

DR. ALBERT J. MEIER IS PROJECT DIRECTOR AND PRINCIPAL INVESTIGATOR FOR AN "EXTRAORDINARY" GRANT-FUNDED PROJECT OF NEARLY ONE MILLION DOLLARS THAT WILL HAVE FAR-REACHING EFFECTS. DR. MEIER IS DIRECTOR OF THE CENTER FOR BIODIVERSITY. THE GRANT IS FROM THE KENTUCKY HERITAGE LAND CONSERVATION FUND TO INITIATE THE PURCHASE AND DEVELOPMENT OF THE PROPOSED UPPER GREEN RIVER BIOLOGICAL PRESERVE IN HART COUNTY. DR. MEIER DESCRIBES THE PROPOSED PRESERVE, JUST A FEW MILES UPSTREAM OF MAMMOTH CAVE NATIONAL PARK, AS AN "EXTRAORDINARY PLACE TO WORK WITH TO PROTECT A LOT OF SPECIAL, VERY RARE SPECIES." IN ADDITION TO PROTECTING RARE SPECIES, OTHER PURPOSES FOR THE PROPOSED PRESERVE ARE EDUCATIONAL PROGRAMS IN ECOLOGY, ADVANCED RESEARCH IN WATER QUALITY, AND COOPERATIVE RESEARCH VENTURES IN MAMMOTH CAVE NATIONAL PARK.

In the section of the Green River bounded by the proposed preserve are beds of several endangered mussel species. According to the site project description, one bed houses five types of mussel which have been listed as endangered: fanshell (*Cyprogenia stegaria*), northern riffleshell (*Epioblasma torulosa rangiana*), ring pink (*Obovaria retusa*), clubshell (*Pleurobema clava*), and rough pigtoe (*Pleurobema plenum*). Dr. Meier states that the mussels found in such diversity at the proposed preserve are "some of the rarest organisms on Earth." The project plan also describes the upper Green River as home to 109 fish species and a "breeding and migratory habitat for neotropical songbirds."

In addition to pasture and forest, the property features a waterfall and the McCoy Blue Hole, one of the largest springs along Green River and part of the karst drainage system. Found in this underground system which feeds to

An Extraordinary Place to Work

BY DEBORAH T. GIVENS



Bottle Gentian (*Gentiana Andrewsii*)

PHOTO BY JOHN ANDERSLAND

the Blue Hole is another endangered species, the Mammoth Cave Shrimp (formerly the Kentucky cave shrimp). Two caves have also been identified on the property, although to date only one has been investigated. Gray Bats, a federally endangered species, have been spotted in this cave.

Several threats currently exist to the property, the river, and the many species found there. Addressing these threats will be the first step in developing the preserve. The largest issue concerning endangered species will be the closing of an estimated 24 oil wells, which Dr. Meier describes as "largely failed" or pumping only "sporadically" in recent years. Until the wells are closed and the pump equipment removed, there remains a danger of an oil or a brine spill which, in addition to damaging the proposed preserve area, would flow into Mammoth Cave National Park. Further steps to protect rare species will be closing

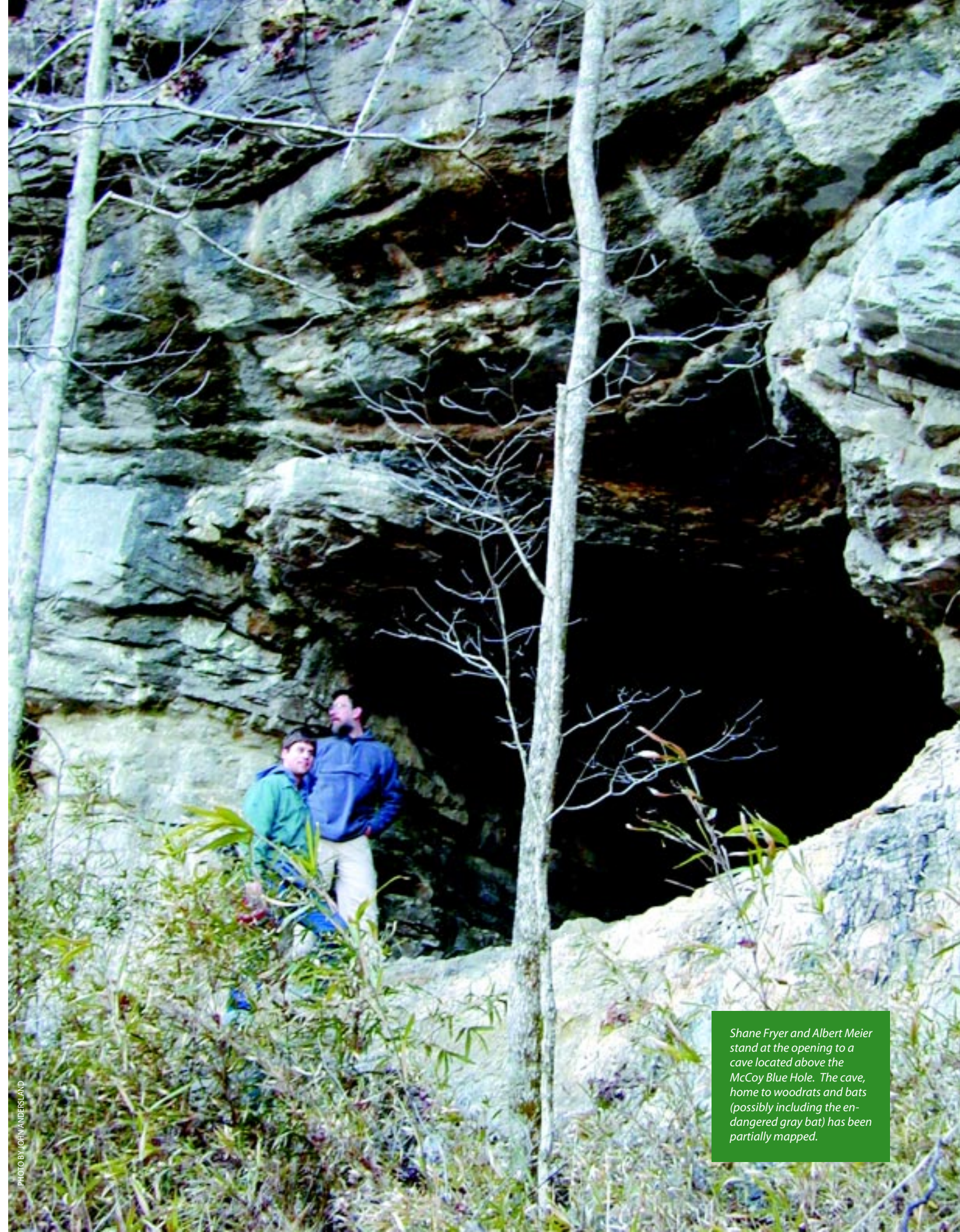


PHOTO BY JOHN ANDERSLAND

Shane Fryer and Albert Meier stand at the opening to a cave located above the McCoy Blue Hole. The cave, home to woodrats and bats (possibly including the endangered gray bat) has been partially mapped.



Left, an 1803 brick house on the south side of the river. Upper right, one of the many falls at 300 Springs on the Green River upstream of Munfordville. Lower right, a pipevine swallowtail.

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the access to a gravel pit along the river, stabilizing river banks, and ending cattle grazing, which adds to bank erosion. Land improvements will include restoring approximately 50 acres of bottomland pasture to hardwood forest and 250 acres of upland pasture to forest and barrens.

The property also boasts an extra feature unrelated to a biological preserve. Located on the site is a house constructed in 1803 and possibly the oldest building standing in Hart County. Money to stabilize the structure has been included in the funding, and Dr. Meier hopes it will eventually be fully restored.

In addition to protecting rare species, Dr. Meier lists education and research as two other purposes for the proposed preserve. “In terms of educational programs in ecol-

ogy, the upper Green River has almost anything you could ask for in a river.” Centers at Western that will make use of the preserve include the Center for Biodiversity Studies; the Center for Mathematics, Science, and Environmental Education; the Technical Assistance Center for Water Quality; and the Center for Water Resource Studies. Classes expected to benefit from the proposed preserve include Ecology, Ecological Methods, Limnology, Ichthyology, Ornithology, Mammology, Entomology, Invertebrate Zoology, Plant Taxonomy, and Advanced Ecology.

Located approximately an hour from Western’s campus, the proposed preserve will be easily accessible for use by university classes. Summer workshops will draw university students from across the country. The proposed preserve will also be available as a field trip destination for area elementary and high school classes, and for teacher training courses. Dr. Meier describes the area as “a great place to carry on education.” The long range goal is to establish a low-impact biological research station with a building for classes and for housing researchers. A low-impact canoe access site is also planned along with the purchase of canoes and equipment. The project plan notes that public use of the land will be “controlled and limited” since the “first priority for this site is to protect the resource.”

As far-reaching as the proposed Upper Green River Biological Preserve is, it is only “part of a much bigger picture” of basic and applied research, according to Dr. Meier. Working together are several ecological programs which will improve the Upper Green River and in which Western’s Biology Department, Center for Biodiversity Studies, and Center for Water Resource Studies are participating.

Of major importance is the Green River Conservation Reserve Enhancement Program (CREP) through the Department of Agriculture. In this program, each state selects one location to implement a CREP program in an effort to improve water quality. In Kentucky, that location is the upper Green River, identified as the area below Green River Dam and above the lower boundary of Mammoth Cave National Park, encompassing one million acres. According to Dr. Meier, in excess of \$100 million will be spent, with most of it going to farmers, to improve practices that affect the river. CREP will be similar to land bank programs with farmers receiving funding for projects such as creating

buffer zones along the river, stopping pesticide runoff, implementing erosion control and keeping cattle from the river.

With no large cities and few major industries in the upper Green River watershed, most people would think there would be little threat to water quality. But according to Dr. Meier, even in the absence of those anthropogenic impacts, much damage in Kentucky is caused by poor agricultural practices and by small municipalities which do not have the funds to properly maintain and replace sewage treatment systems. Also in rural areas, most homes have septic tanks rather than a connection to public sewer systems. The upper Green River is a karst region with numerous caves and sinkholes. “A karst region is the definition of the wrong place to have septic systems,” explains Dr. Meier.

Dr. Meier believes the CREP program “will have a substantial influence on water quality, fishing, and hunting.” The Department of Biology will be working with CREP and with the Environmental Protection Agency, which is fund-

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The bottomland forests alongside the Green River form a thick riparian corridor that helps filter out sediments and contaminants from runoff before it enters the river.

ing studies to set the baseline information for CREP. The combined projects — Upper Green River Biological Preserve and CREP — are seen by Dr. Meier as the “biggest environmental project in the state by far.”

In addition, work on the proposed Upper Green River Biological Preserve has also led to more cooperation and more projects with Mammoth Cave National Park. Through these efforts, Western Kentucky University will become a partner in the Southern Appalachian-Cooperative Ecosystem Studies Unit (SA-CESU) and will become eligible for funding to do research in the national park system. Dr. Meier says this will open numerous research opportunities for the University’s faculty and students who will be able to do “advanced research at national parks.”

Emphasis on the Green River is well deserved according to Dr. Meier, who states, “That river is really special.” By helping to protect the rare species in the Green River, in addition to safeguarding Mammoth Cave National Park, the proposed preserve will be an asset to the state and the nation.”