

ROBERT D. GORDON (*), GUILLERMO F. GONZÁLEZ (**)

SOUTH AMERICAN *COCCINELLIDAE* (COLEOPTERA). PART IX:
A SYSTEMATIC REVISION OF *SCYMNوبيUS* CASEY
(*SCYMNINAE*: *SCYMNINI*)

COCCINELLIDAE (COLEOPTERA) DEL SUD AMERICA. PARTE IX: REVISIONE
SISTEMATICA DELLE SPECIE APPARTENENTI AL GENERE
SCYMNوبيUS CASEY (*SCYMNINAE*: *SCYMNINI*)

ABSTRACT

The taxonomy of South American *Scymnوبيus* species is revised.

INTRODUCTION

South American species of *Scymnوبيus* Casey (1899), formerly a subgenus of *Nephus* Mulsant (*sensu lato*) are taxonomically treated as part of the ongoing revision of South American *Coccinellidae*. These are small beetles with a typically "scymnine" appearance, thus are often lumped with *Scymnus* specimens in institutional collections.

The nine North American species of *Scymnوبيus* were revised by GORDON (1976) and *Scymnوبيus* was conservatively retained as a subgenus of *Nephus* following the work of previous authors. *Scymnوبيus* is here treated as a valid genus because it is now recognized that the taxonomic differences separating it from *Nephus*, *s. str.*, are at least as great as among other scymnine genera.

Most South American taxa of *Scymnوبيini* (*sensu lato*) have been treated taxonomically (GORDON 1999, 2000) and this *Scymnوبيus* revision completes work on all of the large taxa.

Examination of South American material results in the assignment of 11 species to *Scymnوبيus*; three of these species were described by previous authors and eight more are newly described.

BIOLOGY

The limited host data for *Scymnوبيus* and *Nephus* are limited, but available sources indicate that mealybugs are the preferred prey. SCHILDER & SCHILDER (1928) listed several species of the mealybug genus *Pseudococcus* as hosts for *Nephus* species. WHITEHEAD (1965) recorded *Nephus angustatus* (Casey) and *N. quadrivittatus*

(*) Systematic Entomology Laboratory, PSI, Agricultural, Research Service, USDA, c/o U.S. National Museum of Natural History, Washington, D.C. 20560.
Northern Plains Entomology, P.O. Box 65, Willow City, North Dakota 58384. Tel. 701 366 4504.
E-mail: rdgordon@utma.com

(**) Sociedad Chilena de Entomología, Santiago, Chile, Nosedal 6455, La Reina, Santiago, Chile. Tel. 55 02 2771175. E-mail: willogonzalez@yahoo.com

Mulsant on *Planococcus citri* in South Africa, *Scymnobioides sordidus* Horn on *Pseudococcus maritimus* in California, *S. guttulatus* (LeConte) on *Pseudococcus maritimus*, and *Ceratoputo crawi* in California.

In South America *S. galapagoensis* has been found attacking a species of *Orthezia* in Ecuador (pers. comm. Jorge Mendoza, Guayaquil); all other host information is limited to label data. Five specimens of *S. obscurus* (Mulsant) from Trinidad and Tobago bear labels suggesting the whitefly *Aleurodicus pulvinatus* (Maskell) (on seagrape) as prey. Three specimens of *S. galapagoensis* (Waterhouse) from Peru were collected on *Planococcus citri* (Risso). Specimens of *S. bilucernarius* (Mulsant) were collected from *Aleurodicus maritimus* Hempel and *A. pulvinatus* (Maskell) (on seagrape) from Tobago and Trinidad, and on *Dysmicoccus boninsis* (Kuwana) from Venezuela. Specimens of *S. caliginosus*, n. sp., were found on *Orthezia praelonga* Douglas in Rio de Janeiro, Brazil. Both scale insects and whiteflies are implicated as prey by label data, but we suspect that the whitefly records are instances only of association, not true predation.

DIAGNOSTIC CHARACTERS

Principal morphological terms used in the descriptions and keys are briefly explained to simplify use of the key and descriptions.

Punctuation, pubescence, and surface sculpture: Relative size of punctures on head, thorax, elytral, and ventral surfaces is often useful. Size and spacing of punctures on various structures are compared. Spacing of punctures is expressed as "separated by a diameter (of a puncture)", "separated by less than a diameter", etc. Color and length of pubescence are often significant. Length of pubescence is established by comparison with scutellar length. Surface appearance varies from shiny to dull depending on the degree of alutaceous sculpture. Comparison of surface appearance among body parts is often useful in distinguishing species.

Abdomen: Both abdominal sterna 5 and 6 may be apically emarginate in males. Sternum 5 usually is not modified, but may have a shallow, wide emargination. Sternum 6 is usually feebly or shallowly emarginate but may be sharply notched apically. The different degrees of emargination often are useful characters.

Male genitalia: This organ is critical for identification of *Scymnobioides* species. GORDON (1985) illustrated and defined genitalia parts in detail, and the most important structures are discussed here. *Basal lobe*: median projection of phallobase serving as a siphonal guide; a simple structure in *Scymnobioides*, differing only in length and shape. *Parameres*: paired lateral projections of phallobase serving to position and hold basal lobe in position during copulation. *Phallobase*: includes the basal piece, basal lobe, and paramere of male genitalia. *Sipho*: sclerotized rod inserted through the basal lobe and into the female bursa copulatrix during copulation; corresponds to aedeagus or penis.

Female genitalia: Most species can be recognized by spermathecal capsule shape. See GORDON (1985, p. 10) for explanation of the various spermathecal parts.

TECHNIQUES

Dissection: Both sexes should be dissected when examining specimens. Specific techniques consist of softening a specimen in hot water, removing the abdomen, placing it in a dilute solution of potassium or sodium hydroxide until muscle and fat are removed, rinsing abdomen and genitalic structures in clear water, and placing cleaned structures in glycerine for examination. Genitalia may be variously stored, but here they were stored in glycerine microvials attached to the donor specimen.

Type material: Detailed information is included under "Type locality", "Type depository", and "Remarks". The "Methods" section in GORDON (1985) contains discussions of locality records and primary type depositories that are equally applicable here.

Collections: The following acronyms denote depositories for specimens used in this study: (BM) Natural History Museum, London; (CAS) California Academy of Sciences, San Francisco, California; (CMNH) Carnegie Museum of Natural History, Pittsburgh, Pennsylvania; (CNC) Canadian National Collection, Ottawa, Ontario; (GG) Guillermo Gonzalez, Santiago, Chile; (MNHS) Museo Nacional de Historia Natural, Santiago, Chile; (SP) Stewart Peck, Carleton University, Ottawa; (USNM) National Museum of Natural History, Smithsonian Institution, Washington, DC.

Most private and institutional collections examined did not contain specimens of South American *Scymnobius*.

SYSTEMATICS

Genus *Scymnobius* Casey, new status

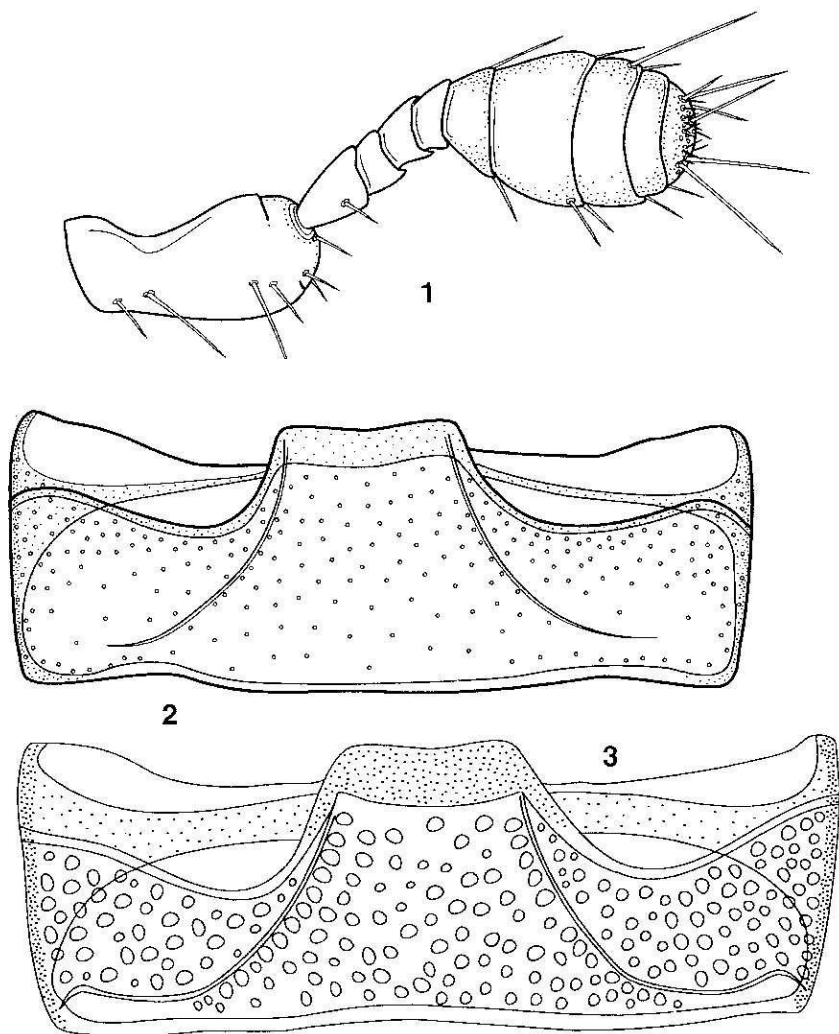
Scymnus (*Scymnobius*) CASEY, 1899:139; WEISE, 1905:220.

Nephus (*Scymnobius*) GORDON, 1976:290; GORDON, 1985:296. Type species; *Scymnus flavifrons* Melsheimer, by designation of GORDON (1976).

Description: Scymnini with antenna 10-segmented, basal 2 segments tightly joined, club 4-segmented, asymmetrical (Fig. 1); apical segment of maxillary palpus cylindrical, obliquely truncate apically; tarsus 3-segmented; postcoxal line on 1st abdominal sternum parallel to hind sternal margin, apex of line often slightly curved forward, apex widely separated from lateral sternal margin (Fig. 2), or extended nearly to lateral sternal margin (Fig. 3); apices of male abdominal sterna 5-6 not modified or feebly so; male genitalia with basal lobe simple, symmetrical or asymmetrical, trabes strongly widened in lateral view (Figs. 22, 23); siphon long, usually with shoe-like basal capsule (Fig. 24); female genitalia with spermathecal capsule bent or curved, cornu beaked or not, with ramus and accessory gland, lacking sclerotized infundibulum (Figs. 21, 48).

Remarks: *Scymnobius* was considered a synonym of *Nephus* Mulsant (1846) by most authors following WEISE (1905), including GORDON (1976). However, *Scymnobius* is here treated as a valid genus based on the 10-segmented antennae with a large, asymmetrical club, while *Nephus* antennae are 11-segmented with a small, symmetrical club; *Scymnobius* has the abdominal postcoxal lines more or less parallel to the hind sternal margin while *Nephus* has the abdominal postcoxal lines curved through-

out. These genera are likely sister genera and the differences separating them are at least as great as those separating other scymnine genera. It appears that all neotropical species previously placed in "*Nephus*" belong to *Scymnobius*, and that the only



Figs. 1-3 - *Scymnobius* antenna and basal abdominal sterna illustrating postcoxal lines. 1, *S. galapagoensis*, antenna; 2, *S. galapagoensis*, basal abdominal sternum with postcoxal line short, not reaching lateral margin; 3, *S. imitator*, basal abdominal sternum with long postcoxal line nearly reaching lateral margin.

American species that truly belong in *Nephus*, *s. str.*, is *N. ornatus*, a northern North American species. It appears that *Scymnobius* is restricted to the Western Hemisphere and most species described as belonging to *Nephus* are actually mem-

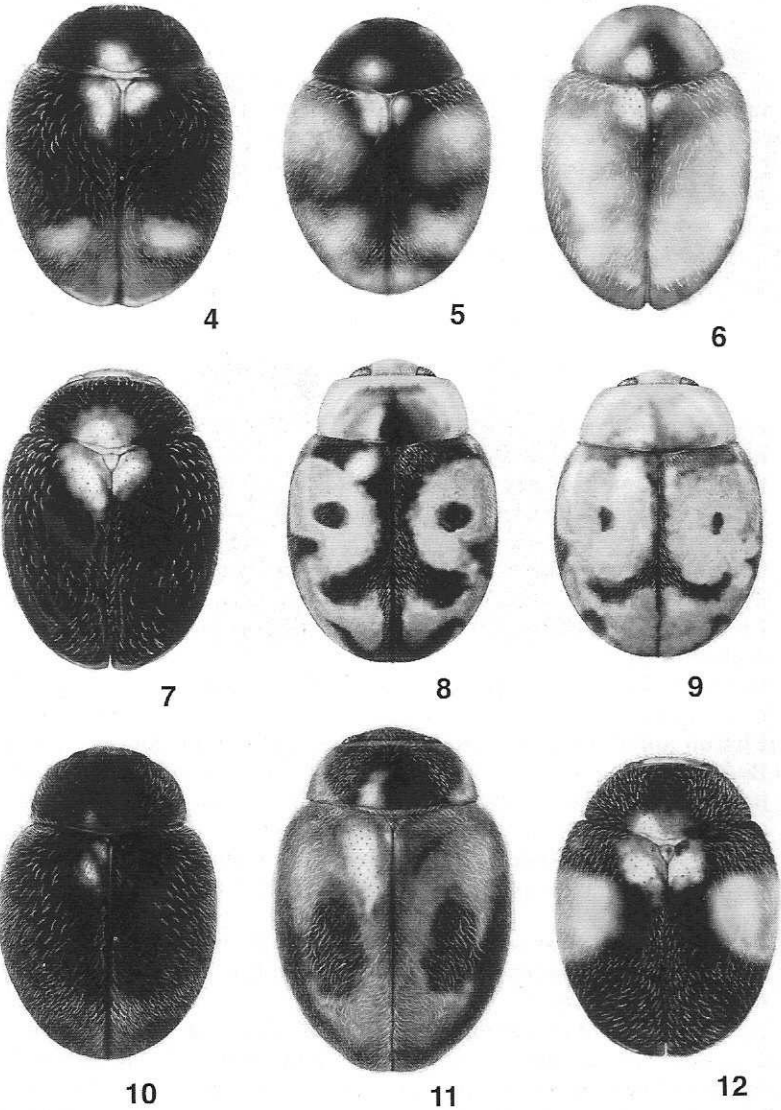
bers of *Scymnobius*. See CHAPIN (1965), WHITEHEAD (1965), and GORDON (1976) for further discussion of generic characters. There are several other taxa presently considered subgenera of *Nephus* but none of these occur in South America. The overall distribution of "*Nephus*" is worldwide.

Two groups within *Scymnobius* are apparent in the North American fauna: the *flavifrons* group with typical male genitalia which contains most species; and the *intrusus* group, which is characterized by male genitalia with the basal lobe emerging from a basal collar and dorsoventrally flattened parameres. The same group division is also apparent in South America where male genitalia follow the North American pattern. Female genitalia, however, are also a factor because some South American species of the *intrusus* group have a modified bulbous cornu (except *S. araguaensis*) and are apically beaked (except *S. rotundus*, which lacks a beak). The North American *Scymnobius intrusus* (Horn), *S. sordidus* (Horn), and *S. gordonii* (Dozier) are part of the *intrusus* group with basal collar, but have asymmetrical basal lobes (as does the South American *S. imitator*), and the female genitalic cornu is bulbous but lacks an apical beak. *Scymnobius bilucernarius*, *S. obscurus*, *S. galapagoensis*, *aricaensis*, n. sp., and *S. triangularis*, n. sp., compose the *flavifrons* group in South America, all remaining species are members of the *intrusus* group.

Key to South American *Scymnobius*

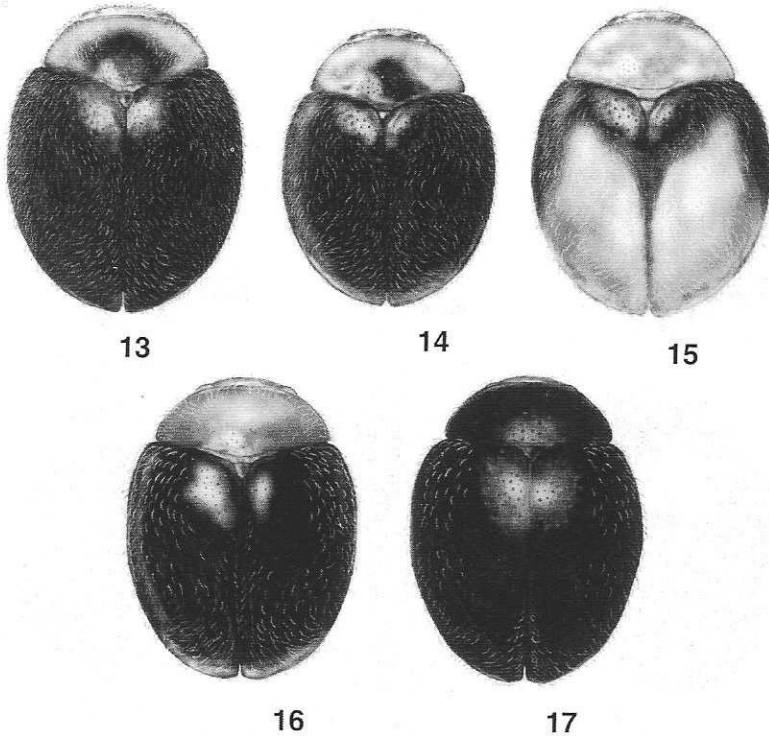
1. Elytron mostly pale with dark maculation (Figs. 6, 8, 9, 15) 2
2. Elytron mostly dark with pale maculation or without any maculation 4
- 2(1). Elytron with maculation simple, lacking complex maculation (Figs. 8, 15)...3
- Elytron with maculation complex, including J-shaped macula on disc anterior to apical declivity (Figs. 8, 9).....3. *galapagoensis* (Waterhouse)
- 3(2). Elytron reddish yellow, basal and lateral margins with variable brown borders (Fig. 159) *ecuadoricus*, n. sp.
- Elytron with dark brown basal border and dark discal spot anterior to apical declivity (Fig. 11 5) *triangularis*, n. sp.
- 4(1). Elytron black or dark brown with large, reddish yellow discal spot anterior to midlength (Fig. 126) *araguaensis*, n. sp.
- Elytron immaculate or with median or apical maculation 5
- 5(4). Body elongate oval; spermathecal capsule with unmodified cornu; male genitalia with paramere not dorsoventrally flattened, basal lobe usually long (Fig. 18)6
- Body rounded; spermathecal capsule with cornu bulbous, usually with beak; male genitalia with paramere dorsoventrally flattened, basal lobe usually short (Fig. 41)8
- 6(5). Elytron with pale transverse spot on apical declivity (Fig. 4), or more extensively pale in specimens from Guyana and Venezuela (Figs. 5, 6); widespread from Central America and the Caribbean to Peru 1. *bilucernarius* (Mulsant)
- Elytron immaculate; Argentina, Brazil, Chile, Colombia, Venezuela7
- 7(6). Elytron black; ventral surface mostly black (Fig. 7); Trinidad and Venezuela to Brazil and Argentina 2. *obscurus* (Mulsant)
- Elytron dark brown; ventral surface yellowish or reddish brown (Fig. 10); Chile4. *aricaensis*, n. sp.
- 8(5). Dorsal pubescence dense, shorter than scutellum (Fig. 13); Brazil7. *caliginosus*, n. sp.

- Dorsal pubescence not dense, as long as or longer than scutellum (Fig. 14);
Colombia, Galapagos9
9(8). Pronotum yellow with dark brown, basomedian spot (Fig. 14); Galapagos....
.....8. *scalesius*, n. sp.
Pronotum entirely black or entirely reddish yellow 10



Figs. 4-12 - *Scymnobioides* habitus. 4, *S. bilucernarius*; 5, 6, *S. bilucernarius* variations; 7, *S. obscurus*; 8, *S. galapagoensis*; 9, *S. galapagoensis* variation; 10, *S. aricaensis*; 11, *S. triangularis*; 12, *S. araguaensis*.

- 10(9). Pronotum black except extreme anterolateral angle yellowish red (Fig. 17)
.....11. *imitator*, n. sp.
Pronotum entirely yellow or reddish yellow with large, dark brown, basomedian spot (Fig. 16).....10. *rotundus*, n. sp.



Figs. 13-17 - *Scymnobioides* habitus. 13, *S. caliginosus*; 14, *S. scalesius*; 15, *S. ecuadoricus*; 16, *S. rotundus*; 17, *S. imitator*.

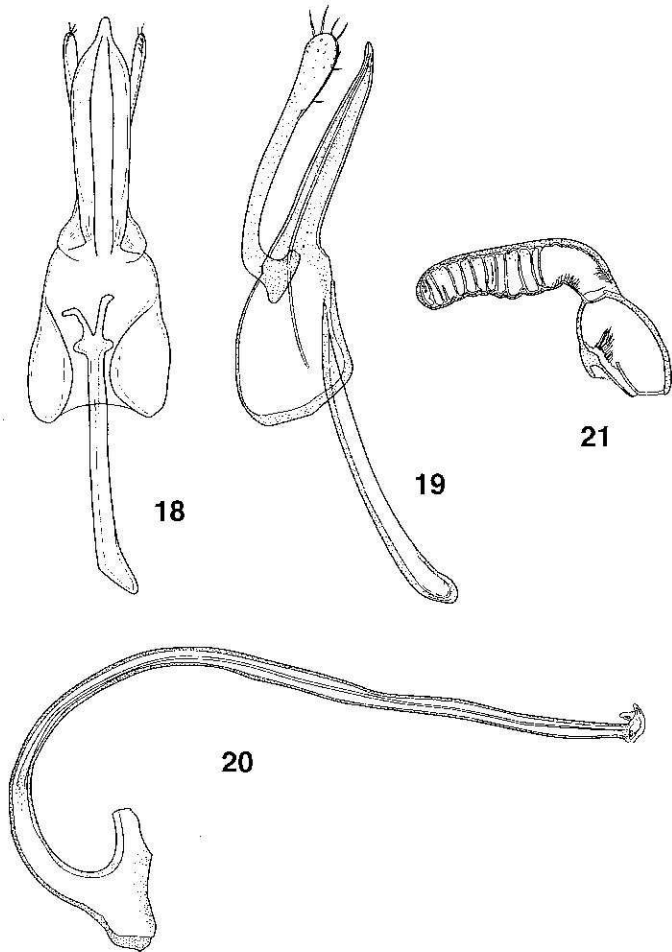
1. ***Scymnobioides bilucernarius*** (Mulsant), new combination
(Figs. 4-6, 18-21)

Scymnus bilucernarius MULSANT, 1850:997; KORSCHESKY, 1931:155.

Scymnus pictus GORHAM, 1897:231; WEISE, 1904:364.

Description: Male, length 1.6 mm, width 1.3 mm; body form elongate-oval, sides somewhat rounded. Dorsal surface weakly alutaceous, somewhat shiny. Color black, head, lateral 1/4 of pronotum, antenna, mouthparts, prosternum except prosternal process, legs, abdominal sterna 5 and 6 reddish yellow; elytron with transverse yellow spot on apical declivity (Fig. 4). Head punctures coarse, sparse medially, dense near eyes. Pronotal punctures as large as on head, separated by less than to twice a

diameter. Elytral punctures not noticeably dual, coarser than on pronotum, separated by a diameter or less. Metasternal punctures absent medially, coarse, dense near lateral margin, separated by a diameter or less. Abdominal punctures finer than on metasternum, coarser, and sparse medially on abdominal sterna 1-3, smaller and dense laterally, sterna 4-6 with punctures small, dense. Dorsum with pubescence



Figs. 18-21 - *Scymnobius bilucernarius* genitalia. 18-20, male; 21, female spermathecal capsule.

grayish white, semidecumbent, arranged in s-curve, individual hairs as long as scutellum. Prosternal process with punctures very coarse, contiguous. Postcoxal line on 1st abdominal sternum extended $7/8$ distance to posterior sternal margin, curved in basal $1/2$, straight in apical $1/2$, apex nearly reaching lateral sternal margin. Apex of 5th sternum broadly, weakly emarginate, apex of 6th sternum briefly, distinctly

emarginate. Genitalia with basal lobe longer than paramere, sides straight, divergent in basal 5/6, then rounded to blunt apex, without basodorsal protuberance; paramere long, slender, widened to rounded apex in apical 1/4 (Figs. 18, 19); siphon strongly curved in basal 1/2, apical 1/2 straight, apex trifurcate, median arm of trifurcation curved upward, inner arm of basal capsule not angled posteriorly, outer arm basally rounded (Fig. 20).

Female: Similar to male except head black; apex of 6th sternum rounded. Genitalia with spermathecal capsule abruptly bent anterior to ramus, slender; cornu unmodified, without beak, ramus short, oval, beaked, without basal projection (Fig. 21).

Variation: Length 1.4 to 2.1 mm, width 1.0 to 1.6 mm; head dark brown to black; pronotum varying from entirely black with apical and anterior angles light brown to entirely yellowish red or yellowish red with mediobasal brown spot of varying size; elytron varying from typical to entirely yellow with brown border (Guyana) (Fig. 6), or with 4 large yellow spots occupying most of elytron (Guyana) (Fig. 5), or usually with red spot between humerus and sutural margin (Guyana).

Type locality: Yucatan (collect. Pilate).

Type depository: Unknown, Pilate's specimens examined by Mulsant have not been located.

Specimens examined: About 450. Mexico and the Lesser Antilles south to Venezuela and Colombia. (BM) (CAS) (CMNH) (USNM).

Remarks: *Scymnobioides bilucernarius* is by far the most widespread and frequently collected species in the genus. The color pattern is constant throughout most of the distribution but becomes highly variable on the South American north coast, particularly in Guyana and less so in Venezuela. Male genitalia are similar to those of the North American *S. flavifrons*, differing primarily in the shape of the basal lobe which is slightly widened from base to the apical 1/6 in *S. bilucernarius*, straight from base to apical 1/6 in *S. flavifrons*. Dorsal color patterns are also extremely similar in these two species, but much more variable in *S. bilucernarius*.

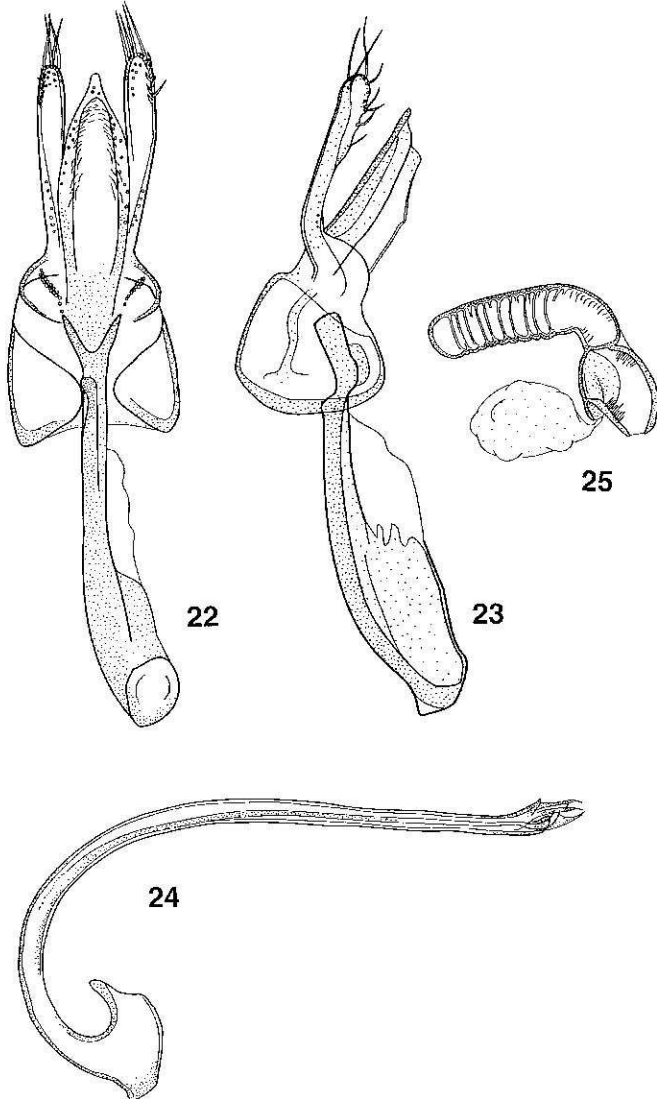
Pilate's specimens examined by Mulsant have not been located in spite of contacting European institutions such as the British Museum and the Muséum National d'Histoire Naturelle, Paris, that might be expected to contain them; therefore the species concept used here is that of previous authors such as WEISE (1904).

2. *Scymnobioides obscurus* (Mulsant), new combination (Figs. 7, 22-25)

Scymnoides (Nephus) obscurus MULSANT, 1850:962; KORSCHESKY, 1931:163.

Description: Male, length 1.5 mm, width 1.2 mm; body form rounded, somewhat oval, sides rounded. Dorsal surface shiny. Color dark brown, nearly black (Fig. 7); head, antenna, mouthparts, legs yellow. Head punctures coarse, sparse medially, dense near eyes. Pronotal punctures smaller than on head, separated by less than to twice a di-

ameter. Elytral punctures coarser than on pronotum, separated by less than to twice a diameter. Metasternal punctures lacking medially, coarse, dense near lateral margin, separated by a diameter or less. Abdominal punctures coarse, separated by 1 to 3 times a diameter in median 1/3 of all sterna, punctures becoming denser, nearly contiguous in lateral 1/3. Dorsum with pubescence grayish white, semidecumbent, arranged in s-curve, individual hairs as long as scutellum. Prosternal process with punctures very coarse, contiguous. Postcoxal line on 1st abdominal sternum extend-



Figs. 22-25 - *Scymnobius obscurus* genitalia. 22-24, male; 25, female spermathecal capsule.

ed $7/8$ distance to posterior sternal margin, briefly parallel to posterior sternal margin, then slightly recurved apically, apex separated from lateral sternal margin by $1/4$ length of sternum 2. Apex of 5th sternum broadly weakly rounded; apex of 6th sternum weakly rounded, nearly truncate. Genitalia with basal lobe as long as paramere, sides slightly rounded, curved to blunt apex in apical $1/4$, without basodorsal protuberance; paramere short, slender, gradually widened to rounded apex (Figs. 22, 23); siphon strongly curved in basal $1/2$, apical $1/2$ straight, apex trifurcate, median arm of trifurcation curved upward, inner arm of basal capsule abruptly angled posteriorly, wide basally, outer arm wide, base rounded (Fig. 24).

Female: Similar to male except head dark brown; apex of 6th sternum strongly, abruptly rounded. Genitalia with spermathecal capsule abruptly bent anterior to ramus, slender, cornu unmodified, lacking beak, ramus short, oval, beaked, without basal projection (Fig. 25).

Variation: Length 1.5 to 1.6 mm. Elytra dark brown to black.

Type locality: "Carthagène" (Cartagena, Colombia).

Type depository: Unknown; Mulsant listed "collect Dejean coll." (Muséum d'Histoire Naturelle, Lyon, France), as the source of his material, but type specimens were not found there.

Specimens examined: 11. Argentina. Tucumán, La Rinconada. Brazil. Salvador. Colombia. Toluca, Espinal. Guyana. Georgetown. Trinidad. Tobago. Venezuela. Macuto. (BM) (CAS) (USNM).

Remarks: Mulsant probably described *Nephus obscurus* from a single specimen collected in the vicinity of Cartagena, Colombia. His description was short because this species has no color pattern; however, his description of the postcoxal line on abdominal sternum one as briefly parallel to the hind sternal margin and curved forward apically is explicit. This type of postcoxal line, along with an immaculate dorsum, has been seen only in the specimens described above. Therefore, we arbitrarily assign Mulsant's name to this species.

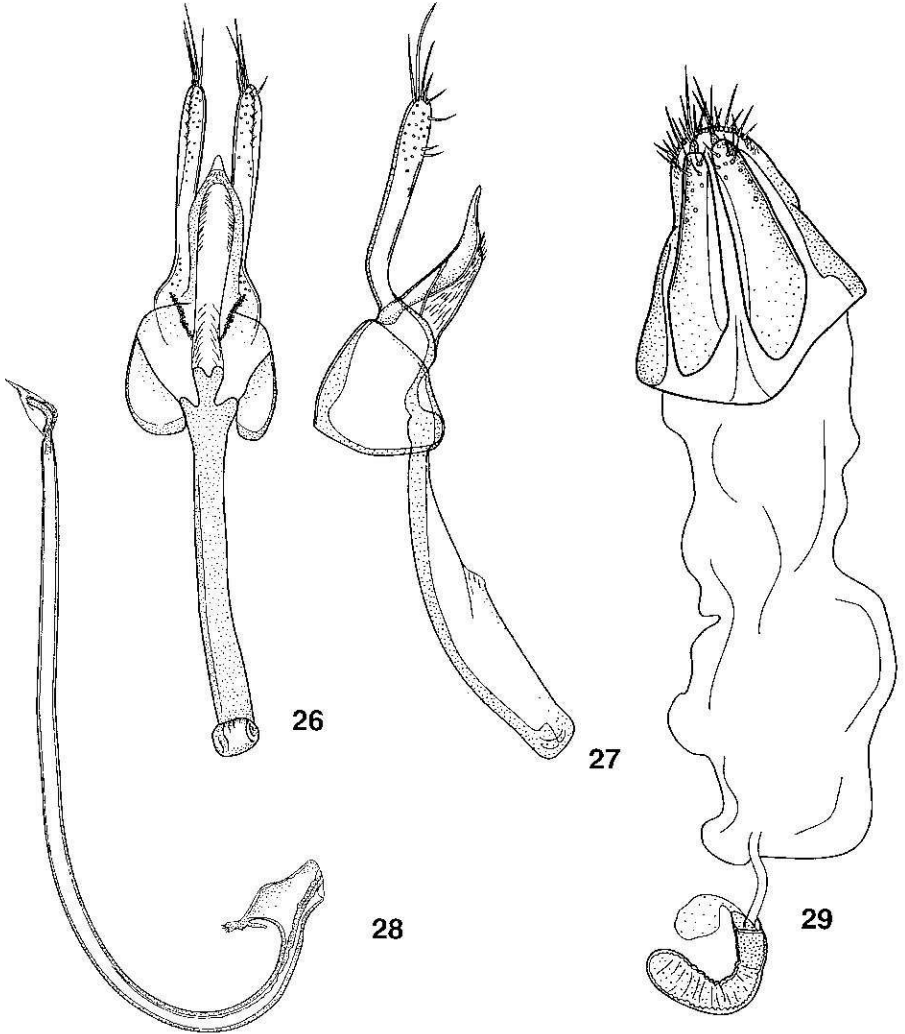
The Muséum d'Histoire Naturelle, Lyon, France, houses the Dejean collection of *Coccinellidae*. During a visit to that museum in 1971, nearly all types stated by Mulsant to be in the Dejean collection were located with the exception of the *Scymninae*. That entire section of the collection was missing, either not placed there originally or removed subsequently. Therefore, type material of *S. obscurus* could not be examined.

3. *Scymnobioides galapagoensis* (Waterhouse) (Figs. 8, 26-29)

Scymnus galapagoensis WATERHOUSE, 1845:41; KORSCHESKY, 1931:158.
Scymnus ocellatus Sharp, 1885:147; KORSCHESKY, 1931:148. NEW SYNONYM.

Description: Male, length 1.6 mm, width 1.3 mm; body form oval, sides rounded. Dorsal surface dull, alutaceous except head shiny. Color yellow except clytron dis-

tinctly maculate (Fig. 8); elytron yellow with wide, dark brown basal triangle covering area from suture to humerus and reaching sutural border at $1/3$ length of elytron, border extended along suture to about $2/3$ length of elytron, then curved over $1/3$ of discal area, dark border extended from humeral angle along lateral margin, curved



Figs. 26-29 - *Scymnobius galapagoensis* genitalia. 26-28, male; 29, female (entire).

onto $1/3$ of disc at $1/2$ length of elytron, approaching but not reaching curved sutural border, a single, isolated brown spot in area above and interior to lateral border, small, obliquely elongate brown spot at apical $4/5$ of elytra to apex. Head punctures

fine, separated by a diameter or less. Pronotal punctures larger than on head, separated by less than to 3 times a diameter. Elytral punctation dual, large punctures coarse, much larger than pronotal punctures, separated by less than to twice a diameter. Metasternal punctures fine, sparse medially, becoming gradually, slightly coarser and contiguous near lateral margin. Abdominal punctures fine, dense throughout, punctures separated by a diameter or less. Dorsum with pubescence grayish white, semierect, arranged in s-curve, individual hairs longer than scutellum. Prosternal process narrow, coarsely punctured, punctures contiguous. Postcoxal line on 1st abdominal sternum extended $\frac{7}{8}$ distance to posterior sternal margin, basal $\frac{1}{2}$ gradually curved, apical $\frac{1}{2}$ straight, apex separated from lateral sternal margin by $\frac{1}{2}$ length of sternum 2. Apex of 5th sternum broadly, weakly rounded; apex of 6th sternum broadly, weakly emarginate. Genitalia with basal lobe $\frac{2}{3}$ as long as paramere, sides parallel in basal $\frac{2}{3}$, rounded to apex in apical $\frac{1}{3}$, without basodorsal protuberance; paramere short, dorsoventrally flattened, sides nearly straight to rounded apex (Figs. 26, 27); siphon strongly curved in basal $\frac{2}{3}$, apical $\frac{1}{3}$ straight except extreme apex curved upward with long apical filament, basal capsule with inner arm short, slender; outer arm tapered to rounded apex, apex sinuate (Fig. 28).

Female: Similar to male except pronotum brown with pale lateral margins; apex of 6th sternum rounded. Genitalia with spermathecal capsule curved in basal $\frac{1}{2}$, gradually enlarged to apex, cornu apically rounded, ramus short, slender, without basal projection (Fig. 29).

Variation: Length 1.4 to 1.8 mm, width 1.0 to 1.4 mm; pronotum varying from immaculate to completely dark with lateral margins pale and all degrees of variation between; elytra with pattern quite constant but subject to losing portions of maculation in teneral specimens (Fig. 9), or dark areas coalesced, leaving isolated pale spots.

Type locality: of *galapagoensis*, James' Island (Galapagos) (lectotype here designated); of *ocellatus*, Honolulu, Hawaii.

Type depository: of *galapagoensis* and *ocellatus* (BM).

Specimens examined: Approximately 250. Specimens examined from the Galapagos Islands, Ecuador, Peru and coast of Chile north of Antofagasta (BM) (CAS) (GG) (SP) (USNM).

Remarks: This species is easily recognized by the distinctive elytral pattern and is frequently collected, especially in the Galapagos Islands where Stewart Peck (Carleton University, Ottawa) and others have accumulated large numbers of specimens. Jorge Mendoza found *S. galapagoensis* feeding on a species of the ensign scale genus *Orthezia* in Guayas Province, Ecuador. Roger Booth (pers. comm.) states that *S. galapagoensis* is not uncommon in Polynesia, and that Polynesia might in fact be the area of origin.

Roger Booth found two syntypes, male and female, of *N. galapagoensis* in the BM collection. The female bearing Waterhouse's determination label is selected as the lectotype and is labeled "Syntype (circular, blue bordered label)/James'Isl - 3365 (on reverse)/Galapagos - 45.63 (on reverse)/Scymnus Galapagoensis (?in Waterhouse's handwriting)". The registration number 45.63 refers to a collection of insects presented by Charles Darwin. The male is designated a paralectotype and is labeled

"Syntype (circular, blue bordered label)/James's Island - 3366 77.1 (on reverse)/Syntype *Scymnus galapagoensis* det. R.G. Booth 1993". The registration number 77.1 refers to a presentation by C. Darwin through G.R. Waterhouse. This action is taken to stabilize the identity of *N. galapagoensis*.

The holotype and a presumed paratype of *N. ocellatus* were examined. The female type is labeled "Scymnus ocellatus. Type D.S. (handwritten on card mount, probably Sharp's handwriting)/Type H.T. (circular, red bordered label)/Sharp Coll.1903-313." The presumed paratype is labeled "Scymnus ocellatus. D.S. (handwritten on card mount, probably Sharp's handwriting)/?Syntype (circular, blue bordered label)/Sharp Coll.1903-313./?Syntype *Scymnus ocellatus* Shp. det. R.G. Booth 2002". This specimen almost certainly is a paratype and is so considered here.

4. *Scymnobius aricaensis*, new species (Figs. 10, 30-33)

Description: Male, length 1.7 mm, width 1.4 mm; body form regularly oval, sides rounded. Dorsal surface shiny. Color reddish yellow except pronotum with large, basomedian area obscurely reddish brown; elytron brown with apical 1/3 paler reddish brown (Fig. 10); ventral surface dark reddish brown except abdominal sterna 5-6 yellow. Head punctures fine, sparse. Pronotal punctures slightly larger than on head, separated by 1 to 3 times a diameter. Elytral punctures as large as pronotal punctures, separated by 1 to 3 times a diameter. Metasternal punctures fine, sparse medially, punctures near lateral margin coarse, separated by a diameter or less. Abdominal punctures on sterna 1-2 as large as elytral punctures, separated by about a diameter, becoming gradually denser and nearly contiguous toward abdominal apex. Dorsum with pubescence grayish white, erect, arranged in s-curve, individual hairs as long as scutellum. Prosternal process with punctures coarse, dense, nearly contiguous. Postcoxal line on 1st abdominal sternum extended 5/6 distance to posterior sternal margin, gradually curved, slightly recurved apically, apex separated from lateral sternal margin by 1/3 length of sternum 2. Apex of 5th sternum broadly, weakly rounded; apex of 6th sternum weakly rounded. Genitalia with basal lobe 3/4 length of paramere, parallel sided, curved to blunt apex in apical 1/4, with short, low, basodorsal protuberance; paramere long, nearly straight, gradually widened to rounded apex (Figs. 30, 31); siphon strongly curved in basal 2/3, apical 1/3 straight except extreme apex curved upward, basal capsule abruptly angled posteriorly, inner arm short, slender, outer arm wide, apex rounded (Fig. 32).

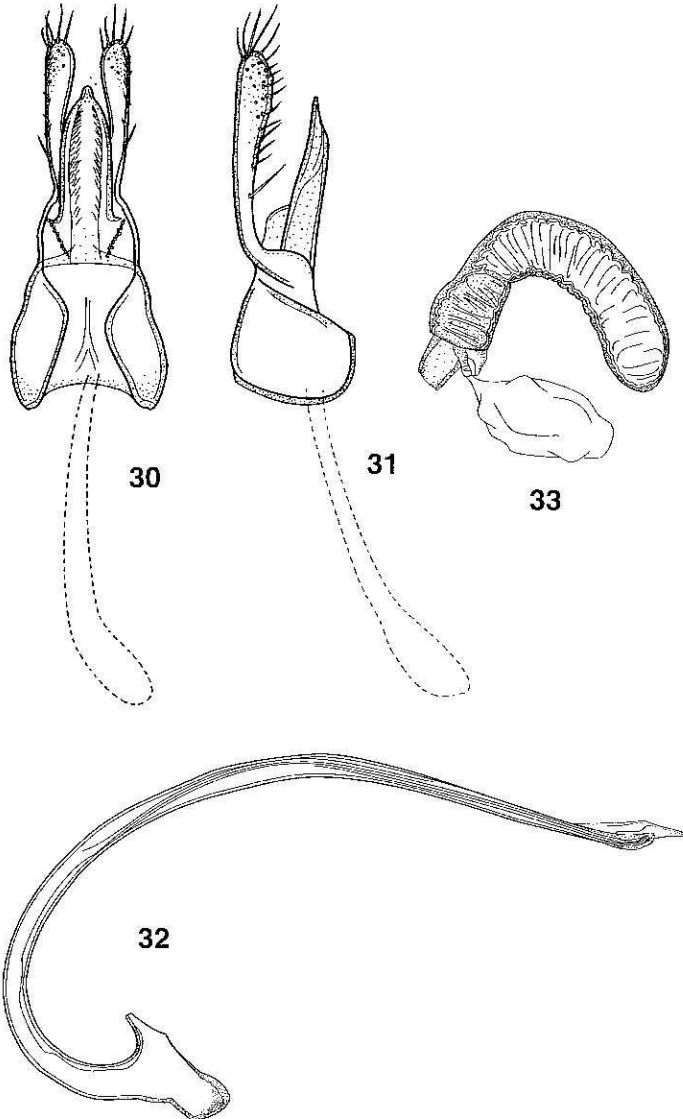
Female: Similar to male except apex of 6th sternum strongly, abruptly rounded. Genitalia with spermathecal capsule strongly curved medially, ramus slender, long, with short basal projection, cornu unmodified, without beak (Fig. 33).

Variation: Length 1.6 to 2.0 mm, width 1.4 to 1.5 mm; dorsal color much paler in teneral specimens.

Type material: Holotype male. Chile, Arica, I.REG, 9.XII.1988, G. Gonzalez F. (MNHN). Allotype (MNHN), 4 paratypes, same data as holotype. (GG) (USNM).

Etymology: The species is named for Arica, Chile, where the type specimens originated.

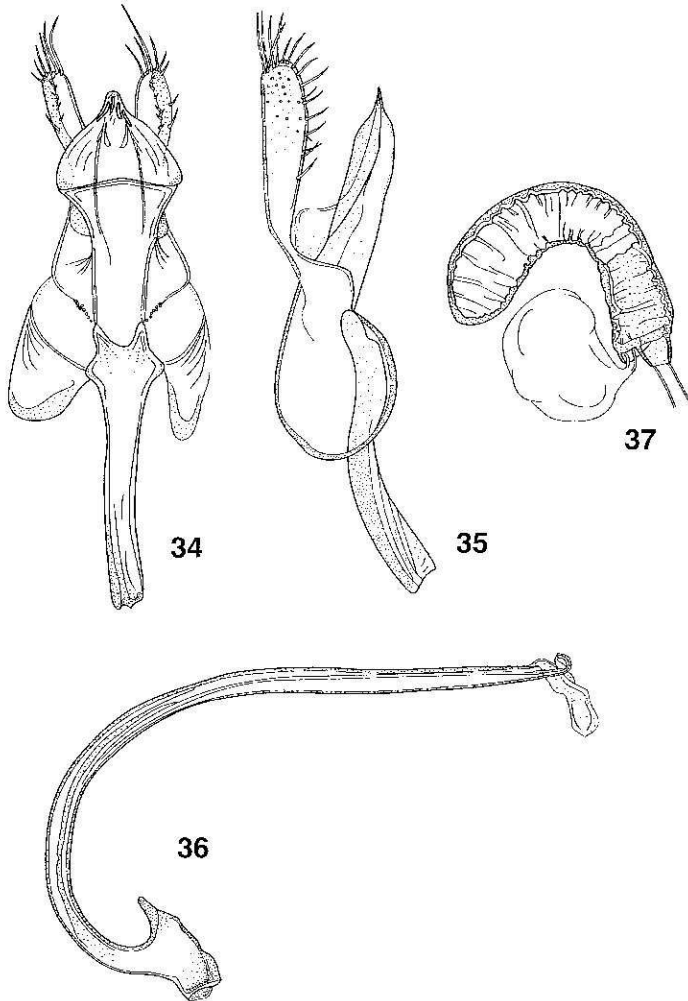
Remarks: The combination of generally brown, immaculate elytron and Chilean distribution distinguish this species.



Figs. 30-33 - *Scymnobius aricaensis* genitalia. 30-32, male; 33, female spermathecal capsule.

5. **Scymnobijs triangularis**, new species
(Figs. 11, 34-37)

Description: Male, length 1.5 mm, width 1.1 mm; body form regularly oval, sides slightly rounded. Dorsal surface with head, pronotum shiny; elytra feebly alutaceous. Color brownish yellow; pronotum obscurely brown to dark brown in median 1/3, darkest on anterior margin and basomedian area; elytron with basal 1/4 irregularly brown, each elytron with elongate, oval, dark brown macula medially anterior to apical declivity (Fig. 11), sutural margin narrowly dark brown except dark area widened anterior to apical declivity, slender, curved, brown macula near lateral margin at apical declivity, lateral margin narrowly dark brown in posterior 1/2; antenna, mouth-



Figs. 34-37 - *Scymnobijs triangularis* genitalia. 34-36, male; 37, female spermathecal capsule.

parts, legs yellow; ventral surface brown except abdominal sterna 5-6 yellow. Head punctures fine, sparse medially, coarse, dense near eyes. Pronotal punctures smaller than coarse head punctures, separated by 1 to 3 times a diameter. Elytral punctures slightly larger than pronotal punctures, separated by less than to twice a diameter. Metasternal punctures fine, sparse medially, punctures near lateral margin coarse, separated by a diameter or less. Abdominal punctures on sterna 1-3 as large as median metasternal punctures except becoming coarse, dense in lateral 1/3 of all sterna. Dorsum with pubescence grayish white, slightly decumbent, arranged in s-curve, individual hairs as long as scutellum. Prosternum with punctures coarse, dense, contiguous. Postcoxal line on 1st abdominal sternum extended 5/6 distance to posterior sternal margin, parallel to posterior margin in apical 1/2; apex separated from lateral sternal margin by 1/3 length of sternum 2. Apex of 5th sternum broadly weakly rounded; apex of 6th sternum weakly rounded. Genitalia with basal lobe as long as paramere, triangular, with prominent, apically truncate basodorsal protuberance; paramere short, widened from base to rounded apex (Figs. 34, 35); siphon strongly curved in basal 1/2, apical 1/2 straight except extreme apex curved upward; basal capsule abruptly angled posteriorly, inner arm short, slender, outer arm wide, apex rounded (Fig. 36).

Female: Similar to male except apex of 6th sternum strongly, abruptly rounded. Genitalia with spermathecal capsule strongly curved medially, ramus slender, long, with short basal projection, cornu apically rounded (Fig. 37).

Variation: Length 1.5 to 1.8 mm; dorsal color pattern may have maculae coalesced across apical declivity and connected to both basal brown border and lateral border at apical declivity.

Type material: Holotype male. Chile, Arica, I.REG, 9.XII.1988, G. Gonzalez F. (MNHN). Allotype (MNHN), 4 paratypes, same data as holotype. (GG) (USNM).

Etymology: The specific name refers to the distinctly triangular form of the basal lobe in male genitalia.

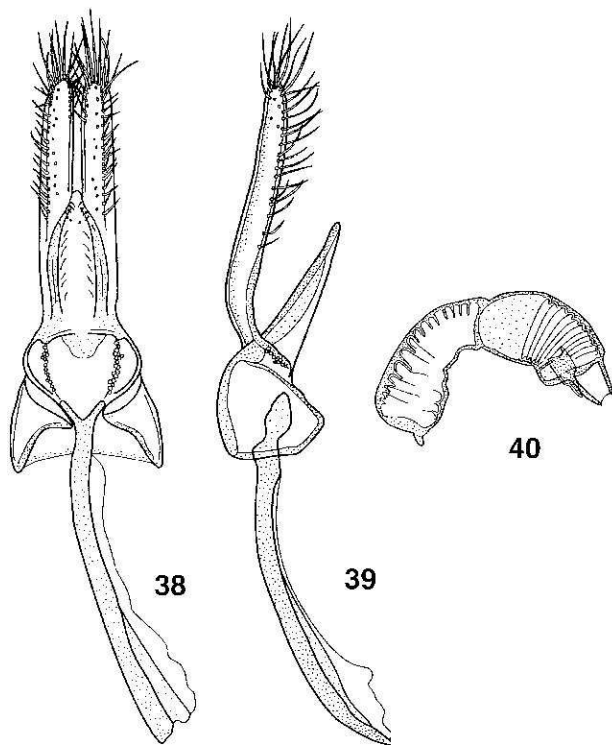
Remarks: *Scymnobius triangularis* has a very distinctive color pattern as well as male genitalia and should not be confused with any other Chilean species of the genus.

6. ***Scymnobius araguaensis***, new species
(Figs. 12, 38-40)

Description: Male, length 1.6 mm, width 1.1 mm; body form regularly oval, sides rounded. Dorsal surface shiny. Color black, head yellow, elytron with large, round yellow macula on disc posterior to humerus (Fig. 12), antenna, mouthparts, legs yellow; abdomen brown. Head punctures fine, dense, separated by about a diameter. Pronotal punctures larger than head punctures, coarse, dense, separated by less than a diameter. Elytral punctures smaller than pronotal punctures, separated by less than to twice a diameter. Metasternal punctures fine, sparse medially, punctures near lateral margin coarse, separated by a diameter or less. Abdominal punctures coarse, sparse medially on abdominal sterna 1-3, becoming dense, contiguous laterally, ster-

na 4-6 densely punctured throughout. Dorsum with pubescence grayish white, semidecumbent, arranged in s-curve, individual hairs as long as scutellum. Prosternum with punctures coarse, dense, nearly contiguous. Postcoxal line on 1st abdominal sternum extended $\frac{3}{4}$ distance to posterior sternal margin, gradually curved, slightly recurved apically, apex separated from lateral sternal margin by $\frac{1}{5}$ length of sternum 2. Apex of 5th sternum broadly, weakly rounded; apex of 6th sternum weakly rounded. Genitalia with basal lobe emerging from basal collar, basal lobe $\frac{1}{2}$ length of paramere, sides weakly rounded from base to blunt apex, without basodorsal protuberance; paramere long, straight, dorsoventrally flattened, parallel sided, with apex rounded (Figs. 38, 39); siphon lost.

Female: Similar to male except head black; apex of 6th sternum strongly, abruptly



Figs. 38-40 - *Scymnobius araguaensis* genitalia. 38, 39, male; 40, female spermathecal capsule.

ly rounded. Genitalia with cornu short, apically beaked, ramus long slender, sides rounded, with short posterior projection (Fig. 40).

Variation: None observed.

Type material: Holotype male. N. Venezuela, Estado Aragua, P. Nac. Henri Pittier, Maracay/Occumare km 36, La Trilla, 300m. alt. FOG. 5. 28.iii.1990, Deciduous for-

est, Polygonaceae?, J. G. Davies (BM). Allotype. N. Venezuela, same data as holotype except FOG 6., 30.ii.1990, Deciduous forest, *Chrysophyllum lucentisolum*, J. G. Davies (BM).

Etymology: The species is named for Estado Aragua where the holotype and allotype were collected.

Remarks: *Scymnobius araguaensis* has an clytral color pattern thus far unique in the South American fauna.

7. *Scymnobius caliginosus*, new species (Figs. 13, 41-44)

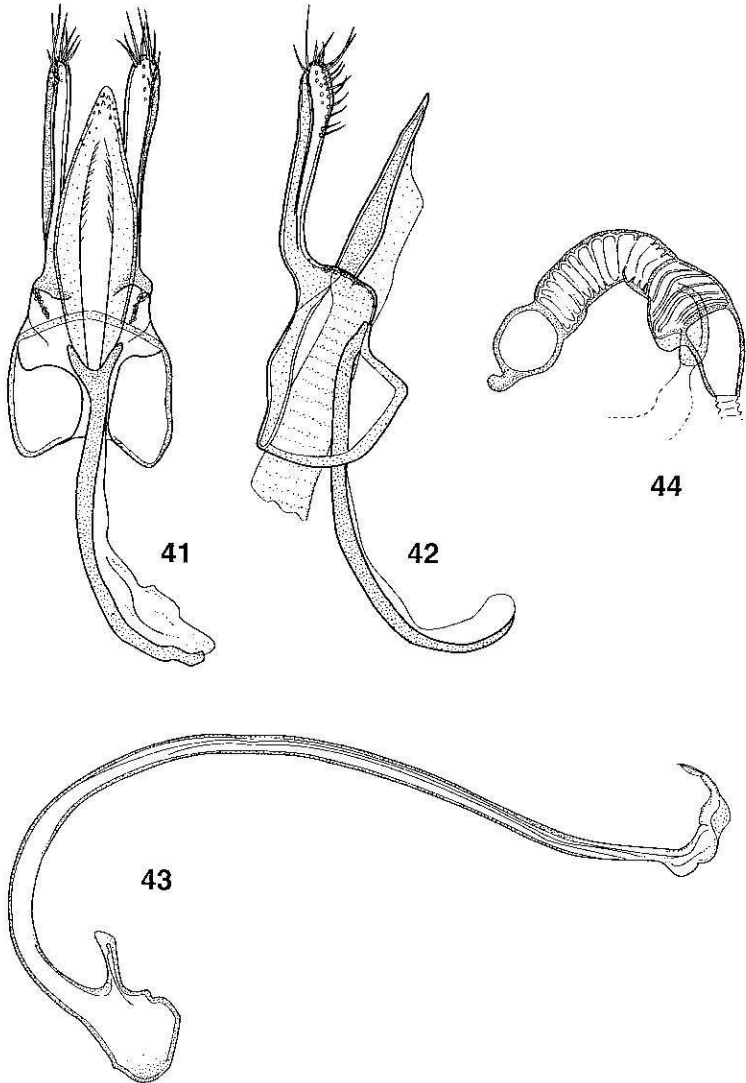
Description: Male, length 1.6 mm, width 1.3 mm; body form broadly oval, widest anterior to middle of elytra. Dorsal surface somewhat shiny, head shiny, pronotum and elytron weakly alutaceous. Color black except head, mouthparts, prosternum, legs, abdominal sterna 5 and 6 yellow; pronotum yellow with large, black, basomedian spot (Fig. 13). Head punctures fine, separated by a diameter or less. Pronotal punctures as large as on head, separated by a diameter or less. Elytral punctation dual, large punctures separated by less than to twice a diameter. Metasternal punctures larger than on elytron, separated by a diameter or less medially, becoming coarser and contiguous near lateral margin. Abdominal punctures coarse on sterna 1-3, fine, dense on sterna 4-6, punctures separated by a diameter or less. Dorsum with pubescence grayish white, decumbent, arranged in s-curve, individual hairs shorter than scutellum. Prosternal process wide, coarsely punctured, punctures contiguous. Postcoxal line on 1st abdominal sternum extended $\frac{5}{6}$ distance to posterior sternal margin, basal $\frac{1}{2}$ gradually curved, apical $\frac{1}{2}$ slightly curved with extreme apex slightly bent posteriorly, apex nearly reaching lateral sternal margin. Apex of 5th sternum broadly weakly rounded; apex of 6th sternum with short, sharp notch. Genitalia with basal lobe emerging from basal collar, slightly shorter than paramere, sides parallel in basal $\frac{1}{3}$, strongly angled to acute apex in apical $\frac{2}{3}$, without basodorsal protuberance; paramere short, dorsoventrally flattened, sides nearly straight to rounded apex (Figs. 41, 42); siphon strongly curved in basal $\frac{1}{3}$, apical $\frac{2}{3}$ straight except extreme apex curved upward with long apical filament, basal capsule somewhat rectangular, inner arm short, slender, outer arm nearly square, base rounded (Fig. 43).

Female: Similar to male except head black and pronotum black with anterolateral angle narrowly yellowish brown. Apical margin of 6th sternum rounded. Genitalia with spermathecal capsule curved in basal $\frac{1}{2}$, cornu bulbous with apical beak, ramus large, with lateral beak and basal projection (Fig. 44).

Variation: Length 1.6 to 2.0 mm, width 1.3 to 1.6 mm; teneral specimens are dark brown or brown instead of black; female clytron often with small, obscure, elongate reddish spot anterior to apical declivity.

Type material: Holotype male. Brasil, RdJ (Rio de Janeiro), Campo Grande, July 31, 1957, PA Berry Collector (USNM). Allotype. Same data as holotype. Paratypes, 62; 56, same data as holotype (USNM); 6, Brazil, Rio de Janeiro, 25.V.91, FD Bennett on *Orthezia praelonga* on *Coccoloba uvifera* (BM).

Etymology: The specific name is from the Latin *caligo* meaning darkness, or dark, and refers to the mostly black or dark brown dorsum of this species.



Figs. 41-44 - *Scymnobius caliginosus* genitalia. 41-43, male; 44, female spermathecal capsule.

Remarks: This dark species with short, dense, dorsal pubescence and Brazilian type locality resembles only *S. scalesius*, which has long, sparse pubescence and a Galapagos Island type locality.

8. *Scymnobius scalesius*, new species
(Figs. 14, 45-48)

Description: Male, length 1.7 mm, width 1.3 mm; body form broadly oval, widest anterior to middle of elytra. Dorsal surface shiny. Color black except head yellow with frons brown behind eyes, pronotum yellow with triangular dark brown in spot on median 1/2, extending from basal margin 5/6 distance to apical margin, elytron black with elongate red spot on disc extended from midpoint of elytron onto apical declivity, apical 1/10 yellowish red, mouthparts, prosternum, legs, abdominal sterna 5 and 6 yellow, meso- and meta-sternum and basal abdominal sternum dark brown. Head punctures fine, separated by a diameter or less. Pronotal punctures larger than on head, separated by a diameter or less. Elytral punctation dual, large punctures separated by less than to twice a diameter. Metasternal punctures as large as on elytron, separated by a diameter or less medially, becoming coarser and contiguous near lateral margin. Abdominal punctures fine throughout, separated by 1 to 3 times a diameter on sterna 1-3, dense on sterna 4-6, separated by a diameter or less. Dorsum with pubescence sparse, grayish white, semierect, arranged in s-curve, individual hairs longer than scutellum. Prosternal process wide, coarsely punctured, punctures contiguous. Postcoxal line on 1st abdominal sternum extended 4/5 distance to posterior sternal margin, basal 1/2 gradually curved, apical 1/2 straight, slightly angled forward, apex nearly reaching lateral sternal margin. Apex of 5th sternum broadly weakly rounded; apex of 6th sternum with wide, feeble emargination. Genitalia with basal lobe emerging from basal collar, 3/4 length of paramere, sides parallel in basal 1/2, strongly angled to acute apex in apical 1/2, without basodorsal protuberance; paramere short, dorsoventrally flattened, narrow in basal 1/2, widened to rounded apex in apical 1/2 (Figs. 45, 46); siphon strongly curved in basal 1/3, apical 2/3 straight except extreme apex curved upward with long apical filament, basal capsule slender, strongly defined (Fig. 47).

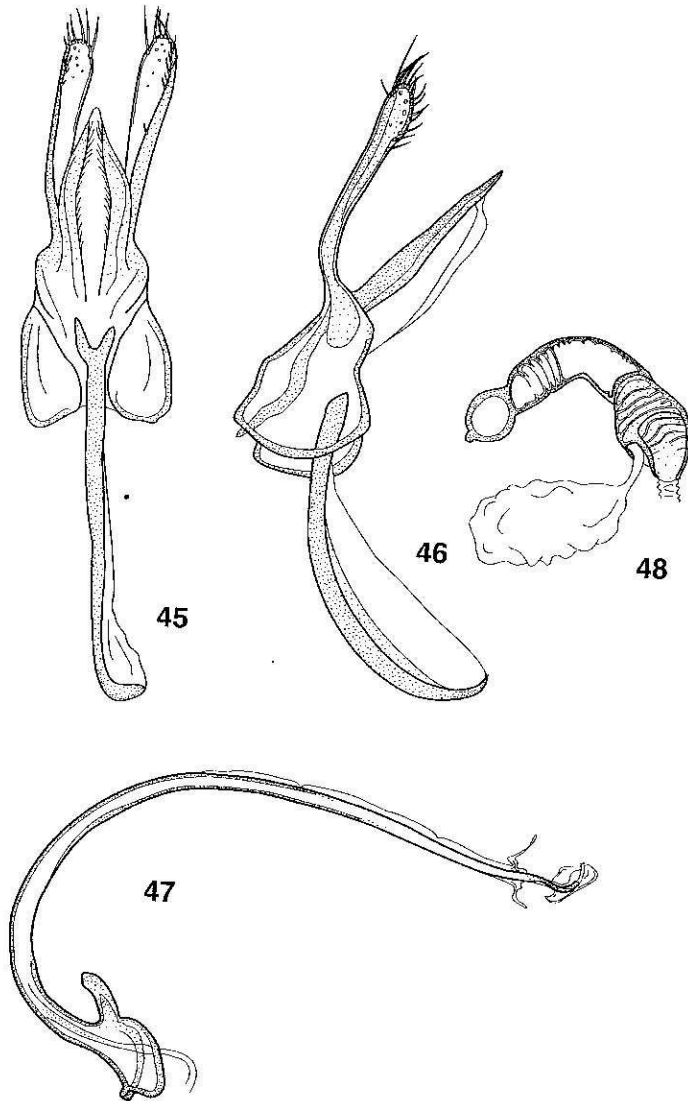
Female: Similar to male except head black and pronotum black with anterolateral angle narrowly yellowish brown. Apical margin of 6th sternum rounded. Genitalia with spermathecal capsule curved in basal 1/2, cornu bulbous with apical beak, ramus large, with lateral beak and basal projection (Fig. 48).

Variation: The type series is composed of somewhat teneral specimens and the dorsal color is usually dark brown (Fig. 14) instead of black with red spot on elytron distinct or obscure.

Type material: Holotype male. Ecu(Ecuador): Galap (Galapagos); St. Cruz, Los Gemelos, 31KmN. Sta. Rosa, 13.VI-15.VII.85, S&J Peck, Scalesia Forest, 570 m, FIT and malaise (CAS). Allotype. Same data as holotype except date 15.VII.85 (CAS). Paratypes, 3; same data as holotype. (CAS) (SP) (UCNM).

Etymology: The species is named for the Scalesia Forest where the type series was collected.

Remarks: *Scymnobius scalesius* is most similar to *S. caliginosus*, see remarks under that species.

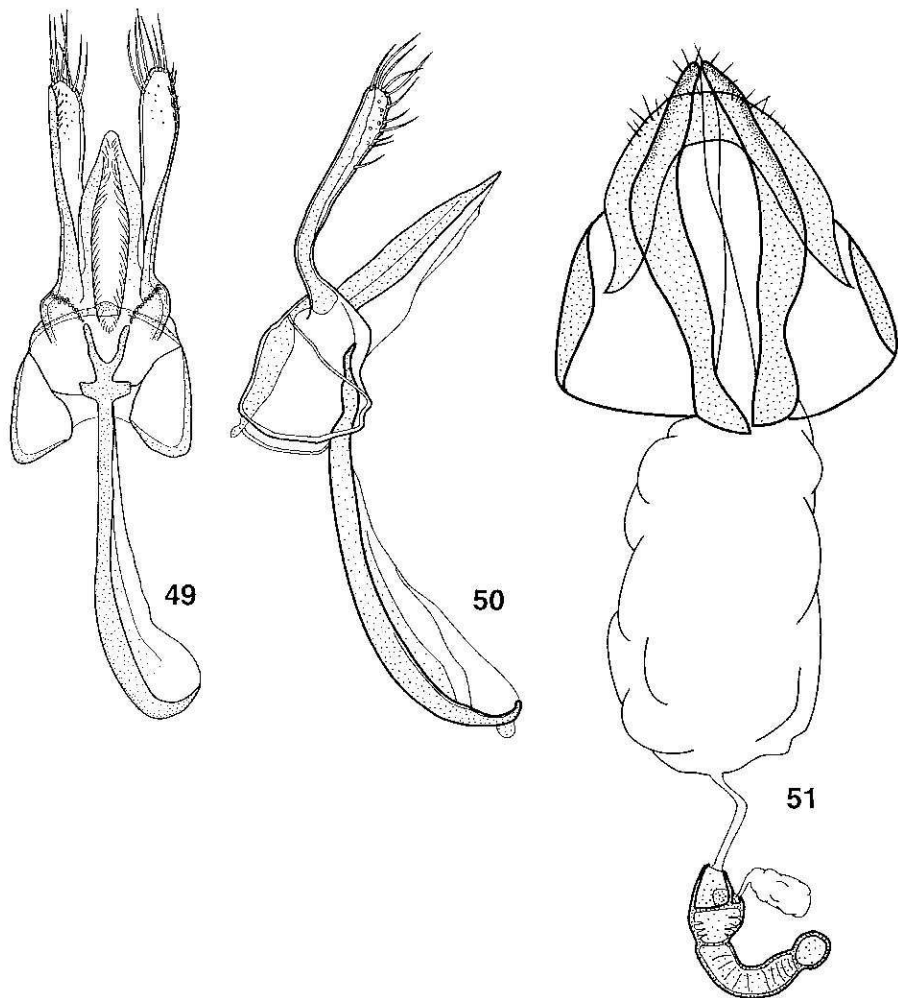


Figs. 45-48 - *Scymnobius scalesius* genitalia. 45-47, male; 48, female spermathecal capsule.

9. *Scymnobius ecuadoricus*, new species
(Figs. 15, 49-51)

Description: Male, length 1.8 mm, width 1.3 mm; body rounded, slightly elongate, widest anterior to middle of elytra. Dorsal surface shiny. Color reddish yellow except elytron with dark brown basal border, border extended posteriorly to midpoint of elytron along both sutural and lateral margins (Fig. 15), meso- and meta-sterna dark

brown, abdomen yellowish brown. Head punctures fine, separated by a diameter or less. Pronotal punctures as large as on head, separated by less than to twice a diameter. Elytral punctation dual, large punctures separated by 2 to 4 times a diameter. Metasternal punctures as large as on elytron, separated by a diameter or less medi-



Figs. 49-51 - *Scymnobius ecuadoricus* genitalia. 49, 50, male; 51, female (entire).

ally, becoming coarser and contiguous near lateral margin. Abdominal punctures as coarse as on elytron, separated by 1 to 2 times a diameter on sterna 1-3, dense on sterna 4-6, separated by a diameter or less. Dorsum with pubescence sparse, grayish white, semierect, arranged in s-curve, individual hairs slightly shorter than scutel-

lum. Prosternal process wide, coarsely punctured, punctures contiguous. Postcoxal line on 1st abdominal sternum extended $4/5$ distance to posterior sternal margin, basal $1/2$ gradually curved, apical $1/2$ straight, apex separated from lateral sternal margin by $1/4$ length of sternum 2. Apex of 5th sternum broadly, weakly rounded; apex of 6th sternum with wide, feeble emargination. Genitalia with basal lobe emerging from basal collar, slightly shorter than paramere, sides parallel in basal $2/3$, weakly curved to blunt apex in apical $1/3$, without basodorsal protuberance; paramere short, dorsoventrally flattened, narrow in basal $1/2$, gradually widened to rounded apex in apical $1/2$ (Figs. 49, 50); siphon strongly curved in basal $1/3$, apical $2/3$ straight except extreme apex curved upward with long apical filament, basal capsule with inner arm slender, short, outer arm large, broad, apex rounded.

Female: Similar to male except pronotum with dark brown spot in median $1/3$ extended from apical margin to basal margin, narrow at apex and widened toward base, elytron similar to male except dark brown basal border extending $9/10$ length of elytra, then angled to suture leaving apical $1/19$ yellow. Apical margin of 6th sternum rounded. Genitalia with spermathecal capsule sharply curved in basal $1/2$, cornu bulbous without apical beak, ramus slender, elongate, without lateral beak, with basal projection (Fig. 51).

Variation: As described for male and female color pattern.

Type material: Holotype male. Ecuador, Manabi Prov., W. edge Manta, 20m, 27-28.II.81, H. Howden (USNM). Allotype. Ecuador, Prov. de Guayas, Playas, 16 Feb. 1973, M. & N. Deyrup (USNM).

Etymology: The species is named for the country of origin of the type series.

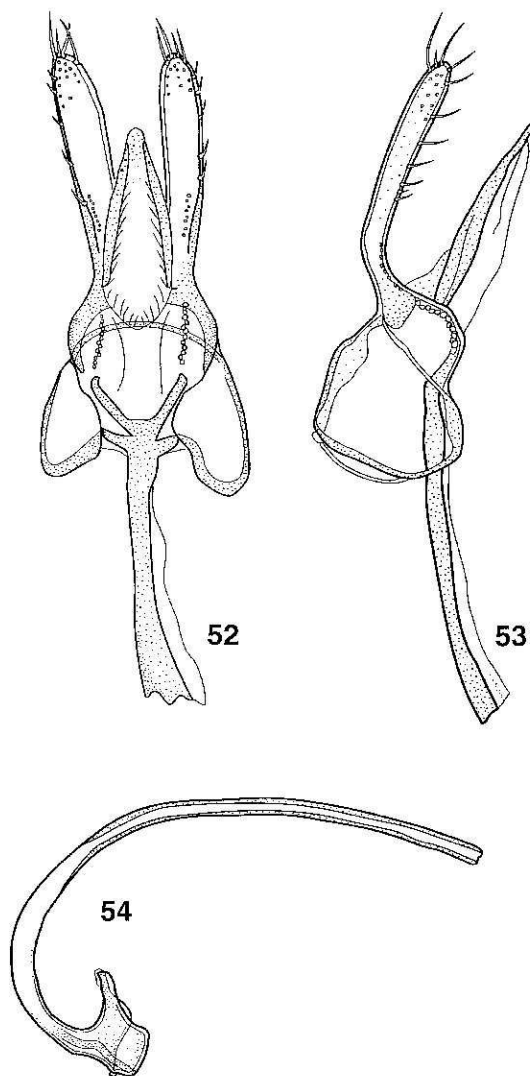
Remarks: Dorsal color pattern alone will distinguish this species if it is not subject to a great deal of variation. Male genitalia are characteristic, and the female genitalia with the small, not beaked, round spermathecal cornu are also distinctive.

10. *Scymnobius rotundus*, new species (Figs. 16, 52-54)

Description: Male, length 1.6 mm, width 1.2 mm; body form rounded, slightly elongate, widest anterior to middle of elytra. Dorsal surface shiny. Color reddish yellow except elytron dark brown with apical $1/10$ reddish yellow (Fig. 16), mouthparts, legs, abdominal sterna 5 and 6 yellow, meso- and metasternum, abdominal sterna 1-4 brownish yellow. Head punctures fine, separated by a diameter or less. Pronotal punctures smaller than on head, separated by a diameter or less. Elytral punctation dual, large punctures separated by less than to 3 times a diameter. Metasternal punctures as large as on elytron, separated by a diameter or less medially, becoming coarser and contiguous near lateral margin. Abdominal punctures coarse, separated by a diameter or less on sterna 1-3, dense on sterna 4-6, separated by a diameter or less. Dorsum with pubescence sparse, grayish white, semierect, arranged in s-curve, individual hairs longer than scutellum. Prosternal process wide, coarsely punctured, punctures contiguous. Postcoxal line on 1st abdominal sternum extended $4/5$ distance to posterior sternal margin, basal $1/2$ gradually curved, apical $1/2$ weakly curved, apex separated from lateral sternal margin

by 1/3 length of sternum 2. Apex of 5th sternum broadly, weakly rounded; apex of 6th sternum with wide, feeble emargination. Genitalia with basal lobe emerging from basal collar, short, 2/3 length of paramere, sides almost parallel in basal 1/4, gradually angled to acute apex in apical 3/4, without basodorsal protuberance; paramere short, dorsoventrally flattened, sides almost parallel, gradually widened from base to rounded apex (Figs. 52, 53); siphon strongly curved in basal 1/3, apical 1/4 lost (Fig. 54).

Female: Not known.



Figs. 52-54 - *Scymnobius rotundus* male genitalia.

Variation: Length 1.5 to 1.8 mm, width 1.2 to 1.6 mm. Pronotum of one male paratype with large, median, dark brown macula, macula wide basally, anterior border narrowed, arcuate, not extended to apical pronotal margin.

Type material: Holotype male. Colom. (Colombia), Magd. (Magdalena), 25 km. E. Barranquilla, V-16-1973, Campbell & Howden (CNC). Paratypes, 3 males; 1, same data as holotype; 1, Colom., Magd., Parque Tayrona, 21mi. E. Sta. Marta, V-15-1973, Howden & Campbell; 1, Colom., Magd., 12 mi. W. Sta. Marta, IV-29-1973, Howden & Campbell. (CNC) (USNM).

Etymology: The specific name refers to the rounded body form.

Remarks: This species has a color pattern most similar to, but not identical with, that of *S. caliginosus* which is known from Brazil. Dorsal color pattern alone will distinguish this species assuming that it does not vary greatly. Male genitalia are characteristic, especially the short, slender basal lobe and strongly dorsoventrally flattened parameres.

11. *Scymnobijs imitator*, new species

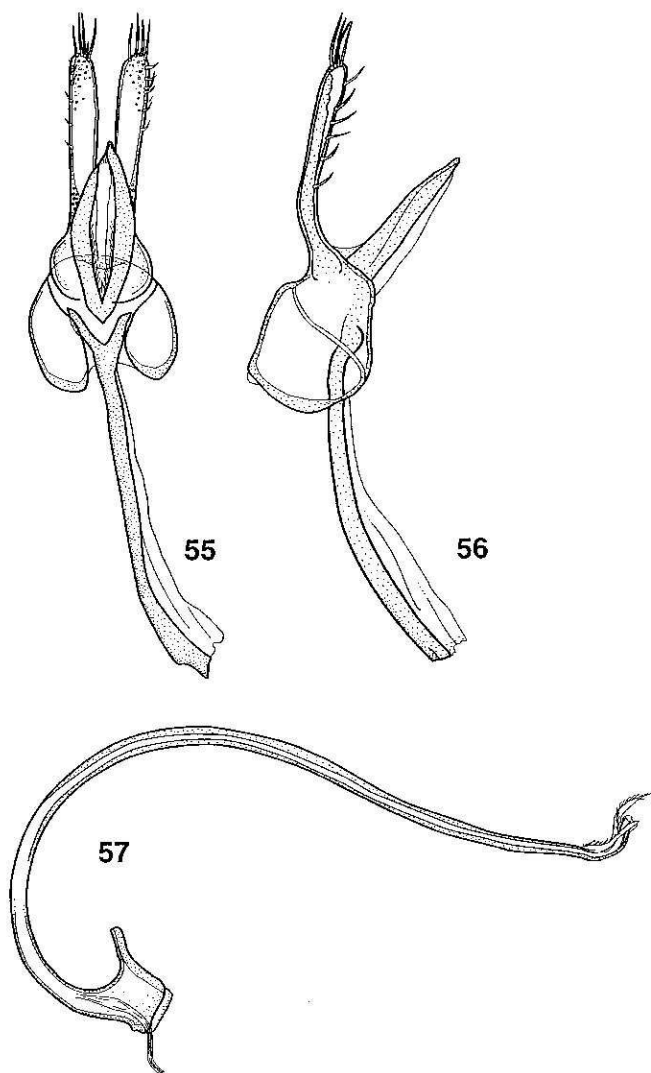
(Figs. 17, 55-57)

Description: Male, length 1.8 mm, width 1.4 mm; body form rounded, slightly elongate, widest anterior to middle of elytra (Fig. 17). Dorsal surface weakly alutaceous, somewhat shiny. Color black except head, extreme anterolateral angle of pronotum, mouthparts, legs, and extreme apex of elytra narrowly yellowish red, abdomen dark brown. Head punctures fine, separated by a diameter or less. Pronotal punctures as large as on head, separated by a diameter or less. Elytral punctation dual, large punctures separated by less than to twice a diameter. Metasternal punctures larger than on clytron, separated by a diameter or less medially, becoming coarser and contiguous near lateral margin. Abdominal punctures fine, separated by a diameter or less on sterna 1-3, dense on sterna 4-6, separated by a diameter or less, sternum 1 with row of very coarse, contiguous punctures bordering postcoxal line internally. Dorsum with pubescence sparse, grayish white, semierect, arranged in s-curve, individual hairs about as long as scutellum. Prosternal process wide, coarsely punctured, punctures contiguous. Postcoxal line on 1st abdominal sternum extended $7/8$ distance to posterior sternal margin, basal $1/2$ gradually curved, apical $1/2$ straight, apex extended nearly to lateral sternal margin. Apex of 5th sternum broadly, weakly rounded; apex of 6th sternum with wide, feeble emargination. Genitalia with basal lobe emerging from basal collar, asymmetrical, short, slightly more than $1/2$ length of paramere, sides rounded from base to acute apex, without basodorsal protuberance; paramere short, dorsoventrally flattened, sides almost parallel, gradually widened from base to rounded apex (Figs. 44, 46); siphon strongly curved in basal $1/2$, apex with long filament (Fig. 57).

Female: Not known.

Type material: Holotype male. Colom. (Colombia), Valle, Rio Jamundi nr. Cali, 3300', VII.13.1970, J.M. Campbell (CNC).

Etymology: The specific name refers to the similarity in appearance to *S. obscurus*.



Figs. 55-57 - *Scymnobius imitator* male genitalia.

Remarks: This species has a color pattern and dorsal punctation most similar to *S. obscurus* which has the *S. bilucernarius* type of genitalia. The row of coarse punctures bordering the postcoxal line on abdominal sternum one is unlike that in *S. obscurus* or any other currently known species of *Scymnobius*. Asymmetrical male genitalia have not been found in other South American species of *Scymnobius*, but are present in the North American *intrusus* group.

ACKNOWLEDGEMENTS

We thank Roger Booth (BM) for comparing type specimens of *S. galapagoensis* and *S. ocellatus*, and Natalia Vandenberg (USNM) for assistance in procuring pertinent literature references. For loan of specimens we are indebted to Roger Booth and Max Barclay (BM), Roberta Brett (CAS), Robert Davidson (CMNH), Anthony Davies (CNC), Stewart Peck (Carleton University, Ottawa), and Natalia Vandenberg (USNM). All illustrations were prepared by Guillermo González. For manuscript review we thank A. Wheeler, Clemson University, Clemson, South Carolina, and N. Vandenberg and A. Norrbom, Systematic Entomology Laboratory, USNM, Washington, DC.

SUMMARY

The taxonomy of South American *Scymnobi* species is revised and *Scymnobi* elevated from subgeneric to generic status. A key to species, illustrations, synonymies, and descriptions are provided. *Scymnobi ocellatus* (Sharp) is recognized as a junior synonym of *Scymnobi galapagoensis* (Waterhouse). Newly described species are *Scymnobi aricaensis*, *S. triangularis*, *S. araguaensis*, *S. caliginosus*, *S. scalesius*, *S. ecuadoricus*, *S. rotundus*, and *S. imitator*.

RIASSUNTO

Viene rivista la tassonomia delle specie Sud Americane del sottogenere *Scymnobi*, elevata nel presente lavoro allo stato di genere, delle quali vengono fornite le chiavi dicotomiche, le descrizioni, le illustrazioni e le sinonimie. *Scymnobi ocellatus* (Sharp) viene indicato come sinonimo di *Scymnobi galapagoensis* (Waterhouse) e vengono inoltre descritte 8 nuove specie: *S. triangularis*, *S. araguaensis*, *S. caliginosus*, *S. scalesius*, *S. ecuadoricus*, *S. rotundus*, *S. imitator*.

REFERENCES

- CASEY T.L., 1899 - A revision of the American Coccinellidae. *J. New York Entomol. Soc.* 7:71-169.
- CHAPIN E.A., 1965 - In *Insects of Micronesia*. Coleoptera, Coccinellidae. *Bernice P. Bishop Museum, Honolulu, Hawaii* 16:189-254.
- GORDON R.D., 1976 - The Scymnini (Coleoptera: Coccinellidae) of the United States and Canada: key to genera and revision of *Scymnus*, *Nephus* and *Diomus*. *Bull. Buffalo Soc. Nat. Sci.* 28:1-36.
- GORDON R.D., 1985 - The Coccinellidae (Coleoptera) of America North of Mexico. *J. New York Entomol. Soc.* 93:1-912.
- GORDON R.D., 1999 - South American Coccinellidae (Coleoptera), Part VI: A systematic revision of the South American Diomini, new tribe (Scymninae). *Ann. Zool. (Warszawa)*, 49 (Suppl. 1):1-219.
- GORDON R.D., 2000 - South American Coccinellidae (Coleoptera). Part VII: A Systematic revision of South American *Scymnus* (*Pullus*) Mulsant (Scymninae: Scymnini). *Frustula entomologica* n.s. XXIII (XXXVI):56-108.
- GORHAM H.S., 1897 - *Biologia Centrali-Americana*, Insecta, Coleoptera, Coccinellidae, 7:217-240.
- KORSCHÉFSKY R., 1931 - *Coleopterorum Catalogus*. Pars 118. Coccinellidae. I. Berlin, 224 pp.
- MULSANT M.E., 1846 - *Histoire naturelle des Coléoptères de France: Sulcicolles-Sécourpalpes*. Paris, 280 pp.
- MULSANT M.E., 1850 - *Species de Coléoptères trimères sécourpalpes*. *Ann. Sci. Phys. Nat. Lyon* 2:1-1104.
- SCHILDER F.A., SCHILDER M., 1928 - Die Nahrung der Coccinelliden und ihre Beziehung zur Verwandtschaft der Arten. *Arb. Biol. Reich. Land- und Forstwirtschaft* 16:213-282.
- SHARP D., 1885 - In Blackburn and Sharp, *Memoirs on the Coleoptera of the Hawaiian Islands*. *Sci. Trans. Roy. Dublin Soc.*, ser. 2, 3:119-300.

- WATERHOUSE G.R., 1845 - Descriptions of coleopterous insects collected by Charles Darwin, Esq., in the Galapagos Islands. *Ann. Mag. Nat. Hist.* 16:19-41.
- WEISE J., 1904 - Synonymische Bemerkungen zu Gorham, *Biologia Centrali-Americana*, vol. VII, Coccinelliden. *Deutsche Ent. Zeitschr.* 1904:357-364.
- WEISE J., 1905 - Ueber Coccinelliden. *Deutsche Ent. Zeitschr.* 1905:217-220.
- WHITEHEAD V.B., 1967 - The validity of the higher taxonomic categories of the tribe Scymnini (*Coleoptera: Coccinellidae*). Unpublished dissertation, Graduate Division of the University of California, Berkeley. 312 pp.

Manoscritto accettato il 29 Luglio 2003