

# Owls of Ohio

**A Project WILD Supplement**



Ohio Department of Natural Resources  
**Division of Wildlife**  
Wildohio.com





# OWLS OF OHIO

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# Ohio Department of Natural Resources

TED STRICKLAND, GOVERNOR

SEAN D. LOGAN, DIRECTOR

**Division of Wildlife**  
*David Graham, Chief*  
2045 Morse Rd., Bldg G  
Columbus, OH 43229-6693  
Phone: (614) 265-6300

Dear Educators:

Owl pellets provide an opportunity for students to get a first-hand look at the diet of Ohio's owls. We are very pleased to be able to provide your group with this unique opportunity. We receive these pellets from a barn owl research station in New Jersey at a very low cost. In order for us to be able to provide these pellets to you and your students free of charge, we are unable to process them as you would find if you purchased these same pellets from a for-profit company. So there are a few precautions you should take before allowing your students to dissect the pellets:

- 1) To eliminate parasites, dry the pellets in an oven at 325°F for 40 min or 20 seconds on high in a microwave oven. There is an odor associated with this drying process which is normal. After drying, keep in a dry, tightly sealed container. They can be stored indefinitely in this manner.
- 2) If you are unable to dry the pellets before dissection, simply have your class wear rubber gloves and follow the same procedures you would with any other animal dissection. And, as always, have your students wash their hands afterwards.
- 3) Because these pellets are made up of hair from mice, you may find some of your students to be allergic. You should make students aware of the possibility of allergic reactions.
- 4) Even after drying pellets, you may find what appears to be a maggot in your pellets. This is not a maggot. It is the larvae of a moth species native to New Jersey that lays its eggs specifically in owl pellets. These are not harmful to you or your students.

If you have any questions, feel free to give us a call at 1-800-WILDLIFE. We hope you and your students enjoy this unique look into the life of an Ohio owl.

Sincerely,

A handwritten signature in black ink, appearing to read "Jen Dennison".

Jen Dennison  
Wildlife Education Coordinator







# OHIO Project WILD Information

ODNR—Div. of Wildlife, Outdoor Education Section, 2045 Morse Rd. Bldg G, Columbus, Ohio 43229 614-265-6316

## OWL PELLETS

Supplemental materials for the "Owl Pellets" activity are provided by the Ohio Division of Wildlife, and are funded in part by the Wildlife Diversity Fund which receives donations from tax refund check-off and cardinal license plates.

## FOR THE EDUCATOR

The study of owl pellets presents an exciting exercise in analysis and provides evidence of food chain components. Students also experience a controlled laboratory exercise and discover the concept of adaptations by comparing small mammal skeletons with human anatomy.

### INSTRUCTIONS:

1. Review the activity "Owl Pellets" from Project WILD.
2. Provide students with the following summary of instructions:
  - a. Carefully separate the bones from the fur in your owl pellet.
  - b. Determine if there are bones from more than one animal in the pellet.
  - c. Lay out the bones to form a complete skeleton, if possible. Skeletons can also be glued onto poster board for display.
  - d. Discuss the placement of the small mammal and the owl in a simple food chain or web.

### ADDITIONAL REFERENCES

1. Anatomical drawings of small mammal skeletons.
2. Illustrations of food webs or chains.
3. Division of Wildlife publications:
  - a. Owls of Ohio field guide and CD, pub 423
  - b. Nest Boxes Plans Booklet, pub 419

# Owl Pellets



## Objective

Students will construct a simple food chain.

## Method

Students examine owl pellets, reconstruct prey skeletons and hypothesize food sources of the prey.

## Materials

Owl pellets (see information in the Background section); dissecting tools (toothpicks work fine); poster board; paper towels; glue; small animal skeleton diagrams and skull guide; OPTIONAL: hand lenses or magnifying glasses; gloves

## Background

On the floor of abandoned buildings, beneath a grove of tall trees or under other structures that offer shelter from inclement weather, tangible signs are left by a bird species that most people only see infrequently. These objects are uniformly dark gray and measure from one and one-half to three inches long and three-quarters to one inch in diameter. The objects typically include bones, fur and feathers. For those who can read them, they contain a wealth of information about wildlife. These objects are owl pellets.

Unlike certain other raptors, owls are not picky eaters. They swallow their prey as nearly whole as possible. Fur, feathers and bones, however, cannot be digested, nor will they pass through the digestive system. About 12 hours after consuming a meal, an owl casts, or regurgitates, a "pellet."

Owls are not the only birds that cast pellets. Over 300 species of birds cast pellets. They include eagles and hawks as well as smaller birds like robins and tree sparrows.

Owl pellets are clean of all flesh and virtually odorless. After a short drying period, they can be handled easily by all age groups. Because they are found under the perch, they may occasionally be "whitewashed" by the bird. Pellets will keep almost indefinitely if dry and protected in a plastic bag or closed jar. Those collected on a field trip or during the summer can be saved for later examination. Pellets also may be purchased through scientific supply catalogs.

**Grade Level:** 5-8

**Subject Areas:** Science, Environmental Education

**Duration:** one 20- to 45-minute session

**Group Size:** two or three students working in groups

**Setting:** indoors

**Conceptual Framework Topic Reference:** IDIIB, IDIIB2

**Key Terms:** owl, pellets, food chain, cast, raptors, skeletons of songbirds, skulls of small animals

**Appendices:** Ecosystem, Field Ethics, Local Resources



Owl pellets have been used for scientific study of small mammals and their distribution. With owls doing the collecting, the scientist must only locate the owl roost to obtain the skulls and bones of the small prey living in the area. From these parts, the species can be identified. Owl pellets help map the areas occupied by certain small creatures that might otherwise have escaped detection.

Once the bones are separated from the mass of fur in the pellet, a number of anatomy lessons are possible. Hip bones and the upper leg bone with its large ball joint are identified readily. The scapula or shoulder blade, ribs, other leg bones, vertebrae, foot bones and skull all are recognizable when sorted out.

*For the Activity:* To complete this activity, educators will need to purchase or collect actual owl pellets. Owl pellets can be located under trees or in abandoned buildings where owls may roost. Wear plastic gloves when collecting pellets. Local wildlife organizations may be able to help you identify possible roosting sites. Bird watchers and people who rehabilitate injured birds of prey may be of particular help. Identify the species of owl that cast the pellets if this can be done without disturbing the animal. To eliminate any parasites in the collected pellets, dry pellets in an oven at 325° F for 40 minutes or 20 seconds on high in a microwave oven. Pre-dried pellets also can be purchased from scientific supply distributors such as Museum Products, 84 Route 27, Mystic, CT 06355, Tel: (800) 395-5400 or Pellets, Inc., P.O. Box 5484, Bellingham, WA 98227-5484, Tel: (360) 733-3012.

**NOTE:** Often the owl pellets acquired from a commercial source are pellets from birds that have been fed laboratory mice or rats. It's pretty hard to construct a food chain from this diet. It is worth the effort to secure wild owl pellets if possible. A nongame biologist may be able to provide owl pellets.

## Procedure

1. Divide the students into groups of two or three. Review safe lab procedures, including the need to wash hands before and after doing the activity and the importance of not eating or drinking during the activity. Give each team an owl pellet.
2. Have the groups separate the bones from the fur and feathers on a paper towel. Where possible, identify the skulls and jaws of the prey species. Use a hand lens or magnifying glass to look at the teeth. Consider how the teeth are arranged. Would they work best at tearing flesh, grinding seeds or eating plants? Using the teeth as a guide, determine what kinds of food the prey species most likely ate.
3. Ask the students to determine if there are bones from more than one animal in the pellet. If there are, determine how many different animals and species are represented in one pellet.
4. Instruct the students to lay out the bones to form as many complete skeletons as possible. Skeletons may be glued to poster board for display and labeling.
5. From the evidence suggested by the skeletons, discuss possible food chains that include the owl, its prey and what the prey eats.

## Extensions

1. Investigate another bird of prey, its eating habits and its food sources.
2. Write a poem that describes the interrelationships between owls, rodents and the environments in which they live.

## Evaluation

Draw a picture of a simple food chain that represents the eating habits of the owl and its food sources.

# Owl Pellets

Owl pellets are masses of bone, teeth, hair, feathers and exoskeletons of various animals preyed upon by raptors, or birds of prey. Pellets are produced and regurgitated not only by owls, but by hawks, eagles and other raptors that swallow their prey whole or in small pieces. Owls feed early in the evening and regurgitate a single pellet approximately 20 hours after eating. Unlike snakes, the protein enzymes and strong acids which occur in the digestive tract of raptors do not digest the entire meal. The relatively weak stomach muscles of the bird form the undigested fur, bones, feather etc. into wet slimy pellets. In this process even the most fragile bones are usually preserved unbroken.



The owl pellets that you will be examining in this lab have been collected and fumigated from common barn owls. Owl pellets themselves are ecosystems, providing food and shelter for communities which may include clothes moths, carpet beetles and fungi. Clothes moth larvae are frequently abundant in pellets, feeding on fur and feathers. The black spheres about the size of periods (.) that are found in the pellets are the droppings of the caterpillars. The larvae metamorphose near the surface of a pellet in cocoons made of fur.

## Materials

- Owl pellets (<http://www.pelletlab.com/>)
- Dissecting Needle/toothpicks & tweezers
- Paper
- Bone Chart ([http://www.carolina.com/owls/guide/Owl\\_Pellet\\_Bone\\_Chart\\_grid.pdf](http://www.carolina.com/owls/guide/Owl_Pellet_Bone_Chart_grid.pdf))

## Procedure

1. Measure the length and width of your owl pellets.

Length of your owl pellet \_\_\_\_\_

Width of your owl pellet \_\_\_\_\_

Mass of your owl pellet \_\_\_\_\_

2. Carefully examine the exterior of the pellet. Do you see any signs of fur? \_\_\_\_\_ any signs of feathers? \_\_\_\_\_

3. Carefully use a toothpick to break apart the owl pellet and observe what is within. Use a toothpick to expose all bones for identification. Use the bone diagram to help you identify your bones and complete the chart.

### Bones Found

Bone	Type	Number
Skull		
Jaw		
Scapula		
Forelimb		

Hindlimb		
Pelvic Bone		
Rib		
Vertebrae		

4. Organize the bones into groups and label them, use the attached chart to help you identify bones. Construction paper will serve as a mounting surface. Grade will be based on neatness, labeling and organization.

## Analysis

1. What do we know about the digestive system of an owl based upon the pellets?
2. Owl pellets not only can give us information about the diet of the owl, owl pellets also provide a habitat for other animals, in fact an owl pellet is a little ecosystem all on its own. Why kind of animals are found in the owl pellet ecosystem (Hint: read the background at the beginning)
3. Other types of birds form pellets. What would you expect to find in the pellet of a seagull?
4. Owls, hawks, and eagles are types of raptors, animals which have hooked beaks and sharp claws, and are therefore adapted for seizing prey animals. Hawks and eagles differ from owls in that they eat their prey animals by tearing them into small pieces, picking out the flesh and avoiding most of the fur and bones. They also have strong stomachs which can digest most of the bone material which they might eat. The relatively small amount of indigestible bone and fur that remain will be compacted by their stomach muscles into a pellet similar to the owl's. Do you think an eagle pellet would be as useful for dissecting as an owl's? Why or why not?
5. Construct a diagram of a food web (of at least 5 animals) with an owl at the uppermost trophic level. Use an arrow to show which organism is the consumer or predator.

**Owl Pellets**

Robles, M. Elena  
1808 W. Farwell 3A  
Chicago, IL 60613  
1-312-434-1266

Kenwood Academy  
5015 S. Blackstone  
Chicago, IL. 60615  
1-312-536-8850

**Objective**

1. Discover and mount the contents of an owl pellet.
2. Relate the owls' eating habits with other animals (snake, cow, human).
3. Relate the contents of the owl pellet to the human skeletal system.
4. Discuss the food web, population control.

**Materials (per lab group)**

owl pellets	forceps or toothpicks
3 dixie cups or beaker	holepuncher
scissors	handouts
hydrogen peroxide(optional)	a. bone sorting chart
paper (white)	b. skeletal mounting
water	c. bone identification
glue	d. procedure
precut cardboard template	e. homework
bleach (diluted)	f. key of skulls
various skeleton models	placemat (tray or paper)
metric ruler	1 liter bottle
overhead projector	plastic owl

**Procedure**

Soak 1 liter bottle in hot water to remove label and base (this can be done at home). Cut bottle just below neck so that it fits snugly inverted in the base. Test cardboard for proper fit inside the bottle. Place owl pellet on the placemat. Gently separate bones from fur (soak in hydrogen peroxide for one minute if pellet is too dry). Place bones on bone sorting chart (make sure you have double of each bone, and one skull). Get teacher's approval. Soak bones in diluted bleach to clean and whiten the bones (soak only three minutes). Get skeleton layout sheet. Arrange bones on layout sheet. Get teacher's approval. Transfer bone layout onto cardboard. Get teacher's approval. Glue bones to cardboard. Use holepuncher to get circles for labeling of bones. Glue labels to cardboard near bones. Cut white paper to fit backside of cardboard (to be used as key for display). Make key for bone display using the bone identification handout. Glue key to cardboard. Place completed bone display into inverted 1 liter bottle which rests on the original bottle base. Hand in for grading.

**Recommended Strategy**

Begin the lesson by talking about the owl characteristics and its habits. Pass out the owl pellets and discuss the physical characteristics of the pellet. The students will be asked to measure their pellet and data will then be compared. Have the students gently pull apart the pellet. Students will share discovered contents from the owl pellet with the class, through a visual display on the overhead projector. By comparing the number and types of skulls found in each pellet the class will follow into a discussion on the food web and population control. The students will be able to identify their specimen by measuring and using the "key of skulls" handout. Continue the owl pellet project by following the above procedure.

NOTE: This project may take five to seven classes to complete.

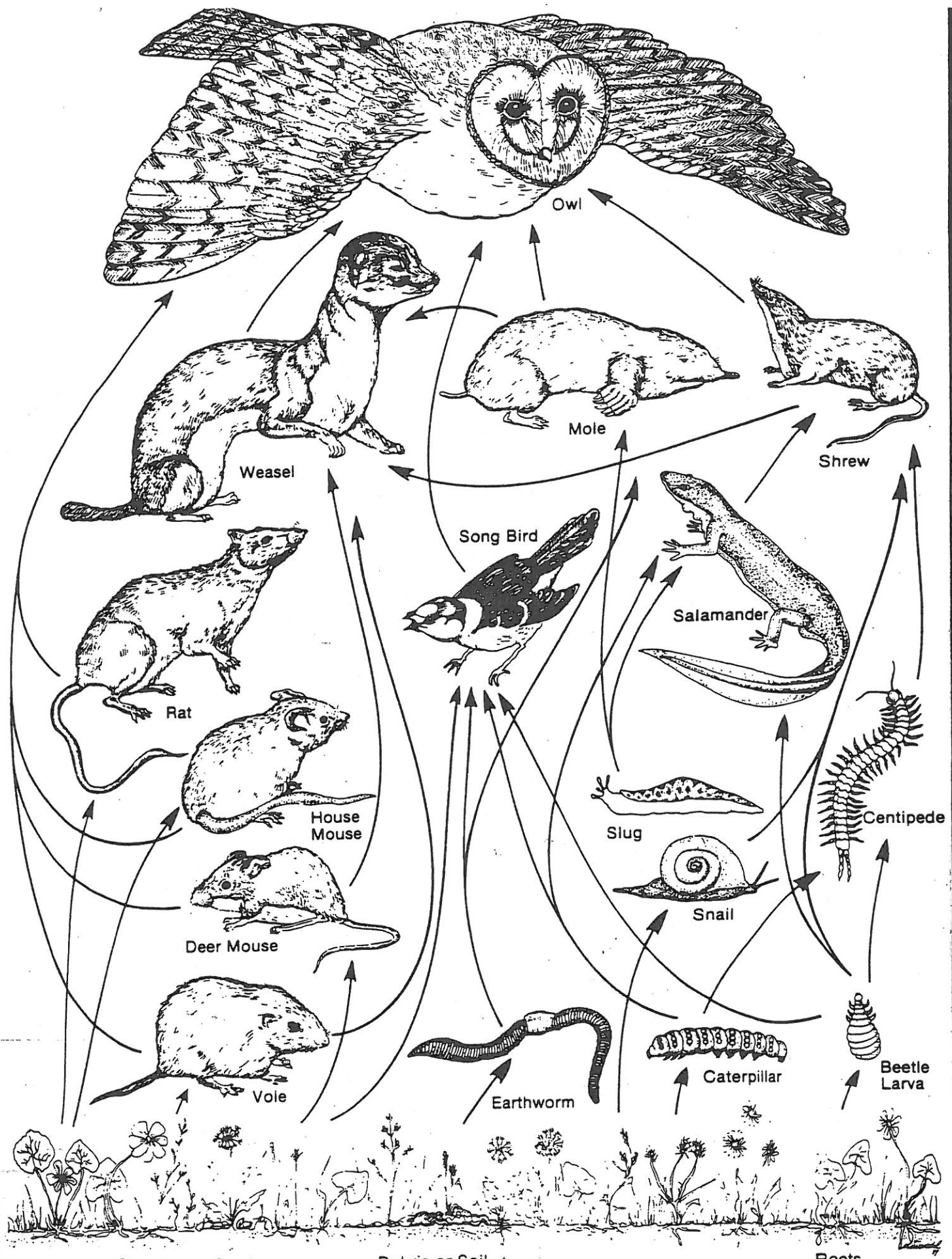
SOURCES: a. Mark Wagner, Kenwood Academy  
b. Creative Dimensions  
P.O.Box 1393  
Bellingham, Washington 98227

#### OWL PELLET OBSERVATION

1. MEASURE THE OWL PELLET (IN MILLIMETERS)
  - a. LENGTH OF THE PELLET \_\_\_\_\_mm
  - b. DIAMETER OF THE PELLET \_\_\_\_\_mm
2. IDENTIFY AT LEAST THREE PHYSICAL CHARACTERISTICS OF THE PELLETS - SMELL, COLOR, TEXTURE, ETC.
  - 1.
  - 2.
  - 3.
3. WHAT DO YOU THINK IS INSIDE OF THE PELLET?
4. IN WHICH PART OF THE OWL DOES THE PELLET FORM?
5. WHY DOES THIS PELLET FORM?
6. AFTER OPENING THE OWL PELLET WHAT INFORMATION WAS ATTAINED?
7. WRITE DOWN ONE QUESTION THAT YOU WOULD LIKE ANSWERED BY THE END OF THE OWL PROJECT.

[Return to Biology Index](#)





Shoots

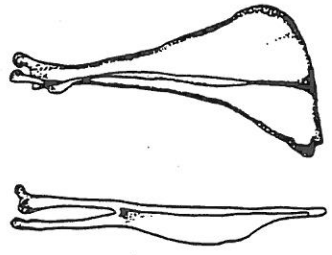
Seeds

Debris or Soil

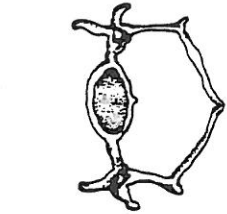
Roots

# Food Web

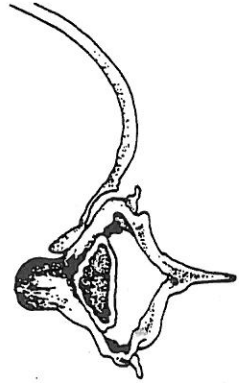
COPYRIGHT 1982 IRWIN SLESNICK



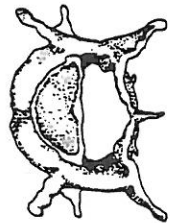
Scapula



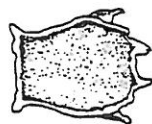
Cervical Vertebra



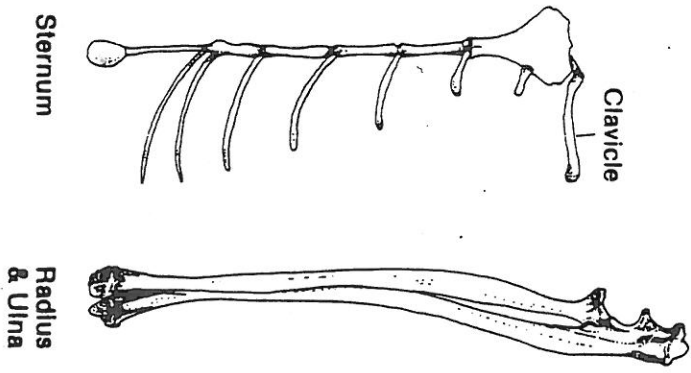
Thoracic Vertebra



Lumbar Vertebra



Caudal Vertebra



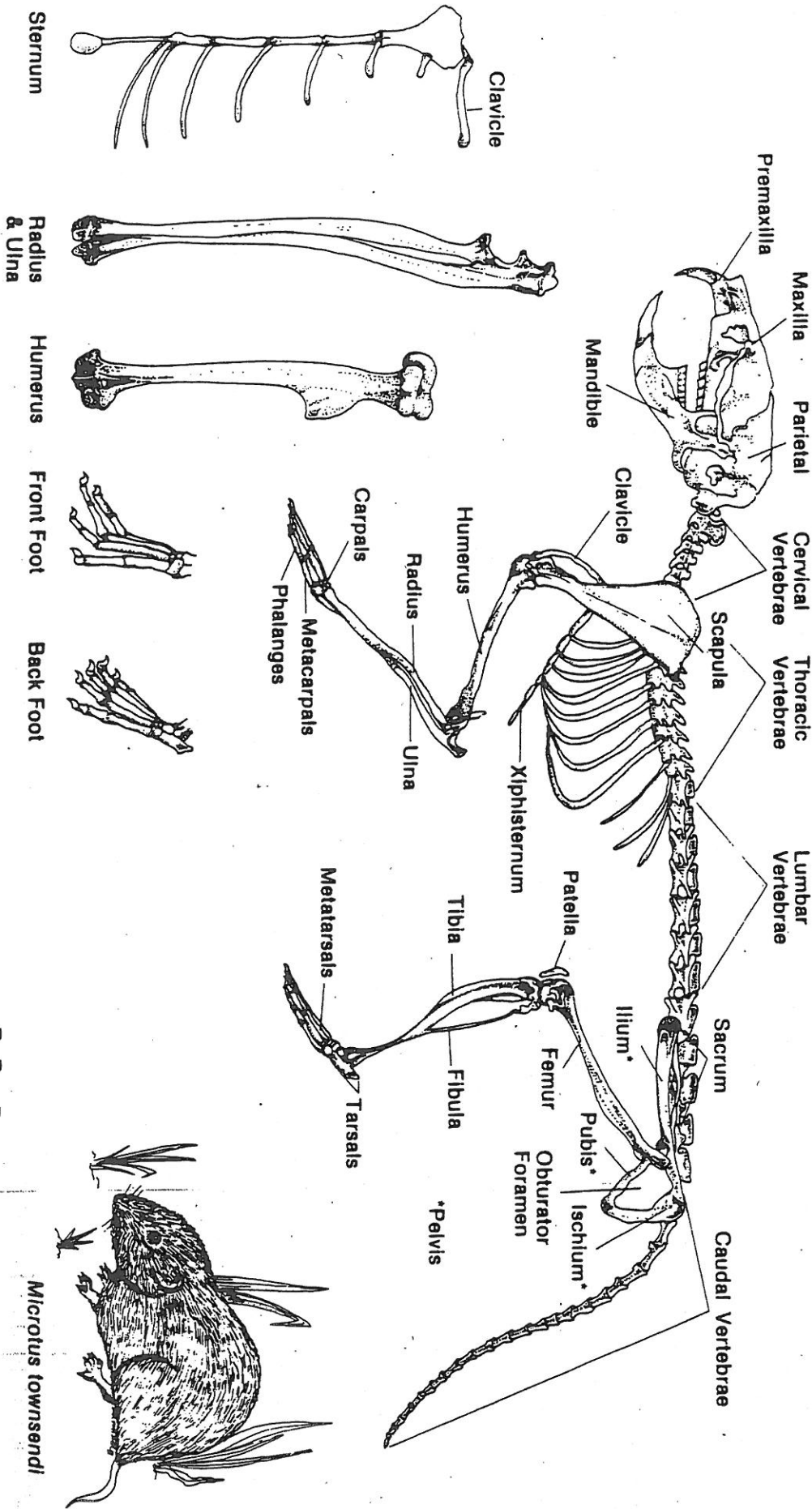
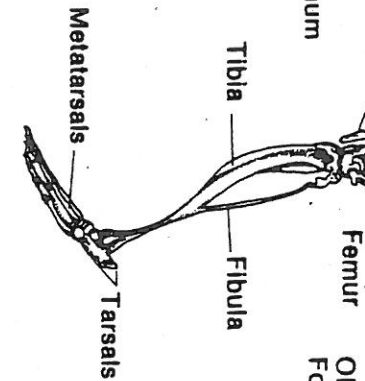
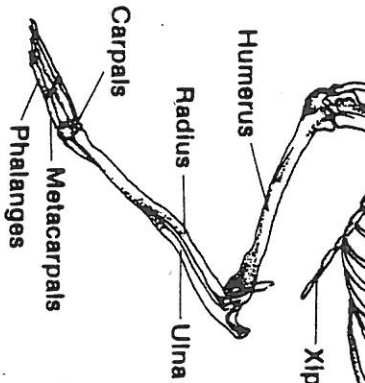
Sternum

Radius & Ulna

Humerus

Front Foot

Back Foot



Premaxilla

Maxilla

Parietal

Cervical Vertebrae

Thoracic Vertebrae

Lumbar Vertebrae

Sacrum

Caudal Vertebrae

Mandible

Clavicle

Scapula

Xiphisternum

Patella

Ilium\*

Femur

Pubis\*

Ischium\*

Obturator Foramen

Humerus

Radius

Ulna

Tibia

Fibula

\*Pelvis

Carpals

Metacarpals

Phalanges

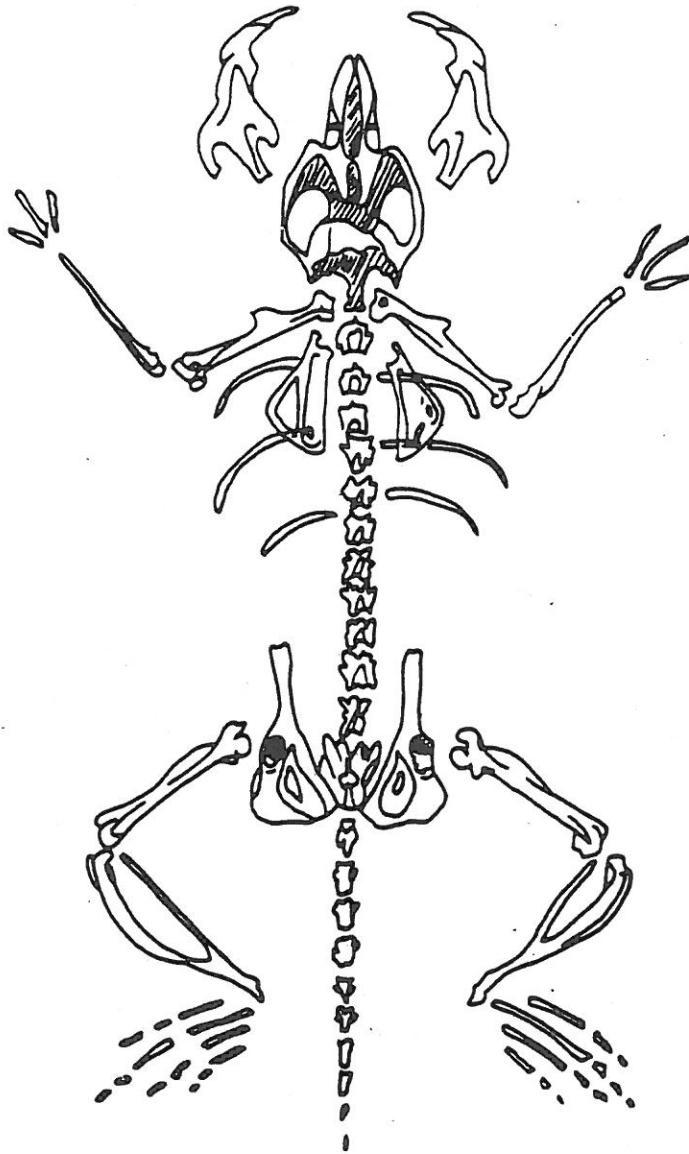
Metatarsals

Tarsals



*Microtus townsendi*





**MEADOW VOLE**



Ohio Department of Natural Resources  
Division of Wildlife

# Owl Pellet - Bone ID Sheet



Birds



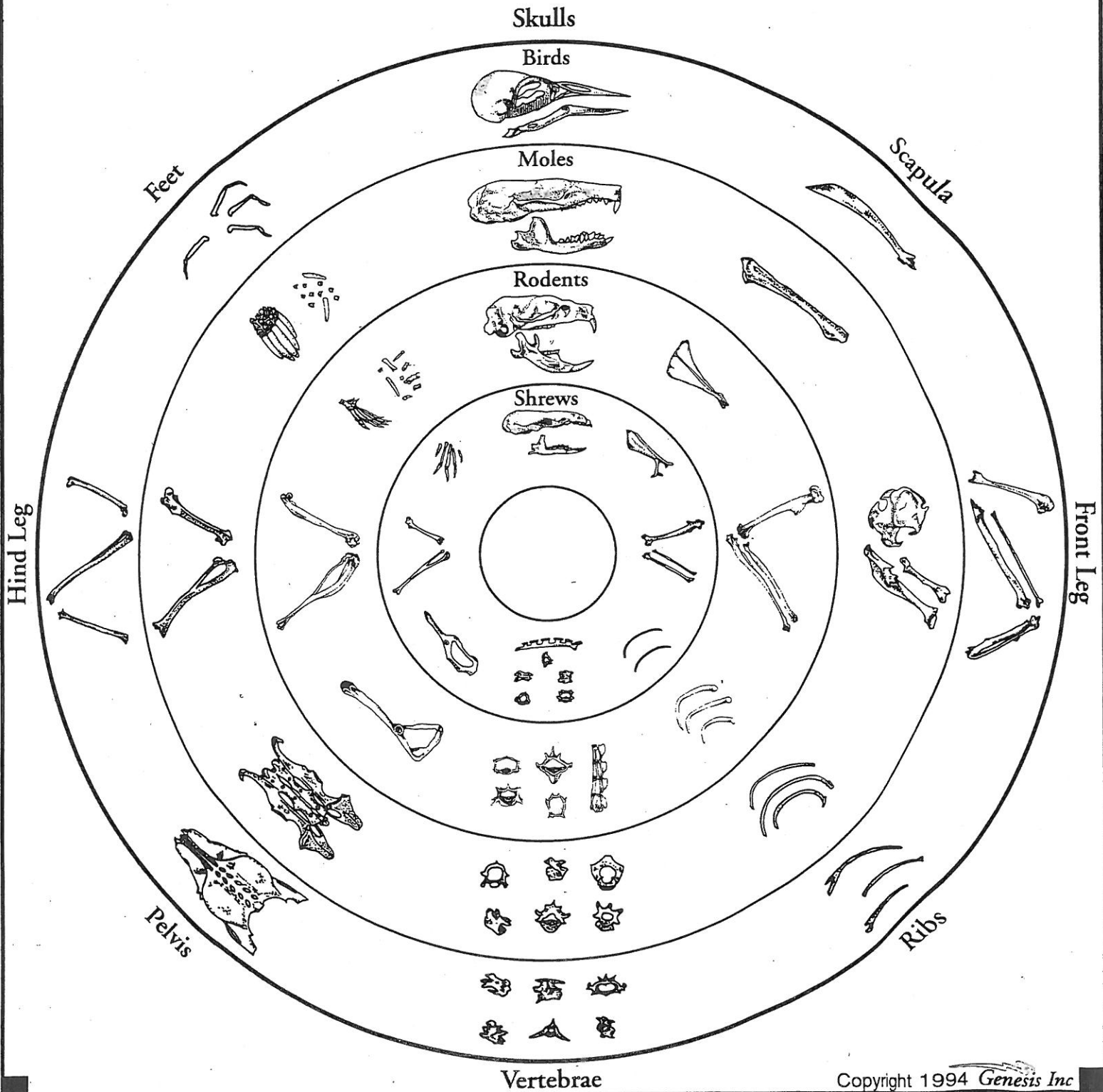
Moles



Rodents



Shrews



# Owls in Ohio



**The future of owls will depend largely on how man treats the environment.**

Owls are a distinctive group of birds with many unusual characteristics. Their calls are all startling or impressively different. They nest early in the year, often starting when it is still severe winter. All are heavily feathered with unique, soft feathers, and they have a big head and large eyes. They have excellent hearing and large ears that are responsible for their distinctive facial discs. Female owls are larger than males. Owls are nocturnal birds of prey and most are woodland dwellers. The exceptions are the short-eared owl and barn-owl, which inhabit marshes and open land.

Great horned owls, screech-owls, barred owls, and barn-owls are considered permanent residents in Ohio. Although the short-eared, long-eared, and saw-whet owls do nest in Ohio, these three species are most commonly seen as migrants or winter residents. The snowy owl is an occasional winter visitor.

Owls are active predators, feeding on a variety of animal life in their territory. Owls swallow most small prey whole, without separating bones, fur, and feathers, and then regurgitate the indigestible material as pellets. By examining these pellets, it is possible to determine their food habits. Owls are beneficial to man, for many feed largely on rodents. Because they are beneficial, they are all protected by Ohio law. If an individual owl is killing domestic animals, however, it may be destroyed by the property owner, but only when such damage is actually taking place.

These quiet predators play an important role in retarding growth of their prey populations. Their exacting way of getting food also keeps them in superb physical condition, and exciting to watch.

To modern Americans, the esthetic value in being able to see and to hear owls is extremely important. It is a refreshing experience to see a powerful predator in action or to hear the impressive owl calls in the night, as moving now as in the ancient wilderness.

What is the future for owls? In agricultural Ohio, when woods are cut or bulldozed out of existence owls will decrease in numbers. In eastern and southern Ohio, land is still reverting from abandoned farmland to woods and brush. In this area more habitat will mean more owls—especially the larger ones—as long as other factors do not diminish the overall forestland. Drainage is destroying the wetlands where the few short-eared owls nest; if this continues, shortears will decrease.

The Division of Wildlife is working to protect and restore Ohio's owl populations. The barn-owl is now considered an endangered species. The Division has initiated a barn-owl nest box program to provide much needed nesting sites, and will monitor the barn-owl population. Restoration of grassland habitat in Ohio, however, is the most important factor for increasing barn-owls. These grasslands support the necessary rodent populations that the owls need to survive and raise young. The Division's wildlife areas and habitat developments also provide excellent habitat for many of Ohio's other owls.



# Short-Eared Owl

*Asio flammeus*

## At-a-Glance

- Peak Breeding Activity: March-June
- Incubation: 21-37 days
- Clutch Size: 5-7 eggs
- Young Fledge: 24-36 days after hatching
- Typical Foods: voles, mice, and other small mammals

Unlike most owls, the short-eared owl begins to fly and to hunt in the late afternoon. The major food of this owl is the same as that of many other owls and hawks -- meadow mice. Except for a hissing or squalling noise given near the nest, this bird is silent.

## Description

The short-eared owl is a tawny brown color, rather heavily streaked with black, with patches around the eyes. The ear tufts are so short that they are barely visible. This crow-sized, long-winged bird is best identified by its flight -- a fluttering, low over the ground, erratic, moth-like flight.

## Habitat and Habits

This owl is an occasional winter visitor. The "prairie owl," as it is sometimes called, lives in grasslands, cattail marshes, or other similar open country habitats. A few of them nest in the Lake Erie marshes.

## Reproduction and Care of the Young

The nest, containing five to seven white eggs, is a grass-lined ground depression. The male provides food and defends the nest while the female takes care of incubating and brooding the young.



# Eastern Screech Owl

*Megascops asio*

## At-a-Glance

- Peak Breeding Activity: February-March
- Incubation: 26-34 days
- Clutch Size: 3-8 eggs
- Young Fledge: 28 days after hatching; independent at 8-10 weeks
- Typical Foods: insects, reptiles, amphibians, small mammals, and birds

Eastern screech-owls are dichromatic, meaning they come in two distinct color morphs. They are either uniformly gray or uniformly rufous, with darker streaking on the body. Both color morphs allow for camouflage against the bark of trees.

## Description

Distinguishing features of the screech owl include its small size, prominent ear tufts and large yellow eyes. It occurs in two color phases, gray and red.

## Habitat and Habits

This is a fairly common permanent resident in Ohio. It lives in towns, orchards and small woodlots. When disturbed or frightened these birds assume a very erect, slender, "frozen" position with the ears especially erect. Their diet consists of mainly mice and large insects. The song is an eerie, trembling wail and a soft trill.

## Reproduction and Care of the Young

The nest is in a natural cavity, or sometimes in a wood duck nesting box. The three to eight white eggs are laid without any nesting material. Eastern screech owls are particularly aggressive near the nest and will come down and strike a person on the head if he approaches too close.



# Long-eared Owl

*Asio otus*

## At-a-Glance

- Peak Breeding Activity: March-May
- Incubation: 25-30 days
- Clutch Size: 3-8 eggs
- Young Fledge: 5 weeks after hatching; independent at 8-10 weeks
- Typical Foods: insects, reptiles, amphibians, small mammals, and birds

The long-eared owl is known largely as a winter visitor to Ohio, although some nesting has been recorded in counties in the northern and southwestern parts of the state. It is less common than the short-eared owl despite its wider nesting record. It is usually found in evergreens.

## Description

A medium-sized woodland owl, they have prominent ear tufts that appear to sit in the middle of the head and are usually held erect. Plumage is brown and buff, with heavy mottling and barring over most of the body. Male plumage tends to be lighter than females. Juveniles are similar to adults but less heavily marked. The head tufts are shorter and less defined and facial disk darker. Body feathers are tipped with grayish white.

## Habitat and Habits

Nocturnal, with activity beginning at dusk. They fly moth-like, often hovering and fluttering while looking for prey. Long-eared Owls inhabit open woodlands, forest edges, riparian strips along rivers, hedgerows, woodlots, and wooded ravines.

## Reproduction and Care of the Young

Males occupy nesting territories first and may begin their territorial calling in winter. During courtship, males perform display flights around nests. Long-eared Owls nest almost exclusively in old stick nests of crows, magpies, ravens, hawks, or herons. Long-eared Owls have an impressive nest defense display. They will occasionally attack viciously, aiming the talons at the face and throat of the intruder.

# Barred Owl

Scientific Name: *Strix varia*



Publication 380  
(399)

## Introduction

Owls of all kinds have been traditionally associated with a variety of myths and tales usually involving witchcraft, magic, evil occurrences, and impending death —many people believe that an owl hooting near a house means that an occupant will die soon. None of these incidents have any basis in fact, but traditions die hard and so for many the night call or flight of an owl can raise a chill.

The mystery and supernatural influences associated with owls can, in part, be attributed to their calls and appearance. The barred owl is a likely candidate if you have ever heard an owl call in the middle of the night. It has a distinctive call that can come in measures of eight and would resemble the human phrase “Who cooks for you? Who cooks for you all?” It has large eyes, an attribute that makes many believe it is wise or knowing. In reality, owls are efficient, specialized predators that have a significant role in the control of a variety of rodents and to a lesser extent insects; its unusual physical makeup contributes to this ability.

Its large, brown eyes (most owls have yellow eyes) allow the barred owl to gather enough light to permit it to see well and function effectively in low light conditions. Its ear placement and acute hearing let the owl pinpoint minute sounds from a prey source and capture it in total darkness. Additionally, the feathers of an owl are fringed on the edges, helping to make their flight virtually silent; essentially, prey have no indication of an owl in their midst.

## Description

Barred owls are the most common large owl found in southeastern Ohio. The widest distribution of barred owls occurs in the eastern half of the state; sightings occur in western Ohio, but they are rare. Its range across North America is vast. It can be found across southern Canada, south through Montana, Wyoming, Colorado, Texas, Louisiana, and Florida. Their range continues into the mountainous parts of Mexico and Central America. Recent expansion of barred owl range into the Pacific Northwest has occurred as a result of the timber management practices implemented there.

Breeding populations of barred owls are thought to occur in 83 of the state’s 88 counties. Barred owls are rare around larger metropolitan areas, having been replaced by the more adaptable and aggressive great horned owl. A barred owl’s home range is relatively constant throughout the year; however, the range can change based on the availability of prey species populations. In a study conducted in Minnesota, home range was determined to average about 565 acres.

The barred owl is a brown-gray hornless (no ear tufts) owl with white spots on the back, white streaks on the belly that run lengthwise, and the white bars, from which their name is derived, on the neck and breast that run crosswise. As stated previously, its eyes are brown rather than the more common yellow. The barred owl stands 18 to 22 inches tall and has a wingspan of 3.5 to 4 feet.

## Habitat and Habits

Mice are the barred owl's preferred food, but they will also consume a wide variety of birds, mammals, reptiles, fish, and insects. Owls, like snakes, swallow their prey whole. Indigestible parts such as bones, fur, and feathers are regurgitated as pellets. Owl pellets can be used to study the bird's diet habits. One prey list developed from an analysis of stomach contents included meadow voles, mice, chipmunks, squirrels, snails, slugs, spiders, bats, chickens, various songbirds, woodpeckers, crows, a variety of insects, crayfish, and rabbits. In Ohio, meadow voles, short-tailed shrews, and white-footed mice comprise the bulk of the barred owl's prey.

Generally, these owls live in larger tracts of deciduous forests, ranging from mesic, or wet areas such as wooded swamps, poorly drained woodlots, and protected hillsides to drier, upland area. Recent research indicates that the preference for wetter sites is because these are areas less likely to have been disturbed, particularly by timber activities that remove the mature, deteriorating trees used for nesting sites, rather than a need for water. The presence of a suitable number of mature trees capable of providing perching and nesting cover are crucial for barred owl habitat. Pine groves are frequently used as roosting cover for this species which overwinters in Ohio.

## Reproduction and Care of Young

As is typical of other owl species, barred owls rarely build their own nests. Instead they will frequently use hollow tree cavities; old hawk, squirrel, and crow nests; and on occasion man-made nesting structures. Although it could not be considered typical nesting behavior, barred owls have been observed sharing a nest and incubation responsibilities with hawks, with young of both species hatching. Nests built by barred owls alone are flimsy and poorly constructed; eggs deposited in owl-constructed nests frequently roll out, breaking on impact.

When a successful mating occurs, clutches of two or three eggs, and on occasion four, are laid in March. Incubation requires about 28 days and will begin, for each individual egg, once it is laid. Thus, hatching dates within a clutch are staggered. Eggs will hatch about late March into mid-April. The eggs are a dull white with a slightly roughened surface.

Owlets will open their eyes at one week of age and leave the nest cavity at about 30 days of age, but are not fledged (able to fly) until seven to nine weeks of age. After they leave the nest cavity, the young will typically roost on a tree branch, which is oftentimes reached by climbing, until they can fly. The young barred owl climbs trees by grasping the bark of the tree with its beak and talons, flapping its wings

then letting go with the beak, quickly stretching its neck out and grabbing onto the bark with its beak again, and pulling and/or walking itself up the tree.

## Management Plans

Current barred owl populations within the state appear stable. The Division of Wildlife has no active management plan designed for these owls, but continues to monitor and evaluate information, as it becomes available, to help ensure that they remain a viable component of the forest ecosystem.

The owls of Ohio are a featured topic of many Division information and education efforts. Project WILD, a curriculum for grade school children, has segments dedicated to teaching students about owls. Participants of the Division's Becoming an Outdoors-Woman workshop have the opportunity to take an "owl prowl," a chance to listen for and identify the signs of owls in the area.

## Viewing Opportunities

Viewing opportunities are best in the intensively forested southeastern section of the state where the barred owl is most abundant. Because they are primarily nocturnal, the likelihood of hearing a barred owl is much greater than actually seeing one. However they can be lured into viewing range by individuals proficient enough to mimic their "Who cooks for you? Who cooks for you-all?" call.

## Do Something Wild!

The barred owl is among the majority of wildlife species in Ohio that are not hunted. All of these animals are vital parts of our overall ecosystem and contribute to the wildlife diversity in the state. Helping us manage and research these species are the generous citizens of the state of Ohio. With money they either donated through the state income tax check-off, by the purchase of a wildlife license plate, or their direct contribution to the Endangered Species Special Account, the Division is able to purchase critical habitat essential to sustaining populations of barred owls and other species of wildlife.

Contributions to our Wildlife Diversity Program are accepted throughout the year. To make a donation, please send a check to: Endangered Species Special Account, Ohio Division of Wildlife, 2045 Morse Road, Bldg. G, Columbus, Ohio 43229-6693. All contributions, whether made on your income tax return or directly, are tax deductible.





## At a Glance

Mating: Monogamous

Peak Breeding Activity: Late February through mid-March

Incubation: 28 days. Incubation begins as soon as the first egg is laid and ends 28 days after the last egg is laid.

Young Hatch: Generally in mid-April

Clutch Size: 2-3 eggs

Adult Height: 18-22 inches

Life Expectancy: Not available

Migration Patterns: In the extreme northern portions of its range a shortage of prey species, generally occurring in the winter, will result in the owl moving from those areas to more productive hunting grounds. Provided food supplies are available, barred owl migration is minimal.

Feeding Periods: The barred owl is a nocturnal species, meaning most of its actions including feeding occur at night. Some daytime activity has been reported, but it is rare.

Typical Foods: Although mice are the barred owl's preferred food, they consume a wide variety of small mammals, reptiles, fish, and insects including snails, slugs, spiders, bats, chicken, various songbirds, woodpeckers, crows, crayfish, and rabbits. In Ohio, meadow voles, short-tailed shrews, and white-footed mice comprise the bulk of the barred owl's prey.

Native to Ohio: Yes

Active or Potential Nuisance Species: No. They are extremely effective and efficient predators that feed primarily on small rodents.

The barred owl is classified as a species of special interest in Ohio. This means that it might become threatened in the state if placed under increased stress. Special interest also indicates a species for which there is insufficient information to properly evaluate its status.

## Ohio's Barn Owl *Tyto alba*

Perhaps no other animal is more a part of folklore and superstition than the owl, and it is likely the behavior of the barn owl is one of the reasons. The barn owl likes to haunt old buildings like barns, church steeples or abandoned houses. In reality, having a barn owl roosting nearby is more helpful than haunting.

While barn owls may be no wiser than the average bird, they are good at catching mice and other small rodents that can sometimes be a problem for people. You may have never seen a barn owl; they are nocturnal hunters, flying at dark over Ohio farm country in search of prey. Barn owls are rare in Ohio and are listed as a threatened species.

**Classification:** Bird (Raptor)  
**Diet:** Small mammals (voles), small birds  
**Habitat:** Farm areas, old fields, meadows, grasslands  
**Size:** Length: 13-15 in.  
**Weight:** 14-25 oz.  
**Wingspan:** 3.5 - 4 ft



### Description

Barn owls have ear tufts and long legs. Their large bright eyes may be part of the reason owls appear to be wise. The barn owl's nicknames are, because of its appearance, the monkey-faced owl and white owl. They are a beautiful light tan color above and nearly snow white below.

### Habitat and Habits

Barn owls depend on open grassland over which to hunt. However, because of the way much of Ohio is farmed today, there is little of this kind of habitat around. When there are few grassy meadows, there are few meadow voles. And when there are few meadow voles, there are few barn owls. When barn owls are not haunting an old building, barn, silo or chimney, they may roost and nest in a hollow tree. They will also use nesting boxes placed in barns just for them to use.

### Reproduction and Care of the Young

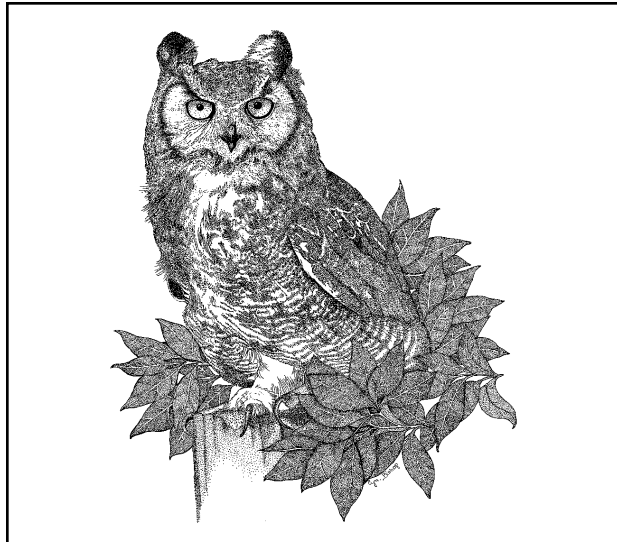
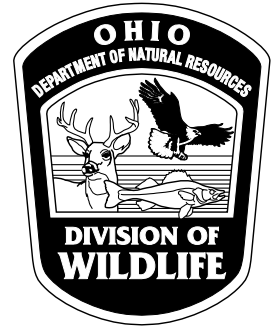
Barn owl young hatch from four to eight eggs about one month after they are laid. The eggs do not hatch all at the same time, but in the order they were laid, usually a day or two apart. A nest full of young barn owls ranging in size from the smallest to the largest is a comical sight. Both parents care for the young for two months, hunting up to two miles from the nest.



**You can help!** Funding for the barn owl program is derived from tax check-off contributions to the Wildlife Diversity and Endangered Species Fund on the Ohio state income tax form.

# Great Horned Owl

Scientific Name: *Bubo virginianus*



Publication 182  
(1099)

## Introduction

The great horned owl is the largest of Ohio's resident owls and the largest "eared" owl in North America. Once abundant in the state, great horned owl numbers have declined with the development of Ohio. This owl will eat a tremendous variety of animals and is a talented hunter; these attributes have allowed it to adapt to nearly all types of habitat where it can find suitable nest sites.

Throughout the world, owls have been associated with a variety of myths and superstitions, good and bad, that run the gamut from being a symbol of witchcraft, evil occurrences, impending death, wisdom, good luck and victory. Many of the stories that have been fabricated around owls likely have their roots in attempts to explain owls' nocturnal behavior and their vocalizations, many of which sound human. The great horned owl has a variety of calls or notes it sounds including a five- or six-note hoot, shrieks, barks, growls, and a scream that sends a chill down many spines.

The great horned owl is considered the top bird of prey, fearing no other creature but man.

## Description

The great horned owl has a mixture of brown and varying shades of black and buff feathers. A considerable number of feathers show white, especially under the chin where there is a conspicuous throat patch. The breast is heavily barred--the variation in feather colors gives the impression of bars running across the body. Two large tufts of longer feathers come off either side of the great horned owl's head. Male and

female great horned owls are identical in appearance, but the female is noticeably larger.

Owl feathers are described as "soft and flexible"; the edges are fringed. This allows owls to fly nearly silently and to approach their prey without warning. Most owls have 12 tail feathers.

The eyes are yellow and highlighted by a black facial rim. They are also very large; and this adaptation helps the owl be an effective predator. The size of its eyes allows the owl to gather sufficient light to permit it to see well and function in low light conditions. The great horned owl has a sharp beak and claws, also excellent aids in hunting prey. Its talons are curved and thick and there is a soft covering of feathers over the toes down to the base of the nails. Its ears are placed on the top sides of its head, and its hearing is acute. The great horned owl's hearing, like that of other owls, picks up the most minute sounds to the point that it can take prey in complete darkness.

Great horned owls are generally 21 to 23 inches in height. Their weight varies greatly, but they can weigh as much as 4.5 pounds. The male's wingspan is 50 to 55 inches and the female's 50 to 62 inches.

Great horned owls have an extensive range--throughout the Americas from the Arctic to the Straits of Magellan, less the West Indies. There are 10 subspecies of great horned owls within this range. Coloration patterns vary somewhat among the subspecies, but their general appearance is consistent with the subspecies found in Ohio. Great horned owls are fairly

common in Ohio, especially in the glaciated portions of the state.

## Habitat and Habits

Great horned owls can be found throughout Ohio, but their primary habitat area is open farmlands where numerous woodlots are interspersed among the agricultural fields. Wooded parks and riparian corridors near openings of heavily forested areas are also used; extensive forested areas are avoided.

Great horned owls are the earliest nesters, but they don't build their own nests. These owls will use the abandoned nests of hawks, eagles, herons, and squirrels; tree dens and cavities may also be used. Large, mature trees are the preferred sites for these nests. When tree nest sites are lacking, great horned owls have been known to use old buildings, cliffs, and even the bare ground. Breeding populations are known to occur in 86 of Ohio's 88 counties and are believed to occur in the remaining two.

Typically the home range of the great horned owl is constant throughout the year; however, this can be influenced significantly by the availability of prey animals. These owls don't migrate in the usual sense of the word, but will relocate to areas with more prey during periods of severe conditions.

The great horned owl prefers live food, but will eat freshly killed prey. This owl's diet is the most widely varied of all North American birds of prey. Its diet ranges from small rodents to house cats, skunks, and beaver; and small songbirds to geese and adult turkeys. Their prey list includes, but is not limited to the previously mentioned species, and: ducks, chickens, pheasants, hawks, grouse, mice, rats, muskrats, eels, rabbits, porcupines, snakes, and skunks.

## Reproduction and Care of the Young

Great horned owls are monogamous, meaning that the pair forms a bond and the male doesn't breed with other females. In Ohio, mating occurs in early January; clutches of three or four white, roundish eggs are laid in late January through late February. Incubation takes about 30 days (this may range from 28 to 35 days) and the eggs generally begin to hatch in late February through March. Incubation of each individual egg begins as it is laid, so hatching dates within the clutch will be staggered. While the female incubates, the male hunts and brings his mate food; he will continue these efforts, bringing food to the owlets when they hatch. If a clutch of eggs is destroyed, the female may attempt to renest.

Owlets open their eyes at one week, and will leave the nest cavity at four to five weeks of age. Young fledge at 10 weeks of age. Once the owlets leave the nest, they typically roost on

a tree branch which they often have to climb to until they become more accomplished fliers. The young great horned owls may stay with their parents for up to a year when they themselves become sexually mature.

## Management Plans

Currently, great horned owl populations within the state appear stable. Although the Division of Wildlife has no active management plan designed specifically for these owls, continued monitoring and evaluation of data and information, as it becomes available, will help ensure that they remain a viable part of our state's woodland-open land ecosystem.

## Viewing Opportunities

Opportunities to view great horned owls are best in farmland areas where numerous woodlots are interspersed by agricultural, particularly pasture and grassland, fields. Because they are primarily nocturnal, the likelihood of hearing a great horned owl is much greater than actually seeing one. They can be lured into viewing range by individuals who, while imitating their call or hoot, are successful in eliciting a territorial response from resident owls.

## Do Something Wild!

The great horned owl is among the majority of wildlife species in Ohio that are not hunted. All of these animals are vital parts of our overall ecosystem and contribute to the wildlife diversity of the state. Helping us manage and study these species are the generous citizens of the state of Ohio. With money they either donated through the state income tax checkoff, by the purchase of wildlife conservation license plates, or their direct contribution to the Endangered Species Special Account, the Division is able to purchase critical habitat essential to sustaining many species of wildlife and to implement programs that benefit species like the great horned owl.

Contributions to our wildlife diversity program are accepted throughout the year. To make a contribution, please send a check to: Endangered Species Special Account, Ohio Division of Wildlife, 2045 Morse Road, Bldg. G, Columbus, Ohio 43229-6693. All contributions, whether made on your income tax return or directly, are tax deductible.

## At a Glance

Mating: Monogamous

Peak Breeding Activity: Late January through mid-March

Incubation Period: 28-35 days; 30 days typical. Incubation begins as soon as the first egg laid and ends about 30 days after the last egg is laid.

Young Hatch: Generally beginning in late February through early April

Clutch Size: 3-4 eggs

Young Fledge: At 10 weeks old

Number of Broods per Year: 1

Adult Weight: Male- 2.5-3.5 pounds; female- 3-4.5 pounds

Adult Height: 21-23 inches

Life Expectancy: Approximately 50% of great horned owls hatched will die within the first year of life. Those that survive beyond this period average 6-7 years of life. Oldest reported in the wild was 15 years of age.

Migration Patterns: In the extreme northern portions of its range, the shortage of prey species, which generally occurs in the winter, results in owl movement from those areas to more productive hunting grounds. Provided adequate food supplies are available, migration is minimal.

Typical Foods: Small rodents, small cats, skunks, beaver, songbirds, geese, adult turkeys, chickens, pheasants, grouse, muskrats, snakes, eels, rabbits, porcupines, and squirrels among other animals.

Native to Ohio: Yes

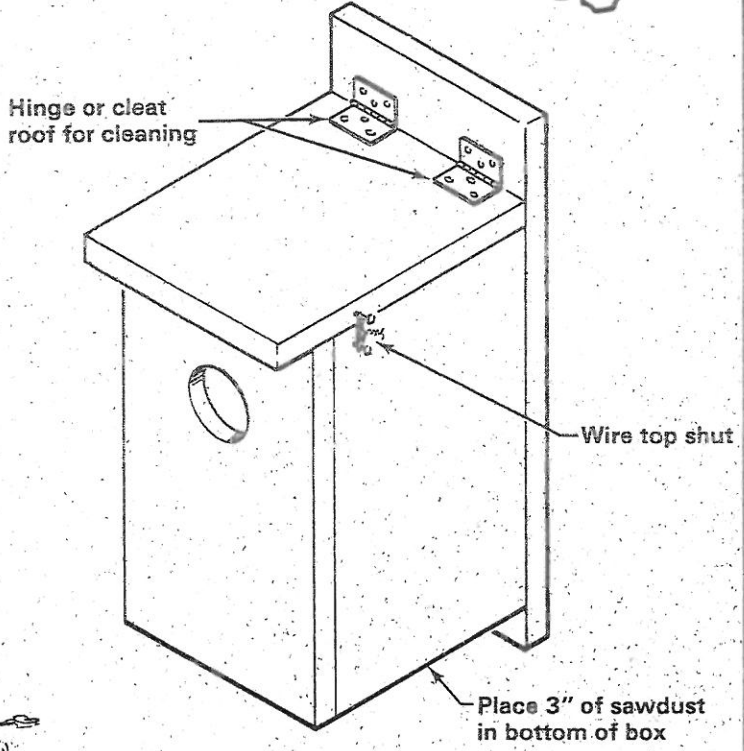
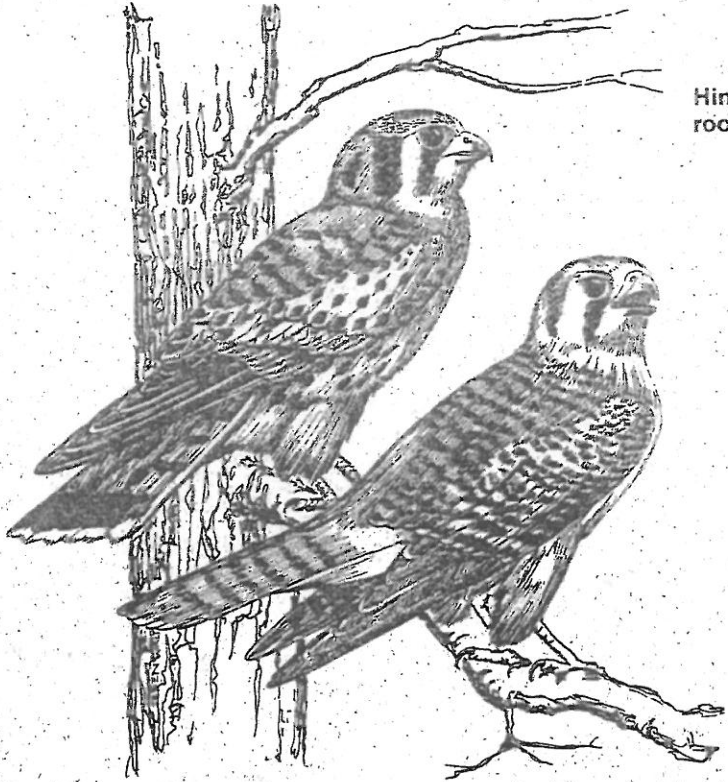




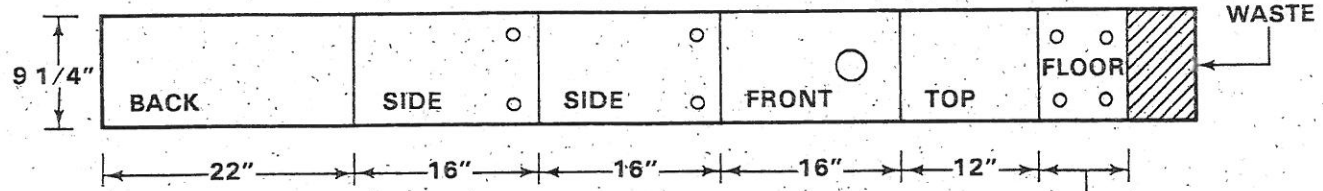
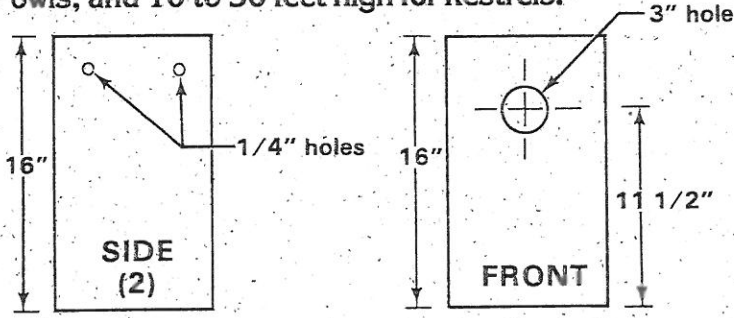
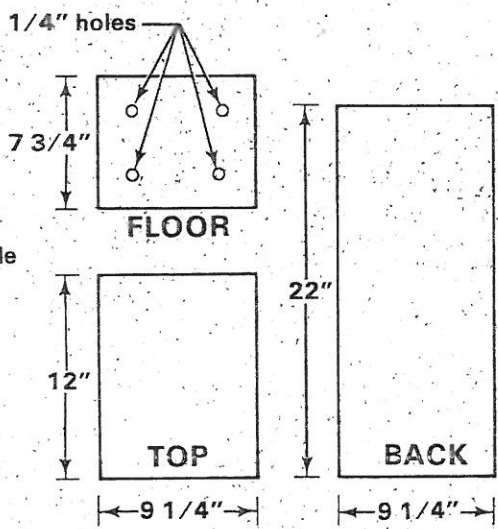
Do Something Wild!



# AMERICAN KESTREL, EASTERN SCREECH-OWL NEST BOX



Preferred habitat for owls includes mixed stands of deciduous forest on the edge of woods adjacent to fields or wetlands. Kestrels prefer more open country. To prevent use by squirrels, the box for owls can be placed on a pole with a predator guard. Boxes should be placed at least 10 feet high for owls, and 10 to 30 feet high for kestrels.

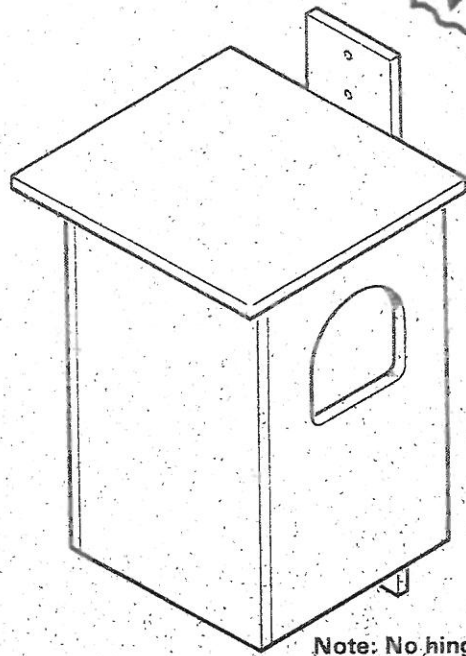


LUMBER:  
ONE 1" x 10" x 8'0"

Do Something Wild!

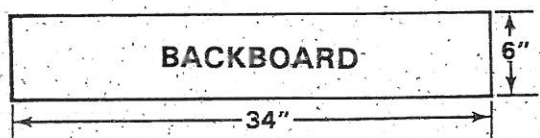
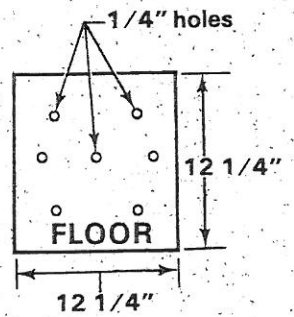
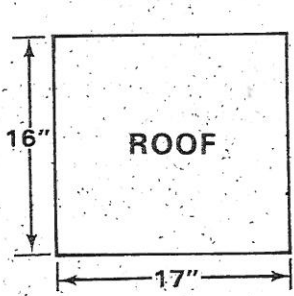
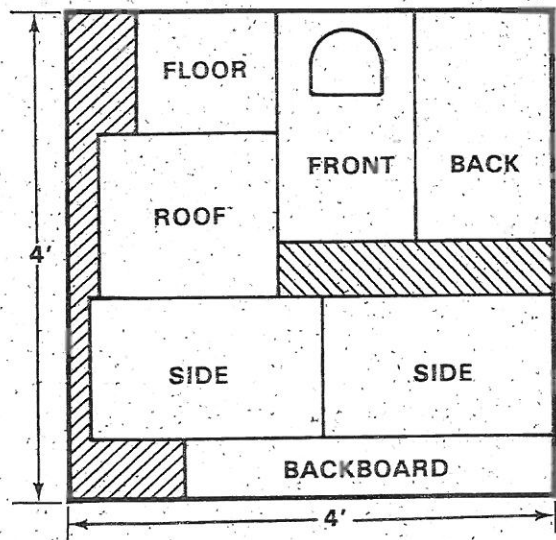
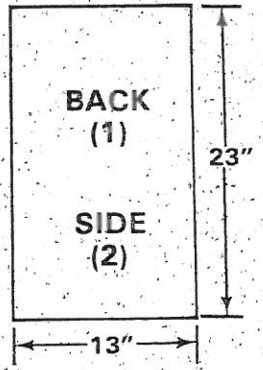
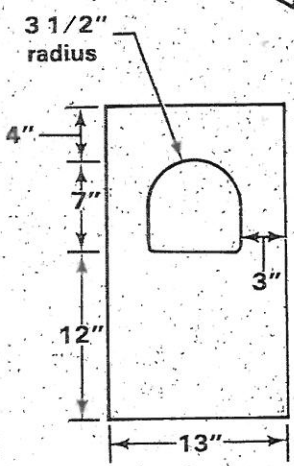


# BARRED OWL NEST BOX



Note: No hinge door needed clean through entrance hole

The box should be placed in January, 20 to 30 feet high in a mature lowland hardwood area, preferably within 200 feet of water. It should not be on the edge of a clearing or within 150 feet of a residence. The entrance hole should not be obscured by branches or leaves, but a perch near the nest box is desirable.



LUMBER:  
One 4' x 4' x 3/4"  
sheet exterior plywood



## Barn-Owl Nest Box for Covered Silos

Box construction is the same as for the enclosed box, only add a front panel (16" x 41.5" plywood) with a 6" x 6" square entrance hole cut 2" from the hinged box end and approximately 7" above the box bottom. Drill holes for rope in the box ends at top center: 5 to 7 feet of 1/2" or 3/4" rope is recommended. Hang the box securely by wrapping the rope around the climbing well at the top of a covered silo that has an opening in the silo's dome.

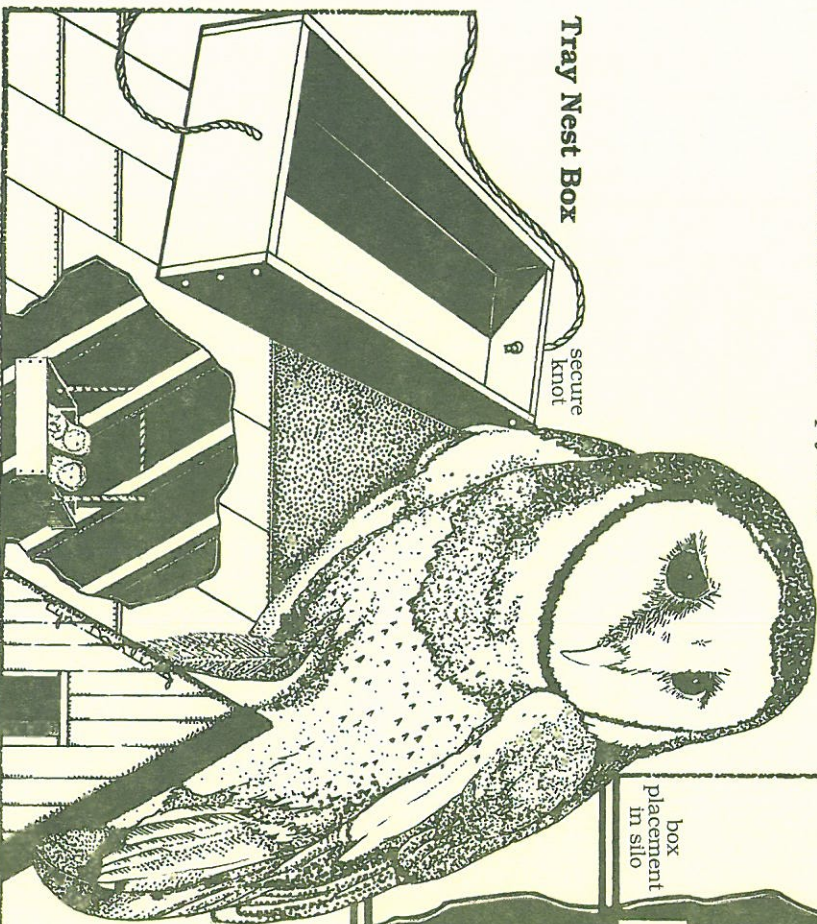
## Tray Nest Box for Use in Barns

Construct the frame from 1" x 12" pine boards and the bottom from 5/8" utility plywood. One 8-foot pine board makes the sides for one box, and one 4-foot x 8-foot sheet of plywood makes nine bottoms.

- 2 ends, each 16" long - pine
- 2 sides, each 32" long - pine
- 1 bottom, 16" x 30.5" - plywood

## Tray Nest Box

secure knot



First construct the frame, then nail the bottom in place to the sides of the frame. Attach the rope as described for the silo nest box. The box can then be hung from the rafters of a barn that is open and provides access for owls. Hang the tray where raccoons can't reach it.

Written by Bruce A. Colvin

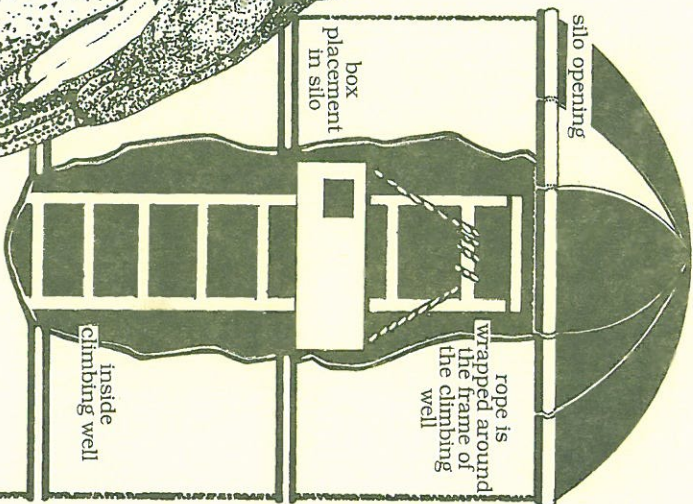
Revised by Division of Wildlife,

Ohio Department of Natural Resources

Enclosed nest box design by Laurel Van Camp

Tray nest box design from L. Soucy, Jr., Nest boxes for raptors, New Jersey Audubon, fall 1980

George V. Vannoy, Governor • Frances S. Buehler, Director  
Richard B. Pierce, Chief



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## Nest Boxes for Barn-Owls



The barn-owl has a white, heart-shaped face, no ear tufts, and long legs; it appears tan from above and white from below. It is seen roosting in silos and barns during the day and heard screeching (rather than hooting) at night. Its consumption of large numbers of rodents makes it an asset to farmers.

The barn-owl once was well established in Ohio, but commercial development of farmland, reduction of the dairy and sheep industries, conversion of farm fields to intensive row-cropping, and decline in farm numbers have all contributed to the loss of nest sites and grassland foraging habitats. Today the barn-owl is rare in Ohio.

Most barn-owls nest from April through July. Nest sites include tree cavities, silos, barns, and other buildings. The clutch averages six eggs, and incubation lasts approximately one month. The young fledge at 8 to 10 weeks of age. Barn-owls usually are tolerant of man's activities, especially once the eggs have hatched.

**DIVISION OF WILDLIFE**  
Ohio Department of Natural Resources

Areas of adequate habitat for foraging exist in portions of Ohio, but secure nest sites often are lacking. Nests in poor sites, such as tree cavities, may not last long and poor nest sites may contribute to the destruction of eggs or young by predators. Nest boxes provide a secure nest site for barn-owls and often are utilized rapidly when placed near preferred foraging habitat, such as grass fields, old fields, wet meadows, and wetland edges. Installation of nest boxes is a simple and effective way to enhance owl populations.

The proper kind of nest box depends on the available structure. A wall-mounted box with an outside entrance will provide a nest site inside a barn, particularly when normal access is lacking. Since many property owners want to maintain tight buildings to exclude pigeons and starlings, this installation permits an owl nest site without creating an opening in the barn. A second type is a tray which can be hung in an open barn or a covered silo.

Boxes should be secured to avoid predation by raccoons. The top of a wall-mounted box must be securely latched, wired, or partially nailed in place. Raccoons can use barn supports as walkways and even get to hard-to-reach tray boxes.

Pigeons can be another problem. Their use of nest boxes deters owls. Keep boxes free of pigeons and their nest litter whenever possible, especially in late winter and early spring. Barn-owl pellets (regurgitated fur and bones of prey) should be cleaned out of boxes after each nesting.

Nest boxes placed in areas of suitable habitat can help maintain this agriculturally valuable predator in Ohio. If barn-owls use your nest box, drop a note to the Olentangy Wildlife Research Station, 8589 Horseshoe Rd., Ashley, OH 43003; phone 614/747-2525. Information on nesting will help the Division of Wildlife determine barn-owl population status and the effect of management techniques. Good luck!

## Enclosed Barn-Owl Nest Box for Use in Barns or Other Buildings

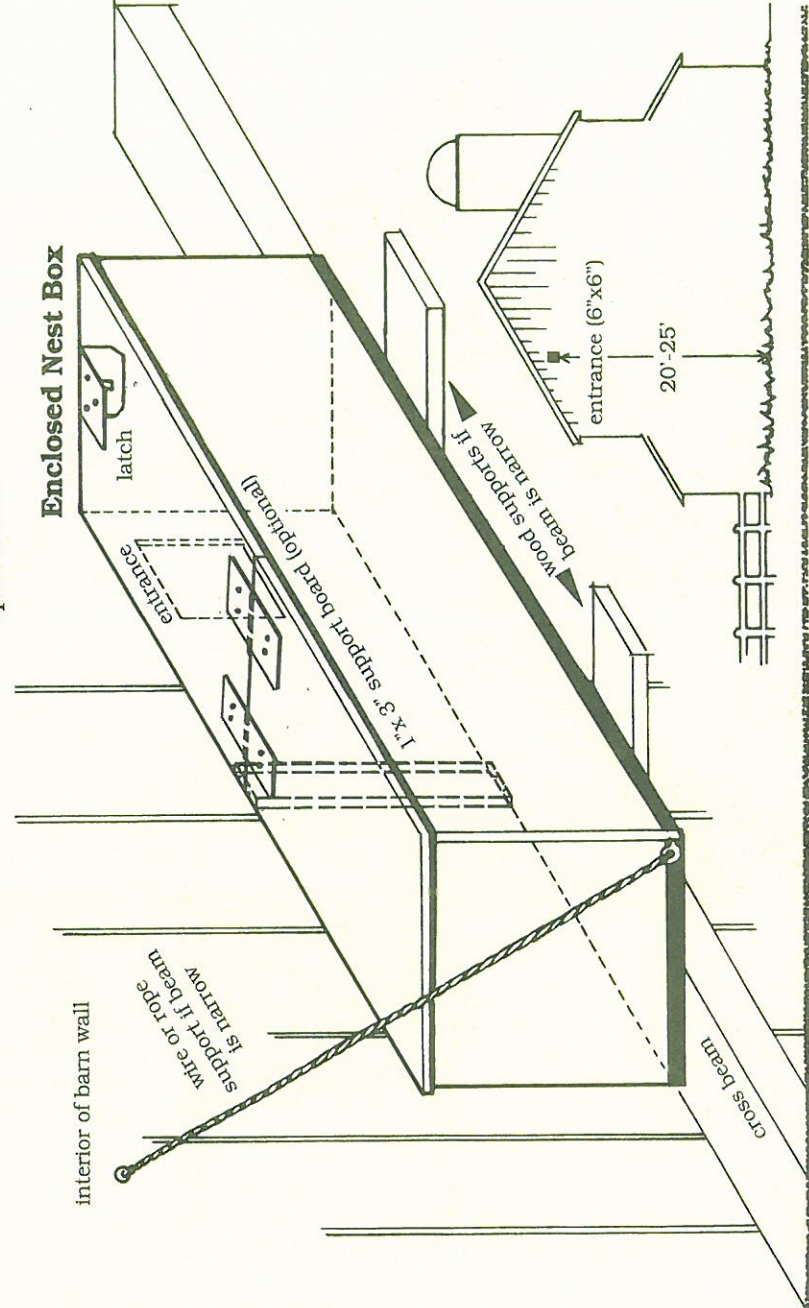
The box can be constructed from a 6-foot length of 1" x 12" pine board\* and 1/2" utility grade plywood, or it can be made entirely from plywood. Materials and general dimensions of the box can vary depending upon materials available.

- 1 bottom, 40" long - pine
  - 2 ends, each 16" long - pine
  - 1 back, 16" x 41.5" - plywood
  - 1 top, 11.75" x 41.5" - plywood
- or**
- 1 bottom, 12" x 40" - 1/2" plywood
  - 2 ends, each 12" x 16" - 5/8" plywood
  - 1 back, 16" x 41" - 1/2" plywood
  - 1 top, 12.5" x 41" - 1/2" plywood

\*Dimension lumber, actual width 11.25"

The barn wall acts as the front of the box. Nail the box together with 7d or 8d box nails. The top should be hinged to allow for cleaning the box but secured by hinges and a latch, or partially nailed in place, to prevent entrance by raccoons. The hinge pattern shown below greatly facilitates re-search activities.

Mount the box on a cross beam against the inside wall of the barn after cutting a 6" x 6" entrance way in the barn wall approximately 7" above the beam. The entrance-way placement is important to prevent young owls from falling out of the box. Position the box with the entrance approximately 2" from one end and nail it securely to the cross beam, through the bottom of the box. If the beam is narrow, through the bottom of the box or a wire or rope extending from the lower corners of the box to the barn wall may be necessary. Ideally, the entrance through the side of the barn should be 20-25 feet above the ground, and should have an unobstructed flight path toward open fields.





# For More Information on Ohio's Wildlife and Project WILD, Contact Your Local Office:



## Division of Wildlife Offices



- **Division of Wildlife Headquarters**

2045 Morse Road, Bldg. G  
Columbus 43229-6693  
(614) 265-6300 (Voice)  
1-800-750-0750 (Ohio Relay-TDD)  
1-800-WILDLIFE (945-3543)

- **Wildlife District One**

1500 Dublin Road  
Columbus 43215  
(614) 644-3925

- **Wildlife District Two**

952 Lima Avenue  
Findlay 45840  
(419) 424-5000

- **Wildlife District Three**

912 Portage Lakes Drive  
Akron 44319  
(330) 644-2293

- **Wildlife District Four**

360 E. State Street  
Athens 45701  
(740) 589-9930

- **Wildlife District Five**

1076 Old Springfield Pike  
Xenia 45385  
(937) 372-9261

**These materials are provided free of charge by the ODNR–Division of Wildlife and are funded by generous support to the Wildlife Diversity Fund's Income Tax Check-off and Wildlife License Plate programs.**

