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ROLSTONOCORIS, A NEW GENUS OF NEOTROPICAL MIRIDAE (HETEROPTERA: ORTHOTYLINAE)

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Abstract.—A mirid genus, *Rolstonocoris*, and four species are all described from Mexico as new. The type species is *R. arteagensis* n. sp. from the state of Michoacan. Additional species are *R. totolapanus* n. sp. from Oaxaca, *R. xochipalensis* n. sp. from Guerrero and *R. colimai* n. sp. from Colima.

Southern Mexico contains many endemic genera and species of Miridae especially in the subfamily Orthotylinae. This particular region begins in the transverse volcanic belt and extends south and southeastward to the Isthmus of Tehuantepec. The area is recognized as a region of significant biodiversity (Ramamoorthy et al., 1993). All of the material used in this study comes from this region. Specimens of the *Rolstonocoris* were taken at lower and intermediate altitudes.

All measurements are in millimeters.

Rolstonocoris, new genus

Description. Orthotylinae, Orthotylini. Small (2.60–3.64), body shining, vertex carinate, second antennal segment incrassate apically, costal margin of wing turned somewhat downward and hemelytron more or less hyaline.

Head smooth, shining, strongly declivous, almost totally glabrous dorsally and with pale setae ventrally; vertex slightly rounded, more so between antennal sockets, posterior margin carinate; clypeus enlarged and appearing somewhat bulbous, weakly delimited from frons; eyes located at rear of head; each antennal socket touching adjacent eye; antennal segment I shorter than vertex width; segment II incrassate apically in both sexes; relative lengths of 1–4 from shortest to longest 1–4–3–2, vestiture semierect, not longer than diameter of segment to which attached; rostrum reaching midcoxae and frequently hind coxae. Pronotum smooth, occasionally with minute shallow depressions but not clearly definable punctures, shining, almost completely glabrous; collar lacking; calli weakly delimited; lateral margins rounded, posterior margin more or less straight; covering mesoscutum. Scutellum almost flat, glabrous, shining. Hemelytron smooth, shining, somewhat hyaline, almost glabrous with a few scattered erect hairs, costal margin turned somewhat downward; embolium clearly delimited almost to apex; cuneus as wide as long or longer than wide; membrane conspicuously fuscous along margin; each tibia with several longitudinal rows of semierect setae subequal in length to diameter of tibia.

Type species, *Rolstonocoris arteagensis*, new species

This genus is named in honor of a long time friend, Larry H. Rolston.

The color pattern of the adults, although variable, is consistent among the *Rolstonocoris* species and therefore is of little value in the separation or identification of the species.

The genus sharing the most characters with *Rolstonocoris* is *Fulgenticapsus* Schaffner (1979) which occurs in the northeastern region of the state of Oaxaca and the adjacent area of Puebla. Species of both genera are relatively small in size and share the same body shape characterized by having the hemelytron curving downward along the costal margin making the dorsal surface of the insect appear somewhat rounded laterally. Members of both genera are shining and are usually sparsely setose. In addition, both have a sharply declivent head; clypeus weakly divided from frons, posterior margin of the vertex carinate; surface of the pronotum smooth and the scutellum is flat and prominent. Members of both genera have processes on the male genital capsule.

The clypeus of *Rolstonocoris* species is more prominent than that of *Fulgenticapsus* species and the second antennal segment is relatively short and clavate whereas it is longer and linear in *Fulgenticapsus*. The right male paramere of *Rolstonocoris* species is unusually elongate although usually curved.

Species of *Rolstonocoris* can be separated easily by the shape of projections on the male genital capsule, shape of the parameres, especially the right one and by the vesica. Females require dissection and the posterior wall and rings offer excellent characters for separation of the species. An unnamed structure (Figs. 25–28) located at the base of the rami of the ovipositer is also species specific. The structure is lightly sclerotized and considered here to be a gland.

Rolstonocoris arteagensis, new species
(Figs. 1–7, 25, 26)

Male (measurements taken from 20 specimens; those of holotype given first followed in parentheses by average and ranges): Length, 3.26 (3.25, 3.10–3.40); width, 1.44 (1.43, 1.38–1.48). Head length, 0.20 (0.20, 0.16–0.22); width through eyes, 0.74 (0.76, 0.74–0.78); vertex width, 0.34 (0.32, 0.30–0.34). Length of antennal segment I, 0.22 (0.22, 0.20–0.24); II, 0.94 (0.93, 0.88–1.00); III, 0.70 (0.69, 0.66–0.78); IV, 0.46 (0.45, 0.42–0.48). Pronotal length, 0.68 (0.69, 0.66–0.72); width across base, 1.14 (1.14, 1.10–1.20). Cuneal length, 0.58 (0.55, 0.50–0.58); width across base, 0.48 (0.47, 0.44–0.48).

General coloration yellowish brown with fuscous areas and usually red markings. Head yellowish brown, pale beneath; clypeus shining black; jugum and lorum occasionally tinted reddish orange; antennal segment I pale with fuscous or reddish fuscous ring at apex, segment II pale at base becoming fuscous and then almost black apically, segments III and IV pale, light fuscous apically; rostrum pale, fuscous at apex; labrum black. Pronotum uniformly yellowish brown, frequently pale along posterior margin. Scutellum uniformly yellowish brown. Hemelytron yellowish brown with variously developed reddish line paralleling area of radial vein; costal margin dark fuscous, claval suture usually dark fuscous at least in part and area between suture and radial vein light to dark fuscous with coloration extending onto largest areolar cell; membrane dark fuscous along margins, lighter fuscous centrally. Underside of thorax light fuscous to fuscous ventrally. Procoxae uniformly pale,

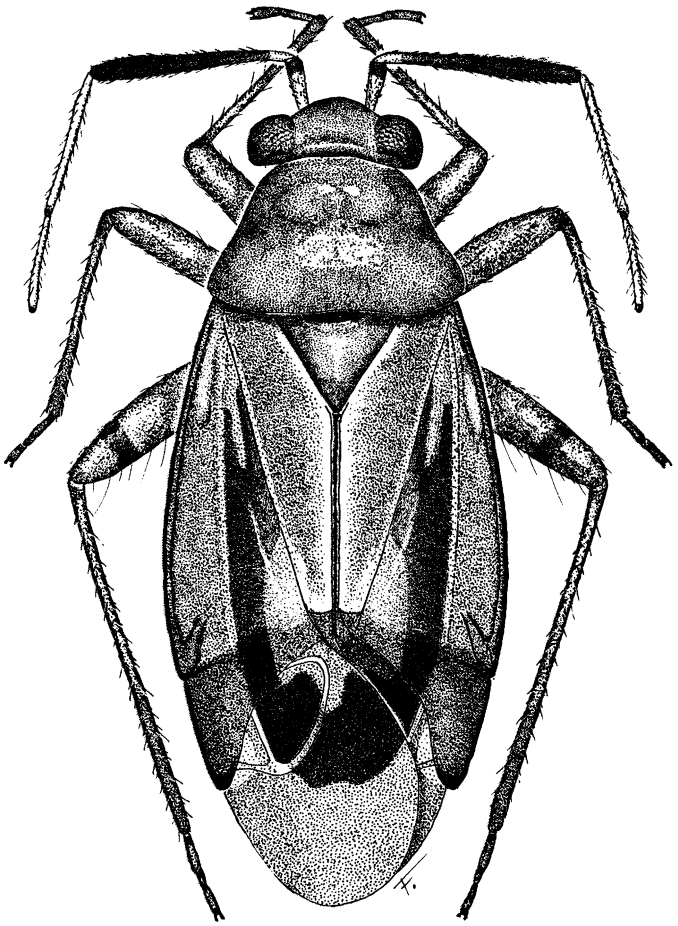
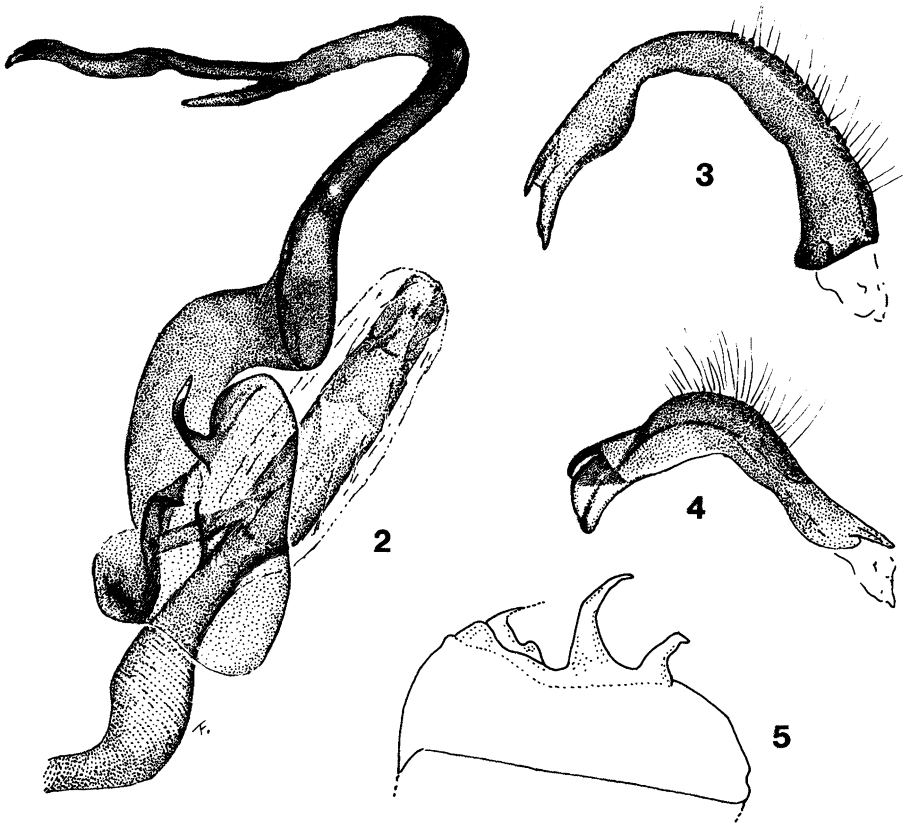


Fig. 1. *Rolstonocoris arteagensis*, male, dorsal habitus.

meso and metacoxae fuscous basally; femora pale, usually with irregular fuscous or red spot on apical half; each tibia pale sometimes with faint red marking basally; tarsi pale, becoming light fuscous at apices. Abdomen fuscous to almost black, genital capsule lighter.

Genitalia as figured (Figs. 2–5); posterio-dorsal margin of genital capsule with two processes, mesad process longest; right paramere curved, bifurcate at apex.

Female (measurements taken from 20 specimens; those of allotype given first followed in parentheses by average and ranges): Length, 3.54 (3.47, 3.24–3.64); width, 1.52 (1.53, 1.46–1.60). Head length, 0.22 (0.21, 0.20–0.26); width through eyes, 0.76 (0.77, 0.70–0.82); vertex width, 0.34 (0.35, 0.34–0.36). Length of antennal segment I, 0.22 (0.23, 0.20–0.28); II, 0.94 (0.94, 0.80–0.98); III, 0.70 (0.69, 0.60–0.72); IV, 0.42 (0.44, 0.42–0.46). Pronotal length, 0.70 (0.72, 0.62–0.78); width



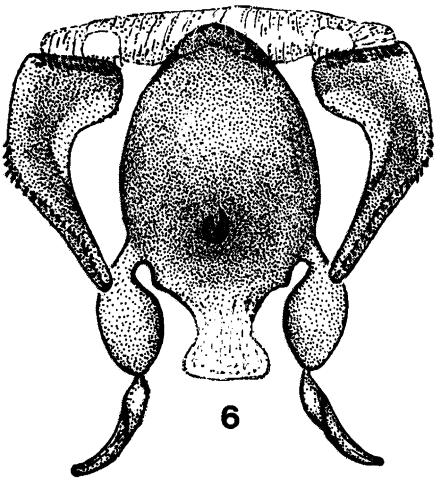
Figs. 2–5. *Rolstonocoris arteagensis,* male genitalia. 2. Vesica. 3. Right paramere, lateral view. 4. Left paramere, lateral view. 5. Genital capsule, dorsal view.

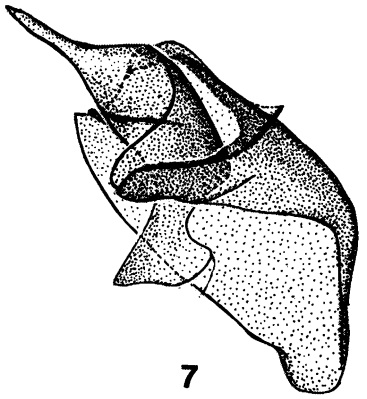
across base, 1.18 (1.18, 1.06–1.26). Cuneal length, 0.54 (0.54, 0.48–0.60); width across base, 0.48 (0.47, 0.44–0.50).

Similar to male in color and form; genitalia figured (Figs. 6, 7, 25, 26).

Holotype male: MEXICO: Michoacan, 18.8 mi ne. Arteaga, July 31, 1988, 3,000′, Ferreira, Schaffner. Deposited in the collection of the Instituto de Biologia, Universidad Nacional Autonoma de Mexico, Mexico City, D. F. Allotype female, same data and depository as holotype. Paratypes: male, 6 females, same data as holotype; 20 males, 32 females, MEXICO: Michoacan, 22 miles ne. Arteaga, July 31, 1988, 3,100′, Ferreira, Schaffner; 19 males, 12 females, MEXICO: Michoacan, 16.3 miles north of Nueva Italia, July 31, 1988, Ferreira, Schaffner. Deposited in the collections of U. N. A. M. and Texas A&M University.

This is the largest species of the genus. All specimens available for study were 3.10 or more in length., the average being 3.26. The average length of the males of the other three species is less than 3.00 although a single specimen of *R. totolapanus* measured 3.00. The females are larger than the males of the species. The average





Figs. 6, 7. *Rolstonocoris arteagensis,* female genitalia. 6. Dorsal wall. 7. Right sclerotized ring, lateral view.

length of *R. arteagensis* is 3.46 contrasted with 3.04 for both *R. colimai* and *R. totolapanus.*

The second antennal segment of the male is relatively longer than in other species and is 2.9 times as long as the vertex width. The closest ratio is that of *R. colimai* which is 2.7 longer than the vertex. In the case of the females, the second antennal segment is relatively shorter than that of the male. The segment is 2.7 times longer than the vertex for *R. arteagensis* and only 2.4 times as long in the case of *R. colimai.*

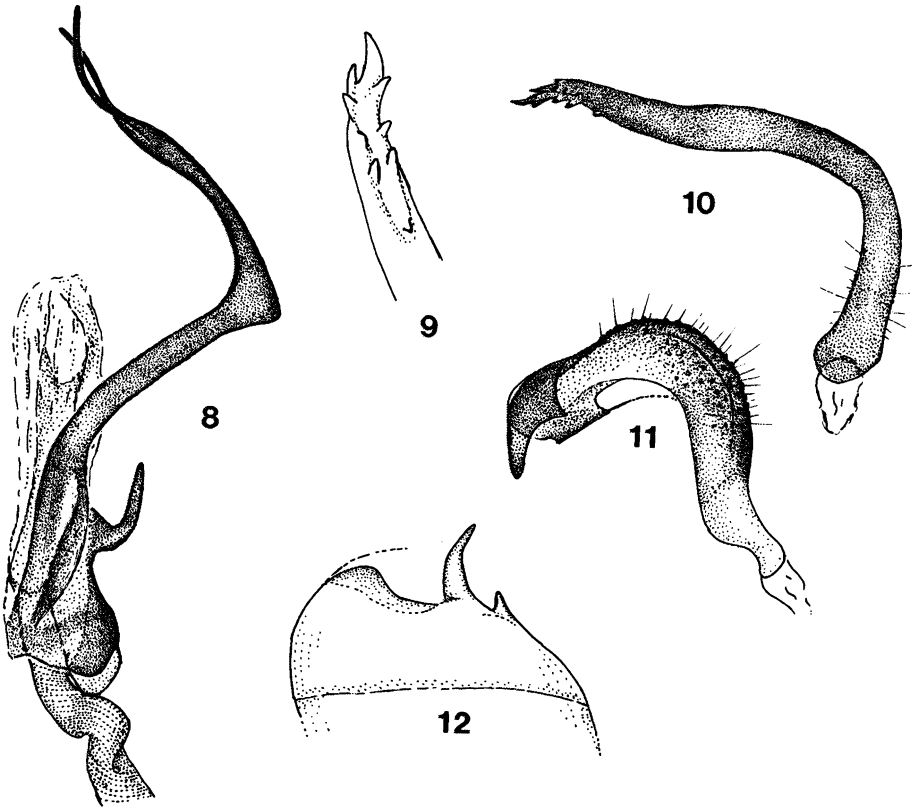
All specimens were taken from a species of plant belonging to the genus *Croton* L. (Euphorbiaceae) which was growing in pastured areas.

The species is named after the town located in the state of Michoacan near which the specimens were collected.

Rolstonocoris totolapanus, new species
(Figs. 8–14, 27)

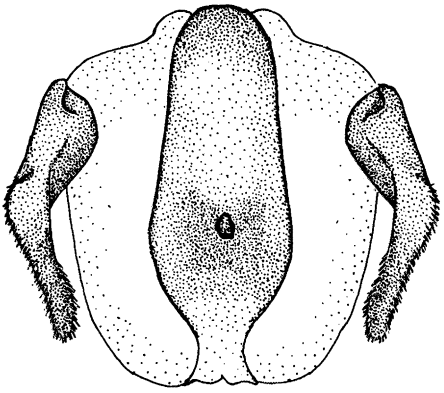
Male (measurements taken from 18 specimens; those of holotype given first followed in parentheses by average and ranges): Length, 2.74 (2.80, 2.64–3.00); width, 1.40 (1.39, 1.30–1.52). Head length, 0.18 (0.18, 0.16–0.22); width through eyes, 0.72 (0.71, 0.68–0.74); vertex width, 0.34 (0.33, 0.32–0.34). Length of antennal segment I, 0.20 (0.20, 0.18–0.22); II, 0.80 (0.77, 0.70–0.82); III, 0.52 (0.54, 0.48–0.60); IV, 0.40 (0.35, 0.28–0.40). Pronotal length, 0.64 (0.62, 0.60–0.64); width across base, 1.14 (1.10, 1.02–1.18). Cuneal length, 0.48 (0.47, 0.44–0.50); width across base, 0.48 (0.48, 0.44–0.50).

General coloration orange to reddish orange with fuscous areas and red markings. Head orange or reddish orange, paler beneath; clypeus shining black; jugum and lorum reddish; antennal segment I pale with fuscous or reddish fuscous ring at apex, segment II variable, pale at base becoming dark fuscous apically, frequently with



Figs. 8–12. *Rolstonocoris totolapanus,* male genitalia. 8. Vesica. 9. Apex of right paramere, ventral view. 10. Right paramere, lateral view. 11. Left paramere, lateral view. 12. Genital capsule, dorsal view.

reddish coloration before becoming dark fuscous, segments III and IV pale, fuscous apically; rostrum pale, fuscous at apex; labrum black. Pronotum uniformly orange to reddish orange, frequently pale along posterior margin. Scutellum uniformly orange or reddish orange. Hemelytron more or less orange with reddish line paralleling area of radial vein; costal margin dark fuscous and usually a variable region on and paralleling claval suture light fuscous to fuscous, with coloration extending onto largest areolar cell; membrane light fuscous with outer margin always darker; cuneus orange to reddish orange usually slightly darker at apex. Underside reddish orange with pleural and sternal areas occasionally tinged with fuscous. Procoxae uniformly pale, meso and metacoxae frequently light fuscous at base, remainder pale; femora pale basally becoming light fuscous apically, each usually with an elongate reddish spot on apical half; tibiae uniformly pale or light fuscous basally, each often with reddish streak on outer margin near base; tarsi pale becoming light fuscous at apices. Underside of abdomen orange or reddish orange to fuscous, genital capsule lighter.



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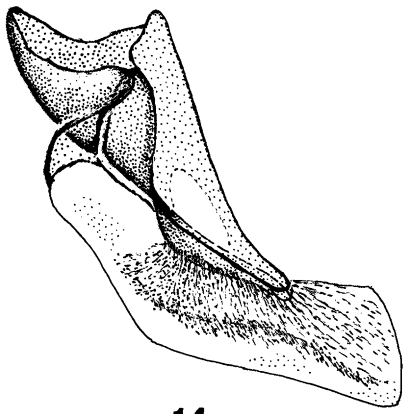

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Figs. 13, 14. *Rolstonocoris totolapanus,* female genitalia. 13. Dorsal wall. 14. Right sclerotized ring, lateral view.

Genitalia as figured (Figs. 8–12); posterio-dorsal margin of genital capsule with one long and one short process; right paramere dentate at apex.

Female (measurements taken from 17 specimens; those of allotype given first followed in parentheses by average and ranges): Length, 3.10 (3.05, 2.86–3.22); width, 1.36 (1.41, 1.36–1.50). Head length, 0.20 (0.19, 0.16–0.20); width through eyes, 0.70 (0.72, 0.70–0.74); vertex width, 0.34 (0.36, 0.32–0.40). Length of antennal segment I, 0.20 (0.20, 0.18–0.22); II, 0.78 (0.79, 0.72–0.84); III, 0.54 (0.57, 0.52–0.58); IV, 0.40 (0.37, 0.34–0.40). Pronotal length, 0.60 (0.61, 0.56–0.64); width across base, 1.06 (1.10, 1.04–1.14). Cuneal length, 0.48 (0.47, 0.42–0.50); width across base, 0.46 (0.47, 0.44–0.50).

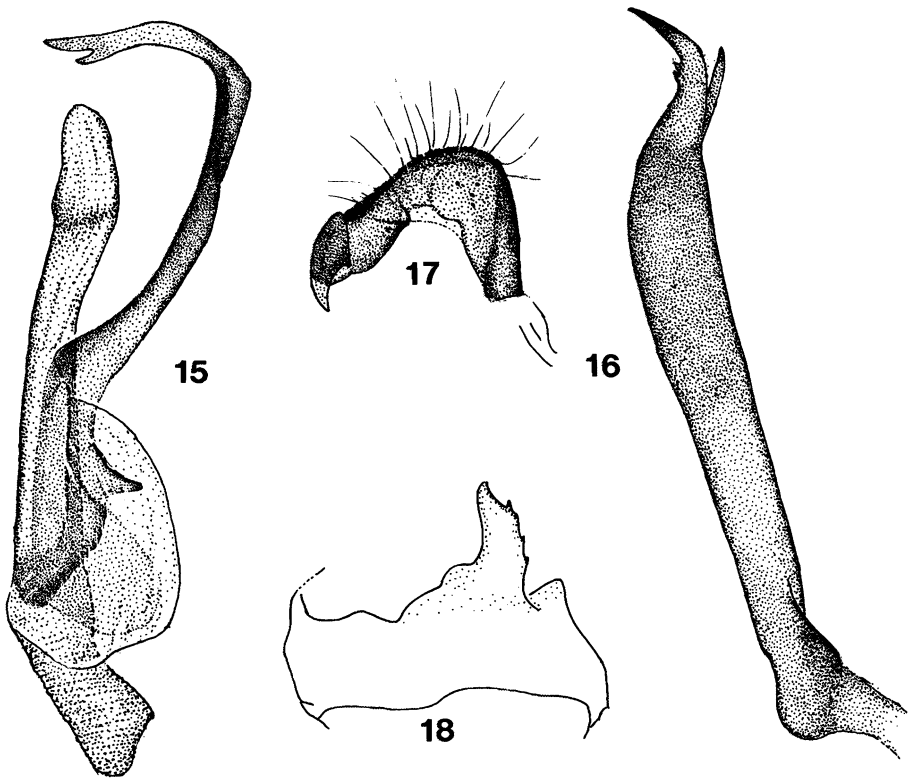
Similar to male in color and form; genitalia figured (Figs. 13, 14, 27).

Holotype male: MEXICO: Oaxaca, 10 mi. e. Totolapan, elev. 4,000 ft, July 20, 1987, Kovarik, Schaffner. Deposited in the collection of the Instituto de Biologia, Universidad Nacional Autonoma de Mexico, Mexico City, D. F. Allotype female, same data and depository as holotype. Paratypes: 14 males, 13 females, same data as holotype; male, MEXICO: Oaxaca, 2.1 mi. nw Totolapan, July 11–17, 1981, Bogar, Schaffner, Friedlander; female, 8 mi e. Totolapan, Kovarik, Schaffner; male, female, MEXICO: Oaxaca, 1 mi se. Rio Hondo, July 22, 1974, Clark, Murray, Ashe, Schaffner; male, female, MEXICO: Puebla, 5 mi southeast of Izucar de Matamoros, July 20, 1984, Carroll, Schaffner, Friedlander. Deposited in the collections of U. N. A. M. and Texas A&M University.

This species is named after the town located in the state of Oaxaca near which the specimens were collected.

Rolstonocoris xochipalensis, new species
(Figs. 15–18)

Male (measurements taken from three specimens; those of holotype given first followed in parentheses by average and ranges): Length, 2.70 (2.82, 2.70–2.94);



Figs. 15–18. *Rolstonocoris xochipalensis,* male genitalia. 15. Vesica. 16. Right paramere, lateral view. 17. Left paramere, lateral view. 18. Genital capsule, dorsal view.

width, 1.48 (1.49, 1.44–1.54). Head length, 0.16 (0.16, 0.14–0.16); width through eyes, 0.74 (0.72, 0.70–0.74); vertex width, 0.36 (0.34, 0.32–0.36). Length of antennal segment I, 0.20 (0.20, 0.20–0.22); II, 0.84 (0.81, 0.78–0.84); III, 0.56 (0.57, 0.56–0.60); IV, 0.32 (0.35, 0.32–0.38). Pronotal length, 0.68 (0.66, 0.64–0.68); width across base, 1.20 (1.19, 1.18–1.20). Cuneal length, 0.52 (0.53, 0.52–0.54); width across base, 0.44 (0.45, 0.44–0.46).

General coloration orange to reddish orange with fuscous areas and red markings. Head orange to reddish orange, paler beneath; clypeus shining black; jugum and lorum reddish; antennal segment I pale with fuscous or reddish fuscous ring at apex, segment II variable, pale basally and becoming dark fuscous apically, segments III and IV pale, light fuscous apically; rostrum pale with basal area of segment I and apex of rostrum fuscous; labrum black. Pronotum uniformly orange to reddish orange, posterior margin narrowly pale or white. Scutellum uniformly orange to reddish orange. Hemelytron orange to reddish orange especially basally, remainder pale, with reddish line paralleling radial vein; costal margin fuscous, claval suture in part fuscous and with longitudinal fuscous line or area between suture and radial vein

extending onto largest areolar cell; membrane dark fuscous along margins, lighter fuscous centrally. Underside of thorax reddish orange becoming fuscous ventrally. Procoxae uniformly pale, meso and metacoxae fuscous basally; femora pale, each with irregular fuscous or red spot on apical half; tibiae pale, each with faint red marking basally. Abdomen yellowish brown to fuscous, usually darker basally.

Genitalia as figured (Figs. 15–18); posterio-dorsal margin of genital capsule with broad irregular projection instead of process; right paramere almost straight, bifurcate at apex.

Female unknown.

Holotype male: MEXICO: Guerrero, 6 miles east of Xochipala, July 13, 1985, Jones, Schaffner. Deposited in the collection of the Instituto de Biologia, Universidad Nacional Autonoma de Mexico, Mexico City, D. F. Paratypes: 2 males, same data as holotype. Deposited in the collection of Texas A&M University.

The species is named after the town located in the state of Guerrero near which the specimens were collected.

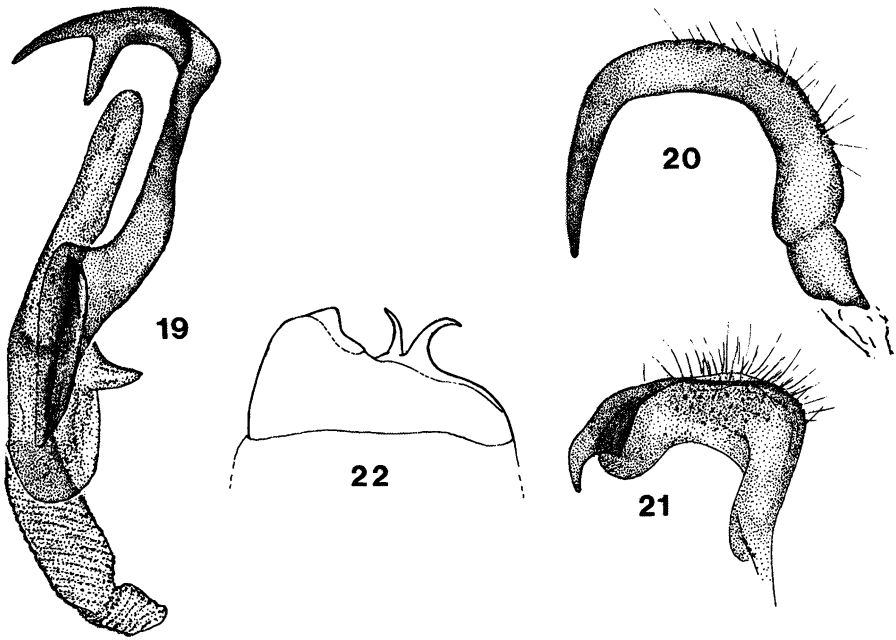
Rolstonocoris colimai, new species
(Figs. 19–24, 28)

Male (measurements taken from nine specimens; those of holotype given first followed in parentheses by average and ranges): Length, 2.68 (2.70, 2.60–2.86); width, 1.36 (1.32, 1.26–1.36). Head length, 0.14 (0.16, 0.14–0.20); width through eyes, 0.74 (0.72, 0.68–0.74); vertex width, 0.32 (all). Length of antennal segment I, 0.20 (0.19, 0.18–0.20); II, 0.86 (0.81, 0.78–0.86); III, 0.60 (0.62, 0.56–0.68); IV, 0.36 (0.38, 0.32–0.40). Pronotal length, 0.66 (0.62, 0.60–0.66); width across base, 1.10 (1.06, 1.02–1.10). Cuneal length, 0.46 (0.46, 0.44–0.48); width across base, 0.44 (0.42, 0.40–0.44).

General coloration yellowish brown to orange with fuscous areas and red markings. Head yellowish brown, slightly paler beneath; clypeus shining dark fuscous to black; jugum and lorum usually with reddish coloration; antennal segment I pale with reddish fuscous to fuscous ring at apex, segment II pale basally becoming dark fuscous apically, segments III and IV pale, light fuscous apically; rostrum pale, fuscous at apex; labrum black. Pronotum yellowish brown to orange, posterior margin pale to white. Scutellum uniformly yellowish brown to orange. Hemelytron yellowish brown to orange, usually with reddish area paralleling radial vein; costal margin of embolium fuscous, claval suture in part fuscous and with longitudinal line between suture and radial vein extending onto largest areolar cell, clavus sometimes tinged with fuscous; membrane darker fuscous along margins, lighter fuscous centrally. Underside of thorax light fuscous to yellowish brown. Procoxae uniformly pale, meso and metacoxae fuscous basally; femora pale basally becoming light fuscous apically, each with elongate reddish spot on apical half; tibiae pale with reddish markings near base; tarsi pale becoming light fuscous at apices. Abdomen reddish brown to dark fuscous, genital chamber lighter yellowish brown.

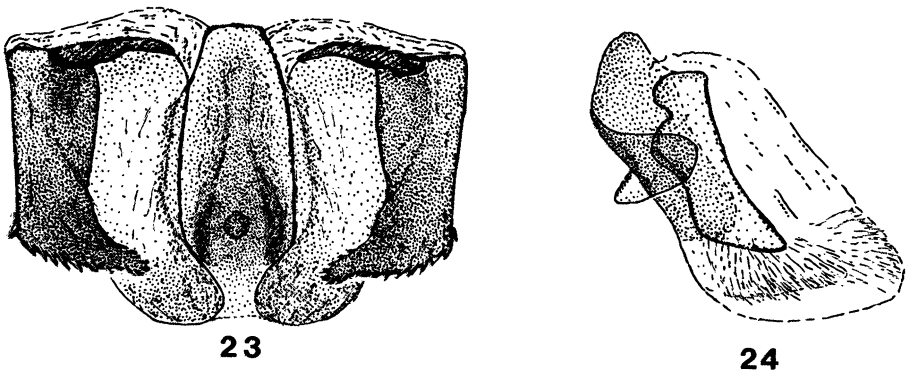
Genitalia as figured (Figs. 19–22); posterio-dorsal margin of genital capsule with two processes of about equal length; right paramere curved, apex pointed.

Female (measurements taken from seven specimens; those of allotype given first followed in parentheses by average and ranges): Length, 2.96 (3.04, 2.88–3.20);

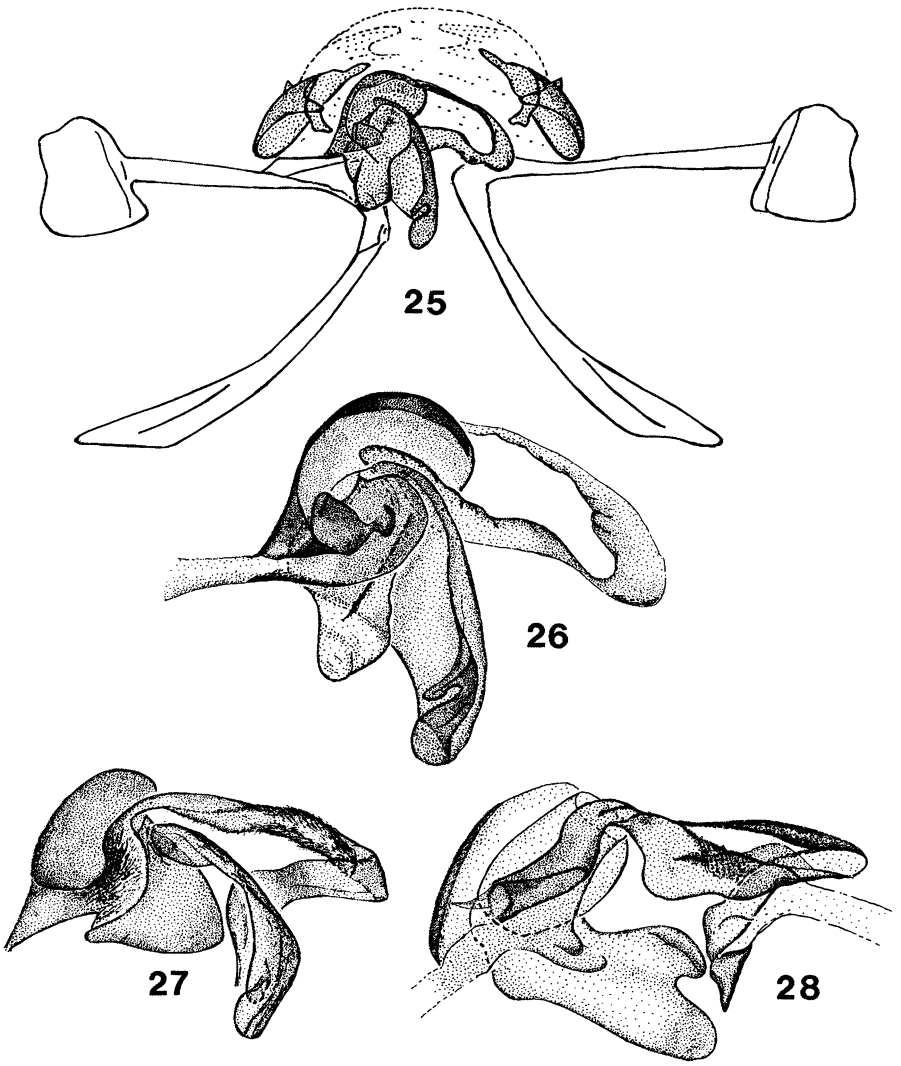


Figs. 19–22. *Rolstonocoris colimai,* male genitalia. 19. Vesica. 20. Right paramere, lateral view. 21. Left paramere, lateral view. 22. Genital capsule, dorsal view.

width, 1.44 (1.44, 1.36–1.54). Head length, 0.14 (0.16, 0.14–0.22); width through eyes, 0.72 (0.74, 0.72–0.76); vertex width, 0.34 (0.34, 0.34–0.36). Length of antennal segment I, 0.20 (0.22, 0.20–0.22); II, 0.78 (0.82, 0.78–0.88); III, 0.56 (0.60, 0.56–0.62); IV, 0.36 (all). Pronotal length, 0.64 (0.66, 0.64–0.66); width across base, 1.10



Figs. 23, 24. *Rolstonocoris colimai,* female genitalia. 23. Dorsal wall. 24. Right sclerotized ring, lateral view.



Figs. 25–28. Glandular structure of female. 25. *Rolstonocoris arteagensis,* posterior view of glandular structure in relation to anterior valvulae. 26. *Rolstonocoris arteagensis.* 27. *Rolstonocoris totolapanus.* 28. *Rolstonocoris colimai.*

(1.10, 1.08–1.10). Cuneal length, 0.46 (0.48, 0.46–0.50); width across base, 0.44 (0.46, 0.44–0.48).

Similar to male in coloration and form; genitalia figured (Figs. 23, 24, 28).

Holotype male: MEXICO: Colima, 6 mi south Colima, August 3, 1988, Ferreira, Schaffner. Deposited in the collection of the Instituto de Biologia, Universidad Na-

cional Autonoma de Mexico, Mexico City, D. F. Allotype female, same data and depository as holotype. Paratypes: 8 males, 6 females, same data as holotype. Deposited in the collections of U. N. A. M. and Texas A&M University.

This species is named after the indians who inhabit the area where the specimens were collected and after whom the state and city were named.

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