tion of crown feathers when the bird is in the juvenal plumage. Juhn (Wilson Bull., 69, 1957:108–109) reported an analogous circumstance in a male Cardinal (*Richmondena cardinalis*) which did not promptly replace tail feathers lost from "frightmolt."

These data indicate that the factors which mediate the acquirement of black coronal stripes in *Z. l. nuttalli* may be already present when they are as little as 3 months old.

I thank L. Richard Mewaldt for suggesting this problem and Herbert H. Royse for helping to collect the experimental birds. Financial assistance was provided by NSF Grant 7137.—MARTIN L. MORTON, *Department of Biological Sciences, San Jose State College, San Jose, California* (Present address: *Department of Zoology, Washington State University, Pullman, February 15, 1962.*

Notes on the Food Habits of the Great Horned Owl in Western Oklahoma.—In conjunction with an ecological study of Scaled Quail (*Callipepla squamata*), an attempt was made to evaluate the role of owl predation on this quail in Cimarron County, most westerly county in the Oklahoma Panhandle. Predation by coyotes and bobcats on the same area was found to be negligible (Ellis and Schemnitz, Proc. Okla. Acad. Sci., 38, 1956:180–185).

The extent of predation by the Great Horned Owl (*Bubo virginianus*) on game birds and mammals and poultry continues to be of interest. Currently, the Horned Owl is protected by law in 23 states. In the remaining 27 states, this species is unprotected (Clement, *in litt.*, 1961). One state, Pennsylvania, currently pays a bounty of $5 on Horned Owls.

Horned Owl pellets were collected periodically during the period from July, 1954, to September, 1956, beneath owl roosts at sites in the three major vegetation types (sandsage-grassland, piñon-juniper, and short grass) characterizing the vegetation of the county. The pellets were analyzed using conventional methods as described by Errington (Condor, 34, 1934:75–86).

Bird feathers and remains were found in only 12 of the 118 lots (200 pellets) collected (table 1). A lot represents a collection of pellets at a roost on a particular date. Identifiable bird remains included a Redwinged Blackbird (*Agelaius phoeniceus*) and a sparrow. Scaled Quail population densities during the winter averaged 1 quail per 1.0 acres on 11 study areas in Cimarron County (Schemnitz, 1961, Wildl. Monog., 8:1–48). Horned Owls were known to be resident on six of these areas. Despite this relatively high availability, there was no conclusive evidence of owl predation on Scaled Quail. Although vegetative cover quality was at a minimum due to drought conditions (42.5 per cent below average precipitation), Scaled Quail apparently experienced no increased vulnerability to owl predation.

TABLE 1

OCCURRENCE OF FOOD ITEMS IN 118 LOTS OF GREAT HORNED OWL PELLETS FROM CIMARRON COUNTY, OKLAHOMA, 1954–1956

Food item	Frequency of occurrence	Per cent frequency	Total number of individuals	Per cent of total
Sylvilagus floridanus	66	55.9	76	25.3
Dipodomys ordii	36	30.5	38	12.6
Onychomys leucogaster	22	18.6	32	10.6
Perognathus sp.	21	17.8	54	18.0
Neotoma sp.	12	10.2	18	6.0
Birds	12	10.2	14	4.7
Peromyscus sp.	11	9.3	26	8.6
Lepus californicus	8	6.8	8	2.7
Reithrodontomys sp.	6	5.1	15	5.0
Insects-Coleoptera	6	5.1	12	4.0
Sigmodon hispidus	2	1.7	3	1.0
Geomys sp.	2	1.7	2	0.7
Mephitis mephitis	1	0.8	1	0.3

Black-tailed jackrabbits (*Lepus californicus*) in Cimarron County thrived during the severe drought years of 1954, 1955, and 1956. Studies by Bronson and Tiemeier (Ecology, 40, 1959:194–198) in adjacent southwestern Kansas in 1956 in sandsage-grassland reported a density of one jackrabbit per 2.5 acres. Despite high densities, jackrabbits, like quail, ranked low in the Horned Owl diet.

Cottontail rabbits (*Sylvilagus floridanus*) were the only game animal that composed a significant proportion of the Horned Owl diet in this study. Cottontails occurred in 55.9 per cent of the pellet

lots examined (table 1). The low per cent consumption of game birds and mammals other than cottontails conforms with the findings of others on western populations of Great Horned Owl (table 2).

TABLE 2

SUMMARY OF FOOD STUDIES OF THE GREAT HORNED OWL WEST OF THE MISSISSIPPI RIVER

Source	Locality	Per cent occurrence			
		Game birds[1]	Non-game birds	Game mammals[2]	Non-game rodents
Baumgartner (Wilson Bull. 56, 1944:212)	Oklahoma	1.4	8.4	15.5	62.0
Present study	Oklahoma	....	4.7	28.0	62.5
Parmalee (Auk, 71, 1954:469)	Texas	2.9	8.8	29.4	58.9
Craighead (*op. cit.*:407)	Wyoming	2.3	1.4	2.8	92.2
Alcorn (Condor, 44, 1942:285)	Nevada	6.3	....	37.5	56.2
Bond (Condor, 42, 1940:165)	Nevada	....	3.2	....	96.8
Jones (Nebr. Bird Rev., 20, 1952:10–11)	Nebraska	8.6	....	4.5	86.9
Fitch (Condor, 42, 1940:74)	California	....	....	19.0	81.0
Fitch (Condor, 49, 1947:140–141)	California	0.7	1.5	13.9	77.0

[1] Bobwhite and California quail, Ruffed Grouse, and ducks. [2] Cottontail, jackrabbit, snowshoe hare, muskrat.

Studies of the Great Horned Owl in the West, including the present Oklahoma study, suggest that the diet of this owl is not inimical to the welfare of game birds. Inglis (Relations of Rodents to Game Populations, Texas Ag. Expt. Sta., 1959:279–339) work in the Texas Panhandle illustrate that rodents and quail fed on many of the same kinds of foods. Possibly the high per cent of small rodent consumption by Great Horned Owls is indirectly beneficial to quail by reducing competition for the weed and grain seed supply.

Craighead and Craighead (Hawks, Owls, and Wildlife, 1956:294) after a study of raptor-prey interrelationships, concluded that avian predation was usually proportional to prey density except in cases where prey risk was low. Perhaps the apparent low vulnerability of Scaled Quail to owl predation can be attributed to the nocturnal feeding activity of the Horned Owls. Scaled Quail are inactive at night as they roost in a covey circle with each bird facing outward. This type of roosting behavior may decrease predation risk from owls.

This research (Contribution No. 338 of the Department of Zoology) was supported by the Oklahoma Cooperative Wildlife Research Unit, Oklahoma State University (Okla. Dept. Wildl. Cons., Wildl. Man. Inst., and U. S. Fish and Wildl. Serv. cooperating). The authors are grateful for the advice and guidance of A. M. Stebler and F. M. Baumgartner.—SANFORD D. SCHEMNITZ, *School of Forestry, The Pennsylvania State University, University Park, Pennsylvania,* and ERNEST ABLES, *Department of Zoology, Oklahoma State University, Stillwater, Oklahoma, October 1, 1961.*

Lapland Longspur in México.—On November 14, 1961, a Lapland Longspur, *Calcarius lapponicus*, was found dead at the south end of Cerralvo Island, the southernmost island in the Gulf of California, Baja California, México. The species has not previously been reported from México (Pac. Coast Avif. No. 33, 1957).

The bird was found lying at the edge of an arroyo about 50 yards from the shore. The eyes and legs were dried, but the generally good condition of the bird suggested that it had been dead for not more than 24 hours. Internal decomposition had progressed so that the sex of the bird could not be determined, but plumage characters indicate that it was a male. Its skull was fully ossified. The specimen has been placed in the collections of the California Academy of Sciences .

The pattern of variation in Lapland Longspurs is such that the subspecific identity of individual birds cannot readily be determined. The specimen under consideration is quite dark; comparison with series housed at the California Academy of Sciences and at the Museum of Vertebrate Zoology revealed a closer resemblance to wintering birds of the eastern United States than to those of the western United States. The bird has thus been tentatively identified as *C. l. lapponicus.*

Current studies on Cerralvo Island are being carried out under the sponsorship of the National Science Foundation. Frank A. Pitelka and Richard T. Holmes helped in the identification of the specimen.—RICHARD C. BANKS, *California Academy of Sciences, San Francisco, California, December 21, 1961.*