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THE GROUP SCYLLINAE

(ORTHOPTERA, ACRIDIDAE, ACRIDINAE)

AS FOUND IN NORTH AMERICA,

WITH RECORDS AND DATA ON ITS OCCURRENCE
IN THE UNITED STATES

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Morgan Hebard

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THE GROUP SCYLLINAE (ORTHOPTERA, ACRIDIDAE,
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Recent studies on the forms of this Group found in Panama and Colombia showed the necessity of considering all the material available of the North American species. This has resulted in the decision that but two species of the genus occur in the regions under consideration, of which one is found in the West Indies and the lowlands of Panama, Colombia and Ecuador and represents the entity to which the name *cyanipes* was applied by Fabricius.¹ The other occurs in south-central Arizona, Mexico, Honduras, Nicaragua, the highlands of Costa Rica, (probably) Panama and Colombia. This latter is one of the most difficult entities we have encountered, due to the very great variation in size, color and color pattern which it shows. Sausure's *viatoria* is the oldest name available and we divide the species into three geographic races.

Four hundred and forty-one specimens are before us, of which *cyanipes*² is represented by eighty-eight from the West Indies and fourteen from Panama and Colombia. We refer two hundred and twenty-two specimens to *viatoria viatoria*, nine to *viatoria excelsa* (Bruner) and one hundred and eight to *viatoria cyanomera* Hebard.³

Typical *viatoria* is found in south-central Arizona, over probably all Mexico except at high elevations, extending southward through Honduras and Nicaragua and into the uplands of Costa Rica and probably Panama.

We believe it advisable to recognize Bruner's *excelsa* as a race of *viatoria*, occurring on the central plateau of Mexico. In this case the differentiation from the typical form is slight. The insect averages smaller and more robust, with proportionately

¹ Described from "America."

² We have recently indicated the synonymy of Stål's *peragrans*, described from the Island of Puna, Ecuador; Trans. Amer. Ent. Soc., XLIX, p. 211, (1923).

³ Described; Trans. Amer. Ent. Soc., XLIX, p. 212, (1923).

shorter organs of flight and shows color differences which may have some value. It is clearly the species' adaptation to high altitudes in Mexico. A series from Orizaba, Mexico,⁴ before us is referable to *viatoria viatoria*, though in some cases showing a tendency toward *excelsa*.

The third race *viatoria cyanomera* is an inhabitant of the highlands of the Sierra Nevada de Santa Marta, Colombia, while four specimens labelled simply "Costa Rica" probably came from areas of similar environment in that country, as the insect is plainly an adaptation to a highland region in that latitude.

Individual variation in these species and races is so great that the following key is given only as an aid in studying material of the species, satisfactory determination being possible only through comparison of large series as well, since the key can give only features considered typical.

A. Vertex and frontal costa forming a broadly rounded but distinct fastigio-facial angle. Fastigium triangularly impressed in distal portion, with transverse crescentic impression mesad absent or very weak. Rectangular lateral foveolae present though very weakly impressed, with angles rounded and margins broad and bluntly rounded. (Size comparatively small and form slender. Ventral surface of caudal femora pale. Caudal tibiae pink with distal portion cyaneous.) [West Indies, Panama, Colombia, Ecuador.].....*cyanea* (Fabricius)

AA. Vertex rounding so broadly into frontal costa that a fastigio-facial angle can scarcely be said to exist. Fastigium with a weak rounded impression meso-distad, this strongest at its mesal transverse crescentic impression. Lateral foveolae practically obsolete, appearing only as a smooth broadening on each side of the frontal costa and fastigium at their juncture.

B. Ventral surface of caudal femora and distal portion of caudal tibiae never brilliant cyaneous.

C. Size small to large, form normal. Tegmina and wings not reduced. Ventral surface of caudal femora pale. Caudal tibiae (pale or pinkish buff) sometimes with distal portion faintly suffused with cyaneous. [Arizona, Mexico, Honduras, Nicaragua, Costa Rica.].....*viatoria viatoria* (Saussure)

CC. Size medium, form slightly more robust. Tegmina and wings showing distinct, though slight, reduction. Ventral surface of caudal femora suffused with or solidly dull blackish cyaneous. Caudal tibiae (pale or pinkish buff) sometimes with distal portion suffused with or solidly dull blackish cyaneous. [Central plateau of Mexico.]

viatoria excelsa (Bruner)

⁴This series was determined by Bruner as *viatoria* and as *macneilli*.

BB. Ventral surface of caudal femora and distal extremity of caudal tibiae solidly brilliant cyaneous. (Size large, form normal. Tegmina and wings not reduced.) [Sierra Nevada de Santa Marta, Colombia and (probably highlands of) Costa Rica.].....*viatoria cyanomera* Hebard

These forms all agree in having the ventro-internal spur of the caudal tibiae slightly less than twice as long as the dorso-internal, with claw-like apex unspecialized. A high degree of color variation is found in all, but is particularly striking in the series of typical *viatoria* before us. Such variation is shown by presence or absence of green coloration, of a pale dorsal medio-longitudinal band, of a dark vertical sub-ocular bar or patch, of a large dark patch mesad on the pronotal lateral lobes, of large and regular tegminal markings, of a striking pale tegminal humeral band, of heavy dark transverse bars on the dorsal surface of the caudal femora and of heavy dark markings on its external pagina.

The following data on the synonymy of typical *viatoria*, and its occurrence in the United States, are given in order to straighten out the confusion as to how many and which species of *Scyllina* occur in this country, and where these may be found.

***Scyllina viatoria viatoria* (Saussure)**

1861. *St[enobothrus] viatorius* Saussure, Rev. et Mag. de Zool., (2), XIII, p. 317. [All of Mexico.]

1871. *Stenobothrus nobilis* Walker, Cat. Dermapt. Saltat. British Mus., v, suppl. p. 79. [♂, Oaxaca, Mexico.]

1901. *Plectrotettix patriae* Scudder, Proc. Davenport Acad. Nat. Sci., VIII, p. 95, pl. III, fig. 2. [♀, California?]

1904. *Plectrotettix calidus* Bruner (in part), Biol. Cent.-Amer., Orth., II, p. 101. [Type, ♂⁵; Cuernavaca, Morelos, Mexico.]

1904. *Plectrotettix macneilli* Bruner, Biol. Cent.-Amer., Orth., II, p. 102, pl. I, figs. 12, 12a and 12b. [Type, ♂⁶; Orizaba, [Vera Cruz], Mexico.]

Walker's *nobilis* has the ventral surface of the caudal femora as well as the caudal tibiae "red"⁷ in the described males. We have males from Honduras and Nicaragua showing this and

⁵ Selected in 1912, Hebard Collection, Type no. 261, by Rehn and Hebard, Proc. Acad. Nat. Sci. Phila., 1912, p. 113.

⁶ Here selected, Hebard Collection, Type no. 911. Taken January, 1892, by L. Bruner.

⁷ Undoubtedly between light coral red and dragon's blood red.

males from Baja California, in which it is less strongly indicated. The condition does not appear worthy of even racial recognition.

Scudder's *patriae* is based on a dried alcoholic specimen which probably came from Baja California. The discoloration of the specimen led to the description of apparent but not real differences. We have examined southern California quite thoroughly and are of the opinion that the genus does not occur in that State.

Bruner's *calidus* is merely the optimum condition developed in *viatoria*, the other characters given being all wholly attributable to individual variation. His *macneilli* is a striking color phase in which the dark body markings are all larger and more regular than usual, the pale tegminal marks narrow but also unusually regular. The material on which this name was based shows some slight indication of divergence toward the race of the central plateau of Mexico, *viatoria excelsa*.

Typical *viatoria* has previously been recorded from Tucson and the Baboquivari Mountains in Pima County, and from San Bernardino Rancho, in Cochise County, Arizona, as the synonymous *Scyllina calida* (Bruner) by Rehn and by Rehn and Hebard.

The following localities are all in Pima County, Arizona, except the last, which is in Santa Cruz County, Arizona.

Tucson, X, 12, 1910, 2400 feet, (R. & H.; in dry yellow grass), 2 ♀.

Tumamoc Hill, Tucson Mountains, 2400 to 3092 feet, X, 3 and 4, 1910, (R. & H.; in yellow grass at Desert Laboratory, flew much like *Schistocerca*), 1 ♂, 1 ♀, 10 juv.

Roebles Pass, Tucson Mountains, c. 3000 feet, X, 11, 1910, (R. & H.), 1 ♀.

Palo Alto Rancho, Altar Valley, c. 3000 feet, X, 6, 1910, (R. & H.; some yellow grass and scattered mesquite), 2 ♀.

Near Espinosa Rancho, Altar Valley, c. 3200 feet, X, 9, 1910, (R. & H.; short yellow grass and mesquite plain), 2 ♂, 2 ♀.

Lower end of Sycamore Wash, Altar Valley, c. 3200 feet, X, 6 and 9, 1910, (R. & H.; moderately common in heavy cover of short yellow grass), 13 ♂, 11 ♀, 1 juv.

Sycamore Canyon, Baboquivari Mountains, c. 3700 feet, X, 6 to 9, 1910, (R. & H.; common in short yellow grass, two attracted to light at night), 16 ♂, 16 ♀, 1 juv.

Sycamore Canyon, Baboquivari Mountains, 3700 to 4200 feet, (R. & H.; common in short yellow grass on bench of canyon slopes to summit of lateral ridges), 19 ♂, 16 ♀.

Nogales, 4000-4500 feet, IX, 20, 1922, (R. & H.; scarce among scant grasses on rolling hilltops) 2 juv.

Measurements (in millimeters) of extremes

	♂	Length of body	Length of pronotum	Caudal width of pronotal disk	Length of tegmen	Length of caudal femur	Width of caudal femur
Sycamore Canyon		25.5	4.9	3.7	24	16.8	4.1
Sycamore Canyon		28.2	5.8	4.1	27.5	19.8	4.9
	♀						
Sycamore Wash. . .		34.5	6.8	5	31.8	23	5.4
Sycamore Canyon		37.1	7	5.3	35.2	25.6	6.1

All of the present series are buffy, marked with browns of varying shade. All were taken in dry yellow grasses late in the season. A single female taken July 26, 1907, at Tucson, in a tangle of green weeds, has the pale portions of head and pronotum washed with pale green. All have a decided medio-longitudinal pale band on head and pronotum, this rarely continued on the tegmina. The sub-ocular stripe and median patch on the pronotal lateral lobes varies from obsolete to strongly developed, with intensification and recession of the color pattern. The tegminal markings are usually well defined and regular (often as in the condition figured and described by Bruner as *macneilli*), sometimes these markings are decidedly broken up and with recession become very faint and are entirely obliterated distad. The dorsal surfaces of the caudal femora are usually immaculate in the females, rarely so in the males, in the remainder having three transverse brown bars apparent but individually variable in intensity. The ventral surface and ventral portion of the internal face of the caudal femora are buffy; the caudal tibiae pink fading to buffy proximad in males, buffy in females with distal portion delicately tinged with purple or pinkish.

Due to the aridity of the environment, the entire series is paler and more desiccated in appearance than the majority of the Mexican specimens of this race before us.

We believe that the distribution of *viatoria viatoria* is limited in the United States to a small area in central-southern Arizona.

EXPLANATION OF PLATE IX

Scyllina viatoria viatoria (Saussure). Specimens taken at locality of which a photograph is here shown.

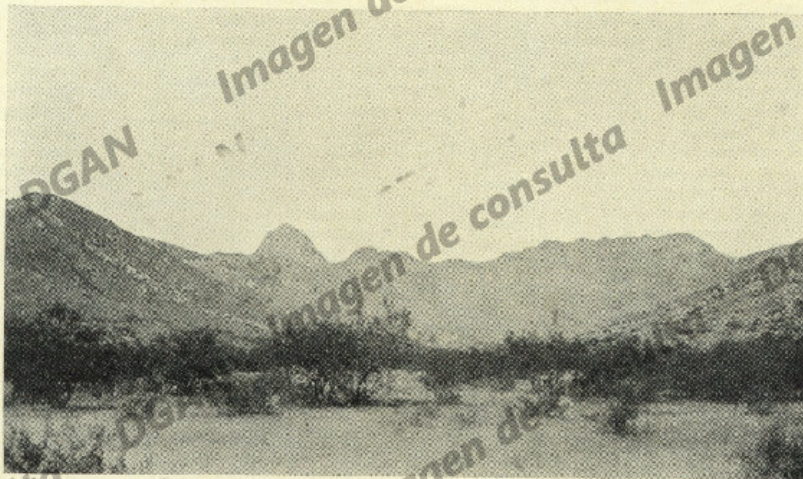
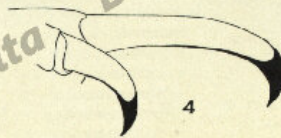
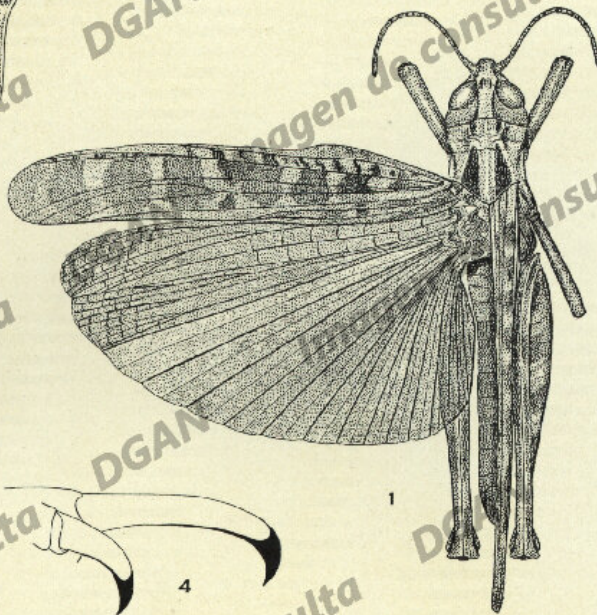
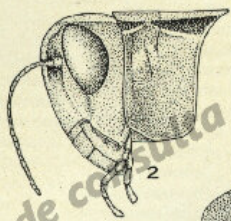
Fig. 1.—Dorsal view of male. ($\times 2$)

Fig. 2.—Lateral view of male head and pronotum. ($\times 2\frac{1}{2}$)

Fig. 3.—Dorsal view of female head and pronotum. ($\times 2$)

Fig. 4.—Lateral view of internal caudal tibial spurs of female. (Much enlarged.)

Fig. 5.—View of Sycamore Canyon from its mouth, looking westward, with Baboquivari Peak in the distance. Pima County, Arizona.



HEBARD—SCYLLINAE OF NORTH AMERICA