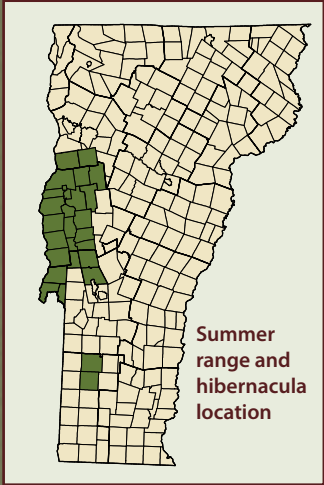


## Meet the Indiana Bat

The Indiana bat (*Myotis sodalis*) is a state and federally endangered species. It weighs about three tenths of an ounce, or approximately the weight of three pennies, with a body about the size of your thumb. Indiana bats live an average of 15 years and produce a single pup each summer. Female bats form maternity colonies where they congregate to bear and raise their pups from May through August.



USFWS - ADAM MANN



Summer range and hibernacula location

Their summer range in Vermont is limited to the southern Champlain Valley, from West Haven to Hinesburg. From late fall through early spring, Indiana bats hibernate in caves and mines.

## Conserving Indiana Bats is Important

- ◆ Bats can eat up to 1,000 night flying insects an hour, including moths, mosquitoes, and flies.
- ◆ Bats are an important part of a healthy ecosystem and environment.
- ◆ The Indiana bat is one of two federally endangered mammals found in Vermont.
- ◆ Indiana bat populations have suffered significant declines as the deadly fungal disease White-nose Syndrome has spread throughout their range, yet they persist in Vermont.
- ◆ Successful recovery of Indiana bat populations in Vermont will eliminate the need for additional and perhaps more costly species protection measures.
- ◆ Management for Indiana bat habitat can accommodate common forest management goals.



USFWS

## Endangered Status

In 1967, the Endangered Species Act officially listed the Indiana bat as federally endangered due to a declining population. Habitat loss and degradation, human disturbance in caves, and pesticide use contributed to this decline. State and federal wildlife agencies are working to protect their habitat and educate people about their conservation to prevent the extinction of the Indiana bat. The Indiana bat is protected under state and federal endangered species laws.



MAP SOURCE: US FISH AND WILDLIFE SERVICE

Indiana bat range in North America

# A Landowner's Guide to Indiana Bat Habitat Stewardship

*Your forest is their future*



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## Maternity Colony Habitat



JAMES D. KISER

*Indiana bat roosting under the loose bark of a tree.*

Maternity colony habitat is habitat used by a colony of reproductive female Indiana bats. This habitat will include **Roost Trees** and the colony's associated **Foraging Habitat**.

### Roost Trees

During the summer, bats are active at night and roost (sleep) during the day. The Indiana bat roosts

under the loose bark of mature trees, unlike the more common little brown bat that roosts in human-made structures like buildings and bridges. Female Indiana bats also bear and raise their young in roost trees.

### Roost trees may include:

- ◆ Dead or dying trees of any species.
- ◆ Live trees with loose bark such as shagbark hickory and black locust.

Other characteristics that make a tree attractive to Indiana bats as a **potential roost tree** include:

- ◆ Direct solar radiation on the tree's bark.
- ◆ Trunk diameters greater than five inches, but the larger the tree the more preferred, especially over eighteen inches.
- ◆ Located within a cluster of trees with similar characteristics.



VEWD

*Indiana bat roost tree.*

## Foraging Habitat

Foraging habitat, where bats feed on insects, is another important maternity colony habitat component.

Bats typically forage within 2-1/2 miles of their roost trees. Indiana bats forage and travel in forested stands, along forest edges and hedgerows, and near or along open water and wetlands.

### Quality foraging habitat is characterized by:

- ◆ Relatively open stand conditions below a main canopy of trees with trunks ten inches or greater in diameter.
- ◆ Connectivity with other forest blocks, wetlands, or streams.



VEWD

*Foraging habitat has a relatively open tree stand below a main leaf canopy.*

## Hibernacula Habitat

The caves and mines that bats use for winter hibernation are called **hibernacula**. Forested areas surrounding a hibernaculum also serve as important habitat. All Indiana bats use these areas in the fall prior to hibernation and upon leaving for their summer range in the spring. Forested areas surrounding a hibernaculum should be managed to enhance and maintain roost trees and foraging habitat.



MCDUFFE, NYDEC

*Biologist surveying a hibernacula.*

You can manage your forest to maintain and enhance Indiana bat habitat as part of a multiple use forest management approach that accommodates other common forest management goals. However, you should keep in mind that Indiana bats generally favor older forests that include large dead and dying trees.

Such forest conditions are consistent with managing for restoring and retaining natural communities that support a variety of plant and animal species—particularly those species that become more vulnerable as the Champlain Valley's forests are converted to other land uses.

## Maternity Colony Habitat Management

- ◆ **Assume Indiana bats are present** in all lands within the summer range of Indiana bats—southern Champlain Valley, from West Haven to Hinesburg.
- ◆ **Restrict harvesting to when bats are hibernating**, between November 1 and April 1, unless potential roost trees are identified and left uncut.
- ◆ **Maintain and enhance roost trees.**
  - ✓ Keep all trees with diameters over five inches that are dead or dying, or that have loose bark under which bats might roost.
  - ✓ Remove individual or groups of trees adjacent to potential roost trees to allow for solar radiation.
- ◆ **Minimize or avoid forestland conversion** to maintain foraging habitat and forest connectivity between woodlots.
- ◆ **Keep forested buffers at least 25 feet wide** along streams, ponds, lakes and wetlands.
- ◆ **Manage your forest under the supervision of a forester using Indiana bat management guidelines.**

## Hibernacula Habitat Management

Lands within or adjacent to towns containing Indiana bat hibernacula should be managed to maintain and enhance roost trees and foraging habitat.