



### Bats of Apostle Islands National Lakeshore

In 2015, Apostle Islands National Lakeshore instituted a long-term acoustic bat monitoring program coordinated by the Great Lakes Inventory and Monitoring Network for nine Great Lakes national park units. Roving Song Meters (SM3s) spend 7-14 nights at various sites throughout the summer (June 1—August 15). By recording the bats' calls, we can identify the species present (and probably absent). Over time, we will be able to determine long-term bat population trends and relative activity. In the face of climate change and the emerging threat of White Nose Syndrome, this data is a powerful tool.

#### The Importance of Bats

Bats are the second largest order of mammals (after rodents), accounting for 20% of all mammal species. The only true flying mammal, they are an important aspect of many ecosystems. Bats are usually extremely long-lived, with some species living up to 30 years.

In the eastern United States (and here at the Apostles), all the bat species are insectivorous. They hunt beetles, moths, mosquitos, and other insects using echolocation. A little brown bat that is raising young can eat her body weight in insects nightly. Despite the myths and legends, these amazing creatures are not blind. They can detect objects as thin as a human hair through echolocation, and while they may circle your head eating insects that are attracted to you, a healthy bat will not get stuck in your hair!



An SM3 unit deployed at Outer Island. There is a post elevating a microphone detecting the calls and occasionally an external power source found with each unit.



This is a tri-colored bat affected by WNS. You can see the characteristic white growth on this bat's exposed skin. This photo is from Mammoth Cave National Park.

#### How does White Nose Syndrome affect Bats?

White Nose Syndrome (WNS) is caused by a fungus, *Pseudogymnoascus destructans* (*Pd*), which invades the hair follicles and skin cells of hibernating bats. This infection creates large, open wounds through which the bats lose water, affecting their blood chemistry. The fungal spores also grow over the host's nose (giving the disease its name), causing the bat to arouse in order to groom the spores off. Hibernation conserves energy; repeated arousal depletes the fat reserves of hibernating bats and is a serious threat to their livelihood. In the absence of insects to eat in winter, many bats die of starvation.

A cold loving fungus, *Pd* only grows at less than 60°F and poses no direct threat to humans. However, many affected bat species have death rates of over 90% and this devastating loss of bats will have several effects throughout our environment. Help prevent these losses by decontaminating your gear of *Pd* before and after any cave you visit.

#### The Importance of Apostle Islands National Lakeshore

Apostle Islands National Lakeshore is home to seven species of both cave and tree roosting bats. Of these, four are affected by White Nose Syndrome, including the northern long-eared bat which is now listed as federally threatened. One additional species, the eastern red bat, can carry and spread the spores of this disease without contracting the disease. Furthermore, all seven of the species that call the Apostles home are being affected by climate change and habitat loss.

The Lakeshore provides critical summer and breeding habitat for the bat species that call it home. As of June 2016, WNS has been confirmed 70 miles away in Douglas County. As this disease continues to spread, the Apostles provide much needed habitat for the affected species including the federally threatened northern long-eared bat.

#### Bats of Apostle Islands National Lakeshore

Common Name	Scientific Name	Conservation Status
Little Brown Bat	<i>Myotis lucifugus</i>	State Threatened
Northern Long Eared Bat	<i>Myotis septentrionalis</i>	Federally Threatened
Big Brown Bat	<i>Eptesicus fuscus</i>	State Threatened
Tri-Colored Bat	<i>Perimyotis subflavus</i>	State Threatened
Eastern Red Bat	<i>Lasiurus borealis</i>	State Vulnerable
Hoary Bat	<i>Lasiurus cinereus</i>	State Vulnerable
Silver-haired Bat	<i>Lasionycteris noctivigans</i>	State Vulnerable

This table depicts the seven bats that have been found in Apostle Islands National Lakeshore, by hand capture or acoustic detection.