and slightly more than half as long in *Melanerpes* (*Tripsurus*) *pucherani*. It would be interesting to know, in conclusion, whether any of those other species have two types of holes and back into the narrow ones in the manner of *M. rubricapillus*.

(Since the above was written, Dr. Short (pers. comm.) has called attention to other woodpeckers having tails 45–50% of wing lengths, such as *Picoides* (*Dendrocopos*) *maculatus*, *P. absoletus*, and *P. dorae*, various species of *Dendropicos* and *Celeus* (*Micropternus*) *brachyurus* that might be observed for unusual types of roost holes and manner of entering them.)

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CHANGE OF WINTER FEEDING SITES BY INDIVIDUAL BROWN-HEADED COWBIRDS

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It seems logical to expect individual birds to return day after day to winter feeding sites containing abundant supplies of suitable food, and, as every bird-banding station operator knows, this often occurs among birds visiting standard winter feeding stations. However, as shown by the low rate of recapture of birds at a trapping station 2 miles from the roost and the recapture of several 10 miles beyond the first trapping station, it is indicated that Brown-headed Cowbirds (*Molothrus ater*) wander or range widely on their wintering ground even when food is abundant near their roosting site.

During the period 10 November 1960 to 13 January 1961, I operated banding traps 28 different days at the cattle-feeding area on the Kilby State Prison Farm about 2 mi. W from a large roost, chiefly of Brown-headed Cowbirds, near Montgomery, Alabama. I also operated traps on the Smith-McQueen Farm 10 mi. W from the Kilby site, near Prattville, Alabama, for 8 days during the period 15 November 1960 to 21 January 1961. Abundant supplies of food were easily available to the many birds visiting both sites, even without their entering the traps. A total of 7239 Brown-headed Cowbirds were banded at the Kilby site and 1316 at the Prattville site.

Thirty-one recaptures were made during the period of trap operation, and nine of these were of birds recaptured the same day they were banded. Of the remaining 22 recaptures, 16 were made at the banding sites within the first 6 days after banding, and one each was made on the 13th, 16th, and 20th days. The low and declining recapture rate at the banding sites suggested that many birds were feeding elsewhere. That some of these cowbirds changed their feeding sites was also indicated by recapture at Prattville of three birds 13, 14, and 16 days after banding at Kilby. Thus, individual Brown-headed Cowbirds sometimes returned to the same feeding sites, chiefly during successive days. They also used other sites, one of which was more distant from their roost, although food availability was essentially the same and continuously good at both sites.

Among Brown-headed Cowbirds which were foraging in flocks, food-searching was thus somewhat of a daily endeavor, although good feeding sites were involved in recent earlier experiences of the birds. The sites where individual birds fed on successive days may have depended more on movement of flocks than on earlier experiences of individual birds.

Data used in this note were collected when I was an employee of the U.S. Fish and Wildlife Service.

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TESTOSTERONE-INDUCED SINGING IN FEMALE WHITE-CROWNED SPARROWS

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During studies of reproduction in White-crowned Sparrows, *Zonotrichia leucophrys gambelii*, we made ancillary observations of steroid induction of song that are pertinent to an interpretation of the breeding behavior of females of this species under natural conditions. We were not able to study the induced songs systematically because of the conflicting requirements of the main objectives of the experiments; but because it is unlikely that we will be able to augment the data in the near future, we now report them briefly, together with a summary of the pertinent literature. Female *Z. l. gambelii* can be added to the growing list of female passerines for which sonagrams of androgen-induced songs have been published (*Fringilla coelebs*: Thorpe 1958; see also, Hooker 1968:322; *Turdus merula*: Thielcke-Poltz and Thielcke 1960; *Junco oreganus* and *J. phaeonotus*: Konishi 1964; *Turdus migratorius*: Konishi 1965a; *Zonotrichia leucophrys nuttalli*: Konishi 1965b).

MATERIALS AND METHODS

The experimental birds were migrant female *Z. l. gambelii* captured near Pullman, Washington. In each experiment, 30 females with regressed ovaries (November–February; condition of the ovary ascertained by laparotomy) were caged in pairs indoors at 21–25°C and exposed to a daily photoperiod of LD 8:16 (lights on 09:30–17:30 PST). After 1 or 2 weeks, the birds were segregated randomly into five groups of six each. Birds of each group were treated with a single dose level of steroid or with its carrier. In one experiment, the birds received intramuscular (thigh) injections of depo-testosterone cypionate (50, 100, 200, or 400 μg/day); in a second, depo-estradiol cypionate (8.3, 50, 100, or 200 μg/day); and in the third, progesterone (42, 84, 160, or 336 μg/day)

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