

# BIRD-BANDING

A JOURNAL OF ORNITHOLOGICAL INVESTIGATION

VOL. 45, No. 4

AUTUMN 1974

PAGES 293-400

## AGE DETERMINATION IN THE AMERICAN GOLDFINCH

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Because the success of population, gonadal, and behavioral studies of birds often depends on the accurate segregation of individuals into age classes, it is essential that all aging techniques be as accurate as possible. Olyphant (1972) described a simple technique for the separation of American Goldfinches (*Spinus tristis*) in their first winter and first nuptial plumage from all other age groups. My experience at Guelph, Ontario, has shown Olyphant's method (1972) to be accurate when applied to male goldfinches, but inaccurate when applied to female goldfinches for which Olyphant claims the method's greatest value.

Between January and May in 1971, 1972, and 1973 and in November and December in 1973, I banded 1,737 goldfinches at Guelph. Independently, I had observed the white spots on the bases of the primaries of many goldfinches, and in conjunction with the various descriptions of goldfinch plumages (Forbush, 1929; Roberts, 1955; Bent, 1968) had reached the tentative conclusion that the white spots were characteristic of birds in their first winter and first nuptial plumages.

The method I used to determine the existence of a white spot was to note whether the white on the bases of the primary feathers extended beyond the margin formed by the greater primary coverts. If no white extended beyond this point, the white spot was absent. By using this method a criterion was established whereby the presence or absence of a white spot could easily and quickly be determined. During 1972 and 1973, 115 birds banded in previous years have been recaptured, and have provided a test for the "white-spot" method of aging goldfinches.

Of 974 first-year males (birds without bright yellow lesser coverts and thus in first winter or first nuptial plumage) banded, 912 (93.6%) had prominent white spots at the bases of the primary feathers, but 62 birds (6.4%) showed no trace of the mark (Fig. 1). By contrast, of 198 adult males (birds with bright yellow lesser coverts, characteristic of second winter and all older plumages) only five (2.5%) retained the white spot (Fig. 2). Of the 50 males banded as first-year birds which possessed the white spot at the time of banding and which have been recaptured in subsequent years, one has retained the white spot.

Thus, the white spot, which appears on the bases of the primary feathers and is readily visible both in the hand and in the field,



FIGURE 1. Wing of a first-year male goldfinch showing no white spot at base of primary feathers.

provides a relatively accurate and easy method for separating first-year male goldfinches from adult males. Where any doubt exists, the adequate descriptions of Forbush (1929) and Olyphant (1972) provide a method for the accurate aging of all male goldfinches.

However, when the "white-spot" method was used to age female goldfinches, a high level of inaccuracy was found. Of 565 female goldfinches banded, 350 (61.9%) were classed as first-year birds on the basis of the white spot. Of these 350 female birds, 35 were recaptured in subsequent years and 16 birds (45.7%) retained a prominent white spot on the primaries (Fig. 3). Two birds retained this characteristic throughout both 1972 and 1973. In addition, one female bird banded in 1972 as an "adult" (no spot) showed a spot when recaptured in 1973.



FIGURE 2. Wing of a recaptured adult male goldfinch, originally banded as a first-year male, still retaining white spot at base of primary feathers.



FIGURE 3. Wing of recaptured adult female goldfinch, originally banded as a first-year bird, still retaining white spot at base of primary feathers.

It is unfortunate that Olyphant (1972) relied solely upon "skulking" to verify her method. My experience has shown that immature goldfinches in January, February, and March are in the final stages of cranial pneumatization and may have completed the process. Because of this, even the most competent observer may misidentify the age of an individual bird. By contrast, banding data when accurately compiled cannot be questioned. My results conflict with those of Olyphant (1972) and suggest that approximately 46% of female birds banded as first-year birds could have been inaccurately aged by the "white-spot" method. In addition the evidence suggests that some "adult" birds may have been mistakenly identified as first-year birds.

Thus, the method of aging female American Goldfinches proposed by Olyphant (1972) is unreliable and must be rejected. In the absence of more definitive clues, the problem of the accurate age assessment of female goldfinches by plumage characteristics remains unsolved.

#### SUMMARY

Evidence, based on the banding of 1,737 goldfinches, is presented for the rejection of the "white-spot" method for separating age-classes of female American Goldfinches.

#### ACKNOWLEDGMENTS

I express my thanks and appreciation to Dr. R. H. Manske and Mrs. Manske of Guelph, Ontario, for permitting me to band at their feeding station, and to do so in the comfort of their home. This research was supported by a National Research Council of Canada grant No. A3911, made to the author.

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Received 31 March 1973, accepted 22 April 1974.

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CORRECTION.—Dr. Oscar de Souza Lopes of Sao Paulo, Brazil has called attention to an error in a map included in C. C. Olrog's article entitled, "Recoveries of Banded Argentine Waterfowl" (*Bird-Banding*, 45 (2): 171, 1974). The Tropic of Capricorn is mislabeled Tropic of Cancer. The error was not that of Dr. Olrog but occurred accidentally in the editorial office when an original map was redrawn.—Ed.