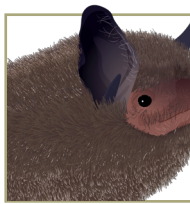


IOWA BATS

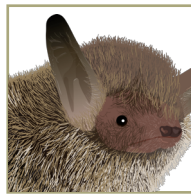
IOWA STATE UNIVERSITY
Extension and Outreach



Big brown bat



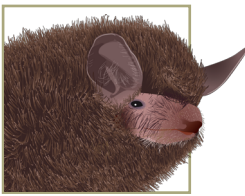
Indiana bat



Northern long-eared bat



Tricolored bat



Little brown bat

Migratory Bats

Four species of bats can be found in Iowa in highest abundance during spring and fall as they pass through on annual migrations between southern wintering areas and northern breeding areas, reaching as far north as Canada's Boreal Forests and Alaska. Some individuals also spend summers in Iowa, raising young before migrating south for winter.

Migratory bats are generally more solitary than species that hibernate in Iowa, raising their young alone or in small colonies in trees before departing on migration. For this reason, they're also often called tree bats.

Hibernating Bats

Five species of bats call Iowa home year-round, spending winter in hibernacula in caves, abandoned mines, or even attics of houses, and summer nights feeding in and around Iowa's forests.

Females raise their young in maternity colonies where tens and sometimes hundreds of females and their young roost and nurse. As young-of-the-year learn to fly and feed alone in late summer, adults and young gather close to winter hibernation locations to breed and continue to feed. When insect prey are no longer available, the bats use air currents to seek out sites with stable temperatures to hibernate throughout the winter.



Eastern red bat



Silver-haired bat



Hoary bat



Evening bat

On the Menu

- » All of Iowa's bats are insectivores, relying on insects for functionally all of their diet.
- » Types of insects range from mosquitoes to butterflies, with most species preferring beetles and moths.
- » They use echolocation to capture insects on the wing or glean them from leaves and bark.

10^6 x 

A single colony of big brown bats can reduce the number of corn rootworm larvae by **33 million.**

Whitaker (1995) Am. Midl. Nat. 134:346-360

An Illinois study estimated bats provide farmers **\$1 billion** annually in insect pest control

Maine and Boyles (2015) PNAS 112:12438-12443

White-nose Syndrome

An exotic fungal disease called "White-nose Syndrome" was first discovered in 2006 and has since wreaked havoc on hibernating bats in the eastern United States, including Iowa. Upwards of 90% population declines in sensitive species like tricolored, little brown bats, and northern long-eared bats have been documented.

Habitat Loss

Invasive species and changes in forest tree composition and structure coupled with the loss of forest habitat to development has left fewer high-quality habitats for bats to thrive in Iowa.

Wind Energy

Wind turbines have proven to be a unique challenge for some species of bats that are especially vulnerable to collision with spinning turbine blades during migration.

Threats

Bat Habitat

Bats are found everywhere from city yards to large, mature forests in Iowa. Essentially anywhere there are trees, there are bats. But of course, not all trees are the same.

During summer, bats need places to roost during the day and places to feed at night. Most often, the best places for bats to feed are along rivers, streams, or other surface waters where insects are abundant. Forest edges and open areas within timber stands are often hotspots of bat activity. Day roosts can be anything from foliage to rotten trunks of trees and are an important element of summer habitat. Among living trees, mature trees with crevices or a large arching canopy are often preferred.

Locations for mothers to raise young, such as under loose bark or in dead or dying trees or branches, are another important element of bat habitat.

For non-migratory bats, hibernacula, where groups of bats huddle together for the winter, are important habitat features. Hibernacula are traditionally caves, common in eastern Iowa, but can also include abandoned mines or even houses or other human structures, as commonly seen among big brown bats.

A Bat's Year



- » Local hibernating species are in caves, mines, or buildings (big brown bats)
- » Migrant species are in southern range



- » Females become pregnant through delayed implantation
- » Emerge from hibernation and migrants return
- » Most species move across the state before the start of their summer breeding season



- » Young are born solitary in trees or in groups called maternity colonies in trees, crevices, or buildings
- » Young nurse and begin flight around one month
- » Males and non-breeding females remain mostly solitary



- » Migrants depart state for southern range
- » Residents move back to hibernation areas
- » Males and females swarm outside hibernacula to breed

Loose Bark = Roost Habitat

- » Dead or dying trees
- » American elm
- » White oak
- » Shagbark hickory
- » Shellbark hickory
- » Silver maple



Bats are often inappropriately thought to pose a major rabies threat. However, it is really their small size and tendency to get into places where people live that make them a common vector for human exposure to rabies. Anyone who finds a bat, indoors or out, should never handle it, and if there is concern for possible exposure, should submit the bat to state laboratories for testing. Studies suggest well over 90 percent of bats are rabies-free.

Bats and Forestry

Sound forest management practices are essential for creating high-quality bat habitats in Iowa. Follow these guidelines for making the most of timber stands:

- » Leave standing dead and dying trees for roost, foraging, or maternity locations.
- » Promote open canopy structure for aerial feeding.
- » Control invasive woody shrubs to promote stand diversity and create foraging habitat.
- » Avoid felling trees from May through July while mothers are giving birth and young are flightless. State and federal cost-share agreements have more restrictive regulations and require most forestry activities be constrained to the period between October and March.
- » Avoid disturbances to and around known hibernacula during winter.
- » Use shelterwood or seed-tree harvest strategies to leave some standing trees in harvested stands.

The Cave Connection



Images of bats emerging from the depths of underground caves are commonplace in bat lore. The same holds for many of Iowa's hibernating bats that retreat deep into Iowa's estimated hundreds of caves to find stable temperatures away from predators and weather extremes. Caves are common in eastern and southern Iowa where the shallow limestone bedrock has eroded to create long mazes of underground worlds.

By Adam Janke, assistant professor and extension wildlife specialist at Iowa State University. Reviewed by Julie Blanchong, associate professor of natural resources and ecology management at Iowa State, and Kelly Poole, Iowa Department of Natural Resources. Learn more at www.nrem.iastate.edu/wildlife | Iowa State University Extension and Outreach does not discriminate on the basis of age, disability, ethnicity, gender identity, genetic information, marital status, national origin, pregnancy, race, color, religion, sex, sexual orientation, socioeconomic status, or status as a U.S. veteran or other protected classes. Direct inquiries to the Diversity Advisor, 515-294-1482, extdiversity@iastate.edu.