

ing a duck-banding station for several years, and many valuable data have been accumulated as a result of his activities. The author is indebted to him for the full details concerning No. 555414 and also for the photograph. Further news relative to this now-famous duck will be awaited with interest.

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WHITE-THROATED SPARROW PLUMAGES

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FOREWORD

NOTES on banded White-throated Sparrows may add something to our knowledge of the plumage changes in that species. The plumages of White-throats handled may roughly be divided into dull, medium, and nuptial, and the records secured are arranged in tabular form under this classification (see following table of data gathered by Marion A. Boggs at Waynesville, North Carolina):

Number	Plumage dull	Medium	Nuptial
65619 (banded May 2, 1923)		Apr. 26, 1925 (head-stripes brownish ashy)	
117874	Oct. 22, 1923	May 4, 1926	
	Apr. 21, 1924	Dec. 3, 1925	
	Nov. 21, 1924	Nov. 23, 1926	
122403	Dec. 1, 1923	Jan. 11, 1926	Apr. 16, 1925
140790		Oct. 26, 1924	
		Apr. 14, 1925	
		Dec. 9, 1927	
		Mar. 29, 1928 (molting head and throat)	
		Apr. 13, 1928 (molt complete)	
148846	Nov. 6, 1924	Jan. 9, 1926	
	May 2, 1925	May 1, 1926	
148859		Nov. 29, 1924	Dec. 28, 1927
165964		Jan. 14, 1926	
		May 1, 1926 (bright medium, molting on throat)	
		Apr. 21, 1927	
186619		Nov. 13, 1926	Apr. 10, 1929
		Nov. 5, 1927	(full nuptial)
		Apr. 16, 1928 (molt complete, bright medium)	
186625		Nov. 20, 1926	
		Jan. 17, 1928	
		Apr. 2, 1929 (molting)	
		Apr. 22, 1929 (molt complete, bright medium)	
571216		Oct. 23, 1927	Jan. 8, 1929 (near nuptial)
			Apr. 18, 1929 (nuptial, median line dull)
571217		Oct. 24, 1927	
		Apr. 16, 1928 (no molt)	
		Nov. 24, 1928 (bright medium)	
		Apr. 11, 1929 (no sign of molt, bright medium)	

Number	Plumage dull	Medium	Nuptial
140791		Oct. 26, 1924	Apr. 12, 1925 Jan. 8, 1926 Nov. 26, 1926
A101852		Jan. 8, 1929 Apr. 19, 1929 (molt nearly complete)	
A101873		Apr. 21, 1929 (no sign of molt) Apr. 27, 1929	
A101844		Dec. 15, 1928 Apr. 7, 1929 (molting slightly) Apr. 10, 1929 (molting heavily)	
165965	May 1, 1926 (signs of molt) May 14, 1926 (molt apparently complete)		
A101874		Apr. 26, 1929 (no sign of molt)	
A101875			Apr. 26, 1929 (median line white)
165958		Dec. 2, 1925	May 1, 1926
571231		Nov. 4, 1927	Apr. 15, 1928 (bright nuptial)
140802		Nov. 1, 1924 May 1, 1925	
140799		Oct. 30, 1924 May 9, 1925	
A101834		Nov. 14, 1928 Mar. 29, 1929 (molting head and throat) Apr. 10, 1929 (molt over) Apr. 18, 1929 (bright medium)	
A101860		Mar. 31, 1929 (molting, stripes medium) Apr. 6, 1929 (stripes still medium, lores dull)	
A101832		Nov. 9, 1928 Apr. 2, 1929 (no molt)	Apr. 10, 1929 (molting into brighter)
A101851		Jan. 7, 1929	Apr. 2, 1929 (molting into brighter)
A101862		Apr. 6, 1929 (molting) Apr. 18, 1929 (molt incomplete, no bright feathers)	
A101847		Apr. 21, 1929 (molt complete) Dec. 16, 1928 Apr. 7, 1929 (molt incomplete) Apr. 13, 1929 (molt incomplete) Apr. 15, 1929	
A101840		Dec. 2, 1928 Apr. 8, 1929 (bright, not molting) Apr. 12, 1929 (bright, not molting)	
A101865		Apr. 10, 1929 (molting from medium) Apr. 15, 1929 (no bright feathers) Apr. 20, 1929 (molt complete, medium)	
A101868	Apr. 13, 1929 (molting, new feathers dull)		
A101869			Apr. 13, 1929 (bright nuptial, no sign of molt)
A101870		Apr. 13, 1929 (not molting) Apr. 19, 1929 (not molting)	
A101837		Nov. 24, 1928 (bright medium) Apr. 13, 1929 (no sign of molt, bright medium)	

Dull plumage is presumably that of the immature. It may be worn upwards of a year and carried through a spring molt (see Nos. 117874, 148846, 165965, A101868), and the ensuing annual molt (117874).

Medium plumage may also at times be that of the immature, and after being worn as much as two full years be replaced by full nuptial plumage (see No. 186619); it may be an adult winter plumage (see No. 122403) following the nuptial plumage of a preceding spring; at the spring molt (see No. 140791, 165958, 571231) it may be replaced by nuptial; or be replaced by medium plumage brighter or no brighter than it was before the molt (see No. 140790, 186619, 186625, A101852, A101844, A101834, A101862, A101847, A101865). Medium plumage may be the summer plumage following a spring molt in a bird as much as three and four years old (see No. 140790, 186625). On the other hand, plumage may be changed from dull to nuptial in a year and a half (December to a year from the following April, No. 122403).

Nuptial plumage is most frequent in spring, but also occurs in winter (see No. 148859, 571216, 140791). Hence it must be sometimes renewed or acquired at the annual molt, though it may then be reduced to medium (see No. 122403).

The spring molt—The spring molt may be in progress as early as March 29th, or just beginning April 7th; and complete by April 10th, or still in progress May 1st (see No. 140790, 165964, A101844, 165965, A101834). Data are inadequate to give an idea as to its duration, or as to whether, under what circumstances, and how frequently it may be suppressed.

CORRELATION WITH THE LITERATURE

Without going extensively into the literature of the subject, reference has been made to a standard textbook statement of the plumages of the White-throated Sparrow, Chapman, 1912 (*Handbook of Birds of Eastern North America*); to Stone, 1896 (*The Molting of Birds with Special Reference to the Plumages of the Smaller Land Birds of Eastern North America*), and to Dwight, 1900 (*The Sequence of Plumages and Moults of the Passerine Birds of New York*).

Whereas the above data show no fundamental disagreement with the facts as stated by these authorities, it would seem to modify them somewhat, principally in showing that the plumages are relative rather than absolute. Chapman describes a summer (nuptial) plumage for adults of both sexes, but we find birds even three and four years old which have a medium summer plumage comparable to that of the ordinary winter adult or some immatures. It seems questionable if they ever attain a 'nuptial' plumage. Dwight probably attributes non-'nuptial' plumages in summer too much

to failure of the spring molt ("In some birds the moult seems to be almost wholly suppressed and they breed in worn autumnal dress"), and this (nuptial) plumage seems sometimes to take longer to acquire than either Dwight or Stone realized (they assume that adult nuptial plumage is acquired the second spring). That it is sometimes worn in winter, as mentioned by Stone, is corroborated.

SUMMARY OF THE PROBLEM

We have in this species a sequence of plumages, from a dull plumage worn by some or most young birds in the first winter, to a bright 'nuptial' breeding plumage which may be acquired by a spring molt, worn by most birds in summer. Age is an important factor controlling change from the one to the other, a factor which may be advantageously studied by the banding method, and to our understanding of which the data here presented make some contribution. Season is another such factor, and it is only reasonable to suppose that sex may be a third. Possibly there is a physiological factor independent of these three which will have to be studied by some experimental method.

SHORTCOMINGS OF THE METHOD EMPLOYED

For those who would consider carefully the implications of the data recorded and discussed above, attention may be called to three obvious inadequacies of the method.

(1) Sufficient such data have not as yet been gathered to give a satisfactory view of those features which it elucidates.

(2) It takes no account of sex, which is doubtless a factor of some importance in the problem.

(3) It rests on classification of the series of plumages into three practically recognizable categories, 'dull', 'medium', and 'nuptial', which are in the nature of the case somewhat indefinite and intangible.

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