

Natural History of Illinois Bats

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Red bat (*Lasiurus borealis*)

one of the larger bats in the Midwest
fur reddish-orange to brick red, with females being less brightly colored
fur on the entire dorsal surface of the interfemoral membrane and along the arm bones on
the underside of the wings
white patches of fur on the shoulders and wrists
short, rounded ears
wingspan 29-33 cm, forearm length 35-46 mm, wt. 7-15 g

Red bats are common in rural areas and small towns, but not in cities. They occur throughout Illinois during the summer. This species is solitary except for a female and her young. Females produce a litter of 2-5 pups which is born from late May to early July. Red bats almost never roost in caves, mines, or buildings. They roost among the foliage of trees or shrubs or in tall forbs, typically hanging by one foot from a leaf petiole or branch. Red bats emerge relatively early in the evening, forage for two hours, and feed extensively on moths and beetles. They forage around forest edges, street lamps, and corn cribs and above streams. Red bats in northern states and Canada migrate long distances during spring and autumn. They apparently hibernate in tree hollows, but emerge and feed on warm winter afternoons. There are no winter records for Illinois, but some red bats may spend winter in southern Illinois.

Hoary bat (*Lasiurus cinereus*)

the largest species in the Midwest
fur black or gray with white tips
dorsal surface of the interfemoral membrane fully furred, fur on the underside of the
wings along the arm bones
collar of buff fur, buff fur on the underside of the wings, white patches of fur on the
wrists
ears short and round, edged with black
wingspan 38-41 cm, forearm 54-60 mm, wt. 25-35 g

Like red bats, hoary bats occur in rural areas and small towns, but not in cities. This species is relatively uncommon in the eastern U.S. and occurs sporadically throughout Illinois during the summer. Hoary bats are also solitary except for a female and her young. Two young are born in late May or June. Hoary bats roost among the foliage of trees, often at the edge of a clearing. They emerge late, with a peak of foraging activity four to five hours after sunset. They forage above large streams, along forest edges, and at lights. This species is thought to feed heavily on moths and beetles. Hoary bats are highly migratory and are most often encountered in Illinois during spring and autumn migration periods. Some individuals may migrate to the Gulf states, Mexico, or Central America. In cooler areas, hoary bats hibernate in tree cavities, but emerge on warm winter afternoons. There are very few winter records of this species for Illinois.

Silver-haired bat (*Lasionycteris noctivagans*)

black or dark brown fur with white tips
interfemoral membrane lightly furred on the anterior half of the dorsal surface
ears short and round, tragus blunt
wingspan 27-31 cm, forearm 37-44 mm, wt. 8-12 g

Silver-haired bats inhabit mature woodlands, often near streams, ponds, or lakes. They roost in trees, either behind exfoliating bark, in bark furrows, or in cavities. They forage above woodland ponds and streams and in forest openings, feeding on flies, beetles, moths, and mosquitoes. Peak activity occurs two to four hours after sunset and six to nine hours after sunset. Most silver-haired bats are solitary, but some females form small nursery colonies of about a dozen individuals. Females give birth to two pups in June or early July. A few silver-haired bats may be summer residents of Illinois. This species is also highly migratory and is most often encountered in the state during spring and autumn. Silver-haired bats can be found roosting in all sorts of places during migration, including buildings and woodpiles. They hibernate in trees, buildings, rock crevices, or mines. Some silver-haired bats hibernate in abandoned silica mines in southern Illinois.

Evening bat (*Nycticeius humeralis*)

brown fur; ears, snout and membranes black
tragus short, broad, and curved forward
wingspan 26-28 cm, forearm 33-39 mm, wt. 6-14 g

Evening bats roost in buildings (in attics or walls) and trees (under exfoliating bark or in cavities). Maternity colonies in buildings can include hundreds of females. Females typically give birth to two young in June. Evening bats are early fliers and eat beetles, flies, leafhoppers, and moths. They are not very common in Illinois during the summer, but maternity colonies occur in southern and central portions of the state. Evening bats may migrate long distances in the autumn to warm regions. This species is thought to spend the winter south of South Carolina and Arkansas. There are no records for hibernating evening bats in Illinois.

Big brown bat (*Eptesicus fuscus*)

second largest Midwestern bat
brown to reddish-brown fur, ventral fur lighter
short, blunt tragus
wingspan 32-35 cm, forearm 42-51 mm, wt. 15-24 g

Big brown bats are most common in agricultural areas, towns, and cities and least common in heavily forested areas. They are common throughout Illinois during the summer and winter. They roost in buildings (typically inside walls or behind chimneys), caves, mines, bridges, and hollow trees. Maternity colonies consist of 20 to 300 females. Big brown bats are less tolerant of high temperatures than little brown bats, preferring roost sites where temperatures are $< 32^{\circ}\text{C}$ (90°F). One or two pups are born in late May or June. Big browns forage anywhere that insects are available. They emerge about 20 minutes after sunset and are able to fill their stomachs in an hour. Big browns may prefer beetles, but also eat stinkbugs, ants, leafhoppers, mayflies, crane flies, stone flies, and mosquitoes. Adult males use porches, garages, and shutters as night roosts. Maternity colonies disband in August or September. This species is tolerant of cold temperatures and can still be active during November and December. Big brown bats hibernate in caves, mines, buildings, cave-like structures (tunnels, culverts), and tree hollows. They hibernate singly or in small groups (2-5) where temperatures are low and the air is relatively dry. They generally migrate relatively short distances between their summer ranges and hibernacula.

Eastern pipistrelle or tricolored bat (*Perimyotis subflavus*)

smallest Illinois bat
fur yellowish-brown; hair tri-colored (dark, light, dark)
anterior third of interfemoral membrane lightly furred
wing membranes black, forearms pink

wingspan 21-26 cm, forearm 31-36 mm, wt. 4-8 g

Eastern pipistrelles roost in trees, occasionally in buildings, and in caves and mines in the South. Males are solitary while females form small maternity colonies (< 20 individuals). Two young are born in late June or early July. Pipistrelles emerge early and forage along the edges of woods and above streams and fields, but avoid dense forests. They eat small insects (4-10 mm long), including beetles, flies, leafhoppers, and mosquitoes. This species is common throughout most of Illinois (except, perhaps, the northeastern counties) during the summer. Pipistrelles hibernate in caves and mines, usually hanging singly on the walls. This is typically the first bat species to enter and the last to leave hibernation; hibernation can last 6-9 months. Pipistrelles hibernate in caves and mines throughout Illinois.

Little brown bat (*Myotis lucifugus*)

glossy brown fur

blunt tragus, less than half the height of the ear

long hairs on toes extending beyond tips of claws

wingspan 22-27 cm, forearm 34-40 mm, wt. 6-12 g

This species may be the most abundant bat in the U.S. It is common throughout Illinois during both summer and winter. Maternity colonies occupy attics or rafters of buildings with high temperatures (up to 38°C [100°F]) and can include hundreds or thousands of females. Males roost in caves, mines, tree cavities, or buildings during the summer. Females give birth to one pup from late May to early July. Little brown bats begin to forage after dark, with peak activity in the second and third hours after sunset. They specialize on aquatic insects, most often foraging above streams and ponds. Their diet includes moths, gnats, caddis flies, leafhoppers, crane flies, small beetle larvae, and mosquitoes. Little brown bats can cover relatively long distances (up to 350 km) during migration to and from their hibernacula. Little browns hibernate in caves or mines in large clusters. This species is very long-lived; individuals are known to live up to 30 years.

Northern bat (*Myotis septentrionalis*)

brown fur; black ears and wings

long ears (16-19 mm)

long, narrow, pointed tragus

wingspan 22-26 cm, forearm 32-38 mm, wt. 5-8 g

This species is relatively common in Illinois during the summer and winter. Northern long-eared bat females form small maternity colonies (typically < 60 individuals) in buildings, in tree cavities, or under the exfoliating bark of trees. Males also roost under bridges and in caves or mines during the summer. One pup is born during June. Northern long-eared bats are thought to forage on forested hillsides and ridges rather than in riparian and floodplain forests. Their diet includes moths, beetles, caddis flies, and stone flies. Northern long-eared bats hibernate in caves and mines, usually hanging singly or in very small groups. They often squeeze into crevices or drill holes.

Indiana bat (*Myotis sodalis*)

fur dull, grayish brown

hairs on toes don't extend beyond tips of claws

wingspan 24-27 cm, forearm 35-41 mm, wt. 6-11 g

The Indiana bat is a federally endangered species. During the summer it is known to occur in the southern two-thirds of Illinois. Small maternity colonies of Indiana bats roost under the exfoliating bark of dead trees, in tree cavities, and beneath the shaggy bark of certain live hickories. Roost trees are located in both

floodplain and upland forests and a colony uses more than one tree. Adult males and non-reproductive females also roost in caves or mines during the summer. One pup is born in June or early July. Indiana bats emerge about 25 minutes after sunset and forage over water or among floodplain or upland trees. They eat dipterans, lepidopterans, and trichopterans; moths made up > 70% of the diet of lactating females. Indiana bats migrate relatively long distances during the spring and autumn. They hibernate in caves and abandoned mines in very dense clusters (3200/m²). Large numbers of Indiana bats occupy three hibernacula in Illinois and several other hibernation sites in the state are also used.

Gray bat (*Myotis grisescens*)

fur grayish brown; hairs uniformly colored from base to tip
wing membrane attached to foot at ankle rather than base of toes
notch on hind claws
wingspan 27-30 cm, forearm 40-46 mm, wt. 8-14 g

The gray bat is also a federally endangered species and probably has always been uncommon in Illinois. Gray bats occupy caves throughout the year. Maternity colonies typically occupy large caves containing streams and can be very large -- up to hundreds of thousands of females. Females give birth to one pup during June. Gray bats forage above water and among riparian trees. Mayflies are important in their diet, but they also eat mosquitoes, caddis flies, and beetles. This species has recently been caught during the summer only in southern Illinois. Gray bats hibernate in different caves than those used in summer, primarily in deep vertical caves. A few gray bats may hibernate in western or southern Illinois.

Southeastern bat (*Myotis austroriparius*)

woolly fur, orangish in Illinois
high forehead
pink nose
long hairs on toes
wingspan 24-27 cm, forearm 36-41 mm, wt. 5-8 g

This is a southeastern species whose range extends into southernmost Illinois; it is state-endangered. During the summer southeastern bats roost in caves, mines, hollow trees, and buildings, typically near water. Females give birth to two pups in late June. Southeastern bats emerge late in the evening and forage low over water. In northern portions of their range they hibernate in caves or mines in small compact clusters.

Rafinesque's big-eared bat (*Plecotus [Corynorhinus] rafinesquii*)

very large ears (≥ 27 mm) nearly joined at bases
lumps on sides of muzzle
brown dorsal fur, ventral fur with white tips
wingspan 26-30 cm, forearm 40-46 mm, wt. 8-14 g

This is another southeastern species whose range extends into southernmost Illinois and it is also listed as state-endangered. Rafinesque's big-eared bats roost in buildings and other man-made structures (e.g. cisterns), but also in trees and occasionally in caves. They prefer roosting sites that are relatively light. Small maternity colonies (up to several dozen females) are usually located in buildings. One pup is born in late May or early June. In northern areas big-eared bats typically hibernate in caves and mines where they hang, singly or in very small groups, just beyond the twilight zone.

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Bat Conservation International: www.batcon.org

Center for North American Bat Research and Conservation:
www.indstate.edu/biology/centers/bat.htm

Bat books and items are available from

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Speleobooks: P.O. Box 10, Schoharie, NY 12157-0010
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