

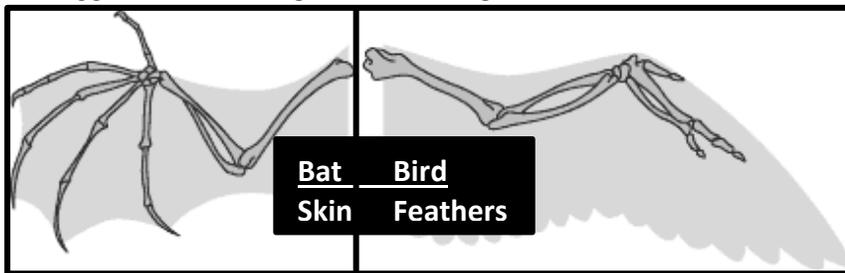
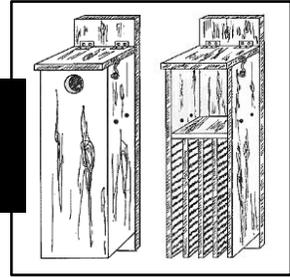


BATS ~ The ONLY mammal that can truly FLY . . .

First – Basic Bat Facts!

- 900+ species of bats in the world (perhaps as high as 1,200 species).
- Bats make up 1/5th of the mammal population on Earth.
- Bats sleep all day in dark places ~ caves, holes in trees/rocks, mines, attics, ceilings of barns/buildings, under bridges, and in **manmade bat houses**.
- And hunt dinner all night ~ 70% of bat species are insectivores (FREE insect control!) . . . others scout for fruit, nectar, fish/meat, and blood (vampire bats).
- Bats hang upside down because their feet are very strong for hanging, but not for standing. Their special toes lock, so even when the bat is asleep upside-down, it will not fall.
- Bats are part of the order *Chiroptera*, meaning hand wing. Why? Fingers and a thumb!
- Bat wings are like hands with long fingers. A thin skin connects them for flight. These structural dissimilarities *suggest* that bat wings and bird wings were not inherited from a common ancestor with wings.

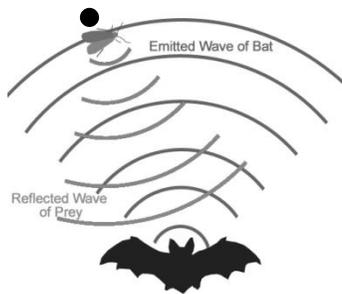
Home Sweet Home



Homo sapiens



- Bats can make sounds that humans can't hear. These sounds strike targets - bounce back. The way the sound bounces back tells them what the target is and where it is. The collection of echoes makes a mental picture. This echolocation works so well that bats can fly and find food in total darkness and not hit anything.
- Ears (sizes differ by species) and noses let them pick up the faintest sounds for hunting and navigating and aid in focusing their calls. 



Bats CAN'T g_l_i_d_e . . . they must continually flap-beat their "wings" = 17 times per second! (Hummingbird = 21 beats/second.)



Bats are being decimated by the White-nose Syndrome!

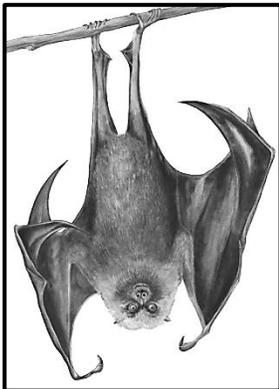
White-nose syndrome (WNS) - - - is an emergent disease of hibernating bats that has spread from the northeastern to the central United States at an alarming rate. Since the winter of 2007-2008, millions of insect-eating bats in 25 states and five Canadian provinces have died from this devastating disease. The disease is named for the white fungus, *Pseudogymnoascus destructans*, that infects skin of the muzzle, ears, and wings of hibernating bats.

NEVER touch/rescue a bat bare-handed! Protect yourself ~ protect them.

Infected bats - - - often display abnormal behaviors in their hibernation sites (hibernacula), such as movement toward the mouth of caves and daytime flights during winter. These abnormal behaviors may contribute to the untimely consumption of stored fat reserves causing emaciation and ultimately death.

Consequences are dire - - - current estimates of bat population declines in the northeastern US since the emergence of WNS are approximately 80%. This sudden and widespread mortality associated with WNS is unprecedented in hibernating bats, among which disease outbreaks have not been previously documented. It is unlikely that species of bats affected by WNS will recover quickly because most are long-lived and have only a single pup per year. Consequently, even in the absence of disease, bat populations do not fluctuate widely in numbers over time. Some bats can live up through 20 years. **WNS in Pennsylvania** - - - has decimated more than 99% of Pennsylvania's bats, prompting state and federal authorities to consider listing several bat species as endangered. Pennsylvania has had more losses of bats than any other state in the country. **Bats are valuable** - - - as the average bat eats 3,000 to 4,000 insects nightly, and provide agricultural pest-control valued from \$3.7 billion to \$53 billion a year.

Here are two bat species you might see contributing to de-bugging (applause here) our Indiana County . . .



Big Brown Bat (*Eptesicus fuscus*)

✓Length = 4.1-4.8 inches long. ✓Wingspread = 12.1-12.9 inches. ✓Weight = 0.420.56 ounces. ✓Fur = dark brown; face, ears, and flight membranes are blackish. This common bat ranges throughout the state in diverse habitats: attics, belfries, barns, behind doors and shutters, hollow trees, in city and country. Big brown bats fly at dusk, and generally use the same feeding grounds each night. They fly in a nearly straight course 20-30 feet in the air, often emitting an audible chatter. Among the last bats to enter hibernation, big brown bats seek out caves, buildings, mines, and storm sewers in October, November, or December. They hang close to the mouths of caves. They emerge in March and April.

Females bear young in June, usually two per litter. As young mature and leave the nursery colony, adult males enter and take up residence. Big brown bats have lived up to 19 years in the wild. Big brown bats or the "Farmer's Friend" can be found during the day in certain barns and attics. At night they relentlessly feed over agricultural fields devouring crop pests.



Little Brown Bat (*Myotis lucifugus*) Pennsylvania's most common bat.

✓Length, including tail = 3.1 - 3.7 inches. ✓Wingspread = 8.6 - 10.5 inches. ✓Weight = 0.25 - 0.35 ounces. ✓Females = slightly larger than males. ✓Color = rich brown approaching bronze, usually with a dark spot on the shoulders. ✓Fur = dense, fine, glossy. ✓Wings = black and bare.

This bat eats a wide variety of flying insects, including nocturnal moths, bugs, beetles, flies, and mosquitoes. Insects are regularly caught with the wing or tail membrane, and transferred to the mouth. An individual emerges from its day roost at dusk, and usually seeks a body of water, where it skims the surface for a drink, and then hunts insects. The little brown bat makes several feeding flights each night. In October and November, bats leave their summer roosts and move to tunnels, mine shafts, and caves. Here, clinging to the ceilings and clustered against one another, they hibernate. In spring, they emerge in April and May. They return to the same hibernation sites year after year, usually to the same exact spot in the cave or mine. Females disperse from the hibernation roosts, and gather in summer nursery colonies of 10 to 1,000 individuals in attics, barns, and other dark, hot retreats. Males are solitary, roosting in hollow trees, under loose bark, behind loose siding and shingles, and in rock crevices. A single young is born to each female in June or early July. After four weeks the young bat is fully grown and ready to leave the colony. Females mature sexually at about 8 months of age, while males mature in their second summer. Little brown bats may live up to 25 years. Little browns are the most common bats in North America. They have adapted to human alteration of the natural landscape by using certain manmade structures to roost.



Mark Twain on bats: "A bat is beautifully soft and silky; I do not know any creature that is pleasanter to the touch or is more grateful for caressing, if offered in the right spirit. I know all about these *Chiroptera*, because our great cave, three miles below Hannibal, was multitudinously stocked with them, and often I brought them home to amuse my mother with."

