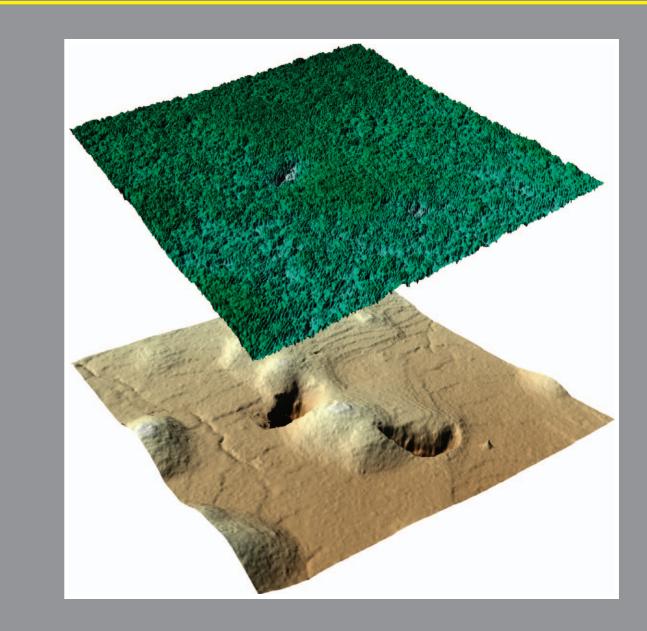
## Journal of Cave and Karst Studies

Volume 73 Number 3 December 2011

Article Geographical and Geological Data from Caves and Mines Infected with White-Nose Syndrome (WNS) before September 2009 in the Eastern United States Christopher S. Swezey and Christopher P. Garrity	125
Article Karst Springs as Habitats for Rare and Protected Plant Species: A New Inland Locality of a Halophyte Plant <i>Batrachium baudotii</i> (Ranunckaceae) in a Karst Spring in Central Europe <i>Krzysztof Spalek and Jaroslaw Proćków</i>	158
Article Quaternary Cave Faunas of Canada: A Review of the Vertebrate Remains <i>C.R. Harington</i>	162
Article Stability of Dissolution Flutes under Turbulent Flow Øyvind Hammer, Stein E. Lauritzen, and Bjørn Jamtveit	181
Article Detection and Morphologic Analysis of Potential Below-Canopy Cave Openings in the Karst Landscape around the Maya Polity of Caracol using Airborne Lidar John F. Weishampel, Jessica N. Hightower, Arlen F. Chase, Diane Z. Chase, and Ryan A. Patrick	187
Article Brackenridgia Ashleyi (Isopoda: Trichoniscidae): Range Extension with Notes on Ecology Michael E. Slay and Steven J. Taylor	197
Article Comment on "Coastal Caves in Bahamian Eolian Calcarenites: Differentiating between Sea Caves and Flank Margin Caves using Quantitative Morphology" <i>Rane Curl</i>	201
Article Comment on "Coastal Caves in Bahamian Eolian Calcarenites: Differentiating between Sea Caves and Flank Margin Caves using Quantitative Morphology" <i>Bill Mixon</i>	202
Article Reply to Comments on : Coastal Caves in Bahamian Eolian Calcarenites: Differentiating between Sea Caves and Flank Margin Caves using Quantitative Morphology Willipa J. Waterstrat, John E. Mylroie, Athena M. Owen, and Joan R. Mylroie	203

# JOURNAL OF CAVE AND KARST STUDIES



## IN THIS ISSUE:

Using Lidar to locate cave openings, geography and geology of White-Nose Syndrome, Quaternary cave faunas of Canada, and more.



### December 2011 Volume 73, Number 3 ISSN 1090-6924 A Publication of the National Speleological Society



**Published By** The National Speleological Society

> **Editor-in-Chief** Malcolm S. Field

National Center of Environmental Assessment (8623P) Office of Research and Development U.S. Environmental Protection Agency 1200 Pennsylvania Avenue NW Washington, DC 20460-0001 703-347-8601 Voice 703-347-8692 Fax field.malcolm@epa.gov

#### **Production Editor**

Scott A. Engel CH2M HILL 2095 Lakeside Centre Way, Suite 200 Knoxville, TN 37922 865-560-2954 scott.engel@ch2m.com

> **Journal Copy Editor Bill Mixon**

#### JOURNAL ADVISORY BOARD

**Penelope Boston** Luis Espinasa **Derek Ford** Louise Hose Leslie Melim Wil Orndorf **Bill Shear Elizabeth White** William White

#### **BOARD OF EDITORS**

Anthropology George Crothers University of Kentucky 211 Lafferty Hall Lexington, KY 40506-0024 859-257-8208 • george.crothers@uky.edu

**Conservation-Life Sciences** Julian J. Lewis & Salisa L. Lewis Lewis & Associates, LLC. Cave, Karst & Groundwater Biological Consulting 17903 State Road 60 • Borden, IN 47106-8608 812-283-6120 • lewisbioconsult@aol.com

> Earth Sciences **Gregory S. Springer** Department of Geological Sciences 316 Clippinger Laboratories Ohio University • Athens, OH 45701 740-593-9436 • springeg@ohio.edu

Exploration Paul Burger Cave Resources Office 3225 National Parks Highway • Carlsbad, NM 88220 505-785-3106 • paul\_burger@nps.gov

Microbiology Kathleen H. Lavoie Department of Biology State University of New York Plattsburgh, NY 12901 518-564-3150 • lavoiekh@plattsburgh.edu

Paleontology Greg McDonald Park Museum Management Program National Park Service 1201 Oakridge Dr. Suite 150 Fort Collins, CO 80525 970-267-2167 • greg\_mcdonald@nps.gov

Social Sciences Joseph C. Douglas History Department Volunteer State Community College 1480 Nashville Pike • Gallatin, TN 37066 615-230-3241 • joe.douglas@volstate.edu

**Book Reviews** Arthur N. Palmer & Margaret V. Palmer Department of Earth Sciences State University of New York Oneonta, NY 13820-4015 607-432-6024 • palmeran@oneonta.edu

The Journal of Cave and Karst Studies (ISSN 1090-6924, CPM Number #40065056) is a multi-disciplinary, refereed journal published three times a year by the National Speleological Society, 2813 Cave Avenue, Huntsville, Alabama 35810-4431 USA; Phone (256) 852-1300; Fax (256) 851-9241, email: nss@caves.org; World Wide Web: http://www.caves.org/pub/journal/ Check the Journal website for subscripton rates. Back issues and cumulative indices are available from the NSS office.

POSTMASTER: send address changes to the Journal of Cave and Karst Studies, 2813 Cave Avenue, Huntsville, Alabama 35810-4431 USA.

The Journal of Cave and Karst Studies is covered by the following ISI Thomson Services Science Citation Index Expanded, ISI Alerting Services, and Current Contents/Physical, Chemical, and Earth Sciences.

Copyright © 2011 by the National Speleological Society, Inc.

Front cover; Cover figure depicts ability of LiDAR to remove forest canopy to reveal karst land surface. Figure courtesy of J. Weishampel.

The Journal of Cave and Karst Studies is a multidisciplinary specifications may be downloaded. (Note: LaTeX files should not use any unusual style files; a LaTeX template and BiBTeX file for the Journal may be downloaded or obtained from the Editor-in-Chief.) Table files can be uploaded as DOC, WPD, RTF, TXT, or LaTeX files, and figure files can be uploaded as TIFF, EPS, AI, or CDR files. Alternatively, authors may submit manuscripts as PDF LANGUAGES: The Journal of Cave and Karst Studies uses or HTML files, but if the manuscript is accepted for publication, the manuscript will need to be submitted as one of the accepted file types listed above. Manuscripts must be typed, double spaced, and single-sided. Manuscripts should be no longer than 6,000 words plus tables and figures, but exceptions are permitted on a case-bycase basis. Authors of accepted papers exceeding this limit may have to pay a current page charge for the extra pages unless decided otherwise by the Editor-in-Chief. Extensive supporting data will be placed on the Journal's website with a paper copy placed in the NSS archives and library. The data that are used within a paper must be made available. Authors may be required to provide sup-CONTENT: Each paper will contain a title with the authors' porting data in a fundamental format, such as ASCII for text data or comma-delimited ASCII for tabular data.

journal devoted to cave and karst research. The Journal is seeking original, unpublished manuscripts concerning the scientific study of caves or other karst features. Authors do not need to be members of the National Speleological Society, but preference is given to manuscripts of importance to North American speleology. American-style English as its standard language and spelling style, with the exception of allowing a second abstract in another language when room allows. In the case of proper names, the Journal tries to accommodate other spellings and punctuation styles. In cases where the Editor-in-Chief finds it appropriate to use non-English words outside of proper names (generally where no equivalent English word exists), the Journal italicizes them. However, the common abbreviations i.e., e.g., et al., and etc. should appear in roman text. Authors are encouraged to write for our combined professional and amateur readerships. names and addresses, an abstract, and the text of the paper, in-

cluding a summary or conclusions section. Acknowledgments and references follow the text.

ABSTRACTS: An abstract stating the essential points and results must accompany all articles. An abstract is a summary, not a promise of what topics are covered in the paper.

STYLE: The Journal consults The Chicago Manual of Style on most general style issues.

REFERENCES: In the text, references to previously published work should be followed by the relevant author's name and date (and Other units will be allowed where necessary if placed in parenthepage number, when appropriate) in parentheses. All cited referencses and following the SI units. es are alphabetical at the end of the manuscript with senior author's FIGURES: Figures and lettering must be neat and legible. Figlast name first, followed by date of publication, title, publisher, ure captions should be on a separate sheet of paper and not within volume, and page numbers. Geological Society of America forthe figure. Figures should be numbered in sequence and referred to in the text by inserting (Fig. x). Most figures will be reduced, hence mat should be used (see http://www.geosociety.org/pubs/geoguid5. htm). Please do not abbreviate periodical titles. Web references are the lettering should be large. Photographs must be sharp and high acceptable when deemed appropriate. The references should folcontrast. Color will generally only be printed at author's expense. TABLES: See http://www.caves.org/pub/journal/PDF/Tables. low the style of: Author (or publisher), year, Webpage title: Publisher (if a specific author is available), full URL (e.g., http://www. pdf to get guidelines for table layout. COPYRIGHT AND AUTHOR'S RESPONSIBILITIES: It usgs.gov/citguide.html) and date when the web site was accessed is the author's responsibility to clear any copyright or acknowlin brackets; for example [accessed July 16, 2002]. If there are specific authors given, use their name and list the responsible organiedgement matters concerning text, tables, or figures used. Authors zation as publisher. Because of the ephemeral nature of websites, should also ensure adequate attention to sensitive or legal issues please provide the specific date. Citations within the text should such as land owner and land manager concerns or policies. read: (Author, Year). PROCESS: All submitted manuscripts are sent out to at least

SUBMISSION: Effective July 2007, all manuscripts are to be two experts in the field. Reviewed manuscripts are then returned submitted via AllenTrack, a web-based system for online submisto the author for consideration of the referees' remarks and revision. The web address is http://jcks.allentrack2.net. Instructions sion, where appropriate. Revised manuscripts are returned to the are provided at that address. At your first visit, you will be promptappropriate Associate Editor who then recommends acceptance ed to establish a login and password, after which you will enter or rejection. The Editor-in-Chief makes final decisions regarding information about your manuscript (e.g., authors and addresses, publication. Upon acceptance, the senior author will be sent one manuscript title, abstract, etc.). You will then enter your manuset of PDF proofs for review. Examine the current issue for more script, tables, and figure files separately or all together as part of information about the format used. the manuscript. Manuscript files can be uploaded as DOC, WPD, ELECTRONIC FILES: The Journal is printed at high resolution. Illustrations must be a minimum of 300 dpi for acceptance. RTF, TXT, or LaTeX. A DOC template with additional manuscript



DISCUSSIONS: Critical discussions of papers previously published in the Journal are welcome. Authors will be given an opportunity to reply. Discussions and replies must be limited to a maximum of 1000 words and discussions will be subject to review before publication. Discussions must be within 6 months after the original article appears.

MEASUREMENTS: All measurements will be in Systeme Internationale (metric) except when quoting historical references.