bilis. Water-thrushes have been previously recorded several times in this region, both in spring and fall.

Calamospiza melanocorys. Lark Bunting. This common winter resident sometimes arrives remarkably early in the fall. Vorhies and Taylor saw a flock of twenty-five or thirty near Sahuarita on the Tucson-Nogales highway July 25, 1933. A single male was noted the same afternoon just south of Tucson. In 1934 Vorhies again saw two flocks of this species, near Sahuarita, on August 12; Phillips, a flock of five some 25 miles north of Tucson August 17; and Vorhies, a male in summer plumage at the eastern edge of the city on August 19. Similarly early southward movements have been noted in Texas, New Mexico, and California. (See W. W. Cooke, Bird-Lore, 16, 1914, p. 267.)

Junco caniceps. Gray-headed Junco. A male was taken by Phillips on the Santa Cruz River bottoms one mile southwest of town on April 9, 1934, and was identified by Grinnell.

Passerella iliaca schistacea. Slate-colored Fox Sparrow. Quite a number were seen in lower Sabino Canyon from December 15, 1933, to February 27, 1934 (Jenks and Phillips). Three specimens were taken, all of which were identified as of this form by Grinnell. There is only one previous record of a Fox Sparrow from the region, a female *P. i. canescens* taken from a flock, at Oracle, March 8, 1922, by F. H. Kennard (Condor, 26, 1924, p. 76). See Stephens (Condor 16, 1914, p. 259) for correction of an error in records.

Our thanks are due Mr. A. H. Anderson who first reported from Binghampton Pond the presence of the Black-necked Stilt, the Black Tern, and the Water-thrush taken there by Jenks.

University of Arizona, Tucson, Arizona, February 18, 1935.

COMMENTS UPON THE SUBSPECIES OF *CATHERPES MEXICANUS*

WITH ONE ILLUSTRATION

By J. GRINNELL and WM. H. BEHLE

Recent attempts to allocate specimens of *Catherpes mexicanus* in the Museum of Vertebrate Zoology to their subspecies has resulted in the feeling that there are *not* two, far-western recognizable races as indicated in the last A. O. U. Check-list; that is to say, *C. m. punctulatus* is not satisfactorily distinguishable from *C. m. conspersus*. This impression, acquired from cursory examination of the specimens, was intensified when it became realized that the type localities of these supposed forms are exceedingly close together and when the earlier descriptions were found to be inadequate.

In 1903, Oberholser (Auk, 20, pp. 196-198) reviewed the genus *Catherpes* Baird and recognized five forms in it, all of which were considered to be subspecies of *Catherpes mexicanus*. At this time, *C. m. polioptilus* was described as new, being split off because it was thought to be paler than *C. m. albifrons*, and to have a "much shorter bill." Its range was designated as from "western Texas through New Mexico, Arizona, and northwestern Mexico to Lower California."

Ridgway (Bull. U. S. Nat. Mus., No. 50, Part III, 1904, pp. 653-663) continued to recognize the five forms which Oberholser listed, but he commented (p. 661) upon *polioptilus* as follows: "This is not a clearly defined form, like the others here recognized, but rather a variable series of intermediates, segregated for nomenclatural convenience." This statement made us begin to wonder whether these races of wrens were being sustained with the idea of fitting all forms into an artificial classification, rather than into a natural one which had as its object the proper expression of variation and relationships.

Ridgway also stated (*op. cit.*, pp. 661-662) that examples from Arizona and southward to southern Sonora are intergrades between *mexicanus* and *conspersus*, gradually becoming larger and darker to the southward. The average coloration of this intermediate series, he said, was almost identical with that of *punctulatus*. yet occurring with the darker birds, sometimes apparently in the same locality, were individuals which seemed in every way to be typical of *conspersus*. This condition strikes us as pointing toward the existence of extreme variation among individuals and is one circumstance that led us early to question the distinction between *conspersus* and *punctulatus*.

Ridgway described *punctulatus* in 1882 (Proc. U. S. Nat. Mus., 5, pp. 343-344) when museum materials were scarce, and he based his description on but five specimens. The measurements of these were not appreciably different from those of *conspersus*. California specimens were supposed to be darker than *conspersus* and smaller than *mexicanus*. The type locality of *punctulatus* is Forest Hill, Placer County, California, on the lower western slope of the Sierra Nevada. Fort Churchill, Lyon County, Nevada, the type locality of *conspersus*, is in western Nevada, not so very far from the east base of the Sierra Nevada. Indeed, the type localities of *conspersus* and *punctulatus* are only 82 miles apart, air line.

One cannot, of course, attach any significance to the two localities being so close together without taking into account the general habitat relations of the birds. Cañon Wrens, in our experience, are essentially non-migratory; ordinarily they do not move in winter, even from higher to lower levels. (There may be *some* post-breeding-season wandering.) The immediate habitat of the birds consists of broken rock masses and fractured cliffs, and these we think are fairly uniform as to conditions of light and shade, from the most humid to the most dry parts of the general range of this species. The white breast of the Cañon Wren is probably an adaptive feature, associated with a forage beat in shaded recesses, acting as an "illuminator." It may also at the same time possess a "directive" significance, or even a territorial or combative one. Under such conditions we would hardly expect to find two races represented in tangible manifestation so close together as these two type locatities would indicate.

A further and perhaps worthy consideration is that over the same territory whence three supposed races of the Cañon Wren have been described, the Rock Wren (*Salpinctes obsoletus*) occurs widely with no detected geographic variation. Of this wren no subspecies has been proposed from any place north of the Mexican line, save from San Nicolas Island, off the coast of southern California; and this one has been disallowed. (See Grinnell, Condor, 29, 1927, p. 165.)

To further our enquiry, 193 skins of Cañon Wrens were assembled. These represent localities from Ashland, Jackson County, Oregon, south to Lower California, and east to Texas. Skins taken in spring and summer months, being considerably worn and faded, were not given primary consideration. The remaining, fresh plumaged birds, of fall and winter take, were segregated as to age, sex and locality, in order that birds from the ranges of all the supposed races could properly be compared.

When birds of the two age categories were compared from the same localities, immature males in first winter plumage were not found to be distinguishable from adult males in their fresh annual plumage. Immaturity was decided from the character of the skull, as marked on the tag by the collector, and only those birds were considered in this connection that had been collected, and the age marked, by experienced collectors. To repeat, there did not appear to be any color difference

whatsoever between the first winter plumage and the adult winter plumage. Neither did we find any color differences between males and females when skins of the same state of plumage were compared from the same localities.

There remains, however, considerable variation within the collection from any one region. The individual difference in color tone of birds from the same area is so great that it must overlap any color difference that might exist due to age and sex. Not only does the general color vary through many shades of brown, but also the tail bars and the dots on the dorsal surface are notably different among individuals. The transverse tail bars on some individuals are less than one millimeter wide, and on others are as much as three millimeters wide; all widths in between are present. The dots are found to be variable not only as to the amount of white, but also as to the amount of black at the base of each white dot. There seems to be some positive correlation between the dorsal color tone and the length of the feather barbs beyond the subterminal white dots. If these dots are set well back there is a subdued effect and a brownish appearance. If, through wearing off of those terminal barbs or through natural variation, the dots happen to be situated near the ends of the feathers then the dorsal plumage presents a decided gray effect. The variation exhibited in the tail bars and white dots seems, then, as far as we can see, to be purely individual.

We find no appreciable geographical variation in body color between Cañon Wrens from within the combined ranges of *conspersus* and "*punctulatus*." Fourteen adult males in fresh fall plumage show impressive uniformity in color when individual differences are taken into account. Only one bird stands out as notably paler than the rest, this one being from Bluff, San Juan County, Utah (no. 54499, Mus. Vert. Zool.). Series of fresh plumaged females, and immatures of both sexes, also fail to show differences of possibly racial meaning.

A series of fourteen winter-taken males from the same localities as the fresh plumaged males shows some interesting color features. In these, wear has progressed to a perceptible, though not extreme, degree. Four specimens from Yosemite Valley and El Portal, Mariposa County, California, are darker than birds from Pasadena, Los Angeles County, and Palm Springs, Riverside County, California, El Sauce, Victoria Mountains, Lower California, and Bates Well, Pima County, Arizona. Upon close examination the paleness of the more southern birds appears to be the result of more wear and fading. In other words, there seems to be a different rate of abrasion and fading under the drier climate of southern California and Arizona as compared with that of the more humid and cloudy Sierran area. To further break down the idea of any racial difference existing, is the presence of a bird from the Tumacacari Mountains, Santa Cruz County, Arizona (no. 59168), and another from the Chiricahua Mountains, Cochise County, Arizona (no. 3253, Law collection), both of which closely match the Yosemite birds.

All the birds in fresh fall plumage, and some winter-taken birds not too obviously abraded, were measured in the conventional manner. As an added refinement both wings were measured, and the average for each individual was used in subsequent figuring just as though one wing had been measured. All measurements were taken in millimeters. The diagram (fig. 46) and table following, show not only what geographical variation exists in certain features of size and proportions but also sexual differences. It should be noted, further, that the averages of juvenal birds were found to be similar to those of adults of the same sex.

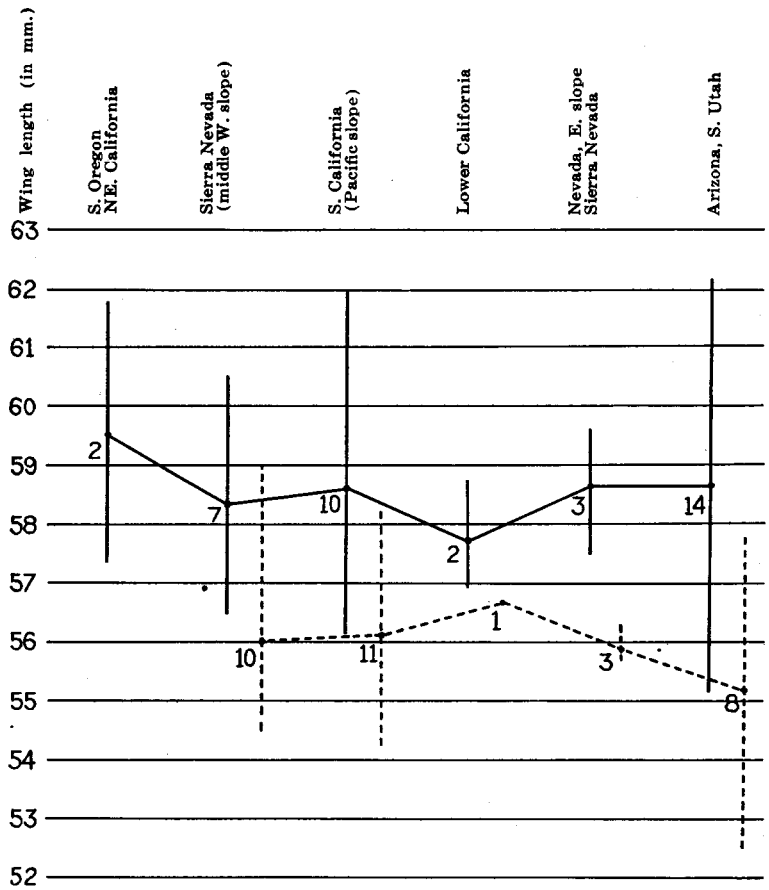

Fig. 46. Diagram showing sexual, individual and geographic variation in wing length, of certain specimens of *Catherpes mexicanus*. Solid lines, males; broken lines, females; figures at left and right of these lines, respectively, indicate number of individuals measured; length of each vertical line shows range of individual variation; points connected by solid and broken lines, respectively, mark positions of averages.

Age and sex	No.	Wing	Tail	Exposed culmen
Adult males	28	55.2-62.0 (58.8)	45.3-54.5 (50.0)	18.0-21.5 (19.5)
Adult females	21	54.3-59.0 (56.0)	44.0-50.3 (46.8)	16.2-19.9 (17.8)
Immature males	9	56.6-61.9 (58.8)	47.2-55.0 (50.1)	18.3-21.1 (19.5)
Immature females	13	54.3-57.1 (55.7)	43.3-49.5 (46.6)	15.5-18.5 (17.1)

Age and sex	No.	Bill from nostril	Tarsus	Middle toe without claw
Adult males	28	14.0-18.8 (16.0)	15.7-19.0 (17.6)	12.0-14.9 (13.1)
Adult females	21	13.3-16.7 (14.7)	15.9-19.2 (16.9)	11.2-14.0 (12.4)
Immature males	9	15.3-17.3 (16.2)	16.3-19.1 (17.7)	11.7-13.8 (12.8)
Immature females	13	13.1-15.9 (14.1)	15.3-18.8 (17.1)	11.1-13.2 (12.4)

All available weights in grams were averaged, for all United States localities, with the following results: adult males (19 specimens), 9.4-12.6 (11.2); adult females (16 specimens), 9.1-12.6 (10.3) ; immature males (5 specimens), 10.3-11.6 (11.0); immature females (10 specimens), 9.1-11.9 (10.5).

In conclusion, it now seems clear that the Cañon Wrens from west of Texas cannot with any degree of consistency be divided into races. *Punctulatus* is not separable from *conspersus*, and since the latter is the older name, *punctulatus* goes into synonymy under that name; *polioptilus* also. While selected individuals from the two areas may differ pronouncedly from one another, this condition may be attributed to extreme individual variation. Erroneous conclusions are liable to be drawn unless birds of the same sex, age and state of wear are compared, and allowances made for an apparent differential rate of wear and fading under different climates.

There are thus but two recognizable forms of *Catherpes* within the United States, as follows: *Catherpes mexicanus albifrons* (Giraud), ranging across the Mexican line into southwestern Texas, near the mouth of the Pecos River; and *Catherpes mexicanus conspersus* Ridgway, whose range may be defined approximately as the Rocky Mountain region, the Great Basin, and the Pacific states, and west from western Texas to southern California and south through Lower California.

Finally, it should be pointed out that we are not alone in the above conclusions. Willett, in his recently "Revised List of the Birds of Southwestern California" (Pacific Coast Avifauna No. 21, 1933, p. 127), stated that he could not find any differentiating characters between *conspersus* and *punctulatus*. Hellmayr, in his Part VII of the "Birds of the Americas" (Field Mus. Nat. Hist., Publ. 330, Zool. Ser., 12, 1934, p. 278), remarks concerning *polioptilus* that "its recognition in nomenclature is open to serious question."

Museum of Vertebrate Zoology, Berkeley, California, January 15, 1935.

THE RANCHO LA BREA WOOD IBIS

WITH ONE ILLUSTRATION

By HILDEGARDE HOWARD

During the past year I have been going over several boxes of bones excavated from Rancho La Brea by the Southern California Academy of Sciences. This material was given to the Los Angeles Museum many years ago, but much of it was still coated with asphalt, and it had never been added to the regular museum collection.

In this material I found a fragment of mandible, a proximal end of tarsometatarsus and a complete carpometacarpus of Wood Ibis. The Wood Ibis was early recorded from Rancho La Brea by Miller (Univ. Calif. Publ., Dept. Geol. Sci., 7, 1912, p. 78). Later, in referring to this record, Miller said (Carnegie Inst. Wash. Publ. 349, 1925, pp. 73-74) that "the record was based upon the very characteristic symphyseal region of the lower jaw in the collections made by the Los Angeles High School under direction of Mr. J. Z. Gilbert. The specimen has been lost to sight, hence the record can not be reviewed in this paper with positive results. There is no doubt in the mind of the writer, however, as to the very close affinity if not identity of this fragment with the Recent *Mycteria americana*." Dr. Miller, upon seeing the mandible from the Southern California Academy excavation, is convinced that this is the specimen upon which he based his record. Since Dr. Gilbert was in charge of both the Los Angeles High School and the Southern California Academy excavations, it is not difficult to understand how confusion may have arisen regarding the collection from which the mandible came.

The specimen, as Dr. Miller said, is undoubtedly close to *Mycteria americana*. However, it is strikingly large and appears less curved than the modern species.