

# COOPERATIVE CAVE MANAGEMENT IN THE ERA OF WNS

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## **Abstract**

With declining budgets, less money than ever is available for meaningful cave management, including baseline inventories and monitoring. The spread of White Nose Syndrome (WNS) has made it even more difficult to effectively manage cave resources. In the region of the Ozark Plateau, Cave Research Foundation is continuing to provide these services, and more, by working within guidelines of various agencies and private landowners. These include Ozark National Scenic Riverways and Buffalo National River (NPS) Mark Twain National Forest (USFS) the Missouri Department of Conservation, Missouri Department of Natural Resources – Division of State Parks, U.S. Fish and Wildlife Service, and the privately-held Pioneer Forest. Most of this work is performed by unpaid volunteers from CRF and affiliated organizations. Rather than limiting the work done by volunteer workers, the agencies we work with are actually expanding the role of volunteers and are providing funds and facilities to facilitate this work. The conclusion is that good volunteer work is not only continuing but being encouraged in the face of adverse conditions.

## **Introduction**

In previous papers (House, 1996, 2008) I have discussed the role of volunteers and pro-bono researchers in performing management activities on agency lands. Included in those activities are monitoring, inventory, data management, and cartographic survey. The value of cartographic survey for management uses has been previously described (House, 1985). Since the advent of White Nose Syndrome (WNS) there has been much uncertainty about the roles of researchers and volunteers in performing useful cave management activities on agency lands. Land managers have, in many instances, unfortunately reacted to WNS concerns by severely limiting the roles that non-agency personnel can perform. This has had a negative effect on performing useful and necessary management actions. The caves, in many instances, are now being managed less, rather than

more. What follows is intended to be a series of nuts-and-bolts examples of how cave management activities can be facilitated through cooperative agreements and other arrangements with Cave Research Foundation (CRF). For purposes of understanding the karst regions involved, a good overview of Missouri caves and karst can be found in a previous paper (House, 2009).

## **Ozark National Scenic Riverways**

The Ozark National Scenic Riverways (OZAR), a unit of the National Park Service, contains approximately 400 known caves along the Jacks Fork and Current Rivers in Missouri. Most of the caves within the park harbor bats, at least seasonally. Caves are of particular importance within the Riverways as they are noted as important features worth preserving in the park's enabling legislation.

The Cave Research Foundation has a history of working with the park since the 1980's. Some of the early projects were enabled by volunteer agreements. But as the need for better data rose, these agreements were superseded by cooperative cost-sharing projects and small contracts. Included in these were data synthesis, development of databases for inventory and monitoring, bat surveys, and baseline biological inventories.

A growing need for specialized cave management led to the present contractual agreement which covers a variety of cave management activities. A relatively small amount of funding pays for professional and volunteer services both. Included in these services are data management, cave monitoring, installation of signage, cartography, gate inspections and a host of other, smaller tasks. Specific gating projects are covered through other small contracts as money becomes available.

Signs of WNS were first detected in the park in 2010 when a small number of gray bats were noted to have wing damage consistent with WNS signs. Tissue samples confirmed the presence of the causative agent. At that

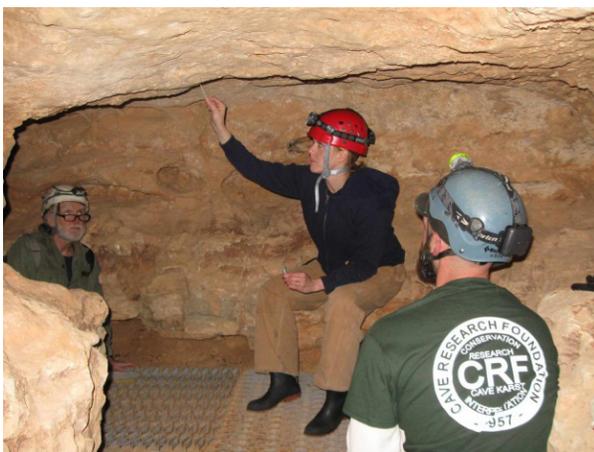


**Figure 1. Cartographic Surveys.**  
*A CRF member shoots instruments in an Ozark cave.  
 Photo by Josh Hafner.*

point, consistent with NPS policies, an emergency closure of all park caves was announced. At the same time, work began on a WNS plan that would take proactive steps to continue active cave management.

Within a period of three months, the WNS plan was written and approved. All park caves would be closed to visitation with the exception of Round Spring Cavern which is developed for lantern tours. Visitors to that cave would be screened to hopefully prevent inadvertent movement of spores.

The plan calls for continued management work on caves, specifically citing CRF as the park partner that will perform the work in conjunction with resource managers. Inventory, monitoring, mapping, and other useful activities continue under the WNS plan and a general agreement between the park and CRF. More



**Figure 2. WNS Surveys.**  
*CRF and NPS biologists inventory and swab bats.  
 Photo by Scott House.*

than 100 monitoring trips to caves were taken in both 2011 and 2012. Cartographic surveys, which are highly important to proper cave management, are actively continuing. All survey trips also perform monitoring.

OZAR has provided research and volunteer housing at the Powder Mill Research Center. Full decontamination facilities are there (tubs, chemicals, washer, dryer, pressure hose, etc.) and the park has invested heavily in dedicated gear that does not leave the park.

Instead of just closing caves to all useful visitation, the Ozark National Scenic Riverways has taken the proactive approach of permitting, and contracting for, activities that greatly increase the ability of the park to manage its cave resources. In the Ozarks, OZAR has taken the lead in proactively balancing the concerns of spreading WNS with the realities of having to manage resources.

### Buffalo National River

The Buffalo National River (BUFF) lies along the Buffalo River in northwestern Arkansas. Like the Ozark Riverways, the park has numerous caves, probably over 500, many of considerable length. Numerous bat caves lie within the park. As a precautionary measure, all caves have been administratively closed to visitation. CRF and BUFF have a cooperative agreement that includes monitoring, database management and cave survey. In addition, the work is facilitated through a research permit. This was felt to be the best vehicle for authorizing activities while maintaining closures for the general public. An active program of survey is supplemented by monitoring reports taken on every trip and entered into a database similar to OZAR's. Beginning in 2010, more than 130 monitoring trips have been taken to caves. All survey trips also include monitoring.

Like OZAR, BUFF provides volunteer housing, decontamination chemicals, washing machine, and dedicated cave equipment.

### Missouri Department of Conservation

The Missouri Department of Conservation (MDC) manages state forest and conservation areas and has control over all state wildlife. Lands administered by MDC contain nearly 300 caves, many of which harbor bats. By their state WNS plan, created before the arrival of WNS, all caves are closed to visitation due to the appearance of WNS within the state. Actually the plan

called for a tiered response, slowly activating closures as WNS grew closer. However WNS “jumped” directly to Missouri, making much of the plan a moot discussion. Only research activities are permitted. Some volunteers are allowed to monitor specific caves, mostly the entrances only. All cartographic survey efforts on MDC lands have, at present, been halted. However, the MDC did recently cooperate in cooperative mapping project involving a privately-owned mine (described below) and that may set a precedent for renewing survey work.

### Missouri State Parks

The Missouri Department of Natural Resources administers state parks through its Division of State Parks (DSP). Within its varied units, DSP lands contain more than 200 caves, including some spectacular karst resources. The DSP has a long history of cooperative work with cave groups. After the advent of WNS, DSP followed the lead of the MDC, the lead agency for wildlife management, in closing all caves to visitation. Only certain tour caves were exempted. However, the intent was to give resource managers time to formulate a more sensible policy. Since the 2010 closures, the DSP has worked with CRF and other groups to allow the continuation of beneficial activities at caves. For the past two years, CRF has received a grant to inventory, document, monitor, and survey certain DSP caves. Under this agreement, CRF works with park naturalists and resource managers to improve DSP knowledge of their cave resources. CRF volunteers have also installed new cave gates on at least a couple of DSP caves.

### Mark Twain National Forest

Mark Twain National Forest (MTNF) of the US Forest Service has over 700 caves on lands it manages. MTNF caves include numerous bats and a number of their caves have been gated to protect them. CRF has been working under volunteer or cooperative agreements for over thirty years. For the last twenty years, challenge cost-share cooperative agreements have enabled biological inventory, survey, and monitoring work. WNS monitoring has been added to the work load as well as occasional archaeological monitoring and inventory. Due to WNS regulations MTNF archaeologists who enter caves would have to decontaminate their equipment and clothing the same as CRF does. The impracticality of that additional step has made it necessary for CRF, working with other groups, to accept more responsibilities.

Currently CRF operates on all districts of the MTNF. For several years MTNF has also used cooperative agreements to facilitate the gating of caves by CRF. Under the present multi-year agreement, gating is included in the same agreement as inventory, survey, monitoring, and assessments. CRF has been a one-stop shopping trip for cave management work on the MTNF.

### United States Fish and Wildlife Service

The US Fish and Wildlife Service (FWS) manages only a few caves in the Ozarks. However, it is the lead federal agency for WNS studies and recommendations, particularly on federal lands such as OZAR, BUFF and MTNF. The Missouri field office has been a model of cooperation in permitting useful activities to continue on federal lands. All federal (and most state) management plans and activities covered by the National Environmental Protection Act (NEPA) must undergo a FWS review.

In one instance, a well-known mine was found, by a volunteer, to be containing large numbers of endangered bats. FWS through a grant to MDC funded CRF to map the mine in order to provide a useful baseline for performing a census of bat populations. Further, CRF surveyors provided a necessary guide service to biologists during winter bat counts (the mine is a complete maze).

Setting the tone for cooperative work in the Ozarks, the FWS has shown great common sense in working with agencies and CRF in permitting necessary work to continue.



**Figure 3. Bat Cave Gating.**

CRF, Bat Conservation International and AmeriCorps workers gate a cave on MTNF land. Photo by Scott House.

## Pioneer Forest

Different from other agencies, Pioneer Forest is a private forest owned by a not-for-profit foundation, the L-A-D Foundation. The purpose of the forest is to manage native tree species on a sustainable basis while also providing for recreation and a natural ecosystem. On its lands, Pioneer administers nearly 200 caves. Pioneer Forest has worked with CRF and other groups to help manage its caves, for which it has no staff. Through informal letters of authorization and very limited funding, CRF has performed monitoring, gate management, inventory, and cartographic survey. Pioneer has not instituted mass closures of its caves. In this sense, its policies serve as a control for the experiment of seeing whether closures are effective in containing the spread of WNS.

## Summary

No agency is aware of problems that occur in a cave that is never visited by staff or volunteers. Since virtually all publicly-owned caves are administratively closed to visitation, any visitor to a cave is extremely unlikely to report a problem and thus admit they have visited the cave illegally. Closing all caves to visitation, even to those qualified to monitor and research the cave, is, at best, a head-in-the-sand approach.

The intent of this discourse is to show how agencies may enable work to continue in a WNS-positive environment. By use of research permits, contracts, challenge cost-share agreements, and grants these agencies, public and private, have shown great foresight and flexibility in creating a cooperative attitude that fosters increased support from the cave community.

Far from the contentious relations that seem to exist in many areas of the eastern US, the Ozarks region sees agencies and cave researchers working together to meet the management needs necessary to effectively manage and protect these cave resources.

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