

A CONTRIBUTION TO THE TAXONOMY OF THE GENUS ORGERIUS IN AMERICA, NORTH OF MEXICO (FULGORIDAE, HOMOPTERA)

KATHLEEN C. DOERING and HERBERT H. DARBY, Lawrence, Kansas*

Abstract

This paper involves a comprehensive study of the genus *Orgerius* in America, North of Mexico. To the two older species, *O. rhyparus* Stal 1859 and *O. minor* Ball 1909, have been added the following nine new species: *proprius*, *triquestrus*, *bucculentus*, *bilobatus*, *junceus*, *spicatus*, *disgregus*, *bicornis*, and *foliatus*. Three of the varietal forms of Ball and Hartzell (1922) have been raised to specific rank; namely, *pajaronius*, *concordus* and *ventosus*. *Orgerius rhyparus* var. *clitellus* (Ball and Hartzell, 1922) is not recognized even as a color variety since this same coloring is occasionally found in four other species. Dissections of the male genitalia were made and the structures figured. Other comparative structural drawings are included. The structures of most value in the classification of the group are lateral lobes of the ninth abdominal segment in the male, length and shape of the vertex and the male genitalia.

DESCRIPTION OF SUBFAMILY DICTYOPHORINAE

Head narrower than the mesonotum. Vertex produced in front of the eyes a definite fractional part of its length depending on the species, apex truncate or slightly conical. Frons with median carina and apex without ocelli, border of face always sharp or with a keel. Lateral margins of pronotum equalling its median length. Wings macropterous, many brachyterous, no transverse veins along costal border or no distinct cross veins from costal margin to apex of clavus. Anterior femora normal. Posterior tibia without a movable spur.

DESCRIPTION OF THE TRIBE ORGERIINI

The ocelli are completely absent, the face has lamellate, careened borders. its length is greater than the basic width, and a distinct carina passes through its middle. The upper wings are very short. Clavus and corium are not distinguishable. As viewed from the side the pronotum shows two well pronounced, closely adjacent carinae; the upper one of which serves as a border of the dorsal surface, but the lower one is not far below it, after which the pronotum is reflexed into a broad ventral flap. Tegulae not noticeable. The upper wings short and not reaching one-half of the abdomen. They cover the upper side of the body, but turn vertically down on the sides near the base forming a fairly broad and smooth flap, tapering toward the middle of wing. A distinct longitudinal

*Contribution from Department of Entomology, University of Kansas.

mesal carina runs lengthwise of the dorsal surface of the abdomen and lateral of this on the sides of the abdomen not far from the border a more indistinct carina is usually seen. On the side of each abdominal segment not covered by the tegmina just back of middle is a transverse row of pits. Body always bare, only the trunk, the feet and one-half of the appendages are covered with fine hairs.

KEY TO NORTH AMERICAN GENERA OF ORGERIINI

(Based on key of Ball and Hartzell, *Annals Ent. Soc. of Amer.*, 1922)

1. Callosity behind eye; vertex elongate or angulate 2
 No callosity behind eye; vertex rounding or if elongate
 broad if seen from side 5
2. (1) Vertex elongate, with more than one-half its length
 beyond the eyes 3
 Vertex angulate, narrowing from the eyes, less than
 twice the length of the eyes *Orgerius* Stal.
3. (2) Cephalic process truncate at the extremity, five angled 4
 Cephalic process as seen from side, beak-like, the
 apex obliquely rounding from above, the lower angle
 slightly produced *Deserta* Ball
- 4 (3) Cephalic process gradually tapering as seen from top
 and side *Orgamara* Ball
 Cephalic process parallel margined; apex as seen
 from the side slightly enlarged, projecting at an an-
 gle with the vertex *Yucanda*, Ball and Hartzell
5. (1) Vertex angulate, produced in front of the eyes at
 least one-third its length 6
 Vertex broad and short, scarcely longer than its basal
 width; the lateral carinae of front closely margins
 the eye up to its juncture with the lateral margin of
 vertex 7
6. (5) Head twice the length of the eye as seen from the side
 widening toward the apex *Acinaca* Ball and Hartzell
 Eyes contiguous to pronotum, head distinctly less than
 twice the length of the eyes, as seen from the side,
 distinctly narrowing and roundingly truncate
 *Aridia* Ball and Hartzell
7. (6) Fore and middle tibia broadly foliaceous ---- *Timodema* Ball
 Tibia normal 8
8. (7) Lateral carinae of the frontal tablet uniting some
 distance below the apex of the head *Ticidia* Uhl
 Lateral carinae of the frontal tablet narrowing but not
 uniting before joining the vertex .. *Timonidia* Ball and Hartzell

ORIGINAL DESCRIPTION OF THE GENUS ORGERIUS Stal 1859

Stahl, Carolus, Freg. Eugens. Resa, Omkring; Jorden; 1851-1859

Cephalic process short, broad at the base, tapering to an angular or slightly conical point, not truncate. The lateral carinae of the front rounding into median carina at the apex of the cephalic process. Oblique carina curving upwards from the eye, pustulate below; median carina extending to the apex. Eye separated from the pronotum by a diamond-shaped callosity. The anterior margin of the lateral tablets of pronotum transverse instead of inclined posteriorly. Carinae of scutellum sharply defined. Elytra brachypterous, irregularly reticulate. Abdomen obese, oval. Rostrum equalling the abdomen or slightly beyond. Anterior femora expanded three times the width of the tibia; post tibia flattened, inclined to be serrate, the serrations crowned with six to eight black spines.

KEY TO SPECIES OF GENUS ORGERIUS

1. Hind tibia distinctly flattened basally, the heavy spines appearing as serrations; lateral margins of vertex moderately or slightly elevated; lateral shoulders of pronotum elongate, their width greater than the central disk ----- rhyparus group ---- 2
Hind tibia not modified; lateral margins of vertex conspicuously elevated; lateral shoulder of pronotum abbreviated, narrower or only equal to width of central disk ----- minor group ----- 13
2. (1) Vertex extended beyond eye a distance greater than half length of vertex; tegmina with reticulation indistinct ----- 3
Vertex extended beyond eye not over one-half the vertex length; reticulation of tegmina distinct (except in *spicatus*) ----- 4
3. (2) Vertex with lateral margins gradually narrowing, its length extended beyond eye one-fifth longer than portion between eyes, its apex about one-third of its basal width ----- *proprius* n. sp.
Vertex with lateral margins abruptly constricted beyond eyes, extended in front of eye less than above, its apex about one-fifth of its basal width -- *triquestrus* n. sp.
4. (2) Vertex broad, short, length only a little longer than width, extended beyond eye distinctly less than half of its length, lateral margins scarcely elevated ----- 5
Vertex extended beyond eye approximately one-half or more than its greatest length; lateral margins elevated ---- 7
5. (4) Vertex narrowed at apex, width at apex about one-fifth of base ----- *pajaronius* Ball and Hartzell

- Vertex not as acutely narrowed, apical width more than one-fifth of base ----- 6
6. (5) Apex width one-fourth of base; pronotum not deeply concave behind eye, lateral margins gradually sloping, lateral shoulder equal to width of median disk ----- *bucculentus* n. sp.
- Apex width one-third or more of base, pronotum deeply concave behind eye, lateral margins angulate, lateral shoulder wider than disk between carinae ----- *bilobatus* n. sp.
7. (4) Vertex slender, extended in front of eye a distance equal to three-fifths of its length ----- *junceus* n. sp.
- Vertex short, extended in front of eye approximately one-half of total length ----- 8
8. (7) A large slender species, vertex width a little over half its length, basal lateral margins sub-parallel ----- *concordus* Ball and Hartzell
- Smaller, obese species, vertex heart-shaped, wider and with lateral margins outwardly curved ----- 9
9. (8) Vertex more acutely narrowed, its width at apex one-fourth of basal width ----- *rhyparus* Stal
- Vertex broader, tip not narrowed, its apical width one-third of basal width ----- 12
12. (9) Vertex longer, width five-eighths of length, lateral margins somewhat constricted before apex, reticulation of tegmina very indistinct ----- *spicatus* n. sp.
- Vertex broad, width three-fourths of length, lateral margins outwardly rounded, reticulation prominent ----- *disgregus* n. sp.
13. (1) Lateral margins of vertex foliaceous, either bicornate or constricted before apex; lateral shoulder of pronotum equal or very slightly narrower than central disk ----- 14
- Lateral margins of vertex little if any foliaceous, not constricted or bicornate; lateral shoulder distinctly narrower than central disk ----- 15
14. (3) Vertex heart-shaped, lateral margins outwardly curved forming horns mesad of eye, greatest width four-fifths length; tegmina with longitudinal veins indistinct ----- *bicornis* n. sp.
- Vertex longer than above, acutely pointed, constricted just before apex, greatest width three-fifths length; tegmina with longitudinal veins distinct ----- *foliatus* n. sp.
15. (13) Vertex with apex moderately pointed, greatest width about two-thirds length; tegmina with reticulation very indistinct ----- *ventosus* Ball and Hartzell

Vertex slightly broader than above, greatest width about three-fourths length; tegmina with reticulation distinct ----- minor Ball

Orgerius rhyparus Stal 1859

Original Description

Orgerius rhyparus Stal Freg. Eugen. Resa Omkring Jorden 1851-1859

Dilute fusco-testaceous, maculis margines verticis parvis maculisque obsoletis inter carinas frontis fuscescentibus. Male Long. 5, lat. 3.5 millim. Tab. III p. 199 Magn. Auct; ♀ a magn. nat; ♀ b caput ab antico visum.

Patria, Cal. (San Francisco)

Author's Description

Size: Length from tip of head to tip of abdomen, male 5.0 mm. to 5.2 mm.; female 5.6 mm. to 6.2 mm. Greatest body width, male 2.8 mm. to 3.2 mm.; female 3.2 mm. to 3.7 mm.

Color: Color variable, a few specimens uniform rufous, the majority testaceous to fuscous with small dark spots. Lateral margins of vertex dotted with larger spots. Frons lighter, speckled uniformly with minute dots. Anteclypeus paler, frequently orange; dots paler or lacking. Postclypeus darker and heavily dotted. Pronotum fuscous with a row of spots around anterior margin; the reflexed ventral flap visible below showing the posterior half pale and without spots, anterior to which is a broad dark band, heavily speckled. Mesonotum fuscous, sometimes lighter than pronotum, uniformly spotted. Tegmina variable, in rufous specimens a reddish-tan, in the darker specimens sometimes deep fuscous, in others with inner half only darker. Abdomen fuscous uniformly speckled. Legs heavily speckled. Tarsi of all legs and spines on hind tibiae black. Tip of rostrum brown.

Structural Details: A median-sized obese species with a heart-shaped vertex, extending one-half of its length beyond eye and its width about five-eighths of its length. Vertex acutely narrowed at tip, parallel-margined or widening only slightly near the base, the lateral margins strongly foliaceous and elevated. Frons moderately long, only about one-fourth longer than greatest width of head across eyes. Tegmina, length and width equal, wing reticulation fine and uniform so that longitudinal veins are inconspicuous. Lateral lobe of ninth abdominal segment of the male, length and width equal, its dorsal margin a straight line terminating in a sharp arc then rounding to meet the eighth abdominal segment, this ventral margin equal in length to length of harpago showing beyond its tip.

Male Genitalia: Anal flap (tenth abdominal segment) narrow at base, the margin diverging to one-fourth distance from base, then running parallel and converging to form a broad, truncate tip. Tip

of stylus knob-like.

Harpago, as viewed from a flattened lateral view ovate with a slender, sharply pointed, cephalad-curving hook at middle of dorsal margin, just cephalad of which is another external hook which curves downward and slightly cephalad.

The aedeagal structure is complex and better understood by studying the diagram. Ventrad the theca is longer and divides apically into four frilled lobes which are shorter than in other species, dorsad the apical margin is bilobed. The only portions of the aedeagus showing are the tips of the long slender aedeagal hooks which become more sclerotized from the point of curving cephalad, while the basal half of the exposed hook is membranous.

Comparative Notes: The genus *Orgerius* in North America seems to fall roughly into three groups of species. The species making up the so-called *rhyparus* group are as follows: *rhyparus*, *junceus*, *concordus*, *pajaronius*, *bucculentus*, *bilobatus* and *disgregus*. The structural differences between these species are not striking for any one character but by summarizing the combined characteristics it is possible to separate them. The size of the vertex varies as follows: in *bucculentus* and *bilobatus* it is shorter than in any of the others, being only a trifle longer than wide and its margins are scarcely elevated; in *junceus* it is the longest, where it is a little greater than twice its width; in *concordus* its width is seven-tenths of its length; in *rhyparus*, *disgregus* and *pajaronius* it can be described as being heart-shaped and of moderate length, with their widths respectively five-eighths, three-fourths and eleven-sixteenths of their lengths. The general shape of the body varies with *bucculentus* being a short, broad and chubby species, *concordus* a large, slender ovate species, *junceus* slender but shorter than *concordus*, and *rhyparus*, *disgregus*, *bilobatus* and *pajaronius* moderately obese. Another character of importance is the lateral lobe of the ninth abdominal segment of the male. In *rhyparus* this lobe is smaller and more pointed than in the others although it is more closely related to *concordus* than the others. But these two species are easily distinguished by the larger size and longer vertex of *concordus*. A study of the diagram will indicate differences in these lateral lobes which are difficult to describe. These seven species also are distinguished by the male genitalia and again the differences are more readily understood by examining the drawings.

Distribution: Type locality of the species, San Francisco, California. One female from this locality was loaned for study by the National Museum and a rufous male specimen from Colfax, California. A series of five females and two males from Pacific, California, one female and two males from Towie, California, are in the Snow Entomological Collection.

Orgerius rhyparus var. *clitellus* Ball and Hartzell 1922

Original Description

Resembling var. *rhyparus*, large, obese forms with a testaceous color sharply set off by the shining black elytra. Described from three examples from Santa Margarita, Chico and Colfax, California. This variety was found with the preceding (*rhyparus*) and appears to be a still rarer adaptation to these dry, hot situations.

Comparative Notes: This variety does not seem to be valid in that the same coloring which is supposed to distinguish it has appeared in numerous other species, namely: *bilobatus*, *concordus*, *disgregus*, *bucculentus* and *pajaronius*.

Orgerius proprius n. sp.

Size: Length of body from tip of head to tip of abdomen, male 5.0 mm.; female 5.5 mm. Greatest body width, male 2.6 mm.; female 2.8 mm.

Color: Uniform testaceous with small but conspicuous dark spots. Vertex with two oblong brown spots near base, and with clusters of spots on lateral carinae especially near tip and others evenly scattered over disk. Frons with six light fuscous transverse, uniformly speckled bands, the four posterior ones broad and the two at apex narrower. Postclypeus light orange, tip heavily spotted, anteclypeus with three heavily spotted bands. Anterior area of pronotal flap darkened, heavily spotted, followed by an orange tinted light transverse band, the posterior margin again lightly speckled. Mesonotum evenly speckled. Posterior margin of tegmina with a row of large black spots, cells of tegmina with veins margined with uniform round dots. Abdomen evenly speckled. Legs heavily speckled. Tarsi of all legs brown. Spines on hind tibia black. Tip of rostrum black.

Structural Details: A slender species with a long vertex, less acutely pointed than in *triquestrus* but more acute than in some species. Vertex width a little over half its length, lateral margins moderately elevated, gradually sloping to apex, two depressed oblong spots between eyes. Frons elongate, about one-third longer than width of head across eyes. Tegmina with longitudinal veins and reticulation moderately distinct, cells fairly large. Body slender, its width approximately half the length of the body. Lateral lobe of ninth abdominal segment of male pointed, the dorsal margin convex thru middle then becoming slightly concave, tip a sharp arc and ventral margin slightly concave, the length of the harpago exposed beyond its tip about one-third of the latter. From a dorsal view these lobes are more distinct than in any other species and overlap the anal flap.

Male Genitalia: Anal flap (tenth abdominal segment) narrowed

at base, basal third with lateral margins parallel, then constricted through middle, again diverging through apical fourth, finally rounding to the narrow, round apex.

Harpago, as viewed from a flattened lateral view ovate with a slender, sharply pointed, cephalad-curving hook at middle of dorsal margin, just cephalad of which is a second external recurved hook.

Aedeagus at base a rectangular sclerotized plate, bilobed at base and bearing two large, sclerotized rods which run caudad, each of which terminates in a recurved arm, composed of a large membranous ball-shaped structure, partially covered by the theca, then becoming sclerotized, constricted for a short distance, again bulging slightly before the sharp finely pointed apex. On the dorsal side the posterior margin of the theca is straight. Ventrad the theca is longer and deeply bilobed.

Comparative Notes: This species in color and general body characteristics resembles the rhyparus group instead of the minor group. Together with triquestrus and spicatus it forms a small subgroup based on the lobe of the ninth abdominal segment of the male. For comparison of these three species see notes under the description of triquestrus.

From the rhyparus group proprius is distinguished by the much longer vertex with less elevated margins and the less distinct reticulation of the tegmina.

Location of Types and Distribution: Described from male holotype and female allotype, collected by R. H. Beamer from Mint Canyon, California, on July 6, 1933. Two male paratypes same data. One male paratype collected at Lompoc, California, by R. L. Sailer, August 7, 1938. These types are in the Snow Entomological Collection, University of Kansas.

Orgerius triquetrus n. sp.

Size: Length of body from tip of head to tip of abdomen, male 4.6 mm. to 4.9 mm.; female 4.5 to 5.0 mm. Greatest body width, male 2.5 mm. to 2.6 mm; female 3.0 mm. to 3.5 mm.

Color: Uniform rufous-tan with minute inconspicuous dark spots. Female slightly darker. Vertex with lateral margins outlined with clusters of speckles, the apical two pairs fused into a more pronounced solid spot. Frons cream-colored, speckles scattered or about seven partially speckled narrow bands indicated, these bands more pronounced at base and apex. Postclypeus light orange with faintly oblique lines; carinae and anteclypeus more speckled. Pronotum with carinae and lateral margins outlined with dark spots. Mesonotum somewhat more rufous. Longitudinal veins yellow, cells more or less fuscous with minute faint speckles, cells along posterior

margin brownish-black. Abdomen rufous-tan, a few scattered fuscous speckles, concentrated along posterior margin of the segments. Legs uniform rufous, heavily speckled, tip of spines on hind tibia black. Tarsi of all legs dark brown. Tip of rostrum dark brown.

Structural Details: A small slender species, characterized by a pronounced triangular vertex with apex forming an acute angle. Width of vertex a little more than one-half its length, lateral margins gradually elevated, median carina prominent. Frons elongate, narrower, about one-third longer than width of head across eyes. Tegmina varying from the *rhyparus* group by having thick longitudinal veins with the reticulations between faint, cells indistinct. General contour of body more ovate and slender than in some species, width of abdomen slightly less than one-half total length of body. Lateral lobe of ninth segment of male with length and width subequal, forming a sub-triangular plate with ventral margin at a right angle to body, dorsal margin roundingly curved to meet the ventral one just anterior to apex of anal flap, the length of the harpago showing beyond its tip only one-fourth of the ventral margin.

Male Genitalia: Anal flap (tenth abdominal segment) broad at base, parallel-margined for half its length, then converging suddenly in line with tip of stylus, then broadening before its regularly rounded apex. Stylus elongated, finger-like with roundingly pointed apex.

The harpago widely different from the *rhyparus* group, the ventral margin a smooth rounded curve, the basal half of dorsal margin reflexed, and bearing the two customary hooks, one located at the end of the reflexed margin and the other halfway between, the apices of both directed ventrad, the apical half of dorsal margin deeply arcuated thus narrowing the apical region to half the width at base.

The aedeagus is in the form of a sclerotized basal plate, somewhat U-shaped, the arms of the U curved inwardly, two slender sclerotized rods attached apically. The aedeagal rods hidden for most of their length by the thecal sleeve, the apical portion exposed beyond the thecal margin recurved, the middle region membranous and bulbous, beyond this formed into a sclerotized apex finely bifurcate at tip. On the dorsal side of the theca the apical margin is shallowly scalloped, ending just anterior to the membranous portion of the aedeagus. Ventrad the theca runs farther down terminating in a lobate-shaped curtain with frilled outer margin whose inner margin is split to a point somewhat above the membranous portion of the aedeagus.

(To be concluded in July issue)