species of poison dart frog discovered in Venezuela](#)

On the slopes of the Aprada Tepui in southeastern Venezuela near the Brazilian and Guyanese borders researchers discovered a huge, collapsed steep gorge. While not a real cave, researchers discovered a new dendrobathid frog, names after its identifier Charles Brewer-Carias, *Colostethus breweri*. The complete description of the animal can be found in the January 17<sup>th</sup> issue of ZOOTAXA. (Cesar L. Barrio-Amoros, <http://www.mapress.com/zootaxa/2006f/z01110p068f.pdf>.)

### [New cave cricket genus discovered in Arizona](#)

Park service researcher Kyle Voyles and doctoral candidate J. Judson Wynne discovered a new species and genus of cave crickets in caves of the Grand Canyon-Parashant National Monument. The species was identified by Theodore Cohn, an entomologist and cricket expert at San Diego State University. The new genus belongs to the Raphidophoridae family of the order Orthoptera. Interestingly, the genus is characterized by specialized clasping cerci, unique to this group, and a thorough description is in the making.

### [5<sup>th</sup> International Cave Photography Contest](#)

The 5<sup>th</sup> International Cave photography Contest in Commemoration of Waldemar Burkacki will be hosted by the Speleoklub Warszawski (Warszaw Grotto, Poland). Waldemar Burkacki was a prominent polish photographer, and an active member of the Warszaw grotto. He died in a tragic accident. The deadlines for the submission of any cave related photo is between the 1<sup>st</sup> July until the 29<sup>th</sup> of September 2006.

More information (e.g. application form) can be found at: <http://konkurs.speleo.waw.pl/index.php?jezyk=en&strona=0>.

## New and/or Interesting Publications

**USA:** Protas, ME, Hersey C, Kochanek D, Zhou Y, Wilkens H, Jeffery WR, Zon LI, Borowsky R & Tabin CJ. 2006. **Genetic analysis of cavefish reveals molecular convergence in the evolution of albinism.** Nature Genetics 38:107-111.

This study deals with the issue of convergence in Mexican cave tetra (*Astyanax mexicanus* syn. *fasciatus*). Convergence is a hotly debated evolutionary concept, whose phenotypic and molecular components and interactions are still poorly understood. Researchers show that in a series of independent caves the species has repeatedly evolved the trait of albinism. They were able to link this trait to a specific gene, *ocular and cutaneous albinism 2 (oca-2)*. To identify the specific genetic lesions responsible for albinism, cDNA *oca-2* sequences of surface, and two cave fish populations (Pachon and Molino) were compared, and different polymorphisms were found in the *oca-2* gene of both cave populations. In a cell-based assay it was shown that different exon deletions (exon 21 vs. exon 24) in both populations were indeed the cause of functional loss in the *oca-2* gene. Therefore it was hypothesized that the respective deletions occurred independently from each other (i.e. not linked to phylogenetic history of the populations), and thus constitute an example of molecular convergence. The full free article can be found at: <http://www.nature.com/ng/journal/v38/n1/full/ng1700.html>.

Apart from being one of the few projects combining a variety of methods to assess the molecular background of phenotypic convergence, this paper also presents a good overview of the steps involved in proofing hypotheses of molecular convergence.

**USA:** Culver DC, Deharveng L, Bedos A, Lewis JL, Madden M, Reddell JR, Sket B, Trontelj P and White D. 2006. **The mid-latitude biodiversity ridge in terrestrial cave fauna.** Ecology 29: 120-128.

In their paper, Culver et al. focus on patterns of overall species richness of obligate terrestrial cave fauna in north temperate caves. Based on records of more than 120 caves in each of the 7 regions under study in Europe and the US, the presence of a high biodiversity ridge (ca 42°- 46° in Europe and 34° in North America) was hypothesized. They suggest that that the ridge might include the southern Dinaric Mountains of southeastern Herzegovina, the western Caucasus in Georgia, the Tien Shan Mountains in Kyrgyzstan, and Shikoku Island in Japan. For spatial statistical analysis researchers used the recursive diamond subdivision of an icosahedron (hexagons of 100 km<sup>2</sup>) and ArcMap™ software (Environmental System Research Inst., Redlands, CA, USA) for correct association of species records. Species accumulation curves were generated using the incidence model of species accumulation curves proposed by Colwell et al. (2004) [EstimateS ver. 7 (Colwell 2004)]. The ridge of high biodiversity occurs in temperate

areas of high productivity and cave density and may reflect a strong dependence of cave communities on long term surface productivity.

This is a unique study in that a comprehensive sampling of wide spread geographical area is used to assess basic trends in cave biodiversity. This is particularly important as this knowledge will further advance studies of cave biogeography.

The paper can be downloaded at: <http://www.blackwell-synergy.com/doi/abs/10.1111/j.2005.0906-7590.04435.x>.

**USA:** Wilhelm, FM, Taylor SJ, Adams, GL. 2006. **Comparison of routine metabolic rates of the stygobite, *Gammarus acherondytes* (Amphipoda: Gammaridae) and the stygophile, *Gammarus troglophilus*.** Freshwater Biology 51:1162-1174.

Wilhelm et al.'s research on *Gammarus acherondytes*, a federally listed stygobitic amphipod, and *Gammarus troglophilus*, a related stygophile, gives new insights into the metabolic adaptations of species occupying different ecological realms. Additionally, the influences of human activities through increased supply of organic matter to caves were tested. Based on a thorough sampling this paper provides new lines of thought for cave conservation, showing that increased energy availability in groundwater through human activity might give competitive advantage to some cave adapted species, thus negatively influencing the ecological and genetic equilibrium at hand. The publication is not freely available, but can be obtained through the authors.

### News from the Field

#### Israel

Israeli scientists have discovered a prehistoric ecosystem dating back millions of years. The discovery was made in a cave near the central Israeli city of Ramle during rock drilling at a quarry. Scientists were called in and soon found eight previously unknown species of crustaceans and invertebrates similar to scorpions. A fairly extensive cave lake was discovered.

According to the scientists the cave was completely sealed off from the world, including from surface water and nutrients seeping through rock crevices above. Researchers of the Department of Biology at the Hebrew University of Jerusalem will lead further investigations and preliminary molecular data support the unique status of the species at hand. The cave has been closed off for public access and chief of staff Dr. Hanan Dimantman said that investigations will continue throughout the next month's.

### Upcoming Events and Deadlines

**EARLY Registration Deadline 15<sup>th</sup> June!!!**

The Early Registration Deadline for the NSS 2006 Convention is the 15<sup>th</sup> of June!!!

([www.caves.org](http://www.caves.org)). The convention will take place between the 7<sup>th</sup> -11<sup>th</sup> of August 2006.

The deadline for the submission of abstracts for the BioSection **WAS!!!! the 12<sup>th</sup> of June**. In case this deadline was missed, please contact Megan immediately!!!  
[porter@umbc.edu](mailto:porter@umbc.edu).

Please keep in mind that there will be a **round table on databasing issues**, led by Megan Porter at the Bio Section Meeting at the Bellingham Convention. For further information please read the last NABN #52 issue.

- July 2006 XII. International Symposium on Vulcanospeleology (Tepoztlan, Morelos, Mexico), (July 2<sup>nd</sup> -7<sup>th</sup>)  
<http://www.saudicaves.com/symp06/>
- 18<sup>th</sup> International Symposium of Biospeleology (Cluj-Napoca, Romania), 10-15 (20) July, <http://www.cmcarst.ro>
- September 2006 8th Conference on Limestone Hydrogeology (Neuchâtel, Switzerland), <http://www.hydrokarst.org>
- 2nd National Cave Conservancies Forum** - Lewisburg, West Virginia 20<sup>th</sup> -22<sup>nd</sup> , <http://www.wvcc.net/forum/>
- October 2006 **NASBR 36 (North American Symposium on Bat Research)**, 18<sup>th</sup>-21<sup>st</sup> October, Wilmington, North Carolina, <http://www.nasbr.org/>
- August 2007 First Baltic Speleology Congress (Visby, Gotland, Sweden),  
[www.speleo.se/bsc/](http://www.speleo.se/bsc/)
- 14<sup>th</sup> International Bat Research Conference, Oaxaca, Mexico, 5<sup>th</sup> - 11<sup>th</sup> August.
- July 2009 15<sup>th</sup> International Congress of Speleology (Kerrville, Texas),  
<http://www.ics2009.us/>