

Rose Underwings in Female Rose-breasted Grosbeaks.—In the course of banding birds at Powdermill Nature Reserve (Carnegie Museum of Natural History's field station, 4.8 km south of Rector, Westmoreland Co., Pennsylvania) on 11 May 1983, I netted a Rose-breasted Grosbeak (*Pheucticus ludovicianus*) which, except for the presence of bright rose underwings (including the axillars), was in typical female plumage (lacking any of the black of the male in the body plumage, wings, or tail; or any rose in the throat). In order to determine the sex positively, the bird was collected and upon preparation as a study skin (CM T5938) proved to be a female (35.8 g; ovary 10 × 4.5 mm; largest ovule approximately 2 mm).

Although such specimens are apparently very rare, the Powdermill bird is not unique. Reporting the bird here may serve to alert other banders to the possibility of finding similar birds, which would be missexed when using keys such as that of Wood (1969) that rely entirely on wing lining color for sexing. Roberts (1955) mentioned the wing linings of females as "... rarely as rose-red as in the male." Moyer (1930) reported 2 such specimens in the Field Museum in Chicago, one taken by him near Mokenca, Illinois on 16 May 1930, and another collected near Addison, Illinois 5 September 1895. Goodpasture (1972) also reported on such a female found at a television tower kill at Nashville, Tennessee on 26 September 1968. Additionally, there is a specimen in the Carnegie Museum collection (CM 151732; formerly in the Cleveland Museum of Natural History) that apparently has not been previously reported in the literature. This bird was taken at Boston, Massachusetts on 19 May 1893. The underwings of the Boston specimen are a much paler pink than those of the Powdermill bird, but considering the age of the specimen this may have resulted from fading.

As noted by many authors, e.g., Roberts (1955), Smith (1966), and Goodpasture (1972), the normal variation in the color of the wing linings of female Rose-breasted Grosbeaks is considerable, ranging from light or pale yellow through various shades of orange and salmon. In a frequent variation, yellow feathers are edged in pink; in other cases completely pink feathers may be scattered among the yellow underwing plumage. In addition to the 2 rose-underwinged birds noted above in the Carnegie Museum collection, 20 of the other 63 females show such varying traces of rose or orange in the underwings (D. Scott Wood, pers. comm.) Of 8 adult female grosbeaks banded at the Powdermill station during the fall of 1983, 5 were recorded as having some rose on the underwings, but only 6 of 17 immature birds banded during the same period showed such coloration, perhaps indicating an increased frequency of scattered rose coloration in older birds.

Goodpasture (1972) speculated on the possibility of rose coloration resulting from hormonal imbalance with age. Although this might be the case, it does not agree well with the pattern of occurrence of male plumage traits in senescent female Yellow Warblers (*Dendroica petechia*), Common Yellowthroats (*Geothlypis trichas*), and Indigo Buntings (*Passerina amoena*) observed at Powdermill (Leberman and Clench 1979, 1980; Leberman 1981). In all these instances the acquisition of male plumage characters has been gradual, scattered, and incomplete. None of the (fully) rose-underwinged grosbeaks referred to above display any of the additional male plumage characters that might be expected in the case of senescent birds (e.g., scattered rose on the throat or black body feathers), yet all have the complete rose underwing linings typical of the male plumage. It seems likely, then, that this aberrant plumage has a genetic rather than senescent basis.

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Rate and Timing of Prebasic Molt of Adult Boreal Chickadees.—Data on the rate and timing of molt of individuals or discrete populations allow examination of the relationship of molt to breeding and migration at the inter- and intraspecific levels. Here, we present information on the rate and timing of prebasic molt of adult Boreal Chickadees (*Parus hudsonicus*) from Kent Island, New Brunswick (44°35'N, 66°45'W).

Between 17 June and 13 October 1980, we used mist-nets to sample the resident Boreal Chickadee population on Kent Island. We evaluated flight feather molt of all birds by coding each primary, secondary, tertial, and rectrix: 0 = old feather, 1 = missing feather, 2 = pin feather to less than one-third grown, 3 = one-third to less than two-thirds grown, 4 = two-thirds to less than full grown, 5 = new, full-grown feather. Raw molt scores for individual captures were obtained by summing the feather codes. The minimum possible raw score for a Boreal Chickadee's 50 flight feathers is 0, indicating that flight feather molt has not begun. The maximum possible raw score is 250, indicating that flight feather molt is complete. To facilitate comparison with 9-primaried oscines, molt scores were computed from the raw molt scores by the following formula: molt score = (raw molt score ÷ 250) × 100. Thus, the molt score is an estimate of the percent flight feather molt completed.

We made 43 captures of 15 individuals. Molt scores are shown plotted by date in Fig. 1. Eight birds were caught at least twice while actively molting, allowing calculation of rate of molt. Using the earliest and latest captures with active molt, the difference in molt scores was divided by the number of intervening days. Seven of the 8 birds had molt rates of 1.00 or greater. One bird had a molt rate of 0.39, which was calculated from 2 captures late in the molt sequence. Several birds show a slowing of the molt rate towards the conclusion of molt, suggesting that the slow rate for this individual probably had not applied throughout its molt. Excluding this individual, the mean molt rate was 1.30 (SD = .21, range 1.00–1.59). At this rate it would take 77 days to complete flight feather molt.

We are not aware of other published data on molt rate for Boreal Chickadees, nor for the related species *P. cinctus* and *P. rufescens*. The duration and rate of flight feather molt of Great Tits (*P. major*) and Willow Tits (*P. montanus*) is similar to that of Kent Island Boreal Chickadees (Dhondt 1973, Orell and Ojanen 1980). Two resident Kent Island Black-capped Chickadees (*P. atricapillus*) had molt rates of 1.56 and 1.49, at the high extremity of the Boreal Chickadee molt rate range.

Recent studies of time and energy partitioning of breeding and molt (Payne 1972, Bancroft and Woolfenden 1982) have indicated little overlap between the 2 activities. We used the mean molt rate to estimate the date of molt initiation by extrapolation from the first capture with active molt for the sample of 15 Kent Island Boreal Chickadees. The mean initiation of molt was 28 June, ranging from 8 June to 12 July. Nesting dates from Maine and New Brunswick (Bent 1946, Palmer 1949) indicate fledging near the end of June and beginning of July. On Kent Island, flying juvenile Boreal Chickadees were first captured on 10 July. One nest was found in 1980, from which the young fledged during the first few days of July. The female parent of this nest had not begun to molt on 5 July