APPALACHIAN
LANDSCAPE CONSERVATION COOPERATIVE

Classification and Mapping of Cave and Karst Resources

Addressing knowledge gap to better protect unique landforms and their wealth of hidden biodiversity

Protecting the beauty and mystery of caves and karst, as well as the distribution and richness of biological life found within, is a bold, scientific conservation challenge. This landform, distinctive to the Appalachian region, is the gradual result of water dissolving porous bedrock such as limestone. This creates a terrain characterized by springs, caves, and sinkholes that provide habitat for a diverse array of species and are an important source of domestic water supply for Appalachian communities.

Fern Cave National Wildlife Refuge; *USFWS*

Biologists conduct modern bat surveys by taking photos of large bat clusters. *Photo by Andrew King, USFWS*

Since many of these locations are in hard to access areas and with some caves tunneling miles underground, there is a lack of detailed classification and mapping information. This knowledge gap creates a significant barrier for understanding the sheer quantity of caves, their biodiversity, and these ecosystems full contributions to society and the natural world. It is crucial to uncover such information in order to protect these unique landforms and the wealth of hidden biodiversity.

The federal, state, non-governmental, and tribal organizations comprising the Appalachian Landscape Conservation Cooperative (LCC) took on the challenge of addressing this barrier. Researchers from an array of organizations and institutions were funded by the LCC to gather and analyze existing data on caves and karst throughout the Appalachians. The project assembled and summarized pre-existing efforts to collect and present karst resource information. By combing through the available literature, researchers

To learn more about this project, visit: http://applcc.org/research/cave-karst

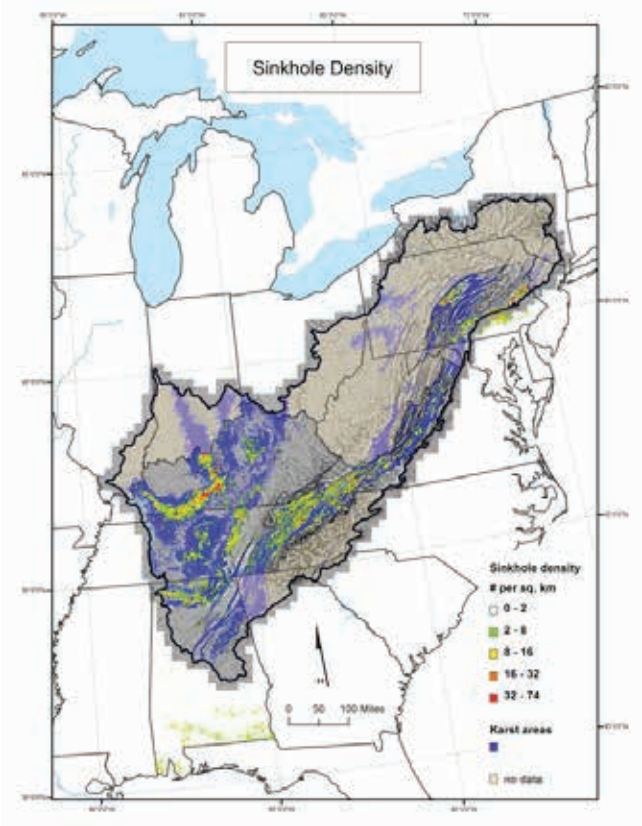
Cave Salamander *Eurycea lucifuga*
Credit: J.D. Wilson

identified the most appropriate classification system to use for karst habitats within Appalachia. Next, models were developed to further classify the diversity within known cave and karst formations associated with factors like geology and hydrologic flow. Based on this modeling assessment, the project generated predictions on what level of biodiversity might be expected in cave and karst systems throughout the Appalachians.

Products generated from this unique research include a series of maps, spatial datasets, and other deliverables that provide a comprehensive overview for examining relationships between environmental factors, biodiversity, and distribution within karst areas of the Appalachians. A visual survey compiles all this information and guides users through what this project accomplished as well as new questions to tackle for future research that could be of interest to resource managers, biologists, and conservationists.

Virginia Big-eared bat.
Credit: JH Fagan/Virginia Dept. of Conservation and Recreation

This critical information generated by scientists at American University, U.S. Geological Survey, University of the South, University of Illinois, and University of Florida can inform managers decisions above ground in order to protect what lies beneath. Appalachian LCC staff are now working with research and management communities to apply cave and karst physical and biological information in developing interactive maps and delivering decision support tools to assist landscape conservation planning for the region.



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To learn more about the Appalachian LCC, visit http://applcc.org

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