

FOOD AND HABITAT OF THE SPOTTED OWL

By JOE T. MARSHALL, JR.

The following lists of animals eaten by the Spotted Owl (*Strix occidentalis*), although based on stomach contents of only five birds and about 23 pellets, suffice to demonstrate the great variety of food items taken by this species. Heretofore relatively little has been known of the food habits of this owl. Two of the birds, belonging to the race *occidentalis*, I took in the Sierra Nevada of California. The other three, typical of the dark brown race *caurina*, were taken on the west slope of the Cascade Mountains in central Oregon, one by Dr. Alden H. Miller and two by myself. They are the first specimens of this species recorded from the northern Cascades of Oregon.

The pellets were picked up under roosting trees in a small ravine, densely wooded with incense cedar, white fir and big tree, at Whitaker's Forest, Tulare County, in the Sierra Nevada. I have seen a pair of Spotted Owls roosting in the daytime in this ravine at every visit to Whitaker's Forest since 1935 (summers of 1935, 1938, and 1940).

STOMACH CONTENTS

Mus. Vert. Zool. no. 74640, ♂, taken from grove of yellow pines at Whitaker's Forest, 5500 feet, west slope Redwood Mountain, Tulare County, California; 10:00 p.m., May 31, 1938 (contents identified by A. L. Nelson):

- 3 bats, *Myotis*
- 1 deer mouse, *Peromyscus*

Mus. Vert. Zool. no. 79355, ♂, from dense stand of yellow pines at Meadows Flat, 5000 feet, west slope Redwood Mountain, Tulare County, California; 10:00 p.m., June 5, 1940:

- 1 long-eared bat, *Myotis evotis*
- 4 crickets, probably *Gryllus*

Mus. Vert. Zool. no. 83379, ♂, from a ravine wooded with coast hemlock, North Santiam River, 3400 feet, Linn County, Oregon; 9:00 p.m., June 9, 1941:

- 4 crickets, *Cyphoderris monstrosa* (identified by Ashley B. Gurney)

Mus. Vert. Zool. no. 83380, ♂, same locality as no. 83379, taken in coast hemlocks; 11:00 a.m., June 10, 1941:

- 1 flying squirrel, *Glaucomys sabrinus*
- 1 jumping mouse, *Zapus trinotatus*
- several limb bones of frog or toad
- 5 crickets, *Cyphoderris monstrosa*

Mus. Vert. Zool. no. 83381, ♀, same place as above; noon, June 11, 1941:

- 18 crickets, *Cyphoderris monstrosa*

PELLETS

- 1 mole, *Scapanus latimanus*
- 1 shrew, *Sorex*
- 1 little California bat, *Myotis californicus*
- 1 hoary bat, *Lasiurus cinereus*
- 11 flying squirrels, *Glaucomys sabrinus* (in all the pellets but two)
- 2 deer mice, *Peromyscus*
- 1 Screech Owl, *Otus asio*
- 1 Saw-whet Owl, *Cryptoglaux acadica*
- 1 Steller Jay, *Cyanocitta stelleri*.
- 1 Red-breasted Nuthatch, *Sitta canadensis*
- 1 Evening Grosbeak, *Hesperiphona vespertina*
- at least one other small passerine
- 1 June beetle, *Pleocoma hoppingi* (identified by E. Gorton Linsley)

The cricket *Cyphoderris*, a nocturnal relative of the Mormon cricket, not only made up much of the food of Spotted Owls on the west slope of the Cascade Mountains, but

was virtually the exclusive prey of the four other species of owl taken on the eastern slope (4 mi. N and 9 mi. W Sisters, 4000 ft., Deschutes Co., Ore.) by Dr. Miller, Ward C. Russell, and myself between June 12 and 15, 1941. The stomachs of three Screech Owls, four of the five Flammulated Screech Owls taken (also the first record for the Cascades), one Great Horned Owl, and one Pigmy Owl were crammed with them. *Cyphoderris* was conspicuously abundant in both localities, singing at night from the lowest foliage of coast hemlocks on the west slope, and from manzanitas and thickets of young firs in the yellow pine forest of the east slope.

I concede my inferiority as an owl hunter to the Whitaker's Forest Spotted Owls, which have furnished us with the first record of the Saw-whet Owl and the third record of the Screech Owl (above 5000 feet) in the Redwood Mountain area. Dawson (Birds Calif., 3, 1923:1096) mentions that Pigmy Owls are also taken. The diurnal birds were apparently captured from their roosts at night, as the Red-breasted Nuthatch was in the same pellet as the June beetle (*Pleocoma*), a nocturnal species, and the other passerine remains were mingled with bones and fur of flying squirrels.

Concerning the capture of bats, it is possible that the Spotted Owl is a sufficiently agile flier to take bats on the wing, at least the slow-flying *Lasiurus cinereus* which hovers about the outer foliage of trees.

The variety of animals eaten by the Spotted Owl parallels that listed by Bent (U. S. Nat. Mus. Bull. 170, 1938:189) for the Barred Owl. Apparently the most available food in a given locality at a given time of year is utilized, and one cannot account for the limited distribution of the Spotted Owl by its dependence on some particular kind of food. Moreover, its range does not coincide with that of any animal upon which it preys extensively. I have not been able to "call up" Spotted Owls in red fir and lodgepole pine timber at Big Meadow, Tulare County, where flying squirrels are just as abundant as at Whitaker's Forest. Similarly, none was found on the east slope of the Cascades, where *Cyphoderris* was common.

The five pairs of Spotted Owls which I have observed in the Sierras and Cascades were found in deep conifer woods, where shaded ravines are available for daytime roosts. Apparently the density and height of the timber is developed to Spotted Owl requirements only in the Transition Zone in these ranges, because I have never succeeded in "calling up" the birds in the Canadian Zone, where, due to montane conditions, the woods are seldom as "deep" as in the lower zone. Where such suitable habitat prevails, pairs can be expected at intervals of one to two miles, and their hunting territories cover roughly two square miles. It is possible that the absence of Great Horned Owls from an area of heavy timber may favor the occurrence there of Spotted Owls, for I have never found the two species together.

In conclusion, it appears that preference for a certain type of forest, not food requirements, accounts for the restricted occurrence of Spotted Owls.

Museum of Vertebrate Zoology, Berkeley, California, December 19, 1941.