

SONG SPARROWS OF MICHIGAN.

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MICHIGAN is one of the larger states. Its north and south extent, including Isle Royale in Lake Superior is about 430 miles and its east and west extent is about 420 miles. The Upper Peninsula of Michigan has been placed by the U. S. Biological Survey in the Canadian Life Zone as also the northern part of the Lower Peninsula. The middle section of the Lower Peninsula is placed in the Transition Zone and the southern and southwestern counties of the state in the Upper Austral Zone. Thus is indicated a considerable variation of fauna and flora.

Lake Michigan bounding the Lower Peninsula on the west is 60 to 80 miles wide and so forms a natural barrier to crosswise migration. Certain western forms of bird life that penetrate Wisconsin and Illinois and breed there are seldom if ever seen east of Lake Michigan.

In the Upper Peninsula of Michigan, however, certain western forms meet or merge with eastern forms. Here we find *Pedioecetes phasianellus campestris*, Sharp-tailed Grouse; *Troglodytes aëdon parkmani*, Western House Wren; and *Melospiza melodia juddi*, Dakota Song Sparrow.

A study of some 300 skins of *Melospiza melodia beata*, Mississippi Song Sparrow and *Melospiza melodia juddi* in the Museum of Zoology of the University of Michigan, at Ann Arbor, reveals that the breeding form of Song Sparrow in Ohio and the southern half, at least, of the Lower Peninsula of Michigan is *Melospiza melodia beata*. Those from the northern counties of the Lower Peninsula have some characters of *juddi*, but are much nearer *beata*.

The 70 skins from the Upper Peninsula of Michigan show a decided resemblance to *juddi*. The breeding birds at the eastern end of the Upper Peninsula appear to be about midway between the two forms. In the vicinity of Marquette there is a somewhat abrupt change to a closer affinity with *juddi*. The breeding birds from Keweenaw Peninsula and those immediately south and

southwest of it are even closer to *juddi*, as are the Isle Royale birds. Most of those from the Keweenaw region and Isle Royale approach closely the coloration of typical *juddi* from northeastern North Dakota, of which this museum has forty specimens. The North Dakota birds, however, are slightly paler and the superciliary line is a bit wider and of a paler gray.

Selecting from these true *juddi* examples from the northeastern counties of North Dakota 19 adult males and 12 adult females, taken between April 14 and June 10 and all in fresh spring plumage, we find a consistent peculiarity which appears not to have been noted in the published accounts of *juddi*. We refer to the fact that the wing and tail measurements are nearly equal in a majority of these 31 specimens.

These 19 *juddi* males have an average wing-length of 69.5 mm. and an average tail-length of 70 mm.; while the 12 females have an average wing-length of 66 mm. and average tail-length of 66.7 mm.; or a mean difference of tail minus wing for these 31 specimens of 0.6 mm. Of these 19 males, ten have the wing equal to the length of the tail or only varying one millimeter one way or the other.

The average measurements of 33 Upper Peninsula of Michigan male Song Sparrows, taken from Marquette eastward between June 5 and 12 are: wings, 68.14 mm.; tails 69.4 mm., difference 1.26 mm., and of 8 spring females, wings 63.9 mm.; tails 65.4 mm., difference 1.5 mm.

While 24 similar spring males from the southern part of the Lower Peninsula show averages: wings 66.2; tails 70.8 mm., difference 4.6 mm. and 6 comparable females: wings 63.75; tails 69.0 mm., difference 5.25 mm.

From which it appears that an important character of *juddi* may be the nearly equal length of wing and tail. The tail averaging 0.6 mm. longer than wing in the series of 31 fresh spring plumages measured. On the other hand *M. m. beata* from the southern part of the Lower Peninsula of Michigan has wing lengths averaging 4 to 5 mm. less than the tails. Consistently the Upper Peninsula birds intermediate between *beata* and *juddi* have correspondingly shorter wings as we proceed eastward from Marquette. Thus averages of the seven most easterly males

included in the above mentioned 33 males taken from Marquette eastward are: wings 66.0; tails 68.3 mm., difference 2.3 mm. These 7 males were from eastern Mackinac County (Hessel to Cedarville).

The Dakota Song Sparrow was described as a new sub-species by Dr. Louis B. Bishop (Auk, 1896, pp. 132) where he says it is:

"Similar to *Melospiza fasciata* [= *M. melodia*] but with the ground color of the upper parts paler, especially the superciliary streak and sides of the neck, and the white of the lower parts clearer, the dark markings on the breast restricted and more sharply defined against the ground color."

Of 10 specimens (6 ♂, 4 ♀), wings average 67.6 mm. (63.2-71.4 mm.); tails average 70.6 mm. (68.4-74.0 mm.)

Thus the average difference of tails minus wings of this mixed-sex series of ten equals 3 mm., while the corresponding average difference of our series of 31 males and females (19 ♂, 12 ♀) is 0.6 mm. This difference is the same whether figured as a direct summation of all the tails of the 19 males divided by 19, minus the corresponding summation of the wings divided by 19; and this result averaged with a similar result obtained from the 12 females, or whether figured as a direct summation of the tails of both sexes minus the summation of the wings of both sexes.

Perhaps the results Dr. Bishop originally obtained might have been different if a larger series had been available. Recently Dr. Bishop has suggested to the writer that the longer wings of *Melospiza melodia juddi* as compared with the wings of *Melospiza melodia beata* may be explained by the longer migration flight of the former. The Dakota race apparently winters "south to Texas and New Mexico" while the latter, so far as we know, mostly remains farther north, in the Ohio and Mississippi valleys. Moreover, it appears from the available material, that the northern range of *beata* is below latitude 45° or thereabouts, while the Dakota race, or a form closely resembling it, breeds far to the north in Canada.

In these studies of *Melospiza melodia beata* from southern Michigan, local areas were noted where all the available adult specimens were materially larger or smaller than the general average for this race. Some fifteen miles north and east of Lansing a series taken over a length of six miles shows a uniformly large size with one male

having a length of 170 mm., wing 70 mm. and tail of 76 mm., while near Concord, forty-five miles southwest of Lansing, was an area of small individuals, all typical *beata*. Such local size variations are discernible in various species from man down. If correct averages are to be obtained it therefore becomes necessary to examine a considerable number of individual specimens.

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