Bulletin of the

OKLAHOMA ORNITHOLOGICAL SOCIETY

Vol. I May, 1968 No. 1

ORIOLE HYBRIDIZATION IN OKLAHOMA

BY GEORGE MIKSCH SUTTON

ABOUT the turn of the century J. A. Allen collected in western Kansas adult male specimens of Baltimore Oriole *(Icterus galbula)* so different from a series of 20 adult male spring Baltimore Orioles taken at Carlisle, Pennsylvania, that he believed the Kansas birds to be of a "race peculiar to the plains;" in these Kansas birds the middle wing coverts were "pure white" and the bills were noticeably slender (Baird, Brewer and Ridgway, 1905: 195, 196). Allen did not, so far as I know, describe a plains race of *Icterus galbula.*

In 1936 and 1937 my co-workers and I collected many puzzling adult orioles in western Oklahoma—"oddly plumaged" birds that were, in my expressed opinion, hybrids between the Baltimore Oriole and the Bullock's Oriole *(I. bullockii);* the colored illustration accompanying my report showed what I considered to be an adult male "pure" *galbula* at the top, an adult male "pure" *bullockii* at the bottom, and four adult male hybrids in between (Sutton, 1938). From 1954 through 1957 a great many hybrid oriole specimens were collected during the breeding season in the Great Plains (from South Dakota southward into southwestern Kansas and western Oklahoma) by Lester L. Short Jr., *et al.;* a paper reporting on these appeared a few years ago (Sibley and Short, 1964).

Since the fall of 1952, when I moved to Oklahoma, I have given the phenomenon of oriole hybridization in this state much attention. As specimens and data have accumulated, I have come to feel that a map showing what is known would be helpful. Such a map, prepared with great care by John S. Weske, my Research Assistant, is presented here. The map is based solely on adult male specimens. Each symbol represents a specimen whose "pureness" or degree of hybridization is based on the "synoptic list of characters" given by Sibley and Short (1964: 133). A key overlay filed at the University of Oklahoma Bird Range indicates precisely which specimen has been symbolized, so that the analysis of hybrid characters can be checked by any interested person. Specimens used in making the map are from collections housed at the University of Oklahoma (66), at Cornell University, Ithaca, New York (28), and at East Central State College, in Ada, Oklahoma (2).

The map makes no attempt to show the exact localities at which specimens were taken in Cleveland, Ellis, and Cimarron counties. Most of the 14 Cleveland County specimens were taken at Norman, of the 22 Ellis County specimens at Arnett, of the 13 Cimarron County specimens along the Cimarron River 13 miles north of Boise City. It would, admittedly, have been possible to average Norman specimens and to place on the map one symbol for that average; but such a handling of the matter would not make clear how many specimens had been used in arriving at the average and, since the symbols needed to be large enough to be readily readable when reduced, they were drawn so large that close clustering or partial superimposing at one locality was not feasible. As the map stands, no symbol is placed outside the county in which the specimen it represents was taken.

Sibley and Short (*loc. cit.*) consider an adult male oriole with all-black head, narrow white wing-bar, orange-yellow lesser and middle secondary wing-coverts, and yellow outer tail feathers with "large, black rectangular or oval patches" at their bases to be true *galbula;* and an adult male oriole with black-and-orange head, broad white wing-patch (consisting chiefly of greater and middle secondary coverts), and yellow outer tail feathers with dark tipping to be true *bullockii.* According to these authors adult male *bullockii* has a broad, complete superciliary area of orange extending from the base of the bill to the end of the ear coverts; a narrow orange band | connecting the two superciliary areas | on the forehead; orange on the sides of the neck; orange ear coverts; and orange in the mandibular area separating the black of the throat-patch from the black loral area. Described briefly, the head of their adult male "true" *bullockii* is orange except for the black of the crown, nape, hind-neck, line back of eye, lores, small mandibular patch, chin, and throat-patch.

As regards some of the details discussed in the paragraph above, opinion may differ. For example, I find it difficult to agree that a given male oriole must be called a hybrid when its only *galbula* character is narrow black edgings in the basal part of the outer webs of the outer tail feathers, or when its only *bullockii* character is dusky tipping on these same feathers. Be this as it may, Sibley and Short have given us their concept of true *galbula* and true *bullockii,* and the mathematical symbolization of Oklahoma specimens, as shown on the map, is based largely on this concept.

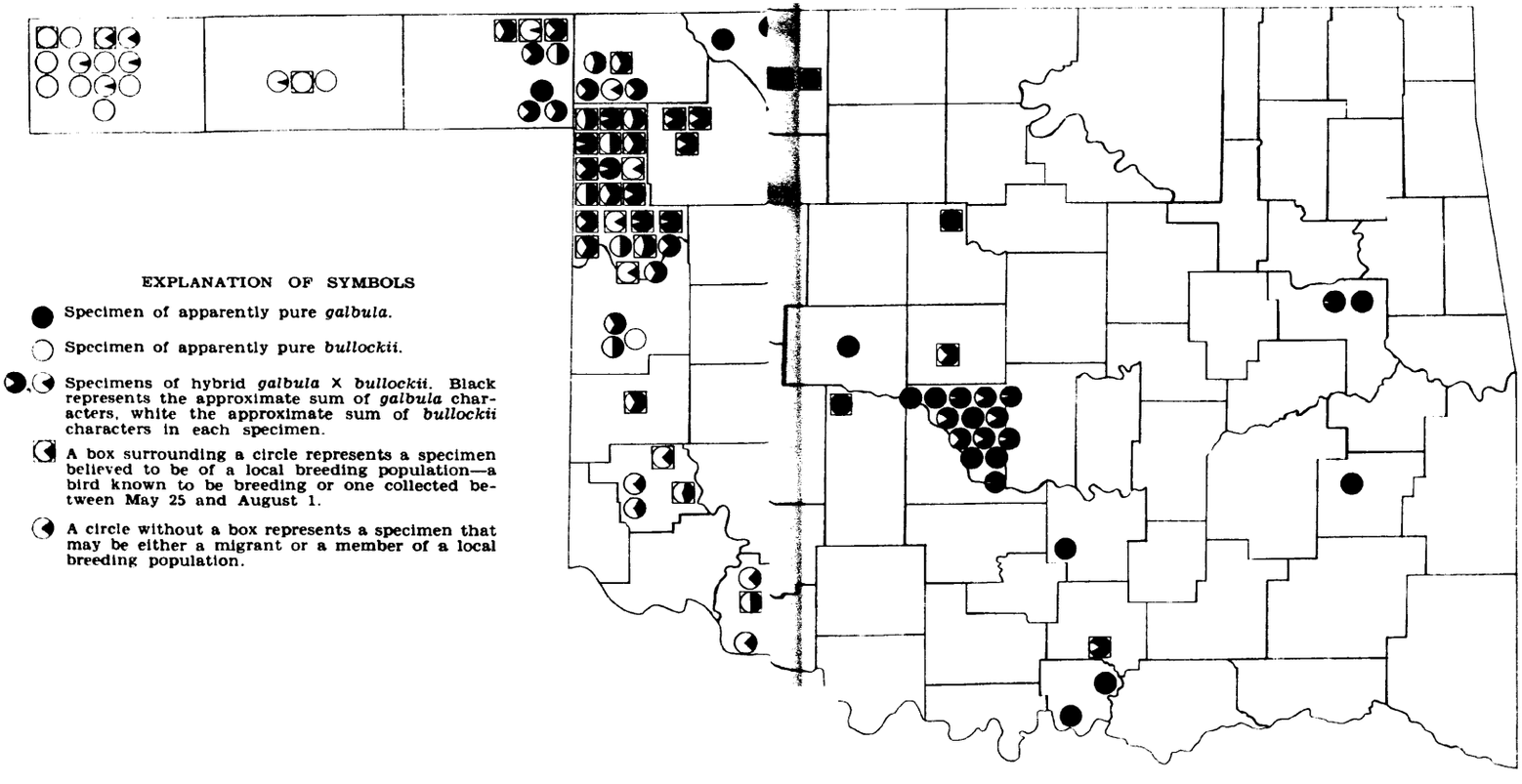
Errors in the Sibley and Short paper should be mentioned. The "narrow white bar" in the wing of true *galbula* is not on the "greater primary coverts" but on the greater *secondary* coverts, as I have stated above, and the orange-yellow coverts in the wing of true *galbula* are not "lesser primary coverts" but lesser and middle *secondary* coverts. The bold white wing-patch in true *bullockii* is composed of two sets of *secondary* coverts, the middle and the greater (Sibley and Short, 1964: 133). As for the lesser secondary coverts, these are yellow to

orange in true *galbula*, and a mixture of black and yellow or orange (occasionally almost solid black) in true *bullockii*. To ascertain the validity of this statement, I borrowed from the Museum of Vertebrate Zoology at the University of California ten fully adult male *bullockii*, all from California, where *bullockii* should be well beyond the influence of *galbula*. In nine of these ten specimens, the lesser secondary coverts are largely black; in one (from Inyo County, MVZ No. 28166) many of the lesser coverts are rich yellow; in every one of the ten some lesser coverts are yellow or yellow-orange basally and black distally.

In the map presented here, each symbol represents an attempt to evaluate and summarize certain head, wing, and tail characters, but no symbol that is neither all-black nor all-white tells precisely which characters determined the evaluation. Thus a hybrid with *bullockii*-head and *galbula*-tail achieves the same score (hence symbol) as a bird with *galbula*-head and *bullockii*-tail. A symbol half black and half white obviously represents a "fifty-fifty hybrid"—yet the six "fifty-fifty hybrids" among the 66 hybrids of the series do not resemble each other very closely. In one (UOMZ 5334) the head is almost wholly black, the greater secondary coverts are largely black, and the outer tail feathers have only a little black near the base and almost none at the tip; another (UOMZ 3633) has much orange on the head, a large white wing-patch, and a good deal of black on the proximal and distal parts of the outer tail feathers; another (GMS 7434) has much orange on the head, the greater secondary coverts are largely white, and the outer tail feathers are black-edged near their bases and dusky at the tips. In most of the 66 hybrid specimens the characters are considerably mixed—e.g., the head is black but it has some orange in it, the white wing-bar is broader than in true *galbula*, and the outer tail feathers are yellow but they have some black basally and some dusky tipping.

Careful study of the map shows (1) that only four pure *bullockii* have been collected in Oklahoma east of Cimarron County; (2) that three pure *galbula* have been taken as far west as Woods County and one as far west as Beaver County; (3) that of 14 specimens from Cleveland County five are pure *galbula*, and the other nine are hybrids, but the hybrids are considerably closer to *galbula* than to *bullockii;* and (4) that of 13 specimens from Cimarron County, eight are true *bullockii* and the five hybrids are considerably closer to *bullockii* than to *galbula*.

The dominance of *bullockii* in southwestern Oklahoma is worthy of note. In many ways the bird-life of that part of the state is similar to that of the Black Mesa country of northwestern Cimarron County. The Ladder-backed Woodpecker (*Dendrocopos scalaris*), a resident species, is about equally common in the two areas (Sutton, 1967: 317). The Canyon Wren (*Catherpes mexicanus*), another resident, is found in both areas, but this is largely because there are cliffs and rocky slopes in both areas. The Long-eared Owl (*Asio otus*) is known to nest in



MAP OF OKLAHOMA SHOWING APPROXIMATE LOCALITIES AT WHICH ADULT [illegible]RE ORIOLES, BULLOCK'S ORIOLES, AND HYBRIDS WERE COLLECTED

Cimarron County and a specimen with egg ready to lay has been taken in Harmon County (Sutton, 1967: 263). Several specimens of Downy Woodpecker (*Dendrocopos pubescens*) taken in Cimarron and Texas counties and one taken in Harmon County represent the montane race *D. p. leucurus*, or an approach to that form, a condition not found in other Downy Woodpeckers of the state (Sutton, 1967: 316).

I have restricted my study thus far largely to fully adult male orioles because the species characters are much more obvious in adult males than in subadult males or in female birds of any age. Admittedly there is some doubt as to the purity of any Baltimore or Bullock's oriole taken in Oklahoma, for interbreeding of the two species probably has been going on for a long time. It is to be noted, however, that R. Crompton Tate, a careful observer who lived in or near Kenton, Cimarron County, from 1894 to 1943, considered the Baltimore Oriole a "numerous summer resident" and the Bullock's Oriole a "common summer resident" there (Tate, 1923: 47), whereas no one has taken an adult male specimen of pure Baltimore Oriole anywhere in that area since 1943. This statement has validity (despite the possibility that what Mr. Tate identified as Baltimore Orioles were actually hybrids), for much observing and collecting has been carried on in Cimarron County during recent years. Quite possibly the Baltimore Oriole has been absorbed so completely in that part of Oklahoma as to be no longer extant there *as such*. Of the five hybrid specimens from Cimarron County, not one is close to being a "fifty-fifty" hybrid (see map).

The extent to which the Baltimore and Bullock's orioles interbreed in Oklahoma (and elsewhere in the Great Plains) is considered by some taxonomists to be proof of their conspecificity. The reasoning of these taxonomists is sound enough, but in my opinion calling the two species one merely begs the issue, for it does not explain why each breeds true throughout a vast area not inhabited by the other (see Sutton, 1967: 600).

The zone of hybridization in Oklahoma may widen or shift as the decades pass. A hunded years from now pure *galbula* may have disappeared completely from Cleveland County and pure *bullockii* from Cimarron County; the Baltimore and Bullock's orioles of the entire state may by that time conceivably have become a "hybrid swarm." It is important that conditions as they now exist be documented with precision.

Acknowledgements

I wish to thank John S. Weske for the excellent map; R. Crompton Tate, of Liberal, Kansas, for clarifying the period of his residency in Kenton, Oklahoma; and A. R. Weisbrod, Ned K. Johnson, and William A. Carter, for lending specimens respectively from Cornell University, the University of California, and East Central State College at Ada, Oklahoma.

Literature Cited

Baird, S. F., T. M. Brewer, and R. Ridgway
1905 A history of North American birds, Vol. 2, 590 pp., 64 pls., 593 figs. Boston.

Sibley, C. G., and L. L. Short Jr.
1964 Hybridization in the orioles of the Great Plains. *Condor*, 66: 130-150, 3 figs.

Sutton, G. M.
1938 Oddly plumaged orioles from western Oklahoma. *Auk*, 55: 1-6, and frontispiece.
1967 Oklahoma Birds. 675 pp., 1 pl., 2 maps, many figs. Norman.

Tate, R. C.
1923 Some birds of the Oklahoma panhandle. *Oklahoma Acad. Sci. Proc.*, 3: 41-51.

DEPARTMENT OF ZOOLOGY, UNIVERSITY OF OKLAHOMA, NORMAN, OKLAHOMA 73069.