

## Indiana Bat

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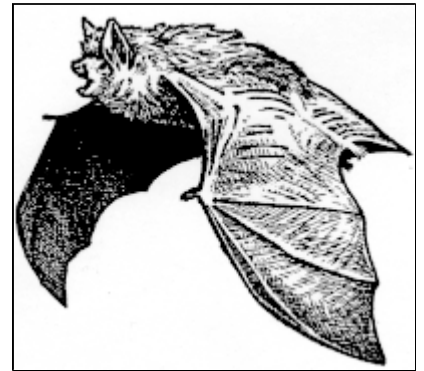
#### *Myotis sodalis*

New York Status: Endangered

Federal Status: Endangered

#### Description

The Indiana bat is one of nine bat species found in New York. All are small as mammals go, this species being roughly 2 inches (51 mm) in length and weighing approximately .2 -.3 ounce (6-9 gm). Identifying most of New York's bats is not easy and the Indiana bat is one of the most difficult. It can be distinguished from its closest look alike, the little brown bat (*Myotis lucifugus*), by several rather obscure features. Generally, the Indiana bat is uniformly dark grey to grayish-brown in color and often has a pinkish colored nose. The little brown bat has brown fur; its ears and nose are often slightly darker, giving the appearance of a faintly contrasting dark mask, a feature that is noticeably lacking in the Indiana bat. An Indiana bat's feet are smaller, about 1/3 in. in length, with few if any hairs. These hairs do not extend beyond the tips of the toes. The calcar (a cartilaginous projection from the foot which helps support the membrane between the foot and the tail) is generally keeled in the Indiana bat but not in the little brown. Indiana bats are generally found in tightly packed clusters. In the center of the cluster, only the faces and wrists are visible. Little browns generally occur in loose clusters.



#### Life History

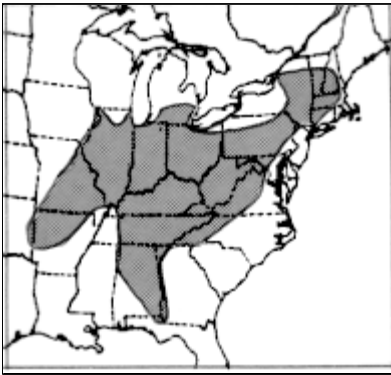
With the coming of spring, Indiana bats disperse from their winter homes, known as hibernacula, some going hundreds of miles. They feed solely on flying insects and presumably males spend the summer preparing for the breeding season and winter that follows. Females congregate in nursery colonies, only a handful of which have ever been discovered. These were located along the banks of streams or lakes in forested habitat, under the loose bark of dead trees, and contained from 50-100 females. A single young is born to each female, probably late in June, and is capable of flight within a month. With luck, it may approach the ripe old age of 31, a record set by the little brown bat.

In August or early September, Indiana bats swarm at the entrance of selected caves or mines. This is when mating takes place. Sperm is stored in the female's body; eggs are fertilized in the spring.

Like other hibernating species, the Indiana bat accumulates layers of fat which sustain it over the winter period of dormancy.

Indiana bats spend the winter months in secluded caves or mines which average 37 to 43 degrees F. Criteria for selecting hibernacula are not clearly understood; many apparently suitable sites are not occupied. Where this species is found, however, it can be extremely abundant, congregating in densities of more than 300/square foot. Year after year, bats often return to exactly the same spots within individual caves or mines. Hibernation can begin as early as September and extend nearly to June.

### Distribution and Habitat



The Indiana bat is found within the central portion of the eastern United States, from Vermont to Wisconsin, Missouri and Arkansas and south and east to northwestern Florida. In New York, knowledge of its distribution is limited to known wintering locations-caves and mines in which they hibernate. There are eight hibernacula currently known in Albany, Essex, Warren, Jefferson, Onondaga and Ulster Counties. It is certain that the summer range of this species extends well beyond these counties since the animals disperse to breeding areas and other

habitats to feed and raise their young.

### Status

The Indiana bat was one of the mammals included on the original federal list of Endangered Species. In terms of sheer numbers, the species is rather abundant, with an estimated 550,000 existing range-wide as recently as the late 1970s. However, 85 percent of these bats winter in only seven caves or mines, with nearly one-half of the world's population being found in only two caves. Even though other populations have been discovered in recent years, the additions have not offset the losses recorded over the full extent of the specie's range.

In New York, approximately 13,000 Indiana bats are known to exist in 8 of the 120 sites searched to date. Surveys conducted since the early 1980s suggest they are doing fine in this state and may in fact be increasing. Where declines are suspected in some other states, the reasons are not clearly understood. Because bats hibernate in caves and mines, they are subject to flooding or ceiling collapses, both of which can and have killed thousands of individuals in the past.

The most serious problem for hibernating bats is believed to be disturbance by people exploring caves. Bats are sensitive to noise and light and can be aroused from their motionless state by passing cavers. Each time they are awakened, precious energy reserves stored as fat are depleted. Too many disturbances and the animals will not survive until spring. Outside of the hibernating season, factors which may be contributing to declines probably vary. For instance,

pesticide poisoning is believed to be contributing to the decline of some North American bat species.

### Management and Research Needs

Since the most vulnerable period in the life-cycle of the Indiana bat is during winter hibernation, management efforts are concentrated on protecting the hibernacula. The problem of human disturbance is curtailed by eliminating unauthorized access at major hibernacula through gating or agreements with the landowners. Searches for additional wintering sites continue so that they too can be protected. Long-term monitoring is needed to identify population trends. We will also need to know if population trends we observe in the caves and mines reflect what is occurring in the entire population.

### Additional References

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