

# Woodland Owners and the Northern Long-eared Bat

by Jeff Stringer

Northern long-eared bats, once common to a large geographical area of the eastern United States, are decreasing significantly in number from a fungus that causes a disease called white-nose syndrome. This debilitating and often fatal fungus, contracted during winter hibernation in caves, has led to the species being listed as threatened under the Endangered Species Act (ESA). This fungus is particularly devastating, not only to the northern long-eared bat, but to other species that hibernate for long periods (weeks or months) without waking. These species generally hibernate in caves where moist, cool-air conditions are ideal for the development of the fungus. The fungus can be seen as a white, cotton-like growth on their nose, but it also attacks their skin, including their wings. The fungus can cause them to rouse from hibernation, which causes them to use their stored fat reserves, thus physically and physiologically weakening them, leading to their death. Strong evidence suggests the fungus is an invasive species originally from Europe. It has spread rapidly from New England, where it was thought to have been introduced, and is now found in many states in the eastern United States, including Kentucky. The rapid advance and detrimental effects of this disease, significantly reducing northern long-eared bat populations, led to the threatened designation being established in 2015.

This designation means that you cannot harass, harm, or kill a northern long-eared bat. Violations can involve substantial fines. Harm can be viewed as eliminating or degrading habitat, for example cutting down trees that the bats roost in or disturbing hibernation. Timber harvesting can degrade habitat, and it also can harass, harm, or kill bats. The latter can occur when trees are cut that are harboring female bats that are rearing flightless young. As a part of the listing as a threatened species, the U.S. Fish and Wildlife Service (USFWS) also issued a set of rules required for forest management operations (primarily timber harvesting) in and around areas where bats are found. If these rules are followed, woodland owners are not held liable for what is called “take,” the harm, harassment, or killing of a bat, in this case during forest management operations. The rules require that specific conservation measures (harvest restrictions) are adhered to in buffer areas around known locations of the species—particularly hibernacula and known roost trees. Hibernacula are caves where the bats hibernate during the winter. Sometimes the northern long-eared is the sole occupant of a cave. But it is also common for them to share caves with other species such as the Indiana bat that has been a federally listed species for a number of years. The rule also requires that a similar buffer be established around any known roost trees



Photo courtesy: Al Hicks (NYDEC)

*Northern long-eared bats are common to woodlands in the eastern U.S. and are under attack from a deadly disease.*

(see below) from June 1 to July 31. If these measures are not adhered to and bats are harmed, harassed, or killed, it is viewed as a take and those involved would be in violation of the ESA. If these measures are adhered to and bats are killed during timber harvesting, then it is viewed as an incidental take and there are no repercussions. The following is an explanation of the rule, background information on the biology of the bat, a reasoned approach to conducting timber harvests, and potentially acquiring an exemption, if necessary.

## **Protecting Areas around Bat Caves**

The rule requires that a 0.25 mile (1,320 ft.) buffer is established around known hibernacula and known maternity roost trees. Many states, including Kentucky, have mapped their known hibernacula, so no-harvest or modified harvest buffers must generally be provided around these locations.



These buffers are important so as not to disturb hibernation. They also provide undisturbed habitat for bats to feed and mate when they begin hibernation in the fall and again to feed when they emerge from hibernation and begin to spread out on the landscape. Efforts are under way to develop easily accessible maps of these known hibernacula. It is also important to note that there are probably a large number of hibernacula that contain small numbers of hibernating bats spread across the landscape, and these could become important for the survival of some of our bat species as white-nose syndrome continues to take its toll in known hibernacula. Many hibernacula have not been discovered, and many may never be. Since these are not in a database or mapped, they are not classified as “known” and thus the rule requiring a buffer around them is not required. However, voluntary sustainable forest management guidelines, and common sense, would indicate that if one was discovered it would be appropriate to protect it.

### **Roost Trees**

The roost tree buffering is only in effect from June 1 to July 31. During this time, pregnant female bats typically congregate (forming what is termed a maternity colony) in trees to give birth and rear their young (called pups) which are flightless at this time. Trees, both live and dead snags, used as roosts usually have cavities or crevices for the bats to roost underneath. A tree where females congregate, sometimes up to several dozen, is termed a maternity roost and a colony can use several of these trees in a single summer. The vast majority of maternity roost trees are not mapped



*Northern long-eared bats use roost trees, snags and trees with loose bark like shagbark hickory, to rear their young in and live throughout the summer months.*

*Photos courtesy: Chris Osborne*



*Photo courtesy: University of Illinois/Steve Taylor*

*Northern long-eared bat with white-nose syndrome.*

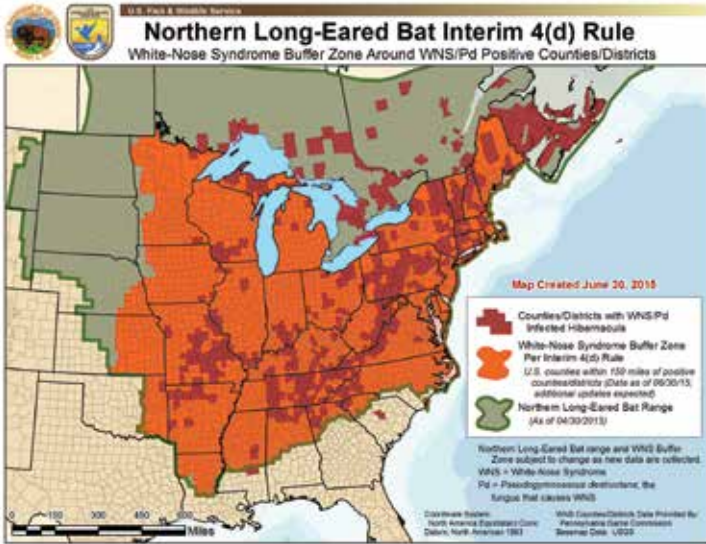
and are unknown. The bats may or may not use the same trees each year, so keeping track of this would be nearly impossible. There is no provision in the rule indicating that the woodland owner, timber buyer or logger must have a trained wildlife biologist scout for and try to find roost trees on private lands. However, if a roost tree is found it would then be considered “known” and buffering would be required June 1 to July 31 while the pups are flightless.

### **Bat Behavior and Buffers**

The rule indicates that buffers preclude clearcuts or similar harvest methods such as seed tree or shelterwood. It is fair to say that two-aged deferment harvests would fall under this categorization as well. The USFWS does not differentiate between these practices because all of them result in the removal (in whole or part) of overstory trees (see below). It is important to note that the rule has a provision to allow for deviations or exemptions in the conservation measures (harvest restrictions) in these buffers. However, these exemptions must be approved by the state USFWS office. The rule contains wording that could help define situations where an exemption might be approved. First, it is understood that the conservation measures were developed to help reduce adverse effects on the northern long-eared population. Thus, the smaller and less intense the harvesting, the less the impact, so scale of the operation and intensity is important. Obviously light selective harvests or small group openings would be preferable. The reason clearcutting and other similar practices (practices that remove significant dominant/co-dominate [overstory] trees) are precluded is due to the risk of cutting other roost trees or potential roost trees. A little background is required to understand this concern. The congregating female bats will stay in the original maternity roost trees for several weeks and then may move to other suitable roost trees close by. This movement, often referred to as fission-fusion behavior is common and can be due to a number of factors such as disturbance of the original roost trees, predation, lice build up, and in some instances just because they want to (social-



ity). Therefore if you are conducting a harvest in a buffer around a known roost tree, there is a chance that, unknown to anyone, they have moved and snuck into a tree that is in the process of being felled, resulting in potential liability problems for the logger and/or landowner. This biological requirement for movement also indicates that to successfully rear pups, the female bats need several suitable roost trees in a stand. Obviously, forest management activities



This figure shows the location of white nose syndrome (dark red) indicating how widespread the problem is.

that do not take this into account are problematic for the bat. This is why the rule specifies that practices that remove a significant amount of overstory trees around a known roost tree are not allowed. However, since the rule indicates that the removal of other roost trees or potential roost trees is the basis for this concern, it might be possible to conduct a shelterwood or deferment harvest if suitable roost trees are retained. This would be a forest management practice that would be conducted to specifically maintain bat habitat. The occurrence of Streamside Management Zones (SMZs) or other retention areas within a harvest also helps maintain habitat for the bats. Obviously clearcutting would typically not be allowed as these practices remove all the overstory trees. The other concern that USFWS might have with activities in a roost tree buffer is the disturbance factor associated with harvest machinery and personnel in

the buffer. While there is not hard data on the latter, one can certainly understand the USFWS's predisposition to be concerned about large machinery within known habitat areas.

Overall, the current rule is workable for most woodland owners. Over time, we will work out the details associated with working efficiently under this rule. At this time, the following apply:

- Landowners, foresters, and loggers must understand where known hibernacula are and buffer them. This applies whether the cave is located on the property that is being harvested or on an adjacent property. Regardless, this will require good networking and information from the holders of this data, usually state U.S. Fish and Wildlife Services state office, state fish and wildlife or nature preserves or conservation commissions, in some cases there may be a fee.



Photo courtesy: USFWS

Large caves are where northern long-eared bats, and other species, hibernate during winter. There is an ongoing effort to restrict human intrusion into these caves to prevent disturbance during hibernation and to restrict the movement of the fungus causing white nose syndrome.

- Woodland owners and those working in the woods do not have to scout for or determine the presence of maternity roost trees, though they can voluntarily, if interested.
- Landowners and practitioners interested in sustainable management will eventually need to address the issue of protecting minor hibernacula and, where appropriate, provide maternity roost opportunities and other habitat conducive to the success of imperiled bat species. Some of the provisions for retention associated with sustainable forest management, such as Streamside Management Zones can be used for this purpose. Also, practices that provide overstory retention in the harvest unit or in the overall forest ownership also lend themselves to providing bat habitats.
- Sustainable forest management systems (ex. American Tree Farm System, Forest Stewardship Council, Sustainable Forestry Initiative) also may need to adopt bat Best Management Practices that encompass issues of minor hibernacula protections and habitat retention for not only northern long-eared bats but other imperiled bat species. The latter will be difficult, as bat biology and habitat requirements vary by species.

Regardless, there will be much more information coming on the bat situation. Not only for the northern long-eared bat but other species that are similarly at risk. The situation is dynamic and rule changes undoubtedly will be the norm. Woodland owners and aligned professionals including foresters, loggers, and forest industry should stay abreast of this issue and be ready to adjust management, logging, and timber procurement accordingly.

**About the Author:**

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Researchers place transmitters in northern long-eared bats to track their movements. This research provides scientific information that is necessary for the development of effective protections.

Photo courtesy: Mike Lacki