

## FOOD HABITS OF THE BARN OWL

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Over a period of several years I have collected, more or less at random, a number of pellets of the Barn Owl (*Tyto alba*). The collections were made over a wide area in central California, and all pellets were gathered during the nesting season, with one exception from under nests. Drs. A. H. Miller, S. B. Benson, and E. R. Hall of the Museum of Vertebrate Zoology, University of California, and Dr. R. M. Bond of the Soil Conservation Service either identified or assisted in the identification of the food items. Identification in most instances was made on the basis of skulls so that there is little chance of duplicate listing of individual animals.

The accompanying map (fig. 30) shows the localities from which the pellets were gathered. The numbers used in the text from here on refer to those in the tabulation of food items. Three types of habitat are included in the study. Santa Cruz and western Monterey counties are in the coastal Transition Zone, whereas eastern Monterey and western San Benito counties are in the Upper Sonoran Zone, and eastern San Benito and western Merced and Fresno counties are in the Lower Sonoran Zone. Thus we find Barn Owls ranging in this sector from a well forested, humid region to one that is absolutely treeless and shrubless.

The Callaghan (2) and Vass (1) collections were made to afford material for talks before local farmer groups. Definite evidence of this sort gathered from a near-by farm was of far greater value in emphasizing the value of hawks and owls than were results quoted from some journal. Very often the pair of owls had been seen by someone in the audience. The Vass collection gave me a little insight on the range of the Barn Owl's foraging. I had made a study of the Santa Cruz kangaroo rat (*Dipodomys venustus venustus*) within one-fourth of a mile of this nest, yet no rats were found in the pellets even though the rats were present in moderate numbers. No pocket mice (*Perognathus californicus*) were found either even though they were common in open land with the kangaroo rats; from observations elsewhere they appear to be a favored type of food of Barn Owls. Evidently the Barn Owl does not forage that far for food if it is otherwise available, as was probably true in this case.

It is interesting also to note (see table) that the Barn Owl is cannibalistic. Errington, Hamerstrom and Hamerstrom (Iowa Agr. Exp. Sta. Res. Bull. 277) found that Horned Owls (*Bubo virginianus*) were cannibalistic, but I am unable to find other such records. The owl remains I found were those of young birds, however, so it seems possible that the young may have died in the nest before being eaten or that they were very much smaller than the others, as is often the case, and were used for food by their older brethren.

A large number of birds was taken by the owls in the first three areas. This reflects somewhat the nature of the country, which was wooded and brushy with interspersed open spaces. Other places where birds were taken, even though many of those birds were open-land types, were somewhat like this area. The areas where no birds were found in the pellets were generally devoid of cover, but definitely not of birds. Errington (Condor, 34, 1932:176-186) noted, in Wisconsin, that the Barn Owl seemed unable to change from a mammalian diet to an avian one and therefore perished in the midst of an abundance of winter birds. This, of course, is in a different climate, but the owls in California seemed to have no particular trouble in picking up birds as well as



mammals. The broad range of bird species taken would not point to lack of adaptability as Errington suggests in his study.

The collection made at the Struve locality (3) was for the purpose of comparing the food habits of another raptor with those of the White-tailed Kite, *Elanus leucurus*

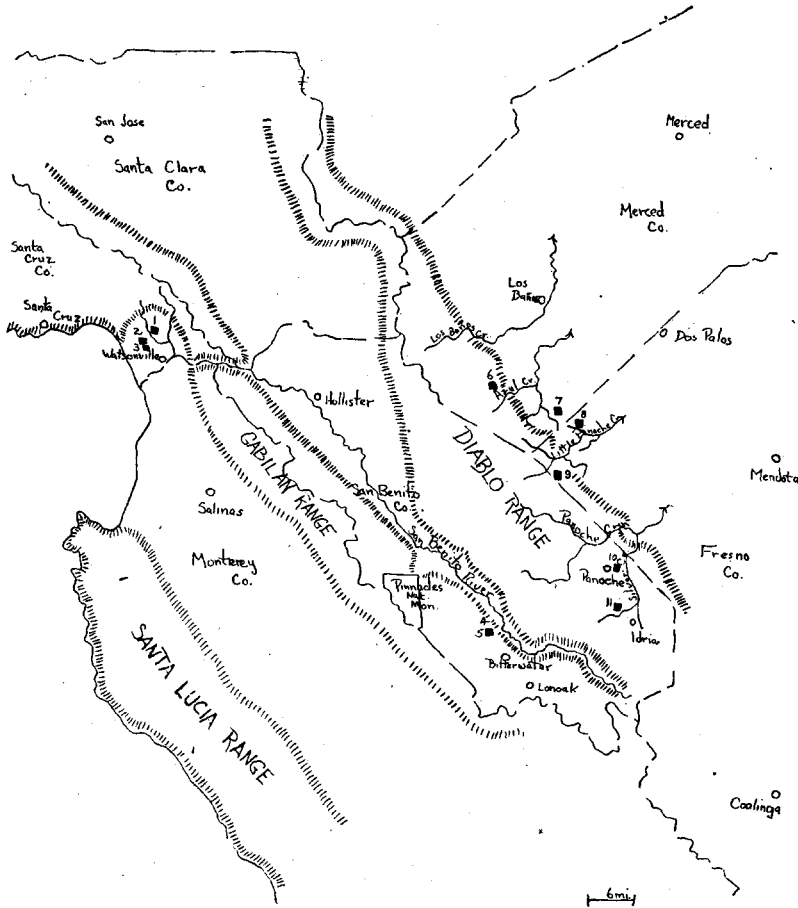


Fig. 30. Map of western central California showing stations where Barn Owl pellets were obtained; localities are marked with black squares and numbers.

(Hawbecker, Condor, 44, 1942:267-276). The results obtained were interesting in that they compared the food of a night-flying raptor with that of a day-flying one. It is presumed, from the absence of kangaroo rats in the Vass collection, that the foraging range of the owl is not greater than that of the kite, which is about one-half mile. The owl which roosted, but did not nest, in a barn within one hundred yards of the kite's nest is seen to have a much greater variety of food items than the kite, which subsisted almost entirely upon meadow mice. It appears that these two may have competed for food to some extent, although the population of meadow mice was very great. It was interesting that, in this case, both a night-flying and a day-flying bird had the same rodent species for their staple diet.

The Struve sample again demonstrated the value of the Barn Owl in picking up species that are not commonly trapped. The shrew-mole was never trapped, though often trapped for, in this place.

The two Bitterwater collections (4, 5) were made in a group of Barn Owl nests during banding operations. Four nests of bandable young were found here on May 4, 1939, while several other nests of young too young to band, or nests of eggs, or nests that had already been abandoned, were found. These collections were made to see what such a concentrated population of Barn Owls might find to feed upon in a dry, alkaline

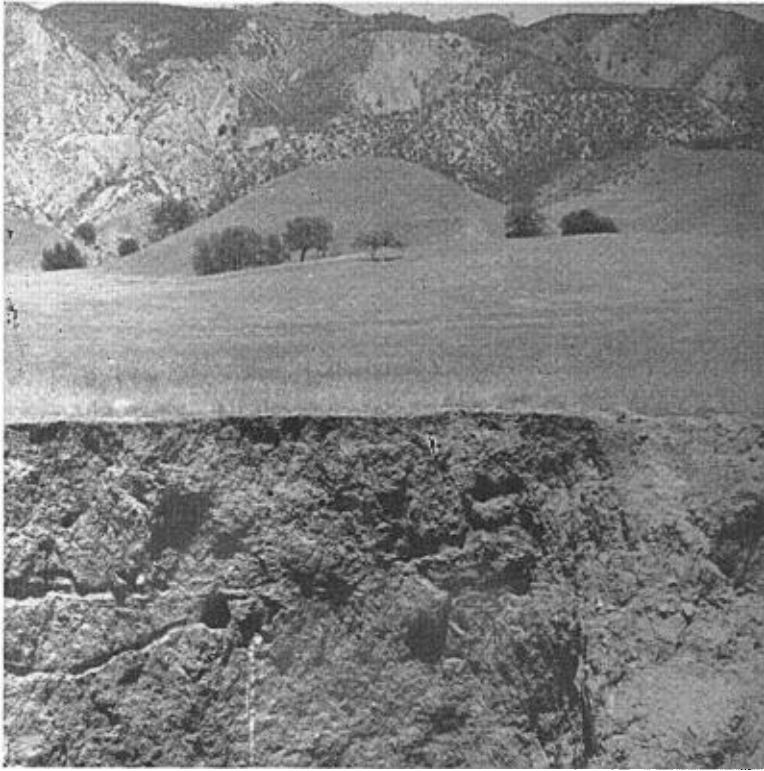


Fig. 31. Steep barranca near Bitterwater, San Benito County, California.  
Typical nesting hole of Barn Owl.

country. These collections and other observations lead one to wonder how much effect these owls have upon the rodent population of a district. It seems that the near-by population of rodents would be immediately cleaned out if it was not large, but this does not seem to be the case as is shown by the following: While banding here with David W. Dresbach on May 14, 1941, we picked up two young kangaroo rats, presumably *Dipodomys heermanni*, in the barranca directly below where the owls were nesting. We thought possibly an owl had captured the parent, and the young, becoming hungry, had wandered to the mouth of the burrow. Up to this time we had banded 23 nestlings so it seems that if the pressure had been very great upon the rats, or upon the owls, that the parent would have been picked up long before this. It is possible that

young rodents are being born at the same period when the young owls are hatching and that this increase keeps the rodent population at a fixed level. Errington, Hamerstrom and Hamerstrom (1940) feel that it is doubtful if the Horned Owls they studied exerted a dominant influence over the populations of the prey animals taken. They feel that when one species gets low the predators turn to more numerous animals of other species before the base population is affected.

The collections numbered 6 to 11 were made in connection with a study of the Nelson antelope ground squirrel (*Citellus nelsoni*). I hoped to find the remains of squirrels in pellets taken in areas where I had not seen them, but no squirrel remains were found due to the later-discovered fact that the foraging hours of prey and predator do not overlap. The Panoche collection (10) was made near a colony of the squirrels to act as a check, but none was found there either. Tappe (Jour. Mamm., 22, 1941: 117-148) found one represented in what was possibly a Barn Owl pellet from this last-named locality.

An interesting scene was stumbled upon when the Silver Creek collection (11) was made. On May 22, 1941, I was hunting a nest near the junction of Silver Creek and the Idria road when I came upon two young owls on a little shelf about five feet above the floor of the wash. The part of the wall that had contained their burrow had apparently fallen and they had landed there. They were being well cared for, however, as was evidenced by the five fresh kangaroo rats and the one gopher with them on the shelf. The next day the total had increased to 18 fresh kangaroo rats. The survival of the young in this open place as well as the faithfulness of the parents in the face of great difficulty seemed out of the ordinary.

The most noteworthy roosting place found was in the depths of a hand-dug well about 30 feet below the surface. This was near location 6.

In looking over the whole list of food, it is evident, as is generally known, that the Barn Owl serves as a good sampler of the small mammals of a given area. The collections made in locations 1, 2, and 3 yielded most of the small mammals of the Watsonville region. The kangaroo rat and pocket mouse were not within range of any nest that I collected from, and apparently the local chipmunk is no more susceptible to capture than any other, as I find no chipmunks listed in any other food habit study of this owl. The small mustelids are apparently also let alone. It appears that one must be sure to collect from under nests or roosting places in all types of habitats within a given region to obtain a complete picture of food selection. The Bitterwater, Panoche, and Silver Creek collections appear to be fairly good samples of those respective regions, but the others do not. I would suggest collecting from under several nests in a given locality rather than depending upon one where the bird might be concentrating on one or two prey species.

The owl also picks up rather rare species that one may trap for but never get, such as the shrew-mole. The shrews in locations 4 to 8 were surprises to me. There was habitat of a sort for them; but the water in these places dries up in many of the years, and the country may be hot and dry, and in some cases coverless except for grass in the bottoms. The Old World rat in the Bitterwater location was interesting as it was so far from any habitation; it must have been brought in with the grain seed or feed. The house mice probably were brought into the sheep country in the feed that supplements the natural growth.

Why does the Barn Owl eat more of one thing than another? Is it because it is more numerous, more tasty, easier to catch, or because the owl is more accustomed to it? The selection appears to be based partially upon numbers and ease of capture. From

breeding data collected around Watsonville, it appears that the dispersal of young gophers as well as surface food-gathering by the parent gopher must take place chiefly during the nesting time for the owls; this might account for ease in their capture. The Struve collection favored meadow mice and harvest mice which were numerous in the alfalfa in this area, and which certainly appear from the White-tailed Kite's method of attack to be easy to catch. In the Vass collection meadow mice were certainly as easy to catch, but due to the lack of grassy cover were not as numerous as gophers in near-by orchards or wood rats in brush. Gophers were numerous in the Bitterwater area, if diggings are a reliable indication, and trapping proved the presence of numerous pocket mice. It is overgrazed, too hot, and too dry for meadow mice. Localities 6 to 10 were generally hot, hard, and dry with little sign of gophers, but 11 was along a live creek where many diggings were seen. Why more *Peromyscus* were not found in the first three collections is puzzling, as they were numerous in this area as well as in most of the others, according to trapping records. It seems that kangaroo rats should have been more numerous in the collections 6 to 9. Apparently it was too easy to catch pocket mice.

It appears then that Barn Owls will pick up anything that they can handle that gets in their way. They take most of whatever is easiest to catch, either because of number or ease of approach. According to all indications they do not travel far for prey, even for what appears to be a favored type.

*Madera, California, April 1, 1945.*