

## DECISION MEMO

### Southern Region Caves and Abandoned Underground Mine Closures

#### USDA Forest Service

National Forest System lands in the following states:  
Kentucky, Virginia, Tennessee, North Carolina, South Carolina,  
Mississippi, Alabama, Georgia, Florida, Louisiana,  
Texas, Arkansas, Oklahoma

#### I. DECISION TO BE IMPLEMENTED

##### A. Background

White-nose syndrome is a recent wildlife disease caused by the fungus *Pseudogymnoascus destructans* that has killed more than five million bats across the northeast United States and eastern Canada during recent years and continues to spread to other areas. White-nose syndrome is having a negative impact on bat populations. White-nose syndrome affects hibernating bats. The fungus grows best in the cold and wet conditions common to caves and abandoned underground mines. Current evidence indicates the primary transmission of the fungus is bat to bat and bat to caves and abandoned underground mines, although human transmission from location to location on boots, shoes, and/or gear of cave visitors is possible.

Recent research has shown *Pseudogymnoascus destructans* can persist in caves and mines in the absence of bats. Genetic testing confirmed the presence of *Pseudogymnoascus destructans* and related species in sediment samples from caves and mines that previously held white-nose syndrome infected bats (Linder et al. 2011, Lorch et al. 2012, and Peuchmaille et al. 2011a). *Pseudogymnoascus destructans* can persist for more than two years after bats are absent (Lorch et al. 2013). Spores of *Pseudogymnoascus destructans* may remain viable and/or grow under varying conditions outside of caves and mines. The USGS – National Wildlife Health Center has determined *Pseudogymnoascus destructans* can remain viable for at least five months under laboratory conditions at room temperature (David Bléher, USGS National Wildlife Health Center, personal communication). Puechmaille et al. (2011b) determined *Pseudogymnoascus destructans* spores remained viable after being stored for up to eight months dry and/or frozen.

There is also evidence *Pseudogymnoascus destructans* spores can inadvertently be transported out of caves and underground mines on clothing, gear, sediment, etc. In New York, *Pseudogymnoascus destructans* spores were identified morphologically on new clothing and gear after being used in contaminated caves and underground mines (Joe Okoniewski, NYSDEC, presentation at 2010 WNS symposium). Viable spores of many fungal species, not specifically *Pseudogymnoascus destructans*, have been retrieved from shoes of visitors after tours of Mammoth Cave National Park (Hazel Barton, University of Akron, personal communication). *Pseudogymnoascus destructans* was detected by genetic screening and fungal culture on equipment used to capture bats and gear used in contaminated sites (Annie Ballmann, USGS – National Wildlife Health Center, presentation at 2013 WNS symposium).

*Pseudogymnoascus destructans* is native to Europe. While there is evidence of bats arriving in North America via cargo ship (Constantine 2003), it is unlikely a bat arriving on the east coast of the United States would find its way to and hibernate in a highly visited tourist cave in New York. While the risk and probability of human-caused spread of *Pseudogymnoascus destructans* is debated by some, the fungus can be transmitted on clothing and equipment and can be cultured from very little soil. This means humans can move *Pseudogymnoascus destructans* from cave to cave on their gear, boots, and clothing, and once established, spores can persist in caves and abandoned underground mines. The long distance jumps of *Pseudogymnoascus destructans* experienced early in the spread of white-nose syndrome were beyond the normal dispersal distance of the bat species involved. The jumps were to caves with few bats but high human visitation. Early in their investigation, the U.S. Fish and Wildlife Service asked people that had been in an affected site in New York to list the other caves they had been in since. The initial site of infection in Virginia and West Virginia were on the list (Jeremy Coleman, USFWS, personal communication).

More than half of the 45 bat species residing in the United States rely on hibernation for winter survival. Currently, 10 cave hibernating bats, including four endangered species and subspecies are already affected by or are potentially at risk from white-nose syndrome.

This project is located within all National Forests that are administered by the Southern Region, excluding El Yunque National Forest in Puerto Rico. Consistent with the Federal Cave Resources Protection Act (16 U.S.C. § 4304(a)), the specific location of the cave and mines is not being disclosed for the protection of the caves, mines and associated wildlife species.

## **B. Purpose and Need**

The purpose and need of the proposed action is to minimize the human transmission potential of *Pseudogymnoascus destructans*, the fungal agent causing white-nose syndrome and for the protection of associated wildlife species. Bats with white-nose syndrome exhibit uncharacteristic behavior during cold winter months, which includes flying outside in the day and clustering near hibernacula entrances. White-nose syndrome affects hibernating bats by depleting fat reserves and causes some bats to exit caves during winter in order to try and feed. The insects bats feed on are not available due to winter conditions and ultimately those bats die.

Under normal hibernation times, bats are already stressed. Thus, it is essential they find food and shelter immediately upon leaving the cave in spring. It is important that quality foraging and roosting habitat is adequately available post hibernation.

Summer is also a critical period for bats because this is when the young are born and nurtured. Generally, research indicates that bats prefer to roost in areas of approximately 60-80 percent canopy cover where there are averages of 14 roost trees available per hectare (6 trees per acre). Quality foraging habitat is identified as areas with approximately 50-70 percent canopy cover with moderately closed overstory and an open understory.

## **C. Decision and Rationale**

1. I have decided to authorize the closure, to human entry, all caves and abandoned underground mines in the Southern Region for five years from the date of signature. I

have determined that this action is necessary for the protection of the cave, mine, and/or associated wildlife species. There have been new scientific developments in bio-control of *Pseudogymnoascus destructans* that appear promising. The five year closure period should allow the full development of these bio-control techniques, allow for laboratory testing, and field trials, and minimize the human spread of *Pseudogymnoascus destructans*. Abstracts of the presentations on these new bio-controls can be viewed at : [http://www.whitenosesyndrome.org/sites/default/files/files/2013\\_wns\\_workshop\\_abstracts-final.pdf](http://www.whitenosesyndrome.org/sites/default/files/files/2013_wns_workshop_abstracts-final.pdf). The only exceptions to this closure are 1) for caves that are posted as open with official Forest Service signs, 2) for caves with entrances completely under water, 3) for persons with written authorization by a Forest Service Officer specifically authorizing entry to aid the Forest Service in our cave resources management activities, and 4) for any Federal, State or local officer or member of an organized rescue or firefighting force working in the performance of an official duty.

Specifically, Blanchard Springs Caverns on the Ozark St. Francis National Forest in Arkansas will remain open. The Forest Service has complete control of entry through a visitors center and all visitors will undergo decontamination. Decontamination has proven more than 99.9% affective in laboratory tests (Shelley et al. 2013) and full and proper decontamination is effective in controlling *Pseudogymnoascus destructans* in the field.

During the five-year closure period, the USDA Forest Service Southern Region will utilize our existing Memoranda of Understanding with Bat Conservation International, National Speleological Society, and Cave Research Foundation and their affiliate organizations to gather data to help us better manage our cave and karst resources. This may include cave mapping, white-nose syndrome surveys, bat monitoring, water quality monitoring, biological inventories, placement of data loggers, photo documentation of cave resources, and any other activity deemed mutually beneficial.

As required by 36 CFR 219.35, I have considered the best available science in making this decision. The project record demonstrates a thorough review of relevant scientific information, consideration of responsible opposing views, and where appropriate, the acknowledgement of incomplete or unavailable information, scientific uncertainty, and risk.

### **Literature Cited**

Constantine, D.G., 2003. Geographic translocation of bats: Known and potential problems. *Emerg Infect Dis.* 9(1): 17 – 21.

Lindner, D.L., A. Gargas, J.M. Lorch, M.T. Banik, J. Glaeser, T.H. Kunz, and D.S. Blehert. 2011. DNA-based detection of the fungal pathogen *Geomyces destructans* in soils from bat hibernacula. *Mycologia* 103:241-246.

Lorch J. M., L. K. Muller, R. E. Russell, M. O'Connor, D. L. Lindner, D. S. Blehert. 2012. Distribution and environmental persistence of the causative agent of white-nose syndrome,

*Geomyces destructans*, in bat hibernacula of the eastern United States. Applied and Environmental Microbiology 79:1293-1301.

Lorch J. M., D. L. Lindner, A. Gargas, L. K. Muller, A. M. Minnis, D. S. Blehert. 2013. A culture-based survey of fungi in soil from bat hibernacula in the eastern United States and its implications for detection of *Geomyces destructans*, the causal agent of bat white-nose syndrome. Mycologia 105:237-252.

Puechmaille, S. J., G. Wibbelt, V. Korn, H. Fuller, F. Forget, et al. 2011(a). Pan-European distribution of white-nose syndrome fungus (*Geomyces destructans*) not associated with mass mortality. Plos One 6(4):e19167.

Puechmaille, S., H. Fuller, and E. C. Teeling. 2011(b). Effect of sample preservation methods on the viability of *Geomyces destructans*, the fungus associated with white-nose syndrome in bats. Acta Chiropterologica 13:217-221.

Shelley, V., S. Kaiser, E. Shelley, T. Williams, M. Kramer, K. Haman, K. Keel, and H.A. Barton. 2013. Evaluation of strategies for the decontamination of equipment for *Geomyces destructans*, the causative agent of White-Nose Syndrome (WNS). Journal of Cave and Karst Studies 75: 1-10.

## **II. REASONS FOR CATEGORICALLY EXCLUDING THE DECISION**

Decisions may be categorically excluded from documentation in an environmental impact statement or environmental assessment when they are within one of the categories identified by the U.S. Department of Agriculture in 7 CFR part 1b.3 or one of the categories identified in 36 Code of Federal Regulations (CFR) 220.6(d) or 36 CFR 22.6(e).

This project is appropriately categorically excluded from documentation in an environmental impact statement or environmental assessment as it is a routine activity within a category of exclusion, and there are no extraordinary circumstances related to the project that may result in a significant individual or cumulative effect on the quality of the human environment. This conclusion is based on information presented in this document and the entirety of the project file.

### **A. Categorical Exclusion**

This project can be categorically excluded because it is within the category of exclusions identified in 36 CFR 220.6(e)(6):

*Timber stand and/or wildlife habitat improvement activities that do not include the use of herbicides or do not require more than 1 mile of low standard road construction.*

### **B. Relationship to Extraordinary Circumstances**

The extraordinary circumstances have been reviewed and are summarized below. Additional details are contained within the project records. The project is consistent with the category as

described above. There are no extraordinary circumstances as defined by 36 CFR 220.6(b) which may cause the action to have a significant effect on flora, fauna, or the quality of the human environment. Specifically:

- (i) - Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species;
  - Forest Service biologists have reviewed the project and determined that there will be no adverse effects to these resource conditions.
- (ii) Flood plains, wetlands, or municipal watersheds;
  - The agency hydrologist has reviewed the project and determined that the proposed action is in compliance with the Clean Water Act and Executive Orders 11988 and 11990. The project area is not located in or adjacent to a wetland.
- (iii) Congressionally designated areas, such as wilderness, wilderness study areas, or national recreation areas;
  - The project is an administrative closure and will have no effect on any Congressionally designated area.
- (iv) Inventoried roadless area or potential wilderness area;
  - The project area is an administrative closure and will have no effect on these areas.
- (v) Research natural areas;
  - The project area is an administrative closure and will have no effect on these areas.
- (vi) American Indians and Alaska Native religious or cultural sites, and Archaeological sites, or historic properties or areas.
  - This project does not involve ground disturbance and therefore does not have the potential to affect historic properties.. Therefore, the proposed action is Categorically Excluded from the terms and conditions of the Section 106 process of the National Historic Preservation Act as defined in 36 CFR 800.4(d)(1).

### **III. PUBLIC INVOLVEMENT**

Notification was mailed to the Regional Office mailing list and a notice was also placed on the Southern Region website.

This project was also listed in the Schedule of Proposed Actions in April 2014.

### **IV. FINDINGS REQUIRED by and/or RELATED to OTHER LAWS and REGULATIONS**

This project will comply with all applicable laws and regulations. This project is consistent with the management direction as stated in each respective Land and Resource Management Plan in

the Southern Region. This decision is compliant with the Endangered Species Act, National Historic Preservation Act, Clean Water Act, and Executive Orders 11988 and 11990.

Civil rights impacts analysis is an integrated requirement for projects falling under the National Environmental Policy Act (NEPA), including those projects that qualify for categorical exclusion. This project is located solely on National Forest System land. During internal scoping, the interdisciplinary team could not identify any affected private property, or any direct effects that single out specific individuals or groups, including those defined as minorities or other identified categories. No social issues of any type were identified during public scoping. There is no record of an environmental justice issue being identified on any forest vegetation management project prepared under the current Land and Resource Management Plan. The absence of effects or issues leads to the conclusion that civil rights and environmental justice impacts will not occur as a result of this project, and that additional analysis of these issues is unnecessary.

#### **V. APPEAL OPPORTUNITES**

This decision is not subject to administrative appeal pursuant to Consolidated Appropriations Act of 2014 (January 17, 2014).

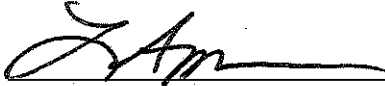
#### **VI. IMPLEMENTATION DATE**

Implementation may begin immediately. The duration of time for this decision is five (5) years from the date of signature.

## VII. CONTACT PERSON

For additional information concerning this decision, contact:

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LIZ AGPAOA  
Regional Forester

6/2/14  
Date

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