

## Guidance for Landowners Participating in the Indiana Bats Forestry Project

### Project Summary:



Indiana & little brown bats

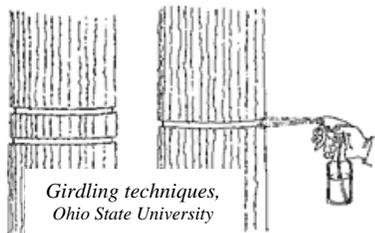
***This project is designed to engage New Jersey's landowners, farmers, and land managers in protecting one of the most endangered land mammal groups in the United States: bats.*** Bats are an extremely important part of our environment and are one of the most beneficial animals to people, yet more than half of America's bat species are in severe decline because of factors including habitat loss, disturbance to hibernating colonies and summer roosts, persecution by man, and diseases such as White-nose Syndrome (WNS), which threatens entire hibernating

colonies where it occurs. WNS was confirmed in New Jersey in January 2009 and now affects nine states (2009).

NJ is home to nine bat species, including the endangered Indiana bat (*Myotis sodalis*). Indiana bats inhabit forests and wooded wetland areas in summer, where they roost and raise their young under the loose bark of certain living trees (such as shagbark hickory) and a variety of dead trees (elms, oaks, maples, sycamores, hickories, etc.). Ideal roost locations include riparian zones, along a wetland or water body, or otherwise near a water feature providing a reliable insect prey base. Maternity roosts must also receive around eight hours of sunlight to help with the development of bat pups. The average dbh (diameter at breast height) of maternity roost trees is 45 cm. Indiana bats have been documented across much of northern NJ and are known to hibernate in Hibernia and Mt. Hope Mines, Morris Co.



Shagbark hickory



Girdling techniques,  
Ohio State University

The Conserve Wildlife Foundation of NJ is seeking fifteen willing landowners with suitable forest land to conduct silviculture (forestry) management practices and install artificial roosts to benefit Indiana bats as well as NJ's more common bat species. Silviculture techniques will include selective girdling of mature trees and removal of competing trees. Successful girdling (killing) can be accomplished by chain-sawing two horizontal cuts – about 6" wide, 1" or deeper, and 2-4" apart – around the entire tree trunk, or cutting one groove and applying an herbicide like Patron 170 or Garlon. Forestry work should only be done when bats are not present (October 1 – March 31). Artificial roosts can include standard bat boxes, sheet metal tree wraps, and other loose-bark-mimicking structures. Be creative!



Tree wrap

We intend for all projects to be monitored over a minimum five-year period for usage by bats. We will instruct and assist landowners in surveying their own sites. Because we do have nine different bat species in New Jersey (and they're difficult to identify without capturing them), we will also use acoustic devices to record and identify species by their echolocation calls. Acoustic monitoring allows for passive study, without disturbing the animals.

Budget for Each Site:

Using funds from a NJ Landowner Incentive Program (LIP) grant that we've received, the Conserve Wildlife Foundation can pay each participating landowner for the following:

- 4 artificial roosting structures @ ≤\$100/ea (materials).....\$400
  - Construction & installation of 4 artificial structures @ \$15/hr \* ≤10 hrs/ea .....\$600
  - Labor & materials (fuel, herbicide, etc.) for forestry practices @ \$20/hr \* ≤25 hr.....\$500
- TOTAL: \$1,500

Participants are expected to monitor their site (visual and acoustic methods; with our guidance) and document bats and other noteworthy observations or issues. Monitoring effort should encompass roughly 5 hours per year for 5 years.

General Forest Management Recommendations:

The following recommendations were developed by the US Fish and Wildlife Service, NJ Field Office.

1. Maintain at least 60% canopy closure after timber harvest within forested stands.
2. Retain standing snags, except where they pose a serious human safety hazard due to their location near a building, yard, road or power line. A live tree with less than 10% canopy should be considered a snag. Snags with no remaining bark and no visible cracks, splits, or hollows may be felled, as well as any snags leaning more than 45° from vertical. When possible, delay removal of hazard trees until bats are hibernating (between October 1 and March 31).
3. Do not harvest or manipulate shagbark hickory trees (*Carya ovata*) unless the density of shagbark hickory exceeds 16 trees per acre. If present, maintain at least 16 live shagbark hickory greater than 11" dbh (diameter at breast height) per acre. If there are no shagbark hickory trees >11" dbh, then the live shagbark hickory trees retained per acre must include the largest specimens in the stand.
4. Maintain at least 16 live, high-value roost trees per acre on average with at least 3 live trees >20" dbh and 6 live trees >11" dbh. The remaining trees retained per acre should be among the largest or highest roost value trees present within the stand.

The following tree species have been identified as having relatively high value as potential Indiana bat roost trees [\*denotes the more commonly used roost tree species, although characteristics such as loose or shaggy bark, crevices, or hollows are more important than tree species]:

Red maple ( <i>Acer rubrum</i> )	Shagbark hickory* ( <i>Carya ovata</i> )	White oak* ( <i>Quercus alba</i> )
Silver maple* ( <i>Acer saccharinum</i> )	Other hickories ( <i>Carya</i> spp.)	Pin oak ( <i>Quercus palustris</i> )
Sugar maple* ( <i>Acer saccharum</i> )	White ash ( <i>Fraxinus americana</i> )	Post oak ( <i>Quercus stellata</i> )
Yellow birch ( <i>Betula alleghaniensis</i> )	Green ash* ( <i>Fraxinus pennsylvanica</i> )	Red oak ( <i>Quercus rubra</i> )
Gray birch ( <i>Betula populifolia</i> )	White pine ( <i>Pinus strobus</i> )	Slippery elm ( <i>Ulmus rubra</i> )
Bitternut hickory ( <i>Carya cordiformis</i> )	Eastern cottonwood* ( <i>Populus deltoides</i> )	
Sweet pignut hickory ( <i>Carya ovalis</i> )	American elm* ( <i>Ulmus americana</i> )	

5. Do not harvest trees or conduct timber stand improvement within 300 feet of a stream bank or wetland, or within 500 feet of a known bat hibernaculum.
6. Do not fell trees >3" dbh while Indiana bats may be present, generally April 1 – September 30.
7. Avoid prescribed burns from April 1 to September 30 in forest stands containing potential Indiana bat live roost trees and / or snags.
8. Avoid prescribed burns year-round within 1,000 feet of a known bat hibernaculum.

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**Interested?** For more details about participating in the Indiana Bats Forestry Project, please contact MacKenzie Hall at 908-782-4614 x 104 or [mackenzie.hall@conserwildlifenj.org](mailto:mackenzie.hall@conserwildlifenj.org).