Neotropical Predaceous Midges of the Genus Bezzia
(Diptera: Ceratopogonidae) Part III.
The gibbera Group of Species

Gustavo R. Spinelli
Instituto de Limnologia, Museo de La Plata, La Plata, Argentina

and

Willis W. Wirth
Research Associate, Florida State Collection of Arthropods, Gainesville, Florida, U.S.A.

Abstract

The gibbera Group of the genus Bezzia Kieffer, subgenus Bezzia, is comprised in the Neotropical Region of at least 16 species, of which the following 11 species are described as new: araucana from Argentina; catarinensis from Brazil; globulosa from Puerto Rico; gogani from Colombia, Mexico and Panama; hondurensis from Mexico and Central America; jubata, leei and megatheca from Colombia; mesotibialis from Belize and Trinidad; pseudogibbera from Honduras and Panama; and setigera from Colombia and El Salvador. A key is presented for subgenera and species groups, and for the Neotropical species of the gibbera Group.

Introduction

This is the third in a series of papers revising the Neotropical species of the predaceous midge genus Bezzia Kieffer. In our first paper (Spinelli and Wirth 1989a) we gave a brief summary of previously published work, a diagnosis of the genus Bezzia and subgenus Homo-bezzia Macfie, a key to the subgenera and Neotropical species groups, and revisions of the glabra and brevicornis species groups. In the second paper (Spinelli and Wirth, 1989b) we gave a slightly revised version of our subgeneric and species group key, and treated the six Neotropical species of the nobilis and punctipennis species groups of the subgenus Bezzia s. str., including four new species. In the present paper we will repeat the key to the subgenera and species groups of Bezzia, and revise the 16 Neotropical species of the gibbera group, including 11 new species. In a fourth and final paper we will revise the two remaining groups of Neotropical Bezzia, the venustula Group and Group A, unnamed here because all three included species are undescribed.

Explanation of our terminology can be found in papers by Wirth (1952), Forattini (1957), Dow and Turner (1976), Wirth et al. (1977), and Downes and Wirth (1981). Holotypes of our new species are deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D. C. (USNM) except as noted. Paratypes, as available, will be deposited in the Florida State Collection of Arthropods, Gainesville, Florida (FSCA); Museo de La Plata, La Plata, Argentina (M.L.P.); and the Museo de Zoologia, Universidade de Sao Paulo, Sao Paulo, Brazil (MZB).

Key to Subgenera and Species Groups of Neotropical Bezzia

1. Antennal segment 12 of male longest, plume well developed, extending at least to apex of 11th segment; scutum black, shiny or dull or with silvery hairs; if scutum grayish brown with dark vitta, the hind tibia is yellow in midportion,
apex broadly black, and all femora bear spines; tibiae often black; fore femur with spines slender when present; female abdomen with 1-2 pairs of gland rods; males about same size as females; male aedeagus variable (Subgenus Bezzia) .......................... 2
- Antennal segment 12 of male no longer than 13, antennal plume only weakly developed; scutum dull, occasionally weakly shiny, brownish or grayish with or without vittae; tibiae pale or with a dark medial or basal dark ring; spines of fore femur stout when present; female with 0-5 pairs of gland rods; males considerably smaller than females; male aedeagus triangular with minute spinules or hairs (subgenus Homobezzia Macfie) .......................... 4

Subgenus Bezzia  

2. Fore femur usually unarmored ventrally; legs brown to black; femora and tibiae usually with narrow pale rings, rarely femora pale at bases or tibiae pale ................ giberia Group
- Fore femur armed ventrally with one or more slender black spines; legs un­banded brown to black, or if banded the pale bands broad .......................... 3

3. Male ninth sternum without sublateral, heavily sclerotized lobes; aedeagus broad; legs broadly yellow or with broad yellow median bands on fore femur and tibia .......................... nobilis Group
- Male ninth sternum with sublateral, heavily sclerotized lobes; aedeagus Y­shaped; legs primarily dark brown to black, at most one pair of legs with broad yellowish bands .......................... punctipennis Group

Subgenus Homobezzia Macfie  

4(1). Usually large species (wing length 1.3-3.4 mm); scutum without bristly setae on disc; fore femur without spines or with 1-9 stout to slender spines of similar lengths, with or without strong basal tubercles; pupal respiratory horn with numerous (30-35) spiracular openings, apex more or less flared, abdominal tubercles of pupa well developed . . 5
- Usually small species (wing length 1.2-2.0 mm); scutum with two rows of strong bristly setae on disc; fore femur with 5-10 stout ventral spines of alternating uneven lengths arising from distinct elevations; pupal respiratory horn with only 4-12 spiracular openings, pupal abdominal tubercles small ........ .......................... Group A

5. Fore femur armed ventrally with one or more short black spines ............ 6
- Fore femur unarmored ventrally ................ gilairu Group

6. Two spermathecae ... venustula Group
- One spermatheca ... brevicornis Group

Bezzia giberia Group

Diagnosis. Small, more or less black species, wing length 1.0-1.4 mm. Inteocular space with median seta weak. Legs usually black, narrow pale rings usually present subapically on some femora and tibiae and subbasally on some tibiae; hind femur and tibia usually without pale rings. Fore femur usually without ventral spines (2 in leei). Two spermathecae with short necks. Male aedeagus lacking ventral setulae and usually with a more or less hyaline, smooth, rounded tip. Distal process of parameres and basal arch of aedeagus variously shaped, affording good specific characters.

Discussion. The giberia species group is the Neotropical counterpart of the Nearctic bivittata species group, with the same diagnostic characters. One character which Wirth and Grogan (1983) gave for the bivittata Group, "segment 13 of male antenna with long black basal seta," is not diagnostic, but is present throughout the genus Bezzia, and appears to be diagnostic for the genus.
The widespread Nearctic species *Bezzia bivittata* (Coquillett) apparently ranges through Central America to Panama. The Central American species *B. capitata* Wirth and Grogan ranges north to southern Arizona. *Bezzia gibbera* (Coquillett), originally described from Cuba, occurs throughout the Caribbean and Central America, and into the southern United States as far as Florida, Texas, and southern Arizona.

Key to Species of the *Bezzia gibbera* Group

1. Female tarsal claws without internal basal tooth; male genitalia with latero-caudal margins of ninth sternum and ninth tergum heavily sclerotized; dististyle stout, broad caudally with blunt tip; parameres implanted beyond end of aedeagus
   - Female tarsal claws with internal basal tooth; male genitalia not as above ... 2

2. Scutal vestiture with setae arising from raised tubercles
   - Scutal vestiture with setae not arising from raised tubercles, only fine pubescence

3. Fore leg pale
   - Mid tibia pale
   - Mid tibia dark brown

4.Fourth palpal segment brown; fore and mid legs dark brown, without definite pale bands; 17 strong prealar setae
   - Fourth palpal segment pale; fore femur and fore and mid tibiae with pale bands, 7-8 strong prealar setae

5. One pair of slender gland rods; spermathecae elongated
   - No gland rods; spermathecae stout, ovoid

6. Spermathecae large, the largest 0.155 mm long
   - Spermathecae moderate size, the largest at most 0.095 mm long

Antenna yellowish, distal portion of flagellar segments 11-15 brownish; stout spine-like setae at apices of femura and mid tibia; strong bristly setae dorsally on hind tibia; tarsi yellowish including fifth tarsomere

- Antenna brown, bases of flagellar segments pale; no spine-like setae at apices of femura and mid tibia; hind tibia without strong bristly setae dorsally; fifth tarsomere dark

- Antenna brown, bases of flagellar segments pale; fore and mid legs dark brown, without definite pale bands; 17 strong prealar setae

- Fourth palpal segment pale; fore femur and fore and mid tibiae with pale bands, 7-8 strong prealar setae

- Aedeagus with basal arch absent and main body ending in a narrow pointed tip; parameres ending in a broad, truncate, capitate tip; basistyle without strong setae directed mesad (males only)

- Aedeagus with basal arch low but present; parameres rounded caudally; basistyle with numerous strong setae which are directed mesad

- Hind tibia dark brown, with narrow sub-basal pale rings

- Hind tibia yellowish except distal one-fifth dark brown

- Spermathecae elongated; hind tibia entirely dark brown

- Spermathecae elongated; hind tibia entirely dark brown

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- Spermathecae elongated; hind tibia entirely dark brown

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- Spermathecae elongated; hind tibia entirely dark brown

- Spermatheca...
14. Fore femur armed with 2-3 ventral spines; hind tibia with strong bristly setae dorsally; a single stout seta on interocular space

- Head: Dark brown. Eyes separated by a distance equal to diameter of 2.5 ommatidial facets, one seta on interocellular space. Antenna (Fig. 2) short, uniformly dark brown; lengths of flagellar segments in proportion of 25:15:14:13:13:14:14:17:19:20; antennal ratio 0.83 (0.77-0.88, n = 5). Palpus (Fig. 5) dark brown; lengths of segments in proportion of 8:20:25:18:26; palpal ratio 2.60 (2.25-3.20, n = 5). Mandible with 10-11 teeth, and three basitarsal spines.

Thorax: Blackish brown. Scutum with fine setae; two prealar setae, one postalar; scutellum with four similar setae. Legs (Fig. 3) dark brown; fore and mid tibiae with narrow, faint, subbasal pale rings; hind tibial comb with six spines. Tarsi dark brown; basitarsi of fore leg with broad pale band in middle, tarsomere two of fore leg pale at base; ventral palisade setae absent on fore tarsus, in one row on basitarsi of mid leg and tarsomere two of hind leg, in two rows on basitarsi of hind leg; hind tarsal ratio 2.20 (2.10-2.30, n = 5); claws small and curved, without internal basal tooth. Wing (Fig. 6) with costa extending to 0.67 (0.65-0.69, n = 5) of total length; membrane hyaline, anterior veins brownish; venation as figured. Halter dark brown.

Abdomen: Dark brown; ninth sternum strongly sclerotized. One pair of slender and well-sclerotized gland rods. Spermathecae two (Fig. 4), no trace of a vestigial spermatheca; pyriform without necks; unequal, measuring 0.083 by 0.050 mm and 0.066 by 0.046 mm.

Male. Wing length 1.12 mm; breadth 0.34 mm; costal ratio 0.60. Similar to female with usual sexual differences. Antenna (Fig. 1) entirely dark brown; lengths of flagellar segments in proportion of 40:20:18:18:18-18:20:24-32:72-24:24-26; plume well developed. Lengths of palpal segments in proportion of 9:20:23:20:24; palpal ratio 3.10. Hind tarsal ratio 2.25.

Genitalia (Fig. 8): Ninth sternum 2.5 times as broad as long, laterocaudal margins strongly sclerotized, with a short, rounded, indistinct, caudomedian excavation, caudal membrane spiculate; ninth tergum with laterocaudal margins heavily sclerotized and truncate, with a
slender, distomedian membranous portion and two lateral lobes, each one with a short, banana-shaped sclerotization. Basistyle stout, mesal and caudal margins straight, oblique; dististyle stout, paddle-shaped, broad caudally with blunt tip. Aedeagus short, triangular, basal arch low, anterolateral arms strongly sclerotized with rounded tip. Parameres (Fig. 7) implanted beyond end of aedeagus; anterolateral plates short and strongly sclerotized, as well as lateral margins of distal portion; distal portion ending in a broad, bifid tip.

**Distribution.** Argentina (western Rio Negro and Neuquen Provinces).

**Types.** Holotype female, allotype male, Argentina, Rio Negro, Arroyo Blanco on rte. to Tronador, 31.i.1986, G. R. Spinelli, sweeping (MLP). Paratypes, 15 females, 17 males, as follows: Same data as types, 13 females, 17 males (MLP, USNM); Argentina, Rio Negro, 6 km e. Lago Mascardi. 28.xi.1984. Spinelli. 1 female, sweeping (MLP); Argentina, Neuquen, Rio Malleo in primary pine, 7.i.1986, Spinelli. 1 female, sweeping (MLP)

**Discussion.** The species takes its name from the Araucanian Indians, early inhabitants of the area of the type locality.

We place *Bezzia araucana* provisionally in the *gibbera* group. The peculiar male genitalia and the absence of internal basal tooth on the female tarsal claws are the most important characters to separate *arauana* from other species of the genus *Bezzia*. This species may require a new subgenus, but extensive revisionary studies, especially in the regions derived from the ancient Gondwanaland, and also of the *expolita* group and allied groups of the Northern Hemisphere, will be necessary before taking such action.

*Bezzia bivittata* (Coquillett)  
**Figures 9-16.**

*Bezzia bivittatus* Coquillett, 1905: 60 (female; California).

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**Bezzia bivittata** (Coquillett); Kieffer, 1906: 58 (combination); Wirth, 1952: 238 (California; male, female described; figs.); Wirth, 1965: 141 (catalog reference); Wirth and Grogan, 1983: 490 (redescribed; figs.; distribution).  
*Protoezia bivittata* (Coquillett); Johannsen, 1908: 267 (combination); Malloch, 1914: 138 (in key); Malloch, 1915: 357 (listed); Johannsen, 1943: 785 (listed).  
*Bezzia (Aspinabezzia) bivittata* (Coquillett); Dow and Turner, 1976: 126 (redescribed; status; figs.; distribution).

**Note.** The following description is based on specimens reported below from Panama.

**Female.** Wing length 1.05 mm; breadth 0.40 mm.

**Head:** Dark brown. Eyes nearly contiguous, forming a V-shape where they contact. Antenna (Fig. 10) brown, narrow bases of flagellar segments pale; lengths of flagellar segments in proportion of 22-15-15-16-15-17-22-22-22-24-32; antennal ratio 0.93. Palpus (Fig. 13) brown, short; lengths of segments in proportion of 7-11-15-10-12; palpal ratio 2.00. Mandible with 10 teeth and three basal spinules.

**Thorax:** Dark brown, scutum with fine pubescence and small setae; three precordial setae, one postalar; scutellum with four similar setae. Legs (Fig. 11) dark brown, narrow pale rings subbasally on tibiae, subapically on femora and fore and mid tibiae; hind tibial comb with six spines. Tarsi pale brown, fifth tarsomeres dark; tarsal claws small and slightly curved, each with internal basal tooth. Wing (Fig. 14) with costa extending to 0.74 of total length; membrane hyaline, anterior veins pale; venation as figured. Halter dark brown.

**Abdomen:** Brown, slightly paler than thorax. One pair of long slender, well sclerotized gland rods. Spermathecae (Fig. 12) two, no trace of vestigial third; subspherical with short necks; unequal, measuring 0.035 mm and 0.028 mm in diameter.

**Male.** Wing length 1.02 mm; breadth 0.31 mm; costal ratio 0.70. Similar to female with usual sexual differences. Antenna (Fig. 9) yellowish,

**Genitalia** (Fig. 16): Ninth sternum two times as broad as long, without caudomedian excavation; ninth tergum rounded caudally, ending near end of basistyles, with two large apicolateral lobes. Basistyle 1.5 times as long as basal breadth, somewhat slender distally; dististyle stout, nearly straight, ending in a sharp point. Aedeagus slightly longer than broad; basal arch well-sclerotized and extending to about a third of total length; distomedian process tapering to moderately slender tip, sides concave in outline. Parameres (Fig. 15) heavily sclerotized; basal arm bilobed; distal portion slender, sides subparallel, tip rounded, hyaline.

**Distribution.** North America from Alaska to California, east to Ontario and Florida; Panama.

**New Record.** PANAMA: Canal Zone, Barro Colorado Island, vii.1967, W. W. Wirth, light trap, 1 male, 1 female.

**Discussion.** The Panama specimens agree well in all respects with North American specimens of *Bezzia setigera* new species, but differing from that species by the absence of a basal arch on the aedeagus, which also has the main body ending in a narrow pointed tip; by the parameres, ending in a broad, truncate, capitate tip; and by the basistyle, without strong setae directed mesad. A full description and figures of the male (only known sex) are given by Wirth and Grogan (1983: 503).


**Bezzia carioca** Lane

**Bezzia carioca** Lane, 1958: 30 (female; Brazil); Wirth, 1974: 52 (in catalog).

**Diagnostic Characters (from original description).** Wing length 2.2 mm. Brown species; scutum dull blackish with pattern of four grayish pollinose spots. Legs brown; fore tibia with basal pale ring, mid and hind femur and mid tibia each with pale band in midportion, hind tibia pale on proximal 2/3; tarsi pale, fourth tarsomeres brown; fore femur with stout black ventral spine.

**Distribution.** Known only from the type locality: Brazil, Rio de Janeiro, Itaguaí.

**Note.** The holotype female (pinned) was examined and is badly damaged and unrecognizable; missing are one antenna, one wing, abdomen, all of legs except one entire mid leg, one mid femur, one hind femur and tibia; one antenna is mounted on a slip attached to the pin by a card mount.
Bezzia catarinensis Spinelli and Wirth, new species
Figures 17-24

Female. Wing length 1.80 mm; breadth 0.59 mm.

Head: Dark brown. Eyes narrowly separated, by a distance equal to diameter of two ommatidial facets. Antennal scape and pedicel dark brown; flagellum (Fig. 17) yellow on first flagellar segment and proximal 1/2-2/3 of antennal segments 4-10 and basal 1/4 of distal five segments, distal portions of segments 4-10 pale brown and 11-15 dark brown; lengths of flagellar segments in proportion of 40-23-25-25-26-29-38-64-78-43-45-48. Palpus with lengths of segments in proportion of 11-17-34-21-24; palpal ratio 4.10 (3.75-4.35, n = 3). Hind tarsal ratio 2.00 (n = 3).

Genitalia (Fig. 24): Ninth sternum 2.4 times as broad as long, with a deep, broad, caudomedian excavation; ninth tergum short with two slender lobes not produced beyond basistyles. Basistyle stout, slightly longer than basal breadth, with a blunt mesal protuberance and with stout setae on anterior 1/2; dististyle short, very curved, spoon-shaped distally. Aedeagus not typical of genus Bezzia. H-shaped, basal arms well sclerotized. Parameres as in Fig. 23.

Distribution. Brazil, restricted to type-locality.

Types. Holotype female, allotype male, Brazil, Santa Catarina, Nova Teutonia, vii.1945, F. Plaumann (USNM). Paratypes, 2 males, same data as types (USNM, MLP).

Discussion. This species is very similar to Bezzia mesotibialis new species, from which it can be distinguished by the stout postscutellar setae, the pale fore leg, 15 strong prealar setae (8 in mesotibialis), and the absence of gland rods.

Bezzia gibbera (Coquillett)

Ceratopogon gibber Coquillett, 1905: 60 (female; Cuba).
Probezzia gibber (Coquillett); Johanssen, 1908: 267 (combination); Malloch, 1914: 138 (in table); Malloch, 1915: 357 (notated); Johanssen, 1943: 785 (in list).
Bezzia gibber (Coquillett); Kieffer, 1917: 330 (combination).
Bezzia gibbera (Coquillett); Wirth, 1965: 141 (in catalog; distribution); Wirth, 1974: 53 (in Neotropical catalog); Dow and Turner, 1976: 142 (misident. in part; female redescribed; figs.; distribution).
**Diagnosis.** A small species distinguished by its bright yellow antennal scape; fourth palpal segment pale, other segments brown; labial stem whitish, knob dark brown; fine setae on scutum arising from raised tubercles; spermathecae large, elongated, ovoid, subequal; male genitalia with setose lobe on venteromedian base of basistyle. A full description and figures are given by Wirth and Grogan (1983: 506).

**Distribution.** Southern Arizona, Texas and Florida south to Panama and throughout the islands of the Caribbean.


*Bezzia globulosa* Spinelli and Wirth, new species

Figures 25-32

**Female.** Wing length 1.20 (1.15-1.24, n = 2) mm; breadth 0.45 (0.43-0.47, n = 2) mm.

**Head:** Dark brown. Eyes nearly contiguous, forming a V-shape where they contact. Antenna (Fig. 25) brown, narrow bases of flagellar segments slightly pale; lengths of flagellar segments in proportion of 25:15:14:15-15:14:19-19:20:24:27; antennal ratio 0.87 (0.85-0.89, n = 2). Palpus (Fig. 29) short, brown; lengths of segments in proportion of 8-12:21:14-15; palpal ratio 2.80 (2.60-3.00, n = 2) Mandible with 12 teeth.

**Thorax:** Dark brown, scutum with vestiture of numerous setae and fine pubescence; three siuid prealar setae, one postalar, scutellum with four similar setae. Legs (Fig. 27) dark brown; narrow pale rings subbasally on tibiae, subapically on femora and tibiae of fore and mid legs; a stout, spinelike seta at apex of mid tibia; hind tibial comb with eight spines. Tarsi brownish, fifth tarsomeres dark brown; ventral palisade setae absent on fore tarsus, in one row on proximal 1/2 of basitarsus of mid leg and tarsomere 2 of hind leg, in two rows on basitarsus of hind leg; a pair of strong ventral spines at apices of tarsomeres 1-3 of mid leg, smaller and paler on fore and hind legs; hind tarsal ratio 2.00 (n = 2). Wing (Fig. 30) with costa extending to 0.73 of total length; membrane slightly infuscated, anterior veins brown; venation as figured. Halter dark brown.

**Abdomen:** Dark brown. One pair of slender gland rods. Spermathecae (Fig. 28) two plus vestigial third; elongated with short and slender necks; unequal, measuring 0.068 by 0.046 mm and 0.076 by 0.044 mm.

**Male.** Wing length 1.05 mm; breadth 0.32 mm; costal ratio 0.62. Similar to female with usual sexual differences. Antenna (Fig. 26) with flagellar segments distinctly separated; lengths of flagellar segments in proportion of 22:16:17:16:18:22-32-23:23-25; lengths of palpal segments in proportion of 6:11:14:11-14. Hind tarsal ratio 2.00.

**Genitalia** (Fig. 32): Ninth sternum short with deep caudomedian excavation; ninth tergum short, ending in two slender lobes not produced beyound basistyles. Basiisyyic siuid globose, about as long as broad; dististyle broad at base, strongly curved, ending in a sharp point. Aedeagus triangular; basal arch very low, basal arms well sclerotized, reduced anteriorly and blunt, curved laterocaudad. Parameres (Fig. 31) with bilobed anterolateral plates, distal process slightly swollen in middle, rounded caudally.

**Distribution.** Puerto Rico.

**Discussion.** This species is similar to *Bezzia sandersoni* Wirth and Grogan, from which it can be distinguished by the elongated five distal antennal segments of the female, by the reduced blunt basal arms of the aedeagus, and by the distal portion of the parameres slightly swollen in middle, rounded distally (with bulbous tip in *sandersoni*).

*Bezzia grogani* Spinelli and Wirth, new species

Figures 33-39

**Female.** Wing length 0.96 mm; breadth 0.35 mm.

**Head:** Dark brown. Eyes separated by a distance equal to diameter of two ommatidial facets. Antenna (Fig. 36) brownish, narrow bases of flagellar segments pale; lengths of flagellar segments in proportion of 23-16-15-16-16-16-16-17-23-23-23-30-x (15 missing). Palpus (Fig. 35) brownish; lengths of segments in proportion of 8-11-17-13-15; palpal ratio 2.70. Mandible with 11 teeth.

**Thorax:** Dark brown, scutum with fine setae arising from raised tubercles; six strong prealar setae arising from raised tubercles, one postalar, scutellum bearing four similar setae. Legs (Fig. 33) dark brown, faint pale rings subapically on fore femur, subbasally and apically on fore tibia; femora and tibiae with numerous erect long fine hairs; hind tibial comb with five spines. Tarsi whitish including fifth tarsomere; a pair of strong ventral spines at apices of tarsomer 1-3 on mid leg, smaller and paler on fore and hind legs; hind tarsal ratio 2.25; claws small and slightly curved, each with internal basal tooth. Wing (Fig. 37) with costa extending to 0.74 of total length; membrane hyaline, anterior veins brown; venation as figured. Halter stem pale brown, knob dark brown.

**Abdomen:** Brown, slightly paler than thorax. One pair of short gland rods. Spermathecae (Fig. 34) two plus vestigial third; short, ovoid with short necks; unequal, measuring 0.080 by 0.055 mm and 0.069 by 0.046 mm.

**Male.** Wing length 1.27 mm; breadth 0.37 mm; costal ratio 0.68. Similar to female with usual sexual differences. Antenna yellowish, distal portion of segments 13-14 brown; proximal 10 flagellar segments indistinctly separated; lengths of flagellar segments in proportion of 30-20-20-20-22-24-26-42-58-34-36-41. Palpal segments in proportion of 9-12-20-15-17. Hind tarsal ratio 2.60.

**Genitalia** (Fig. 39): Ninth sternum stout, with deep, round, caudomedian excavation, ninth tergal short, with two conspicuous terminal median lobes. Basistyle stout, globose, 1.35 times as long as greatest breadth, with a low, angular, setose, dorsomesal lobe; dististyle stout, nearly straight, tapering distally. Aedeagus long, slender, triangular; basal arch very low; basal arms slender and heavily sclerotized anteriorly; distal portion ending in a fine point. Parameres (Fig. 38) long, produced beyond basistyles and aedeagus; anterolateral plates poorly developed; distal portion slender.

**Distribution.** Colombia, Mexico, Panama.


**Discussion.** This species is dedicated to William L. Grogan, Jr. of Salisbury, Maryland, in recognition of his important contributions to
ceratopogomd taxonomy. Bezzia gregani can be distinguished from the other Neotropical Bezzia by the following combination of characters: Fine setae on scutum arising from raised tubercles; mid tibia dark brown; one pair of short gland rods; spermathecae short, ovoid; anterolateral plates of parameres poorly developed.

Bezzia hondurensis Spinelli and Wirth, new species
Figures 40-46

Female. Wing length 1.27 (1.10-1.49, n = 5) mm; breadth 0.47 (0.40-0.53, n = 5) mm.

Head: Dark brown. Eyes separated by a distance equal to diameter of one ommatidial facet. Antenna (Fig. 40) brown, proximal 2/3 of segments 3-10 and proximal 1/3 of segments 11-15 pale; lengths of flagellar segments in proportion of 22-17-16-16-16-17-18-23-24-22-22-25; antennal ratio 0.92 (0.84-1.05, n = 5). Palpus (Fig. 41) brown, lengths of segments in proportion of 9-12-20-13-13; palpal ratio 2.35 (2.00-3.00, n = 5). Mandible with 8-10 teeth and three basal spinules.

Thorax: Dark brown, scutum with fine setae arising from raised tubercles; 8-10 strong prealar setae arising from raised tubercles, one postalar; scutellum bearing four similar setae. Legs (Fig. 42) dark brown, narrow pale rings (faint in some specimens) subapically on fore femur, subbasally on fore tibia; hind tibial comb with seven spines. Tarsi yellowish, fifth tarsomere dark; hind tarsal ratio 2.30 (2.20-2.40, n = 5); tarsal claws small and curved, each with internal basal tooth. Wing (Fig. 44) with costa extending to 0.72 (0.70-0.75, n = 5) of total length; membrane slightly infuscated, anterior veins brownish; venation as figured. Halter stem pale, knob dark brown.

Abdomen: Dark brown. One pair of long, slender, and well-sclerotized gland rods. Spermathecae (Fig. 43) two, no trace of a vestigial third; elongated with short necks; unequal, very large, measuring 0.155 by 0.050 mm and 0.130 by 0.042 mm.

Male. Wing length 1.22 mm; costal ratio 0.65. Similar to female with usual sexual differences.

Antenna missing. Palpus with lengths of segments in proportion of 4-7-10-8-8. Hind tarsal ratio 2.1.

Genitalia (Fig. 46): Ninth sternum 2.1 times as broad as long, with a deep caudomedian excavation; ninth tergum short, with two median lobes not produced beyond basistyles. Basistyle stout, 1.2 times as long as greatest breadth, greatly expanded mesally at base, a few stout spines on distomesal angle of the expansion; dististyle stout, 0.6 as long as basistyle, moderately curved. Aedeagus 1.4 times as long as basal breadth, basal arch extending to 1/3 of total length, lateral arms well sclerotized, with lateral expansions; distal portion ending in a sharp tip. Parameres (Fig. 45) with short anterolateral lobes; distal portion slightly swollen toward base, slender distally, with pointed tip.

Distribution. El Salvador, Honduras, Mexico, Panama.


Discussion. The very large spermatheca (the larger 0.155 mm long) distinguish Bezzia hondurensis and B. megatheca from the other Neotropical Bezzia of the gibbera group. Characters for separating these two species can be found in the key and in the discussion under the latter species.

Bezzia jubata Spinelli and Wirth, new species
Figures 47-54
Female. Wing length 0.93 (0.87-1.06, n = 5) mm; breadth 0.37 (0.35-0.49, n = 5) mm.

**Head**: Dark brown. Eyes contiguous for a distance equal to diameter of two ommatidial facets. Antenna (Fig. 47) pale, distal portions of segments 3-10 pale brown (11-15 brown); lengths of flagellar segments in proportion of 22:19-19:19:19-21-27:28-24-27-33; antennal ratio 0.89 (0.83-0.94, n = 5). Palpus (Fig. 51) brownish, short; lengths of segments in proportion of 7:10-12:10-13; palpal ratio 1.65 (1.45-2.00, n = 5). Mandible with nine teeth and three basal spinules.

**Thorax**: Dark brown, scutum with fine pubescence; three prealar setae, one postalar; scutellum with four similar setae. Legs (Fig. 49) dark brown; fore and mid legs with definite narrow pale rings subbasally on tibiae, subapically on femora and tibiae; hind leg with faint, narrow pale rings subbasally on tibia, subapically on femur; a stout spinelike seta at apex of mid tibia; hind tibial comb with five spines. Tarsi whitish including fifth tarsomere; ventral palisade setae absent on fore tarsus, in one row on tarsomeres 1-2 of mid leg and tarsomeres 1-3 of hind leg; hind tarsal ratio 2.40 (2.27-2.50, n = 5); claws small, slightly curved, each with internal basal tooth. Wing (Fig. 52) with costa extending to 0.77 (0.76-0.80, n = 5) of total length; membrane infuscated, anterior veins brownish; venation as figured. Halter dark brown.

**Abdomen**: Dark brown. One pair of slender gland rods. Spermathecae (Fig. 50) two plus vestigial third; subspherical with short necks; subequal, measuring 0.047 mm in diameter.

Male. Wing length 0.93 (0.87-1.06, n = 5) mm; breadth 0.31 (0.29-0.32, n = 5) mm; costal ratio 0.71 (0.70-0.74, n = 5). Similar to female with usual sexual differences. Antenna (Fig. 48) yellowish, distal portions of segments 13-15 infuscated; eight proximal flagellar segments indistinctly separated; lengths of flagellar segments in proportion of 22:19-20:19-19-19-21-33-50-29-31-43. Palpal segments with lengths in proportion 6:9:13:10:13; palpal ratio 1.70 (1.60-2.00, n = 5). Hind tarsal ratio 2.20 (2.12-2.32, n = 5).

**Genitalia** (Fig. 54): Ninth sternum three times as broad as long, without caudomedian excavation; ninth tergum short, with two latero-caudal lobes, not produced beyond basistyles. Basistyle short, 1.5 times as long as broad; dististyle about the same length as basistyle, nearly straight. Aedeagus triangular, basal arch 1/3 of total length, basal arms well sclerotized, distal portion slender. Parameres (Fig. 53) with bilobed anterolateral plates, distal portion slender in middle.

**Distribution**: Colombia.


**Discussion**: Characters for separation *Bezzia jubata* from *B. biwittata* can be found in the key and in the discussion under the latter species.

*Bezzia leei* Spinelli and Wirth, new species

Figures 55-61

Female. Wing length 1.08 (1.02-1.12, n = 5) mm; breadth 0.39 (0.37-0.40, n = 5) mm.

**Head**: Dark brown. Eyes contiguous by a distance equal to diameter of two ommatidial facets; a single stout seta on interocular space. Antenna (Fig. 55) brown, narrow bases of flagellar segments pale; lengths of flagellar segments in proportion of 30-20-17-17-18-19-25-25-26-35; antennal ratio 0.81 (0.78-0.86, n = 5). Palpus (Fig. 58) brown; lengths of segments in proportion of 6-13-18-12-14; palpal ratio 2.15 (2.00-2.50, n = 5). Mandible with 11-13 teeth.
Thorax: Dark brown, scutum covered with fine pubescence; three strong prealar setae, one postalar, several in prescutellar area; scutellum with four similar setae. Legs (Fig. 56) dark brown, with pale bands subapically on femora and tibiae and subbasally on tibiae (faint on hind leg); fore femur armed with 2-3 ventral spines, mid tibia with apical stout spinelike setae, hind tibia with strong bristly setae dorsally; hind tibial comb with six spines. Tarsi pale brown including fifth tarsomere; a pair of strong black ventral spines at apices of tarsomeres 1-3 on mid leg, smaller and paler on fore and hind legs; hind tarsal ratio 2.16 (2.10-2.23, n = 5); claws small and curved, each with internal basal tooth. Wing (Fig. 59) with costa extending to 0.75 (0.73-0.77, n = 5) of total length; membrane infuscated, anterior veins brown; venation as figured. Halter stem pale, knob dark brown.

Abdomen: Dark brown. One pair of gland rods. Spermathecae (Fig. 57) two, no trace of a vestigial third; subspherical with short necks; subequal, measuring 0.035 mm in diameter.

Male. Wing length 1.06 mm; breadth 0.32 mm; costal ratio 0.74. Similar to female with usual sexual differences. Antenna missing; lengths of palpal segments in proportion of 7:10:16:12:15; palpal ratio 2.10. Hind tarsal ratio 2.15.

Genitalia (Fig. 61): Ninth sternum three times as broad as long, without caudomedian excavation; ninth tergum very short, ending in two median lobes not produced beyond basistyles. Basistyle 1.5 times as long as broad, distal portion oblique; dististyle stout, slightly shorter than basistyle, slightly curved, tapering distally. Aedeagus about same length as basal breadth; basal arch to 2/3 of total length; with slender and well-sclerotized basal arms, slender distally and tapering to blunt tip. Parameres (Fig. 60) with well-developed anterolateral plates; distal portion slender in middle, swollen distally.

Distribution. Colombia.


Discussion. This species is named for Vernon H. Lee, who while assigned to the Rockefeller Foundation arbovirus program in Cali, Colombia, made a magnificent collection of Colombian Ceratopogonidae. Bezzia leei is very similar to B. bivittata and B. jubata. Characters for separating these three species are given in the key.

Bezzia megatheca Spinelli and Wirth, new species
Figures 62-66

Female. Wing length 1.50 mm; breadth 0.53 mm.

Head: Dark brown. Eyes nearly contiguous, forming a V-shape where they contact. Antenna (Fig. 62) yellowish, midportion of segments 11-14 brownish, segment 15 brown; lengths of flagellar segments in proportion of 28-22-24-22-24-25-26-29-30-34-35-30-42; antennal ratio 0.98. Palpus (Fig. 63) short, brownish; lengths of segments in proportion of 10-13-20-15-17; palpal ratio 2.20. Mandible with eight teeth and four basal spinules.

Thorax: Dark brown, scutum with numerous stout setae arising from raised tubercles; seven stout prealar setae, two postalar. Legs (Fig. 66) dark brown; fore leg and bases of mid and hind femora slightly paler; stout spinelike setae at apices of femora and mid tibia; strong bristly setae dorsally on hind tibia; hind tibial comb with seven spines. Tarsi yellowish including fifth tarsomeres; claws moderately long, curved, each with internal basal tooth. Wing (Fig. 64) with costa extending to 0.75 of total length; membrane infuscated, anterior veins brownish; venation as figured. Halter dark brown.

Abdomen: Dark brown. One pair of short, slender gland rods, extending for one abdominal segment. Spermathecae (Fig. 65) two, no trace of vestigial third; elongated with short necks; subequal, very large, measuring 0.155 by 0.075 mm.
**Male.** Unknown.

**Distribution.** Colombia.

**Type.** Holotype female, Colombia, Valle, Rio Raposo, 28.vii.1964, V. H. Lee, light trap (USNM).

**Discussion.** *Bezzia megatheca* can be distinguished from *B. hondurensis* by the short gland rods extending for one abdominal segment, antenna yellowish (brown in *hondurensis*), presence of stout spiner like setae at apices of femora and mid tibia, presence of strong bristly setae dorsally on hind tibia, and tarsi yellowish including fifth tarsomere (fifth tarsomere dark in *hondurensis*).

*Bezzia mesotibialis* Spinelli and Wirth, new species

Figures 67-71

**Female.** Wing length 1.21 (1.15-1.30, n = 2) mm; breadth 0.42 (0.40-0.44, n = 2) mm.

- **Head:** Dark brown. Eyes separated by a distance equal to diameter of one ommatidial facet. Antenna (Fig. 67) pale, segments 11-15 pale brown distally; lengths of flagellar segments in proportion of 23:17:17:17:17:18:20:28:30:26:30:32; antennal ratio 1.01 (1.00-1.02, n = 2). Palpus (Fig. 68) brown; lengths of segments in proportion of 7:11-16:12:15; palpal ratio 1.85 (1.70-2.00, n = 2). Mandible with 9-10 teeth and three basal spinules.

- **Thorax:** Dark brown, scutum with fine setae arising from raised tubercles; eight strong prealar setae, one postalar; scutellum with four similar setae. Legs (Fig. 71) dark brown on hind femur and tibia, light brown on fore femur, fore tibia and basal 4/5 of mid femur; pale rings subapically on fore femur, subbasally on fore tibia, apically on fore tibia and mid femur; mid tibia pale; hind tibial comb with seven spines. Tarsi pale including fifth tarsomeres; hind tarsal ratio 2.43 (2.34-2.52, n = 2); claws small and curved, each with internal basal tooth. Wing (Fig. 69) with costa extending to 0.72 (0.70-0.74, n = 2) of total length; membrane hyaline, anterior veins brownish; venation as figured., Halter stem pale brown, knob dark brown.

- **Abdomen:** Dark brown. One pair of slender gland rods. Spermathecae (Fig. 70) two, no trace of vestigial third; elongated with short necks; subequal, measuring 0.122 by 0.053 mm.

**Male.** Unknown.

**Distribution.** Belize, Trinidad.


**Discussion.** The entirely pale mid tibia distinguishes *Bezzia catarinensis* and *B. mesotibialis* from the other Neotropical species of this group. Characters for separating these two species can be found in the key and in the discussion under *catarinensis*.

*Bezzia pseudogibbera* Spinelli and Wirth, new species

Figures 72-78

**Female.** Wing length 1.56 (1.50-1.62, n = 2) mm; breadth 0.84 (0.81-0.87, n = 2) mm.

- **Head:** Dark brown. Eyes separated by a distance equal to diameter of 1.5 ommatidial facets. Antenna (Fig. 72) pale, distal portions of segments 11-15 pale brown; lengths of flagellar segments in proportion of 30:27:27:27:29:29-30:32-30:34-36; antennal ratio 0.83 (0.72-0.94, n = 2). Palpus (Fig. 74) brownish; lengths of segments in proportion of 9:14-20:16-17; palpal ratio 2.45 (2.25-2.65, n = 2). Mandible with 9-10 teeth and several basal spinules.

- **Thorax:** Dark brown, scutum with fine setae arising from raised tubercles; 17 strong prealar setae arising from raised tubercles, one postalar; scutellum with four similar setae. Legs (Fig. 78) dark brown, slightly paler on bases of femora and base and apex of fore tibia; hind tibial comb with six pale
spines. Tarsi whitish including fifth tarsomeres; hind tarsal ratio 2.54 (2.48-2.60, n = 2); tarsal claws small and curved, each with internal basal tooth. Wing (Fig. 73) with costa extending to 0.73 (0.71-0.75, n = 2) of total length; membrane hyaline, anterior veins brownish; venation as figured. Halter stem pale, knob brown.

**Abdomen**: Dark brown. One pair of long slender gland rods. Spermathecae (Fig. 75) two, no trace of vestigial third elongated with short necks; unequal, the larger measuring 0.095 by 0.052 mm (the smaller collapsed in the holotype).

**Male.** Wing length 1.43 (1.40-1.46, n = 2) mm; breadth 0.42 (0.41-0.43, n = 2) mm. Similar to female with usual sexual differences. Antenna and palpus not well enough preserved to study, but antennal segment 12 longer than 13. Hind tarsal ratio 2.34 (2.30-2.36, n = 2).

**Genitalia** (Fig. 77): Ninth sternum 2.3 times as broad as long, with moderately deep caudal median excavation; ninth tergum progressively tapering distally, not produced beyond basistyles. Basistyle stout, 1.2 times as long as broad; dististyle slightly longer than basistyle, strongly curved, tapering distally. Aedeagus with basal arch 2/3 of total length, basal arms well sclerotized, with lateral expansions; distal portion ending in sharp tip. Parameres as in Fig. 76.

**Distribution.** Belize, Honduras, Panama.

**Types.** Holotype female, allotype male, Panama, Chiriquí Prov., El Volcan, 9.xii.1952, F. S. Blanton (USNM). Paratypes, 2 males, 2 females, as follows: BELIZE: 3 km w Punta Gorda, 31.vii.1968, W. L. Haase, UV light trap, 1 female. HONDURAS: Copan, Santa Rosa, x.1966, F. S. Blanton, 1 female. PANAMA: Same data as types, 2 males.

**Discussion.** *Bezzia pseudogibbera* is readily distinguished from *Bezzia gibbera* by the presence of 17 strong prealar setae (7-8 in *gibbera*), fore and mid legs dark brown with indefinite pale band on fore leg, and fourth palpal segment brown (pale in *gibbera*).

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**Bozzia setligera** Spinelli and Wirth, new species

**Figures 79-86**

**Female.** Wing length 1.08 (1.05-1.11, n = 2) mm; breadth 0.45 (0.43-0.47, n = 2) mm.

**Head:** Dark brown. Eyes nearly contiguous, forming a V-shape where they contact. Antenna (Fig. 79) brown, narrow bases of flagellar segments pale; lengths of flagellar segments in proportion of 22:15:15:15:14:14:14:19:21:25:27; antennal ratio 0.86 (0.84-0.88, n = 2). Palpus (Fig. 83) brown; lengths of segments in proportion of 8:13:17:13:14; palpal ratio 2.20 (2.00-2.40, n = 2). Mandible with eight teeth and 4-5 basal spinules.

**Thorax:** Dark brown, scutum with fine pubescence and setae, the latter more numerous and longer and erect on midportion; three prealar setae, one postalar; scutellum with four similar setae and numerous erect hairs. Legs (Fig. 81) intensely dark brown; narrow pale rings subbasally on tibiae (faint on hind tibia), subapically on fore femur and fore and mid tibiae; hind tibial comb with six spines. Tarsi pale brown, 4th and 5th tarsomeres dark, basitarsus infuscated at apex; a pair of black ventral spines at apices of tarsomeres 1-3 on mid leg, smaller and paler on fore and hind legs; hind tarsal ratio 2.33 (2.30-2.36, n = 2); claws small, slightly curved, each with internal basal tooth. Wing (Fig. 84) with costa extending to 0.73 (0.72-0.74, n = 2) of total length; membrane hyaline, anterior veins pale; venation as figured. Halter stem pale, knob dark brown.

**Abdomen:** Brown, slightly paler than thorax. One pair of slender gland rods. Spermathecae (Fig. 82); subspherical with moderately long necks; unequal, measuring 0.043 by 0.038 mm, 0.009 mm neck, and 0.038 by 0.032 mm, 0.009 mm neck.

**Male.** Wing length 0.90 mm; breadth 0.31 mm; costal ratio 0.59. Similar to female with usual sexual differences. Antenna (Fig. 80) brown, narrow bases of segments 3-12 pale; flagellar segments distinctly separated; lengths in proportion of 20:14:14:14:14:16:19:23-30:23:25-29. Palpal segments with lengths in proportion
of 6-12-15-14-14; palpal ratio 2.50. Hind tarsal ratio 2.00.

**Genitalia** (Fig. 86): Ninth sternum 2.4 times as broad as long, with moderately deep caudomedian excavation; ninth tergum short, somewhat rounded distally. Basistyle stout, 1.6 times as long as broad, with numerous strong setae which are directed mesad; dististyle slender, nearly straight, slightly shorter than basistyle, tapering distally. Aedeagus with low basal arch, distal portion slender with blunt tip. Parameres (Fig. 85) with bilobed anterolateral plates; distal process slender, rounded caudally, produced beyond aedeagus and basistyles.

**Distribution.** Colombia, El Salvador.


**Discussion.** *Bezzia setigera* is very similar to *B. capitata*. The characters of the male genitalia used for separating these two species can be found in the key.

**Literature Cited**


Figures 1-16. 1-8, *Bezzia araucana*; 9-16, *B. bilineata*: 1, 9, male antenna; 2, 10, female antenna; 3, 11, femora and tibiae of (left to right) fore, mid and hind legs; 4, 12, spermathecae; 5, 13, female palpus; 6, 14, female wing; 7, 15, male parameres; 8, 16, male genitalia. Parameres omitted.
Figures 17-32. 17-24, *Bezzia catarinensis*; 25-32, *D. globulosa*: 17, 25, female antenna; 18, 26, male antenna; 19, 27, femora and tibiae of (left to right) fore, mid and hind legs; 20, 28, spermathecae; 21, 29, female palpus; 22, 30, female wing; 23, 31, male parameres; 24, 32, male genitalia, parameres omitted.
Figures 33-46. 33-39, Bezzia glogani; 40-46, B. hondurensis: 33, 42, femora and tibiae of (left to right) fore, mid and hind legs; 34, 43, spermathecae; 35, 41, female palpus; 36, 40, female antenna; 37, 44, female wing; 38, 45, male parameres; 39, 46, male genitalia, parameres omitted.
Figures 47-61. 47-54, *Bezzia jubata*; 55-61, *B. leei*: 47, 55, female antenna; 48, male antenna; 49, 56, femora and tibiae of (left to right), fore, mid and hind legs; 50, 57, spermathecae; 51, 58, female valpus; 52, 59, female wing; 53, 60, male parameres; 54, 61, male genitalia, parameres omitted.
Figures 72-86. 72-78, *Bezzia pseudogibbera*; 81-86, *B. setigera*: 72, 79, female antenna; 73, 84, female wing; 74, 83, female palpus; 75, 82, spermathecae; 76, 85, male parameres; 77, 86, male genitalia, parameres omitted; 78, 81, femora and tibiae of (left to right) fore, mid and hind legs.