

Winter roost site fidelity by Long-eared Owls in central Pennsylvania

Study indicates remarkable consistency of choice over a period of 15 years

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THE LONG-EARED OWL (*Asio otus*) is an uncommon raptor in central Pennsylvania. It is most readily found during winter months, when individuals may roost in dense conifer woods, frequently in loosely aggregated groups.

From 1959-1966 and 1970-1978 I monitored Long-eared Owl selection of winter roost sites in a 20-acre conifer stand northwest of Elizabethtown, Pennsylvania. The rectangular woodlot was equally divided into pure, even-aged stands of red pine (*Pinus resinosa*) and white pine (*Pinus strobus*) on the north and south half respectively, separated by a narrow median strip of red spruce (*Picea rubens*). In 1960, tree heights of red pine were 4.5-5.0 m, and between 6.0-8.0 m for white pine. The conifer stand was bordered on the west, north and northeast by agricultural fields, and on the east and south by a stream and three reservoirs. Between the streams and reservoirs was a line of white pine.

Each October I surveyed the stand and removed all old owl pellets. From November through March I searched the stand for Long-eared Owls at monthly intervals, or more frequently. Owl roosts were determined by the presence of fresh pellets. At each roost site located I counted the number of owls and removed all pellets for analysis. A summary of the yearly use of the conifer stand by wintering Long-eared Owls is presented in Table 1.

The number of owls using this roost peaked in the winter of 1961, and has since steadily declined. At least part of this decline is attributed to indiscriminate killing by local "plinkers," who illegally shot four Long-eared Owls during the winters of 1960-1961 and 1961-1962. Beginning in winter 1973-1974, use of the roost has been increasingly sporadic. Small communal groups of 2-7

Table 1. Monthly counts of Long-eared Owls at a winter roost in central Pennsylvania

Winter	Month					Winter	Month				
	Nov.	Dec.	Jan.	Feb.	Mar.		Nov.	Dec.	Jan.	Feb.	Mar.
1959-60	-	2	5	4	-	1970-71	-	1	3	3	3
1960-61	1	3	9	4 ^a	2	1971-72	-	1	1	1	-
1961-62	-	2	5	1 ^b	1	1972-73	-	2	1	-	1
1962-63	3	3	4	2	1	1973-74	1	3	1	1	-
1963-64	1	2	2	2	-	1974-75	2	1	1	1	1
1964-65	1	1	-	2	1	1975-76	1	1	1	1	-
1965-66	1	1	1	-	1	1976-77	-	-	-	1	-
						1977-78	-	1	1	-	-

^a. Three owls were illegally shot in January. ^b. One owl was illegally shot in January.

owls were observed each winter from 1959-1960, and 1962-1963, and again in 1970-1971. Other owl species observed in the conifer roost included Saw-whet Owls (*Aegolius funereus*), which were observed in five of the 15 winters, and Great Horned Owls (*Bubo virginianus*), observed in two winters. Each year, with few exceptions, the concentration of wintering Long-eared Owls in the conifer stand increased through December and January and began declining in late February and March. The roost was usually vacated in late March or the first week in April.

ALTHOUGH NUMBERS of wintering Long-eared Owls in the conifer stand varied considerably over the 15 years of study, the choice of actual roosting sites was remarkably consistent and was restricted to a narrow, median section less than 0.25 acre in size. Three primary roost sites were commonly used within this section: an interior clump of three closely-spaced red spruce situated approximately 5 m from the eastern edge of the stand; two white pines located adjacent to the western border and separated from it by a 3 m scrub growth; and the middle three of the line of white pines adjacent to the reservoirs. All trees of these primary roost sites were of

similar growth with extensive branching to within 2 m of the ground. In contrast, conifers in other parts of the stand characteristically had relatively straight trunks with narrow, symmetrical crowns.

Roosting height of Long-eared Owls appeared to be a function of weather. During prolonged periods of cold and snow Long-eared Owls roosted on the middle and lower branches in the dense portions of the conifer stands. In milder weather they selected roost sites high in the crown of the trees.

Five additional conifer stands located within a 9.6 km radius of the study roost were searched each winter at irregular intervals. All were considerably smaller in size, less than one acre, and were of pure, even-aged stands of white pine or eastern red cedar (*Juniperus virginiana*). Although Long-eared Owls were found infrequently in each stand, none were used in successive winters. Pellet deposits further suggested that individuals roosted in these stands for short periods of time, generally four days or less.

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