

A Plucking Experiment with White-crowned Sparrows.—The color change of coronal stripes in young White-crowned Sparrows (*Zonotrichia leucophrys*) follows a well known sequence. In newly fledged young the coronal stripes are buff. They are replaced with brown feathers during the post-juvenal molt and finally with black, typical of adult birds, during the prenuptial molt. *Z. l. nuttalli*, a sedentary race, is exceptional in that the prenuptial crown molt is often incomplete and many birds will enter their first breeding season with coronal stripes of mixed brown and black (Grinnell, Condor, 30, 1928:185-189; Blanchard, Univ. Calif. Publ. Zool., 46, 1941:1-178). We have noted that immature White-crowns of several races held in captivity at San Jose, California, will replace brown coronal stripe feathers lost from cage wear with black prior to the onset of the prenuptial molt. Emlen (Wilson Bull., 50, 1938:57-58) plucked crowns of a migratory race (*Z. l. pugetensis*) at Davis, California, and discovered that they could produce black stripes at five months of age. We designed a plucking experiment to determine the temporal limit of the mechanism which produces or permits the first manifestation of black in *Z. l. nuttalli*.

In the summers of 1960 and 1961 recently fledged birds were captured with Japanese mist nets from a beach area near the mouth of the Pajaro River, a few miles west of Watsonville, California. They were returned to the outdoor aviary on the roof of the Natural Sciences Building at San Jose State College and maintained on a nutritionally adequate diet of chick scratch, red millet, and dry dog food. At chosen intervals one of the coronal stripes was plucked with forceps. The bird was then returned to its cage for future observation. The results are summarized in figure 1.

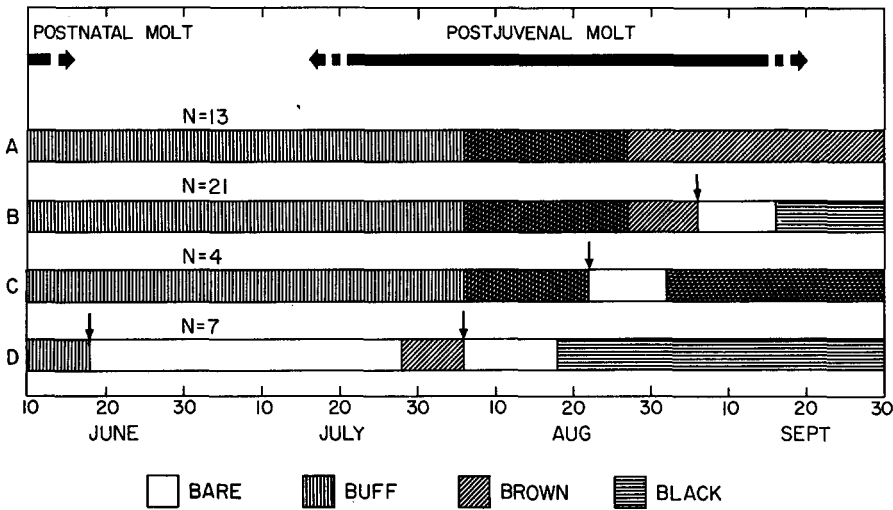


Fig. 1. Color of coronal crown stripes in *Zonotrichia leucophrys nuttalli*. Vertical arrows indicate date of plucking.

The onset of postjuvenal molt in these birds commonly involved some body and covert molt and the central pair of rectrices. The crown molt began two to three weeks after the inception of molt in these other areas.

Group A in figure 1 illustrates the normal temporal sequence for attaining brown stripes and served as a control. In group B the brown was plucked soon after it had been attained and the quickly grown replacements were black. The stripes of another group (C) were plucked during the period of postjuvenal crown molt when they were mixed buff and brown. They were renewed as mixed brown and black. A final group (D) was plucked as the postnatal molt terminated. Their crowns remained bare for nearly seven weeks and the expected brown did not appear until the postjuvenal molt had already begun on other parts of the body. The brown feathers were then removed and the replacements were black. The period of six to seven weeks during which the birds did not replace crown feathers is interesting and seems to indicate that feather loss *per se* is not the stimulus for regenera-

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 (*Richmondia 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.

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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 in-

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

cluded 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.

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