

A revision of the neotropical genus *Vilga* Stål (Hemiptera: Coreidae)

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ABSTRACT. Thirteen species of the genus *Vilga* Stål are recognized and described or redescribed and a key for their identification is given. Lectotypes are designated for *Centrocoris westwoodi* Kolenati, *Vilga dissimilis* Distant, *Vilga spinosula* Montandon, *Vilga mexicana* Distant, *Vilga penningtoni* Bergroth and *Vilga dallasi* Distant. The new combination *Vilga chilensis* (Stein) is established for *Arenocoris chilensis* Stein. The new synonymy *Vilga dissimilis* Distant (= *Vilga spinosula* Montandon) is established. The new species *Vilga brasiliensis* (from Brazil), *V. grisea* (Brazil), *V. grisescens* (Brazil), *V. obliqua* (Brazil), *V. peruviana* (Peru) and *V. sanctipauli* (Brazil) are described. The genus *Vilga* is divided into six subgenera, the five new subgeneric names being *Vilgula* (type-species: *Vilga dissimilis* Distant), *Trichovilga* (type-species: *Vilga mexicana* Distant), *Platyvilga* (type-species: *Arenocoris chilensis* Stein), *Laevivilga* (type-species: *Vilga divaricata* Distant) and *Echinovilga* (type-species: *Vilga dallasi* Distant).

Introduction

The Coreid subfamily Pseudophloeinae is represented in the New World by three genera: *Coriomeris* Westwood, *Ceraleptus* Costa and *Vilga* Stål. The first two genera are Holarctic in distribution although *Coriomeris nigricornis* (Stål) is found as far south as the mountainous areas of Oaxaca in Mexico. *Vilga*, by contrast, is endemic to the New World and has only one species, *V. mexicana* Distant, whose range extends north of the tropic of Cancer.

Stål (1870: 228) excluded this genus from Pseudophloeinae, presumably because of the absence of an antevannal vein ('glochis') in the hind wing. Berg (1894: 22-23), erroneously believing the antevannal to be present, suggested that the genus might belong to Pseudophlaeadae [sic] but questioned the validity of the subfamily. Montandon (1897: 183-186) placed the genus in Pseudophloeinae on the basis of the venation of the hemelytral membrane, the prominent posterior angles of the

seventh abdominal segment and the characteristic subapical spines of the posterior femur. Other characters typical of Pseudophloeinae and present in *Vilga* are the structure of the peritreme of the metapleural scent gland, the non-sulcate tibiae, the closure of the eighth abdominal spiracle in the female, the absence of peg-like setae on the first valvulae of the ovipositor, the strongly developed sclerites in the dorsal wall of the gynatrium, the simple structure of the spermatheca and its duct and the structure of the aedeagus, pygophore and parameres.

The absence of an antevannal vein, a feature shared with the Oriental genus *Hoploomia* Stål and the specialized Ethiopian and Oriental genus *Risbecocoris* Izzard, is probably a plesiomorphic state. It may be that an ancestral form entered the neotropical Region before the antevannal vein had been acquired in the mainstream of Old World pseudophloeine evolution and that the present diversity of forms in the Neotropics have been derived from this single ancestor, which probably resembled *V. dissimilis* Distant or *V. serrulata* Montandon in general appearance.

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The genus as at present constituted embraces a number of body forms which, in the European fauna, would be regarded as constituting several natural genera. However, all of the groups here recognized as subgenera share the probably apomorphic feature of a freely projecting lobe on the seventh tergum of the male, a feature unknown in any Old World genus of the subfamily. Accordingly, a conservative approach is adopted in this paper, retaining all of the forms in a single genus to emphasize their community of descent and to maintain stability of nomenclature.

Measurements

Lengths of antennal segments used in the various diagnostic ratios do not include the smooth, basal portion of each segment which is retractable into the preceding articulation, but are measured between the junction of this smooth zone with the typically sculptured area of cuticle and the extreme apex of the segment exclusive of any projecting tubercles. Where means are given, the number of examples measured is indicated in parentheses in the form ($n = x$).

Abbreviations

Abbreviations of depositories of material are as follows:

AMNH	The American Museum of Natural History, New York, New York State, U.S.A.
BMNH	British Museum (Natural History), London, U.K.
CAS	California Academy of Sciences, San Francisco, California, U.S.A.
IRSNB	Institut Royal des Sciences Naturelles, Brussels, Belgium.
MGA	Muzeul de Istorie Naturala 'Grigore Antipa', Bucharest, Romania.
MN	Museu Nacional, Rio de Janeiro, Brazil.
MNHU	Museum für Naturkunde der Humboldt-Universität, Berlin, D.D.R.
UC	University of California, Berkeley, California, U.S.A.
UM	University Museum, Oxford, U.K.

ZI Zoological Institute, Leningrad, U.S.S.R.

ZMU Universitetets Zoologiska Museum, Helsinki, Finland.

Key to genera of American Coreidae-Pseudophloeinae

- 1 Tibiae dorsally longitudinally sulcate or posterior tibiae short and strongly arcuate
(Coreinae, Merocorinae)
- Tibiae not sulcate, posterior tibiae not arcuate
(Pseudophloeinae) 2
- 2 Abdominal sternites III–VII with posterolateral angles produced, making lateral outline of abdomen distinctly dentate; metathoracic wing without antevannal vein. (Extreme southern U.S.A. southwards to Chile and Argentina)
Vilga Stål
- Abdominal sternites III–VII with posterolateral angles not projecting, lateral outline of abdomen a continuous curve; metathoracic wing with antevannal vein. 3
- 3 Metathoracic coxae separated from each other by about half diameter of a coxa; lateral margins of pronotum at most granulate anteriorly. (U.S.A., western Canada and northern Mexico).
Ceraleptus Costa
- Metathoracic coxae separated from each other by about whole diameter of a coxa; lateral margins of pronotum tuberculate throughout. (Alaska and Canadian Arctic to mountains of southern Mexico). *Coriomeris* Westwood

Vilga Stål

Vilga Stål, 1860: 474. Type-species: *Clavigralla acanthion* Dallas (= *Centrocoris westwoodi* Kolenati) by monotypy.

Centrocoris sensu Fieber, 1861: 232, nec Kolenati, 1845.

The genus *Centrocoris* was founded by Kolenati (1845: 45) for three species, all of them new, namely *westwoodi*, *variegata* and *pallenscens*. Fieber (1861: 232) removed *variegata* and *pallenscens* to his new genus *Centrocarenus* but did not designate the sole remaining species, *westwoodi*, as type. Reuter (1888: 759) cited *Cimex spiniger* Fabricius as the type species of *Centrocoris* Kolenati. On page 524 of the same work Reuter cited *Centrocoris pallenscens* Kolenati as a junior synonym of *Centrocoris spiniger* (Fabricius). Under the provisions of the International Code of

Zoological Nomenclature, 1961 edition, article 69(a) (iv), *Centrocoris pallescens* Kolenati must be regarded as the type-species of *Centrocoris* Kolenati. This usage has been accepted by most modern authors.

Antennifer bearing laterally a porrect to deflexed process with a very short to very long, laterally directed, setigerous tubercle close to dorsal origin of process. Antennae with segment III the longest, I or rarely IV the next longest, segment IV fusiform, II and III more slender than either I or IV. Area of granulate sculpture at base of segment IV occupying 0.1–0.4 times length of segment, remaining apical portion of segment occupied by specialized sensory setae. Rostrum at rest reaching posteriorly to anterior margin or disc of metasternum, segments I and II subequal in length, IV shorter, III shortest of all.

Pronotum moderately to steeply declivent anteriorly, posterior margin shallowly or more rarely deeply emarginate in front of scutellum, prescutellar spines usually lacking, posterolateral angles produced into short to very long spines, disc and margins granulate, tuberculate or spinose. Scutellum triangular, anterior part of lateral margins often keeled, apex slightly produced and elevated, whitish. Clavus and corium punctate, the veins granulate; corium with apex never produced; membrane with three basal cells from which arise about ten more or less parallel veins which rarely or never anastomose, cross-veins between them frequent to absent. Metathoracic wing without antevannal vein. Peritreme of metathoracic scent gland with dorsal ridge strongly bilobed to weakly reniform. Mesosternum deeply sulcate throughout its length. Anterior and intermediate femora each often with a small subapical spine beneath; posterior femur typically with two to three (sometimes only one) major subapical spines beneath and some much smaller spines, often represented by slightly elevated hair-bases, between them, a series of three or four small spines usually present between the most distal subapical major spine and apex of femur.

Abdominal sterna III–VII with posterolateral angles weakly to very strongly produced. Sterna I–V of male, I–IV of female fused together, remaining sterna with membranous articulations on all sides, sternum VII of female with median apical cleft for

one-third to one-half of its length. Terga I–VI fused together in both sexes, suture between terga VI and VII hinged medially, rather more free laterally but not forming a complete membranous articulation. Terga II–VI with laterotergites fully separated from them, laterotergites II and III often fused together, tergum VII with laterotergites marked off by lines of weakness in cuticle (readily visible in cleared preparations). Tergum VII of male produced posteriorly into a short, broad, rounded, freely projecting lobe. Spiracle of abdominal segment VIII non-functional in both sexes.

Posterior margin of male genital capsule with oblong emargination whose lower edge is shallowly produced posteriorly into a lip, tongue triangular, acute, parameres with apices broad, filling emargination of capsule when at rest. Phallosome with ventral sclerotized area produced medially and dorso-laterally, dorsal sclerotization weak or absent, never appearing as a distinct sclerite. Ejaculatory reservoir complex symmetrical, wings and straps present, straps often small. Vesica basally with one and a half complete turns protected by symmetrical pair of small sclerites which are derived from sclerotization of wall of conjunctiva and are homologous with the 'spiral process' or 'helicoïd process' of the vesica in higher Coreidae. Conjunctiva otherwise without sclerotized processes although posterior face of distal ventrolateral lobes sometimes lightly sclerotized and sclerotized strips often present in ventral wall of conjunctiva below ejaculatory reservoir. Membranous conjunctival appendages typically consisting of large, paired, distal dorso-lateral and ventrolateral lobes, small, paired, apical ventral lobes and unpaired dorsomedian and distal dorsomedian lobes.

Female with spermathecal bulb broadly lunate, its duct short, weakly convoluted and devoid of pump flanges. Dorsal wall of gynatrium with a pair of large, L-shaped sclerites of which the medial, longitudinal arm is longer than the anterior, transverse arm.

Pronotum, scutellum and pleura confusedly punctate–granulate, clavus with two (rarely three) rows of large punctures, corium with several irregular rows of large punctures approximately parallel to anterior and posterior margins, leaving an impunctate triangle

against apical margin. Head, antennal segments I–III, pronotum, scutellum, veins of corium, femora and tibiae always at least granulate, granules often lengthened into tubercles or even spines, sternites and laterotergites granulate. Abdominal tergites punctate. Each granule and tubercle bearing an apical or subapical hair.

Egg with few aeromicropyles (seven to eleven in the three species examined), pseudoperculum not demarcated. Nymph (known in only one species) spinose.

Species of this genus are rare in collections. Their small size and usually sombre coloration suggest that they occupy more cryptic habitats than those favoured by the majority of Coreidae. No host-plant records are available, but the hosts of other Pseudophloeinae, where known, are herbaceous Leguminosae (*Phaseolus*, *Medicago*, *Vigna*, *Dolichos*, etc.).

Distribution: Neotropical and southern Nearctic regions from Santiago de Chile and Rio de la Plata northwards to extreme southern Arizona.

Key to species of *Vilga* Stål

- 1 Pronotum deeply emarginate posteriorly (Fig. 1). (Trinidad, Brazil, Paraguay, Bolivia, northern Argentina) *westwoodi* (Kolenati)
- Pronotum shallowly emarginate posteriorly (Figs. 2–8) 2
- 2 Abdominal sternites bearing spines at posterolateral angles which are about as long as width of connexivum (Fig. 14); pronotum very spinose (Fig. 7). (Guatemala, French Guiana, Brazil, Paraguay) *dallasi* Distant
- Abdominal sternites bearing spines at most half as long as width of connexivum; pronotum less spinose 3
- 3 Posterior femur with a single, small, subapical spine beneath (Fig. 15). (Peru, Chile, Argentina) 4
- Posterior femur beneath with two major subapical spines and a group of three or four spine-like tubercles between distal spine and apex of femur (Fig. 16). (Southern U.S.A. to southern Brazil) 6
- 4 Length of antennal segment I at most 0.56 times width of head inclusive of eyes. (Peru) *peruviana* sp.nov.
- Length of antennal segment I at least 0.65 times width of head inclusive of eyes 5
- 5 Apex of corium at rest reaching level of middle of laterotergite V, apex of membrane not reaching beyond posterior margin of tergite VII. (Chile, Argentina) *chilensis* (Stein)

- Apex of corium reaching posteriorly to base of laterotergite VI, membrane projecting beyond posterior tip of body. (Argentina)

penningtoni Bergróth

- 6 Lateral margins of abdominal sternites almost smooth (Fig. 12) 7
- Lateral margins of abdominal sternites distinctly granulate or tuberculate (Figs. 10 and 11) 9
- 7 Posterolateral spines of pronotum short (Fig. 2), width of pronotum across tips of spines about 1.97 times width of head inclusive of eyes. (Brazil) *brasiliensis* sp.nov.
- Posterolateral spines of pronotum long, widely diverging (Fig. 6), width of pronotum across tips of spines at least 2.09 times width of head including eyes. 8
- 8 Antennal segment I without tubercles, though with some large granules present. (Panama, Guyana) *divaricata* Distant
- Antennal segment I externally with a row of projecting tubercles. (Brazil). *sanctipauli* sp.nov.
- 9 Antennal segments I–III clothed with suberect hairs longer than width of segment II, disc of hemelytral membrane with numerous cross-veins; sometimes brachypterous. (Southern U.S.A. to El Salvador) *mexicana* Distant
- Antennal segments I–III clothed with hairs shorter than width of segment II; disc of membrane without cross-veins; insect never brachypterous. 10
- 10 Pronotum with posterolateral spines directed obliquely forwards (Fig. 3). (Brazil). *obliqua* sp.nov.
- Pronotum with posterolateral spines directed laterally (Figs. 4 and 8). 11
- 11 Lateral margins of abdominal sternites V–VII bearing granules no longer than broad (Fig. 10). (Costa Rica, Panama, Aruba, Guyana, Colombia, Brazil) *dissimilis* Distant
- Lateral margins of abdominal sternites V–VII bearing at least some tubercles longer than broad (Fig. 11) 12
- 12 Antennal segment I about equal in length to width of head across antennifers. (Scutellum as long as its own basal width). (Brazil) *serrulata* Montandon
- Antennal segment I longer than head width across antennifers 13
- 13 Antennal segment I about equal in length to width of head inclusive of eyes; scutellum as long as its own basal width. (Brazil) . . . *grisea* sp.nov.
- Antennal segment I shorter than width of head including eyes; scutellum distinctly longer than its own basal width. (Brazil). . . *grisea* sp.nov.

Subgenus *Vilga* Stål

Form deep-bodied, slightly compressed, aspect spinose. Pronotum with posterior margin

deeply emarginate; prescutellar spines present, often double; disc and margins with numerous tubercles; posterolateral angles produced into slender spines. Scutellum convex, tuberculate, with median longitudinal furrow. Hemelytra with costal margin slightly granulate, disc of membrane with 0–1 cross-vein. Lateral margins of abdominal sterna III–VII bearing long tubercles, posterolateral angles strongly produced into broad spines.

Antennifer with outer apical process broad, rounded and sharply deflexed immediately after its origin. Dorsal auricle of metathoracic scent gland peritreme divided by a deep, dorsal incision into two almost equal, suborbicular lobes. Femora and antennal segment I bearing setiferous tubercles of moderate length. Anterior femur with no subapical spines differentiated from tubercles, intermediate femur with one or two subapical spines beneath, posterior femur with two or three subapical spines beneath, with about four tubercles between penultimate and last spines and four more between last spine and apex of femur.

Male paramere with apex oblong, flattened. Straps of ejaculatory reservoir complex elongate, articulating with wings; vesica of uniform diameter throughout; sclerites at base of vesica fused together dorsally. Distal dorso-medial lobe of conjunctiva with narrow, median appendage arising from its anterior face, distal dorsolateral lobes very reduced, distal ventrolateral lobes extensively but lightly sclerotized on posterior face, ventral wall of conjunctiva below ejaculatory reservoir with a narrow, median sclerotized strip which forks distally, terminating at junction of apical ventral and distal ventrolateral lobes on each side.

Female with seventh abdominal sternite cleft apically for about one third of its length. Second valvula truncate at apex, egg channel opening between apices of second valvulae only. Sclerites of gynatrial wall with median arms slender, abruptly convergent at apex, nearly twice as long as transverse arms.

Ovarian egg with polygonal reticulation on chorion.

The single species included in this subgenus is characterized by its brighter coloration and deeper body compared with its congeners and by the form of the conjunctiva,

in particular the almost obsolete distal dorsolateral lobes.

Vilga (Vilga) westwoodi (Kolenati)

(Figs. 1, 9, 18, 28, 29, 32, 33, 42, 44 and 47)

Centrocoris westwoodii Kolenati, 1845: 45.

Clavigralla acanthion Dallas, 1852: 512.

Vilga acanthion (Dallas) Stål, 1860: 474.

Coreus westwoodi (Kolenati) Baerensprung, 1860: 6.

Vilga westwoodi (Kolenati) Bergróth, 1925: 88.

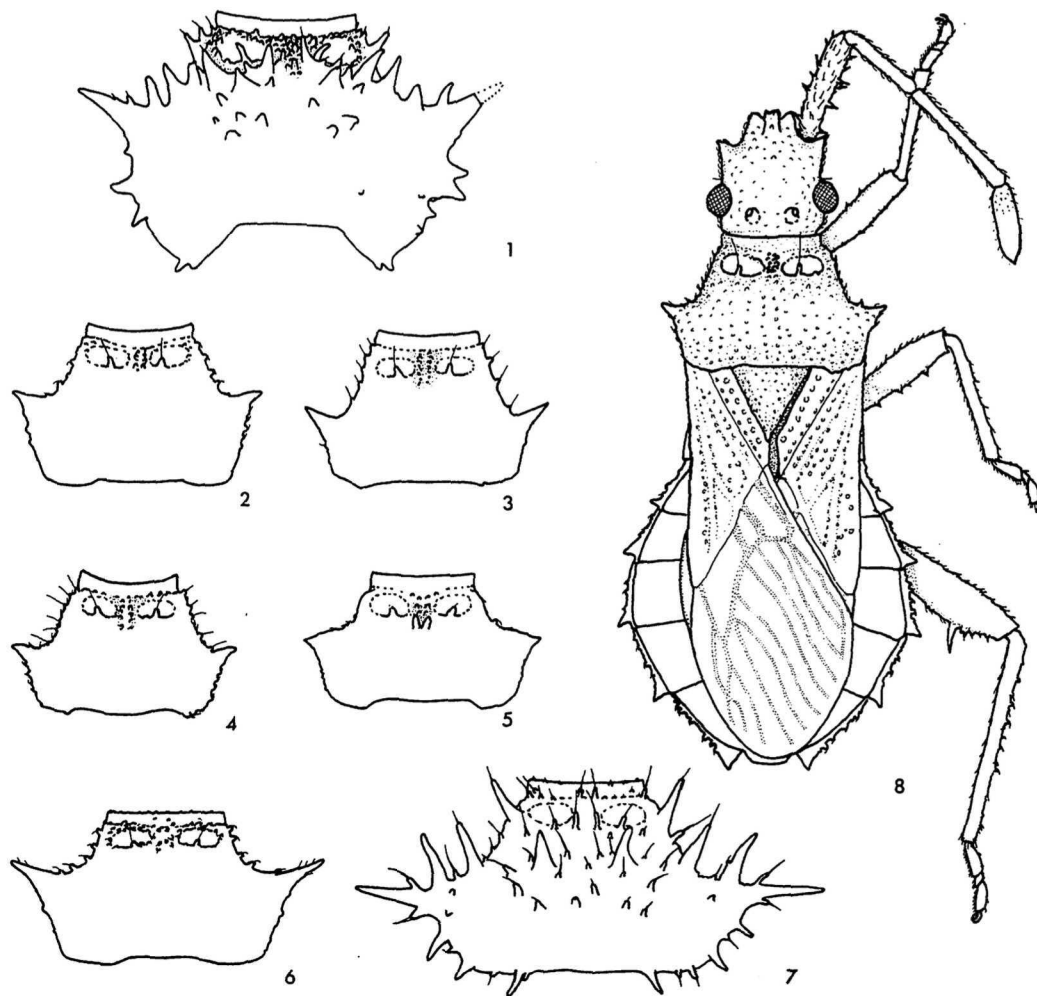
Length: ♂, 8.2–8.8 mm, mean 8.5 mm ($n = 4$); ♀, 8.6–9.6 mm, mean 9.1 mm ($n = 7$).

Characters of the subgenus. Antennifer bearing a long spine. Antennal segment I with tubercles at most as long (excluding seta) as half width of segment. Ratio of lengths of antennal segments I:II:III:IV in male about 1.00:1.06:1.21:0.98, in female about 1.00:1.04:1.20:0.90. Length of segment I divided by width of head including eyes in male 0.68–0.78, mean 0.71 ($n = 4$), in female 0.66–0.77, mean 0.72 ($n = 7$).

Pronotum (Fig. 1) with disc convex on each side of midline, posterolateral angles elevated, posterolateral spines directed anterolaterally and slightly upwards. Width of pronotum across tips of spines divided by width of head including eyes in male 2.42–2.49, mean 2.31 ($n = 4$), in female 2.24–2.44, mean 2.33 ($n = 7$). Disc with numerous spines and tubercles. Scutellum equilateral. Tibiae granulate, femora strongly granulate to tuberculate.

Posterolateral angles of abdominal sternites (Fig. 9) produced into broad, triangular spines, margins of sternites with a few setigerous tubercles. Male paramere (Figs. 28 and 29), conjunctiva (Figs. 32 and 33), female ovipositor (Fig. 42) and sclerites of gynatrial wall (Fig. 44) with characters of subgenus. Spermatheca (Fig. 47) with duct flexed in four places.

Colour reddish ochreous; tibiae, hemelytra, parts of abdominal tergum VII and large areas of abdominal laterotergites stramineous; punctures of corium and clavus and a triangular area in middle of apical margin of corium brownish black; veins of corium and of clavus cream, contrasting strongly with ochreous ground coloration; head confusedly striped



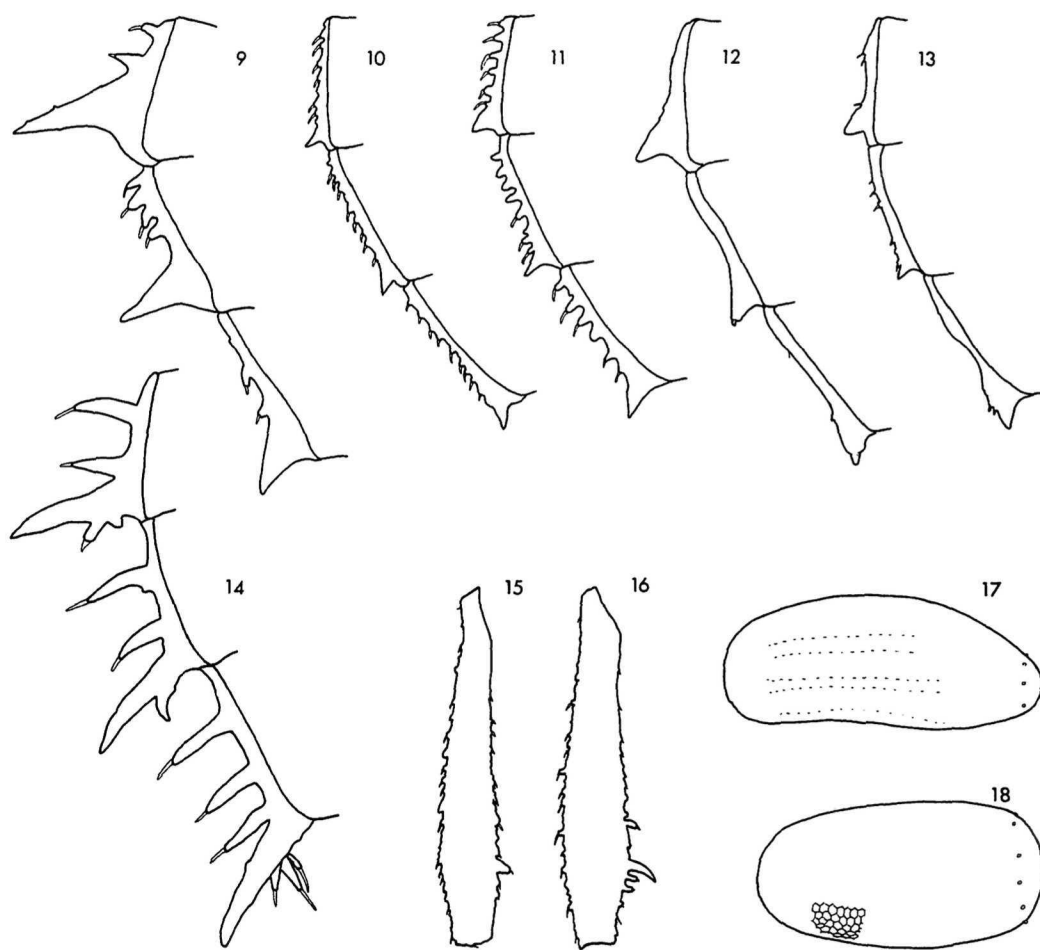
FIGS. 1-8. Figs. 1-7, pronotum, dorsal view: (1) *westwoodi*, lectotype ♀; (2) *brasiliensis*, holotype ♀; (3) *obliqua*, holotype ♂; (4) *dissimilis* ♂, Brazil, Goias; (5) *chilensis* ♀, Chile, Convento; (6) *divaricata*, holotype ♀; (7) *dallasi* ♀, Brazil, Mato Grosso. Fig. 8, dorsal view, *serrulata* ♂, Brazil, Mato Grosso.

with yellowish cream and black; sides of thorax and abdomen with broken, oblique, black and yellowish cream stripes; abdominal sternites yellowish cream in middle; pronotum with median line anteriorly and a broad band posteriorly blackish brown, the posterior band sometimes absent; scutellum blackish brown, midline pale ochreous; femora at base yellowish cream; tibiae yellowish cream with annuli at base, middle and apex ochreous to black. Pubescence pale brown; rather short, erect to suberect pubescence present on antennal segment I, rostrum and larger tubercles and granules of head, pronotum,

scutellum, tibiae and tarsi; short, semidecumbent to decumbent pubescence present on all antennal segments, rostrum, coxae, trochanters, femora, pronotum, scutellum, thoracic pleura and sterna, clavus, corium and abdominal sternites and laterotergites.

Ovarian egg (Fig. 18) 1.48×0.87 mm, micropylar end broad with a broad ring of eleven aeromicropyles.

Material examined. *Centrocoris westwoodi* Kolenati, Lectotype ♀, 'Karabach' (ZI), here designated. *Clavigralla acanthion* Dallas, Holotype ♀, BRAZIL: Pará (Wallace and Bates) (BMNH).



FIGS. 9-18. Figs. 9-14, left lateral margins of abdominal segments V-VII, dorsal view: (9) *westwoodi* ♂, Brazil, Mato Grosso; (10) *dissimilis* lectotype ♀; (11) *serrulata*, holotype ♀; (12) *divaricata* holotype ♀; (13) *chilensis* ♀, Chile, Santiago; (14) *dallasi* ♀, Brazil, Mato Grosso. Figs. 15-16, right posterior femur, anterior face: (15) *chilensis* ♀, Chile, Santiago; (16) *serrulata* ♂, Brazil, Ceara. Figs. 17-18, ovarian egg: (17) *dallasi*, Brazil, Mato Grosso; (18) *westwoodi*, Brazil, Est. Rio.

TRINIDAD: 1 ♀, Aripo valley, 29.ii.1968 (J. G. Rozen). BRAZIL: 1 ♀, Bahia, ii or iii.1832 (C. Darwin); 2 ♂, Mato Grosso, 12° 50' S, 51° 47' W, Cerradão, 27.x.1968 (O. W. Richards); 1 ♂, same locality, Campo, 16.x.1968 (Richards); 2 ♀, Est. Rio, Muriqui, Mangaratiba, vii.1969 (M. Alvarenga); 1 ♂, 1 ♀, 'Amazons', 1861, (Bates). PARAGUAY: 1 ♂, 72 km E. of Horqueta, on Paraguay River, 10.x.1933 (A. Schuizo). (BMNH; AMNH; MN; UM; USNM).

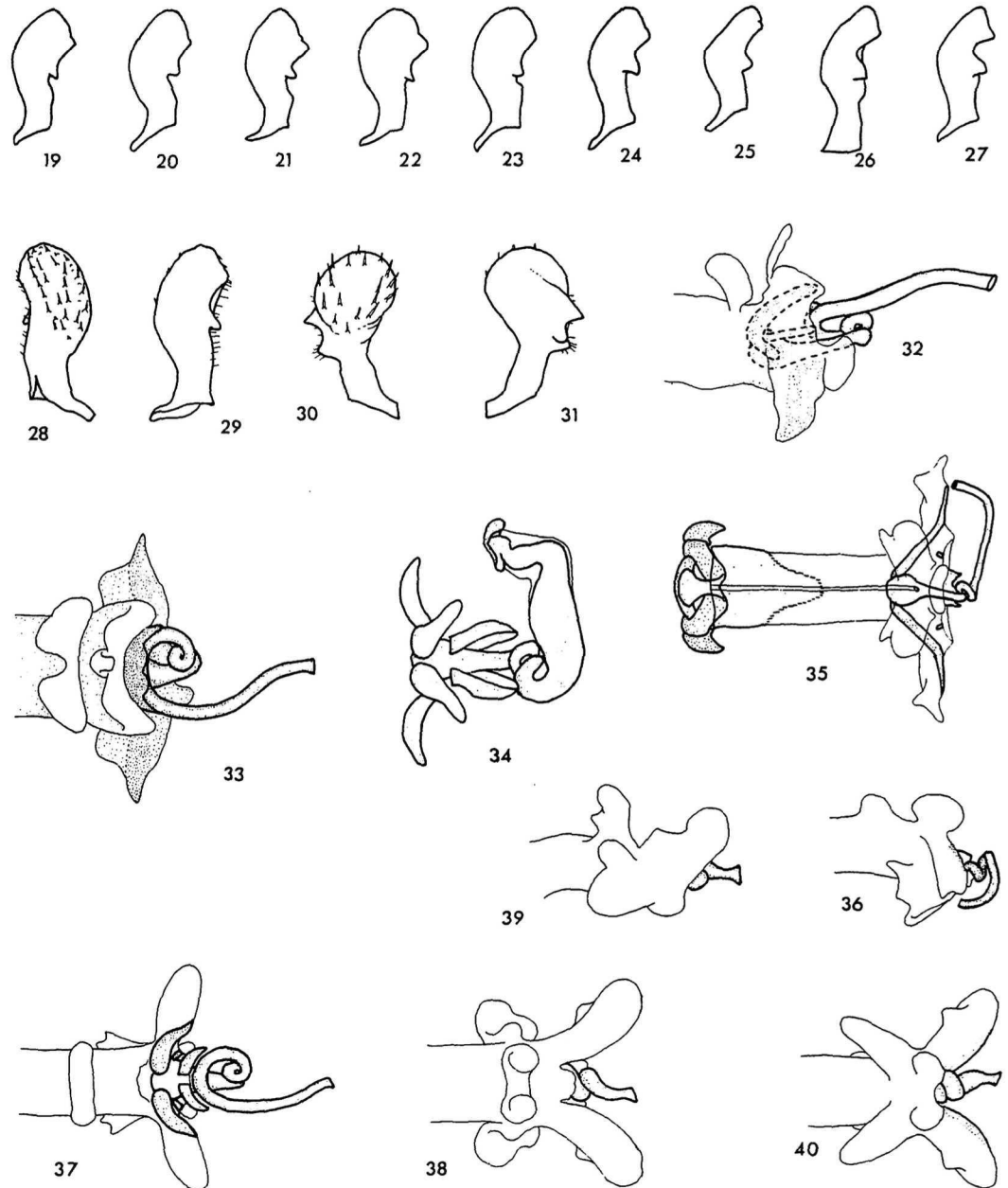
Horváth (1884: 111-112) demonstrated that the type locality of *Centrocoris westwoodi* Kolenati should be South America

and not the Caucasus as cited in the original description. Berg (1894: 21-22) gave a description of the nymph and recorded this species from Paraguay and Argentina. Pennington (1922: 155) recorded specimens from N. Argentina (Misiones) and Bolivia.

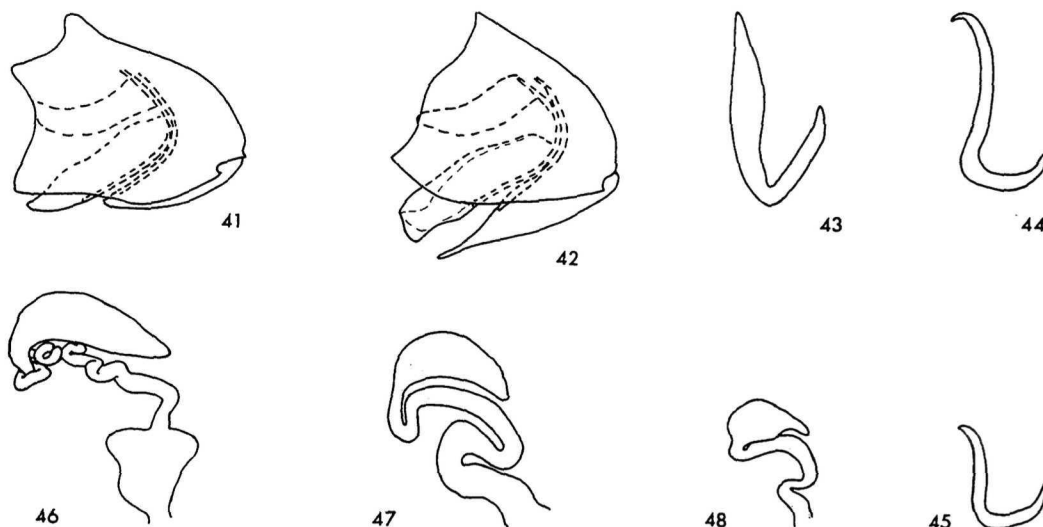
Subgenus *Vilga* subgen.nov.

Type-species: *Vilga dissimilis* Distant.

Form depressed, aspect spinose. Pronotum with posterior margin shallowly emarginate, prescutellar spines absent, lateral margins with



FIGS. 19-40. Figs. 19-27, 29 and 31, right paramere, dorsal view (19-27 outline only). Figs. 28 and 30, same, ventral view: (19) *serrulata*, Brazil, Mato Grosso; (20) *dissimilis*, Brazil, Goias; (21) *grisea*, holotype; (22) *grisescens*, holotype; (23) *obliqua*, holotype; (24) *divaricata*, Guyana; (25) *mexicana*, Mexico, Autlan; (26) *chilensis*, Chile, El Convento; (27) *peruviana*, holotype; (28, 29) *westwoodi*, Brazil, Mato Grosso; (30, 31) *dallasi*, Brazil, Mato Grosso. Figs. 32-40, aedeagus: (32) *westwoodi*, Brazil, Mato Grosso, left lateral view of conjunctiva, showing ejaculatory reservoir complex by transparency; (33) same, dorsal view of conjunctiva; (34) *dallasi*, Brazil, Mato Grosso, ejaculatory reservoir complex, dorsal view; (35) *serrulata*, Brazil, Mato Grosso, aedeagus entire, ventral view, showing ejaculatory reservoir complex by transparency; (36) same, conjunctiva, left lateral view; (37) *divaricata*, Guyana, conjunctiva, dorsal view, showing ejaculatory reservoir complex by transparency; (38) *peruviana*, holotype, conjunctiva, dorsal view; (39) same, left lateral view; (40) same, ventral view.



FIGS. 41–48. Figs. 41–42, right half of ovipositor, external view, most structures shown by transparency of first valvifer: (41) *dallasi*, Brazil, Mato Grosso; (42) *westwoodi*, Brazil, Est. Rio. Figs. 43–45, right sclerite of gynatrium wall, dorsal view, caudal end at top of page: (43) *dallasi*, Brazil, Mato Grosso; (44) *westwoodi*, Brazil, Est. Rio; (45) *dissimilis*, Panama. Figs. 46–48, spermatheca: (46) *dallasi*, Brazil, Mato Grosso; (47) *westwoodi*, Brazil, Est. Rio; (48) *chilensis*, Chile, El Convento.

short tubercles, posterolateral angles produced into short, acute spines. Scutellum weakly convex. Hemelytra with costal margin granulate; disc of membrane with veins parallel, cross-veins absent. Lateral margins of abdominal sterna III–VII granulate to tuberculate, posterolateral angles of sterna produced into short spines.

Antennifer with outer apical process short, acute, gently deflexed. Dorsal auricle of meta-thoracic scent gland peritreme bilobed, anterior lobe about twice as large as posterior lobe. Antennal segment I and femora on dorsal and ventral faces bearing at least some tubercles, tubercles often long. Anterior and intermediate femora each with one sub-apical spine beneath or spine indistinguishable from tubercles; posterior femur with two major spines, the more distal one much the longer, usually with a few granules between them, with a series of three or four tubercles between the distal spine and apex of femur.

Male paramere with apex oblong, flattened. Straps of ejaculatory reservoir complex short or very short, not articulating with wings; vesica long, of uniform diameter throughout; sclerites at base of vesica fused together to form a lightly sclerotized cup; wings long, extending as a sclerotized strip along posterior

face of each distal dorsolateral lobe; distal ventrolateral lobes lightly sclerotized on posterior face; distal dorsolateral lobes much longer than distal ventrolateral lobes.

Female abdominal sternite VII cleft apically for about one-third of its length. Second valvulae truncate apically, egg channel opening between apices of second valvulae only. Sclerites of gynatrial wall with median arms abruptly convergent apically, slender, about one and a quarter times as long as transverse arms.

The species of this subgenus approximate more closely than those of the other subgenera to the typical facies of Old World *Pseudophloeinae*.

Vilga (Vilgula) dissimilis Distant

(Figs. 4, 10, 20 and 25)

Vilga dissimilis Distant, 1893: 369, Pl. 33, Fig. 21.

Vilga spinosula Montandon, 1897: 184–185, *syn.nov.*

Length: ♂, 6.3–7.8 mm, mean 6.8 mm ($n = 6$); ♀, 7.1–7.3 mm, mean 7.2 mm ($n = 3$).

Characters of the subgenus. Antennal segment I shorter than width of head measured across antennifers, length of segment I divided

by width of head including eyes in male 0.67–0.79, mean 0.72 ($n = 6$), in female 0.71–0.81, mean 0.76 ($n = 3$). Ratio of lengths of antennal segments I:II:III:IV in male about 1.00:0.76:1.16:0.85, in female about 1.00:0.74:1.15:0.76. Segment I granulate and tuberculate, segments II and III granulate. Antennifer with a short tubercle at external anterodorsal angle.

Pronotum (Fig. 4) with posterolateral spines short, laterally directed. Width of pronotum across tips of spines divided by head width including eyes in male 1.70–1.85, mean 1.77 ($n = 6$), in female 1.60–1.78, mean 1.70 ($n = 3$). Disc of pronotum granulate, lateral margins tuberculate. Scutellum as long as its own basal width, with a few large granules on margins. Femora dorsally and ventrally and tibiae dorsally with short tubercles.

Lateral margins of abdominal sternites (Fig. 10) granulate, no granule higher than its own basal width. Male paramere as in Fig. 20. Conjunctiva with dorsomedian lobe low, flat-topped; distal dorsomedian lobe higher and narrower than dorsomedian; distal dorso-lateral lobes each with two short, divergent lobes at apex; apical ventral lobes small; distal ventrolateral lobes shorter than distal dorso-lateral lobes, deeply bilobed, posterior lobe lightly sclerotized; ventral wall of conjunctiva below ejaculatory reservoir with a Y-shaped sclerotization, the two posterior arms of the Y terminating at junction of distal dorso-lateral and distal ventrolateral lobes on posterior face of conjunctiva. Female with sclerites of gynatrial wall as in Fig. 45.

Colour greyish ochreous, tibiae stramineous with basal, median and distal annuli dark ochreous grey. Femora dark ochreous grey with paler spots. Forewing membrane colourless, veins of membrane brown occasionally interrupted by colourless spots. Pubescence colourless or silvery. Long, erect hairs present only on pronotum and very sparsely on dorsal surface of head, remainder of pubescence short, suberect on antennae, rostrum and legs, semidecumbent on abdominal sterna and laterotergites and on scutellum, clavus and corium, decumbent and crisped on head, pronotum, thoracic pleura and sterna and among suberect pubescence of femora.

Material examined. *Vilga dissimilis* Distant,

Lectotype ♀, PANAMA: Chiriqui, David (*Champion*), here designated. Paralectotype ♀, same data. (Both in BMNH). *Vilga spinosula* Montandon, Lectotype ♂, COSTA RICA: La Vruca, 1100 m (*P. Biolley*), here designated. Paralectotype ♂, COSTA RICA: Buenos Aires (*M. H. Pittier*). (Both in MGA).

PANAMA: 1 ♂, El Valle, xii.1963 (*L. J. Bottimer*). PANAMA (Canal Zone): 1 ♂, 1 ♀, intercepted at Miami, Florida, U.S.A. quarantine, 7.vii.1961 (*W. D. McLellan*); 1 ♂, Fort Gulick, 2.vii.1974 (*O'Briens* and *Marshall*); 1 ♂, 1 ♀, Coco Solo, 2.vii.1975 (*G. B. Marshall* and *C. W. and L. O'Brien*); 1 ♂, Coco Solo Hospital, 9° 21' N, 79° 51' W, 2.vii.1974 (*Engleman*); 1 ♂, Cocle, 10 miles S.W. of Penonome, 26.vi.1974 (*C. W. and L. O'Brien* and *Marshall*); 1 ♀, Fort Clayton, v.1944 (*K. E. Frick*). COLOMBIA: 1 ♀, Magdalena, Curumani, 50 km S of Bercerrill, 22.vii.1968 (*B. Malkin*). GUYANA: 1 ♂, Georgetown, 4.vii.1911. BRAZIL: 2 ♂, Ceara, Crato, Serra do Araripe, 850 m, v.1962 (*M. Alvarenga*); 1 ♂, Goias, Gurupi, 800 km N of Brasilia, 13.ix.1963 (*Westminster School Expedition*); 1 ♂, 'Amazons', 1861 (*H. E. Bates*). (AMNH; BMNH; UM; USNM; CAS; T. R. Yonke Coll.; Canadian National Collection, Ottawa; Texas A. and M. College, College Station).

Both Distant and Montandon in their original descriptions overlooked the projecting tubercles ('spines') on antennal segment I. These tubercles are pale and difficult to see without good illumination, but are nevertheless almost as long as in *V. serrulata* Montandon. The differences noted by Montandon (*loc. cit.*) in the form of the posterior angles of the last pregenital segment (VII) between the types of *dissimilis* Distant and *spinosula* Montandon are correlated with the sex of the specimens and are paralleled in the other species of the genus. The male paralectotype of *spinosula* from Costa Rica and a male from Goias, Brazil differ from the other specimens examined in the form of the first antennal segment, which is narrower and tapers more distinctly towards the base.

Vilga (Vilgula) grisea sp. nov.

(Fig. 21)

Length: ♂, 7.2 mm ($n = 1$); ♀ unknown.

Similar to *V. dissimilis* Distant, but readily

distinguished from it and from other species of the subgenus by the greater length of antennal segment I, which exceeds the width of the head including the eyes only in this species. Known only from the male holotype.

Ratio of antennal segments I:II:III:IV as 1.00:0.60:1.03:0.66. Length of segment I divided by width of head including eyes 1.08. Width of pronotum across tips of posterolateral spines divided by width of head including eyes 1.97. Male paramere (Fig. 21) broader than in *V. dissimilis*. Setigerous tubercles of antennal segment I, pronotum, femora and tibiae much longer than in *V. dissimilis*. Abdominal sternites with lateral margins tuberculate, tubercles up to twice as long as their respective basal widths. Colour pattern as in *V. dissimilis* but whole insect darker grey.

Holotype ♂, BRAZIL: Mato Grosso, 12° 50' S, 51° 47' W, Gallery Forest, 23.ix.1968 (O. W. Richards) (MN).

***Vilga (Vilgula) grisescens* sp. nov.**

(Fig. 22)

Length: ♂, 6.9 mm ($n = 1$); ♀ unknown.

Similar to *V. dissimilis* Distant, but readily distinguished from it and from other species of the subgenus by the more elongate scutellum, which is 1.14 times as long as its basal width. Known only from the male holotype.

Ratio of antennal segments I:II:III:IV as 1.00:0.61:1.02:0.71. Length of antennal segment I divided by width of head including eyes 0.94, this segment longer than head width measured across antennifers. Width of pronotum across tips of posterolateral spines divided by head width including eyes 1.85. Male paramere (Fig. 22) very broad. Granulation and tuberculation of body as in *V. dissimilis* but slightly more pronounced; lateral margins of abdominal sternites granulate to tuberculate, the longest tubercles about one and a half times their own basal width. Colour pattern as in *V. dissimilis* but whole insect darker grey.

Holotype ♂: BRAZIL: Est. Rio, Muriqui, Mangaratiba, vii.1969 (M. Alvarenga) (AMNH).

***Vilga (Vilgula) obliqua* sp. nov.**

(Figs. 3 and 23)

Length: ♂, 7.2–7.7 mm, mean 7.5 mm ($n = 3$); ♀ unknown.

Very similar to *V. dissimilis* Distant, but readily distinguished from it and from other species of the subgenus by the shape of the pronotum.

Ratio of antennal segments I:II:III:IV about 1.00:0.71:1.17:0.85. Length of antennal segment I about equal to width of head across antennifers, 0.85–0.88, mean 0.86 ($n = 3$) times width of head including eyes. Pronotum (Fig. 3) with posterolateral angles directed anterolaterally, making an angle of about 40° with transverse axis of body; width of pronotum measured across tips of posterolateral spines divided by width of head including eyes 1.86–1.93, mean 1.89 ($n = 3$). Male paramere (Fig. 23) slightly broader than that of *V. dissimilis*. Granulation and tuberculation of body as in *dissimilis* except that lateral margins of abdominal sternites bear some tubercles up to one and a half times as long as their own basal width, in addition to granules. Coloration as in *V. dissimilis*.

Holotype ♂: BRAZIL: Linhares, Espirito Santo, v.1968 (M. Alvarenga). (MN).

Paratypes: BRAZIL: 1 ♂, Campinas, iii.1924 (F. X. Williams); 1 ♂, Sao Paulo, Piracicaba, 24.vii.1964 (C. A. Triplehorn). (B. P. Bishop Museum, Honolulu, Hawaii and Ohio State University, Columbus, Ohio).

***Vilga (Vilgula) serrulata* Montandon**

(Figs. 8, 11, 16, 19, 35 and 36)

Vilga serrulata (err. typ.) Montandon, 1897: 185–186.

Vilga serrulata Bergroth, 1913: 156 (emend.)

Length: ♂, 6.6–7.2 mm, mean 6.9 mm ($n = 6$); ♀, 6.8 mm ($n = 1$).

General appearance (Fig. 8) very similar to that of *V. dissimilis* Distant, but distinguished from it by the longer tuberculation of the body, especially the lateral margins of the abdominal sternites.

Ratio of antennal segments I:II:III:IV in male about 1.00:0.71:1.17:0.76, in female as 1.00:0.71:?? (segments III and IV missing in only ♀ available). Length of segment I about equal to width of head measured across antennifers, length of this segment divided by width of head including eyes in male 0.81–0.90, mean 0.85 ($n = 6$), in female 0.80 ($n = 1$). Segment I with many outstanding tubercles, segment II with a few tubercles

near base. Width of pronotum across tips of posterolateral spines divided by width of head including eyes in male 1.72–1.94, mean 1.80 ($n = 6$), in female 1.71 ($n = 1$). Femora (Fig. 16) dorsally and ventrally and tibiae dorsally with tubercles up to twice as long as wide. Lateral margins of abdominal sternites (Fig. 11) with numerous tubercles which are up to twice as long as their own basal widths. Male paramere (Fig. 19) similar to that of *V. dissimilis*. Aedeagus (Figs. 35 and 36) with the form typical of the genus. Colour dark ochreous grey, tibiae stramineous except for basal and apical annuli and an imperfect median annulus which are dark grey, femora with stramineous spots.

Material examined. *Vilga serrulata* Montandon, Holotype ♀: BRAZIL (G. Fallou) (MGA).

Brazil: 2 ♂, Goias, Jatahy (H. Donckier); 3 ♂, Mato Grosso, 12° 50' S, 51° 47' W, Campo Grassland and Cerradao, 25.ii.1968 and iii.1968 (B. E. Freeman and O. W. Richards); 1 ♂, 'Amazons', 1861 (H. E. Bates). (BMNH; MGA; MN; UM).

Subgenus *Laevivilga* subgen. nov.

Type-species: *Vilga divaricata* Distant.

Form depressed, aspect spinose. Pronotum with posterior margin shallowly emarginate, prescutellar spines absent, disc and lateral margins with short tubercles, posterolateral angles produced into short, acute spines. Scutellum weakly convex. Hemelytra with granulation of costal margin evanescent; disc of membrane with veins parallel, cross-veins absent or with a single, oblique cross-vein. Lateral margins of abdominal sternite III–VII with evanescent granulation, posterolateral angles produced into short spines.

Antennifer with outer apical process short, acute, weakly deflexed to almost porrect. Dorsal auricle of metathoracic scent gland peritreme bilobed, anterior lobe about twice as large as posterior lobe. All antennal segments and femora granulate, not tuberculate, except for one or two small tubercles occasionally on ventral surface of femora and rarely a row of tubercles on antennal segment I. Anterior femur with 0–1 small subapical spine beneath; intermediate femur with one spine; posterior femur with two major spines,

the more distal one much the longer, very small granules between them and four tubercles between distal one and apex of femur.

Male paramere with apex oblong, flattened. Straps of ejaculatory reservoir complex very short, not articulating with the wings; vesica long, of uniform diameter throughout, sclerites at base of vesica forming a sclerotized cup but fairly distinctly separated; wings rather long, extending a short way onto posterior faces of distal dorsolateral lobes; distal dorsolateral lobes longer than distal ventrolateral lobes.

Female abdominal sternite VII cleft apically for about one third of its length. Second valvulae truncate at apex, egg channel opening between apices of second valvulae only. Sclerites of gynatrial wall with median arms slender, slightly longer than transverse arms.

Ovarian egg cylindrical, slightly more than twice as long as wide, with a wide ring of seven or eight aeromicropyles, chorion with indistinct polygonal sculpturing.

The three species included here differ from those in subgenus *Vilgula* in the great reduction of the tuberculation of the body but otherwise resemble them closely.

Vilga (Laevivilga) divaricata Distant

(Figs. 6, 12, 24 and 37)

Vilga divaricata Distant, 1893: 369, Pl. 33, Fig. 22

Length: ♂, 6.9–7.1 mm ($n = 2$); ♀, 7.5 mm ($n = 2$).

Characters of the subgenus. Antennifer with a small, spine-like tubercle at external anterodorsal angle. Ratio of antennal segments I:II:III:IV in male about 1.00:0.91:1.15:0.85, in female about 1.00:0.92:1.20:0.84. Length of segment I divided by width of head including eyes in male 0.83–0.87 ($n = 2$), in female 0.78–0.82 ($n = 2$). Head granulate, granules small; antennal segment I with small and large granules.

Pronotum (Fig. 6) with posterolateral angles strongly produced laterally, terminating in sharp spines directed slightly forwards. Width of pronotum across tips of spines divided by width of head including eyes in

male 2.15–2.16 ($n = 2$), in female 2.24–2.35 ($n = 2$). Disc and margins of pronotum with small tubercles and large granules.

Lateral margins of abdominal sternites (Fig. 12) almost smooth between the triangularly produced posterolateral angles. Male paramere (Fig. 24) very similar to that of *V. dissimilis* Distant. Conjunctiva (Fig. 37) similar to that of *dissimilis* except that the various lobes are shorter and the vesica and wings of the ejaculatory reservoir complex are also shorter.

Colour reddish ochreous; tibiae, except for basal and apical annuli, antennal segments II and III, clavus and corium stramineous; a triangular area in middle of apical margin of corium piceous, bisected by a stramineous vein; part of anterior midline of pronotum, ocellar tubercles, posterior border of clavus and lateral margins of scutellum piceous. Pubescence white, very short, semidecumbent to decumbent except for some long, erect, slightly curved colourless hairs borne on tubercles and larger granules of disc of pronotum.

Ovarian egg 1.30×0.60 mm.

Material examined. *Vilga divaricata* Distant, holotype ♀: PANAMA, Volcan de Chiriqui, 25–4000 ft (=750–1200 m) (*Champion*) (BMNH).

GUYANA: 1♂, Rio Essequibo, viii–ix. 1968 (*Imperial College Expedition*); 1♂, 1♀, Bartica District, Kartabo, 29.vi.1922 and 31.viii.1922 (*M. D. Havilland*). (BMNH).

Vilga (Laevivilga) brasiliensis sp. nov.

(Fig. 2)

Length: ♀, 7.7 mm ($n = 1$); ♂ unknown.

Very similar to *V. divaricata* Distant in appearance, coloration, sculpture and pilosity, but differs from it in the form of the pronotum. Known only from the female holotype.

Ratio of antennal segments I:II:III:IV as 1.00:0.94:1.25:0.82; length of segment I divided by width of head including eyes 0.78. Pronotum (Fig. 2) with posterolateral angles shortly produced and directed obliquely forwards at an angle of about 45° to body axis; width across tips of posterolateral spines divided by width of head including eyes 1.97.

Holotype ♀: BRAZIL: Mato Grosso,

$12^\circ 50' S, 51^\circ 45' W$, Cerradao, 15.ii–8.iii.1968 (*B. E. Freeman*) (MN).

Vilga (Laevivilga) sanctipauli sp. nov.

Length: ♂, 6.9 mm ($n = 1$); ♀ unknown.

Very similar to *V. divaricata* Distant, but differs in the tuberculation of the first antennal segment and the pilosity of the pronotum. Known only from the ♂ holotype.

Antennifer with a slightly longer external apical spine-like tubercle than that of *divaricata*. Antennae with segment I bearing a row of tubercles and large granules on the outer face, several of the tubercles very obviously longer than broad. Length of segment I divided by width of head including eyes 0.72. Ratio of segments I:II:III:IV as 1.00:0.90:1.29:0.97. Width of pronotum across tips of posterolateral spines divided by width of head including eyes 2.09. Disc and lateral margins of pronotum with large granules, not tubercles, each bearing a short, strongly curved and generally posteriorly directed pale seta. Corium with two piceous spots close to apical margin, one on each side of a cream-white longitudinal vein.

Holotype ♂, BRAZIL, São Paulo, Piracicaba, 22.i.1965 (*W. E. and C. A. Triplehorn*). (Ohio State University, Columbus, Ohio).

Subgenus *Trichovilga* subgen. nov.

Type-species: *Vilga mexicana* Distant.

Form depressed, aspect spinose and hispid. Pronotum with posterior margin very shallowly emarginate, prescutellar spines absent, disc and margins with rather long tubercles, posterolateral angles produced into short spines. Scutellum weakly convex. Hemelytra with costal margin tuberculate, setae of tubercles very long; disc of membrane with numerous cross-veins. Lateral margins of abdominal sterna III–VII tuberculate, posterolateral angles produced into short spines.

Antennifer with outer apical process short, acute, gently deflexed. Dorsal auricle of metathoracic scent gland peritreme biolbed, anterior lobe about one and a half times as large as posterior lobe. Antennal segments I–III, tibiae and femora with long setiferous

tubercles. Anterior and intermediate femora without any subapical spines distinguishable from tubercles; posterior femur with two major subapical spines, the distal one very long, a few granules between them and four tubercles between distal spine and apex of femur.

Male paramere with apex oblong, flattened, narrow in dorsal aspect but deep in vertical plane. Straps of ejaculatory reservoir complex very short, not articulating with wings; vesica rather short, of uniform diameter throughout; sclerites at base of vesica indistinctly differentiated from membranous parts of wall of conjunctiva; wings long, extending onto posterior face of each distal dorsolateral lobe as a sclerotized strip; distal dorsolateral lobes much longer than distal ventrolateral lobes.

Female abdominal sternite VII cleft apically for about one third of its length. Second valvula truncate at apex, egg channel opening between apices of second valvulae only. Sclerites of gynatrial wall with longitudinal median arms slender, apically convergent, about one and a quarter times as long as transverse arms.

This rather isolated subgenus comprises a single species of very hispid aspect. Brachyptery is of frequent occurrence in this species. Alary dimorphism is unknown elsewhere in the *Pseudophloeinae*.

Vilga (Trichovilga) mexicana Distant

(Fig. 25)

Vilga mexicana Distant, 1892–1893: 368–369, Pl. 33, Fig. 20

Length: ♂ macropter, 6.8–7.0 mm, mean 6.9 mm ($n = 3$); ♂ brachypter, 6.9–7.2 mm ($n = 2$); ♀ macropter, 7.1–7.8 mm, mean 7.5 mm ($n = 4$); ♀ brachypter, 7.4–8.1 mm ($n = 2$).

Characters of the subgenus. Ratio of antennal segments I:II:III:IV in male macropter about 1.00:0.62:1.31:0.71, in male brachypter about 1.00:0.67:1.37:0.67, in female macropter about 1.00:0.65:1.32:0.65, in female brachypter about 1.00:0.67:1.37:0.73. Length of segment I divided by width of head including eyes in male macropter 0.84–0.89, mean 0.87 ($n = 4$), in male brachypter 0.84–0.85 ($n = 2$), in female macropter 0.85–0.93, mean 0.89 ($n = 4$), in

female brachypter 0.78–0.81 ($n = 2$). Setae arising from tubercles of segments I–III and on segment IV suberect, longer than diameter of segment II or III.

Pronotum with posterolateral angles abruptly produced into spines projecting at right angles to longitudinal axis of body, width across tips of spines divided by width of head including eyes in male macropter 1.94–2.13, mean 2.04 ($n = 3$), in male brachypter 1.72–1.79 ($n = 2$), in female macropter 1.97–2.27, mean 2.10 ($n = 4$), in female brachypter 1.81–1.83 ($n = 2$). Apex of hemelytral membrane in macropter reaching apex of abdominal tergite VII when at rest, in brachypter reaching to about middle of tergite V. Brachypters about half as frequently found as macropters.

Male paramere (Fig. 25) broad in vertical plane, appearing narrow in dorsal view. Aedeagus as in *V. dissimilis* Distant, but non-coiled part of vesica only half as long as in that species and dorsomedian lobe of conjunctiva higher.

Colour greyish ochreous; tibiae largely stramineous; basal, apical and sometimes median annuli of tibiae, extreme apex of corium, posterolateral spines of abdominal sternites and posterior margins of abdominal laterotergites and of tergites VI and VII more or less deeply coloured piceous. Long, suberect to erect, white to brown pubescence present on dorsum head, on antennae, pronotum, femora, tibiae, corium and abdominal laterotergites. Shorter, white, suberect to semidecumbent pubescence present on head, rostrum, coxae, trochanters, femora, tarsi, abdominal sternites and laterotergites. Long, white, decumbent to tomentose pubescence present on pronotum, scutellum, thoracic pleura and sterna, clavus and corium.

Material examined. *Vilga mexicana* Distant, Lectotype ♀ macropter: MEXICO: Guerrero, Tierra Colorado, 200 ft (=60 m), x. (*H. H. Smith*), here designated. Paralectotype ♀ brachypter: MEXICO: Guerrero, Omilteme, 8000 ft (=2400 m), vii (*H. H. Smith*). (Both in BMNH).

UNITED STATES OF AMERICA: 1 ♂, macropter, Arizona, 16 km E. of Sonoita, 9.viii.1940 (*E. S. Ross*). MEXICO: 1 ♀ macropter, Mazatlan, Venedio, 15.vi.1918 (*J. A. Kutsche*); 1 ♂, 1 ♀ brachypter,

Tepoztlan, Morelos, 5.v.1963 (W. J. Gertsch and W. Ivie); 1♂ macropter, Colima, W. Autlan, 15.ix.1971 (T. F. Halstead, W. Nunes); 1♀ macropter, Jalisco, Puerto Los Mazos, 14 km N. of Autlan, 23.viii.1970 (M. J. and J. S. Wasbauer); 1♂, 1♀ brachypter, Tejupilco, Temascaltepec, 24.vi.1933 (H. E. Hinton, R. L. Usinger). EL SALVADOR: 2♂ macropters, San Salvador, 14–30.vi.1959 (J. Bechyne); 1♀ macropter, Finca La Paz, Volcan San Vicente, 5–6.viii.1959 (J. Bechyne). (BMNH; CAS; UC; IRSNB and AMNH).

The specimen designated as paralectotype is that referred to by Distant in his original description of the species as 'an immature form from Omilteme'.

Subgenus *Platyvilga* subgen. nov.

Type-species: *Arenocoris chilensis* Stein.

Form strongly depressed, aspect slightly spinose, appendages short. Pronotum with posterior margin shallowly emarginate, prescutellar spines absent, disc with a few, large, blunt tubercles, margins with small tubercles, posterolateral angles triangularly produced. Scutellum weakly convex. Hemelytra with costal margin bearing small granules; disc of membrane with numerous cross-veins. Lateral margins of abdominal sterna III–VII bearing small granules, posterolateral angles slightly prominent.

Antennifer with outer apical process short, acute, gently deflexed. Dorsal auricle of meta-thoracic scent gland peritreme bilobed, lobes subequal. Antennal segment I and femora on dorsal and ventral surfaces with short tubercles. Anterior and intermediate femora without subapical spines distinguishable from tubercles; posterior femur with a single short subapical spine beneath.

Male paramere with apex narrowly oblong. Straps of ejaculatory reservoir complex very short, not articulating with wings; vesica very short, constricted towards apex; sclerites at base of vesica not differentiated from wall of conjunctiva; wings rather long, extending onto posterior face of each distal dorsolateral lobe as a sclerotized strip; distal dorsolateral lobes slightly longer than distal ventrolateral lobes.

Female abdominal sternite VII cleft apically for about one third of its length. Second valvulae truncate at apex, egg channel opening between apices of second valvulae only. Sclerites of gynatrial wall with median arms slender, slightly convergent apically, about one and a quarter times as long as transverse arms.

This subgenus appears to be a southern temperature offshoot of *Vilgula*, chiefly confined to the Andes. It comprises three species of small size and depressed form.

Vilga (Platyvilga) chilensis (Stein) comb. nov.

(Figs. 5, 13, 15, 26 and 48)

Arenocoris chilensis Stein, 1860: 253.

Pseudophloeus chilensis (Stein) Signoret, 1863: 559.

Signoret, *loc. cit.* refers to '*Atractus chilensis* Sturm' as being listed in Dohrn (1859), but there is no *chilensis* listed under *Atractus* in Dohrn's catalogue, nor does it contain any '*chilensis* Sturm' in any Coreid genus. *Arenocoris chilensis* Stein was published after Dohrn's catalogue had appeared and perhaps Signoret's '*Atractus chilensis* Sturm' was a *lapsus* due to copying from an annotated copy of the catalogue, in which *Arenocoris* was treated as a synonym of *Atractus*.

Length: ♂, 5.5–6.8 mm, mean 6.1 mm ($n = 5$); ♀, 6.8–7.5 mm, mean 7.2 mm ($n = 4$).

Characters of the subgenus. Body ovate. Antennal segment I granulate to shortly tuberculate, segments II and III strongly granulate; ratio of segments I : II : III : IV in male about 1.00 : 0.69 : 1.33 : 0.84, in female about 1.00 : 0.71 : 1.33 : 0.78; length of segment I divided by width of head including eyes in male 0.67–0.73, mean 0.69 ($n = 5$), in female 0.65–0.74, mean 0.70 ($n = 4$). Antennifer with tubercle at outer apical angle scarcely distinct from other tubercles of antennifer.

Width of pronotum (Fig. 5) across tips of posterolateral angles divided by width of head including eyes in male 1.75–1.98, mean 1.84 ($n = 5$), in female 1.87–2.02, mean 1.94 ($n = 4$). Hemelytra with apex of corium at rest reaching to level of disc of laterotergite V, apex of membrane not exceeding apex of tergite VII in male or VIII in female. Posterior

femur (Fig. 15) with the single subapical spine tubercle-like, with apical seta.

Lateral margins of abdominal sternites (Fig. 13) with scattered small granules, posterolateral angles produced into short spines; laterotergites with posterior and outer margins strongly elevated. Male paramere narrow, as in Fig. 26. Conjunctiva with dorso-medial lobe broad, its dorsolateral angles produced, distal dorsomedian lobe small, distal dorsolateral lobe with small subsidiary lobe about halfway along its ventral face, apical ventral lobes well developed, distal ventrolateral lobes weakly bilobed apically; vesica with non-coiled portion tapering to apex. Spermatheca (Fig. 48) with bulb appendiculate at distal end.

Colour dark grey-ochreous, tibiae paler except for basal and apical annuli. Pubescence very short, colourless, semidecumbent over most of body; pubescence of antennae, tibiae and tarsi also very short, suberect, colourless; pubescence of pronotum and femora of short, colourless, mixed suberect and semidecumbent types.

Material examined. *Arenocoris chilensis* Stein, Holotype ♂: CHILE: Philippi. (MNHU).

CHILE: 1 ♂, Santiago, Puelina; 1 ♂, 1 ♀, Santiago, El Convento, 3–4.vii.1964 and 17.ix.1966 (L. E. Peña); 2 ♂, 2 ♀, Santiago, Renca, v. 1954 (Peña); 1 ♀, Bio Bio, 5 km W. of Tucapel, 28.xii.1950 (Ross and Michelbacher); 1 ♂, Linares, Parral district, Villegas, 27–30.x.1960 (Peña). ARGENTINA: 1 ♂, Chubut, Leleque, 15.xii.1963 (A. Kovacs). (BMNH; AMNH; J. A. Slater Coll., University of Connecticut; MNHU; CAS and Canadian National Collection, Ottawa).

Vilga (Platyvilga) penningtoni Bergróth

Vilga Penningtoni Bergróth, 1925: 88.

Length: ♀, 7.5 mm; male unknown.

Similar to *V. chilensis* (Stein) and differing chiefly in the longer hemelytra. Known only from the female lectotype.

Ratio of antennal segments I:II:III:IV as 1.00:0.71:1.29:0.78; length of segment I divided by width of head including eyes 0.71. Width of pronotum across tips of posterolateral angles divided by width of head including eyes 1.87. Apex of corium at rest reaching

to level of base of laterotergite VI, apex of membrane distinctly reaching beyond apex of abdomen. Anterior and intermediate femora each bearing a single, large tubercle in position of subapical spine; posterior femur with a single subapical spine. Coloration, sculpture and pubescence as in *V. chilensis*.

Material examined. *Vilga penningtoni* Bergróth, Holotype ♀: ARGENTINA: 'Rio de la Plata'. (ZMU).

Vilga (Platyvilga) peruviana sp. nov.

(Figs. 27, 38, 39 and 40)

Length: ♂, 5.6 mm ($n = 1$); ♀, 6.2–6.3 mm, mean 6.2 mm ($n = 3$).

Similar to *V. chilensis* (Stein) but distinguished by its smaller size, paler coloration and shorter antennae with relatively longer segment IV.

Ratio of antennal segments I:II:III:IV in male as 1.00:0.69:1.31:1.03, in female about 1.00:0.72:1.31:0.94; length of segment I divided by width of head including eyes in male 0.55 ($n = 1$), in female 0.54–0.56, mean 0.55 ($n = 3$). Width of pronotum across tips of posterolateral angles divided by width of head including eyes in male 1.75 ($n = 1$), in female 1.73–2.10, mean 1.91 ($n = 3$). Hemelytra as short as in *V. chilensis*. Male paramere (Fig. 27) slightly shorter than that of *V. chilensis*; aedeagus (Figs. 38, 39 and 40) similar to that of *V. chilensis* but vesica expanded at apex after narrowing distally. Colour reddish-ochreous.

Holotype ♂: PERU: Camacani, 3700 m, 19–21.xi.1955 (L. E. Peña) (BMNH). Paratypes: PERU: 2 ♀, same data as holotype; 1 ♀, Cuzco, Sacsayhuaman, 3900 m, 5.vii.1971 (C. and M. Vardy) (BMNH).

Subgenus *Echinovilga* subgen. nov.

Type-species: *Vilga dallasi* Distant.

Form rather depressed, aspect very spinose, appendages long and slender. Pronotum very shallowly emarginate posteriorly, prescutellar spines present, disc and margins with very long tubercles, posterolateral angles produced into long, slender spines. Scutellum flat, margins bearing long tubercles. Corium with

costal margin proximally and apical margin bearing several long tubercles; disc of hemelytral membrane without cross-veins. Lateral margins of abdominal sterna III–VII with long tubercles, posterolateral angles produced as long spines.

Antennae with segment IV the shortest, less than half as long as III, specialized apical sensory region occupying 0.8–0.9 times its total length. Antennifer with outer apical process broad, rounded apically, abruptly deflexed at right angles immediately after its origin. Dorsal auricle of metathoracic scent gland peritreme divided by ventral incision into two lobes, anterior lobe about twice as long as posterior. Femora, tibiae and antennal segments I, II and base of III bearing long, setiferous tubercles. Anterior and intermediate femora each with a single, ventral, subapical spiniferous tubercle; posterior femur with two long, vental, subapical spiniferous tubercles, the distal one much the longer, 0–1 short, spiniferous tubercle between them and a series of about four small tubercles between distal major tubercle and apex of femur.

Male paramere with apex broad, expanded and flattened. Straps of ejaculatory reservoir complex long, articulated to wings. Sclerites at base of vesica large, free. Vesica inflated in middle of non-coiled portion, gonopore surrounded by a flange.

Female abdominal sternite VII cleft apically for about half its length. Second valvulae pointed at apex, egg channel opening between first and second valvulae. Sclerites of gynatrial wall with median arms slightly broadened towards middle, not convergent, nearly twice as long as transverse arms. Spermathecal duct irregularly convoluted near bulb and with a sac-like expansion at its junction with gynatrium.

Chorion of ovarian egg with longitudinal ribbing and without obvious reticulate sculpturing.

The single species included here is morphologically very isolated within the genus, particularly as regards the shape of the vesica, second valvulae and spermathecal duct.

Vilga (Echinovilga) dallasi Distant

(Figs. 7, 14, 17, 30, 31, 34, 41, 43 and 46)

Vilga dallasi Distant, 1881: 147, Pl. 14, Fig. 16.

Length: ♂, 8.0–8.8 mm ($n = 2$); ♀, 9.1–9.9 mm, mean 9.6 mm ($n = 4$).

Characters of the subgenus. Antennifer bearing a very long spine at outer apical angle. Some tubercles of antennal segment I exceeding in length the width of the segment, segments II and III with progressively shorter tubercles. Ratio of lengths of antennal segments I:II:III:IV in male about 1.00:0.91:1.23:0.59, in female about 1.00:0.90:1.24:0.51; length of segment I divided by width of head including eyes in male 1.10–1.23 ($n = 2$), in female 1.12–1.25, mean 1.19 ($n = 5$).

Pronotum (Fig. 7) with spines at posterolateral angles very long, directed laterally and very slightly upcurved, width across tips of spines divided by width of head including eyes in male 2.74–2.79 ($n = 2$), in female 2.78–3.03, mean 2.91 ($n = 5$); prescutellar angles each with a long, tubercle-like spine, disc with a pair of long spines and numerous shorter tubercles. Scutellum equilateral. Tibiae dorsally with two rows of tubercles, femora with a double row of tubercles both dorsally and ventrally and smaller tubercles and granules on anterior and posterior faces of femora.

Posterolateral angles of abdominal sternites (Fig. 14) produced into long, slender spines each about as long as width of corresponding laterotergite; lateral margins each with two or three long tubercles, some smaller tubercles present on posterolateral spines. Male paramere (Figs. 30 and 31), vesica and ejaculatory reservoir complex (Fig. 34), female ovipositor (Fig. 41), sclerites of gynatrial wall (Fig. 43) and spermatheca (Fig. 46) as described for the subgenus.

Colour dark greyish brown to cinnamonous. Suberect to erect, pale brown or colourless pubescence, usually arising from tubercles or granules, present on all parts of head, antennae, rostrum, legs, pronotum, scutellum, veins of clavus and corium, thoracic pleura and sterna and abdominal sternites and laterotergites; white, decumbent to semidecumbent pubescence, usually arising from very small granules, present on antennal segments I–III, coxae, trochanters, femora, clavus, corium, head, pronotum, scutellum, thoracic pleura

and sterna and abdominal sternites and laterotergites, this pubescence especially long and woolly on pronotum and thoracic pleura.

Ovarian egg (Fig. 17) 1.72×0.67 mm, narrowed towards micropylar end, with a small ring of seven areomicropyles.

Material examined. *Vilga dallasi* Distant, Lectotype ♀: GUATEMALA: San Geronimo (Champion) (BMNH), here designated. Paralectotypes: 1♂, 1♀, same data as lectotype (BMNH) London).

BRAZIL: 1♀, Pernambuco, Iguaçu, 1887(?), (*H. N. Ridley*); 1♀, Iguaçu, 1888(?), (*G. Ramage*); 1♂, Mato Grosso, $12^{\circ} 50' S$, $51^{\circ} 47' W$, Cerradão, 14.iii.1968 (*O. W. Richards*); 1♀, same locality and habitat, 29.ii.1968 (*Richards*). FRENCH GUIANA: 2♀, Cayenne (*Prudhomme*). (BMNH; MN and MGA).

The Brazilian specimens are greyer than the Guatemalan type series and bear shorter and more numerous tubercles on the posterior part of the pronotum.

Berg, C., 1894: 22 records a specimen of this species from Paraguay.

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