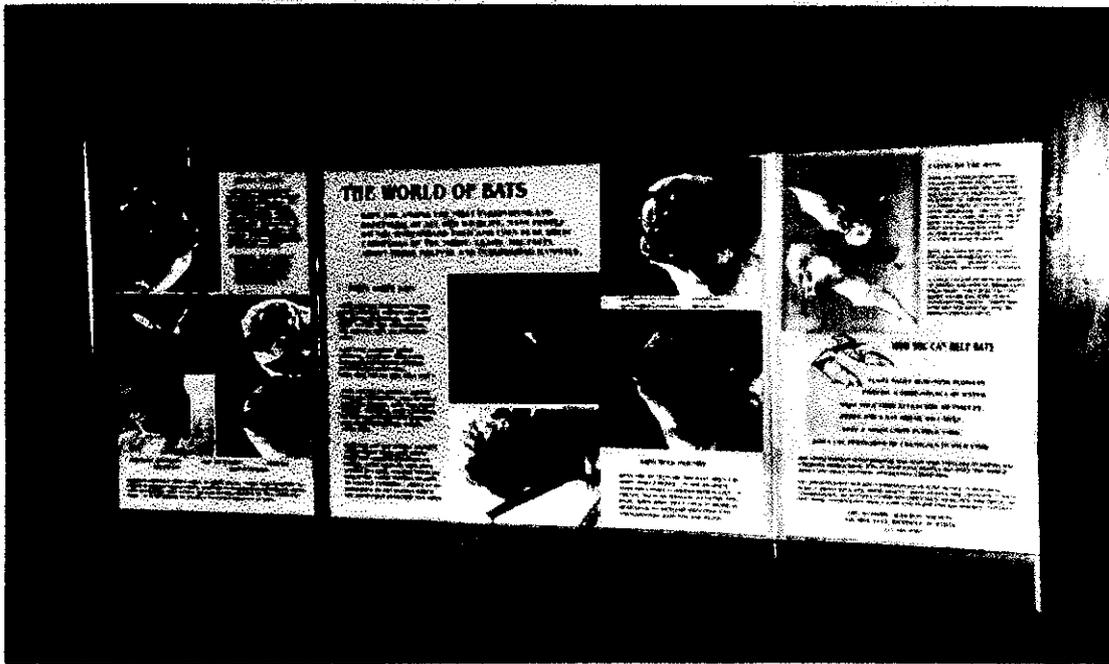


# TRAVELING EDUCATIONAL EXHIBITS, ILLINOIS AUDUBON SOCIETY

**THE WORLD OF BATS (TWO SIMILAR EXHIBITS CONSTRUCTED)**  
**THE 12 SPECIES OF BATS THAT CAN BE FOUND IN ILLINOIS, AND HOW THESE OFTEN MISUNDERSTOOD CREATURES BENEFIT MANKIND AND NEED OUR PROTECTION.**



**OWLS, THE SILENT HUNTERS (TWO SIMILAR EXHIBITS)**  
**8 SPECIES OF OWLS THAT INHABIT ILLINOIS, WITH INTERESTING FACTS ABOUT EACH. DISSECTED OWLS PELLETS ARE INCLUDED AS PART OF THE EXHIBIT**



**FOUR EXHIBITS CONSTRUCTED WITH GRANT RECEIVED FROM THE ILLINOIS DEPARTMENT OF NATURAL RESOURCES, WILDLIFE PRESERVATION FUND PROGRAM**

## ILLINOIS OWLS: WINGS IN THE NIGHT



Owls are among our most familiar birds, even though they are active primarily at night, and are not easily observed in the dark. Still, people recognize the low hoots of a great horned owl and the low whinny of a screech-owl, even if they have never seen either of them "in the wild." Our familiarity with owls stems partly from folklore, because these birds of darkness have long been the subject of human curiosity. Early peoples thought they had magical powers, or were associated with death. Native Americans believed that owls escorted the dead to their new homes in the Spirit World. Even today, there are people who fear owls as "omens of death."

Actually, we have little to fear from these nocturnal birds of prey. They are beneficial to mankind, with most feeding primarily on rodents. A single pair of barn owls and their offspring will eat thousands of mice in a single year! Owls also eat crickets, grasshoppers, and other insects.

Owls have special adaptations which help them to hunt: (1) soft feathers for silent flight, (2) excellent hearing, (3) binocular vision due to eyes located in the front of their heads, (4) strong feet and talons for capturing prey, and (5) hooked beaks for tearing it into bite-size pieces. Owls swallow small prey whole, while larger catches are torn apart before eating. Bones, fur, feathers, and other indigestible parts are compacted into pellets, which the owls then regurgitate. A favorite roosting site may be littered with hundreds of pellets. Wildlife biologists first learned about the diet of owls by dissecting pellets to see what kinds of animals they had eaten.

There are some species of owls which live mostly in woodlands, while others like open meadows and fields. Owls are found in nearly every habitat on earth, from deserts to Arctic tundra. In Illinois, they are found in both rural and urban areas. There are eight species of owls which commonly live in our state for all or part of the year. Great horned, barred, and screech-owls are probably the most common, being found in different habitats. Barn and short-eared owls favor open farmlands, prairies, and wetlands. Snowy owls are winter visitors from the Arctic, and both long-eared and saw-whet owls are more likely to be found in winter over much of the state.

Our resident owls are most easily found when they are nesting, because they are more vocal and are likely to be actively hunting at dusk in order to feed their young. They may also be active on cloudy, overcast days. Barred and screech-owls nest in cavities, while short eared owls nest on the ground in grassy fields. Great horned owls use the abandoned nests of hawks or crows, since they do not build their own.

Owls use both eyes and ears to locate prey. Their large eyes take up most of their skulls, and they can see quite well in the dark. Since their eyes are located on the front of their heads (like our faces,) owls have binocular vision, which allows them to judge distance and movement very well. This is especially important for successful hunting. Owls have excellent hearing, which helps them pinpoint their prey in the dark. Their ears are located on the sides of their heads, below and back of the eyes. The "ears" seen on screech-owl and long-eared owls and the "horns" of the great horned owl are not used for hearing, but are simply tufts of feathers.

Owls have very soft feathers, and they make no noise as the wind passes over them. This allows the birds to fly silently, like giant moths, and sneak up on their prey.

All owls and their nests and eggs are protected by both state and federal laws. Young owls leave the nest before they can fly well, and sometimes land on the ground. They are still cared for by the parents, and quite often return to the protection of trees by hopping or climbing to a low branch, then making their way up, branch by branch. Owls are good parents and do not abandon their young. Owlets which are found on the ground should be left alone, and the adult owls will continue to feed and care for them.

#### **Illinois Owls--from largest to smallest:**

**Snowy Owl--20 to 28 inches tall, wingspan 4.5 to 6.2 feet, weight 3-6 pounds**  
**Great Horned Owl--18 to 25 inches tall, wingspan 3 to 4.5 feet, weight 3-5 pounds**  
**Barred Owl--16 to 24 inches tall, wingspan 3 to 4 feet, weight 1-2.3 pounds**  
**Barn Owl--14-20 inches tall, wingspan 3 to 4 feet, weight 11-21 ounces**  
**Short-eared Owl--13-17 inches tall, wingspan 3 to 3.6 feet, weight 7-17 ounces**  
**Long-eared Owl--13-16 inches tall, wingspan 3 to 3.5 feet, weight 6.5 -12 ounces**  
**Eastern Screech-owl--7-10 inches tall, wingspan 1.5 to 2 feet, weight 4-8 ounces**  
**Northern Saw-whet--7-8.5 inches tall, wingspan 1.4 to 1.8 feet, weight 2-4 ounces**

There is a difference in size between male and female owls, with the females being larger and heavier than their mates.

The Barn Owl is an endangered species in Illinois, and uncommonly seen. Nest boxes are being erected in barns in areas where habitat still exists for this interesting and beneficial bird.





## ILLINOIS BATS: THEY'RE OUR FRIENDS

Are you afraid of bats? Do you think that they are "dirty?" Have you heard that they will get tangled in your hair, or bite without warning? If so, please read on--and learn bat facts, rather than fiction!

Many people have an irrational fear of these unique mammals, and are ready to kill any that they see. Yet bats are among our most beneficial wildlife, and deserve not only our thanks for controlling many insect pests, but also our admiration and protection. Stories of blood-sucking vampires and rabid bats have long fueled misunderstandings about these nocturnal creatures, which--in Illinois--are not too likely to be flying on Halloween Eve. They are much more apt to be encountered on summer evenings, as they chase insects which are attracted to street lights.

While there are about 1,000 species of bats in the world, only twelve kinds live in our state for all or part of the year. All of them are insect-eaters and feed on mosquitoes, as well as many crop-damaging corn borer and cutworm moths. A single bat may eat 3,000 or more of these pests each night that insects are active! They locate their prey by means of echolocation, emitting high frequency sounds which humans cannot hear. These sounds bounce off the insects and are picked up by the bats' sensitive ears. This "sonar" system helps bats locate food in total darkness, and also avoid larger objects, including people!

Bats are our only flying mammals. They use the webbing between the "fingers" of their wings and between their hind feet and tail to scoop up insects while flying, thus eating in flight. Their accuracy is remarkable, and a whole colony of bats feeding in an area can decimate the mosquito population. This is one reason that people have begun placing bat houses around their homes.

Like other mammals, bats give birth to living young, and the mothers feed their offspring milk. Females of many bat species form nursery colonies in summer, where the young are born and cared for until ready for flight--usually in three to five weeks. The young stay behind in the roost while the mothers forage for insects at night. Most female bats have only a single young each year, but some species have more. Red bats may have up to four "pups." For being such small mammals, bats are rather long-lived. They can live up to 25 years of age in the wild!

Because Illinois bats feed entirely on insects, they must either hibernate or migrate to warmer climates when autumn brings frost and the insects begin to disappear. Bats which hibernate frequently gather in colonies in attics or hollow trees. In southwestern Illinois, they use caves. They tend to use the same hibernating places year after year, but how they locate and choose them remains a mystery. When bats use the same areas for many years, the floors of their roosting areas become covered with whitish droppings known as guano. In many areas of the world, bat guano is collected as a valuable fertilizer. During the War of 1812, bat guano from caves was used to make gunpowder!

Compared with the fruit-eating bats of the tropics (often called flying foxes,) our bats are small. Most Illinois bats are only two to four inches long, with wingspans of up to twelve inches. Most weigh less than an ounce!

Bats need friends. Like many other kinds of wildlife, bats are disappearing because the habitats they need to survive are being destroyed. Dead trees are cut, buildings are razed, forests are logged, and whole colonies of bats are sometimes displaced when favorite roosting areas are eradicated. In winter, people may enter caves and disturb the hibernating bats, causing them to use up precious energy reserves. Many bats die as a result of such activity. In recent years, bat conservation organizations have formed to educate people about the beneficial qualities of bats, and to work for bat protection. Bat houses are now commonplace in many areas, and gates have been erected to prevent entrance into caves and mines needed by bats for hibernation. You can help bats by spreading the facts--rather than the myths--about them, and by putting up a bat house, or joining a bat conservation group.

#### **Bat Facts:**

- 1. Illinois bats eat insects. Many tropical bats feed on nectar, fruit, and even small fish, frogs, or birds. Of 1,000 species worldwide, only three feed on blood, and they do not attack people. They feed by lapping the blood of cattle or other animals which oozes from a small puncture in the skin. They do not kill their hosts!**
- 2. Only a tiny number (less than .05%) of bats carry rabies. Rabies is more common in raccoons, skunks, and unvaccinated pet dogs. Unlike other animals infected with rabies, bats are very seldom aggressive.**
- 3. Bats are not dirty. They are very clean, spending a lot of time grooming themselves. A colony of bats does not represent a health risk, and should not be destroyed.**
- 4. Bats are not blind. They can see very well in the dark, but insectivorous bats rely on sonar for finding prey. (Tropical bats have very large eyes and use them to find fruits and other foods.)**
- 5. All bats are protected by law, and should not be bothered. Bats found on the ground should not be handled, as they may be sick, and are likely to bite in self-defense.**

#### **The Bats Found in Illinois:**

**Federally Endangered Species: Indiana bat, Gray bat**

**State Endangered Species: Southeastern bat, Rafinesque's (Big-eared) bat**

**Uncommon: Keen's bat**

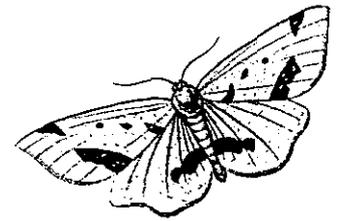
**Commonly found, hibernate in winter: Big brown, Little brown, Eastern pipistrel**

**Common to uncommon, migratory (found in Illinois only in summer): Evening bat, Red bat, Hoary bat, Silver-haired bat**

*If you have a "bat problem" in your house, contact your IDNR heritage biologist, or the IDNR office in Springfield. (217) 785-8774. You may also contact Dr. Joyce E. Hofmann, bat specialist at the Illinois Natural History Survey in Urbana. (217) 244-2366. Information is available from all of these sources on "batproofing" your home.*



## NATURE'S GEMS: BUTTERFLIES AND MOTHS



Butterflies and moths are among our most familiar insects, and many of them are quite beautiful. Even people who ordinarily dislike "bugs" find the colorful, scaly-winged butterflies attractive. There are about 20,000 kinds of butterflies and 100,000 species of moths that have been identified. While most are tropical, there are probably 600 butterfly species and more than 8,000 kinds of moths in North America.

How can we tell butterflies from moths? First, most butterflies are daytime fliers, whereas most moths are nocturnal (although there are some exceptions to this general "rule.") Second, the antennae of moths are usually feathery, while those of butterflies are club-like. Third, moths generally have plump, furry-looking bodies, while butterflies are more slender and smooth in appearance. There are other differences, too. Butterflies (except skippers) tend to be more graceful fliers, while the flight of most moths is jerky and erratic.

Butterflies and moths have similar life cycles, going through four stages--egg, larva (caterpillar,) pupa, and adult--known as complete metamorphosis. Adults lay their eggs on various plants or--in the case of some moths--in stored grain or other places. Since many caterpillars prefer one or more favorite plants, the adults often choose these same plants on which to lay their eggs. The eggs hatch into tiny caterpillars, which have huge appetites and eat almost constantly. They grow so fast that they soon must shed their outer skins for larger ones. Each caterpillar will shed four or five times before reaching full size. They are then ready to form pupae--the next stage in their lives.

Butterfly larvae find a firm support and attach themselves to it, each one forming a naked chrysalis. Many moth larvae spin silken cocoons, and others roll up into leaves for pupation. Some butterflies and moths will spend the winter in this stage, waiting until spring to emerge as adults. For others, the pupa stage lasts only one or two weeks. Critical changes take place in the pupae, as the former leaf-chewing caterpillars gradually become nectar-sipping adults.

When the transformation is complete, the adult insects emerge, ready to dry their wings and fly to freedom. The adults do not grow in size. Some, like the giant swallowtails, are large when they emerge. The blues, coppers, and hairstreaks, on the other hand, are only an inch or so across. Most will feed for several days before mating and laying eggs to begin a new generation. Butterflies may live for several weeks if they are not eaten by a predator. A few will survive for several months. The giant silkworm moths are not so lucky. They will live only a few days--just long enough to find mates and lay eggs. For nature has provided these nocturnal beauties no means of feeding; the adult moths have no mouthparts.

Of all North American butterflies, the monarch is most familiar. The orange and black monarch is common across the United States and Canada all summer, where it lives on milkweed plants. Eggs are laid on this bitter-tasting plant, and caterpillars feed on it. Even adult monarchs retain the toxic substance in their bodies, making them distasteful to birds and other predators. In autumn, eastern monarchs migrate southward, across the Great Lakes and the Gulf of Mexico, to winter in the mountains of northern Mexico. Western monarchs over-winter in central California.

How these seemingly fragile insects can survive such long distance migrations is one of nature's most interesting secrets.

Many butterflies are disappearing because their home territories are being destroyed. Wetlands, meadows, prairies, and woodlands are being converted to highways, shopping centers, and residential and industrial areas. In Illinois, the Karner Blue, a tiny one-inch butterfly, is endangered. Other species may soon join it as more habitat is lost.

How can we help butterflies? First, we can help organizations like the Illinois Audubon Society save valuable habitat for butterflies and other wildlife. Second, we can plant wildflowers or other favorite plants to attract these beautiful insects. By providing nectar sources for adult butterflies, and plants needed by their caterpillars for food, we can help butterflies and moths increase their numbers. Our reward will be the sight of these colorful "gems" winging their way among backyard gardens and over the treetops.



100 YEARS

100 YEARS  
1911-2011  
100 YEARS  
1911-2011



### NATURE'S GEMS: BUTTERFLIES AND MOTHS

BUTTERFLIES AND MOTHS ARE AMONG THE MOST COLORFUL AND BEAUTIFUL OF ALL INSECTS. THEY ARE ALSO VERY IMPORTANT TO THE ECOSYSTEM. BUTTERFLIES AND MOTHS ARE PART OF THE PHYLUM ARTHROPODA, CLASS INSEPTA, ORDER LEPIDOPTERA. THEY ARE RELATED TO BEETLES, WASPS, AND ANTS. BUTTERFLIES AND MOTHS ARE FOUND EVERYWHERE, FROM TROPICAL RAIN FORESTS TO DESERTS. THEY ARE AN IMPORTANT PART OF THE FOOD CHAIN AND PLAY A ROLE IN POLLINATION.

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**HOW DO BUTTERFLIES AND MOTHS DEVELOP?**

1. LARVA (CATERPILLAR) - The caterpillar eats and grows. It sheds its skin several times. It has a segmented body and many legs. It can move in a wavy motion.

2. PUPA (CHRYSLIS) - The caterpillar forms a protective case around itself. It is usually oval-shaped and can be different colors. It is attached to a surface by a silken thread.

3. ADULT - The adult butterfly or moth emerges from the pupa. It has four wings and a segmented body. It can fly and feed. It has a long life span.

### HOW TO GET

HOW TO GET BUTTERFLIES AND MOTHS INTO YOUR GARDEN

1. PLANT BUTTERFLY-FRIENDLY PLANTS

2. PROVIDE SHELTER

3. BE PATIENT

4. DON'T SPRAY PESTICIDES

5. BE CAREFUL WITH YOUR FEEDING

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