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Museum of Vertebrate Zoology, Berkeley, California, February 24, 1934.

THE CLASSIFICATION OF SOME AMERICAN PIGEONS

By JAMES L. PETERS

In part 7 of the Birds of North and Middle America, Ridgway gives a key to the American genera of Columbae (pp. 279-283). In page 281 appears the following:

d. Wings more or less spotted with black, the distal coverts not white.
  e. Rectrices 14; the tail more than three-fifths as long as wing; tarsus less than one-sixth as long as wing; bill not decurved; smaller wing-coverts immaculate; a black subauricular spot, but no pale auricular stripe.
    f. Tail longer and more graduated (nearly three-fourths as long as wing to longer than wing) ..... *Zenaidura*
    ff. Tail shorter, rounded rather than graduated (less than two-thirds as long as wing) ..... *Zenaida*
  ee. Rectrices 12, the tail less than three-fifths as long as wing; tarsus nearly one-fifth as long as wing; bill decurved; smaller wing-coverts spotted or streaked; no subauricular spot, but a pale auricular band margined above and below by a black line) ..... *Nesopelia*
dd. Wings immaculate, the distal coverts white ..... *Melopelia*

The species included under each of these genera as given in the text, including extralimital (South American) forms mentioned in keys and footnotes by Ridgway, are:

Zenaidura macroura macroura (Linn.)
Zenaidura macroura clarionensis Towns.
Zenaidura macroura carolinensis (Linn.)
Zenaidura macroura marginella (Woodh.)
Zenaidura macroura tresmariae Ridgw.
Zenaidura graysoni Lawr.
Zenaidura yucatanensis Lawr.
Zenaida zenaida zenaida (Bonap.)
Zenaida zenaida lucida Noble
Zenaida zenaida yucatanensis Salvad.
Zenaida spadicea Cory
Zenaida aurita (Temm.)
Zenaida ?plumbea Gosse
Zenaida auriculata Des Murs
Zenaida ruficauda ruficauda Bonap.
Zenaida ruficauda robinsoni Ridgw.
Zenaida ruficauda vinaceorufa Ridgw.
Zenaida ruficauda jessiae Ridgw.
Nesopelia galapagoensis galapagoensis (Gould)
Nesopelia galapagoensis exsul Roths. and Hart.
Melopelia asiatica asiatica (Linn.)
Melopelia asiatica mearnsi Ridgw.
Melopelia meloda (Tschudi)

This list is given here in full, partly for convenient reference and partly for the purpose of having it readily available for comparison with the proposed rearrangement to be found at the end of this article.

An examination of the various forms listed in an effort to "work" the key shows

that the arrangement is quite impossible, the most serious objection being found under paragraph *e* in the key where it reads "rectrices 14.....*Zenaidura.*" As a matter of fact, *Zenaidura* does possess 14 rectrices, but so do *Zenaida auriculata* and *Zenaida ruficauda;* on the other hand *Zenaida zenaida* and *Zenaida aurita* have but 12. *Z. plumbea* of course has not been seen; it became extinct before any specimens were preserved, and since it may not belong here, it may safely be excluded from further consideration.

The species with 14 rectrices are *Zenaidura macroura, Z. graysoni, Z. yucatanensis* (of which more later), *Z. auriculata* and *Z. ruficauda.* Those with 12 are: *Zenaida zenaida* and *Z. aurita, Melopelia* and *Nesopelia.* Both Ridgway and Salvadori insist on 14 rectrices for *Zenaida* which is certainly correct for *auriculata* and *ruficauda*, but *zenaida* and *aurita* have but 12, a fact which I have repeatedly verified not only in making tail counts of some forty skins but also from careful examination of four *zenaida* recently examined in the flesh. Another statement under section *e* of the key that I question is "tarsus less than one-sixth as long as wing"; this holds true for the races of *Zenaidura macroura* and for *Zenaidura yucatanensis,* but breaks down when applied to *Z. graysoni.*

Grouping the birds with fourteen rectrices, we find an association of species that is quite uniform in color and markings, proportions of bill, wings and tail. *Z. macroura* and *Z. graysoni* have a much graduated tail with the central rectrices elongated and pointed, but this is the only feature not shared by the other members, in which the four outer pairs of rectrices are graduated and the three inner pairs are of approximately the same length. *Z. m. clarionensis* and *Z. graysoni* have stouter feet and tarsi than their relatives on the mainland and in the West Indies; *Z. graysoni* while undoubtedly derived from *macroura* stock has developed longer as well as stouter bill, feet and tarsi; while its color pattern remains the same, its very great increase in depth of color taken together with its stout bill and feet merits its specific distinctness. *"Zenaida" auriculata* of southern South America is practically a counterpart of *Zenaidura macroura* except for the elongated central rectrices. Recently, Mrs. Naumburg has shown conclusively (Amer. Mus. Novitates, no. 648, 1933) that the other South American "Zenaidas" (the *ruficauda* group) are but subspecifically distinct from *auriculata.* In view of the similarities noted I should unhesitatingly transfer *Zenaida auriculata* to *Zenaidura.*

Zenaida zenaida, Z. aurita, Melopelia and *Nesopelia* all agree in having a rounded tail of twelve rectrices; tarsus proportionately longer and heavier than in *Zenaidura* (except *graysoni*). *Nesopelia* by reason of its short tail, but little over one half the length of the wing, and strongly decurved bill is at once set apart from the other species and may be maintained as generically distinct. Its affinities are not clear; it bears a faint general resemblance both to *Zenaida aurita* and to *Melopelia asiatica,* but its peculiar bill differentiates it from either. This member is much decurved, the dertrum is long and extended back on the upper mandible, encroaching on the basal portion almost to the nasal operculum.

I have looked in vain for any characters of generic value that would serve to distinguish the Zenaida Doves and the White-winged Doves; their proportions are practically identical, the color pattern is of course different, and *Melopelia* has a large bare circumorbital space and a longer heavier bill; but these are characters certainly not very trenchant. As an example of the way proportions may vary within the species I may point out that typical *Melopelia asiatica* from the West Indies has a shorter bill than the continental forms, *mearnsi, australis* or *meloda,* but its wing-tail ratio is 72 as against 67 to 69 for the two former, jumping up to about 74 in the latter. *Zenaida* in its narrow sense has a wing-tail ratio of about 67. I can see no reason

for placing *Zenaida aurita* in one genus and at the same time maintaining *Melopelia* as distinct. I therefore lump the two under *Zenaida* Bonaparte 1838, which has many years priority over *Melopelia* Bonaparte 1855.

In closing, just a word about *Zenaidura yucatanensis* Lawrence. Salvadori and Ridgway both suspected this bird of being a hybrid, both pointing out that it was exactly intermediate between a Mourning Dove and a Zenaida Dove. Ridgway went so far as to say that should it ever prove to represent a distinct species, then the further separation of *Zenaidura* and *Zenaida* (as he defined the two genera) was no longer possible. I personally have examined the type and agree entirely with Salvadori and Ridgway that it does represent a hybrid; furthermore, being convinced that it is a hybrid I propose to treat it as one and drop it from further consideration.

If the views expressed in this paper are accepted, the genera discussed will then be constituted as follows; the question of recognition of certain subspecies will probably not differ greatly.

Zenaidura macroura macroura (Linn.)
Zenaidura macroura carolinensis (Linn.)
Zenaidura macroura marginella (Woodh.)
Zenaidura macroura tresmariae Ridgw.
Zenaidura macroura clarionensis Towns.
Zenaidura graysoni Lawr.
Zenaidura auriculata caucae (Chapm.)
Zenaidura auriculata hypoleuca (Bonap.)
Zenaidura auriculata auriculata (Des Murs)
Zenaidura auriculata virgata (Bert.)
Zenaidura auriculata noronha (Sharpe)
Zenaidura auriculata marajoensis (Berlepsch)
Zenaidura auriculata jessiae (Ridgw.)
Zenaidura auriculata rubripes (Lawr.)
Zenaidura auriculata ruficauda (Bonap.)
Zenaidura auriculata antioquiae (Chapm.)
Zenaidura auriculata vinaceorufa (Ridgw.)
Zenaida aurita yucatanensis Salvad.
Zenaida aurita zenaida (Bonap.)
Zenaida aurita aurita (Temm.)
Zenaida asiatica mearnsi (Ridgw.)
Zenaida asiatica asiatica (Linn.)
Zenaida asiatica australis (Peters)
Zenaida asiatica meloda (Tschudi)
Nesopelia galapagoensis galapagoensis (Gould)
Nesopelia galapagoensis exsul Roths. and Hart.

Zenaida spadicea Cory and *Z. lucida* Noble are synonyms of *Zenaida aurita zenaida.*

My best thanks are due Dr. Herbert Friedmann for the loan of the unique type of *Zenaidura yucatanensis* and a pair of *Zenaidura graysoni*; I am similarly indebted to Mr. J. T. Zimmer for the loan of a pair of *Zenaida asiatica meloda* from western Peru.

Museum of Comparative Zoology, Cambridge, Massachusetts, June 11, 1934.

FROM FIELD AND STUDY

Feeding Habits of Herons on Mission Bay, California.—The Blue Heron (*Ardea herodias*) stood knee-deep in the water. Gaunt, alone and silent he might have been cast in bronze to picture eternal patience. His was the pose of frozen alertness—he was waiting, waiting for some luckless victim to swim within striking distance of his spear-like bill. Patience shall have its reward and all things come to him who waits. A light-fast stab, a flash, a splash, and the Blue Heron eats. This is his method of fishing.

The Blue Heron stood in a channel of the slough. It was low tide and all about him lay acres of uncovered mudflats. Among the hundreds of long-legged shore-birds that were scattered over the mudflats were other representatives of the heron tribe. Each representative had its own peculiar feeding habits and its own mannerisms.

The Blue was the largest heron. The next in point of size and nearest in feeding habits was the American Egret (*Casmerodius albus egretta*). In all his snowy white-