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Moose Hill Sanctuary
Sharon, Massachusetts

1948

GEOGRAPHIC VARIATION IN *EMPIDONAX TRAILLII*

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OF ALL the birds of North America, the Alder Flycatcher, with its willow-inhabiting races in the west, is perhaps as difficult as any to the taxonomist. Except for the lack of pronounced sexual differences, these birds present nearly every possible difficulty. Indeed, the very similarity of the sexes poses a problem; a large female of one race may be confused with a small male of another, leading to doubt as to whether the bird was breeding or on migration when taken. The species migrates both very late in spring and early in fall; only from June 25 to July 20 may the birds be presumed to be on their breeding grounds; and at this time most of them are in poor plumage.¹ In cases of this sort, the inadequacy of the usual museum label (which gives no data on sexual condition or on plant association) becomes painfully apparent. Besides these difficulties, size varies rather independently of color; immatures differ from adults; adults migrate before their post-nuptial molt; and it is no easy matter even to distinguish this from other species of *Empidonax*. Perhaps the worst features of all are the manner of intergrading, by wide individual variation in intermediate areas, and certain peculiarities in the distribution of the races, which does not always coincide with the distribution of races of most other species (which we think of as 'natural ranges'). This last situation might well be suspected from the proximity of the type localities of *brewsteri* and *adustus*, both of which lie in the western Great Basin region.

¹ Even so far north as Coate Rica (Aguila Caliente, 6500 feet alt.), on May 24, 1920, Austin Paul Smith wrote on the label of a specimen of *brewsteri*: "No sign of breeding, and apricot rather common in old pastures—perhaps migrants!" But the extreme limits of the birds' stay in Central America are not clear; the June 4 specimens of *brewsteri* from Hacienda California, Guatemala, had sustained an injury to the right wing.

Darius, Ivory-billed Woodpeckers in Cuba

environment, the few remaining Ivory-bills are in constant danger of being exterminated by humans. For example, early in 1948 a dead bird was seen nailed to the side of a native hut. We found that it was a common practice for the people in this region to take young woodpeckers out of their nest and use them for food. The common woodpeckers of the region were the usual victims, but there is no reason to doubt that the natives would not hesitate about robbing an Ivory-bill nest should they come upon one. With the region opening up for settlement, it can hardly be hoped that the Ivory-bills will escape observation.

We asked a very intelligent boy, who acted as our guide, what measures in his opinion would safeguard the Ivory-bill. He emphatically stated that if a warden were to be sent in to patrol the region, the people would respect his presence and leave the Ivory-bills alone. This simple expedient would seem to be well worth trying, particularly as it might mean the difference between the survival of a species and its total extinction.

Whatever the future holds for the Cuban Ivory-bill, one thing seems to be certain, and this is that on the long path of evolution from the origin of a species to its total oblivion, the Ivory-bill in Cuba has a slight edge on the American bird as the two go down to extinction—this, in face of the fact that Cuba was settled a hundred years earlier than our country and has suffered more from deforestation as the country was cleared for grazing and the sugar industry. The bird has not survived in Cuba, however, due to my innate gentleness on the part of Cubans toward birds. Just as in our country, the Ivory-bill was killed for every conceivable reason—sport, food, trophies, curiosity. Not as many were killed by professional collectors, simply because the birds vanished so quickly from all accessible parts of the country. The fact that a few rootless wilderness areas have remained up until the present time as well as the apparent ability of the birds to meet changing conditions seem to have allowed a few to survive. If present trends continue these few birds will quickly disappear.

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SPECIFIC CHARACTERS: The palest race of *E. traillii*. Adults most closely resemble *adastus*, but are even paler above (decidedly paler and less brownish than *brewsteri*); this is most noticeable on the head. Cheeks paler than in *adastus*, and more gradually merging into the more grayish areas below and behind; chest-band less pronounced, and belly and crissum paler yellow. Crown distinctly paler, and succeeded by a more distinct gray collar. Rectrices less blackish. The wing-bars (especially the posterior one) tend to be paler, the edges of the tertials broader and paler, and the outer web of outer rectrix slightly paler, but these are less constant differences. Size (particularly of bill and tail) is rather large, but not diagnostic. The few fresh-plumaged females studied average more gray and brown (less olive) than males, but unlike *brewsteri* are not noticeably paler than males. Some rather strikingly pale immatures occur in the range of this race, but as yet the range of variation in locally raised immatures is uncertain, and the identification of these pale immatures is by inference.

MEASUREMENTS: Males, wing, 68.9 to 73.0 mm. (averaging 70.7); tail, 59.3 to 64.7 (61.9); tarsus, 15.2 to 16.6 (15.9); exposed culmen, 11.4 to 13.0 (12.2); extreme length in flesh, 155 to 158.5 and even (one specimen) "167"; weight (May), 12.1 to 13.2 and (one specimen) 14.0 grams. Females, wing, 64.5 to 69.5 (66.4); tail, 55.2 to 60.6 (57.7); tarsus, 14.4 to 16.4 (15.6); culmen, 10.9 to 12.4 (11.8); length 146 to 152 (148.4); weight (Sept. 1 and late July), 11.1 and 11.95 grams, probably somewhat heavier in May.

The above, like all measurements given in this paper, are for adults. The few data available suggest that immatures have wings about 1.5 mm. shorter than adults and tails 2 to 3 mm. shorter.

RANGE: Breeds in willows and other swamp bushes along the main rivers and streams of southern and western Arizona, from the Lower Sonoran Zone up (very locally) into the Transition Zone. Ranges north and east to southern Nevada (Indian Springs, Clark County), southwestern Utah (St. George and Springdale), central and central-eastern Arizona (Camp Verde and Alpine), and, in surprisingly atypical form, to southwestern New Mexico (near Redrock); also probably on the Rio Grande in western Texas (Fort Hancock, June 18). Breeds, or formerly bred, south to Yuma, Tucson, and Charleston (upper San Pedro River), Arizona, and probably to the Arizona-Sonora border at Nogales ("June, 1955") and San Bernardino Ranch (several, mostly immatures, late August). Winters from Salvador (Rio San Miguel, 13° 25' N., Dept. San Miguel; also Lake Olonanga, Aug. 14 to Sept. 3) and Nicaragua (Greytown) to Costa Rica (Belvedere,

New Mexico (Santa Rosa, May 26), western Texas (Tasosa, May 21 and June 6; Brewster County, May 14 to 24 and June 17), and Tumulipas (Jannave, June 2) west to southeastern California (Brawley and northernmost Baja California (Mt. Mayor, Colorado Delta, May 24; Nachoguro Valley at U. S. border, June 1); but apparently not on the peninsula farther south. Winters from the Pacific Coast of Guatemala (San José) to eastern Panamá (Cheripigana).

REMARKS: Supposed specimens of *brewsteri* from east of the range outlined above prove to be erroneously determined immature or faded specimens, mostly of *E. t. traillii*; such birds are from eastern Nebraska, central Oklahoma, and northern, central, and eastern Texas.

Birds from east of the Sierra Nevada appear darkest on the back, as well as slightly larger than coastal birds. Badly worn and faded birds from Tuba City, Arizona, and northward seem to be of this type. Those from northwestern Oregon northward incline very slightly toward *E. t. traillii* in averaging a trifle more olivaceous above, but are decidedly closest to *brewsteri* and are identical in coloration with birds from various scattered localities where *brewsteri* intergrades with other races. All these color differences are trivial.

In size, it is perfectly true that coastal birds are smaller, but overlapping is great when large series are compared. The smallest male *brewsteri* from east of the Sierra Nevada measure: wing, 68.3 to 69.0 mm.; tail, 58.5 to 59.4. Conversely, some coastal birds are large: males, wing, 69.6 to 70.2 (and even 71.4 and 72.3); tail, 58.4 to 61.2 (and even 62.3); females, wing, 66.0 to 66.4; tail, 56.7 to 57.6 (one female 59.1). Thus the extremes of one population are about equal to the average of the other. This means, of course, that somewhat less than half of the birds can be identified by size alone, and nomenclatural recognition of the difference is impractical.

In every way in which *adastus* differs from *brewsteri*, coastal birds agree with the latter. Furthermore, nobody has ever claimed that the coastal birds were *adastus*. It seems clear, therefore, that *adastus* is not the closest relative of the coastal birds; yet it is the only race with which "*sopholegus*" is compared.

Empidonax traillii eximius, subsp. nov.

TYPE: Collection of Allan R. Phillips, no. 707; breeding male; Feldman, lower San Pedro River, Arizona, May 30, 1940; collected by Gale Monson (original no. 89).

* Other records in the literature for extreme northern Baja California probably also pertain to this race.