

2009 Summer Bat Count Results



A big brown bat emerges at dusk.
Photo by MacKenzie Hall

Since 2003, the Summer Bat Count project has enlisted volunteers across NJ to monitor bat populations at known summer roost sites, including attics, barns, bat houses, churches, and other structures. This volunteer project was created by the Conserve Wildlife Foundation and the state's Endangered and Nongame Species Program (ENSP) to gain a better understanding of how NJ's bats are distributed across the state, what conditions they select for roosting, and how populations may be changing over time. Since White-nose Syndrome (WNS) hit NJ in January 2009, information from the Summer Bat Count is more critical than ever, helping biologists to measure the impact of this devastating killer.

2009 SUMMARY:

Participation

Forty-six (46) volunteers from 12 counties submitted Summer Bat Count data in 2009. The counties: Bergen, Burlington, Gloucester, Hunterdon, Mercer, Morris, Passaic, Somerset, Sussex, Union, and Warren.

Trends

Forty-two (42) roost sites had "pre-WNS" (2008 or earlier) bat count estimates to compare with 2009. This comparison gives us an idea of the impact that White-nose Syndrome had on NJ's bats this past winter (WNS affects bats as they hibernate).

At those 42 sites, bat colonies dropped an average 31% in size in 2009. Data showed the following:

- 26 colonies *decreased* by 25% or more since pre-WNS counts;
- 5 of those sites had *no bats* return at all;
- 7 colonies *increased* by 25% or more;
- 9 colonies remained about the *same* as in previous years;
- Big brown bats appear to be far less affected by White-nose Syndrome so far (probably due to different hibernation habits);
- Little brown bats probably declined by more than the 31% average.

Big brown bats (*Eptesicus fuscus*) and little brown bats (*Myotis lucifugus*) are the two most common bat species in the northeast to use artificial roost structures like attics, barns, and bat houses. Therefore, we can assume that most Summer Bat Count colonies are made up of either big or little brown bats, or some combination of the two. We began to notice that many of the stable or increasing bat colonies were made up of big brown bats (see "2009 Summer Roost Monitoring Summary"). Will big brown bats be able to fill the void left by little brown bats?

To better monitor the impact of WNS on these two bat species and their populations, it would be useful to know which bat species occupy *every* surveyed roost. The Summer Bat Count project has never attempted this before, but we may try in 2010.



Big brown bats in a Warren Co. church. Photo by Phil Wooldridge

Reproduction

At 19 roost sites, bat counts were performed during both the *pre-volant* and *post-volant* periods. (*Pre-volant* = before June 21st, when most bat “pups” (babies) are still unable to fly; thus only the adults leave their roosts at dusk and are tallied. *Post-volant* = after July 5th, when most pups are able to fly and feed for themselves; thus they are counted along with the adults at dusk). The difference between pre-volant and post-volant counts equals (roughly) the number of young bats produced.



Little brown bats peer down from the rafters of a Warren Co. barn. Photo by MacKenzie Hall

At those 19 sites, colonies increased by an average 51% between the pre-volant and post-volant counts, showing that *bats were successfully producing & rearing young.*

2009 Summer Roost Monitoring Summary

Under the guidance of the US Fish and Wildlife Service and the national White Nose Syndrome Maternity Colony Monitoring Task Group, this year several states began monitoring summer roost colonies. ENSP zoologist Mick Valent led the roost monitoring program for NJ. Conserve Wildlife Foundation biologist MacKenzie Hall assisted with surveys and coordination.

Goals

The following things were of interest:

- Assess bats for signs of WNS exposure – like wing scars, rips, or holes caused by the fungus;
- Record their weight, sex, and age status;
- Determine whether adult female bats had nursed young this season;
- Band some bats for future observation;
- Collect fur, blood, and fecal samples for genetic analysis.

Adult female bats were of special interest in 2009. Bats affected by White-nose Syndrome over the winter that *survive* the fungus are assumed to be underweight or near starvation, and underweight females may not have enough adipose (fat) tissue to become pregnant or to provide for nursing young. So biologists wondered, “Are our bats producing young this year?”

Studying the Bats

The Summer Bat Count provided a host of potential roost sites to visit, and we are thankful to everyone who invited us into their homes, barns, and bat houses to study the bats. To collect the information we needed, we had to physically capture bats at each study site. We chose sites where bats were reasonably easy to get at and where more than a few dozen individuals remained (some colonies still numbered in the hundreds; one contained 1,200 bats).

Bats were captured a little differently at each site depending on the situation. Sometimes, bats could be scooped or persuaded into a simple butterfly net, or even grabbed by hand. At other sites, bats were unreachable by day and had to be trapped as they exited their roosts at dusk. This was done with a *harp trap*, which gets its name from the two parallel rows of strings that make it effective at catching bats. The strings (like fishing line) are spaced about an inch apart and are pulled taut across a metal frame. About six inches separate the two rows of string.

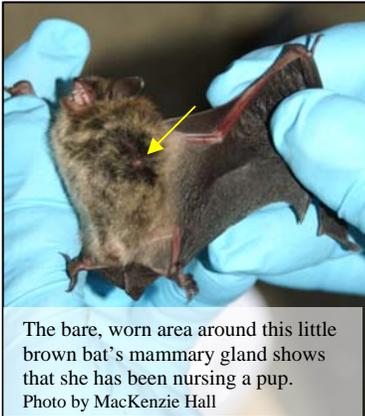


Mick Valent sets up a harp trap in the window of a barn. Photo by MacKenzie Hall

Harp traps are set up across the roost exits – such as open windows, doors, or holes that bats travel through. Bats are able to detect and maneuver through the first set of strings using echolocation, but many are not quick enough to avoid the second set. They hit the strings and fall into a plastic receiving bag where they can be picked up and handled.

Results

Twelve bat roosts were visited between late July and early August, 2009. We found that 7 of these 12 sites were big brown bat colonies, and they appeared normal and healthy. Surprisingly, even in the little brown bat colonies *most of the bats' wings and weights appeared normal*. [Again, little brown bats seem to be the most severely affected by White-nose Syndrome, and big brown bat colonies seem to be stable at this time.]



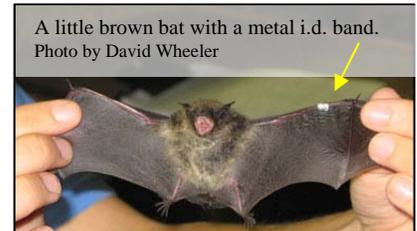
The bare, worn area around this little brown bat's mammary gland shows that she has been nursing a pup.
Photo by MacKenzie Hall

We also observed a *high number of post-lactating females and many pups*. The bats were reproducing successfully. While some bats had minor imperfections in their wings (many due to mites, a normal thing) no bats showed textbook signs of having been exposed to the WNS fungus last winter. Perhaps that's because bats with advanced WNS simply didn't survive through the winter, at least not in great enough numbers to turn up in this study.



Adult & juvenile bats can be distinguished by their finger joints, fused solid in adults but transparent in pups. Photo by Michael Newman

About 140 bats from 5 north Jersey roost sites were outfitted with their own lightweight i.d. band. Bat bands are simply pinched lightly around the forearm (no piercing necessary). These metal bands are engraved with a unique code. If and when a banded bat is observed again, we can gain information about that animal's habitat choices, range, age, etc.



A little brown bat with a metal i.d. band.
Photo by David Wheeler

The Bigger Picture

All maternity roost data is furnished to the US Fish and Wildlife Service. NJ's data will be joined with info from other states. As a whole, these data will help biologists to better understand the normal conditions at maternity roosts as well as the impacts of White-nose Syndrome. Many questions certainly remain, including:

- Can bats that contract WNS in winter recover from it in summer?
- Do surviving bats still harbor the WNS fungus in their tissues?
- Can those bats transmit WNS to their summer roost mates and their pups, helping it to spread?
- Do certain roost climates (temperature, humidity) help or hurt the fungus?
- Are there treatments or controls that can be used to combat the fungus in summer or in winter?

THANK YOU again to all of our Summer Bat Count volunteers, and to those who allowed us to study their bat colonies in 2009. If you know of a summer bat roost and would like to participate, please contact us at Info@ConserveWildlifeNJ.org.

Summary prepared by the Conserve Wildlife Foundation of NJ, December 2009. www.ConserveWildlifeNJ.org

For the most up-to-date information on White-nose Syndrome, please visit the US Fish and Wildlife Service at www.fws.gov/northeast/white_nose.html.