A Source of Variation in Avian Growth Studies: undigested food.—In studies of avian biology, standardized growth curves are often obtained by weighing young at regular intervals. What is measured, in fact, is the bird plus the unassimilated food in the gut, some of which will be eventually assimilated but some of which will be excreted. Food in the gut is a source of variation in weight studies, though large samples minimize problems of excess. With small samples the potential for problem increases.

For most, if not all birds, there is a long period of inactivity each day during which the chicks are not fed (e.g., for diurnal birds this occurs during the night). At the end of this period one would expect measured weight to reflect the weight of the bird without food in the gut. By comparing this weight with the weight of chicks after feeding has begun, one can get an idea of the degree of variation due to food in the gut.

In 1979, I studied this question in Common Terns (*Sterna hirundo*) on Great Gull Island, Long Island Sound, New York. Common Tern chicks remain in the parental territory until they are about 23 days or older (Hays pers. comm.) and chicks reach their maximum weights at between 17 and 20 days of age (LeCroy and Collins 1972, Auk 89:595–611; LeCroy and LeCroy 1974, Bird-Banding 45:326–340; pers. obs.). The chicks are fed at variable rates from once every few minutes to once every few hours depending on feeding conditions for adults, weather, etc. (Hays pers. comm.; pers. obs.). At ages of 15 and 16 days I weighed chicks at sunrise (ca 0445) before they had been fed and at 0800, after feeding had been going on for some time. I compared the two weights each day and average growth increments calculated from the increments of individual birds.

On day 15 at 0445 chicks weighed a mean of 99.6 $\pm$ s.e. 2.03 g and at 0800 they weighed 108.0 $\pm$ 2.23 g (t-test, one-tailed, n = 10, $P < 0.001$). On day 16 the earlier weights were again lighter but not significantly so: 107.5 $\pm$ 1.93 g and 111.9 $\pm$ 2.26 g (t-test, one-tailed, n = 11, $0.10 > P > 0.05$). More importantly, the average daily weight increments were different as calculated with weights taken at the two times on the subsequent days. Weight increase, based on 0445 weights, was 5.7 $\pm$ 1.35 g and was significantly different from the increase based on 0800 weights, 0.2 $\pm$ 2.04 g (t-test, two-tailed, n = 9 and 10 for 0445 and 0800 increments, respectively, $P < 0.05$). Unassimilated food, then, can contribute a small, though significant amount of variation to measured weights and weight increments. In studies with large sample sizes unassimilated food is likely to contribute only a small amount of variation.

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Commensal foraging between Hairy and Pileated woodpeckers.—At 14:20 (C.S.T.), 13 March 1979, we observed 2 Pileated Woodpeckers (*Dryocopus pileatus*) at the Cedar Creek Natural History Area in east-central Minnesota, prying off chunks of bark near the base of a dead red oak (*Quercus rubra*) (78 cm dbh) and eating white coleopteran larvae exposed at the bark-cambium interface. The pair had cleared an area of trunk about 50 × 125 cm. One of the birds dropped to the snow several times to forage in the bark debris accumulating below. From a distance of 30 m we observed one of these birds consume a minimum of 9 larvae, each approximately 15–20 mm in length. After a few minutes one of the Pileateds flew off.

A male Hairy Woodpecker (*Picoides villosus*) landed on the trunk just below the cleared area at 14:27 but was immediately displaced by the remaining Pileated. The Hairy soon dropped to the pile of debris where it foraged unmolested about 5 min, flipping over several pieces of bark. Then it moved up the trunk to the cleared area, foraged a few moments, and left.

At 14:47 a female Hairy landed at the cleared area and foraged about a minute before the male Hairy returned and displaced her. She dropped to the debris pile where she foraged briefly before the male again displaced her. The male returned to the cleared area for several minutes before both Hairies left the tree.

The female Hairy returned at 14:58 to forage at the cleared area for about a minute before being displaced once more by the male. For about 6 min the male Hairy and the Pileated foraged together, at times no more than 30 cm apart, with no notable interactions. The Pileated left after 10 min and the male Hairy continued to forage until 15:18 before leaving the tree. He was foraging at the cleared area again at 16:19.

The following day we observed a female Hairy foraging at the cleared area as well as at the debris pile below. A second male Hairy (judging from a lesser amount of red on the head) also foraged there.

Thus, a minimum of 3 Hairy Woodpeckers were attracted to the Pileated Woodpecker's foraging site. The Hairies did not attempt to pry off pieces of the tough bark, which in many places exceeded 3 cm in thickness, but rather gleaned the cleared surface and edges. We pried off a piece of bark (8 × 12 cm) from the edge of the cleared area and found 6 larvae ranging in size from 4–22 mm. If similar concentrations of larvae were present on other parts of the tree, this represented a potentially rich food resource, but one that may have been energetically unprofitable for the Hairies to exploit on their own.

Whether these observations represent a commensal pattern or isolated instances of opportunism requires further study. Reports by others, however, suggest that this may be a widespread pattern. Lawrence (Ornithol. Monogr. 5:150, 1967) noted that Hairy Woodpeckers were attracted to excavations made by Pileated Woodpeckers, and Kilham (Wilson Bull. 77:134–145, 1965) stated that Hairy Woodpeckers sometimes used Pileated Woodpecker excavations to forage more deeply within trees than they could by their own efforts. Bent (U.S. Natl. Mus. Bull. 174:185, 1939) remarked that it was common to find Hairy and Downy woodpeckers (*Picoides pubescens*) associated with Pileateds when feeding, and felt that this may represent a commensal association.

Pileated and Hairy woodpeckers are sympatric over a wide area. Since Pileated Woodpeckers are often visually and acoustically conspicuous while foraging, any Hairy Woodpeckers in the vicinity would likely be aware of a Pileated's activities. Both of these factors could facilitate formation of a commensal relationship.—STEPHEN J. MAXSON AND GEORGE-ANN D. MAXSON, *Field Biology Program, Bell Museum, University of Minnesota, Minneapolis, MN 55455.* Received 1 Aug. 1980; accepted 10 Nov. 1980.

Gray Partridge Trapping Techniques.—Several researchers reported difficulty live-trapping Gray Partridge (*Perdix perdix*; Dziedzic *in* Wilbur 1967:25, McCrow 1977, Schulz 1978). Partridge are most easily captured in winter in grain-baited, walk-in traps. However, winter trapping success is related to snow depth, and little snow cover results in low trapping success (Dziedzic op. cit., McCrow 1977). Furthermore, winter-trapped Gray Partridge may not survive to spring and summer months—a period of intensive field research and interest to many biologists studying this species (Trego 1973, Schulz 1974, 1978, Hupp et al. 1980). To monitor seasonal habitat use by Gray Partridge in eastern South Dakota, it was necessary to develop techniques that could be used to trap partridge in all seasons.

We experimented with 5 trapping techniques—winter bait-trapping, decoy-trapping, nest-trapping, brood-trapping, and a net-firing gun. Decoy-trapping, brood-trapping, and use of a net-firing gun have not previously been described as trapping techniques for Gray Partridge. We earlier described a technique using hoop nets to successfully nest-trap 7 incubating Gray Partridge hens without causing abandonment (Smith et al. 1980). Although we did not experiment with night-lighting, Harris (*in* Wilbur 1967:26) reported some success with this technique. All techniques were tested on a 62-km^2 study area approximately 10 km northeast of Brookings, South Dakota. All birds were aged, sexed, banded, and released at the trap sites. No trap mortality was noted.

Winter bait-trapping.—We used modified "lily-pad" traps to bait-trap partridge in winter (Gullion 1965). Traps were constructed of 3 × 5 cm welded wire and were covered with cotton netting to prevent captured birds from scalping themselves. Potential trap sites were prebaited with cracked corn. A 2-m diameter "lily-pad" trap was placed over bait sites used by partridge. We made 47 captures and 7 recaptures in 35 trap-days in