



Long-eared Owl

Asio otus



Gregory Smith

CURRENT STATUS: In Pennsylvania, the long-eared owl is listed as threatened and protected under the Game and Wildlife Code. It is a "High Level Concern" species in the State Wildlife Action Plan. All migratory birds are protected under the Migratory Bird Treaty Act of 1918. The long-eared owl has a distribution that stretches around the globe, including the forested habitats of Europe, Asia, and Africa, as well as North America. It is near its southern range limit in Pennsylvania, but occasionally occurs further south in the Appalachian Mountains and in migration.

POPULATION TREND: The long-eared owl (*Asio otis*) often is considered an enigma by birders and ornithologists. It is shy, quiet, and secretive. This makes its population trends difficult to understand, but the species appears to be declining and is listed as endangered, threatened or of special concern in other states. In Pennsylvania and nearby states, ornithologists' comments from the 1940s indicate that this species was more common then. Its decline may have begun several decades ago. Even after two Pennsylvania Breeding Bird Atlas projects, the long-eared owl remains one of the state's most rarely encountered nesting species. It was one of the least-reported birds during Atlas surveys in 1983-1989 and 2004-2009. Volunteers found evidence of breeding in only 18 blocks during the first Atlas. During the second Atlas, it was discovered in only 14 of the nearly 5,000 survey blocks, with confirmed breeding in only 4 blocks. Christmas bird count data also suggest declines in wintering populations. The long-eared owl was "status undetermined" for many years in Pennsylvania, but was listed as a state threatened species in 2012. In recent years, volunteer monitoring of suitable habitat resulted in documentation and protection of several winter roosts in the Bucks, Lebanon and Adams counties.

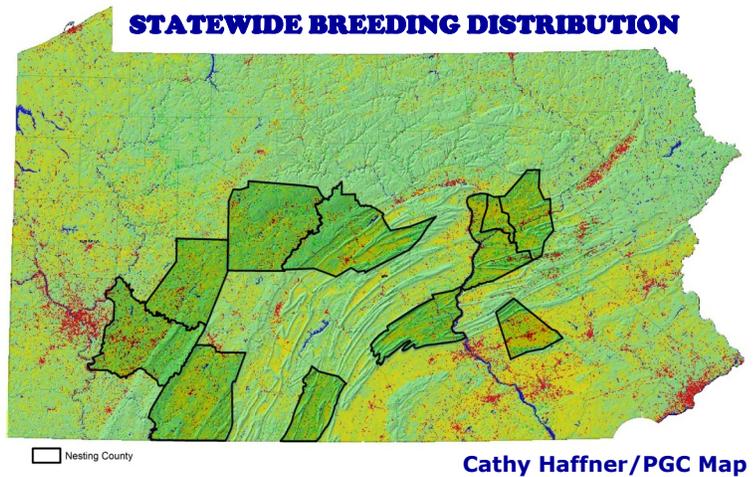


Joe Kosack/PGC Photo

IDENTIFYING CHARACTERISTICS: The long-eared owl is a medium-sized owl (about 15 inches long) with narrow ear tufts and bright yellow-orange eyes (actually the iris) set in a russet facial disk edged in black. Although superficially similar to the great horned owl (*Bubo virginianus*), the long-eared owl is about one-fifth of its bulk and with more closely spaced ear tufts (that point up not out), a relatively longer tail, and no white throat patch. Conversely, the long-eared owl is larger than the much more common eastern screech-owl (*Megascops asio*), which is only 8.5 inches long and much stockier in appearance. The two sexes are indistinguishable by plumage but females are slightly larger.

The front of the long-eared owl has a distinctive herring bone pattern. Long-eared owls are typically shy and well-hidden, notorious for blending well with their roosting tree. They often perch adjacent to the tree trunk and "freeze" stiff in a slim, cryptic pose to avoid detection. The long-eared owl has a long

wingspan - about three feet - for its size so it is very buoyant and efficient flier and it looks larger than it really is. In flight, it can be confused with the closely related short-eared owl (*Asio flammeus*) because the long-eared owl flies with its tufts tucked back against the top of its head. Both of the "eared owls" have a dark "wrist patch" but the short-eared owl's patch is more prominent. At the end of the yellowish-buff wing patch on the primaries, the long-eared owl has four to five narrow black bands while the short-ear has two to three darker bands that are bolder and end in a dark tip. The tail of the short-eared owl is more boldly barred than the long-ear and it has a pale trailing edge of the wing. The long-eared owl also has streaks continuing down its belly while the short-eared owl's streaks are confined to the chest. Overall, the long-eared owl is much darker than the short-eared owl. Vocalizations are important for owl identification. This species is normally quiet, but the male long-eared owl's advertising call is a deep "hoo" or "whoop." The female gives a nasal "peh-ev." or a higher toned "veeees" somewhat like the sound of a toy trumpet, a bleating lamb, or the sound made by blowing through a paper and a comb. Males display with an irregular "zigzag flight" around the nest grove that includes deep wing beats, glides, and occasional wing claps. Long-eared owls also have a variety of other vocalizations including various moans and squeals best heard at close distance but helpful for surveying and monitoring. The calls made by juveniles have been described as sounding like "a squeaky gate" or "rusty hinge."



BIOLOGY-NATURAL HISTORY: The long-eared owl is a consummate rodent-hunter of open country. Small rodents are the primary food item of long-eared owls that actively hunt them by quartering over open fields and forests and along edges. Long-eared owls typically fly low and steadily over the ground searching very methodically for prey, probably mostly by ear. Although some researchers have considered it a prey specialist, more recent studies suggest that it is an opportunist that takes advantage of whatever small rodents and other prey are available. Voles, deer mice, and shrews are among its favorite prey. Its diet can be varied and include small birds, reptiles, and earthworms. It will hunt and flush flocks of roosting small birds, particularly house sparrows (*Passer domesticus*). Sometimes it will sit and wait in the open on a fence post, stump, or tree for prey to appear or make detectable sounds.



Gregory Smith

Owls tend to be nighttime birds, but the long-eared owl is more strictly nocturnal than other owls, almost always foraging in the dark between dusk and midnight. This is a "surprise hunter" that sneaks up on its alert prey. As other members of the owl family, it is well-equipped for nighttime hunting. The long-eared owl can be a silent hunter, because the leading edge of its wing has comb-like fringes and the dorsal side of its flight feathers have downy surfaces that dampen the sound of its wings. The ear openings of this owl are large and asymmetrical which allow it to detect prey by sound in complete darkness. The long-eared owl has an elongated profile with relatively long wings and low wing-loading so it is very efficient at flying over the open country.

Long-eared owls nest fairly early in the year, sometimes they start nesting in March, but usually by mid-April. They generally take over an abandoned stick nest of a crow, heron, hawk, or squirrel or use a tree cavity. Some pairs apparently nest in the same woodlot where they roosted in



winter. Although males perform flight displays over good nesting habitat, the female apparently chooses the nest site shortly before laying. Pairs apparently bond over winter, probably in conjunction with a communal roost. Females sit very tightly on the nest and the male usually perches nearby. Females lay 2-10 eggs, normally 4-6, that are pure white and oval in shape. These are incubated only by the female for 26-28 days. The nestlings are brooded for about two weeks and leave the nest for nearby branches at about three weeks. Some long-eared owls begin nesting when many northern migrants are still on their wintering ground. So, it can be difficult to differentiate between the migrants and breeders. Nesting is often complete before June, but some are still tending young in nest in July. It is very easy for nesting birds to be overlooked, even where there is a very active birding community.

Unlike some of our other familiar owls that are permanent residents (great horned, barred, and eastern screech-owls), the long-eared owl is migratory. Winter sightings are fairly rare, but tend to be in the Piedmont, the Lake Erie shore, or farm country where there are pine stands. Long-eared owls may congregate in communal roosts of several birds, sometimes as many as 50. The size and repeated use of these roosts suggest return of individuals to the same areas. These roosts should not

be disturbed because they are important for the survival of the owls during a stressful time of year. In North America, the record life-span is nine years, but one has lived to 27 years and nine months in Europe.

PREFERRED HABITAT: The long-eared owl often is associated with a curious blend of habitats. Paradoxically, they nest in wooded areas, but forage in open country. So, they are usually found where there is a mix of woodland, fields, and wetlands. Long-eared owls generally nest in dense evergreen conifers. They forage in fields, meadows, open woods, wetlands, and edges nearby. This also is true in winter when they roost in dense conifer tree groves, often communally. The conifers offer good shelter, keeping the owls out of the wind and out of sight. The owls nest and roost in a variety of evergreen conifer trees, either native or exotic, ornamental species, often in a planted shelterbelt or wind-row. Some conifer stands are natural post-fire growth typical of scrub barrens or successional pine woods. Others are erosion-control, or wind-break conifer belts. They also can be found in extensive forests, but often near an edge or where there is an open understory where they can find good foraging opportunities. Short ground vegetation also is a key habitat component that allows this owl good foraging opportunities. Many of the early ornithologists had the impression that this species was a deep forest owl, so that habitat may be less appreciated today than it deserves for this owl. There is a pattern of a few long-eared owls nesting at the site of a winter roost, so finding and protecting those roosts has the double benefits by protecting owls in multiple seasons.

REASONS FOR BEING THREATENED: The pattern and reasons for decline of long-eared owl are not fully understood because of the difficulty in detecting and monitoring this elusive species, but changes in long-eared owl habitat have probably contributed to its decline. The long-eared owl has declined regionally, where there has been a reduction in wooded habitat by development and conversion of softwood to hardwoods. There has been a trend away from small farms with a mix of woodlands, hedgerows, and fields in favor of mechanical farming techniques and "cleaner" farms that are less inviting to long-eared owls. Also, grasslands have been reduced in size and quality, so foraging opportunities for this owl have been reduced. The reduction in wind-rows and other densely vegetated woodlots near open areas have reduced the availability of roosting areas. This owl may be suffering the consequences of a general reduction in the conifer component of our woodlands. Long-eared owls are vulnerable to disturbance of roosts, so increased human activities around roosts have probably led to abandonment. Disturbed nests are vulnerable to a variety of nest predators: raptors, crows, and raccoons can be significant predators of nest, young, and adults.

Since long-eared owls forage low over the ground, vehicle collisions also are a threat. There is evidence of rodenticides, organochlorides, and PCBs causing mortality. There also may be an indirect effect of pesticides if they cause reductions in small rodent populations that are important food source for the owls.

Long-eared owls also may suffer from competition with larger owls and hawks on an increasingly human-dominated landscape.

MANAGEMENT PRACTICES: Land restoration that improves foraging areas and sheltered woods nearby is the best way to protect and conserve long-eared owls. Erosion-control, grassland restoration, and shelter belt creation are methods that could enhance long-eared owl habitat. Some owl roosts and nests are associated with wetlands, so wetland conservation also benefits this species. In these ways, owl conservation is related directly to soil and water conservation. Planting and conserving stands of conifers near open areas may be the best way to advance long-eared owl conservation. It is important to avoid disturbance of nesting or roosting long-eared owls because they react badly to disturbance and nests may be abandoned or predated once disturbed. Placing nest baskets made out of wicker or plastic in some conifer groves has stimulated owls to nest at some locations. One of the most important factors for long-eared owl conservation is inventory and monitoring to identify areas critical to the species. Some long-eared owl nesting locations are probably being overlooked and not protected. Conducting searches for owls and following up searches with protections to locations should be important strategies for improving the chances for the long-eared owl to continue to be a part of the Pennsylvania wildlife community.

Sources:

- Bent, A. C. 1938. Life histories of North American birds of prey: part 2. U. S. Natl. Mus. Bull. 170. Washington, D.C.
- Bosakowski, T. 1982. Roost selection and behavior of the Long-eared Owl (*Asio otus*) wintering in New Jersey. *Raptor Research* 18: 137-142.
- Bosakowski, T., R. Kane, and D. G. Smith. 1989. Decline of the Long-eared Owl in New Jersey. *Wilson Bull.* 101: 481-485.
- Cornell Laboratory of Ornithology. (R. T. Peterson, Ed.) 1991. Eastern / Central Bird Songs. 3rd Ed.
- Cornell Laboratory of Ornithology. 2006. Voices of North American Owls. Macauley Library, 159 Sapsucker Woods, Ithaca, NY 14850.
- Craighead, J.J. and F. C. Craighead. 1956. Hawks, owls, and wildlife. Stackpole Co., Harrisburg, PA (reprinted in 1969 by Dover Publ., New York, NY).
- Gross, D. A. 2010. Long-eared Owl, *Asio otus*. Pages 144–148. In *Terrestrial Vertebrates of Pennsylvania: A Complete Guide to Species of Conservation Concern*. (M.A. Steele, M. C. Brittingham, T. J. Maret, and J. F. Merritt, editors). The John Hopkins University Press, Baltimore, MD.
- Gross, D. A. 2012. Long-eared owl, *Asio otus*. In *Second Atlas of Breeding Bird in Pennsylvania* (A.M. Wilson, D.W. Brauning, R.S. Mulvihill, eds.). The Pennsylvania State University Press, University Park, PA.
- Holt, D. 1997. The Long-eared Owl (*Asio otus*) and forest management. *Journal of Raptor Research* 31: 175-186.
- Holt, D. 2001. Guidelines for Nocturnal Owl Monitoring in North America. Beaverhill Bird Observatory and Bird Studies Canada, Edmonton, Alberta.
- Johnsgard, P. A. 1988. North American Owls: Biology and Natural History. Smithsonian Institution Press, Washington D.C.
- Konig, C., F. Weick, and J-H. Becking. 1999. Owls: A Guide to the Owls of the World. Yale University Press, New Haven, CT.
- Marks, J. S., D. L. Evan, and D. W. Holt. 1994. Long-eared Owl (*Asio otus*), No. 133, In *The Birds of North America*, (A. Poole and F. Gill, eds.) The Birds of North America, Inc., Philadelphia, PA.

McWilliams, G. M. and D. W. Brauning. 2000. The Birds of Pennsylvania. Cornell University Press, Ithaca, NY.

Sibley, D. A. 2000. National Audubon Society The Sibley Guide to Birds. Alfred A. Knopf, New York.

World Owl Trust. 2005. Long-eared Owl Conservation Project, including the Month of the Long-eared Owl (MOTLE) 2005.

Suggested Further Reading:

Scott, D. 1997. The Long-eared Owl. The Hawk and Owl Trust, London, England.

Sperring, C. 2000. Long-eared Owl (*Asio otus*) Mendip Biodiversity Action Plan. Environmental Action Fund.

Sutton, C. and P. Sutton. 1994. How to Spot An Owl. Chapters Publ. Ltd., Shelburne, VT.

Takats, D. L., C. M. Francis, G. L. Holroyd, J. R. Duncan, K. M. Mazur, R. J. Cannings, W. Harris, And D. Holt. 2001. Guidelines for Nocturnal Owl Monitoring in North America. Beaverhill Bird Observatory and Bird Studies Canada, Edmonton, Alberta.

By Doug Gross
Pennsylvania Game Commission
Connecting you with wildlife!
8/19/14