

PLUMAGE VARIATIONS IN THE SUMMER Tanager

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Since 1964 I have banded 55 Summer Tanagers (*Piranga rubra*) at my home near Chapel Hill, N.C. Of these, 20 (16 adults and 4 juveniles) showed mixed red and yellow plumage of great variability.

Summer Tanagers are classified as males if they show cloacal protuberance, as females if they have an incubation patch, and as juveniles if they have unossified skulls. The plumage is considered normal when males are red; females are olive-yellow above, yellow below; and juveniles are as females.

Table 1 gives the plumage characteristics for 38 adult Summer Tanagers banded at Chapel Hill, 22 normal birds and 16 in mixed plumage. Of the 17 juveniles banded during the same period (1964-1970), four showed tinges of red in the olive-yellow plumage.

Five banded Summer Tanagers have been retrapped at my home station one or more times. Although the size of the sample is small, descriptions of these five returns indicate plumage variations far more striking than any mentioned in Bent's *Life Histories of North American Blackbirds, Orioles, Tanagers and Allies* (1958).

MALE RETURNS

Band No. 105-106264: adult male banded 20 May 1966 (in breeding condition)

Body above: red except for scattered yellow spots

Body below: red breast; yellow belly and flanks

Wings: yellow primaries, secondaries and primary coverts; red tertiaries and remaining coverts

Tail: Red

Returned: 14 May 1969 and 7 May 1970

Plumage at return: both times normal red adult male

Band No. 106-139255: adult male banded 10 May 1967 (in breeding condition)

Plumage at banding: normal red adult male

Returned: 25 May 1968 and 7 May 1970

Plumage at return: both times normal red adult male

Band No. 106-139284: adult male banded 16 May 1967 (in breeding condition)

Body above and below: red so evenly spotted with yellow that the bird seemed polka-dotted

Wings: yellow except for red tertiaries and a few red marginal coverts

Tail: red except for number 5 rectrices that are yellow

Returned: 30 April 1969

Plumage at return: normal red adult male

FEMALE RETURNS

Band No. 107-025108: adult female banded 25 June 1968 (incubation patch)

Body above and below: yellow spotted with red and orange

Wings: yellow except for tertiaries and a few lesser coverts that are red

Tail: center red (1-3 rectrices), outer feathers yellow (4-6 rectrices)

Undertail coverts: mostly red

TABLE 1.
*Plumage characteristics of 38 adult Summer Tanagers
 banded at Chapel Hill, N.C., 1964-1970.*

	Normal Males	Normal Females	Mixed Plumage		
			Male	Female	Unknown
1964	2	2	1	0	1
1965	2	7	1	1	3
1966	3	1	2	0	0
1967	1	0	1	0	1
1968	1	2	1	1	0
1969	0	0	1	1	0
1970	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>
Total	10	12	8	3	5

Returned: 13 May 1969

Plumage at return: mixed (generally more red)

Body above and below: yellow spotted with red

Wings: predominantly yellow. Primaries 1-6 and their coverts all yellow, remaining primaries and coverts yellow with red edgings. Secondaries show red edgings except for sevenths, which are both yellow. Greater secondary coverts are yellow except for 6, 7, and 9 (orange) and 8 (red). Some lesser wing coverts are red. Linings show some red in marginals and axillars.

Tail: yellow

Undertail coverts: show generous amount of red

Band No. 107-190025: adult female banded 13 May 1969 (incubation patch)

Body above and below: yellow with a few red-orange feathers on crown, rump, undertail coverts

Wings: predominantly yellow. Primaries 7, 8, and 9 have red edgings as do secondaries 4-9; all coverts yellow.

Tail: yellow

Returned: 10 May 1970

Plumage at return: normal yellow female

Aberrant plumage in female Summer Tanagers has previously been noted. Johnston (1951) collected an adult female Summer Tanager in mixed plumage on 17 May 1950 in Clarke County, Georgia. His red and yellow specimen resembled an adult male but was generally less bright than the average red male and had patches of olive-green in the upper parts. Under parts were a mixture of dull red and buffy yellow generally splotchy with the brightest red around the throat.

On 24 June 1968 Eloise Potter found an all red female Summer Tanager incubating eggs. The bird was mated to a normal red male and the young fledged from the nest were typical olive-yellow juveniles with no noticeable traces of red or orange in their plumage.

Details of this bird's successful nesting appear in "Breeding Behavior of the Summer Tanager" (Potter, in press).

Reports of red female tanagers bring to mind a statement by Audubon (1840): "My friends Mr. Harris and Dr. Trudeau have procured female Summer Red-birds almost as red as the males. They were obtained while breeding, and I am informed by these gentlemen that such cases are not rare!" However, Audubon does not mention this plumage variation in his detailed description of the adult female Summer Tanager or illustrate it in his colored plates.

The birds described above certainly raise more questions than they resolve about plumage variations in the Summer Tanager. Apparently males of mixed plumage eventually become all red and remain so, but the age by which they don normal adult male plumage is unknown. One female in mixed plumage banded at Chapel Hill returned in mixed plumage the next year but another female returned in normal adult plumage within a year. Therefore, age does not seem to be a factor in the amount of red in female plumage. This means that the female tanagers noted by Dr. Johnston, Mrs. Potter, and Audubon's friends could be either young birds that would eventually turn yellow or old birds that had been yellow or mixed in plumage.

In conclusion, I offer the comments of Austin (1961), who notes that although the four migrant tanager species that nest in temperate North America show strong sex differences, "gay colors the year round are a hallmark of the family (222 species), and female tanagers are usually as brightly colored as the males." Possibly then, the redness in female Summer Tanager plumage is a reversion to a characteristic that dominated when the species lived in the tropics.

LITERATURE CITED

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