



NUMBER 18

DECEMBER 30, 1944

OCCASIONAL PAPERS OF THE MUSEUM OF
ZOOLOGY

LOUISIANA STATE UNIVERSITY

BATON ROUGE, LA.

LOUISIANA STATE UNIVERSITY PRESS

GEOGRAPHIC VARIATION OF BEWICK WRENS
IN THE
EASTERN UNITED STATES

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While attempting to identify migrant specimens of *Thryomanes bewickii* taken in the southeastern United States I became impressed with the great variation in their color. The differences range through various shades of reddish brown and sooty brown. Despite the fact that no previous investigator seems to have suggested any racial division of the populations east of the Great Plains, the relatively great variation in migrants seemed to the writer to warrant a critical comparison of breeding populations in that area. Sufficient material to make this possible was amassed from the collections of the United States National Museum, including the Biological Surveys collection, together with specimens generously loaned by the Carnegie Museum, the Cleveland Museum of Natural History, the Chicago Natural History Museum, the Ohio State Museum, Louisiana State University Museum of Zoology, and the University of Missouri. To the authorities of these institutions, I wish to express my gratitude.

In all parts of their range Bewick Wrens are inhabitants of brushy situations, frequently about human habitations. They may be members of ecological communities that are shrub stages in succession to a deciduous forest climax or brushy borders of stream courses in the more arid grassland climax regions. Their geographic variations seem to be correlated to a certain extent with the distribution of ecological climaxes, which in turn are limited by climate.

Progressing eastward from the relatively pale grayish populations of the southern Great Plains, the coloration of Bewick Wrens becomes progressively darker and more rufescent in the oak grove savannah (Oak-Hickory Association) bordering the eastern edge of the grassland climax region. As the more eastern and moister mixed mesophytic forest regions of the Appalachian Plateau are reached a still darker and more sooty coloration appears. This condition seems to reach an extreme in the more northern, or Beech-Maple Association portion of the western Appalachian Plateau in Ohio and western Pennsylvania, but exists in a lesser degree of intensity over the entire Appalachian Plateau, including the eastern edge, or Piedmont, from eastern Pennsylvania south to northern Alabama and northern Georgia. The species apparently does not occur in appreciable numbers as a breeding bird anywhere on the Atlantic coastal plain.

As to the paler and more grayish populations of the Great Plains in Oklahoma and Texas, I can contribute nothing further of a constructive nature at this time. *T. b. cryptus* of Texas and *T. b. eremophilus* of the Rocky Mountain region seem to be well-marked races. Material at hand does not seem to show any well-defined range for a race described by Sutton¹ from the Oklahoma Panhandle, and called *niceae*. I confess, however, that my material is inadequate to pass judgment on the validity of this race. East of the plains there seems to be a satisfactory racial division apparently correlated more or less closely with the distribution of distinct climax ecological communities, between the lighter, more rufescent, western populations, and the darker, more sooty, eastern birds. There is considerable variation within these two main groups, some of it apparently exhibiting geographical and ecological trends. The most noticeable of these, as I have mentioned, is in the case of the darker Ohio birds. None of these secondary trends seem to have progressed far enough to produce additional variations sufficiently uniform to be recognized as distinct subspecies. However, it does seem advisable to recognize in nomenclature two races formerly covered by the name *Thryomanes bewickii bewickii*.

It is, of course, necessary first to determine which race is represented by Audubon's plate² which must be taken as representing the type specimen of *Troglodytes bewickii*. The bird from which Audubon painted his plate was a migrant specimen in fresh autumnal plumage, taken near St. Francisville, Louisiana, on October 19, 1821. According to George H.

¹ *The Auk*, 51, 1934: 217.

² "Birds of America," folio ed., vol. 1, 1827: pl. 18.

Lowery, Jr. (*in litt.*, 1943) and Harry C. Oberholser,³ no Bewick Wrens have been found breeding in Louisiana, and, since the specimen used as a model by Audubon seems to be no longer in existence, it is necessary to determine where birds most closely resembling Audubon's plate do breed. Since both main color types found in the eastern United States seem to occur commonly in the vicinity of St. Francisville, Louisiana, during autumn, winter, and early spring, it was necessary to compare fresh autumnal specimens of both types directly with Audubon's folio plate. For valuable assistance in this connection I am grateful to Dr. Harry C. Oberholser, of the Cleveland Museum of Natural History, who has access to a set of this great work that will not be available anywhere in Washington for the duration of the war. Dr. Oberholser's opinion is that the lightest and most rufescent specimen among the samples sent him most closely approximates the color of Audubon's illustration of "*Troglodytes bewickii*." This pale rufescent bird in turn seems to be most similar to breeding examples from southern Illinois and southern Indiana that represent the extreme development of the race inhabiting interior lowlands. This breeding population, therefore, must be considered as typical *Thryomanes bewickii bewickii*, leaving the distinct subspecies of the Appalachian Plateau to be described, and I propose to call it:

THRYOMANES BEWICKII ALTUS new subspecies

Appalachian Bewick Wren

Type.—Adult male, No. 348448, U. S. National Museum Collection; 7 miles east of Philippi, Barbour County, West Virginia, elevation 1,750 feet; June 3, 1936; W. Perrygo and C. Lingebach; original number, 379.

Subspecific characters.—Similar to *Thryomanes bewickii bewickii*, but darker and more sooty (less rufescent). In fresh autumnal plumage: above near mummy brown instead of Prout's brown of Ridgway's "Color Standards."

Measurements.—*Adult male* (21 specimens): wing, 51.5-56.0 (54.2) σ^4 1.31 mm.; tail, 48.0-55.0 (51.7) σ 2.09; exposed culmen, 13.0-14.5 (13.5) σ .514; tarsus, 17.0-18.5 (17.8) σ .582; middle toe without claw, 11.5-13.5 (12.5) σ .524. *Adult female* (13 specimens): wing,

³ "Bird Life of Louisiana," *Bull. La. Dept. Cons.* 28, 1938: 440.

⁴ σ = Standard deviation.

49.0-55.0 (51.7) σ 1.29; tail, 46.0-52.5 (49.9) σ 2.01; exposed culmen, 12.0-14.0 (13.4) σ .608; tarsus, 17.0-18.5 (17.6) σ .463; middle toe without claw, 12.0-13.5 (12.5) σ .5.

There seems to be no significant size difference between this race and *bewickii*.

Geographic distribution.—The breeding range extends: *north* to north-eastern and central western Pennsylvania, and central Ohio, casually to central northern Ohio; *west* to southwestern Ohio, southeastern Kentucky, east central Tennessee, and northwestern Alabama; *south* to central Alabama, north central Georgia, and central South Carolina; and *east* to central South Carolina, west central North Carolina, central and north-eastern Virginia, southern New Jersey (casually), and northeastern Pennsylvania. Ecologically this is in brushy subclimax communities, chiefly about houses in the mixed mesophytic forest (Oak-Beech-Tulip Association) region, Upper Austral Life Zone, of the eastern United States.

Winters *north* to near northern limit of breeding range; *south* to northern Florida and the Gulf coast; and *west* to northeastern Texas.

Remarks.—The separation of an Appalachian Plateau race of the Bewick Wren restricts the breeding range of *T. b. bewickii* approximately to the oak grove savannah (Oak-Hickory Association) region, Upper Austral Life Zone, of the interior lowlands. It now appears that this form breeds: *north* to central northern Illinois, southeastern Minnesota (casually), and south central Nebraska; *west* to south central Nebraska, northeastern Kansas, southwestern Missouri, central western Arkansas, and northeastern Texas; *south* to northeastern Texas and central Arkansas; and *east* to northwestern Tennessee and central northern Kentucky, possibly also to northwestern Ohio and southern Michigan. Winters *north* to near northern limit of breeding range; and *south* to southeastern Texas, southeast central Louisiana, and the Gulf coasts of Mississippi, Alabama, and northwestern Florida.

Specimens examined.—*T. b. bewickii*—BREEDING: *Arkansas* (Pettigrew, 1); *Illinois* (Grand Chain, Pulaski County, 1; Grand Tower, 1; Sugar Creek Prairie, Richland County, 10; Tunnel Hill, Johnson County, 2; Wabash County, 1); *Indiana* (Knox County, 1; Wheatland, 2); *Iowa* (Keokuk, 1). This specimen, taken April 19, and now deposited in the collection of the Ohio State Museum, is identified tentatively as *bewickii* on geographi-

cal grounds, since it lacks the rufescence of this race. It is paler than *altus*.); *Kentucky* (Brandenburg, 2); *Missouri* (Columbia, 1); *Tennessee* (Crossville, 1; Hornbeak, 1). MIGRANTS: *Arkansas* (Glenwood, 2); *Florida* (Valparaiso, 1); *Georgia* (Athens, 1; Macon, 2); *Illinois* (Henderson County, 1); *Louisiana* (Alexandria, 1; Baines [St. Francisville, 3 mi. N.], 1; Belcher, 2; Cornor, 2; Mansfield, 1; Natchitoches, 1; Port Hudson, 1; Pride, 1); *Mississippi* (Ariel, 1; Biloxi, 1; Deer Island, 1; Saucier, 9; Gulfport, 1); *South Carolina* (Chester Courthouse, 1); *Tennessee* (Germantown, 2); *Texas* (Bryan, 1; Hempstead, 4; Waller County, 1).

T. b. altus—BREEDING: *Alabama* (Elkmont, 1; Leighton, 1); *Kentucky* (Barbourville, 1); *Maryland* (Rawlings, 2); *North Carolina* (Asheville, 2; Boon, 2; Creston, 1); *Ohio* (Adams County, 1; Amsterdam, 1; Athens, 1; California, 3; Good Hope Township, 1; High Hill, 1; Lucasville, 2; Portsmouth, 1; Zanesville, 2); *Pennsylvania* (Beaver County, 1; Carlisle, 5; Clearville, 3; Entricken, 1; Needmore, 1; Riddlesburg, 1; Springville, 2; West Dublin, 1); *Tennessee* (Shady Valley, 3); *Virginia* (Campbell County, 1; Falls Church, 1; White Top Mountain, 1); *West Virginia* (Philippi, 2). MIGRANTS: *District of Columbia* (Washington, 1); *Florida* (Waukeelah, 2); *Georgia* (Athens, 2; Augusta, 1; Roswell, 2; Stone Mountain, 1); *Illinois* (Chicago, 1); *Kentucky* (Burlington, 1; Middlesboro, 1; Mount Vernon, 1); *Louisiana* (Baines [St. Francisville, 3 mi N], 1; Foster, 1; Natchitoches, 1; University, East Baton Rouge Parish, 9); *Mississippi* (Deer Island, 1; Ellisville, 1; Gulfport, 1; Lyman, 1; Saucier, 3); *North Carolina* (Asheville, 4; Black Mountain Station, 1; Pisgah National Forest, 1); *Ohio* (Buckeye Lake, 1; Delaware, 1; Waverly, 1); *Pennsylvania* (Carlisle, 1); *South Carolina* (Kershaw County, 1); *Tennessee* (Germantown, 1; Roan County, 1); *Texas* (Pittsburg, 1); *Virginia* (Arlington, 2).

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