

the outer ends of the jaws being brought together along the split in the band, the movement of the jaws in the process being *parallel* to the bird's tarsus, thereby bringing no pressure to bear on the tarsus itself.

Regarding the proper way to handle small birds, experience has made evident that to transfer a bird from its position, as grasped by the left hand over the wings in the gathering cage, to a reversed position, by suspending it by the neck, is neither desirable nor necessary. The transfer may be nicely performed in cases of birds seven inches or under in length by making a ring of the fingers of the right hand and sliding them along the neck till they grasp the closed wings. Most birds of a size between a Bluebird and a Flicker may be easily banded in the position in which they are removed from the gathering-cage. There is only one proper manner to hold a bird in removing it from the gathering-cage, and that is by grasping it over the back with the wings closed in their natural position. Do not permit hurry or nervousness to cause any departure from this custom.

C. L. W.

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## NOTES ON PLUMAGE CHANGES OF MALE AMERICAN GOLDFINCHES

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BETWEEN January 16 and May 2, 1924, we banded at our station in Cohasset, Mass., eighty-nine American Goldfinches (*Astragalinus t. tristis*). In addition twenty-four recoveries were made of birds of this species banded at other Cohasset banding stations, nineteen from Mr. Conover Fitch's station and five from that of Mr. and Mrs. R. B. Harding. Many other Goldfinches were studied at short range—five to fifteen feet away—but were not handled.

Of the birds banded, many repeated again and again, sometimes every few days or oftener, thus affording opportunity to note gradual changes in the plumage if such took place. The number of recognized banded male birds studied, adults and juveniles, of which notes were taken, amounted to thirty-two, and to this number should be added eighteen unbanded males studied in and about the traps at short range with binoculars. Occasionally peculiarities of color-distribution permitted the study of the same birds day by day even though they were unbanded.

On account of difficulties due to inexperience in identifying adult and immature females, our attention was mainly confined to the study of males. It was of course possible to identify the adult males in normal second-winter plumage by the presence of yellow lesser coverts and by the whiteness of their wing-bars against the intense black of the wings, and likewise the young males in their first winter plumage were easily recognized by the dark olivaceous lesser wing-coverts. The actual attainment of complete summer plumage was not witnessed on account of absence from Cohasset during nearly the entire month of May, but some knowledge of the order of molt up to essential completeness was witnessed, this feather-renewal taking place in several males between the latter part of January and the latter part of April.

That some of the American Goldfinches exhibit brilliant yellow patches at unseasonable times and more or less erratically was presumed to be generally recognized when first observed by us, although later we found in the literature no detailed references to the particular color-distribution observed or its occurrence during February. These yellow patches consisted of what appeared to be surviving areas, occurring on adult males exclusively, of summer plumage during midwinter; that is to say, such patches either were unmolted areas of summer plumage or constituted a surprisingly early manifestation of prenuptial molt. The first example of this kind noted was on February 2d, an adult bird (No. 52894) having a yellow rump. A second example was observed on February 6th, a bird having a conspicuous yellow interscapular patch, while on February 8th an adult was seen having a squarish yellow area on the nape and a brilliant interscapular patch of yellow. On February 14th, No. 52921 had an unsymmetrical patch of yellow rudely wedge-shaped extending across the neck (below the nape) from the right side, narrowing to a point on the left side. This bird repeated on April 2d, at which time its rump had become yellow and there was a small area of the same color on the sides, but the yellow of the interscapular patch had not increased in size. Of another bird our notes on March 19th read: "An adult male Goldfinch seen with a bright yellow interscapular patch which has remained unchanged in size for weeks." Examples of these unchangeable patches were fairly common, and were confined to spinal and head feather-tracts.

The first positive manifestations of prenuptial molt occurred in the gradual appearance of black feathers in the forehead or crown. The area of such feathers slowly increased as the weeks passed. This was on January 19th and was noted again

on the 25th and 26th. Of adult male 83830, banded February 12th, our notes read: "The entire outline of the crown-patch is plainly evident on account of scattering black feathers, partly concealed or exposed. A line of bright feathers, approaching clear yellow, bordered the crown-patch behind." From this time on, the black crown-area increased in size and blackness, and by April 11th an adult male, No. 83815, possessed a practically complete black crown-patch. In other males the change had gone less far and was occasionally imperceptible.

The first appearance of summer yellow appearing in normally-colored birds and believed to be an early stage of the spring molt was on March 23d, a juvenile bird whose ventral parts were blotched with yellow. On March 24th several more Goldfinches were observed having summer-yellow spots on the throat, flank, and sides. By April 3d these patches (usually less than  $\frac{1}{4}$ " across in their early stage) increased in frequency and in size, the earliest ones to appear being commonly on the flanks and sides. On the 5th and 8th of April two juvenile birds exhibited this kind of molt, and on April 11th and 12th adult males had similar ventral yellow spots. Other examples of the same kind were seen with increasing frequency during April, and by April 23d a single bird was seen in summer plumage, barring a trace of olive-cinnamon on the lower hind-neck. Later (April 26th) others exhibited apparently the last remaining feathers of the winter plumage in the region of the nape, which occasionally took the form of a narrow indistinct collar.

The attendance of this species at our station during the winter and spring of 1924-25 was almost negligible, with the result that only a few observations of interest were possible. However, on April 11th we captured a male bird fast attaining his summer plumage, and again on April 14th we secured a return male (No. 52893) in almost an identical stage of molt. In both birds the black crown-patch was complete as to area, but was somewhat scraggly. Back of the nape and extending downwards was a collar-like, ill-defined band of winter plumage. Ventrally a few spots of winter plumage still remained. Barring these, the two birds were essentially in summer plumage.

Still later, on April 25th, an adult male came to feeding-shelf in complete summer plumage, excepting that posteriorly the crown-patch was a trifle ragged, a condition frequently observed at this season, indicating that here is the last place to attain completeness, as anteriorly the crown-patch is the first to show molt (the forehead). The examples above described of normal spring molt were observed most frequently, but not

exclusively, in young males just assuming their first nuptial plumage.

Our opinion has already been expressed that certain yellow patches present on adult male Goldfinches in midwinter are probably holdover areas of the previous yellow summer plumage. That this view is a reasonable one may be fairly urged from the facts (1) that only adult male birds possessed such patches; (2) their occurrence in repeated instances during midwinter, much earlier than undoubted prenuptial molt was first observed, except the appearance of black feathers on the forehead; and (3) that the patches did not increase in size for weeks, which they would have done had they been an earlier phase of the undoubted prenuptial molt of the body feathers that began, as stated, on March 23d. We are aware that in advancing this explanation as to the nature of the midwinter yellow patches we are running counter, though in a very minor way, to the accepted view of the completeness of the post-nuptial molt in all birds, but, as the above is in reality a "progress report" on our study of this species as the bird-bander approaches the matter, no harm should result from setting forth our present reaction to the phenomena observed, even though conclusiveness is lacking.

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#### GENERAL NOTES

**Catbird History.** — It is interesting to note that cases are gradually accumulating in bird-banding records which indicate more or less permanent marital relations among birds. I can now add the Catbird (*Dumetella carolinensis*) to the list of species in which we find the same birds mated for more than one season.

Catbird 46319 (♂), banded at our Peterboro, N. H., station in 1923, had that year as mate Catbird 46323 (♀). They nested close to the house, in a syringa thicket, where a shelf, bearing raisins and nailed to a window-ledge, was provided for them. This was extensively patronized to obtain food for themselves and their young. These birds were almost certainly the pair which had nested in the same clump of shrubbery and made use of the same raisin-shelf in 1922, but we lack proof of this point, as the birds werenot banded in 1922. At that time, we relied for identification — as was usually necessary in pre-banding days — only on our intimate acquaintance with the birds, their habits and little mannerisms, including the distinctive song in this case of the male.

In the spring of 1924, Catbird 46319 (♂) returned to the banding station on May 8th, immediately visited the raisin-shelf, and spent much time in the syringa thicket. He remained alone until May 16th, when he was joined by a Catbird (♀), unbanded, but later receiving No. 117437. This at first glance might seem like inconstancy, but as Catbird 46323 (♀) has never, in the two succeeding seasons, appeared at our station, it is fair to assume that she was one of the casualties of the winter 1923-1924. It is