

## THE CICADAS OF PORTO RICO WITH A DESCRIPTION OF A NEW GENUS AND SPECIES

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Anything written about the cicadas of Porto Rico at this time must be in the nature of a preliminary article. But two species can surely be credited to the Island, whereas there are no doubt several others to be found. The writer has examined a much broken female *Tibicen*, closely allied to *lyricen* of continental North America, received from the University of Porto Rico. Prof. Stuart T. Danforth writes concerning it: "The big cicada I did not collect personally, so I would not want to state surely that it was collected at Mayaguez; it was in with a lot of other insects collected here so the assumption was that it was too." In the writer's collection there is a male cicada supposed to have come from Porto Rico, that closely resembles *Odopoea dilata* described from Jamaica by Fabricius. As it is likewise a lone specimen without authentic data, it, like the preceding, can not be recorded. It may be stated, however, that *Distant* records *dilata* from the "Antilles" in "Genera Insectorum," 1914, but Mr. China has found no specimens of the species from Porto Rico in the collection of the British Museum.

The neighboring large island of Haiti has six species of cicadas known to the writer, and there are no doubt others. So it may be that the species of cicadas here recorded from Porto Rico will ultimately be doubled in number. The two species mentioned are the same as those recorded in "Insectae Portoricensis," a preliminary annotated check list of the insects of Porto Rico, by George N. Wolcott, *Journal of the Department of Agriculture of Porto Rico*, Vol. VII, January, 1923.

From the records it appears likely that a cicada may be taken in Porto Rico on any day of the year. *Proarna hilaris* seems to be most common from October to May, while *Boreoncon aquadilla* has been collected from May to August.

The writer is indebted to Prof. G. N. Wolcott and to Prof. Stuart T. Danforth for the loan of specimens, also to Mr. Charles W. Leng who visited Porto Rico in February, 1927. Mr. W. E. China has kindly compared specimens in the British Museum.

*Proarna hilaris* Germar. (Plate I. Figs. 2 and 3.)



PROARNA HILARIS GERMAR

From the great similarity of several of the species of *Proarna* inhabiting the Antilles Mr. W. E. China labeled the female from Bayamon, P. R., which I sent to him, *hilaris*? Until more extensive collections are available, and comparisons can be made with Germar's type, this name, the one usually placed on the insect, can stand. The following specimens have been examined: Bayamon, 4 females; Mayaguez, October 4, 1912, female (C. W. Hooker); "12-18-21," male; Quebradillas, October 5, 1922, male (G. N. Wolcott); Ensenada, April, 1924, female, Coll. Cornell University; Mayaguez, May 17, 1927, female (S. T. Danforth); San Juan, February 23, 1927, male (C. W. Leng). This last is here figured.

In "Insectae Portoricensis" this species is recorded from Birds of Porto Rico by Alex. Wetmore, 1916, as being eaten by Mangrove Cuckoo, Ground Cuckoo, Woodpecker, Owl, Petchary, Flycatcher, Kingbird, Vireos, Yellow Warbler, Yellow-Shouldered Black-bird, Oriole and Mozambique. Also collected at light and found at the following localities: Condado, Martin Peña, Vega Alta, Guánica, Quebradillas and Pt. Salinas.

The second species found in some numbers is recorded in "Insectae Portoricensis" as a *Zammara*, and by Wetmore as a *Proarna*, no specific name being given in either instance. While this insect has the sides of the pronotum expanded as in *Zammara tympanum*, the type of the genus, it differs considerably

in genitalia and venation. The first cross vein in *Zammara* slants from the top outwardly, as in most cicadas, and the eighth marginal area has the upper vein ( $Cu_1$ ) arched, which is not so in the Porto Rico species. There does not appear to be any genus into which this species completely fits, but in most respects it is nearer to *Odopoea* than to either *Zammara* or *Proarna*.

In the *Annals and Magazine of Natural History*, Vol. 6, Ninth Series, November, 1920, Mr. Distant described *Juanaria mimica* from Cuba, both genus and species being described as new and placed near *Odopoea*. Mr. China has procured for me an excellent photograph of the type, which is copied on the accompanying plate, and which we consider to be the *Cicada poeyi* Guer described and figured in *Sagra Hist. de Cuba*, Ins. p. 425 t. xiii, f. 16 (1857). It is also briefly described by Uhler in the *Trans. Maryland Academy of Sciences*, 1892, p. 169, under the name of *Odopoea poeyi*. We think that Distant was justified in placing this peculiar cicada, which Uhler characterized as "the most remarkable of all the species yet discovered in West Indies, if not in all America," in a separate genus. In having the wings nearly opaque the small species here described from Porto Rico resembles *Juanaria poeyi*, but is really more removed from it than it is from some of the other species of *Odopoea*. In our opinion it should occupy a genus to be placed between *Proarna* and *Juanaria*, whereas *Juanaria* with its very much curved  $Cu_1$  and broad abdomen in the male, should be placed nearer *Zammara*.

#### *Borencea* new genus

Body short and robust, and in the male considerably broader below the tympana than any where else. Head small, much narrower than the broad pronotum which has the lateral margins medially angulated. Tympanal coverings imperfect covering only the extreme outer part of the orifices; opercula short, broad and rounded; rostrum reaching the posterior coxæ. Fore wings nearly opaque, with the first transverse vein slanting inwardly toward the body, and not outwardly as in *Odopoea*, *Juanaria* and *Zammara*. Last marginal area with the upper or  $Cu_1$  vein curved as in *Odopoea* and not greatly arched as in *Juanaria* and *Zammara*.

*Borencea aguadilla* new species. (Plate I. Figs. 4 and 5.)

Type male and allotype female from Yauco, August 24, 1922 (Sein and Wolcott). Collection American Museum of Natural History.



BORENCONA AGUADILLA TYPE

Head narrow across eyes, about one half as broad as the pronotum, with the front produced into three lobes between the eyes. These lobes are also present in the *Proarna* from Porto Rico. Pronotum expanded medially angulated into sharp points; posterior angles rounded. Fore wings rounded at the extremities with the front and hind margins considerably curved; transverse fold crossing the wing at the node plainly developed, basal cell long with the front and hind margins nearly parallel and the first cross vein, starting from the basal fourth of the first marginal cell and slanting inwardly toward the body of the insect, instead of outwardly, as is more usual among cicadas. In *Proarna* this vein may slant toward the body or it may be verticle, but it generally starts from the central part of the first marginal cell, instead of from the inner fourth, as in *aguadilla*. Tympana much exposed, especially on the outer part, but not a great deal more so than in *Odopaea walkeri* Guer. from Cuba. Abdomen broadest below the tympanal orifices, the uncus as shown in the accompanying figures. Viewed from above there is a conspicuous notch each side between the second and third abdominal segments due to the expansion of the second segment in the same manner as in the large *Juanaria poeyi*. Opercula short and rounded, not reaching the third segment; last ventral segment rounded at the extremity. Beak reaching the hind femora and fuscous at the tip. Last ventral segment of the female with the hind margin extended into points one each side of the notch, as in many *Odopaea*.

General color brown greenish about the tympana and the margins of the pronotum, with a narrow and irregular darker dorsal stripe extending from the front of the head to the hind margin of the pronotum or collar. This stripe broadens on the mesonotum to the width of the cruciform elevation and is more or less bifid. The abdomen in both sexes has two pruinose curved lines, one on each side in the form of parenthesis; these lines are more curved in the female than in the male. Each abdominal segment is edged narrowly with greenish, and in the female the last two segments are dorsally pruinose. Beneath the abdomen is pale. Both fore and hind wings have all of the veins flecked with fuscous; on the costal margin of the fore wings, the spots are arranged in pairs. The central portions of all of the areas, especially those of the fore wings, are likewise flecked with brown.

## MEASUREMENTS IN MILLIMETERS

	Male Type	Female Allotype
Length of body .....	22	21
Width of head across eyes .....	5	5
Expanse of fore wings .....	56	61
Greatest width of fore wings .....	8.5	9

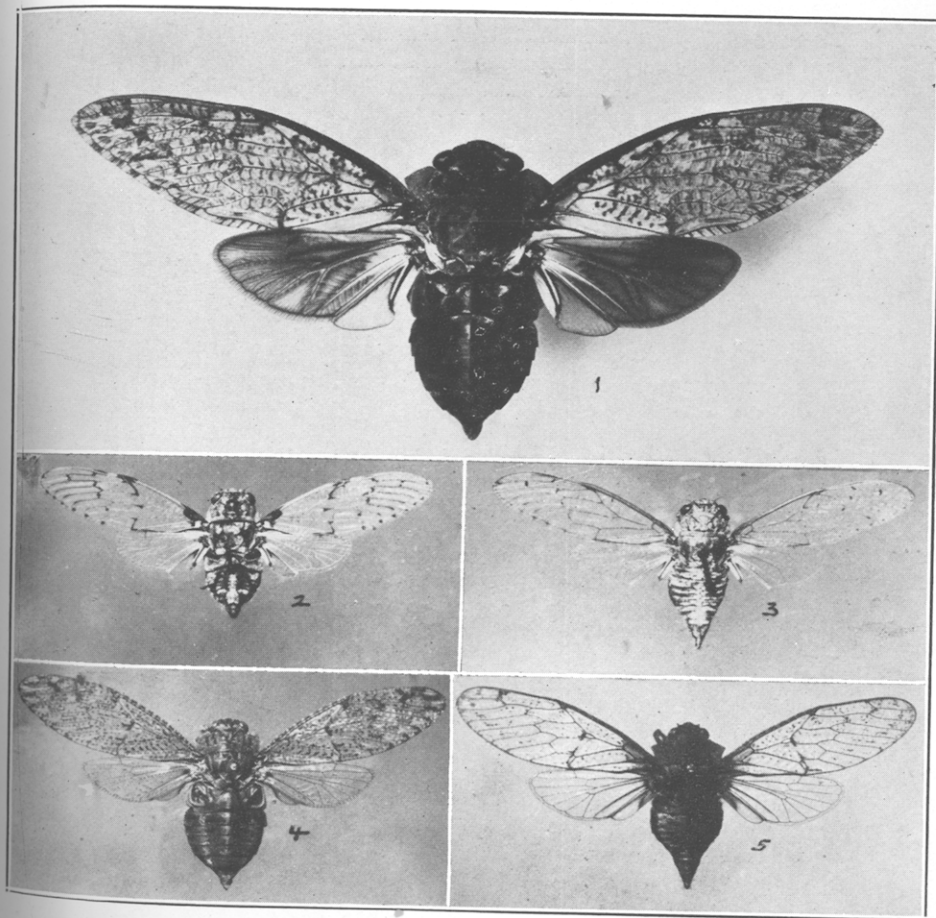
In addition to the above the following specimens have been examined: Mayaguez, July 1, 1912, female (C. W. Hooker); Mayaguez, male and female from Prof. S. T. Danforth; Aibonito, July 16, 1913, female (S. S. Crossman); Lares, August 25, 1922, female (Sein and Wolcott); Mayaguez, May 13, 1927, male (S. T. Danforth).

In "Insectae Portoricenses" this species is recorded from "Birds of Porto Rico" by Alex. Wetmore, 1916, as being eaten by King-bird and Flycatcher. Also taken at light at Aibonito; on coffee tree at Lares and at Corozal in mountains north of Yauco.

This species may be known by its brownish color and pepper and salt appearance; sharp lateral angles to the expanded pronotum, and the inward slant of the first cross-vein.

## PLATE I

- Fig. 1. *Juanaria poeyi* Guer. (*J. mimica* Distant.) (From Cuba.)  
 Fig. 2. *Proarna hilaris* Germar. Male  
 Fig. 3. *Proarna hilaris* Germar. Female.  
 Fig. 4. *Borenacona aguadilla*. Type  
 Fig. 5. *Borenacona aguadilla*. Allotype



CICADIDÆ