

Source: Bat Conservation International, www.batcon.org

There are many ways a bat can enter a home (see right). Having a bat or two usually is not a problem, but there are times when they become a nuisance and the proper response is exclusion. Proper exclusion requires identifying where they are entering by watching at dusk (ideally bring a partner) and then adding a one-way tube (see above) to these spots. The bats can crawl out of the tube, but not back in. After they've left, the entry holes should be sealed permanently. Photos above are meant to serve as a demonstration. Complete exclusion instructions from Bat Conservation International are found at the link starred(\*) below, or feel free to contact derek@landtrust.org.

### RESOURCES

**"A Homeowner's Guide To Northeastern Bats and Bat Problems"**  
A Penn State University Publication with helpful information for living with bats. Google this title to find it.

**Organization for Bat Conservation** Another premiere site for learning about bats, seeing live bat camera shots, and getting information about building bat houses or a bat garden: [www.batconservation.org](http://www.batconservation.org)

**Bat Conservation International** An authoritative site for bat information. Offers "Bat Adoption" opportunities and great resources such as the humane bat exclusion guide. [www.batcon.org](http://www.batcon.org) (\*[www.batcon.org/pdf/binb/ExcludersGuidelines2014.pdf](http://www.batcon.org/pdf/binb/ExcludersGuidelines2014.pdf))

^J. G. Boyles, P. M. Cryan, G. F. McCracken, T. H. Kunz. Economic Importance of Bats in Agriculture. Science, 2011; 332 (6025): 41 DOI: 10.1126/science.1201366

### Remember!

- Again this year, we will be sending a monitoring report to each of you. If you would like to receive yours by email, please let [Derek@landtrust.org](mailto:Derek@landtrust.org) know. Otherwise we'll be putting them in the mail.
- LTC stewardship staff coordinates volunteer-based trail building and citizen-science training events. Please check the Events page at [www.landtrust.org](http://www.landtrust.org) or contact LTC's volunteer coordinator Cacia Lesh at 231.344.1002 or [cacia@landtrust.org](mailto:cacia@landtrust.org) for more info. or to register.

### Conservation Easements by County

County	# Easements	Acres
Charlevoix	75	3950
Cheboygan	58	9837
Chippewa & Luce	19	4536
Emmet	115	4807
Mackinaw	17	962
<b>TOTAL</b>	<b>284</b>	<b>24,092</b>

### Opportunity!

This year we want to try out a new method for conducting our annual monitoring visit: drone monitoring! Staff member Charles Dawley is a licensed drone operator, and drones may be a helpful tool for the easement monitoring visit. Contact Derek at [derek@landtrust.org](mailto:derek@landtrust.org) or 231.347.0991 ASAP if you are interested. Charles can monitor ten properties this year. A splendid aerial image of your property is one great benefit. Thank you to Ian and Sally Bund for letting us use the photo of their easement property (left), which Charles captured.



# Conservation Easement Landowner Newsletter

A newsletter for owners of land protected with a conservation easement.



Spring 2017

Michigan is full of natural wonders from wetlands, forests, and beaches, to blue ribbon rivers that flow to mighty great lakes. But one wonderland that Michigan is not known for is the cave ecosystem. There are ice caves and a few limestone cave systems, but for most Michiganders to experience caves, they must travel south to southern Indiana or beyond. Because caves are not right in our backyard, I wonder how many of us miss out on the fascination and wonder of these ecosystems and how many of us overlook or mis-understand one of the animals most often associated with caves: bats! Before coming to work with the Conservancy I spent some time as a cave biology technician in Missouri where I helped census cave-dwelling bats. I was part of the team that found the first documented case of the fungus that leads to the infamous White-Nose Syndrome in Missouri (see photo below). Bats, however, are not only important parts of cave ecosystems, they are a vital component to almost all terrestrial ecosystems and are just as relevant in Michigan as they are in Missouri. Since my time in Missouri seven years ago, the plight of bats has only worsened and White-Nose Syndrome reached Michigan in 2013. But this newsletter is not about the bad news, its about the amazing and often misunderstood creatures and how landowners can be a bat's friend when they need it most!

-Derek



This Little Brown Bat (*Myotis lucifugus*) was the first bat in Missouri to be found with the fungus leading to the devastating White-Nose Syndrome. More on this disease on page 3.

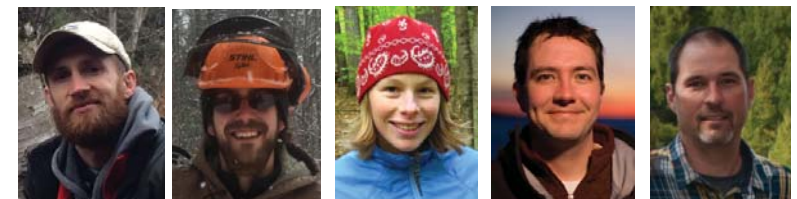
There are nine species of bats in Michigan. Three of these are considered "forest bats," meaning they very rarely use caves or mines. The others are "cave bats," and these species depend on caves or mines for some part of their life cycle. All nine species, however, depend on Michigan forests as they disperse from their winter hibernacula to their summer foraging and roosting sites. In the summer, they sleep under the loose or shaggy bark of trees or in tree cavities, in piles of wood, or in the eaves, siding or attics of buildings and other structures. One species, the Big Brown Bat, stays around longer into the "cold-season" and has even been known to tolerate human structures for a brief hibernation.



Large old trees with flaky bark and hollow branches such as this white oak make great summer roost sites for bats. Photo courtesy Scott Namestnik (Orbis Environmental Consulting)

Bats are extremely beneficial, and many people welcome them as the major predators of night flying insects. One bat may consume 3,000 insects in a single night, serving a vital role in insect pest management. By eating grain moths, cucumber beetles, stinkbugs, tent caterpillar moths, and corn root worm beetles, and more, they keep these insect populations in check and even have an important economic impact. Studies of Big Brown Bats in Indiana, Mexican Free-Tail bats in Texas, or

### Stew Crew 2017



Derek Shiels Conservation Easement Specialist	Mike Lynch Preserve Specialist	Cacia Lesh Volunteer Coordinator	Charles Dawley Preserve/GIS Specialist	Kieran Fleming Director of Stewardship
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## Are there caves in Michigan?

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Pallid bats in the western states document that millions of insects — measured up to 2 tons in the Texas case — are eaten nightly, saving billions (yes, anywhere between 3 and 50 billion!) of dollars annually. While moths and beetles are the primary target, bats do eat mosquitoes, too.

Clearly bats are important! And this article doesn't even touch on the critical pollinating role bats play worldwide, or the fact that one out of every five mammal species in the world is a bat.

Not everyone will be convinced of this, but bats do not fly into people's hair. They do appear to fly erratically, but they aren't swooping for your head! They are going for a bug. Another common misconception is that bats are blind. In fact, they can see rather well, though not in the dark. In the dark, bats utilize their vocals and hearing to echolocate their prey. Their echolocation is masterful and the envy of engineers.

A look at a bat close up can dispel the belief that they are merely rats with wings, but bats can transmit rabies (though keep in mind that likely less than 1% of bats have rabies). Therefore, as with all wild animals, they should not be handled barehanded, and if they are found indoors, they should be carefully removed (see back page for more resources). The bats that we commonly

encounter are those species that form summer colonies in our homes: Little Brown Bats (*Myotis lucifugus*) and Big Brown Bats (*Eptesicus fuscus*). While bats living in the siding or roofing of your home or barn may not be a reason for concern, they can sometimes become a nuisance. If this is the case, there are actions you can take to exclude and not kill these beneficial creatures (see back). White-Nose Syndrome started attacking bats in 2006. Today bats are in need of conservation more than ever.

What can you do? See the next column for nine ways landowners can support bats: Note: Please review your easement terms before actively managing your land and contact Derek if you have any questions. Derek@landtrust.org or 231.344.1006



Bats are absolutely fascinating creatures that are often misunderstood and not easily detected. Bats like the Hoary Bat (Top) and Red Bat (bottom right) spend their entire lives in forests. The Indiana Bat (bottom left) closely resembles the Little Brown Bat, a "common" bat found in northern MI. Photos courtesy Jeremy Sheets (Orbis Environmental Consulting)

There are not too many caves in Michigan, but the largest is in the LTC service area (Mackinac County) and is protected by the Michigan Karst Conservancy. Caves and mines are critical for hibernating bats. A trip to the Fiborn Karst Preserve to learn about karst and caves is a must! Photo courtesy Michigan Karst Conservancy ([www.caves.org/mkc/index](http://www.caves.org/mkc/index))

**1. Help conserve natural bat habitat.** Retain trees with loose, scraggy bark, (old oaks, maples, and ash species) or standing dead trees, and preserve wooded areas along streams, rivers, ponds, and lakes. As a conservation easement landowner, you are already doing this important step. To take it further, identify potential bat roosting trees and avoid cutting them for firewood or timber harvest. Also keep the subcanopy relatively unobstructed between the tree and a nearby waterbody.

**2. Garden organically** or limit insecticide use. Bats will eat contaminated insects and can get sick or die due to the build up of fat-soluble pesticides in their bodies.

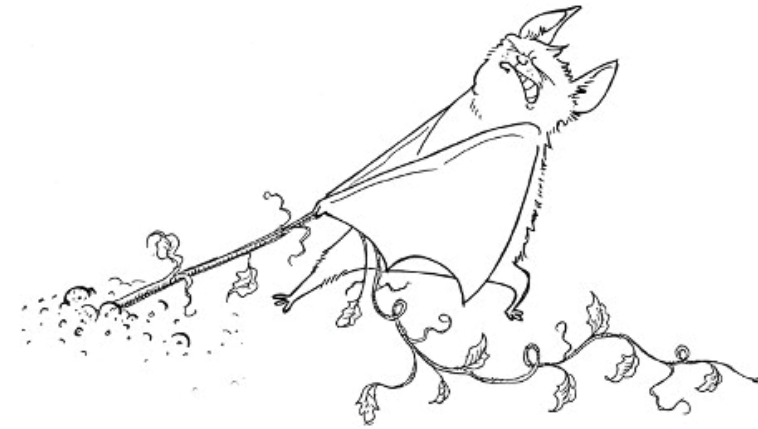
**3. Limit light pollution** by decreasing the amount of artificial night time lighting or attaching motion detectors so lights don't remain on all night. The impact on bats varies from one species to the next, but some are light-adverse and normal foraging patterns have been shown to be disturbed by artificial lights.

**4-5. Plant native plants** to encourage more insects! A native plant attracts many more species and a greater abundance of insects (bat food) than an exotic. Replace that scotch pine with a new white pine sapling. **Removing invasive plants** keeps forest healthy. A buckthorn thicket would be harder for a bat to navigate.

**6. Monitor bat roosts or conduct an acoustic survey** by adopting a barn, attic, or bat house that you know bats inhabit, allowing you to record and track the population through time. We are seeking acoustic monitoring equipment to document bat species on LTC properties. There may be opportunities for easement

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Help bats (and birds, and...) by removing invasive plant species. Check out LTC's webpage under the Landowner Resources tab for help. Photo courtesy of Kim O'Keefe of The Save Lucy Campaign.

landowners to utilize this equipment. Additionally, you can hire a bat biologist to use a mist net and identify the bats on your property. Then make plans to protect and conserve those species.

**7. Install Bat house(s).** Bat houses provide you with an opportunity to have bats around your home, but not in your house. Patience is needed though as bats do not readily seek out new roosts if they have a spot they like. Many take a few years before they'll be occupied. Plans are available or you can buy a pre-built house. Check out the resources on the back for links to bat house building instructions.



These bat houses are available from the Organization for Bat Conservation (see resources on back page for website)

**8. Handle bats in your dwellings appropriately.** Poisoning bats will likely lead to undesirable results (i.e. trapped decaying carcasses) and it is not necessary. Ask if your exterminator is familiar with bat-friendly exclusion devices. Basically, after identifying where bats are entering, seal all entries and install temporary one way exits. Timing is key. See back page or contact us for more details.

**9. Support research on White-Nose Syndrome (see sidebar to right).** Consider donating to the Organization for Bat Conservation or Bat Conservation International. Or help spread the word about the importance of bats and the perils they are facing.

## White-Nose Syndrome (WNS)

White-Nose Syndrome is a bat disease that has killed up to 90% of some bat populations. The Little Brown Bat, once common in northern Michigan, is quickly becoming rare.

The disease is caused by a fungus that grows on the bats while they are hibernating. It disturbs them to the point that they wake up, using up precious energy resources, and then they starve when they try to unseasonally forage and can't find any prey (because it is winter). The fungus has spread rapidly across the eastern U.S. in a short ten years. Because the fungus likes cold conditions, scientists hope that bat species in warmer cave systems will be spared.

Humans are suspected to have aided the spread of the fungus through recreational caving. As a result many caves have been closed. While many cavers are disappointed, they understand and remain advocates of bat conservation.

Unfortunately there is little that can be done to help a bat with WNS. However, there has been tremendous collaboration among scientists and resource managers. Important strides in understanding the disease and mitigating its impact have been made. For the latest scoop, watch the video at this link: <http://news.nationalgeographic.com/2015/05/150527-bats-white-nose-syndrome-treatment-conservation-animals-science/>. The best hope for bats is that their human neighbors will be their friends while they battle this disease out.

The map below shows the spread of the disease from the epicenter in New York. What the map does not show is that it has spread to Washington State.

