

STUDIES OF THE GYPONINAE: THE GENUS FOLICANA AND NINE NEW SPECIES¹

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ABSTRACT

Thirteen species of *Folicana* are treated; four previously described, *F. Nota* DeLong & Freytag, *F. rogenhoferi* (Spang), *F. basalis* (Osborn), and *F. robusta* Osborn. Nine species are described as new: *F. acuera* n.sp., *F. digita* n.sp., *F. guinae* n.sp., *F. lata* n.sp., *F. figura* n.sp., *F. perula* n.sp., *F. cornea* n.sp., *F. fucata* n.sp., and *F. acrita* n.sp.

The species placed in this genus are rather large, 10 to 14 mm.; all have similar color patterns and are known to occur in South America. Records at hand are from Brazil, Peru, Bolivia, British Guiana, French Guiana. The genus was described by DeLong and Freytag (1972), the type species was designated as *Folicana nota* DeLong & Freytag. Thirteen species are placed in this genus, nine of which are described at this time. *Folicana* has a produced thin margin and is related to *Rhogosana* and *Clinonella*. The pronotum is elevated posteriorly and slopes rapidly to crown.

The males can easily be separated by the genitalic structures but the female structures are too similar to be of value as diagnostic characters.

Folicana acuera n. sp. (Figs. 1-5)

Length of male 11 mm. Female unknown. Crown roundedly produced twice as wide between eyes at base as median length. Color dull brownish green; pronotum dull green. Scutellum brownish green. Forewings pale, subhyaline, heavily mottled with brownish green. Veins brownish green. Face pale brown.

Male genitalia with plates elongate, three times as long as broad, apices bluntly pointed. Style with blades narrowed near middle by curved ventral margin. Apex curved dorsally, narrowed, blunt; apical portion with teeth on ventral margin. Aedeagus shaft medium in width, a pair of triangular subapical processes arising ventrally and extending laterally. Just basad to these a pair of lateral processes arise, one-fourth length of shaft, terminate in a narrow, sharp pointed finger-like apex and are directed laterally and basally. A pair of long processes arise from the recurved basodorsal portion of shaft, are

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tapered to slender blades and extend almost to apex of shaft. Pygofer spurs three times as long as broad, blunt and serrate at apex.

Types: Holotype male labeled "Teffe, Brazil, VI-20" in the De-Long Collection.

Folicana digita n. sp.
(Figs. 6-10)

Length of male 11 mm. Female unknown. Crown produced and rounded more than twice as broad between eyes at base as median length. Color: crown pale brownish, pronotum brownish green; scutellum pale brown. Forewings mostly pale brown with white and pale green areas, veins brown.

Male genitalia with plates four times as long as broad, apices broadly rounded. Style with blade broadest at base, slightly narrowed, apex bent dorsally, narrowed, pointed; ventral margin of apical portion serrate. Aedeagus shaft slender, a pair of subapical lateral processes one-fourth the length of shaft extending laterally and basally, abruptly narrowed near apex forming a slender sharp-pointed apical finger. A pair of processes arise from recurved basodorsal portion of shaft and extend ventrally, one each side of aedeagal shaft. Pygofer spine broadest at apex, three times as broad as long.

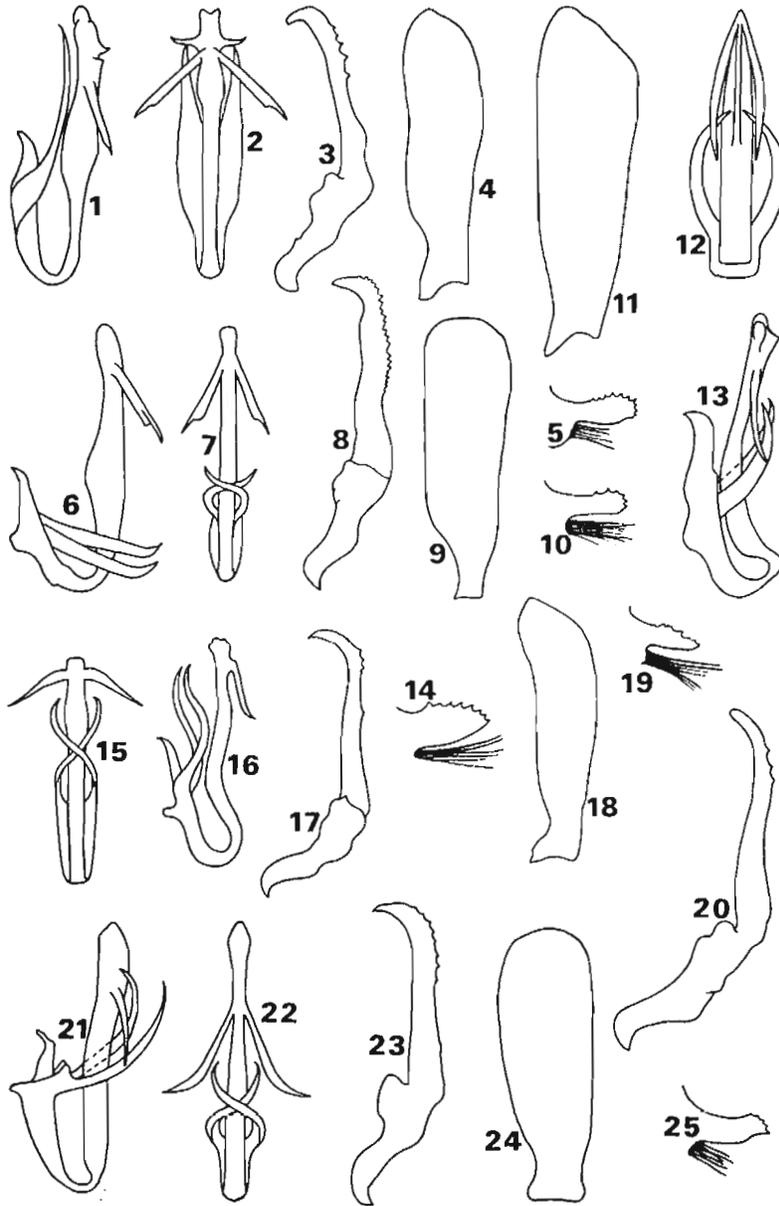
Types: Holotype male labeled Hacienda Maria, Cusca, Peru, March 18, 1952, F. L. Woytkowski, in the North Carolina State University Collection.

Folicana lata n. sp.
(Figs. 11-14, 20)

Length of male 14 mm. Female unknown. Crown produced, rounded, twice as wide between eyes at base as median length. Color: crown dark brown; pronotum dark brown on median half, a broad yellow longitudinal stripe on each side. Scutellum brown, lateral angles narrowly yellow, a narrow yellow diagonal stripe extending from one-third its width each side to middle of posterior diagonal margin. Forewings dull yellow, mottled with brown, mostly along commissure and at apex.

Male genitalia with plates three times as long as broad, apices narrowed, blunt, rounded. Style with blade gradually narrowed from base to apex which curves dorsally, is narrow and rounded at apex. Aedeagal shaft broad, gradually narrowed on apical third to pointed apex. A pair of subapical lateral processes are more than one-third length of shaft, curve basally along shaft. A pair of processes, slightly longer, arise from recurved basodorsal portion of shaft, curve ventrally then apically on each side of shaft and extend two-thirds its length. Pygofer spine twice as long as wide, apex bluntly pointed, inner margin serrate.

Types: Holotype male Tingo Maria, Huan., Peru, Jan. 14, 1947, alt. 2200 ft., J. C. Pallister Coll., donor Frank Johnson. Paratypes



one male Hacienda Maria, Cusca, Peru, March 28, 1952, F. L. Woytkowski. One male Brazil, Utirga, Belem, Para., Nov. 10-22, 1963. Holotype in the American Museum of Natural History; paratypes in the North Carolina State University Collection.

Folicana figura n. sp.
(Figs. 15-19)

Length of male 9.5 mm. Female unknown. Crown produced, broad, rounded, more than twice as wide between eyes at base as median length. Color: pale brown, pronotum and scutellum pale brown tinged with yellow. Forewings pale brown with white or pale yellow markings; veins brown.

Male genitalia with plates elongate, slender, four times as long as broad, apex narrow, bluntly rounded. Style with blade broadest at base, narrowed, apical portion narrowed, bent dorsally, apex sharp pointed. Aedeagal shaft narrow, apex blunt, a pair of subapical processes, one-fourth length of shaft, broad at base tapered to slender pointed apices, extend laterally, slightly basally; a pair of long slender processes arise from the basodorsal recurved portion of aedeagal shaft, extend ventrally and caudally each side of shaft almost to its apex. Pygofer spine twice as long as broad, bluntly pointed, serrate on inner margin.

Types: Holotype male Barro Colorado, C. Z. Panama V-19-67, DeLong and Triplehorn. Paratype male labeled "Panama, Canal Zone 27-III-1952, F. S. Blanton Collector." Holotype in the DeLong Collection. Paratype in the U. S. National Museum.

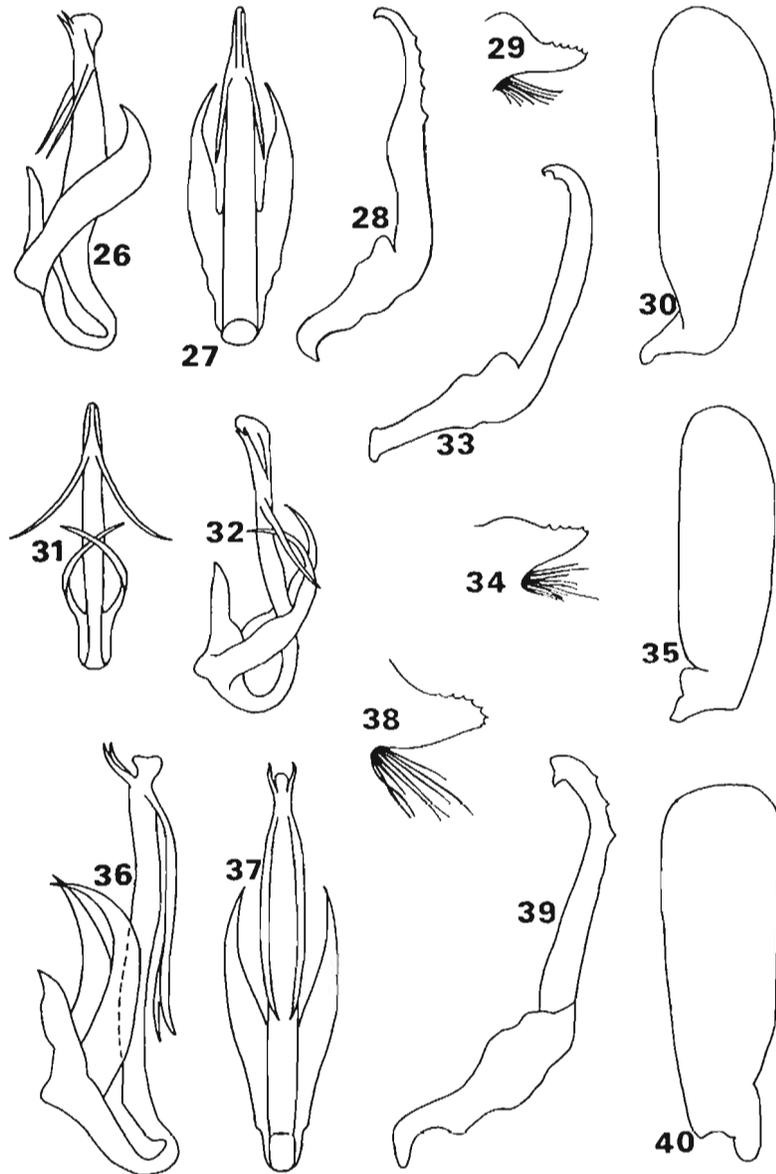
Folicana perula n. sp.
(Figs. 21-25)

Length of male 11 mm. Female unknown. Crown produced, rounded, more than twice as broad between eyes at base as median length. Color: crown, pronotum and scutellum pale brown. Forewings brown with irregular white areolar spots on clavus and apical two-thirds, greenish white mottling between scutellum and costa on anterior portion.

Male genitalia with plates three times as broad as long, widest on

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Figs. 1-5. *Folicana acuera* n. sp. 1-aedeagus, laterally. 2-aedeagus, ventrally 3-style, laterally. 4-plate, ventrally. 5-pygofer spine. Figs. 6-10. *Folicana digita* n. sp. 6-aedeagus, laterally. 7-aedeagus, ventrally. 8-style, laterally. 9-plate, ventrally. 10-pygofer spine. Figs. 11-14, 20. *Folicana lata* n. sp. 11-plate, ventrally. 12-aedeagus, ventrally. 13-aedeagus, laterally. 14-pygofer spine. 20-style, laterally. Figs. 15-19. *Folicana figura* n. sp. 15-aedeagus, ventrally. 16-aedeagus, laterally. 17-style, laterally. 18-plate, ventrally. 19-pygofer spine. Figs. 21-25. *Folicana perula* n. sp. 21-aedeagus, laterally. 22-aedeagus, ventrally. 23-style, laterally. 24-plate, ventrally. 25-pygofer spine.



FIGS. 26-30. *Folicana guianae* n. sp. 26-aedeagus, laterally. 27-aedeagus, ventrally. 28-style, laterally. 29-pygofer spine. 30-plate, ventrally. FIGS. 31-35. *Folicana cornea* n. sp. 31-aedeagus, ventrally. 32-aedeagus, laterally. 33-style, laterally. 34-pygofer spine. 35-plate, ventrally. FIGS. 36-40. *Folicana* sp. n. 36-aedeagus, laterally. 37-aedeagus, ventrally. 38-style, laterally. 39-style, laterally. 40-plate, ventrally.

apical portion, apex broadly rounded. Style with blade almost uniform in width, slightly broadened basally, curved dorsally, apically, apex narrowed, sharp-pointed. Aedeagal shaft narrowed at two-thirds its length where a pair of lateral processes arise, one-third length of shaft, extend basally and laterally, broadened at two-thirds their length then bent laterally, tapered to sharp-pointed apices; apical portion of shaft thickened, blunt. A pair of processes arise from recurved basodorsal portion of aedeagal shaft, more than half length of shaft, abruptly narrowed near base, curved ventrally each side of shaft and extending almost to its apex. Pygofer spine two and one-half times as long as broad, widest at base, curved inwardly.

Types: Holotype male labeled Peru, Monson Valley, Tingo Maria XI-16-1954, E. I. Schlinger and E. S. Ross Collectors. Paratype male labeled "Unt. Amaz. Taperinha B. Santarem 21-30, VI 27-Zenry". Holotype in the California Academy of Science Collection; paratype in the Vienna Museum.

Folicana guianae n. sp.
(Figs. 26-30)

Length of male 13 mm. Female unknown. Crown more than twice as wide between eyes at base as median length. Color: crown and scutellum reddish brown; pronotum, median half dark brown, portions each side broadly yellow. Forewings pale brown subhyaline; veins pale brown or yellow.

Male genitalia with plates two and one-half times as long as broad, apices rounded. Style with blade narrowed on apical half curved dorsally to form narrow, pointed apex. Aedeagal shaft stout at base narrowed to slender apex with a pair of subapical spines on dorsal margin. A pair of lateral processes slightly more than one-fourth the length of shaft arise near apex and extend dorsally and basad. A pair of broad processes, one-half length of shaft arise from the recurved basodorsal portion of shaft, extend ventrally each side of shaft and curve apically. Pygofer spine narrow, bluntly pointed.

Types: Holotype male Brit. Guiana, Tutari Sources, Jan.-Feb., 1936, G. A. Hudson, B. M. 1936-360, in the British Museum of Natural History.

Folicana cornea n. sp.
(Figs. 31-35)

Length of male 13 mm. Female 14 mm. Crown broadly, roundedly, produced, more than twice as broad between eyes at base as median

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laterally. 34-pygofer spine. 35-plate, ventrally. Figs. 36-40. *Folicana fucata* n. sp. 36-aedeagus, laterally. 37-aedeagus, ventrally. 38-pygofer spine. 39-style, laterally. 40-plate, ventrally.

length. Color: crown pale brown; pronotum mostly dull brownish green with darker brown blotches. Scutellum pale brown. Forewings white to dull yellow, mottled with pale brown, mostly on claval and apical areas.

Male genitalia with plates more than three times as long as wide, apices rounded. Style with blade almost uniform in width to near apex which is bent dorsally with a narrow pointed basally bent apex. Aedeagal shaft almost uniform in width, a pair of lateral processes arise at three-fourth length of shaft, are more than one-third length of shaft, extend laterally and basally. A pair of processes arise from the recurved basodorsal portion of shaft, which curve ventrally then apically on each side of shaft, extending two-thirds length of shaft. Pygofer spine twice as long as wide, apex blunt, pointed.

Female genitalia with lateral angles of seventh sternum produced and rounded to posterior margin which is roundedly excavated each side of a broad produced median lobe, almost half as wide as segment and not as long as lateral angles.

Types: Holotype male Brazil—Amazonas, Manaus, Uypiranga, Rio Negro, 14 km. from Manaus, 81 m, XII-1941. Allotype same as holotype. Paratypes, 1 male same as holotype; 1 male, 3 females same as holotype, except X, 1941; 1 male San Martin, Peru, Dec. 14, 1946, Alt. 1500 feet; 1 male Thirango, Amazonas, Brazil, IX-'31, A. Maller Coll., Frank Johnson, Donor. Holotype, allotype and paratypes in the American Museum of Natural History. Paratypes in the North Carolina State University and the DeLong Collections.

Folicana fucata n. sp.

(Figs. 36-40)

Length of male 14 mm. Female unknown. Crown produced, rounded, more than twice as wide between eyes at base as median length. Color: crown pale brown, a dark brown spot just behind margin next each eye. Pronotum pale brown with yellow blotches each side posteriorly. Scutellum pale brown. Forewings pale brown; veins dark brown.

Male genitalia with plates more than three times as long as wide, apices broadly rounded. Style with blade slightly narrowed at two-thirds its length, curved dorsally slightly broadened and truncate at apex with a pointed tooth on basad margin. Aedeagal shaft bearing a pair of apical spines on dorsal margin. A pair of subapical processes are slender, two-thirds as long as shaft and extend along it. A pair of processes half as long as shaft arise from the recurved basolateral portion of shaft, curve ventrally and apically. The pygofer spine is almost as broad as long, curved inwardly, apex narrowed, curved, blunt.

Types: Holotype male Rio Urayali, Peru X-13-23 F 6111 H. Bassler Collection Acc 33591. Paratype male Igarape Belem, Rio Solimoes, Am. 7-30, IV, 1966 Malkin Coll. Holotype in the American

Museum of Natural History. Paratype in the Museu de Zoologia da Universidade de Sao Paulo, Brazil.

Folicana rogenhoferi (Spang)
(Figs. 41-44, 54, 58)

Gypona rogenhoferi Spangberg 1883, p. 108.

Length of male 13 mm. Female 13 mm. Crown produced, rounded more than twice as wide between eyes at base as median length. Color: crown pale brown, yellow spots around ocelli. Pronotum with central half brown, lateral fourth each side, yellow. Scutellum brown with yellow markings. A median line divides and surrounds a large brownish spot on apical half, a yellow line each side crosses scutellum to sloping margin. Forewings pale brown, with dark brown markings on costal half; claval half with white markings.

Male genitalia with plates almost four times as long as wide, apices blunt, rounded. Style with blade broad on basal half, narrowed on apical third, curved dorsally to form apex which is truncate with a pointed tooth on basal margin. Aedeagal shaft thick, rapidly tapered at two-thirds its length to a slender apical fourth which bears a pair of short apical spines. Two short subapical lateral processes are one-fifth length of shaft. A pair of longer processes arise from recurved basodorsal portion of shaft, which curve ventrally and caudally to two-thirds length of shaft. Pygofer spine as broad as long, apex rounded.

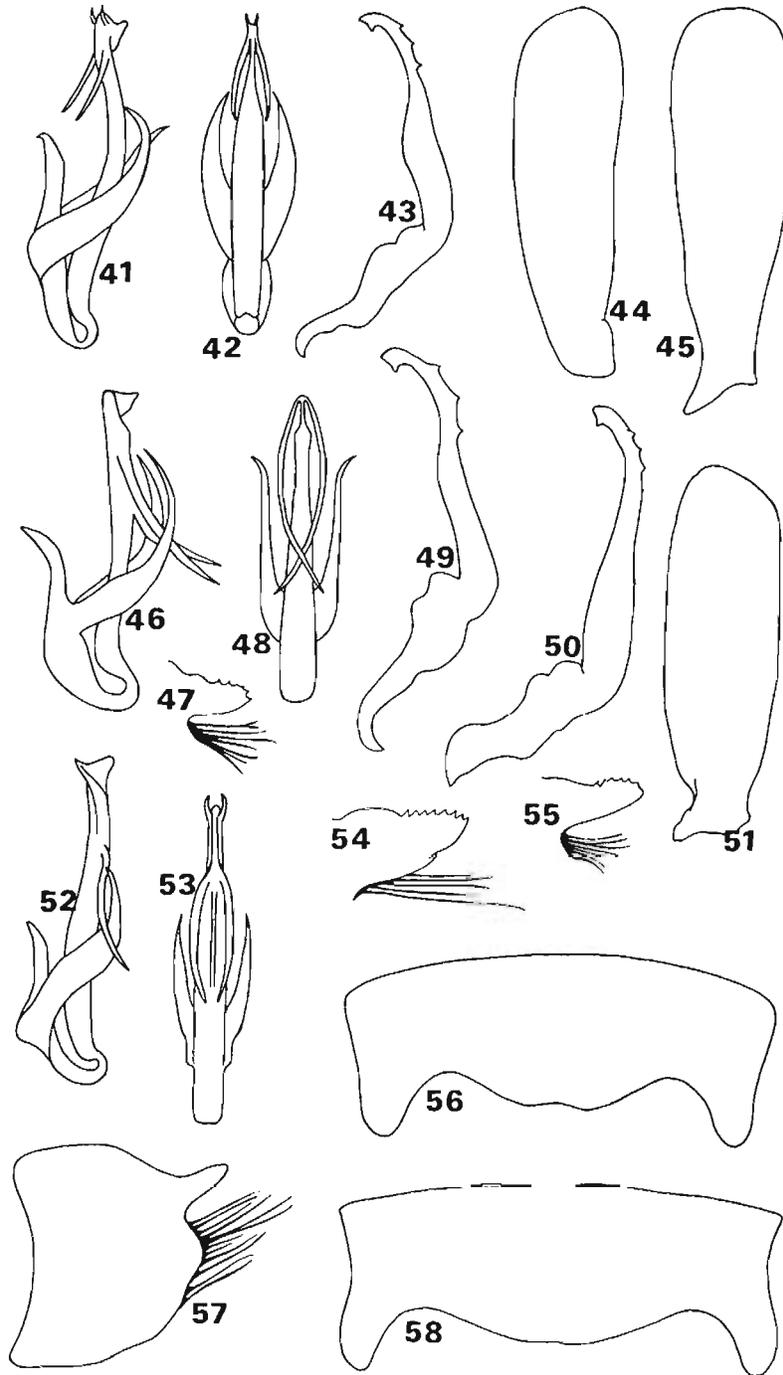
Female genitalia with lateral angles of seventh sternum produced and rounded, between which the posterior margin is roundedly excavated each side of a broad roundedly produced median lobe which is almost two-thirds width of segment.

Types: Holotype female labeled "Brasil, Schott" in the Vienna Museum Collection. Allotype male Brazil—Utinga, Belem, Para., Nov. 10-22, 1963, Oliveira and Wygodzinsky collectors, in the American Museum of Natural History. Several specimens from Brazil and Bolivia have been examined.

Folicana acrita n. sp.
(Figs. 45-49, 57, 71)

Length of male 13 mm. Female 14 mm. Crown rounded, produced, more than twice as wide between eyes at base as median length. Color: crown dull yellow with a median pale brown longitudinal band on area anterior to each ocellus and one next each eye at base. Pronotum dull yellow with longitudinal stripes or areas of pale brown. Scutellum dull yellow, four longitudinal brown bands, apical portion yellow. Forewings yellowish mottled with brown.

Male genitalia with plates more than three times as long as broad, apices broadly rounded. Style with blade slightly enlarged near middle then narrowed, curved dorsally to form truncate apex with a



pointed tooth on caudad and basad margins. Aedeagus with shaft broad at base tapered to a slender apex. A pair of lateral processes almost one-half length of shaft arise one-fifth distance from apex and curve across ventral surface of shaft. A pair of processes two-thirds as long as shaft arise from the recurved basodorsal portion of shaft, curve ventrally each side, and extend four-fifths length of shaft. Pygofer spine longer than broad, apex blunt, rounded, serrate on inner and apical margins.

Female genitalia, seventh sternum with produced, rounded lateral angles between which the posterior margin is roundedly excavated each side of a slightly produced median lobe which is more than half the width of segment and is shallowly roundedly notched at middle.

Types: Holotype male Unt. Amaz. Taperinha B. Santerem 21-30 VI 27 Zerny. Allotype female same data. Paratypes: 2 males same as holotype; 1 female Fiebrig Paraguay, S. Bernardino. Holotype, allotype and paratype in the Vienna Austria Museum. Paratype in the DeLong Collection.

Folicana basalis (Osborn)
(Figs. 50-53, 55, 56)

Prairiana basalis Osborn 1938 p. 34

Length of male 13 mm., female 14 mm. Crown produced, broadly rounded, twice as wide between eyes at base as median length. Color: brownish green; crown, pronotum, scutellum and forewings with irregular spots and lines of brown especially on apical cells.

Male genitalia with plates more than three times as long as wide, apices rounded. Style with blade broad to three-fourths its length then narrowed, curved dorsally and truncate at apex with a pointed margin apically and basally. Aedeagal shaft slender, a pair of lateral processes more than half the length of shaft arising near apex and extending along margin of shaft. A pair of shorter processes arise from recurved basodorsal portion of shaft, extend ventrally on each side of shaft and then curve apically. Pygofer spine one-third longer than broad, apex narrow, bluntly pointed, serrate on inner margin.

Female genitalia with lateral angles of seventh sternum produced and rounded between which the posterior margin is roundedly excavated each side of a broad median slightly produced lobe which is more than half as wide as segment and slightly excavated at middle.

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FIGS. 41-44, 54, 58. *Folicana rogenhoferi* (Stal). 41-aedeagus, laterally, 42-aedeagus, ventrally. 42-aedeagus, ventrally. 43-style, laterally. 44-plate, ventrally. 54-pygofer spine, laterally. 58—♀ seventh sternum. FIGS. 45-49, 57. *Folicana acrita* n. sp. 45-plate, ventrally. 46-aedeagus, laterally. 47-pygofer spine, laterally. 48-aedeagus, ventrally. 49-style, laterally. 57-pygofer, laterally. FIGS. 50-53, 55, 56. *Folicana basalis* (Osborn). 50-style, laterally. 51-plate, ventrally. 52-aedeagus, laterally. 53-aedeagus, ventrally. 55-pygofer spine, laterally. 56-seventh sternum.

Types: Holotype female and allotype male from French Guiana in the Osborn Collection.

Folicana nota DeLong & Freytag
(Figs. 59-63, 70)

Folicana nota DeLong & Freytag 1972 p. 226.

Length of male 12.5 mm., female 14. Crown roundedly produced, more than twice as wide between eyes at base as median length. Color: variable in pattern and intensity. Crown pale brown with darker brown next to eyes and above margin. Pronotum brown, usually darker brown on median half. Scutellum pale brown with darker brown longitudinal stripes or areas. Forewings pale brown with numerous dark brown markings between veins.

Male genitalia with plates more than three times as long as broad, widest subapically, apex narrowed, blunt, rounded. Style with blade tapered toward apex; apical fourth bent dorsally, apex slightly concave between dorsal and ventral marginal teeth. Aedeagus tapered from base to apex, basal two-thirds thick, bearing a pair of apical spines on dorsal surface. A pair of lateral spines one-fourth length of shaft arise at three-fourths length of shaft and curve laterally and basally. A pair of processes more than one-half length of shaft arise from basodorsal recurved portion of shaft, extend ventrally each side of shaft then curve apically. Pygofer spine broader than long; apex narrowed, blunt, serrate, bent inwardly.

Female genitalia with seventh sternum with produced rounded lateral angles between which the posterior margin is roundedly excavated each side of a slightly produced median lobe which is more than half width of segment and slightly roundedly notched at middle.

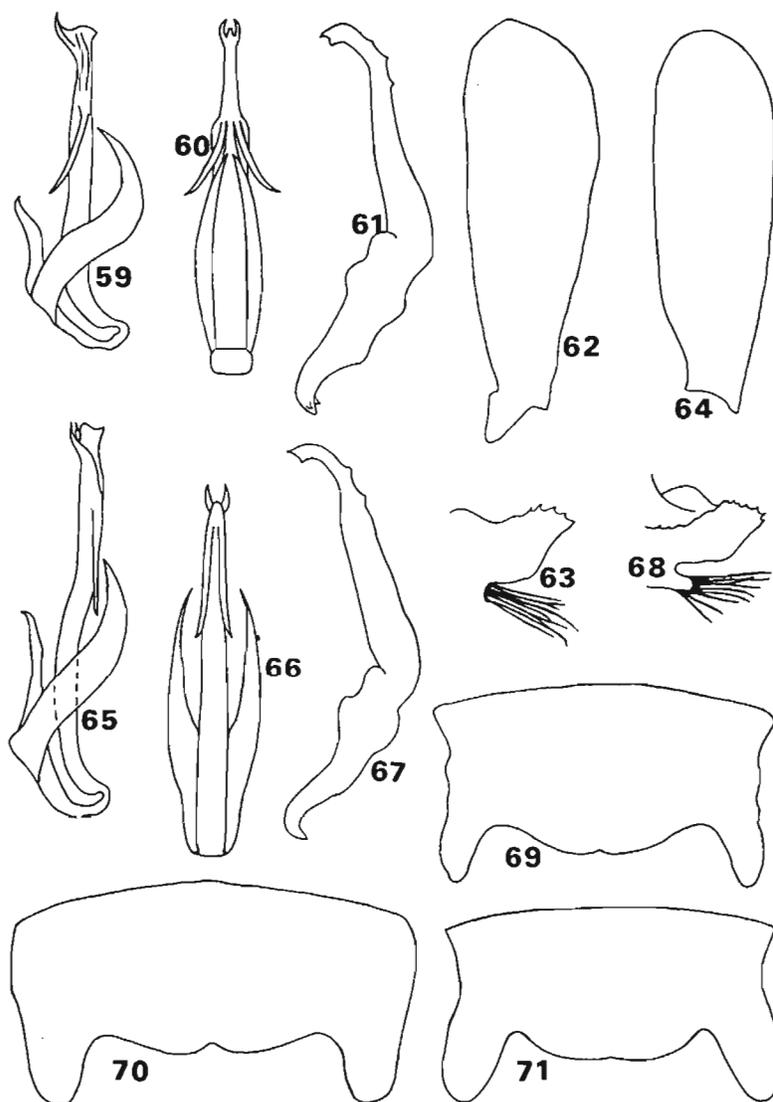
Types: Holotype male Piracicaba, Sao Paulo, Brazil in the DeLong Collection.

Folicana robusta (Osborn)
(Figs. 64-69)

Prairiana robusta Osborn 1938 p. 34.

Length of male 13 mm., female 14 mm. Crown produced, rounded, more than twice as wide between eyes at base as median length. Color: gray brown with few markings.

Male genitalia with plates three times as long as broad, apices rounded. Style with blade gradually tapered from base to two-thirds its length then curved dorsally with apex broadened and diagonally truncate with caudal and basal angles pointed. Aedeagal shaft tapered from base to narrow apex with a pair of prominent apical spines on dorsal margin. A pair of subapical lateral processes more than one-fourth the length of shaft arise near apex and extend basad along shaft. A pair of broad processes, half the length of shaft, arise from the recurved basodorsal portion of shaft, curve ventrally beyond shaft,



FIGS. 59-63, 70. *Folicana nota* DeLong & Freytag. 59-aedeagus, laterally. 60-aedeagus, ventrally. 61-style, laterally. 62-plate, ventrally. 63-pygofer spine, laterally. FIGS. 64-69. *Folicana robusta* (Osborn). 64-plate, ventrally. 65-aedeagus, laterally. 66-aedeagus, ventrally. 67-style, laterally. 68-pygofer spine, laterally. 69—♀, seventh sternum. FIG. 71. *Folicana scrita* ♀, seventh sternum.

then apically and extend beyond apices of lateral processes. Pygofer spine almost as broad as long, apex narrowed, bluntly pointed. Female genitalia with lateral angles of seventh sternum produced and rounded between which the posterior margin is roundedly excavated each side of a slightly produced, broad, median lobe which is more than half as wide as segment and is slightly roundedly notched at middle.

Types: Holotype female Santa Cruz, Bolivia, in the Osborn Collection. Allotype male Squitos, Peru, in the DeLong Collection.

LITERATURE CITED

- DeLong, Dwight M. and Paul H. Freytag. 1972. Studies of the Gyponinae: A key to the known genera and descriptions of five new genera. J. Kans. Entomol. Soc. 45:218-235.
- Osborn, Herbert. 1938. Art. II. Neotropical Homoptera of the Carnegie Museum Part. 7. Report of the species of the subfamily Gyponinae. Ann. Carnegie Mus. 27:11-62, pls 1-5.
- Spangberg, J. 1883. Species novae generis Gyponae quae in Museo. Zoologico Caesar. Vindobonensi asservantur descripsit Ent. Tidskr. 4:101-109.

Key to males of *Folicana*

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|--------|--|-----------------------------------|
| 1 | Apex of style tapered, pointed or rounded | 2 |
| 1' | Apex of style broad, truncate or concavely rounded | 8 |
| 2 (1) | Aedeagus with two pairs of subapical processes | |
| | acuera n.sp. (Figs. 1-5) | |
| 2' | Aedeagus with one pair of subapical processes | 3 |
| 3 (2') | Aedeagal subapical processes with abruptly narrowed
finger-like apices | digita n.sp. (Figs. 6-10) |
| 3' | Aedeagal subapical processes with apices tapered, pointed | 4 |
| 4 (3') | Style with apex blunt, rounded | 5 |
| 4' | Style with apex tapered, pointed | 6 |
| 5 (4) | Paired processes from phallabase broad | guianae |
| | n.sp. (Figs. 26-30) | |
| 5' | Paired processes from phallabase narrow | lata n.sp. |
| | (Figs. 11-14, 20) | |
| 6 (4') | Aedeagal subapical processes near apex extending almost
laterally, paired processes from phallabase narrow at base | |
| 6' | Aedeagal subapical processes arise more distant from apex,
extending basolaterally, paired processes from phallabase
broad at base | 7 |
| 7 (6') | Phallabasal paired processes abruptly narrowed near base,
subapical aedeagal process arising at least one fourth
length of shaft from apex | perula n.sp. (Figs. 21-25) |
| 7' | Phallabasal paired processes broad on basal third; aede-
agal processes, nearer apex, about one sixth length of
shaft from apex | cornea n.sp. (Figs. 31-35) |
| 8 (1') | Aedeagal subapical processes two thirds length of shaft | fucata n.sp. (Figs. 36-40) |

8'	Aedeagal subapical processes less than two thirds length of shaft	9
9 (8')	Aedeagal subapical processes arising near apex	10
9'	Aedeagal subapical processes arising at least one fifth length of shaft from apex	11
10 (9)	Aedeagal subapical processes short, one fourth length of shaft <i>rogenhoferi</i> (Spang) (Figs. 41-45, 54, 58)	
10'	Aedeagal subapical processes longer, one half length of shaft <i>acrita</i> n.sp. (Figs. 45-49, 57, 71)	
11 (9')	Pygofer spine broad, in lateral view	12
11'	Pygofer spine narrow, in lateral view <i>basalis</i> (Osborn) (Figs. 50-53, 55, 56)	
12 (11)	Aedeagal shaft broad at base in ventral view, tapered to narrow apical portion <i>nota</i> DeLong & Freytag (Figs. 50-63, 70)	
12'	Aedeagal shaft narrower at base, in ventral view, apical portion only slightly narrower than basal portion <i>robusta</i> (Osborn) (Figs. 64-69)	