

On Kauai and Hawaii, the Elepaio is a fairly common permanent resident in the native ohia (*Metrosideros collina*) forests, which are areas of high rainfall. On Oahu, where much of the native forest has been replaced by exotic vegetation, the Elepaio is found in both introduced and mixed forests. By contrast, the Elepaio is one of the few endemic land birds that nests in the relatively dry (26.9 inches of rain in 1965; 15.6 inches in 1966) mamani (*Sophora chrysophylla*)-naio (*Myoporum sandwicense*) forest on the slopes of Mauna Kea at elevations of approximately 7000 to 9000 feet. Figures 1 and 2 were taken in this latter habitat, whereas Figure 3 is of a nest found in the Alakai Swamp region of Kauai. Over 600 inches (50 feet) of rain have been recorded in a single year on Mt. Waialeale, only a few miles from the site of the nest in Figure 3. (Work supported by NSF Grant GB-5612.)—ANDREW J. BERGER, *Department of Zoology, University of Hawaii, Honolulu, Hawaii, 9 September 1968.*

**An unusual nest site of the Starling.**—On 16 August 1967 Professor Emanuel Fritz of Berkeley, California, presented the Museum of Vertebrate Zoology with a live starling (*Sturnus vulgaris*) captured in his home. This bird (MVZ no. 15802), a male with an incompletely ossified skull, had testes two mm in length and weighed 76.6 g. It was obviously nearing completion of its post-juvinal molt, for the feathers of the entire head and neck, one primary on each wing, and all the secondaries were of the brown juvenile type.

The nest site from which this bird was obtained was in the basement of the Fritz's home, in the bottom of a vertical ventilating pipe nine inches in inside diameter and approximately 35 feet in height. The pipe, which was lined with unglazed terracotta, led directly to the chimney above the three-story house. Two other smaller pipes joined this one in the basement at five feet above the nest site, one coming from a gas furnace and the other from a gas water heater. By removing one of these side pipes, then by using a mirror and flashlight, the Fritz family was able to count six juveniles, though the brood may have been larger. One juvenile died of unknown causes and could not be removed from the bottom of the pipe; the others apparently fledged successfully.

According to Professor Fritz the young continued to roost with the parents in the nest for several days after fledging. They entered and left the nest by travelling the full length of the 35 foot pipe from the vent of the chimney to the nest, and vice-versa. On several occasions, both adults and juveniles exited into the basement via the two side pipe outlets. Each time they were captured and released into the garden; the one retained was collected in this manner. Locomotion was presumably achieved by a combination of fluttering and clinging to the rough-surfaced terra-cotta lining of the pipe.

That the two gas pipes entered the main outlet five feet above the nest no doubt accounted for the birds' not being asphyxiated (the dead juvenile may have been) since the noxious fumes were lighter than air and rose rather than descended the chimney. Fresh air probably entered via the chimney and the side vents described, permitting dilution of carbon monoxide and other gaseous wastes.

It is only in recent years that the Starling has been observed breeding in the San Francisco Bay region. On 14 May 1965 Gene M. Christman recorded in his field notes that two Starlings were seen in the fronds of a palm tree on Ridge Road near the Pacific School of Religion north of the University of California, Berkeley campus; later they were seen carrying food and the noises of begging young was heard. Banks (Bull. So. California Acad. Sci., 64:11-15, 1965) reports Starlings breeding in palm trees in San

Diego County. On 6 May 1967 I observed Starlings carrying food into palm trees in Ruth Hardy Park near Palm Springs, Riverside County, California.

The adaptability of these birds to new situations, as illustrated by these examples of choices of nest sites, no doubt contributes to their success in rapidly colonizing areas into which they are introduced or have spread.

My thanks to Drs. Emanuel Fritz and Ned K. Johnson who read this manuscript and offered helpful criticisms.—LUIS F. BAPTISTA, *Museum of Vertebrate Zoology, University of California, Berkeley, California, 17 May 1968.*

**Fall and winter food habits of Red-winged Blackbirds and Brown-headed Cowbirds in western Oklahoma.**—Since the establishment of the Washita National Wildlife Refuge on the upper portion of Foss Reservoir in western Custer County, Oklahoma, there has been a large increase in the number of wintering Red-winged Blackbirds (*Agelaius phoeniceus*) and Brown-headed Cowbirds (*Molothrus ater*). There have been several reports by local farmers of grain sorghum (*Sorghum vulgare*) depredations by blackbirds coincident with this buildup.

This paper deals with the food habits of Redwings and Cowbirds during the September through January period. The objectives were to determine: (1) frequency of various items in the diet; (2) significance of grain sorghum in the diet; and (3) effect of large winter concentrations of Redwings and Cowbirds.

Beal (U.S. Dept. of Agric. Biol. Surv. Bull., 13, 1900) reported that in the stomachs examined weed seeds occurred most frequently in Redwings and ragweed in Cowbirds.

Analysis of 92 blackbird stomachs collected in Okfuskee County, Oklahoma on 30 January 1950, showed that the eight food items which occurred most frequently had no commercial value. Grain sorghum ranked ninth and oats eleventh (Stebler, Oklahoma Coop. Wildl. Res. Unit Quarterly Report 5:20–24, 1952).

During the period September through January 1964 and 1965, 83 Redwings and 35 Cowbirds were shot in the evening at blackbird roosts on the refuge and adjacent terrain. Contents of the crops and gizzards of the specimens were examined and identified and frequency of each item determined.

The frequency of various items in the diets of Redwings and Cowbirds is presented in Table 1. Grain sorghum was the most frequently found food item in Redwings and Cowbirds, occurring in 93 and 71 per cent respectively of the crops and/or gizzards examined.

The importance of grain sorghum in the diets differed from that reported by Martin, Zim, and Nelson. (A guide to wildlife food habits. Dover Publ., 1951) for each species. They reported a greater preference for foxtail (*Setaria*), corn (*Zea mays*), oats (*Avena*), and panic grass (*Panicum*) for Redwings in the prairie region of the United States. In the southeastern United States, foxtail, panic grass, ragweed, oats, wheat, and doveweed were listed as important items in the diets of Cowbirds.

Redwings and Cowbirds had varied diets (about 15 items in each). Only five items were found in 20 per cent or more of the Redwings, while eight items were found in over 20 per cent of the Cowbirds examined. This apparently was due to the latter's habit of feeding in smaller, more dispersed groups over the study area in early fall. Cowbirds did not center their feeding on the refuge until later in the year. Most of the less important items were probably picked up while feeding on grain sorghum or other favored foods because these other grasses and weeds were usually found in or around sorghum fields.