The beneficent bat is in trouble

Anthony J. Marolda

A little brown bat with white-nose syndrome, in an October 2008 photo.

Courtesy U.S. Fish and Wildlife Service

If you sit out in your backyard on a warm summer night during the half hour after sunset, you may see, highlighted against the twilight sky, flying creatures darting and diving in what appears to be a random pattern. Here in Massachusetts, those creatures are most likely the species of flying mammals known as little brown bats.

Over the years, I have had that experience many times during each summer, and I would look forward to it. Three or four bats would perform their aerobatics over our back lawn as they used their echolocation capabilities to identify the insects they crave, and then dive on them to catch and consume their prey.

Sometime during the night, one or more of those bats would fly onto our upper back porch, and perch, upside down, in one corner. They would stay there, taking a rest, and, at some point during the night, leave the porch to return to their daytime lair, wherever that was. We knew this because in the morning we would find that corner of the porch filled with bat droppings -- known as bat guano -- but the bats themselves were nowhere to be found. However, the cedar-shingled wall and ceiling of the porch showed the scratch marks where the small mammals held onto the wood with their sharp little claws.

Fortunately for us, the little guys were responsible for catching thousands of mosquitoes, moths and other night-flying insects. According to Massachusetts Audubon, each bat can, amazingly, catch 600 insects per hour. In fact, a Boston University scientist estimated that all the bats living within Route 128 in the Boston area consume 13 tons of insects each summer. If you are lucky enough to have them in your backyard, you should be grateful to them for helping you to be mosquito-free.

The most remarkable characteristic about bats is how they track and pursue their prey. Like our most advanced, military aircraft, they have an amazing, radar-like capability, called echolocation. The small creatures are continuously emitting high-frequency (above human hearing) sounds at up to 500 pulses per second, which hit an object and bounce back to their sensitive ears that behave like a sophisticated radar receiver. Their little computer-like brains can instantaneously interpret the return signal with the position and speed information they need to locate their prey in the air. And then they swoop, with just the right amount of flight controls, to make the intercept.

Unfortunately, there are still many myths about bats that cause people to be unnecessarily afraid of them. For example, some believe that bats get tangled in women's hair. Not true; bats use their skills to keep well-clear of people.

There is one thing, however, to be concerned about with bats. They can carry rabies. Less than 5% of them get infected, so it is relatively rare. The bat's teeth are sharp, but tiny, so you many not even feel a bat bite. To avoid the risk of rabies, do not touch the little creatures. But, if you think you may have been bitten, it is important to carefully capture the bat, and have it tested.

Last night, I was sitting on my porch and looking for that familiar sight in the back yard. I waited and waited, but there was not a sign of the bats. After 40 years of seeing them in that location, I was disappointed that none appeared.

Yet I wasn't completely surprised. I had read that little brown bats were being affected by a strange, new disease. It's called white-nose syndrome (WNS), and it has severely threatened their population. So, the absence of the bats from my back yard caused me to assume that WNS had caught up with our little local hunters.

WNS first made its appearance in February 2006. Researchers were checking the bat population in a cave near Albany, New York, and noticed that many bats were behaving strangely, and dying. They were found to have a white, powdery substance on their faces, thus the name. It turned out to be a newly discovered fungus that grows best in cool, high-humidity conditions, such as those found in the caves where the bats hibernate for the winter.

Many thousands of our Massachusetts little brown bats used to hibernate in the abandoned emery mines located in Chester, Massachusetts. The emery rock that came from the mines consists of the mineral corundite, which makes an abrasive powder that's used for emery boards and emery cloth. Chester is only about 50 miles southeast of Albany, so it didn't take long for the fungus to appear there.

The aggressive fungus rouses the bats from their hibernation and increases their metabolism. This causes the bats to run out of stored body fat that was intended to take them through the winter. So, they start to look for food outside the cave. But, unfortunately, since it is winter and there are no active insects, the bats starve to death.

In the winter of 2007-08, there were estimated to be about ten thousand little brown bats in the Chester mine. By the end of the next winter, only 14 bats were found alive. Since then, the number has increased to 30 individuals. So there has been some recovery. And those bats likely have a natural immunity to the fungus. But, since little brown bats only have one pup per year, it will take decades for the population to build back to previous levels.

According to Massachusetts Audubon, the population of little brown bats has dwindled to less than 1% of what it once was in our state. As the fungus spreads around the country, about 1 million bats are dying each year. So, by 2030, scientists believe the total population in the country will be down to the 1% level.

While little brown bats were the most numerous, there are several other species of bats in Massachusetts. Some of the others, like large brown bats, haven't been affected by the fungus. Since they don't hibernate in caves, they are not exposed to the deadly disease.

So, if you should see a bat in your neighborhood, don't be afraid of it. In fact, be thankful that the little guy is still around, helping to keep your property pest-free.

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