Annual Weight Cycle in Wild Screech Owls

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The annual weight cycle of wild birds of prey has received little attention in the past, primarily because of the difficulty in capturing and recapturing them. Screech Owls (*Otus asio*) are resident in our northern Ohio study area and readily occupy nest boxes established for Wood Ducks (*Aix sponsa*) (see VanCamp and Henny 1975). In addition to nesting in the boxes, the owls use them as roosting and feeding stations during the winter and are easily captured in the boxes during the day. Therefore, the owls presented an unusual opportunity to obtain information on their annual weight cycle.

Between January 1975 and December 1978, Screech Owls were captured, weighed, and banded. Several were subsequently recaptured and weighed again to form the basis of this report. It is difficult to sex live Screech Owls in the field because they are not sexually dimorphic; however, Sherman (1911) noted that females did all of the incubating. We sexed adult owls with young at nest sites by the presence (female) or absence (male) of a brood patch. Owls captured away from nests during the nesting season without brood patches, or at other times of the year, were classified as sex unknown, unless they were previously captured at a nest with young. Screech Owls in northern Ohio have young in the nests from mid-April through early June.

Our sexed Screech Owls from northern Ohio (Table 1) weighed slightly more than those reported by Earhart and Johnson (1970) who used museum specimens. They excluded birds classified as "very fat," "extremely fat," "emaciated," or "found dead," but their extremes may not be representative of "normal" individuals. They reported, however, that females were 15.3% larger than males, which is in good agreement with our 16.4% estimate. Weights within the various seasons showed wide variation, possibly resulting from the lunar cycle (Kelso 1942).

The weights of northern Ohio Screech Owls peaked in the fall (October–December) for both sexes, suggesting that some weight loss occurred during January and February (Table 1). A few owls of known sex were captured during the spring (April–May) and again during the fall and winter (October–February), and provide additional information on the annual weight cycle in individual birds (Table 2). Although only 11 records are available, 10 of the 11 show a weight gain from spring to fall-winter. The only record contrary to the pattern was a male at least 10¾ yr old that was in poor condition and possibly near death. Only one other Screech Owl has been known to live more than 10 yr in the wild (VanCamp and Henny 1975). Excluding the above record, both males and females gained weight between spring and fall-winter ($P < 0.01$, paired t-test). Thus, the cycle in Table 1, shown by many different birds, is corroborated by weights of 10 birds that were each weighed both in spring and fall-winter, showing a clear gain in weight from spring (Table 2). The five spring birds recaptured in October–December gained an average of 28 g (range 15–40), whereas the five recaptured in January–February showed a gain averaging 13 g (range 5–30). Ricklefs (1974: 262) stated, "most species of temperate land birds weigh less in summer than in winter owing to plumage wear and a decrease in fat reserves . . . ."

An increased fat reserve in the winter may be particularly important for this nonmigratory species during periods of cold weather coupled with snow cover. VanCamp and Henny (1975) reported that the only significant change in color-phase ratios during their 3-decade study occurred with the combination of extremely heavy snowfall and cold weather. In December 1951, the red-phase decreased from 23.3% to 14.7% of the population, indicating the death of many red-phase Screech Owls. More recently, during

TABLE 1. Body weight (g) of Screech Owls in northern Ohio.

Period	Males			Females		
	$\bar{x}$ (n)	SE	Range	$\bar{x}$ (n)	SE	Range
Jan–Feb	157.5 (2)[a]	7.50	(150–165)	196.3 (4)	8.00	(185–220)
April 15–30	164.2 (13)	4.04	(145–190)	187.5 (12)	4.20	(160–205)
May–June 13	167.3 (13)	5.27	(140–210)	194.8 (47)	2.42	(150–235)
Oct–Dec	181.7 (3)	1.67	(180–185)	208.3 (3)	8.33	(200–225)
Total year	166.8 (31)	2.92	(140–210)	194.2 (66)	2.01	(150–235)
Museum[b]	159.6 (38)	—	(99–229)	184.0 (36)	—	(126–252)

[a] Includes one bird at least 10¾ yr old and in poor condition.
[b] Museum specimens from range of *O. asio naevius* (Earhart and Johnson 1970).

TABLE 2. Weight changes (g) of 11 Screech Owls between spring and fall-winter.

Sex	Spring	Fall-winter	
	Date captured (weight)	Date captured (weight)	Wt. gain
Male	05-14-75 (150)	10-29-75 (180)	+30
Male	04-15-76 (145)	10-30-75 (180)	+35
Male	05-18-78 (170)	12-28-77 (185)	+15
Male	04-24-75 (160)	02-22-77 (165)	+5
Male	05-04-76 (185)	02-22-77 (150)[a]	−35
Female	05-11-78 (205)	12-05-78 (225)	+20
Female	05-14-76 (160)	12-28-77 (200)	+40
Female	05-22-75 (190)	02-21-77 (220)	+30
Female	04-24-76 (180)	02-21-77 (190)	+10
Female	05-04-76 (180)	02-22-77 (185)	+5
Unknown	05-06-76 (205)	01-01-75 (220)	+15
Mean males	156.2	177.5	+21.3
Mean females	183.0	204.0	+21.0

[a] Banded as adult on 1 May 1967, was at least 10¾ yr old and in poor condition; excluded from mean for males.

the extremely cold winter of 1977–78, which included deep snow, five dead Screech Owls were found. No dead owls were found in 1975–76 or 1976–77 when the boxes were checked in the spring. Eighteen and 15 pairs nested successfully in the 150 nest boxes in 1976 and 1977, respectively. The number declined to 6 in 1978 (6 in 150 boxes, or 4%) following the severe winter; this is the lowest percentage recorded since the study began in 1944 (VanCamp and Henny 1975). It appears that a fall weight gain is important to the Screech Owl, but in spite of the weight gain, extreme weather conditions, which tend to occur irregularly, can still pose a hardship for this species near the northern edge of its breeding range in Ohio.

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Nest Desertion by the Piñon Jay

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We recorded parental behavior within two flocks of Piñon Jays (*Gymnorhinus cyanocephalus*) nesting near Flagstaff, Arizona. Nests in one flock, known as the Town Flock, were visited regularly and young banded, but were otherwise undisturbed. Broods from some nests in the other flock, called the Doney Park Flock, were artificially reduced in size. The events described below occurred in late March and early April in 1976 and 1977. A detailed description of the Doney Park Flock's breeding ground is found in Balda and Bateman (1972, Living Bird 11:5), while that of the Town Flock is described in Gabaldon,