An Interview with Tim Sichmeller, a Bat Biologist

Interview and photos by Mark Jacobs
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I met Bat Biologist Tim Sichmeller in the summer of 2014 when he was team leader on a bat survey crew in northern Minnesota for WEST, Inc. I ended up hiring his crew to conduct a bat survey on county forest lands in Aitkin County. It was an eye-opening experience to see how many bats were in the forest when I tagged along one night. Over the next few years, surveys continued via a cooperative forest bat research project in Aitkin and Carlton County. During that time, White Nose Syndrome arrived in Minnesota, decimating the local bat population. Tim and I have kept in touch over the years and he was kind enough to do an interview to inform and update us regarding forest bats in our region.

MJ - You are a wildlife biologist, why did you decide to "specialize" in bats?

Tim Sichmeller, bat biologist with WEST, Inc.

TS - My first job out of college was as a crew leader capturing and tracking bats in the mountains of North Carolina. The experience of catching and learning about these species in the forest compelled me to further work with bats. I then got an opportunity to attend Ball State University and study bats for my Master's degree. After this, I performed other wildlife biologist positions then returned to bats in my current role with WEST, Inc. I find the allure of flying mammals and their economic impact on our ecosystems to be very fascinating and am continually surprised with bat research.

MJ - Many people view bats as "flying rodents". What makes bats different from rodents?

TS - Firstly, it's probably the type of food they eat. Rodents typically are seed, grain and fruit eaters, while the majority of bat species in the U.S. are insect eating animals. Rodents tend to reproduce at a very high rate, while most North American bat species have 1 to 2 young per year. It takes considerable more time for impacted bat populations to rebound than a local rat or mouse population would.

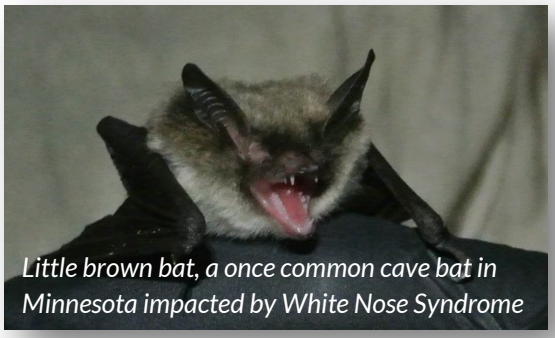
MJ - Bats are lauded for mosquito control. Are mosquitoes their primary food source?

TS - Insects are the primary food source for the majority of North American bats and the only food source for bats in Minnesota. Bats in Minnesota feast on mosquitoes while abundant early in the evening and then eat other insects such as beetles, moths, and other night flying insects. Bats are a natural pest control for agriculture, forests, and native grasslands.

MJ - Bats are often associated with rabies. Do bats have a higher incidence of rabies than other mammals?

TS - Bats do not have a higher incidence of rabies compared to other mammals. However, the incidence of rabies interaction with humans is higher in bats. This could be due to various things, such as bats already in a home or living area that is closer to humans than a fox or skunk or the higher population occurrences locally of bats. They typically roost or sleep during the day with many other bats. Skunks, raccoons, and foxes are not as high in that regard. The important thing is,

if a human sees a bat acting abnormally or present during the day, it is best to avoid as that animal is most likely sick.



Little brown bat, a once common cave bat in Minnesota impacted by White Nose Syndrome

MJ - Prior to the arrival of White Nose Syndrome, our bat survey project had some impressive numbers. What characteristics of northern Minnesota forests makes it great forest bat habitat?

TS - Our bat surveys were very productive. They showed that a well-managed forest can contain many species of bats and even some that were considered rare at the time. The forests of northern Minnesota offer bats a literal banquet of habitat. The bats that spend their summers in the forest do so to give birth and raise their young in, before migrating to their winter locations. The forests in northern Minnesota offer ample water sources which also helps produce very high insect populations, while the trees themselves offer ample roosting locations for all the different species that utilize this area. The combination of abundant foraging sources and high roosting locations makes northern Minnesota forests a great summer home for these species.

MJ - After White Nose Syndrome arrived in MN, the bat survey numbers plummeted. How does WNS affect bats and which local species are most vulnerable? Do we have forest dwelling bats that are not significantly impacted?

TS - WNS affects bats by attacking them while they are hibernating during the winter. The common theory is that the fungus that grows on their skin and bodies during the winter causes the bats to wake up repeatedly and using the fat stores they built up during the late summer and fall. As they wake up hungry, there are no insects available in the middle of the winter so those most affected ends up starving to death before the spring emergence. The most vulnerable species are those species that utilize communal hibernating during the winter. We call these bats "cave bats". These are species like big brown bats, little brown bats, tri-colored bats, and the federally threatened northern long-eared bat. These bats differ from "tree bats" in that tree bats migrate during the fall to either hibernate in warmer areas like southeast U.S. or to areas that they can remain active during the winter season. Eastern red bats, hoary bats, and silver-haired bats are commonly found in Minnesota and migrate during the fall. The tree bats have not been significantly impacted by WNS due to their hibernating strategy.

MJ - Can some of the migratory bat species expand their population to fill the niche vacated by hibernating bats?

TS - Right now, some of the other more common tree bats, such as hoary bats and eastern red bats, can utilize and potentially benefit from the absence of other species on the landscapes. However, there is little information on these species population numbers as they move sometimes from Canada into the south of the U.S. Research is underway to understand these other species more and learn where their summer habitats are. There is also signs of some rebound from cave bats that have been affected by WNS. The problem in any resistance to WNS is the slow reproductive growth of the overall population, as only a single pup is born each year to a single mother. It will take a long time to recover from large population impacts such as WNS.

MJ - As a forest manager, I have concerns about increased forest insect pest outbreaks due to the absence of their primary nocturnal predator… bats!

TS - This is common not only for forest managers and the timber industry but also farmers that save millions of dollars annually by the pest control bats offer.

MJ - Is there any hope on the horizon?

TS - There is hope! There is funding in place for many research topics surrounding WNS, including developing vaccines that help bats fight WNS, anti-fungal chemicals and bacteria that can decontaminate or inhibit fungal growth in known hibernating locations. Summer surveyors and winter surveyors require decontamination protocols in order to work with bats and slow the spread of WNS.

MJ - Hopefully a cure will be found for WNS. In the interim, what can landowners, land managers, or the citizens do to keeps bats around so they can eventually return to viable populations levels?

TS - Landowners are essential in the recovery of bats in their area. If a hibernating location is known, it is important to stay out of caves or mines and not further disturb or unknowingly spread fungal spores that can cause WNS. If you know of summer roost trees, protect them so the bats can utilize them and raise their young of the year. If it is imperative to remove a roost tree, it would be best to do so while they are hibernating. Bat boxes do work. They provide roosting sites for bats. With the abundant trees and roost sources in northern Minnesota, it could take several years for bats to begin to populate bat boxes. Most of all, you can continue to manage the forests in a sustainable way. The habitat present in northern Minnesota is vital for some many species of wildlife and bats are no exception. Providing ample roosting locations while the foraging continues to be good, will bring bats to the area.

Tree snags provide important bat habitat

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