

## White Nose Syndrome Appears to have Come to West Virginia

by Bob Hoke

On January 24, 2009, a group of DC-area cavers visited Hamilton Cave (Pendleton County, WV) for a tourist trip. They reported seeing white fungus on two bats several hundred feet into the cave. They also reported a large number of bats in the entrance area and a number of bats were observed flying within the cave.

Hamilton Cave is 4.75 miles long and is a popular recreational cave. It has seen increased visitation since the nearby Trout Cave was gated in September, 2008, to protect Trout's hibernating colony of endangered Indiana bats.

Annual winter bat counts have been done in Hamilton since soon after the National Speleological Society purchased the cave in 1982. The cave's 2009 count was scheduled for Friday, January 30, so that was a good time to check out the report of WNS symptoms in the cave.

A team of four did the count. It consisted of Bob Hoke (a caver who has participated in all the counts since their inception in 1984), Jack Wallace (a non-game wildlife biologist with the W. Va. Division of Natural Resources), Cindy Sandeno (an ecologist with the U.S. Forest Service), and Keely Owens (a caver from the Washington, DC. area).

The Hamilton bat count does not try to count all the bats in the cave. Instead, a standard counting route is taken through the cave and the number of bats seen on the route is recorded. The route is broken into ten areas and separate counts are maintained for each area. The route and counting areas have remained consistent since the counts started in 1984.

Here is a summary of the significant observations during the 2009 count:

- The total number of bats in the cave was similar to previous years (473 in 2009, an average of 451 in 2004-2008).
- The number of bats in the entrance area was dramatically higher: 224 in 2009 versus an average of 16 in 2004-2008.
- The number of bats in the two rooms at the end of the counted area of the cave was significantly lower: 39 in 2009 versus an average of 179 in 2004-2008.
- The number of Little Brown bats (and similar looking Northern Long-Eared bats) was higher in 2009: 90 in 2009 versus an average of 22 in 2004-2008. Coincidentally the number of Little Brown bats in Trout Cave dropped to 112 from an average of 127 in 2001-2007. However, this drop may not be statistically significant and may not be related to the increase seen in Hamilton.
- Bats were seen flying in all parts of the cave, especially close to the entrance. Normally no more than one bat is seen in flight during the count.
- White fungus was observed on an estimated 25% of the bats where they were roosting close enough to be checked. The amount of fungus varied from a few small spots to heavy infestation on the nose, wings, and ears. The fungus appeared on all species (except the single Virginia Big-Ear seen just inside the entrance). Several of the most affected bats were collected for analysis.
- Fungus was observed on bats in all areas of the cave. However, the bats closest to the entrance appeared to have somewhat less than those further into the cave.

- Five dead bats were found at various points along the trail that leads to the cave. These were all collected by WVDNR personnel. Tabitha Viner is a veterinary pathologist and she performed a field necropsy on one of the dead bats. Her preliminary observation was that there was almost no body fat (a finding consistent with other studies of WNS-related mortality).
- The bat count finished about 5:30 PM, just as it was getting dark. The flight activity of the bats in the entrance area increased and several flew out of the cave. It appeared that most then returned, but the observers could not tell if any of the flying bats stayed out of the cave. The outside air temperature was about 30 degrees.
- A temperature reading of 52 degrees was taken several hundred feet inside the cave. Previous data logger temperature studies just inside the Hamilton entrance indicate that the cave starts the winter at about 55 degrees and that the temperature drops linearly to about 51.5 degrees by the end of winter. Air is always flowing out of the cave's single entrance during the winter so the entrance area is the same temperature as the rest of the cave. (This constant outflow indicates it is flowing in from an unknown entrance lower on the hillside. It is possible that the flow is coming from New Trout Cave, which always sucks air in the winter and is located much lower on the same hillside as Trout and Hamilton caves).

In summary, Hamilton Cave exhibits all the classic symptoms of a cave being affected by White Nose Syndrome. Although the formal analysis of the collected bats won't be completed for some time, the evidence is compelling that WNS has somehow found its way to at least one West Virginia cave.

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