Presentation on Bats of the Hibernaculum at Tippy Dam

Tuesday, June 25, 2024 | 1:00–2:30 p.m.

Dickson Township Hall
14270 Coates Highway
Brethren, MI 49619

Attendee Organizations

Wexford County
Manistee County
Manistee News Advocate
Michigan Department of Natural Resources (DNR) Fisheries
Conservation Resource Alliance
Big Bear Sportsman's Club
Manistee County Tourism Authority
Guests from the community
Patrick Tiedt, Consumers Energy
Eric Gustad, Consumers Energy
Shari Spoelman, Alliance for Economic Success (AES) (facilitator)
Mark Lagerwey, AES (facilitator)

Welcome and Introductions

AES facilitator Shari Spoelman introduced Dr. Allen Kurta, who has researched the ecology and behavior of bats for more than 40 years. In the past 15 years, Dr. Kurta has studied the European invasive fungus called white-nose syndrome (WNS) that began killing bats in a wave originating on the East Coast and spreading across the country. Today, 90 percent of the bats in the U.S. have died. Yet, more than 25,000 bats survive in the Tippy Dam spillway mainly unaffected by the disease.

Dr. Kurta is a professor of biology at Eastern Michigan University and holds a BS degree in zoology from Michigan State University and a doctoral degree in biology from Boston University. He has published more than 100 papers, authored and edited numerous books, including *Bats of Michigan* and *Mammals of the Great Lakes Region*. Dr. Kurta is a past chair

of the Board of Directors of the North American Society for Bat Research and a former Associate Editor of the Journal of Mammalogy. He currently is the Feature Editor of *Bat Research News*, Chair of the Technical Advisory Committee for Mammals, Endangered Species Program, Michigan Department of Natural Resources, and Vice President of the Midwest Bat Working Group.

Presentation

Dr. Kurta presented an overview of research related to the various bat species, their migration patterns, hibernation habits, and specific information on the large populations of bats that have traditionally hibernated in mines in Michigan's Upper Peninsula. Michigan mines, particularly those with the longest tunnels, including Iron Mountain and the Mead Mine, have served as hibernacula, winter homes for hibernating, for more than 250,000 little brown bats as well as smaller numbers of northern bats and others that traveled as much as 350 miles to overwinter in the caves. Since 2013 when WNS first appeared in Michigan, 90 percent of those bats have died from the syndrome. Researchers determined the disease crossed over the Atlantic Ocean around 2006. European bats have somehow developed immunity to WNS. Symptoms of WNS include:

- Skin damage
- Dehydration
- Frequent arousals—more than the average of about every two weeks—causing loss of energy and body moisture, more searching for food and water, weakness, and eventual death
- Increased grooming to try to remove the fungus
- Loss of fat
- Roosting in cooler sites
- Leaving the hibernaculum more frequently

Tippy Dam Anomaly

Inside the Tippy Dam spillway are ten rooms that have been and continue to be a hibernaculum for around 25,000 brown bats. Dr. Kurta and staff have been conducting research for several years, attempting to determine why the bats hibernating inside the dam—though also infected with the syndrome—have somehow remained healthy. Although ongoing research remains inconclusive about the environmental conditions that could be saving these bats, research has definitively determined that the bats are no different genetically or biologically than the bats that have succumbed to the disease. Researchers have reached these specific conclusions defining why the bats are no different than bats elsewhere:

1. Arousal patterns are similar to uninfected bats before the introduction of WNS

2. Tippy Dam bats are infected but with little damage
3. The fungus is present on the Tippy Dam bats but at very low levels

According to Dr. Kurta, Tippy Dam is now the only location left in the United States where bats have not succumbed to WNS. In addition, Tippy is now the only hibernaculum in the Lower Peninsula, and it houses the largest population of surviving bats in Michigan. These survivors are either already officially considered endangered or about to become endangered. Dr, Kurta offered several reasons as to why the Tippy Dam hibernaculum is unique:

- The dam's concrete substrate may have an impact
- Flushing the dam with water flowing over the gates might help
- Urea accumulation from bats may flow down the walls and have a positive impact (unlike mines, where bats hang from the ceilings)
- There might be some kind of low-frequency vibration that is benefiting the bats

Q&A

Following the presentation, Dr Kurta answered questions from the audience.

Dr. Kurta also discussed important facts about bats, including their value to agriculture. The annual economic value of bats is $23 billion annually in the United States and $500 million in Michigan alone.

Researchers are working on potential treatments for WNS, but Dr. Kurta said most to date seem impractical.

To Learn More

For more information about white-nose syndrome, visit https://whitenosesyndrome.org/ or read the Manistee News Advocate article about Dr. Kurta's presentation.