Indiana Bat Remains on Endangered Species List Decades Later, Is there still hope?

By: Natalie St. Denis

Photo provided by Samantha Hoff of the New York State Department of Environmental Conservation.

Indiana Bat

- Dark, mouse-eared, native to North America
- Range: midwestern to eastern U.S., Champlain valley being the northeastern extreme of range
- Can eat up to half body weight in insects each night

Although the Indiana bat has been endangered for decades and recent threats make the species' survival less likely, habitat protection, disease treatment and research are shining a ray of hope on their difficult future.

This medium-sized, mouse-eared, gray-brown bat was first identified as endangered in the 1960s and later was one of the first species listed by the current law, the Endangered Species Act of 1973, according to Carl Herzog, a wildlife biologist at the New York State Department of Conservation.

The first threat that put the Indiana bat on the extinction map was human disturbance to their hibernation habitats. This problem is especially serious because of the species' unique hibernation tactics. The bats gather together in large numbers and hibernate at very few sites, according to Alyssa Bennett, who has been a wildlife biologist at the Vermont Fish and Wildlife Department for 11 years.

"Bats are really vulnerable when they hibernate like that," Bennett said.

She also pointed out that in years past, fear of rabies moved some people to invade hibernation sites and attack bat colonies.

In the winter, Indiana bats hibernate in underground caves and decommissioned mines with a preferred temperature of 35-45℉, Herzog said in a written statement.

He explained another threat to this species, the commonly known white-nose syndrome disease, which has affected the bat population as a whole since its arrival to North America from Eurasia in 2007. The United States Geological Survey describes the disease as "an invasive, cold-loving fungus." It grows on bats' skin during hibernation, which can result in dehydration, starvation and often death.

State and federal agencies are developing various treatments aimed at reducing the disease's impact, especially because, at one point before the disease invaded, the Indiana bat species was doing so well that there were conversations about potentially removing them from endangered species protection.

One route to take toward fighting white-nose syndrome involves directly targeting the pathogenic fungus that causes the disease. While other projects, which Herzog is particularly optimistic about, will directly treat the bats infected with the disease.

“The development of a vaccine to protect the bats from the disease is one of the more interesting and promising approaches,” Herzog said.

According to Bennett, learning where Indiana bats spend their time when they are out of hibernation in the summer will help protection efforts. For her, this includes revisiting areas where bats have been documented in the past. Over the summer, Bennett’s team visited one of those sites in the Hinesburg, Vermont area. Although, they didn’t expect promising results, as the highest number of bats they had previously counted coming out of any Indiana bat roost was 85.

“We didn’t know if we were going to have success because [at] some of these sites that we’ve revisited over the last decade we did not catch bats, and we weren’t sure if they were there anymore, or we captured them, put radio transmitters on them, tracked them back to trees and found out that only maybe a dozen bats were coming out,” Bennett said.

But to her surprise, as soon as they put their nets up one bat after the next went in and they counted 100-300 coming out of each roost. She said that the uniqueness of this particular Vermont colony is helpful for their studies because this is the most northeast – that they know of – of the species’s entire range in the United States.

Another shock-factor came with the fact that these bats were utilizing bat houses. Usually Indiana bats use trees, which prompts them to move locations a lot, making it more difficult for experts to track them. But bat houses and other human-made structures offer a more stable residence for the species. The houses are also easier to locate and analyze the movement in and out of them, as opposed to specific trees deep in the woods that require a GPS to find. Because of this ease, volunteers are called to action to help monitor their movement, which isn’t as accessible if the colonies are on private land. But at times, public land can be a “double-edged

sword," Bennett said. In that case, biologists have to be careful about sharing the exact location of a colony because it could cause further disturbance to the Indiana bats.

However, most of the other locations Benett has noted Indiana bats inhabiting during the summer are private land. This can be a sensitive process because when private land changes ownership, the new owners may have a different mindset.

"You may have gone from a landowner who was great with having those roost trees there, to someone who ends up cutting them down to use the land for other purposes," Bennett said. "So their [the Indiana bats] fate is sort of in the hands of a lot of these private landowners, which we try to have great relationships with."

Thankfully, state and federal governmental regulatory agencies work to legally protect land occupied by Indiana bats where they can.

"The bats and the habitats they depend on are legally protected against harm from human actions, whether that harm is intentional or not," Herzog said.

Bennett sees hope in this protection for the Indiana bat species.

"Ultimately, if we have conserved land and they're using that conserved land, I think that provides them some long term security," she said.

People don't realize that extinction of Indiana bats or other bat species will disrupt the ecosystem in ways that will hurt us. For example, bats are experts at eating nighttime insects, Herzog said.

"Bats are one of the very few groups of insect predators that have developed an approach to exploit this food source. Bats are famously prodigious consumers of these insects, and it has long been assumed that they play a role in controlling insect abundance," he said.

The public doesn't have to sit helplessly and watch the deterioration of the Indiana bat species. There are several ways local residents can help. As mentioned earlier, volunteers can help count bats coming in and out of roosts, which can be helpful to biologists' data.

Another way you can help is in your own backyard, Bennett said. The Indiana bat is drawn to particular trees that peel in a roof-like fashion, such as shagbark hickories, which naturally peel this way when they are alive. White pines, ash and elm trees may peel this way when they die. The problem here is that many owners don't like the look of these dead trees so they cut them down. But Bennett urges community members to refrain from doing this.

"As long as it's [the dead tree] not in danger of hitting your house, I would say leave those kinds of trees standing because there are a lot of wildlife that benefit from them," Bennett said.

We need Indiana bats like they need us or else both sides could see potentially tremendous consequences.

"The web of life that humanity depends on is so complicated that we only understand a small fraction of the interactions that make it all work," Herzog said.

"While it may be true that the loss of any strand in the web might go unnoticed, we can't fully predict the impacts. What we can say definitively, though, is that each loss changes the system and cumulative impact of multiple extinctions will undoubtedly result in adverse impacts to humanity."