NOTES ON THE PLUMAGES OF THE EASTERN RED-WING[1]

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WHILE banding many Eastern Red-wings (*Agelaius p. phœniceus*) at the Austin Ornithological Research Station one summer, the banders were surprised to find that they could not agree on the sex or age of some of the individuals they caught, in spite of recourse to the splendid ornithological library at the Station. It was evident that a study of museum specimens was needed, and this paper is an outcome of that investigation.[2]

The problem of plumages is of twofold importance to the bander. Firstly, he must have an accurate knowledge of the plumages of the species he traps, else his records will be incomplete and open to question. Scientists that do not band birds themselves often hesitate to utilize many of the available banding records in their own work because they cannot be confident that the ages and sexes of the birds are determined accurately. Dr. Mayr, of the American Museum of Natural History, told the writer that in his opinion much of the value of the banding records in this country is being lost through the inaccuracy of many banders in this matter.

Secondly, the bander alone is in a position to settle many questions relating to plumage changes which have been left unanswered by the museum taxonomists. A bird may be handled several times over a period of years by the bander, and the plumage changes noted in relation to its known age. The museum investigator can observe more details, and has more chance for direct comparison of specimens, but he can know only approximately the age of his birds when over a year old. The bander can settle questions of color (especially of soft parts) better than the museum worker, for he is handling live material in natural light. On the other hand, the bander depends upon the museums for his preliminary knowledge of the plumages. The two methods of approaching the subject must be coördinated.

The specimens of *Agelaius phœniceus* in the Museum of Comparative Zoölogy, Cambridge, Massachusetts, and in the American Museum of Natural History, New York, including a total of 512 skins of *Agelaius p. phœniceus* and a number of other subspecies,

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[2]This paper treats of aspects of ornithology that can be advantageously studied by banding, namely, plumages, sex determination, based on measurements, age, etc., a research field that can be greatly extended. I refer particularly to plumage description in general, based on living birds in the hand of known age rather than based on museum bird skins. Such descriptions will probably differ somewhat from many now accepted since the element of fading in some species will be largely eliminated. A still more important aspect is the opportunity to study the details of the molt, which in case of some species and even families, are among the ornithologist's perplexities.—THE EDITOR.

were studied with the permission of the curators of those institutions. The various plumages of the Eastern Red-wing are fairly distinctive, but the bander may have difficulty telling certain of them apart. As most of the published descriptions are either incomplete or too detailed for efficient banding purposes, the various plumages are discussed here at some length, the only characteristics considered being those which would be evident to a person holding a bird in his hand for a short time.

1. *Nestlings.* The sexes cannot be distinguished in study skins. Banders should investigate the soft parts.
2. *Juvenile Females.* (Late June to late August.)[1]

Size: Wing (av.) 94 mm.; tail 68 mm.

All feathers are of soft texture.

The under parts are *narrowly* streaked with dark brown, each feather being edged with *light yellow* or buff. The general appearance is of a dull-yellow wash from throat to flanks, streaked with blackish.

In midsummer (August) this plumage is completely molted for one practically indistinguishable from that of the adult females.

3. *Adult Females.* (All year.)

Size: Wing (av.) 97.6 mm; tail 73 mm.

Feathers noticeably stronger.

The under parts are *broadly* streaked with dark brown, each feather being edged with *ashy gray.*

The throat (and usually part of the breast) may be very light yellow, whitish, gray, salmon, or pink. This apparently depends upon the age of the individual.

The lesser coverts are (1) brown, each feather edged with buffy or yellowish; or (2) dark-centered feathers, edged with some shade of red; or (3) some or all of the feathers completely red. (This color varies from scarlet like that of the adult male to light pink.)

4. *Juvenile Males.* (Late June to late August.)

Size: Wing (av.) 110.8 mm.; tail 81.8 mm.

Feathers soft.

The underparts are *broadly* streaked with dark brown, as in the adult female, but each feather is edged with *creamy-yellow* or buff, instead of ashy. The throat and breast are more or less bright yellow or orange, the yellow wash lightening toward the flanks.

The lesser coverts show no sign of red.

The juvenal plumage is molted completely in midsummer and the first winter, or immature, plumage assumed.

5. *Winter Males.* (Acquired in September.)

Some immature males can be identified with certainty when their plumage is fresh, but the great majority of them are very like the adults in autumn. Most of the museum specimens taken in fall are

[1]Dates indicate the period during which the plumage is worn in Massachusetts, but hold good for most other localities.

presumably birds of the year, but it is difficult to distinguish them definitely from the adults.

In ideal first winter (immature) birds the upper parts are decidedly rich fox-red and sepia. The vanes of the flight feathers and interscapulars have a border of fox-red, on some feathers almost half the width of the vane. The rest of the vane is not black, but fairly light sepia. The characteristic "epaulets" first appear in this plumage, the lesser coverts being orange, streaked with black. The under parts are dark and variable, but there is considerable white edging to the feathers. All the feathers are soft.

The majority of the winter specimens have dark brown, rather than black dorsal feathers, but these are margined more narrowly with red-brown than in the definitely immature birds, and this color is of a lighter shade, or even whitish. The under parts have brown-black feathers edged with white, giving a scutellate effect. The texture of the feathers is variable, but generally quite soft.

Some individuals may be determined definitely as adult males. The flight feathers are longer, firmer, and blacker than those of the other winter males, although narrow russet margins are present on the dorsal feathers. The under parts are black, with little or no white on the feathers. Whether these birds are in their second winter or are older cannot be told from the skins.

6. *Spring Males.*

The winter plumage wears down until by spring there is relatively little russet or whitish edging on the back, and the ventral feathers show mere traces of white. The birds which were black, or nearly so, in autumn are now solid black except for the "epaulets."

The same reasons for uncertainty about the age of the autumn males may be applied to the spring birds. Those showing much brown dorsally are probably immature birds; but many of those which show but slight traces of brown edging to the remiges may be in either their first spring plumage or their second. The younger birds will exhibit more signs of wear, and be slightly shorter than the older ones, but this latter is not a character of much value to the bander.

A male may be definitely termed adult when he no longer shows traces of color on the back, remiges, or breast in spring, but appears solid green-black, except his epaulets. The intensity of this color varies from dull sepia to very glossy black, and it seems probable that these variations are correlated with age. It should be noted that the relative redness of the epaulets is not a good basis for determination of age, for it is an extremely variable character.

A careful perusal of these notes will disclose many statements and questions which banders might do well to corroborate or answer. The larger stations, which band many thousands of birds a year, have not the time to make detailed notes of plumages, but the problem is one which smaller stations could profitably investigate. The

information derived from such a study would be of far greater value than anything an inspection of study skins alone could produce.

KEY TO THE PLUMAGES OF *Agelaius p. phœniceus*

	Wing	*Upper Parts*	*Under Parts*	*Texture*	*When Worn*	
1	...	Mouse-gray down.	....	....	Hatching to July	Nestling
2	94 mm.	....	Light yellow, narrowly streaked with dark brown.	Soft	June to August	Juvenal ♀
3	97.6 mm.	Lesser coverts often red.	Ashy gray, broadly streaked with dark brown. Throat often colored.	Firm	All year	Adult ♀
4	110.8 mm.	Lesser coverts brown.	Yellow - cream, broadly streaked with dark brown. Throat yellow or orange.	Soft	June to September	Juvenal ♂
5	115.5 mm.	Vanes, sepia, edged broadly with fox-red. Lesser coverts orange.	Dark and variable, feathers always bordered with white.	Soft	Acquired in September	Immature ♂
5a	...	Narrow edging of russet or white dorsally. Lesser coverts orange or red.	Black with scutellate white edges to feathers; or, solid black.	Variable	Acquired in September	Indeterminate ♂
6	120.9 mm.	Solid color, sepia to black (in fall some russet on back.) Lesser coverts variable.	Solid color. Very soft, large feathers.	Firm Dorsally	By wear from 5a	Adult ♂

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