

**STATUS: THREATENED**

Threatened in Iowa

Long-eared Owl

Asio otus

Introduction

Long-eared Owls inhabit open and sparsely forested habitats across North America and Eurasia. Despite their wide distribution, they are uncommon to rare throughout the Midwest. In Iowa this species prefers dense conifer groves or mixed conifer-deciduous areas, especially near water, for roosting in winter. This species is among the most nocturnal of all owls. They keep concealed in dense vegetation during the day and can be approached very closely before they flush. Long-eared Owls rarely nest in Iowa where it is listed as threatened, but populations appear to be stable in much of North America.

This owl nests in trees, and often uses abandoned nests that were constructed by crows, hawks or squirrels. Less often it nests in cavities in trees or cliffs, or on the ground. Although Long-eared Owls prefer to nest and roost in dense vegetation, it hunts almost exclusively in open habitats. With long and powerful wings, the Long-eared Owl is an active-search hunter, and preys on a variety of small rodents. It probably locates most of its prey by sound.

This species often roosts communally during the non-breeding season; typical roosts contain 2 to 20 birds, but up to 100 have been reported. Long-eared Owl numbers fluctuate with those of their principal prey, *Microtus voles*. Although this owl winters throughout most of its breeding range, some individuals migrate long distances, with several records of birds banded in the northern United States and southern Canada being recovered in Mexico.



Habitat Preferences

Long-eared Owls inhabit dense vegetation adjacent to grasslands, wetlands, and also open forests. Dense forests are normally used for nesting and roosting only. A rare nester in Iowa, this species is most often observed within the state in winter, when it prefers dense conifer groves or mixed conifer-deciduous areas, especially near water, for roosting. Since they forage in open grassy areas, this owl requires areas with both grassland and forest habitats.

Given the potential range of habitats encountered during migrations which sometimes cover large distances, this owl may use a greater variety of habitats on migration than during breeding and wintering seasons. One important attribute of winter roost sites seems to be dense vegetation for concealment and perhaps thermal cover.

Long-eared Owls occur somewhat more frequently in Iowa during the winter than during the nesting season, but are still uncommon. The most heavily used roost sites are conifer groves adjacent to open habitats used for foraging.

Feeding Habits

The diet of Long-eared Owls consists mainly of small mammals, and primarily voles (*Microtus*); although they usually feed on the most common local rodents that are present. Little is known about hunting habits, but presumably most food is captured on the ground (mammals and some birds) or from low vegetation (including birds that are roosting).

Although highly nocturnal, at times Long-eared Owls may begin hunting before sunset, especially during brood-rearing; and they may hunt from perches, especially in windy conditions. They are not known to pursue and capture prey in the air; and rain and wind may reduce hunting success.

The small mammals that make up the primary prey, are dispatched by biting the back of the skull, and prey is often swallowed whole. At times prey is eviscerated and entrails are left uneaten. This predator is known to capture and eat small birds, shrews, bats, lizards, snakes and other small creatures. When birds are taken the remains in pellets are similar to those in Short-eared Owl pellets, suggesting that Long-eared Owls discards wings, as do Short-eared Owls.

This owl is known to capture mice in complete darkness, therefore prey are probably located primarily by acoustical cues. Various adaptations for silent flight are well developed, and facilitate hunting success. External ear openings are asymmetrical (left higher than right) and large, which further aids in locating and capturing prey in darkness. Vision in low light conditions is apparently as good as or better than that of other North American owls.

Food-caching away from nests has not been reported but may occur. Prey captured by male is often stockpiled at the nest during incubation and early brood-rearing.

Breeding Biology

The actual timing of pair formation is unknown, but presumably begins at communal roosts from January through March, or soon after roost sites are disband. In some cases males have occupied breeding sites for up to 8 days before females arrive. Early in breeding season, males perform aerial displays, flying in zigzags around nesting area with deep wingbeats and glides, and occasionally clapping wings together loudly below their body.

The nest site is usually in a tree, 4-30 feet above ground, and usually at about midlevel in a tree. But no actual nest is built, and another nesting species may be

evicted to gain a nest site. Abandoned nests of squirrels, crows, various hawks, and other birds are utilized. In general, no material is added to the nest lining, although feathers lost from the brood patch of females may remain in nest.

The first clutch of eggs is usually laid between mid-March to mid-May, with earliest eggs being laid in late February. From 2 to 10 eggs may be laid, but the usual number is between 4 and 6. Incubation is by the female only, and usually takes 26-28 days. Males bring food to the nest for females during incubation. Prey is often stockpiled at nest shortly before the first young hatch. Young Long-eared Owls hatch from late March through June, with young leaving the nest from April through June. Normally there is just 1 brood per year.

The female remains with the young almost continuously for the first 2 weeks after hatching, and males continue to bring food for the female and young. Later the female also hunts. The young climb out of the nest and onto nearby branches about 3 weeks after hatching, and may not roost together. The young take short flights at about 5 weeks of age. Males continue to feed the young until they are 10-11 weeks old and they disperse from the nest site.

Renesting pairs have used the same nest twice in 1 season, and nests may be reused by Long-eared Owls in subsequent years, but often by different individuals.

Concerns and Limiting Factors

The distribution of Long-eared Owls may be limited by the amount of grassland that is located adjacent to suitably dense woodlands, especially stands of conifer trees. Even after 2 million acres of new grasslands were created in Iowa through the USDA Conservation Reserve Program, no overall increase in the numbers of Long-eared Owls was reported.

In some locations this species has declined because of destruction of isolated groves of conifers and dense stands of deciduous trees and riparian vegetation, conversion of hunting areas to agricultural fields, and reforestation of open areas that would otherwise support prey species. In some areas Long-eared Owl numbers may be limited through predation by and competition with Great Horned Owls – a larger and dominant species.

Long-eared Owls are occasionally shot by bird hunters, but this problem is not thought to be large enough to influence overall populations. Within heavily used outdoor recreation areas (e.g., fishing access sites, campgrounds), fledglings are sometimes killed, injured or harassed by humans. Another negative impact on populations of this species may be decreased prey populations due to chemicals to kill rodents.

Habitat Management Recommendations

As a nomadic owl with low population densities, it is difficult to manage property specifically for Long-eared Owls. However, management that creates or retains open grassy areas that support small mammal populations adjacent to dense woodlands that could be used for nesting, or winter roosting, will provide the best opportunities for this quite special owl species.

In some areas the preservation of grasslands and wetlands, and planting of conifers near these open habitats would be important management actions, and in other areas maintenance of healthy riparian stands of trees would undoubtedly be beneficial. For more information on managing grasslands and woodlands, refer back to Part 3.

In Britain, Long-eared Owls nest in artificial baskets and open-fronted nest boxes. Artificial structures such as these could mitigate for the lack of nests in portions of Iowa where the numbers of crows have

been reduced. According to some researchers, communal roosting behavior is well developed but unstudied in Long-eared Owls; and the vast literature on the evolution of avian communal roosting seems to have ignored owls completely.

However, information derived from banded birds has raised intriguing questions related to habitat management. For example, why do some Long-eared Owls migrate to central Mexico in the fall, whereas others winter near breeding sites north of Iowa? Why are so few adults that are banded near nest sites, recaptured in the same areas in subsequent years? Aside from being inherently interesting, these as well as other questions are central to a firm understanding of demographics and gene flow that is necessary for conservation of Long-eared Owl populations. The answers can only come from intensive banding and recapture efforts over many years. Comparative studies with Short-eared Owls might be especially rewarding.