EDITORIAL
Frontiers of Appalachian Karst Research

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Following the success of the first Appalachian Karst Symposium held at Radford University (Kastning and Kastning, 1991), the second Appalachian Karst Symposium was held at the Gray Fossil Site, East Tennessee State University on May 7–10, 2008. The symposium was sponsored by the General Shale Brick Natural History Museum and the Office of Research and Sponsored Programs at ETSU and supported by the ESRI software company, the Environmental Protection Agency Region III, the Virginia Department of Conservation and Recreation Natural Heritage Program, the Virginia Cave Board, the Cave Conservancy Foundation, the Cave Conservancy of the Virginias, P.E. LaMoreaux & Associates, Inc., the Karst Waters Institute, the National Speleological Society, and the *Journal of Cave and Karst Studies*.

Seventy-five people attended the symposium to foster communications and to promote the exchange of ideas among all professionals concerned with scientific studies and environmental conservations in the Appalachian karst region. The symposium included three keynote presentations, by Gregory Springer and Harry Rowe, Art Palmer, and Will White. A welcome reception and two lectures, by Barry Beck and Harry Moore, were open to the public on May 7. Keynote, oral, and poster presentations were presented during the next two days. Presentations during the symposium were highly interdisciplinary and included research on karst hydrology and geomorphology, cave exploration and conservation, resource management and database development, biological research, paleontology, paleoclimate, archaeology, and engineering and geotechnical methods. Communications between karst professionals regarding the Karst Information Portal and metadata development have been highly active in the past few years (Gao and Zhou, 2008). Almost all symposium attendees participated in a panel discussion on issues related to karst-database development, data sharing, resource protection, and cave conservation. The symposium banquet featured Russell Graham's talk "Mammal Response to Late Quaternary Climate Fluctuations along the Appalachian Gradient – Implications for Future Global Warming." On May 10, nearly forty people attended a one-day field trip to visit caves and karst sites in northeastern Tennessee and southwestern Virginia. In the late afternoon on May 9, a guided tour to the Gray Fossil Site was offered by the Don Sundquist Center of Excellence in Paleontology at ETSU. Sid Jones and Robert Benfield led an optional field trip to visit karst springs in northeastern Tennessee. Following the tradition of the first Appalachian Karst Symposium, a Friends of Karst (FOK) get-together convened on May 9. The FOK is an informal organization of individuals interested in cave and karst studies. Many FOK members attended the symposium. One of the outcomes of the FOK gathering was an action plan for future Appalachian Karst Symposia. The next symposium is planned for summer 2012.

To insure the quality and scientific value of the symposium, all manuscripts and abstracts were reviewed by experts in the field of cave and karst studies. More than thirty abstracts were submitted to the symposium. The symposium proceedings including all abstracts and field trip guide are available at the Appalachian Karst Symposium website (http://www.etsu.edu/cas/geosciences/appkarst/). Five manuscripts resulting from the symposium are included in this issue of the *Journal of Cave and Karst Studies*. One paper was published in an earlier issue of the *Journal* (Springer, et al., 2009). This paper presented a record of Holocene hydroclimatology for a humid, temperate watershed in the Appalachian Mountains of eastern North America. Two of the authors gave a keynote address about this paper during the symposium.

This issue includes five papers. White reviews the erosional processes of Appalachian fluviokarst and discusses how the Applachian karst has evolved since the late Miocene. This paper was presented as the first keynote address at the symposium. Palmer discusses the use of cave data in quantitative validation of hypotheses for maze-cave origin, the interpretation of geochemical processes that are rarely seen at the surface, and the development of wells and assessment of potential contaminant transport. This paper was also presented as a keynote address at the symposium. Schwartz and Orndorff present a thorough hydrogeologic investigation of a Mississippian scarp-slope karst system in the central Appalachians. Orndorff and Hutchins describe a unique sampling technique to monitor the distribution and abundance of an aquatic subterranean isopod. Lera gives a detailed review of the Virginia Cave Protection Act and presents many examples of actions to preserve the educational, recreational, scientific, historic, and economic values of Virginia caves and karst.

In summary, the papers in this issue represent some recent studies in a variety of disciplines concerning karst hydrology, geomorphology, biology, and cave conservation in the Appalachian karst region. Traditionally, many influential karst studies were conducted by scientists in the Appalachian karst community. Research on karst is now underway in many institutions and agencies and has much wider scientific and societal implications than previously recognized (Martin and White, 2008). This issue represents

only one look at the many active karst research and conservation activities in the Appalachian region. Many interdisciplinary and innovative karst research projects are currently underway in the Appalachian karst community. Monitoring sites and field stations such as the Gray Fossil Site (2009) and the Karst Field School (2009) at East Tennessee State University will become valuable resources for education and research activities in the twenty-first century.

Acknowledgments

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