Some Observations on the Response of an Insular Quail Population to Supplemental Feeding.[1]— As part of a study of the dynamics of an insular quail population (established by introduction of wild quail), we were able to assess probable contributions of supplemental feeding of chick-scratch dispensed from "Scruggs-type" bucket feeders. Excellent overwinter survival of wild quail (13 of 17) trapped on Cape Cod and liberated on Great Island in West Yarmouth, Massachusetts, was achieved and the 13 surviving birds increased to a fall population level of 94 birds within two breeding seasons. Thereafter for 5 years we were able to make complete counts of overwintering populations: 2 years with feeders followed by 3 years without.

Frye[2] described the uses and values of commercial bucket feeders. He found that quail in south Florida could be increased up to 180 percent at the end of 2 years by supplemental feeding. His success, and limited informal trials by others prompted us to test bucket feeders as a means of bolstering carrying capacity of the Island for quail. Although Great Island did not lend itself well to habitat manipulation by providing food in patches, it was possible to locate a number of feeders in good cover where they were readily accessible to quail.

The contribution of feeders seemed important during 1954-55, 1955-56, and 1956-57 when it appeared that feeders might have contributed to definite increases in carrying capacity on the Island (Table 1). During this period quail apparently used the feeders for a large part of their winter food supply. Although there was other use, we doubt that consumption of grain by other birds and small mammals was important.

TABLE 1. NUMBER OF QUAIL OVERWINTERING ON GREAT ISLAND 1954-1960[1]

Year	Count
1954	13
1955	30
1956	42
1957[2]	52
1958	65
1959	45
1960	46

[1]Total count determined by track counts in snow and repeated counts using trained "standing" dogs.
[2]Feeders removed after this count.

After the winter of 1956-57, we removed the bucket feeders; and except for limited supplies of food from songbird feeding stations, no supplemental food was provided. Late winter populations during these years remained high, and quail apparently suffered only minor reductions (if any) through loss of this food supply. The use of available supplies of native foods appeared to be the key to quail survival through the winters following the removal of bucket feeders. The winter of 1957-58 had a peak overwintering population that coincided with a heavy yield of pitch pine seed. Quail ranged widely through woodland areas seeking this seed and apparently fared extremely well. Furthermore, because of abundant pine seed we had difficulty baiting and trapping and we estimated that at least 20 quail were not captured, even though efforts were as great as previous years. During the winters of 1958-59 and 1959-60 pine seed were scarce, but good crops of bayberry, poison-ivy, and Japanese honeysuckle apparently sustained the quail

[1]Contribution of Federal Aid Project W-25-R.
[2]Frye, E. O. 1954. Studies of automatic quail feeders in Florida. *19th N. Amer. Wildlife and Natural Res. Conf. Trans.* pp. 298-316.

populations at comparable levels to those when feeders were in use. In total, it is unlikely that bucket feeders had any marked effect on the Great Island quail population.—R. A. Cookingham, Massachusetts Division of Fisheries and Game, Boston, Mass., and T. H. Ripley, USDA, Forest Service, Southeastern Forest Experiment Station, Asheville, N. C.

Another Nine-Year-Old Chickadee:—On February 21, 1955, I banded a Black-capped Chickadee (*Parus atricapillus*) with band number 23-14953 at my station at Mohonk Lake, N. Y. It returned January 21, 1956; February 27, 1963; and lastly November 18, 1963. On the later date a new band, number 105-37274, was added on the other leg because the original was wearing thin, although otherwise in good condition. The period between first banding and last return is 8 years and 9 calendar months lacking 3 days. (Or lacking one day if we take into account 2 leap years!) Assuming that this bird was probably not born after 21 June 1954, it would make its presumed age to be at least 9 years and 5 months (± 1). Thus, it appears to be about the same age as two of the four "Old Chickadees" reported in *Bird-Banding* **35:** 41 and **35:** 125. Daniel Smiley, Mohonk Lake, New Paltz, N. Y.

RECENT LITERATURE

BANDING

(See also 23, 31, 58, 61)

1. Bird-Banding at Powdermill, 1962.—Robert C. Leberman. 1963. Research Report No. 10 from the Powdermill Nature Reserve of the Carnegie Museum. 27pp., paper. An active banding program at Powdermill (1500 acres in the Ligonier Valley of Pennsylvania, about 50 miles east of Pittsburgh) involved 6,473 newly banded birds of 111 species in 1962. On July 7, Leberman captured a Yellow-breasted Chat (*Icteria virens*) originally banded during a wave of migrating chats at Island Beach, N. J., September 5, 1960. Powdermill is about 300 miles due west of Island Beach. The belief that the bird was a summer resident at Powdermill was strengthened by its recapture there on May 11, 1963 (1963 report, see review number **2**). This fits the hypothesis that the chats taken at coastal bird stations have previously moved north or northeast after the breeding season, with flows of warm tropical air.—E. Alexander Bergstrom.

2. Bird-Banding at Powdermill, 1963. Robert C. Leberman. 1964. Research Report No. 11 from the Powdermill Nature Reserve of the Carnegie Museum. 8 pp., paper. The year's banding totalled 6,710 individuals, of 124 species.

During 1963 no less than 360 Ruby-throated Hummingbirds were banded, 310 between August 1 and September 22, using mist nets. The weight of 32 adult ♂♂ averaged 3.1 grams, with a range of 2.4 to 3.6; 128 immature ♂♂ averaged 3.2 with a range of 2.4 to 3.8; whereas 146 ♀♀ (adults and immature) averaged 3.3, range 2.8 to 4.5. In wing lengths, 48 adult ♂♂ averaged 40.4mm., range 38.0 to 43.0; 128 immature ♂♂ averaged 42.9, range 40.5 to 45.0; 59 adult ♀♀ averaged 46.4, range 45.0 to 50.0; 65 immature ♀♀ averaged 46.8, range 44.0 to 49.5.

"Only one male had a wing measurement of as much as 45mm. while *all* females measured 44mm. (one bird) or more. In the very few instances where the sex of young hummingbirds could not definitely be determined by plumage characteristics alone (immature males usually have flecks of iridescent red in the throat) this gauge was extremely useful. As the season progressed we also found feather wear, in combination with the amount of buff of the sides, could be employed to indicate the age of females. Young birds of the year appeared to have a greater amount of brown edging on the feathers of the head, neck and back than did adults with more worn feather tips."—E. Alexander Bergstrom. (For additional data on this subject, see Norris, Robt. A., et al., "Notes on Fall Plumages, Weights, and Fat Condition in the Ruby-throated Hummingbird." *Wilson Bull.*, **69**(2): 155-163, 1957.)