

population mean at day 15, and SD is the estimate of the population standard deviation. This statistic is dimensionless and so comparable among body parts; it is normally distributed with mean 0.0 and standard deviation 1.0. When the runt measurements are smaller than, equal to, or larger than the corresponding population mean, the z-values are negative, zero, or positive, respectively.

If the runt followed a development pattern similar to most birds, then, at some age its body proportions should have been similar to those of other birds at age 15 days. That is, at the age when the runt passed through the 15-day-equivalent developmental stage the z-values should have been fairly constant and the standard deviation of z-values should have been small. Furthermore, if the runt were small, or stunted for its developmental stage compared with other birds, then its z-values should have been large and negative, but if the runt were of normal size, then the magnitude of the z-values should have been small.

The small standard deviation of z-values at ages 22 and 23 days suggests that the runt passed through a developmental stage equivalent to that of most birds at 15 days (Table 1). The runt did follow a normal pattern of development, although at a later age. The low magnitude of z-values at this age suggests that the chick was not stunted, but was well within the normal variation in the population. The larger implication is that in avian growth studies some of the measured variation in size is contributed by variation in developmental rate.

The range of z-values with ages for the different body parts reflects the overall developmental pattern. The large range of values for feathers reflects the concentration of feather growth late during the chick period. The little variation for tarsus and toe suggests that by day 15 they had largely completed growth.

The runt left the colony on 18 July, 36 days after hatching. This was 11 days after its siblings left, at ages of 26 and 27 days, more normal ages for departure.

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Communal Roosting in Wintering Hooded Mergansers.—Monospecific winter roosting assemblages by relatively large numbers of Hooded Mergansers (*Lophodytes cucullatus*) are not recorded in the literature. Brewster (1924, in Palmer 1975) saw evening flights from woodland streams and ponds to Lake Umbagog in Maine, but failed to mention whether they were to feed or roost. Typically, flock size of Hooded Mergansers is small, with birds usually seen singly, in pairs, or in flocks of up to 10 birds (Bent 1923, Kortwright 1953, Johnsgard 1975, Palmer 1975, Bellrose 1976).

In central Florida (Pasco Co.) during the winter of 1976, we located a pond of about 45 m diameter at which many wintering Hooded Mergansers were roosting. The pond was approximately .75 m deep in the center and was about 50% covered by emergent vegetation, mostly maidencane (*Panicum hemitomon*) with scattered small clumps of Pickerelweed (*Pontedaria lanceolata*). The pond was within a large pine-palmetto (*Pinus palustris*—*Serenoa repens*) flatwoods that was dotted with numerous ponds, lakes, cypress swamps, and marshes, several of which were in the immediate vicinity.

We made 8 trips to the roost from 1 Jan. through 8 Feb. Initially we watched the pond while hidden only by the shoreline vegetation, but later we placed a blind at the pond edge. We entered the blind well before sunset and recorded numbers of Hooded Mergansers coming to the pond. Mergansers appeared around sunset, and dropped into the pond with much aerobical twisting and vocalizing. The number of Hooded Mergansers coming to the pond varied between 100 to 223 (mean 176.5 \pm 32.5). They arrived

as singles or flocks up to 16 birds, but most often in pairs. On 4 evenings the size of arriving groups was accurately tabulated. The mean group size for all 4 evenings combined was 2.7 (SD = 1.9, mode = 2). The overall sex ratio was about even, and of 25 twosomes that came in on the evening of 29 Jan., 23 were composed of 1 male and 1 female.

Once on the water there was much interaction and vocalizing so long as any light remained. The calls and displays mentioned below were as described in Johnsgard (1961). The females uttered dog-like hoarse "gack" calls and the males emitted guttural growls and nasal quack-like calls. Males displayed vigorously, performing "Crest-raising" and "Head-shaking." "Head-shaking" usually, but not always, culminated in the "Head-throw" in which the head is laid over on the back, the bill pointed up, and a "frog-like crrroooooo" is uttered. Johnsgard (1961) stated that sometimes when "Head-shaking" is not followed by the "Head-throw" the male will only lift his head, open his bill, and give a "hollow pop vocalization"; we did not observe this. Johnsgard (1961) also states that the "Head-throw" is directed toward the female as a courtship display. Our impression was that the males were directing it towards one another. During the brief period that the birds were active on the water, male-male chases were very frequent. Although Johnsgard (1961) has reported seeing courtship throughout the winter and spring, courtship intensity is probably lower during midwinter, the time of our observations.

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Clutch Size in Costa Rican House Sparrows.—House sparrows (*Passer domesticus*), although introduced to North America only about 130 years ago, exhibit a marked correlation between clutch size and latitude within the United States (Murphy 1978). European populations exhibit a similar but less marked correlation (Dyer et al. 1977). Whether these relationships are the result of an evolutionary or an acclimative response to differing environmental conditions (i.e., photoperiod, temperature, resource levels, predation rates) is not known. In this note I present data from Costa Rica, where House Sparrows were not discovered until recently (F. G. Stiles, pers. comm.), which support the idea that clutch sizes are smaller in the tropics.

Several small colonies of House Sparrows were found around the Hospital San Juan de Dios, on Avenida Central, in San Jose. I found about 20 nests, from 10 to 30 m, in a large tree at a parking lot across from the hospital. Most nests were among bromeliads; at least 2 were cavity nests. On 17 February 1980, I observed a male and a female sparrow feeding 2 fledglings. This places the start of the breeding season to at least mid-January (assuming Costa Rican sparrows have incubation periods and growth rates similar to temperate sparrows). Sparrows nest in San Jose through October (F. G. Stiles, pers. comm.), and may nest year round.