A STUDY OF ZENAIDA AURICULATA

BY ELSIE M. B. NAUMBURG

INTRODUCTION

In working on the Kaempfer Collection from northeast Brazil, I had to identify certain doves from the genus Zenaida. It soon became evident that this group was much in need of revision, and the results of my studies are presented in the following paper.

In all races of the species Zenaida auriculata, females differ from the males in the generally duller coloration with less metallic gloss on nape and sides of neck; the rosy color on forehead, sides of head, and throat is dingier and shaded with buff; the gray on the posterior crown almost entirely concealed by brownish margins; the pinkish or vinaceous of the breast is more or less obscured by brownish edges; while the abdomen and under tail-coverts are at least partly buff.

Young birds are much duller in coloration than the adult female, the occiput is duller, the underparts are duller, and sometimes the coloration is very different from the adults. Wing-coverts and scapulars are edged terminally (sometimes more or less distinctly) with pale, wedge-shaped streaks or dull white. The chest-feathers of the juvenal birds also have paler edges and narrow wedge-shaped streaks and exhibit no reflection.

The tail is mostly moderate and rounded. The rectrices have a broad postmedian bar of black (except the middle pair of tail-feathers). The basal portion is darker gray or brown; the apical portion pale gray, cinnamon, rufous, or white.

There is always a bare orbital space beneath the eye, a black spot, more or less metallic, beneath the ear-coverts, and a black spot behind the eye. There are black spots on the innermost secondaries.

There are variations in color and size that distinguish specimens from different geographic areas. Racial characters are better developed in the male sex, females often being barely distinguishable.

The principal area of intergradation is found along the estuary of the Amazon, Marajó, Mexiana, and the coast of Maranhão. The race found there, Zenaida auriculata marajoensis, is intermediate between its geographical neighbors, combining the white apical tail-markings of one "species" with the deep vinaceous underparts of another.
In the Temperate Zone of the Magdalena, *Zenaida auriculata antioquiae* appears to replace the Tropical Zone race, *Zenaida auriculata rubripes*, just as *Zenaida auriculata ruficauda* does in the Temperate Zone of the eastern Colombian Andes, both being altitudinal representatives. The upper Cauca form with white tail-tips and under tail-coverts is much nearer the Ecuadorian and Peruvian form, *Zenaida auriculata hypoleuca*, this being quite plausible from a geographical point of view. The fact that *Zenaida auriculata antioquiae* is found west of the lower Magdalena is no obstacle for considering the various forms as members of one taxonomic unit.

The task of writing this paper and identifying the specimens was not easy because the series available was small, and much of the value of this revision may be credited to the assistance given me by Dr. C. E. Hellmayr.

The writer went to Vienna in September, 1932, to verify some statements made in this paper and to examine and measure additional specimens.

*Zenaida auriculata auriculata* (Des Murs)

*Peristera auriculata* Des Murs, 1847, in Gay, ‘Hist. Fis. Pol. Chile,’ Zool., I, p. 381, Pl. vi (Chile); “en las provincias centrales de la República.” I suggest Santiago as type locality.1

**Subspecific Characters.**—Characterized chiefly by its large size, and in the male sex by almost uniform vinaceous underparts, the abdomen as well as the breast being of this color. Under tail-coverts white.

**Range.**—Chile: from Atacama south at least to the Rio Aysen.

**Specimens Collected**

Kaempfer Collection

Northeast Paraguay: Dept. Concepción, Zanja Moroti (alt. 1000 ft.), 1 ♂ ad., Sept. 8, 1930.


**Measurements**

<table>
<thead>
<tr>
<th>Chile</th>
<th>SEX</th>
<th>WING</th>
<th>TAIL</th>
<th>EXPOSED</th>
<th>COLL.</th>
<th>MUS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tofo, north of Coquimbo</td>
<td>♂ ad.</td>
<td>159.5</td>
<td>103</td>
<td>14.5</td>
<td>Hallinan</td>
<td>A.M.N.H</td>
</tr>
<tr>
<td>“</td>
<td>♀</td>
<td>154</td>
<td>95</td>
<td>14</td>
<td>“</td>
<td>“</td>
</tr>
<tr>
<td>“</td>
<td>♀</td>
<td>140</td>
<td>85</td>
<td>15</td>
<td>“</td>
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</tr>
<tr>
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<td>160</td>
<td>105</td>
<td>14</td>
<td>Davila</td>
<td>Vienna²</td>
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<tr>
<td>Romero, Prov. Coquimbo</td>
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<td>146</td>
<td>91.5</td>
<td>15</td>
<td>Conover</td>
<td>Field</td>
</tr>
</tbody>
</table>

1Middle of the range.

2One immature female was examined in the Vienna Museum from Chile (Desague, Prov. Llanguhue).
1933]  
A STUDY OF ZENaida auriculata

Chile: Hacienda Cauquenes, Prov. Colchagua

Sex   | Wing | Tail | Exposed | Culmen | Coll. | Mus.
---    | ---   | ---  | ---     | ---    | ---   | ---
♂ im.  | 143.5 | 89.5 | 15      | Conover | Field |
♂     | 144   | 93.5 | 14.5    | "       | "     |
♀ ad.  | 148   | 97   | 15      | "       | "     |
♀ im.  | 140.5 | 83   | 15.5    | "       | "     |

Rio Nirehuau, Casa de Richards, Prov. Llanquihue

Sex   | Wing | Tail | Exposed | Culmen | Coll. | Mus.
---    | ---   | ---  | ---     | ---    | ---   | ---
♂ im.  | 152.5 | 95   | 15      | "       | "     |
♂     | 147.5 | 87   | 15.5    | "       | "     |
♂     | 150   | 85   | 17.5    | "       | "     |
♀     | 151   | 103.5| 14      | "       | "     |

Rio Cohaique, Estancia Asien, Prov. Llanquihue

Sex   | Wing | Tail | Exposed | Culmen | Coll. | Mus.
---    | ---   | ---  | ---     | ---    | ---   | ---
♂ ad.  | 151   | 101.5| 15      | "       | "     |

Concepción, Prov. Concepción

♂     | 152.5 | 97   | 15      | "       | "     |

Concon, Prov. Valparaiso

♀     | 142.5 | 92   | 16      | "       | "     |

Argentina: Tunuyán, Prov. Mendoza

Sex   | Wing | Tail | Exposed | Culmen | Coll. | Mus.
---    | ---   | ---  | ---     | ---    | ---   | ---
♂     | 144   | 95.5 | 15      | "       | "     |
♂     | 142.5 | 97   | 16      | "       | "     |
♀     | 146   | 84   | 14      | "       | "     |

Zenaida auriculata virgata Bertoni


Subspecific Characters.—Smaller than typical auriculata; anterior underparts in the male sex deeper vinaceous, becoming paler posteriorly and passing into buffy white on under tail-coverts.

Range.—Bolivia; Argentina; Paraguay; Uruguay; and southern Brazil, from Rio Grande do Sul north to São Paulo, Minas Gerais, and Matto Grosso.

Measurements

Paraguay: Fort Wheeler

Sex   | Wing | Tail | Exposed | Culmen | Coll. | Mus.
---    | ---   | ---  | ---     | ---    | ---   | ---
♀ ad.  | 132.5 | 82   | 16      | Roos.   | A.M.N.H. |

Brazil: Matto Grosso Chapada

♀     | 134   | 80   | 15      | "       | "     |
♀     | 133   | 83   | 15      | Smith   | "     |
♀     | 139   | 82.5 | 15      | "       | "     |

Villa Bella de Matto Grosso

♂     | 134   | 93   | 15      | Natterer | Vienna |

Matto Grosso, Cuyabá

♂     | 138   | 94   | 14      | "       | "     |

*Birds from Mendoza (Tunuyán) appear to be identical with the Chilean form.
<table>
<thead>
<tr>
<th>Country</th>
<th>Location</th>
<th>Sex</th>
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<th>Tail</th>
<th>Culmen</th>
<th>Coll.</th>
<th>Mus.</th>
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<td>Zool. Mus.³</td>
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<td></td>
<td>♂♀</td>
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<td>82</td>
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<td></td>
<td>Mar del Plata</td>
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<td>91</td>
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<td>14</td>
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<td>14.5</td>
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<td></td>
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<td>86</td>
<td>17</td>
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<tr>
<td></td>
<td></td>
<td>♂♂</td>
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<tr>
<td></td>
<td>Rio Boraxado</td>
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<td>♂♂</td>
<td>133</td>
<td>91</td>
<td>17</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹Through the courtesy of Prof. R. Hørring, of the Zoological Museum in Copenhagen, who sent me two specimens from Lagôa Santa, Minas Geraés, I was able to compare these specimens with our series of *Zenaida auriculata virgata* with which they agree.

²Culmen broken.
**Zenaida auriculata noronha** Chubb

*Zenaida auriculata noronha* CHUBB, 1919, Ibis, I, p. 36 (Fernando Noronha Island).

**Subspecific Characters.**—About the same size as *Z. a. virgata*, but anterior underparts of males decidedly paler vinaceous pink, and abdomen, like under tail-coverts, entirely or for the greater part buff or buffy white; females hardly distinguishable.

**Range.**—Northeastern Brazil, in State of Bahia, interior of Piauhy and Maranhão, and Fernando Noronha Island.

**Specimens Collected**

**Kaempfer Collection**


**Measurements**

<table>
<thead>
<tr>
<th>Brazil: Maranhão, Flores</th>
<th>Sex</th>
<th>Wing</th>
<th>Tail</th>
<th>Exposed Culmen</th>
<th>Coll.</th>
<th>Mus.</th>
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<tr>
<td>&quot; Piauhy Corrente (alt. 1500 ft.)</td>
<td>♂</td>
<td>134</td>
<td>80</td>
<td>15.5</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>&quot;</td>
<td>♂</td>
<td>130</td>
<td>79</td>
<td>14</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
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<td>♂</td>
<td>136.5</td>
<td>83</td>
<td>15.5</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>&quot;</td>
<td>♂</td>
<td>131.5</td>
<td>80</td>
<td>15</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
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<td>76.5</td>
<td>15</td>
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<tr>
<td>&quot; Santa Rita do Rio Preto (alt. 1600 ft.)</td>
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<td>136</td>
<td>81.5</td>
<td>15</td>
<td>&quot;</td>
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<tr>
<td>&quot;</td>
<td>♂</td>
<td>135</td>
<td>87</td>
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<td>138</td>
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<td>17</td>
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<td>&quot;</td>
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<td>&quot; Bahia, Piripiri near Joazeiro</td>
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<td>130</td>
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<td>Reiser</td>
<td>Vienna</td>
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<td>&quot;</td>
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<td>131</td>
<td>70</td>
<td>18</td>
<td>&quot;</td>
<td>&quot;</td>
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<tr>
<td>&quot; Piauhy, San Antonio de Gilbuez</td>
<td>♀</td>
<td>131</td>
<td>89</td>
<td>15</td>
<td>&quot;</td>
<td>&quot;</td>
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<tr>
<td>&quot; Piauhy, south end of Lake Parnaguá</td>
<td>♀</td>
<td>128</td>
<td>81</td>
<td>16</td>
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<td>♂</td>
<td>135</td>
<td>81</td>
<td>15</td>
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<td>&quot; Bahia, Rio do Peixe near Queimadas,</td>
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<td>14.5</td>
<td>R. H. Becker</td>
<td>&quot;</td>
</tr>
<tr>
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<td>131</td>
<td>80</td>
<td>15</td>
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</tr>
<tr>
<td>&quot;</td>
<td>♀</td>
<td>132</td>
<td>80.5</td>
<td>16</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
</tbody>
</table>

1Dr. Hellmayr has examined two males in the British Museum from Fernando Noronha: wing, 135, 138; tail, 80, 86.
Juvenal Plumage

A young male in the Vienna Museum (Reiser Coll.), No. 768, has the feathers of the upperparts with white wedge-shaped edges. The primaries and primary coverts have the same white wedge-shaped marks.

Another young bird, No. 780, lacks all wedge-shaped white marks to the edges of the feathers. This bird differs from the normal juvenal plumage by having the chest-feathers sooty with pale cinnamon shaft-streak and apical margin. It appears to be an abnormal plumage as was already noted by the collector, Mr. Othmar Reiser. This may be melanistic, as sometimes occurs in pigeons.

Zenaida auriculata marajoensis Berlepsch

Zenaida jessieae marajoensis BERLEPSCH, 1913, Ornith. Monatsber., XXI, p. 149 (Hacienda São André, Island of Marajó; type in Senckenbergian Mus. Frankfurt, examined).


Subspecific Characters.—Slightly smaller than Z. a. noronha, and much deeper vinaceous below, this color extending all over the abdomen and under tail-coverts.

Range.—Estuary of the Amazon, from Marajó and Mexiana to coast of Maranhão, (Anil, Ilha do São Luiz).

Specimens Collected

Maranhão; Anil, Ilha São Luiz, 2 ♂ ad., 1 ♀ ad., 2 sex (?), Feb. 23, 24, 26, 1916; Emil Kaempfer.

Zenaida a. marajoensis is closely related to Z. a. jessieae, but has the tips of the four lateral pairs of rectrices nearly pure white, at best with a narrow grayish outer margin. It approaches Z. a. noronha in coloration of tail-tips, but is decidedly deeper vinaceous underneath, and the males lack the buff on lower abdomen and tail-coverts, these parts being merely somewhat paler vinaceous than the breast. It will thus be seen that this race is intermediate between its geographical neighbors, combining the white apical tail markings of noronha with the deep vinaceous underparts of jessieae.

Count Berlepsch laid much stress on the presence of the black postocular streak that, according to him, served to distinguish marajoensis and jessieae from what he calls Z. auriculata (comprising auriculata and noronha of the present paper). Dr. Hellmayr says that, while this streak is well marked in all the specimens from northern Maranhão and lower Amazonia and frequently absent in the more southern forms, there are nevertheless a good many individuals from southern Brazil, Argentina,
etc., that cannot be separated by this character from northern examples, and it would therefore appear that it is only of relative value.

This well-defined form is not an island race, but seems to be distributed from the islands in the estuary of the Amazon through the coastal districts of Pará and Maranhão.

### Measurements

<table>
<thead>
<tr>
<th>Sex</th>
<th>Wing</th>
<th>Tail</th>
<th>Culmen</th>
<th>Coll.</th>
<th>Mus.</th>
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<td>♀</td>
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<td>77</td>
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**Zenaida auriculata jessieae** Ridgway


**Subspecific Characters.**—Similar to *Z. auriculata marajoensis* in deep vinaceous underparts, but terminal portion of lateral rectrices tinged with pinkish or pale vinaceous instead of white.

**Range.**—Banks of the lower Amazon (Santarem, Diamantina, and Paricatuba), south bank; Ereré, near Montalegre, north bank.

This form, though very close to *Z. a. marajoensis*, is apparently separable by the coloration of the tail-tips which are tinged with delicate rose-color on the two outermost pairs of rectrices, gray shaded with pale vinaceous on the third, and dark gray on the fourth; whereas, in the allied race, the corresponding portion of the four lateral pairs is white with little, if any, gray along the external margin. The underparts are deep vinaceous down to the abdomen, passing into pinkish buff in the middle of the lower belly in the female sex, just as in *Z. a. marajoensis*. However slight, the difference pointed out above seems to have geo-

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1 Tail in bad condition when examined in Frankfurt (Senck. Naturwiss. Gesell.)
graphical significance, inasmuch as the vinaceous tinge on the apical portion of the tail marks a decided step in the direction of the next form. *Z. a. jessieae* obviously replaces the preceding race (*marajoensis*) on the banks of the lower Amazon wherever there are stretches of open country.

From information sent to me by Dr. C. E. Hellmayr, it was first recorded by Allen¹ under the erroneous name *Z. ruficauda* from Santarem, where Linden met with it in small flocks on the campo, but its distinctness was not recognized until 1887 when Riker forwarded three specimens from Diamantina, in the vicinity of Santarem, to the U. S. National Museum. W. A. Schulz obtained a single example at Paricatúba, on the south bank of the Amazon, a little west to the junction of the Tapajóz. However, this dove also occurs on the opposite side of the Amazon, since a female secured by O. Martins at Ereré near Montalegre (north bank) was found by Hellmayr to be identical with birds from near Santarem.

**Measurements**

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*Zenaida auriculata rubripes* Lawrence

*Zenaida rubripes* Lawrence, 1885, The Auk, II, p. 357 (Grenada, Lesser Antilles).


**Subspecific Characters.**—About the same size as *Z. a. jessieae*, and underparts from lower throat to tail-coverts very nearly as deep vinaceous but terminal portions of five lateral rectrices bright vinaceous cinnamon. Besides, chin and middle of upper throat are paler (from light pinkish buff to buffy white), and the dorsal surface is slightly paler brown. Differs from *Z. a. vinaceo-rufa* in being darker brown above and deeper vinaceous below with a cinnamonous tinge, and in having a buff instead of a clear and well-defined white chin-spot.

¹1876, Bull. Essex Inst., VIII, p. 82.
A STUDY OF ZENAIDA AURICULATA

RANGE.—Southern Lesser Antilles (Grenada, Glover's Island, Carriacou); British Guiana (Annaí, Quonga); Venezuela, from the north coast including Margarita Island, south to the Orinoco River and its tributaries; extreme northern Brazil (upper Rio Branco); eastern Colombia (Honda and Chicoral, Magdalena Valley).

Ridgeway, who originally based the description of Z. r. robinsoni upon specimens from Honda, Magdalena Valley, subsequently gave its range as comprising the "interior districts of Colombia and Venezuela," whereas the "arid coast" of Venezuela and the islands of Margarita, Curaçao, Aruba, Bonaire, Grenada, and Carriacou were indicated as constituting the distributional area of Z. r. vinaceo-rufa, the type of which came from Curaçao. The difference between the two races was stated to consist of the intensity of coloration, robinsoni being darker, more brownish above and more vinaceous below.

Critical examination of large series of these doves, however, tends to show that such an arrangement does not correctly express actual conditions. Birds from the Venezuelan coast district (Barquisimeto and El Cuji, Estado Lara) and Margarita Island are nowise different from others collected on the banks of the Orinoco and Caura rivers and, furthermore, agree in size and coloration with a series from the southern Lesser Antilles (Z. rubripes). Even toptotypical specimens of Z. r. robinsoni from the Magdalena Valley are inseparable, though one would naturally expect to find another race in this part of Colombia. The earliest name of this form thus is Zenaida auriculata rubripes, of which Zenaida ruficauda robinsoni becomes a synonym.

The large series from the Dutch West Indies (Curaçao, Aruba, Bonaire) courteously loaned by the Field Museum of Natural History averages lighter and clearer in color than the bird I now call Zenaida auriculata rubripes, the latter being much deeper vinaceous below, though varying in degree of intensity. The paler brown upperparts constitute an absolutely constant character of Z. a. vinaceo-rufa as restricted here to the Dutch West Indies.

Nevertheless, individual variation occasionally obliterates the distinctive features, and a specimen from Caicara, Rio Orinoco, a bird in very fresh and unworn plumage, is practically indistinguishable from Bonaire and Curaçao examples. An individual from Agua Salada de Ciudad Bolivar, Orinoco, is much the darkest in the whole series, but

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1Cf. Wells, 1887, Proc. U. S. Nat. Mus., IX, p. 624. It is inconceivable why the Grenada people call this dove "Trinidad ground dove" since no dove of this section ever occurred on Trinidad. (Note given to me by Dr. C. E. Hellmayr.)


close inspection shows this to be caused by grease, the bird having been exceedingly fat when killed.

Birds from the upper Rio Branco¹ are, so far as coloration is concerned, identical with the Venezuelan series, but average very slightly smaller.

No material has been available from the Mérida region of Venezuela, but the doves from this section are not likely to be different from Z. a. rubripes.

Measurements

<table>
<thead>
<tr>
<th>SEX</th>
<th>WING</th>
<th>TAIL</th>
<th>EXPOSED CULMEN</th>
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</table>

¹Birds from the interior of British Guiana (Annai, Quonga) resemble those from the Rio Branco in size and coloration.

²According to Dr. Alexander Wetmore the specimen from the Caroni Swamp, Trinidad, was taken May 27, 1932, with a set of two eggs, by G. D. Smooker and was presented by him to the U. S. Nat. Mus. It is generally similar to the specimens from the mainland of Venezuela except as it appears somewhat grayer on the back, rump, and wing-coverts. With only one specimen at hand from Trinidad it would seem that this difference is probably individual variation. Mr. Smooker’s specimen is of particular interest since at this time it is the only one reported from the Island of Trinidad, the locality from which these birds were supposed to be absent.
### A Study of Zenaida Auriculata

<table>
<thead>
<tr>
<th>Location</th>
<th>Sex</th>
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</table>

**Zenaida auriculata vinaceo-rufa** Ridgway


**Subspecific Characters.**—Coloration paler throughout, considerably less brownish above and less deeply vinaceous below than *Z. a. rubripes*, with a clear white instead of a pale buffy chin-spot.

**Range.**—Dutch West Indies (Curaçao, Aruba, Bonaire).

This subspecies has the underparts pale vinaceous without a trace of cinnamon. The chin-spot is white and the upperparts are pale brown, both of these characters appearing to be quite constant, whereas the pale vinaceous color of the underparts is a variable character.

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*Bill broken.*
Zenaida auriculata antioquiæ Chapman


Subspecific Characters.—Similar to Z. a. rubripes, but terminal portion of rectrices paler vinaceous-buff; dorsal surface decidedly darker brown; and dimensions considerably larger. Not unlike Z. a. ruficauda, but smaller; posterior underparts much more vinaceous, about the same color as the breast, instead of orange-cinnamon.

Range.—Temperate Zone of the northern end of the central Andes of Colombia, in State of Antioquia (Barro Blanco, Retiro, La Ceja, etc.).

The occurrence of this form west of the lower Magdalena does not affect the idea of considering the various forms as members of one taxonomic unit. Barro Blanco and La Ceja are in the Temperate Zone, where antioquiæ appears to replace the Tropical Zone rubripes, just as ruficauda does in the Temperate Zone of the east Colombian Andes.

Measurements

<table>
<thead>
<tr>
<th>Country</th>
<th>Location</th>
<th>Sex</th>
<th>Wing</th>
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</tbody>
</table>

Zenaida auriculata antioquiæ antioquiæ Chapman

A.M.N.H. = American Museum of Natural History
Miller = Miller-Boyle
Boyle = Boyle

Culmen broken.
Zenaida auriculata ruficaua Bonaparte


Zenaida bogotensis LAWRENCE, 1885, The Auk, p. 358 (Bogotá; type in A.M.N.H.).

Subspecific Characters.—Nearest to Z. a. antioquiae, but somewhat larger; terminal portion of rectrices orange-cinnamon instead of vinaceous; abdomen and under tail-coverts bright cinnamon, decidedly more rufous than the vinaceous breast. Easily distinguishable from Zenaida a. rubripes by much larger size, darker brown upperparts, orange-cinnamon instead of vinaceous buff tail-tips, and much deeper and more rufous (less vinaceous) posterior underparts.

Range.—Temperate Zone of the eastern Andes of Colombia, in State of Cundinamarca (Bogotá savanna).¹

 Though up to this time of writing Z. ruficaua has been considered specifically distinct from Z. a. auriculata, I have come to the conclusion that Z. ruficaua is only a geographic race in Colombia of Z. a. auriculata. The distinguishing character of Z. a. ruficaua lies in the terminal portion of the outer tail-feathers being decidedly rufous instead of white, as in Z. a. auriculata. Z. a. ruficaua is also larger.

Compared with Z. a. vinaceo-rufa from the Dutch West Indies, Z. a. ruficaua is also larger, with the under tail-coverts cinnamon without any vinaceous tinge, whereas Z. a. rubripes has all the lower parts distinctly vinaceous.

Two forms of this species occur in the Bogotá region, one in the semi-arid Tropical Zone of the upper Magdalena Valley (Zenaida a. robinsoni = Zenaida a. rubripes) the other a bird of the Temperate Zone. Common on the Bogotá savanna (Z. a. ruficaua).²

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¹It is possible that its range extends to the Mérida region of Venezuela. I have not been able to procure any material from any museum. There is a record of a young bird in the British Museum.

²Dr. Hellmayr writes that Z. pentheria Bonaparte corresponds to the form here named Z. a. ruficaua. On comparing the type in the Paris Museum with topotypes of both antioquiae and 'robinsoni' and specimens from the Bogotá savanna he found it to agree with the last-named in dimensions (wing, 158; tail 110; bill, 16 mm.), as well as in coloration (orange-cinnamon tail-tips; deep bright cinnamon lower abdomen and under tail-coverts, etc.).

Although Bonaparte gives its habitat 'Santa Marta,' the type bears no other locality than 'Colombia' and the catalogue of entry in the Paris Museum does not supply any additional information. The collector, Mr. Fontainier, presented to the French National Collection birds from various parts of Colombia. Bonaparte (1856, C. R. Acad. Sci., XLIII, p. 946) explained how the mistake of describing the same form twice under different names originated. From the measurements of the type, as given by Chapman, (Bull. Amer. Mus. Nat. Hist., 1917, XXXVI, p. 207), on the late C. Chubb's authority, it is evident that Z. ruficaua pertains to the large Temperate Zone race of the eastern Andes, which was subsequently redescribed as Z. pentheria and Z. bogotensis, respectively.
Measurements

Colombia: Bogotá (type)            | SEX | WING | TAIL | EXPOSED | COLL. | MUS.
--- | --- | ---- | ---- | ------- | ----- | -----
" " | ?   | 159.5| 112  | 16      | A. Maria | A.M.N.H.
" " | ?   | 159  | 110  | 16      | "       | "
" " | ?   | 156  | 113  | 16      | "       | "
" Pipiral | ?   | 150.5| 110  | 17.5    | "       | "
" " (savanna), E. Andes | ♀ ad. | 143  | 78.5  | 16.5    | "       | "
" " " " " | ♀  | 153  | 105  | 15      | "       | "

Zenaida auriculata caucae Chapman


Subspecific Characters.—Similar to Z. a. auriculata but smaller in size, darker brown above, and underparts deeper vinaceous; under tail-coverts buffy vinaceous, as in Zenaida a. auriculata.

Range.—Colombia: Cauca, Cali.

In the Cauca Valley a return to the Chilean form is made, the bird having the abdomen vinaceous as in typical Z. a. auriculata and closely resembling that race, except in being slightly smaller. This upper Cauca form (Z. a. caucae) with white tail-tips and under tail-coverts is also near hypoleuca, this being quite plausible from a geographical point of view. On comparing the birds from Cauca (Cali) with three specimens of Zenaida auriculata auriculata from Argentina, Tunuyán, Province of Mendoza, I found the Colombian specimen practically indistinguishable, averaging slightly smaller, however. Birds from the Cauca Valley differ from Zenaida auriculata hypoleuca in being darker vinaceous on forehead, sides of the head, and breast, as well as in the deeper olive-brown color of the upperparts; flanks, axillaries, and under wing-coverts are darker gray; abdomen, crissum, and under tail-coverts have a deeper vinous tinge. The birds from Cauca also average smaller in size.

Measurements

Colombia: Cauca, Cali (3600 ft.)            | SEX | WING | TAIL | EXPOSED | COLL. | MUS.
--- | --- | ---- | ---- | ------- | ----- | -----
"♂ ad." | 143  | 98   | 13   | Richardson- Miller | A.M.N.H.
"♂ " | 138.5| 95   | 14.5 | "       | "
"♀ " | 133.5| 87   | 15.5 | "       | "

1Zenaida pentheria: sex, ♀; wing, 157; tail, 110; culmen, 16; Paris Mus.
2Zenaida auriculata: type, ♂; wing, 158; tail, 110; culmen, 16; Paris Mus.
3The central tail-feathers are slightly more pointed than those of Zenaida a. auriculata.
A STUDY OF ZENAIDA AURICULATA

Zenaida auriculata hypoleuca Bonaparte


Zenaida auriculata pallens BANGS AND NOBLE, 1918, The Auk, XXXV, p. 446 (Huancabamba, N. E. Peru).

Subspecific Characters.—Slightiy smaller than Zenaida auriculata, with forehead, sides of head, and breast paler, the vinaceous color of neck and breast much lighter and more pinkish; flanks, axillaries, and under wing-coverts paler gray; abdomen, crissum, and under tail-coverts much paler buff, only slightly tinged with vinaceous, producing an almost whitish color. Upperparts slightly paler gray-olive instead of brown-olive.

Range.—From Ecuador down to Huánuco, Peru.

Measurements

<table>
<thead>
<tr>
<th>Sex</th>
<th>Wing</th>
<th>Tail</th>
<th>Exposed Culmen</th>
<th>Coll.</th>
<th>Mus.</th>
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1 Broken.