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A TAXONOMIC REVISION OF THE WORLD SMODICINI (COLEOPTERA, CERAMBYCIDAE)

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ABSTRACT

The six genera at present included in the Cerambycid tribe Smodicini, are monographed. The tribe is mainly Neotropical, but two genera occur in Africa, one of which, *Afrosmodicum*, is described as new (type-species, *Smodicum ebeninum* Chevrolat, 1855). Both African genera are monotypic. *Metaphrenon* is described to include the single Antillean species *Smodicum impressicolle* Lacordaire, 1869. *Smodicum* Haldeman, 1847, the largest genus of the tribe, which in the past received most species described, including the African ones, is now redefined to include 13 species, distributed from the United States to Argentina. The following species of *Smodicum* are described as new: *clancularium* (from Mexico, Quintana Roo), *longicorne* (from Brazil, Minas Gerais to Santa Catarina), *reticolle* (from Argentina, Santiago del Estero), and *torticolle* (from Colombia). The following new synonymies are established in *Smodicum*: *subcylindricum* Thomson, 1878 = *brunneum* Thomson, 1878; *argentinum* Bruch, 1911 = *cucujiforme* (Say, 1826); *missionum* Bruch, 1911 = *dinellii* Bruch, 1911; *peninsulare* Linsley, 1942 and *arizonarium* Knull, 1966 = *pacificum* Linsley, 1934; and *bonariense* Bruch, 1911 = *semipubescens* Gounelle, 1911.

The tribe Smodicini congregates six genera from America and Africa. This paper aims at a taxonomic revision of the group as a whole, while adding to its geographical distribution.

The preliminary idea was to restrict the study to the American *taxa*, but the African ones were also received and the opportunity to incorporate them was taken in spite of my restricted knowledge of the African Cerambycidological bibliography. More recent references which deal with the two African species, especially faunistic lists, were not seen. This is one of the drawbacks of the paper.

The Smodicini are crepuscular or nocturnal Cerambycinae, with depressed, usually unicolored body, and antennae almost as long as the body. New characters are added to the definition of the genera: the sexual punctuation of the male prothorax, the width of the sternal processes and the antennal formula, among others.

The majority of the species seems to have their distribution associated to forest formations both in the Americas and in Africa; field information is scanty, though.

The presence of genera on both sides of the Atlantic indicates a pre-Gondwanic, relatively old group, a condition apparently supported by morphological characters considered primitive: anterior coxal cavities angulated externally, antennae and palpi little modified.

The name *Smodicum* first appeared in Dejean's Catalog (1835: 332) for a genus which comprised four specific *nomina nuda*.

The genus was formally established by Haldeman in 1847 and Thomson (1860: 189) placed it in his "XIII^e division", the Ibdionitae.

Lacordaire (1869: 143) incorporated the genera *Atimia* and *Tenthras* into the "Smodicides"; the latter is now in the Acanthocinini (Lamiinae), and the former in the tribe Atimini (Atiminae).

Until 1962, when Lefkowitz erected the African genus *Caediscum*, the tribe harbored only *Smodicum* and *Enosmaeus* described by Thomson in 1878. The present author (Martins, 1970, 1971) established two other Neotropical genera (*Luscosmodicum* and *Nesosmodicum*). The genus *Enosmaeus* had been removed (Demets & Martins, 1973) to the Hesperophanini.

Two additional new genera are herewith proposed.

Collections studied

Initial letters (North and Central American collections as indicated by Arnett & Samuelson, 1969), preceding the name of Institutions and Collections, indicate repositories of the material studied for each species; names between parenthesis are from persons who lent material for study and to whom I am indebted.

AMNH, American Museum of Natural History, New York (L. H. Herman, Jr.); BMNH, British Museum, Natural History, London (R. T. Thompson); CASC, California Academy of Sciences, San Francisco (H. B. Leech); CEHB, Karl-Ernst Hübepohl Collection, Brunnenhof (K.-E. Hübepohl); CISC, California Insect Survey, Berkeley (J. A. Chemsak); DEIB, Deutsches Entomologisches Institut, Berlin (R. Gaedike); DZUP, Departamento de Zoologia, Universidade Federal do Paraná (R. C. Marinoni); FHCM, Facultad de Humanidades y Ciencias, Montevideo (M. A. Monné); FMNH, Field Museum of Natural History, Chicago (R. Wenzel); ICCM, Carnegie Museum of Natural History, Pittsburgh (G. E. Wallace); IPCS, Instituto de Pesquisa Agropecuária do Centro-sul, Rio de Janeiro (A. L. Peracchi); IRSN, Institut Royal des Sciences Naturelles, Brussels (G. Demoulin, R. Damoiseau); KSUC, Kansas State University (via J. A. Chemsak); MACN, Museo Argentino de Ciencias Naturales, Buenos Aires (M. J. Viana); MAGD, Museu and Art Gallery, Doncaster (P. Skidmore); MCZC, Museum of Comparative Zoology, Cambridge (J. F. Lawrence); MNHN, Muséum National d'Histoire Naturelle, Paris (A. Bons, A. Villiers); MNHU, Museum für Naturkunde, Humboldt-Universität, Berlin (F. Hieke); MZSP, Museu de Zoologia, Universidade de São Paulo; NRMS, Naturhistoriska Riksmuseum, Stockholm (T. Nyholm).

Type-specimens, lectotype designations

Types of an appreciable number of species were studied. Notes and observations about them are included under the heading "Type, type locality". When deemed convenient, lectotypes and paralectotypes were elected; they are dealt with under the same topic.

Illustrations, measurements

Figures were made by the author with the help of a camera lucida OPL adapted to a binocular Zeiss. Measurements were done with a scale ocular and converted to millimeters. The total length is from the tip of the antennal tubercles to the apex of the elytra. The prothorax width is the greatest width.

CHECKLIST

- Luscosmodicum Martins, 1970.
beaveri Martins, 1970. Brazil (Minas Gerais, Mato Grosso).
- Nesosmodicum Martins, 1971.
gracile (Melzer, 1923). Brazil (Minas Gerais, São Paulo, Rio de Janeiro).
- Caediscum Lefkovitch, 1962.
imperiale Lefkovitch, 1962. Uganda, Zaire.
- Afrosmodicum, gen. n.
ebeninum (Chevrolat, 1855). Sierra Leone, Chad, Nigeria, Cameroun, Gabon, Zaire.
parumcostatus Lepesme, 1948, *syn. n.*
- Metaphrenon, gen. n.
impressicolle (Lacordaire, 1869). Hispaniola, Puerto Rico.
impressicolle Thomson, 1878.
impressicolle Gemminger & Harold, 1872.
- Smodicum Haldeman, 1847.
angusticolle Aurivillius, 1919. Brazil (Amazonas, Mato Grosso, Goiás), Bolivia.
brunneum Thomson, 1878. Colombia, Equador, Peru.
similare Thomson, 1878.
subcylindricum Thomson, 1878, *syn. n.*
clancularium, sp. n. Mexico (Quintana Roo).
cucujiforme (Say, 1826). USA (Eastern).
argentinum Bruch, 1911, *syn. n.*
convergens Casey, 1912.
cylindroides Newman, 1838.
melanophthalmum; Dejean, 1835.
depressum Thomson, 1878. Brazil (Minas Gerais to Santa Catarina).
dinellii Bruch, 1911. Brazil (Bahia to Rio Grande do Sul), Paraguay, Argentina (Misiones, Santiago del Estero, Tucuman, Salta).
missionum Bruch, 1911, *syn. n.*
longicorne, sp. n. Brazil (Minas Gerais to Santa Catarina).
pacificum Linsley, 1934. USA (Arizona), Mexico (Baja California, Sonora, Sinaloa, Tres Marias Islands).
arizonarium Knull, 1966, *syn. n.*
peninsulare Linsley, 1942, *syn. n.*

parandroides Bates, 1884. Mexico (Veracruz, Campeche, Yucatan), Guatemala. recticolle, sp. n. Argentina (Santiago del Estero).

semipubescens Gounelle, 1911. Peru, Paraguay, Brazil (Goiás), Argentina (Mendoza, Buenos Aires).

bonariense Bruch, 1911, *syn. n.*

texanum Knull, 1966. USA (Texas).

torticolle, sp. n. Colombia.

Tribe **Smodicini** Lacordaire, 1869

Smodicides Lacordaire, 1869: 143 (part).

Smodici; LeConte, 1873: 294; LeConte & Horn, 1883: 279.

Smodicini; Gounelle, 1911: 127; Aurivillius, 1912: 12 (Cat.); Blackwelder, 1946: 558 (Cat.); Knull, 1946: 186; Linsley, 1962: 10.

Body usually depressed, glabrous, shining. Head prognathous. Labrum (*Caediscum* except) exposed. Eyes coarsely granulated. Maxillary palpi scarcely longer than the labial ones. Antennae unarmed, as long as or shorter than the body. Antennal formula peculiar to each genus. Basal segment subpiriform. Segments without carinae, the apical ones usually angulated at external apex, sometimes with sensorial depressed areas. Prothorax wider than long, the general shape peculiar to each genus, never tuberculated at the sides. Sexual punctuation present, with differences in the genera. Anterior coxal cavities angulated laterally, usually open behind (*Luscosmodicum* except). Prosternal process present, shape variable. Mesosternal process with parallel sides (*Nesosmodicum* except). Metaepisterna longitudinally sulcated in *Smodicum* and *Luscosmodicum*. Mesonotum without scutellar suture in some genera. Legs with evident sexual dimorphism: males with femora much more robust and enlarged, than in the females. Tibiae without carinae. Tarsi variable; segment III not bilobate in *Luscosmodicum*. Abdomen without conspicuous modifications; the last visible sternite rounded at tip. Male genitalia (figs. 26, 27).

Discussion

The Smodicini are related to the Methiini, the two tribes having in common the laterally angulated anterior coxal cavities. The body of the Methiini, however, is more cylindrical, the legs are not sexually dimorphic, the sexual punctuation of the pronotum usually absent.

The geographical distribution of this tribe (Africa, Americas) supports the old conception that this tribe is one of the most primitive among Cerambycinae, but, until the Methiini can be studied in a world revision, the matter should be treated reservedly.

Key to the genera of Smodicini

1. Anterior coxal cavities closed behind (fig. 2); segment III of posterior tarsi (fig. 4) not bilobed; eyes (fig. 1) without superior

- lobes; apex of posterior femora (σ) reaching tips of elytra; (mesonotum without scutellar suture). South America
 *Luscosmodicum* Martins.
- Anterior coxal cavities (figs. 7, 11) open behind; eyes (figs. 6, 10, 19) with superior lobes; segment III of posterior tarsi bilobed; posterior femora shorter 2
- 2(1). Mesosternal process (fig. 11) very narrow, acuminate to apex; general fascies (fig. 10) elongated; elytra enlarged at tip; (segment III of antennae, especially in males, fig. 14, slightly longer than II). South America *Nesosmodicum* Martins.
 Sides of mesosternal process parallel or subparallel (figs. 16, 20, 24); segment III of antennae, even when very short, distinctly longer than II 3
- 3(2). Segment III of antennae (fig. 9) shorter than I; labrum extremely reduced, almost invisible; (sternal processes, fig. 7, very wide; mesonotum without scutellar suture). Africa
 *Caediscum* Lefkovich.
 Segment III of antennae as long as, or longer than I (*Metaphrenon* except); labrum visible 4
- 4(3). Each elytron with two longitudinal costae (fig. 15); male antennae with sexual pilosity on inferior face; (mesonotum without scutellar suture; mesosternal process (fig. 16) wider than an intermediate coxa). Africa *Afrosmodicum*, gen. n.
 Elytra without costae or with one longitudinal, dorsal elevation; male antennae without sexual pilosity. Americas 5
- 5(4). Each elytron with a conspicuous longitudinal, dorsal elevation on middle of disc; mesosternal process (fig. 20) notched in middle of apex; (male prosternum, fig. 20, without depressed areas of sexual punctuation). Hispaniola
 *Metaphrenon*, gen. n.
 Elytral surface without modifications; mesosternal process not notched; (usually depressed areas of sexual punctuation on prosternum of males). North, Central and South Americas ...
 *Smodicum* Haldeman.

***Luscosmodicum* Martins, 1970**

Luscosmodicum Martins, 1970: 47.

Body strongly compressed, almost glabrous. Labrum conspicuous. Eyes (fig. 1) without superior lobes. Antennae (σ , fig. 5), shorter than body, with short, sparse pubescence and scattered long hairs; segment III as long as either a half of scape or of segment IV; this shorter than V; all segments destituted of sensorial areas. Prothorax (fig. 1) a little wider than long, strongly compressed, rounded at sides, constricted at base. Prosternum (σ) without depressed areas of sexual punctuation. Prosternal process (fig. 2) narrower than an anterior coxa, expanded to apex; mesosternal process as wide as an intermediate coxa, sides slightly convergent to tip. Mesonotum (fig. 1) without scutellar

suture. Elytra (40x) with pubescence short and depressed; very few long setae at margins and at apex. Femora with short peduncles and strongly swollen (σ); tips of posterior ones (fig. 3) almost reaching apices of elytra. Posterior tibiae curved. Posterior tarsi as long as posterior tibiae; the soles only with long and sparse setae at sides of segments; segment III (fig. 4) not bilobed.

Type species, *Luscosmodicum beaveri* Martins, 1970; monobasic, original designation.

Luscosmodicum beaveri Martins, 1970

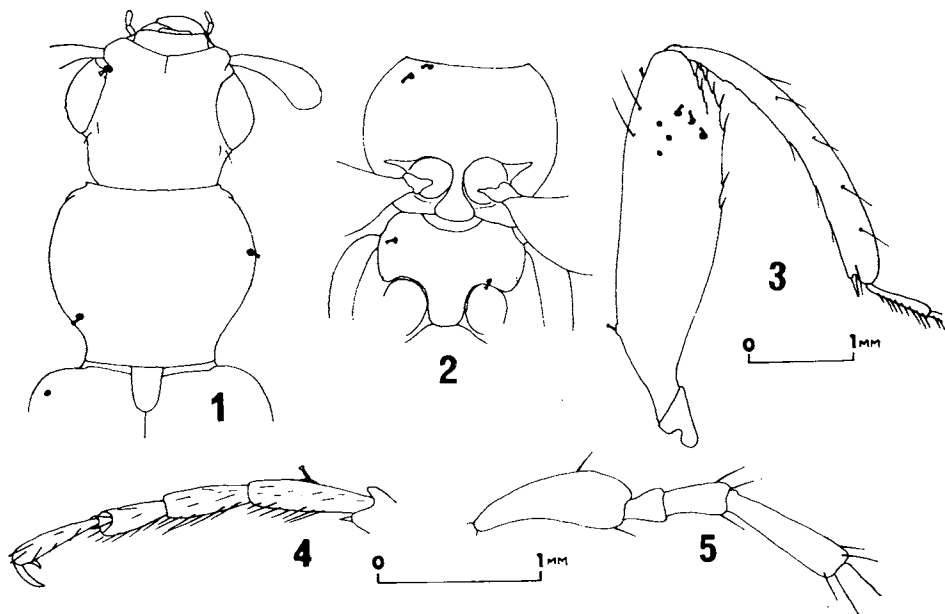
(Figs. 1-5)

Luscosmodicum beaveri Martins, 1970: 48, figs. 1-3.

The holotype, previously cited (Martins, 1970: 48) as a female, is actually a male, in spite of the absence of depressed area of sexual punctuation in the prosternum.

Measurements, in mm

	Holotype	σ	σ
Total length	7,39		8,69
Prothorax length	1,30		1,52
Prothorax width	1,41		1,63
Elytral length	5,10		6,00
Humeral width	1,52		1,95



Luscosmodicum beaveri, σ : 1, head and pronotum; 2, sternal processes; 3, posterior leg; 4, posterior tarsus; 5, segments I-IV of the antenna. Figures 1-3 and 4-5, respectively, in the same scale.

Material studied

BRAZIL. *Minas Gerais*: Lassance, 1 ♂ (CUIC). *Mato Grosso*: 12° 45'S, 56°46'W, 1 ♂ (MZSP, holotype).

Note

The specimen from Lassance has cuticular "formations" (figs. 1-4), asymmetrically distributed, in the appearance of large foveae each bearing an apically enlarged "peg". The scarce material at hand prevents conclusions on the nature of the "formations", completely absent on the holotype. They might be interpreted as resulting from a fungus infestation. Besides these "formations" I could not detect characters to separate the two specimens specifically.

Caediscum Lefkovitch, 1962

Caediscum Lefkovitch, 1962: 53; Martins, 1971: 58 (Key).

Strongly compressed, glabrous (slightly metallic reflexion on elytra in dependence of light incidency). Labrum (fig. 6) very reduced, invisible in upper view. Superior lobes of eyes present. Antennae (fig. 9) compact, glabrous, reaching middle (♂) or basal third (♀) of elytra. Segment III (fig. 9) shorter than scape, with about two thirds of the length of IV and double the length of the preceding. Segments without sensorial depressed areas. Prothorax (fig. 6) a little wider than long, quadrangular to the basal constriction which is very conspicuous. Prosternum (fig. 7) punctate in males; punctures not restricted to defined areas; in the females smooth. Prosternal process (fig. 7) transverse, very wide; mesosternal process (fig. 7) parallel-sided, wider than an intermediate coxa. Anterior process of metasternum transversely truncated. Disk of mesonotum depressed, without scutellar suture. Elytra smooth, glabrous. Femora fusiform; apex of posterior (fig. 8) ones reaching middle of third abdominal segment. Posterior tibiae shorter than respective femora. Segment III of posterior tarsi bilobed.

Type species, *Caediscum imperiale* Lefkovitch, 1962: monobasic, original designation.

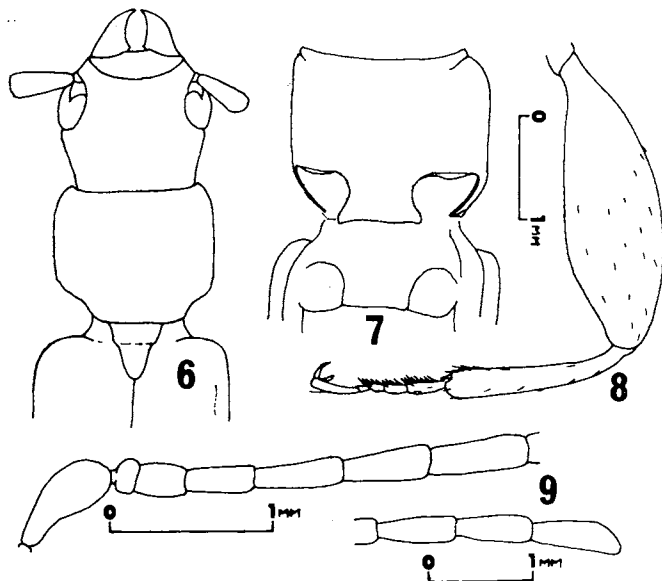
The segment III of antennae in *Caediscum* is reduced in length as in *Luscosmodicum* and *Nesosmodicum*. The genus differs, however, by the sternal processes extremely wide (figs. 2, 7, 11), labrum inconspicuous (reduced to a very narrow stripe under the clypeus), the antennal segments (fig. 9) cylindrical and strongly connected.

Caediscum imperiale Lefkovitch, 1962

(Figs. 6-9)

Caediscum imperiale Lefkovitch, 1962: 54, figs. 1 a-b.

Brownish (violet or green metallic in dependence of light incidence); legs yellowish. The sexual punctuation of male prosternum present on a large trapezoidal area. The femora in the same sex, as usual in the whole tribe, more robust than those of female.



Caediscum imperiale: 6, head and pronotum; 7, sternal processes; 8, posterior leg; 9, antenna. Figures 6-8 in the same scale.

Measurements, in mm

	♂	♀
Total length	8,80	4,78-7,50
Prothorax length	1,52	0,86-1,19
Prothorax width	1,73	0,92-1,30
Elytral length	5,76	3,26-5,21
Humeral width	1,95	1,04-1,63

Host plant. *Funtomia latifolia*, Apocynaceae (Lefkovitch, 1962: 54).

Material studied

UGANDA. Mpanga, 6 ♀, Ex *Funtomia latifolia* (BMNH, paratypes).
Mt. Labwor, Karomoja, 1 ♂ (BMNH). ZAIRE. (Lefkovitch, 1962: 54).

Nesosmodicum Martins, 1971

Nesosmodicum Martins, 1971: 57.

General fascies more cylindrical (fig. 10). Labrum conspicuous. Superior lobes of eyes present. Antennae almost reaching middle of elytra; setae long, sparse, besides others, shorter but also erect; segment III (fig. 14) a little longer than II, with one third of the length of scape and one half the length of IV. Segments without sensorial depressed areas. Prothorax (fig. 10) conspicuously longer than wide, rounded at sides, constricted at base; male prosternum without depressed areas of sexual punctuation. Prosternal process (fig. 11) spatuliform, narrower than an anterior coxa; mesosternal process (fig. 11) very narrow, the sides strongly convergent behind. Mesonotum with scutellar suture. Elytra (fig. 10) a little enlarged in apical fifth, without recumbent pubescence, with some setae more concentrate on apical third. Femora compressed, short; apex of posterior ones (fig. 12) reaching basal margin of abdominal segment III. Posterior tibiae longer than respective femora. Segment III of posterior tarsi (fig. 13) bilobed; soles pubescent.

Type species, *Nesosmodicum gracile* (Melzer, 1923); monobasic, original designation.

The conformation of the mesosternal process (fig. 11), the shape of antennal segment III (fig. 14) and the apical expansion of elytra (fig. 10) are diagnostic for *Nesosmodicum*.

Nesosmodicum gracile (Melzer, 1923)

(Figs. 10-14)

Smodicum gracile Melzer, 1923: 3; 1927: 139; Zikán & Wygodzinsky, 1944: 43 (Type); Blackwelder, 1946: 43 (Cat.).

Nesosmodicum gracile; Martins, 1971: 57; Zajciw, 1972: 48 (Geogr.).

Elytra, and sometimes also the head, brownish; prothorax usually yellowish. In the males the whole prothorax (except a longitudinal line on the disk) punctuate; prosternum without depressed areas of sexual punctuation.

Measurements, in mm

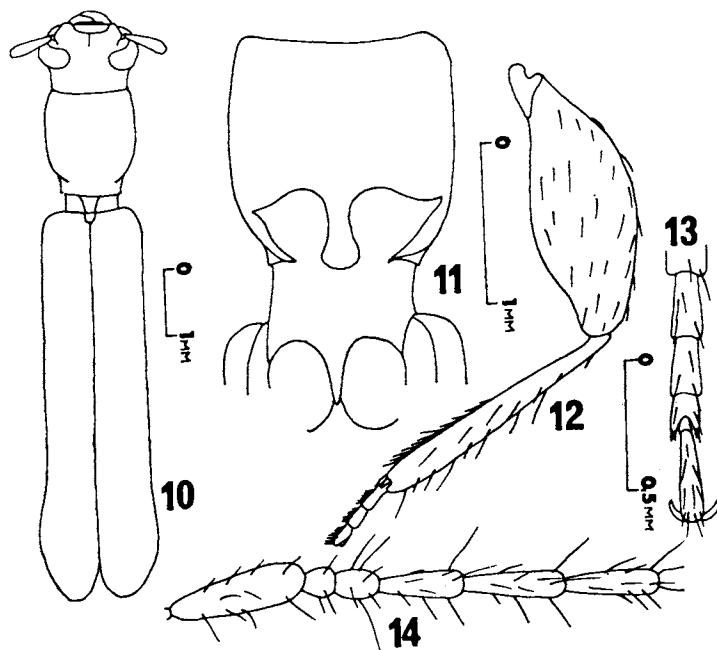
	Holotype	♂	♂	♀
Total length	7,06		5,52	8,69-8,80
Prothorax length	1,41		1,30	1,52-1,52
Prothorax width	1,19		1,08	1,25-1,30
Elytral length	4,88		4,56	6,19-6,41
Humeral width	1,19		1,19	1,52-1,63

Material studied

BRAZIL. *Minas Gerais*: Serra do Caraça, 1 ♀ (MNHN); (Fazenda do Engenho, 800 m), 1 ♀, (MZSP). *Rio de Janeiro*: Itatiaia (Zajciw, 1972: 48). *São Paulo*: Amparo, 1 ♂ (IPCS). São Paulo (Perdizes), 1 ♂, (IPCS, holotype).

Afrosmodicum, gen. n.

Dorso-ventrally compressed, but with a more cylindrical shape; glabrous, shining. Labrum conspicuous. Eyes reniform. Epicranial suture deep. Antennae (fig. 18) thinly pubescent, reaching apical third (♂) or basal third (♀) of elytra. In males the ventral side of segments III-VIII abundantly covered with long, slender and sinuous setae. Segment III the longest. In males, segment IV is a little shorter than V; V-VII subequal and VIII-XI decrescent in length. In females they are decrescent in length from IV. Vestiges of sensorial depressed areas on segments V-XI. Prothorax (fig. 15) wider than long; in the male rounded at sides; area of sexual punctuation well developed, invading sides of pronotum but leaving, in the middle of the disk, a finely punctate surface, shining and depressed. Sides of prothorax with sexual punctuation reaching the limits of prosternum, the latter without sexual



Nesosmodicum gracile, ♂: 10, general fascies; 11, sternal processes; 12, posterior leg; 13, posterior tarsus; 14, antenna. Figures 11, 12 and 14 in the same scale.

punctures, laterally rugose, with asperities. The female prothorax is more rounded, densely and strongly punctate at sides; central area of pronotum smoother and shining, yet strongly punctate, with two depressions, one anterior, another basal; sides of prothorax and prosternum as in male. Prosternal process (fig. 16) narrower than an anterior coxa; sides convergent behind. Mesosternal process wider than an intermediate coxa. Anterior process of metasternum scarcely rounded, margined. Sides of metasternum and metaepisterna rugose-punctate. Mesonotum without scutellar suture. Each elytron (fig. 15) with two costae from base to apical sixth. Long setae absent. Punctuation dense and fine. Femora (fig. 17) compressed, fusiform, short, stouter in males than in females. Tibiae strait. Segment III of the tarsi bilobed.

Type species, *Afrosmodicum ebeninum* (Chevrolat, 1855), comb. n.

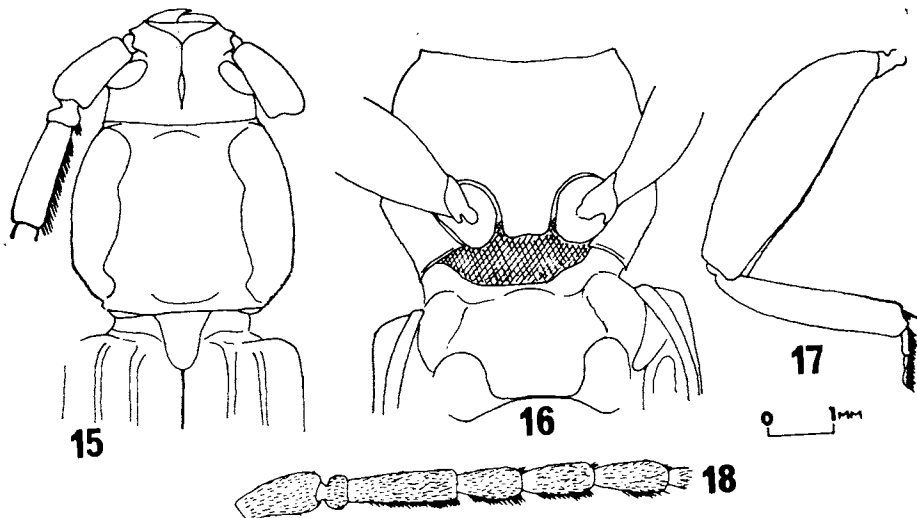
Afrosmodicum is characteristic as per presence of elytral costae, sexual pubescence in the male antennae and the antennal formula. The sexual punctuation of prothorax is restricted to sides but reaches the pronotum.

***Afrosmodicum ebeninum* (Chevrolat, 1855), comb. n.**

(Figs. 15-18)

Smodicum ebeninum Chevrolat, 1855: 183; 1858: n.° 3, t. 1, fig. 3; White, 1855: 328; Lacordaire, 1869: 146, note 2; Murray, 1870: 175, t. 2, fig. 3; Gemminger & Harold, 1872: 2961 (Cat.); Aurivillius, 1912: 12 (Cat.).

Smodicum ebeninum parumcostatus Lepesme, 1948: 258, *syn. n.*



Afrosmodicum ebeninum, ♂: 15, head and pronotum; 16, sternal processes; 17, posterior leg; 18, antenna, dorsal view. All figures in the same scale.

One of the specimens studied (IRSN) is labelled as the type of *Smodicum ebeninum parumcostatum* Lepesme. Morphologically and geographically it agrees with the typical form.

Color from dark brown to reddish brown; legs, sometimes, lighter. Besides the sexual pubescence of antennae, the males could be recognized by the sharp limit between the punctate areas and the smooth ones on the prothorax; in the females the punctuation is gradual from sides to middle.

Measurements, in mm

	♂	♀
Total length	9,45-13,16	10,16-15,66
Prothorax length	1,95- 2,66	1,88- 2,83
Prothorax width	2,17- 3,00	2,16- 3,33
Elytral length	6,63- 9,00	5,58-11,33
Humeral width	2,17- 3,33	2,56- 3,83

Type, type-locality

The holotype, not seen, belongs to the British Museum (R. T. Thompson, personal communication). Type-locality: "Vieux Calabar, Royaume de Bénin", today Nigeria.

Material studied

SIERRA LEONE: Njala, 1 ♀ (BMNH). CHAD: Ht. Chari-Tchad, Fort Sibut, 4 ♂, 1 ♀ (IRSN). NIGERIA: Calabar (Chevrolat, 1855; Murray, 1870). CAMEROUN: Elat, 1 ♀ (ICCM). GABON: Bas-Ogoové, 1 ♂ (IRSN). ZAIRE: *Katanga*: Kolwezi (1500 m), 1 ♀ (CASC). *Kasai*: 21 mi NE of Lusambo, 1 ♂ (CASC).

Metaphrenon, gen. n.

Cylindrical, robust, shining. Labrum (fig. 19) conspicuous. Antennae (fig. 22) as long as body (♂) or reaching apical third of elytra (♀), finely and sparsely pubescent, with some long setae on tips of joints. Segment III a little shorter than scape, subequal in length to the following, shorter than V. Depressed sensorial areas absent. Prothorax wider than long, rounded at sides. Male (fig. 19): sexual punctuation invades lateral portions of pronotum and leaves only the dorsal area smooth and shining, depressed (especially at base); sides of prothorax and prosternum (except a central, longitudinal area) with sexual punctuation. Female: punctuation and granules, occupy a similar area, but are less concentrated. Mesosternal process (fig. 20) narrower than an intermediate coxa, strongly notched posteriorly for reception of anterior process of metasternum (fig. 20). Mesonotum with deep scutellar suture. Each elytron with a conspicuous longitudinal elevation from anterior fourth to the apical one. Punctuation relatively dense (each puncture, 40x, with a very short seta), and some long scattered setae. Femora more robust

in males than in females. Posterior tarsi (fig. 21) shorter than respective tibiae; segment III bilobed.

Type species, *Metaphrenon impressicolle* (Lacordaire, 1869), comb. n.

Body more cylindrical and anterior coxal cavities slightly angulated laterally approximate this genus to the Hesperophanini. It shows, however, sexual dimorphism in the femora and the same pattern of sexual punctuation on prothorax, these characteres being found in the other Smodicini.

Metaphrenon has few affinities with the other genera; differs from *Afrosmodicum* by the elevation on the elytra, the sternal processes, absence of sexual pubescence in the male antennae and the antennal formula.

***Metaphrenon impressicolle* (Lacordaire, 1869), comb. n.**

(Figs. 19-22)

Smodicum impressicolle; Mannerheim in Dejean, 1835: 357 (Cat., n. nud.); White, 1855: 328 (Cat., n. nud.).

Smodicum impressicolle Lacordaire, 1869: 146, note 2; Gahan, 1895: 90; Aurivillius, 1912: 12 (Cat.); Blakwelder, 1946: 558 (Cat.); Wolcott, 1948: 334 (Geogr.).

Smodicum mpressicolle; Gemminger & Harold, 1872: 2961 (Cat.).

Smodicum impressicolle Thomson, 1878: 9.

Thomson (1878) and Lacordaire (1869) described, independently, the same species with the name previously proposed by Mannerheim (Dejean, 1835: 357). The study of Dejean's specimen (BMNH) confirms the above references.

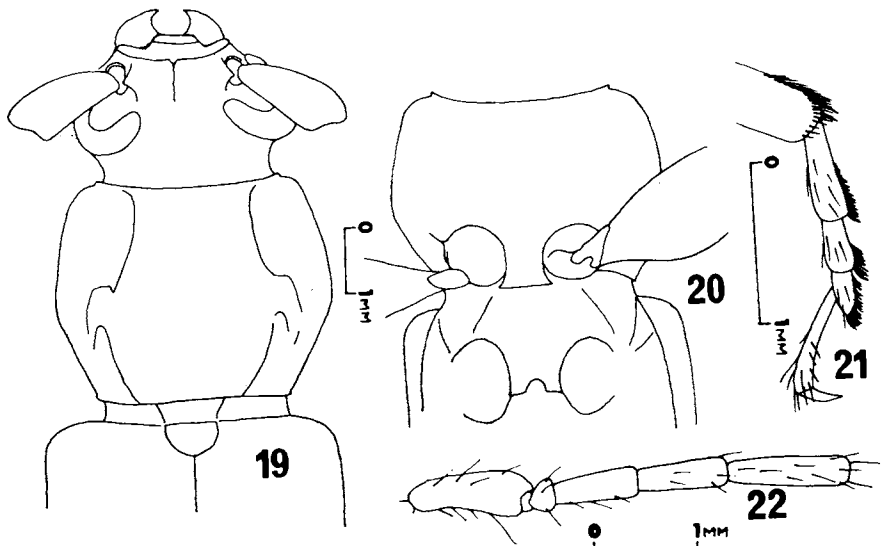
General color orange reddish. The sexual punctuation on male prothorax is represented by tegument (40x) densely microsculptured, with mixed little punctures and asperate punctures.

Measurements, in mm

	♂	♀
Total length	12,93	9,16-14,33
Prothorax length	2,66	1,58- 2,66
Prothorax width	3,33	2,16- 3,83
Elytral length	8,66	5,66- 8,16
Humeral width	3,50	2,16- 4,00

Material studied

SANTO DOMINGO: 1 ♀ (BMNH); 1 ♂ (BMNH); 2 ♀ (BMNH). HAITI: Fond Parisien (about 60 ft. alt.), 1 ♂ (AMNH). Gonaives, 1 ♀ (CASC). Pétionville, 1 ♀ (KSUC). PUERTO RICO: Mayagüez (Wolcott, 1948).



Metaphrenon impressicolle, ♂: 19, head and pronotum; 20, sternal processes; 21, posterior tarsus; 22, antenna. Figures 19 and 20 in the same scale.

Smodicum Haldeman, 1847

Smodicum Haldeman, 1847: 38; LeConte, 1850: 24; White, 1855: 327; Thomson, 1860: 189, 202; 1864: 221, 440; Lacordaire, 1869: 145; Murray, 1870: 175; Gemminger & Harold, 1872: 2961 (Cat.); Leng, 1884: 61; Gahan, 1895: 90; Blatchley, 1910: 1014; Bruch, 1911: 170; 1912: 203 (Cat.); Gounelle, 1911: 127; Aurivillius, 1912: 12 (Cat.); Blackwelder, 1946: 558 (Cat.); Knull, 1946: 187; Lefkovich, 1962: 53 (Key); Linsley, 1962: 11; Martins, 1971: 58 (Key).

Labrum conspicuous. Superior lobes of eyes present. Segment III of antennae usually as long as scape. Prothorax and prosternal process variable according to the species. Prosternum of males (except *dinellii* and *depressum*) usually with two depressed areas of sexual punctuation (figs. 32, 35). Mesosternal process parallel sided, not notched at apex. Elytra without costae or elevations. Segment III of posterior tarsi bilobed.

Type species, *Smodicum cucujiforme* (Say, 1826); Thomson designation (1864: 221).

The four species (none of them described until that occasion) included in Dejean's Catalog (1835: 332) were: *impressicolle* Mannerheim (later described under this same name by Lacordaire and Thomson), Sto. Domingo; *melanophthalmum* Dejean, North America (the same as *cucujiforme*, apud White, 1855: 328); *silaceum* Dejean, Brazil; *exiguum* Dejean, Carthage, which I have examined (BMNH), probably a new species, but poorly preserved.

Lacordaire (1869: 145) erroneously refers the genus to LeConte and splits it into two sections, based on the shape of the prothorax and on the presence or absence of elevated lines on the elytra.

I was able to recognize 13 species in this genus, which can be separated as follows.

1. Head and pronotum with pubescence not erect, relatively dense; antennae with dense recumbent pubescence, almost without long setae; elytra with setae on dorsal area 2
- Head and pronotum without recumbent pubescence; antennae can be densely pubescent with erect setae; long setae on elytra restricted to apical area and, sometimes, close to margin, but never in great numbers on dorsal area 3
- 2(1). Elytra (fig. 34) with short setae all over the surface; area between depressions of sexual punctuation on male prosternum (fig. 35) wider than width of prosternal process. Peru to Argentina *semipubescentis* Gounelle.
Setae of elytra (fig. 37) distant, organized in five longitudinal rows per elytron; width between depressed areas of sexual punctuation on male prosternum (fig. 38) equal to width of prosternal process. Colombia *brunneum* Thomson.
- 3(4). The whole of the antennal surface with short, dense and erect setae (fig. 30); areas of sexual punctuation on male prothorax can be seen on anterior sides of pronotum (fig. 28) and are not depressed on prosternum; (general color orange). Brazil (Bahia to Rio Grande do Sul), Argentina (Tucuman to Misiones) *dinellii* Bruch.
Antennae sparsely pubescent, almost glabrous; (depressed areas of sexual punctuation present on male prosternum, except in *depressum*) 4
- 4(3). Sexual punctuation visible on male pronotum (fig. 23); male prosternum without depressed areas of sexual punctuation; (general color brownish to dark brown). Brazil (Minas Gerais to Santa Catarina) *depressum* Thomson.
Sexual punctuation of male prothorax restricted to depressed prosternal areas (for example, fig. 35); general color yellowish or orange yellowish 5
- 5(4). Elytra (fig. 51) distinctly plane at apical region 8
Elytra not as above; epipleurae not strongly reduced to apex; dorsal curve regular 6
- 6(5). Sides of male prothorax parallel on anterior half; prosternal areas of sexual punctuation highly developed (fig. 32), distance between them equals width of prosternal process; with

- long setae close to elytral margins and some, sparse, on disc; prosternal process narrower than an anterior coxa, the mesosternal one (fig. 32) narrower than an intermediate coxa. Argentina (Santiago del Estero) *reticolle*, sp. n.
- Sides of male prothorax (figs. 41, 45) more angulated at middle, convergent anteriorly; areas of sexual punctuation (figs. 43, 46) reduced; elytral margins without long setae and only some sparse on the apex 7
- 7(6). Mandibles (fig. 42), especially in male, strongly irregular; head well developed in relation to size of prothorax (fig. 41); elytra relatively short (see dimensions); antennae of males reaching apex of the elytra. Brazil (Amazonas, Mato Grosso, Goiás) ..
..... *angusticolle* Aurivillius.
- Male mandibles without great irregularities; general shape more elongated, with longer elytra (see dimensions); tips of male antennae reaching beyond apices of elytra. Brazil (Minas Gerais to Santa Catarina) *longicorne*, sp. n.
- 8(5). Segments III and IV of male antennae (fig. 69) short and oval; male pronotum (fig. 66) longitudinally depressed and with two other anterior depressed areas; (prosternal process narrower than an anterior coxa; elytral apices darker). Colombia
..... *torticolle*, sp. n.
- Segments III and IV of antennae (figs. 61, 65) more cylindrical and elongated in shape; elytral apices not darker 9
- 9(8). Prosternal process (figs. 59, 63) wider than an anterior coxa 10
- Prosternal process (figs. 49, 56) narrower than an anterior coxa 11
- 10(9). Sides of male prothorax (fig. 62) regularly rounded. United States (Arizona) to Mexico (Baja California, Sinaloa, Tres Marias Islands). *pacificum* Linsley.
- Sides of male prothorax (fig. 58) more irregular. Mexico (Veracruz to Yucatan) *parandroides* Bates.
- 11(9). Anterior process of metasternum (fig. 56) anteriorly projected to middle of intermediate coxae; basal segments of antennae (fig. 57) short; (tips of male antennae reaching middle of elytra). Mexico (Quintana Roo) *clancularium*, sp. n.
- Anterior process of metasternum (fig. 49) only slightly projected; antennal segments (fig. 50) more elongated. United States 12

- 12(11). Prothorax (fig. 48) usually rounded at sides, less setose. United States (Eastern and Central States to Texas) *cucujiforme* (Say).
Sides of prothorax angulated at middle (fig. 53), usually with more long setae. United States (Texas, Lower Rio Grande Valley) *texanum* Knull.

***Smodicum depressum* Thomson, 1878**

(Figs. 23-27)

Smodicum depressum Thomson, 1878: 6; Aurivillius, 1912: 12 (Cat.); Blackwelder, 1946: 558 (Cat.); Zajciw, 1972: 48 (Geogr.).

Similar in general shape and dark color to *Afrosmodicum ebeninum* but structurally considerably different; the elytra have no costae, the sexual pubescence is absent on male antennae and the sternal processes are much narrower.

Brownish red or dark brown; glabrous, shining, compressed dorso-ventrally. The antennae exceed (♂) or reach (♀) middle of elytra. Segment IV shorter than III or V (fig. 25). Prothorax a little (as in figure 23) or more swollen antero-laterally. The sexual punctuation reaches sides of pronotum (fig. 23) but leaves a strongly shining central area. A similar punctuation gradually decrescent, exists on sides of prothorax and on prosternum. Prosternal process spatuliform (fig. 24) narrower than an anterior coxa; mesosternal one parallel sided, narrower than an intermediate coxa. Ventral surface shining; last abdominal segments with yellowish setae. Posterior femora of males clearly more robust than those of females. Male genitalia (figs. 26, 27).

Measurements, in mm

	♂	♀
Total length	8,66-16,00	8,16-16,00
Prothorax length	1,66- 3,16	1,66- 2,66
Prothorax width	1,89- 3,83	1,89- 3,16
Elytral length	6,16-11,16	7,00-11,66
Humeral width	2,16- 4,16	2,16- 3,91

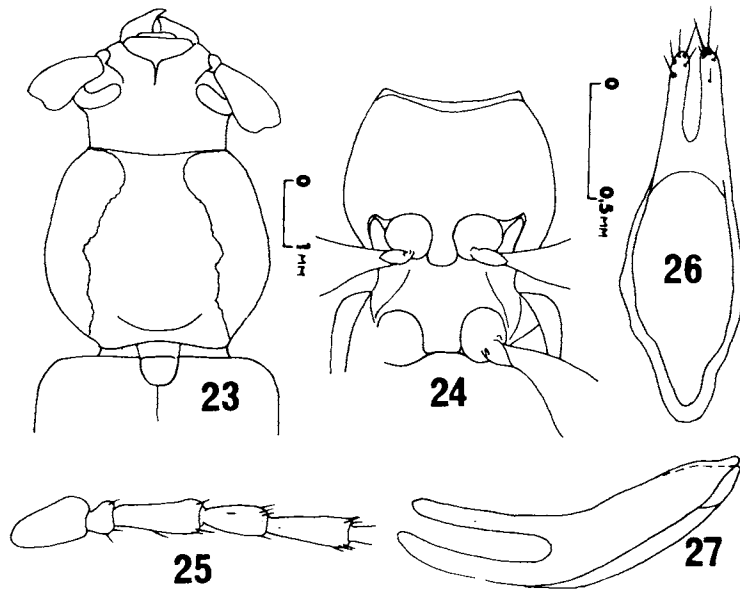
Type, type-locality

Holotype ♀, studied, Muséum National d'Histoire Naturelle, from "Brésil".

Material studied

BRAZIL. 1 ♀ (MNHN, holotype); 1 ♂ (BMNH, *Smodicum rotundicolle* Chevr.). *Minas Gerais*: 1 ♂ (BMNH); 1 ♂ (MNHN). Cabo Verde, 1 ♂ (MZSP). Lavras, 1 ♀ (MZSP). Pouso Alegre, 1 ♀ (MZSP). Sertão-

zinho (Borda da Mata), 4 ♀ (MZSP). Três Corações, 1 ♂ (IPCS). *Espírito Santo*: Santa Tereza, 2 ♀ (DZUP). *Rio de Janeiro*: Itatiaia (700 m), 1 ♂ (IPCS); (700-1000 m), Zajciw (1972: 48); (Parque Nacional), 1 ♂ (LACM). Terezópolis, 1 ♀ (MNHN). *Guanabara*: Rio de Janeiro, 1 ♂, 1 ♀ (BMNH). *São Paulo*: Campinas, 1 ♂ (IPCS). Indiana, 1 ♂ (MZSP). Piraju, 1 ♀ (MZSP). São Paulo, 1 ♀ (IPCS); (Ipiranga), 1 ♂ (MZSP). Serra da Bocaina (Faz. Barreiro), 2 ♂, 2 ♀ (MZSP). *Santa Catarina*: Blumenau (Colônia Hansa), 1 ♀ (MZSP). Nova Teutônia, 2 ♀ (FMNH); 1 ♀ (MZSP).



Smodicum depressum, ♂: 23, head and pronotum; 24, sternal processes; 25, antenna; 26, tegmen; 27, median lobe. Figures 23-25 and 26-27, respectively in the same scale.

Smodicum dinellii Bruch, 1911

(Figs. 28-30)

Smodicum dinellii Bruch, 1911: 172, figs.; 1912: 203 (Cat.); Aurivillius, 1912: 12 (Cat.); Blackwelder, 1946: 558 (Cat.); Prosen 1947: 318 (Geogr.).

Smodicum missionum Bruch, 1911: 174, figs.; 1912: 203 (Cat.); Aurivillius, 1912: 12 (Cat.); Blackwelder, 1946: 558 (Cat.), *syn. n.*

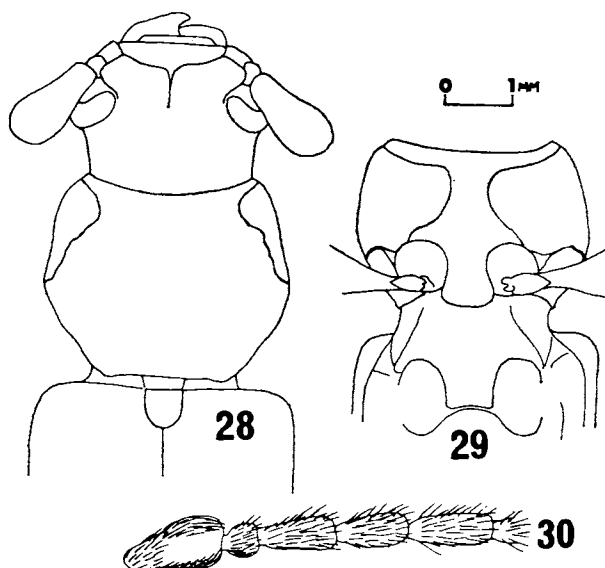
Bruch (1911: 174) separates *missionum* from *dinellii*: the former has general color darker, punctuation stronger, prothorax with different aspect (in *dinellii* it is scarcely angulated at sides, in *missionum* it is

round), antennae more robust and less densely pubescent, scape thicker and curved at base, segment III longer and conical. Bruch examined some specimens of *dinellii* and only one male of *missionum*.

If we compare only the two holotypes, which were studied, these differences can be seen, but examination of other specimens shows that they are a result of intraspecific variation, so I decided to synonymize these names.

S. dinellii is characterized by the dense, erect, pubescence on antennae and the sexual punctuation of male prothorax which invades the anterior sides of pronotum; the prosternum has no depressed areas.

Orange, shining, glabrous (except antennae). Labrum conspicuous. Fronto-clypeal suture very deep. Antennae (fig. 30) pass (σ) or reach (φ) middle of elytra and are densely pubescent; in the male the pubescence is more erect than in the female. Segment III as long as scape; IV shorter than III or V. Prothorax wider than long; sides rounded or scarcely angulated (fig. 28), strongly constricted at base (σ) or with rounded sides (φ). Anterior margin of pronotum curved. In males the sexual punctuation is visible on anterior sides pronotum. Sexual punctured areas of prosternum developed, scarcely depressed, and almost contiguous at the level of anterior third. Prosternal process (fig. 29) robust at apex, spatuliform, narrower in the middle than an anterior coxa; the mesosternal one wider than an intermediate coxa. Scutellar suture present. Elytra densely punctured, with apical and marginal (from middle to apex) setae. Femora and tibiae with recumbent pubescence. Abdomen with sparse lateral setae.



Smodicum dinellii, σ : 28, head and pronotum; 29, sternal processes; 30, antenna. All figures in the same scale.

Measurements, in mm

	♂	♀
Total length	8,16-12,66	10,00-13,00
Prothorax length	1,50- 2,33	1,50- 1,91
Prothorax width	1,83- 3,00	1,83- 2,66
Elytral length	5,66- 9,00	7,66- 9,66
Humeral width	1,91- 3,00	2,33- 3,16

Type, type-locality

Dinellii: Holotype ♂, studied, and some more specimens (number not indicated); Museo Argentino de Ciencias Naturales. Type-locality, Tafi Viejo, Tucumán, Argentina.

Missionum: Holotype ♂, studied, same Museum. Type-locality, Misiones, Argentina.

Material studied

BRAZIL. *Bahia*: Planaltino, 3 ♂ (MZSP). *São Paulo*: Marília, 4 ♀ (MAGD). *Santa Catarina*: Itapiranga, 2 ♀ (MAPA). *Rio Grande do Sul*: Cerro Largo (ex-Cerro Azul), 1 ♂, 1 ♀ (IPCS); 1 ♂ (MAPA). Pelotas, 1 ♂ (FHCM). Porto Alegre, 1 ♂, 1 ♀ (MAPA).

PARAGUAI. 1 ♂ (MNHN).

ARGENTINA. *Misiones*: 1 ♂ (MACN, holotype of *missionum*). Campo Vieira, 1 ♂, 1 ♀ (MAGD). Concepción (Santa María), 1 ♀ (FHCM). Dos de Mayo, 2 ♀ (MAGD). Soberbio, 1 ♂ (MAGD). *Santiago del Estero*: Río Salado, 1 ♂ (MNHN). *Tucuman*: 1 ♂ (MACN, holotype of *dinellii*), 2 ♂, 1 ♀ (MNHN). Colmenar, 1 ♂, 1 ♀ (IRSN, BMNH). *Salta*: Tabillas, 1 ♂ (CASC).

Variation

Specimens from Planaltino, Bahia: pronotum finely and very sparsely punctured, with sides rounded; pubescence of antennae and femora sparse. In one of the females from Cerro Largo, Rio Grande do Sul, the antennal pubescence is more erect than usual. In the Misiones specimens the sides of the base of pronotum are more conspicuously punctate; the areas of sexual punctuation less visible in Salta specimens.

***Smodicum recticolle*, sp. n.**

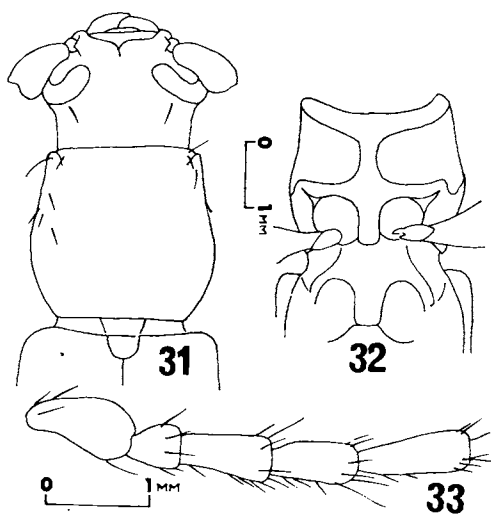
(Figs. 31-33)

This species is characterized by the parallel sides of male prothorax in anterior half (fig. 31); prosternal areas of sexual punctuation highly developed (fig. 32); elytra with a few long, sparse setae.

The female is very similar to that of *dinellii*, however, the presence of some long setae on the elytra immediately tells *recticolle* apart.

♂. Orange. Head and antennae slightly darker. Labrum conspicuous. Frontal and fronto-clypeal sutures deep. Antennae (fig. 33) scarcely exceeding middle of elytra, with some long setae at apex of the segments, besides sparse, additional short, recumbent hairs. Segment III as long as scape or V; IV shorter than both. Prothorax (fig. 31) parallel sided in anterior half, rounded posteriorly. The parallel area is the result of the dorsal limit of well developed sexual punctate areas, which forms an angulate contact with the pronotum. Lateral region of pronotum with some punctures, dorsum smooth; few long setae present laterally. Prosternum (fig. 32) almost entirely occupied by the areas of sexual punctuation. Prosternal and mesosternal processes narrower than respective coxae. Elytra moderately punctate on anterior half, more sparsely on apical one. Besides the long setae present at apex and margins, there are few others, organized into two rows: one sutural, other dorsal (some sparse ones between the rows). Femora fusiform, robust, shining with long scattered setae. Tibiae with only some few setae. Abdomen sparsely pubescent.

♀. Sides of prothorax rounded, punctate. Antennae reaching middle of elytra. Femora more delicate.



Smodicum recticolle, ♂: 31, head and pronotum; 32, sternal processes; 33, antenna. Figures 31 and 32 in the same scale.

Measurements, in mm

	♂	♀
Total length	10,83	13,33
Prothorax length	2,08	2,16
Prothorax width	2,16	2,58
Elytral length	7,50	9,66
Humeral width	2,66	3,00

Material studied

ARGENTINA. *Santiago del Estero*: Fernandez, 1 ♂, 1 ♀, X.1961 holotype, MAGD; paratype, MZSP).

Smodicum recticollae can be separated from *dinellii*: clypeus smooth and glabrous; antennae (figs. 30, 33) with completely different pubescence; prothorax (figs. 28, 31) with different shape; areas of sexual punctuation not seen in male pronotum, depressed on prosternum; sternal processes (figs. 29, 32) much narrower; elytral punctures gradually decreasing to apex; presence of long setae on elytra; femora without recumbent pubescence.

***Smodicum semipubescens* Gounelle, 1911**

(Figs. 34-36, 40)

Smodicum semipubescens Gounelle, 1911: 127; Aurivillius, 1912: 12 (Cat.); Blackwelder, 1946: 558 (Cat.).

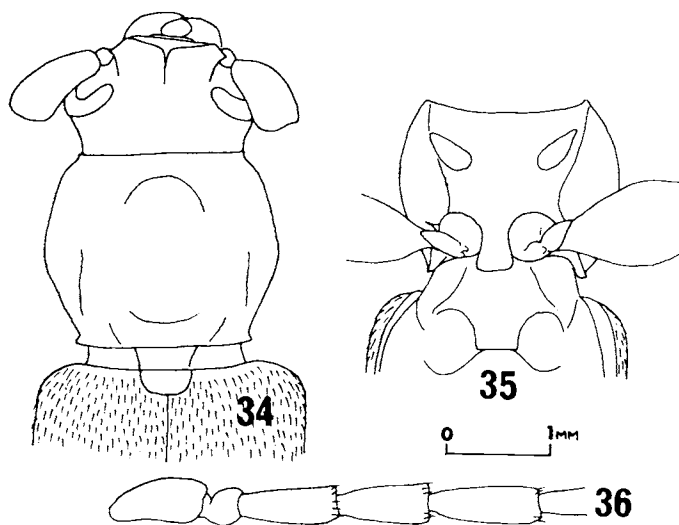
Smodicum bonariense Bruch, 1911: 171, fig.; 1912: 203 (Cat.) Aurivillius, 1912: 12 (Cat.); Blackwelder, 1946: 558 (Cat.), *syn. n.*

A footnote on page 167 of Bruch's paper indicates the date "XI. 22.1911"; on the cover of the "Annales de la Société Entomologique de France", where *semipubescens* was published, there appears "Juillet, 1911"; this name has, therefore, priority.

Bruch's figure (1911: 171) indicates the holotype as a male, but it is actually a female, as I could conclude from its study. All of the original Gounelle's specimens were seen (1 ♂ from Jataí, 1 ♀ from Vilcanota, 1 pair from Ocobamba).

Smodicum semipubescens is characterized by short and relatively dense pubescence on the elytra; whole dorsal surface of body with recumbent pubescence and the sexual depressed areas on prosternum considerably reduced (fig. 35).

From orange yellow to reddish brown, moderately shining. Head and pronotum pubescent. Elytra with abundant short setae over the whole surface. Labrum conspicuous. Fronto-clypeal suture deep. Clypeus pubescent. The whole head with recumbent pubescence, moderately dense. Male antennae reaching apical fifth of elytra; those of female reaching the apical fourth. All segments (40x) pubescent, practically without long setae and without sensorial areas. Segment III a little longer than scape; IV shorter than III or V (fig. 36). Prothorax (fig. 34) rounded laterally, scarcely angulated at middle of sides, with a scarcely indicated tubercle at anterior fourth. Pronotum depressed on disk; the whole surface finely pubescent. Prosternum shining, smooth; areas of sexual punctuation (fig. 35) reduced, pubescent. Elytra without long setae, but with abundant semi-erect short setae on the whole surface. Punctuation dense and uniform. Ventral side shining only with long setae. Metaepisternum longitudinally grooved (as in *brunneum*, fig. 39). Femora finely pubescent.



Smodicum semipubescens, ♂: 34, head and pronotum; 35, sternal processes; 36, antenna. All figures in the same scale.

Measurements, in mm

	♂	♀
Total length	7,23-8,47	7,39-11,31
Prothorax length	1,41-1,63	1,83- 1,95
Prothorax width	1,63-1,95	1,46- 2,62
Elytral length	5,10-5,07	5,43- 8,04
Humeral width	1,84-2,06	1,84- 3,26

Type, type-locality

Semipubescens: Original description based on four specimens: 1 ♂ from Jataí, Goiás, Brazil (MNHN); 1 ♂, 1 ♀, from Ocabamba, Apurimac, Peru (DEIB); 1 ♀ from Vilcanota, Cuzco, Peru (MNHN). The male from Jataí is designated lectotype; the other specimens are labelled as paralectotypes.

Bonariense: holotype ♀ (not ♂ as indicated in the original description), studied, Museo Argentina de Ciencias Naturales. Type-locality: Provincia de Buenos Aires, Argentina.

Material studied (fig. 40)

PERU. *Apurimac*: Ocabamba, 1 ♂, 1 ♀ (DEIB, paralectotypes).
Cuzco: Vilcanota, 1 ♀ (MNHN, paralectotype).

BRAZIL. *Goiás*: Jataí, 1 ♂ (MNHN, lectotype).

PARAGUAI. *Guairá*: Villarica, 1 ♂ (IPCS).

ARGENTINA. *Mendoza*: 1 ♀ (FHCM). *Buenos Aires*: 1 ♀ (MACN, holotype of *bonariense*).

Smodicum brunneum Thomson, 1878

(Figs. 37-40)

Smodicum brunneum; Chevrolat (*i. litt.*); White, 1855: 328 (Cat., *n. nud.*); Gemminger & Harold, 1872: 2961 (Cat., *n. nud.*).

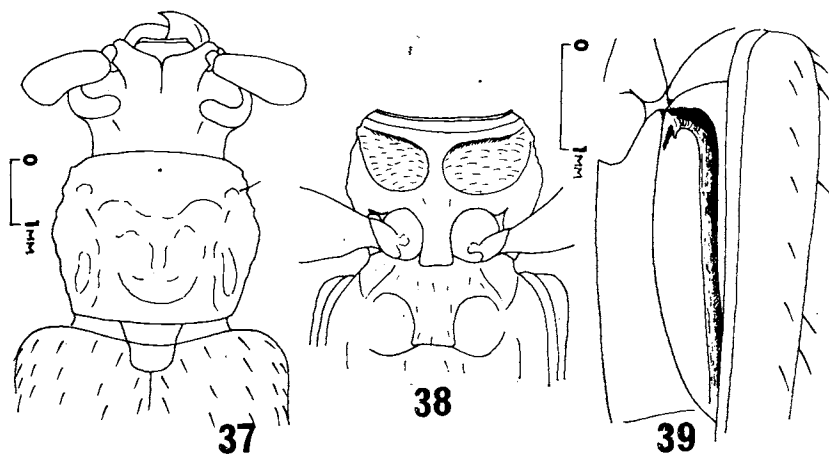
Smodicum brunneum Thomson, 1878: 7; Gahan, 1895: 90; Aurivillius, 1912: 12 (Cat.); Blackwelder, 1946: 558 (Cat.).

Smodicum similare Thomson, 1878: 8; Gahan, 1895: 90 (Syn.).

Smodicum subcylindricum Thomson, 1878: 7; Aurivillius, 1912: 12 (Cat.); Blackwelder, 1946: 558 (Cat.), *syn. n.*

Based on males from Colombia, Thomson described *brunneum* and *subcylindricum*. The description of *S. similare* was based on a female, probably erroneously labelled "Santo Domingo". Gahan (1895: 90) who also studied the type of *similare*, decided to synonymize *similare* and *brunneum*.

The holotypes of *brunneum* and *subcylindricum* present some differences, the most conspicuous of which are: segment III of the antennae longer than IV in *brunneum*, subequal to IV in *subcylindricum*; areas of sexual punctuation more developed in *brunneum* than in *subcylindricum*.



Smodicum brunneum, ♂: 37, head and pronotum; 38, sternal processes; 39, metaepisternum. Figures 37 and 38 in the same scale.

This species, however, seems to be broadly variable, the antennal formula accompanying this variation. As to the prosternal areas, I could not find, amongst 19 males studied, areas so strongly reduced as those of the holotype of *subcylindricum*. On the other hand, I have not been able to find additional characters to separate *subcylindricum*, so I shall also consider it as a synonym of *brunneum*.

Smodicum brunneum is characterized by the depression on the metepimeron (fig. 39), the pubescent pronotum and the elytral setae organized in rows. It is closely related to *semipubesceus* but the different elytral pubescence (figs. 34, 37) immediately separates them.

From brownish to orange; legs paler or not (sometimes yellowish). Head, antennae, pronotum and femora pubescent. Elytra shining, with long setae organized in somewhat irregular rows. Labrum conspicuous. Frontal and fronto-clypeal sutures deep. Clypeus, frons and vertex pubescent. Male antennae usually as long as body; those of females reaching the elytral fore fourth. Segments pubescent with some long setae at apex or on internal side. Segment III scarcely longer or subequal to IV, somewhat nodose at apex; sensorial areas absent. Prothorax (fig. 37) rounded at sides, slightly angulated at middle, with a conspicuous tuberculiform elevation on anterior fourth. Pronotum irregular, depressed on disk, with two low anterior tubercles and somewhat irregular on sides of base. Besides the pubescence anteriorly dense, there are deep, more concentrate punctures to sides. Areas of sexual punctation developed, pubescent and deeply punctured. Prosternal process narrower than an anterior coxa, with divergent sides to apex. Mesosternal process almost as wide as an intermediate coxa (fig. 38). Metepimeron (fig. 39) grooved. Elytra punctate all over; the punctures more concentrated at middle, sparser at sides of suture and at apex. Five longitudinal rows of setae on middle of each elytron. Male femora pubescent, a little more robust than those of females.

Measurements, in mm

	♂	♀
Total length	6,83-10,83	9,16-12,16
Prothorax length	1,16- 2,00	1,66- 2,16
Prothorax width	1,50- 2,33	1,91- 2,50
Elytral length	5,00- 7,73	6,66- 9,33
Humeral width	1,74- 2,83	2,33- 3,33

Material studied (fig. 40)

COLOMBIA: 1 ♂ (MNHN, holotype of *subcylindricum*); 1 ♂ (BMNH, *Smodicum sulcifrons* Dej.); 1 ♂ 1 ♀ (BMNH); 2 ♂ (IRSN); 1 ♀ (MCZC). *Distrito Especial*: Bogotá, 1 ♂ (MNHN, holotype of *brunneum*); 1 ♀ (MCZC); 1 ♀ (BMNH); 1 ♂ (MNHN). *Meta*: Villavicencio, 1 ♂ (IPCS); 3 ♂ (AMNH). *Antioquia*: Pensilvania, 1 ♂ (IPCS). *Cundinamarca*: Sasaima (Finca Bella Vista), 1 ♂ (CASC).

ECUADOR. 1 ♂ (BMNH). *Napo Pastaza*: Chiguinda, 1 ♂ (BMNH). *Chimborazo*: Naransapata (100 km W Guayaquil), 1 ♂ (CISC).

PERU. *Amazonas*: Guayabamba, 1 ♀ (AMNH). *Huanuco*: Fundo Sinchono, 1 ♂ (CASC).

Data to check:

SANTO DOMINGO. 1 ♀ (MNHN, holotype of *similare*). BRAZIL. *Minas Gerais*: 1 ♂ (MNHN).

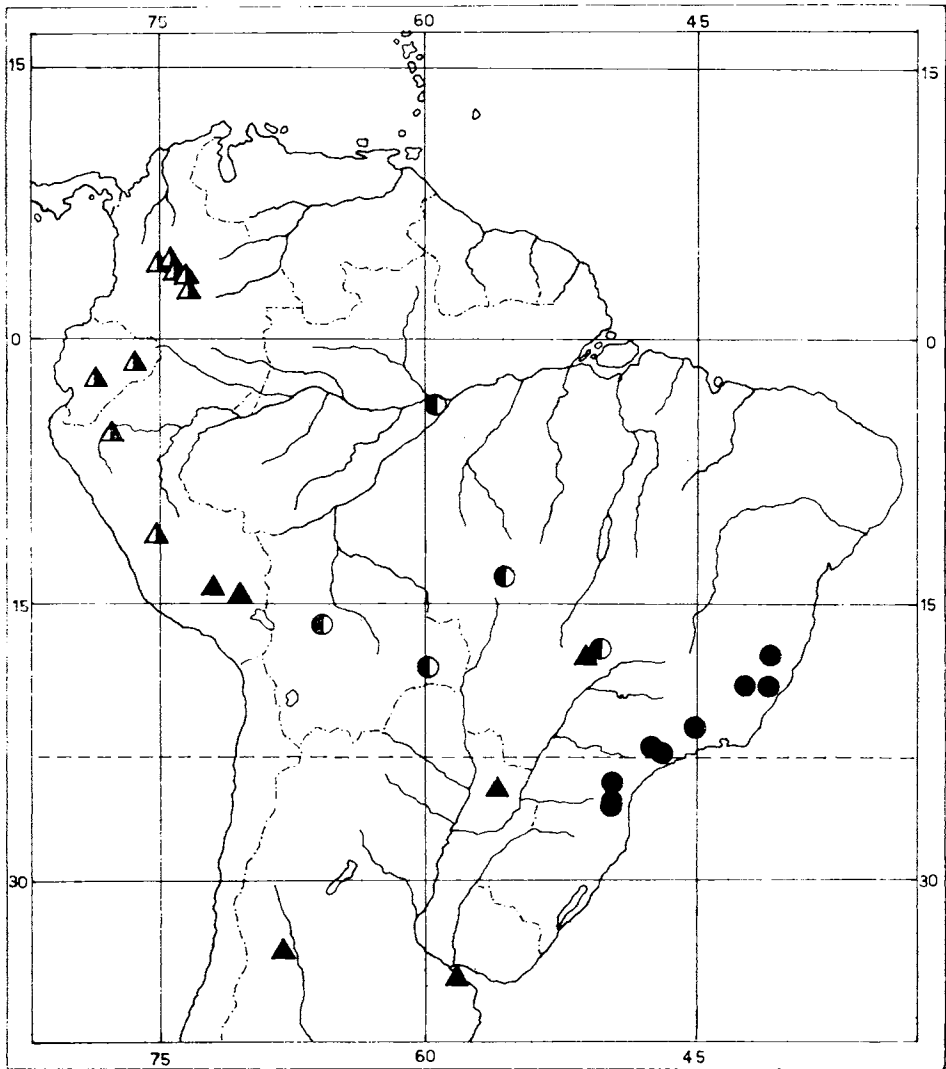


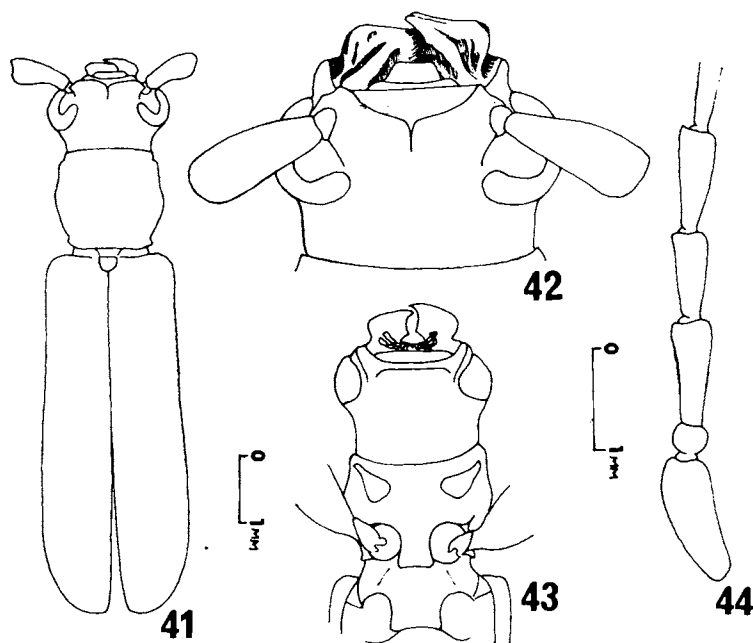
Fig. 40. Geographical distribution of *Smodicum brunneum* (divided triangles), *S. semipubescens* (black triangles), *S. angusticolle* (divided circles) and *S. longicorne* (black circles).

***Smodicum angusticolle* Aurivillius, 1919**

(Figs. 40-44)

Smodicum angusticolle Aurivillius, 1919: 2; Blackwelder, 1946: 558 (Cat.).Probably this species was referred by Gounelle (1911: 129) from Jataí, Goiás, Brazil, under the name *Smodicum* sp.Among the glabrous species with prosternal areas depressed and elytra not plane on apical area, *angusticolle* is distinguished especially by the mandibles (figs. 41) dorsally carinated on external side (a character better observed in the males).

Orange yellowish, glabrous, shining. Head (fig. 42) developed, as large as or larger than prothorax, finely punctate. Labrum conspicuous. Frontal and fronto-clypeal sutures deep. Clypeus finely and very sparsely pubescent. Male antennae as long as or a little shorter than body; those of the females reaching apical third of elytra. Segments pubescent, without long setae even at apex. Sensorial areas present on segments V-XI. Segment IV scarcely shorter than III and V; III as long as scape (fig. 44). Prothorax rounded at sides, more constricted at base than at apex. Pronotum plane, punctuation gradually increasing to sides. Prosternum shining; areas of sexual punctuation distant, small (fig. 43). Prosternal process as wide as an anterior coxa; mesosternal wider than



Smodicum angusticolle, ♂: 41, general fascies; 42, head; 43, sternal processes; 44, antenna. Figures 41, 43 and 44, respectively, in the same scale.

an intermediate coxa. Mesepisternum grooved (as in *brunneum*, fig. 39). Ventral surface shining with abundant long setae. Elytra without pubescence, with some short and very sparse setae (40x) more conspicuous at apical fourth; punctuation fine and dense in all surface. Femora pubescent.

Measurements, in mm

	♂	♀
Total length	6,52-10,43	6,63-9,67
Prothorax length	1,19- 1,95	1,19-1,63
Prothorax width	1,41- 2,39	1,41-2,17
Elytral length	4,67- 7,17	4,78-6,95
Humeral width	1,63- 2,62	1,73-2,74

Type, type-locality

Holotype ♂, studied, Naturhistoriska Riksmuseum. Type-locality, Rio Autaz, Amazonas, Brazil.

Material studied (fig. 40)

BRAZIL. *Amazonas*: Rio Autaz, 1 ♂ (NHRM, holotype). *Mato Grosso*: Chapada dos Guimarães, 8 ♂, 3 ♀ (ICCM); (Buriti), 1 ♂ (MZSP). *Goiás*: Jataí (Faz. Cachoeirinha), 1 ♂ (MZSP).

BOLIVIA. *Cochabamba*: El Limbo (3000 m), 1 ♀ (MAGD). *Santa Cruz*: Chiquitos (Santiago, 700 m), 1 ♂ (MAGD).

Data to check:

BRAZIL. *Rio de Janeiro*: Rio de Janeiro, 1 ♂ (ICCM).

***Smodicum longicorne*, sp. n.**

(Figs. 40, 45-47)

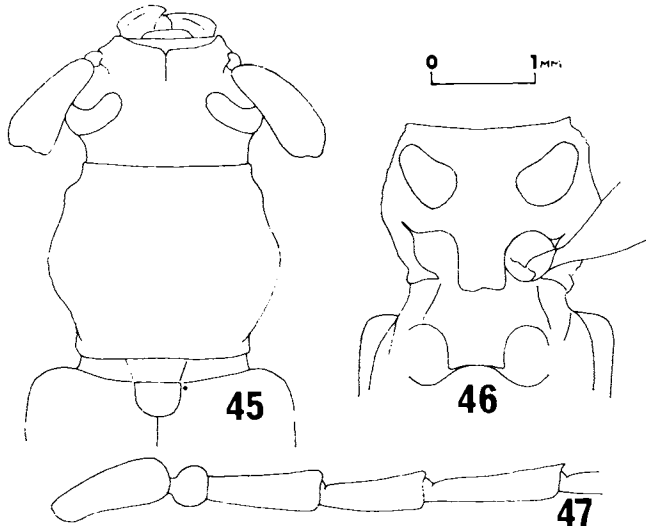
Closely related to *angusticolle*, but besides a different geographical distribution (fig. 40), can be separated as follows: male mandibles without a conspicuous carina on external side; male antennae longer than body; male posterior femora less robust; elytra longer in relation to length of pronotum and head; female antennae reaching apical fifth of elytra. Depressed areas of sexual punctuation in male prosternum usually more developed (figs. 43, 46).

Measurements, in mm

	♂	♀
Total length	7,50-9,23	8,47-11,42
Prothorax length	1,41-1,52	1,41- 1,90
Prothorax width	1,63-2,06	1,73- 2,39
Elytral length	5,32-8,69	6,60- 8,47
Humeral width	1,84-2,50	2,17- 2,93

Material studied (fig. 40)

BRAZIL. *Minas Gerais*: Viçosa, 1 ♂ (MZSP). *Espírito Santo*: Santa Tereza, 1 ♀, 22.X.1966, C. & T. Elias col. (DZUP). Córrego do Itá, 1 ♀, X.1954, W. Zikán col. (IPCS). *São Paulo*: Amparo, 1 ♂, Coll. Navarro de Andrade (MZSP). Barueri, 2 ♂, 1 ♀, 20.XI.1960. K. Lenko col. (MZSP); 1 ♀, XI.1966, K. Lenko col. (MZSP). Itu (Faz. Pau d'Alho), 1 ♀, 6.XI.1960, U. Martins col. (MZSP); 1 ♀, 12.X.1961, U. Martins col. (MZSP); 1 ♂, 3 ♀, 28-29.X.1965, Martins & Biasi col. (MZSP). *Paraná*: Ponta Grossa, 11 ♂, 13 ♀, XII.1938, Camargo col. (MZSP); 1 ♂, I.1939, Camargo col. (MZSP). Rio Negro, 1 ♀, 28.III.1925, Coll. Franciscanos (IPCS). *Santa Catarina*: Cauna, 1 ♂, II.1945, A. Maller col. (AMNH). Mafra, 1 ♂, XII.1931, A. Maller col. (AMNH); 1 ♂, XII.1934, A. Maller col. (AMNH); 1 ♂, I.1935, A. Maller col. (AMNH); 1 ♀, XII.1940, A. Maller col. (AMNH).



Smodicum longicorne, ♂: 45, head and pronotum; 46, sternal processes; 47, antenna. All figures in the same scale.

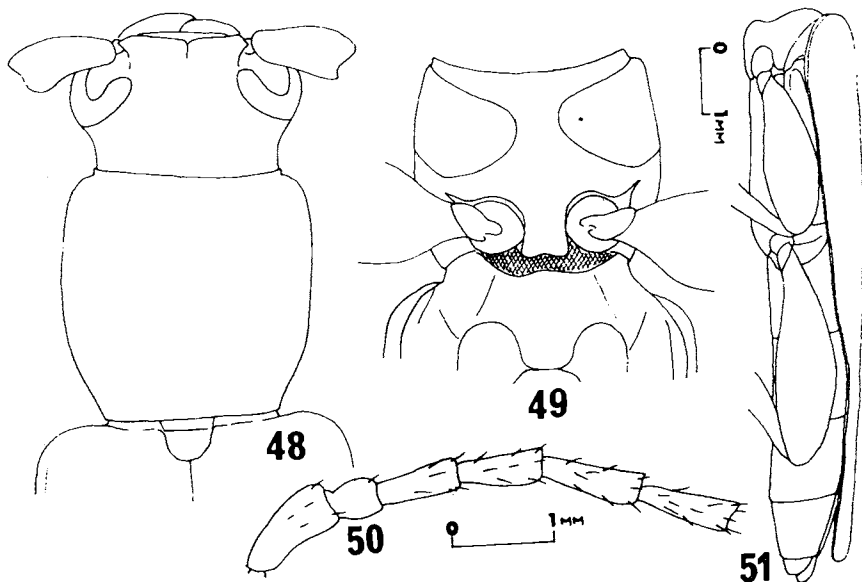
Holotype, 15 paratypes ♂, 16 paratypes ♀ in the Museu de Zoologia; 3 paratypes ♂, 1 paratype ♀ in the American Museum of Natural History; 2 paratypes ♂, 1 paratype ♀ in the Instituto de Pesquisa e Experimentação Agropecuária do Centro-sul; 1 paratype ♀ in the Departamento de Zoologia, Universidade do Paraná. Paratypes from Ponta Grossa were sent to: British Museum (Natural History), Muséum National d'Histoire Naturelle, Museum für Naturkunde, California Academy of Sciences, California Insect Survey and Carnegie Museum.

***Smodicum cucujiforme* (Say, 1826)**

(Figs. 48-52)

Callidium cucujiforme Say, 1826: 277.*Smodicum cucujiforme*; LeConte, 1850: 24; 1873: 294; White, 1855: 327; Thomson, 1860: 202; 1864: 221; Lacordaire, 1869: 146, note 1; Gemminger & Harold, 1872: 2061 (Cat.); LeConte & Horn, 1883: 279; Leng, 1884: 96; 1885: 35, pl. 1, fig. 3; Beuntenmuller, 1896: 74; Blatchley, 1910: 1016; Aurivillius, 1912: 12 (Cat.); Robinson, 1918: 33; Snyder, 1927: 33, fig. 36; Knull, 1946: 187, pl. 8, fig. 30; Fattig, 1947: 6; Vogt, 1949: 140; Craighead, 1950: 268; Duffy, 1953: 160, figs. 122-124; Linsley, 1962: 11, fig. 5.*Smodicum cucuiiforme*; Haldeman, 1847: 38; Leng, 1884: 96; Craighead, 1923: 37.*Smodicum argentinum* Bruch, 1911: 170, fig.; 1912: 203 (Cat.); Aurivillius, 1912: 12 (Cat.); Blackwelder, 1946: 558 (Cat.) Prosen, 1947: 318 (Geogr.); Zajciw & Rufinelli, 1962: 21 (Geogr.), *syn. n.**Callidium cylindroides* Newman, 1838: 394; White, 1855: 328; Thomson, 1864: 221.*Smodicum melanophthalmum*; Dejean, 1835: 357 (Cat., *n. nud.*); White, 1855: 328 (Cat., *n. nud.*).*Smodicum convergens* Casey, 1912: 269.

Repeatedly described and recorded, this species is considerably variable in the shape of the prothorax. In more typical specimens (fig. 48) the prothorax is scarcely rounded at the sides. Prosternal process



Smodicum cucujiforme, ♂: 48, head and pronotum; 49, sternal processes; 50, antenna; 51, lateral view of the elytron. Figures 48-50 in the same scale.

(fig. 49) narrower than an anterior coxa and the mesosternal one as wide as an intermediate coxa. The anterior process of the metasternum is rounded anteriorly and almost reaches the middle of the coxae. Metaepisternum slightly grooved. Elytra (fig. 51) plane to the apex.

The amount of long setae increases in specimens from Texas; the sides of the prothorax also become more angulated at the middle in some specimens. These seem to be transitionals between *cucujiforme* and *texanum*; the latter could be a subspecies from the lower Rio Grande Valley, Texas.

I was unable to discover differences between the holotype of *argentinum* and males of *cucujiforme*, in spite of the type-locality being Prov. Buenos Aires, Argentina. I suspect Bruch described the supposed new species based on a specimen introduced in timber and never again recorded in Argentina (Prosen, 1947: 318 and Zajciw & Rufinelli, 1962: 21, probably studied a different species). A wrong label could be another hypothesis.

Host plants: *Robinia*, *Carya*, *Quercus*, *Fagus*, *Celtis*, *Salix*, *Populus* (Linsley, 1962: 11).

Type, type-locality

Argentinum: Holotype ♂, studied, Museo Argentino de Ciencias Naturales. Type-locality: Provincia Buenos Aires, Argentina.

Cucujiforme: Location of the holotype not ascertained. Type-locality: United States.

Convergens: Holotype probably in the United States National Museum. Type-locality: Texas. If from lower Rio Grande, *texanum* Knoll could be a synonym.

Cylindroides: Location of the holotype not ascertained. Type-locality: North America.

Melanophthalmum: Probably in the British Museum (Natural History), Ex-Dejean Collection.

Specimens seen from (fig. 52)

UNITED STATES. *Alabama*: Birmingham, Town Creech (Meadow Pond). *Arkansas*: Hope. *Florida*: Enterprise, Everglade, Hernando Co. (Tupal), Jacksonville, L. Worth. *Georgia*: Clarke Co., Clayton (38 mi SO), Macon (5 mi SE), Sylvania. *Illinois*: Chicago, Gorham, Lemont, Riverside, Summit. *Indiana*: Elkhart, Hamlet, Hessville, Indianapolis, Lafayette, Mineral Spgs., Orange Co., Putnam Co., Wells Co. *Iowa*: Delaware Co. (Robinson), Iowa Falls. *Kansas*: Lawrence, Topeka. *Kentucky*: Cumberland Gap. *Louisiana*: Harahan, Tallulah. *Maryland*: Baltimore. *Missouri*: Langdon, St. Louis. *New Jersey*: Fort Dix, Red Bank, Riverton, Rutherford, Sewel, Spotswood, Woodbury, Woodside. *New York*: New York. *North Carolina*: Asheville, Chapel Hill, Hendersonville. *Ohio*: Columbus. *Oklahoma*: Canadian Co. (El Reno), Centralia, Tulsa. *Pennsylvania*: Center Co. (Lemont), Harrisburg, Lenhartsville, Lester. *South*

Carolina: Camden. *Tennessee*: Morgan Co. (Burrville). *Texas*: Dallas, Harris C., Lee Co. (Fedor), Maverick Co., Montgomery Co. (91 mi S Conroe), Uvalde. *Virginia*: Alexandria, Montgomery Co. (Plummers Is.). *West Virginia*: Burn Spgs.

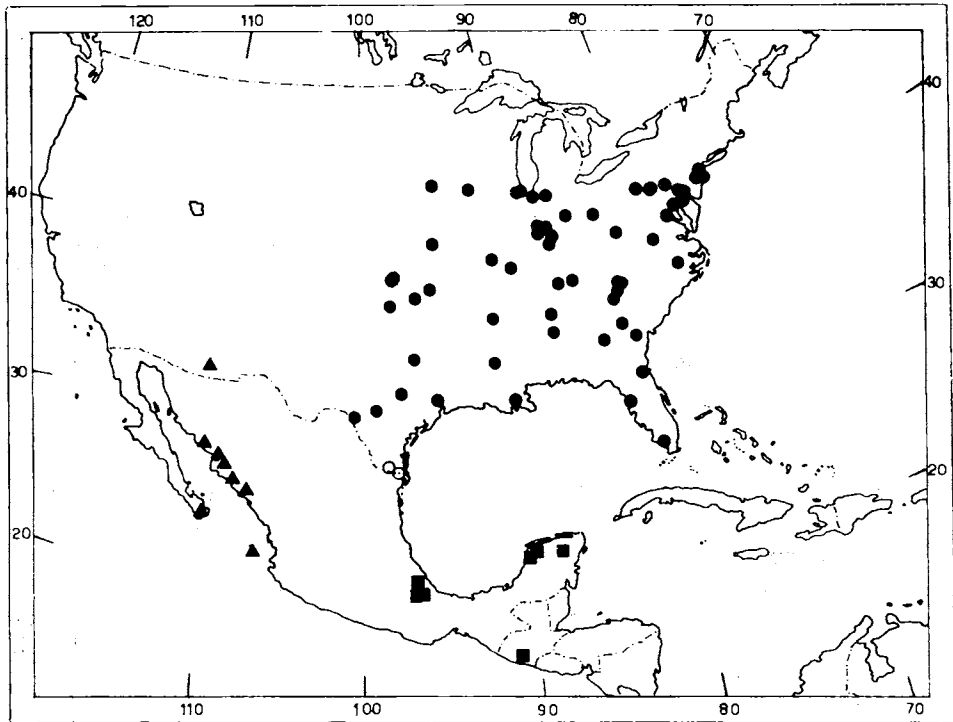


Fig. 52. Geographical distribution of *Smodicum cucujiforme* (black circles), *S. texanum* (white circles), *S. pacificum* (triangles) and *S. parandroides* (squares).

Smodicum texanum Knull, 1966

(Figs. 52-54)

Smodicum texanum Knull, 1966: 137.

As mentioned above, *texanum* could be a subspecies of *cucujiforme*, restricted to the lower Rio Grande Valley (fig. 52). Only two specimens were studied which prevent conclusions about its true *status*.

It differs from *cucujiforme* (males compared): prothorax scarcely angulated at middle of sides (fig. 53); a denser concentration of long hairs on elytral and prothoracic margins.

Measurements, in mm

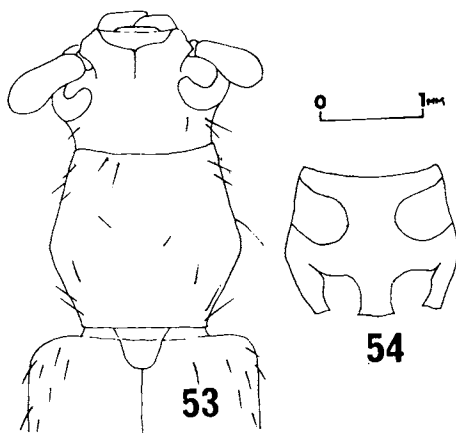
	Paratype ♂	♀
Total length	7,60	8,47
Prothorax length	1,41	1,63
Prothorax width	1,52	1,73
Elytral length	5,10	5,86
Humeral width	1,84	2,06

Type, type-locality

Holotype, allotype and paratypes (number not indicated) in the J. N. Knull Collection; paratypes (number not indicated) in the Ohio State University. Type-locality: Rio Grande State Park, Bentsen, Hidalgo Co., Texas, United States.

Material studied (fig. 52)

UNITED STATES. *Texas*: Brownsville, 1 ♂ (AMNH). Hidalgo Co., 1 ♂ (CISC, paratype).



Smodicum texanum, ♂: 53, head and pronotum; 54, prosternum. Both figures in the same scale.

***Smodicum clancularium*, sp. n.**

(Figs. 55-57)

Related to *cucujiforme* but distinguished especially by the intercoxal process of metasternum which reaches middle of the intermediate coxae (fig. 56); antennae are more pubescent (fig. 57) and a different geographical distribution.

The relatively narrow width of the sternal processes (figs. 56, 59) distinguishes it from *parandroides*, which occurs over an adjacent area.

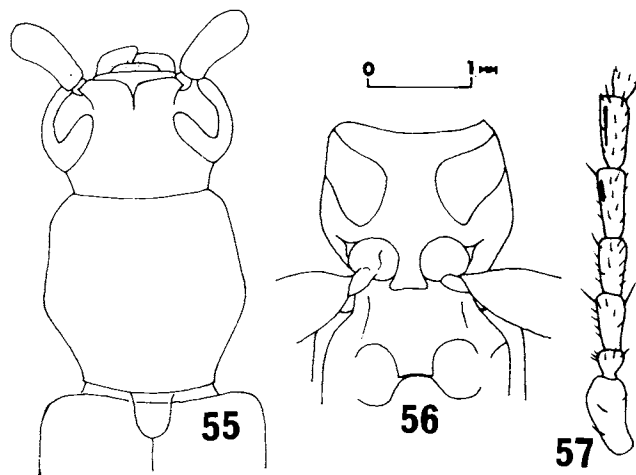
♂. Yellowish orange. Head with some large, sparse, punctures. Antennae reaching middle of elytra, with longer setae at tips of segments and others, shorter, sparse and erect on segments (fig. 57). Sensorial areas present from the fifth. Prothorax (fig. 55) constricted at base, scarcely angulated at sides. Disk plane and smooth; sides punctured. Areas of sexual punctuation (fig. 56) developed, not very deep, with shallow punctures. Prosternal process enlarged to apex, narrower than an anterior coxa; mesosternal narrower than an intermediate coxa. Elytra plane at apical third, with long setae only close to tip. Ventral surface shining.

Measurements, in mm, holotype ♂

Total length, 8,26; prothorax length, 1,63; prothorax width, 1,63; elytral length, 5,54; humeral width, 1,84.

Material studied

MEXICO. *Quintana Roo*: X-Can, 1 ♂, 1.V.1968, E. C. Welling col. (CISC, holotype).



Smodicum clancularium, ♂: 55, head and pronotum; 56, sternal processes; 57, antenna. All figures in the same scale.

Smodicum parandroides Bates, 1884

(Figs. 52, 58-61)

Smodicum parandroides Bates, 1884: 241, pl. 18, fig. 1; Aurivillius, 1912: 12 (Cat.); Blackwelder, 1946: 558 (Cat.); Chemsak, 1967: 79 (Lectotype designation).

Despite being closely related to *cucujiforme*, *parandroides* differs by the great width of the sternal processes (fig. 59); general shape more compressed and head relatively wider.

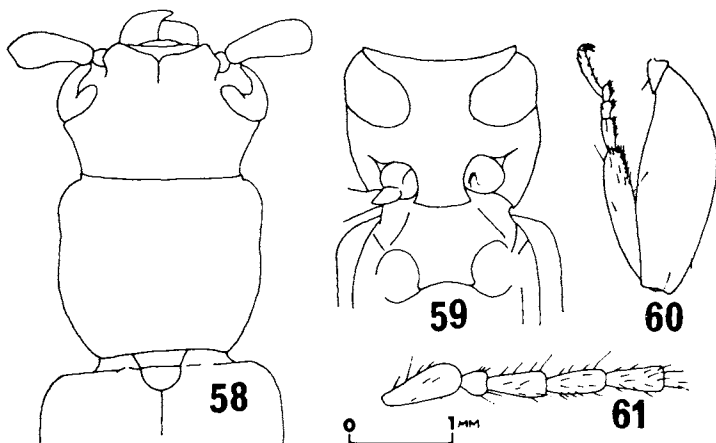
Yellowish orange. Head almost impunctate, except behind eyes, relatively wide at eyes level, where it can have the same width as prothorax (fig. 58). Male antennae reaching middle of elytra; those of females to basal fourth; few setae, longer at apex of segments (fig. 61). Prothorax trapeziform, the sides converging behind. Pronotal punctation variable, usually smoother at middle and punctate to sides. Sternal processes (fig. 59) wide, wider than respective coxae. Elytra plane at apical fourth with setae only at tip. Posterior leg (fig. 60).

Measurements, in mm

	♂	♀
Total length	6,73-8,04	7,06-10,75
Prothorax length	1,19-1,73	1,30- 1,63
Prothorax width	1,30-1,73	1,35- 1,95
Elytral length	4,78-5,54	4,78- 7,82
Humeral width	1,52-1,84	1,63- 2,50
Head greatest width	1,41-1,73	1,30- 1,95

Type, type-locality

Chemsak (1967: 79) elected as lectotype a male figured in the *Biologia Centrali-Americana* from Jalapa, Mexico (BMNH). No mention to paralectotypes was made. These are now indicated: from Jalapa, Veracruz, Mexico: 1 ♂, 1 ♀ (IRSN); 1 ♂ (AMNH); 1 ♂, 4 ♀ (BMNH); from Zapote, Escuintla, Guatemala: 1 ♂, 3 ♀ (BMNH).



Smodicum parandroides, ♂: 58, head and pronotum; 59, sternal processes; 60, posterior leg; 61, antenna. All figures in the same scale.

Material studied (fig. 52)

MEXICO. 1 ♂ (IRSN). *Veracruz*: Córdoba, 4 ♂, 3 ♀ (CASC). Jalapa, 3 ♂, 5 ♀ (IRSN, 1 ♂, 1 ♀; BMNH, 1 ♂, 4 ♀, paralectotypes). Fortín de las Flores, 1 ♂ (CISC). *Campeche*: Holpechen: (10 mi N), 1 ♂, 2 ♀ (CISC). *Yucatan*: Chichén Itza, 1 ♀ (CISC). Mérida, 1 ♂ (CISC).

GUATEMALA: *Escuintla*: Zapote, 1 ♂, 3 ♀ (BMNH, paralectotypes).

Two more females from "Sierra de Durango", not located.

***Smodicum pacificum* Linsley, 1934**

(Figs. 52, 62-65)

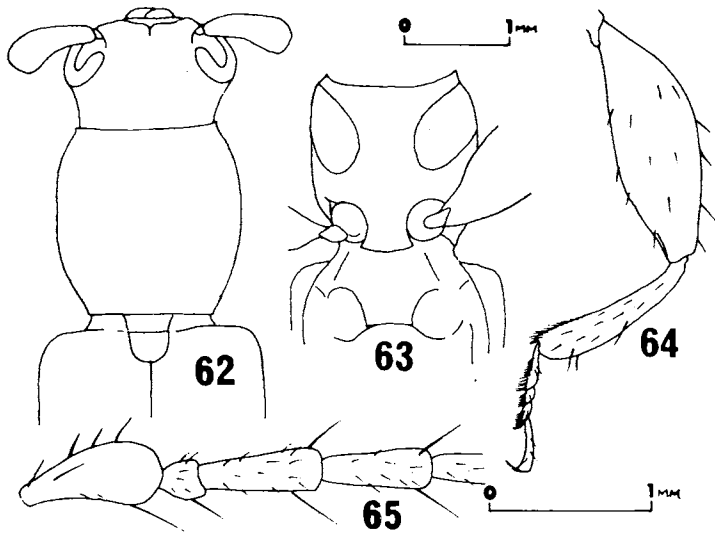
Smodicum pacificum Linsley, 1934: 107; 1942: 27; Blackwelder, 1946: 558 (Cat.).

Smodicum arizonarium Knull, 1966: 136, *syn. n.*

Smodicum pacificum peninsulare Linsley, 1942: 27, *syn. n.*

Blackwelder (1946: 558) erroneously indicated this species as described by Melzer.

Closely related to *parandroides*, with the same wide sternal processes (fig. 63), besides a different geographical distribution (fig. 52), which suggests a subspecific *status*, it differs by the prothorax, scarcely rounded at sides; elytra are strongly plane and somewhat project at



Smodicum pacificum, ♂: 62, head and pronotum; 63, sternal processes; 64, posterior leg; 65, antenna. Figures 62-64 in the same scale.

apex. I could not discover characters to separate specimens from Baja California (*peninsulare*), Tres Marias Islands (*pacificum*) and Arizona (*arizonarium*).

Measurements, in mm

	♂	♀
Total length	7,17-8,04	7,60-9,34
Prothorax length	1,52-1,63	1,52-1,73
Prothorax width	1,52-1,73	1,52-1,84
Elytral length	4,88-5,54	5,21-6,52
Humeral width	1,73-1,95	1,84-2,28

Type, type-locality

Pacificum: Holotype ♂ (CASC n.º 3884), allotype (CASC n.º 3885) and 7 paratypes (CASC). Type-locality: Magdalena Island, Tres Marias Islands, Mexico.

Peninsulare: Holotype ♂ (CASC n.º 5235), allotype (CASC n.º 5236), 15 paratypes ♂ and 3 paratypes ♀ (CASC). Type-locality: Miraflores, Baja California, Mexico.

Arizonarium: Holotype ♀ and paratypes (number not indicated) in J. N. Knull's Collection; allotype and paratypes (number not indicated) in the Arizona State University. Type-locality: 1 mile SW of Portal, Chiricahua Mountains, Cochise Co., Arizona, United States.

Material studied (fig. 52)

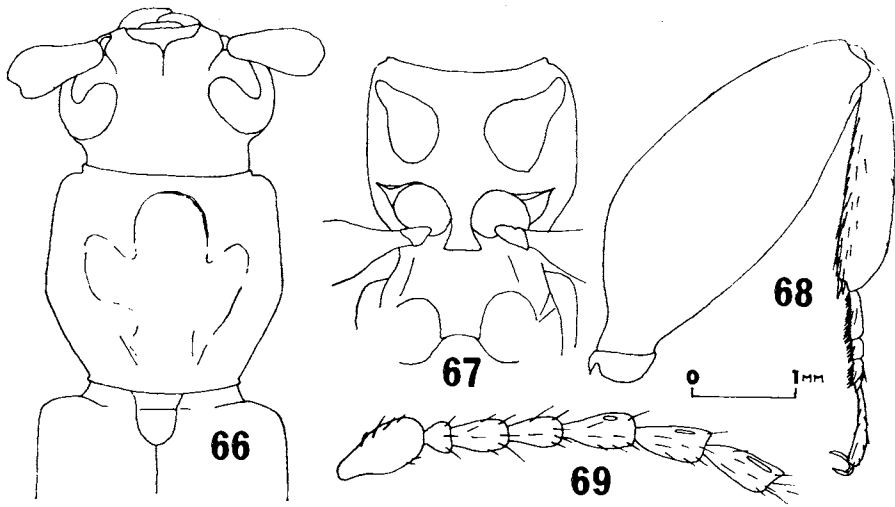
UNITED STATES. *Arizona*: Cochise Co., Cave Cr. (1 mi SW Portal), 1 ♂ (CISC).

MEXICO. *Baja California*: Miraflores, 1 ♂ (AMNH, paratype of *peninsulare*); 2 ♂ (CASC, paratypes of *peninsulare*); 1 ♂ (CASC); (5 mi S), 1 ♀ (CASC, paratype of *peninsulare*). *Sonora*: Alamos (10 mi SE), 1 ♂ (CISC); (7 mi SE, Arroyo Cuchujaquil), 1 ♀ (CISC). Ciudad Obregon (15 mi S), 1 ♂, 1 ♀ (CASC). *Sinaloa*: Choix (4 mi NW, Arroyo del Saucillo), 1 ♀ (CISC); (5,5 mi NW), 1 ♀ (CISC). Culiacan (6 mi S), 1 ♂ (CISC). Guamuchil (18 mi SO), 1 ♀ (CISC). *Islas Tres Marias*: Isla Magdalena, 2 ♂ (CASC, paratypes of *pacificum*).

***Smodicum torticolle*, sp. n.**

(Figs. 66-69)

♂. Yellowish orange with elytral apices brownish; glabrous, shining. Head scarcely punctured between antennal tubercles. Scape shining, remainder segments pubescent with some long, sparse setae. Segments III and IV shorter than scape (fig. 69). Tip of antennae



Smodicum torticolle, ♂: 66, head and pronotum; 67, sternal processes; 68, posterior leg; 69, antenna. All figures in the same scale.

reaching middle of elytra. Prothorax (fig. 66) trapeziform. Pronotum conspicuously and longitudinally depressed on disk, glabrous, with sparse punctures. Prosternal process narrower than an anterior coxa; mesosternal narrower than an intermediate coxa (fig. 67). Anterior process of metasternum almost reaching middle of an intermediate coxa. Elytral setae only at apex. Femora (fig. 68) globose, pubescent.

Measurements, in mm, holotype ♂

Total length, 8,80; prothorax length, 1,84; prothorax width, 1,84; elytral length, 5,76; humeral width, 2,06.

Material studied

COLOMBIA. *Magdalena*: Rio Frio, 1 ♂, Darlington col. (MCZC, holotype).

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