Descriptions of new luperine genera and species from Mexico, with keys to related taxa (Coleoptera: Chrysomelidae: Galerucinae)

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Abstract. The section Scelidites of the subtribe Luperina is diagnosed and described. A key is provided to separate the genera within this section. *Cyphotarsis* Jacoby is reduced to a junior synonym of *Metacoryna* Jacoby. *Microscelida*, new genus, is erected to include *Agelastica viridis* Jacoby, *Luperus subcostatus* Jacoby, *Luperus subglabratus* Jacoby, *Scelidopsis violacea* Jacoby, and seven newly described species. A key and diagnoses are provided to enable recognition of each species within this new genus. *Scelidacne*, new genus, is erected to include a single newly described species.

Introduction

As classified by Seeno & Wilcox (1982), the section Scelidites is placed in the family Chrysomelidae, subfamily Galerucinae, tribe Luperini, and subtribe Luperina. That classification is followed in this study. Even so, I favor the recent classifications of Reid (1995) and other authors who treated the traditional subfamilies Galerucinae and Alticinae as mere tribes in the expanded subfamily Galerucinae. If their classifications are followed, the ranks of tribe, subtribe, and section may eventually need to be adjusted downward.

In the Old World, genera of Scelidites are similar to those found in America, but, with the single exception of *Eugalera* Brancsik (already recognized as a synonym of *Scelolyperus* Crotch by Wilcox, 1973), I have not found them to be synonymous. Genera of the principally Old World section Exosomites are also similar to Scelidites in many respects, and further study may show that the two taxa should be combined.

In the Western Hemisphere, species of Scelidites are found from Canada to Panama, but they are most numerous and diverse in the southwestern United States and in Mexico. No species are known from South America.

In the New World, the genera of Scelidites are similar to *Pteleon* Jacoby (section Exosomites) and, to a lesser extent, to *Phyllobrotica* Chevrolat (section Phyllobroticites). Beyond this, the Scelidites are quite distinct from all other American Galerucinae, although they were often confused with other groups by earlier workers.

Many New World species of Scelidites were originally described in *Luperodes* Motschulsky, a genus properly belonging to the Monoleptites (a quite unrelated world-wide group that can usually be recognized by the very long basitarsus of the hind leg). Many other American species of Scelidites were formerly classified in *Luperus* Müller. However, the type species of that genus belongs in the Luperites, a group that is only distantly related, is restricted to the Eastern Hemisphere, and may be recognized by the form of the male antennae (antennomere II is very short, and III is unusually long).

The biology of the Scelidites is essentially unknown. To my knowledge, the larvae of only one New World species have been reported (Wilcox, 1965), and they are similar to root feeders such as *Diabrotica* Chevrolat. Some species of Scelidites are apparently restricted in their acceptance of host plant species, but others may survive well on several hosts. Unfortunately, the hosts of most species are not known.

Methods

Although species of Scelidites are currently recognized from North America, Europe, Asia, and Africa, only the New World species were carefully studied during my recent investigations, with Old World genera being examined only enough to determine that they are not synonymous with those of the Western Hemisphere.

Specimens were borrowed from the following curators and collections (acronyms following the entries are referred to throughout this paper):

Sharon L. Shute, British Museum (Natural History) [BMNH]; Robert S. Anderson, Canadian Museum of Nature [CMNC]; Laurent LeSage, Canadian National Collection of Insects [CNCI]; Edward G. Riley (private collection), College Station, Texas [EGRC]; John B. Kethley, Field Museum of Natural History [FMNH]; Kathryn C. McGiffen, Illinois Natural History Survey [INHS]; Alfred F. Newton, Jr. and Scott Shaw, Museum of Comparative Zoology [MCZC]; Richard E. White, United States National Museum [NMNH]; Charles A. Triplehorn, Ohio State University [OSUC]; Paul K. Lago (private collection), University, Mississippi [PKLC]; Shawn M. Clark (private collection), Charleston, West Virginia [SMCI]; Edward G. Riley, Texas A. & M. University [TAMU]; University of Arizona [UAIC]; Saul I. Frommer, University of California, Riverside [UCRV]; Mark F. O'Brien, University of Michigan [UMMZ].

I have placed much emphasis on the form of the aedeagi, a brief preliminary study indicating that the spermathecae lacked useful diagnostic characters. Aedeagal preparations were made following techniques similar to those described by Smith (1979) and Reid (1992).

Section Scelidites Chapuis

Scelidites Chapuis, 1875:184; Wilcox, 1965:94; Seeno and Wilcox, 1982:109.
Androlyperini Leng, 1920:298.

Diagnosis. In this group, the antennae extend at least to near the middle of the elytra but not to the apex. The elytra are, at most, sparsely and rather inconspicuously pubescent. The epipleura, at least near the base, are easily visible and not unusually narrow. The basal tarsomere of the hind leg is usually shorter than the following tarsomeres combined. The tarsal claws are usually appendiculate. The abdomen of the male usually has a distinct, apical, subrectangular lobe that is either much shorter than wide or that is distinctly impressed or bent toward the dorsum. And the aedeagus lacks well-developed basal spurs. These characters will enable recognition of most New World species of Scelidites, distinguishing them from other galerucines (for questionable taxa, see additional discussion in the comments section below).

Description. Form elongate or elongate-oval; head narrower than prothorax; prothorax narrower than elytra.

Pubescence of head largely confined to more distal areas. Interocular sulcus present though sometimes weakly developed. Frontal tubercles usually separated from mesal frontal carina by distinct sulci. Antennae subdivided into 11 antennomeres; antennomere II distinctly shorter than I or IV, slightly shorter than III.

Pronotum wider than long; lateral beads well-developed; long seta present at each angle; fringe of short setae usually present along all margins, although often obsolete on lateral margins; disc lacking pubescence.

Elytra lacking conspicuous pubescence, usually with scattered setae on apical half; elytral punctures confused; epipleuron well developed near base, often extending to near apex.

Ventral portion of prothorax with fringe of setae along anterior and posterior margins. Front coxae contiguous or rather narrowly separated by prosternum; front coxal cavities open behind. Middle coxae usually narrowly separated, sometimes contiguous. Metathorax, especially episternum, usually pubescent. Hind coxae well separated. Tarsi subdivided into five tarsomeres; tarsomeres I-III densely setose beneath; III bilobed; IV very small. Tarsomere I of hind leg usually shorter than II-V combined. Tarsal claws usually appendiculate, rarely bifid.

Abdomen with five visible segments, usually pubescent; terminal segment of male often impressed, usually with subrectangular lobe at apex; terminal segment of female not impressed, rounded or angulate at apex. Aedeagus lacking well-developed basal spurs.

Comments. The tribe Galerucini differs from Scelidites in that the abdomen of the male lacks a rectangular lobe, and the aedeagus usually has well-developed basal spurs. Also, the tarsal claws are usually bifid, and the elytra are often conspicuously pubescent.

The tribe Metacyclini differs from Scelidites in that the abdomen of the male lacks a rectangular lobe, and the aedeagus has well-developed basal spurs.

The tribe Sermylini is an Old World group, but *Agelastica alni* (Linnaeus) and *Sermylassa halensis* (Linnaeus) have been reported from North America. This tribe differs from Scelidites in that the lobe at the apex of the male abdomen is rounded rather than rectangular, and the basal foramen of the aedeagus is nearly circular.

Within the tribe Luperini, the subtribe Diabroticina differs from Scelidites in that the apex of the

male abdomen lacks a rectangular lobe. Also, the tarsal claws of many species are bifid. Within this subtribe, the section Phyllecthrites is especially likely to be confused with Scelidites but differs in that the male has a notch near the apex of the middle tibia.

Within the subtribe Luperina, the New World representatives of the section Phyllobroticites differ from Scelidites in that the epipleuron is absent or very much reduced. The section Exosomites is represented in the New World by four species of *Pteleon* in which the antennae do not extend much beyond the humeri of the elytra. The section Monoleptites has a sclerotized covering at the aedeagal orifice, and tarsomere I of the hind leg is usually extremely long.

Within the Scelidites, some species of *Scelida* Chapuis have unusually long basitarsi on the hind legs. However, in such species, the apex of the male abdomen is strongly impressed and the aedeagal orifice lacks a sclerotized covering. Either of these characters distinguishes *Scelida* from non-Scelidites with such tarsi.

Scelida metallica Jacoby and some species of *Triarius* Jacoby have bifid tarsal claws. However, the rectangular lobe at the apex of the male abdomen is conspicuous and distinguishes these species from non-Scelidites with bifid claws.

In several species of Scelidites, the rectangular lobe at the apex of the abdomen is very short and not easily visible. It is especially inconspicuous in some species of *Metacoryna* Jacoby and *Scelidacne*, new genus, but these species may be recognized by the presence of either abdominal appendages or swollen antennae in the males.

In some species of *Triarius*, the lobe at the apex of the male abdomen is about as long as broad. Many species of non-Scelidites (Monoleptites) also have subquadrate lobes, but they differ from *Triarius* in that the aedeagal orifice has a sclerotized covering, and the basal tarsomere of the hind leg is usually longer than tarsomeres II-V combined.

The aedeagi of some species of *Pseudoluperus* Beller & Hatch have small basal spurs that might be confused with the larger spurs found in the tribes Galerucini or Metacyclini. However, the male abdomens of these species of *Pseudoluperus* have the impressed, rectangular lobe that is characteristic of Scelidites.

Following several new combinations published herein and in forthcoming papers, most of the New World genera of Scelidites will form well-defined, homogeneous groups. One notable exception is *Pseudoluperus*, a no doubt polyphyletic assemblage that will almost certainly require further resolution.

I consider *Cyphotarsis* Jacoby to be synonymous with *Metacoryna* Jacoby, and it therefore does not appear in the generic key presented below. The reasons for this synonymy will be presented in a forthcoming revision of *Metacoryna*.

Many of the genera in Scelidites are best recognized by male characters. Because of this, the following key is based largely on males. However, the experienced worker will discover that unassociated females can also be identified, although often with considerably more difficulty.

Key to New World genera of Scelidites (males)

1. Basal bead of pronotum complete although often small, extending without interruption between posterior angles (this character obscured by extremely coarse pronotal punctation in *Synetocephalus autumnalis* Fall, a yellow or reddish species from California) 2
— Basal bead of pronotum absent, or restricted to extreme lateral areas (pronotal punctation never coarse, except in metallic blue *Scelidacne* from Mexico) 8

2(1). Elytra with a distinct impression at posterolateral angle; distal portion of epipleuron bent upward at point of impression; genal length as great as or often greater than length of antennomere II; all tibiae with terminal spurs; elytra not metallic ..... *Androlyperus* Crotch
— Elytra normal, lacking obvious modifications 3

3(2). Intermediate or distal antennomeres distinctly swollen; genae about as long as antennomere II; tibial spurs absent; elytra entirely dark ..... *Metacoryna* Jacoby
— Antennae usually slender; if antennae are swollen, length of genae is about half that of antennomere II 4

4(3). Rectangular lobe at apex of abdomen at least half as long as broad, large, not strongly bent towards dorsum; length of antennomere I subequal to maximum diameter of eye; tarsal claws often bifid; elytra not metallic; tibiae with large, conspicuous, terminal spurs *Triarius* Jacoby
— Rectangular lobe at apex of abdomen either shorter or distinctly bent towards dorsum; antennomere I usually shorter; if tarsal claws

are bifid, elytra are metallic; tibial spurs often smaller or absent 5

5(4). Distance between antennal fossae equal to at least twice diameter of fossa; mesal frontal carina broad, nearly continuous with frontal tubercles, delimited behind by shallow, sometimes indistinct impression; elytra usually pale with darker stripes or entirely pale, rarely entirely dark with very faint metallic luster, never with obvious metallic luster; aedeagal orifice often with a sclerotized covering ..... *Synetocephalus* Fall

— Distance between antennal fossae equal to less than twice diameter of fossa; mesal frontal carina narrower, usually separated from frontal tubercles by distinct sulci; transverse interocular sulcus usually distinct, abruptly delimiting frontal tubercles behind; elytral color variable, often with distinct metallic luster; orifice of aedeagus lacking sclerotized covering 6

6(5). Elytra with a conspicuous transverse impression at basal third; body, including appendages, strongly metallic; species occurring in Costa Rica ..... *Inbioluperus* Clark

— Transverse impression of elytra absent or weakly developed; front tibiae or other body parts lacking metallic luster; distribution in Mexico and northward [except *Pseudoluperus flavomarginatus* (Jacoby), a pale, non-metallic species known from Guatemala and Panama] 7

7(6). Mesal frontal carina narrow, usually forming angulate ridge; frontal tubercles often extending to and continuous with orbit, rarely delimited laterally by poorly defined impression; genae usually about as long as terminal article of maxillary palp; vertex often with alutaceous microsculpture; head and elytra dark, often metallic; apex of aedeagus often truncate, emarginate, or asymmetrical, rarely symmetrical and pointed ..... *Scelolyperus* Crotch

— If mesal frontal carina is narrow or acutely elevated, frontal tubercles are delimited laterally by distinct impression; genae usually not much more than half as long as terminal article of maxillary palp; vertex not distinctly alutaceous; head and elytra sometimes largely pale; apical portion of aedeagus usually pointed and symmetrical, rarely strap-like and asymmetrical, not truncate or emarginate ..... *Pseudoluperus* Beller & Hatch (part)

8(1). Basitarsus of hind leg enlarged, much different in form from basitarsi of front or middle legs 9

— Basitarsus of hind leg not conspicuously enlarged 10

9(8). Abdomen with ventral appendages; hind tibia with curved apical appendage; basitarsi of all legs enlarged, those of front and middle legs about as broad as apices of tibiae, that of hind leg very irregular in form; color nearly entirely metallic blue ..... *Scelidacne*, new genus

— Abdomen normal, without ventral appendages; hind tibia without apical appendage; basitarsi of front and middle legs much narrower than apices of tibiae, similar in form to basitarsi of female; color largely yellow, with elytra bicolored ..... *Keitheatus* Wilcox

10(8). Front femora much larger than middle or hind femora; aedeagus strongly asymmetrical ..... *Lygistus* Wilcox

— Front femora not abnormally large; aedeagus symmetrical 11

11(10). Orifice of aedeagus with a sclerotized covering; at least hind legs with terminal spurs; abdomen lacking ventral appendages *Microscelida*, new genus

— Orifice of aedeagus usually lacking sclerotized covering (other characters variable); if sclerotized covering present, terminal spurs absent from all tibiae and abdomen with ventral appendages 12

12(11). Antennae short, reaching only a little beyond the humerus; antennomeres II-IV about equal in length and width ..... (*Pteleon* Jacoby, section Exosomites)

— Antennae longer, reaching to middle of elytra or farther 13

13(12). Pronotum usually entirely pale, but if partially black then abdomen with conspicuous ventral appendages; tibiae without terminal spurs; if elytra partially pale, body longer than 5.0 mm ..... *Scelida* Chapuis

— Pronotum often partially or entirely dark; if pronotum entirely pale, then elytra largely or entirely pale also, tibiae with terminal spurs, and body length less than 5.0 mm ..... *Pseudoluperus* Beller & Hatch (part)

Scelidacne Clark, new genus

Diagnosis. Males of this genus are immediately recognizable by the enlarged, oddly shaped

basitarsus of the hind leg and by the curved apical appendage of the hind tibia (fig. 2b). Either males or females are separable from other Scelidites by the absence of a basal bead on the pronotum, in combination with the coarsely punctate pronotum and the nearly uniform metallic blue color.

Description. Form elongate; head slightly narrower than prothorax; prothorax much narrower than elytra.

Pubescence of head largely confined to more distal areas. Frontal tubercles well defined, separated from each other by deep sulcus. Mesal frontal carina well-developed, short. Antennae subdivided into 11 antennomeres; antennomere III much longer than II, distinctly longer than IV, shorter than I.

Pronotum wider than long; lateral beads well-developed; a long seta present at each angle; a fringe of short setae present along anterior and posterior margins; disc lacking pubescence. Elytra with a few scattered, inconspicuous setae; elytral punctures confused; epipleuron broad basally, narrow apically.

Ventral portion of prothorax with a fringe of setae along anterior and posterior margins. Front coxae very narrowly separated by prosternum, nearly contiguous; front coxal cavities open behind. Middle coxae narrowly separated. Metathorax, especially episternum, pubescent. Hind coxae widely separated. Terminal spurs present on all tibiae of female, absent from all tibiae of male. Each tarsus subdivided into five tarsomeres; tarsomeres I-III densely setose beneath; III broad, bilobed; IV very small. Male with basal tarsomeres of front and middle legs broadened, with basal tarsomere of hind leg greatly enlarged, flattened (fig. 2b). Tarsal claws appendiculate.

Abdomen with five visible segments, pubescent; sternites of male greatly modified, with well-developed appendages (fig. 2a). Aedeagus lacking basal spurs.

Type species. *Scelidacne andrewi*, new species.

Comments. The rectangular lobe at the apex of the male abdomen, so characteristic of most Scelidites, is very much reduced in the single known species of this genus. However, based on other similarities, this genus clearly fits into this group.

The name, *Scelidacne*, is a euphonious variation of *Scelida*, not intended to have meaning in Latin or Greek languages. I designate its gender as female.

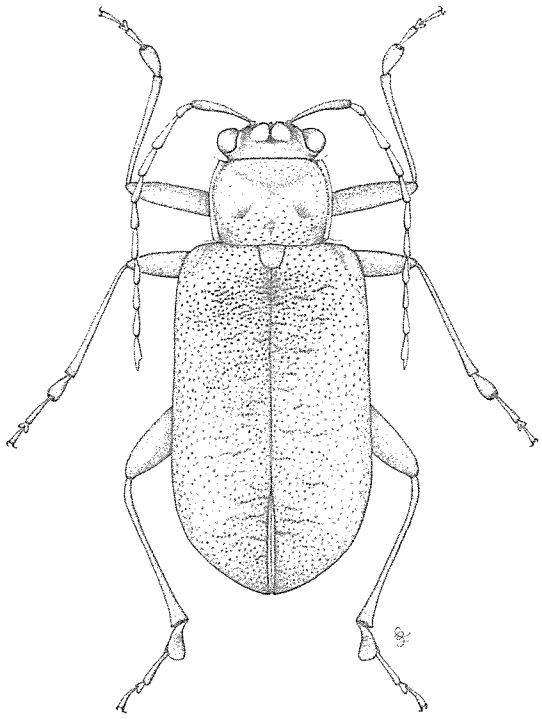

Figure 1. *Scelidacne andrewi*, new species, male.

Scelidacne andrewi Clark,
new species
(Figures 1, 2a-e)

Diagnosis. This, the single known species included in this genus, can be recognized by the characters given in the generic **Diagnosis.**

Description. Form elongate; prothorax narrower than elytra. Color metallic blue, with antennae and tarsi brown. Male with abdominal appendages (fig. 2a) and enlarged basal tarsomeres (figs. 1, 2b).

Head shining, not alutaceous. Vertex largely glabrous, but with several setae near each eye. Distal and subocular areas densely pubescent. Eyes slanting, with internal margins diverging posteriorly. Interocular distance, measured along posterior margin of frontal tubercles, equal to 0.6 times maximum width of head across eyes. Frontal tubercles sub-triangular, mesially contiguous for a distance slightly greater than width of antennomere I, separated from each other by deep sulcus,

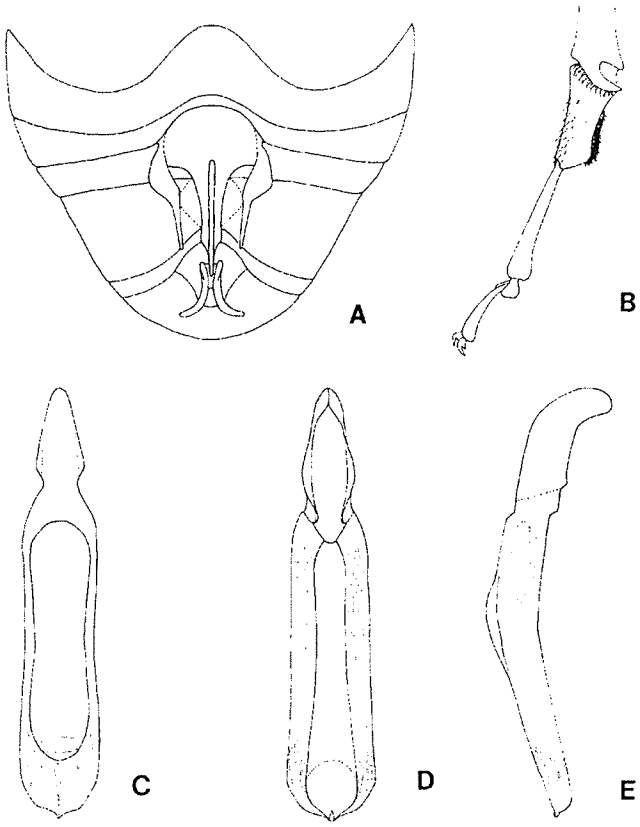

Figure 2. *Scelidacne andrewi*, new species. a) abdomen of male, ventral view; b) distal portion of hind leg of male; c) aedeagus, dorsal view; d) aedeagus, ventral view; e) aedeagus, lateral view.

abruptly delimited behind, separated from mesal frontal carina by short sulcus, delimited laterally by broad impression adjacent to eye. Antennal fossae separated from each other and from eyes by distance less than diameter of fossa. Mesal frontal carina short, convex, not acute. Genal length slightly greater than width of distal article of maxillary palp. Antennae extending to near middle of elytra; antennomere III 0.6 times as long as I, 2.7 times as long as II, 1.4 times as long as IV; IV-X subequal in length; XI 1.4 times as long as X, emarginate near apical third, pointed at apex.

Pronotum 1.5 times as wide as long, 0.7 times as wide as elytra across humeri, widest near anterior third; sides sinuate in dorsal view. Lateral beads present; anterior and basal beads absent. Disc with anterior third shallowly, transversely impressed; a deep fovea present on each side, slightly behind middle. Surface densely, coarsely punctate; area between coarse punctures shining, not alutaceous, but with a few fine punctures.

Elytra together 1.7 times as long broad, broadest near apical fourth. Several poorly developed longitudinal costae sometimes present, most noticeable in some females. Punctures coarse, dense, mostly separated by a distance about equal to diameter of puncture, sometimes partially confluent and forming short, transverse rugae. Interpunctural areas opaque, distinctly less shining than interspaces of pronotum.

Ventral areas of prothorax shining, not alutaceous; anterior margin clothed with double fringe of long setae, with one fringe directed anteriorly and another directed ventrally. Mesothorax and metathorax largely pubescent, especially laterally. Legs of female normal, with basitarsi much narrower than apices of tibiae. Male with basitarsi of front and middle legs greatly expanded, about as wide as tibial apices (fig. 1); hind tibia with curved appendage at apex (fig. 2b); hind basitarsus greatly enlarged, irregular in shape, with fine basal ridges opposite tibial appendage (fig. 2b). Abdomen pubescent, alutaceous; female lacking unusual modifications, with terminal segment rounded apically; segment III of male with trilobed appendage, the lateral lobes being densely pubescent, the median glabrous lobe being bifurcate apically (fig. 2a); male with terminal segment very short, with apical margin concave.

Aedeagus symmetrical in dorsal view, with acute tip (fig. 2c). Two dorsally directed flanges present near mid-length, one on each side of orifice (fig. 2e). Ventral surface with a median grove extending from basal foramen to near apex, this grove terminating in a deep, round, subapical concavity (fig. 2d). Basal spurs absent.

Material examined. Holotype male and allotype female: Mexico, Chiapas, 5 mi. W. San Cristobal L. C., 6 May 1969, H. F. Howden (CMNC). Paratypes: same data as holotype (1 male, 1 female, CMNC; 1 male, 1 female, SMCI); same data as holotype except 10 May 1969 (1 female, CMNC); same data as holotype except 11 May 1969 (1 female, CMNC); same data as holotype except 3 May 1969 and beating oak (2 females, CMNC).

Comments. The male abdominal appendages (fig. 2a) call to mind certain species of the genus *Scelida*. However, the modifications of the male legs (fig. 2b), as well as the presence of tibial spurs in the females, are unlike the species in that genus. The name of this new species honors my son, Andrew.

Microscelida Clark, new genus

Diagnosis. The absence of a basal bead on the pronotum, in combination with the sclerotized orificial covering of the aedeagus, usually distinguishes this from other New World genera of Scelidites. An orificial covering is also present in an undescribed species of *Scelida*, but the tibiae of that species lack terminal spurs. In this new genus, spurs are present on at least the hind tibiae. The elytra of *Microscelida* are largely or entirely dark.

Description. Form elongate or elongate oval; prothorax narrower than elytra. Pronotum wider than long; margins setose; disc lacking pubescence; lateral beads well developed; anterior and basal beads absent. Elytra dark, with a few erect setae in distal half; epipleura well-developed, extending nearly to apex. Ventral areas of prothorax largely glabrous; anterior margin setose; front coxae contiguous or nearly so; front coxal cavities open behind. Metathorax pubescent, at least laterally. Terminal spurs present on hind tibiae, often present on other tibiae. Tarsal claws appendiculate. Abdomen pubescent, lacking appendages; terminal segment of male with an impressed, more or less rectangular, apical lobe; terminal segment of female rounded at apex. Aedeagus symmetrical, lacking basal spurs; orifice covered by a median, sclerotized process which is continuous basally with tubular portion of aedeagus; additional sclerotized processes sometimes extending from lateral areas and covering orifice.

Type species. *Microscelida viridipennis*, new species.

Comments. Most of the species in this genus are similar in appearance. Often, accurate identification of species is possible only through examination of the aedeagus.

In many characters, this genus resembles *Scelida*, but the species are smaller. Accordingly, I have chosen the name *Microscelida*.

Key to species of *Microscelida*

1. Femora, at least of front legs, largely or entirely pale, testaceous; distal portion of femora dark in some species 2
— Femora dark brown or black 9

2(1). Pronotal disc evenly convex or slightly, mesially flattened; distinct pronotal impressions small or absent 3
— Basal half of pronotal disc with a conspicuous fovea at each side (fig 3); diameter of fovea subequal to one-fourth width of prothorax; length 3.8-4.1 mm; Mexico (Michoacan to Mexico to Guerrero) ..... *foveicollis*, new species

3(2). Interspaces of elytra polished, with minute punctures either absent or widely spaced 4
— Most areas of elytra with numerous minute, closely spaced punctures in area between any two larger punctures; length 4.5 mm; Mexico (Guerrero) ..... *viridis* (Jacoby)

4(3). Aedeagus gradually narrowed to near apex, usually with a short, median slit or emargination at apex (fig. 5c); elytra of female distinctly costate; elytra of male sometimes vaguely costate; length 4.4-4.9 mm; Mexico (Michoacan to Veracruz to Chiapas) ..... *subcostata* (Jacoby)
— Apex of aedeagus usually not emarginate; if apex of aedeagus is emarginate, apical portion of aedeagus is more rounded (fig. 4b); elytra not costate 5

5(4). Apex of aedeagus pointed 6
— Apex of aedeagus rounded or with median emargination (fig. 4b); length 3.6-4.5 mm; Mexico (Guerrero) ..... *subglabrata* (Jacoby)

6(5). Orifice of aedeagus largely covered by a median sclerotized process and by two lateral sclerotized processes, one at each side (figs. 5d-e); lateral processes meeting or nearly meeting medially, distal to median process 8
— Covering of aedeagal orifice consisting of a median sclerotized process; lateral processes absent (figs. 4d, 5a) 7

7(6). Ventral surface of aedeagus with longitudinal groove; length 3.4-4.1 mm; Mexico (Oaxaca to Chiapas) ..... *wilcoxi*, new species
— Ventral surface of aedeagus without longitudinal groove; length 3.1-4.1 mm; Mexico (Oaxaca) ..... *moweri*, new species

8(6). Distal fourth of aedeagus attenuate, gradually narrowed to acute apex (fig. 5e); length 3.1-4.5 mm; Mexico (Jalisco to Zacatecas to Veracruz to Oaxaca) ..... *viridipennis*, new species
— Distal eighth of aedeagus more abruptly narrowed to acute apex (fig. 5d); length 3.9 mm; Mexico (Guerrero) ..... *wellsi*, new species

9(1). Vertex and elytra distinctly alutaceous; tibiae conspicuously paler than femora; length 4.8 mm; Mexico (Morelos) ..... *alutacea*, new species

— Vertex and elytra polished, not alutaceous; tibiae not obviously paler than principal color of femora 10

10(9). Aedeagus with a short, median slit or emargination at apex (fig. 5c); apical fourth of aedeagus with a narrow, median, ventral groove; elytra of female distinctly costate; elytra of male sometimes vaguely costate; length 4.4-4.9 mm; Mexico (Michoacan to Veracruz to Chiapas) ..... *subcostata* (Jacoby)

— Apex of aedeagus pointed, not emarginate, lacking median, ventral groove; elytra not costate 11

11(10). Distal fifth of aedeagus very narrow, attenuate (fig. 4c); length 3.8-4.3 mm; Mexico (Guerrero) ..... *whitingi*, new species

— Distal portion of aedeagus broadly curved to apex, not attenuate (figs. 4d-e) 12

12(11). Orifice of aedeagus largely covered by a median sclerotized process and by two lateral sclerotized processes, one at each side (fig. 4e); length 3.5-3.8 mm; Mexico (Guerrero) .... *violacea* (Jacoby)

— Orificial covering of aedeagus consisting of a median sclerotized process (fig. 4d); lateral coverings absent; length 3.1-4.1 mm; Mexico (Oaxaca) ..... *moweri*, new species

Microscelida alutacea Clark, new species (Figure 5b)

Diagnosis. The alutaceous microsculpture of the vertex and elytra, in combination with the tibiae that are distinctly paler than the femora, distinguish this from other species of *Microscelida*.

Description. Form elongate; prothorax narrower than elytra. Vertex, elytra, mesosternum, metasternum, abdomen, and femora black or dark brown; elytra with blue luster. Antennae, prothorax, tibiae, tarsi, and distal areas of head paler brown or testaceous. Length of male 4.8 mm.

Vertex punctate and pubescent near frontal tubercles, distinctly alutaceous, black. Transverse interocular sulcus deep; each half arcuate. Interocular distance equal to 0.6 times maximum width of head across eyes. Frontal tubercles and more distal areas of head brown or testaceous. Frontal tubercles separated from each other and from mesal frontal carina by deep sulci; surface shining, not alutaceous. Distance between antennal fossae subequal to length of antennomere I. Mesal frontal carina convex. Genal length subequal to three times diameter of an ommatidium. Antennae brown; antennomere II much shorter than I, slightly shorter than III, about half as long as IV.

Pronotum 1.3 times as wide as long, 0.7 times as wide as elytra across humeri, widest slightly anterior to middle; sides arcuate in dorsal view. Lateral beads present; anterior and basal beads absent. Punctures distinct, especially near scutellum. Interspaces shining, not alutaceous. Color testaceous.

Elytra together 1.7 times as long as broad; sides nearly parallel in anterior two-thirds. Punctures distinct, separated by a distance subequal to twice diameter of a puncture. Interspaces alutaceous. Color dark brown with metallic blue luster. Ventral areas of prothorax testaceous, largely glabrous; front coxae contiguous; front coxal cavities open behind. Mesothorax dark brown. Metathorax dark brown, covered with pale pubescence. Coxae, trochanters, and femora dark brown. Tibiae pale brown; male with terminal spurs present on hind tibiae only. Tarsi pale brown; basitarsi of male not obviously dilated; tarsomere I of hind leg about as long as II-III combined; tarsal claws appendiculate. Abdomen brown, pubescent; terminal segment of male semicircularly impressed at apex.

Aedeagus symmetrical. Orifice with a sclerotized covering (fig. 5b).

Material examined. Mexico, Morelos, Xochicalco, 15 Sept. 1942, W. F. Foshag (holotype male, NMNH).

Microscelida foveicollis Clark, new species (Figures 3, 4a)

Diagnosis. The two large, conspicuous impressions, one at each side of the pronotum, distinguish this from other species of *Microscelida* (fig. 3).

Description. Form elongate oval; prothorax narrower than elytra. Color black or dark brown, with prothorax, legs, and at least part of head testaceous; elytra with blue or purple luster. Length of male 4.1 mm; length of female 3.8-4.0 mm.

Head shining, not alutaceous; color entirely testaceous, or testaceous with vertex and orbits dark brown, nearly black. Vertex minutely punctate, with a few lateral setae, without mesal setae. Transverse interocular sulcus deep. Interocular

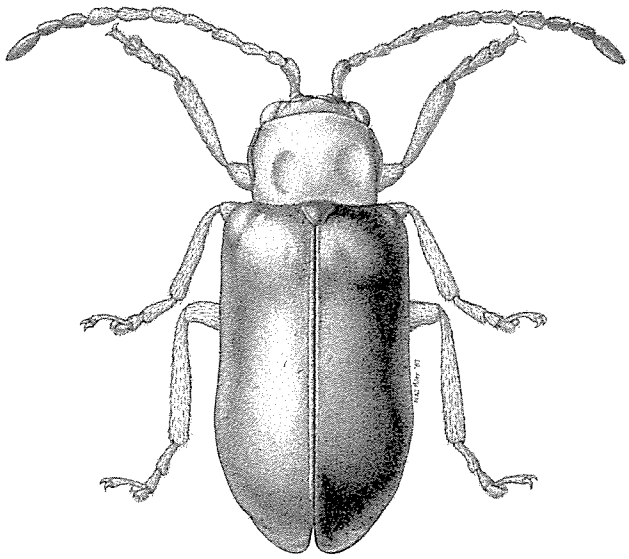

Figure 3. *Microscelida foveicollis*, new species.

distance equal to 0.6 times maximum width of head across eyes. Frontal tubercles mesially contiguous for a distance less than width of antennomere II, separated from each other and from mesal frontal carina by deep sulci, separated from orbit by distinct impression. Antennal fossae separated from each other by a distance greater than width of antennomere I. Mesal frontal carina convex. Genal length subequal to width of distal article of maxillary palp. Antennae slender, extending to near middle of elytra; color black or dark brown, with basal portion largely or entirely paler; length of antennomere II about half that of I or IV, about two-thirds that of III; V slightly shorter than IV, slightly longer than VI; VI-X subequal in length; XI longer than X.

Pronotum 1.3 times as wide as long, 0.7 times as wide as elytra across humeri, widest near anterior third; sides rounded or weakly sinuate in dorsal view. Lateral beads well-developed; anterior and basal beads absent. Disc with two distinct foveae, one at each side slightly behind middle, each separated from lateral margin, basal margin, and other fovea by a distance slightly less than diameter of fovea (fig. 3). Surface minutely, inconspicuously punctate, shining, not alutaceous. Color testaceous.

Elytra together 1.8 times as long as broad, sometimes costate; sides nearly parallel in anterior three-fourths. Punctures near basal third conspicuous, coarse, separated by a distance not much greater and sometimes less than diameter of a puncture; punctures nearer base or apex finer. Interspaces shining, not alutaceous. Color black or dark brown, with strong blue or purple luster; epipleuron sometimes pale.

Ventral areas of prothorax testaceous, shining, largely glabrous, not alutaceous; front coxae contiguous or nearly so; front coxal cavities open behind. Metathorax black or dark brown, pubescent. Legs testaceous, sometimes with darker tarsi; terminal spurs present on all tibiae of female, present on only hind tibiae of male; basitarsi of male not dilated, similar to those of female; basitarsus of hind leg subequal in length to tarsomeres II-III combined; tarsal claws appendiculate. Abdomen black or dark brown, pubescent; terminal segment of male apically, semicircularly impressed.

Aedeagus symmetrical in dorsal view, acute at apex. Orifice covered by three sclerotized processes, one median and two lateral; lateral processed meeting or nearly meeting medially distal to median process (fig. 4a).

Material examined. Holotype male and allotype female: Mexico, Mexico, 1 mi. N. Valle de Bravo, 6500', VIII-7-82, C. & L. O'Brien & G. Wibmer (NMNH). Paratypes: Mexico, Guerrero, 13 km. N. of Taxco, 5300' (Rt. 3, km 147), oak pine scrub, VI-21-1948, W. Nutting, F. Werner (1 male, 1 female, SMCI); Mexico, Guerrero, 38 km. W Iguala, 21 July 1987, R. Turnbow (1 male, RHTC); Mexico, Mexico, 1 mi. N. Valle de Bravo, 6500', VIII-7-82, C. & L. O'Brien & G. Wibmer (1 female, EGRC); Mexico, Michoacan, 49 mi. se. Aquila, July 13, 1984, Carroll, Schaffner, Friedlander (1 male, 1 female, SMCI; 3 males, 4 females, TAMU); Mexico, Michoacan, 14.3 km. S. Uruapan, 1370-1465 m, 29.vii.88, R. S. Anderson, oak-Acacia woodland, 88-10 (1 male, 1 female, TAMU).

Comments. The elytra of some specimens have several longitudinal costae, this being most pronounced in females. However, this character is variable, the costae being entirely absent from other specimens.

Microscelida moweri Clark,
new species
(Figure 4d)

Diagnosis. The vertex and elytra of this species are polished, without alutaceous microsculpture. Also, the distal portion of the aedeagus is not unusually slender or attenuate, and the aedeagal

orifice is covered by a single, median, sclerotized process (fig. 4d). Ventrally, the aedeagus lacks a median groove. These characters distinguish this from other species of *Microscelida*.

Description. Form elongate oval; prothorax narrower than elytra. Color dark brown or black; elytra with faint blue luster. Length of male 3.1-4.0 mm; length of female 3.6-4.1 mm.

Head dark brown or black, shining, not alutaceous. Vertex shallowly, mesially impressed adjacent to frontal tubercles, with a few setae near each eye, otherwise nearly glabrous. Transverse interocular sulcus deep; each half arcuate. Interocular distance equal to 0.6 times maximum width of head across eyes, nearly as great as length of antennomere I. Frontal tubercles separated from each other by deep sulcus, delimited laterally by broad impression, often nearly confluent with mesal frontal carina. Mesal frontal carina nearly flat. Genal length subequal to width of distal article of maxillary palp. Antennae slender, black or dark brown distally, paler near base; antennomere II much shorter than I, slightly shorter than III; III nearly as long as IV.

Pronotum 1.4 times as wide as long, 0.8 times as wide as elytra across humeri, widest near anterior third; sides arcuate in dorsal view. Lateral beads well developed; anterior and basal beads absent. Disc evenly convex. Punctures sometimes conspicuous near margins, otherwise minute. Color testaceous, dark brown, or black.

Elytra together 1.6 times as long as broad; sides nearly parallel in anterior two-thirds. Most elytral punctures fine or minute, widely spaced; punctures near basal third larger. Interspaces shining, not alutaceous. Color black or dark brown, with weak blue luster.

Ventral surface black or dark brown; prothorax sometimes testaceous. Prothorax largely glabrous, shining, not alutaceous; front coxae contiguous or nearly so; front coxal cavities open behind. Metathorax pubescent. Legs variable in color, usually dark brown, sometimes pale yellowish brown; terminal spurs present on all tibiae of female, present on hind tibiae of male; basitarsi of male similar to those of female, not dilated; tarsomere I of hind leg about as long as II-III combined; tarsal claws appendiculate. Abdomen brown, pubescent; terminal segment of male impressed at apex.

Aedeagus symmetrical in dorsal view; apex acutely angulate. Orifice covered by a median, sclerotized process (fig. 4d). Ventral surface without median groove.

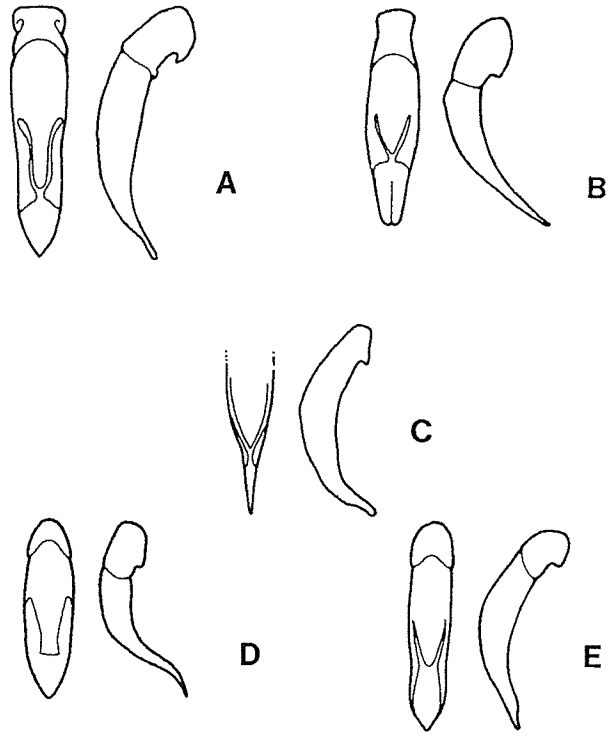

Figure 4. *Microscelida* spp., dorsal and lateral views of aedeagi. a) *M. foveicollis*, new species; b) *M. subglabrata* (Jacoby); c) *M. whitingi*, new species; d) *M. moweri*, new species; e) *M. violacea* (Jacoby).

Material examined. Holotype male and allotype female: Mexico, Oaxaca, 13 mi. SE. Tlalcolula, 6100', VI-2-1974, O'Brien & Marshall (NMNH). Paratypes: Mexico, Oaxaca, 7.7 mi. s. Ejutla, July 20, 1974, Clark, Murray, Ashe, Schaffner (2 males, 2 females, TAMU); Mexico, Oaxaca, 2.7 mi. nw. El Camaron, July 14, 1971, Clark, Murray, Hart, Schaffner (1 male, 2 females, TAMU); Mexico, Oaxaca, 3.4 mi. se. Matatlan, July 12, 1981, Bogar, Schaffner, Friedlander (1 male, TAMU); Mexico, Oaxaca, 3 mi. se. Matatlan (Microondas road), elev. 6650 ft., July 17, 1987, Kovarik, Schaffner (1 male, SMCI); Mexico, Oaxaca, 2 mi. n. Miahuatlan, July 14, 1973, Mastro & Schaffner (1 male, 1 female, SMCI; 8 males, 9 females, TAMU); Mexico, Oaxaca, 1800m, 11 km E Mitla, 3-VIII-1986, H.&A. Howden (1 male, CMNC); Mexico, Oaxaca, Oaxaca, 6-24 June 1968, G. Pollard (8 males, 7 females, CMNC); Mexico, Oaxaca, Oaxaca, 16 June 1968, G. Pollard (15 males, 6 females, CMNC; 1 male, 1 female, SMCI); Mexico, Oaxaca, 3.2 mi. s. Ocotlan, July 20, 1974, Clark, Murray, Ashe, Schaffner (2 males, 1 female, TAMU); Mexico, Oaxaca, 1 mi. se.

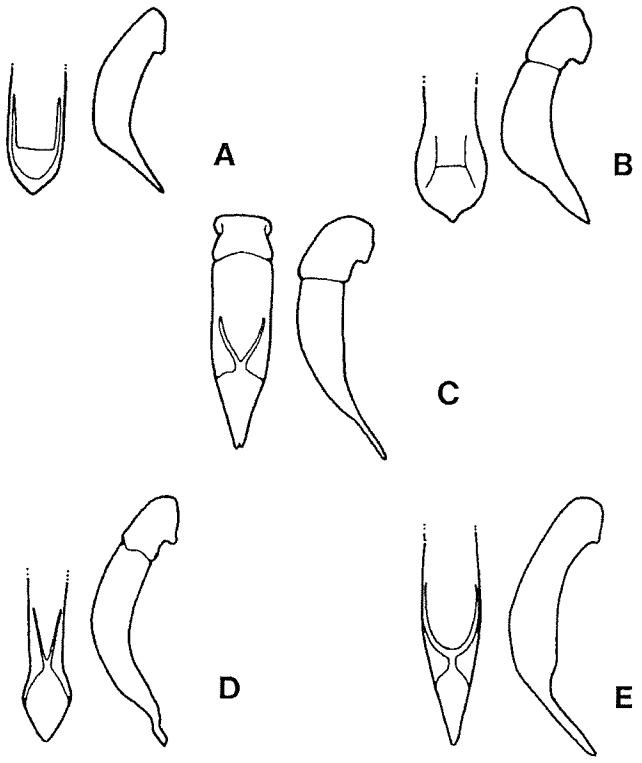

Figure 5. *Microscelida* spp., dorsal and lateral views of aedeagi. a) *M. wilcoxi*, new species; b) *M. alutacea*, new species; c) *M. subcostata* (Jacoby); d) *M. wellsi*, new species; e) *M. viridipennis*, new species.

Rio Hondo, July 22, 1974, Clark, Murray, Ashe, Schaffner (2 males, 4 females, TAMU); Mexico, Oaxaca, 23 km. NW. Totolapan, 28 June 1981, John D. Pinto (1 male, 1 female, UCRV); Mexico, Oaxaca, 16.1 mi. nw. Totolapan, July 21, 1974, Clark, Murray, Ashe, Schaffner (1 male, TAMU).

Comments. As indicated in the preceding description, this species is variable in color. Some specimens, including the holotype, have a dark prothorax. Others have a pale prothorax. The legs may be dark or pale. This species is named in honor of my good friend, Robert C. Mower, who has accompanied me on many collecting trips.

Microscelida subcostata (Jacoby), new combination
(Figure 5c)

Luperus subcostatus Jacoby, 1888:597.
Pseudoluperus subcostatus: Wilcox, 1973:457.

Diagnosis. Males of this species may be distinguished from other *Microscelida* by the small emargination at the apex of the aedeagus (fig. 5c). Due to the costate elytra, females are likely to be confused only with *M. foveicollis* from which they differ in the absence of pronounced pronotal foveae.

Description. Form oval or elongate oval. Prothorax and distal areas of head testaceous, orange, or pale brown; vertex and legs variable in color; elytra metallic blue; metasternum and abdomen dark brown or black. Length of male 4.5-4.9 mm; length of female 4.4-4.8 mm.

Head shining, not alutaceous. Vertex and frontal tubercles variable in color, testaceous, orange, dark brown, or black; distal areas of head testaceous or orange. Vertex nearly glabrous. Transverse interocular sulcus deep, with each half strongly curved. Interocular distance equal to 0.6 times maximum width of head across eyes. Frontal tubercles mesially contiguous for a distance subequal to width of antennomere I, separated from each other by deep sulcus, separated from mesal frontal carina by shallow sulci, delimited laterally by broad impression. Antennal fossae separated by a distance equal to about 1.5 times diameter of fossa. Mesal frontal carina poorly developed, weakly convex. Genal length subequal to twice diameter of an ommatidium. Antennae slender, extending to near middle of elytra; color variable, testaceous to very dark brown, usually paler near base; antennomere II about half as long as I or III; IV about as long as III or V.

Pronotum 1.3 times as wide as long, 0.7 times as wide as elytra across humeri, widest slightly anterior to middle; sides sinuate in dorsal view. Lateral beads present; anterior and basal beads absent. Surface minutely, very inconspicuously punctate, shining, not alutaceous. Color orange or testaceous.

Elytra together 1.7-1.9 times as long as broad; sides nearly parallel in basal two-thirds. Punctures deep, conspicuous, moderately coarse. Interspaces shining, with a few minute punctures, not alutaceous. Longitudinal costae present in female, absent or very weakly developed in male. Color dark brown or black, with metallic blue or purple luster.

Ventral areas of prothorax largely or entirely orange or testaceous, largely glabrous, shining; front coxae contiguous or nearly so; front coxal cavities widely open behind. Mesothorax variable in color, testaceous, orange, or brown. Metasternum dark brown or black, glabrous or sparsely pubescent mesially, densely pubescent laterally;

metaepisternum black or dark brown, densely pubescent. Legs variable in color, entirely testaceous, entirely dark brown, or bicolored; terminal spurs present on all tibiae of female, present on hind tibiae of male; basitarsi of male and female slender; tarsal claws appendiculate. Abdomen brown, pubescent; terminal segment of male impressed apically, with a rectangular lobe at apex of impression.

Aedeagus symmetrical in dorsal view, attenuate in distal fourth; apex with a short, medial slit or emargination. Ventral surface with a narrow, median groove. Basal spurs absent. Orifice covered by three sclerotized processes, one median and two lateral (fig. 5c).

Type locality. "Mexico, Iguala in Guerrero."

Material examined. Mexico: Chiapas: Chiapa de Corzo, 23 June 1965, Burke, Meyer, Schaffner (1 female, TAMU); El Chorreadero E. of Tuxla Gtz., 13 June 1989, P. K. Lago, S. Testa (1 male, PKLC); Jct. Hwys 190-195, 6 June 1969, H. F. Howden (1 male, 2 females, CMNC; 1 male, 1 female, SMCI); El Sumidero, km. mk. 9-12, 24 June 1990, R. Turnbow (2 males, 7 females, RHTC); Sumidero Nat. Pk., 19 June 1989, S. Testa, P. K. Lago (1 male, EGRC; 1 male, PKLC); Sumidero Nat. Pk., 22 June 1989, S. Testa, P. K. Lago (1 male, 1 female, PKLC); 17 mi. S.E. Teopisca, Rt. 24, 3-4 June 1969, H. Howden (2 females, CMNC); 17 Km W. Tutl. Gtz., 3300', 1-8 July 1986, J. E. Wappes (1 male, 1 female, EGRC). Guerrero: Iguala, Hoge (male holotype, 1 female paratype, and 1 other female [see comments below]; BMNH, MCZC); 11.2 mi. N. Igula, 4300', 5 July 1987, Kovarik, Schaffner (1 female, TAMU); 2 mi. S. of Mexcala, 18 July 1957, R. B. & J. M. Selander leg. (2 females, FMNH); Zopilote Cyn., 20-23 June 1989, Jim Cope (1 female, SMCI). Michoacan: 24 km. wsw. C. Tancitaro, 1500 m., 1 July 1947, T. H. Hubbell (1 female, SMCI; 1 male, 1 female, UMMZ); Uruapan, 1610 m., 13 July 1947, T. H. Hubbell (1 male, UMMZ). Veracruz: Santecomapan, 10 June 1969, H. Howden (1 female, CMNC).

Comments. This species is somewhat variable. Some specimens are more elongate than others. Furthermore, the antennae, mesothorax, metathorax, and legs vary from testaceous to dark brown, or they may be bicolored. In the specimens from Chiapas, the aedeagus is more abruptly narrowed near the apical fourth with the distal portion more nearly parallel sided, and the short median slit at the apex is sometimes indistinct. Even so, I believe that all of the specimens examined belong to a single species. Additional investigation may prove otherwise.

Jacoby had two specimens at the time he described this species. As noted above, I have seen both of these. Each bears a "type" label. However, the major part of Jacoby's description is based on the male specimen with a dark vertex; the female specimen with a pale vertex is listed as a variety. Therefore, I conclude that the male specimen (BMNH) is the holotype and the female specimen (MCZC) is a paratype.

Microscelida subglabrata (Jacoby), new combination
(Figure 4b)

Luperus subglabratus Jacoby, 1888:598.
Pseudoluperus subglabratus: Wilcox, 1973:457.

Diagnosis. This differs from other species of *Microscelida* in that the apex of the aedeagus is rounded and not angulate (fig. 4b).

Description. Form elongate oval; prothorax much narrower than elytra. Vertex, elytra, metathorax, abdomen, and distal portion of antennae and legs brown; other areas paler, testaceous; elytra with blue luster. Length of male 3.6 mm; length of female 3.7-4.5 mm.

Head shining, not alutaceous, with vertex largely dark brown, with other areas testaceous. Vertex nearly glabrous. Transverse interocular sulcus deep; each half arcuate. Interocular distance equal to 0.6 times width of head across eyes. Frontal tubercles separated from each other by deep sulcus, separated from mesal frontal carina by shallow sulci, separated from orbit by broad depression. Distance between antennal fossae distinctly greater than width of antennomere I. Mesal frontal carina poorly developed, broad. Genal length subequal to twice diameter of an ommatidium. Antennae slender, extending to near middle of elytra, brown with basal portion sometimes paler; antennomere III 1.5 times as long as II; IV slightly longer than III, about as long as I or V.

Pronotum 1.3 times as wide as long, 0.7 times as wide as elytra across humeri, widest near anterior third; sides arcuate in dorsal view. Lateral beads distinct; anterior and basal beads absent. Disc evenly convex, lacking obvious impressions. Surface nearly impunctate, shining, not alutaceous. Color testaceous.

Elytra together 1.8 times as long as broad, broadest near posterior fourth. Punctures fine,

sometimes inconspicuous. Interspaces shining, not alutaceous. Color brown with faint blue luster.

Ventral areas of prothorax testaceous, shining, largely glabrous, not alutaceous; front coxae nearly contiguous; front coxal cavities open behind. Mesothorax testaceous. Metathorax brown, pubescent. Legs testaceous with tarsi and sometimes tibiae darker, brown; terminal spurs present on all tibiae of male and female; basitarsi of male and female slender; tarsal claws appendiculate. Abdomen brown, pubescent; terminal segment of male with an impressed apical lobe.

Aedeagus symmetrical in dorsal view, rounded at apex. Orifice covered by three sclerotized processes, one median and two lateral (fig. 4b).

Type locality. "Mexico, Acapulco in Guerrero."

Comments. The preceding treatment is based on one male syntype (MCZC) and on two female syntypes (BMNH). One of the females bears the following six labels: "Type" [a disk with a red margin], "Acapulco, Guerrero. Hoge," "Godman-Salvin Coll., Biol. Centr.-Amer.," "*Luperus subglabratus* Jac." [a blue label], "Syntype" [a disk with a blue margin], and "examined by S. M. Clark #5." This specimen is hereby designated as lectotype. The biology of this species is unknown.

Microscelida violacea (Jacoby), new combination (Figure 4e)

Scelidopsis (?) *violacea* Jacoby, 1892:339.

Diagnosis. In this species, the legs and prothorax are dark, and the orifice of the aedeagus is covered by a median sclerotized process and by two lateral sclerotized processes, one at each side (fig. 4e). These characters will enable recognition of this species.

Description. Form elongate; body 2.3 times longer than broad; prothorax much narrower than elytra. Color dark brown or black; elytra with purple luster. Length of male 3.5 mm; length of female 3.8 mm.

Head shining, not alutaceous. Vertex black with faint green luster; frontal tubercles dark brown; clypeus pale brown. Vertex evenly convex, with a few punctures and setae near each eye, otherwise nearly glabrous. Transverse interocular sulcus deep; each half strongly curved. Interocular distance equal to 0.6 times maximum width of head across eyes. Frontal tubercles mesially contiguous for a distance subequal to width of antennomere II, separated from each other and from mesal frontal carina by deep sulci, separated from orbit by broad impression. Antennal fossae separated by a distance slightly greater than diameter of fossa. Mesal frontal carina convex. Genal length subequal to width of distal article of maxillary palp. Antennae slender, dark brown, paler near base; antennomere III about 1.5 times as long as II, conspicuously shorter than IV; V slightly shorter than IV, about as long as I.

Pronotum 1.5 times as wide as long, 0.7 times as wide as elytra across humeri, widest near anterior third; sides sinuate in dorsal view. Lateral beads well developed; anterior and basal beads absent. Surface minutely, inconspicuously punctate, shining, not alutaceous. Color very dark brown, almost black.

Elytra together 1.8 times as long as broad; sides nearly parallel in anterior three-fourths. Punctures coarse, separated on average by a distance subequal to diameter of a puncture. Interspaces shining, sparsely, minutely punctate, not alutaceous. Color dark brown with distinct purple luster.

Ventral surface dark brown. Prothorax largely glabrous, shining; front coxae contiguous; front coxal cavities open behind. Metathorax largely pubescent. Legs dark brown; basitarsi of male not conspicuously dilated; tarsomere I of hind leg about as long as II-III combined; tarsal claws appendiculate. Abdomen pubescent; terminal segment of male with a semicircular impression in distal half, with a rectangular lobe at apex of impression.

Aedeagus symmetrical in dorsal view, acutely pointed at apex. Basal spurs absent. Orifice covered by three sclerotized processes, one median and two lateral; lateral processes meeting medially beyond median process (fig. 4e).

Type locality. Xucumanatlan, 7000 ft., Guerrero, Mexico.

Material examined. Mexico: Guerrero: Xucumanatlan, 7000 ft., July, H. H. Smith (female lectotype, BMNH; 1 male paralectotype, BMNH; 1 male paralectotype, MCZC); Chilpancingo, 4600 ft., July (1 male, SMCI).

Comments. As noted above, I have examined three syntypes of this species. Two of these are labeled "type" (female, BMNH; male, MCZC); one is not (male, BMNH). I have chosen to designate the female from the British Museum (Natural History) as lectotype.

Microscelida viridipennis Clark, new species
(Figure 5e)

Diagnosis. In addition to the larger, conspicuous punctures, the elytra of this species also have minute punctures. However, unlike *M. viridis*, the minute punctures are widely spaced such that the elytra do not appear at all granulate or alutaceous. Furthermore, the distal fourth of the aedeagus is gradually, attenuately narrowed to the apex, and the apex is not emarginate (fig. 5e). These characters distinguish *M. viridipennis* from other species of *Microscelida*.

Description. Form elongate; prothorax narrower than elytra. Vertex and elytra dark with metallic blue or coppery green luster; metasternum and abdomen usually dark brown or black, sometimes testaceous; pronotum often marked with black; other areas testaceous. Length of male 3.1-4.5 mm; length of female 4.1-4.5 mm.

Head shining, not alutaceous. Vertex black with weak green luster, with a few punctures and setae in lateral areas. Transverse interocular sulcus distinct; each half arcuate. Interocular distance equal to 0.6 times maximum width of head across eyes. Frontal tubercles and more distal areas of head testaceous. Frontal tubercles separated from each other by deep sulcus, separated from mesal frontal carina by shallow sulci, separated from orbit by broad impression. Distance between antennal fossae subequal to one-third interocular distance. Mesal frontal carina poorly developed, convex. Genal length subequal to width of distal article of maxillary palp. Antennae testaceous or pale brown, slender, extending to near middle of elytra; antennomere II nearly half as long as I, distinctly shorter than III; IV slightly longer than III, about as long as V.

Pronotum 1.4 times as wide as long, three-fourths as wide as elytra across humeri, widest near anterior third; sides sinuate in dorsal view. Lateral beads well developed; anterior and basal beads absent. Disc evenly convex or slightly flattened mesially. Surface minutely, inconspicuously punctate, shining, not alutaceous. Color testaceous, sometimes with a central dark area, rarely almost entirely dark with only lateral margins pale.

Elytra together 1.9 times as long as broad; sides nearly parallel in basal three-fourths. Larger punctures distinct, separated on average by a distance not much greater than diameter of a puncture. Interspaces with minute scattered punctures, shining, not alutaceous. Color dark brown or black, with distinct metallic green or blue luster.

Ventral areas of prothorax testaceous, shining, largely glabrous, not alutaceous; front coxae contiguous or nearly so; front coxal cavities open behind. Mesothorax testaceous; mesosternum and mesoepisternum largely glabrous; mesoepimeron pubescent. Metathorax pubescent, usually dark brown or black, sometimes yellow. Legs testaceous; terminal spurs present on all tibiae of male and of female; male with tarsomere I of front leg distinctly enlarged; tarsomere I of hind leg about as long as II-III combined; tarsal claws appendiculate. Abdomen pubescent, varying from yellow to dark brown or black, sometimes with weak metallic luster; terminal segment of male impressed apically, with a short, truncate lobe at apex of impression.

Aedeagus symmetrical in dorsal view; distal fourth gradually narrowed to acute apex (fig. 5e). Distinct basal spurs absent. Orifice covered by three sclerotized processes, one median and two lateral; lateral processes meeting medially distal to median process.

Material examined. Holotype male and allotype female: Mexico, Guerrero, Chilpancingo, 4000', 19-VII-1962, H. E. Milliron (CNCI). Paratypes: Mexico, Guerrero, 2 mi. N. Cacahuamilpa, VII-19-84, Carroll, Schaffner, Friedlander (1 male, TAMU); Mexico, Guerrero, 2 mi. N. Cacahuamilpa, July 19, 1984, J. B. Wooley (5 males, 7 females, TAMU); Mexico, Guerrero, Chilpancingo, 4000', 19-VII-1962, H. E. Milliron (23 males, 3 females, CNCI; 2 males, SMCI); Mexico, Guerrero, 8 km W Chilpancingo, 23 July 1987, R. Turnbow (1 male, EGRC); Mexico, Guerrero, 2.4 mi. n. Mazatlan, July 9, 1974, Clark, Murray, Ashe, Schaffner (1 male, TAMU); Mexico, Guerrero, 38 km. W Iguala, 21 July 1987, R. Turnbow (1 male, EGRC); Mexico, Guerrero, 6.2 mi SW Xochipala, 13-VII-1985, J. Wooley, G. Zolnerowich, 85/056 (3 males, TAMU); Mexico, Guerrero, 6.2 mi. sw. Xochipala, elev. 5670 ft., July 6, 1987, Kovarik, Schaffner (3 males, SMCI); Mexico, Jalisco, 16 km. n. Autlan, July 31 - Aug. 2, 1978, Plitt & Schaffner (2 males, TAMU); Mexico, Jalisco, Tuxpan, 9/6 1903, J. F. McClendon (1 male, 1 female, MCZC); Mexico, Oaxaca, 10 mi. n. Miltepec, July 15-16, 1971, Clark, Murray, Hart, Schaffner (1 male, TAMU); Mexico, Oaxaca, 10 mi. n. Miltepec, July 26, 1974, Clark, Murray, Ashe, Schaffner (1 male, TAMU); Mexico, Oaxaca, 4 mi. ne. Miltepec, July 21, 1984, Carroll, Schaffner,

Friedlander (2 males, 1 female, TAMU); Mexico, Puebla, 4.3 mi. sw. Acatepec, July 16, 1971, Clark, Murray, Hart, Schaffner (3 males, TAMU); Mexico, Puebla, 4.4 mi SW Acatepec, July 26, 1974, Clark, Murray, Ashe, Schaffner (1 male, 1 female, SMCI; 5 males, 10 females, TAMU); Mexico, Puebla, 4 mi. w. Acatepec, July 26, 1973, Mastro & Schaffner (1 male, TAMU); Mexico, Puebla, 30 mi. se. Tehuacan, July 7, 1973, Mastro & Schaffner (1 male, 2 females, TAMU); Mexico, Puebla, 5 miles SW Tehuacan, July 8, 1977, J. C. Schaffner (1 male, TAMU); Mexico, Puebla, 1 mi. sw. Zapotitlan, July 11, 1973, Mastro & Schaffner (1 male, TAMU); Mexico, Veracruz, Tierra Blanca, 500', 15-VIII-1962, H. E. Milliron (10 males, CNCI); Mexico, Zacatecas, 39.7 km. S. Juchipala, 1524 m, 88-26, 6.viii.88, R. S. Anderson, Acacia thorn scrub (4 males).

Microscelida viridis (Jacoby), new combination

Agelastica viridis Jacoby, 1892:334.
Pseudoluperus viridis: Wilcox, 1973:457.

Diagnosis. The pale femora and the microsculpture on the distal half of the elytra will distinguish this from other species of *Microscelida*. The elytral interspaces appear alutaceous, but close examination reveals that they are actually covered by numerous, closely spaced, minute punctures.

Description. Form elongate; prothorax narrower than elytra. Color largely brown; vertex and elytra with faint green luster; head (except vertex), prothorax, femora, and a subsutural spot on each elytron testaceous. Length of female 4.5 mm.

Vertex largely black with faint blue-green luster; other areas of head, including area adjacent to frontal tubercles, testaceous; surface shining, vaguely alutaceous, with a few long setae. Transverse interocular sulcus distinct; each half curved. Interocular distance equal to nearly two-thirds width of head across eyes. Frontal tubercles mesially contiguous for a distance less than width of antennomere I, nearly continuous with mesal frontal carina, separated from each other by distinct sulcus, separated from orbit by broad, shallow impression. Distance between antennal fossae about 1.5 times as great as diameter of fossa. Mesal frontal carina very poorly developed, convex. Genal length subequal to width of distal article of maxillary palp. Antennae slender, extending to near middle of elytra; color brown with antennomere I paler, testaceous; antennomere I twice as long as II; III 1.5 times as long as II, distinctly shorter than IV; IV-X subequal in length; XI longer than X.

Pronotum 1.4 times as wide as long, three-fourths as wide as elytra across humeri, widest near anterior fourth; sides weakly sinuate in dorsal view. Margins setose. Lateral beads well developed; anterior and basal beads absent. Surface minutely, inconspicuously punctate, shining, not alutaceous. Color testaceous.

Elytra together 1.7 times as long as broad; sides nearly parallel in anterior two-thirds. Color dark brown with metallic green luster; an elongate, subsutural, testaceous spot present in basal half. Punctures fine near base and in testaceous area, elsewhere rather coarse and separated by a distance subequal to diameter of a puncture. Interspaces, except near base, covered with numerous closely spaced, minute punctures.

Ventral areas of prothorax testaceous, shining, largely glabrous, not alutaceous; front coxae contiguous; front coxal cavities open behind. Mesothorax testaceous; sternum and episternum glabrous; epimeron pubescent. Metathorax dark brown, covered with pale pubescence. Coxae, trochanters, and femora testaceous. Tibiae testaceous basally, elsewhere dark brown; terminal spurs present on all tibiae of female. Tarsi brown; tarsomere I of hind leg about as long as II-III combined; tarsal claws appendiculate. Abdomen brown, pubescent.

Type locality. Chilpancingo, Mexico.

Comments. I have examined a female syntype (BMNH), and this specimen is hereby designated as lectotype. It bears the following six labels: "Type" [a disk with a red margin], "Chilpancingo, Guerrero. Hoge", "Godman-Salvin Coll., Biol. Centr.-Amer.", "*Agelastica viridis* Jac." [a blue label], "SYNTYPE" [a disk with a blue margin], "examined by S. M. Clark #109."

The lectotype is the only specimen I have seen that is assignable to this species. It has pale markings on the elytra. However, these may not be present on all specimens. Such markings were not mentioned in Jacoby's original description.

I have seen a second syntype from Acapulco, Guerrero, Mexico (female, BMNH). However, it is not conspecific with the lectotype. It is similar to *Microscelida viridipennis* but lacks the dark vertex common in that species. Accordingly, *M. viridis* may not occur in Acapulco, from where it was recorded by Jacoby (1892).

Microscelida wellsi Clark,
new species
(Figure 5d)

Diagnosis. This differs from most other species of *Microscelida* in that the distal third of the hind femur is dark brown and the basal two-thirds are testaceous. However, the most reliable way to identify this species is through examination of the aedeagus (fig. 5d).

Description. Form elongate; prothorax narrower than elytra. Color dark brown with head, prothorax, mesothorax, and legs at least partially testaceous; elytra with blue luster.

Head shining, not alutaceous; color testaceous except on vertex which is largely darker brown. Vertex largely glabrous, with a small, mesal impression adjacent to frontal tubercles. Transverse interocular sulcus rather shallow but well-defined; each half arcuate. Interocular distance equal to 0.6 times maximum width of head across eyes. Frontal tubercles mesially contiguous for a distance subequal to width of antennomere I, separated from each other, from mesal frontal carina, and from orbits by distinct sulci. Distance between antennal fossa equal to about one-third interocular distance. Mesal frontal carina convex, not at all acute. Genal length subequal to width of distal article of maxillary palp. Antennae largely brown, with basal portion paler, testaceous; antennomere II distinctly shorter than III, about half as long as I or IV.

Pronotum 1.3 times as wide as long, 0.7 times as wide as elytra across humeri, widest near anterior third; sides arcuate in dorsal view. Lateral beads present; anterior and basal beads absent. Disc shallowly, inconspicuously impressed anterior to scutellum. Surface nearly impunctate, shining, not alutaceous. Color testaceous.

Elytra together 1.9 times as long broad. Punctures near anterior third distinct, separated by a distance about twice as great as diameter of a puncture; basal and distal punctures finer. Interspaces with a few scattered, minute punctures, shining, not alutaceous. Color dark brown with distinct metallic blue luster.

Ventral areas of prothorax testaceous, largely glabrous, shining, not alutaceous; front coxae subcontiguous; front coxal cavities open behind. Mesothorax testaceous. Metathorax dark brown, largely pubescent. Front and middle coxae testaceous; hind coxae slightly darker. Trochanters testaceous. Front femur testaceous with a small dark area near apex; middle femur testaceous with distal half dark brown on one side; hind femur testaceous in basal two-thirds, dark brown in distal third. Tibiae testaceous or pale brown; at least hind tibia of male with a terminal spur. Tarsi brown; basitarsi not dilated; basitarsus of hind leg nearly as long as tarsomeres II-III combined; tarsal claws appendiculate. Abdomen dark brown, pubescent; terminal segment of male with an apical, impressed, rectangular lobe.

Aedeagus symmetrical in dorsal view, with apex acute. Basal spurs absent. Orifice covered by three sclerotized processes, one median and two lateral; lateral processes medially contiguous distal to median process (fig. 5d).

Material examined. Mexico, Guerrero, Chilpancingo, 4000', 19-VII-1962, H. E. Milliron (male holotype, CNCI).

Comments. Because of the position of the legs, I am unable to see terminal spurs on the front or middle tibiae, but they may be present. If these characters are found to be critical in future taxonomic investigations, relaxation of the specimen will be necessary. This species is named in honor of Samuel A. Wells, a coleopterist who has assisted in many of my entomological investigations.

Microscelida whitingi Clark,
new species
(Figure 4c)

Diagnosis. The head and legs of this species are dark. Also, the distal fifth of the aedeagus is very narrow and attenuate (fig. 4c). These characters distinguish this from other species of *Microscelida*.

Description. Form elongate oval; prothorax much narrower than elytra. Color black or dark brown, except prothorax which may be testaceous; elytra with violet or blue luster. Length of male 3.8 mm; length of female 4.0-4.3 mm.

Head black or dark brown; vertex sometimes with green or violet luster; surface shining, not alutaceous. Vertex evenly convex, largely glabrous. Transverse interocular sulcus deep; each half strongly arcuate. Interocular distance equal to 0.6 times maximum width of head across eyes. Frontal tubercles separated from each other and from mesal frontal carina by deep sulci, separated from orbit by broad impression. Distance between antennal fossae subequal to one-third interocular distance. Mesal frontal carina rather broad, convex. Genal length two to three times greater than

diameter of an ommatidium. Antennae slender, extending to near middle of elytra, dark brown with basal few antennomeres largely paler; antennomere II about half as long as I or III; IV slightly longer than III.

Pronotum 1.4 times as wide as long, 0.7 times as wide as elytra across humeri, widest near anterior third; sides sinuate in dorsal view. Lateral beads well developed; anterior and basal beads absent. Surface largely impunctate, shining, not alutaceous. Color uniform; testaceous, black, or dark brown.

Elytra together 1.6 times as long as broad; sides nearly parallel in anterior three-fourths. Punctation distinct, with most punctures separated by about three times diameter of a puncture. Interspaces shining, not alutaceous. Color black or dark brown, with distinct blue or violet luster.

Ventral areas dark brown or black, except prothorax which may be testaceous. Prothorax largely glabrous, shining, not alutaceous; front coxae contiguous; front coxal cavities open behind. Mesosternum and mesoepisternum largely lacking pubescence; mesoepimeron sparsely pubescent. Metathorax pubescent. Legs dark brown or black; front tibia of male slightly broader than normal; terminal spurs present on all tibiae of female, present on only hind tibiae of male; basitarsi of male not obviously dilated, similar to those of female; hind basitarsus about as long as tarsomeres II-III combined; tarsal claws appendiculate. Abdomen brown or black, pubescent; terminal segment of male with a short, impressed, subrectangular lobe at apex.

Aedeagus symmetrical in dorsal view; distal fifth very narrow, attenuate to acute apex (fig. 4c). Large basal spurs absent; short, acute basal tubercles present. Orifice with a median sclerotized covering.

Material examined. Mexico, Guerrero, Taxco, July, N. L. H. Krauss (male holotype, female allotype, 1 female paratype, NMNH; 1 female paratype, SMCI).

Comments. As indicated in the preceding description, this species is variable in color. I have seen three specimens in which the prothorax is entirely dark. However, the prothorax of one other specimen, a female, is entirely pale.

This species is named in honor of Michael F. Whiting, a superb entomologist and a good friend.

Microscelida wilcoxi Clark, new species
(Figure 5a)

Diagnosis. The legs, at least the front femora of most specimens, are largely or entirely testaceous, and the interspaces of the elytra are polished, without numerous closely spaced, minute punctures. Also, the orifice of the aedeagus is covered by a single, median, sclerotized process (fig. 5a), and the ventral surface of the aedeagus is longitudinally grooved. These characters will together distinguish this from other species of *Microscelida*.

Description. Form elongate oval; prothorax narrower than elytra. Color largely brown; elytra with weak blue luster; head, prothorax, mesothorax, and legs largely testaceous. Length of male 3.2-4.1 mm; length of female 3.7-4.1 mm.

Head shining, not alutaceous; color testaceous with posterior portion of vertex darker, brown. Vertex evenly convex, with a few setae near each eye. Transverse interocular sulcus deep; each half arcuate. Interocular distance equal to 0.6 times maximum width of head across eyes. Frontal tubercles mesially contiguous for a distance subequal to width of antennomere II, separated from each other and from mesal frontal carina by distinct sulci, separated from orbit by broad impression. Distance between antennal fossae about one-third as great as interocular distance. Mesal frontal carina broad, weakly convex. Genal length subequal to width of distal article of maxillary palp. Antennae brown, paler ventrally and at base, slender, extending to near middle of elytra; antennomere II about half as long as I or IV; III longer than II, shorter than IV; IV-X subequal in length; XI longer than X.

Pronotum 1.4 times as wide as long, three-fourths as wide as elytra across humeri, widest near anterior third; sides weakly sinuate in dorsal view. Surface minutely punctate, shining, not alutaceous.

Elytra together 1.6 times as long as broad; sides nearly parallel in anterior three-fourths. Surface finely punctate; interspaces shining, not alutaceous. Color brown with weak blue luster.

Ventral areas of prothorax testaceous, largely glabrous, shining, not alutaceous; front coxae contiguous; front coxal cavities open behind. Mesothorax testaceous. Metathorax distinctly darker than prothorax, brown, pubescent. Legs testaceous with tarsi and distal portion of tibiae sometimes slightly

paler; terminal spurs present on all tibiae of female; basitarsus of hind leg about as long as tarsomeres II-III combined; tarsal claws appendiculate. Abdomen pubescent, brown, similar in color to metathorax; terminal segment of male semicircularly impressed at apex.

Aedeagus symmetrical in dorsal view, with acute apex. Basal spurs absent. Orifice with a single, median, sclerotized covering (fig. 5a). Ventral surface with median, longitudinal groove.

Material examined. Holotype male and allotype female: Mexico, Chiapas, 2 mi. W. Chiapa de Corzo, 23 June 1955, R. B. & J. M. Selander (OSUC). Paratypes: Mexico, Chiapas, 2 mi. W. Chiapa de Corzo, 23 June 1955, R. B. & J. M. Selander (4 males, 4 females, INHS; 3 males, 1 female, SMCI); Mexico, Chiapas, 2 km S Chicoasen, 18 June 1989, E. Lago, E. Zuccaro (1 male, PKLC); Mexico, Chiapas, El Sumidero, 20 June 1955, R. B. & J. M. Selander (2 males, 2 females, INHS; 2 males, 1 female, OSUC; 2 males, 1 female, SMCI); Mexico, Chiapas, 16 mi. E. Teopisca, 14 May 1969, H. Howden (5 males, 5 females, CMNC); Mexico, Oaxaca, Oaxaca, 6-24 June 1968, G. Pollard (4 females, CMNC); Mexico, Oaxaca, Oaxaca, 16 June 1968, G. Pollard (1 male, 1 female, CMNC; 1 male, 1 female, SMCI); Mexico, Oaxaca, Oaxaca, July 1969, G. Pollard (1 male, CMNC).

Comments. Terminal spurs are present and rather easily visible on the tibiae of the females. However, although spurs are present on all tibiae of at least some males, I am unable to find them on the front and middle tibiae of others. Therefore, I conclude that this character is variable, or perhaps that the spurs are easily broken off.

Although the preceding treatment reflects the color pattern of the holotype, this species is variable. The dark area on the vertex may be reduced or entirely absent, the pronotum may have dark lateral margins, the anterior half of the epipleuron may be testaceous, and the legs vary from entirely pale to largely dark.

This species is named in honor of John A. Wilcox who has generously shared his understanding of the Galerucinae.

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