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STUDIES OF THE WORLD GYPONINAE (HOMOPTERA, CICADELLIDAE). THE GENUS *POLANA*

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ABSTRACT

Eighty seven species are placed in *Polana* DeLong, 17 previously described (including 3 synonyms) and 73 described as new. These species are placed in ten subgenera as follows: Subgenus *Declivella*, subgen. n., with one species *danesa*, sp. n.; subgenus *Bohemanella*, subgen. n., with 14 species, *chelata*, sp. n., *resupina*, sp. n., *bohemani* (Stal) (Type-species) (= *praeterita* (Fowler), = *draba* Evans, new synonyms), *alia*, sp. n., *retenta*, sp. n., *assula*, sp. n., *resilara*, sp. n., *celsa*, sp. n., *chifama*, sp. n., *orbita*, sp. n., *macula*, sp. n., *elabora*, sp. n., *scela*, sp. n., and *ardua*, sp. n.; Subgenus *Angusana*, subgen. n., with one species *exornata* (Fowler); Subgenus *Bulbusana*, subgen. n. with 13 species, *villa*, sp. n., *pendula*, sp. n., *plumea*, sp. n. (Type-species), *bruneola* (Osborn), *nida*, sp. n., *vana*, sp. n., *extranea* (Fowler), *dispara*, sp. n., *quatora*, sp. n., *piceata* (Osborn), *laca*, sp. n., *inclinata*, sp. n., and *obtecta*, sp. n.; Subgenus *Polana* DeLong, with 24 species, *ocellata* (Spangberg), *quadrinotata* (Spangberg) (Type-species), *unca*, sp. n., *pensa*, sp. n., *aspersa*, sp. n., *principia*, sp. n., *spindella*, sp. n., *gelera*, sp. n., *optata*, sp. n., *mala*, sp. n., *nidula*, sp. n., *peda*, sp. n., *bulba* sp. n., *lanara*, sp. n., *inimica*, sp. n., *merga*, sp. n., *flectara*, sp. n., *coresa*, sp. n., *squalera*, sp. n., *scuta*, sp. n., *ruppeli*, sp. n., *parca*, sp. n., *fusconotata* (Osborn), and *alitera*, sp. n.; Subgenus *Parvulana*, subgen. n., with 4 species, *tulara*, sp. n., *bidens*, sp. n., *pandara*, sp. n., and *alata*, sp. n. (Type-species); Subgenus *Largulara*, subgen. n., with 2 species, *fantasa*, sp. n. (Type-species), and *elera*, sp. n.; Subgenus *Nihilana*, subgen. n., with 13 species, *icara*, sp. n., *nisa*, sp. n., *fetera*, sp. n., *celeta* (Fowler) (= *resima* (Fowler)), *obtusa* (Spangberg), *rixa*, sp. n., *scina*, sp. n., *pressa*, sp. n., *bena*, sp. n., *aneza*, sp. n., *finia*, sp. n., *agrilla*, sp. n., and *obligua*, sp. n.; Subgenus *Polanana*, subgen. n., with 8 species, *falsa*, sp. n., *venosa* (Stal) (Type-species), *sereta*, sp. n., *truncata*, sp. n., *quadrilabes*, sp. n., *mella*, sp. n., *macuella*, sp. n., and *parvula*, sp. n.; and Subgenus *Polanella*, subgen. n., with 3 species, *cupida*, sp. n. (Type-species), *helara*, sp. n., and *randa*, sp. n..

The genus *Polana* is distributed from the southern states of the United States through Central America and the Caribbean Islands, to the greater part of South America. Very little is known of their host plants.

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The genus *Polana* was described by DeLong (1942) to include three species, *Gypona quadrinotata* Spangberg, designated as the type species, *G. celata* Fowler and *G. exornata* Fowler. Evans (1947) added one more species, *P. draba*.

Some 87 species are placed in *Polana* at this time, 73 of which are described as new. Seventeen older names, described in various genera, are included. Three of these are considered synonyms; *Gypona resima* Fowler was placed in synonymy by DeLong (1942), and two other species, *Gypona praeterita* Fowler and *Polana draba* Evans, are placed in synonymy in this paper. The 87 species are distributed among 10 subgenera. The subgeneric classification is based upon the comparative width of the head, the declination of the pronotum and the chitinized structures of the male genitalia, particularly the presence or absence of an enlarged phallobase fused to aedeagus, paired parameres, paired dorsal pygofer processes located beneath the pygofer wall and the structure of the apical portions of the pygofer processes. Also, the parameres may arise from the basal portion of the aedeagal shaft or from some portion, usually the apex, of the phallobase.

The female genital structures are not sufficiently different to separate related species, and color patterns can be used only for specific identification in very few cases, such as *bicolor* (Spangberg) and *exornata* (Fowler). In general, males and females cannot be referred to the same species name unless collected together.

The species of the genus occur almost entirely in Central and South America. One species, the type of the genus, *quadrinotata* (Spangberg), is known to occur in the southern portion of the United States and in Mexico. A few species have been described from material collected in Mexico, several from Panama and some 70 from material collected in South America. The species distributions cannot be determined accurately until more thorough collecting has been performed in both Central and South America. The Panama area has probably been more extensively examined than other portions of Central America or comparable regions of South America. Two species, *obtusa* (Spangberg) and *unca*, sp.n. (a species described herein) appear quite commonly in Panama material. Of the 87 species treated at this time, 66 have been recorded only in South America (22 for Brazil), 17 only in Central America, and 8 species have been collected in both Central and South America.

Only major citations are given for older species names. Complete citations are found in Metcalf (1962). Many of these citations were misidentifications and therefore, confuse the description or distribution of these species.

Polana DeLong

Polana DeLong, 1942:110. Type species: *Gypona quadrinotata* Spangberg.

The genus *Polana* contains small ovate brown species, 6 to 9 mm. in length, usually with few markings, with broad forewings which have few irregular reticulations. Crown short and broad, rounded to front. Ocelli about equidistant between eyes and median line and near anterior portion of crown.

KEY TO SUBGENERA OF *POLANA*

(males only)

- | | | |
|--------|---|--------------------|
| 1. | Aedeagus with a pair of lateral parameres (figs. 1-2) | 2 |
| 1'. | Aedeagus without parameres (figs. 304-305) | 8 |
| 2(1). | Aedeagal parameres arising from apex of recurved phallobase (figs. 1-2) | 3 |
| 2'. | Aedeagal parameres arising from base of aedeagus (figs. 84-85) | 5 |
| 3(2). | Head distinctly narrower than pronotum; pygofer without processes | <i>Angusana</i> |
| 3'. | Head same width or slightly narrower than pronotum; pygofer with or without processes | 4 |
| 4(3'). | Pronotum distinctly declivous; pygofer with processes | <i>Declivella</i> |
| 4'. | Pronotum not declivous; pygofer with or without processes | <i>Bohemanella</i> |
| 5(2'). | Pygofer with processes large and bulbous at apex (fig. 88) | <i>Bulbusana</i> |
| 5'. | Pygofer with processes hooked at apex, small, or lacking | 6 |
| 6(5'). | Pygofer with processes hooked at apex | <i>Polana</i> |
| 6'. | Pygofer with processes small or lacking | 7 |
| 7(6'). | Style with small tubercle on ventral side at base of blade (fig. 271) | <i>Parvulana</i> |
| 7'. | Style without such a tubercle | <i>Largulara</i> |
| 8(1'). | Pygofer with processes hooked at apex (fig. 303) | <i>Nihilana</i> |
| 8'. | Pygofer with processes not hooked at apex or absent | 9 |
| 9(8'). | Pygofer with processes (fig. 409) | <i>Polanella</i> |
| 9'. | Pygofer without processes (fig. 369) | <i>Polanana</i> |

Subgenus **Declivella**, subgen. n.

Crown rounded to front without a distinct margin. Pronotum distinctly declivous, sloping to crown. Crown parallel margined, about four times as wide between eyes at base as median length. Male aedeagus with

parameres arising from apex of phallobase. Pygofer with a pair of processes with narrow blunt apices on dorsocaudal margin.

Type-species: *Polana (Declivella) danesa*, sp.n.

Only one species, from Panama, is placed in this subgenus.

***Polana (Declivella) danesa*, sp.n.**

(Figs. 1-5)

Length: Male – 9 mm. Crown, parallel margined, almost four times as broad between eyes at base as median length; ocelli proximal to eyes. Pronotum strongly deflected to crown. Color: Yellowish brown. Crown with a small black spot posterior to each ocellus and closer to median line. Pronotum yellowish brown, irregularly mottled with dark brown. Scutellum yellow, a dark brown spot in each basal angle and a dark brown dash each side of median line, on disc. Fore wings pale yellow with irregular brown mottling, veins dark green or brown.

Male genitalia: Plates two and one half times as long as broad, apices rounded. Style with blade enlarged at base apical two thirds narrower; apical third bent dorsad, apex tapered, pointed. Aedeagus with shaft narrow, blunt at apex, bearing three pairs of subapical processes; one pair arise ventrally near apex and extend caudad beyond apex; a second pair arise laterally and extend basad; a third pair arise latero-dorsally and extend laterad, and curve basad; a pair of parameres arise near apex of phallobase, paralleling shaft, but not extending to apex of shaft.

Holotype ♂, Tocumen, Panama, 6.I.1953 (F. S. Blanton), in the U.S. National Museum.

Subgenus ***Bohemanella***, subgen.n.

Head and crown as in the subgenus *Polana*. Male aedeagus greatly recurved, with a pair of parameres arising from apex of phallobase. Pygofer with or without dorsal processes; when present, variable in structure.

Type-species: *Gypona bohemani* Stal.

Fourteen species are placed in this subgenus. They occur from Mexico to South America as far south as Brazil. They may be separated by the following key.

KEY TO MALES OF THE SUBGENUS *BOHEMANELLA*

1. Aedeagal shaft bifid at apex forming two long, slender, caudally-protruding filaments *resilara* (fig. 38)

- 1'. Aedeagal shaft not bifid at apex, or if bifid, with short, blunt, apical processes 2
- 2(1') . Aedeagal parameres (in lateral view) distinctly broadened at middle, tapered to bluntly pointed apices 3
- 2'. Aedeagal parameres (in lateral view) not broadened at middle, or if broadened, not tapered to a pointed apex 4
- 3(2) . Aedeagal shaft with a ventrally curved, pointed apex; style abruptly narrowed to form a bluntly pointed apex
..... *orbita* (fig. 54)
- 3'. Aedeagal shaft blunt at apex, not curved; style narrow on apical fifth, apex, narrow, blunt *ardua* (fig. 75)
- 4(2') . Aedeagal parameres extending horizontally from apex of phallobase to shaft, bent at right angles and paralleling shaft to apex 5
- 4'. Aedeagal parameres crossing shaft but not bent at right angles and extending parallel with shaft to apex 10
- 5(4) . Aedeagal shaft bifid at apex; apices of parameres bent inwardly, enlarged on inner apices, fitting together chela-like
..... *chelata* (fig. 6)
- 5'. Aedeagal shaft not bifid at apex; apices of parameres not fitting together chela-like 6
- 6(5') . Apex of aedeagal shaft tapered to a narrow pointed apex (in lateral view) *alia* (fig. 23)
- 6'. Apex of aedeagal shaft not narrowed or pointed at apex (in lateral view) 7
- 7(6') . Aedeagal parameres with broad, truncate apices (in lateral view) *retenta* (fig. 28)
- 7'. Aedeagal parameres, if broadened at apex, narrower, rounded (in lateral view) 8
- 8(7') . Aedeagal parameres with a protruding lateral, subapical tooth (in ventral view) *assula* (fig. 32)
- 8'. Aedeagal parameres without a protruding subapical tooth ... 9
- 9(8') . Style broad on basal half of blade, apical half gradually tapered to pointed apex *resupina* (fig. 13)
- 9'. Style narrow at base of blade, concavely roundly broadened at one third length of blade, then gradually tapered to a blunt apex *bohemani* (fig. 19)
- 10(4)' . Aedeagal shaft with subapical spine-like processes extending basad *macula* (fig. 58)
- 10'. Aedeagal shaft without subapical processes 11
- 11(10') . Aedeagal parameres greatly enlarged at apex (in lateral view)
..... *elabora* (fig. 65)
- 11'. Aedeagal parameres not enlarged at apex (in lateral view) 12

- 12(11'). Style with apical third greatly enlarged, then narrowed to a pointed apex *chifama* (fig. 50)
 12'. Style, if enlarged, narrowed at apex 13
 13(12'). Aedeagal shaft (in lateral view) narrow, tapered to a pointed apex *scela* (fig. 70)
 13'. Aedeagal shaft (in lateral view) broadened near apex with a narrow, ventrally curved apical process *celsa* (fig. 44)

***Polana (Bohemanella) chelata*, sp.n.**

(Figs. 6-10)

Length: Male – 7 mm. Crown broadly rounded, almost three times as wide between eyes at base as median length. Color: Generally pale brown. Pronotum with diagonal yellow areas extending from anterior portion of disc to humeral angles. Fore wings with cross veins of corium and apical ends of claval veins, dark brown.

Male genitalia: Plates almost three times as long as broad. Style broad at base of blade, abruptly broadened on ventral margins at middle, then tapered to a narrow, sharp pointed, dorsally bent, apex. Aedeagus with shaft long, enlarged at apical fourth, bifid at apex, the two protruding pieces forming pincher-like tips; parameres arising at dorsal apical end of phallobase are bent at right angles, extending to tip of shaft and broadened at apex. Pygofer spine short, straight, slender at apex.

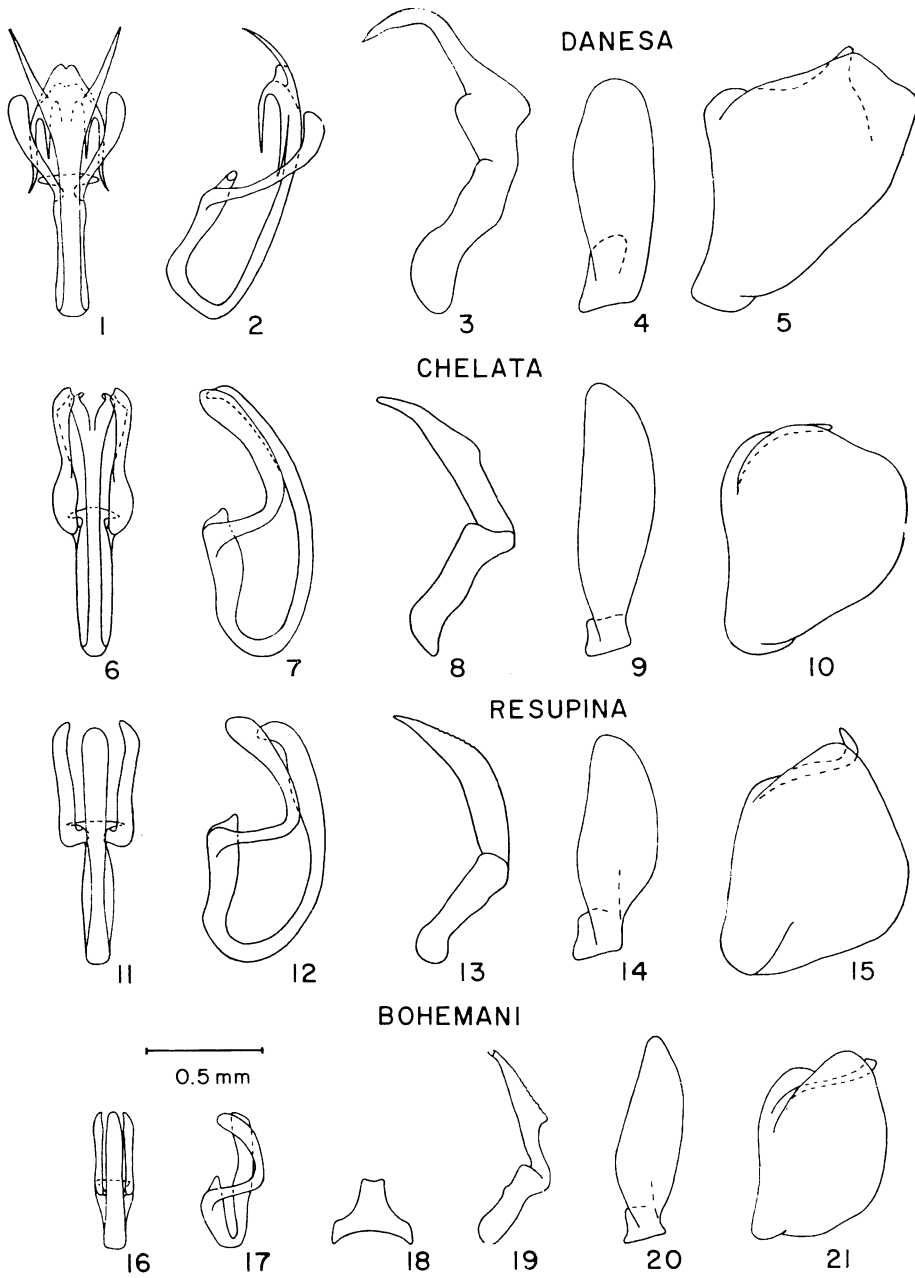
Holotype ♂, Tingo Maria, Huanuco, Peru, 21.V.1947, alt. 2200 ft. (J. C. Pallister, Donor Frank Johnson), in the American Museum of Natural History.

***Polana (Bohemanella) resupina*, sp.n.**

(Figs. 11-15)

Length: Male – 7 mm. Crown broadly rounded, three times as wide between eyes at base as median length. Color: Crown reddish brown; pronotum, scutellum and forewings golden brown. Four small brown dots arranged transversely across middle of fore wings, one on clavus each side of commissure and one on each corium.

Male genitalia: Plates two times as long as broad, truncate at apex. Style more than three times as long as broad, apices tapered to a slender pointed apex. Aedeagus with shaft narrow at base, broadened and bifid on apical third (ventral view), apical ventral margins serrate, tips contiguous; a pair of parameres arise from phallobase, extend ventrally to shaft, then turn caudad and extend along shaft beyond apex; apices broadened, rounded. Pygofer spine extending beyond apex of pygofer, terminating in a dorsally bent pointed spine.



Figs. 1, 6, 11, 16, ventral view of aedeagus; 2, 7, 12, 17, lateral view of aedeagus; 3, 8, 13, 19, lateroventral view of style; 4, 9, 14, 20, ventral view of plate; 5, 10, 15, 21, lateral view of pygofer; 18, ventral view of connective. All drawn to same scale.

Holotype ♂, Napo R., Peru, VII.1919. Paratypes: 2 ♂, same data as holotype except VI.20; 1 ♂, same data except IV.15; 1 ♂, Hacienda Maria, Cusco, Peru, 12.III.1952 (F. L. Woytkowski); 1 ♂, Blancoflor, Beni, Bolivia (W. M. Mann, Mulford, Bio Expl. 1921-22); 1 ♂, Caracas, D.F., Venezuela, 25.VII.1941, at light, 1149 (C. H. Ballou) Lot No. 41-20618; 1 ♂, UT Cuyacu, Tarma, Dept. del Junin, Peru, 1600-3000 m, 2.III.1948 (F. Woytkowski, Donor Wm. Proctor); 1 ♂, Peru, Pucallpa, Loreto, 25.VII.1962 (W. T. Van Welzen). Holotype and paratypes in the DeLong Collection, Ohio State University. Paratypes also in the U.S. National Museum, the North Carolina State University Collection, the American Museum of Natural History and the Museu de Zoologia da Universidade de São Paulo, Brazil.

Polana (Bohemanella) bohemani (Stal)

(Figs. 16-21)

Gypona bohemani Stal, 1864: 81.

Gypona praeterita Fowler, 1903: 314 (new synonymy).

Polana draba Evans, 1947: 256 (new synonymy).

Length: Male - 7.5-8 mm, female - 8 mm. Crown broadly roundedly produced, longer at middle than next eyes, twice as wide between eyes at base as median length. Color: Variable, pale to darker brown, without definite dark markings.

Male genitalia: Plates divergent, each is triangularly elongate, almost twice as long as basal width, apices bluntly pointed. Style with blade concavely rounded or sloping on ventral margin to a widened, angled protrusion at middle, then gradually sloping to narrow, blunt apex. Aedeagus with shaft (in ventral view) straight, narrow, elongate; a pair of long curved parameres arise from the dorso-basal portion, curve ventrally, then apically and extend caudally on each side of shaft to its apex. Pygofer spine extending beyond caudo-ventral margin, enlarged at apex, with a bluntly pointed tip extending dorsally.

Female genitalia: Seventh sternum broadly, shallowly excavated from the rounded lateral angles each side of a broad slightly produced median lobe, which is shallowly, broadly notched at middle.

Types: Four specimens are in the type series, three males and one without an abdomen, in the Stockholm Museum. The specimen marked "typus" is from Vera Cruz, Mexico and is here designated the Lectotype. The Lectoparatypes are from Mexico and Bogota, Colombia. The other specimen is marked "Brasilia" and proves to be a distinct species and is made the holotype of *Polana (Bulbusana) pendula*, sp.n. The types of *praeterita* Fowler from Mexico and *draba* Evans from British Guiana were examined and are in the British Museum.

Notes: This species has been collected in abundance and is apparently widely distributed in the American tropics. In addition to the types,

specimens are at hand from Mexico, Guatemala, Costa Rica, Panama, British Honduras, French Guiana, Bolivia, Peru and Brazil.

Polana (Bohemanella) alia, sp.n.

(Figs. 22-26)

Length: Male - 8.5 mm, female - 9 mm. Crown roundedly produced, more than twice as wide between eyes at base as median length. Color: Crown and scutellum dark brown, pronotum golden brown. Fore wings pale brown, veins, darker brown, pronotum golden corium, apical ends of claval veins at commissure, apical veins and cross veins, dark brown.

Male genitalia: Plates short, rounded, one and one-half times as long as wide, clothed with a tuft of long hairs, extending to length of pygofers. Style long, curved dorsally, narrow at base, broadened on median portion by the convexly curved ventral margin; apex tapered, bluntly pointed. Aedeagus with shaft narrow at base, broadened (in ventral view) on apical fourth, rounded at apex; two parameres stouter than shaft, broadened near apex, narrowed to bluntly pointed tips and extend laterally to shaft from apex of phallobase.

Female genitalia: Seventh sternum with lateral angles broadly rounded, between which posterior margin shallowly excavated each side of a median lobe produced to length of lateral angles, heavily embrowned and broadly, shallowly, excavated at middle.

Holotype ♂, Iquitos, Peru, XI.1920. Paratypes: one ♀, Tingo Maria, Huanuco, Peru, 4.VII.1962 (W. T. Van Velzen); one ♂ same as holotype except IV.15; one ♂, Pucallpa, Peru, VIII.1962 (W. T. Van Velzen). Holotype and paratypes in the DeLong Collection, Ohio State University.

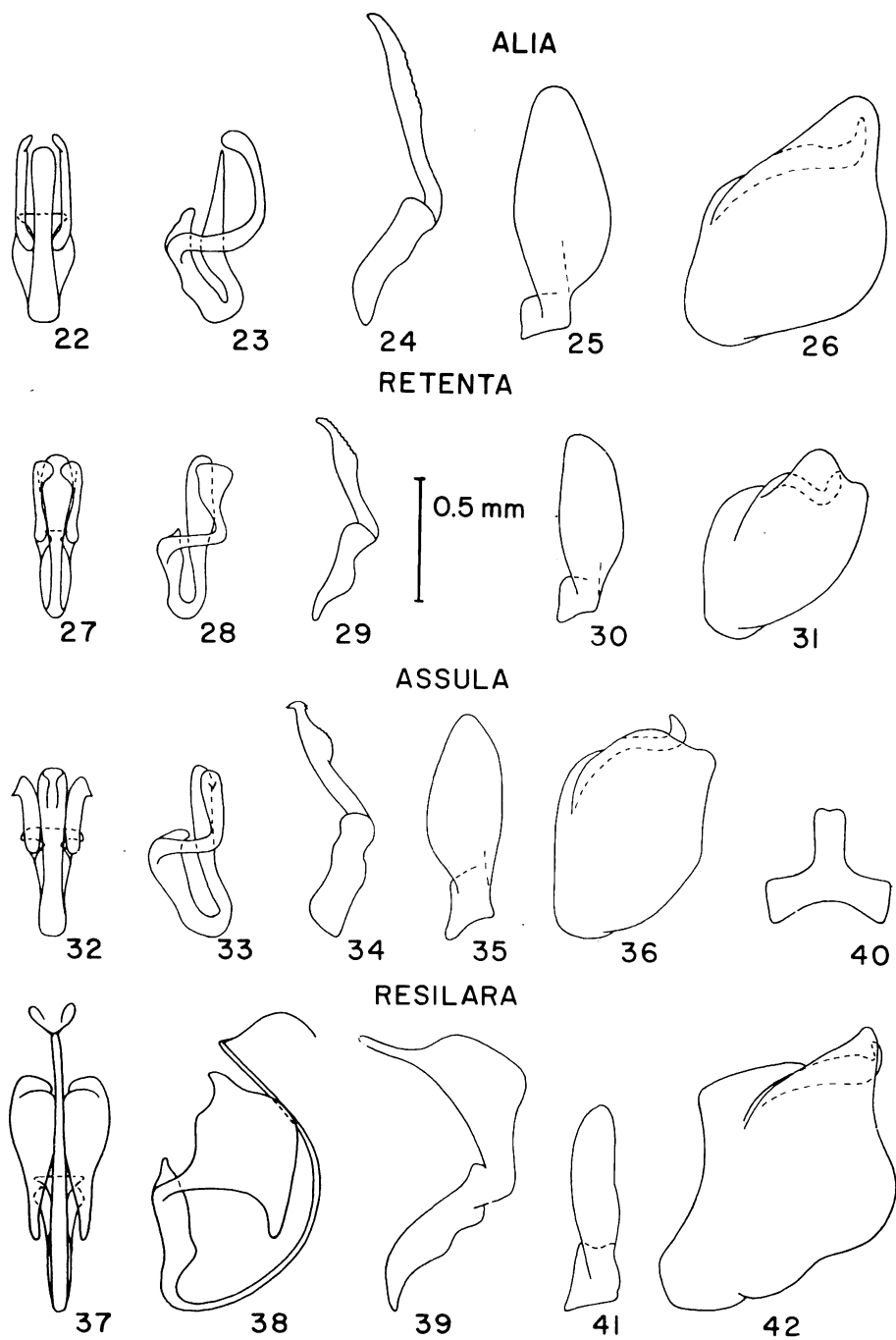
Notes: The holotype from Iquitos, Peru was identified by Osborn as *Ponana praeterita* (Fowler).

Polana (Bohemanella) retenta, sp.n.

(Figs. 27-31)

Length: Male - 6 mm. Crown broadly rounded, parallel margin-ed, three times as wide between eyes at base as median length. Color: Golden brown without definite markings.

Male genitalia: Plates two and one half times as long as wide, apices rounded. Style with blade broadened at half its length by bulge on ventral margin, then tapered to narrow dorsally curved blunt apex; ventral margin, apical portion, serrate. Aedeagus with shaft broadened at apex; paired parameres arising from phallobase, bent at right angles



Figs. 22, 27, 32, 37, ventral view of aedeagus; 23, 28, 33, 38, lateral view of aedeagus; 24, 29, 34, 39, lateroventral view of style; 25, 30, 35, 41, ventral view of plate; 26, 31, 36, 42, lateral view of pygofer; 40, ventral view of connective. All drawn to same scale.

extending to apex of shaft, apices broad, truncate. Pygofer spine with apex bent dorsally, blunt.

Holotype ♂, San Esteban, Venezuela, 22-30.XI.1939 (Pablo Anduze), in the U. S. National Museum.

Polana (Bohemanella) assula, sp.n.

(Figs. 32-36)

Length: Male – 6.5 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Pale brown with irregular yellow areas on crown and pronotum. Scutellum with a yellow spot on middle of each side. Fore wings with dark brown spots on cross veins of corium, apical cross veins and apical ends of claval veins.

Male genitalia: Plates twice as long as broad, apices narrow, bluntly pointed. Style broadened by a bulge on ventral margin just beyond middle, then gradually narrowed to form a slightly enlarged apex which is pointed on dorsal margin. Aedeagus with shaft broadened apically, broadly rounded; parameres arising at apex of dorsal portion of phallobase extending to shaft, then bent at right angles, extending along shaft to apex, each process with a spine on outer margin at apex.

Holotype ♂, Napo R., Peru, VII.1919, in the DeLong Collection, Ohio State University.

Polana (Bohemanella) resilara, sp.n.

(Figs. 37-42)

Length: Male – 8 mm. Crown broadly rounded, more than two and one half times as wide between eyes at base as median length. Color: Golden brown, basal angles of scutellum slightly darker brown. Fore wings with cross veins of corium and apical ends of claval veins dark brown.

Male genitalia: Plates more than four times as long as wide, tip narrow, rounded. Style with blade broad, notched on outer margin near base, broadest at two thirds its length; then abruptly, roundly narrowed to outer margin which is produced as a long slender process to form a curved pointed apex. Aedeagus with shaft long, slender, with a pair of terminal, long, slender, hair like processes; phallobase large, with parameres arising at apex of dorsal portion, large, extended as two large, broad, leaf-like portions, each broadened at apex, which envelope the terminal portion of shaft. Pygofer spine stout, with a thick upturned apical hook.

Holotype ♂, Napo R., Peru, VI.1920. Paratype: 1 ♂, Iquitos, Peru, XI.1920. Holotype and paratype in the DeLong collection, Ohio State University.

Polana (Bohemanella) celsa, sp.n.

(Figs. 43-47)

Length: Male – 8 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Pale brown; fore wings with cross veins on corium and ends of claval veins at commissure, dark brown.

Male genitalia: Plates almost twice as long as broad, clothed with heavy pubescence as long or longer than plates. Style with blade curved on ventral margin, broadened, apical fourth bent dorsally, tapered to a narrow pointed apex. Aedeagus with shaft broadened to spatulate-like apex, filamentous structures arising each side before apex; parameres arise dorsally, taper to blunt broad apices and reach to end of shaft. Without typical pygofer spines, but a short spine-like spur arises near apex of pygofer, each side, and extends cephalad on under surface of pygofer.

Holotype ♂, Rurrenabaque, Beni, Bolivia, XI (W. M. Mann, Mulford Bio. Expd. 1921-22), in the U. S. National Museum.

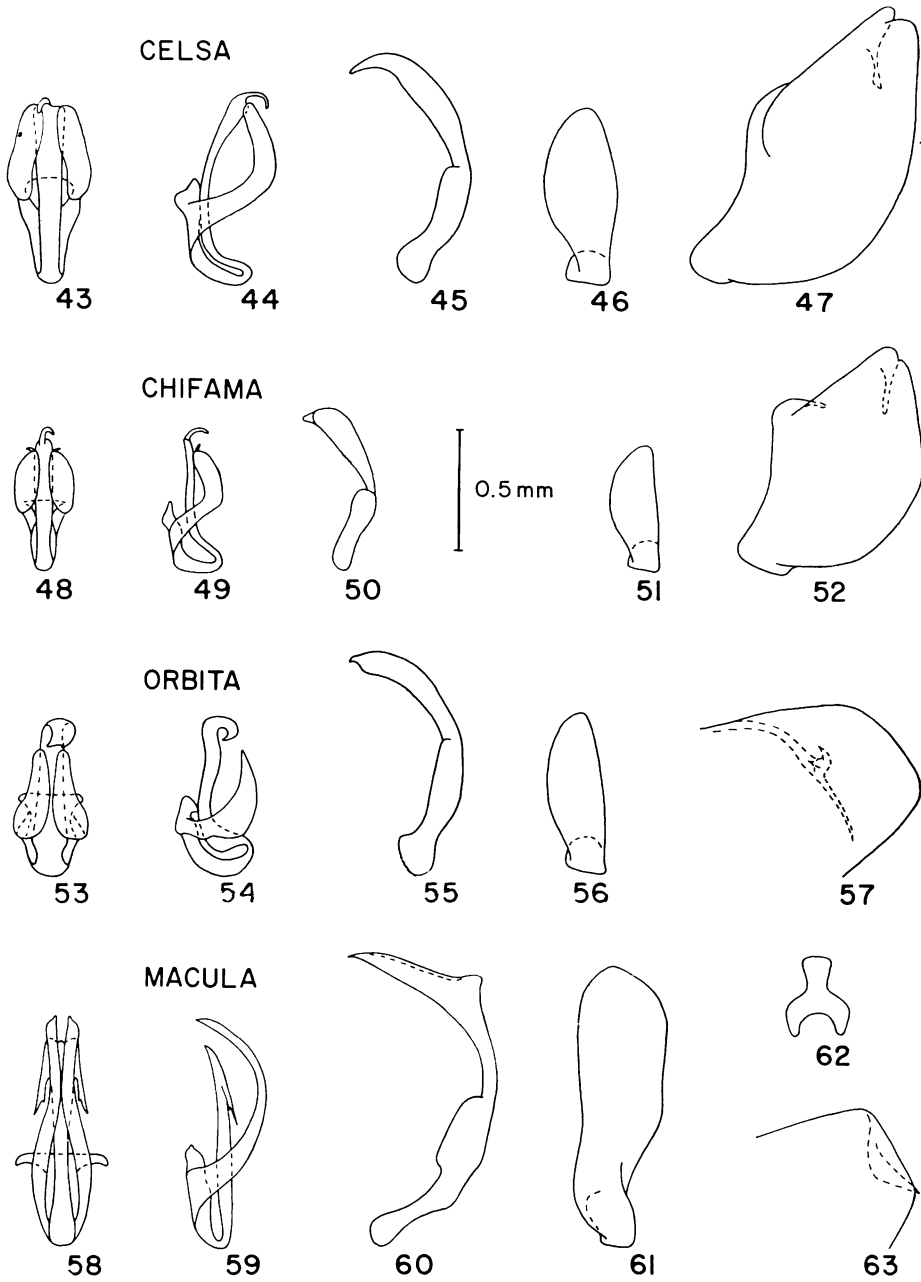
Polana (Bohemanella) chifama, sp.n.

(Figs. 48-52)

Length: Male – 7 mm. Crown broadly rounded, slightly produced, twice as broad between eyes at base as median length. Color: Brown pronotum and scutellum pale brown, a faint black spot on pronotum behind each eye at one third length of pronotum. Fore wing pale brown, with two black spots on corium, between sectors.

Male genitalia: Plates almost three times as long as broad, apices narrow, rounded. Style with blade club-shaped, narrow at base, gradually enlarged, bulbous just before narrow, pointed, dorsally bent apex. Aedeagus with shaft narrow, with apical spine curved caudad and ventrad; parameres arising from phallobase, almost as long as shaft, forming broad lobes on apical half. Pygofer spine short, extending ventrad at dorsoapical tip.

Holotype ♂, Mato Grosso, Brazil, Tapirapé Indian Village at Confluence of R. Tapirapé and R. Araguaia, 11.XI to 31.XII.1960 (B. Malkin), in the Chicago Field Museum.



Figs. 43, 48, 53, 58, ventral view of aedeagus; 44, 49, 54, 59, lateral view of aedeagus; 45, 50, 55, 60, lateroventral view of style; 46, 51, 56, 61, ventral view of plate; 47, 52, lateral view of pygofer; 57, 63, same view of apex of pygofer; 62, ventral view of connective. All drawn to same scale.

Polana (Bohemanella) orbita, sp.n.

(Figs. 53-57)

Length: Male – 7 mm. Crown broadly rounded almost two and one half times as wide between eyes at base as medium length. Color: Golden brown; fore wings with cross veins on corium and apical ends of claval veins at commissure, dark brown.

Male genitalia: Plates three times as long as broad, apices narrowed, rounded. Style with apical end a little broader than base, then rapidly narrowed to form a short, narrow, pointed apex. Aedeagus (in lateral view) with a long shaft, broadest near base, recurved ventrally at apex, with a narrow pointed tip, curved dorsally on ventral margin of shaft; a pair of parameres arise from apical portion of phallobase, broadened at middle, then narrowed to bluntly pointed apices which do not extend to apical recurved portion of shaft. Pygofer spine with a pair of teeth arising at middle.

Holotype ♂, Prov. del Sara, Bolivia (Steinbach), C. M. Acc. 5064. Paratype ♂, Reimoser, Paraguay, Toldo Cué. Holotype in the Carnegie Museum. Paratype in the Vienna Museum.

Polana (Bohemanella) macula, sp.n.

(Figs. 58-63)

Length: Male – 7.5 mm. Crown broadly rounded, twice as wide between eyes at base as median length, rounded marginal area with deep transverse striae. Color: Crown yellow. Pronotum pale brown, with four round black spots, one behind each ocellus on anterior margin and one behind each eye along lateral margin at half length of lateral margin. Scutellum yellow, basal angles brown. Fore wings pale brown, subhyaline; crossveins of corium, apical veins, a spot at apex of each claval vein and apex of claval sutures, brown.

Male genitalia: Plates two and one half times as long as broad. Style with blade narrow at base, broadened at middle by a produced tubercle on ventral margin, then narrowed to a dorsally curved pointed apex. Aedeagus with shaft with a pair of subapical processes extending basad, each concavely narrowed on inner apical margin and sloping to a pointed outer margin; parameres arising from phallobase, exceeding shaft in length, apices narrow, pointed. Pygofer with a spine-like fold at apex.

Holotype ♂, Hauchi, Beni, Bolivia, 21.IX (Wm. M. Mann, Mulford Bio. Expl. 1921-22), in the U. S. National Museum.

Polana (Bohemanella) elabora, sp.n.

(Figs. 64-68)

Length: Male – 7 mm. Crown more than twice as broad between eyes at base as median length. Color: Pale brown with dark brown

markings. Scutellum with basal angles dark brown. Fore wings with cross veins of corium and apices of claval veins, dark brown; basal half, anterior to clavus, tinted with dark brown.

Male genitalia: Plates two and one half times as long as wide, apices broad, rounded. Style blade narrow at base, broadened at half its length, then again narrow, curved dorsad on apical third, apex pointed. Aedeagus with shaft bifid on apical fifth, apices of bifid portions pointed; paired parameres of phallobase broadened at more than half their length, apical third narrowed, apex with sharp pointed tooth. Pygofer without spine, truncate.

Holotype ♂, San Antonio, Loreto, Peru, 20.VIII.1965 (J. C. Hitchcock Jr.), in the U. S. National Museum.

***Polana (Bohemanella) scela*, sp.n.**

(Figs. 69-73)

Length: Male - 7.5 mm. Crown roundedly produced, more than twice as wide between eyes at base as median length. Color: Crown, pronotum and scutellum pale brown. Fore wings brown, subhyaline; veins darker brown.

Male genitalia: Plates three times as long as broad, apices narrow, blunt, rounded. Style with blade narrowed at one third its length and again just before slightly enlarged, dorsally curved, rounded, apex. Aedeagus with shaft tapered from base to narrow apex bearing two pairs of proximal subapical teeth on dorsal margin; parameres arising from phallobase, as long as shaft, and narrowed on apical third. Pygofer narrow, rounded at apex.

Holotype ♂, Napo R., Peru, VII.1919, in the DeLong Collection, Ohio State University.

***Polana (Bohemanella) ardua*, sp.n.**

(Figs. 74-78)

Length: Male - 8.0 mm. Crown broadly rounded, more than twice as wide at base as median length. Color: Generally brown. Crown with transverse median area darker brown. Pronotum with irregular markings across anterior portion darker brown. Scutellum with basal angles darker brown except white spot in extreme angle. Fore wing with veins, margined with darker brown; cross veins of corium and apices of claval veins of commissure darker brown.

Male genitalia: Plates more than four times as long as broad. Style broad at base of blade, basal half concavely excavated on ventral margin; apical half convexly produced on ventral margin, apex narrow, bluntly pointed. Aedeagus with shaft long, narrow, enlarged ante-

apically, with a pair of long, produced, slender, apical processes; a pair of broad parameres arise at apex of phallobase and extend on each side of shaft almost to apex. Pygofer spine short and broad with a broad, short, upturned apical hook.

Holotype ♂, S. Bernardino, Paraguay (Fiebrig), in the Vienna Museum.

Subgenus **Angusana**, subgen. n.

Head blunt, without a distinct margin, and distinctly narrower than pronotum. Male aedeagus with parameres arising from apex of phallobase, and with four subapical processes on shaft. Style narrow and sharply pointed at apex. Pygofer without dorsal processes.

Type-species: *Gypona exornata* Fowler.

Only one species from Panama is placed in this Subgenus.

Polana (Angusana) exornata (Fowler)

(Figs. 79-83)

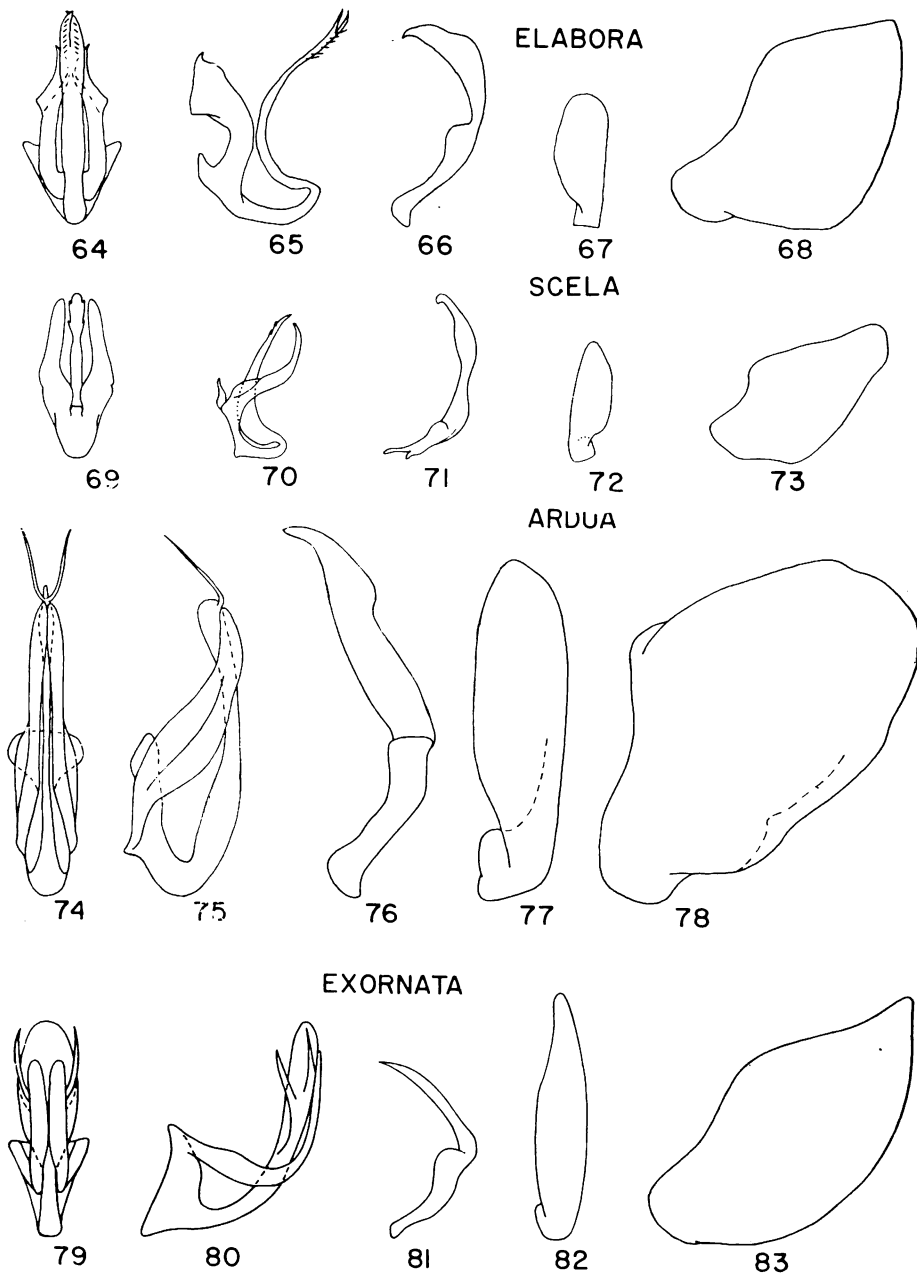
Gypona exornata Fowler, 1903:315.

Polana exornata; DeLong, 1942:112.

Length: Male – 6 mm, female – 7 mm. Crown broad, rounded, scarcely produced at middle, appearing parallel margined, twice as wide between eyes at base as median length. Color: Yellow brown varying in intensity, in typically colored specimens, crown mostly yellow. Pronotum with a transverse yellow band near middle roundedly curved forward to front of disc; portion anterior to band pale brownish; portion posterior to band dark brown. Scutellum pale brown, apex yellow. Fore wings dark brown, almost black on anterior half; a yellow stripe on clavus not reaching commissure, costal area with a triangular colorless hyaline area at base and a small semicircular area on costa just anterior to apical cells.

Male genitalia: Plates narrow, elongate, five times as long as median width; apex narrow, rounded. Style with a narrow, slightly curved blade, apex tapered, sharp pointed. Aedeagus with shaft narrow at base, broadened apically and bearing two pairs of spines arising at two-thirds its length which extend apically; basodorsal portion bearing a pair of parameres which extend to ventral surface of shaft, are flattened and extend as proximal plates almost to apex of shaft.

Female genitalia: Seventh sternum with lateral angles broadly rounded, scarcely produced; posterior margin gently sloping to a broad slightly produced, median, bluntly pointed tooth.



Figs. 64, 69, 74, 79, ventral view of aedeagus; 65, 70, 75, 80, lateral view of aedeagus; 66, 71, 76, 81, lateroventral view of style; 67, 72, 77, 82, ventral view of plate; 68, 73, 78, 83, lateral view of pygofer. Not drawn to the same scale.

Type: Holotype ♀, from Volcan de Chiriqui, Panama, is in the British Museum of Natural History.

Notes: Specimens of both sexes from Panama have been examined.

Subgenus **Bulbusana**, subgen. n.

Head and pronotum as in the subgenus *Polana*. Male aedeagus with a pair of parameres arising from base, sometimes appearing "fused" with base as in *obtecta*, sp. n. Pygofer with dorsal processes which are enlarged or bulbous at apex.

Type-species: *Polana (Bulbusana) plumea*, sp. n.

Thirteen species are placed in this subgenus. They occur in Central America, West Indies, and South America as far south as Brazil. They may be separated by the following key.

KEY TO MALES OF THE SUBGENUS *BULBUSANA*

- | | | |
|--------|---|----------------------------|
| 1. | Aedeagus with parameres "fused" to shaft ... | <i>obtecta</i> (fig. 145) |
| 1'. | Aedeagus with parameres from base | 2 |
| 2(1'). | Aedeagal shaft with apical or subapical processes | 3 |
| 2'. | Aedeagal shaft without apical or subapical processes | 12 |
| 3(2). | Aedeagal shaft with only apical or subapical processes | 4 |
| 3'. | Aedeagal shaft with processes arising near middle | 10 |
| 4(3). | Style greatly bent near middle of blade | <i>extranea</i> (fig. 116) |
| 4'. | Style not greatly bent near middle of blade | 5 |
| 5(4'). | Aedeagus with parameres much shorter than shaft | 6 |
| 5'. | Aedeagus with parameres nearly as long as shaft | 7 |
| 6(5). | Aedeagus with subapical processes dorsal ... | <i>quatará</i> (fig. 125) |
| 6'. | Aedeagus with subapical processes ventral | <i>nida</i> (fig. 105) |
| 7(5'). | Aedeagal shaft blunt at apex, with a pair of subapical processes | 8 |
| 7'. | Aedeagal shaft ending in a pair of processes, as well as a subapical pair | 9 |
| 8(7). | Aedeagal shaft seemingly notched on each side for the parameres | <i>bruneola</i> (fig. 100) |
| 8'. | Aedeagal shaft not so modified | <i>plumea</i> (fig. 95) |
| 9(7'). | Aedeagal shaft with long terminal processes .. | <i>pendula</i> (fig. 89) |
| 9'. | Aedeagal shaft with short terminal processes ... | <i>villa</i> (fig. 84) |
| 10. | Aedeagal shaft with two pairs of processes, two long and two short | <i>vana</i> (fig. 110) |
| 10'. | Aedeagal shaft with one pair of processes | 11 |

- 11(10'). Aedeagal processes very short *laca* (fig. 135)
 11'. Aedeagal processes long *dispara* (fig. 120)
 12(2'). Aedeagal parameres as long as shaft *inclinata* (fig. 140)
 12'. Aedeagal parameres about half as long as shaft
 *piceata* (fig. 130)

Polana (Bulbusana) villa, sp.n.

(Figs. 84-88)

Length: Male – 8.5 mm, female – 9 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Crown, pronotum and scutellum brown. Fore wings pale brown with dark brown spots on apices of claval veins at commissure and on cross veins between sectors on corium.

Male genitalia: Plates almost five times as long as broad, apices narrow, rounded. Style with blade long, curved dorsad at apical fifth, narrowed, apex pointed. Aedeagus with shaft narrow at apex with a subapical spur on dorsal margin, extending beyond apex, curved dorsad, narrow, and pointed; a pair of parameres arising at base, parallel to shaft, extending to apex of shaft, apices narrow, pointed. Pygofer spine enlarged, rounded at apex.

Female genitalia: Seventh sternum with lateral angles produced and rounded to posterior margin which is excavated one fourth distance to base of segment; each side of a rounded median lobe; median lobe one third width of seventh sternum and produced beyond apex of lateral angles.

² Holotype ♂, [British] Guiana, Kutari Sources, I-II.1936 (G. A. Hudson), B. M. 1936-360. Paratypes: 1 ♂, 2 ♀, same data as holotype. Holotype and two paratypes in the British Museum of Natural History, and one paratype in the DeLong Collection, Ohio State University.

Polana (Bulbusana) pendula, sp.n.

(Figs. 89-93)

Length: Male – 7.5 mm. Crown broadly rounded, two and one half times as wide between eyes at base as median length. Color: Crown dark brown. Pronotum and scutellum golden brown. Fore wings pale brown, subhyaline without definite markings.

Male genitalia: Plates, long, narrow, five times as long as median width, apices narrow, bearing a tuft of long hairs, one half the length of plate. Style (in lateral view) broad, curved dorsally on basal fifth and apical fifth, apical portion narrowed, tip bluntly pointed on dorsal apical margins. Aedeagus with shaft narrowed, slightly broadened at two thirds its length, with a pair of separated, short tapered spines at

apex; a pair of slender processes arise dorsally just before origin of apical spines sloping outwardly then inwardly and cross each other just beyond apex of apical spines; a pair of slender parameres arise at base and extend to end of shaft on each side. Pygofer spine stout, extending beyond caudal margin, apex broadened, club shaped.

Holotype ♂, labeled "Brasilia, bar Boueard, 206,59" in the Stockholm Museum.

Notes: This holotype was labeled as a syntype of *Gypona bohemani* Spangberg.

Polana (Bulbusana) plumea, sp.n.

(Figs. 94-98)

Length: Male – 7.2 mm. Crown broadly rounded more than twice as wide between eyes at base as median length. Color: Crown, pronotum and scutellum dark brown. Fore wings pale brown, with cross veins of corium and apical portion of claval vein dark brown, apical cells smoky.

Male genitalia: Plates four times as long as wide, narrow, bluntly pointed, basally clothed with long hairs, almost as long as plates. Style with apical fourth of blade curving dorsally, apex pointed. Aedeagus with shaft stout, broadened on apical fourth, spatulate-like, apex broadly rounded; a stout spine directed caudolaterally arising each side at half length of spatulate portion; parameres arising basodorsally, almost as long as shaft, apices sharp pointed. Pygofer spines enlarged, blunt as apex, club shaped.

Holotype ♂, San Esteban, Venezuela, 20-30.XI.1939 (Pablo Anduze) in the U. S. National Museum.

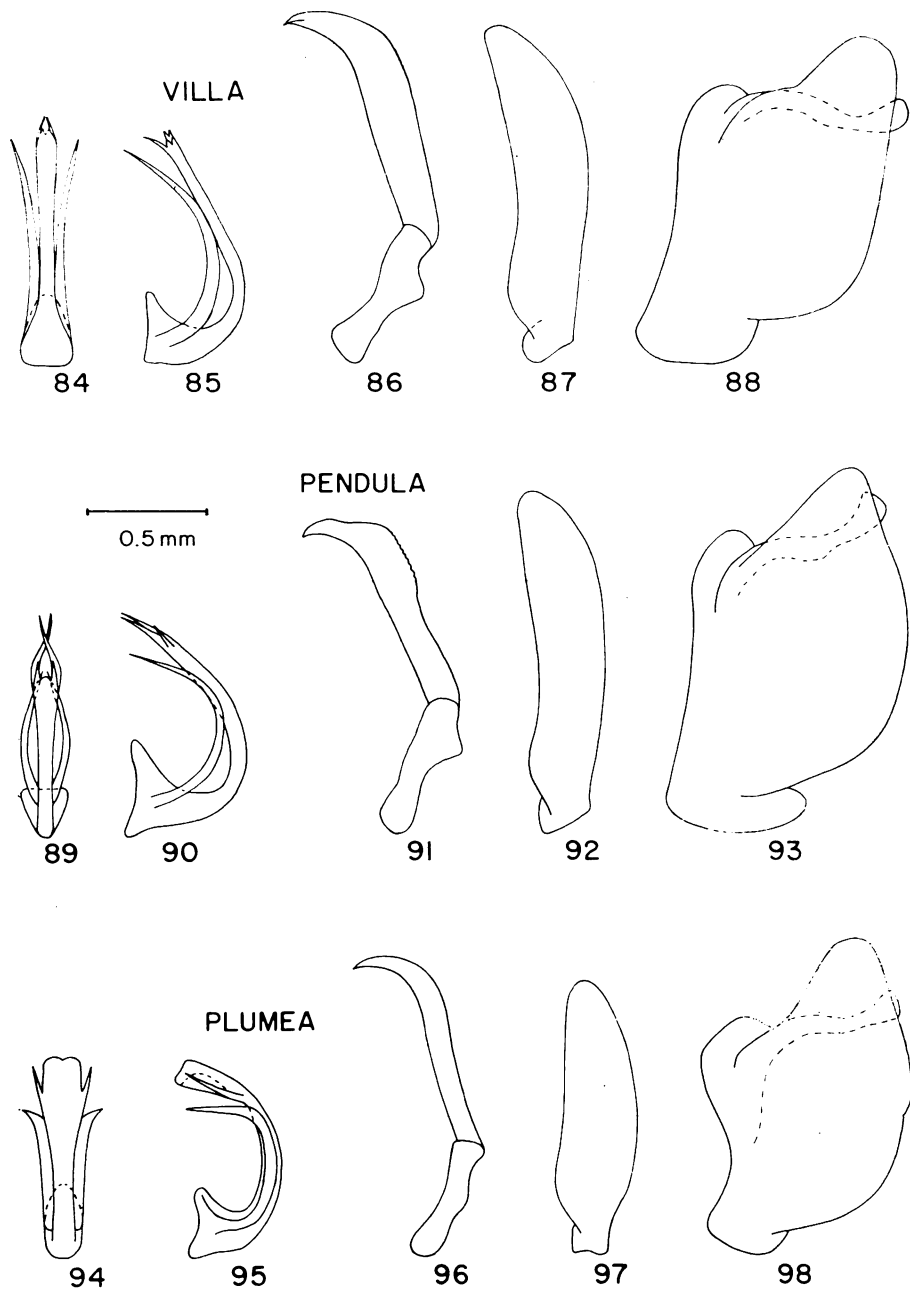
Polana (Bulbusana) bruneola (Osborn)

(Figs. 99-103)

Ponana bruneola Osborn, 1938: 46

Length: Male – 7 mm, female – 8 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Crown, pronotum and scutellum dark golden brown. Face reddish brown. Fore wings pale brown with cross veins of corium, apical ends of claval veins at commissure and small areas on appendix, darker brown.

Male genitalia: Plates almost three times as long as median width. Style elongate, blade sickle shaped on apical two thirds, curved and gradually narrowed to a pointed apex. Aedeagus with shaft narrow at base, gradually broadened on apical half to form a broad apex which appears almost truncate on caudal margin, a dorsal portion arises near



Figs. 84, 89, 94, ventral view of aedeagus; 85, 90, 95, lateral view of aedeagus; 86, 91, 96, lateroventral view of style; 87, 92, 97, ventral view of plate; 88, 93, 98, lateral view of pygofer. All drawn to the same scale.

base of shaft and extends along shaft for two thirds its length; a pair of slender parameres arise at base and extend along each side of shaft, but not proximal to it, to near apex which bends outwardly at right angles, is tapered and pointed. Pygofer spine slightly enlarged and rounded at apex, extending beyond caudal margin.

Female genitalia: Seventh sternum with lateral angles only slightly produced and broadly rounded to posterior margins; posterior margin broadly, shallowly excavated on medium two thirds.

Type: Holotype ♀, from Bonda, Colombia, VI.1898, Carnegie acc. no. 1999, in the Carnegie Museum.

Notes: This species is known from Colombia, Bolivia, French Guiana, and Panama. The male illustrations are of a Panama specimen.

Polana (Bulbusana) nida, sp.n.

(Figs. 104-108)

Length: Male – 8 mm. Crown broadly rounded, two and one half times as wide between eyes at base as median length. Color: Crown, pronotum and scutellum reddish brown. Fore wings dark brown, veins paler brown; cross veins of corium and ends of claval veins at commissure, dark brown with darker brown areas anterior to apical cross veins and costal, apical portion.

Male genitalia: Plates three and one half times as long as wide, apices rounded. Style with blade sickle-shaped; base and apical portions narrow, apex curved dorsad, pointed. Aedeagus with shaft narrow with a blunt apex, a narrow pointed spur arising on ventral margin, each side, one sixth distance from apex and extending to apex; a pair of narrow curved processes arising at base of shaft and extending two thirds length of shaft. Pygofer spine enlarged and rounded at apex, extending to apical margin of pygofer.

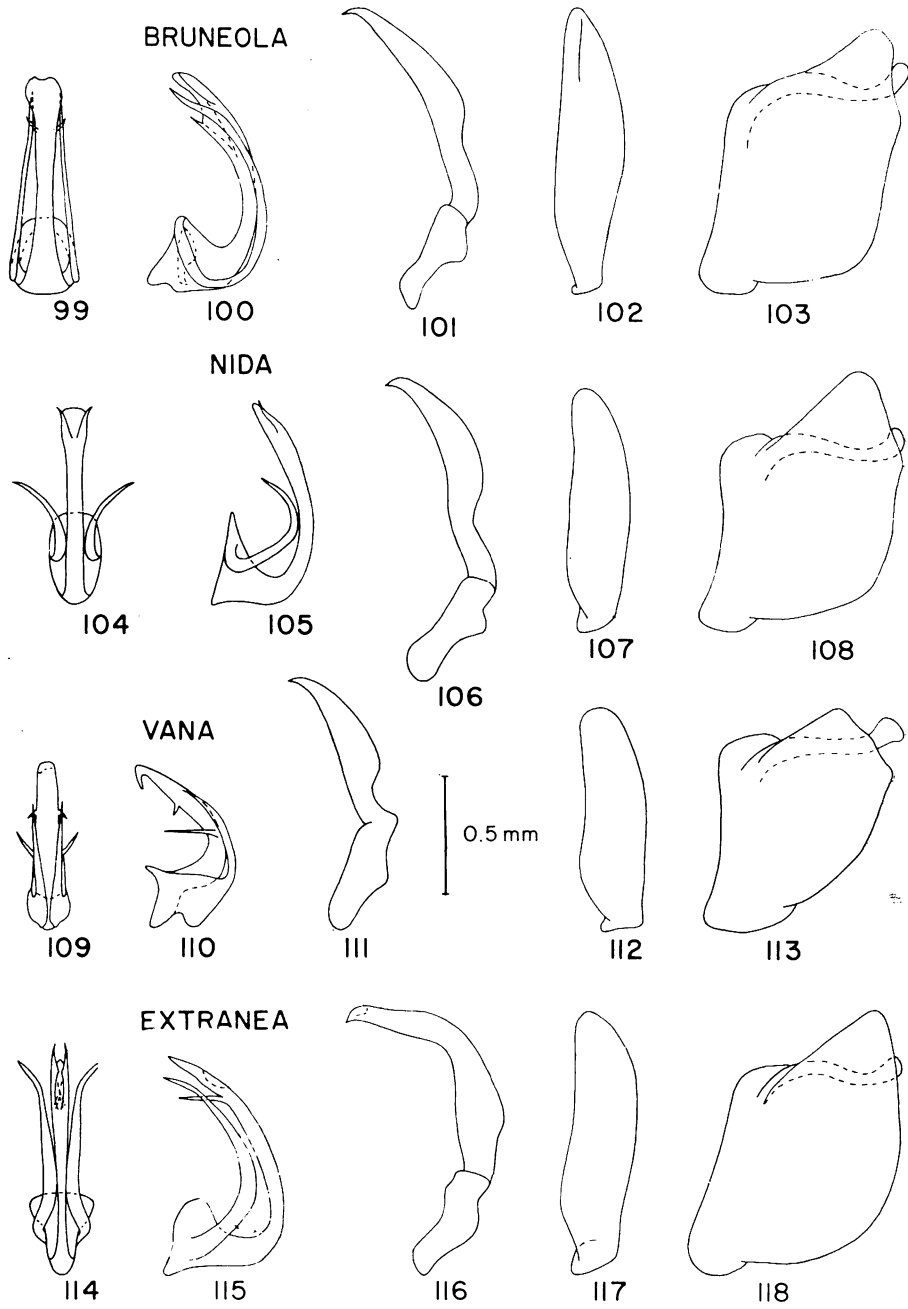
Holotype ♂, Barro Colorado Id., C. Z., IV.1940 (Jas. Zetek) No. 4647, in the U. S. National Museum.

Polana (Bulbusana) vana, sp.n.

(Figs. 109-113)

Length: Male – 8.3 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Pale brown without distinct markings.

Male genitalia: Plates more than three times as long as broad, apices rounded. Style with blade concavely excavated on ventral margin at base, concavely rounded on ventral margin beyond excavation, gra-



Figs. 99, 104, 109, 114, ventral view of aedeagus; 100, 105, 110, 115, lateral view of aedeagus; 101, 106, 111, 116, lateroventral view of style; 102, 107, 112, 117, ventral view of plate; 103, 108, 113, 118, lateral view of pygofer. All drawn to the same scale.

dually narrowed to sharp pointed apex. Aedeagus with shaft broad, bent dorsally at apex, a pair of long spine-like processes arising on dorsal side near middle, extending dorsally, another shorter pair of spine-like processes arising on each side halfway between larger spines and apex; parameres slender, pointed at apices, not reaching apex of shaft. Pygofer spine roundedly enlarged at apex, extending beyond truncate apex of pygofer.

Holotype ♂, Essequibo R., [British] Guiana; 29.IX.1929, in clearing (Oxford Univ. Exped.) B. M. 1929-485, in British Museum of Natural History.

Polana (Bulbusana) extranea (Fowler)

(Figs. 114-118)

Gypona extranea Fowler, 1903: 314.

Length: Male – 8 mm, female – 9 mm. Crown broadly rounded, two and one half times as wide between eyes at base as median length. Color: Crown, pronotum and scutellum reddish brown. Fore wings dark brown, veins paler brown; cross veins of corium and apices of claval veins at commissure, dark brown, with darker brown areas anterior to apical cross veins and apical costal region.

Male genitalia: Plates more than three times as long as broad, apices narrow, bluntly rounded. Style with blade vermiculate, apical half strongly concavely curved dorsad, apex sharp-pointed. Aedeagus with shaft with a pair or long apical spines and a shorter pair of sub-apical spines; a pair of long parameres arise at base of shaft, extending along shaft to its apex, apices slender on apical fourth, sharp pointed. Pygofer spine dorsal, broadened and blunt at apex, extending to apex of pygofer.

Female genitalia: Seventh sternum with lateral angles rounded to posterior margin; posterior margin broadly shallowly emarginate.

Type: A ♂, in the type series from Panama is here designated the lectotype of this species, and is in the British Museum of Natural History.

Notes: This species is known to occur from Panama to Guatemala.

Polana (Bulbusana) dispar, sp.n.

(Figs. 119-123)

Length: Male – 7.5 mm, female – 8 mm. Crown broadly rounded, two and one-half times as wide between eyes at base as median length. Color: Crown, pronotum and scutellum brown with darker brown irre-

gular areas. Fore wings pale brown; cross veins on corium, apical ends of claval veins, apex of clavus and tips of forewings, darker brown.

Male genitalia: Plates more than four times as long as broad, thickened on outer margins and heavily clothed with long hairs. Style long, slender, narrowed near apex then ventral margins sloping to form a rather thick pointed apex. Aedeagus with shaft narrow at base forming a broad terminal spatulate apex, a pair of short lateral spines arise on dorsal margin near base of spatulate portion; a pair of slender lateral parameres arise at base, extend along shaft to about its middle then bend dorsally, each side terminating in long slender pointed tips. Pygofer spine slightly enlarged, blunt and rounded at apex.

Female genitalia: Seventh sternum with lateral angles produced, broadly rounded between which posterior margin broadly, shallowly excavated, about one-fourth distance to base, each side of a pair of scarcely produced, broadly rounded median lobes which are separated by a broad, shallow V-shaped notch.

Holotype ♂, Patine, R. P., 14.IX.1952 (F. S. Blanton). Paratypes: 1 ♂, 2 ♀, Alnajuele, Pan., 19.IV.1911 (August Busck); 1 ♂, Trinidad, Base 17, 6.XI.1953 (F. S. Blanton). Holotype and 3 paratypes in U. S. National Museum. One paratype in the DeLong Collection, Ohio State University.

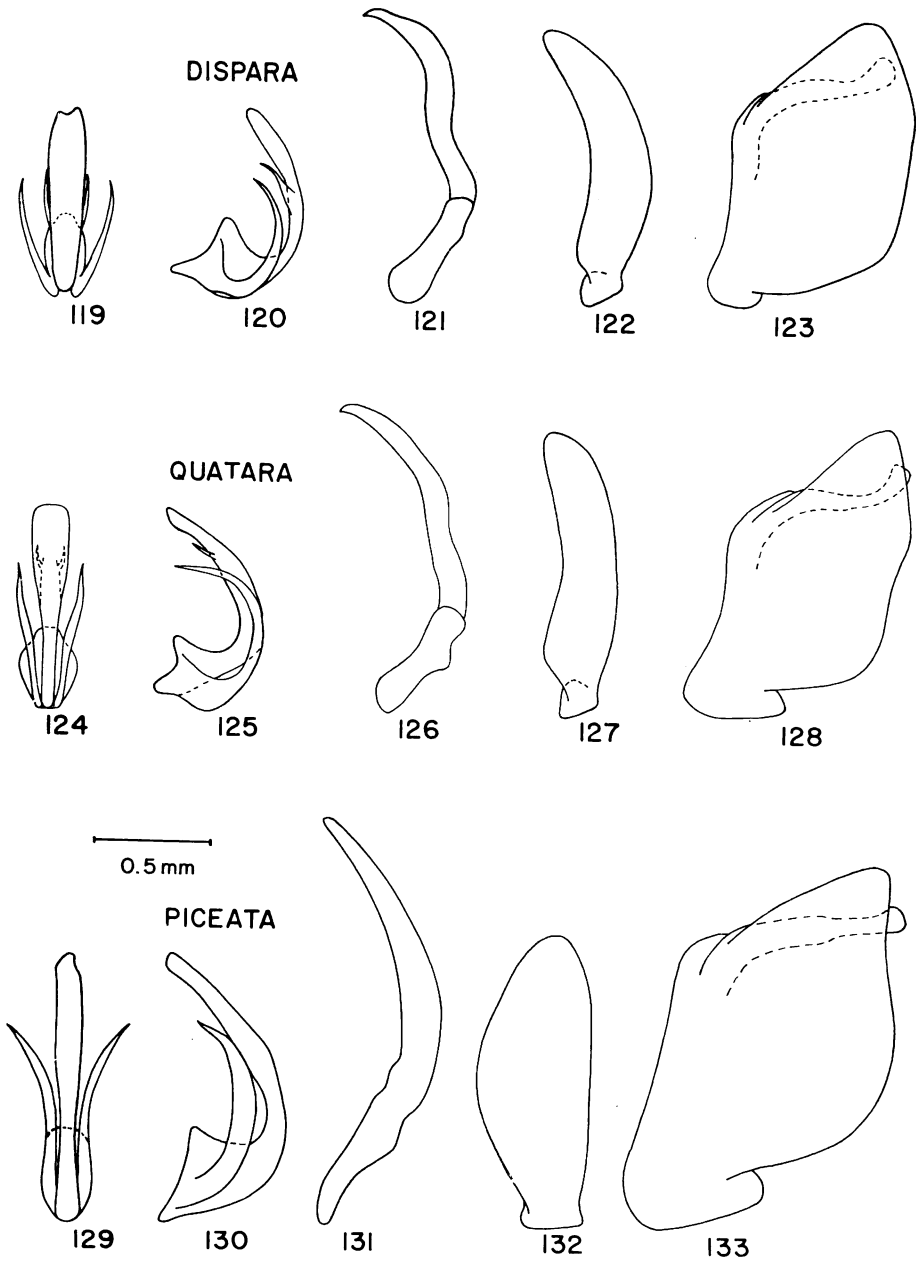
Polana (Bulbusana) quatará, sp.n.

(Figs. 124-128)

Length: Male – 7.5 mm. Crown broadly rounded, almost transverse, parallel margined, two and one-half times as wide between eyes at base as median length. Color: Light brown with anterior portion of pronotum and scutellum darker brown. Fore wings pale brown, cross veins on corium and apical ends of claval veins dark brown.

Male genitalia: Plates elongate, triangular, six times as long as median width, tapered to pointed apices with pubescence as long as plate. Style long, narrow, curved dorsally, tapered to pointed apex. Aedeagus with shaft long and slender on basal half (ventral view) gradually broadened to form a terminal broad spatulate process, apex broadly rounded; a pair of short slender sub-apical processes arise from dorsal portion of shaft; a pair of slender parameres arise dorsally and extend laterally along shaft almost to apex, apices slender and pointed. Pygofer spine enlarged, rounded, clavate at apex.

Holotype ♂, River Estate, Trinidad, 5.X.1918, A-762 (Harold Morrison). Paratypes: 1 ♂, 1 without abdomen, Carrizal Guraico, Venezuela, VIII.47 (P. Anduze). Holotype and paratypes in the U. S. National Museum.



Figs. 119, 124, 129, ventral view of aedeagus; 120, 125, 130, lateral view of aedeagus; 121, 126, 131, lateroventral view of style; 122, 127, 132, ventral view of plate; 123, 128, 133, lateral view of pygofer. All drawn to the same scale.

***Polana (Bulbusana) piceata* (Osborn)**

(Figs. 129-133)

Ponana piceata Osborn, 1938: 45

Length: Male - 9 mm. Crown broadly rounded, short, parallel margined, three times as wide between eyes at base as median length. Color: Dark brown with black areas including most of head between eyes, around ocelli, anterior portion of pronotum, and basal angles of scutellum. Fore wing with a large pale brown area at tip of clavus.

Male genitalia: Plates almost three times as long as median width, outer margin convexly rounded, apex narrowed, rounded. Style elongate, curved, broadened at middle, gradually tapered to slender apex, which is bent dorsally and bluntly pointed. Aedeagus with shaft narrowed at one-third its length then broadened to near apex which is slender and bluntly pointed; long slender parameres arise on each side at base, extend apically, curve laterally, taper to slender pointed apices. Pygofer spine extended beyond ventrocaudal margin, slightly enlarged, rounded at apex.

Type: Holotype ♂, from Prov. del Sara, Bolivia, in the Carnegie Museum.

Notes: No other specimens have been observed.

***Polana (Bulbusana) laca*, sp. n.**

(Figs. 134-138)

Length: Male - 6 mm. Crown broadly rounded, almost transverse, less than twice as wide between eyes at base as median length. Ocelli closer to median line than to proximal eye. Color: Crown yellow with two diagonal dark brown spots at base, one posterior to each ocellus, face pale brown. Pronotum yellow tinged with green, a pair of black diagonal spots just posterior to spots on base of crown, a round black spot on lateral margin, each side, at half the length of pronotum and a smaller round, proximal black spot each side. Scutellum yellow tinged with brown. Fore wings smoky, subhyaline, costal area green; veins, except on costa, dark brown.

Male genitalia: Plates more than four times as long as broad, apices narrow, bluntly pointed. Style with apical half of blade curved dorsally, apex bluntly pointed. Aedeagus with shaft gradually broadened to form a spatula-like apex, basodorsal portion extends dorsally along shaft almost to apex of shaft; parameres slender, almost as long as shaft. Pygofer spine thick, apex blunt.

Holotype ♂, Ter. Amapá, Rio Anicohi, Brazil. 26.VI.1959 (J. Lane), in the Museu de Zoologia, Universidade de São Paulo.

Polana (Bulbusana) inclinata, sp. n.

(Figs. 139-143)

Length: Male – 7.5 mm. Crown broadly rounded, twice as wide between eyes at base as median length. Color: Generally golden brown. Fore wings brownish, transparent, with irregular dark brown markings on disc; veins conspicuous, with cross veins of apical cells dark brown.

Male genitalia: Plates five times as long as wide, apices rounded. Style with long narrow blade, apex curved dorsad, narrowed, bluntly pointed. Aedeagus with shaft long, rounded at apex; a pair of parameres arising at base, narrowed, pointed at apex, extending to apex of shaft. Pygofer with a short curved spine, beneath dorsal portion of pygofer wall, apex enlarged, rounded.

Holotype ♂, Dominica, BWI, Antrim, 1000 ft.; 12.III.1956 (J. F. G. Clarke), in the U. S. National Museum.

Polana (Bulbusana) obtecta, sp. n.

(Figs. 144-148)

Length: Male – 8 mm. Crown broadly roundedly produced, about two and one half times as wide between eyes at base as median length. Color: Generally golden brown. Crown dark brown. Fore wings with four dark brown, small, elongate spots, one on each cross vein of corium and one on end of each claval vein at commissure.

Male genitalia: Plates three times as long as broad, apices narrowed, rounded. Style with a greatly enlarged head-like structure with a dorsally produced, narrow, elongate, pointed apical portion. Aedeagus with shaft with apex curved basad, apex bifid with one long narrow apical spine and one short narrow spine. A similar pair of apical spines extend laterally. Pygofer spine long, with upcurved apical and ante-apical teeth.

Holotype ♂, Manaus, Amazonas, Brazil, IX.1919, in the DeLong Collection, Ohio State University.

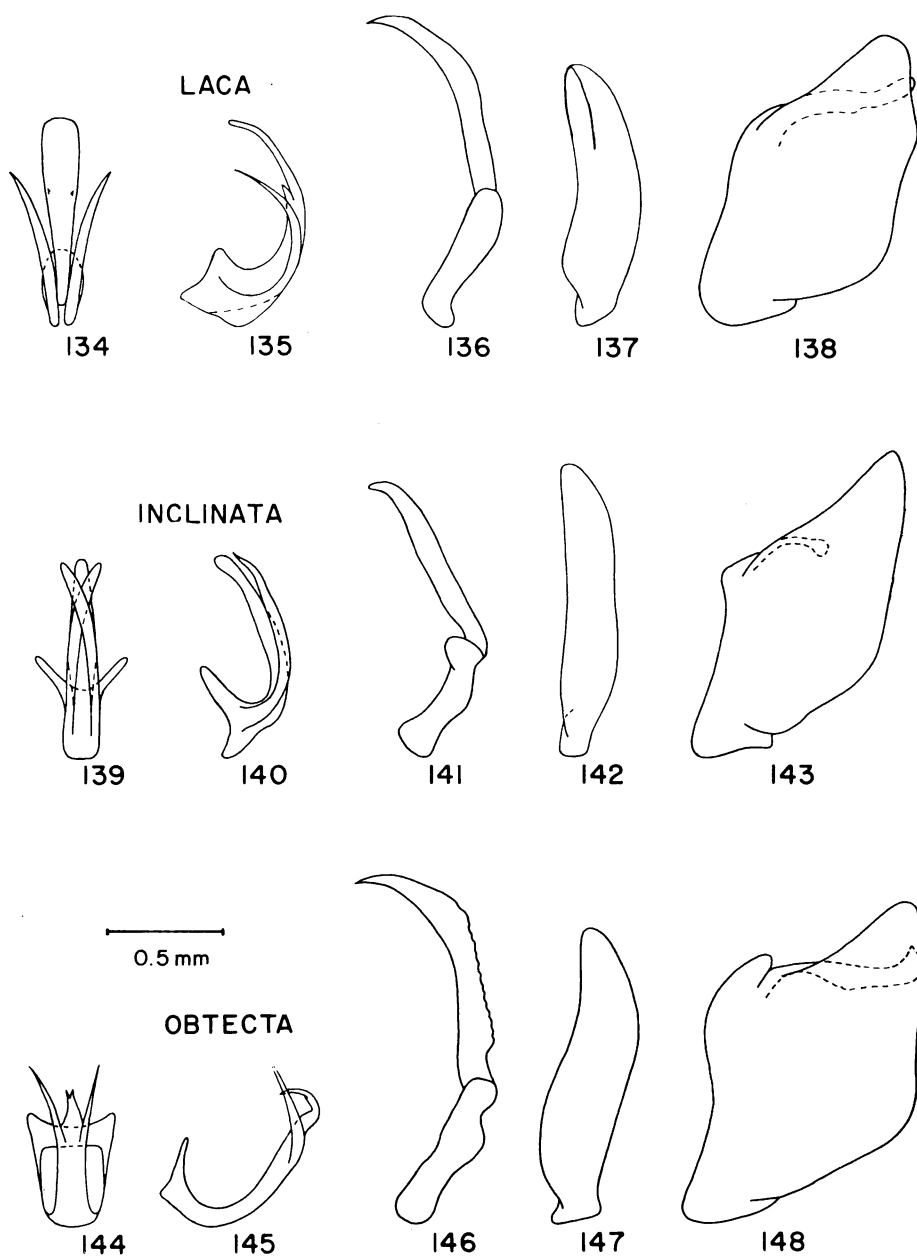
Notes: No other specimens have been observed.

Subgenus **Polana** DeLong, status new

Head narrower than pronotum, crown short, broad, rounded to front. Male aedeagus with parameres arising from base of aedeagal shaft. Pygofer with a pair of dorsally attached processes which are "hooked" at apex, bearing one or two apical teeth which extend dorsad.

Type-species: *Gypona quadrinotata* Spangberg.

This subgenus has 24 species placed in it, ranging from the southern states of the United States, through Central America, to most countries of South America. They can be separated by the following key.



Figs. 134, 139, 144, ventral view of aedeagus; 135, 140, 145, lateral view of aedeagus; 136, 141, 146, lateroventral view of style; 137, 142, 147, ventral view of plate; 138, 143, 148, lateral view of pygofer. All drawn to the same scale.

KEY TO MALES OF THE SUBGENUS *POLANA*

1. Style with a prominent tubercle on ventral margin at one half to two thirds the length of blade 2
- 1'. Style without a tubercle on ventral margin 10
- 2(1). Aedeagal shaft with apical or subapical processes 3
- 2'. Aedeagal shaft without apical or subapical processes *mala* (fig. 194)
- 3(2). Apex of aedeagal shaft bent basad, terminating in a pair of apical processes 4
- 3'. Apex of aedeagal shaft if bent, not terminating in a pair of apical processes 5
- 4(3'). Apical processes short, spine-like, inconspicuous; basal portion of blade of style long, very slender *principia* (fig. 174)
- 4'. Apical processes long, conspicuous; basal portion of blade of style short, broader *aspersa* (fig. 169)
- 5(3'). Tubercle on ventral margin of style at about one half the length of blade 6
- 5'. Tubercle on ventral margin of style at two thirds the length of blade, forming a foot-like structure on the apical portion of the style 8
- 6(5). Apex of aedeagal shaft bent basad *spindella* (fig. 180)
- 6'. Apex of aedeagal shaft not bent basad 7
- 7(6'). Subapical processes of aedeagal shaft extending basad; apices of parameres straight, slender *quadrinotata* (fig. 155)
- 7'. Subapical processes of aedeagal shaft extending laterally; apical portion of parameres bent laterally *gelera* (fig. 185)
- 8(5'). Pygofer process with apex curved dorsad and cephalad *peda* (fig. 208)
- 8'. Pygofer process with dorsal tooth at apex 9
- 9(8'). Parameres shorter than aedeagal shaft, bending laterally, apices tapered, slender, pointed; subapical aedeagal processes extending basad and laterad *unca* (fig. 160)
- 9'. Parameres as long as aedeagal shaft, apical portion not tapered, apex bluntly pointed; subapical processes longer, extending basad *pensa* (fig. 165)
- 10(1'). Aedeagal shaft bifid at apex or bearing apical or subapical processes 11
- 10'. Aedeagal shaft not bifid at apex or bearing processes *ruppeli* (fig. 249)
- 11(10). Aedeagal shaft only two and one half times as long as broad (ventral view) with two pairs of subapical processes *lanara* (fig. 214)
- 11'. Aedeagal shaft at least four times as long as broad, with not more than one pair of subapical processes 12

- 12(11). Parameres short, less than half the length of aedeagal shaft . . .
 *bulba* (fig. 210)
- 12'. Parameres longer, at least two thirds the length of aedeagal shaft 13
- 13(12'). Parameres bifid at apex or with a subapical spur
 *optata* (fig. 189)
- 13'. Parameres not bifid at apex 14
- 14(13'). Aedeagus bifid at apex 15
- 14'. Aedeagus not bifid at apex 16
- 15(14). Style broadened at middle, serrate on ventral margin of broadened portion, pygofer process slender, tapered at apex
 *flectara* (fig. 229)
- 15'. Style broadened on apical two thirds, apex abruptly pointed; pygofer process enlarged at apex with two dorsal teeth
 *fusconotata* (fig. 259)
- 16(14'). Style broadest at apex or distinctly enlarged just before apex 17
- 16'. Style almost uniform in width, or broadened at middle, or only slightly broadened on apical portion 21
- 17(16). Pygofer process with a single apical tooth extending dorsad
 *nidula* (fig. 203)
- 17'. Pygofer process with two teeth extending dorsad, the apical tooth often very small 18
- 18(17'). Parameres short, broad on basal two thirds, apical portion abruptly narrowed, slender, pointed *parca* (fig. 254)
- 18'. Parameres longer, extending almost to apex of aedeagal shaft, gradually narrowing from base to apex 19
- 19(18'). Style broadened on apical two thirds of blade, narrowed just before pointed apex *alitera* (fig. 266)
- 19'. Style enlarged, rounded ventrally just before pointed apex . . 20
- 20(19'). Style with prominent pointed apical spine, apical tooth of pygofer process very short *scruta* (fig. 248)
- 20'. Style with pointed apical tooth short, inconspicuous, apical teeth of pygofer process prominent . . . *squalera* (fig. 243)
- 21(16'). Aedeagal shaft with a long, thick, dorsal spine, one third length of shaft, arising near middle of shaft; style broadest at one third length of blade *coresa* (fig. 234)
- 21'. Aedeagal shaft without dorsal spine; style not broadened at one third length of blade 22
- 22(21'). Aedeagal shaft with two apical processes *merga* (fig. 224)
- 22'. Aedeagal shaft with two subapical processes 23
- 23(22'). Subapical aedeagal process extending caudad *ocellata* (fig. 149)
- 23'. Subapical aedeagal processes extending laterally
 *inimica* (fig. 219)

Polana (Polana) ocellata (Spangberg)

(Figs. 149-153)

Gypona ocellata Spangberg, 1878: 57.

Length: Male – 7.5 mm, female – 8 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Pale brown, with a small round black spot on basal margin of crown, behind each ocellus, and a small round black spot on pronotum behind each eye. Fore wings with darker brown mottling along commissural margin of each clavus.

Male genitalia: Plates triangular, outer margin convexly curved, apex blunt, twice as long as median width. Style slender, enlarged on ventral margin just before apex, then abruptly narrowed to narrow blunt tip. Aedeagus with shaft slender, enlarged at two-thirds its length and bifid, forming two divergent tapered apical prongs one third length of shaft. Pygofer spine thick, with thick recurved spine-like tip.

Female genitalia: Seventh sternum with strongly produced lateral angles between which posterior margin deeply concavely excavated each side of a broadly rounded, produced, median lobe which is broadly roundedly notched at apex.

Types: A male labeled "Taiti, typus" is here designated the lectotype; a female labeled "Puna, paratype" is here designated a paralectotype. Both are in the Stockholm Museum, and have been studied.

Polana (Polana) quadrinotata (Spangberg)

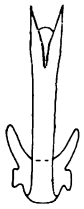
(Figs. 154-158)

Gypona quadrinotata Spangberg, 1878: 56.*Polana quadrinotata*; DeLong 1942: 111.

Length: Male – 8 mm, female – 8.25 mm. Crown short, broadly rounded, more than three times as wide between eyes at base as median length. Color: Brown, with a pair of black spots on pronotum close to lateral margins, one behind each eye. Scutellum with basal angles brown. Fore wings pale brown, veins darker, usually conspicuous.

Male genitalia: Plates more than twice as long as median width, apices narrowed, rounded. Style narrowed at middle by concavely curved ventral margin which extends to a produced bluntly pointed ventral tubercle, at two thirds length of style, beyond which the apical third is narrowed with a dorsally pointed tip. Aedeagus with shaft with apical portion enlarged, apex tapered and pointed; a pair of long slender lateral processes extend from base of enlargement each side, basad and laterad, half distance to base; a curved paramere arises each side at base, extends along shaft to half its length then curves laterally at tip. Pygofer spine enlarged at apex, curved dorsally, pointed.

OCELLATA



149



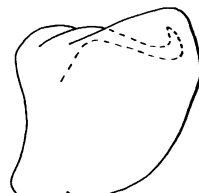
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151



152



153

QUADRINOTATA



154



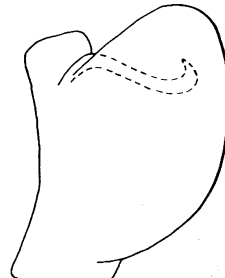
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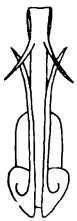


157

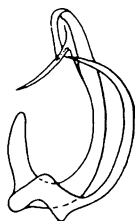


158

0.5 mm



159



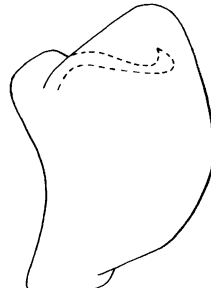
160



161

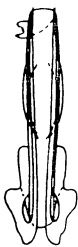


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163

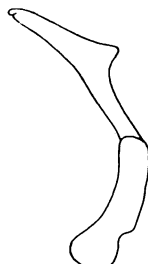
UNCA



164



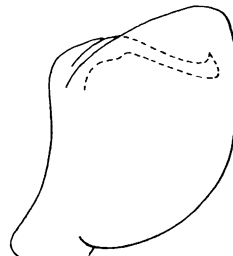
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166



167



168

PENSA

Figs. 149, 154, 159, 164, ventral view of aedeagus; 150, 155, 160, 165, lateral view of aedeagus; 151, 156, 161, 166, lateroventral view of style; 152, 157, 162, 167, ventral view of plate; 153, 158, 163, 168, lateral view of pygofer. All drawn to the same scale.

Female genitalia: Seventh sternum with lateral angles produced and rounded between which posterior margin deeply excavated, with a broad v-shaped notch, almost halfway to base, each side of a median lobe, one third the width of segment, extending caudally beyond lateral angles and slightly notched at apex.

Types: A female labeled "Georgia, typus" and a male labeled "Texas, paratypus" are in the Stockholm Museum.

Notes: This species is known to occur in the southern states of the United States, and Mexico.

Polana (Polana) unca, sp. n.

(Figs. 159-163)

Length: Male – 8 mm, female – 8.5 mm. Crown broadly rounded, two and one-half times as wide between eyes at base as median length. Color: Pale brown, basal angles of scutellum darker brown. Fore wings with cross veins of corium, ends of claval veins next to commissure, and veins of apical cells, dark brown.

Male genitalia: Plates elongate, convexly curved on outer margin, more than twice as long as wide, apex rounded. Style curved, apical portion "foot-shaped" with a prominent, ventrally produced tubercle-like "heel"; ventral margin extending straight to a narrow, bluntly pointed "toe". Aedeagus with shaft long, narrow basally, broadened apically, curved dorsally at apex; a pair of prominent spines arising dorsally, and extending basally; a pair of long, slender parameres arise basally, extend on each side of shaft to two-thirds its length then curve dorsally. Pygofer spine curved dorsally at apex, tip sharp pointed.

Female genitalia: Seventh sternum with lateral angles broadly rounded between which posterior margin excavated one-fourth the distance to base each side of a truncate median half, which is slightly, broadly, rounded at middle.

Holotype ♂, Darien, Santa Fé Prov., Panama, 2.VI.1967 (DeLong and Triplehorn). Paratypes: 37 ♂, 7 ♀, same data as holotype; 1 ♂, 1 ♀, same data as holotype, except 29.V.1967; 2 ♂, 2 ♀, Taboga Id., Pan., 18.II.1912 (A. Busck); 2 ♂, 4 ♀, Taboga, Id., Pan., 16-17.II.1912; 1 ♂, 2 ♀, Rio Trinidad, Pan., 2.VI.1912 (A. Busck); 1 ♂, Paris, Panama, 23.X.1952 (F. S. Blanton); 3 ♂, 2 ♀, Palm Beach., Pr. San Carlos, Pan., 7.X.1952 (F. S. Blanton); 1 ♂, Mojinga Swp., Panama, CZ, 30.XI.1952; 1 ♂, 1 ♀, same data except 8.I.1953; 8 ♂, 2 ♀, same data except 20.XI.1951; 2 ♂, same data except 15.I.1953; 2 ♂, 1 ♀, Panama, Can. Zone, 25.VI.1953; 1 ♂, Barro Colorado Id., CZ; 1 ♂, Porto Bello, Pana., 24.I.1912 (A. Busck); 1 ♂, Indio Hydrographic Sta., Panama, CZ, X.1946 (N. H. L. Krauss). Holotype and paratypes in the DeLong Collection, Ohio State University. Paratypes also in the U. S. National Museum,

the North Carolina State University Collection, the Stockholm Museum, the American Museum of Natural History, the California Academy of Sciences, and the Museu de Zoologia da Universidade de São Paulo, Brazil.

Polana (Polana) pensa, sp. n.

(Figs. 164-168)

Length: Male – 7.5 mm. Crown broad, rounded, three times as broad between eyes at base as median length. Color: Pale brown with a small black spot behind each ocellus. Pronotum with irregular mottling and a small spot behind each eye on anterior portion; and basal angles of scutellum, dark brown. Fore wings with cross veins on corium and ends of claval veins at commissure, dark brown.

Male genitalia: Plates twice as long as median width, apices narrow, rounded. Style with apical half foot-shaped, broadened at middle with a ventrally pointed heel. Aedeagus with shaft gradually broadened on apical half, apex broad, curved dorsally; a pair of long parallel processes arise on dorsal margin near apex and slope basally and dorsally; a pair of long parameres arise basally and extend to apex of shaft, one on each side. Pygofer spine enlarged at apex with a pointed spine-like tooth on dorsal apical margin.

Holotype ♂, labeled "Colombia" is in the Stockholm Museum.

Notes: The holotype was labeled as a "paratype" of *Gypona obtusa* Stal.

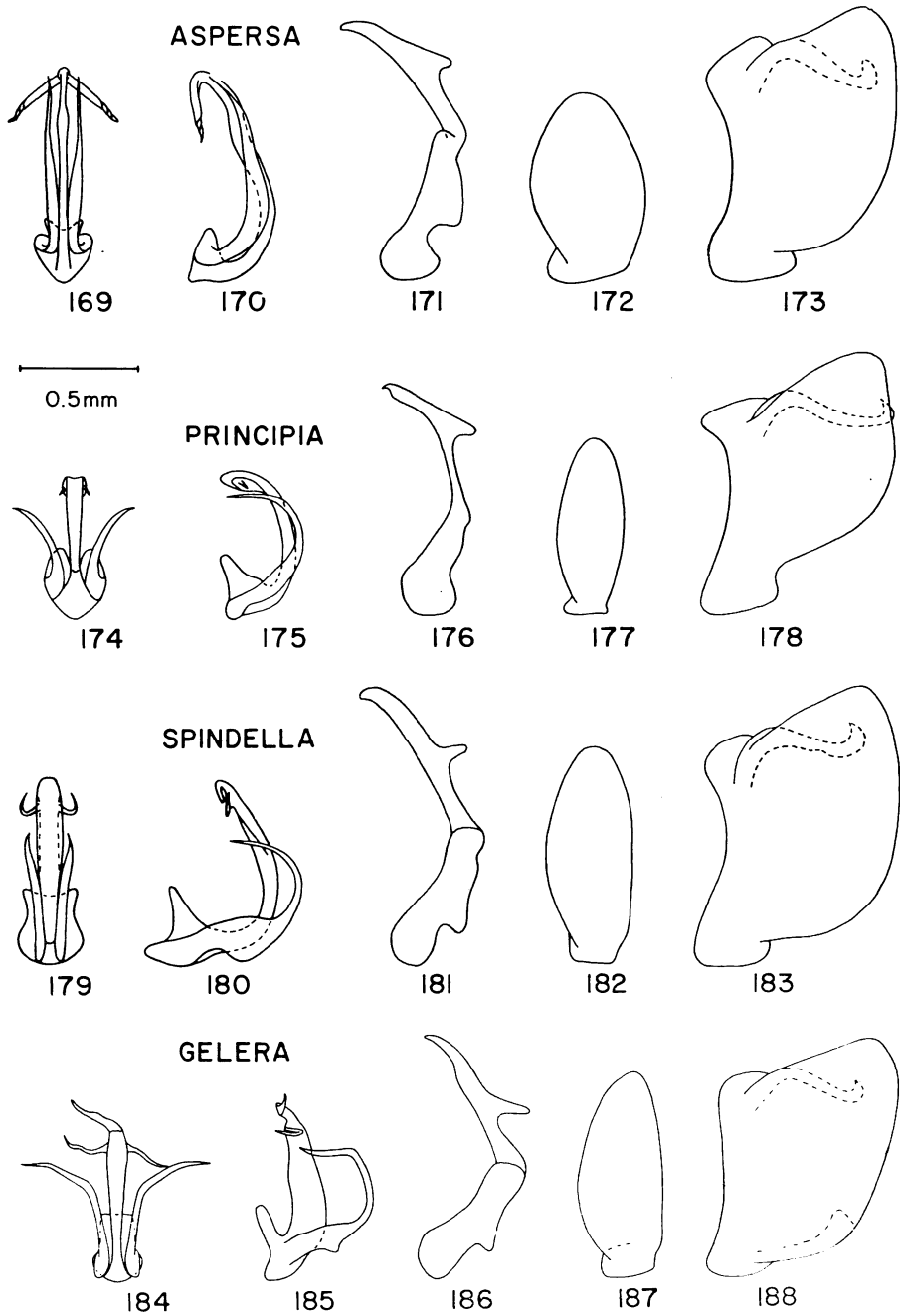
Polana (Polana) aspersa, sp. n.

(Figs. 169-173)

Length: Male – 7.5 mm. Crown broadly rounded, not quite twice as wide between eyes at base as median length. Color: Crown, pronotum and scutellum brown, a few darker brown markings on anterior portion of pronotum and basal angles of scutellum. Fore wings pale brown; veins darker brown; cross veins of corium and terminal portion of claval veins at commissure more broadly embrowned.

Male genitalia: Plates more than half as wide as long. Style with blade narrow at base, abruptly broadened at half its length, apical half elongate, triangular, apex sharp, pointed. Aedeagus with shaft elongate, narrow, a pair of apical processes, twisted at apices, one third length of shaft, extending basolaterally; parameres arising from phallobase, narrow, tapered to pointed tips, as long as shaft. Pygofer spines stout, with thick upturned apical hooks.

Holotype ♂, Darien, Prov. Santa Fé, Panama, 29.V.1967 (DeLong & Triplehorn). Paratypes: one ♂, Juanjui, San Martin, Peru, 5.XII.1946,



Figs. 169, 174, 179, 184, ventral view of aedeagus; 170, 175, 180, 185, lateral view of aedeagus; 171, 176, 181, 186, lateroventral view of style; 172, 177, 182, 187, ventral view of plate; 173, 178, 183, 188, lateral view of pygofer. All drawn to the same scale.

Alt. 1600 ft. (J. C. Pallister, Donor Frank Johnson); 1 ♂, Bolivia, Dept. Beni, Guayaramerin, Rio Mamore, 25.XIII.1964 (J. K. Bouseman and J. Lussenhop). Holotype in the DeLong Collection. Paratypes in the American Museum of Natural History.

Polana (Polana) principia, sp.n.

(Figs. 174-178)

Length: Male – 6.8 mm. Crown rounded, almost three times as wide between eyes at base as median length. Color: Crown dark brown. Pronotum and scutellum golden brown. Fore wings yellowish brown, veins conspicuous; cross veins of corium, cross veins of anterior apical cells and ends of claval veins at commissure, dark brown.

Male genitalia: Plates elongate, ovate, more than twice as long as median width, apices rounded. Style narrow at base of blade, broadened at middle, forming a foot like apical half, angled with basal portion, sloping caudodorsally with a bluntly pointed apical “toe” and a ventrally protruding rounded “heel”. Aedeagus with shaft stout at base, narrow on apical two thirds, tip curved dorsally and basad with a pair of short apical spines; a pair of parameres arise laterally at base, extend along shaft to near apex, curve dorsally beyond shaft; their apices appear as a pair of pointed spines. Pygofer spine with a short curved apical terminal hook.

Holotype ♂, Darien, Prov. Santa Fé, Panama, 28.V.1967 (D. M. DeLong and C. A. Triplehorn). Paratypes: 1 ♂, Panama, Arraijan, 26.III.1952 (F. S. Blanton); 2 ♂, Panama, Barro Colorado Isl., 1-9.V.1964 (W. D. and S. S. Duckworth). Holotype in the DeLong Collection, Ohio State University. Paratypes in the U. S. National Museum.

Polana (Polana) spindella, sp.n.

(Figs. 179-183)

Length: Male – 8 mm. Crown broadly rounded, parallel margined, almost transverse, two and one-half times as wide between eyes at base as median length. Color: Crown dark brown. Pronotum pale brown with darker brown irregular markings across anterior portion. Scutellum orange brown. Fore wings pale brown, veins pale but brown margined; cross veins of corium, apical ends of claval veins and apical cross veins, dark brown.

Male genitalia: Plates elongate, bluntly rounded, three times as long as median width. Style long and narrow, apex pointed, a prominent spur on ventral margin at one third length of blade. Aedeagus with shaft long, stout (in lateral view), apical portion enlarged and curved dorsally, with a pair of long apical spines arising on dorsal margin basad of rounded, enlarged apex; a pair of long slender parameres arise at base and extend each side, laterally almost to apex of shaft. Pygofer spine stout with a thick dorsally curved hook at apex.

Holotype ♂, Tamazunchale, Mexico, 15.XI.1938 (T. S. Caldwell). Paratypes: 1 ♂, Iguala, Guerrero, Mexico, 11.IX.1939 (D. M. De Long); 1 ♂, Reforma, Tabasco, Mexico, 23.VI.1938 (A. Dampf); 1 ♂, Amacuzac, Morelos, Mexico, 1080 m., 1.VIII.1930 (J. Parra); 1 ♂, Aca-pulco Rd., Mexico, 22.XI.1938 (J. S. Caldwell); 1 ♂, Br. Honduras, Punta Gorda, V.1934 (John L. Buys); 1 ♂, Mexico, Cozumal Id., Celerain Pt. Sta. 20-21.IV.1960; 1 ♂, San Rafael, Sicaltepec, Vera Cruz, Mexico, VI.1960; 1 ♂, Tamazunchale, S. L. P., Mexico, 20.V.1952 (M. Cazier, W. Gertsch, R. Schrammel); 1 ♂, Columbia, Br. Honduras, IV.1932, (J. J. White); 1 ♂, Corupá (Hansa Humboldt), S. Catarina, Brazil, XI.1930 (A. Maller, donor Frank Johnson). 1 ♂, Cordoba V. C. Mexico 8.X.41 (DeLong, Good, Caldwell, Plummer); 1 ♂, Apatzingan 12.VIII.41 Mich. Mexico (Haag) 1200 ft.; 2 ♂, 2 mi. S. Tamazunchale S. L. P. Mexico 15.VII.63. 400' Duckworth & Davis. Holotype and paratype in the DeLong Collection, Ohio State University. Paratypes in the U. S. National Museum, the North Carolina State University Collection, the American Museum of Natural History, and the Museu de Zoologia da Universidade de São Paulo, Brazil.

Polana (Polana) gelera, sp.n.

(Figs. 184-188)

Length: Male - 9 mm. Crown broadly rounded, three times as broad between eyes at base as median length. Color: Generally pale brown. Fore wings with veins dark brown; cross veins of corium, ends of claval veins at commissure and apical cross veins, dark brown.

Male genitalia: Plates almost three times as long as wide, apices narrow, rounded. Style with a finger like tubercle on ventral margin at one third length of blade, apex narrowed, curved dorsally, sharp pointed. Aedeagus with shaft broadened before pointed apex, a pair of lateral antepical processes one third length of shaft, extending laterally; parameres as long as shaft, narrowed, sharp pointed, apices bent dorsally. Pygofer spine thick at apex with upturned, slender, pointed hook.

Holotype ♂, Orizaba, Veracruz, Mexico, 4.X.1941 (DeLong, Good, Caldwell, and Plummer). Paratype: 1 ♂, Colombia, British Honduras, IV.1932 (J. J. White). Holotype in the DeLong Collection, Ohio State University. Paratype in the North Carolina State University Collection.

Polana (Polana) optata, sp.n.

(Figs. 189-193)

Length: Male - 7.5 mm. Crown broadly rounded, more than two and one half times as wide between eyes at base as median length. Color: Dull yellow with a faint diagonal brown mark on base of crown behind each ocellus. Pronotum with irregular brownish markings on

anterior portion, posterior portion pale brown. Scutellum with basal angles dark brown. Fore wings yellow, subhyaline, a brown spot on apical end of each claval vein.

Male genitalia: Plates more than twice as long as broad, apices rounded. Style with blade same width as base almost to apex, apex narrowed to a pointed spine which curves dorsad. Aedeagus with shaft enlarged on apical fourth, apex blunt, bearing a pair of long straight subapical spines extending caudad; a pair of parameres arising at base extending almost length of shaft, bifid at three fourths their length, with outer branch about half as long as inner branch. Pygofer spine with dorsally bent pointed apex.

Holotype ♂, labeled "Bogotá", in the DeLong collection, Ohio State University.

Polana (Polana) mala, sp.n.

(Figs. 194-198)

Length: Male - 6.5 mm. Crown broadly rounded, parallel margined, three times as wide between eyes at base as median length. Color: Crown, pronotum and scutellum dull yellow; a faint dash and a more prominent dot of brown behind each eye on pronotum. Fore wings dull yellow; cross veins on corium and apical ends of claval veins along commissure, brown.

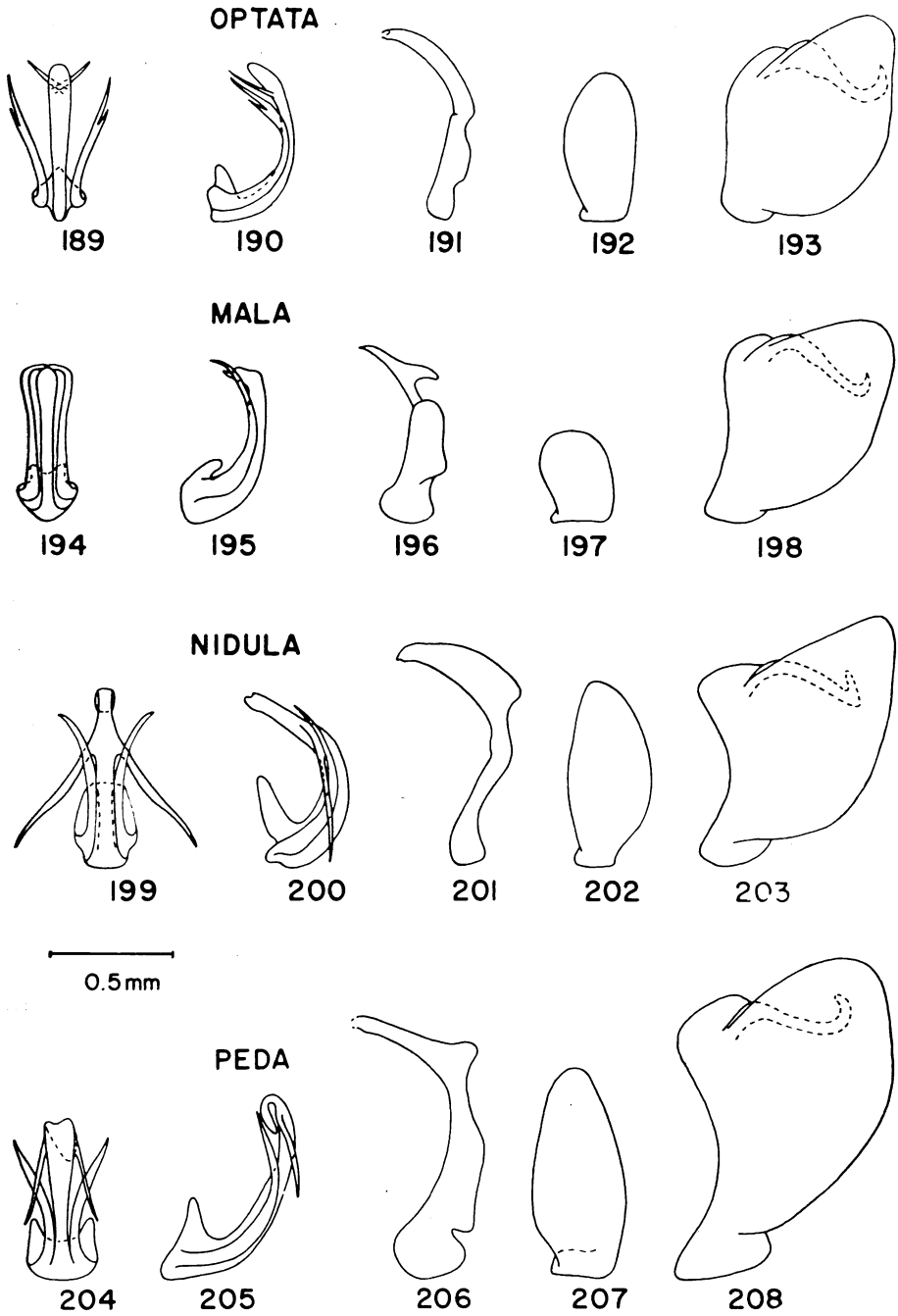
Male genitalia: Plates a little longer than broad, apices broadly rounded. Style slender from base to apex, apex pointed; enlarged at middle by an elongate, narrow, blunt tubercle-like process on ventral margin which extends ventrad and basad. Aedeagus with shaft bent dorsally and bearing an apical, pointed finger-like process; a pair of parameres arise at base extend along each side of shaft, longer than shaft, and taper to pointed apices. Pygofer spine curved dorsad at apex and pointed.

Holotype ♂, Kartabo, Bartica District, Guiana, 16.V.1924, in the North Carolina State University Collection.

Polana (Polana) nidula, sp.n.

(Figs. 199-203)

Length: Male - 7.5 mm, female - 8 mm. Crown slightly produced at middle, almost parallel margined, more than twice as wide between eyes at base as median length. Color: Brown marked with darker brown and yellow. Crown dark brown each side of median pale line. Pronotum dark brown with irregular yellow spots on anterior third. Scutellum dark brown on anterior half with four yellow spots at base, apical half paler brown. Fore wings pale brown, veins yellow margined with dark brown or black. Underneath pale brown to yellow.



Figs. 189, 194, 199, 204, ventral view of aedeagus; 190, 195, 200, 205, lateral view of aedeagus; 191, 196, 201, 206, lateroventral view of style; 192, 197, 202, 207, ventral view of plate; 193, 198, 203, 208, lateral view of pygofer. All drawn to the same scale.

Male genitalia: Plates short, elongate, twice as long as wide. Style blade-like, broadened near base of blade then gradually narrowed to near apex where it is rapidly narrowed to form a blunt pointed apex. Aedeagus with shaft stout with two long lateral processes arising at two-thirds its length, which are almost as long as basal portion of shaft and directed laterobasad; apical portion of shaft narrow, tip bluntly pointed; a pair of parameres arise from base, extend laterally along shaft longer than lateral processes with apices narrow, pointed.

Female genitalia: Seventh sternum with lateral angles broadly rounded to form a truncate margin.

Holotype ♂, Bolivia, Dept. of Santa Cruz, Saavedra Exper. Sta., 6.I.60 (R. Cumming). Paratypes: 1 ♂, 13 ♀, same as holotype except 3.I.60; 2 ♀, same as holotype except 28.XII.59; 1 ♀ same as holotype. Holotype and paratypes in the DeLong Collection, Ohio State University. Paratypes also in the U. S. National Museum, the Museu de Zoologia da Universidade de São Paulo, Brazil, the North Carolina State University and the Stockholm Museum.

Polana (Polana) peda, sp.n.

(Figs. 204-208)

Length: Male – 7 mm. Crown broadly rounded, parallel margin-ed, more than three times as wide between eyes at base as median length. Color: Crown and pronotum sordid yellow with brownish areas. Scutellum with basal half brown, apical half yellow. Fore wings brown; veins pale brown with dark brown spots on cross veins of corium and on apical ends of claval veins at commissure.

Male genitalia: Plates more than twice as long as broad, apices narrow, rounded. Style with blade terminating in a long foot-like portion, "heel" formed by a rounded enlargement on ventral margin, "toe" protrudes apically, rounded, dorsally bent on apical third. Aedeagus with apical end of shaft recurved, extending basad; a pair of subapical processes, one third length of shaft, arise just before recurved portion and extend basad; a pair of parameres arise at base, extend almost to apex with a narrowed and pointed apex. Pygofer with spine beneath dorsal pygofer wall, each side, curved dorsad and bluntly pointed at apex.

Holotype ♂, Br. Honduras, Punta Gorda, V.1934, in the U. S. National Museum.

Polana (Polana) bulba, sp.n.

(Figs. 209-213)

Length: Male – 7.5 mm. Crown broadly rounded, twice as wide between eyes at base as median length. Color: Head, pronotum and

scutellum pale brown, tinted with yellow. Fore wings pale brown; cross veins on corium, apices of claval veins at commissure and apical cell cross veins, dark brown.

Male genitalia: Plates more than twice as long as wide, apices narrow, rounded. Style with blade narrow at base, rapidly broadened at half its length, on ventral margin, to three times basal width; abruptly narrowed at apex to form a short finger like sharp pointed apex. Aedeagus with shaft tapered from base to narrow divided apex, forming a pair of divergent, pointed processes; a pair of short, tapered, pointed parameres arise from the phallobase and extend along side of shaft to one third its length. Pygofer spine with a thick upturned hook at apex.

Holotype ♂, Callanga, Paucartambo, Dept. Cusco, Peru, 19.II.1952 (F. L. Woytkowski), in the North Carolina State University Collection.

Polana (Polana) lanara, sp.n.

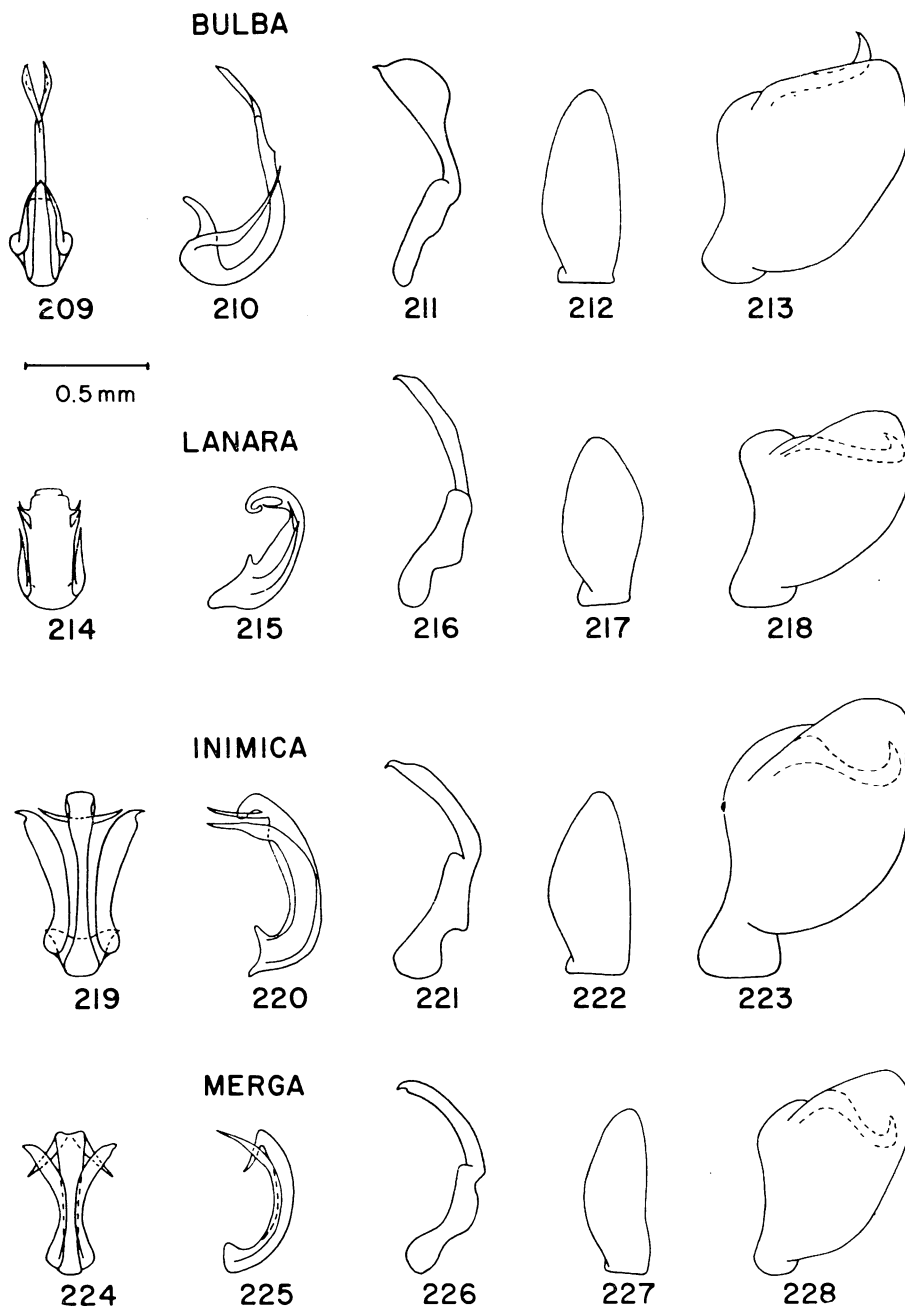
(Figs. 214-218)

Length: Male – 7 mm, female – 8 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Crown pale brown, with a dark brown spot each side at base posterior to each ocellus. Pronotum pale brown, with irregular dark brown markings on anterior margin. Scutellum with dark brown basal angles. Fore wings pale brown; cross veins on corium, apical ends of claval veins and apical cross veins, dark brown.

Male genitalia: Plates twice as long as wide, tips narrow, rounded. Style with blade narrow at base, broadened on ventral margin, three times basal width at one half its length, abruptly, roundly narrowed at apex to form a short pointed finger like process at tip. Aedeagus with shaft with a pair of long terminal processes, extending basolaterally; a pair of parameres with narrow pointed tips arise from phallobase and extend across shaft to two thirds its length. Pygofer spine with a thick upturned apical hook.

Female genitalia: Seventh sternum with lateral angles broadly rounded, between which posterior margin excavated one fourth distance to base, each side of median lobe, which is produced halfway length of lateral angles and broadly excavated at middle.

Holotype ♂, Óbidos, Pará, Brazil, VIII.1920. Paratypes: 1 ♀, same data as holotype, except VIII.1919; 1 ♂, Santarém, Pará, Brazil, VIII.1933 (I. C. Scaramizza); 1 ♂, Santa Isabel, Dept. Cusco, Peru, 26.XI.1951 (Felix L. Woytkowski), 1 ♂, Hacienda Maria, Cusco, Peru, 22.II.1952, along R. Cosnipate, tropical jungle, 900 m.a.s.l. (F. L. Woytkowski). Holotype and paratype ♀ in the DeLong Collection, Ohio State University. Paratypes in the North Carolina State University collection.



Figs. 209, 214, 219, 224, ventral view of aedeagus; 210, 215, 220, 225, lateral view of aedeagus; 211, 216, 221, 226, lateroventral view of style; 212, 217, 222, 227, ventral view of plate; 213, 218, 223, 228, lateral view of pygofer. All drawn to the same scale.

Polana (Polana) inimica, sp.n.

(Figs. 219-223)

Length: Male – 8 mm. Crown broadly rounded, two and one half times as wide between eyes at base as median length. Color: Dull yellow. Scutellum with basal angles pale brown. Pronotum with a small round spot behind each eye, a transverse dash toward center of each eye and a tiny spot at center, brown, forming a transverse band across anterior portion.

Male genitalia: Plates more than twice as long as broad, apices narrow, rounded. Style with blade curved dorsad, narrowed on ventral margin near apex forming a pointed dorsally bent apex. Aedeagus with shaft narrowed, curved dorsad at apex; apex blunt, rounded; a pair of subapical processes, one fourth length of shaft, arise just before curved portion and extend laterad; a pair of parameres arise at base and extend to apex of shaft, there becoming narrowed and pointed. Pygofer spine beneath dorsal portion of pygofer, each side, curved dorsad and pointed at apex.

Holotype ♂, Colombia, Tablonas, Valle, 1300 m., Finca La Florida, I.1959 (J. F. G. Clarke), in the U. S. National Museum.

Polana (Polana) merga, sp.n.

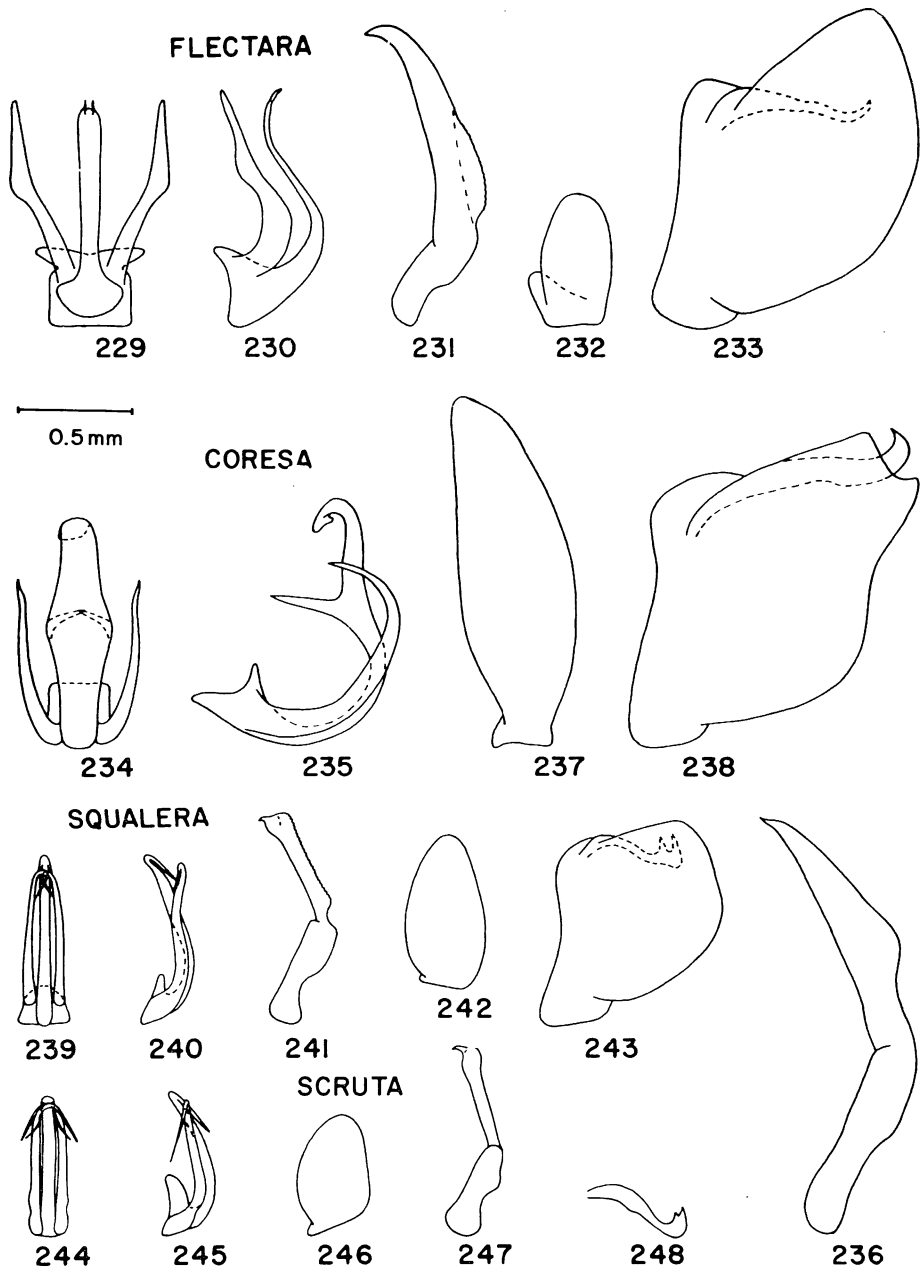
(Figs. 224-228)

Length: Male – 6.5 mm. Crown broadly rounded, almost three times as wide between eyes at base as median length. Color: Crown, pronotum and scutellum yellow, with irregular pale brownish areas. Pronotum with a round dark brown spot behind each eye. Fore wings, pale brown, subhyaline, with faint black spots on cross veins of corium and at ends of claval veins along commissure.

Male genitalia: Plates elongate, twice as long as wide, apex narrow, rounded. Style long, narrow, curved, apex pointed. Aedeagus with shaft stout, broadened apically, with a pair of long straight apical spines, broad at base and tapered to pointed tips, extending laterobasad; a pair of long parameres arise from base, extend along shaft, exceeding it in length, and taper to narrow pointed apices. Pygofer spine with a broadly curved hook at apex.

Female genitalia: Seventh sternum with lateral angles broadly rounded, between which posterior margin shallowly excavated either side of a small median shallow rounded notch.

Holotype ♂, Espinal, Tolima, Colombia, 16.VIII.1959 (G. Bravo), on cow-pea. Paratypes: 1 ♀, Monteria, Cordoba, Colombia, 24.VI.1958 (G. Carmona), on cow-pea; 1 ♂, same data as holotype; 2 ♂, Gorge E. of Melgar, Rio Sumapaz, Cundinamarca, Colombia, 1000 m., 5.I.1959



Figs. 229, 234, 239, 244, ventral view of aedeagus; 230, 235, 240, 245, lateral view of aedeagus; 231, 236, 241, 246, lateroventral view of style; 232, 237, 242, 247, ventral view of plate; 233, 238, 243, 248, lateral view of pygofer. All drawn to the same scale.

(F. J. G. Clarke); 1 ♂, 17 kms. S. E. Popayan, Cauca, Colombia, 2000 m., 10.I.1959 (J. F. G. Clarke). Holotype and paratypes ♂ and ♀ in the DeLong collection, Ohio State University. Paratypes also in the U. S. National Museum.

Polana (Polana) flectara, sp. n.

(Figs. 229-233)

Length: Male – 8.5 mm. Crown broadly rounded, almost twice as wide between eyes at base as median length. Color: Crown pale brown with area between ocelli, darker brown. Pronotum pale brown, darker brown irregular markings across anterior margin and behind eyes. Scutellum pale brown with darker brown basal angles. Fore wings pale brown; veins pale, margined with darker brown; cross veins on corium and apical ends of claval veins, dark brown.

Male genitalia: Plates about one half longer than broad, completely clothed with tufts of long hairs, much longer than plates. Style with blade broadest at middle, gradually narrowed to an upturned pointed apex. Aedeagus with shaft bifid on apical fourth with tips parallel, slender, pointed; parameres which arise from phallobase are stout, broadened at middle, tapered and sharp pointed at apex extending dorsally and laterally to shaft. Pygofer spine slender, only slightly upturned apically.

Holotype ♂, Chapada, Mato Grosso, Brazil, Forest, XI (C. F. Baker). Paratype: 1 ♂, Campo Grande, Mato Grosso, Brazil, X.1947 (A. Maller, Donor, Frank Johnson). Holotype in the U. S. National Museum, paratype in the American Museum of Natural History.

Polana (Polana) coresa, sp. n.

(Figs. 234-238)

Length: Male – 6.3 mm. Crown broadly rounded, width between eyes at base two and one half times as wide as median length. Color: Crown, pronotum and scutellum golden yellow, basal angles of scutellum brown. Fore wings pale brown, veins darker brown.

Male genitalia: Plates about five times as long as wide, apices narrow, blunt. Style with blade roundedly broadened on ventral margin near base, then gradually tapered to a sharp pointed apex. Aedeagus with shaft with a long spine-like projection on dorsal margin at two thirds length of shaft, apical portion of shaft curved dorsally, apex recurved, blunt; a pair of long, tapered parameres arise from base, apices slender, pointed, extending along shaft. Pygofer spine with dorsally bent, pointed apex.

Holotype ♂, Prov. del Sara, Bolivia, 450 m., XI.1909 (J. Steinbach), Carn. Mus. Acc. 4559, in the Carnegie Museum.

Polana (Polana) squalera, sp.n.

(Figs. 239-243)

Length: Male – 6.5 mm. Crown broadly rounded, three times as wide between eyes at base as median length. Color: Brownish yellow, a pair of small round black spots on pronotum, one behind each eye. Fore wings subhyaline; cross veins on corium, apical ends of claval veins and cross veins on apical portion, dark brown.

Male genitalia: Plates more than twice as long as broad, apices rounded. Style almost uniform in width to near apex where it is broadened to form a broad blunt apex with dorsal apical margin produced and pointed. Aedeagus with shaft long, narrow, curved dorsobasad and bifid at apex, apical processes narrow, pointed; a pair of parameres arise from phallobase and extend on each side of shaft to apex, where they are recurved and extend basad. Pygofer spine with an apical upturned hook and a subapical spine.

Holotype ♂, Saavedra Exp. Sta., Dept. of Santa Cruz, Bolivia, 28.XII.1959. Paratypes: 1 ♂, same data as holotype; 1 ♂, Blancaflor, Beni, Bolivia (W. M. Mann, Mulford Biol. Expl., 1921-22); 1 ♂, Huallaga R. Valley, Peru, tropical jungle, 500 m.a.s.l., III.1954 (F. L. Woytkowski). Holotype and paratype in the North Carolina State University collection. Paratypes also in the U. S. National Museum and the DeLong collection, Ohio State University.

Polana (Polana) scruta, sp.n.

(Figs. 244-248)

Length: Male – 6.5 mm. Crown broadly rounded, more than twice as broad between eyes at base as median length. Color: Brown tinged with yellow, with yellow blotches on base of crown next each eye, along anterior portion of pronotum and on apex of scutellum. Fore wing brown, subhyaline, two dark brown spots on clavus at commissure.

Male genitalia: Plates one half longer than broad, apices broadly rounded. Style with blade narrow at base, gradually broadened to a rounded inflated apex which bears a pointed spine-like process on dorso-apical margin. Aedeagus with shaft with a pair of apical processes, one third length of shaft, extending basad and laterad; a pair of parameres arise at base and extend along shaft to apex, then curve laterad across shaft, then basad. Pygofer spine with two teeth at tip of dorsally curved apex.

Holotype ♂, Sinchono, Peru, 1943 (J. G. Sanders); Paratype: 1 ♂, Hacienda Maria, Cusco, Peru, 11.III.1952 (F. L. Woytkowski). Holotype in the DeLong collection, Ohio State University, paratype in the North Carolina State University collection.

***Polana (Polana) ruppeli*, sp.n.**

(Figs. 249-253)

Length: Male – 7 mm, female – 7 mm. Crown broadly rounded, not quite three times as wide between eyes at base as median length. Color: Crown, pronotum and scutellum dull yellow, basal angles of scutellum dark brown. Fore wings, pale brown; with dark brown spot on each cross vein of corium, each claval vein at commissure, and each basal cross vein of apical cells.

Male genitalia: Plates short, broad, one third longer than median width. Style long, slender, serrate on ventral margin, enlarged ventrally near apex, then abruptly narrowed to form dorsally bent, sharp pointed tip. Aedeagus with shaft long, narrow, forming long slender apical tip at three fourths its length; a pair of parameres arise at base, extend along shaft almost to apex, taper at half their length to very slender apices which cross and extend outwardly as far as tip of shaft. Pygofer spine not reaching margin of pygofer, curved dorsally at apex with an apical pointed tooth and a more basal, smaller, proximal tooth.

Female genitalia: Seventh sternum with lateral angles produced, narrow, rounded apically, between which posterior margin deeply roundedly excavated, almost halfway to base, each side of a broad median lobe, one-third of segment, produced almost to length of lateral angles and slightly concavely notched at middle.

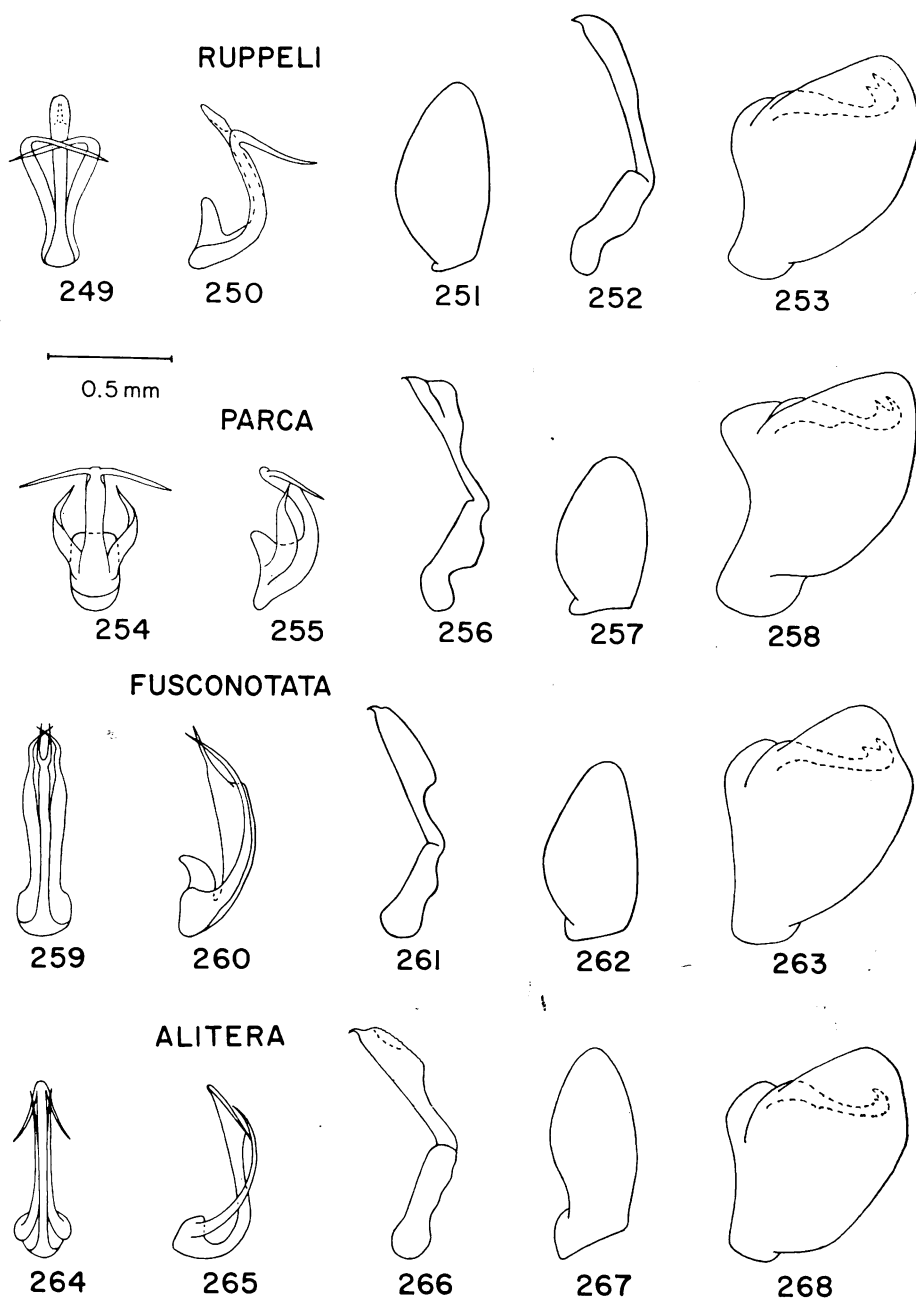
Holotype ♂, Tablonas, Colombia, upper Cauca Valley 24.XI.1959, Trampa Luz (R. F. Ruppel). Paratypes: 1 ♀, Acacias, Meta, Colombia, 20.VIII.1959, en Arroz (M. Revelo); 1 ♂, same data as holotype. Holotype and paratypes in the DeLong collection, Ohio State University.

***Polana (Polana) parca*, sp.n.**

(Figs. 254-258)

Length: Male – 7 mm. Crown broadly rounded, almost three times as broad between eyes at base as median length. Color: Crown dull yellow. Pronotum pale brown, with faint irregular darker brown mottling on anterior portion. Scutellum brown with darker brown basal angles. Fore wings pale brown; cross veins on corium and apical ends of claval veins, dark brown.

Male genitalia: Plates short, broad but not twice as long as broad. Style with blade broadened on apical half, apex broad, blunt, pointed on dorsal margin. Aedeagus with shaft with a pair of long subapical processes extending laterally; a pair of slender parameres arise from phallobase, pointed at apices and extend almost to apex of shaft. Pygofer spine with two dorsal teeth on apical portion.



Figs. 249, 254, 259, 264, ventral view of aedeagus; 250, 255, 260, 265, lateral view of aedeagus; 251, 256, 261, 266, lateroventral view of style; 252, 257, 262, 267, ventral view of plate; 253, 258, 263, 268, lateral view of pygofer. All drawn to the same scale.

Holotype ♂, San Rafael, Cumanacoa, Sucre, Venezuela, 6.XI.1929 (G. Netting, Car. Mus. Acc. 8696). Paratypes: 2 ♂, same data as holotype. Holotype and paratype in the Carnegie Museum. A paratype also in the DeLong collection, Ohio State University.

Polana (Polana) fusconotata (Osborn)

(Figs. 259-263)

Ponana fusconotata Osborn, 1938: 48.

Length: Male – 7 mm. Crown broadly rounded, parallel margined, three times as wide between eyes at base as median length. Color: Pale brown, with faint, dark brown markings on basal angles of scutellum. Fore wing with a faint diagonal dark brown stripe extending caudally to middle, from clavus, toward costa; cross veins of corium, and ends of claval veins along commissure with dark brown markings.

Male genitalia: Plates one and two-thirds times as long as wide, outer margin strongly convexly curved, apex narrowed, rounded. Style narrowed on median third, then abruptly broadened (on ventral serrate margin) to near apex, which is narrowed and pointed. Aedeagus with shaft narrow, slightly broadened at two thirds its length, with two diverging apical processes which extend apically and taper to slender pointed apices. Pygofer spine extended beyond caudal margin, enlarged at apex, curved dorsally, with upturned apical tooth, and shorter, dorsal, proximal tooth.

Female genitalia: Seventh sternum with well produced, rounded lateral angles, between which posterior margin deeply concavely excavated more than halfway to base, each side of a median rounded lobe, produced half the length of excavation and broadly, shallowly, angularly, notched at apex.

Types: Holotype ♂ and paratype ♂, from Puerto Suarez, Bolivia, in the Carnegie Museum collection. Also a specimen labeled, allotype ♀, Concepcion, Paraguay, 24.V.1933 (A. Schulze), in the Osborn collection, Ohio State University.

Notes: The type specimens have been studied and illustrated. Additional specimens from Bolivia and Paraguay have been available for study.

Polana (Polana) alitera, sp.n.

(Figs. 264-268)

Length: Male – 6.5 mm. Crown broadly rounded, three times as wide between eyes at base as median length. Color: Yellowish brown with a pair of round black spots on base of crown, one posterior to each ocellus. Pronotum with a pair of similar dark brown spots, one behind

each eye, and a curved brown line each side between the two pairs of spots. Fore wings pale brown, subhyaline; veins darker; cross veins on corium and apical ends of claval veins at commissure, dark brown.

Male genitalia: Plates more than half as wide as long. Style with blade narrow at base gradually broadened on serrate ventral margin to near apex, where both margins are narrowed to form a dorsally curved finger-like apex. Aedeagus with shaft, slender, with a pair of long terminal processes which extend basolaterally; a pair of slender parameres arise from phallobase, taper, and extend as far as apex of shaft. Pygofer spine thickened at apex, with upturned apical spur.

Holotype ♂, San Esteban, 49 km N. Santa Cruz, Bolivia, 7.XII.59, el. 1120 ft. (R. Cumming). Paratypes: 2 ♂, same data as holotype; 2 ♂, same data, except 26.X.1959; 2 ♂, Chapada, Mato Grosso, Brazil, IV (C. F. Baker Collection); 1 ♂, Highland Colombia, III (C. F. Baker Collection); 1 ♂, 3 ♀, Iquitos, 4.VIII.60, on beans, Peru (Gonzales & Young); 2 ♂, 1 ♀, Porto Velho, Rondônia, Brazil, 10.II.43. Holotype and paratypes in the DeLong Collection, Ohio State University. Paratypes also in the U. S. National Museum, the Museu de Zoologia da Universidade de São Paulo, Brazil, the North Carolina State University and the Stockholm Museum.

Subgenus *Parvulana*, subgen. n.

Head and pronotum as in the subgenus *Polana*. Male genitalia with parameres arising at base of aedeagus. Style with a ventral rounded tubercle near base of blade. Pygofer with a short dorsal process or none.

Type-species: *Polana (Parvulana) alata*, sp. n.

This subgenus is known only from Brazil and four species are placed here. These may be separated by the following key.

KEY TO MALES OF THE SUBGENUS *PARVULANA*

1. Parameres broad, flat, plate-like, half as broad as long
..... *alata* (fig. 285)
- 1'. Parameres narrow, elongate, many times as long as broad 2
- 2(1'). Parameres slender, straight at apex, not bifid .. *pandara* (fig. 280)
- 2'. Parameres bifid near apex 3
- 3(2'). Aedeagal shaft with a pair of double hooked processes near middle
..... *tulara* (fig. 270)
- 3'. Aedeagal shaft with a pair of spine-like processes near base
..... *bidens* (fig. 275)

Polana (Parvulana) tulara, sp.n.

(Figs. 269-273)

Length: Male – 6.5 mm. Crown broadly rounded, two and one-half times as broad between eyes at base as median length. Color: Crown and pronotum golden brown; face golden yellow unmarked. Scutellum pale brown. Fore wings brown, with cross veins of corium and ends of claval veins at commissure, black.

Male genitalia: Plates more than twice as long as wide, heavily clothed with long pubescence, a thick apical tuft of long hairs. Style short, blade broad with a narrow pointed apex and a short rounded process protruding ventrally near base. Aedeagus with shaft broad at base and tapered to a narrow apex; a pair of broad lateral processes arise at two-thirds length of shaft, curve laterally, then apically, each side of apex of shaft; a pair of parameres broad near base, narrowed at middle, widened and bifid at apex, extend to apex of shaft. Pygofer with a short straight spine.

Holotype ♂, Corupá (Hansa Humbolt), S. Catarina, Brazil, III.1948 (A. Maller, Frank Johnson, donor). Paratypes: 1 ♂, Espirito Santo, Brazil (Frühstorfer); 1 ♂, Rio Grande do Sul. Holotype in the American Museum of Natural History. Paratypes in the Vienna Museum and the DeLong Collections.

Polana (Parvulana) bidens, sp.n.

(Figs. 274-278)

Length: Male – 7.5 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Crown, pronotum and scutellum pale brown, unmarked. Fore wings pale brown, cross veins on corium and apices of claval veins at commissure, black.

Male genitalia: Plates two and one-half times as long as wide, apex blunt, pointed; heavily clothed with long hairs; a thick tuft much longer than plates arising under plate at base of pygofer. Style with blade broad, apex pointed, a short finger-like rounded process on ventral margin near base of blade. Aedeagus with shaft, straight, apex slender, curved ventrally; a pair of straight processes arise along base of shaft and extend two-thirds length of shaft; a pair of parameres bifid at apices, extending along shaft three-fourths its length. Without pygofer spines.

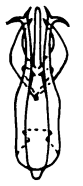
Holotype ♂, Jussara, Angra dos Reis, Rio de Janeiro, XI.1934, is in the U. S. National Museum.

Polana (Parvulana) pandara, sp.n.

(Figs. 279-283)

Length: Male – 8 mm. Crown broadly rounded, more than twice as broad between eyes at base as median length. Color: Crown, pro-

TULARA



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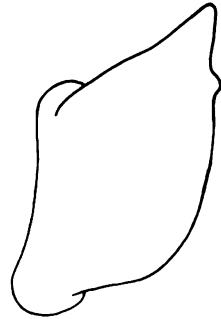
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BIDENS



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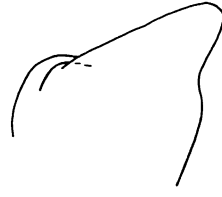
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PANDARA



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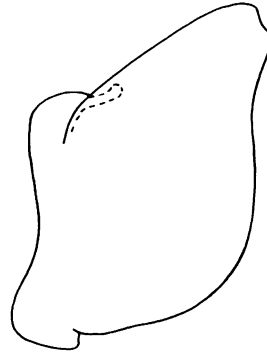
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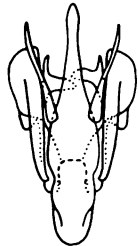


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ALATA



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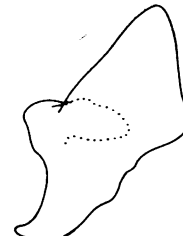
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Figs. 269, 274, 279, 284, ventral view of aedeagus; 270, 275, 280, 285, lateral view of aedeagus; 271, 276, 281, 286, lateroventral view of style; 272, 277, 282, 287, ventral view of plate; 273, 278, 283, 288, lateral view of pygofer. Not drawn to the same scale.

notum and scutellum pale brown. Fore wings pale brown, with dark brown spots on apices of claval veins at commissure, on cross veins between sectors of corium and at apex of clavus.

Male genitalia: Plates three times as long as wide, apices narrow, tip blunt. Style with a ventrally protruding tubercle at base, apex pointed. Aedeagus with shaft curved dorsad, apex slender, blunt, bent caudad; two processes arising at half length of shaft, not extending to apex of shaft; two slender parameres arising at apex of phallobase, almost as long as shaft. Pygofer with short, narrow, dorsal spine.

Holotype ♂, Corupá, (Hansa Humbolt), S. Catarina, Brazil, XI.1930 (A. Maller, Frank Johnson Donor), in the North Carolina State University collection.

***Polana (Parvulana) alata*, sp.n.**

(Figs. 284-288)

Length: Male - 7.5 mm. Crown almost transverse and parallel margined, broadly, slightly produced, rounded; twice as wide as long. Color: Pale brown with a pair of black spots on base of crown, one posterior to each ocellus. Pronotum with a round black spot behind each eye, near lateral margin. Scutellum brown.

Male genitalia: Plates four times as long as broad, apices bluntly pointed. Style blade with a short process, rounded at apex, on ventral margin near base; apical half gradually broadened, curved dorsally and pointed at apex. Aedeagus with shaft broad at base tapered to a narrow, blunt apex; a pair of lateral processes arise at half length of shaft and extend length of shaft; a large broad, bifid spur half length of process arises near base on dorsal side of each process and extends dorsally; a pair of broad parameres as long as shaft, roundedly notched on dorsal margin, arise at apex of phallobase, extend caudad and dorsad. Pygofer with robust blunt process.

Holotype ♂, labeled "Brazil, Museo La Plata", in the La Plata Museum, Argentina.

Subgenus ***Largulara***, subgen.n.

Head and pronotum as in the subgenus *Polana*. Male genitalia large, with a pair of parameres arising from base of aedeagus. Pygofer without dorsal processes.

Type-species: *Polana (Largulara) fantasia*, sp.n.

Two species are placed in this subgenus, one from Mexico and the other from Peru. These may be separated by the following key.

KEY TO MALES OF THE SUBGENUS *LARGULARA*

1. Style enlarged on apical half; aedeagal shaft enlarged and flattened, blunt, with a pair of small bifid processes . . . *fantasa* (fig. 289)
- 1'. Style with blade greatly notched leaving apical half of blade narrow, finger-like. Aedeagal shaft narrow, apex blunt, with a pair of large bifid processes *elera* (fig. 294)

***Polana (Largulara) fantasa*, sp.n.**

(Figs. 289-293)

Length: Male – 7.5 mm. Crown broadly rounded, two and one half times as broad between eyes at base as median length. Color: Generally pale brown. Crown with two black spots on base, one behind each ocellus; face yellow. Pronotum with irregular black markings just behind anterior margin. Scutellum with a black spot in each basal angle.

Male genitalia: Plates longer than broad, apices narrow, rounded, heavily clothed with hairs longer than plate. Style broadened on ventral margin at middle; ventral margin thickened; apical third rapidly narrowed to form a pointed, upturned tip. Aedeagus with shaft short, broadened on apical two thirds, apex broad, rounded; a slender bifid lateral process each side arises about two thirds length of shaft; stout parameres arise basodorsally, curve outwardly, then inwardly, are bifid before flattened apical blades which cross shaft to ventral side. Pygofer spine slender, tip slightly bent.

Holotype ♂, Napo R., Peru, VI.1920, in the DeLong collection, Ohio State University.

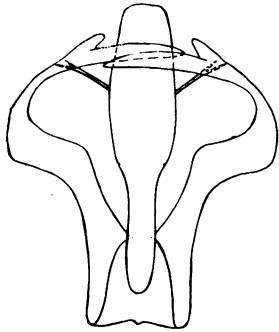
***Polana (Largulara) elera*, sp.n.**

(Figs. 294-298)

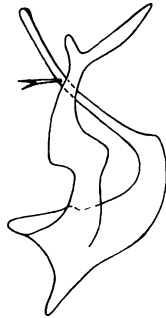
Length: Male – 6.5 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Crown dark brown with a pair of darker brown arcs at each side. Pronotum pale brown with irregular dark brown markings across anterior portion. Scutellum pale brown, dark brown spots in anterior angles. Fore wings pale brown; veins margined with dark brown; dark brown spots on cross veins of corium, posterior costal area and apices of claval veins at commissure.

Male genitalia: Plates more than four times as long as broad, apices rounded. Style with blade broad at base, further broadened near base to form a ventral protruding knob, then concavely narrowed to outer margin to form a long blade-like portion, longer than basal part, which is bluntly pointed at apex. Aedeagus with shaft broad, apical fourth

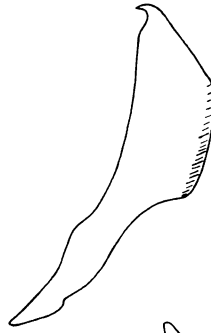
FANTASA



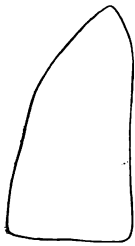
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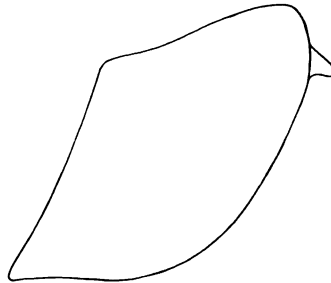
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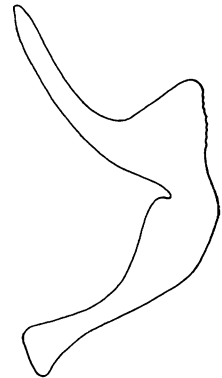
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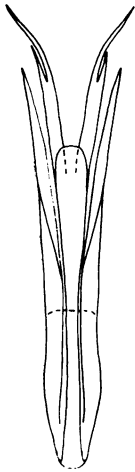


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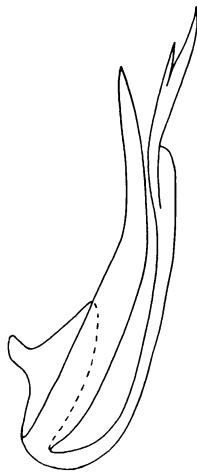


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ELERA



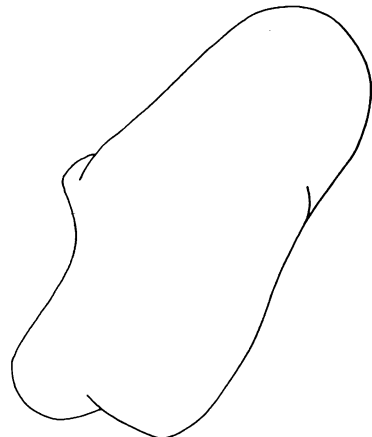
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Figs. 289, 294, ventral view of aedeagus; 290, 295, lateral view of aedeagus; 291, 296, lateroventral view of style; 292, 297, ventral view of plate; 293, 298, lateral view of pygofer. Not drawn to the same scale.

bifid, tips diverging each with a dorsal spur arising near apex; lateral parameres arising basodorsally, elongate, slender with pointed apices. Without pygofer spine.

Holotype ♂, Reforma, Tabasco, Mexico, 23.VI.1934 (Dampf), in the DeLong collection, Ohio State University.

Subgenus **Nihilana**, subgen. n.

Head and pronotum as in the subgenus *Polana*. Male aedeagus with paired parameres lacking. Dorsal pygofer processes elongate, with a recurved (hooked) spine at apex, some species with a small subapical tooth on dorsal margin.

Type-species: *Polana (Nihilana) pressa*, sp. n.

Thirteen species are placed in this subgenus, ranging from Central America, Trinidad, to most countries of South America. They can be separated by the following key.

KEY TO MALES OF THE SUBGENUS *NIHILANA*

- | | | |
|--------|--|--------------------------|
| 1. | Aedeagal shaft without apical processes, or subapical processes shorter than apex | 2 |
| 1'. | Aedeagal shaft with apical spines or processes, or subapical processes longer than apex | 9 |
| 2(1). | Aedeagal shaft with subapical processes | 3 |
| 2'. | Aedeagal shaft without subapical processes | 8 |
| 3(2). | Aedeagal subapical processes very short, spine-like, very close to apex | <i>finia</i> (fig. 339) |
| 3'. | Aedeagal subapical processes long or arising at least one third distance from apex of shaft | 4 |
| 4(3'). | Aedeagal subapical spines short, arising at two thirds length of shaft, extending laterad | <i>nisa</i> (fig. 304) |
| 4'. | Aedeagal subapical spines long, extending caudad | 5 |
| 5(4'). | Aedeagal shaft with 2 pairs of long spines | 6 |
| 5'. | Aedeagal shaft with one pair of long spines arising at one third length of shaft, extending caudad | <i>fetara</i> (fig. 309) |
| 6(5). | Aedeagal shaft with 2 pairs of long spines arising at one third length of shaft and extending almost to apex | <i>icara</i> (fig. 299) |
| 6'. | Aedeagal shaft with 2 pairs of subapical spines arising at one half to two thirds the length of shaft, one pair extending almost to apex | 7 |

- 7(6'). Pygofer spine-like process with a narrow curved apical tooth one half length of process; subapical processes of aedeagal shaft arising at two thirds length of shaft *scina* (fig. 329)
- 7'. Pygofer spine-like process with apical tooth shorter, not more than one fourth the length of process; processes of aedeagal shaft arising at slightly more than half the length of shaft *pressa* (fig. 334)
- 8(2'). Aedeagal shaft narrowed on apical fourth (lateral view), slender apex sharply pointed *aneza* (fig. 350)
- 8'. Aedeagal shaft not narrowed apically, apex blunt, rounded (lateral view) *vena* (fig. 345)
- 9(1'). Apical aedeagal spines present, elongate, bifid 10
- 9'. Apical aedeagal spines absent not bifid 11
- 10(9). Style bifid on apical third *agrilla* (fig. 356)
- 10'. Style not bifid, with blade greatly enlarged basad to narrow pointed apex *obliqua* (fig. 362)
- 11(9'). Subapical processes of aedeagal shaft only slightly protruding at apex of shaft *rixa* (fig. 324)
- 11'. Subapical processes of aedeagal shaft thicker, protruding distinctly beyond apex of shaft 12
- 12(11'). Subapical processes of aedeagal shaft with apical portion elongate, slender, curved dorsad (lateral view); small (ventral view) *obtusa* (fig. 320)
- 12'. Subapical processes of aedeagal shaft with apical portion shorter, almost straight (lateral view); large (ventral view) ..
..... *celata* (fig. 315)

Polana (Nihilana) icara, sp.n.

(Figs. 299-303)

Length: Male - 8.5 mm. Crown broadly rounded, almost two and one half times as wide as median length. Color: Generally pale brown, basal, angles of scutellum darker brown. Fore wings pale brown, cross veins on corium, apical ends of claval veins and median area on costa, dark brown.

Male genitalia: Plates more than three times as long as broad. Style with a long narrow blade, slightly broadened at four fifths its length then narrowed to a slender dorsally bent apex. Aedeagus with two pairs of processes arising at one third length of shaft and extending proximal to it, almost to apex; ventrolateral pair slightly longer and more slender than dorsolateral pair. Pygofer spine with a long finger-like apical process bent dorsad and cephalad.

Holotype ♂, Sinchona, Peru, XI.1943 (J. G. Sanders). Paratypes: 1 ♂, Tingo Maria, Huanuco, Peru, 13.X.1946, Alt. 2,200 ft. (J. C. Palister, donor Frank Johnson); 1 ♂, same data, except 21.X.1946; 1 ♂, same data, except 20.V.1947; 1 ♂, Arima Valley, Trinidad, B. W. I., 5.V.1950 (Gift of N. Y. Zool. Soc. Dept. Tropical Res., Wm. Beebe, Dir.); 1 ♂, Santa Isabel, Dépt. Cusco, Peru, 26.XI.1951 (Felix L. Woytkowski). Holotype and paratypes in the DeLong collection, Ohio State University. Paratypes also in the American Museum of Natural History and the North Carolina State University collection.

Polana (Nihilana) nisa, sp.n.

(Figs. 304-308)

Length: Male – 8 mm. Crown broadly rounded, parallel margined, more than twice as long between eyes at base as median length. Color: Generally pale brown, a black spot posterior to each ocellus, on basal margin. Pronotum with vermiculate dark brown markings mixed with white blotches along anterior margin. Scutellum with basal angles dark brown, white margined. Fore wings with veins dark brown, with darker brown on cross veins of corium and ends of claval veins at commissure.

Male genitalia: Plates elongate, more than three times as long as broad, apical half narrowed; apex rounded. Style long and narrow, apical half convexly curved dorsally, broader, then tapered apically to form dorsally curved pointed tip. Aedeagus rather short and broad, curved dorsally; shaft bearing a pair of prominent stout hooks at apex which arise ventrally and bear pointed, laterally curved, spines; shaft surpassed in length by a dorsal sheath. Pygofer spine slender with an apical recurved pointed tip and a small subapical pointed dorsal tooth.

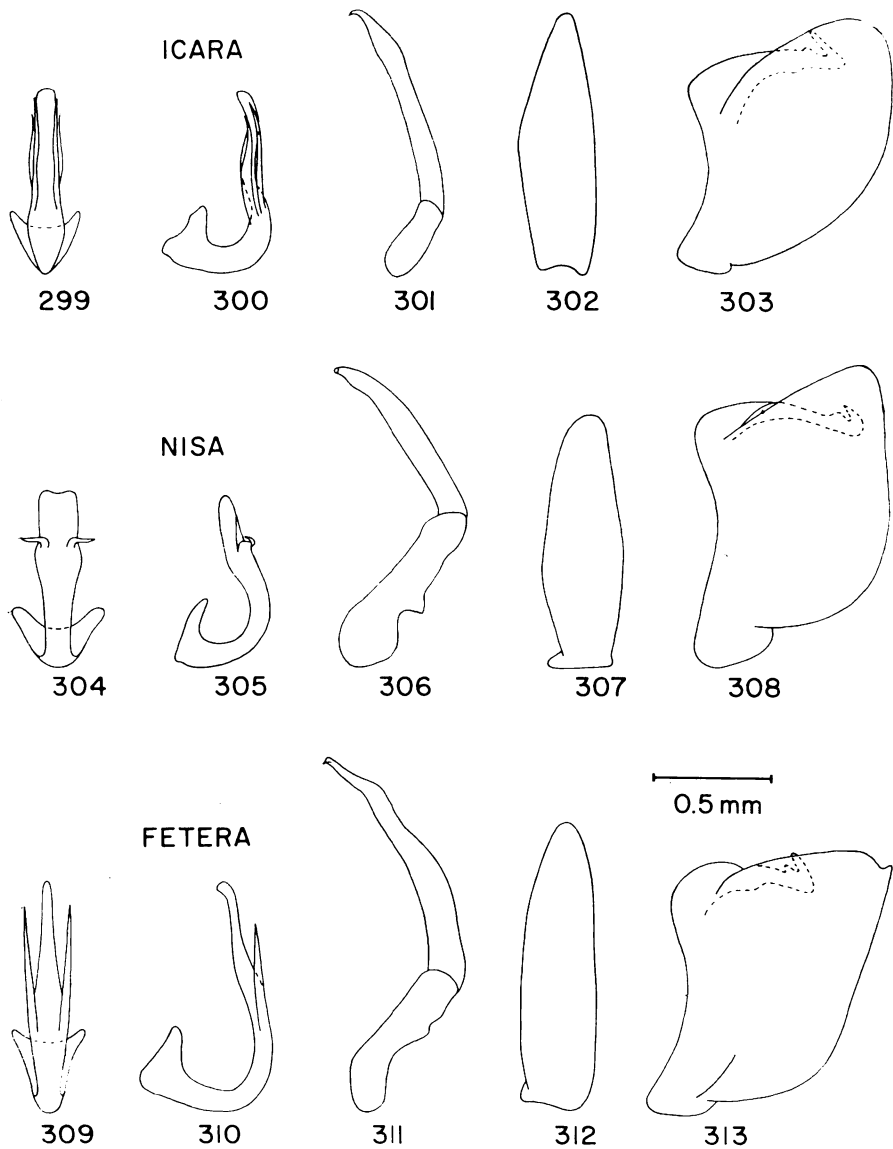
Holotype ♂, Caño Garzón, Villa Vicencio, Colombia, 28.IV.1946, Mta. (M. Bates). Paratypes: 2 ♂, Trinidad, W. I., Arima Valley, 800-1200 ft., 10-22.II.1964 (J. G. Rosaral and P. Wygodzinsky); 1 ♂, Arima Valley, Trinidad, B. W. I., 8.V.1952 (Gift of N. Y. Zool. Soc. Dept. Tropical Res., William Beebe, Dir.); 1 ♂, Brazil, Alagoas, Mangabeira, C. Camargo Andrade, 10.XI.52. Holotype in the U. S. National Museum. Paratypes in the American Museum of Natural History, the DeLong Collection, Ohio State University and the Museu de Zoologia da Universidade de São Paulo, Brazil.

Polana (Nihilana) fetera, sp.n.

(Figs. 309-313)

Length: Male – 8 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Crown, pronotum and scutellum golden brown. Fore wings pale brown, veins darker brown, all cross veins and apices of claval veins near commissure, dark brown.

Male genitalia: Plates four times as long as wide. Style long, slender, narrow at median length then slightly thickened ventrally, beyond which it bends dorsally, apex curves caudally and inwardly. Aedeagus with shaft long, slender, narrowed on apical portion to near



Figs. 299, 304, 309, ventral view of aedeagus; 300, 305, 310, lateral view of aedeagus; 301, 306, 311, lateroventral view of style; 302, 307, 312, ventral view of plate; 303, 308, 313, lateral view of pygofer. All drawn to the same scale.

apex which is slightly enlarged; two slender parameres extend along shaft one third its length then diverge, extending caudolaterally more than three-fourths length of shaft. Pygofer spine short, enlarged at apex, with a short pointed dorsal hook and short anteapical tooth arising from anterior portion of enlargement.

Holotype ♂, Hacienda Maria, Cusco, Peru, 21.III.1952, along R. Cosnipata, tropical jungle, 900 m. a. s. l. (F. L. Woytkowski). Paratypes: 2 ♂, same data as holotype, except 26.II; 1 specimen without abdomen, same data as holotype; 1 ♂, Santa Isabel, Cusco, Peru, 7.XII.1951 (F. L. Woytkowski); 1 ♂, Manson Valley, Tingo Maria, Peru, 23.IX.1954. Holotype and three paratypes in the North Carolina State University collection. Two paratypes in the DeLong collection, Ohio State University.

***Polana (Nihilana) celata* (Fowler)**

(Figs. 314-318)

Gypona celata Fowler, 1903: 316.

Gypona resima Fowler, 1903: 316.

Polana celata; DeLong, 1942: 111.

Length: Male – 8 mm, female – 8 mm. Crown short, broadly rounded, more than three times as wide at base as median length. Ocelli widely separated, nearer eyes than median line. Color: Dark brown, crown and anterior portion of pronotum paler brown. Veins of fore wing dark brown especially on corium, apical and anteapical veins, and tips of claval veins brown.

Male genitalia: Plates elongate, more than four times as long as broad, apex rather broad, blunt. Style (in ventral view) long, slender, with narrowed curved hook at apex. Aedeagus (in ventral view) three times as long as broad, narrowed at apex, a pair of curved forceps-like spines, on each side of a slender apex; (in lateral view) it appears rather broad, strongly curved, sickle shaped, almost parallel margined, spines arising on the ventro-caudal margin. Pygofer spine long, terminating like a fishhook.

Female genitalia: Seventh sternum with lateral angles rounded, between which the posterior margin is shallowly excavated each side of a median, broadly rounded lobe, indented at middle by a broad shallow excavation.

Type: Holotype ♀. Panama. Type specimens of both *celata* and *resima* are in the British Museum of Natural History.

Notes: Both types have been examined and illustrated. No other specimens have been observed.

Polana (Nihilana) obtusa (Spangberg)

(Figs. 319-323)

Gypona obtusa Spangberg, 1878: 55.*Ponana obtusa*; Osborn, 1938: 47.

Length: Male – 6.5 to 7.5 mm, female – 7.5 to 8 mm. Crown short, roundedly produced, appearing almost parallel margined, more than twice as broad between eyes, at base, as median length. Color: variable; pale to dark brown. Crown with a small dark brown to black spot, posterior to each ocellus, on posterior margin. Pronotum with dark brown vermiculate markings across anterior margin. Scutellum with a pair of dark brown spots in basal angles. Fore wings with darker brown veins and darker brown or black spots on discal cross veins and ends of claval veins at commissure.

Male genitalia: Plates more than three times as long as basal width. Style long, slender, slightly enlarged on apical half then tapered to a narrow pointed tip. Aedeagus with shaft (in lateral view) appearing narrow, broadly curved basally on apical third; (in ventral view) narrow at base, then convexly rounded and broadened to three times the basal width, narrowed to slender apical portion which curves outwardly each side to form lateroapical tips. Pygofer spine slender with an apical recurved finger-like tip and a small subapical dorsal tooth.

Female genitalia: Seventh sternum with lateral angles produced and broadly rounded between which posterior margin is roundedly excavated either side of a broad median produced lobe, which is broadly shallowly excavated at middle.

Types: Four specimens are in the type series at the Stockholm Museum. Two ♂, and one ♀ from "Bogota", and one ♂ labeled "Columbia". A male from Bogota is here designated as the Lectotype "marked typus", and the other male and female of this series are designated Lectoparatypes. The male labeled "Columbia" is a different species and has been described elsewhere as the holotype of *Polana (Polana) pensa*, sp.n.

Notes: This appears to be a common species. In addition to the types, material is at hand from Panama, Colombia, Costa Rica and one specimen from Mexico.

Polana (Nihilana) rixa, sp.n.

(Figs. 324-328)

Length: Male – 6.5 mm, female – 7 mm. Crown broadly roundedly produced more than twice as wide between eyes at base as median length. Color: Pale brown, crown with a pair of dark brown spots on base, one behind each ocellus. Pronotum with a few darker brown

spots across anterior portion. Fore wings pale brown, veins margined with darker brown; cross veins of corium, ends of claval veins, dark brown.

Male genitalia: Plates more than three times as long as broad, bluntly pointed. Style broadened at middle to form convex ventral margin, apical portion gradually narrowed to a slender, upturned, pointed, apical tip. Aedeagus with shaft slender, apical portion with bifid, diverse terminal processes. Pygofer spine thick at apex with a thick recurved hook almost touching thickened portion.

Female genitalia: Seventh sternum with lateral angles produced and rounded; posterior margin concavely excavated each side of a median lobe one third width of segment, produced to apices of lateral angles.

Holotype ♂, Alhajuella, C. Z., 11.II.1921 (J. G. Sanders). Paratypes: 1 ♀: Madden Dam, C. Z.; 28.IV.1952 (F. S. Blanton); 1 ♂, same data as holotype except III.1912 (A. Busck); 1 ♂, 1 ♀, same data as holotype except 17.IV.1911 (A. Busck); 2 ♂, Madden Dam, C. Z., 28.IV.1952 (F. S. Blanton); Panama, Mojinga Swp., C. Z., 8.XI.1951 (F. S. Blanton); 1 ♀, same except 10.XI.1951; 1 ♀, same except 26.XI.1951; 1 ♂, same except 30.VI.1952; 3 ♂, 3 ♀, Panama, Galeta Pt., 29.XII.1952 (F. S. Blanton); 1 ♂, Panama, San José, 27.X.1952 (F. S. Blanton); 1 ♂, Panama C. Z., Loma Borocho, 16.VII.1952 (F. S. Blanton); 1 ♂, Panama, Prov. Tocumen, 20.I.1953 (F. S. Blanton); 1 ♂, same except 6.II.1953; 1 ♂, Panama, Arraijan, 7.X.1952 (F. S. Blanton); 1 ♂, Chame Field, Panama, 20.IX.1944 (K. E. Frick); 1 ♂, Panama, Potrerillos, 12.XII.1952 (F. S. Blanton); 2 ♂, San Esteban, Venezuela, 22-30.XI.1939 (Pablo Anduze); 4 ♂, 1 ♀, Bonda, Colombia, Acc. No. 1999, VI-VII.1898. Holotype and paratypes in the DeLong collection, Ohio State University. Paratypes in the U. S. National Museum. Paratypes also in the North Carolina State University collection, the California Academy of Sciences, the American Museum of Natural History, the Carnegie Museum, the Stockholm Museum and the Museu de Zoologia da Universidade de São Paulo, Brazil.

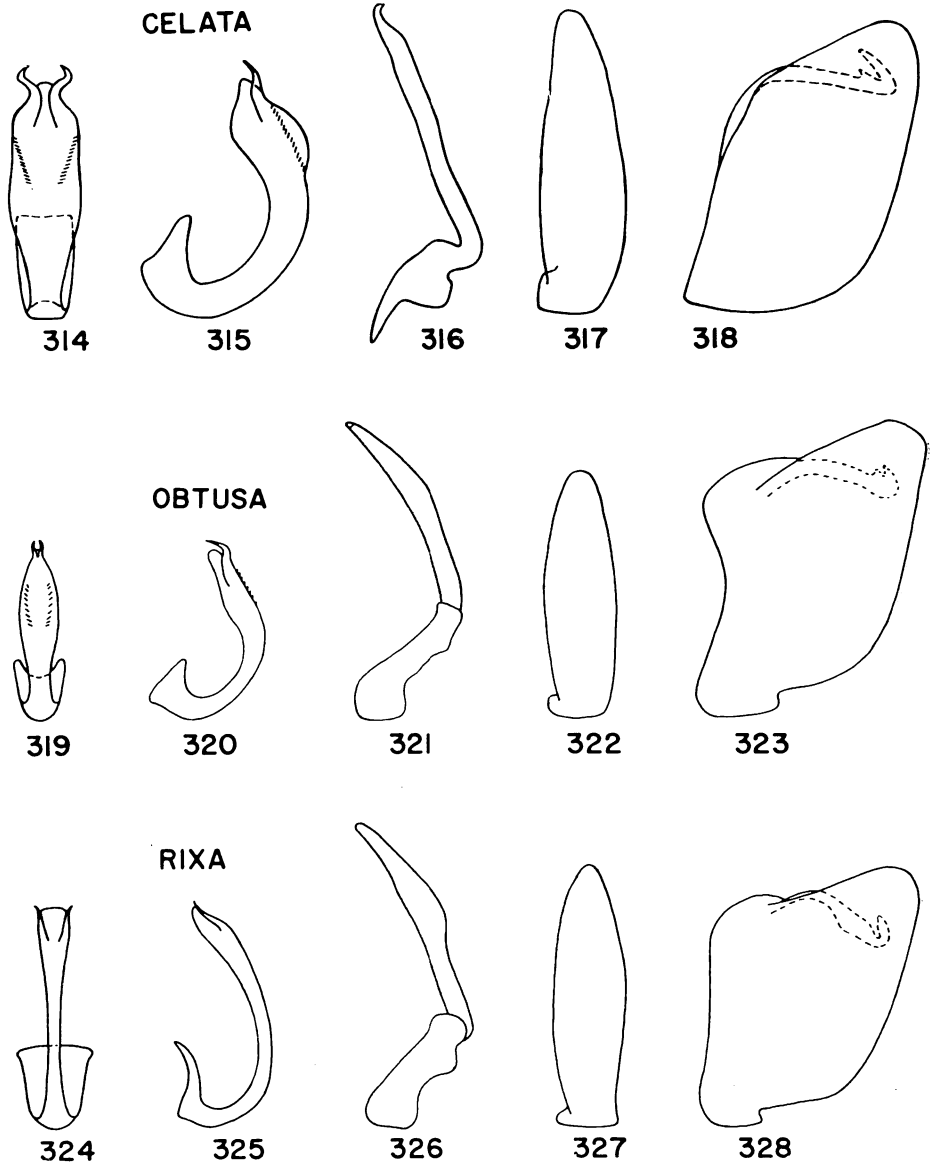
***Polana (Nihilana) scina*, sp.n.**

(Figs. 329-333)

Length: Male - 7.5 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Pale brown with darker brown areas and markings. Crown with a small dark brown spot on basal margin posterior to each ocellus. Darker brown spots mixed with yellow blotches on anterior margin of pronotum. Basal angles and median area on scutellum dark brown. Fore wings with veins margined with dark brown; cross veins of corium, apical cells, cross veins and apical portion of claval veins, dark brown.

Male genitalia: Plates long and narrow, four times as long as wide; apex rounded. Style broad (in lateral view) broadened at middle to

form convexly rounded ventral margin, tapered apically to form a bluntly pointed dorsally bent tip. Aedeagus with shaft narrow, broadened on apical half, apex bifid, producing two terminal, parallel, slender, sharp pointed processes; dorsal portion bent dorsally near point where



Figs. 314, 319, 324, ventral view of aedeagus; 315, 320, 325, lateral view of aedeagus; 316, 321, 326, lateroventral view of style; 317, 322, 327, ventral view of plates; 318, 323, 328, lateral view of pygofer. Not drawn to the same scale.

shaft becomes bifid. Pygofer spine with a long apical hook, portion just before hook produced, appearing as a slight anteapical hook.

Female genitalia: Female seventh sternum with lateral angles broadly rounded to posterior margin which is shallowly emarginate each side of a slightly produced median lobe which is shallowly concavely notched at middle.

Holotype ♂, Darien Prov., Santa Fé, Panama, 29.V.1967, DeLong and Triplehorn. Paratypes: 3 ♀, 2 ♂, Surumu, Roraima, Brazil IX.1966, M. Alvarenga and F. M. Oliveira; 2 ♂, same data as holotype; 1 ♂, same as holotype except 28.V.1967; 1 ♂, La Jolla, Panama 7.IX.1951 (F. S. Blanton). Holotype and paratype in the DeLong collection, Ohio State University. Paratypes in the Museu de Zoologia da Universidade de São Paulo, Brazil, paratypes in the U. S. National Museum Collection.

***Polana (Nihilana) pressa*, sp.n.**

(Figs. 334-338)

Length: Male - 7-7.5 mm, Female - 7.5-8 mm. Crown more than two and one half times as wide between eyes at base as median length. Color: Pale brown with darker brown areas. Pronotum with dark brown irregular areas on anterior portion; a spot behind each eye and lateral margins of pronotum, yellow. Basal angles of scutellum dark brown. Fore wings with darker brown veins; cross veins of corium and ends of claval veins at commissure, dark brown.

Male genitalia: Plates almost three times as long as wide, apices narrow, blunt, rounded. Style long, basal two-thirds broad, then gradually narrowed and curved dorsally to form an upturned pointed tip. Aedeagus with shaft slender with a narrow pointed apex; parameres contiguous to shaft, overlapping ventrally each side until they meet, just before apex, then diverging, extending beyond apex of shaft and narrowing to form long slender pointed apices. Pygofer spine with a thick pointed upturned hook.

Female genitalia: Seventh sternum with lateral angles broadly rounded, between which posterior margin broadly concavely excavated, one-sixth the distance to base, either side of a broad, median slightly produced lobe which is broadly shallowly excavated at middle.

Holotype ♂, La Ceiba, Honduras, 17.IX.1916 (F. J. Dyer) 14695, 14844. Paratypes: 1 ♀, same data as holotype except 18.IX.1916; 8 ♂, 2 ♀, La Ceiba, Honduras, 14.IX.1918, 16; 1 ♂, same data except 24.IX.1916; 1 ♂, same data except 23.VIII.1916; 1 ♂, Puerto Arturo farm, Honduras, 4.IV.1923, 202 (T. H. Hubbell); 1 ♂, Zapataro tree Cué Ede Miranda VI.4.39; Venez 286 (C. H. Ballou) Lot No. 41-10650; 1 ♂, "Lombardia, Honduras 1918" (W. H. Mann); 1 ♂ "San Esteban, Venezuela 22-30.XI.39 (Pablo Anduze)." Holotype, paratypes in the U. S. National Museum. Paratypes also in the North Carolina State University

collection, the Stockholm Museum, the DeLong collection, Ohio State University, and the Museu de Zoologia da Universidade de São Paulo, Brazil.

Polana (Nihilana) fina, sp.n.

(Figs. 339-343)

Length: Male - 7.5 mm, female - 8 mm. Crown broadly rounded, almost three times as wide between eyes at base as median length. Color: Pale brown with slightly darker brown areas. Basal angles of scutellum darker brown. Fore wings with dark spots on cross veins of corium and at ends of claval veins along commissure; apical cross veins dark brown; a darker brown cross band from apex of clavus to costa.

Male genitalia: Plates more than three times as long as broad, apices rounded. Style with long, narrow, blade (serrate on ventral margin), bent dorsad and caudad at pointed apex. Aedeagus with shaft blunt at apex with three pairs of short ventral subapical spines and a pair of short lateral subapical spines. Pygofer spine with a tooth on dorsal margin just cephalad to dorsally pointed apex.

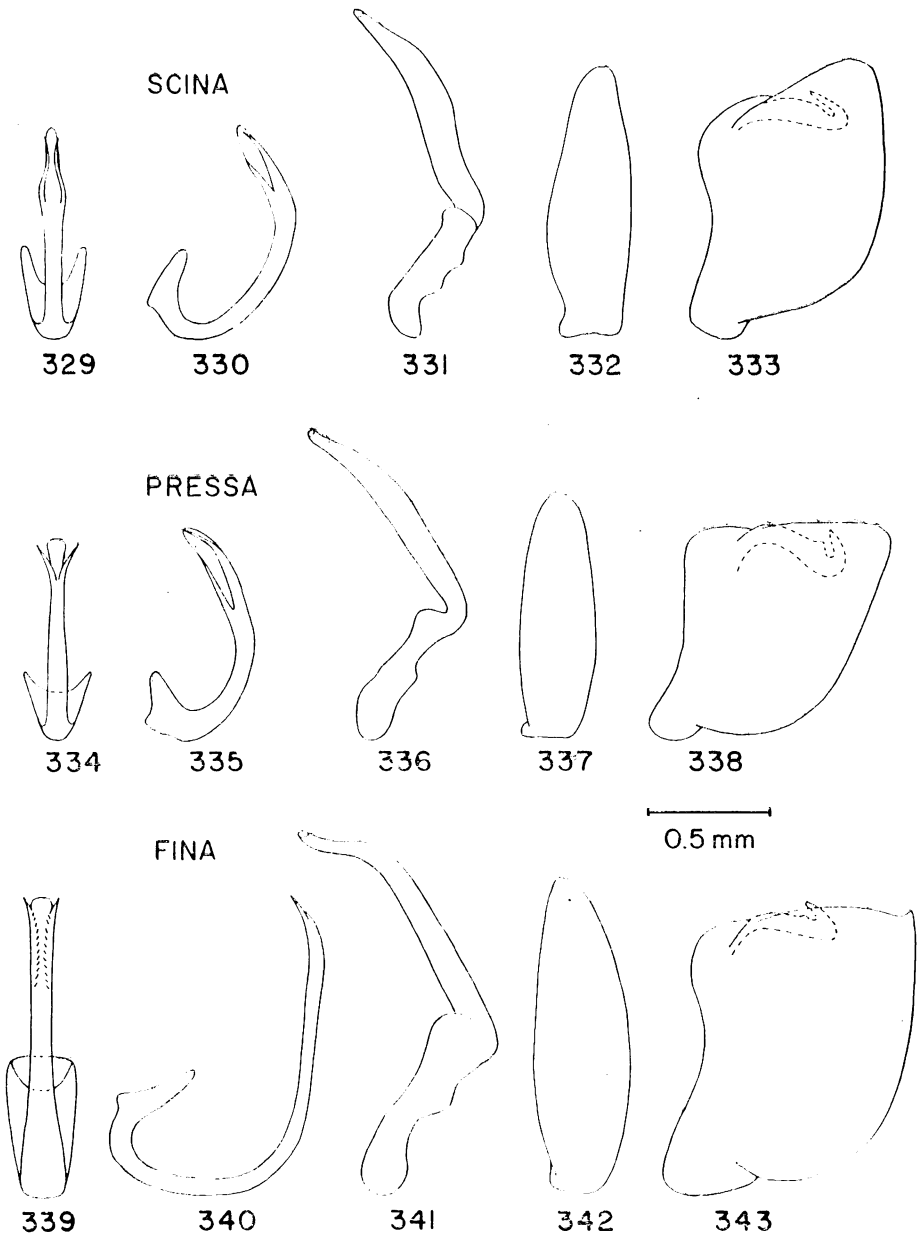
Female genitalia: Female seventh sternum with lateral angles rounded to posterior margin which is broadly shallowly excavated each side of a median broadly, slightly produced lobe; lobe is broadly, shallowly excavated at middle.

Holotype ♂, Darien Prov., Santa Fé, Panama, 2.VI.1967 (DeLong and Triplehorn). Paratypes: 1 ♀, same data as holotype; 1 ♂, 1 ♀, Panama, Paja, 13.X.1952 (F. S. Blanton); 1 ♂, La Jolla, Pan., 23.IX.1952 (F. S. Blanton); 1 ♂, Galeta Pt., 29.XII.1956 (F. S. Blanton); 1 ♂, El Cermeno, Pan., IV-V.1939 (Fruit Fly Trap) (Jas. Zetek), No. 4401; 1 ♂, Demerara R., Guiana, 31.III.1913; 1 ♂, Indio hydrographic Sta., Panama, C. Z., X.1946 (N. L. R. Krauss); 1 ♂, Panama, Polega, 12.XII.1952 (F. S. Blanton); 1 ♂, Tocumen, 1 ½ mi. N., Pan., 29.XI.1952 (F. S. Blanton); 1 ♂, Panama, C. Z., 27.III.1952 (F. S. Blanton); 1 ♂, San Esteban, Venezuela, 22-30.XI.1939 (Pablo Anduze); 1 ♂ "Panama, Mojinga Swp. C. Z. 20.XI.1951 (F. S. Blanton)". Holotype and paratypes in the DeLong collection, Ohio State University. Paratypes also in the North Carolina State University collection, the Stockholm Museum, the U. S. National Museum and the Museu de Zoologia da Universidade de São Paulo.

Polana (Nihilana) bena, sp.n.

(Figs. 344-348)

Length: Male - 7 mm. Crown broadly rounded, three times as wide between eyes at base as median length. Color: Golden brown, dark brown spots on pronotum behind each eye, basal portion of scutellum dark brown. Fore wings pale brown, dark brown spots on cross veins of corium, apical portion of claval veins at commissure and cross veins of apical cells.



Figs. 329, 334, 339, ventral view of aedeagus; 330, 335, 340, lateral view of aedeagus; 331, 336, 341, lateroventral view of style; 332, 338, 342, ventral view of plate; 333, 338, 343, lateral view of pygofer. All drawn to the same scale.

Male genitalia: Plates four times as long as wide. Style long, bent dorsally and narrowed near apex, forming a caudally bent pointed tip. Aedeagus long and slender, apex broadened, spatulate with three or four short brown spines on the outer margin, each side; a few spines occur on outer ventral margin each side, on narrow portion just basad to the enlarged apical portion. Pygofer spine with a long apical hook and a very short anteapical tooth.

Types: Holotype ♂, Chapada, Mato Grosso, Brazil, May (C. F. Baker). Paratypes: 1 ♂, Prov. del Sara, Bolivia, (Steinbach) C. M. Acc. 5064; 1 ♂, Prov. del Sara, Bolivia, 450 m. (J. Steinbach); 1 ♂, Tingo Maria, Huanuco, Peru, May 21, 1947, El. 2200 ft., (J. C. Pallister, Donor Frank Johnson); 1 ♂, Caraguatay, Misiones, Arg. I.1960 (R. Trotta); 1 ♂, Loreto Exp. Sta., Misiones, Arg. (A. Ogloblin). Holotype male in the U. S. National Museum. Paratypes in the Carnegie Museum, the American Museum of Natural History, the La Plata Museum, Argentina and the DeLong Collection, The Ohio State University.

***Polana (Nihilana) aneza*, sp.n.**

(Figs. 349-353)

Length: Male - 7.5 mm. Crown broadly rounded, two and one half times as broad between eyes at base as median length. Color: Pale brown, fore wings with cross veins of corium and terminals of claval veins at commissure, dark brown.

Male genitalia: Plates long, more than three times as long as wide, apices narrow, rounded. Style long, blade broad on basal three fourths, narrowed apically, bent dorsally, apex narrow, blunt. Aedeagus with shaft long, narrow on apical half, bearing a pair of terminal processes, each bifid at tip. Pygofer spine thick at apex with a short upturned apical hook and a short anteapical tooth.

Types: Holotype ♂, Arima Valley, Trinidad, B. W. I., 27.V.1952, (Gift of New York Zoo. Soc., Dept. Tropical Research, William Beebe, Dir.). Paratypes: 2 ♂, Porto Bello, Panama, 6 mi. East-XX Plantation, 15.II.1930 (T. O. Zachokke); 1 ♂, labeled "Stowaway on airship from Lima, Peru" (Miami, Fla., Nov. 29, 1957).

Holotype in the American Museum of Natural History. Paratypes in the California Academy of Science the U. S. National Museum and the DeLong collection, Ohio State University.

***Polana (Nihilana) agrilla*, sp.n.**

(Figs. 354-358)

Length: Male - 7 mm, female - 7 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Pale brown, two small dark brown spots on base of crown, one behind

each ocellus. Two small dark brown spots on pronotum, one behind each eye. Basal angles of scutellum dark brown. Fore wings subhyaline; cross veins on corium, apical ends of claval veins and cross veins of apical cells, dark brown.

Male genitalia: Plates elongate, twice as long as broad apices broad, rounded. Style blade broadened near middle forming two long divergent processes, the outer one straight, the inner process curved and pointed, separated by a concave excavation. Aedeagus with shaft stout, divided near apex forming two processes each of which is divided into a long and short pointed apical spine which are widely separated. Pygofer spine with a short apical hook and an antepical tooth.

Female genitalia: Seventh sternum with lateral angles produced, broadly rounded; posterior margin with a deep U-shaped excavation, extending two-thirds length of segment, each side of a broad median lobe, one third width of segment, and produced two-thirds depth of excavation, with a broad shallow concave median notch.

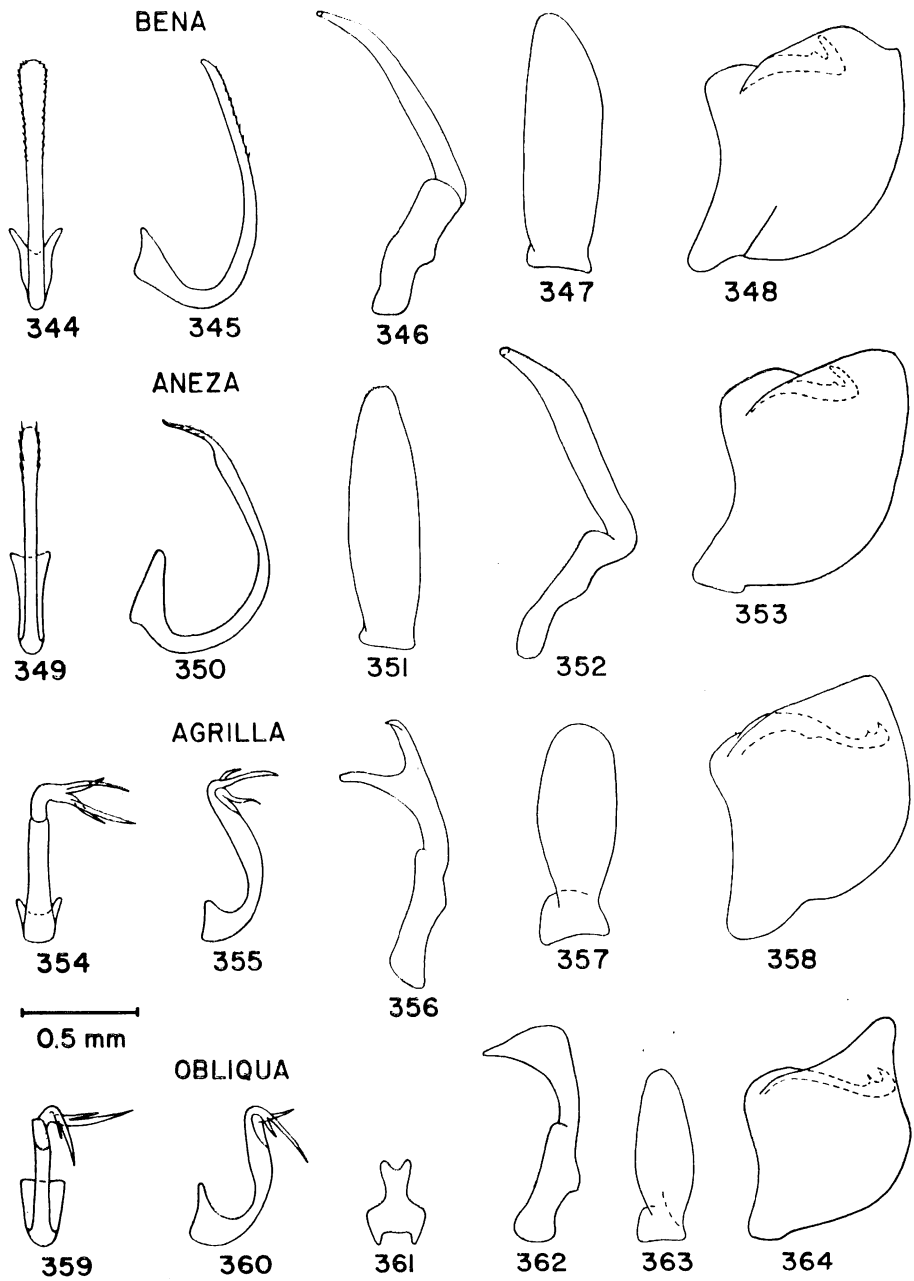
Types: Holotype ♂, Bolivia, Dept. of Santa Cruz, Saavedra Exp. Sta., 1.VI.1960 (R. Cumming). Paratypes: 1 ♂, 2 ♀, same data as holotype; 1 ♂, Bartica, Guiana, VI.1920; 1 ♂, Puerto Suarez, Bolivia 150 m. (J. Steinbach) Carn. Mus. Acc. 1844; 1 ♂, Corumbá, Mato Grosso, Brazil, Lowland, March (C. F. Baker); 1 ♂, Loreto, Misiones, Argentina, 25.X.1931 (A. A. Ogloblin); 1 ♂. Pouso Alegre, Minas Gerais, Brasil 24-25.VI.1965 (Vulcano and Pereira). Holotype, and paratypes in the DeLong collection, the Ohio State University. Paratypes also in the U. S. National Museum, the Carnegie Museum and the Museu de Zoologia da Universidade de São Paulo.

***Polana (Nihilana) obliqua*, sp.n.**

(Figs. 359-364)

Length: Male - 6.5 mm, Female - 8.0 mm. Crown broadly rounded, two and one-half times as wide between eyes at base as median length. Color: Dull brownish yellow to green, basal angles of scutellum dark brown. A longitudinal band of brown pigment extending from base of wing, along scutellum then along commissure to apex of second claval vein. Eyes and ocelli, red.

Male genitalia: Plates two and one-half times as long as wide, apices rounded. Style broad, narrowed at middle of blade, then broadened to form a clavate apex, with a straight ventral margin; caudal margin broad, rounded. Dorsal margin concavely curved, forming a narrow dorsally pointed tip. Aedeagal shaft narrowed near base and again near apex just before forming two terminal processes, each of which is bifid forming a long and a short terminal process. Pygofer spine with a short apical hook and an antepical tooth.



Figs. 344, 349, 354, 359, ventral view of aedeagus; 345, 350, 355, 360, lateral view of aedeagus; 346, 351, 356, 362, lateroventral view of style; 347, 352, 357, 363, ventral view of plate; 348, 353, 358, 364, lateral view of pygofer; 361, ventral view of style. All drawn to the same scale.

Female genitalia: Seventh sternum with lateral angles rounded, between which the posterior margin is broadly excavated, extending one-fourth distance to base, each side of a median lobe, one-third width of segment, produced to length of lateral angles and with a deep V-shaped median notch.

Types: Holotype ♂, Rio Salado, Argentina. Paratypes: 2 ♀, 1 ♂, Argentina: 1932-1933 (K. J. Hayward) B. M. 1933-187; 3 ♂, Argentina, La Rioja, Patquia, 1.1933 (K. J. Hayward); 1 ♀, Argentina, Puerto Aguirre, Alto Paraná (K. J. Hayward) 1-5.XI.1934, B. M. 1934-337; 1 ♂, same except 21-26.I.1934, BM-1934-337; 1 ♂ "Republ. Argentine University collection. Paratypes in the British Museum of Natural History, also in the DeLong collection, Ohio State University.

Subgenus *Polanana*, subgen.n.

Head and pronotum as in the subgenus *Polana*. Aedeagus without paired parameres arising from base of shaft. Style variable. Pygofer without a pair of dorsally attached processes, apex variously shaped, from bifid to truncate.

Type-species: *Gypona venosa* Stal.

The eight species placed in this subgenus are all from South America, either from Brazil or Peru. They can be separated by the following key.

KEY TO MALES OF THE SUBGENUS *POLANANA*

- | | | |
|--------|---|----------------------------|
| 1. | Aedeagal shaft with apical processes | 2 |
| 1'. | Aedeagal shaft without apical processes | 4 |
| 2(1). | Apical aedeagal processes almost one half as long as shaft | |
| | <i>falsa</i> (fig. 365) | |
| 2'. | Apical aedeagal processes not more than one third length of shaft | 3 |
| 3(2'). | Apical aedeagal processes very short; plate short, broadly rounded, almost truncate at apex | <i>sereta</i> (fig. 375) |
| 3'. | Apical aedeagal processes almost one third length of shaft; plate long, narrow, apex narrow bluntly pointed | <i>macuella</i> (fig. 395) |
| 4(1'). | Style with apical portion enlarged | 5 |
| 4'. | Style with apical portion narrow, tapered | 6 |
| 5(4). | Aedeagus with dorsal processes broadened at apex, transverse ... | |
| | <i>parvula</i> (fig. 401) | |
| 5'. | Aedeagus with dorsal processes short, spine-like | <i>truncata</i> (fig. 381) |

- 6(4'). Aedeagal shaft arises from narrow base, without processes
 *venosa* (fig. 370)
 6'. Aedeagal shaft arises from broad base, with processes 7
 7(6'). Aedeagal shaft bearing four processes, two at middle and two at
 base *mella* (fig. 390)
 7'. Aedeagal shaft bearing only two median processes near base
 *quadrilabes* (fig. 385)

***Polana (Polanana) falsa*, sp.n.**

(Figs. 365-369)

Length: Male - 7.5 mm. Crown almost transverse, three times as wide between eyes at base as median length. Color: Golden yellow without markings.

Male genitalia: Plates four times as long as broad, apices rounded. Style bent abruptly dorsally at two thirds its length, then tapered to a pointed apex. Aedeagus with shaft with a pair of terminal processes curved basad and extending halfway to base. Without pygofer spine.

Holotype ♂, Hacienda Maria, Cusco, Peru, 24.II.1952 (F. L. Woytkowski), in the North Carolina State University collection.

***Polana (Polanana) venosa* (Stal)**

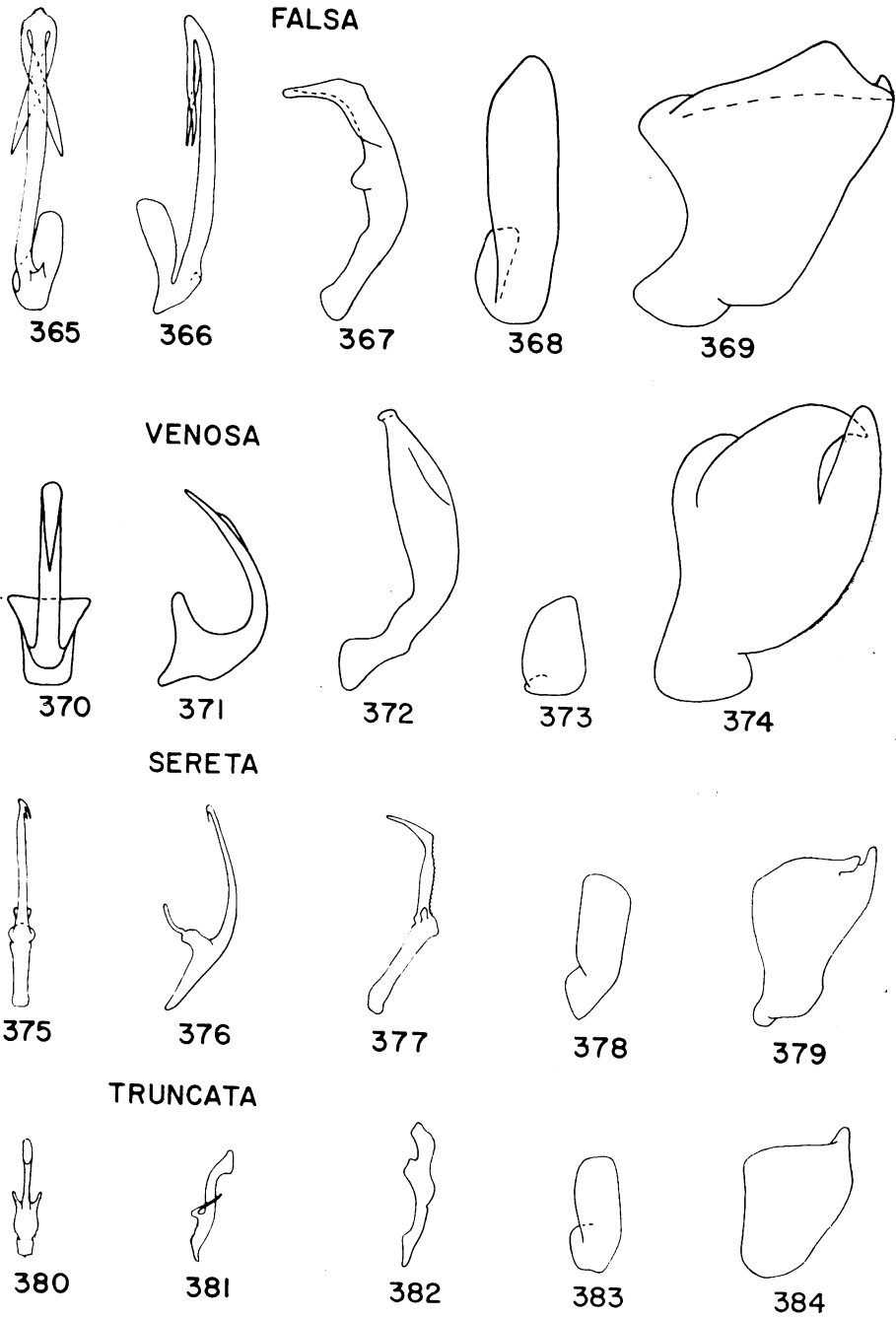
(Figs. 370-374)

Gypona venosa Stal. 1854: 252.

Ponana venosa; Osborn, 1938: 48.

Length: Male - 8.5 mm. Crown broadly roundedly produced, appearing parallel margined, twice as broad between eyes at base as median length. Color: Pale brown with darker brown areas. A small dark brown spot behind each ocellus, on base of crown. Anterior margin of pronotum with vermiculate markings and two proximal median small dark brown spots, just posterior to margin. Two prominent small dark brown spots behind each eye. Basal angles of scutellum dark brown. Median costal area of fore wing darker brown. A dark brown band extending from costa to apex of clavus just anterior to apical cells.

Male genitalia: Plates broad, short, one and one-half times as long as median width, convexly curved on outer margin to form a blunt apex. Style broad on median half, with a ventral tubercle at two-thirds its length, then gradually narrowed to form short slender apex, tip dorsally pointed. Aedeagal shaft straight, thick in dorsal view, apex blunt; in lateral view, curved, slender, tapered to pointed apex. Pygofer with caudal incision extending to center of pygofer; central portion bluntly pointed, caudally; dorsal portion with right angle notch, near apical tip, bluntly pointed.



Figs. 365, 370, 375, 380, ventral view of aedeagus; 366, 371, 376, 381, lateral view of aedeagus; 367, 372, 377, 382, lateroventral view of style; 368, 373, 378, 383, ventral view of plate; 369, 374, 379, 384, lateral view of pygofer. Not drawn to the same scale.

Type: Holotype male, labeled "typus", "Minas Gerais", is in the Stockholm Museum.

Notes: The type has been studied and the genital structures illustrated. Other male specimens from Brazil have been studied, but specimens reported by Osborn from other countries have been placed under other species names.

***Polana (Polanana) sereta*, sp.n.**

(Figs. 375-379)

Length: Male - 6.5 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Brown tinged with yellow. Pronotum with two black spots, one each side, posterior to eye at about half length of pronotum. Fore wings brown, subhyaline, with black spots on cross veins of corium and at ends of claval veins at commissure.

Male genitalia: Plates two and one half times as long as broad, apices broad, rounded. Style with blade long, slender, ventral margin serrate; blade narrowed at two thirds its length then broadened to form apical third which is bent dorsally and tapered to a slender tip. Aedeagus with shaft slender tapered to blunt apex, with an apical spine bent basad and a shorter subapical spine. Pygofer with a narrow blunt finger-like, dorsally protruding, apex.

Holotype ♂, Brazil, Território do Amapá, Rio Felício, 14-59, J. Lane Col. in the collection of the Museu de Zoologia da Universidade de São Paulo, Brazil.

***Polana (Polanana) truncata*, sp.n.**

(Figs. 380-384)

Length: Male - 7 mm. Crown broadly rounded, two and one half times as wide between eyes at base as median length. Color: Pale yellowish brown on crown, pronotum and scutellum. Crown with a black spot on base, posterior to each ocellus. Pronotum with an elongate black spot, and two black spots behind eyes, on anterior portion, each side. Scutellum with a black spot in each basal angle and two small median black spots. Fore wings pale brown with dark brown veins.

Male genitalia: Plates more than twice as long as broad, apices broad, truncate. Style with blade short, broad, roundedly excavated on ventral margin at base, apical half parallel margined, apex truncate. Aedeagus with shaft enlarged at curved apex, tip narrow, blunt; short, narrow, process arising each side on ventral margin at one third length of shaft. Pygofer with narrow blunt apex protruding dorsally.

Holotype ♂, Dianópolis, Goiás, Brazil, 16-22.I.1962, J. Bechyné, in the collection of the Museu de Zoologia da Universidade de São Paulo, Brazil.

Polana (Polanana) quadrilabes, sp.n.

(Figs. 385-389)

Length: Male – 9 mm. Crown broad, rounded, more than half as long at middle as basal width between eyes. Color: Crown, pronotum and scutellum pale yellow. Fore wings white with two large, round, black spots on clavus each side, along commissure.

Male genitalia: Plates three times as long as broad, tapered to narrow blunt apices. Style with blade curved dorsad, apical half tapered to a pointed apex; ventral margin of median portion serrate. Aedeagus with shaft broad (in lateral view), apical half gradually narrowed to a bluntly pointed apex; a pair of short parameres arise on dorsal margin of shaft at junction of shaft and the phallobase. Pygofer broad, rounded, at apex.

Holotype ♂, Huallaga R. Valley, tropical jungle, 500 m.a.s.l., Huanuco, Peru, 24.II.1954 (F. L. Woytkowski), in the U. S. National Museum.

Polana (Polanana) mella, sp.n.

(Figs. 390-394)

Length: Male – 8 mm. Crown broadly rounded, twice as broad between eyes at base as median length. Conspicuous curved striae between ocelli and between eyes on rounded marginal area. Color: Yellow, tinted with green. Pronotum with disc and posterior portion yellow, anterior portion pale green. Fore wings yellow subhyaline, veins green.

Male genitalia: Plates more than three times as long as wide, apices narrow, bluntly pointed. Style with blade abruptly bent near base, apical third narrowed to form a narrow pointed apex. Aedeagus with shaft thickened near base, with a pair of broad blunt processes extending dorsad; a pair of slender pointed processes about equal length to blunt processes, arise caudad to blunt processes, and extend dorsad; apical half of shaft slender, apex pointed; a pair of slender parameres extending almost to apex of shaft, arise at basad end of narrow portion of shaft and extend caudad.

Holotype ♂, Pucallpa and Aguaytia, Tingo Maria, Peru, 5-6.IX.1944 (E. J. Hambleton), in the U. S. National Museum.

Polana (Polanana) macuella, sp.n.

(Figs. 395-399)

Length: Male – 7 mm. Crown more than half as long at middle as basal width between eyes; rounded marginal area striated. Color: Crown dull yellow with a round black spot posterior to each ocellus.

Pronotum dull yellow, blotches of pale brown along anterior margin; a round black spot behind each eye, located at one third length of pronotum. Scutellum dull yellow. Fore wings pale yellow, subhyaline, marked with pale brown spots; two along commissure at apices of claval veins, one at base of claval vein, one on corium, three on costal margin, three on cross veins and two at apices of apical cells.

Male genitalia: Plates five times as long as wide, apices narrow, rounded. Style with a deep rounded excavation (on ventral margin) at base of blade forming a long blunt thumb-like projection; blade narrow at base abruptly broadened, basal half broad; apical half concavely rounded on dorsal margin forming a long slender pointed apex, curved dorsad. Aedeagus with shaft short, stout; apex broad, truncate; a pair of subapical processes one fourth length of shaft, bifid near base, arise ventrally and extend basad; outer spur of spine shorter than inner branch. Pygofer tapered to a bluntly pointed apex.

Holotype ♂, Chapada, Mato Grosso, Brazil, Aug. Collection C. F. Baker. Paratype: One ♂, same data as holotype, except October. Holotype and paratype in the U. S. National Museum.

***Polana (Polanana) parvula*, sp. n.**

(Figs. 400-404)

Length: Male - 7 mm. Crown broadly rounded, almost three times as broad between eyes at base as median length. Color: Crown yellow, ocelli red. Pronotum yellow with a small round black spot behind each eye, located at one third length of pronotum. Scutellum yellow, basal angles and a broad median longitudinal stripe, pale brown. Fore wing yellow, basal half of clavus, dark brown; apical portion of clavus, inner apical cells and appendix, pale brown.

Male genitalia: Plates twice as long as wide, with a curved spine at base. Style with the apical half of blade short and broad, foot-shaped, with a rounding, protruding, ventral "heel" and a long, tapered, dorsally curved, pointed "toe". Aedeagus with shaft curved, apex bluntly pointed; a process arising at one third length of shaft, on dorsal margin, extends almost to apex of shaft and produces a lateral "arm", each side, at apex; arm rather broad, caudally notched at middle, apices of lateral arms broadened and almost truncate.

Holotype ♂, Brazil, Santa Catarina, Nova Teutônia 8.XI.1927, 52°23' Fritz Plaumann. Paratypes 1 ♂ same data as holotype. Holotype and paratype in the Museu de Zoologia da Universidade de São Paulo, Brazil.

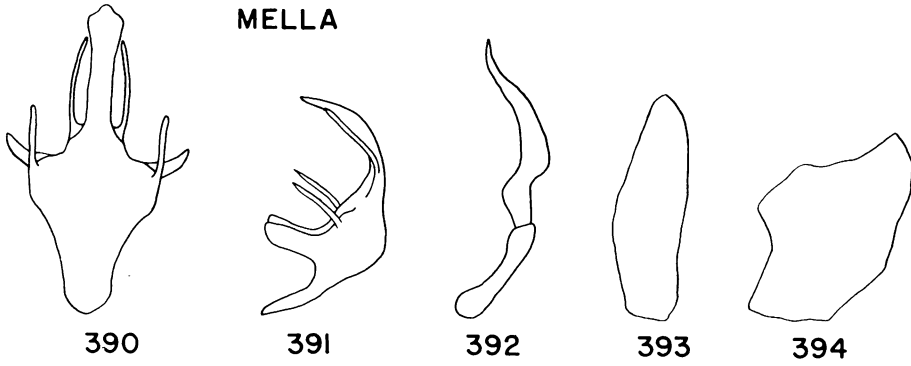
Subgenus ***Polanella***, subgen. n.

Head and pronotum as in the subgenus *Polana*. Male genitalia lacking paired parameres on aedeagus. Pygofer with dorsal processes, which are variable in structure, but without enlarged or hooked apices.

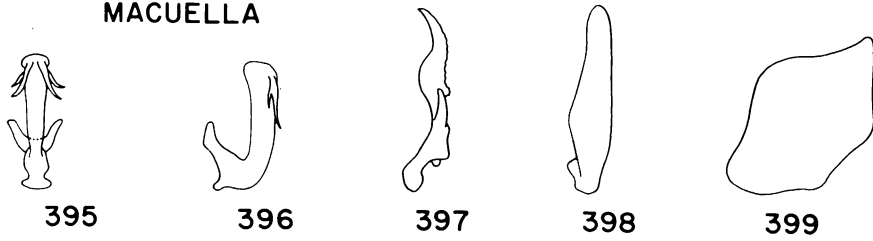
QUADRILABES



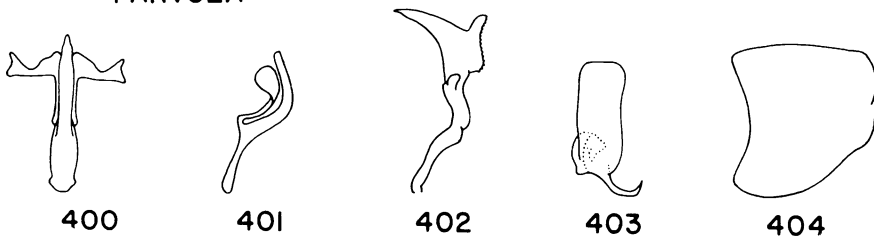
MELLA



MACUELLA



PARVULA



Figs. 385, 380, 395, 400, ventral view of aedeagus; 386, 391, 396, 401, lateral view of aedeagus; 387, 392, 397, 402, lateroventral view of style; 388, 393, 398, 403, ventral view of plate; 389, 394, 399, 404, lateral view of pygofer. Not drawn to the same scale.

Type-species: *Polana (Polanella) cupida*, sp.n.

The three species placed in this subgenus are from South America, two from Brazil and one from Venezuela. They can be separated by the following key.

KEY TO MALES OF THE SUBGENUS *POLANELLA*

1. Pygofer process with an enlarged dorsal protrusion near apex; aedeagal subapical process bifurcate, almost one half length of shaft *helara* (fig. 414)
- 1'. Pygofer process slender or tapered near apex; aedeagal subapical processes simples, not more than one fourth length of shaft 2
- 2(1'). Subapical aedeagal processes very short; style slightly enlarged on ventral margin near middle of blade ... *randa* (fig. 417)
- 2'. Subapical aedeagal process longer, about one fourth the length of the shaft; style with a tubercle on ventral margin at two thirds the length of the blade *cupida* (fig. 406)

***Polana (Polanella) cupida*, sp.n.**

(Figs. 405-409)

Length: Male – 8 mm. Crown broadly rounded, twice as wide between eyes at base as median length. Color: Crown pale brown with two dark brown spots at base, one posterior to each eye. Face pale brown. Pronotum pale brown with dark brown vermiculate markings just behind anterior margin. Scutellum pale brown. Fore wings pale brown, cross veins of corium and apices of claval veins at commissure dark brown.

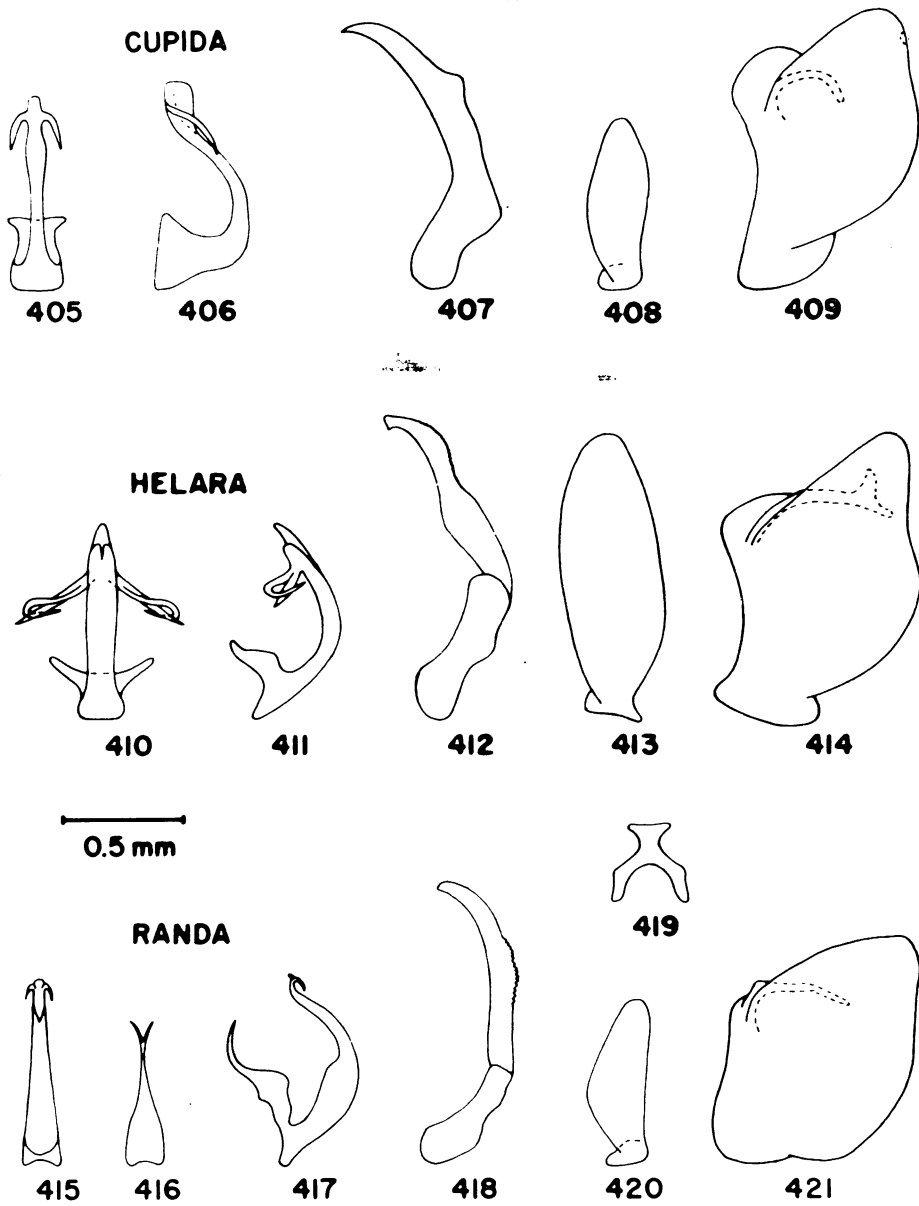
Male genitalia: Plates more than twice as long as wide, apex narrow rounded, with a tuft of long hairs at apex. Style with blade wide, a rounded serrate portion near middle on ventral margin; apex narrowed, bluntly pointed. Aedeagus with shaft stout, narrowed at apex, with a pair of lateral antepical processes one fourth the length of shaft, which bend basally along shaft; parameres fitted tightly against shaft and extending two thirds its length. Pygofer spine short, bent ventrally at apex.

Holotype ♂, labeled "Stieglmayr, Rio Grande do Sul". Paratype: One ♂, same data as holotype. Holotype and paratype in the Vienna Museum.

***Polana (Polanella) helara*, sp.n.**

(Figs. 410-414)

Length: Male – 8.5 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Crown and



Figs. 405, 410, ventral view of aedeagus; 406, 411, 417, lateral view of aedeagus; 407, 412, 418, lateroventral view of style; 408, 413, 420, ventral view of plate; 409, 414, 421, lateral view of pygofer; 415, ventral view of ventral aedeagal shaft; 416, ventral view of dorsal aedeagal shaft; 419, ventral view of connective.

fore wings dark brown, pronotum and scutellum paler brown. Face pale brown with white spots on lorae.

Male genitalia: Plates almost three times as long as wide, apices rounded. Style broadened on basal half of blade, constricted at middle, broadened again on apical half; apical portion curved dorsally, tip slightly enlarged, blunt. Aedeagus with shaft stout, two pairs of anteapical lateral processes arise together and extend basolaterally; ventral pair broad, and taper to pointed apices; dorsal pair slender, curved, and apices turned backward toward shaft; apex of shaft narrow, blunt. Pygofer spine bifid at apex, forming two divergent processes.

Holotype ♂, labeled "Rancho Grande nr. Maracay, Venezuela, 8.V. 1946 (Gift of N. Y. Zoo. Soc., Dept. Tropical Res., William Beebe, Dir.)", in the American Museum of Natural History.

Polana (Polanella) randa, sp.n.

(Figs. 415-421)

Length: Male - 8.5 mm. Crown broadly rounded, two and one half times as wide between eyes at base as median length. Color: Crown dark brown with a pair of small round black spots on base, one behind each eye. Pronotum pale brown with irregular dark brown markings just along anterior margin. Fore wings pale brown, cross veins of corium, apical ends of claval veins and apical cross veins dark brown.

Male genitalia: Plates elongate, narrow, three times as long as median width, clothed with long hairs, apex bluntly pointed. Style long, narrow, curving dorsally, roundedly broadened on ventral margin at middle, rounded portion serrate, apex bluntly pointed. Aedeagus with shaft broad at base (lateral view), narrowed before half its length, curved dorsally, with two curved terminal spines; dorsal process arises at base of shaft, curved and broadened near base with a narrowed, produced, bifurcate, curved, tapered, apical half. Pygofer spine short, straight, tapered, narrowly pointed at apex, reaching halfway to caudal margin.

Holotype ♂, Viçosa, Minas Gerais, Brazil, 14.XI.1929 (E. Hambleton). Paratypes: 1 ♀, same locality as holotype, except 18.XI.1929; 9 ♂, Nova Teutônia, Santa Catarina, Brazil (F. Plaumann) from the following dates, 3.VII.1939, 11.VIII.1939, VII.1948, 3.X.1950, 18.X.1950, 21.X.1950, 31.X.1950, 19.XI.1953. Holotype and paratype ♀ in the DeLong collection, Ohio State University. Paratypes in the North Carolina State University collection and the Museu de Zoologia da Universidade de São Paulo, Brazil.

UNPLACED SPECIES

The following four species were described from females, or specimens without abdomens, and cannot at this time be properly placed, even

to subgenus, without associated males. They are, however, good *Polana* species.

***Polana bicolor* (Spangberg)**

Gypona bicolor Spangberg, 1878: 52; Metcalf 1962: 23.

Length: (Sex unknown) – 8 mm. Crown almost transverse, twice as wide between eyes at base as median length. Pronotum longer than crown and much wider. Ocelli nearer proximal eye than to each other. Color: Crown dull yellow with a slight orange tinge. Pronotum bright orange red. Scutellum black. Fore wings appearing black, veins inconspicuous, same color as forewing.

Genitalia – no abdomen is present and the original description does not designate sex.

Type: Holotype, labeled "Cayen", in the Stockholm Museum, is the only representative of the species.

***Polana praeusta* (Stal)**

Gypona praeusta Stal, 1854: 252; Walker, 1858: 255; Dohrn, 1859: 93; Spangberg, 1878: 47.

Ponana praeusta; Osborn, 1938: 47.

Ponana (Ponana) praeusta; Metcalf, 1962: 144.

Length: Female – 8 mm. Crown broadly rounded, appearing parallel margined, almost two and one-half times as wide between eyes at base as median length. Color: Pale brown with darker brown areas. A spot on each cross vein of corium, at end of each claval vein, on commissure, and apex of clavus, dark brown.

Female genitalia: Seventh sternum with lateral angles rounded to posterior margin which is gently sloping caudally, to a slightly produced, broadly rounded lobe, each side of a median broad shallow excavation, median portion keeled.

Type: Holotype ♀, labeled "Brazil, Typus", in the Stockholm Museum.

***Polana nebulosa* (Stal)**

Gypona nebulosa Stal, 1862: 48; Spangberg, 1878: 49; Metcalf, 1962: 40.

Length: Female – 8 mm. Crown broadly rounded, more than twice as wide between eyes at base as median length. Color: Pale brown with darker brown areas. Veins on anterior half of fore wings dark brown.

Female genitalia: Seventh sternum with lateral angles rounded to posterior margin which is truncate, margin broadly bordered with dark brown and with a broad median brown stripe from margin to base.

Type: Holotype ♀, labeled "Brazil, Typus", is in the Stockholm Museum. A second specimen labeled "Brazil" and without an abdomen has been placed with the type, and is apparently not the same species.

***Polana quadripunctata* (Stal)**

Gypona quadripunctata Stal, 1862: 48; Spangberg, 1878: 49; Metcalf, 1962: 45.

Length: Female – 9 mm. Crown broadly roundedly produced longer at middle than next to the eyes, more than twice as broad between eyes at base as median length. Color: Pale brown with darker areas. Fore wings, pale beyond apex of clavus, a darker brown spot on costal margin and first apical cell, with four small round black spots, one at end of each claval vein, along commissure.

Female genitalia: Seventh sternum truncate, with a slight median keel on margin.

Type: Holotype ♀, labeled "Brazil, Typus", is in the Stockholm Museum.

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