

OBSERVATIONS OF THE BEHAVIOR AND WEIGHT CHANGES OF TWO  
CAPTIVE SCREECH OWLS

by Lehr Brisbin Jr. and Nancy F. Harrington  
Savannah River Ecology Laboratory  
AEC-SROO, Bldg. 772-G, Box A  
Aiken, So. Car. 29801

Introduction. The process of pair-bond formation has only rarely been observed in wild birds, and this is particularly true in the case of nocturnal raptors such as the Screech Owl (*Otus asio*). Because the process of pair-bond formation is of basic importance to the breeding of these raptors in captivity, the following observations are reported for one Screech Owl observed in captivity from September 1968 to November 1969 and of a second Screech Owl paired with the first bird from April to November 1969.

Housing Facilities. The pair of owls observed in this study were housed in a flight cage, protected by a roof, on a westerly-facing porch, with two solid walls on the north and east. A large glass window in the north wall permitted observations from inside the house without disturbing the birds. The west and south sides of the flight cage consisted of one-half mesh hardware cloth. The flight cage measured five ft. X five ft. X eight ft. in height and thus provided approximately two hundred cubic feet of space. Natural branches were arranged for perches. Two nest boxes were attached securely to the east wall, one six feet from the floor and one nearly seven feet from the floor. Each nest box measured nine in. X nine in. X fifteen in. in height. The entrance holes were three and one half in. in diameter with a three-inch perch set one inch below each entrance.

The roof and two walls of the pen gave partial protection from the weather. No artificial heating or cooling was provided, and thus the owls were exposed to environmental conditions typical of western South Carolina (Aiken County). Temperatures of this region range from 18 to 60 degrees F in the winter and from 75 to 100 degrees F in the summer. In the hottest part of the summer, between 3:00 and 7:00 P.M., a cane shade was provided on the west side of the cage to protect the owls from direct exposure to the sun. However, when the temperature rose above 90 degrees F in the cage, with an accompanying high humidity, the owls would often begin panting (gular flutter) and showed signs of heat stress. Under these conditions, the owls were removed from the cage and kept in an air-conditioned house until the cooler temperatures of the evening permitted returning them to their cage.

Care and Feeding. A shallow bowl, measuring nine in. in diameter, was provided at all times with one to two in. of fresh water for drinking and bathing. A thick-walled dog-feeding dish was used to prevent tipping when the owls perched on the rim.

The owls were fed free choice at night. Freshly-killed mice were available from April 1969 to the present. Juvenile mice, about three weeks old and weighing a little over 15 g each, proved to be an ideal size for the owls when fed whole. Three mice of this size were sufficient for the two owls each night during the warmest months. Prior to April 1969, beef and chicken heart were fed, along with liberal applications of bone meal and a vitamin-mineral supplement (Theralin - Lambert-Kay). Both of the feeding supplements were sprinkled in powdered form over the meat fed to the owls.

The owls were weighed every third day before the evening feeding. Weighings were made to the nearest 0.1 g using a Harvard triple-beam balance. Table 1 lists the average monthly weights of Owl A from February through October 1969 and of Owl B from April through October, 1969.

Table 1. Average Monthly Weights (in grams) of Two Captive Screech Owls.

Month	Owl A Average	No. Weighings	Owl B Average	No. Weighings
Feb. (1969)	119.1	7	-	-
Mar.	118.9	10	-	-
April	126.1	10	152.9	6
May	131.4	10	155.5	10
June	132.7	10	156.3	10
July	138.4	11	160.1	11
August	134.4	10	163.0	10
Sept.	140.8	10	164.7	10
Oct.	142.0	8	169.5	8

Behavior of Owls. On September 14, 1968, a red-phase Screech Owl (Owl A), weighing 113 g, was introduced into the flight cage. Hatched in Savannah, Georgia in the spring of 1968, the owl fell from his nest at an early age and was hand-raised in the laboratory. This owl was molting his juvenile plumage at the time of introduction. He seemed to adjust nicely to the flight cage - sleeping all day and feeding readily at night, and by the middle of October was acquiring his first winter adult plumage. On December 6, 1968, this owl began calling at night for the first time. The call was emitted constantly throughout the night until dawn. At this time, an unseen wild owl began answering.

By January, 1969, the weather had become very cold for this section of the country. Owl A was now about eight months old, was showing full adult plumage and was eating between seven and nine chicken hearts each night. An average-sized chicken heart weighed approximately five grams. Every third or fourth night, whole mice were added to his diet when available.

On April 12, 1969, a grey phase Screech owl (Owl B), weighing 147 g, was introduced into the same flight cage. Hatched in the spring of 1968, Owl B was taken from a nest in Aiken County, South Carolina at an age of approximately ten days. This owl was also hand-raised in the laboratory and was well-adapted to living with humans prior to introduction into the flight cage.

Socially, the two owls seemed to ignore each other for the first day. Owl B retired into a nest box during most of the daylight hours. On the first evening, the two owls flew around the cage separately, sometimes barely avoiding mid-air collisions. The first social gestures occurred on the second evening. Owl A edged along a branch to a position near the side of Owl B. Owl A then lowered his head and nibbled gently at the newcomer's legs and feet without eliciting any response.

By April 16, 1969, the two owls had begun to perch side by side during the day. When they moved, Owl A followed the new owl from branch to branch. On April 20, Owl A was observed making feeding gestures, twice bending his head to touch the grey's beak. At this time, there were wild owl calls at night, but no response was heard from either of the captive birds. On April 24, a wild Screech Owl spent most of the evening clinging to the outside wire of the flight cage. Owl A appeared distressed and agitated by the presence of the wild owl. He flew rapidly about the cage as the wild owl called and approached. When the latter landed on the outside wire of the cage, Owl A immediately emitted a high-pitched cry much like that of a fighting cat and flew across the cage,

meeting the wild owl talon to talon, through the wire with wings wide-spread and beating against the wire.

The reactions of Owl B to the visits of the wild owl were contrastingly different. This bird preened, perched on the rim of the water bowl or stood on the ground watching, exhibiting no excitement, fear or resentment toward the wild intruder. Several times toward the end of April, the cries of Owl A and the presence of feathers and droppings outside the flight cage indicated that a wild owl was still visiting at night.

June and July brought vigorous molting and weight gains in both captive birds. By September, both had acquired their second winter plumage. Mutual preening behavior was commonly observed.

In October 1969, a great increase was observed in the activity of the caged birds. Nightly owl calls were constantly heard, although it was difficult to determine whether Owl A was calling alone or whether a wild owl was also answering. Owl calls grew in frequency until they could be heard throughout the mornings and afternoons as well as in the evenings. Owl A was also observed at this time visiting the nest box used by Owl B, while the latter was perched elsewhere. Prior to this time, Owl A had never been seen to enter either nest box, although Owl B had been consistently using one of the two boxes as a daylight retreat.

In late October, wild owl visits became more frequent and bolder (in the presence of a human), and calls became louder. A wild owl was again observed clinging to the outside of the wire of the flight cage on October 28, at 6:30 P.M. Similar visits occurred on the same night at 7:15 P.M. and 8:15 P.M. In the latter visit, the wild owl perched quietly on a shutter near the flight cage for fifteen minutes. During these visits, Owl A seemed much less agitated by the presence of the wild owl than had been the case during the previous spring, although this captive owl did make a few threatening flights in the general direction of the wild intruder.

Discussion. As indicated in Table 1, both owls continued to gain weight throughout the period of study. This continued weight gain was probably due to the addition of whole mice to the diet in spring of 1969, thus obscuring what might have otherwise been a normal seasonal decline in weight through the summer months. The continued increase in weight through the fall of 1969 might then have been due to normal seasonal weight increments although further weighing will be required in order to determine if the observed increments will become stabilized at a winter high level followed by a decrease the following spring, such as would be expected for most wild birds.