

# Florida 4-H Environmental Education Activities

Activity Title	<b>OWL PROWL</b>
Grade Level	1-12
Sunshine State Standards	Science: SC. F. 1. 1. 4 SC. F. 1. 1. 5 SC. G. 1. 2. 5 SC. G. 1. 2. 2 SC. G. 1. 3. 4
Major Instructional Goal	To introduce students to the natural history of selected Florida owls and to explain the concept of adaptation and how owls have developed specific adaptations for survival.
Associated Concepts	A. Predator B. Prey C. Adaptations D. Territorialism
Educational/ Instructional Objectives	Upon completion of this activity, students should be able to: <ol style="list-style-type: none"> <li>1. Identify two prey species owls utilize.</li> <li>2. Describe three adaptations owls have to enhance their survival.</li> <li>3. Explain the purpose of calls and songs utilized by birds.</li> <li>4. Name two owls species present in their area.</li> </ol>



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Owls make up a very unique group of predatory birds. First, for the most part, they are nocturnal in contrast to most other species of other birds which are diurnal. Secondly, owls have a number of very unique adaptations that aid them in their nocturnal hunts for prey species. These adaptations include:

1. **THE EYES:** The eyes of most owl species are quite large in relationship to their skull and in comparison to other birds of prey. In fact, the eyes are so large and the sockets occupy so much of the head, that muscle development has been sacrificed, therefore, rather than being able to move the eyeball, as other creatures might, owls must move their head from side to side to gain vision in that direction. The eyes are large to allow for better night vision when searching for prey.
2. **NECK VERTEBRAE:** In order to compensate for the lack of eyeball muscles, the neck vertebrae have extreme flexibility. In some species, the ability to turn the head 160 degrees is possible. This gives the owl the advantage to look almost directly behind itself. At times when the owl moves its head back and forth to look behind, it gives the impression that the owl is actually turning its head completely around 360 degrees. This is not possible.
3. **OWL FEATHERS.** Unlike other birds of prey, owl's feathers have special barbs present that help eliminate the sound of rushing air across the surface of the wing. This adaptation is particularly useful when owls hunt prey. As owls swoop down in the night forest, any amount of noise would give their presence away and alert their prey. Another feather adaptation that owls possess has to do with the feathering down the entire length of the legs. This adaptation differs from other birds of prey. The purpose of these feathers is also related to the ability to fly silently. The feathering along the legs helps to muffle and quiet the owl as it swoops down and swings its talons out to strike its prey.
4. **OWL EARS.** Again, unlike other birds, many owls possess ear openings of different sizes. The right ear is larger than the left ear in respect to the opening into the skull. This adaptation can be thought of as two different microphones, each having a slightly different frequency of sound that it can detect. This provides the owl with better accuracy when locating prey in the dark night time habitats. It should be



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noted that the sense of hearing for owls is the primary sense used to locate prey. Most people believe that the eyes are the most important sense. In fact, experiments in controlled conditions within laboratories, demonstrate that owls were able to locate prey by their sense of hearing alone.

The feather tufts found on certain species of owls such as the Great Horned, and the screech owls are frequently thought to be the ears. This is not the case. However, these feather tufts are simply extended or longer feathers that stand erect when the owl is disturbed and help camouflage an owl against the background of a tree. Certain species, such as the screech owl, can also elongate their body and extend their feather tufts to resemble a broken branch of a tree. This posture along with their protective coloration, makes it difficult for other predators to detect their presence especially when perched on tree branches.

The life history of the owl species is a very fascinating topic. Most owls in temperate climates begin nesting in late winter or in very early spring. This early nesting behavior typically corresponds with the spring population increase that most prey species experience, therefore providing plentiful food supplies to rear young. Depending on the species of owls, nests may be located in tree cavities, the stumps of dead trees, abandoned hawk nests, osprey nests, wood duck houses, and in the case of the barn owl, in barns or other abandoned buildings.

Generally speaking, both the male and female are involved in the rearing of the young. Upon hatching, the young are very dependent on the male and female for food. Generally, the food will begin with prey species that are torn apart and distributed to the young in the nest. Depending on the species, the prey may include: insects, rodents, shrews, moles, small birds, and in the case of the great horned owl, adult skunks. Several instances of owls taking cats as prey have also been documented. As the young owls reach adult size, they will begin to take smaller prey and swallow it whole. As might be expected, the hair and bones of the prey species are undigestible. This material is later regurgitated in what might be called an owl pellet. These pellets can frequently be found near the day time roosts of owls. The dissection of these owl pellets can help determine the primary prey species of the individual owl in that habitat.

Many times, just before the young birds are ready to fledge, they will fall off or attempt to fly from the nest. This presents a problem for the adults in their ability to get food to the young bird as well as to protect them from predators. During this stage, the owls may make a soft clicking noise with their bills to help the adults locate them in the forest. Once the young owls fledge, or leave the nest, they will generally stay with the adults for a short period, and then disperse in the habitat to establish their own territories. This is the most critical time for the young birds as they must be able to find



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sufficient quantities of food to survive. A typical hunting territory for an individual owl can be quite large, as can be expected for a prey species such as this. Typically the barred owl may have a territory of between 80 and 100 acres in an oak hickory forest. This will vary dependant upon the quality and the quantity of the prey species present in a particular habitat. Nesting territorie can be much larger as the nesting pair requires a much greater food supply to feed the young.

The following is a brief description of the three species of owls that can be called:

1. **SCREECH OWL.** This is the smallest of the three species ranging from 6 to 8 inches tall. It has two color phases, a rust brown and a gray phase. These color phases are a result of the habitat in which the owl might be found. Typically, in the Midwest and the South, the rust phase appears to be the more common. Whereas to the west, in Arizona and the desert areas, the gray phase tends to be the more dominant. Typically, the screech owl can be found in the younger growth forest and the edge areas adjacent to the forest. The most common nesting sites are old pileated woodpecker cavities, squirrel dens, and other excavations in trees. This species is primarily a nocturnal species, feeding on insects, small rodents, lizards and occasionally the small bird. The call of the screech owl might be described as a shrill whistle sometimes followed by a whinny as a horse might whinny.
2. **BARRED OWL.** This owl gets its name from the stripes or barring on its breast feathers. It is a fairly large owl standing approximately 15 inches high and is the most common owl found in Florida and much of the Midwest. Typically, the barred owl is found in a mature forest habitat where it preys on small rodents, flying squirrels, birds, snakes and the large nocturnal moths, such as the luna moth. The barred owl will generally nest in an open sight such as a dead snag, a broken tree trunk, an old crows nest and on occasion in a tree cavity if one exists of sufficient size. The barred owl call is one that is easily recognizable. It might be said to call "Who cooks for you, who cooks for you, who cooks for you all." This initial call may be followed by a strange squawking, sometimes monkey like call that is much more guttural than the "who cooks for you" call.
3. **GREAT HORNED OWL.** This owl stands between 16 & 18 inches in height and is truly one of the most powerful bird predators that we have. This owl is one of the few birds of prey that will actually attack and kill an adult skunk.



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## The Activity

Typically, the great horned owl will be found in the heavily wooded areas of the deciduous forest but is commonly found in suburban areas and other areas where large trees can be found. Prey species in the forest habitat for the great horned owl will include rabbits, rodents, snakes, young crows, and the occasional cat. Typically, the great horned owl will nest in abandoned birds of prey nests, such as the red tailed hawk or the red shouldered hawk, and occasionally in an osprey nest, very rarely in cavities. The great horned has also been known to chase large birds of prey such as the red tailed hawk off of their nest and then will take over the nest for its own use. Typically, the great horned owl is one of the earliest nesting birds. It will begin nesting in mid January and early February to coincide with peak rodent populations to feed the young later in the spring. The great horned owl is sometimes referred to as the hoot owl because of its quiet call of "hoo-hoo hoo-hoo hoo-hoo hoo-hoo."

### A. Information

1. Learning Site – any wooded area.
2. Materials – Tape recorder and owl calls.
3. Preparation by Instructor - The preparation for an owl prowl is fairly simple. The materials and equipment you require would be a tape recorder and a tape of the owl calls. It would help to have the calls sequenced from smallest to largest and if you are making the recording, repeat the call of the individual owl several times. This will avoid rewinding during the program. When calling owls, the procedure should generally start with the smallest species first. If you were to start with the larger species, this may intimidate the smaller individuals and they would remain silent or even depart from the territory to avoid being harassed, or even preyed upon by the larger owls. Another important piece of equipment is a good flashlight. Should you have an owl respond to the call and come in close, you may be able to pinpoint it with the use of a flashlight beam. The use of a flashlight by the participants is not recommended. They should leave all their flashlights back at the camp. A description of the owl species to be called should be provided. This can be done with photographs or if available mounted specimens of the species. Another critical element of the successful



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owl prowl is the location of a suitable habitat. A preview of the sight prior to the night of your prowl would be helpful.

## B. Directions for the Actual Learning Activity

1. Focus - This time should be spent in an area away from the owl calling sight. Have the students sit while you review some of the facts and natural history concerning owls and their adaptations. If possible, the area should be located away from any human light sources so the participants eyes may adjust to the light levels that they will be experiencing on their walk. Set the mood for the walk by explaining to the participants that they must be quiet and observant. If an owl does come in, it may come in without calling, and will be a very silent flyer. Therefore, participants should watch the treetops along the trail and at the sight of the calling. Participants do not have to be absolutely quiet but it would help if they could talk in whispers. Be certain to explain to the students the reason why the owls might respond to the calls. Also mention that the owls will not harm the students. They generally are more curious and simply come in to investigate the source of the call.
  
2. The Activity - The purpose of this activity is to simulate the calling of another owl in the territory of a local resident owl. If you begin calling within the territory of a resident bird, many times the bird will respond by calling back and moving in to the call. The resident bird is not only curious about this intruder, but may also defend the territory against this invasion. On occasion, two or more birds from different territories may come in to the call and begin to "argue." Rarely does this argument result in physical contact, but on occasion, an individual may swoop upon another in an attempt to chase it off its territory. This type of behavior can be found in many bird species, especially during the spring nesting season when males are defending their nesting territory against other male intruders. Now that the students have adjusted to the light levels, its time to take the hike. Begin by having them form a single file line or walk in pairs. This will help to reduce the amount of noise and foot shuffling as they move



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through the habitat. Begin calling to the owls as soon as you move away from your discussion site. Many times this gives the owl the impression that another individual is moving into its territory. Stop and start the call frequently. During pauses between your calling, listen carefully for responses. In some instances owls will respond from great distances. In other cases, the owl will begin to call and move closer and closer to the source of the call. When this happens, continue calling and pausing, calling and pausing while listening for the bird to move closer. If the bird moves in, remind participants to watch the tree tops closely. Should an owl come in and call and respond back to the tape try to locate the bird using your large flashlight and place the beam on the bird. This will give the participants the opportunity to see that particular species of owl. Once you have seen the owl, do not continue to call back. In extreme cases of continued calling, the birds present may become distressed and move off the habitat. For this reason the activity should be carefully planned so as not to repeat the calling in the same vicinity more than several times per week. On the initial try, if you do not hear a response, move to another location. Sometimes moving a matter of 50 to 100 yards can change the response of an owl in a particular territory. Frequently, weather conditions can influence the behavior of the owls. It appears that windy and rainy nights are generally not as productive as still dry evenings. If your calling is not successful, you may want to return to camp and explain to students, that much like fishing, a lot of this business is up to luck. The owl may not have been close enough to hear the call or it may be focused on hunting and finding food that evening.

