REVISION OF THE WEEVIL GENUS *TYLODERMA* SAY (COL.: CURCULIONIDAE) IN MEXICO, CENTRAL AMERICA, SOUTH AMERICA, AND THE WEST INDIES

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Revision of the weevil genus *Tyloderma* Say (Col.: Curculionidae) in Mexico, Central America, South America, and the West Indies[1/]

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ABSTRACT

Forty-four species of *Tyloderma* are known to occur in Mexico, Central America, South America, and the West Indies. A redescription of the genus is provided, and the species are keyed and placed in 11 species groups, which also are defined. Twenty-five new species are described, and two species-group names are synonymized: *T. foveostriatum* Voss is a junior synonym of *T. innotatum* Hustache (which is given here specific rank); and *T. metallicum* Voss is a junior synonym of *T. aeneum* Hustache. Lectotypes are designated for *T. aeneum*, *T. cupreum* Hustache, *T. inaequale* Voss, *T. innotatum*, *T. nigromaculatum* Hustache and *T. obliquatum* Hustache. A description or redescription of each species is included, and some important taxonomic characters, including the male phallus, and female 8th sternite and spermatheca are illustrated. Information is presented on plant associations and natural enemies. Complete distributional records are included for all species which are exclusively Neotropical, and the distributions of all species are mapped.

[1/] Part of a dissertation submitted to the Department of Biological Science, Florida State University, in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

INTRODUCTION

The New World weevil genus *Tyloderma* Say is known from southern Canada to east-central Argentina, having been collected in all countries of the New World except Chile and several of the West Indian islands.

The genus contains 68 species. The Nearctic species are well-known and were revised recently (Wibmer 1981). The Neotropical species, on the other hand, are poorly known. They were described in piecemeal fashion and have never been revised as a group. Most of them have not been cited since their descriptions, except in checklists or catalogs. The only available key is one by Voss (1943), but it includes only the three species described by him and (with doubt) *T. striatum*, in addition to two of the North American species.

The genus *Tyloderma* was established by Say (1831) for *Cryptorhynchus foveolatus* Say, which was described in the same publication. In the same paper Say described *Bagous aereus*, which later became the type species of *Analcis* Schönherr (1837). Dejean (1835, 1836) used the name *Analcis*, but it is not available from his catalogs because all the specific names included in *Analcis* are *nomina nuda*. The generic name *Tyloderma* was ignored for many years, and its type species, *T. foveolatum*, was treated by Germar (1837), Boheman (1844), and Gemminger & Harold (1871) in its original combination in *Cryptorhynchus*, whereas LeConte (1857) and Horn (1873) placed it in *Analcis*. LeConte (1876) restored the name *Tyloderma* as the senior synonym, and placed the species known at that time in two divisions, one containing *T. foveolatum*, and the other containing *T. aereum*. All subsequent authors used the name *Tyloderma* for this genus, except Pascoe (1881) who preferred to maintain the name *Analcis* because it was the one in use until 1876 and because he considered (incorrectly) that the name *Tyloderma* was inappropriate. Voss (1943) treated *Tyloderma* and *Analcis* as different subgenera, whereas Casey (1892) and Wibmer (1981) divided the known species into species groups of a single nominal genus.

Prior to the present study, 44 species in this genus were considered to be valid. This study includes the species occurring south of the United States, where 21 species-group names had been recorded in *Tyloderma*. In addition, the presence in Mexico of *T. foveolatum* was confirmed. *Analcis fulvicornis* Suffrian (1872), described from Cuba, was removed from *Tyloderma* by O'Brien & Wibmer (1982:158).

The success of this study was enhanced greatly by the fact that primary types of most of the species were studied. I was not able to locate type material of *T. danforthi*, and could not obtain the holotype of *T. brassicae* but I examined a paratype of the latter. Also, I have seen good series of most species, from different localities, which allowed a better understanding of variation within species, both in the external morphology and in the morphology of the genitalia.

In the present study 25 new specific names are proposed. *Tyloderma innotatum* (described as a variety of *T. obliquatum*) is given specific rank, whereas *T. parvulum* (described as a variety of *T. pilosellum*) was based on a depauperate specimen of that species and therefore is not valid. The two following are placed in synonymy for the first time: *T. foveostriatum* is a junior synonym of *T. innotatum*, and *T. metallicum* is a junior synonym of *T. aeneum*.

The primary purpose of the present study is to produce a revision of all the species of *Tyloderma* known from the Neotropical Region, including descriptions of the many undescribed species, redescriptions of the previously known species, a key to species groups and species, and illustrations of diagnostic morphological characters, to make their identification possible.

BIOLOGY

Few biological data are available for most species of *Tyloderma*, and this information is even more meager for the Neotropical members of the genus. The adults of most species are mainly nocturnal, and some of these have been collected in large numbers by sweeping at night around ponds or marshes or alongside water-filled roadside ditches or small creeks, and also by hand-picking them from floating vegetation. Many specimens of *T. natator* and *T. nigromaculatum* were collected by sweeping during the daytime, but several other species could be obtained during the daytime only by treading.

The larvae usually are stem borers and pupate in the stems of the host plants, although they may attack and pupate in the crowns or even the roots (Pierce 1907; Wibmer 1981). The only published biological information for the Neotropical species was recorded by Costa-Lima (1938), when he described *T. brassicae*. Mitchell & Pierce (1911), Pierce (1916), and Wibmer (1981) provided host data for several of the Nearctic species, including *T. subpubescens*, which also is known from Central America.

Most Curculionidae seem to be monophagous or oligophagous, although some feed on a broad range of plant groups. As a general rule, when a species of *Tyloderma* has been collected in large numbers from a plant species there has been a high correlation with that being its breeding host. This was the case with some North American species whose hosts were determined with certainty later, as many adults were collected on the same or closely related plant species before the immatures were obtained (see Wibmer

1981:4).

The majority of the species are associated with semiaquatic and aquatic vegetation (Wibmer 1981, and present study). Recognition of the relative importance of the genus has been increasing because some of the species are potential agents in the biological control of semiaquatic and aquatic weeds. The species described below as *T. natator* and *T. obrieni* were studied by Cordo & DeLoach (1982) for consideration in the biological control of *Ludwigia*.

The biological information available for the Neotropical species agrees well with what is known for the Nearctic species (see Wibmer 1981:5). Most terrestrial species breed in *Oenothera* spp. (Onagraceae), whereas the semiaquatic species usually prefer hosts in the genera *Ludwigia* (Onagraceae) and *Polygonum* (Polygonaceae).

TABLE 1. Plants from which species of *Tyloderma* have been reared or collected in series* (assumed host)

Host plant	***Tyloderma* species**
Ambrosia sp. [Compositae]	*foveolatum*
Borreria verticillata (L.) Meyer [Rubiaceae]	*pilosellum**
Brassica oleracea L. [Cruciferae]	*brassicae*
Cleome spinosa Jacq. [Capparaceae]	*setarium**
Epilobium sp. [Onagraceae]	*foveolatum*
Gaura villosa Torrey [Onagraceae]	*baridium*
Ludwigia spp. [Onagraceae]	*circumcaribbeum**
	*glabrescens**
	*lacordairei**
	*obliquatum**
L. octovalvis (Jacq.) Raven [Onagraceae]	*schoenherri**
L. peploides (H.B.K.) Raven [Onagraceae]	*natator**
	*obrieni**
L. peploides ssp. *montevidensis* (Sprengel) Raven [Onagraceae]	*elongatum**
	*inaequale**
	*natator**
	*nigromaculatum**
L. uruguayensis (Camb.) Hara [Onagraceae]	*elongatum**
	*inaequale**
	*natator**
	*nigromaculatum**
Monarda citriodora Cerv. *ex* Lag. [Labiatae]	*pseudofoveolatum*
Oenothera albicaulis Pursh [Onagraceae]	*pseudofoveolatum*
O. biennis L. [Onagraceae]	*foveolatum*
	pseudofoveolatum
O. laciniata Hill. [Onagraceae]	*baridium*
	foveolatum
O. mollissima L. [Onagraceae]	*affine**
Polygonum spp. [Polygonaceae]	*cupreum**
	*obliquatum**
P. acuminatum H.B.K. [Polygonaceae]	*subpubescens**
P. hispidum H.B.K. [Polygonaceae]	*danforthi*
P. hydropiperoides Michaux [Polygonaceae]	*subpubescens**
P. pensylvanicum L. [Polygonaceae]	*subpubescens*
P. persicarioides H.B.K. [Polygonaceae]	*innotatum**
P. portoricense Bertero [Polygonaceae]	*subpubescens*
P. punctatum Elliot [Polygonaceae]	*danforthi**
	*innotatum**
	subpubescens

References to the different plant associations and known records on natural enemies of the species of *Tyloderma* included in this study can be found under each species. Table 1 summarizes the main information available on plant associations. I have based my decision on whether a plant is likely to be a host both on the number of specimens collected on it and whether the species (or one of its close relatives)

has been reared from a closely related plant species. Although Danforth (1926) called *T. danforthi* the "Sesban weevil" and Wolcott (1951) stated that it attacks *Sesbania emerus* (Aubl.) Urban, I suspect that this is not the case, especially since it has been reared from *Polygonum hispidum* H.B.K. and collected also on *P. punctatum* Elliot, members of a genus known to serve as host to other members of the *aeneotinctum* group.

MATERIALS AND METHODS

COLLECTIONS. This study was based on 7,735 adult specimens, the majority of which were point-mounted. Some were pinned, and many specimens of *T. cupreum*, *T. inaequale*, *T. innotatum*, *T. natator* and *T. nigromaculatum* were in capsules. They belong to several collections represented by the following codens: (ACCC) Academia de Ciencias de Cuba, La Habana, Cuba; (AMNH) The American Museum of Natural History, New York, U.S.A.; (BMNH) British Museum (Natural History), London, England; (BNHM) Basel Natural History Museum, Basel, Switzerland; (CBPC) Carlos Bordón, private, Maracay, Venezuela; (CHAH) Henry A. Hespenheide, private, University of California, Los Angeles, U.S.A.; (CIBC) Commonwealth Institute of Biological Control, Curepe, Trinidad; (CJDL) C. Jack DeLoach, private, Temple, U.S.A.; (CNCI) Canadian National Collection of Insects, Ottawa, Canada; (CPCC) Colegio de Post-graduados, Chapingo, Mexico; (CWOB) Charles W. O'Brien, private, Florida A&M University, Tallahassee, U.S.A.; (DEIC) Deutsches Entomologisches Institut, Eberswalde, German Democratic Republic; (DZUP) Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil; (ELSC) Elbert L. Sleeper, private, California State University, Long Beach, U.S.A.; (FMNH) Field Museum of Natural History, Chicago, U.S.A.; (FSCA) Florida State Collection of Arthropods, Division of Plant Industry, Gainesville, U.S.A.; (GJWC) Guillermo J. Wibmer, private, Florida A&M University, Tallahassee, U.S.A.; (HAHC) Henry and Anne Howden, private, Carleton University, Ottawa, Canada; (HPSC) Henry P. Stockwell, private, Balboa Heights, Panama; (IRSB) Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium; (JARC) José A. Ramos, private, Recinto Universitario de Mayagüez, Mayagüez, Puerto Rico; (MACN) Museo Argentino de Ciencias Naturales Bernardino Rivadavia, Buenos Aires, Argentina; (MCZC) Museum of Comparative Zoology, Harvard University, Cambridge, U.S.A.; (MHNM) Museo de Historia Natural, Montevideo, Uruguay; (MLPC) Museo de La Plata, La Plata, Argentina; (MNHP) Muséum National d'Histoire Naturelle, Paris, France; (MNRJ) Museu Nacional, Rio de Janeiro, Brazil; (MPEG) Museu Paraense Emilio Goeldi, Belém, Brazil; (MZSP) Museu de Zoologia, São Paulo, Brazil; (NHRS) Naturhistoriska Riksmuseet, Stockholm, Sweden; (NZAC) New Zealand Arthropod Collection, Department of Scientific and Industrial Research, Auckland, New Zealand; (PERC) Purdue University, Entomological Research Collection, West Lafayette, U.S.A.; (RDCC) Ronald D. Cave, private, Escuela Agrícola Pan-americana, Tegucigalpa, Honduras; (RSAC) Robert S. Anderson, private, Texas A&M University, College Station, U.S.A.; (SARH) Departamento de Sanidad Vegetal, Mexico City, Mexico; (TAMU) Texas A&M University, College Station, U.S.A.; (UCVM) Universidad Central de Venezuela, Maracay, Venezuela; (UNAM) Instituto de Biología, Universidad Nacional Autónoma de México, Mexico City, Mexico; (UNAN) Universidad Nacional Autónoma de Nicaragua, León, Nicaragua; (URMC) Universidad de la República, Montevideo, Uruguay; and (USNM) National Museum of Natural History, Washington, D.C., U.S.A.

CITATION OF LABELS. I tried to verify the data present on the labels, and have added the state, province or department when possible, in brackets, if it is not listed on the labels. Names of provinces, departments, etc. are written in full even when abbreviated on the labels. Misspellings are corrected, and they are listed only when not self-evident. The main sources of locality information were the National Geographic Atlas of the World (1983 edition) and the Webster's Geographical Dictionary (1969 edition), but I consulted also several country maps and gazetteers. Provinces, states, departments, etc. are listed as currently recognized, and subdivisions of them are not included unless listed on the labels.

The sequence of data is standardized and, with the exception of a few common abbreviations, all the words are spelled out when possible. Different localities are separated by a semicolon. The date is recorded as day (Arabic numerals), month (Roman numerals) and the last two digits of the year (Arabic numerals). When only the year is known all four digits are included. The number of specimens is placed in parentheses, and follows the date. The collector(s) is(are) located at the end of each reference; thus if a person collected at the same place on different occasions, the name will appear only once at the end of the series of dates, preceded by a comma. When the labels include some sort of ecological information (*e.g.* at night, at light, or a host), it is placed in front of the date without a comma. If specimens were obtained by the same collector(s) at the same place with the same ecological data, but on different occasions, this information is listed only once in front of the series of dates, followed by a comma. The end of such a sequence is indicated by a different ecological datum or by the name(s) of the collector(s).

MEASUREMENTS. The length of the body was obtained by measuring along the midline. The prothorax was measured from the apical margin to the base, and the elytra from the anterior margin of the

scutellum to the elytral apices. The head was not included in overall length because its relative position could affect the measurement obtained. The width of the prothorax (as well as that of the elytra) was measured at the widest point. The relative position of the widest point was estimated on the midline and given in relation to the base of the prothorax or the elytra. The length of the body for individual male and female specimens (holotype and allotype in the new species), is given as total length (length of prothorax + length of elytra).

The lengths and widths of prothorax and elytra were obtained from a random sample of at least 30 specimens or from the whole series when less that 30 individuals. However, the range of size is given for the whole series studied in all cases.

Means and standard deviations were calculated from the absolute measurements as well as from some ratios. In general, they showed too much overlap between closely related species to be taxonomically significant. Those statistics considered to be more useful are included in each species under the "Intraspecific variation," where they are expressed as minimum value-maximum value (mean ± 1 standard deviation).

DISSECTIONS. Dry specimens were prepared for dissection by being placed in water with a little liquid detergent, which was heated to boiling. Periodically they were placed in cold water for a few minutes and again transferred to the boiling water. This process was repeated a few times to allow absorption of the liquid and softening of the tissues. After dissection, the genitalia were placed in a saturated solution of KOH at room temperature for clearing, were washed in alcohol to eliminate the KOH, and then placed individually in glycerin in a plastic vial pinned below each specimen.

ILLUSTRATIONS. Camera lucida drawings of external structures and male genitalia were made using a WILD M8 stereoscopic microscope, and those of the female 8th sternite and spermatheca using a WILD M20 compound microscope. The micrographs were obtained with a JEOL JSM-840 scanning electron microscope at an accelerated voltage of 10kV.

DESCRIPTIONS. The holotype of each new species is described, and I redescribed the holotype of *T. circumcaribbeum* and *T. pseudofoveolatum* because a number of characters used in the present study were not included in the original descriptions. In *Tyloderma*, male genitalia usually provide better diagnostic characters than female genitalia (see Figs. 38-123), and for this reason holotypes are male specimens when available. The *variegatum* group is the only exception (see Wibmer 1981). A specimen considered typical was selected for each of the other previously known species for redescription. Occasionally, some details (*e.g.* scale pattern) were complemented from other specimens. When describing the opposite sex (allotype in the new species), mention is made only of those characters that differ significantly and that are considered to have sexual significance. When these secondary sexual characteristics are consistent for the whole group, they are indicated only in the description of the species group. Other differences are indicated under "Intraspecific variation" for the whole series of specimens studied.

In a few instances, specimens belonging to some of the species described as new in this study are not considered paratypes. This policy was followed with some badly damaged specimens, and in the case of *T. natator*, with many placed in capsules. They are indicated as non-paratypes (NP) in the "Material examined."

TYPES AND TYPE DESIGNATIONS. I was able to study type material of most of the species described previously, and their data are listed for each species under "Notes on the type." In this study I have designated lectotypes for *T. aeneum*, *T. cupreum*, *T. inaequale*, *T. innotatum*, *T. nigromaculatum* and *T. obliquatum*.

TYPE LOCALITIES. These were obtained primarily from the labels on the type specimens. However, for *T. danforthi*, *T. foveolatum* and *T. pilosellum* I used only the published data (type material of the former two was not available, the holotype of the latter does not have locality data [but see "Notes on the types"]). In the case of *T. fasciatum* I supplemented the label data with information provided in the original publication, for *T. brassicae*, *T. circumcaribbeum*, *T. elegantulum*, *T. insulicola*, *T. nigromaculatum* and *T. setarium* I completed the data through the use of maps and atlases, and in the case of *T. elongatum* and *T. natator* I added my own information.

DISCUSSION OF CHARACTERS AND CHARACTER STATES

The characters are listed below in the same sequence as in the descriptions. They were analyzed as part of a cladistic analysis, and they are discussed in that context to avoid an unnecessary duplication when the phylogeny of all known congeners is published.

Body shape (in dorsal view): Typically, the body is moderately elongate suboval to elongate suboval. In a few species, the body is oval (Figs. 7, 10, and 14-16), or elongate oval to very elongate oval (Fig. 17). This change in shape is produced mainly by the prothorax becoming parallel-sided in the basal portion or widest at the base, and/or by the rounding off (or loss) of the humeri, and/or by elongation of

the elytra, which also may become more pointed. This change seems to have happened independently in several lineages.

Shape of the elytra (in lateral view): In some species, the elytra are almost flat to weakly convex from the base to the declivity (Fig. 1) and moderately to strongly declivate in the apical portion. In several lineages, the elytra are moderately, fairly evenly convex, and they are strongly, evenly convex in *T. albidomaculatum* (Fig. 2).

Color and shine of the cuticle: The color and shine are consistent in several species groups, and because they are easy to see they can be useful taxonomically in combination with other characters. I have not been able to determine the ancestral state.

Distribution and density of the scales: In most genera of Cryptorhynchina (including *Merocnemus*) the scales cover most of the body. In *Tyloderma* there are different degrees of reduction in the scale cover, and in a few species the scales are obsolete (Figs. 7, 14-16). When present, most or all of the scales may be imbricate (Figs. 2, 4-6, and 8-10) or not (Figs. 11-13, 17).

Size and shape of the scales: Scales broad to very broad subtriangular (Fig. 5) represent the ancestral state, which in *Tyloderma* is present only in *T. hustachei*, where it appears to be secondarily derived. In most *Tyloderma* the scales are moderately narrow to moderately broad, cuneiform to suboval (usually with sides rounded, or with one end distinctly narrower than the other) (Figs. 4, 6, 13, and 17). In the *subpubescens* group, and in *T. inaequale* and *T. obrieni* they are aciculate (somewhat parallel-sided), and short (Fig. 11), medium to long, or very long (Fig. 12).

Scale color: This character is fairly constant throughout the genus, but very useful taxonomically in the *fasciatum* group as a complement to other characters.

Junction of the rostrum and the frons (in lateral view): In many genera of Cryptorhynchina and a few *Tyloderma* it is scarcely evident (Figs. 1 and 24), although in most *Tyloderma* species it is weakly to moderately evident (Figs. 22-23, 25-26), and in a few species (and a few specimens of *T. striatum*) it is very evident (Figs. 2 and 21).

Shape of the rostrum: It varies from moderately evenly to evenly, weakly to moderately arcuate (Figs. 21-23) (sometimes depressed on the apical portion) to strongly arcuate (Figs. 2 and 24) or moderately subgibbous to subgibbous (Figs. 25-26). Both of these states may have evolved independently from the ancestral state. The rostrum is strongly arcuate in two of the three species of the *lepidogramma* group and in four of the six species of the *fasciatum* group, whereas it is subgibbous in *T. obrieni* and in both species of the closely related *nigromaculatum* group. In a few species it is difficult to determine whether the rostrum is moderately or strongly arcuate, and occasionally both of these states are present in a single species.

Sulcus near the middle of the rostrum: In most *Tyloderma* (as well as in most other species of Cryptorhynchina) the rostrum is not sulcate. A sulcus (Figs. 18-20) seems to have evolved independently in some of the groups and is useful to distinguish closely related species.

Dorsal surface of the apex of the rostrum: The apex of the rostrum does not have any special features in most genera of Cryptorhynchina, but in *Tyloderma* and *Merocnemus* there is a dorsolateral subapical pit bearing one to few long setae on each side of the clypeus or clypeal area (Figs. 18-20). The latter usually is weakly to moderately distinct and subtriangular (Figs. 19-20), but in a few species it is transverse (Fig. 18) and in *T. curvisete* it is very distinct, strongly shining and surrounded by an obvious sulcus.

Rugosity of the dorsal surface of the rostrum: In most genera of Cryptorhynchina and in a few of the species of *Tyloderma* the rostrum is moderately to strongly rugosely punctate on the basal portion and smooth to weakly rugosely punctate on the apical portion. This difference is especially striking in the *elegantulum* group because the apical portion is somewhat raised as if it has a varnish coat. In most species of *Tyloderma* the dorsal surface is fairly evenly, moderately to strongly rugosely punctate throughout or mostly smooth to weakly rugosely punctate throughout.

Setae on the basal 2/5-1/2 of the dorsal surface of the rostrum: In most genera of Cryptorhynchina they are subequal, most short to medium-sized and recumbent to subrecumbent. *Tyloderma curvisete* and most of the species of the *pilosellum* group have longer suberect to erect setae (Fig. 1), in addition to the normal recumbent to subrecumbent ones. This state is especially obvious in *T. hustachei*, where the erect setae form four distinct rows. On the other hand, in several species the setae are shorter and all recumbent (often scarcely distinct).

Sides of the rostrum apicad of the scrobes: In most genera of Cryptorhynchina (and in a few *Tyloderma*) they are subglabrous to glabrous. In most *Tyloderma* there are sparse to moderately dense setae, and in the *elongatum* group and in *T. variabile* the setae are dense to very dense. The size of the punctures on the sides of the rostrum may have some taxonomic value also, but often they are difficult to see and seem to show too much variation.

Position of the scrobes: In most genera of Cryptorhynchina the scrobes are completely lateral, not

...ve, but in a few genera (including *Tyloderma* and *Merocnemus*) they originate dorsally and ...ly (Figs. 18-26).

...l insertion and position of the lateral portions of the scrobes: The antennal insertion seems ...lated with the position of the lateral portions of the scrobes. The scrobes are directed toward ... margins of the eyes, thus when the insertion is apicad of the middle of the rostrum the scrobes ...inctly oblique to the axis of the latter (Figs. 21-24). When the antennae are inserted basad of the ...e, the scrobes need to become less oblique. A moderate shift in antennal insertion is present in *T. ...eni* (Fig. 25), and they are inserted much closer to the base in the *nigromaculatum* group (Fig. 26) and ... *T. elongatum* (in these three species the scrobes are dorsal for a short distance only [see Figs. 19-20], and their lateral portions are almost perpendicular to the axis of the rostrum).

Number of antennal funicular segments: This character also has generic value. The funicle is 7-segmented in most genera of Curculionidae. In most *Tyloderma* and in a few genera of Cryptorhynchina the funicle is 6-segmented (Fig. 18), and it is 5-segmented in the *subpubescens* group.

Shape of the head above the eyes: In most species the head is not depressed, whereas it is weakly to moderately depressed in the *subpubescens* group. This change may be correlated with the appearance of a notch above the postocular lobes.

General appearance of the head: The cuticle of the head usually is somewhat smooth, even though the head is rugosely punctate in some species with deeper and denser punctures, the latter mainly in the *pilosellum* and *elegantulum* groups. In *T. fasciatum* (and especially in *T. albidomaculatum*) the cuticle is rugosely striate.

Distribution of the scales on the head: In most genera of Cryptorhynchina they are very dense throughout, often imbricate. Different degrees of reduction are found in *Tyloderma*. In the *foveolatum* group (Fig. 18) they form a distinct spot on the frons (below the frontal sulcus) and on the base of the rostrum, a small cluster on the vertex, and often a small spot or cluster above each eye. In *T. fasciatum* they form a large spot which covers the frons and the base of the rostrum but they are obsolete elsewhere. In most species there are fewer scales present, most of them located around the eyes and/or on the middle of the vertex, and in some species they are scattered (fairly evenly) on the surface. The scales are obsolete in the few species that lost the scales altogether, and also in *T. tuberculatum*, which otherwise has scales on other areas of the body.

Width of the interocular distance and shape and position of the eyes: The interocular distance is related to the position of the eyes on the head. Lateral eyes tend to be weakly convex, and their convexity increases when they are placed more dorsally. This shift in position and shape seems to have more effect on how much they are covered by the postocular lobes than the size of the latter. The interocular distance is measured at the middle of the eyes, and is compared with the width of the rostrum at the base below the eyes. In the ancestral condition, the eyes are weakly convex and placed laterally on the head (completely or almost completely concealed by the postocular lobes when the rostrum is in repose), thus the interocular distance is as wide as the rostrum at the base, or wider (Fig. 18). In most species of *Tyloderma* the eyes are placed more dorsally and are more convex (*ca* 1/2-4/5 concealed by the postocular lobes), thus the interocular distance is somewhat to moderately (up to *ca* 25%) narrower than the rostrum at the base (Fig. 19), and in a few species the eyes are much closer to each other (*ca* 1/3-2/5 concealed by the postocular lobes), thus the interocular distance is much (*ca* 25-50%) narrower than the rostrum at the base (Fig. 20). This shift is even more pronounced in a few other genera of Cryptorhynchina.

Appearance of the frons: The frons may have a median sulcus (Figs. 18-20) or fovea, or at least a median impression. I have been unable to determine the ancestral state for this variable character. Occasionally there is also a sulcus or fovea on the vertex, but it is variable within species also.

Appearance of the vertex: The vertex usually lacks other kinds of structures, but a pair of tubercles is present in *T. expansum*, *T. hustachei*, *T. setarium*, *T. brassicae* and *T. tuberculatum* (Fig. 1), and a median carina appears in the latter two species.

Punctures of the head: They are very variable between groups, from very distinct (deep, very dense) in the *pilosellum* group to almost indistinct in the *elongatum* group. They are moderately to very distinct in most genera of Cryptorhynchina and many species of *Tyloderma* (Fig. 21), whereas they are scarcely to weakly distinct in the remaining species of *Tyloderma* (Figs. 2, 22-26).

Suborbital groove: A suborbital groove is absent in most species, but it is present (broad and deep) in a few species (Fig. 18). The suborbital groove surrounds the visible part of each eye and is very obvious ventrally, and should not be confused with the narrow sulcus present in several species above each eye.

Margins of the eyes: The eyes usually are flush with the head, but in a few species (especially in the *fasciatum* group) they are raised and the dorsal and inner margins (especially the former) are angulate with the head.

Dorsal constriction of the prothorax: The lateral subapical constriction of the prothorax is quite

variable, but the dorsal subapical constriction is fairly constant. It is at most weak (and usually absent) in most *Tyloderma* (Figs. 21-26) and in most genera of Cryptorhynchina, but appears (moderate to strong) in some of the species of the *pilosellum* group where it is enhanced by the presence of tubercles right behind it (Fig. 1).

Shape of the prothorax (in dorsal view): This character is very useful and easy to observe. In most species the prothorax is widest from 1/3 from the base to near the middle, with the sides weakly to strongly rounded (Figs. 4-9, 11-13). In a few species the sides are subparallel in the basal 1/2 or even converge from the base to the subapical constriction (Figs. 10, 14-17). In general, when the prothorax is widest near the middle it is also as long as wide to distinctly longer than wide, whereas when the sides are subparallel or widest at the base it is somewhat to distinctly transverse.

Apical margin of the prothorax: Usually it is continuous (not notched) above the postocular lobes (Figs. 1-2, 21, and 23-26) but in the *subpubescens* group (Fig. 22) there is a moderate to distinct notch which corresponds to the depressed area of the head above each eye.

Shape of the postocular lobes: The postocular lobes may be fairly evenly, strongly rounded (Figs. 1-2, 24), or moderately rounded (Figs. 21 and 23), or weakly rounded (Fig. 22) in the evenly rounded ones, or even subtruncate to truncate, weakly rounded (Figs. 25-26). I believe that there is a linear sequence from strongly to weakly rounded, but that a strongly or moderately rounded postocular lobe gave rise to the subtruncate one.

Surface of the pronotal disc: It may have tubercles or impressions. In most cases it is mostly even, not tuberculate, but in *T. hustachei* and *T. setarium* it is somewhat uneven, with weakly developed tubercles, and in *T. brassicae* and *T. tuberculatum* (Fig. 1) there are several very obvious tubercles. The impressions usually are absent, but they are present in three of the groups, where they seem to have evolved independently.

Prothoracic scales: They form distinct patterns in some of the groups, but it is difficult to sort these into objective states throughout the genus. However, in a few cases it is a useful character for group or species recognition.

Size of the pronotal punctures: This character is in general very useful at species group level. Typically in Cryptorhynchina, most of the punctures are medium to large (as in Figs. 4-5, 8-9). They are large to very large in a few species of *Tyloderma* (Fig. 6), but in most species they are mostly small (Figs. 7, 10, and 14-15) or mostly minute to very small (Figs. 11-13, 16-17), implying the occurrence of a dual polarity. Sometimes (more obvious in species with larger punctures) there is an impunctate median line, visible throughout or only in part, but it is variable, and its presence is difficult to determine in species with minute to very small punctures.

Relation between the size of the pronotal punctures and the size of the elytral strial punctures: This character is utilized primarily to distinguish between species with large to very large punctures, mainly those in the *foveolatum* and *pilosellum* groups. In most Cryptorhynchina the pronotal punctures are somewhat to moderately smaller than the elytral punctures (as in Figs. 5 and 8), but in most *Tyloderma* they are much smaller (Figs. 7, 9-17), although in a few they are about as large (Figs. 4 and 6) or even somewhat larger. It seems that the ratio changes first as a result of an increase in the size of the pronotal punctures, and subsequently as a result of a decrease in the size of the strial punctures.

Punctures on the flanks of the prothorax: In most *Tyloderma* species they are moderately to very distinct throughout (Figs. 21 and 23), but in a few species they became less obvious on the apical 1/2-3/5 and weakly distinct to subobsolete on the basal 2/5-1/2 (Figs. 2, 22, and 24) or visible only along the subapical constriction or also above the fore coxae (Figs. 25-26). This trend seems to have occurred independently in some of the species groups.

Relation between the size of the punctures on the flanks of the prothorax and the size of those on the disc: This comparison sometimes is difficult to evaluate because of the reduction and/or loss of the former, which have become very uneven in size and depth in different areas of the flanks. In general, most or all of the punctures on the flanks are somewhat larger to somewhat smaller that those on the disc, but in some species they are moderately to distinctly larger.

Prothoracic setae: They are quite variable also, but it is difficult to sort them into discrete states. In many genera of Cryptorhynchina, and also in *T. curvisete* and most of the species of the *pilosellum* group there are both long, moderately fine to coarse, suberect to erect setae, and short, fine to moderately fine, recumbent to subrecumbent setae. In several species of *Tyloderma* the setae are subequal and mostly fine to moderately coarse and subrecumbent to suberect (some to many may be erect in species of the *foveolatum* group, arising from the bottom of the punctures and at most moderately exceeding the rim of the punctures), and in most species they are shorter, fine and most recumbent, usually correlated with a reduction in the size of the punctures.

Scutellum: The scutellum is intraspecifically very variable. Typically it is medium to large and broad oval to almost round, but in the *fasciatum* group it is ovoid, with the narrow end toward the prothorax.

Shape of the humeri: The humeri usually are rounded to subquadrate, moderately to very prominent. In a few species they are subtruncate to obliquely truncate (Fig. 17), and in the brachypterous *T. baridium* (Fig. 7) they are obsolete.

Sides of the elytra: Usually they are subparallel in the basal 1/2 or weakly rounded, but in *T. expansum* (Fig. 8) they diverge behind the humeri to the declivity.

Elytral apices: They show a trend from conjointly rounded (Fig. 1), to weakly, to moderately (Fig. 2), to strongly produced ventrally (Fig. 3). This cline seems to correlate with the development of a carina near the apex of each elytron, but this correspondence is not absolute.

Color of the elytra: This character has taxonomic value in some of the groups. In most species the elytra are fairly uniformly colored throughout, although often lighter colored in the scale covered areas. In several species (and in a few individuals of a few species) the elytra are fasciate (usually obliquely so near the middle [Figs. 13 and 17]) and/or maculate (strikingly so in the *nigromaculatum* group [Figs. 15-16]), and in *T. longisquameum*, *T. cupreum* and *T. aeneum* most or all of the apical 1/4-2/5 is lighter colored, somewhat reddish.

Distribution of the elytral scales: This character is very important to distinguish some of the groups. In many genera of Cryptorhynchina the scales (which are mainly imbricate) cover most of the elytra. As mentioned above, in *Tyloderma* there are different degrees of reduction in the scale cover. In the closely related *T. hustachei* (Fig. 5) and *T. pilosellum*, and in *T. cubense*, the scales are still imbricate, covering a large portion of the apical 1/3-2/5 of the disc and also forming some spots or bands on the basal 1/2. Most often there is a similar pattern on the basal 1/2 but instead of covering most of the apical portion the scales form a distinct (sometimes very broad) transverse band at or near the declivity (Figs. 4 and 6). In the *elegantulum* group (Figs. 8-9) also there is a transverse band at or near the declivity, but in addition the scales form a narrow band located along the basal portion of interval 5 and continuous with the lateral band of the pronotum. In many species the scales are no longer imbricate. They may be scattered throughout, or form some clusters (often between the strial punctures), and in the *lepidogramma* group (Fig. 13) they form fairly distinct rows, mainly alongside the strial grooves. In most of the species of the *fasciatum* group the scales form four distinct bands or rows of spots (near the base, *ca* 3/10 from the base, *ca* 3/5 from the base, and near the declivity). In *T. fasciatum* (Fig. 10), *T. subfasciatum*, *T. pallidum* and *T. circumcaribbeum* there are four bands (wider, straighter in *T. fasciatum*), whereas in *T. albidomaculatum* (Fig. 2) there are four rows of large spots. The scales are obsolete in the species which lost the scales altogether.

Size and shape of the strial punctures on the basal 2/5 of the elytra: This character can be useful to distinguish some closely related species. In most species the punctures are large to very large and fairly regularly shaped, usually roundish to oval. In *T. foveolatum* (Fig. 6) they are larger and somewhat irregularly shaped. In many species most of the punctures are medium-sized, and in *T. aeneum* they are very small to small, many of them scarcely distinct. The size of the strial punctures is somewhat (but not completely) correlated with the width and shape of the intervals.

Distribution of the strial punctures on the basal 2/5 of the elytra: Although somewhat variable, this character is useful also to separate closely related species. The punctures can be very dense, most separated by 1/2 their own diameter or less, most can be separated by a little less to a little more than their own diameter, and in some species they are separated by 2 diameters or more. Often, but not always, the distance increases as their size decreases.

Distinctness of the strial punctures on the apical 2/5 of the elytra: Although there are different levels of reduction in size and depth, two fairly distinct states can be determined. In about 1/2 of the species the strial punctures are mainly subequal throughout the elytra or decrease gradually in size and depth toward the apices, thus most are moderately to very distinct on the apical 2/5. In the remaining species the size and depth of the punctures decrease rapidly toward the apices on most of the striae, and the punctures are only scarcely to weakly distinct on most of the apical 2/5, sometimes only visible at the apices of striae 1 and 2.

Elytral strial punctures on striae 1-2: A comparison between the punctures at the apices of striae 1 and 2 and those immediately in front of the declivity can be very useful to separate closely related species. The punctures can be subequal on the whole of the apical 2/5, or decrease toward the apices, but in the majority of *Tyloderma* they are deeper (and usually larger) near the apices. This character is especially important to distinguish *T. pseudofoveolatum* from *T. foveolatum*, which otherwise are very similar.

Elytral stria 10: This character has generic value. In most genera of Curculionidae stria 10 is distinct throughout, but in some (including *Tyloderma*) it is incomplete. In most *Tyloderma* it is visible (always very distinct) only on the basal 2/5, ending above the hind coxa (Fig. 2), but in a few it is weakly distinct also near the apex of each elytron.

Pubescence of the elytral strial punctures: Usually, each strial puncture has a fairly distinct seta (a scale in *T. cubense*), but in some species the setae are obsolete. Although this character may be of value

to separate some groups, sometimes the setae are minute and difficult to discern.

Elytral strial grooves: Sometimes most are mainly subobsolete (9 often is moderately to very distinct on the apical 1/3-3/5), but they may be weakly distinct in whole or in part (sometimes more obvious on the apical 1/3-2/5), and in the *glabrescens* group they are moderately to very distinct on at least the apical 3/4.

Width and shape of the dorsal intervals on the basal 2/5 of the elytra: This character is somewhat variable within species, but two fairly distinct states can be recognized (interval 3 and the sutural interval usually are wider than the others and it is better not to consider them). In the majority of *Tyloderma* most intervals are narrower to somewhat wider than the strial punctures and distinctly undulate, but in some species they are moderately to distinctly wider and much more straight. This increase in width usually corresponds with a reduction in size of the punctures.

Shape of the intervals on the basal 1/2 of the elytra (in lateral view): The intervals usually are fairly evenly convex, but in *T. brassicae* and *T. tuberculatum* (Fig. 1) intervals 3, 5, and 7 are distinctly carinate. In the closely related *T. hustachei* and *T. setarium*, intervals 3, 5, and 7 are somewhat raised near the base of the elytra but not obviously carinate.

Shape of elytral interval 3 in front of the declivity: Interval 3 usually does not present any special features in front of the declivity, but in *T. brassicae* it is carinate and in *T. tuberculatum* (Fig. 1) it is distinctly tuberculate.

Shape of elytral interval 5 at its apex: Interval 5 forms a declivital callus in many genera of Cryptorhynchina (including *Merocnemus*), and I consider this to be the ancestral state. In most *Tyloderma*, intervals 4-8 are flat to somewhat raised at their apices, but a declivital callus is present in *T. setarium* (Fig. 4), *T. brassicae* and *T. tuberculatum* (Fig. 1).

Shape of the intervals near the apices of the elytra: Some of the intervals (especially 2, 3, 9, and the outer interval) usually are more convex near the apices, but in general they form at most a weakly to moderately developed carina, somewhat variable within species. In three of the species of the *fasciatum* group (see Figs. 2 and 10), and in the closely related *T. obrieni*, those intervals form a moderately tuberculate carina, which becomes tuberculate (Fig. 3) in the remaining three species of the *fasciatum* group. As stated above, this character is partially correlated with the ventral elongations of the elytral apices.

Sculpture of the elytral intervals: Except for the sutural interval, the remaining intervals usually are not rugose, but in a few species some or most dorsal intervals are transversely or obliquely (usually incompletely) rugose in part.

Punctures and setae of the dorsal elytral intervals: These also show a high degree of variation. A single row of punctures, each with a long to very long, suberect to erect seta represents the ancestral state (often there are also some short, recumbent setae on parts of some intervals). In *T. hustachei* and *T. pilosellum* the punctures are irregularly distributed on the intervals, some bearing a long to very long, suberect to erect seta, and most bearing recumbent, somewhat scalelike setae which may cover most of the surface of the intervals. In a few species the punctures form a single row on each interval and the setae are mainly subrecumbent to suberect. In most species the punctures form one to three more or less distinct rows (two to three on and near the sutural interval) and their setae are quite short and mainly recumbent. The size of the punctures also varies between species.

Sides of the median area of the mesosternum: They show a gradual change in *Tyloderma*. Although this character is particularly difficult to evaluate objectively, it is very useful taxonomically in some of the groups. In some species the sides are distinctly rounded and the median area is not set off from the lateral areas, and in others they are less rounded or subquadrate, then the median area is scarcely set off from the lateral areas. In some species the sides are partly or completely subcarinate, and in a few others they are distinctly carinate laterally and the median area is strongly set off from the lateral areas. In the latter species the median area also is more flattened.

Lateral processes of the mesosternum: They are obsolete in most *T. elegantulum* and in a few *T. expansum*, but a process is more or less obvious on each side in the remaining species. This character can be useful to help distinguish *Tyloderma* and *Merocnemus* from most other genera of Cryptorhynchina.

Posterior margin of the median area of the mesosternum: It ranges from narrow to very broad. Within *Tyloderma*, narrow seems to be ancestral and broad derived.

Surface of the median area of the mesosternum: The surface may be somewhat evenly convex to almost flat, sometimes broadly, longitudinally subcarinate or carinate.

Pubescence of the median area of the mesosternum: The pubescence is quite variable between species, but it is difficult to recognize distinct states. Setae are present in most species, and plumose hairs are characteristic of the *fasciatum* group and present also in *T. elongatum*. The plumose hairs always are medium to long, most dense to very dense, and suberect to erect. The setae, on the other hand, may be short, moderately sparse to sparse and subrecumbent as in *T. nigromaculatum*, to long, dense and suberect

to erect as in *T. obrieni*. In general, the punctures are difficult to see and vary too much to be of any value, although their size and density are very distinctive in the *fasciatum* group.

Vestiture of the lateral areas of the mesosternum: The lateral areas usually have some setae or scales but in some species they are glabrous. The area above the middle coxa is easy to define and observe and I refer to it in the descriptions. When present, the setae or scales are located mainly on the anterior 1/2, although in a few species they are scattered throughout.

Vestiture of the mesepisternum: Although quite variable, it is very useful to distinguish some closely related species, especially in the *lepidogramma* and *subpubescens* groups. In the majority of *Tyloderma* the mesepisternum has a few to several scales and sometimes also some (often scalelike) setae. In some species there are only a few to many distinct setae present, and in several species there are a very few, almost indistinct setae, or they are obsolete.

Vestiture of the mesepimeron: When present, the setae or scales usually are short and weakly distinct, although they are much more obvious in those species with long setae on the mesepisternum (*T. natator* and *T. lepidogramma*), and they are obsolete in some species.

Shape and sculpture of the median area of the metasternum: The median area usually is almost flat to weakly convex in the females and somewhat concave in the males, a difference probably related to mating. Except for an apical sulcus, the metasternum usually does not present any special structures, but in most of the species of the *aeneotinctum* group there is an oval, smooth impression a little apicad of the middle. Although present in both sexes, generally it has subcarinate or carinate margins in the males and probably facilitates positioning during mating.

Shape of the lateral areas of the metasternum: The lateral areas usually are abruptly to moderately abruptly, moderately to strongly depressed in front of the hind coxae. In the *lepidogramma* group, and in *T. elongatum*, the depression is less obvious and more gradual, and in *T. variabile* it is only weak and gradual.

Impunctate stripe on the lateral areas of the metasternum against each metepisternum: The punctures of both the median and lateral areas are quite variable in size, depth and density between species, but also vary too much within species. In the lateral areas usually they leave only a narrow to moderately narrow impunctate stripe against each metepisternum, but in *T. fasciatum* and *T. albidomaculatum* this stripe is much wider, especially in the latter species (Fig. 2), where it is also very shining, contrasting highly with the adjacent structures, which are subreticulate and only weakly shining.

Vestiture of the metasternum: Each puncture bears a seta or scale. These usually are suberect on the median area and recumbent to subrecumbent on the lateral areas, but they rarely show specific differences.

Metepisternum: The apex of the metepisternum has some importance as discussed below. The punctation may be of value to distinguish species groups, but it tends to vary within species.

Shape of abdominal sternum 1: Usually it is weakly to moderately convex in the females and weakly to moderately concave in the males, although occasionally it is strongly concave in the males.

Shape of abdominal sterna 3-4 (in lateral view): Usually they are flat to weakly convex, but in *T. baridium* they are moderately convex.

Shape of abdominal sternum 5: Usually it is almost flat, but in *T. variabile* it is weakly to moderately convex.

Impressions of abdominal sternum 5: In most genera of Cryptorhynchina and in some *Tyloderma* this sclerite lacks distinct impressions, but it may have three impressions. The latter are present in a large number of Neotropical species. These impressions are much smaller, subequal or the middle one somewhat larger than the lateral ones, and they are obsolete in a few individuals of the *aeneotinctum* group, being replaced by punctures larger than the remaining ones on the sternum. A single median impression is present in several North American species.

Punctures of the abdominal sterna: The punctures are quite variable in size and depth, and also somewhat variable in density, and they are useful to distinguish species groups. In several species the punctures are medium to large throughout, but in most species they are larger and deeper on sternum 1 between the hind coxae and often also along the base, and on sternum 5, than on the remainder of the abdomen.

Vestiture of the abdominal sterna: Larger punctures usually bear longer, coarser, suberect to erect setae (very obvious in the *pilosellum* group), and these show a reduction in length and width correlating with the reduction in size and depth of the punctures, and also become recumbent to subrecumbent.

Shape of the legs: The legs tend to be moderately stout in the terrestrial species, becoming more slender in the subaquatic and aquatic species. This elongation is especially obvious in *T. nigromaculatum* since in this species the tarsi also are very slender.

Shape of the outer angle of the hind coxal cavity: This character is very useful to unify closely related groups, although it also varies within some of the groups. The shape of the outer angle of the hind

coxal cavity is determined mainly by the shape of the first abdominal sternum, and to a lesser degree by the shape of the apical portion of the metepisternum. The angle is "open" to "almost completely open" when the lateral basal angle of abdominal sternum 1 is pointed (occasionally subtruncate), with the basal margin almost straight and directed toward the margin of the elytron or toward the dorsal portion of the apex of the metepisternum (Fig. 31). The apex of the metepisternum exceeds the apical margin of the metasternum only a little to moderately, and may be somewhat pointed to rounded. I consider this state to be the ancestral one because it is present in *Merocnemus*, the outgroup of *Tyloderma*. The angle is "partially closed" when the lateral basal angle of abdominal sternum 1 is truncate, with the basal margin fairly straight and directed toward the ventral portion of the apex of the metepisternum, which remains fairly constant (Fig. 32). The angle is "largely to almost completely closed" when the lateral basal angle of abdominal sternum 1 is truncate and the basal margin is rounded and produced forward, exceeding the apical margin of the metepisternum (Fig. 33). The angle is "truncate" when the lateral basal angle of abdominal sternum 1 is truncate, with the basal margin not produced forward, and the metepisternum is elongated, distinctly exceeding the apical margin of the metasternum and with the apical portion produced ventrally (Fig. 34). An analogous situation was observed recently by Vanin (1986) in the genus *Pimelerodius* of Erodiscini, although in that genus the outer angle of the hind coxal cavity was truncated by a posterior elongation of the lateral area of the metasternum.

Sculpture of the anterior surface of the hind coxae: This character can be very useful taxonomically, but in many specimens it is not visible if the legs are directed forward. In all of the species of Cryptorhynchina examined, and also in most *Tyloderma*, the anterior surface of the hind coxae is very finely to moderately coarsely reticulate (Fig. 35). In general, this reticulation appears as transverse, somewhat rectangular "cells". This character seems to have evolved in two directions; on one hand the reticulation became more irregular and the "cells" became deeper, thus the coxae appear alveolate (Fig. 36); on the other hand the reticulation became mostly or completely lost and the coxae appear almost smooth to smooth. In the distinct subgroup *T. frontale* - *T. striatum* - *T. aeneotinctum* the alveoli are somewhat more irregularly distributed, and in *T. lepidogramma* and *T. longisquameum* they are much smaller, and difficult to differentiate from a moderately coarsely reticulate coxa. In the *fasciatum* group, and in *T. elongatum* and *T. nigromaculatum* the hind coxae are very finely reticulate, and they are almost smooth in *T. obrieni* and smooth in most *T. variabile*.

Shape of the femora near the base: The femora normally decrease evenly in width toward the base, but in the *glabrescens* group, and especially in *T. elegantulum* they are expanded subbasally and have a broad, smooth impression on the outer surface.

Inner margin of the femora: In the majority of the genera of Cryptorhynchina all the femora are armed with a large to very large tooth although occasionally the hind legs are unarmed. In *T. setarium* (Fig. 27), *T. brassicae* and *T. tuberculatum* of the *pilosellum* group, and in *T. curvisete* and *T. expansum* of the *elegantulum* group the femora are armed with a small to medium-sized tooth. In the remaining species of *Tyloderma* the femora are unarmed (Figs. 28-30), with the inner margin almost straight to strongly rounded, although it is subcarinate and moderately to distinctly obtusely angulate in *T. elegantulum*, *T. frontale* (Fig. 28) and *T. striatum*.

Sculpture of the femora: In the majority of Cryptorhynchina and in a few species of *Tyloderma* the surface of the femora is mostly moderately rugosely striate. In a few species (mainly terrestrial) the femora are mostly strongly rugosely striate, but in the majority of the species they are almost smooth to weakly rugosely striate.

Vestiture of the femora: In *Tyloderma* it is very variable. In the majority of Cryptorhynchina the femora are covered with dense scales and medium to long, subrecumbent to erect setae. In most of the species of the *pilosellum* group the femora have long, suberect to erect, and short to medium-sized, recumbent to subrecumbent setae. Most *Tyloderma* have the femoral setae mostly subequal in length and fairly evenly distributed throughout. In the *fasciatum* group, and also in *T. elongatum*, the setae are somewhat longer and denser, and more erect along the inner margin than in the remaining surface, and in *T. obrieni* they are very dense, most suberect along the inner margin.

Sculpture and vestiture of the tibiae: In general, the tibiae are similar to the femora in sculpture and vestiture.

Uncus: The uncus varies somewhat in size and curvature, but more significant is its position on the apex of the tibia, which usually is different in males and females. In most *Tyloderma* females the uncus arises near the middle of the apex of the tibia or between the middle of the apex and the inner apical angle, although in a few species it arises from the outer apical angle, and in several species it arises from or near the inner apical angle. In the males usually it is closer to the inner apical angle of the tibia than in the females, and this shift toward the inner apical angle is somewhat correlated with the loss of the praemucro and even with a shift of the latter away from the apex of the tibia.

Praemucro: The praemucro varies little in the females, mainly in size. In the males, the praemucro

occurs in several combinations. In a few species the praemucro is present on all the legs (or at least on the fore and middle legs), and is almost subapical to subapical on at least the fore legs. In many species of *Tyloderma* the praemucro still is present on all the legs (or at least on the fore and middle legs) but located between 1/4 and 1/8 from the apex of the tibia. In a few species it is present only on the fore legs and subapical, in *T. striatum* and *T. innotatum* also it is present only on the fore legs but located between 1/5 and 1/8 from the apex of the tibia, and in several species it is obsolete on all the legs. Although this character is consistent at species group level in several groups, it is also quite variable in a few others, especially the *aeneotinctum* and *subpubescens* groups, which in addition present a fairly high level of intraspecific variation for this character.

Vestiture of tarsal segments 1-3: The dorsal surface is distinctly more pubescent on some species than on others, but the setae are unevenly distributed, which makes the qualification of states difficult. In some cases (*e.g.* between *T. foveolatum* and *T. pseudofoveolatum*), this character can be useful to compare unknowns against identified material.

Pubescence of the ventral surface of tarsal segment 5: In most *Tyloderma* the ventral surface is subglabrous or has recumbent to subrecumbent setae which are at most weakly distinct in lateral view. In a few species the setae are suberect on the apical 2/5-1/2 and are moderately distinct in lateral view. In the *fasciatum* group, and in *T. obrieni*, those setae are denser and suberect mainly on the apical 1/2-2/3 (very distinct in lateral view), and in *T. elongatum* the setae are dense to very dense and subrecumbent to suberect on the basal 3/5, with the apical 2/5 subglabrous.

Shape of tarsal segment 5: Tarsal segment 5 usually is unarmed, with the ventral surface weakly rounded toward the apex, but in the closely related *T. striatum* and *T. aeneotinctum* (Fig. 37) all the legs have a pair of subapical denticles, which appear as one in lateral view. The size of these denticles is somewhat variable, and they are more obvious in *T. aeneotinctum* where they are up to 1/2 the length of a claw.

Habitat: A terrestrial habit still is present in the *pilosellum*, *foveolatum* and *nigrum* groups. The remaining species are known or assumed to be semiaquatic or more rarely aquatic, many of them are good swimmers and have been collected alongside water-filled roadside ditches or around lakes or ponds.

TAXONOMY

Genus *Tyloderma* Say

Tyloderma Say 1831:19 (1859:284) [description]; LeConte 1876:240 [in key] & 247 [diagnosis]; Pascoe 1881:307 [note]; LeConte & Horn 1883:488 [in key]; Casey 1892:448-449 [diagnosis]; Faust 1896:53 [in key]; Champion 1905:527 [note]; Blatchley & Leng 1916:488 [in key] & 489-490 [redescription]; Hustache 1936:180 [catalog]; Blackwelder 1947:863 [checklist]; Costa-Lima 1956:190 [note]; Kissinger 1964:60 [in key] & 67 [note]; Papp 1979:198 [catalog]; Wibmer 1981:11-12 [redescription]; O'Brien & Wibmer 1982:141 [checklist]; Wibmer & O'Brien 1986:223 [checklist]. **Gender**. Neuter. **Type species**. *Cryptorhynchus foveolatus* Say 1831, by indication (monotypy).

Tyloderma (Tyloderma) Say; Voss 1943:229 [in key].

Analcis Schönherr 1837:278-279 [description], 1833:23 [in table; *nomen nudum*]; Dejean 1835:295 & 1836:319 [checklist; *nomen nudum*]; Lacordaire 1866:91 [in key] & 97-98 [redescription]; Gemminger & Harold 1871:2561 [catalog]; Horn 1873:467 [note]; LeConte 1876:247 [synonymy]; Pascoe 1881:307 [note]; Champion 1905:527 [in synonymy]; Hustache 1936:180 [catalog; in synonymy]; Voss 1943:229 [in key; as subgenus]; Blackwelder 1947:863 [checklist; in synonymy]; Costa-Lima 1956:190 [in synonymy]; Papp 1979:198 [catalog; in synonymy]; Wibmer 1981:11 [in synonymy]; O'Brien & Wibmer 1982:141 [checklist; in synonymy]; Wibmer & O'Brien 1986:223 [checklist; in synonymy]. **Gender**. Masculine. **Type species**. *Bagous aereus* Say 1831, by original designation.

DESCRIPTION. Scales present or obsolete, when present only covering part of body. **Rostrum**. Broad subtrapezoidal throughout in cross-section, with dorsolateral subapical pit bearing one to few long setae on each side of usually smooth, impunctate, transverse to subtriangular clypeus or clypeal area (Figs. 18-20), sides weakly concave apicad of scrobes; scrobes (Figs. 18-20) dorsal on apical portions (only for short distance in *nigromaculatum* group [Figs. 19-20], and in *T. elongatum*); scape short, clavate; funicle usually 6-segmented (Fig. 18), with 1st segment broad (scarcely longer than wide, to 1.5 X as long as wide), 5-segmented in *subpubescens* group. **Prothorax** (Figs. 4-17). Ratio (length/width) 0.80-1.22, prolonged in front partly or completely covering head (Figs. 21-26); postocular lobes scarcely distinct to very strongly rounded, occasionally subtruncate. **Scutellum** (Figs. 4-17). Glabrous, highly variable within species (obsolete in some *T. fragariae*). **Elytra** (Figs. 4-17). Cuticle of scale covered areas usually lighter colored than remaining surface; stria 10 (Fig. 2) moderately to very distinct on basal 2/5 (usually ending above hind coxa), sometimes weakly to moderately distinct also on apical portion. **Sternal channel**. Deeply excavated, limited on sides by ventral extensions of flanks of prothorax below postocular lobes and

inner surface of fore coxae, closed behind, prolonged onto mesosternum, which is deeply excavated dorsoventrally and posteriorly to receive apex of rostrum in repose. **Mesosternum.** Median area usually with one moderately to very distinct process on each side between middle and 3/4 from anterior margin, anterior margin almost straight to weakly emarginate, prolonged in front covering part of prosternal channel. **Metasternum.** Lateral areas usually moderately abruptly to abruptly, moderately to strongly depressed in front of hind coxae (Figs. 31-34); metepisternum (Figs. 1-2, 31-34) distinct, narrow to moderately narrow. **Legs.** Femur usually unarmed (Figs. 28-30), in few species armed with small to medium-sized tooth (Fig. 27); uncus usually arising from or near middle of apex of tibia in females, in males usually from or near inner apical angle; all tibiae with small to large, subapical or apical praemucro in females, in males usually smaller, subapical to *ca* 1/4 from apex of tibia on all legs, or obsolete on some or all tibiae; tarsal claws free. **Male genitalia and associated structures.** Endophallic structures usually absent, when present rodlike; flagellum present, moderately stout; spiculum gastrale (9th sternite) with short, somewhat asymmetrical arms and long apodeme, Fig. 44 (in *subpubescens* group [Fig. 69] almost reaching to somewhat exceeding apices of aedeagal apodemes); 8th tergite entirely hidden under 7th. **Female genitalia and associated structures** (Fig. 81). Spermatheca with ramus short to medium-sized, arising near nodulus; spermathecal gland large, roundish to elongate; spermathecal duct gradually widening on apical portion toward bursa copulatrix, attached subapically; bursa broad, not constricted at base; 8th tergite entire. **Length.** Pronotum + elytra: 2.10-6.15 mm.

REMARKS AND COMPARATIVE NOTES. The genus *Tyloderma* is placed in the tribe Cryptorhynchini of the subfamily Cryptorhynchinae because the sternal channel extends onto the mesosternum but not the metasternum.

The genus can be recognized by the following combination of characters: rostrum with dorsolateral subapical pit bearing one to few long setae on each side of clypeus or clypeal area (Figs. 18-20); scrobes dorsal on apical portions (Figs. 18-20); antennal funicle 6- or 5-segmented; and anterior margin of mesosternum almost straight to weakly emarginate.

Any of these characters separates *Tyloderma* from most New World genera. In addition, the rostrum is fairly stout (Figs. 1-2, 18-26), and the 10th stria of each elytron always is incomplete, usually ending above the hind coxa (Fig. 2). *Tyloderma* seems to be most closely related to *Merocnemus* Faust, a monotypic genus which has a 7-segmented funicle and a moderately to strongly emarginate mesosternum. In addition, *Merocnemus* is almost completely covered with scales and has all tibiae (especially the fore tibiae) dentate on the apical 1/2, whereas in *Tyloderma* the scales (when present) cover only part of the body and the tibiae are not dentate.

Keys to the genera of Cryptorhynchinae (including *Tyloderma)* are found in Faust (1896:49-55) and Kissinger (1964:59-63).

RANKING. As in my revision of the North American species (Wibmer 1981) I have arranged the Neotropical species into species groups, which I consider to be monophyletic. In essence, the sequence of species in the text is based on their assumed phylogenetic relationships.

Key to species groups and species of *Tyloderma* in Mexico, Central America, South America, and the West Indies

1 Cuticle mostly black AND pronotal punctures medium to very large (Figs. 4-6), moderately smaller to somewhat larger than elytral strial punctures . . . . . **2.**

1' Cuticle variously colored (rarely black); pronotal punctures usually minute to small (Figs. 7, 10-17), usually moderately to much smaller than elytral strial punctures (rarely medium-sized [Figs. 8-9], *ca* as large as, to moderately smaller than elytral strial punctures) . . . . . **9.**

2(1) Dorsal surface of rostrum, and disc of prothorax and elytra with some to many medium to very long, suberect to erect setae greatly exceeding rim of punctures (Figs. 1, 4-5) (mostly short to medium-sized, subrecumbent in *T. subpilosum*); suborbital groove lacking; scales scarce (occasionally obsolete) on head, most around eyes and on middle of vertex, never forming spot on frons; West Indies, Central America and South America (see ***pilosellum* group**, p. 21) . . . . **3.**

2' Dorsal surface of rostrum, and disc of prothorax and elytra with mostly short to medium-sized, mostly subrecumbent setae (or many long, suberect to erect on pronotum, but only moderately exceeding rim of punctures); suborbital groove broad, deep, very obvious subbasally (Fig. 18); scales forming medium to large spot on frons and/or base of rostrum, small cluster on vertex, and small cluster above each eye (Fig. 18); North America and Mexico (see ***foveolatum* group**, p. 33) . . . . . **8.**

3(2) Femora armed with small to medium-sized tooth *ca* 4/7-3/5 from base (Fig. 27); elytral interval 5 forming medium to large declivital callus (Figs. 1 and 4) . . . . . **4.**

3' Femora unarmed; elytral interval 5 somewhat raised at apex (Fig. 5) but not forming declivital callus . . . . . **6.**

4(3) Elytral intervals not carinate; pronotal disc somewhat uneven but not tuberculate (Fig. 4), or rarely with two low tubercles near midline behind subapical constriction . . . . . 1. ***T. setarium*** Faust, p. 21

4' Elytral intervals 3 and 5 carinate near base, 3 carinate or tuberculate in front of declivity (Fig. 1); pronotal disc (Fig. 1) very uneven, with very distinct tubercles (two near base, two *ca* 1/3-2/5 from base, and transverse row of four behind subapical constriction) . . . . . **5.**

5(4') Elytral interval 3 at most carinate in front of declivity; surface of femora strongly rugosely striate . . . . . 2. ***T. brassicae*** Costa-Lima, p. 23

5' Elytral interval 3 forming very large tubercle in front of declivity (Fig. 1); surface of femora mostly weakly rugosely striate . . . . . 3. ***T. tuberculatum*** Wibmer, n. sp., p. 25

6(3') Prothorax distinctly wider than long to somewhat longer than wide, and elytra at most 1.5 X as long as wide (Fig. 5); scales broad subtriangular, fanlike (striate) (Fig. 5) . . . . . 4. ***T. hustachei*** Wibmer, n. sp., p. 26

6' Prothorax moderately to distinctly longer than wide, and elytra more than 1.5 X as long as wide; scales mostly moderately narrow to moderately broad, cuneiform to suboval (as in Figs. 4 and 6) . . . . . **7.**

7(6') Disc of prothorax and elytra with many long, erect setae (as in Figs. 4-5); most elytral strial punctures separated by own diameter or little more on basal 2/5 . . . . . 5. ***T. pilosellum*** (Chevrolat), p. 29

7' Disc of prothorax and elytra with (at most) some short to medium-sized, suberect setae; most elytral strial punctures separated by 2 diameters or more on basal 2/5 . . . . . 6. ***T. subpilosum*** Wibmer, n. sp., p. 32

8(2') Most or all elytral strial punctures on basal 2/5 *ca* as large as pronotal punctures, somewhat irregularly shaped (Fig. 6), punctures on striae 1-2 distinctly deeper (and often somewhat larger) on apical portions than immediately in front of declivity; most elytral intervals strongly undulate on basal 2/5 . . . . . 7. ***T. foveolatum*** (Say), p. 34

8' Most or all elytral strial punctures on basal 2/5 smaller than pronotal punctures, almost round, punctures on striae 1-2 *ca* as deep (and usually *ca* as large) on apical portions as those immediately in front of declivity; most elytral intervals moderately undulate only near base . . . . . 8. ***T. pseudofoveolatum*** Wibmer, p. 35

9(1') Scales obsolete (Fig. 7); suborbital groove broad, deep, very obvious subbasally (as in Fig. 18); median area of mesosternum almost flat or broadly subcarinate on middle, carinate on sides, very strongly set off from lateral areas (see ***nigrum*** **group**, p. 36); humeri obsolete (Fig. 7) . . . . . 9. ***T. baridium*** LeConte, p. 37

9' Scales usually present (Figs. 2, 8-13, 17), rarely obsolete (Figs. 14-16); suborbital groove lacking (some species with narrow sulcus above each eye); median area of mesosternum mostly weakly to moderately convex, rounded to subcarinate on sides, at most moderately set off from lateral areas . . . . . **10.**

10(9') Elytral scales forming narrow to very narrow band along basal 1/5-1/4 of interval 5 (continuous with lateral band of pronotum) and broad to very broad, transverse band at or near declivity (Figs. 8-9); dorsal surface of rostrum usually moderately to strongly rugosely punctate on basal 3/7-1/2 and almost smooth to weakly rugosely punctate on apical 4/7-1/2; pronotal punctures (Figs. 8-9) usually moderately to very distinct, most medium-sized (rarely weakly to moderately distinct, most small) (see ***elegantulum*** **group**, p. 38) . . . . . **11.**

10' Elytral scales not forming band along basal portion of interval 5 and usually not forming transverse band near declivity, or obsolete; dorsal surface of rostrum fairly evenly rugose throughout (mostly smooth to weakly rugosely punctate, or mostly moderately to strongly rugosely punctate); pronotal punctures (Figs. 10-17) usually scarcely to weakly distinct, minute to very small (sometimes most small, moderately distinct) . . . . . **14.**

11(10) Pronotum and disc of elytra with long, erect setae; femora not rugosely striate, armed with small tooth *ca* 3/5 from base . . . . . 10. ***T. curvisete*** Wibmer, n. sp., p. 39

11' Pronotum and disc of elytra with short to medium-sized, recumbent to subrecumbent setae; femora weakly to strongly rugosely striate, armed or unarmed . . . . . **12.**

12(11') Femora strongly rugosely striate, armed with small tooth *ca* 4/7 from base (most evident on hind legs); Central America (see also Fig. 8) . . . . . 11. ***T. expansum*** Wibmer, n. sp., p. 40

12' Femora weakly to moderately rugosely striate, unarmed (at most obtusely angulate as in Fig. 28); South America or West Indies . . . . . **13.**

13(12') Elytral strial punctures much larger than pronotal punctures (Fig. 9); femora somewhat expanded near base, with broad, subbasal impression on outer surface (more obvious on middle and hind legs); South America . . . . . 12. ***T. elegantulum*** Hustache, p. 41

13' Elytral strial punctures somewhat to moderately larger than pronotal punctures; femora normal, narrowing toward base, lacking subbasal impression on outer surface; Cuba . . . . . 13. ***T. insulicola*** Wibmer, n. sp., p. 43

14(10') Femora mostly strongly rugosely striate; interocular distance *ca* as wide as rostrum at lower margins of eyes (as in Fig. 18); abdominal sternum 5 lacking distinct impressions (see ***glabrescens*** **group**, p. 44) . . . . . **15.**

14' Femora mostly smooth to weakly (occasionally moderately) rugosely striate; interocular distance usually somewhat to much narrower than rostrum at lower margins of eyes (Figs. 19-20); abdominal sternum 5 usually with three distinct subapical impressions . . . . . **16.**

15(14) Cuticle mostly brownish red to reddish brown; most elytral intervals on basal 2/5 distinctly undulate, as wide as, or narrower than strial punctures . . . . . 14. ***T. lacordairei*** Wibmer, n. sp., p. 45

15' Cuticle mostly blackish red to reddish black (appearing black to naked eye); most elytral intervals on basal 2/5 almost straight, distinctly wider than strial punctures . . . . . 15. ***T. glabrescens*** Wibmer, n. sp., p. 46

16(14') Elytral scales rarely imbricate, never covering large portion of apical 3/7 nor forming four distinct bands or rows of spots; elytral intervals rarely forming moderately tuberculate, apical carina, and elytral apices usually weakly (rarely moderately) produced ventrally . . . . . **17.**

16' Elytral scales often imbricate, very obvious, covering large portion of apical 3/7, or forming four narrow to very broad, almost straight to zig-zag bands (Fig. 10) or four rows of mostly large spots (Fig. 2); elytral intervals forming moderately tuberculate to tuberculate, apical carina, and elytral apices moderately to strongly produced ventrally (Figs. 2-3) (see ***fasciatum*** **group**, p. 82) . . . . . **36.**

17(16) Prothorax usually widest between 1/3 from base and near middle (Figs. 11-13), with sides weakly to strongly rounded (rarely somewhat subparallel in basal 1/2); antennae inserted apicad of middle of rostrum, and lateral portions of scrobes distinctly oblique to axis of rostrum (Figs. 21-24); lateral basal angle of abdominal sternum 1 truncate (Figs. 2 and 32), with basal margin sometimes weakly to distinctly produced forward (Fig. 33) . . . . . **18.**

17' Prothorax widest at or near base (Figs. 14-17), with sides converging very weakly to weakly to subapical constriction, or subparallel in *ca* basal 3/7-1/2; antennae inserted basad of middle of rostrum, and lateral portions of scrobes almost perpendicular (to moderately oblique) to axis of rostrum (Figs. 25-26); lateral basal angle of abdominal sternum 1 somewhat pointed (as in Fig. 31) . . . . . **41.**

18(17) Antennal funicle 6-segmented; frons with median sulcus or fovea; apical margin of prothorax not notched above postocular lobes (Figs. 21, 23-24) . . . . . **19.**

18' Antennal funicle 5-segmented; frons usually lacking sulcus or fovea, often with median impression; apical margin of prothorax usually moderately to distinctly (rarely only weakly) notched above postocular lobes (Fig. 22) (see ***subpubescens*** **group**, p. 72) . . . . . **31.**

19(18) Flanks of prothorax and elytra darker than most of dorsal surface; postocular lobes strongly rounded (Fig. 24); lateral areas of metasternum moderately gradually, weakly to moderately depressed in front of hind coxae (see ***lepidogramma*** **group**, p. 47) . . . . . **20.**

19' Flanks of prothorax and elytra not darker than dorsal surface; postocular lobes weakly to moderately rounded (Figs. 21 and 23); lateral areas of metasternum moderately abruptly to abruptly, moderately to strongly depressed in front of hind coxae (Figs. 32-33) (see ***aeneotinctum*** **group**, p. 52) . . . . . **22.**

20(19) Scales on disc of elytra forming distinct transverse or oblique bands, covering median area of intervals; punctures on flanks of prothorax moderately distinct (especially above fore coxae) on apical 3/5-2/3, and scarcely distinct to subobsolete on basal 1/3-2/5 (Fig. 24) . . . . . 16. ***T. natator*** Wibmer, n. sp., p. 48

20' Scales on disc of elytra usually forming longitudinal rows along sides of striae (Fig. 13), with median area of intervals (especially odd-numbered ones) mostly glabrous; punctures on flanks of prothorax moderately to very distinct throughout, or only weakly to moderately distinct on basal 1/3 . . . . . **21.**

21(20') Mesepisternum and mesepimeron moderately densely covered with medium to long, fine setae; setae on lateral areas of metasternum fine, distinctly longer than diameter of punctures . . . . . 17. ***T. lepidogramma*** Wibmer, n. sp., p. 49

21' Mesepisternum with few scales mostly along anterior and ventral margins, mesepimeron subglabrous; setae on lateral areas of metasternum moderately fine to moderately coarse (some scalelike), *ca* as long as diameter of punctures . . . . . 18. ***T. affine*** Wibmer, n. sp., p. 50

22(19') Punctures on head (Fig. 21) and basal 1/2 of rostrum mostly moderately to very distinct (those on head usually somewhat to moderately larger and deeper than those on rostrum); basal margin of abdominal sternum 1 not produced forward (Fig. 32) . . . . . **23.**

22' Punctures on head (Fig. 23) and basal 1/2 of rostrum mostly scarcely to weakly distinct (those on head usually *ca* as large and deep, to somewhat smaller and shallower than those on rostrum); basal margin of abdominal sternum 1 usually moderately to distinctly (rarely not or only weakly) produced forward (Fig. 33) . . . . . **25.**

23(22) Tarsal segment 5 lacking subapical denticles on ventral surface . . . . . 19. ***T. frontale*** Wibmer, n. sp., p. 53

23' Tarsal segment 5 with two subapical denticles (up to *ca* 1/2 length of claw) on ventral surface (Fig. 37) . . . . . **24.**

24(23') Pronotal punctures moderately distinct, small, moderately shallow (somewhat to moderately smaller and shallower than those on flanks); rostrum not sulcate; Brazil . . . . . 20. ***T. striatum*** (Pascoe), p. 54

24' Pronotal punctures weakly distinct, minute to very small, very shallow to shallow on disc (much smaller and shallower than those on flanks); rostrum usually sulcate near middle; U.S.A. (Florida), Central America, and the Greater Antilles . . . 21. ***T. aeneotinctum*** Champion, p. 56

25(22') Punctures on flanks of prothorax weakly to moderately distinct on most of apical 3/5; elytral strial punctures weakly to moderately distinct on most of apical 1/2 . . . . . **26.**

25' Punctures on flanks of prothorax usually moderately distinct only along subapical constriction and above fore coxae, scarcely distinct to indistinct elsewhere; elytral strial punctures usually scarcely to weakly distinct on most of apical 1/2 . . . . . **28.**

26(25) Punctures on flanks of prothorax scarcely distinct to indistinct on basal 2/5; Greater Antilles . . . . . 24. ***T. danforthi*** Wolcott, p. 61

26' Punctures on flanks of prothorax mostly moderately distinct throughout (often more obvious on apical 3/5) (Fig. 23); Central and South America . . . . . **27.**

27(26') Pronotal punctures (Fig. 23) very weakly to weakly distinct, minute to very small (much smaller and shallower than those on flanks); median area of mesosternum rounded to moderately rounded on sides, not set off from lateral areas . . . . . 22. ***T. diversum*** Wibmer, n. sp., p. 58

27' Pronotal punctures weakly to moderately distinct, very small to small (*ca* as large as, to somewhat smaller and shallower than those on flanks); median area of mesosternum weakly rounded to subquadrate on sides, scarcely to weakly set off from lateral areas . . . . . 23. ***T. sayi*** Wibmer, n. sp., p. 60

28(25') Cuticle mostly brown to brownish black; scales mostly long, narrow to moderately narrow aciculate (some setalike), forming on each elytron oblique band on basal 1/2 and somewhat transverse band near declivity . . . . . 28. ***T. inaequale*** Voss, p. 70

28' Cuticle mostly brownish red to reddish brown; scales mostly medium-sized, most moderately narrow cuneiform (not setalike), mostly scattered on elytra, not forming distinct bands . . . . **29.**

29(28') Elytral cuticle almost unicolored, or maculate (rarely also irregularly fasciate near middle); median area of mesosternum usually moderately rounded on sides, not set off from lateral areas . . . . . 25. ***T. innotatum*** Hustache, p. 63

29' Each elytron with weakly to very distinct cuticular fascia near middle and often with weakly to moderately distinct cuticular macula near declivity; median area of mesosternum often weakly to moderately subcarinate on sides, weakly set off from lateral areas . . . . . **30.**

30(29') Postocular lobes moderately rounded; praemucro almost perpendicular to axis of tibia in females, in males often obsolete on hind legs . . . . . 26. ***T. simile*** Wibmer, n. sp., p. 66

30' Postocular lobes usually weakly (rarely moderately) rounded; praemucro moderately to distinctly oblique to axis of tibia and directed away from uncus in females, in males present on all legs (sometimes almost indistinct on hind legs) . . . . . 27. ***T. obliquatum*** Hustache, p. 68

31(18') Punctures on head and rostrum and pronotal punctures moderately to very distinct; rostrum (almost always) with distinct sulcus near middle; West Indies . . . . . 30. ***T. schoenherri*** Wibmer, n. sp., p. 74

31' Punctures on head and rostrum and pronotal punctures usually weakly (rarely moderately) distinct (Fig. 22); rostrum rarely with sulcus near middle; North, Central and South America . . . . . **32.**

32(31') Scales obsolete; punctures on head and pronotal disc minute, scarcely distinct, and most elytral strial punctures scarcely to weakly distinct on basal 1/3 . . . . . 34. ***T. aeneum*** Hustache, p. 81

32' Scales present on prothorax and elytra (Figs. 11-12), sometimes setalike; punctures on head and pronotal disc very small to small, weakly distinct, and most elytral strial punctures moderately to very distinct on basal 1/3 . . . . . **33.**

33(32') Scales mainly short, Fig. 11 (not longer than diameter of strial punctures on basal 2/5 of striae 9-10); postocular lobes strongly rounded . . . . . 29. ***T. brevisquameum*** Wibmer, n. sp., p. 73

33' Scales mainly medium to very long (longer than diameter of strial punctures on basal 2/5 of striae 9-10); postocular lobes weakly to moderately rounded . . . . . **34.**

34(33') Elytral cuticle almost unicolored, not lighter colored on apical 1/3-2/5; North and Central America . . . . . 31. ***T. subpubescens*** Casey, p. 76

34' Elytral cuticle with most of apical 1/3-2/5 lighter colored; South America . . . . . **35.**

35(34') Scales medium to long, most setalike; prothorax distinctly narrower in front of subapical constriction . . . . . 32. ***T. cupreum*** Hustache, p. 77

35' Scales very long, few setalike (Fig. 12); prothorax slightly narrower in front of subapical constriction (Fig. 12) . . . . . 33. ***T. longisquameum*** Wibmer, n. sp., p. 80

36(16') Scales covering large areas of elytra, most not forming distinct spots or bands on apical 1/2; cuticle mostly dark reddish brown . . . . . 35. ***T. cubense*** Wibmer, n. sp., p. 83

36' All scales forming distinct spots or bands on elytra (Figs. 2 and 10); cuticle mostly black . . . **37.**

37(36') Elytral scales forming four weakly to strongly undulate rows of mostly large spots located on even-numbered intervals and adjacent striae (Fig. 2); dorsal surface of rostrum mostly weakly rugosely punctate . . . . . 37. ***T. albidomaculatum*** Wibmer, n. sp., p. 86

37' Elytral scales forming four narrow to broad, almost straight to zig-zag bands (Fig. 10); dorsal surface of rostrum mostly moderately rugosely punctate . . . . . **38.**

38(37') Bands of scales (Fig. 10) moderately to very broad (in strong impressions), mostly weakly undulate, not discontinuous at striae; elytral strial punctures weakly distinct between two caudad bands of scales (Fig. 10) . . . . . 36. ***T. fasciatum*** (Pascoe), p. 84

38' Bands of scales narrow to moderately broad (at most in weak impressions), mostly moderately undulate to zig-zag shaped, often discontinuous at striae; elytral strial punctures very distinct throughout (as in Figs. 2-3) . . . . . **39.**

39(38') Scales mostly moderately narrow subcuneiform, pearlescent white, not distinctly imbricate, forming on each side of pronotum weakly distinct lateral band on basal 1/4, and often small sublateral cluster near middle . . . . . 40. ***T. circumcaribbeum*** Wibmer, p. 89

39' Scales moderately broad to broad subcuneiform, whitish yellow to yellow, most imbricate, forming on each side of pronotum distinct lateral band on basal 2/5 then obliquely mesad reaching or not midline . . . . . **40.**

40(39') Most elytral strial punctures on basal 1/3 separated by more than own diameter; scales yellow . . . . . 38. ***T. subfasciatum*** Wibmer, n. sp., p. 87

40' Most elytral strial punctures on basal 1/3 separated by less than own diameter; scales whitish yellow . . . . . 39. ***T. pallidum*** Wibmer, n. sp., p. 88

41(17') Scales present (Fig. 17); body elongate oval to very elongate oval, with humeri obliquely truncate, weakly prominent (Fig. 17) (see ***elongatum*** **group**, p. 90) . . . . . **42.**

41' Scales obsolete (Figs. 14-16); body oval, with humeri rounded, moderately prominent to prominent (Figs. 14-16) (see ***nigromaculatum*** **group**, p. 95) . . . . . **43.**

42(41) Cuticle mostly blackish red to reddish black (appearing black to naked eye); femora with broad band of very dense, mainly suberect setae on inner margin . . . . . 41. ***T. obrieni*** Wibmer, n. sp., p. 91

42' Cuticle mostly light to dark brownish (each elytron often with complete or incomplete, dark, oblique cuticular fascia near middle [Fig. 17]); femora with moderately sparse to moderately dense, mainly recumbent setae (only somewhat longer, denser and more erect on inner margin) . . . . . 42. ***T. elongatum*** Wibmer, n. sp., p. 92

43(41') Elytral cuticle almost unicolored (Fig. 14), or with one or two dark (usually black), dorsal maculae or fasciae always merging on suture (Fig. 15); punctures on flanks of prothorax moderately to very distinct throughout . . . . . 43. ***T. variabile*** Wibmer, n. sp., p. 95

43' Elytral cuticle with five dark (usually black), dorsal maculae, only apical one merging on suture (Fig. 16); punctures on flanks of prothorax (Fig. 26) moderately to very distinct along subapical constriction, few weakly (or occasionally moderately) distinct above fore coxae, and scarcely distinct elsewhere . . . . . 44. ***T. nigromaculatum*** Hustache, p. 96

The *pilosellum* group

DESCRIPTION. Elytra (in lateral view) almost flat to weakly convex basad of declivity (Fig. 1); cuticle mostly matte to weakly shining (rarely mostly moderately shining), mostly black; scales usually imbricate (Figs. 4-5). **Rostrum**. Dorsal surface moderately to strongly rugosely punctate on at least basal 3/7-1/2, some to many punctures with long, suberect to erect seta (Fig. 1) (subequal, most medium-sized, subrecumbent in *T. subpilosum*), often fairly smooth, shining on apical 1/2-4/7. **Head**. Lacking suborbital groove. **Prothorax** (Figs. 4-5). Punctures very distinct, medium to very large, deep to very deep on disc (often somewhat smaller and shallower in front of subapical constriction) and flanks. **Elytra**. Intervals usually with row of mostly long to very long, moderately fine to coarse, suberect to erect setae on disc (Figs. 1, 4-5) (rarely only short to medium-sized, subrecumbent to suberect). **Legs**. Femur covered with many long, suberect to erect setae; tibia covered with many long, suberect setae. All probably terrestrial.

REMARKS AND DIAGNOSTIC CHARACTERS. This group is known from Central and South America, and the West Indies. It can be recognized by the following combination of characters: elytra almost flat to weakly convex basad of declivity (Fig. 1); cuticle mostly black; rostrum, prothorax and elytra usually with medium to long, suberect to erect setae (Figs. 1, 4-5), rarely only short to medium-sized, subrecumbent to suberect; and suborbital groove lacking.

SPECIES INCLUDED.

1. *T. setarium* Faust
2. *T. brassicae* Costa-Lima
3. *T. tuberculatum* n. sp.
4. *T. hustachei* n. sp.
5. *T. pilosellum* (Chevrolat)
6. *T. subpilosum* n. sp.

1. *Tyloderma setarium* Faust
(Figs. 4, 27, 38, 82, 124, 128)

Tyloderma setaria Faust 1896:75-76 [description]; Hustache 1936:182 [catalog]; Blackwelder 1947:863 [checklist]; Papp 1979:201 [catalog].

Tyloderma setarium Faust; O'Brien & Wibmer 1982:142 [checklist]; Wibmer & O'Brien 1986:223 [checklist].

MALE. Body moderately elongate suboval; scales (Fig. 4) mostly medium-sized, moderately broad suboval, whitish, recumbent, most imbricate. **Rostrum**. In lateral view, scarcely set off from frons (as in Fig. 1), weakly subcarinate on apical 1/2; dorsal surface strongly rugosely punctate on basal 3/7, with punctures medium to large, moderately deep to deep, dense to very dense, apical 4/7 rather smooth (clypeal area moderately distinct, subtriangular), with very small to small, shallow to moderately deep, moderately sparse to moderately dense punctures (somewhat denser toward apex), most punctures with short to medium-sized, fine to moderately fine, recumbent to subrecumbent seta, some punctures along margins above scrobes and near midline on basal 3/7 with long to very long, moderately fine to moderately coarse, mainly erect seta. **Head**. Few scales on middle of vertex; frons with moderately distinct, moderately deep impression near base of rostrum, and long, very narrow, moderately deep sulcus toward vertex, and vertex lacking distinct carina, with very distinct tubercle on each side of midline; punctures medium to large, deep (somewhat shallower above eyes); lacking sulcus above each eye. **Prothorax** (Fig. 4). Slightly longer than wide, strongly constricted subapically on flanks and dorsum, widest near middle; pronotal disc uneven but not tuberculate, with scales forming small cluster on midline in front of subapical constriction, and oblique spot on each side behind subapical constriction; impunctate median line distinct on basal 3/5, subobsolete in front of subapical constriction; punctures medium to large (and few small), deep to very deep, moderately sparse to very dense on disc (more evenly distributed in front of subapical constriction), and on flanks *ca* as large as, to somewhat smaller than those on disc, on disc most punctures with long to very long, moderately fine to moderately coarse, suberect to erect seta, and some with short, fine, subrecumbent seta, on flanks most with short, fine, subrecumbent seta, and some with medium to very long, moderately fine to moderately coarse, suberect to erect seta. **Elytra** (Fig. 4). 1.56 X as long as wide, with humeri subquadrate, prominent, and sides subparallel in basal 3/4, then converging strongly to conjointly rounded apices; scales on each elytron (Fig. 4) forming elongate spot along humerus, oblique band (somewhat discontinuous on middle) from stria 6 (*ca* 1/6 from base) to stria 3, and very broad, transverse band near declivity from suture to interval 8; strial punctures mostly round, most large (some medium-sized), deep to very deep, most separated by 2 diameters or more (moderately evenly distributed) on basal 1/2 (somewhat larger, deeper and denser on basal 1/6), on striae 1-2 somewhat smaller and shallower on apical portions than immediately in front of declivity; most strial grooves subobsolete (9th distinct on apical 1/3); intervals as wide as, or moderately wider than strial punctures on basal 1/2 (*ca* as wide or somewhat narrower on basal 1/6), odd-numbered intervals moderately to strongly convex, weakly undulate, and even-numbered intervals weakly to moderately convex, moderately to strongly undulate on basal 1/6, mostly weakly convex and fairly straight elsewhere on disc, weakly to moderately convex on flanks, interval 5 forming medium-

sized declivital callus (Fig. 4), 7 and 8 strongly convex on apical portions, 3 and 9 strongly convex at apices, dorsal intervals partially, weakly rugose, each interval with row of long to very long, moderately fine to moderately coarse, sparse to moderately dense, suberect to erect setae (rows often incomplete on even-numbered intervals), and some very short to short, fine, sparse to moderately dense, recumbent setae on parts of some intervals (denser, more obvious on sutural interval). **Mesosternum.** Median area moderately rounded on sides, not set off from lateral areas, and surface not carinate; mesepisternum with some short, fine to moderately fine, recumbent setae (medium-sized along anterior margin), mesepimeron with row of very short to short, fine to moderately fine, recumbent setae. **Metasternum.** Median area weakly concave on middle of apical 1/2, with shallow sulcus on apical portion. **Legs.** Moderately slender; outer angle of hind coxal cavity almost completely open as in Fig. 31 (apex of metepisternum rounded off and lateral basal angle of abdominal sternum 1 pointed); anterior surface of hind coxa finely reticulate (as in Fig. 35); femur armed with small tooth *ca* 3/5 from base (Fig. 27), with inner margin weakly rounded, and surface strongly rugosely striate, covered with fine to moderately fine, moderately sparse to moderately dense setae (most long to very long, suberect to erect, and some short to medium-sized, subrecumbent); tibia with inner margin weakly sinuate, and surface strongly rugosely striate, covered with fine to moderately fine, moderately dense setae (most long to very long, suberect to erect, and some short to medium-sized, subrecumbent); uncus medium-sized, weakly curved, arising near inner apical angle of tibia, moderately oblique to axis of tibia; praemucro small, subapical, moderately oblique to axis of tibia and directed away from uncus on all legs; tarsal segment 5 with moderately dense to dense, mostly recumbent setae on ventral surface (weakly distinct in lateral view). **Genitalia.** See Fig. 38. **Length.** Pronotum + elytra: 4.17 mm (1.37 + 2.80).

FEMALE. Similar to male except uncus arising between middle of apex of tibia and inner apical angle; praemucro medium-sized, weakly oblique to axis of tibia on all legs. **Genitalia.** See Fig. 82. **Length.** Pronotum + elytra: 4.88 mm (1.53 + 3.35).

INTRASPECIFIC VARIATION. Some specimens have a few scales along the base of the rostrum, which rarely has a moderately long sulcus near the middle. The rostrum occasionally is more obviously subcarinate from 1/6 from the base to near the middle. The punctures may be mostly medium-sized on the basal 3/7 of the rostrum, and they may be moderately dense to dense throughout on the apical 4/7, although sometimes there are only a few punctures between the dorsal portions of the scrobes. The frontal impression may be very distinct, very deep, the frontal sulcus sometimes is short or even indistinct, the vertex may be partially carinate on the middle, and its tubercles may be only weakly to moderately distinct. The punctures of the head may be mostly medium-sized throughout. The prothorax has a ratio (length/width) of 0.90-1.06 (1.00 ± 0.04). The pronotum may have a weakly distinct tubercle on each side of the midline behind the subapical constriction and/or near the base, and the midline may be longitudinally impressed at and in front of the subapical constriction. A few specimens have some sparse scales on each side behind the distinct spot, but not forming an obvious band. The pronotal punctures may be more evenly distributed, sometimes only moderately sparse to dense. The elytra are 1.44-1.59 (1.51 ± 0.04) times as long as wide, and 1.81-2.24 (2.02 ± 0.10) times as long as the prothorax. The strial punctures can be narrow oval, sometimes larger and denser (especially along striae 1-2), sometimes smaller and shallower. The dorsal intervals may be moderately to strongly rugose in part, and the declivital callus may be large. The recumbent setae of the intervals are scarcely distinct in some specimens. The posterior margin of the mesosternum may be moderately broad, the femoral teeth may be medium-sized, and the tibiae sometimes are only moderately rugosely striate. Length, pronotum + elytra: 3.44-4.96 mm (4.01 ± 0.30).

TYPE LOCALITY. Venezuela, Estado de Carabobo, Valencia.

NOTES ON THE TYPE. Holotype (by monotypy) female (not dissected), with the following labels: 1) [rectangular; white; handwritten in black ink] Valencia / E.S. IV 86; 2) [rectangular; pale brown; printed in black ink] [medium-sized letters] MUSEUM PARIS / [larger letters] VENEZUELA / [smaller letters] E SIMON 1897; 3) [rectangular; white; handwritten in black ink] Type; 4) [laminated; rectangular; white] [top (handwritten in black ink)] Tyloderma / setaria / n.sp. / [bottom (printed in black ink)] J.Faust det.1897; 5) [somewhat rectangular; red; printed in black ink] TYPE.

Card-mounted, glued by the legs and by the tip of abdomen and elytra. Length (pronotum + elytra): 4.71 mm (1.47 + 3.24), the prothorax and elytra with a ratio (length/width) of 0.99 and 1.59, respectively. Deposited in MNHP.

REMARKS AND COMPARATIVE NOTES. The shape of the spermatheca varies between populations, but the very distinctive phallus is constant throughout the range of the species.

In *T. setarium* (as well as in *T. brassicae* and *T. tuberculatum*) the scales form a very broad, very distinct transverse band in front of the declivity but they are obsolete or subobsolete on the apical portion of the elytra (Fig. 4), whereas they form an incomplete band which does not reach the suture in *T. subpilosum*, and cover most of the apical 2/5 of the disc of the elytra in *T. hustachei* (Fig. 5) and *T.*

pilosellum. *Tyloderma setarium* has the suberect to erect setae fairly obvious on most elytral intervals, whereas they are subobsolete to obsolete on the even-numbered intervals in *T. brassicae* and *T. tuberculatum*. The tubercles of the vertex also are smaller, and less obvious than in the latter two species.

PLANT ASSOCIATIONS. Several specimens were collected on *Cleome spinosa* Jacq. (Capparaceae) on separate occasions, and one on *Ludwigia octovalvis* (Jacq.) Raven (Onagraceae).

RANGE. Known from Argentina, Bolivia, Brazil, Colombia, Cuba, the Dominican Republic, Haiti, Jamaica, Panama, and Venezuela (see Figs. 124 and 128).

MATERIAL EXAMINED. I have on hand 102 specimens from BMNH, CWOB, ELSC, FMNH, FSCA, MACN, MCZC, MLPC, MNHP, MZSP, NZAC, UCVM and USNM, with the following data: **ARGENTINA: Buenos Aires**: 20-I-07 (1) C.Bruch. **[Corrientes]**: San Miguel 9-XII-31 (1) Williner. **BOLIVIA: Santa Cruz**: Cuatro Ojos IX-17 (2) [no collector]; 4 mi E Portachuelo, at night 27-III-78 (1) G.B.Marshall, at night 11-IV-78 (1) L.O'Brien & Marshall; Saavedra, Agr. Exp. Sta., blacklight trap 3-I-60 (1) R.B.Cumming, Saavedra Res. Sta., UV trap, 22-III-78 (2), 27-III-78 (1), C.R.Ward & C.W.O'Brien; Santa Cruz IX-17 (1) [no collector]. **BRAZIL: Mato Grosso**: Cáceres XII-55 (1) M.Alvarenga; Cuiabá, Agr. Exp. Sta., blacklight trap 30-III-72 (1) W.H.Whitcomb. **Pará**: Fazenda Taperinha prox. Santarém 17/18-II-68 (1) Exp. Perm. Amaz. **Pernambuco**: Bonito, musamble [*sic*] plants 26-II-83 (16) Koebele; Recife V-49 (1) M.Alvarenga. **COLOMBIA**: (2) [no collector]; Lebas (1) Deyrolle. **[Cesar]**: [Agustín] Codazzi, *Cleome spinosa* 21-II-75 (2) R.Villegas. **Magdalena**: Aracataca (1) Darlington; Río Frío 25-VII-27 (1) G.Salt; Sevilla, [no date] (1) Darlington, 4-VII-27 (1), 26-VII-27 (1), G.Salt. **CUBA**: (1) [no collector]. **Ciego de Avila**: 21-V-28 (1) [no collector]. **[Ciudad de la] Habana**: Almendares 25-V-32 (2) [no collector]; P. Almendares, 13-VI-28 (1), 15-VI-28 (2), [no collector]; Guanabacoa, 5m, beating and sweeping or blacklight 24-IX-80 (4) E.L.Sleeper; Havana (1) Barbour; Marianao 12-VI-32 (1) [no collector]; Santiago de las Vegas, 1920 (1) B.T.B.; Santiago de las Vegas, 150m, beating and sweeping 25-IX-80 (1) E.L.Sleeper. **DOMINICAN REPUBLIC: San Juan**: 6 km W San Juan, at night, on *Ludwigia octovalvis* 7-VIII-79 (1) C.W.O'Brien & Marshall. **HAITI**: Port-au-Prince, Thor (suburb), Daniels Res., blacklight trap 10/12-X-70 (1) J.E.Porter. **JAMAICA**: Saint Catherine Parish, SW Fort Clarence, Port Henderson Hills, 5m, thorn scrub 7-XII-74 (1) E.L.Sleeper. **PANAMA: Panamá**: Tocumen, blacklight trap, 1/5-VI-70 (2), 8/12-VI-70 (1), 16/19-VI-70 (1), 13/17-VII-70 (1), D.Navas. **VENEZUELA: Aragua**: Cagua, 450m 18-XI-57 (1) E.Doeste; Maracay, *Cleome spinosa* 18-VI-50 (7) L.A.Salas, IV-50 (6) E.L.Sleeper, V-36 (2), VI-36 (1), [no date] (1), P.Vogl, IV-50 (2) [no collector]; Maracay, El Limón, en *Cleome spinosa* 18-IV-50 (2) L.A.Salas; [Maracay], El Limón, 450m, en la luz 28-V-77 (1) J.A.Clavijo, 30-VI-66 (2) M.Gelbez, en *Cleome spinosa* 7-XII-50 (1) C.J.Rosales; [Maracay], El Limón, INA, 450m, en *Cleome spinosa* 10-I-51 (2) F.Fernández Y. **Carabobo**: Naguanagua 1-V-66 (1) S.Díaz; Valencia IV-86 (holotype) E.Simon. **Guárico**: 13 km NW San Fernando de Apure, 210ft, at night 23-VII-88 (1), UV 23-VII-88 (2), C.& L.O'Brien & G.Wibmer. **Sucre**: Carúpano 22-VI-68 (1) J.Maldonado. **Zulia**: Hacienda San Marino, Carretera Machiques - Colón km 40 9-X-66 (1) C.J.Rosales & A.Dáscoli. **[COUNTRY?]**: [probably ARGENTINA] (3) [no collector].

2. *Tyloderma brassicae* Costa-Lima
(Figs. 39, 83, 128)

Tyloderma brassicae Costa-Lima 1938:50-51 & Est. 1 (4 figs.) & 2 (1 fig.) [description and biological notes]; Blackwelder 1947:863 [checklist]; Costa-Lima 1956:190 & Figs. 157-159 [biological note]; Papp 1979:199 [catalog]; Wibmer & O'Brien 1986:223 [checklist].

MALE. Body elongate subquadrate; scales mostly medium-sized, moderately narrow to moderately broad cuneiform, whitish yellow, recumbent to subrecumbent, many imbricate. **Rostrum**. In lateral view, scarcely set off from frons (as in Fig. 1), weakly subcarinate on apical 2/5; dorsal surface strongly rugosely punctate on basal 2/5, with punctures medium to large, deep to very deep, very dense (much smaller and shallower toward margins), apical 3/5 rather smooth (clypeal area moderately distinct, almost impunctate, subtriangular), with punctures very small to small, moderately shallow to moderately deep, unevenly dense, most punctures with short to medium-sized, fine, recumbent to subrecumbent seta, some punctures on sides above scrobes and near midline on basal 1/5 with long to very long, fine to moderately fine, mainly erect seta. **Head**. Few scales on middle of vertex; frons with very large, very deep, irregularly shaped impression, and vertex with well-developed, long, undulate carina (reaching frons) between two very distinct tubercles; punctures medium to large, deep to very deep; with moderately broad sulcus above each eye. **Prothorax**. As long as wide, strongly constricted subapically on flanks and dorsum, widest near middle; pronotal disc very uneven, with two tubercles near base (one on each side of midline), two submedian tubercles *ca* 2/5 from base, transverse row of four tubercles behind subapical constriction (two on sides of midline, two lateral), and two subcontiguous tubercles at apex on each side of midline (larger one near midline), with scales forming small cluster on midline in front of subapical constriction and small spot on

each side behind subapical constriction against outer margin of median tubercle; impunctate median line distinct throughout (very distinct on basal 3/5, weakly distinct in front of subapical constriction); punctures large to very large, deep to very deep, dense to very dense on disc (much smaller and shallower in front of subapical constriction), and on flanks somewhat smaller than those on disc, each puncture with long to very long, moderately fine, suberect to erect seta on and near tubercles and along apical margin, short to medium-sized, fine, subrecumbent elsewhere. **Elytra**. 1.50 X as long as wide, with humeri subquadrate, very prominent, and sides subparallel in basal 3/4, then converging strongly to conjointly rounded apices; scales on each elytron forming spot on interval 4 *ca* 1/3 from base, and very broad, transverse band near declivity from suture to interval 8; strial punctures almost round, most large (some medium-sized), deep to very deep, most separated by more than own diameter (moderately unevenly distributed) on basal 2/5, on striae 1-2 *ca* as large and deep on apical portions and immediately in front of declivity; strial grooves mostly subobsolete (9th distinct on apical 1/3); most intervals *ca* as wide as, to somewhat wider than strial punctures (except near base) on basal 2/5, odd-numbered intervals fairly straight, even-numbered intervals moderately to strongly undulate on basal 2/5, 3 and 5 carinate on basal portions (3 strongly depressed behind carina), 3 and 7 carinate in front of declivity, 5 forming large declivital callus, 2, 3 and 9 strongly convex at apices, most dorsal intervals weakly rugose in part, odd-numbered intervals with complete or incomplete row of moderately fine to moderately coarse, sparse to dense setae (long to very long, erect on disc, mostly medium-sized, suberect on flanks and declivity), all intervals with some short, fine, mostly moderately sparse, recumbent setae (more obvious on sutural interval). **Mesosternum**. Median area moderately rounded on sides, not set off from lateral areas, and surface not obviously carinate; mesepisternum with few short to medium-sized, fine, recumbent setae (medium-sized, moderately fine to moderately coarse, suberect along anterior margin), mesepimeron with row of short, fine, recumbent setae. **Metasternum**. Median area weakly concave on middle of apical 1/3, with moderately shallow sulcus on apical portion. **Legs**. Moderately slender; outer angle of hind coxal cavity almost completely open as in Fig. 31 (apex of metepisternum rounded off and lateral basal angle of abdominal sternum 1 pointed); anterior surface of hind coxa finely reticulate (as in Fig. 35); femur armed with small tooth *ca* 4/7 from base, with inner margin moderately rounded, and surface strongly rugosely striate, covered with fine to moderately fine, moderately dense setae (most long to very long, suberect to erect, and some short to medium-sized, subrecumbent); tibia with inner margin moderately sinuate, and surface moderately rugosely striate, covered with fine to moderately fine, moderately dense setae (most long to very long, suberect to erect, and some short to medium-sized, subrecumbent); uncus large, moderately curved, arising near inner apical angle of tibia, moderately oblique to axis of tibia; praemucro large on fore legs, medium-sized on middle and hind legs, almost subapical, weakly oblique to axis of tibia and directed away from uncus on all legs; tarsal segment 5 with dense, recumbent to subrecumbent setae on ventral surface (mostly weakly distinct in lateral view). **Genitalia**. See Fig. 39. **Length**. Pronotum + elytra: 3.81 mm (1.25 + 2.56).

FEMALE. Similar to male except metasternum almost flat on median area; uncus arising between middle of apex of tibia and inner apical angle; praemucro large, subapical, almost perpendicular to axis of tibia on all legs. **Genitalia**. See Fig. 83. **Length**. Pronotum + elytra: 3.67 mm (1.18 + 2.49).

INTRASPECIFIC VARIATION. The scales may be whitish to yellowish white, and the punctures may be dense only on the basal 2/5 of the rostrum, a few of them small and moderately deep. The frontal impression may be only moderately distinct, occasionally with a short, moderately deep sulcus above it, the carina at the vertex may be short or even subobsolete, and the tubercles may be only moderately distinct. The prothorax has a ratio (length/width) of 0.94-1.06 (0.99 ± 0.03), and occasionally it is only moderately constricted subapically on the flanks. The pronotal tubercles occasionally are only weakly to moderately distinct (particularly those closer to the base), the spots of scales may be large, and the pronotal punctures may be only moderately smaller and shallower in front of the subapical constriction. The elytra are 1.46-1.63 (1.53 ± 0.06) times as long as wide, and 1.98-2.27 (2.09 ± 0.08) times as long as the prothorax. The strial punctures sometimes are mostly round to oval, mostly medium-sized, deep on the basal 2/5 (shallower on striae 1-2), rarely mostly large, very deep, and separated by their own diameter. Interval 3 may be only moderately depressed behind the basal carina, not obviously carinate in front of the declivity, and occasionally interval 7 is only subcarinate in front of the declivity, and the declivital callus is only medium-sized. Rarely, the dorsal intervals are distinctly rugose, and the even-numbered intervals may have a few long, erect setae. The femoral tooth of a few specimens is medium-sized. Length, pronotum + elytra: 3.48-4.71 mm (4.18 ± 0.41).

TYPE LOCALITY. Brasil, Estado do Rio de Janeiro, Rio de Janeiro, Tijuca.

NOTES ON THE TYPE. Holotype (by designation) female (not seen), No. 3054 in the collection of Instituto Oswaldo Cruz, Rio de Janeiro (Costa-Lima 1938:51). I was able to study a paratype from the BMNH.

REMARKS AND COMPARATIVE NOTES. The tuberculate pronotum and distinct tubercles on the vertex on each side of the median carina separate this species from all but *T. tuberculatum*. In the latter

species the setae of the elytral intervals are mostly suberect and present mainly on the carinate areas, whereas they are mostly erect and more regularly distributed in *T. brassicae*. The single specimen from Uruguay could be confused with *T. setarium* because elytral intervals 3 and 5 are not obviously carinate and the pronotal tubercles are lower, but it has the elytral strial punctures more unevenly distributed and sparser than in *T. setarium*, and the genitalia as in *T. brassicae*.

PLANT ASSOCIATIONS. The type series was reared from "couve" (*Brassica oleracea* L.), a cultivated crucifer.

NATURAL ENEMIES. The hymenopterous parasitoid *Eurydinoteloides gahani* Costa-Lima (Pteromalidae) was reared together with the type series of *T. brassicae*.

RANGE. Known from Argentina, Brazil, French Guiana, and Uruguay (see Fig. 128).

MATERIAL EXAMINED. I have on hand 17 specimens from AMNH, BMNH, CWOB, MNHP, MNRJ, NZAC and USNM, with the following data: **ARGENTINA**: **Buenos Aires**: Delta [del Río Paraná] 1-XI-45 (1) Bridarolli; Punta Lara 19-III-41 (1) Prosen. **Formosa**: I-98 (1), [no date] (1), C.Bruch. **BRAZIL**: (3) [no collector]. [**Rio de Janeiro**]: [Rio de Janeiro], Tijuca, borer of *Brassica* VI-37 (1 paratype) C.Hathaway. **Santa Catarina**: XI-45 (1), XII-44 (1), A.Maller; Rio Vermelho XII-45 (1) A.Maller. **São Paulo**: Tieté 6-V-45 (1) O.Monte. **FRENCH GUIANA**: Gourdonville, Rivière de Kourou (1) [no collector]. [**URUGUAY**]: **Montevideo**: [Montevideo], So. Amer. Paras. Lab. 18-I-44 (1) Parker & Berry. [**COUNTRY?**]: [FRENCH GUIANA - SURINAME] Maroni (2) [no collector]; Paracaibo [Paria-cabo, FRENCH GUIANA?] (1) [no collector].

3. *Tyloderma tuberculatum* Wibmer, new species
(Figs. 1, 40, 128)

HOLOTYPE MALE. Body elongate subquadrate; scales medium to long, moderately broad subcuneiform, yellowish white, subrecumbent to suberect, many imbricate. **Rostrum**. In lateral view, scarcely set off from frons (Fig. 1), weakly subcarinate on basal 1/3; dorsal surface moderately to strongly rugosely punctate on most of basal 2/5, with punctures small to medium-sized, moderately deep, dense to very dense, each with fine to moderately fine seta (few long, erect on sides above scrobes and near midline [Fig. 1], very short to short, subrecumbent elsewhere), apical 3/5 almost smooth (clypeus weakly distinct, transverse), with very small, shallow, moderately sparse to dense punctures, each with very short to short, fine, recumbent to subrecumbent seta. **Head**. Scales obsolete; frons with medium-sized, moderately narrow, deep sulcus (deeper toward vertex), and vertex with well-developed, long carina between two very distinct tubercles (Fig. 1); punctures small to medium-sized, moderately deep to deep; lacking sulcus above each eye. **Prothorax**. Slightly wider than long, subapically weakly constricted on flanks and strongly constricted on dorsum, widest *ca* 1/3 from base; pronotal disc very uneven (Fig. 1), with two tubercles near base (one on each side of midline), two submedian tubercles *ca* 1/3 from base, transverse row of four tubercles behind subapical constriction (two on sides of midline, two lateral), and two subcontiguous tubercles at apex on each side of midline (larger one near midline), scales obsolete; impunctate median line distinct on *ca* basal 2/3, obsolete in front of subapical constriction; punctures large to very large, deep to very deep, mostly dense on disc (somewhat smaller in front of subapical constriction), and on flanks *ca* as large as, to somewhat smaller than those on disc, each puncture with medium to long, moderately coarse to coarse, suberect to erect seta on and near tubercles and along apical margin, mostly short, fine, subrecumbent to suberect elsewhere. **Elytra**. 1.63 X as long as wide, with humeri subquadrate, prominent, and sides subparallel in basal 3/4, then converging strongly to conjointly rounded apices; scales on each elytron forming very broad, transverse band near declivity; most strial punctures round to oval (some elongate near suture), most medium-sized (few large), deep on basal 3/4, most separated by more than own diameter (unevenly distributed) on basal 2/5, on striae 1-2 somewhat smaller and shallower on apical portions than immediately in front of declivity; strial grooves mostly subobsolete (9th distinct on apical 1/3); most intervals as wide as, to somewhat wider than strial punctures on basal 2/5, odd-numbered intervals almost straight to weakly undulate, even-numbered intervals moderately to strongly undulate, interval 3 carinate on basal portion and near middle, and forming very large tubercle in front of declivity, 5 carinate near base, basad of middle, and *ca* 2/3 from base, and forming large declivital callus, 7 carinate *ca* 3/7 from base and on apical portion, 9 carinate on basal 1/4, 3 and 9 strongly convex at apices, sutural interval distinctly obliquely rugose, odd-numbered intervals with discontinuous rows of mostly long to very long, moderately coarse to coarse, mostly suberect to erect setae (present mainly on carinate areas), recumbent setae obsolete. **Mesosternum**. Median area moderately rounded on sides, not set off from lateral areas, and surface not carinate; mesepisternum with few short, moderately fine, recumbent setae (medium-sized, moderately fine to moderately coarse, suberect along anterior margin), mesepimeron subglabrous. **Metasternum**. Median area almost flat, with distinct sulcus on apical portion. **Legs**. Moderately slender; outer angle of hind coxal cavity open (Fig. 1) (apex of metepisternum and especially lateral basal angle of abdominal sternum 1

pointed); anterior surface of hind coxa finely reticulate (as in Fig. 35); femur armed with medium-sized tooth *ca* 4/7 from base, with inner margin moderately rounded, and surface mostly weakly rugosely striate, covered with moderately fine to coarse, mostly sparse to moderately sparse setae (most medium to long, suberect to erect, and some short to medium-sized, recumbent to subrecumbent); tibia with inner margin weakly sinuate, and surface weakly to moderately rugosely striate, covered with moderately fine to coarse, moderately sparse to moderately dense setae (most medium to long, suberect to erect, and some short to medium-sized, recumbent to subrecumbent); uncus large, moderately curved, arising between middle of apex of tibia and inner apical angle, moderately oblique to axis of tibia; praemucro large, almost subapical on fore legs, medium-sized, *ca* 1/8 from apex of tibia on middle and hind legs, weakly oblique to axis of tibia and directed away from uncus on all legs; tarsal segment 5 with moderately dense to dense, recumbent to suberect setae on ventral surface (moderately distinct on apical 1/2 in lateral view). **Genitalia.** See Fig. 40. **Length.** Pronotum + elytra: 3.81 mm (1.28 + 2.53).

FEMALE. Unknown.

INTRASPECIFIC VARIATION. In the paratype, the frontal sulcus is shorter, less obvious, the shallower (ventral) portion indistinct, and the punctures are larger and deeper on the head. The prothorax has a ratio (length/width) of 1.01-1.02, and the elytra are 1.52-1.53 times as long as wide, and 1.85-1.98 times as long as the prothorax. The paratype has elytral interval 7 only weakly to moderately carinate, and the surface of the femora moderately rugosely striate. Length, pronotum + elytra: 3.47-3.81 mm.

ETYMOLOGY. The Latin participle *tuberculatus* means with tubercles.

TYPE LOCALITY. Costa Rica, Provincia Heredia, Finca La Selva, 3 kilometers south of Puerto Viejo, 10°26'N 84°01'W.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] COSTA RICA: Prov. / Heredia, F. La Selva / 3 km S Pto. Viejo / 10°26'N 84°01'W; 2) [rectangular; white] [handwritten in black ink except for printed "198"] 7. vii. 1986 / [printed in black ink] H.A. Hespenheide; 3) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / tuberculatum / Wibmer 1989.

Point-mounted. From CHAH; deposited in USNM.

REMARKS AND COMPARATIVE NOTES. The very large tubercle formed by elytral interval 3 in front of the declivity readily distinguishes this species from all others in the genus. It can be separated also from the closely related *T. brassicae* and *T. setarium* because *T. tuberculatum* has the setae of the intervals mostly suberect and restricted to the carinate areas and has sparser setae on the legs.

RANGE. Known only from Costa Rica and Peru (see Fig. 128).

MATERIAL EXAMINED. Holotype and 1 paratype (2 specimens) from CHAH and FMNH, with the following data: **COSTA RICA: Heredia**: Finca La Selva, 3 km S Puerto Viejo, 10°26'N 84°01'W 7-VII-86 (holotype) H.A.Hespenheide. **PERU: Loreto**: 20 km from Ucayali on R. Calleria, Colonia Calleria 10/30-IX-61 (1) B.Malkin.

4. *Tyloderma hustachei* Wibmer, new species
(Figs. 5, 42, 86, 132)

Tyloderma carinicollis: Hustache [in collections; not available]

HOLOTYPE MALE. Body moderately elongate suboval; scales (Fig. 5) mostly medium-sized, broad subtriangular, fanlike (striate), tan, recumbent, most imbricate. **Rostrum.** In lateral view, weakly set off from frons, weakly impressed transversely *ca* 1/3 from base, weakly subcarinate from impression to 4/7 from base; dorsal surface strongly rugosely punctate except for very distinct, smooth, almost impunctate, subtriangular clypeal area, with punctures mostly small, moderately deep to deep, dense to very dense on basal 2/3, somewhat smaller and shallower on apical 1/3, each with moderately fine to coarse seta, long to very long, erect, in four rows above scrobes and on sides of midline, and medium-sized, recumbent to subrecumbent elsewhere (coarse to very coarse, scalelike, denser near middle on most of basal 1/3). **Head.** Few scales and scalelike setae near inner margins of eyes, and few scales on middle of vertex; frons with moderately to well-developed carina, bifurcate (very broad) toward vertex around short, narrow cuneiform, deep sulcus, and vertex not carinate on middle, with weakly distinct tubercle on each side of midline; punctures small to medium-sized, deep; lacking sulcus above each eye. **Prothorax** (Fig. 5). 0.94 X as long as wide, moderately constricted subapically on flanks and dorsum, widest near middle; pronotal disc somewhat uneven but not tuberculate, with scales forming small cluster on midline near apex, and small, sublateral spot on each side behind subapical constriction (*ca* 3/5 from base); impunctate median line distinct throughout (strongly so from base to subapical constriction); most punctures medium to large, deep, very dense on disc (somewhat smaller and shallower in front of subapical constriction, somewhat larger and deeper on margins), and on flanks *ca* as large and deep as those on disc, somewhat sparser, each puncture with long, moderately fine, suberect to erect, or short, fine to moderately fine, subrecumbent seta (on flanks

suberect to erect mainly along apical margin and near pronotum). **Elytra** (Fig. 5). 1.44 X as long as wide, with humeri moderately rounded but very prominent, and sides converging moderately in *ca* basal 1/6, converging weakly to *ca* 3/5 from base, then moderately to conjointly rounded apices; scales on each elytron forming spot at base of stria 2, large, elongate spot covering humerus, oblique band from stria 6 (*ca* 1/6 from base) to interval 3, and covering most of apical 2/5 of disc; strial punctures almost round, very large, very deep, most separated by own diameter or more (moderately unevenly distributed) on basal 2/5 (denser near base), on striae 1-2 somewhat smaller and shallower on apical portions than immediately in front of declivity; strial grooves mostly subobsolete (9th weakly to moderately distinct on apical 1/3); odd-numbered intervals *ca* as wide as strial punctures on basal 2/5, almost straight to weakly undulate, most even-numbered intervals somewhat narrower than strial punctures, moderately to strongly undulate, 3, 5 and 7 strongly convex (especially on basal portions), remaining intervals weakly to moderately convex, not forming declivital callus (4-8 moderately raised at apices), sutural interval moderately rugose, each interval with row of mostly very long, moderately coarse, moderately sparse to moderately dense setae (unevenly sparser on even-numbered intervals), suberect to erect on disc, much sparser, subrecumbent to suberect on flanks, and with irregularly distributed, short, moderately fine to moderately coarse, dense to very dense, recumbent setae, much more abundant on broader (odd-numbered) intervals (especially sutural interval). **Mesosternum.** Median area weakly subquadrate on sides, scarcely set off from lateral areas, and surface with well-developed, longitudinal carina; mesepisternum with few mostly short, moderately fine, recumbent to subrecumbent setae (medium to long, moderately fine to moderately coarse, suberect to erect along anterior margin), mesepimeron with row of very short to short, moderately fine, recumbent setae. **Metasternum.** Median area weakly concave, lacking distinct median sulcus. **Legs.** Moderately stout; outer angle of hind coxal cavity partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin [as in Fig. 32] not produced forward); anterior surface of hind coxa moderately finely alveolate (as in Fig. 36); femur unarmed, with inner margin weakly rounded, and surface strongly rugosely striate, covered with fine to moderately coarse, moderately dense to dense setae (long to very long, suberect to erect, and medium to long, recumbent to subrecumbent); tibia with inner margin almost straight, and surface moderately rugosely striate, covered with fine to moderately coarse, moderately dense to dense setae, very dense on outer margin (long to very long, suberect to erect, and medium to long, recumbent to subrecumbent); uncus medium-sized, weakly curved, arising near inner apical angle of tibia, moderately oblique to axis of tibia; praemucro medium-sized, subapical, moderately oblique to axis of tibia and directed away from uncus on all legs; tarsal segment 5 with dense, recumbent to suberect setae on ventral surface (moderately distinct on apical 2/5 in lateral view). **Genitalia** (of paratopotype). See Fig. 42. **Length.** Pronotum + elytra: 4.51 mm (1.47 + 3.04).

ALLOTYPE FEMALE. Similar to male except metasternum almost flat on median area; uncus arising between middle of apex of tibia and inner apical angle; praemucro large, apical, almost perpendicular to axis of tibia on all legs. **Genitalia.** See Fig. 86. **Length.** Pronotum + elytra: 4.41 mm (1.53 + 2.88).

INTRASPECIFIC VARIATION. There appear to be two forms of this species, based on a moderate but seemingly consistent difference in the male genitalia and a relatively small difference in the female genitalia, both insufficient to recognize the forms as species. The "southern" form is known from southeastern and central Brazil, whereas the "northern" form is known from the State of Bahia in Brazil, and also from Venezuela, Colombia, Panama, and Costa Rica. No single external character differentiates the two forms consistently, although the recumbent setae present on the intervals are almost always somewhat brownish, distinctly darker than the scales on the basal 2/3 of the elytra in the "southern" form, and similarly colored as the scales in several of the specimens of the "northern" form. Also, all the punctures on the flanks of the prothorax are almost as large and deep as those on the disc in the "southern" form, whereas they are usually smaller and shallower on the basal 1/2 in the "northern" form. In addition, specimens of the "northern" form often have darker scales than specimens of the "southern" form, and tend to be a little more slender, with less pronounced (although still very prominent) humeri.

Although these two forms currently are allopatric, I prefer not to treat them as subspecies because the series from Bahia falls within the distributional range of the "southern" form (Fig. 132) but based upon the genital and external morphology clearly belongs with the "northern" form. Additional material from intermediate areas is necessary in order to determine whether the "northern" form represents more than a extreme geographical variant, since distributions of this kind often are simply artifacts of collecting.

In general for the species, the rostrum may be moderately set off from the frons, and the transverse impression may be scarcely distinct, or moderately to very distinct and located about 1/3-2/5 from the base. The rostrum may be distinctly subcarinate on the apical 2/3, rarely there is a narrow, moderately deep sulcus basad of the middle, and there may be some scales on the basal 1/3. The frontal carina may be subobsolete near the base of the rostrum, the frontal sulcus may be very short, very narrow, moderately

shallow, or even obsolete, and the tubercles of the vertex may be subobsolete. The punctures of the head may be mostly moderately deep. The prothorax has a ratio (length/width) of 0.91-1.03 (0.97 ± 0.03). Sometimes it is only weakly constricted subapically on the flanks, and sometimes most punctures are medium-sized on the disc of the pronotum. The elytra are 1.34-1.50 (1.41 ± 0.04) times as long as wide, and 1.80-2.07 (1.90 ± 0.08) times as long as the prothorax, with the humeri occasionally extremely prominent. Most strial punctures may be separated by about their own diameter on the basal 2/5, the strial grooves may be distinct in part, and intervals 3, 5 and 7 occasionally are weakly to moderately undulate, somewhat less convex than in the holotype, 5 rarely strongly raised at its apex. The median area of the mesosternum may be moderately rounded on the sides, scarcely set off from the lateral areas. Length, pronotum + elytra: 3.29-5.54 mm (4.03 ± 0.28).

ETYMOLOGY. I take pleasure in naming this species after the French weevil specialist Alphonse Hustache, who apparently had planned to describe it under the name *carinicollis*.

TYPE LOCALITY. Brasil, Estado do Mato Grosso, Rondonópolis.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] BRASIL,MatoGrosso / Rondonopolis Nov. / 1975 M.Alvarenga; 2) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / hustachei / Wibmer 1989.

Point-mounted. The funicle and club of the right antenna are missing. From CWOB; deposited in MZSP.

REMARKS AND COMPARATIVE NOTES. The very broad subtriangular, fanlike scales (Fig. 5) distinguish this species from all others in the genus. It has the elytral strial punctures distinctly larger and deeper than the pronotal punctures, and a more robust body with more prominent humeri than the remaining species in the group. Also it is distinguished from all but *T. pilosellum* because in *T. hustachei* most of the apical 2/5 of the disc of the elytra is covered with scales, whereas *T. setarium*, *T. brassicae* and *T. tuberculatum* have a very distinct transverse band of scales in front of the declivity and the apical portion of the elytra mostly glabrous, and *T. subpilosum* has a much sparser scale covering forming an incomplete transverse band near the declivity, which does not reach the suture.

RANGE. Known from Brazil, Colombia, Costa Rica, Panama, and Venezuela (Fig. 132).

MATERIAL EXAMINED. Holotype, allotype, 337 paratypes, and 1 non-paratype (NP) (340 specimens) from CHAH, CNCI, CWOB, DZUP, ELSC, FSCA, GJWC, HPSC, MNHP, MZSP, UCVM, URMC and USNM, with the following data: **BRAZIL**: **Bahia**: Encruzilhada, 960m, XI-72 (3) M.Alvarenga, XI-72 (3) Alvarenga & Seabra, 980m XI-74 (2) M.Alvarenga. **Distrito Federal**: Estação Florestal Cabeça do Veado, 1100m 17-X-71 (1NP) E.G., I.& E.A.Munroe. **Goiás**: Jataí [as Jatahy] (1) A.Hustache; Jataí, Fazenda Aceiro X-62 (5) Exp. Dep. Zool.; Rio Verde 19/28-XI-66 (1) G.R.Kloss. **Mato Grosso**: Barra do [Rio] Tapirapé, 11-XII-62 (1), 21-XII-62 (1), [no collector]; Fazenda João Pinheiros, 240 km from Barra [do] Rio Tapirapé 19-XII-62 (2) [no collector]; Rio Papagaio, Utiariti 22/31-X-66 (1) Lenko & Pereira; Rondonópolis, X-76 (17), XI-75 (holotype + allotype + 63), M.Alvarenga; Xingu XI-61 (2) Alvarenga & Werner. **Mato Grosso [do Sul]**: Campo Grande XI-52 (1) M.Alvarenga. **Minas Gerais**: Centralina X-62 (1) Exp. Dep. Zool.; Pirapora XI-75 (1) M.Alvarenga; Sete Lagôas XI-63 (1) G.R.Kloss; Sete Lagôas (IPEACO) 20-X-69 (1) Becker; Uberlândia X-62 (2) Exp. Dep. Zool. **Pará**: Jacareacanga XII-68 (10) M.Alvarenga. **Rio de Janeiro**: Parque Nac. Itatiaia, 700m 26-X-64 (2) P.R.San Martín & M.A.Monné. **[Rondônia]**: Rondônia - Vilhena XI-73 (4) M.Alvarenga. **São Paulo**: Barueri, X-58 (1), 8-X-60 (1), K.Lenko; Lorena XI-58 (1) M.Alvarenga; Mococa, black light trap I-69 (1) R.Carvalho; Orlândia 21-X-62 (6) Exp. Dep. Zool.; Piracicaba, blacklight, 24-X-65 (12), 11-XI-65 (3), 2-XII-65 (2), blacklight trap, 10-X-65 (2), 24-X-65 (7), 10-XI-65 (27), 15-XI-65 (8), light trap 13-XI-65 (48), C.A.Triplehorn; São Carlos, 1-X-82 (2), 25-X-82 (1), 28-X-82 (2), M.Hoffmann, 12-X-82 (1) Pe.Moure & Marinoni. **COLOMBIA**: **Caquetá**: Río Ortegaza [as Orteguaza] near Río Peneya 14/18-I-69 (1) Duckworth & Dietz. **Meta**: Peralonso, Caño Pachiaquiari 4-IX-65 (1) J.A.Ramos. **COSTA RICA**: **Heredia**: 1 km S Puerto Viejo 4/5-VI-84 (1) E.Riley, D.Rider & D.LeDoux. **PANAMA**: **Canal Zone**: Achiote Road, 9°12′N 79°59′W 3-VI-79 (1) Engleman; Barro Colorado Is., 9°10′N 79°50′W, 1-VI-70 (1), 2-VI-70 (1), 3-VI-77 (1), 7-VI-77 (1), 29-VI-77 (1), H.A.Hespenheide, UV trap 3 (26m high) 2-V-78 (1) H.Wolda, 19-V-67 (1), 15-VII-70 (1), [no collector]; Coco Solo Hospital, light trap 16-VI-75 (1) D.Engleman, night 22-V-78 (2) C.W.& L.B.O'Brien & Marshall; Fort Gulick [as Gulich] 27-V-84 (1) D.Engleman. **[Panamá]**: Las Cumbres, 9°06′N 79°32′W, at light, 27-V-74 (1), 28-V-75 (1), 1-VI-75 (1), 6-VI-74 (1), 10-VI-75 (1), 15-VI-74 (1), H.Wolda. **VENEZUELA**: **Amazonas**: Puerto Ayacucho 20-III-64 (1) J.& B.Bechyné. **Anzoátegui**: Pariaguán, 9-VIII-67 (1), 12-VIII-67 (1), 13-VIII-67 (3), J.& B.Bechyné. **Aragua**: Cagua 28-VI-61 (2) Bordón; Maracay, 450m, trampa de luz 27-V-63 (3) E.Osuna; [Maracay], El Limón, 450m, 14-VI-77 (1) B.Bechyné, 14-V-77 (5), en la luz, 20-V-79 (2), 25-V-77 (1), 28-V-77 (4), J.Clavijo, en la luz 27-V-75 (2) S.Clavijo & J.Clavijo, 9-VI-66 (1), 13-VI-65 (1), 14-VI-65 (1), 10-VII-74 (2), luz de mercurio, 2-V-78 (1), 31-V-77 (2), 16-VI-77 (1), 18-VI-78 (1), 21-VI-78 (1), 28-VI-76 (1), F.Fernández Y., luz de mercurio 11-VI-77 (1) F.Fernández Y. & F.Fernández H., 1-VI-65 (1) E.Osuna, 15-V-70 (1) A.Ramírez. **Barinas**:

Santa Bárbara V-81 (17) H.Martínez. **Bolívar**: 6 km W Las Adjuntas, 870ft 31-VII-88 (1) C.& L.O'Brien & G.Wibmer. **Guárico**: Estación Biológica de los Llanos, 7 km ESE Calabozo, 380ft, at night 21-VII-88 (1) C.W.& L.B.O'Brien & G.J.Wibmer. **Monagas**: 4 km S El Rosario, 300ft 31-VII-88 (1) C.& L.O'Brien & G.Wibmer; La Esperanza 9-VI-67 (3) J.Salcedo & L.Rodríguez. **Portuguesa**: Guanare, Mesa de Cavacas, 180m, a la luz 20-V-83 (1) M.S.Moratorio. Paratypes will be deposited also in BMNH, CBPC, IRSB, MACN, MCZC, MLPC, MNRJ, RSAC and TAMU.

5. *Tyloderma pilosellum* (Chevrolat)
(Figs. 36, 41, 84, 134)

Euscepes pilosellus Chevrolat 1879:126 [description], 1880:252 [note]; Hustache 1930:74 [in key] & 76-77 [redescription], 1936:138 [catalog]; Papp 1979:183 [catalog].
Euscepes pilosella Chevrolat; Blackwelder 1947:862 [checklist].
Tyloderma pilosellum (Chevrolat); O'Brien & Wibmer 1982:142 [checklist; generic transfer]; Wibmer & O'Brien 1986:223 [checklist].
Euscepes pilosellus var. *parvulus* Hustache 1930:77 [description], 1936:138 [catalog]; Papp 1979:183 [catalog] (**NEW SYNONYMY**).
Euscepes pilosella var. *parvula* Hustache; Blackwelder 1947:862 [checklist].
Tyloderma pilosellum var. *parvulum* (Hustache); O'Brien & Wibmer 1982:142 [checklist; generic transfer].

MALE. Body elongate suboval; scales mostly medium-sized, moderately narrow to moderately broad cuneiform, whitish yellow, recumbent, most imbricate. **Rostrum**. In lateral view, weakly set off from frons; dorsal surface strongly rugosely punctate on *ca* basal 1/2, with punctures small to medium-sized, moderately deep to deep, most very dense, many with medium to long, moderately coarse to coarse, suberect to erect seta (more obvious on margins above scrobes), few at base near midline with medium to long, very coarse (scalelike), recumbent seta, and remaining ones with short, fine to moderately fine, recumbent to subrecumbent seta, apical 1/2 moderately rugosely punctate except for moderately distinct, smooth, almost impunctate, subtriangular clypeal area, with smaller, shallower and sparser punctures, most with very short, fine, recumbent seta, few near margins with short to medium-sized, moderately fine to moderately coarse, suberect seta. **Head**. Few scales on middle of vertex; frons lacking distinct sulcus or fovea, and vertex lacking distinct tubercles but with long, broad, deep impression; punctures medium-sized, deep; lacking sulcus above each eye. **Prothorax**. 1.16 X as long as wide, weakly constricted subapically on flanks and dorsum, widest near middle; pronotal disc even, lacking tubercles, with some scales near apical margin, some on midline on apical 2/3, and forming on each side moderately sparse lateral band on *ca* basal 4/7 (curved toward midline and much denser on apical portion); impunctate median line weakly to moderately distinct throughout; punctures large, deep, most very dense on disc (somewhat smaller on apical 1/3), and on flanks somewhat larger and deeper than those on disc on apical 4/7, *ca* as large and deep, unevenly sparser on basal 3/7, each puncture with medium to long, moderately coarse to coarse, suberect to erect seta (more obvious along apical margin), or mostly short, fine, subrecumbent seta. **Elytra**. 1.60 X as long as wide, with humeri subquadrate, prominent, and sides subparallel in *ca* basal 3/10, converging weakly to *ca* 3/5 from base, then strongly to conjointly rounded apices; scales on each elytron forming elongate spot at base of stria 2, small spot on stria 5 *ca* 1/5 from base, small spot on interval 4 *ca* 1/3 from base, and covering large portion of apical 2/5 of disc; strial punctures almost round to oval, large, deep to very deep, most separated by *ca* own diameter (fairly evenly distributed) on basal 2/5 (larger, deeper and denser on striae 9 and 10), on striae 1-2 somewhat larger and deeper on apical portions than immediately in front of declivity; most strial grooves weakly distinct on apical 1/2 (9th moderately to very distinct on apical 2/5); intervals *ca* as wide as, to moderately wider than strial punctures on basal 2/5, most fairly straight to moderately undulate (odd-numbered intervals somewhat wider and less undulate), weakly to moderately convex on basal 1/2 (most odd-numbered intervals moderately to strongly convex on basal portions), most moderately convex on apical 1/2, not forming declivital callus (4-8 moderately raised at apices), sutural interval weakly rugose, each interval with row of long to very long, coarse, sparse to moderately dense, suberect to erect setae on disc (unevenly sparser on even-numbered intervals, mostly subobsolete on flanks), and short to medium-sized, fine, mostly moderately dense to dense, recumbent setae (more obvious on sutural interval). **Mesosternum**. Median area subquadrate on sides, scarcely set off from lateral areas, and surface not carinate; mesepisternum with some mostly short, moderately fine to coarse, recumbent setae (coarse, suberect along anterior margin) and few scales, mesepimeron glabrous. **Metasternum**. Median area very weakly concave, lacking distinct median sulcus. **Legs**. Moderately slender; outer angle of hind coxal cavity partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin [as in Fig. 32] not produced forward); anterior surface of hind coxa moderately finely to moderately coarsely alveolate (Fig. 36); femur unarmed, with inner margin very weakly rounded, and surface strongly rugosely striate, covered

with moderately fine to moderately coarse, moderately dense to dense setae (medium to long, suberect to erect, and short to medium-sized, recumbent to subrecumbent); tibia with inner margin almost straight, and surface moderately to strongly rugosely striate, covered with moderately dense to dense setae (medium to long, moderately coarse to coarse, suberect to erect, and mostly short, moderately fine, recumbent to subrecumbent); uncus medium-sized, weakly curved, arising near inner apical angle of tibia, weakly oblique to axis of tibia; praemucro small, *ca* 1/8-1/7 from apex of tibia, moderately oblique to axis of tibia and directed away from uncus on fore and middle legs, obsolete on hind legs; tarsal segment 5 with moderately dense to dense, mostly recumbent setae on ventral surface (scarcely distinct in lateral view). **Genitalia.** See Fig. 41. **Length.** Pronotum + elytra: 4.06 mm (1.41 + 2.65).

FEMALE. Similar to male except metasternum very weakly convex on median area; uncus arising between middle of apex of tibia and inner apical angle; praemucro large, subapical on fore legs, almost apical on middle and hind legs, almost perpendicular to axis of tibia on all legs. **Genitalia.** See Fig. 84. **Length.** Pronotum + elytra: 4.70 mm (1.60 + 3.10).

INTRASPECIFIC VARIATION. The scales may be more slender, to broad (some moderately fanlike), whitish to yellowish. Most of the suberect to erect setae of the body may be moderately fine to moderately coarse only. The rostrum often is moderately set off from the frons. Rarely it is sulcate near the middle, or it may be transversely impressed about 1/3 from the base. The punctures may be dense to very dense on the basal 1/2, and they may be distinctly smaller and shallower on the apical 2/5 only. The recumbent setae at the base of the rostrum may be moderately fine to moderately coarse only. The frons may have a median impression or a medium-sized, moderately narrow, deep sulcus (broader and deeper toward the vertex), and the vertex may have an almost round, deep fovea near the frons, or it may lack impressions altogether. The prothorax has a ratio (length/width) of 1.06-1.16 (1.11 ± 0.03), and sometimes it is moderately constricted subapically on both dorsum and flanks. Rarely, it may be broadly depressed on the apical portion, and the pronotal scales often appear as a distinct spot on each side about 4/7 from the base (with the remainder of the lateral bands subobsolete to obsolete), and some on the midline only in front of the subapical constriction. The impunctate median line may be very distinct except near the apex, or only weakly distinct throughout, and undulate. The pronotal punctures may be medium to large, dense to very dense, and the punctures on the flanks may be unevenly sparser throughout than those on the disc. The elytra are 1.51-1.71 (1.62 ± 0.05) times as long as wide, and 1.70-2.00 (1.90 ± 0.07) times as long as the prothorax. Their sides may converge very weakly from the humeri to about 3/5 from the base, and their apices may be very weakly produced ventrally. There may be small spots of scales on the basal 3/5, mainly on striae 1 and 2. The strial punctures sometimes are somewhat larger and deeper (then they are distinctly larger than the pronotal punctures), sometimes they are smaller and much shallower (then they are almost as large as the pronotal punctures), and often they are sparser on the apical 1/2. The median area of the mesosternum may be moderately rounded on the sides, and the mesepimeron rarely has a row of short setae. In some females the uncus is moderately oblique to the axis of the tibia, and the praemucro is weakly oblique to the axis of the tibia and directed away from the uncus. In some males the praemucro is located about 1/6 from the apex of the tibia. It may be only very small on the fore and middle legs, although in a few males it is medium-sized on the fore and middle legs and there is a minute praemucro on the hind legs. Length, pronotum + elytra: 2.84-4.81 mm (3.95 ± 0.44).

TYPE LOCALITY. Lesser Antilles, Guadeloupe, Basse-Terre.

NOTES ON THE TYPES. A) *parvulum*: Holotype (by monotypy) male (not dissected), with the following labels: 1) [rectangular; grayish; handwritten in black ink] GUADELOUPE / Gourbeyre / L. Dufau - A. Hust.; 2) [rectangular; pale blue; printed in black ink] MUSEUM PARIS / 1949 / Col. A.HUSTACHE; 3) [rectangular; white; handwritten (by Hustache) in black ink] T. pilosella / v. parvula / m.

Point-mounted, glued by most of its venter. The specimen apparently is teneral. The left fore leg is missing, broken off between the trochanter and the femur, the 5th tarsal segment of the left middle leg is broken off near its apex, and the 5th tarsal segment of the left hind leg is missing. Length (pronotum + elytra): 3.26 mm (1.02 + 2.24), the prothorax and elytra with a ratio (length/width) of 1.06 and 1.84, respectively. Deposited in MNHP.

B) *pilosellum*: Holotype (by monotypy), female (not dissected), with the following labels: 1) [square; white; printed in black ink] 60; 2) [rectangular; red; printed in black ink inside black rectangle little smaller than label] Typus; 3) [almost square; red] [printed in black ink] 119 / [handwritten in black ink] 87; 4) [rectangular; green; printed in black ink] Riksmuseum / Stockholm.

Card-mounted, glued by its legs. Length (pronotum + elytra): 3.75 mm (1.27 + 2.48), the prothorax and elytra with a ratio (length/width) of 1.06 and 1.70, respectively. Deposited in NHRS.

According to P.I. Persson (pers. comm.), in the Chevrolat collection often there are no name or locality labels attached to the type specimens, but always there is a label pinned to the bottom of the box, with the name of the species and notes on original description, locality and collector. In addition to the

name (as "Eusepes [*sic*] pilosellus Chv.") and information on original description, the green label accompanying the type of *T. pilosellum* includes "Guadulp.", "Basse Terre", and "D. Delauney", all in agreement with the original description. The Chevrolat collection also includes a second specimen labeled "Paratypus," but the original description implies that it was based on a single specimen.

REMARKS AND COMPARATIVE NOTES. This species is one of the most variable in size in the genus. It is distinguished from *T. subpilosum*, *T. setarium*, *T. brassicae* and *T. tuberculatum* because *T. pilosellum* has a large portion of the apical 2/5 of the disc of the elytra covered with scales, and also from the latter three by the more evenly distributed pronotal punctures. *Tyloderma pilosellum* has a more elongate body (with less prominent humeri) than *T. hustachei*.

PLANT ASSOCIATIONS. A long series of this species was beaten from *Borreria verticillata* (L.) Meyer (Rubiaceae).

NATURAL ENEMIES. One specimen was obtained from the stomach of the toad *Bufo ictericus* Spix (Bufonidae).

RANGE. Known from Bolivia, Brazil, Colombia, Costa Rica, French Guiana, Guadeloupe, Panama, Paraguay, Saint Lucia, Suriname, and Venezuela (see Fig. 134).

MATERIAL EXAMINED. I was able to study 354 specimens from BMNH, CHAH, CWOB, DZUP, ELSC, FMNH, HAHC, HPSC, MCZC, MNHP, MPEG, MZSP, NHRS, NZAC, UCVM, URMC and USNM, with the following data: **BOLIVIA**: **Cochabamba**: Puerto San Francisco, 19 mi NW Villa Tunari 1-IV-78 (2) L.& C.W.O'Brien; Villa Tunari, at night 31-III-78 (1) G.B.Marshall. **Santa Cruz**: 3 mi N Buena Vista 26-III-78 (2) G.B.Marshall; 4 mi E Portachuelo, at night 11-IV-78 (1) L.O'Brien & Marshall; 10 mi W Portachuelo, at UV light 27-III-78 (1) C.W.O'Brien, at night 24-III-78 (2) C.W.& L.O'Brien; Pump Station Caranda, 20 mi SW Portachuelo, at night 22-III-78 (1) C.W.O'Brien; 9 mi N Santa Cruz, at night 28-III-78 (2) G.B.Marshall, at night, on *Pistia* 28-III-78 (2) C.W.& L.O'Brien. **BRAZIL**: (1) Buquet. **Acre**: Rio Branco X-54 (18) M.Alvarenga. **Amapá**: Amapá, Base da FAB 8-V-61 (1) J.Flávio; Pôrto Santana, 26-VII-61 (2), 30-VII-61 (1), J.& B.Bechyné. **Amazonas**: Reserva Ducke, 26 km NE Manaus 17/23-XII-64 (1) R.Thorington; Rio Negro, Tapurucuara [as Tapuruquara], 4/5-II-63 (1), 25/27-XI-62 (1), J.Bechyné, VIII-62 (3) F.M.Oliveira. **Bahia**: (3) G.Bondar, (1) C.Darwin. **Ceará**: Serra [do] Araripe, Crato V-69 (2) M.Alvarenga. **Espírito Santo**: Santa Teresa 4-IV-66 (1) C.T.& C.Elias. **Goiás**: Aragarças 30-III-53 (1) M.Alvarenga. **Mato Grosso**: Barra do [Rio] Tapirapé, 2/16-I-66 (4), 19/22-I-64 (1), XI-64 (1), B.Malkin, 11-XII-62 (1) [no collector]; Fazenda João Pinheiros, 240 km from Barra [do] Rio Tapirapé 19-XII-62 (3) [no collector]; Rondonópolis, X-76 (2), XI-75 (3), M.Alvarenga; Tapirapé Indian Village at confluence of Rio Tapirapé and Rio Araguaia 11/20-XI-60 (1) B.Malkin. **Minas Gerais**: Mar de Espanha 27/28-II-62 (2) J.Bechyné; Pouso Alegre 24/25-VI-65 (1) Vulcano & Pereira. **Pará**: Belém, VIII-52 (3) M.Alvarenga, night, 24-I-69 (9), 25-I-69 (1), 26-I-69 (5), L.& C.W.O'Brien; Belém, I.A.N., 26-V-61 (1), 2-VI-61 (1), J.& B.Bechyné; Jacareacanga, X-59 (1), XII-68 (8), M.Alvarenga; Rio Gurupi, Canindé 27-II-66 (1) Malkin; Tucuruí I-79 (1) M.Alvarenga; Utingá, 25-IV-61 (1) J.& B.Bechyné, 3-XII-60 (1) Manoel. **Pernambuco**: Bonito, I-83 (2), 2-II-83 (4), 18-II-83 (1), 19-II-83 (1), [no collector]. **Rio de Janeiro**: Parque Nac. Itatiaia, 700m 26-X-64 (1) P.R.San Martín & M.A.Monné; Rio de Janeiro, Represa Rio Grande II-76 (1) M.Alvarenga; Silva Jardim III-74 (9) F.M.Oliveira. **Rio Grande do Norte**: Natal, III-52 (1), VII-49 (1), M.Alvarenga. **São Paulo**: Capital [São Paulo], Santana 12-X-66 (1) Halik; Lorena XI-58 (1) M.Alvarenga; Piracicaba, light trap 13-XI-65 (4) C.A.Triplehorn; Salesópolis, Est. Biol. Boraceia, de estômago *Bufo ictericus* [as *Buto*] 3/8-III-62 (1) Lenko & Reichardt; São Bernardo [do Campo] 25-XII-59 (1) Werner. **COLOMBIA**: (1) [no collector]. **COSTA RICA**: **Cartago**: Turrialba 22-VI-74 (1) C.W.& L.O'Brien & Marshall. **Limón**: Guápiles 20-VI-65 (1) R.J.Hamton. **FRENCH GUIANA**: Guatimala, Rivière de Kourou (2) [no collector]; Hwy. N1 to Kourou, 6 km NW of Tonate 3-VI-86 (2) E.G.Riley & D.A.Rider; Maroni (3) [no collector]; Pariacabo, Rivière de Kourou (2) [no collector]; [les] Roches de Kourou, July (2), [no date] (2), [no collector]. **GUADELOUPE**: (1) Delauney, (1) [collector illegible]; [Basse-Terre], (holotype) [no collector], Gourbeyre (holotype of var. *parvulum*) L.Dufau & A.Hustache. **PANAMA**: **Canal Zone**: Barro Colorado Is., 9°10′N 79°50′W, 4-VI-77 (1), 5-VI-77 (1), 8-VI-77 (2), 16-VI-77 (1), 17-VI-77 (1), 24-VI-77 (1), H.A.Hespenheide, UV trap 1 (3m high), 1-V-81 (1), 28-V-77 (1), UV trap 3 (26m high), 6-V-78 (1), 24-V-77 (1), 25-V-77 (1), H.Wolda; Coco Solo Hospital, 9°21′N 79°51′W, 25-V-84 (2), at lights 12-V-81 (1), D.Engleman, night 2-VII-74 (2) C.W.& L.O'Brien & Marshall, light trap, 9-V-72 (1), 16-V-72 (1), Stockwell; Fort Gulick [as Gulich], 27-V-84 (1), 31-V-84 (1), lights 4-V-76 (1), D.Engleman; Fort Gulick, Qts. 40, at light V-79 (2) H.J.Harlan; Fort Gulick Rd., at night 1-VII-74 (2) C.W.& L.B.O'Brien & G.B.Marshall; Gamboa, 9-VII-24 (1) N.Banks, 11-VI-76 (4) E.G.Riley; Madden Dam 8-VI-67 (2) [no collector]. **Coclé**: Rd. N Cerro Gaital 15-V-80 (1) E.G.Riley & D.LeDoux. **Colón**: Santa Rita Ridge, 9°23′N 79°45′W, 250m, light trap 11-VI-77 (1) H.Stockwell, 300m 10/11-VI-77 (2) H.& A.Howden. **Panamá**: near Chepo 3-IV-71 (1) E.G.Riley; 7 mi SW Chepo 4-VII-74 (1) C.W.& L.O'Brien & Marshall; 14 mi SW Chepo, night 4-VII-74 (1) C.W.& L.O'Brien & Marshall; Las Cumbres, 9°06′N 79°32′W, at light 26-VI-74 (1), UV trap 27-V-76 (1), H.Wolda, wall lights 19-V-78 (1) J.Wolda.

PARAGUAY: [**San Pedro**]: San Estanislao, I-46 (1), 25-I-46 (1), Bridarolli. **SAINT LUCIA:** Petite Monier Radio Sta., east side, *ca* 1200ft, on *Borreria verticillata*, 7-VIII-86 (63), 11-VIII-86 (85), C.W.& L.B.O'Brien. **SURINAME:** Zanderij 30-I-69 (2) L.& C.W.O'Brien. **VENEZUELA:** **Anzoátegui:** Pariaguán, 11-VIII-67 (1), 13-VIII-67 (1), J.& B.Bechyné. **Apure:** 32 km SE San Juan de Payara, 300ft 25-VII-88 (1) C.& L.O'Brien & G.Wibmer. **Barinas:** Santa Bárbara V-81 (1) H.Martínez. **Zulia:** El Tucuco, 420m 21/27-V-71 (1) C.J.Rosales, J.Salcedo & A.Ramírez. [**COUNTRY?**]: Paracaibo [Pariacabo, FRENCH GUIANA?] (2) [no collector].

6. *Tyloderma subpilosum* Wibmer, new species
(Figs. 43, 85, 134)

HOLOTYPE MALE. Body elongate suboval; scales short, most moderately broad cuneiform, whitish, recumbent, few imbricate. **Rostrum.** In lateral view, moderately set off from frons, somewhat impressed transversely *ca* 2/5 from base, with short, narrow, shallow, weakly distinct sulcus basad of middle; dorsal surface strongly rugosely punctate on basal 2/5, with punctures small to medium-sized, moderately deep, very dense, each with mostly medium-sized, moderately fine, subrecumbent seta, apical 3/5 weakly to moderately rugosely punctate except for weakly distinct, smooth, almost impunctate, somewhat transverse clypeus, with punctures smaller, shallower, unevenly sparser, each with mostly short, fine, recumbent seta. **Head.** Few scales between eyes and at base of rostrum, and few on middle of vertex; frons lacking distinct sulcus or impression, and vertex not tuberculate nor carinate; punctures small to medium-sized, moderately deep; lacking sulcus above each eye. **Prothorax.** 1.08 X as long as wide, subapically moderately constricted on flanks and very weakly constricted on dorsum, widest *ca* 3/7 from base; pronotal disc even, lacking tubercles, with some scales along midline on apical 3/7, and forming on each side lateral spot *ca* 1/3 from base and submedian spot *ca* 4/7 from base; impunctate median line moderately distinct on basal 3/7, very distinct on apical 4/7; punctures medium to large, moderately deep to deep, moderately dense on disc (somewhat smaller, shallower, denser in front of subapical constriction), and on flanks *ca* as large as those on disc, somewhat deeper, each puncture with short to medium-sized, moderately fine, mainly subrecumbent seta. **Elytra.** 1.67 X as long as wide, with humeri rounded, prominent, and sides subparallel in basal 1/4 (somewhat depressed behind humeri), converging weakly to *ca* 2/3 from base, then moderately to ventrally slightly produced apices; scales on each elytron forming spot at base of interval 2, small spot at humerus, spot on interval 6 *ca* 1/4 from base, spot on interval 4 *ca* 1/3 from base, and broad, incomplete, transverse band near declivity; strial punctures almost round, most large (some medium-sized), deep, most separated by 2 diameters or more (moderately unevenly distributed) on basal 2/5 (somewhat deeper and denser on striae 9-10), on striae 1-2 distinctly larger and deeper on apical portions than immediately in front of declivity; strial grooves subobsolete on basal 2/5, moderately to very distinct on apical 1/3 (9th very distinct on apical 3/5); intervals *ca* as wide as, or somewhat wider than strial punctures on basal 2/5, weakly to moderately undulate (strongly so near base) on basal 2/5, weakly convex on basal 2/3, moderately convex on apical 1/3, not forming declivital callus (4-8 moderately raised at apices), none obviously rugose, each interval with row of short to medium-sized, moderately fine, sparse to dense, most subrecumbent (some suberect) setae, recumbent setae obsolete. **Mesosternum.** Median area subquadrate on sides, scarcely set off from lateral areas, and surface with moderately developed, median carina; mesepisternum with some short to medium-sized, moderately coarse to coarse setae, and few scales, mesepimeron with row of minute setae. **Metasternum.** Median area almost flat, with shallow sulcus on apical portion. **Legs.** Moderately stout; outer angle of hind coxal cavity partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin [as in Fig. 32] not produced forward); anterior surface of hind coxa moderately coarsely alveolate; femur unarmed, with inner margin weakly rounded, and surface strongly rugosely striate, covered with medium-sized, moderately fine to moderately coarse, moderately dense to dense, subrecumbent to suberect setae; tibia with inner margin weakly to moderately sinuate, and surface strongly rugosely striate, covered with medium to long, fine to moderately coarse, moderately dense to dense, subrecumbent to suberect setae; uncus medium-sized, weakly curved, arising from inner apical angle of tibia, weakly oblique to axis of tibia; praemucro small, *ca* 1/5 from apex of tibia, moderately oblique to axis of tibia and directed away from uncus on fore and middle legs, obsolete on hind legs; tarsal segment 5 with some moderately dense to dense, mostly recumbent setae on ventral surface (weakly distinct in lateral view). **Genitalia.** See Fig. 43. **Length.** Pronotum + elytra: 4.09 mm (1.37 + 2.72).

ALLOTYPE FEMALE. Similar to male except uncus arising between middle of apex of tibia and inner apical angle; praemucro large, subapical on all legs. **Genitalia.** See Fig. 85. **Length.** Pronotum + elytra: 4.12 mm (1.34 + 2.78).

INTRASPECIFIC VARIATION. The scales may be short to medium-sized, whitish to yellowish white. The rostrum may be only weakly set off from the frons; the rostral sulcus may be medium-sized,

deep, very distinct, to subobsolete; and the setae may be subrecumbent to suberect on the basal 2/5. The prothorax has a ratio (length/width) of 1.04-1.10, and it may be only weakly constricted subapically on the flanks. The impunctate median line of the pronotum may be weakly to very distinct throughout, and the pronotal punctures may be somewhat denser, or sometimes smaller, shallower and sparser; if the latter, then those on the flanks are somewhat larger, deeper and denser than those on the disc. The elytra are 1.54-1.78 times as long as wide, and 1.93-2.17 times as long as the prothorax, occasionally with the humeri only moderately prominent. The strial punctures on the basal 2/5 may be smaller and shallower to somewhat larger and deeper; if the latter, then many are separated by about their own diameter. The strial grooves occasionally are moderately to very distinct throughout, or at least on the apical 3/5. Rarely, some intervals are somewhat narrower than the strial punctures on the basal 2/5 when the latter are larger. Most intervals may be weakly convex throughout, or most moderately convex on the apical 1/2-3/5, and occasionally some dorsal intervals are incompletely, obliquely or transversely rugose. The median area of the mesosternum may be moderately rounded on the sides, not set off from the lateral areas. The legs sometimes are covered with mostly long, moderately dense, mostly suberect setae, and the praemucro is medium-sized in the smallest of three female paratypes. Length, pronotum + elytra: 3.77-4.38 mm.

ETYMOLOGY. The Latin epithet *subpilosus* means somewhat hairy.

TYPE LOCALITY. Argentina, Provincia de Santa Fe, Santo Tomé.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white with incomplete, narrow black edge; handwritten in black ink] [on upper surface] Prov.deS.Fe / Santo Tome / 23-X-1932 / [on undersurface] Bosq; 2) [rectangular; gold; printed in black ink] N.Z. Arthropod / Collection, NZAC / Entomology Div. / DSIR, Auckland / NEW ZEALAND; 3) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / subpilosum / Wibmer 1989.

Point-mounted. The club and last 2 funicular segments of the right antenna are broken off, glued to the point, and tarsal segments 2-5 of the left fore leg are missing. Deposited in NZAC.

REMARKS AND COMPARATIVE NOTES. This species lacks erect setae on the dorsum of prothorax and elytra and has a much sparser scale covering than all the other species in the group. The habitus of *T. subpilosum* is similar to that of *T. pilosellum*, but *T. subpilosum* has sparser elytral strial punctures (usually decreasing in size and depth toward the apices). Also it resembles species of the allopatric *foveolatum* group (especially *T. angustulum* Casey), but *T. subpilosum* has much smaller and shallower pronotal and elytral strial punctures and a much sparser scale cover, and lacks the distinct suborbital groove present on all species of the *foveolatum* group.

RANGE. Known from Argentina, Bolivia, and Brazil (see Fig. 134).

MATERIAL EXAMINED. Holotype, allotype, and 5 paratypes (7 specimens) from BMNH, CWOB and NZAC, with the following data: **ARGENTINA**: **Santa Fe**: Piquete 29-I-30 (1) Bridarolli; Río San Javier, Estancia La Noria 23-XII-11 (1) G.E.Bryant; Santo Tomé 23-X-32 (holotype) Bosq. **BOLIVIA**: **Santa Cruz**: 10 mi W Portachuelo 19-IV-78 (1) C.W.& L.B.O'Brien; 9 mi N Santa Cruz, at night 28-III-78 (1) G.B.Marshall, at night 28-III-78 (allotype) C.W.& L.O'Brien. **BRAZIL**: **Mato Grosso**: Rio Arica Bridge, Cuiabá - Rondonópolis Rd. near km 391, UV trap 22-IV-81 (1) D.P.Wojcik. One paratype will be deposited in GJWC.

The *foveolatum* group

DESCRIPTION. Cuticle mostly matte (sometimes somewhat shining), mostly black; scales mostly imbricate (Fig. 6). **Rostrum**. Dorsal surface moderately to strongly rugosely punctate except for very distinct, smooth clypeus, punctures with short to medium-sized, mainly subrecumbent seta. **Head** (Fig. 18). Large spot of scales between eyes and on base of rostrum, cluster above each eye, and cluster on middle of vertex; with broad, deep suborbital groove. **Prothorax** (Fig. 6). Some scales on midline near apex, and forming two to four (sometimes contiguous) spots on each side of disc and cluster on middle of flank toward pronotum; punctures very distinct, large to very large, very deep, dense to very dense on disc (smaller and shallower on apical portion) and flanks. **Elytra** (Fig. 6). Intervals with row of short to medium-sized, mostly subrecumbent setae. **Legs**. Outer angle of hind coxal cavity partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin not or weakly produced forward); anterior surface of hind coxa moderately finely to moderately coarsely reticulate (Fig. 35); femur covered with short to medium-sized, recumbent to subrecumbent setae, and some scales (mainly on inner margin); in males, praemucro usually present on all tibiae (rarely obsolete on hind legs in some *T. angustulum*), usually small to medium-sized (rarely minute on hind legs), *ca* 1/8-1/5 from apex of tibia. Terrestrial.

REMARKS AND DIAGNOSTIC CHARACTERS. This group is mainly Nearctic, known from southern Canada and most of the United States, with two of the five species extending into Mexico. It can be recognized by the following combination of characters: cuticle mostly black; head (Fig. 18) with spot of

scales below frontal sulcus (between eyes and on base of rostrum) and broad, deep suborbital groove; prothoracic punctures (Fig. 6) large to very large; and elytral intervals with row of mostly subrecumbent setae.

SPECIES INCLUDED.

7. *T. foveolatum* (Say)
8. *T. pseudofoveolatum* Wibmer

Also included are *T. morbillosum* (LeConte), *T. neomorbillosum* Wibmer, and *T. angustulum* Casey, known only from the United States.

7. *Tyloderma foveolatum* (Say)
(Figs. 6, 18, 35, 44, 81, 88, 124)

Cryptorhynchus foveolatus Say 1831:19 (1859:284) [description]; Germar 1837:140 [redescription]; Boheman 1844:342-343 [note].

Tyloderma foveolatus (Say); Say 1831:19 (1859:284) [generic transfer].

Cryptorrhynchus foveolatus Say; Gemminger & Harold 1871:2570 [catalog].

Analcis foveolatus (Say); LeConte 1857:58 [generic transfer; under *morbillosum*]; Horn 1873:467 [in key] & 468 [redescription].

Tyloderma foveolatum (Say); LeConte 1876:248 [generic transfer]; Champion 1905:527-528 [misidentification (see *pseudofoveolatum*)]; Pierce 1907:276 & 278 [biological note]; Mitchell & Pierce 1911:57 [distributional note]; Wibmer 1981:14 [in key], 17-21 [redescription and biological notes], & Figs. 1, 9, 35, 47, 52, 53, 70, 98, 128; O'Brien & Wibmer 1982:141 [checklist].

Tyloderma foveolata (Say); Casey 1892:449 [in key] & 450 [redescription]; Blatchley & Leng 1916:490 [in key] & 491 [redescription]; Hustache 1936:181 [catalog]; Blackwelder 1947:863 [checklist]; Sleeper 1960:87 [distributional note]; Papp 1979:199-200 [catalog].

Analcis Cribratus [*sic*] Dejean 1835:295 & 1836:320 [checklist; *nomen nudum*]; Wibmer 1981:17 [synonymy].

MALE. Scales medium-sized, whitish. **Head.** Punctures mostly small, moderately shallow, moderately sparse to moderately dense, each with short, fine to moderately fine, recumbent to subrecumbent seta. **Prothorax** (Fig. 6). Slightly longer than wide, with postocular lobes moderately rounded; punctures with short to medium-sized, moderately fine to moderately coarse, subrecumbent to suberect seta. **Elytra** (Fig. 6). 1.50 X as long as wide, 1.87 X as long as prothorax, with humeri subquadrate, prominent, and sides subparallel in *ca* basal 3/7, converging weakly to *ca* 3/5 from base, then moderately to apices; scales on each elytron forming spot at base of interval 2, elongate spot on humerus, short, oblique band from stria 5 *ca* 1/4 from base to stria 3, and very broad, transverse band near declivity; strial punctures somewhat irregularly shaped, very large (*ca* as large as pronotal punctures), moderately unevenly distributed on basal 2/5, moderately to very distinct on most of apical 1/2 (on striae 1-2 somewhat larger and distinctly deeper on apical portions than immediately in front of declivity); intervals somewhat narrower than strial punctures on basal 2/5 of disc, strongly undulate, weakly to moderately convex, none obviously rugose, each with row of medium-sized, mostly moderately coarse, moderately sparse to dense, subrecumbent to suberect setae. **Mesosternum.** Median area subquadrate on sides, scarcely set off from lateral areas, and surface weakly to moderately convex, with well-developed, broad, median carina, and medium-sized, moderately fine, moderately dense to moderately sparse, mostly suberect setae. **Abdomen.** Sternum 1 moderately concave on middle. **Legs.** Anterior surface of hind coxa moderately finely reticulate (Fig. 35); femur covered with moderately fine to moderately coarse, mostly subrecumbent setae, and some scales (mainly on inner margin); tibia covered with moderately fine to moderately coarse setae; uncus weakly curved, arising near inner apical angle of tibia; praemucro small on fore and middle legs, minute (scarcely distinct) on hind legs, *ca* 1/5-1/6 from apex of tibia, moderately oblique to axis of tibia and directed away from uncus on all legs; tarsal segments 1-3 with dense setae on dorsal surface. **Genitalia.** See Fig. 44. **Length.** Pronotum + elytra: 4.36 mm (1.52 + 2.84).

FEMALE. Similar to male except abdominal sternum 1 weakly convex on middle; uncus arising near middle of apex of tibia on all legs; praemucro large on fore and middle legs, medium-sized on hind legs, subapical, almost perpendicular to axis of tibia on all legs. **Genitalia.** See Fig. 88. **Length.** Pronotum + elytra: 5.15 mm (1.76 + 3.39).

INTRASPECIFIC VARIATION. The scales may be short to medium-sized, whitish to brownish yellow. The rostral sulcus may be long, moderately broad, deep, and rarely there is a short sulcus on the vertex. The punctures of the head may be mostly shallow, moderately sparse, or (more rarely) mostly medium-sized, moderately deep to deep, moderately dense to dense. The prothorax has a ratio (length/width) of 0.94-1.11 (1.03 ± 0.04), rarely with strongly rounded postocular lobes. The elytra are 1.39-1.51 (1.44 ± 0.05) times as long as wide, and 1.65-2.10 (1.81 ± 0.09) times as long as the prothorax. Their widest point is located between 1/4 and 2/5 from the base, rarely at the humeri, and the latter

sometimes are very prominent. The strial punctures sometimes are distinctly irregularly shaped, and the intervals may be distinctly narrower than the strial punctures on the basal 2/5, rarely some only moderately undulate on the disc. The sutural interval (and rarely other dorsal intervals) sometimes is transversely or obliquely rugose. The median area of the mesosternum may be moderately rounded to moderately subcarinate on the sides (not to weakly set off from the lateral areas), and sometimes it is not obviously carinate on the middle, with mostly short, moderately sparse setae. The anterior surface of the hind coxae may be moderately coarsely reticulate. The uncus arises between the middle of the apex of the tibia and the inner apical angle on the fore legs of some females, and the praemucro may be more obvious on the hind legs of some males (rarely medium-sized on all the legs), and large on all the legs of some females. Length, pronotum + elytra: 3.10-5.70 mm (4.70 ± 0.44).

TYPE LOCALITY. U.S.A.

NOTES ON THE TYPE. Type material destroyed (see Wibmer 1981:8).

REMARKS AND COMPARATIVE NOTES. Although superficially very similar to *T. pseudofoveolatum*, the latter species has coarser setae on the legs, the 10th interval of each elytron more strongly convex, and usually yellowish brown to brownish scales, more abundant on the elytra. *Tyloderma angustulum* Casey also is likely to be found in northeastern Mexico, but it has a more shining integument, shallower elytral strial punctures, and a usually smaller size and more elongate body.

I did not expect this species to be found in Mexico. I had assumed that the specimen cited by Sleeper (1960) from Oaxaca was actually *T. pseudofoveolatum*, but my study of it proved that his identification was correct.

PLANT ASSOCIATIONS. In the United States, this species has been reared from *Oenothera biennis* L., the evening primrose, and *O. laciniata* Hill., the cut-leaved primrose (probably the preferred hosts, Onagraceae), and also from *Epilobium* sp. (willow herb, Onagraceae) and *Ambrosia* sp. (Compositae).

NATURAL ENEMIES. In the United States, one specimen was obtained from a *Bufo* stomach (toad, Bufonidae), and one in a frog's stomach. It is parasitized by the hymenopterous *Eurytoma tylodermatis* Ashmead (Eurytomidae), *Eupelmus cyaniceps* Ashmead (Eupelmidae), *Neocatolaccus tylodermae* (Ashmead) (Pteromalidae), *Bracon mellitor* Say (Braconidae), *Aliolus curculionis* Fitch (Braconidae), and *Urosigalphus* sp. (Braconidae).

RANGE. Known from southeastern Canada, Mexico, and the eastern half of the United States (see Fig. 124).

MATERIAL EXAMINED. In addition to the 1,827 specimens studied earlier (Wibmer 1981:19-21), I have seen 5 specimens from AMNH, ELSC, MCZC and SARH, with the following data: **MEXICO**: (2) [no collector]. **Mexico**: Chapingo (1) [no collector]. **Oaxaca**: Mogoñe 28-XII-45 (1) [no collector]. **Zacatecas**: 17 mi S Guadalupe 28-VI-53 (1) C.& P.Vaurie.

8. *Tyloderma pseudofoveolatum* Wibmer
(Figs. 45, 87, 124)

Tyloderma pseudofoveolatum Wibmer 1981:14 [in key], 25-27 [description and biological notes], & Figs. 10, 54, 73, 102, 129; O'Brien & Wibmer 1982:142 [checklist].

Tyloderma foveolatum: Champion 1905:527-528 [misidentification].

HOLOTYPE MALE (redescription). Scales mostly short, light brownish. **Head.** Punctures small to medium-sized, moderately deep, moderately sparse to moderately dense on frons, smaller, shallower and sparser toward vertex and on top of head, each with mostly subrecumbent seta, medium to long, moderately coarse to coarse on frons, mostly short, moderately fine elsewhere. **Prothorax.** As long as wide, with postocular lobes strongly rounded; punctures with moderately coarse seta, long, suberect to erect (only moderately exceeding rim of puncture) on basal 3/4 of disc, short to long, mostly subrecumbent on apical 1/4 of disc, and medium to long, suberect to erect (not or scarcely exceeding rim of puncture) on flanks. **Elytra.** 1.56 X as long as wide, 2.00 X as long as prothorax, with humeri moderately rounded, prominent, and sides subparallel in *ca* basal 1/2, then converging moderately to apices; scales on each elytron forming U-shaped band on *ca* basal 1/3 between intervals 2 and 6 (base of "U" broad, along intervals 5-6), almost transverse band near middle from sutural interval to interval 5, very broad, irregular, transverse band near declivity not reaching suture, and some small to large spots elsewhere; strial punctures almost round, large to very large (somewhat smaller than pronotal punctures), fairly evenly distributed on basal 2/5, very distinct on apical 1/2 (on striae 1-2 almost subequal in size and depth on apical portions and immediately in front of declivity); intervals *ca* as wide as strial punctures on basal 2/5, most weakly undulate, mostly moderately convex throughout (10th strongly convex on basal 2/5), sutural interval weakly rugose, each interval with row of short to medium-sized, moderately coarse to coarse, mostly sparse to moderately sparse (denser on sutural interval), subrecumbent setae. **Mesosternum.** Median area partially carinate on sides, moderately to strongly set off from lateral areas, and surface weakly convex, with weakly developed,

median carina, and medium to long, moderately coarse to coarse, mostly moderately dense, suberect to erect setae (subrecumbent along anterior margin). **Abdomen.** Sternum 1 weakly concave on middle. **Legs.** Anterior surface of hind coxa finely reticulate; femur covered with moderately coarse to coarse, recumbent to subrecumbent setae, and few scales (mainly on inner margin); tibia covered with moderately coarse to coarse setae; uncus weakly curved on fore and middle legs, almost straight on hind legs, arising near inner apical angle of tibia; praemucro small on fore and middle legs, very small on hind legs, *ca* 1/7 from apex of tibia, almost perpendicular to axis of tibia on all legs; tarsal segments 1-3 with very dense setae on dorsal surface. **Genitalia.** See Fig. 45. **Length.** Pronotum + elytra: 5.25 mm (1.75 + 3.50).

ALLOTYPE FEMALE. Similar to male except abdominal sternum 1 weakly convex on middle; uncus arising between middle of apex of tibia and inner apical angle; praemucro large, subapical on all legs. **Genitalia.** See Fig. 87. **Length.** Pronotum + elytra: 5.08 mm (1.70 + 3.38).

INTRASPECIFIC VARIATION. The scales may be yellowish to brownish. The rostrum may be subcarinate or carinate for a short distance near the middle, and in a few specimens it is weakly to moderately impressed transversely about 3/10-1/3 from the base. The frontal sulcus may reach the vertex. The punctures of the head may be mostly small, moderately shallow to moderately deep on the frons, or mostly medium-sized, moderately deep to deep, moderately dense to dense, and the setae may be short to medium-sized, moderately fine to moderately coarse on the frons, very short to short, fine elsewhere. The prothorax has a ratio (length/width) of 0.91-1.10 (0.99 ± 0.04), and the setae may be only moderately fine to moderately coarse. The elytra are 1.42-1.65 (1.54 ± 0.05) times as long as wide, and 1.74-2.37 (2.02 ± 0.12) times as long as the prothorax, usually widest both at the humeri and another point located between 1/4 and 2/5 from the base (weakly depressed in between), rarely only at the humeri (then their sides converge weakly to about 4/7 from the base). The scales may be sparser, especially on the basal 1/2, and some strial punctures may be oval or even somewhat irregularly shaped on the basal 2/5. Some intervals may be narrower than the strial punctures and moderately undulate on the basal 1/4, interval 9 also may be strongly convex on the basal 2/5, and their setae may be mostly short, sometimes denser on most intervals. The median area of the mesosternum usually is only subcarinate on the sides, moderately set off from the lateral areas, occasionally it has a moderately developed (rarely broad) median carina, and the setae may be short to medium-sized, moderately fine to moderately coarse. Abdominal sternum 1 of a few males is moderately concave, and sternum 5 of some females is slightly to distinctly impressed on each side. The praemucro is only medium-sized on the hind legs of a few females, and it is oblique to the axis of the tibia and directed away from the uncus on some males. Length, pronotum + elytra: 4.00-6.15 mm (5.05 ± 0.44).

TYPE LOCALITY. U.S.A., Texas, Dickens County, North Fork Wichita River, 5 miles southwest of Dumont.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] TEX.5mi. / SW.Dumont / Dickens Co. / VII-9-1970; 2) [rectangular; white; printed in black ink] N.WichitaR. / at night L.& / C.W.O'Brien; 3) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / pseudofoveolatum / Wibmer, 1981.

Point-mounted. The last 3 funicular segments and club of the right antenna are missing. Deposited in CWOB.

REMARKS AND COMPARATIVE NOTES. This species can be separated from *T. foveolatum* (and also from *T. angustulum* Casey, a species also likely to occur in northeastern Mexico) by the coarser setae on the legs, by the more strongly convex 10th elytral intervals, and by the usually more abundant (and darker) scale cover.

PLANT ASSOCIATIONS. In the United States, this species has been reared from *Oenothera albicaulis* Pursh and from roots of *O. biennis* L. (Onagraceae), and from roots of *Monarda citriodora* Cerv. *ex* Lag. (Labiatae).

RANGE. Known from Mexico and the southwestern United States (see Fig. 124).

MATERIAL EXAMINED. In addition to the original series of 48 specimens (Wibmer 1981:26-27), I have seen 6 specimens from AMNH, CWOB and ELSC, with the following data: **MEXICO: Durango:** Durango 22-VIII-53 (1) C.& P.Vaurie. **Puebla:** 3 mi E Puebla, Hwy. 150D, 7700ft, under stones 14-V-83 (4) C.W.& L.O'Brien & G.B.Marshall. **[U.S.A.]: Arizona:** Cibecue VII-20 (1) C.W.Jones.

The *nigrum* group

DESCRIPTION. Cuticle mostly black to bluish black; scales obsolete (Fig. 7). **Rostrum.** Dorsal surface moderately to strongly rugosely punctate except for smooth clypeus. **Head.** Interocular distance somewhat to moderately narrower than rostrum at lower margins of eyes; with broad, deep suborbital groove (as in Fig. 18). **Prothorax.** Most punctures moderately distinct, small on disc, and on flanks moderately to very distinct throughout. **Elytra.** Intervals moderately to distinctly wider than strial punctures

on basal 2/5. **Mesosternum.** Median area carinate on sides, strongly to very strongly set off from lateral areas. **Abdomen.** Sterna 3-4 usually moderately to strongly (rarely only weakly) convex (seen in lateral view). **Legs.** Outer angle of hind coxal cavity (Fig. 34) truncate by elongation of ventrally produced metepisternum and by truncation of lateral basal angle of abdominal sternum 1 (basal margin not produced forward); uncus arising near inner apical angle of tibia or between middle of apex of tibia and inner apical angle in females, from inner apical angle of tibia in males; praemucro small to medium-sized, subapical, subparallel to uncus on all legs in females, in males subapical, subparallel to uncus (to almost perpendicular to axis of tibia) on fore legs and obsolete on middle and hind legs. Terrestrial.

REMARKS AND DIAGNOSTIC CHARACTERS. This group is almost exclusively North American, with one of the three species reaching northern Mexico. The *nigrum* group can be recognized by the following combination of characters: cuticle mostly black to bluish black; scales obsolete (Fig. 7); prothoracic punctures moderately distinct, most small on disc (Fig. 7), moderately to very distinct throughout on flanks; median area of mesosternum carinate on sides, very strongly set off from lateral areas; and praemucro subparallel to uncus on all legs in females, and subparallel to uncus (to almost perpendicular to axis of tibia) on fore legs and obsolete on middle and hind legs in males.

SPECIES INCLUDED.

9. *T. baridium* LeConte

Also included are *T. nigrum* Casey and *T. oenotherae* Wibmer, known from the United States and southern Canada.

9. *Tyloderma baridium* LeConte *in* LeConte & Horn (Figs. 7, 34, 46, 89, 125)

Tyloderma baridium LeConte 1876:249 [description]; Champion 1905:528 [distributional note]; Pierce 1907:278 [biological note]; Mitchell & Pierce 1911:57 [distributional note]; Papp 1979:199 [catalog]; Wibmer 1981:15 [in key], 49-51 [redescription and biological notes], & Figs. 20, 87, 115, 138; O'Brien & Wibmer 1982:141 [checklist].

Tyloderma baridia LeConte; Casey 1892:449 [in key] & 454-455 [redescription]; Blatchley & Leng 1916:490 [in key] & 493 [redescription]; Hustache 1936:180 [catalog]; Voss 1943:229 [in key]; Blackwelder 1947:863 [checklist].

Tyloderma baridoidium Rye 1878:94 [unjustified emendation]; Hustache 1936:181 [catalog; in synonymy]; Papp 1979:199 [catalog; in synonymy]; Wibmer 1981:49 [in synonymy]; O'Brien & Wibmer 1982:141 [checklist; in synonymy].

Tyloderma baridoidia Rye; Blackwelder 1947:863 [checklist; in synonymy].

MALE. Body oval (Fig. 7), elytra (in lateral view) weakly convex in *ca* basal 3/4 and moderately declivate in apical 1/4; cuticle mostly black. **Rostrum.** Weakly subcarinate (more obviously so on apical 1/3); dorsal surface moderately rugosely punctate throughout except for weakly distinct clypeus. **Head.** Frontal fovea small, deep, continued toward vertex as short, shallow, scarcely distinct sulcus; punctures mostly moderately distinct, small, moderately deep, moderately dense (much smaller and shallower on top of head); eyes moderately convex. **Prothorax** (Fig. 7). 0.89 X as long as wide, weakly constricted subapically on flanks, widest near middle (little wider than at base); postocular lobes strongly rounded; punctures moderately distinct, small, moderately shallow, moderately sparse to sparse on disc, and on flanks moderately larger and deeper than those on disc on basal 1/2, much larger, deeper and denser on apical 1/2. **Elytra** (Fig. 7). 1.45 X as long as wide, 2.19 X as long as prothorax, with humeri obsolete, and sides diverging moderately to strongly to *ca* 3/10 from base; strial punctures mostly suboval to oval, medium-sized (much larger than pronotal punctures), moderately deep to deep, most separated by own diameter or little more (moderately evenly distributed) on basal 2/5; intervals distinctly wider than strial punctures on basal 2/5, none obviously rugose; brachypterous. **Metasternum.** Median area strongly concave; punctures medium to large, deep, dense on median area, mostly medium-sized, moderately deep, moderately dense to moderately sparse on lateral areas. **Abdomen.** Sternum 1 strongly concave on middle, sterna 3-4 moderately convex (seen in lateral view), sternum 5 moderately convex on basal 2/5, with large, moderately deep, subapical impression. **Legs.** Moderately stout; femur with surface mostly moderately rugosely striate; uncus small, almost straight, arising from inner apical angle of tibia, weakly oblique to axis of tibia on fore and middle legs, almost perpendicular on hind legs; praemucro almost perpendicular to axis of tibia on fore legs. **Genitalia.** See Fig. 46. **Length.** Pronotum + elytra: 3.89 mm (1.22 + 2.67).

FEMALE. Similar to male except metasternum very weakly concave on median area and abdominal sternum 1 weakly convex on middle; abdominal sternum 5 with deep impression; uncus moderately oblique to axis of tibia on fore and middle legs, weakly oblique on hind legs. **Genitalia.** See Fig. 89. **Length.** Pronotum + elytra: 3.87 mm (1.20 + 2.67).

INTRASPECIFIC VARIATION. The elytra sometimes are moderately convex in the basal 3/4-4/5. The cuticle usually is mostly shining, or mostly moderately to weakly shining, but it is rather matte in a few specimens. The rostrum may be only partially subcarinate. The dorsal surface of the rostrum may be strongly rugosely punctate throughout, and in some specimens the punctures on the basal 1/2 are very dense in longitudinal rows, and their edges form incomplete longitudinal rugae. The frontal fovea may be shallow or even subobsolete, whereas the median sulcus may be very distinct (long, broad, deep) to obsolete, and rarely there are two foveae present. The top of the head may be sparsely punctate. The prothorax has a ratio (length/width) of 0.87-1.03 (0.94 ± 0.04). Its widest point may be located between 1/4 from the base and the middle, or the sides may be almost subparallel in the basal 4/7. Rarely, there is one moderately shallow, longitudinal impression on each side of the pronotal disc on the basal 2/5, and the pronotal punctures may be moderately shallow to moderately deep, moderately sparse to moderately dense, sometimes denser on the apical 1/3. The scutellum may be small, narrow oval, often pointed apically. The elytra are 1.35-1.59 (1.46 ± 0.05) times as long as wide, and 1.83-2.25 (2.07 ± 0.11) times as long as the prothorax. Their sides may diverge only moderately in the basal 1/4-1/2. The strial punctures are very variable on the disc, moderately shallow to deep, and moderately dense to very sparse (most separated by 2 diameters or more), and often they are larger and deeper on striae 9-10. Rarely they are more obvious on the apical 1/2, slightly larger than the punctures on the intervals. The punctures of the metasternum may be only moderately dense on the median area and moderately sparse to sparse on the lateral areas. Abdominal sternum 1 of some females is moderately convex on the middle, sterna 3-4 rarely are only weakly convex, and the impression of sternum 5 is moderately shallow to moderately deep in males, deep to very deep in females. The praemucro often is smaller on the hind legs in females, and it may be subparallel to the uncus in males. Length, pronotum + elytra: 3.40-5.35 mm (4.21 ± 0.42).

TYPE LOCALITY. U.S.A., Texas.

NOTES ON THE TYPE. Holotype (by monotypy) male (not dissected), with the following labels: 1) [rectangular; white; printed in black ink] Tex.; 2) [rectangular; yellow; handwritten in pencil] 718; 3) [rectangular; red] [printed in black ink] Type. [handwritten in black ink] 5323; 4) [rectangular; white; handwritten in black ink] T. baridium Lec.

Point-mounted. The legs on the right side are broken (only the coxae remaining), and while the fore and hind legs are missing, the right middle leg is glued by the apex of its femur to the undersurface of the specimen between the left middle and hind legs. Length (pronotum + elytra): 3.90 mm (1.20 + 2.70), the prothorax and elytra with a ratio (length/width) of 0.87 and 1.52, respectively. Deposited in MCZC.

REMARKS AND COMPARATIVE NOTES. The black integument, obsolete humeri, and lack of scales or scalelike setae readily separate this species from all others in the genus.

PLANT ASSOCIATIONS. In the U. S., this species has been reared from roots of *Oenothera laciniata* Hill. (cut-leaved primrose) and *Gaura villosa* Torrey (both Onagraceae). Adults have been found on cotton (Malvaceae) or in cotton fields on several occasions.

NATURAL ENEMIES. In the U. S., one specimen was obtained from a *Bufo* stomach (toad, Bufonidae).

RANGE. Known from northern Mexico, and the United States (see Fig. 125).

MATERIAL EXAMINED. In addition to the 234 specimens studied earlier (Wibmer 1981:50-51), I have seen one specimen from the USNM, with the following data: **MEXICO**: **Nuevo León**: Monterrey 8-VIII-63 (1) P.J.Spangler.

The *elegantulum* group

DESCRIPTION. Cuticle mostly reddish brown to reddish black. **Rostrum.** In lateral view, scarcely set off from frons; dorsal surface usually moderately to strongly rugosely punctate on basal 3/7-1/2, apical 4/7-1/2 almost smooth to weakly rugosely punctate. **Head.** Few scales around and/or between eyes, and sometimes few on middle of vertex. **Prothorax** (Figs. 8-9). Scales forming on each side narrow but very distinct band on at least basal 1/2 of pronotal disc; punctures mostly moderately to very distinct, most medium-sized (rarely most small), moderately shallow to deep, moderately sparse to moderately dense on disc, and on flanks mostly very distinct throughout. **Elytra** (Figs. 8-9). Scales on each elytron forming narrow to very narrow band along basal 1/5-1/4 of interval 5 (continuous with lateral band of pronotum), and broad to very broad, transverse band at or near declivity. **Legs.** Outer angle of hind coxal cavity partially to largely closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin weakly to moderately produced forward). All probably semiaquatic.

REMARKS AND DIAGNOSTIC CHARACTERS. This group is comprised of four currently allopatric species known from Central and South America, and Cuba in the Greater Antilles. It can be recognized by the following combination of characters: dorsal surface of rostrum usually moderately to

strongly rugosely punctate on basal 3/7-1/2 and almost smooth to weakly rugosely punctate on apical 4/7-1/2; scales on each side of pronotum (Figs. 8-9) form narrow but very distinct band on at least basal 1/2; and scales on each elytron (Figs. 8-9) form narrow to very narrow band along basal 1/5-1/4 of interval 5 (continuous with lateral band of pronotum) and broad to very broad, transverse band at or near declivity.

SPECIES INCLUDED.

10. *T. curvisete* n. sp.
11. *T. expansum* n. sp.
12. *T. elegantulum* Hustache
13. *T. insulicola* n. sp.

10. *Tyloderma curvisete* Wibmer, new species
(Figs. 47, 130)

HOLOTYPE MALE. Body elongate suboval, elytra (in lateral view) unevenly convex; cuticle reticulate, mostly weakly shining (more distinctly so on elytra and apical 1/2 of rostrum) except for very shining clypeus, reddish brown, with apical 1/2 of rostrum, coxae, trochanters and some areas of venter and pleura darker, and legs and antennae brownish red; scales short, broad to very broad suboval, whitish yellow, mostly recumbent to subrecumbent, many imbricate. **Rostrum.** In lateral view, unevenly arcuate, rising almost straight in *ca* basal 1/2, moderately arcuate apicad of middle, and falling rapidly to apex, weakly to moderately subcarinate on most of apical 1/2; dorsal surface moderately rugosely punctate on basal 1/2, with most punctures with medium to long, moderately coarse, mainly erect seta (coarser on midline near base) and some punctures with short, subrecumbent seta, apical 1/2 much smoother (clypeus very distinct, smooth, impunctate, transverse), with short to medium-sized, moderately fine to moderately coarse, subrecumbent to erect setae. **Head.** Few scales near inner margins of eyes; interocular distance slightly wider than rostrum at lower margins of eyes, and frons subcarinate on middle; punctures moderately to very distinct, small to medium-sized, moderately deep, unevenly dense throughout, most with medium-sized, moderately fine to moderately coarse, suberect to erect seta, some on vertex with subrecumbent seta (some scalelike), few mesad of each eye with long, moderately coarse to coarse seta; lacking sulcus above each eye. **Prothorax.** 1.09 X as long as wide; pronotal disc lacking impressions, with few scales along midline in front of subapical constriction, and forming on each side narrow band from base (opposite elytral interval 4) to slightly beyond middle; punctures moderately to very distinct, most medium-sized, moderately deep to deep on disc (distinctly smaller and shallower on apical 1/3), and on flanks *ca* as large as, but distinctly deeper than those on disc, most punctures with long, moderately coarse seta (mainly erect on disc, mainly suberect on flanks), some with short, fine, subrecumbent to suberect seta. **Elytra.** 1.68 X as long as wide, 1.94 X as long as prothorax, with humeri very prominent, and sides subparallel to slightly beyond middle (somewhat depressed behind humeri), then converging moderately to apices; scales on each elytron forming very narrow band along basal 1/8 of interval 2, continuous along elytral base to interval 5, then along basal 1/4 of interval 5, joining oblique, very narrow band extending from somewhat behind humerus to interval 2 slightly distad of middle, and transverse band near declivity from suture to interval 8, very broad at suture (meeting oblique band), then narrowing strongly toward interval 8 (somewhat rhomboidal when both elytra at rest [as in Fig. 8]); strial punctures large, many separated by 1/2 own diameter or less (moderately evenly distributed) on basal 2/5, very distinct on most of apical 1/2 (on striae 1-2 somewhat smaller and shallower on apical portions than immediately in front of declivity, stria 10 not visible near apex); most intervals narrower than strial punctures on basal 2/5, moderately to strongly undulate, moderately convex on basal 3/7, strongly convex on apical 4/7, each with row of long to very long (weakly to strongly curved on apical portion), moderately coarse, sparse, erect setae on disc (mostly subobsolete, except near apices, on flanks) arising from moderately distinct punctures. **Mesosternum.** Lateral processes *ca* 2/3 from anterior margin, distinct, and surface impressed transversely near posterior margin, with medium to long, moderately fine, moderately sparse, suberect setae, lateral areas above middle coxae with few short to long, fine to moderately fine, recumbent to subrecumbent setae; mesepisternum with few medium-sized, moderately coarse, recumbent setae, mesepimeron subglabrous. **Metasternum.** Median area with shallow sulcus on apical portion. **Abdomen.** Sternum 5 lacking impressions; punctures with medium to long, moderately coarse, suberect to erect seta. **Legs.** Moderately slender; outer angle of hind coxal cavity largely closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin moderately produced forward); anterior surface of hind coxa moderately coarsely alveolate (as in Fig. 36); femur not expanded nor impressed near base, armed with small tooth *ca* 3/5 from base, with inner margin moderately rounded, and surface not rugosely striate (although distinctly reticulate), covered with medium to long, moderately fine to moderately coarse, sparse to moderately dense, mostly suberect (some subrecumbent, some erect) setae; tibia with inner margin moderately sinuate, and surface not rugosely striate (although distinctly reticulate), covered with medium to long, moderately fine to moderately coarse, moderately dense, mostly suberect (some subrecumbent, some erect) setae; uncus medium-sized; praemucro

medium-sized, subapical on all legs. **Genitalia.** See Fig. 47. **Length.** Pronotum + elytra: 3.29 mm (1.12 + 2.17).

FEMALE. Unknown.

INTRASPECIFIC VARIATION. Known from the holotype only.

ETYMOLOGY. The Latin compound epithet *curvisetis* means with curved or bent setae.

TYPE LOCALITY. Argentina, Provincia de Misiones.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; whitish; handwritten in black ink] Misiones; 2) [rectangular; white; printed in black ink] G.A.K. Marshall / Coll. / B.M.1950-255.; 3) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / curvisete / Wibmer 1989.

Point-mounted. Deposited in BMNH.

REMARKS AND COMPARATIVE NOTES. The smaller size, color of the integument, and erect setae on the dorsum of the body easily distinguish this species from all but teneral, depauperate specimens of *T. pilosellum*, from which it is separated by the very distinct clypeus, by the broader scales and by the armed femora, with their surface not rugosely striate. In the *elegantulum* species group, the larger and deeper elytral strial punctures of *T. curvisete* also separate it from *T. elegantulum* and *T. insulicola*, and the broader scales and smaller and shallower punctures on the head distinguish it from *T. expansum*.

RANGE. Known only from Misiones Province in Argentina (see Fig. 130).

11. *Tyloderma expansum* Wibmer, new species
(Figs. 8, 48, 90, 130)

HOLOTYPE MALE. Body moderately elongate suboval, elytra (in lateral view) unevenly convex; cuticle reticulate (more distinctly so on basal 3/7 and sides of rostrum, head, and prothorax), somewhat shining, with apical 4/7 of rostrum smooth, very shining, mostly reddish brown, with part of head, flanks of prothorax, elytra, venter and legs reddish black to blackish, and antennae light brownish; scales mostly short on elytra, medium-sized on head and prothorax, moderately narrow to moderately broad, cuneiform to suboval, whitish, recumbent, many imbricate. **Rostrum.** In lateral view, moderately evenly, moderately arcuate, not carinate; dorsal surface moderately rugosely punctate on basal 3/7, with short to medium-sized, fine to moderately fine, mostly subrecumbent setae (some suberect along midline), apical 4/7 weakly rugosely punctate except for moderately distinct, smooth, almost impunctate, subtriangular clypeal area, with short, fine, recumbent to subrecumbent setae. **Head.** Few scales around eyes, cluster below frontal sulcus (reaching base of rostrum), and cluster on middle of vertex; interocular distance slightly wider than rostrum at lower margins of eyes, frons with long, broad, deep, irregularly shaped sulcus extending onto vertex, and vertex with weakly distinct, irregularly shaped tubercle on each side of midline; punctures very distinct, small to medium-sized, moderately deep to deep, moderately dense to dense, each with medium-sized, fine to moderately fine, subrecumbent seta; lacking sulcus above each eye. **Prothorax** (Fig. 8). 1.11 X as long as wide; pronotal disc with small, weakly distinct impression on each side *ca* 3/10 from base, and weakly depressed apically along midline, with few scales along midline on apical 2/5, and forming on each side narrow band from base (opposite elytral interval 5) to *ca* 3/5 from base, then sparsely turning outward to apex; punctures moderately to very distinct, medium-sized, moderately shallow on disc (somewhat smaller, shallower in front of subapical constriction), and on flanks distinctly larger and deeper than those on disc, each puncture with medium-sized, fine to moderately fine, subrecumbent seta. **Elytra** (Fig. 8). 1.49 X as long as wide, 1.89 X as long as prothorax, with humeri very prominent, and sides slightly depressed behind humeri, diverging weakly to declivity, then converging strongly to apices; each elytron darker on basal 3/5 except for somewhat triangular area between basal 1/2 of suture and interval 4 near middle, and scales forming spot at base of stria 2, then sparser along base to interval 5, again denser as very narrow band along basal 1/5 of interval 5 joining oblique, somewhat discontinuous, very narrow band located between striae 3 and 6, forming very small cluster on stria 9 *ca* 1/4 from base, and transverse band near declivity from suture to interval 8, very broad at suture then narrowing strongly toward interval 8 (somewhat rhomboidal when both elytra at rest); strial punctures large, most separated by less than own diameter (fairly evenly distributed) on basal 3/5, very distinct on most of apical 2/5 (on striae 1-2 somewhat smaller and shallower on apical portions than immediately in front of declivity, stria 10 not visible near apex); most intervals *ca* as wide as strial punctures (narrower near base) on basal 2/5, weakly to moderately undulate (more strongly so near base), most moderately (3 and 5 strongly) convex on basal 1/2, strongly convex on apical 1/2, each with row of mostly medium-sized (some short), moderately fine to moderately coarse, mostly sparse, subrecumbent (some suberect) setae arising from scarcely distinct punctures. **Mesosternum.** Lateral processes indistinct, and surface with short, fine, moderately sparse to sparse, subrecumbent to suberect setae, lateral areas above middle coxae with some short to medium-sized, fine to moderately fine, subrecumbent setae; mesepisternum with some short to medium-sized, fine to moderately

fine, recumbent to subrecumbent setae, and few scales, mesepimeron with row of short, moderately fine, recumbent setae. **Metasternum**. Median area lacking apical sulcus. **Abdomen**. Sternum 5 lacking impressions; punctures with short to medium-sized, moderately fine, subrecumbent to suberect seta. **Legs**. Moderately slender; outer angle of hind coxal cavity partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin weakly produced forward); anterior surface of hind coxa moderately finely to moderately coarsely alveolate (as in Fig. 36); femur not expanded nor impressed near base, armed with small tooth *ca* 4/7 from base, with inner margin moderately rounded, and surface strongly rugosely striate, covered with medium-sized, fine to moderately fine, moderately dense, subrecumbent setae, and few scales; tibia with inner margin weakly sinuate on fore and middle legs, almost straight on hind legs, and surface moderately rugosely striate, covered with short to medium-sized, fine to moderately fine, moderately dense, subrecumbent setae; uncus medium-sized; praemucro medium-sized on fore and middle legs (subapical on fore legs, almost subapical on middle legs), small (*ca* 1/8 from apex of tibia) on hind legs. **Genitalia**. See Fig. 48. **Length**. Pronotum + elytra: 3.57 mm (1.24 + 2.33).

ALLOTYPE FEMALE. Similar to male except praemucro large, subapical, almost perpendicular to axis of tibia on all legs. **Genitalia**. See Fig. 90. **Length**. Pronotum + elytra: 3.95 mm (1.36 + 2.59).

INTRASPECIFIC VARIATION. The rostrum may be weakly to moderately arcuate. The frontal sulcus may be only moderately broad, shallower or deeper than in the holotype, occasionally shortened by transverse rugae, the tubercles of the vertex may be scarcely distinct, and the punctures of the head may be moderately shallow to moderately deep. The prothorax has a ratio (length/width) of 1.04-1.11, with the lateral impressions scarcely to moderately distinct. The elytra are 1.42-1.54 times as long as wide, and 1.73-1.92 times as long as the prothorax. The elytral strial punctures sometimes are smaller, then they are usually separated by more than their own diameter. The lateral processes of the mesosternum may be very weakly distinct, located about 2/3 from the anterior margin. Length, pronotum + elytra: 2.92-4.12 mm.

ETYMOLOGY. The Latin participle *expansus* means spread out.

TYPE LOCALITY. Panamá, Provincia Bocas del Toro, 5 kilometers west of Almirante, 9°18′N, 82°27′W, 30 meters above sea level.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink except for handwritten accent] PANAMÁ:Bocas d. T. Pr. / 5 km W Almirante 30m / 9°18′N, 82°27′W / 6 July '74 H. Stockwell; 2) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / expansum / Wibmer 1989.

Point-mounted. From HPSC; deposited in USNM.

REMARKS AND COMPARATIVE NOTES. The strongly rugosely punctate head (with larger and deeper punctures), the armed femora, and the shorter elytra (widest near the declivity), distinguish this species from all others in the genus. *Tyloderma expansum* can be separated also from *T. elegantulum* and *T. insulicola* by the larger and deeper elytral strial punctures, and from *T. curvisete* by the narrower scales and more robust body.

RANGE. Known from Costa Rica, Nicaragua, and Panama (see Fig. 130).

MATERIAL EXAMINED. Holotype, allotype, and 10 paratypes (12 specimens) from CHAH, CWOB, HPSC and UNAN, with the following data: **COSTA RICA**: **Heredia**: Finca La Selva, 3 km S Puerto Viejo, 10°26′N 84°01′W 27-VI-86 (1) H.A.Hespenheide. **NICARAGUA**: **Zelaya**: El Recreo X-84 (4) J.-M.Maes. **PANAMA**: **Bocas del Toro**: 1 km SW Almirante, 9°17′N 82°25′W 4-VII-74 (allotype + 4) H.Stockwell; 5 km W Almirante, 9°18′N 82°27′W, 30m 6-VII-74 (holotype) H.Stockwell; Miramar, 9°N 82°15′W, sea level, [blacklight trap] 28-VIII-79 (1) H.Wolda. One paratype each will be deposited in BMNH and GJWC.

12. *Tyloderma elegantulum* Hustache
(Figs. 9, 49, 91, 130)

Tyloderma elegantula Hustache 1939:103-104 [description]; Blackwelder 1947:863 [checklist]; Papp 1979:199 [catalog].

Tyloderma elegantulum Hustache; Wibmer & O'Brien 1986:223 [checklist].

MALE. Body elongate suboval, elytra (in lateral view) evenly convex; cuticle weakly reticulate, shining on apical 3/5 of rostrum, portions of elytra and most of venter and legs, moderately reticulate, weakly shining elsewhere, mostly reddish brown, with large area of each elytron, apical 4/7 of rostrum, trochanters, base of femora, and small areas of venter and pleura blackish red to blackish, and antennae brownish; scales mostly short on elytra, mostly medium-sized on head and prothorax, moderately narrow to moderately broad, cuneiform to suboval, whitish, recumbent, many imbricate. **Rostrum**. In lateral view, fairly evenly, moderately arcuate, weakly subcarinate (more obviously so on apical 4/7); dorsal surface weakly to moderately rugosely punctate on basal 3/7, with medium-sized, moderately fine to moderately

coarse, subrecumbent setae, apical 4/7 almost smooth (clypeus moderately distinct, smooth, almost impunctate, transverse), with scarcely distinct, mostly short, fine, mainly recumbent setae. **Head.** Some scales around eyes and few on middle of vertex; interocular distance slightly wider than rostrum at lower margins of eyes, and frons with short, moderately narrow, moderately shallow sulcus; punctures moderately distinct, most medium-sized, moderately shallow to moderately deep, unevenly dense throughout, each with short, fine to moderately fine, recumbent to subrecumbent seta; with narrow sulcus above each eye. **Prothorax** (Fig. 9). 1.16 X as long as wide; pronotal disc lacking impressions, with some scales along apical margin and some along midline on apical 1/4, and forming narrow band on each side of disc from base (opposite elytral stria 4) to somewhat distad of middle, and small cluster on middle of flank; punctures weakly to moderately distinct, most medium-sized (some small), moderately shallow on disc, and on flanks distinctly larger and deeper than those on disc, each puncture with short to medium-sized, fine, mainly subrecumbent seta. **Elytra** (Fig. 9). 1.63 X as long as wide, 1.89 X as long as prothorax, with humeri prominent, and sides diverging very weakly to near middle, converging weakly to declivity, then moderately to apices; each elytron mostly blackish red to blackish except for somewhat triangular area between basal 4/7 of suture and humerus, and apical 1/5-1/4, and scales forming very narrow band along basal 1/5 of interval 5, joining oblique, very narrow band extending from somewhat behind humerus to stria 2 *ca* 1/3 from base (sparser between interval 5 and humerus), few at base of interval 2, few on stria 9 *ca* 1/5 from base, and forming very broad, transverse band at declivity from suture to interval 8 (narrowing weakly to stria 5, then more strongly to interval 8); strial punctures mostly large (some medium-sized), most separated by *ca* own diameter (moderately unevenly distributed) on basal 1/3 of striae 1-9 and almost all of stria 10, weakly distinct on most of apical 1/2 (on striae 1-2 *ca* as large and deep on apical portions and immediately in front of declivity, stria 10 not visible near apex); most intervals *ca* as wide as strial punctures (narrower near base) on basal 1/5, weakly to moderately undulate, weakly convex on basal 4/5, moderately convex on apical 1/5, each with row of mostly indistinct, short, fine, mostly sparse to moderately sparse, recumbent to subrecumbent setae arising from scarcely distinct punctures. **Mesosternum.** Lacking lateral processes, and surface with medium-sized, fine to moderately fine, moderately dense, suberect to erect setae, lateral areas above middle coxae subglabrous; mesepisternum mainly with few short, moderately fine, recumbent setae on ventral 1/2, with some mostly moderately broad scales on dorsal 1/2, mesepimeron subglabrous. **Metasternum.** Median area with shallow sulcus on apical portion. **Abdomen.** Sternum 5 lacking impressions; punctures with short to medium-sized, fine to moderately coarse, mostly subrecumbent to suberect seta. **Legs.** Moderately slender; outer angle of hind coxal cavity largely closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin moderately produced forward); anterior surface of hind coxa moderately finely to moderately coarsely alveolate (as in Fig. 36); femur somewhat expanded near base, with broad, deep, smooth, subbasal impression more obvious on outer surface (smaller and shallower on fore legs), unarmed, with inner margin obtusely angulate (as in Fig. 28), and surface moderately rugosely striate, covered with medium-sized, moderately fine to moderately coarse (some scalelike), moderately dense, recumbent to subrecumbent setae; tibia with inner margin weakly sinuate, and surface moderately rugosely striate, covered with medium-sized, moderately fine to moderately coarse, moderately dense, mostly subrecumbent setae; uncus small to medium-sized; praemucro small, *ca* 1/6-1/7 from apex of tibia on all legs. **Genitalia.** See Fig. 49. **Length.** Pronotum + elytra: 3.42 mm (1.18 + 2.24).

FEMALE. Similar to male except uncus medium to large; praemucro medium to large, apical, moderately oblique to axis of tibia on all legs. **Genitalia.** See Fig. 91. **Length.** Pronotum + elytra: 3.81 mm (1.25 + 2.56).

INTRASPECIFIC VARIATION. The body may be weakly to moderately convex in lateral view. The dorsal surface of the rostrum may be moderately to strongly rugosely punctate on the basal 1/2 and somewhat rugose on the apical 1/2, or only weakly rugosely punctate on the basal 1/2. The frontal sulcus may be only weakly distinct or even obsolete, and the punctures of the head are very dense in some specimens. The prothorax has a ratio (length/width) of 1.05-1.19 (1.12 ± 0.04), and the pronotal disc rarely has a small, almost round, moderately deep impression on each side about 3/7 from the base. The pronotal punctures sometimes are small only, or those on the flanks are only moderately larger and deeper than those on the disc. The elytra are 1.54-1.80 (1.65 ± 0.07) times as long as wide, and 1.78-2.12 (1.95 ± 0.09) times as long as the prothorax. The strial punctures sometimes decrease in size and depth somewhat evenly on all striae, and the intervals can be moderately convex throughout. In some specimens, the mesosternum has weakly distinct lateral processes about 2/3 from the anterior margin, and the lateral areas above the middle coxae have a few short, moderately fine, recumbent setae. In some specimens, the femora are not obviously angulate on the inner margin, and the praemucro may be almost subapical on the fore legs of a few females. Length, pronotum + elytra: 3.29-4.28 mm (3.74 ± 0.28).

TYPE LOCALITY. Argentina, Provincia de Buenos Aires, Delta del Río Paraná.

NOTES ON THE TYPE. Holotype (by monotypy) male (not dissected), with the following labels: 1)

...te; handwritten in black ink] [on upper surface] Delta Parana / Guazu / 23-II-1919 / [on ...Bosq; 2) [rectangular; pale blue; printed in black ink] MUSEUM PARIS / 1949 / Col. ...AE; 3) [rectangular; white; handwritten (by Hustache) in black ink] Tyloderma / elegantula /

...ard-mounted, glued on its venter. The 5th tarsal segment of the right hind leg is missing. Length ...otum + elytra): 3.88 mm (1.25 + 2.63), the prothorax and elytra with a ratio (length/width) of 1.07 1.63, respectively. Deposited in MNHP.

REMARKS AND COMPARATIVE NOTES. This species can be distinguished from all others in the genus because it has the femora expanded near the base, with a broad, smooth, median impression, and by the scale pattern. It has smaller and shallower elytral strial punctures and less convex elytral intervals than *T. curvisete* and *T. expansum*, and much sparser punctures on the flanks of the prothorax than *T. insulicola*.

RANGE. Known from Argentina, Bolivia, Brazil, and Paraguay (see Fig. 130).

MATERIAL EXAMINED. On hand are 42 specimens from CWOB, FMNH, MACN, MLPC, MNHP, MZSP, NZAC and USNM, with the following data: **ARGENTINA**: **Buenos Aires**: Delta [del Río] Paraná I-42 (1) Monrós, Delta [del Río] Paraná Guazú 23-II-19 (holotype) Bosq; Isla Martín García IV-38 (1) M.J.Viana; Punta Lara I-58 (2) Daguerre; Quilmes (1) [J.M.Bosq]; San Fernando, II-63 (3), XI-55 (1), XI-57 (17), Daguerre; Tigre, I-55 (1), I-57 (2), I-58 (1), Daguerre, 1938 (3) M.J.Viana. **BOLIVIA**: **Santa Cruz**: 10 mi W Portachuelo, at night 24-III-78 (1) C.W.& L.O'Brien. **BRAZIL**: **Mato Grosso**: Parque Nacional Xingu, Jacaré, at light XI-65 (1) M.Alvarenga, XI-65 (1) Alvarenga & Werner. **Minas Gerais**: Arinos 6/8-XI-64 (3) Exp. Dep. Zool.; Buritís (Ribeirão [dos] Confins) 29/31-X-64 (1) Exp. Dep. Zool. **PARAGUAY**: **Central**: Capiatá 7-VII-68 (1) C.W.& L.O'Brien.

13. *Tyloderma insulicola* Wibmer, new species
(Figs. 50, 92, 125)

HOLOTYPE MALE. Body elongate suboval, elytra (in lateral view) evenly convex; cuticle mostly moderately reticulate, moderately shining, with apical 4/7 of rostrum smooth, very shining, mostly reddish brown to dark reddish brown, with areas of elytra, venter, pleura, and base of legs reddish black to blackish, and antennae brownish red; scales mostly short, moderately narrow to moderately broad, cuneiform to suboval, yellowish white, recumbent, few imbricate. **Rostrum**. In lateral view, fairly evenly, moderately arcuate, not carinate; dorsal surface strongly rugosely punctate on basal 3/7, with short, moderately fine, recumbent to subrecumbent setae, apical 4/7 weakly rugosely punctate except for weakly distinct, smooth, almost impunctate, somewhat transverse clypeus, with short, fine, recumbent to subrecumbent setae. **Head**. Few scales between eyes near base of rostrum; interocular distance somewhat narrower than rostrum at lower margins of eyes, and frons with long, narrow, shallow sulcus reaching vertex; punctures very distinct, small, moderately deep, moderately dense to dense, each with short, moderately fine, recumbent to subrecumbent seta (scalelike along frontal sulcus); with narrow sulcus above each eye. **Prothorax**. As long as wide; pronotal disc lacking impressions, with few scales along midline on apical 3/7, and forming narrow band on each side of disc from base (opposite elytral interval 5) to *ca* 4/7 from base, and small cluster on middle of flank; punctures very distinct, most medium-sized, moderately deep on disc (somewhat smaller, shallower in front of subapical constriction, somewhat larger toward margins), and on flanks much larger and deeper than those on disc, each puncture with short, fine to moderately fine, mostly subrecumbent seta. **Elytra**. 1.63 X as long as wide, 2.15 X as long as prothorax, with humeri prominent, and sides diverging very weakly to *ca* 1/3 from base, converging weakly to declivity, then moderately to apices; each elytron with darker areas mainly as somewhat irregular, longitudinal fascia on basal 3/5 of disc between intervals 3 and 5, and longitudinal fascia on basal 5/6 of flank, and scales forming small spot at base of stria 2, narrow band along basal 1/5 of interval 5 joining oblique band located between humerus and interval 3 (very narrow, sparse from humerus to interval 5, moderately broad, dense between intervals 5 and 3), and forming sparse, transverse band at declivity from suture to interval 8 (broad at suture, much broader toward stria 5, then somewhat narrower toward interval 8); strial punctures medium-sized, most separated by 2 diameters or more (moderately evenly distributed) on basal 1/2, moderately distinct on most of apical 1/2 (on striae 1-2 somewhat larger, moderately deeper on apical portions than immediately in front of declivity, stria 10 visible near apex); most intervals moderately wider than strial punctures, almost straight to weakly undulate, weakly to moderately convex on basal 3/4, most strongly convex on apical 1/4, each with row of short to very short (often indistinct), fine, moderately sparse, recumbent to subrecumbent setae arising from moderately distinct, shining punctures. **Mesosternum**. Lateral processes *ca* 3/5 from anterior margin, distinct, and surface with short, fine, moderately dense, subrecumbent setae, lateral areas above middle coxae with few short, moderately fine, recumbent setae, and scales; mesepisternum with few moderately narrow to moderately broad scales, mesepimeron with few minute, scarcely distinct setae. **Metasternum**. Median area with moderately shallow

to moderately deep sulcus on apical 2/5. **Abdomen.** Sternum 5 with medium-sized, moderately deep median impression; punctures with short to medium-sized, fine, mostly subrecumbent seta. **Legs.** Moderately slender; outer angle of hind coxal cavity partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin not produced forward); anterior surface of hind coxa finely to moderately finely reticulate (as in Fig. 35); femur not expanded nor impressed near base, unarmed, with inner margin strongly rounded, and surface mostly moderately rugosely striate, covered with short to medium-sized, moderately fine, moderately dense, mostly recumbent setae; tibia with inner margin moderately sinuate, and surface weakly rugosely striate, covered with short to medium-sized, moderately fine, moderately dense, recumbent to subrecumbent setae; uncus large; praemucro large, *ca* 1/6 from apex of tibia on all legs. **Genitalia.** See Fig. 50. **Length.** Pronotum + elytra: 3.98 mm (1.26 + 2.72).

ALLOTYPE FEMALE. Similar to male except praemucro very large, apical on all legs. **Genitalia.** See Fig. 92. **Length.** Pronotum + elytra: 4.31 mm (1.47 + 2.84).

INTRASPECIFIC VARIATION. The rostrum occasionally is only weakly arcuate, and the frontal sulcus often is shorter, not reaching the vertex. The prothorax has a ratio (length/width) of 1.00-1.07. The elytra are 1.51-1.63 times as long as wide, and 1.93-2.15 times as long as the prothorax, with the sides sometimes subparallel in the basal 1/2 (slightly depressed behind the humeri). Some scales may form small clusters. Occasionally, many strial punctures are large on the basal 1/3, most of them separated by their own diameter, and sometimes their depth decreases gradually toward the apices on all the striae. Occasionally, most intervals are only about as wide as (to somewhat wider than) the strial punctures on the basal 2/5, and they may be only moderately convex near the apices. The median area of the mesosternum may be subquadrate on the sides, scarcely set off from the lateral areas. The impression of abdominal sternum 5 may be shallow to deep, and rarely also there may be small, shallow, lateral impressions. The anterior surface of the hind coxae rarely is moderately coarsely reticulate, and the inner margin of the tibiae may be strongly sinuate. Length, pronotum + elytra: 3.83-4.44 mm.

ETYMOLOGY. The Latin noun *insulicola* means islander.

TYPE LOCALITY. Cuba, Provincia Ciego de Avila, Baraguá.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels (1 to 4 photographic paper): 1) [rectangular; whitish] [printed in black ink] Baraguá, Cuba / [handwritten in black ink] VIII-9-27; 2) [rectangular; whitish; printed in black ink except for handwritten "369"] T P R F / Ent.No.369; 3) [rectangular; whitish; printed in black ink] At light; 4) [rectangular; grayish; printed in black ink] L. C. Scaramuzza / Collector; 5) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / insulicola / Wibmer 1989.

Point-mounted. Deposited in MCZC.

REMARKS AND COMPARATIVE NOTES. This species is tentatively assigned to the *elegantulum* group, based primarily on the scale pattern and color of the cuticle, although it does not have some of the other characters shared by the three other species of the group. The less elongate prothorax and reticulate (instead of alveolate) hind coxae separate *T. insulicola* from all others in the group. It has smaller and shallower elytral strial punctures than *T. curvisete* and *T. expansum*, and larger and denser punctures on the flanks of the prothorax than *T. elegantulum*.

RANGE. Known only from Cuba in the Greater Antilles (see Fig. 125).

MATERIAL EXAMINED. Holotype, allotype, 4 paratypes, and 2 non-paratypes (NP) (8 specimens) from ELSC, MCZC and USNM, with the following data: **CUBA: [Ciego de Avila]**: Baraguá, at light, 9-VIII-27 (holotype), 13-X-27 (1), 16-X-27 (1 + 2NP), L.C.Scaramuzza. **Cienfuegos**: Soledad, 13-XI-26 (1), tread: swampy brook 8-XI-26 (allotype), Darlington. **[Granma]**: 2.0 km SE Cayamas, 20°32'N 76°53'W, 15m 23-IX-80 (1) E.L.Sleeper. One paratype each will be deposited in CWOB and GJWC.

The *glabrescens* group

DESCRIPTION. **Rostrum.** Usually with distinct sulcus between dorsal portions of scrobes; dorsal surface strongly rugosely punctate on most of basal 4/7-3/5, apical 3/7-2/5 mostly moderately rugosely punctate. **Prothorax.** Scales rather scarce on disc, more obvious near margins (forming few clusters or weakly distinct, mostly discontinuous bands) and along midline; punctures weakly to moderately distinct, small on disc, and on flanks moderately to very distinct throughout, much larger and deeper than those on disc throughout or only on apical 2/3. **Elytra.** Strial grooves distinct to very distinct on at least apical 3/4 of disc; most intervals with one to three rows of mostly minute to short, fine setae arising from mostly moderately to very distinct punctures. **Abdomen.** Sternum 5 lacking impressions; punctures small to medium-sized on sterna 1-2, and medium to large on sterna 3-5. **Legs.** Outer angle of hind coxal cavity (Fig. 31) almost completely open (apex of metepisternum rounded off and lateral basal angle of abdominal sternum 1 usually somewhat pointed, rarely subtruncate); femur slightly to moderately expanded near base

(sometimes somewhat impressed subbasally), with surface mostly strongly rugosely striate; praemucro *ca* 1/4-1/6 from apex of tibia on fore and middle legs, usually minute (or obsolete) on hind legs in males. Semiaquatic.

REMARKS AND DIAGNOSTIC CHARACTERS. This group is known from central South America, with the two species largely sympatric throughout their known ranges in Argentina, Bolivia and Paraguay. The *glabrescens* group can be recognized by the following combination of characters: scales rather scarce on pronotum, more obvious near margins (forming few clusters or weakly distinct bands) and along midline; strial grooves distinct to very distinct on at least apical 3/4 of disc of elytra; outer angle of hind coxal cavity (Fig. 31) almost completely open (apex of metepisternum rounded off and lateral basal angle of abdominal sternum 1 usually somewhat pointed); and femora slightly to moderately expanded near base, sometimes impressed subbasally.

SPECIES INCLUDED.

14. *T. lacordairei* n. sp.

15. *T. glabrescens* n. sp.

14. *Tyloderma lacordairei* Wibmer, new species
(Figs. 51, 93, 129)

HOLOTYPE MALE. Body very elongate suboval; cuticle mostly moderately shining, mostly brownish red, with prothorax and small areas of elytra reddish brown, meso- and metasternum, part of abdominal sternum 1 and base of legs somewhat darker, and antennae light brownish; scales mostly moderately broad, yellowish white. **Rostrum**. In lateral view, weakly set off from frons, with moderately long, cuneiform (broader toward apex), moderately deep sulcus between dorsal portions of scrobes, and few scales on basal 2/5. **Head**. Frontal sulcus short, shallow, scarcely distinct; punctures dense to very dense. **Prothorax**. 1.12 X as long as wide; scales located mainly along midline and near margins forming weakly distinct, mostly discontinuous bands on disc, and few (single) on flanks; punctures very distinct throughout on flanks, much larger and deeper than those on disc. **Elytra**. 1.87 X as long as wide, 2.15 X as long as prothorax; scales on each elytron forming elongate spot at base of stria 2, small spot on humerus, small spot on stria 5 *ca* 1/5 from base, small spot on interval 4 *ca* 3/10 from base, and weakly to moderately distinct, transverse band near declivity (narrower toward suture); strial punctures almost round to somewhat irregularly shaped, large, deep, most separated by own diameter or less (moderately unevenly distributed) on basal 2/5; strial grooves very distinct on apical 3/4 (1 distinct throughout), deeper toward apices; most intervals distinctly narrower than strial punctures, moderately to strongly undulate on basal 2/5, mostly weakly to moderately convex throughout (2 strongly, and 3 and 9 very strongly convex on apical portions), each with one (two near suture) row(s) of minute to very short, fine setae arising from weakly to moderately distinct punctures. **Mesosternum**. Lateral areas above middle coxae with moderately narrow scale on anterior 1/2; mesepisternum with some moderately narrow to broad scales (few along anterior margin). **Metasternum**. Lateral areas moderately abruptly, moderately depressed in front of hind coxae. **Legs**. Femur slightly expanded near base (but not distinctly impressed) on fore and middle legs, moderately expanded, somewhat irregularly impressed on hind legs; uncus weakly curved on fore legs, almost straight on middle and hind legs, arising from inner apical angle of tibia; praemucro small, *ca* 1/5-1/6 from apex of tibia on fore and middle legs, obsolete on hind legs. **Genitalia**. See Fig. 51. **Length**. Pronotum + elytra: 3.68 mm (1.17 + 2.51).

ALLOTYPE FEMALE. Similar to male except uncus weakly to moderately curved on all legs, arising between middle of apex of tibia and inner apical angle, moderately oblique to axis of tibia on all legs; praemucro large, apical. **Genitalia**. See Fig. 93. **Length**. Pronotum + elytra: 4.09 mm (1.26 + 2.83).

INTRASPECIFIC VARIATION. The scales are whitish yellow to light yellow. The rostral sulcus may be short, narrow, moderately shallow, to long, deep; when obsolete, often an impunctate median area is present. The frontal sulcus may be medium-sized, moderately shallow, or obsolete, or the frons may have a round, shallow impression. The prothorax has a ratio (length/width) of 1.02-1.13 (1.07 ± 0.03), and the elytra are 1.82-2.00 (1.91 ± 0.05) times as long as wide, and 2.13-2.44 (2.26 ± 0.10) times as long as the prothorax. The scales may be more abundant on some specimens, and sometimes most of the intervals are almost as wide as the strial punctures on the basal 2/5. The lateral areas of the mesosternum above the middle coxae may have one to three setae and/or scales, and the lateral areas of the metasternum may be only moderately gradually depressed in front of the hind coxae. The praemucro is somewhat larger in some males, and only medium-sized and/or subapical in some females. Length, pronotum + elytra: 2.71-4.66 mm (3.78 ± 0.39).

ETYMOLOGY. It is my pleasure to name this species after the French coleopterist Jean T. Lacordaire, who published the first comprehensive higher classification of the beetles of the world.

TYPE LOCALITY. Bolivia, Departamento de Santa Cruz, 10 miles west of Puerto Banegas.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1)

[rectangular; white; printed in black ink] BOLIVIA,S.C.,10 / mi.W.Pto.Banegas / March25,1978 at / nightCW&L.O'Brien; 2) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / lacordairei / Wibmer 1989.

Point-mounted. Deposited in CWOB.

REMARKS AND COMPARATIVE NOTES. The more abundant scales on the pronotum and elytra, and the larger strial punctures on the basal 2/5 of the elytra distinguish this species from *T. glabrescens*. Although *T. lacordairei* may be confused with species in the *aeneotinctum* group, it has distinctly larger and deeper punctures on the head, flanks of the prothorax, and especially throughout the abdominal sterna, and lacks impressions on sternum 5.

PLANT ASSOCIATIONS. Four specimens were collected on *Ludwigia* sp. (Onagraceae).

RANGE. Known from Argentina, Bolivia, and Paraguay (Fig. 129).

MATERIAL EXAMINED. Holotype, allotype, 59 paratypes, and 3 non-paratypes (NP) (64 specimens) from CWOB, MACN, MLPC, MNHP, MZSP, NZAC and USNM, with the following data: **ARGENTINA: Buenos Aires:** (1) J.Bosq, (3) H.Richter, (1) [no collector]; Delta [del Río Paraná] (1) [no collector]; Prov. [Partido?] de Quilmes 2-II-19 (1) [no collector]; Quilmes (2) [no collector]; San Fernando, II-54 (1), IV-54 (1), XII-53 (1), XII-54 (1), Daguerre; San Isidro 3-V-31 (1) J.B.Daguerre; Tigre I-58 (1) Daguerre. **Corrientes:** 3 km E Corrientes, night 18-I-89 (1) C.& L.O'Brien & Wibmer. **Formosa:** 22 km W Clorinda 26-I-89 (1) C.W.& L.O'Brien & G.Wibmer. **Misiones:** Puerto Esperanza 21-I-89 (1) C.& L.O'Brien & G.Wibmer. **Santa Fe:** Rosario IX-61 (1) A.Martínez. **Tucumán:** 5 km S Lules, at night 19-X-68 (13 + 1NP) L.& C.W.O'Brien. **BOLIVIA: Santa Cruz:** 4 mi E Cotoca, at night 21-IV-78 (1) C.W.O'Brien & Marshall; 10 mi W Puerto Banegas, at night 25-III-78 (allotype + 9) G.B.Marshall, at night 25-III-78 (holotype + 1) C.W.& L.O'Brien; 4 mi E Santa Cruz, at night 21-IV-78 (1), at night, on *Ludwigia* (erect, 3ft tall) 21-IV-78 (3 + 1NP), C.W.O'Brien & Marshall. **PARAGUAY: Central:** Asunción 5-VII-68 (4) L.& C.W.O'Brien; Capiatá 7-VII-68 (4 + 1NP) C.W.& L.O'Brien; 3 km E Ypacaraí, at night, 6-VII-68 (1), 7-X-68 (1), 10-X-68 (2), L.& C.W.O'Brien. Paratypes will be deposited also in BMNH, DZUP and GJWC.

15. *Tyloderma glabrescens* Wibmer, new species
(Figs. 31, 52, 94, 131)

HOLOTYPE MALE. Body elongate suboval; cuticle weakly shining on head, basal 2/5 of rostrum, prothorax, mesosternum and mesopleura, mostly shining on disc of elytra, moderately shining elsewhere, mostly blackish red, with prothorax, small areas of elytra, part of venter and most of legs reddish black, and antennae brownish red; scales moderately narrow to moderately broad, whitish. **Rostrum.** In lateral view, moderately set off from frons, moderately subcarinate on *ca* basal 2/5, and with long, moderately narrow to moderately broad, moderately deep to deep sulcus between dorsal portions of scrobes. **Head.** Frontal impression broad, moderately shallow; punctures moderately dense to dense. **Prothorax.** 1.05 X as long as wide; scales relatively scarce on disc, most located along midline and near margins (forming small submedian cluster *ca* 3/5 from base), and few on flanks; punctures moderately to very distinct throughout on flanks, much larger and deeper (especially above fore coxae) than those on disc on apical 2/3 and somewhat to moderately larger and deeper on basal 1/3. **Elytra.** 1.67 X as long as wide, 2.09 X as long as prothorax; scales scarce, forming on each elytron few clusters of 2-6 each, not all symmetrical on both elytra; strial punctures almost round, most medium-sized (some large), moderately deep to deep, most separated by 2 diameters or more (moderately evenly distributed) on basal 2/5; strial grooves very distinct throughout on disc (deeper toward apices), subobsolete to weakly distinct on basal 2/5 of flanks; intervals much wider than strial punctures (moderately wider near base) on basal 2/5, almost straight except near base, moderately convex on basal 2/3, most strongly convex on apical 1/3, most with two or three rows of short, fine setae arising from moderately to very distinct punctures. **Mesosternum.** Lateral areas above middle coxa with some short to medium-sized, moderately fine, recumbent to suberect setae; mesepisternum with some short, moderately fine, recumbent setae, and few scales (few setae and scales along anterior margin). **Metasternum.** Lateral areas abruptly, strongly depressed in front of hind coxae. **Legs.** Femur slightly expanded near base, with moderately distinct, broad impression (less obvious on hind legs); uncus almost straight, arising from inner apical angle of tibia (especially on hind legs); praemucro medium-sized on fore and middle legs, minute (almost indistinct) on hind legs, *ca* 1/4-1/5 from apex of tibia on all legs. **Genitalia.** See Fig. 52. **Length.** Pronotum + elytra: 4.25 mm (1.37 + 2.88).

ALLOTYPE FEMALE. Similar to male except uncus weakly to moderately curved, arising near middle of apex of tibia, moderately oblique to axis of tibia on all legs; praemucro large, subapical. **Genitalia.** See Fig. 94. **Length.** Pronotum + elytra: 4.83 mm (1.57 + 3.26).

INTRASPECIFIC VARIATION. The rostrum may not be subcarinate, or only weakly so, the rostral sulcus sometimes is subobsolete, and the frontal impression may be shallow, weakly distinct, or obsolete.

The prothorax has a ratio (length/width) of 0.96-1.07 (1.02 ± 0.03), and the elytra are 1.65-1.78 (1.72 ± 0.04) times as long as wide, and 1.99-2.44 (2.23 ± 0.10) times as long as the prothorax. The strial grooves may be very deep throughout on the disc, and the intervals may have short to medium-sized setae. The femoral impressions are almost indistinct on some of the legs of a few specimens, and the praemucro is small (more obvious) on the hind legs of some males. Length, pronotum + elytra: 3.80-5.27 mm (4.59 ± 0.41).

ETYMOLOGY. The Latin participle *glabrescens* means becoming hairless.

TYPE LOCALITY. Bolivia, Departamento de Santa Cruz, 4 miles east of Santa Cruz.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] BOLIVIA,Sta.Cruz, / 4mi.E.Sta.Cruz,at / night4-21-1978CW / O'Brien&Marshall; 2) [rectangular; white; printed in black ink] on *Ludwigia* / (erect,3'tall); 3) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / glabrescens / Wibmer 1989.

Point-mounted. The club and last 3 funicular segments of the left antenna are missing, and the 5th tarsal segment of the left fore leg is broken off about 1/3 from the base. Deposited in CWOB.

REMARKS AND COMPARATIVE NOTES. The scarcer scales and very distinct elytral strial grooves distinguish this species from all others in the genus, and the smaller strial punctures on the basal 2/5 of the elytra distinguish it also from *T. lacordairei.*

PLANT ASSOCIATIONS. A few specimens were obtained on *Ludwigia* sp. and *L. peruviana* (L.) Hara (Onagraceae).

RANGE. Known from Argentina, Bolivia, and Paraguay (see Fig. 131).

MATERIAL EXAMINED. Holotype, allotype, and 28 paratypes (30 specimens) from CWOB, ELSC and MACN, with the following data: **ARGENTINA**: **Corrientes**: Santo Tomé X-28 (9) [no collector]. **Formosa**: Gran [as Grau] Guardia II-53 (1) [no collector]. **BOLIVIA**: **Santa Cruz**: 4 mi E Cotoca, at night 21-IV-78 (4) C.W.O'Brien & Marshall; 5 mi W Puerto Banegas, on *Jussiaea peruviana* 25-III-78 (2) C.W.& L.B.O'Brien; 10 mi W Puerto Banegas, at night 25-III-78 (3) G.B.Marshall; Saavedra Res. Sta., UV trap 22-III-78 (2) C.R.Ward & C.W.O'Brien; 4 mi E Santa Cruz, at night 21-IV-78 (2), at night, on *Ludwigia* (erect, 3ft tall) 21-IV-78 (holotype + allotype + 4), C.W.O'Brien & Marshall. **PARAGUAY**: **[Central]**: Capiatá 6-VII-68 (1) L.& C.W.O'Brien. Paratypes will be deposited also in BMNH, DZUP, GJWC, MLPC and USNM.

The *lepidogramma* group

DESCRIPTION. Cuticle mostly light brownish to brownish red, with some darker areas (mainly most of flanks of prothorax and elytra, and moderately to very distinct oblique fascia near middle of disc of each elytron [Fig. 13]); scales (Fig. 13) mostly short, moderately broad to broad cuneiform. **Rostrum**. In lateral view, scarcely to weakly set off from frons (Fig. 24); dorsal surface smooth throughout, or weakly rugosely striate on basal 1/2. **Head**. Covered with moderately sparse to moderately dense scales; interocular distance somewhat to moderately narrower than rostrum at lower margins of eyes, and frons with short to long, narrow to broad, moderately shallow to very deep sulcus sometimes reaching vertex; punctures scarcely to weakly distinct (Fig. 24). **Prothorax**. Postocular lobes strongly rounded (Fig. 24); scales unevenly scattered on disc, somewhat denser near margins (sometimes forming weakly distinct bands), and some sparse on flanks; punctures (Fig. 13) scarcely to weakly distinct, minute to very small on disc (usually somewhat larger in front of subapical constriction). **Elytra**. Scales mostly in incomplete longitudinal rows (covering large areas of disc, or mainly along sides of striae, with median area of intervals mostly glabrous); strial punctures mostly medium-sized (some large) on basal 2/5 of disc, moderately distinct on most of apical 1/2. **Metasternum**. Lateral areas moderately gradually, weakly to moderately depressed in front of hind coxae. **Abdomen**. Sternum 5 with one or three subapical impressions; punctures mostly very small to small on sterna 1-4, and mostly small to medium-sized on sternum 5. **Legs**. Outer angle of hind coxal cavity partially to largely closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin not to moderately produced forward); uncus arising from or near outer margin of tibia of both sexes; praemucro present on all legs in males, almost subapical to *ca* 1/6 from apex of tibia. Semiaquatic or aquatic.

REMARKS AND DIAGNOSTIC CHARACTERS. This group ranges from northwestern Mexico to central Argentina. It can be recognized by the following combination of characters: cuticle darker mainly on most of flanks of prothorax and elytra and as oblique fascia near middle of disc of each elytron (Fig. 13); scales mostly short, moderately broad to broad cuneiform (Fig. 13), moderately sparse to moderately dense on head, mostly in incomplete longitudinal rows on elytra (Fig. 13); lateral areas of metasternum moderately gradually, weakly to moderately depressed in front of hind coxae; and uncus arises from or near outer margin of tibia of both sexes.

SPECIES INCLUDED.
16. *T. natator* n. sp.
17. *T. lepidogramma* n. sp.
18. *T. affine* n. sp.

16. *Tyloderma natator* Wibmer, new species
(Figs. 24, 53, 95, 133)

Tyloderma sp. B; Cordo & DeLoach 1982:294 [biology].

HOLOTYPE MALE. Elytra (in lateral view) weakly convex in basal 2/3; cuticle with most of rostrum, most of antennae, most of vertex, pronotum, postocular lobes and flanks of prothorax above fore coxae, scale covered areas of elytra, and most of venter and legs light brownish to brownish, antennal club dark brownish, and remaining areas brownish black to blackish brown. **Rostrum.** In lateral view, scarcely set off from frons, moderately evenly, strongly arcuate (Fig. 24), with median carina (well-developed for short distance near middle, weakly developed elsewhere); dorsal surface weakly rugosely striate on basal 1/2, apical 1/2 smooth. **Head** (Fig. 24). Punctures weakly distinct, very small to small; eyes with dorsal margin scarcely angulate with head. **Prothorax.** 1.06 X as long as wide; pronotal disc with scales somewhat denser along midline and forming weakly distinct lateral bands (broader, more evident behind subapical constriction); punctures on flanks weakly to moderately distinct on most of apical 3/5 (much larger and deeper than those on disc, especially above fore coxae) and scarcely distinct to subobsolete on basal 2/5. **Elytra.** 1.75 X as long as wide, 2.50 X as long as prothorax; scales on each elytron covering large areas of disc except for narrow oblique fascia on basal 1/4, broad oblique fascia near middle, and most of apical 1/4; most strial punctures separated by less than own diameter on basal 2/5 of disc (sparser on striae 2 and 4); strial grooves subobsolete on basal 2/5 (weakly distinct on striae 1, 9 and 10), weakly to very distinct on apical 3/5 (2nd very deep on apical 1/6); intervals mostly weakly convex (9-10 moderately to strongly convex on basal 2/5), 2, 3 and 9 moderately to strongly convex near apex of each elytron but not forming regularly shaped carina. **Mesosternum.** Setae medium to long, subrecumbent to suberect, arising from small to medium-sized, moderately shallow punctures, lateral areas above middle coxae with several medium to long, fine to moderately fine setae; mesepisternum with several long, moderately fine to moderately coarse (some scalelike) setae (some along anterior margin), mesepimeron with several short, fine to moderately fine setae. **Metasternum.** Median area weakly concave; punctures moderately shallow to moderately deep, moderately dense to dense on median area, each with medium to long, fine, subrecumbent to suberect seta, dense to very dense on lateral areas, each with long, fine to moderately fine, mostly subrecumbent seta. **Abdomen.** Sternum 5 very weakly convex, with three (medium-sized, moderately shallow, median; small, shallow, lateral) subapical impressions. **Legs.** Moderately slender to slender; outer angle of hind coxal cavity partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin not produced forward); anterior surface of hind coxa finely reticulate; femur mostly moderately rugosely striate; tibia weakly rugosely striate; praemucro medium-sized, *ca* 1/8 from apex of tibia, weakly oblique to axis of tibia and directed away from uncus on all legs. **Genitalia.** See Fig. 53. **Length.** Pronotum + elytra: 3.92 mm (1.12 + 2.80).

ALLOTYPE FEMALE. Similar to male except metasternum weakly to moderately convex on median area and abdominal sternum 1 moderately convex on middle; praemucro large, subapical. **Genitalia.** See Fig. 95. **Length.** Pronotum + elytra: 4.50 mm (1.31 + 3.19).

INTRASPECIFIC VARIATION. Part of the funicle may be dark brownish, and the darker areas of the body are larger or smaller (mostly blackish in many specimens). The rostrum may be only weakly to moderately subcarinate near the middle, or sulcate on the basal 1/2 or only near the middle, and the dorsal surface may be completely smooth. The punctures are minute on the head of some specimens. The prothorax has a ratio (length/width) of 1.03-1.13 (1.08 ± 0.03), and the elytra are 1.70-1.88 (1.76 ± 0.04) times as long as wide, and 2.30-2.62 (2.43 ± 0.07) times as long as the prothorax. The strial punctures may be fairly evenly distributed throughout on the basal 2/5, often somewhat sparser than in the holotype. The strial grooves may be fairly distinct throughout (especially on striae 9-10), although stria 2 sometimes is only moderately deep on the apical 1/6. The intervals may be moderately convex throughout, and occasionally 2, 3 and 9 form a moderately developed apical carina. The setae on the lateral areas of the metasternum may be long to very long. The median impression of abdominal sternum 5 may be medium to large, shallow to moderately deep, and the lateral impressions may be almost indistinct. The praemucro is located near 1/6 from the apex of the tibia in many males, and it is apical in some females. Length, pronotum + elytra: 3.14-4.81 mm (4.18 ± 0.27).

ETYMOLOGY. The Latin noun *natator* means swimmer. This is one of several species of *Tyloderma* able to swim well; one individual was observed swimming without difficulty upside down.

TYPE LOCALITY. Uruguay, Departamento de Colonia, Reducto, approximately 10 kilometers northeast of Ruta 21, kilometer 184 (about 13 kilometers north-northeast of Colonia del Sacramento).

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] URUGUAY. Colonia, / Reducto, G.J. & Z. / Wibmer, 29-XII-1978; 2) [rectangular; white; printed in black ink] hand-picked or / treaded *Ludwigia* / *peploides* ssp. / *montevidensis*; 3) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / natator / Wibmer 1989.

Point-mounted. The tarsal claws of the left middle leg are missing. From GJWC; deposited in CWOB.

REMARKS AND COMPARATIVE NOTES. The distinctly longer, finer and denser pubescence of the mesepisternum, mesepimeron and lateral areas of the metasternum distinguish this species from *T. affine*, and the somewhat coarser pubescence of the areas mentioned above and the known range separate *T. natator* from *T. lepidogramma*.

PLANT ASSOCIATIONS. This species almost certainly breeds in *Ludwigia peploides* (H.B.K.) Raven (Onagraceae) as suspected by Cordo & DeLoach (1982). About 1,500 of the specimens studied have been hand-picked, treaded or swept from *Ludwigia peploides*, or *L. peploides* ssp. *montevidensis* (Sprengel) Raven, 81 were treaded or swept from *Ludwigia uruguayensis* (Camb.) Hara, and a few were collected on *L. repens* Forst. [probably misidentifications of *L. peploides*]. One individual was found on *Pistia* sp. (Araceae), probably an incidental record.

RANGE. Known from northeastern Argentina, Paraguay, and Uruguay (see Fig. 133).

MATERIAL EXAMINED. Holotype, allotype, 680 paratypes, and 985 non-paratypes (NP) (1,667 specimens) from CJDL, CWOB, GJWC, MACN, MLPC, MNHP, MZSP, NZAC, URMC and USNM, with the following data: **ARGENTINA**: **Buenos Aires**: [no date] (3) H.Richter, 4-I-11 (1), 11-XII-10 (1), [no collector]; Dique Luján, *Ludwigia repens* 21-II-75 (1) [no collector]; Ezeiza, *Jussiaea repens* var. *montevidensis* 25-I-67 (1) L.Andres; Punta Lara XII-59 (1) A.Martínez; San Fernando IV-56 (1) Daguerre; 13 mi E Zárate (Hwy. 12), at night, on *Ludwigia* and general sweeping 14-IV-78 (5) C.W.O'Brien. **Chaco**: Ruta 90, 77 km NW of Resistencia, on *Pistia* 24-III-75 (1) [no collector]. **Corrientes**: Ruta 27, 40 km NE of Goya, sweeping *Ludwigia repens* 13-III-75 (1) [no collector]. **Entre Ríos**: 25-IX-51 (2) Kuschel; 28 mi S Ceibas (Hwy. 12), treading *Ludwigia* & *Myriophyllum* 14-IV-78 (6) C.W.O'Brien; Concordia (1) Daguerre; La Paz II-30 (1) Bosq; Paraná (2) Daguerre; Ruta 12 (antiguo lugar de *Myriophyllum*), *Ludwigia repens* 6-III-75 (2) [no collector]. **Santa Fe**: 4-II-31 (1) Bridarolli, [no date] (5) [H.Richter]. **PARAGUAY**: **Central**: 2 km W Luque 23-VI-69 (6 + 2NP) P.& P.Spangler; 25 km W Luque 23-VI-69 (1 + 1NP) P.& P.Spangler. **URUGUAY**: **Artigas**: Arroyo Tres Cruces Grande 18-II-55 (1) C.S.Carbonell. **Canelones**: Camino Las Brujas, aguas cañadas 9-X-38 (1) [no collector]. **Colonia**: *ca* 2 km E Ruta 21 km 186, at night 30-XII-78 (25 + 1NP) G.J.& Z.Wibmer; Arroyo [de las] Limetas 10-I-62 (1) C.Morey, M.Monné & C.S.Carbonell; Barra Arroyo El Caño, hand-picked *Ludwigia* 7-I-79 (3) G.J.& Z.Wibmer; Paso de la Arena, [*ca*] Ruta 21 km 184, 16-I-72 (1), 23-I-72 (1), G.J.Wibmer & Z.Assandri, at night, on *Ludwigia peploides* var. *montevidensis*, 18-I-76 (48), 22-I-76 (17), 23-I-76 (43), 15-II-76 (29 + 2NP), Z.I.& G.J.Wibmer; Piedra de los Indios, Ruta 21, at light 31-XII-85 (1) G.J.Wibmer, 6-I-77 (1), 28-XII-78 (6), 29-XII-78 (1), at night, 10-XII-78 (1), 23-XII-78 (2), G.J.& Z.Wibmer, de noche, a la luz 23/31-XII-71 (2) G.J.Wibmer & Z.Assandri, at night, on *Ludwigia peploides* var. *montevidensis* 31-I-76 (36 + 1NP) Z.I.& G.J.Wibmer; Reducto, hand-picked *Ludwigia peploides* ssp. *montevidensis* 5-XII-78 (50 + 35NP), hand-picked or treaded *Ludwigia peploides* ssp. *montevidensis* 29-XII-78 (holotype + allotype + 309 + 860NP), on *Ludwigia peploides* var. *montevidensis* 29-I-76 (4), swept *Ludwigia peploides* ssp. *montevidensis* 29-XII-78 (17NP), G.J.& Z.Wibmer; San Pedro, treaded *Ludwigia peploides* ssp. *montevidensis* 5-I-79 (3 + 1NP), treaded or swept *Ludwigia uruguayensis* 5-I-79 (13), G.J.Wibmer, 11-I-79 (1), hand-picked or treaded *Ludwigia peploides* ssp. *montevidensis* 6-I-79 (6 + 20NP), swept *Ludwigia peploides* ssp. *montevidensis* 8-XII-78 (4), treaded *Ludwigia uruguayensis*, 6-I-79 (19 + 45NP), 11-I-79 (4), G.J.& Z.Wibmer. **Rivera**: Sierra de la Aurora, Arroyo de la Aurora, de noche, a la luz 12/26-I-71 (1) M.A.Monné, M.Moratorio, C.S.Morey & G.Wibmer. **Rocha**: Ruta 15, 13 km N La Paloma Jcn., treading *Ludwigia* 4-II-89 (2) C.W.& L.O'Brien & G.Wibmer; Ruta 14, 24 km SE Lascano 6-II-89 (1) C.W.& L.O'Brien & G.Wibmer. Paratypes will be deposited also in AMNH, BMNH, CBPC, CHAH, DEIC, DZUP, ELSC, FSCA, HAHC, HPSC, IRSB, MCZC, MNRJ, MPEG, RDCC, RSAC, TAMU and UCVM.

17. *Tyloderma lepidogramma* Wibmer, new species
(Figs. 13, 54, 96, 133)

HOLOTYPE MALE. Elytra (in lateral view) moderately convex in basal 3/4; cuticle light brownish, with head and rostrum brownish red, most of flanks of prothorax, macula and pair of fasciae on disc and most of flank of each elytron, and part of venter and legs dark brownish to brownish black. **Rostrum**. In lateral view, weakly set off from frons, moderately evenly, strongly arcuate, weakly subcarinate on apical 3/7, with short, narrow, shallow sulcus near middle, and with few scales near base; dorsal surface smooth

throughout. **Head.** Punctures mostly scarcely distinct, minute; eyes with dorsal margin weakly angulate with head. **Prothorax** (Fig. 13). 1.07 X as long as wide; pronotal disc with scales somewhat denser near margins but not forming distinct lateral bands; punctures on flanks moderately to very distinct throughout, much larger, deeper and denser than those on disc. **Elytra** (Fig. 13). 1.89 X as long as wide, 2.38 X as long as prothorax; each elytron with three dark areas on disc (elongate macula *ca* 1/6 from base between striae 1 and 2; very distinct, oblique fascia near middle reaching stria 1 *ca* 3/5 from base; and weakly distinct fascia near declivity, broader, more distinct toward but not reaching suture), and scales mainly along sides of striae (median area of intervals mostly glabrous), somewhat sparser on apical 1/4, finer, much sparser to obsolete on darker areas; most strial punctures separated by own diameter or less on basal 2/5; strial grooves distinct throughout (especially on apical 3/5); intervals moderately convex on basal 1/2, more strongly so toward apex of each elytron, not forming regularly shaped, apical carina. **Mesosternum.** Setae short to medium-sized, subrecumbent to suberect, arising from small, moderately shallow punctures, lateral areas above middle coxae with several long, fine setae; mesepisternum with several long, fine to moderately fine setae (some along anterior margin), mesepimeron with some medium-sized, fine setae. **Metasternum.** Median area almost flat; punctures deep, dense on median area, somewhat shallower, unevenly denser on lateral areas, each with long, fine, subrecumbent seta. **Abdomen.** Sternum 5 weakly convex, with large, moderately shallow, subapical impression. **Legs.** Moderately slender to slender; outer angle of hind coxal cavity partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin not produced forward); anterior surface of hind coxa finely reticulate; femur almost smooth to weakly rugosely striate; tibia almost smooth; praemucro minute (scarcely distinct on fore legs), almost subapical, almost perpendicular to axis of tibia on all legs. **Genitalia** (of paratopotype). See Fig. 54. **Length.** Pronotum + elytra: 3.95 mm (1.17 + 2.78).

ALLOTYPE FEMALE. Similar to male except abdominal sternum 1 strongly convex on middle; praemucro medium-sized, apical. **Genitalia.** See Fig. 96. **Length.** Pronotum + elytra: 4.18 mm (1.21 + 2.97).

INTRASPECIFIC VARIATION. The rostrum may not be obviously subcarinate, and the rostral sulcus also may be medium to long, moderately broad, moderately deep (broader and deeper toward the apex). The prothorax has a ratio (length/width) of 1.01-1.12, and the elytra are 1.79-1.96 times as long as wide, and 2.36-2.59 times as long as the prothorax. The darker areas of the disc are variable in size, the median fascia always is quite evident, whereas the basal macula and apical fascia sometimes are less obvious (the latter mainly as a large macula on intervals 2-3) to almost indistinct. Some mesepisternal setae may be short. The praemucro is a little larger, more obvious in three of the five male paratypes. Length, pronotum + elytra: 3.90-4.60 mm.

ETYMOLOGY. The Greek compound noun *lepidogramma* means a scaly line.

TYPE LOCALITY. Panamá, Zona del Canal, Isla Barro Colorado.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink except for handwritten "14"] CANAL ZONE,Barro / Colorado Is.,UV / trap 1 (3m.high) / 14-X-1979H.Wolda; 2) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / lepidogramma / Wibmer 1989.

Point-mounted. Deposited in CWOB.

REMARKS AND COMPARATIVE NOTES. The punctures on the flanks of the prothorax are very distinct throughout, whereas they are only weakly distinct on the basal 1/3 in the sympatric *T. affine*, and the median elytral fascia is more obvious to the naked eye and more regularly shaped, and the rostrum is more strongly arcuate than in that species. The allopatric *T. natator* has more obvious lateral bands of scales on the pronotal disc (especially evident behind the subapical constriction), and almost as long but coarser setae on the mesepisternum, mesepimeron, and lateral areas of the metasternum.

PLANT ASSOCIATIONS. Two specimens were collected on *Ludwigia repens* Forst. (Onagraceae).

RANGE. Known only from Panama (see Fig. 133).

MATERIAL EXAMINED. Holotype, allotype, and 10 paratypes (12 specimens) from CWOB, HPSC and USNM, with the following data: **PANAMA**: Stump Lake, *Ludwigia repens* 21-IX-82 (2) Habeck & Bennett. **Canal Zone**: Barro Colorado Is., UV trap 1 (3m high), 16-V-77 (1), 16-V-80 (1), 24-V-77 (1), 14-X-79 (holotype), 18-XI-77 (allotype), UV trap 3 (26m high), 11-VI-77 (1), 17-X-80 (1), 21-X-76 (1), H.Wolda; Gamboa, Chagres River, marsh emergent vegetation 1-II-75 (1) H.P.Stockwell. **Colón**: Río Chagres 21-IX-82 (1) R.W.Flowers. One paratype each will be deposited in BMNH and GJWC.

18. *Tyloderma affine* Wibmer, new species
(Figs. 55, 97, 126, 136)

HOLOTYPE MALE. Elytra (in lateral view) moderately convex in basal 3/4; cuticle brownish red, with antennae, most of elytra, tibiae and tarsi light brownish, and flanks of prothorax and most of flanks

and small areas on disc of elytra darker. **Rostrum**. In lateral view, weakly set off from frons, fairly evenly, moderately arcuate, with weakly developed carina on apical 1/2 (prominent near middle of rostrum), and some scales on basal 1/2; dorsal surface almost smooth throughout. **Head**. Punctures weakly distinct, small; eyes with dorsal margin weakly angulate with head. **Prothorax**. 1.10 X as long as wide; pronotal disc with scales somewhat denser along midline and near margins but not forming distinct bands; punctures on flanks much larger than those on disc (much deeper, very distinct on apical 2/3, shallow, weakly to moderately distinct on basal 1/3). **Elytra**. 1.73 X as long as wide, 2.24 X as long as prothorax; each elytron with three dark areas on disc (elongate macula *ca* 1/6 from base between striae 1 and 2; moderately distinct, oblique, somewhat discontinuous fascia on basal 1/2, reaching stria 2 slightly distad of middle; and weakly distinct fascia near declivity, broader, more obvious toward but not reaching suture), and scales mainly along sides of striae (median area of intervals mostly glabrous), somewhat sparser on apical 1/4, finer, much sparser to obsolete on darker areas; many strial punctures separated by *ca* own diameter on basal 2/5; strial grooves weakly to moderately distinct on basal 1/2, distinct on apical 1/2; intervals moderately convex on basal 1/2, more strongly so on apical 1/2, 2, 3 and 9 forming on each elytron moderately developed, oblique, apical carina. **Mesosternum**. Setae weakly distinct, short, mostly subrecumbent, arising from minute (almost indistinct) punctures, lateral areas above middle coxae with some short, fine to moderately fine (few scalelike) setae; mesepisternum with few scales along anterior and ventral margins, mesepimeron with few scarcely distinct, very short, fine setae. **Metasternum**. Median area almost flat; punctures deep, unevenly dense on median and lateral areas, each with medium-sized seta, mostly fine, suberect on median area, mostly moderately fine to moderately coarse (scalelike), subrecumbent on lateral areas. **Abdomen**. Sternum 5 almost flat, with three (medium-sized, median; small, lateral) deep, subapical impressions. **Legs**. Moderately slender to slender; outer angle of hind coxal cavity largely closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin moderately produced forward); anterior surface of hind coxa finely alveolate; femur almost smooth to weakly rugosely striate; tibia almost smooth; praemucro medium-sized, *ca* 1/7-1/8 from apex of tibia, weakly oblique to axis of tibia and directed away from uncus on all legs. **Genitalia** (of paratopotype). See Fig. 55. **Length**. Pronotum + elytra: 4.05 mm (1.25 + 2.80).

ALLOTYPE FEMALE. Similar to male except metasternum weakly convex on median area, and abdominal sternum 1 moderately to strongly convex on middle; praemucro large, subapical on fore legs, apical on middle and hind legs, almost perpendicular to axis of tibia. **Genitalia**. See Fig. 97. **Length**. Pronotum + elytra: 4.87 mm (1.52 + 3.35).

INTRASPECIFIC VARIATION. In general, the Mexican specimens have a less convex body seen in lateral view; the rostrum is weakly to moderately arcuate; the elytral intervals are less convex throughout; and the punctures on the lateral areas of the metasternum are somewhat smaller, unevenly sparser. In general, the specimens from South America have shallower, less obvious punctures on the head; smaller elytral strial punctures; one to three scales on the median area of the mesepisternum; the punctures on the lateral areas of the metasternum are somewhat smaller, unevenly sparser, but larger, deeper and denser than those on the median area; and the impressions on abdominal sternum 5 are shallower.

Overall for the species, the rostrum may be carinate or subcarinate throughout, or only scarcely to moderately subcarinate on the apical 1/2, and rarely, there is a short, moderately shallow sulcus about 2/5 from the base. Rarely there is a short frontal sulcus or fovea and a short sulcus or fovea at the vertex. The prothorax has a ratio (length/width) of 1.00-1.14 (1.08 ± 0.03), and in a few specimens some punctures are very distinct on the basal 1/3 of the flanks. The elytra are 1.71-1.94 (1.81 ± 0.06) times as long as wide, and 2.12-2.38 (2.27 ± 0.08) times as long as the prothorax. The darker areas of the disc are very variable in size, very distinct to subobsolete, the median fascia often irregularly shaped. The strial grooves may be distinct throughout, and the intervals may be moderately convex throughout. The punctures of the mesosternum may be very small (weakly distinct). The punctures on the lateral areas of the metasternum may be fairly evenly dense. The basal margin of abdominal sternum 1 may be only weakly produced forward; the impressions on abdominal sternum 5 may be larger or smaller than in the holotype (deeper, very distinct, or shallower, moderately distinct); and the praemucro may be small in males, occasionally closer to the apex of the tibia. Length, pronotum + elytra: 3.66-5.27 mm (4.32 ± 0.33).

ETYMOLOGY. The Latin adjective *affinis* means related to.

TYPE LOCALITY. Panamá, Provincia de Panamá, Tocumen.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] PANAMA:Prov. of Pan. / Tocumen,7-11-IX-70 / Diego Navas / blacklight trap; 2) [rectangular; red; printed in black ink] HOLOTYPE / Tylodema / affine / Wibmer 1989.

Point-mounted. The tarsal claws of the left hind leg are missing. Deposited in CWOB.

REMARKS AND COMPARATIVE NOTES. This species has the rostrum at most moderately arcuate (seen in lateral view), whereas it is strongly arcuate in *T. lepidogramma* and *T. natator*. In *T.*

affine, the elytra (seen in lateral view) are almost always evenly rounded (whereas they are declivate in the apical 2/5 in *T. lepidogramma* and *T. natator*) and more convex, and the punctures of the head are more obvious than in the latter two species.

PLANT ASSOCIATIONS. Two specimens were collected on *Ludwigia peploides* (H.B.K.) Raven, and four on *Oenothera mollissima* L. (both Onagraceae).

RANGE. Known from Argentina, Bolivia, Brazil, Colombia, Mexico, Panama, Paraguay, Uruguay, and Venezuela (see Figs. 126 and 136).

MATERIAL EXAMINED. Holotype, allotype, 116 paratypes, and 5 non-paratypes (NP) (123 specimens) from CBPC, CWOB, ELSC, FMNH, FSCA, GJWC, HAHC, MACN, MCZC, MLPC, MZSP, NZAC, UCVM, URMC and USNM, with the following data: **ARGENTINA**: **Buenos Aires**: (1) H.Richter; San Fernando, IV-56 (1), IV-58 (1), X-54 (1), XII-53 (2), XII-54 (2), XII-55 (2), Daguerre, III-53 (1) [no collector]; San Isidro, I-57 (1), III-57 (2NP), 3-V-31 (2), Daguerre, Buenos Aires, San Isidro, *Oenothera mollissima* L. 25-II-82 (4) H.& A.Howden. **Chaco**: 2 km N Resistencia 25-I-89 (4) C.W.& L.O'Brien & G.Wibmer. **Corrientes**: Charca Los Gitanos, Ruta 5 km 2, on *Ludwigia peploides* 20-X-82 (2) I.Y.Bruquetas; 3 km E Corrientes, night, 17-I-89 (3), 18-I-89 (3), C.& L.O'Brien & Wibmer. **Formosa**: 22 km W Clorinda 26-I-89 (2) C.W.& L.O'Brien & G.Wibmer; 34 km SW Clorinda 26-I-89 (5) C.W.& L.O'Brien & G.Wibmer. **BOLIVIA**: **Santa Cruz**: 500m XI-55 (2) Zischka; 4 mi E Portachuelo, at night 24-III-78 (1) G.B.Marshall, at night 27-III-78 (2 + 1NP) C.W.& L.O'Brien; 10 mi W Portachuelo, at UV light 26-IV-78 (1) C.W.O'Brien; Saavedra, Agr. Exp. Sta., blacklight trap, 4-I-60 (1), 5-I-60 (1), 27-XII-59 (1), R.B.Cumming; Prov. of San Esteban, Muyurina, 49 km N of Santa Cruz, 1120ft, blacklight trap 6-XII-59 (1) R.B.Cumming. **BRAZIL**: **Amazonas**: Manacapuru IX-36 (1) [collector illegible]. **Mato Grosso**: Cáceres, EMPA Res. Sta., UV trap, 23-I-85 (1), 31-I-85 (1), D.P.Wojcik. **Mato Grosso [do Sul]**: Corumbá 21/23-II-54 (1) C.Gans & F.Pereira. **Minas Gerais**: Arinos 6/8-XI-64 (4) Exp. Dep. Zool.; Pedra Azul XI-72 (5) M.Alvarenga. **Pará**: Belém, Utinga Reserve 9-VII-69 (1) P.& P.Spangler. **São Paulo**: Itú, Fazenda Pau d'Alho XII-63 (2) U.Martins; Salesópolis, Est. Biol. Boraceia 12-II-63 (1) L.Silva & H.Reichardt. **COLOMBIA**: **Amazonas**: Leticia, 700ft 8-VII-70 (1) H.& A.Howden. **Magdalena**: Río Frío (2 + 2NP) Darlington; Rodadero, Santa Marta, at light 25/30-IV-68 (1) B.Malkin. **MEXICO**: **Nayarit**: San Blas, blacklite 20w 30-VI-62 (1) E.L.Sleeper & R.C.Anderson; Tepic, light 20-VII-55 (2) R.B.& J.M.Selander. **Sinaloa**: 18 km N Los Mochis on Mex. 15 at Río Fuerte 7-IX-80 (1) S.W.Nichols. **PANAMA**: **Canal Zone**: Barro Colorado Is., UV trap 1 (3m high) 30-V-77 (1) H.Wolda; Gamboa, light trap near aquatic vegetation 30-VI-74 (1) H.P.Stockwell. **Panamá**: Tocumen, blacklight trap, 16/19-VI-70 (2), 20/24-VII-70 (1), 17/21-VIII-70 (1), 7/11-IX-70 (holotype + allotype + 11), 14/18-IX-70 (3), D.Navas. **PARAGUAY**: **[Central]**: 3 km E Ypacaraí, at night, 7-X-68 (1), 10-X-68 (3), C.W.& L.O'Brien. **[Cordillera]**: San Bernardino, Lago Ypacaraí, at night 11-X-68 (1) L.B.& C.W.O'Brien. **[Presidente Hayes]**: 7 km N Benjamín Acerval, night 12-X-68 (1) C.W.& L.O'Brien. **URUGUAY**: **Rivera**: Sierra de la Aurora, Arroyo de la Aurora, de noche, a la luz 12/26-I-71 (1) M.A.Monné, M.Moratorio, C.S.Morey & G.Wibmer. **VENEZUELA**: **Apure**: 5 km N San Juan de Payara, 350ft, at night 25-VII-88 (1) C.& L.O'Brien & Wibmer. **[Aragua]**: Maracay V-36 (1) P.Vogl. **Barinas**: Reserva Forestal Caparo, Campamento Cachicamo [as Cachicamos], 100m 6/14-VIII-69 (4) J.Salcedo & F.Zambrano. **Guárico**: Calabozo, Estación Biol. 23-VI-63 (1) C.Bordón. **Monagas**: Uverito, 19-IX-79 (1) C.J.Rosales, en la luz 14-XI-79 (1) C.J.Rosales & J.A. González. **Zulia**: Distrito Perijá, Municipio Libertad, El Milagro, 6 km E of Machiques, at light VI-82 (1) V.Linares; Distrito Perijá, Municipio Libertad, El Tarra, 100 km SW of Machiques, at light VII-82 (1) V.Linares. **[COUNTRY?]**: [probably ARGENTINA] (6) [no collector]. Paratypes will be deposited also in BMNH, DZUP, MNHP and RSAC.

The *aeneotinctum* group

DESCRIPTION. Cuticle usually mostly brownish red to reddish brown (in *T. inaequale* mostly brown to brownish black). **Head**. Scales scattered on surface, often somewhat denser around eyes and on middle of vertex; frons with short to long sulcus or small to large fovea. **Prothorax**. Postocular lobes weakly to moderately rounded; scales rather scarce, most near margins forming (at most) weakly to moderately distinct bands on disc. **Metasternum**. Median area often with broad, oval, smooth impression apicad of (or near) middle continued toward apex as moderately to very distinct sulcus, lateral areas moderately abruptly to abruptly, moderately to strongly depressed in front of hind coxae. **Abdomen**. Sternum 5 usually with three small to very large, moderately shallow to very deep, subapical impressions (lateral ones rarely subobsolete, or rarely all three indistinct, replaced by few medium-sized, deep punctures). **Legs**. Outer angle of hind coxal cavity partially (Fig. 32) to almost completely closed (Fig. 33) by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin not to distinctly produced forward); uncus usually arising near middle of apex of tibia in females, usually between middle of apex of tibia and inner apical angle in males.

REMARKS AND DIAGNOSTIC CHARACTERS. This group is the largest and most difficult in the genus because of the large amount of intraspecific variation present in many of the species. In closely related species not even the diagnostic characters are constant and need to be used in combination, and sometimes only the genitalia provide an absolute identification. The group is primarily Neotropical, with *T. aeneotinctum* reaching Florida in the United States, and *T. californicum* known only from the type locality in California. This latter species seems to be more closely related to the *T. innotatum* - *T. simile* - *T. obliquatum* complex of South America than to any other species in the group. The *aeneotinctum* group can be recognized by the following combination of characters: cuticle usually mostly brownish red to reddish brown; scales scattered on head, often somewhat denser around eyes and on middle of vertex; postocular lobes weakly to moderately rounded; metasternum often with broad, oval, smooth impression apicad of (or near) middle continued toward apex as moderately to very distinct sulcus; and uncus usually arises near middle of apex of tibia in females, usually between middle of apex of tibia and inner apical angle in males.

SPECIES INCLUDED.

19. *T. frontale* n. sp.
20. *T. striatum* (Pascoe)
21. *T. aeneotinctum* Champion
22. *T. diversum* n. sp.
23. *T. sayi* n. sp.
24. *T. danforthi* Wolcott
25. *T. innotatum* Hustache
26. *T. simile* n. sp.
27. *T. obliquatum* Hustache
28. *T. inaequale* Voss

19. *Tyloderma frontale* Wibmer, new species
(Figs. 21, 28, 56, 98, 138)

HOLOTYPE MALE. Elytra (in lateral view) moderately convex in basal 4/5; cuticle mostly dark brownish red to dark reddish brown, with some areas of elytra darker, and antennae brownish; scales mostly medium-sized, moderately narrow to moderately broad cuneiform, whitish yellow. **Rostrum.** In lateral view, strongly set off from frons (Fig. 21); dorsal surface moderately rugosely punctate on basal 1/2, with punctures small, moderately deep, unevenly dense, apical 1/2 mostly weakly to moderately rugosely punctate, with smaller, shallower, unevenly sparser punctures, each puncture with very short to short seta. **Head.** Interocular distance somewhat narrower than rostrum at lower margins of eyes, and frons with medium-sized, deep fovea toward vertex; punctures (Fig. 21) moderately to very distinct, small, moderately deep, dense to very dense on middle of frons, unevenly dense elsewhere; with narrow sulcus above each eye. **Prothorax.** 1.06 X as long as wide; postocular lobes moderately rounded (Fig. 21); scales not forming distinct lateral bands on disc; punctures moderately distinct, small, moderately shallow on disc (somewhat larger and deeper toward margins and on apical 2/5), and on flanks (Fig. 21) very distinct throughout, much larger and deeper than those on disc. **Elytra.** 1.71 X as long as wide, 2.22 X as long as prothorax; surface weakly to moderately maculate, and scales relatively scarce, more abundant on apical 1/2, located mainly along intervals; strial punctures large, most separated by 1/2 own diameter or less (fairly evenly distributed) on basal 2/5, weakly distinct on most of apical 1/4 (on striae 1-2 much larger and deeper on apical portions than immediately in front of declivity); strial grooves distinct throughout, very obvious on most of apical 1/2; most intervals narrower than strial punctures on basal 2/5, most weakly to moderately undulate, moderately convex on most of basal 1/2, strongly convex on most of apical 1/2, 3 and 9 somewhat tuberculate when fusing on apical portions but not forming regularly shaped carina. **Mesosternum.** Median area rounded on sides, not set off from lateral areas, lateral areas above middle coxae with two or three short to very short, fine setae; mesepisternum with few short to medium-sized, mostly moderately narrow to moderately broad scales, mesepimeron with few minute setae. **Metasternum.** Median area with moderately narrow, moderately shallow, moderately irregularly shaped sulcus on apical 1/2. **Abdomen.** Sternum 5 with three (very large, median; large, lateral) deep impressions; punctures medium-sized, deep on most of sternum 1, small, moderately deep on apical portion of sternum 1 and on sternum 2, and small to medium-sized, moderately deep to deep on sterna 3-5. **Legs.** Outer angle of hind coxal cavity partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin not produced forward); anterior surface of hind coxa coarsely alveolate; femur (Fig. 28) with inner margin subcarinate, obtusely angulate; uncus medium-sized, very weakly curved, arising between middle of apex of tibia and inner apical angle, moderately oblique to axis of tibia; praemucro very small on fore legs, minute on middle legs, subapical, almost perpendicular to axis of tibia, obsolete on hind legs; tarsal segment 5 lacking subapical denticles. **Genitalia.** See Fig. 56. **Length.** Pronotum + elytra: 3.48 mm (1.08 + 2.40).

ALLOTYPE FEMALE. Similar to male except uncus weakly curved, arising near middle of apex of tibia; praemucro medium-sized on fore and middle legs, small on hind legs. **Genitalia.** See Fig. 98. **Length.** Pronotum + elytra: 4.20 mm (1.28 + 2.92).

INTRASPECIFIC VARIATION. The rostrum may be mostly weakly rugosely punctate on the apical 1/2, and the punctures may be very small to small, moderately shallow to moderately deep on the basal 1/2. The frontal fovea may be large, very deep, or continued toward the vertex as a narrow, moderately shallow sulcus, and rarely it becomes a moderately narrow, moderately deep sulcus. The punctures of the head may be dense to very dense throughout except above the eyes. The prothorax has a ratio (length/width) of 1.00-1.06, and the elytra are 1.54-1.71 times as long as wide, and 2.02-2.28 times as long as the prothorax. The strial punctures may be a little sparser than in the holotype, but most are separated by less than their own diameter on the basal 2/5. Most dorsal intervals may be about as wide as the strial punctures and only weakly undulate on the basal 1/3. The lateral areas of the mesosternum may have one or two scales also, and there may be a row of punctures on the mesepimeron. The sulcus present on the median area of the metasternum also is broadly oval. The lateral impressions of abdominal sternum 5 may be only medium-sized, and the abdominal punctures may be small to medium-sized throughout, or only medium-sized between the hind coxae and along the base on sternum 1, very small to small on sternum 2, and small on sterna 3-4. Length, pronotum + elytra: 3.48-4.20 mm.

ETYMOLOGY. The Latin adjective *frontalis* refers to the forehead.

TYPE LOCALITY. Brasil, Estado do Pará, Belém.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] BRAZIL:Para / Belem night / I-24-1969L& / C.W.O'Brien; 2) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / frontale / Wibmer 1989.

Point-mounted. A very small portion of the 5th tarsal segment of the left hind leg is missing. From CWOB; deposited in MZSP.

REMARKS AND COMPARATIVE NOTES. The very obvious strial grooves and strongly convex intervals on the apical 1/2 of the elytra, the moderately rugosely punctate rostrum on the basal 1/2, and the lack of a broad, smooth impression on the median area of the metasternum separate this species from all others in the group except the closely related *T. striatum* and *T. aeneotinctum*. *Tyloderma frontale* can be distinguished from all the species in the group because in *T. frontale* the rostrum is strongly set off from the frons. A few *T. striatum* have the rostrum strongly set off from the frons also, but in this species the uncus arises between the middle of the apex of the tibia and the inner apical angle in the females and near the inner apical angle of the tibia in the males (in all the other species of the *aeneotinctum* group, the uncus arises near the middle of the apex of the tibia in the females and between the middle of the apex of the tibia and the inner apical angle in the males).

RANGE. Known from Bolivia, Brazil, and Colombia (see Fig. 138).

MATERIAL EXAMINED. Holotype, allotype, 3 paratypes, and 1 non-paratype (NP) (6 specimens) from CWOB and FMNH, with the following data: **BOLIVIA**: **Santa Cruz**: 10 mi W Portachuelo, at night 24-III-78 (1) G.B.Marshall. **BRAZIL**: **Mato Grosso**: Santa Teresinha opposite Macaúba 30-IX-62 (1) B.Malkin. **Pará**: Belém, night, 24-I-69 (holotype + 1NP), 26-I-69 (1), L.& C.W.O'Brien. **COLOMBIA**: **Amazonas**: Leticia, blacklight trap 15/16-I-73 (allotype) C.R.Gilbert. The non-paratype will be deposited in GJWC.

20. *Tyloderma striatum* (Pascoe)
(Figs. 57, 99, 138)

Analcis striatus Pascoe 1881:307 [description].

Tyloderma striata (Pascoe); Hustache 1936:182 [catalog]; Voss 1943:229 [in key; with doubt]; Blackwelder 1947:863 [checklist]; Papp 1979:201 [catalog].

Tyloderma striatum (Pascoe); Wibmer & O'Brien 1986:223 [checklist].

MALE. Elytra (in lateral view) moderately convex in basal 3/4; cuticle mostly dark brownish red to dark reddish brown, with tarsi and part of antennae brownish; scales mostly medium-sized, moderately narrow to moderately broad cuneiform, whitish. **Rostrum**. In lateral view, moderately set off from frons, weakly, transversely impressed near middle, with few scales (mainly on sides above scrobes); dorsal surface mostly moderately rugosely punctate on basal 3/5, with punctures very small, moderately shallow, dense to very dense on middle, somewhat larger and deeper toward margins and on sides, apical 2/5 smoother, with smaller and shallower punctures, each puncture with minute to very short seta. **Head**. Interocular distance somewhat narrower than rostrum at lower margins of eyes, and frons with small, deep fovea toward vertex; punctures moderately to very distinct, small, moderately shallow to moderately deep, very dense on frons, unevenly sparser elsewhere; with narrow sulcus above each eye. **Prothorax**. 0.94 X as long as wide; postocular lobes moderately rounded; scales not forming distinct bands on disc; punctures weakly to moderately distinct, small, moderately shallow on disc, and on flanks moderately to very distinct throughout, moderately larger and deeper than those on disc. **Elytra**. 1.72 X as long as wide, 2.38 X as long as prothorax; surface unicolored, and scales relatively scarce, most moderately narrow, single or

forming small clusters, located mainly along strial grooves between strial punctures; strial punctures mostly large (some medium-sized), most separated by less than own diameter (fairly evenly distributed) on basal 2/5, scarcely distinct on most of apical 1/3 (on striae 1-2 much larger and deeper on apical portions than immediately in front of declivity); strial grooves distinct throughout, very obvious on apical 1/2-3/5; odd-numbered intervals somewhat wider, and even-numbered intervals *ca* as wide as, or somewhat narrower than strial punctures on basal 2/5, most almost straight to weakly undulate, most strongly convex throughout (some even-numbered intervals only moderately convex on basal 2/5), 3 and 9 tuberculate when fusing on apical portions but not forming regularly shaped carina. **Mesosternum.** Median area rounded on sides, not set off from lateral areas, lateral areas above middle coxae with one or two short, fine to moderately fine setae; mesepisternum with few short to medium-sized, fine to moderately broad scales, mesepimeron subglabrous. **Metasternum.** Median area with moderately broad, mostly moderately shallow, fairly smooth sulcus on *ca* apical 2/5. **Abdomen.** Sternum 5 with three impressions (very large, very deep, median; small, deep, lateral); punctures small to medium-sized, most moderately deep between hind coxae and along base on sternum 1, very small to small, shallow to moderately shallow on remainder of sternum 1 and on sternum 2, small, moderately shallow to moderately deep on sterna 3-4, and small, moderately deep on sternum 5. **Legs.** Outer angle of hind coxal cavity partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin not produced forward); anterior surface of hind coxa coarsely alveolate; femur with inner margin subcarinate, rounded to moderately obtusely angulate; uncus medium-sized on fore and middle legs, small on hind legs, weakly curved on fore legs, almost straight on middle and hind legs, arising near inner apical angle of tibia, weakly oblique to axis of tibia on all legs; praemucro very small, *ca* 1/8 from apex of tibia on fore legs, obsolete on middle and hind legs; tarsal segment 5 with two subapical denticles (as in Fig. 37) less than 1/4 length of claw. **Genitalia.** See Fig. 57. **Length.** Pronotum + elytra: 4.60 mm (1.36 + 3.24).

FEMALE. Similar to male except uncus weakly curved on all legs, arising between middle of apex of tibia and inner apical angle, moderately oblique to axis of tibia on fore and middle legs, weakly oblique on hind legs; praemucro small, subapical, slightly oblique to axis of tibia and directed toward uncus on all legs. **Genitalia.** See Fig. 99. **Length.** Pronotum + elytra: 4.52 mm (1.44 + 3.08).

INTRASPECIFIC VARIATION. The scales may be short to medium-sized, narrow to moderately broad. The rostrum may be strongly set off from the frons, and it may be broadly subcarinate on the basal 3/10 (then it is impressed transversely about 3/10 from the base, seen in lateral view). The frontal fovea may be located near the top of a large, moderately deep impression, or there may be a short to medium-sized, moderately narrow to moderately broad frontal sulcus. The punctures rarely are very small to small, and they may be very dense also on the middle of the vertex, or very dense throughout. The prothorax has a ratio (length/width) of 0.94-1.06 (0.99 ± 0.04). The pronotal punctures sometimes are a little larger and deeper near the margins, and the punctures on the flanks may be only a little to moderately larger than those on the disc. The elytra are 1.64-1.77 (1.71 ± 0.04) times as long as wide, and 2.05-2.51 (2.30 ± 0.12) times as long as the prothorax. Most strial punctures may be medium-sized on the basal 2/5, many separated by their own diameter. Strial groove 10 may be very distinct on the basal 2/5. Most dorsal intervals are about as wide as, or a little wider than the strial punctures on the basal 2/5, most may be only moderately convex on the basal 1/2, and interval 2 also may be somewhat tuberculate near the apex. The lateral areas above the middle coxae may have a few setae or scales (mainly on the anterior 1/2), the mesepisternum also may have a few minute setae, or only one or two scales, and the mesepimeron may have a row of minute setae. The median impression of abdominal sternum 5 may be only large, deep, and the lateral impressions may be medium-sized to subobsolete. The punctures may be mostly medium-sized, deep on sternum 2, mostly very small on sterna 3-4, and small to medium-sized on sternum 5. The inner margin of the femora may be only weakly subcarinate (then only weakly obtusely angulate), and the praemucro is almost perpendicular (to weakly oblique) to the axis of the tibia in females. Length, pronotum + elytra: 3.84-5.04 mm (4.52 ± 0.31).

TYPE LOCALITY. Brasil, Estado de Minas Gerais.

NOTES ON THE TYPE. Holotype (by monotypy) female (not dissected), with the following labels: 1) [round; white with broad red edge; printed in black ink] Holo- / type; 2) [oval; pink; handwritten in black ink] Minas Geraes [*sic*]; 3) [rectangular; white; handwritten in black ink] Analcis / striatus / type Pasc.; 4) [rectangular; white; printed in black ink] Pascoe Coll. / B.M.1893-60.; 5) [rectangular; white; handwritten in black ink] Analcis / striatus Pasc. (same handwriting on labels 3 and 5).

Pinned with a minuten, then pinned to a card mount. The metasternum is partially broken by the minuten between the middle and hind legs. Length (pronotum + elytra): 4.95 mm (1.41 + 3.54), the prothorax and elytra with a ratio (length/width) of 0.97 and 1.77, respectively. Deposited in BMNH.

REMARKS AND COMPARATIVE NOTES. The pair of subapical denticles present on the ventral surface of tarsal segment 5 separate this species from all others in the genus with the exception of the allopatric *T. aeneotinctum*. *Tyloderma striatum* can be distinguished from all the other species in the group

(including *T. aeneotinctum*) because in *T. striatum* the uncus arises between the middle of the apex of the tibia and the inner apical angle in the females and near the inner apical angle in the males, and from most of these by the strongly convex elytral intervals, more obvious elytral strial grooves, moderately rugosely punctate dorsal surface of the rostrum, and coarsely alveolate anterior surface of the hind coxae.

RANGE. Known only from Brazil (see Fig. 138).

MATERIAL EXAMINED. I have on hand 19 specimens from BMNH, CWOB, MNRJ, MZSP, NZAC and USNM, with the following data: **BRAZIL**: (2) [no collector]. **Amazonas**: Rio Negro, Tapurucuara [as Tapuruquara] 14/16-II-63 (1) J.Bechyné. **Minas Gerais**: (holotype) [no collector]; Sete Lagôas III-63 (2) F.Werner, Martins & Silva. **Rio de Janeiro**: Silva Jardim III-74 (2) F.M.Oliveira. [**Rio Grande do Sul**]: Pôrto Alegre 14-V-52 (1) [no collector]. **Santa Catarina**: Corupá III-54 (1) A.Maller. **São Paulo**: Barueri, XI-66 (1), XII-58 (1), K.Lenko; Itú, Fazenda Pau d'Alho XII-60 (1) U.Martins; Piracicaba, blacklight trap, 20-I-66 (1), 12-II-66 (2), 2-III-66 (1), C.A.Triplehorn; São Bernardo [do] Campo 18-X-61 (1) Werner. [**COUNTRY?**]: (1) [no collector]. The record from Colombia (Wibmer & O'Brien 1986) was based on a misidentification of *T. frontale*.

21. *Tyloderma aeneotinctum* Champion
(Figs. 30, 32, 37, 58, 100, 125)

Tyloderma aeneotinctum Champion 1905:528 & Tab. 26 (Figs. 10 & 10a) [description], 1910:204 [distributional note]; Hustache 1936:180 [catalog]; Blackwelder 1947:863 [checklist]; Papp 1979:198 & 405 (Pl. 22, 1 fig.) [catalog]; Wibmer 1981:15 [in key], 45-47 [redescription and biological notes], & Figs. 19, 40, 49, 62, 63, 83, 113, 137; O'Brien & Wibmer 1982:141 [checklist].

Tyloderma laevicollis Blatchley 1919:69 [description], 1925:106 [distributional note], 1930:44 [lectotype designation]; Hustache 1936:181 [catalog]; Papp 1979:200 [catalog]; Wibmer 1981:45 [synonymy]; O'Brien & Wibmer 1982:141 [checklist; in synonymy].

MALE. Elytra (in lateral view) weakly convex in *ca* basal 3/4; cuticle mostly dark reddish brown to dark brownish red, with small areas of elytra darker, and antennae and tarsi brownish; scales short to medium-sized, moderately narrow to moderately broad cuneiform, whitish. **Rostrum**. In lateral view, moderately set off from frons, broadly subcarinate on basal 2/5, with medium-sized, moderately deep sulcus near middle, and with few scales (mainly on sides above scrobes); dorsal surface mostly moderately rugosely punctate on basal 3/5, with punctures very small, moderately shallow to shallow, moderately dense to dense, each with mostly very short seta (somewhat longer near margins and on sides above scrobes), apical 2/5 mostly weakly rugosely punctate, with smaller, shallower, unevenly sparser punctures, each with minute, scarcely distinct seta. **Head**. Interocular distance somewhat narrower than rostrum at lower margins of eyes, and frons with medium-sized, deep fovea; punctures moderately to very distinct, small, moderately deep, most moderately dense to dense throughout; with narrow sulcus above each eye. **Prothorax**. As long as wide; postocular lobes moderately rounded; scales not forming spots or bands on disc; punctures weakly distinct, most very small, shallow on disc (somewhat larger and deeper near margins on basal 2/5), and on flanks moderately to very distinct throughout, much larger and deeper than those on disc. **Elytra**. 1.72 X as long as wide, 2.26 X as long as prothorax; surface weakly to moderately maculate, and scales unevenly scattered (usually obsolete on darker areas), some forming small clusters; strial punctures large, most separated by less than own diameter (fairly evenly distributed) on basal 1/2, weakly distinct on most of apical 1/2 (on striae 1-2 much larger and deeper on apical portions than immediately in front of declivity); most strial grooves subobsolete on basal 2/5-1/2, very distinct on apical 1/2-3/5; most intervals narrower than strial punctures on basal 2/5, weakly undulate, most moderately convex on basal 1/2, strongly convex on apical 1/2, not forming regularly shaped, apical carina. **Mesosternum**. Median area rounded on sides, not set off from lateral areas, lateral areas above middle coxae glabrous; mesepisternum glabrous, mesepimeron subglabrous. **Metasternum**. Median area with moderately broad, deep, smooth sulcus on apical 1/2. **Abdomen**. Sternum 5 with three (medium-sized, median; small, lateral) deep impressions; punctures small to medium-sized, moderately shallow to moderately deep between hind coxae and along base on sternum 1, minute, very shallow on remainder of sternum 1 and on sternum 2, very small, moderately shallow on sterna 3-4, and small, moderately deep on sternum 5. **Legs**. Outer angle of hind coxal cavity (Fig. 32) partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin not produced forward); anterior surface of hind coxa moderately finely alveolate; femur with inner margin strongly rounded (Fig. 30); uncus medium-sized, weakly curved, arising between middle of apex of tibia and inner apical angle, weakly oblique to axis of tibia; praemucro small, *ca* 1/8 from apex of tibia, weakly oblique to axis of tibia and directed away from uncus on fore and middle legs, obsolete on hind legs; tarsal segment 5 (Fig. 37) with two subapical denticles *ca* 1/4-1/3 length of claw. **Genitalia**. See Fig. 58. **Length**. Pronotum + elytra: 3.78 mm (1.16 + 2.62).

FEMALE. Similar to male except uncus moderately curved, arising near middle of apex of tibia, moderately oblique to axis of tibia; praemucro medium-sized, subapical, weakly oblique to axis of tibia and directed toward uncus on all legs. **Genitalia**. See Fig. 100. **Length**. Pronotum + elytra: 4.08 mm (1.28 + 2.80).

INTRASPECIFIC VARIATION. The elytra may be moderately convex from the base to the declivity, and the scales may be mostly medium-sized, or mostly moderately narrow. The rostrum may be somewhat impressed transversely about 2/5 from the base. It may be only weakly to not obviously subcarinate on the basal 2/5, or it may have a moderately developed carina on the basal 3/5, bifurcate at its apical 1/3. The rostral sulcus may be short or even subobsolete, and the rostral punctures may be mostly dense to very dense on the basal 3/5. The frontal fovea is small to large, and moderately to very deep, and rarely there is a medium-sized, moderately deep fovea on the vertex. The punctures may be mostly dense throughout, or rarely moderately sparse to moderately dense on the middle of the head. The prothorax has a ratio (length/width) of 0.98-1.22 (1.08 ± 0.06), the postocular lobes may be only weakly rounded, and the pronotal punctures may be mostly minute. The elytra are 1.51-1.78 (1.63 ± 0.08) times as long as wide, and 1.79-2.36 (2.05 ± 0.16) times as long as the prothorax. They may be almost unicolored, although often they are moderately to distinctly maculate. The strial punctures may be medium to large, sometimes many separated by their own diameter and moderately unevenly distributed on the disc. Most intervals may be about as wide as the strial punctures on the basal 2/5, they may be moderately to strongly convex on the apical 1/2, and 3 and 9 sometimes are somewhat tuberculate when they fuse at their apices. The median area of the mesosternum may be weakly set off from the lateral areas, the lateral areas above the middle coxae may have one or two setae or scales, the mesepisternum sometimes has one to three, mostly moderately narrow to moderately broad scales, and the mesepimeron often is glabrous. The sulcus on the median area of the metasternum may be only narrow, or moderately deep, and restricted to the apical 1/3 only. The lateral basal angle of abdominal sternum 1 may be subtruncate only, and the impressions on abdominal sternum 5 may be moderately to very deep, with the median one sometimes large to very large and transverse. The punctures may be small to medium-sized on most of sternum 1 and on sternum 5. The anterior surface of the hind coxae also is moderately finely to moderately coarsely reticulate. In females, the praemucro usually is almost perpendicular (to weakly oblique) to the axis of the tibia, but rarely it is distinctly oblique and somewhat parallel to the uncus, and it is minute (scarcely distinct) on the middle legs of a few males. The subapical denticles of tarsal segment 5 may be larger (about 1/2 the length of a claw), or rarely smaller (less than 1/4 the length of a claw). Length, pronotum + elytra: 3.05-4.72 mm (4.11 ± 0.42).

TYPE LOCALITY. Guatemala, Departamento de Alta Verapaz, Panzós.

NOTES ON THE TYPES. A) *aeneotinctum*: Lectotype (designated Wibmer 1981:46) female (not dissected), with the following labels: 1) [round; white with broad violet edge; printed in black ink] LECTOTYPE; 2) [upside down, concealed beneath label 1; round; white with broad blue edge; printed in black ink] SYNTYPE; 3) [upside down, concealed beneath labels 1 and 2; round; white with broad red edge; printed in black ink] Type; 4) [rectangular; white; printed in black ink] Sp. figured.; 5) [rectangular; white; printed in black ink] Panzos, Vera Paz. Conradt.; 6) [rectangular; white; printed in black ink] B.C.A. Col. IV.4., / Tyloderma / aeneotinctum, / Champ.; 7) [rectangular; red; printed in black ink] LECTOTYPE / Tyloderma / aeneotinctum / Champion / G.J.Wibmer 1981.

Pinned with a minuten, then pinned to a card mount. The tarsus of the left middle leg is missing. Length (pronotum + elytra): 4.20 mm (1.50 + 2.70), the prothorax and elytra with a ratio (length/width) of 1.15 and 1.54, respectively. Deposited in BMNH.

B) *laevicolle*: Lectotype (designated Blatchley 1930:44) male (not dissected), with the following labels: 1) [rectangular; red; printed in black ink] T Y P E; 2) [rectangular; white] [handwritten in black ink] P. B. Can. [printed in black ink] Fla. / [printed in black ink] W.S.B.Coll. / [handwritten in black ink] 3-4-18; 3) [rectangular; white; printed in black ink] Purdue / Blatchley / collection; 4) [rectangular; white; handwritten in black ink] Tyloderma / laevicollis / sp. nov.

Point-mounted. Somewhat depauperate. Length (pronotum + elytra): 3.05 mm, the prothorax and elytra with a ratio (length/width) of 1.06 and 1.70, respectively. Deposited in PERC.

REMARKS AND COMPARATIVE NOTES. The obvious subapical denticles present on the ventral surface of tarsal segment 5 separate this species from all others in the genus except the closely related *T. striatum*, and the strongly convex intervals and very obvious strial grooves on the apical 1/2 of the elytra distinguish *T. aeneotinctum* from all the species in the group except *T. frontale* and *T. striatum*. In *T. aeneotinctum*, the anterior surface of the hind coxae is not coarsely alveolate as in the latter two, and the uncus is not as close to the inner apical angle of the tibia as in *T. striatum*.

PLANT ASSOCIATIONS. One specimen previously studied was collected on *Ludwigia peruviana* (L.) Hara (Onagraceae), and two were on *Polygonum hydropiperoides* Michaux (Polygonaceae).

RANGE. Known from Belize, Costa Rica, Cuba, El Salvador, Guatemala, Honduras, Jamaica,

Mexico, Nicaragua, Panama, and Florida in the United States (see Fig. 125).

MATERIAL EXAMINED. In addition to the 138 specimens studied earlier (Wibmer 1981:46-47), I have seen 20 specimens from ACCC, AMNH, BMNH, CBPC, CHAH, CPCC, CWOB, FMNH, HPSC, MCZC, RSAC and UNAM, with the following data: **BELIZE**: Río Temas [Temash River?] II-37 (1) J.J.White. **COSTA RICA**: **Heredia**: La Selva Biol. Sta., 2 km S Puerto Viejo 3/5-VI-84 (1) Riley, Rider & LeDoux; La Selva Biol. Sta., 3 km S Puerto Viejo, 10°26'N 84°01'W 3-IV-88 (1) H.A.Hespenheide. **Limón**: Reventazón, Hamburg Farm, at light 10-IV-34 (1) F.Nevermann. **CUBA**: **Cienfuegos**: Soledad 2/12-VIII-34 (1) Darlington. [**Ciudad de la**] **Habana**: Est. Exp. Agronómica Ariguanabo 24-VI-61 (1) [no collector]. **GUATEMALA**: [**Alta Verapaz**]: Panzós, 100ft 17-VII-47 (1) C.& P.Vaurie. **HONDURAS**: **Comayagua**: Comayagua, mosquito light trap 13-V-66 (1) J.M.Matta. **Cortés**: La Lima, UV light 5-VI-64 (1) F.S.Blanton, A.B.Broce & R.E.Woodruff. **JAMAICA**: Portland Parish, Hope Bay W [of] Port Antonio, *ca* 3m, treading *Typha* marsh 18-V-85 (2) G.E.& K.E.Ball & J.H.Frank. **MEXICO**: **Campeche**: El Tormento 13-VI-85 (1) F.Arias. **Chiapas**: V-07 (1) C.C.Hoffmann; Corozal V-84 (1) Barrera. **Guerrero**: El Quemado, carretera México - Acapulco km 389 7-VII-63 (1) F.Pacheco. **Quintana Roo**: Buenavista 16-III-82 (1) A.Ibarra. **PANAMA**: San Miguel Canal, Police Pistol Range, sweeping 18-IX-82 (1) D.H. Habeck. **Canal Zone**: Barro Colorado Is., UV trap 1 (3m high) 17-VI-77 (1) H.Wolda; Coco Solo Hospital, 9°21'N 79°51'W, light trap 30-V-73 (1) Stockwell; Gamboa, 30m, light trap 14-V-74 (1) M.Nee.

22. *Tyloderma diversum* Wibmer, new species
(Figs. 23, 59, 101, 124, 136)

HOLOTYPE MALE. Elytra (in lateral view) moderately convex in *ca* basal 4/5; cuticle mostly dark reddish brown, with black fascia on each elytron, and antennae and tarsi brownish; scales medium to long, moderately narrow to moderately broad cuneiform, whitish. **Rostrum**. In lateral view, weakly set off from frons (Fig. 23), weakly subcarinate for short distance near middle, with basal 1/2 moderately densely to moderately sparsely covered with scales (more obvious near midline and on sides above scrobes); dorsal surface mostly weakly rugosely punctate throughout, with punctures very small to small, moderately shallow, dense to very dense, each with short to medium-sized seta (or scale) on basal 1/2, with mostly short seta on apical 1/2. **Head**. Interocular distance somewhat narrower than rostrum at lower margins of eyes, and frons with very short, moderately narrow, moderately shallow sulcus; punctures (Fig. 23) weakly distinct, most small, moderately shallow, dense to very dense; with very narrow sulcus above each eye. **Prothorax**. 1.07 X as long as wide; postocular lobes moderately rounded; scales forming weakly distinct lateral bands on basal 1/3 of disc; punctures very weakly distinct, most very small, shallow on disc (somewhat larger and deeper in front of subapical constriction), and on flanks (Fig. 23) mostly moderately distinct throughout (more obvious on most of apical 3/5), much larger and deeper than those on disc. **Elytra**. 1.66 X as long as wide, 2.11 X as long as prothorax; each elytron with somewhat irregularly shaped, black, moderately broad, oblique fascia near middle between intervals 6 and 2 (broader toward suture), and scales scattered throughout, denser at times but not forming distinct bands; strial punctures large, most separated by 1/2 own diameter or less (fairly evenly distributed) on basal 2/5, moderately distinct on most of apical 1/2 (on striae 1-2 slightly larger and somewhat deeper on apical portions than immediately in front of declivity); most strial grooves subobsolete on basal 1/2, most weakly to moderately distinct on apical 1/2 (9th moderately to very distinct on apical 3/5); most intervals narrower than strial punctures on basal 2/5, most moderately to strongly undulate (intervals 1-3 *ca* as wide as strial punctures, weakly undulate), mostly weakly to moderately convex throughout, 2, 3 and 9 strongly convex on apical portions but not forming regularly shaped carina. **Mesosternum**. Median area rounded on sides, not set off from lateral areas, lateral areas above middle coxae with some short, fine to moderately fine setae; mesepisternum with some medium-sized, moderately narrow to moderately broad scales, mesepimeron with few very short to short, fine setae, and scales. **Metasternum**. Median area with broad, oval, smooth impression (with subcarinate margins) apicad of middle continued toward apex as very distinct sulcus. **Abdomen**. Sternum 5 with three (large, somewhat transverse, median; medium-sized, round, lateral) deep impressions; punctures mostly medium-sized, moderately deep to deep between hind coxae and along base on sternum 1, most very small, shallow on remainder of sternum 1 and on sternum 2, very small to small, shallow to moderately shallow on sterna 3-4, and small, moderately deep on sternum 5. **Legs**. Outer angle of hind coxal cavity almost completely closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin distinctly produced forward as in Fig. 33); anterior surface of hind coxa finely reticulate; femur with inner margin moderately rounded; uncus large, weakly curved, arising between middle of apex of tibia and inner apical angle, weakly oblique to axis of tibia; praemucro small on fore and middle legs, very small on hind legs, *ca* 1/8 from apex of tibia, distinctly oblique to axis of tibia and directed away from uncus on all legs; tarsal segment 5 lacking subapical denticles. **Genitalia**. See Fig. 59. **Length**. Pronotum + elytra: 4.64 mm (1.48 + 3.16).

ALLOTYPE FEMALE. Similar to male except uncus moderately curved, arising near middle of apex of tibia, moderately oblique to axis of tibia; praemucro large, subapical, almost perpendicular to axis of tibia on fore and middle legs, slightly oblique to axis of tibia and directed toward uncus on hind legs. **Genitalia.** See Fig. 101. **Length.** Pronotum + elytra: 5.04 mm (1.64 + 3.40).

INTRASPECIFIC VARIATION. In the three specimens from Honduras and Mexico the elytral scales are located mainly along the strial grooves, forming small clusters between the strial punctures (there are relatively few on the intervals), and the dorsal surface of the rostrum is almost smooth throughout. In the holo- and allotype and in the specimen from Ecuador the scales are sparser, do not form distinct clusters between the strial punctures and there are more on the intervals, but since many of these are disturbed, perhaps some have been abraded. The specimen from Ecuador is mostly reddish brown, has no obvious scales on the rostrum, and the interocular distance is narrower than in the remainder of the type series.

In general for the species, the elytra may be only weakly convex, the rostrum may be very weakly impressed transversely about 4/9 from the base, or weakly subcarinate on the apical 1/2. Most rostral punctures may be very small, unevenly dense, the setae may be mostly medium-sized on the basal 1/2, short to medium-sized on the apical 1/2. The frontal sulcus also is short, and/or moderately broad, and/or moderately shallow to moderately deep. The punctures may be very small to small, shallow to moderately shallow, unevenly moderately dense on the frons and above the eyes, denser toward the vertex. The prothorax has a ratio (length/width) of 1.02-1.08. The pronotal scales may not form distinct lateral bands, and the pronotal punctures may be a little larger and deeper or a little smaller and shallower than in the holotype. The elytra are 1.63-1.68 times as long as wide, and 2.07-2.23 times as long as the prothorax. The black fasciae may be broader, and there may be a few maculae also, but the surface is almost unicolored in the paratype from Honduras. Some of the strial punctures may be medium-sized, and they may be a little sparser than in the holotype, most separated by their own diameter or a little less on the basal 2/5, and on striae 1-2 they may be somewhat larger and distinctly deeper on the apical portions than in front of the declivity. Intervals 1-3 may be somewhat wider than, and the remaining intervals may be as wide as, or somewhat narrower than the strial punctures on the basal 2/5. Most may be only weakly to moderately undulate on the basal 1/4, 2, 3 and 9 rarely form a moderately developed, oblique, apical carina on each elytron (although more often they are only moderately convex near the apices). The median area of the mesosternum also may be only moderately rounded on the sides. The setae may be short to medium-sized on the lateral areas above the middle coxae, and the scales of the mesepisternum may be moderately narrow only, sometimes mostly long. The median impression of the metasternum is less obvious in the females, lacking the subcarinate margins, and the median sulcus may be moderately distinct only. All the impressions of abdominal sternum 5 may be round, and all (or at least the median one) may be distinctly larger and deeper than in the holotype. The punctures may be small to medium-sized, moderately shallow to moderately deep between the hind coxae and along the base on sternum 1, moderately shallow on the remainder of sternum 1 and on sternum 2, and small to medium-sized on sterna 3-5. The basal margin of abdominal sternum 1 may be only moderately produced forward. In one female paratype the praemucro is almost perpendicular to the axis of the tibia on the hind legs also, and in the male paratype it is located a little more distant from the apex of the tibia, only weakly oblique to the axis of the tibia. Length, pronotum + elytra: 4.52-5.48 mm.

ETYMOLOGY. The Latin adjective *diversus* means diverse.

TYPE LOCALITY. Panamá, Río Trinidad.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; whitish; printed in black ink except for handwritten date] TrinidadRio / Pan 2·VI·12; 2) [rectangular; whitish; printed in black ink] ABusck / coll; 3) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / diversum / Wibmer 1989.

Point-mounted. The club and last 3 funicular segments of the right antenna, the 5th tarsal segment of the left middle leg, and the last 2 tarsal segments of the right hind leg are missing. Deposited in USNM.

REMARKS AND COMPARATIVE NOTES. A study of a longer series may prove this species to be polytypic. However, I prefer to consider these six specimens as conspecific because I did not detect any significant differences in the male and female genitalia among them (the cornu is more pointed in the spermathecae of the female paratypes), and the external differences are equivalent to those found within other species of the group. The lack of subapical denticles on the ventral surface of tarsal segment 5 distinguishes this species from *T. striatum* and *T. aeneotinctum*, and the smoother rostrum and broad impression on the median area of the metasternum separate *T. diversum* from the latter two and also from *T. frontale*. Unlike *T. sayi*, in *T. diversum* the elytral scales are located mainly between the strial punctures, not forming spots or bands, and the strial punctures are moderately distinct on most of the apical 1/2. The allopatric *T. danforthi* usually has a sulcus near the middle of the rostrum, usually has a fovea on the middle of the vertex, and the median area of the mesosternum usually is partially to completely subcarinate on the sides.

PLANT ASSOCIATIONS. One of the paratypes was collected on *Polygonum acuminatum* H.B.K. (Polygonaceae), and one on *Musa paradisiaca sapientum* L. (banana, Musaceae), the latter almost certainly an incidental record.

RANGE. Known from Ecuador, Honduras, southern Mexico, and Panama (see Figs. 124 and 136).

MATERIAL EXAMINED. Holotype, allotype, and 4 paratypes (6 specimens) from CWOB and USNM, with the following data: **ECUADOR**: *Musa paradisiaca sapientum* 14-IV-53 (1) R.F.Wilkey. **HONDURAS**: **Comayagua**: Lago Yojoa, on *Polygonum acuminatum* 19-VII-74 (1) C.W.& L.B.O'Brien & Marshall. **MEXICO**: **Veracruz**: 3 mi W Coatzacoalcos, night 26-VI-71 (2) O'Briens & Marshall. **PANAMA**: Trinidad River [1 as Rio], 7-V-11 (allotype), 2-VI-12 (holotype), A.Busck. One paratype will be deposited in GJWC.

23. *Tyloderma sayi* Wibmer, new species
(Figs. 60, 102, 138)

HOLOTYPE MALE. Elytra (in lateral view) weakly convex in basal 3/4; cuticle mostly reddish brown, with some areas of elytra darker, and antennae dark brownish; scales medium-sized, narrow to moderately narrow cuneiform, whitish. **Rostrum**. In lateral view, weakly set off from frons, with few scales near midline on basal 1/4; dorsal surface weakly rugosely punctate on basal 4/7, with punctures small, shallow to moderately shallow, dense to very dense, some with very short seta, some (mainly near base, near margins, and on sides above scrobes) with medium-sized seta, apical 3/7 almost smooth to weakly rugosely punctate, with punctures distinctly smaller and shallower, most with scarcely distinct, minute seta, few (mainly near margins) with short seta. **Head**. Interocular distance somewhat narrower than rostrum at lower margins of eyes, and frons with small, moderately deep fovea; punctures weakly distinct, small, shallow to moderately shallow, unevenly dense; with very narrow sulcus above each eye. **Prothorax**. 1.08 X as long as wide; postocular lobes moderately rounded; scales forming on each side of disc weakly distinct lateral band on basal 1/2; punctures weakly to moderately distinct, small, most shallow on disc, and on flanks most moderately distinct throughout, *ca* as large and deep as those on disc on basal 2/5, most somewhat larger and deeper on apical 3/5. **Elytra**. 1.65 X as long as wide, 2.10 X as long as prothorax; surface weakly maculate, and scales unevenly scattered, many forming some small spots; strial punctures mostly large (some medium-sized), most separated by own diameter or less (fairly evenly distributed) on basal 2/5, weakly to moderately distinct on most of apical 1/2 (on striae 1-2 much larger and deeper on apical portions than immediately in front of declivity); most strial grooves weakly distinct on basal 1/2, weakly to moderately distinct on apical 1/2; most intervals *ca* as wide as strial punctures on basal 2/5, most weakly undulate, mostly weakly to moderately convex, 2, 3 and 9 strongly convex on apical portions but not forming regularly shaped carina. **Mesosternum**. Median area weakly rounded on sides, scarcely set off from lateral areas, lateral areas above middle coxae with some short setae; mesepisternum with some short to medium-sized, narrow to moderately narrow scales, mesepimeron with row of short, fine setae. **Metasternum**. Median area with broad, oval, smooth impression (with subcarinate margins) apicad of middle continued toward apex as very distinct sulcus. **Abdomen**. Sternum 5 with medium to large, very deep, lateral impressions; punctures medium to large, deep between hind coxae and along base on sternum 1, very small to small, moderately shallow to moderately deep on remainder of sternum 1 and on sternum 2, and small to medium-sized, moderately deep on sterna 3-5. **Legs**. Outer angle of hind coxal cavity almost completely closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin distinctly produced forward); anterior surface of hind coxa finely reticulate; femur with inner margin moderately rounded; uncus medium to large, moderately curved, arising between middle of apex of tibia and inner apical angle, weakly oblique to axis of tibia; praemucro medium-sized on fore legs, small on middle and hind legs, *ca* 1/6 from apex of tibia, distinctly oblique to axis of tibia; tarsal segment 5 lacking subapical denticles. **Genitalia**. See Fig. 60. **Length**. Pronotum + elytra: 4.92 mm (1.59 + 3.33).

ALLOTYPE FEMALE. Similar to male except uncus arising near middle of apex of tibia, moderately oblique to axis of tibia; praemucro large, subapical, weakly oblique to axis of tibia and directed away from uncus on all legs. **Genitalia**. See Fig. 102. **Length**. Pronotum + elytra: 4.88 mm (1.63 + 3.25).

INTRASPECIFIC VARIATION. The antennae may be light brownish, and most of the scales may be moderately narrow, or yellowish. The frontal fovea may be medium-sized and deep, and also there may be a small, moderately shallow to moderately deep fovea on the vertex near the frons. The prothorax has a ratio (length/width) of 1.05-1.19 (1.12 ± 0.04), and the pronotal bands of scales may be weakly to moderately distinct. In many Venezuelan specimens, the punctures of both dorsum and flanks are less obvious. The elytra are 1.54-1.67 (1.62 ± 0.03) times as long as wide, and 1.81-2.15 (1.97 ± 0.08) times as long as the prothorax. Their surface may be weakly to distinctly maculate, the scales may form moderately narrow, weakly to moderately distinct oblique bands, and the strial punctures may be only

weakly distinct on most of the apical 1/2. The median area of the mesosternum also is subquadrate on the sides, and abdominal sternum 5 usually has three medium to very large impressions, the median one often larger and deeper. The ventral margin of abdominal sternum 1 often is only moderately produced forward. The praemucro may be almost perpendicular to the axis of the tibia on the hind legs of females, and it is minute (or even obsolete) on the hind legs of some males. Length, pronotum + elytra: 4.05-5.71 mm (4.80 ± 0.32).

ETYMOLOGY. I am naming this species after the pioneer American entomologist Thomas Say, who established the name *Tyloderma*.

TYPE LOCALITY. Brasil, Estado da Bahia.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white] [printed in black ink] BRAZIL. / [handwritten in black ink] Bahia / [handwritten in black ink] 1928 / [printed in black ink] Dr.G.Bondar. / [handwritten in black ink along right margin] 1308; 2) [rectangular; white; printed in black ink except for handwritten "283."] Brit.Mus. / 1953-283.; 3) [rectangular; white; handwritten in black ink] Tyloderma / sp. n.; 4) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / sayi / Wibmer 1989.

Point-mounted (used to be pinned with a minuten). Deposited in BMNH.

REMARKS AND COMPARATIVE NOTES. This species can be distinguished from *T. striatum*, *T. frontale* and *T. aeneotinctum* because *T. sayi* has a distinct, smooth impression on the median area of the metasternum, the elytral strial grooves are less obvious and the intervals are less convex, and the dorsal surface of the rostrum is smoother. The fact that in *T. sayi* many of the scales form spots or weakly to moderately distinct bands on the elytra separates it from *T. diversum*, and the more obvious pronotal punctures distinguish *T. sayi* from the remaining species of the group, including the closely related *T. danforthi*.

PLANT ASSOCIATIONS. Over 100 specimens were beaten from *Polygonum* sp. nr. *acuminatum* H.B.K. (Polygonaceae).

RANGE. Known from northeastern Brazil, and Venezuela (see Fig. 138).

MATERIAL EXAMINED. Holotype, allotype, 118 paratypes, and 12 non-paratypes (NP) (132 specimens) from AMNH, BMNH, CWOB, GJWC, MZSP and UCVM, with the following data: **BRAZIL**: **Bahia**: 1928 (holotype + allotype + 7), [no date] (4NP), G.Bondar; Encruzilhada, 960m XI-72 (1) M.Alvarenga. **Ceará**: Miguel Calmon (São Bento) 20-VIII-28 (8NP) [no collector]. **Goiás**: Santa Isabel do Morro, Ilha do Bananal VI-61 (1) M.Alvarenga. **Mato Grosso**: Xingu XI-61 (1) Alvarenga & Werner. **Rio de Janeiro**: [Rio de Janeiro], Instituto Oswaldo Cruz 21-I-68 (1) C.W.& L.B.O'Brien. **São Paulo**: Piracicaba, blacklight trap 10-X-65 (1) C.A.Triplehorn. **VENEZUELA**: **Barinas**: Reserva Forestal Caparo, Campamento Cachicamo [as Cachicamos], 100m 6/14-VIII-69 (1) J.Salcedo & F.Zambrano. **Guárico**: 13 km SW Calabozo, 300ft, on *Polygonum* cf. *acuminatum*, 23-VII-88 (27), 26-VII-88 (76), C.& L.O'Brien & G.Wibmer. **Zulia**: Distrito Catatumbo, El Rosario 23-V-81 (2) A.Wilinski. Paratypes will be deposited also in CBPC, DZUP, MCZC, MNHP, MNRJ, RSAC, TAMU and USNM.

24. *Tyloderma danforthi* Wolcott
(Figs. 61, 103, 126)

Tyloderma sp.; Danforth 1926:70, 73, 79, 90, 97, 100, 117 & 122 [biological notes]; Wolcott 1936:310 [biological note]; Blackwelder 1947:863 [checklist].

Tyloderma danforthi Wolcott 1951:407 [description]; Papp 1979:199 [catalog]; O'Brien & Wibmer 1982:141 [checklist].

MALE. Elytra (in lateral view) weakly convex in *ca* basal 4/5; cuticle mostly brownish red to reddish brown, with some areas of elytra darker, and antennae and tarsi brownish; scales mostly medium-sized, moderately narrow to moderately broad cuneiform, whitish. **Rostrum**. In lateral view, weakly set off from frons, with short, narrow, moderately shallow sulcus near middle, and some scales on basal 1/2 (mainly near midline and on sides above scrobes); dorsal surface mostly weakly rugosely punctate throughout, with punctures very small to small, shallow, mostly dense on basal 3/5, each with short to medium-sized seta, or scale, apical 2/5 with punctures mostly very small, unevenly dense, each with mostly very short seta. **Head**. Interocular distance somewhat narrower than rostrum at lower margins of eyes, frons with short, moderately broad, moderately deep sulcus, and vertex with medium-sized, moderately shallow fovea near frons; punctures mostly weakly distinct, very small, shallow, unevenly moderately dense on frons, smaller, shallower but somewhat denser toward vertex; with narrow sulcus above each eye. **Prothorax**. 1.04 X as long as wide; postocular lobes moderately rounded; scales forming weakly distinct lateral bands on basal 5/9 of disc; punctures weakly distinct, very small, shallow on disc (slightly larger on apical 1/3), and on flanks most weakly to moderately distinct on apical 3/5 (much larger and deeper than those on disc), most scarcely distinct to indistinct on basal 2/5. **Elytra**. 1.68 X as long as wide, 2.18 X as long as prothorax; surface weakly maculate, and scales unevenly scattered, denser at times but not forming

distinct spots or bands; strial punctures large, most separated by own diameter or less (moderately evenly distributed) on basal 2/5, moderately distinct on most of apical 1/2 (on striae 1-2 distinctly larger and deeper on apical portions than immediately in front of declivity); strial grooves subobsolete on basal 1/2, most moderately distinct on apical 3/7; intervals somewhat wider to somewhat narrower than strial punctures on basal 2/5, most weakly to moderately undulate, mostly weakly to moderately convex, 2, 3 and 9 moderately to strongly convex on apical portions but not forming regularly shaped carina. **Mesosternum.** Median area subquadrate on sides, scarcely set off from lateral areas, lateral areas above middle coxae with few short, moderately fine setae; mesepisternum with some short, moderately narrow to moderately broad scales, mesepimeron with few short scales. **Metasternum.** Median area with broad, oval, smooth impression (with subcarinate margins) apicad of middle continued toward apex as very distinct sulcus. **Abdomen.** Sternum 5 with three medium-sized, deep impressions; punctures medium-sized, moderately deep between hind coxae and along base on sternum 1, most minute to very small, very shallow on remainder of sternum 1 and on sternum 2, most small, moderately shallow on sterna 3-4, and small to medium-sized, moderately deep on sternum 5. **Legs.** Outer angle of hind coxal cavity largely closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin moderately produced forward); anterior surface of hind coxa finely reticulate; femur with inner margin moderately to strongly rounded; uncus large, weakly curved, arising between middle of apex of tibia and inner apical angle, weakly oblique to axis of tibia; praemucro small on fore and middle legs, very small on hind legs, *ca* 1/8 from apex of tibia, weakly oblique to axis of tibia and directed away from uncus on all legs; tarsal segment 5 lacking subapical denticles. **Genitalia.** See Fig. 61. **Length.** Pronotum + elytra: 4.48 mm (1.41 + 3.07).

FEMALE. Similar to male except uncus moderately curved, arising near middle of apex of tibia, moderately oblique to axis of tibia; praemucro large, subapical, almost perpendicular to axis of tibia on all legs. **Genitalia.** See Fig. 103. **Length.** Pronotum + elytra: 5.03 mm (1.58 + 3.45).

INTRASPECIFIC VARIATION. The elytra may be moderately convex; the cuticle may be mostly reddish brown, or mostly brownish red; and the scales may be short to medium-sized, sometimes yellowish white. The rostrum may be weakly subcarinate (at least on the basal 5/9), not obviously sulcate. The dorsal surface may be moderately rugosely punctate on the basal 1/2, with the punctures mostly small, moderately shallow, most moderately dense (or moderately dense to dense), or it may be almost smooth to weakly rugosely punctate, with the punctures mostly very small, and shallow. The frontal sulcus may be deep, and the fovea on the vertex may be large, deep, to indistinct, or both may be joined forming a very long, deep sulcus, broader at both ends. The punctures may be unevenly dense to unevenly moderately sparse on the frons. The prothorax has a ratio (length/width) of 1.02-1.11 (1.06 ± 0.03). The pronotal punctures rarely are scarcely distinct on most of the disc, and minute. The elytra are 1.57-1.75 (1.67 ± 0.05) times as long as wide, and 1.95-2.27 (2.12 ± 0.09) times as long as the prothorax, very weakly to very distinctly maculate. The strial punctures may be fairly evenly distributed on the basal 2/5, or some may be medium-sized (then they are separated by more than their own diameter), and they may be only weakly distinct on most of the apical 1/2. Most intervals may be about as wide as the strial punctures on the basal 2/5, and weakly undulate. The median area of the mesosternum may be moderately rounded on the sides (not set off from the lateral areas), or occasionally weakly subcarinate (weakly set off from the lateral areas), and the scales may be short to medium-sized on the mesepisternum. The impressions of abdominal sternum 5 may be small to medium-sized, moderately shallow to moderately deep, to large and very deep. The punctures may be mostly very small on sternum 2, very small to small, or small to medium-sized on sterna 3-4, and mostly small on sternum 5. Occasionally, the basal margin of abdominal sternum 1 is only weakly produced forward. The praemucro is weakly oblique to the axis of the tibia in some females, and in some males it is minute to very small on the fore and middle legs, and obsolete on the hind legs. Length, pronotum + elytra: 4.13-5.97 mm (4.65 ± 0.32).

TYPE LOCALITY. Puerto Rico, Laguna Cartagena.

NOTES ON THE TYPE. Syntypes not seen. Papp (1979:199) stated that the "type" is at the USNM, but there is no type material of *T. danforthi* there according to D.R. Whitehead (pers. comm.). I personally searched for it unsuccessfully at the Estación Experimental Agrícola de Puerto Rico, Río Piedras. According to Wolcott (1951:407) the description was based on specimens collected at Cartagena Lagoon on January 1935 by V. Biaggi and belonging to Prof. José A. Ramos, but they are not deposited in his collection either (J.A. Ramos, pers. comm.).

REMARKS AND COMPARATIVE NOTES. The known distribution of *T. danforthi*, the usually sulcate rostrum, and the fovea usually present on the vertex separate this species from most others in the group. *Tyloderma aeneotinctum* also is known from the Greater Antilles, but it has a pair of distinct subapical denticles on the ventral surface of tarsal segment 5, and has more obvious elytral strial grooves and more convex intervals than *T. danforthi*, while lacking the obvious impression on the median area of the metasternum present on the latter. The shape of the phallus seems to indicate a close relationship with

T. sayi and *T. innotatum.*

PLANT ASSOCIATIONS. *Sesbania emerus* (Aubl.) Urban (Leguminosae) (Danforth 1926; Wolcott 1951:407 [as *Sesban*]). Among the specimens studied, two were found inside stems of *Polygonum hispidum* H.B.K., four were collected on *P. punctatum* Elliot (Polygonaceae), and five on *Ludwigia octovalvis* (Jacq.) Raven (Onagraceae).

NATURAL ENEMIES. Danforth (1926) reported that this species (as *Tyloderma* sp.) was found in the stomachs of the following birds: *Pisobia maculata* (Vieillot) [now *Erolia melanotos* (Vieillot)] (Scolopacidae), *Ereunetes pusillus* (Linnaeus) (Scolopacidae), *Oxyechus vociferus rubidus* Riley [now *Charadrius vociferus ternominatus* Bangs & Kennard] (Charadriidae), *Crotophaga ani* Linnaeus (Cuculidae), *Tyrannus d. dominicensis* (Gmelin) (Tyrannidae), *Agelaius xanthomus* (Sclater) (Icteridae), *Compsothlypis americana usneae* (Brewster) [now *Parula*] (Parulidae), and *Seiurus n. noveboracensis* (Gmelin) [as *novaboracensis*] (Parulidae).

RANGE. Known from Cuba, the Dominican Republic, Grand Cayman, Haiti, Jamaica, and Puerto Rico in the Greater Antilles (see Fig. 126).

MATERIAL EXAMINED. I have on hand 60 specimens from ACCC, BMNH, BNHM, CWOB, ELSC, JARC, MCZC and USNM, with the following data: **CUBA**: **Camagüey**: Est. Exp. Agronómica Monte Imias VIII-60 (1) [no collector]. [**Ciego de Avila**]: Baraguá, at light, 24-IV-28 (1), 25-IV-28 (1), 18-V-28 (1), 24-V-28 (2), 28-V-28 (1), L.C.Scaramuzza. [**Ciudad de la**] **Habana**: Almendares 12-VII-28 (1) [no collector]; Est. Exp. Agronómica Santiago de las Vegas V-61 (1) I.García; Guanabacoa, 23°07′N 82°18′W, 5m, *ex* stem *Polygonum hispidum* 24-IX-80 (1), sweeping *Polygonum* 24-IX-80 (1), E.L.Sleeper; Laguna Ariguanabo, VIII-61 (1), IX-61 (1), I.García, IX-61 (1) [no collector]; Litoral de Marianao VII-50 (1) [no collector]; Santiago de las Vegas, 22°57′N 82°23′W, pithborer in *Polygonum hispidum* 21-I-33 (1) A.Otero, 150m, beating and sweeping 25-IX-80 (2) E.L.Sleeper. [**Granma**]: Cayamas "7.5" (1) E.A. Schwarz; Río Yara [formerly in **Oriente**], elev. 125-1000ft approx. 15/20-V-48 (1) C.Fortún. [**Holguín**]: Holguín [as Holquin] 1904 (1) [no collector]. **Pinar del Río**: Lomas de Soroa 13-VI-63 (1) [no collector]. [**Sancti Spíritus**]: Trinidad IV/V-12 (1) J.Merrill. **DOMINICAN REPUBLIC**: **El Seibo**: 1 km N El Valle, 2-VIII-79 (1) G.B.Marshall, 2-VIII-79 (2) C.W.O'Brien. **La Altagracia**: 31 km N Higüey, on *Ludwigia octovalvis* 1-VIII-79 (5) C.W.O'Brien, 1-VIII-79 (6) C.W.& L.O'Brien & G.Marshall. [**La Vega**]: Constanza, 1250m 14-VI-72 (2) J.& S.Klapperich. [**Samaná**]: Sánchez VII-38 (2) Darlington. **San Juan**: 6 km W San Juan 7-VIII-79 (1) C.W.O'Brien. [**Trujillo**]: San Cristóbal, 35m 2-XI-71 (1) J.& S.Klapperich. **GRAND CAYMAN**: by freshwater lake near George Town, UV light trap 4-VIII-70 (1) J.Farradane. **HAITI**: Cap-Haitien 1/6-VIII-61 (1) J.Maldonado; Etang Lachaux 26/27-X-34 (2) Darlington. **JAMAICA**: Frome X-45 (1) E.L.Sleeper; Saint Catherine Parish, 3.7 km NW Fort Clarence, Port Henderson Hills, 20m, thorn scrub, *ex Polygonum punctatum* 7-XII-75 (4) E.L.Sleeper. **PUERTO RICO**: Cabo Rojo XII-32 (1) W.Santiago; Cartagena Lagoon 25-IV-31 (1) S.T.Danforth; Rt. 194 km 46.7, near Fajardo 20-VIII-61 (3) Flint & Spangler; Ponce, at light 6-VI-46 (1) J.Maldonado; [Ponce], By-pass [Hwy. (East)], at lights 14-I-72 (1) J.Micheli; Río Piedras 15-IV-35 (1) A.Bonilla.

25. ***Tyloderma innotatum*** Hustache, **new rank**
(Figs. 62, 104, 138)

Tyloderma obliquata var. *innotata* Hustache 1939:103 [description]; Blackwelder 1947:863 [checklist]; Papp 1979:201 [catalog].

Tyloderma obliquatum var. *innotatum* Hustache; Wibmer & O'Brien 1986:223 [checklist].

Tyloderma foveostriata Voss 1943:228 [description] & 229 [in key]; Papp 1979:200 [catalog] **(NEW SYNONYMY).**

Tyloderma foveostriatum Voss; Wibmer & O'Brien 1986:223 [checklist].

MALE. Elytra (in lateral view) moderately convex in *ca* basal 5/6; cuticle mostly brownish red, with antennae brownish and small areas of body reddish black to blackish; scales mostly medium-sized, moderately narrow cuneiform, whitish. **Rostrum.** In lateral view, weakly set off from frons, with some scales on basal 1/2 (more obvious near midline and on sides above scrobes); dorsal surface very weakly rugosely punctate on basal 1/2, with punctures very small, shallow, dense to very dense, apical 1/2 almost smooth, with punctures smaller, shallower and sparser, each puncture with very short to short seta, or scale. **Head.** Interocular distance somewhat narrower than rostrum at lower margins of eyes, and frons with medium-sized, moderately broad, deep sulcus; punctures scarcely to weakly distinct, very small, shallow, unevenly dense; lacking sulcus above each eye. **Prothorax.** 1.10 X as long as wide; postocular lobes weakly rounded; scales forming weakly distinct lateral bands on basal 3/5 of disc; punctures scarcely distinct, minute, very shallow on disc (somewhat larger and deeper on apical portion), and on flanks moderately to very distinct along subapical constriction and above fore coxae (much larger and deeper than those on disc), scarcely distinct to subobsolete elsewhere. **Elytra.** 1.75 X as long as wide, 2.26 X as long

as prothorax; surface almost unicolored, and scales unevenly scattered, denser at times but not forming obvious bands; strial punctures mostly large, most separated by own diameter or less (fairly evenly distributed) on basal 2/5, weakly distinct on most of apical 1/2 (on striae 1-2 somewhat larger and distinctly deeper on apical portions than immediately in front of declivity); strial grooves mostly subobsolete on basal 1/2, mostly moderately distinct on apical 1/2 (9th moderately to very distinct on apical 3/5); most intervals *ca* as wide as, or somewhat narrower than strial punctures on basal 2/5, mostly weakly undulate, mostly moderately convex, 2, 3 and 9 more convex on apical portions but not forming regularly shaped carina. **Mesosternum.** Median area moderately rounded on sides, not set off from lateral areas, lateral areas above middle coxae with few short to medium-sized scales; mesepisternum with some short to medium-sized, moderately narrow to moderately broad scales, mesepimeron with few short scales. **Metasternum.** Median area with broad, oval, smooth impression (with subcarinate margins) apicad of middle continued toward apex as moderately distinct sulcus. **Abdomen.** Sternum 5 with three medium-sized, moderately deep impressions; punctures medium-sized, moderately deep between hind coxae and along base on sternum 1, small, moderately shallow on remainder of sternum 1 and on sterna 2-4, and small to medium-sized, moderately shallow to moderately deep on sternum 5. **Legs.** Outer angle of hind coxal cavity largely closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin moderately produced forward); anterior surface of hind coxa finely reticulate; femur with inner margin strongly rounded; uncus large, moderately curved, arising between middle of apex of tibia and inner apical angle, weakly to moderately oblique to axis of tibia; praemucro very small, *ca* 1/7 from apex of tibia on fore legs, obsolete on middle and hind legs; tarsal segment 5 lacking subapical denticles. **Genitalia.** See Fig. 62. **Length.** Pronotum + elytra: 4.44 mm (1.36 + 3.08).

FEMALE. Similar to male except uncus arising near middle of apex of tibia, moderately oblique to axis of tibia; praemucro large, subapical, weakly oblique to axis of tibia and directed away from uncus on all legs. **Genitalia.** See Fig. 104. **Length.** Pronotum + elytra: 4.44 mm (1.40 + 3.04).

INTRASPECIFIC VARIATION. The cuticle often is mostly reddish brown, and the scales are short to medium-sized. The rostrum may be moderately set off from the frons. The frontal sulcus is short, narrow, shallow, to long, broad, deep, the punctures often are minute to very small on the head, and some specimens have a narrow sulcus above each eye. The prothorax has a ratio (length/width) of 1.00-1.12 (1.06 ± 0.03), and the postocular lobes may be moderately rounded. Most pronotal punctures may be scarcely to weakly distinct, very small, shallow, and most of those on the flanks along the subapical constriction and above the fore coxae occasionally are very distinct, sometimes only moderately distinct. The elytra are 1.65-1.83 (1.73 ± 0.05) times as long as wide, and 2.02-2.48 (2.24 ± 0.11) times as long as the prothorax. Their surface may be weakly to distinctly maculate, occasionally each one also with an irregularly shaped fascia near the middle. The strial punctures rarely are mostly medium-sized on the basal 2/5 (then some intervals are somewhat wider than the punctures throughout), and they may be subobsolete on the apical 1/3 except for the apical portions of striae 1-2 and sometimes 9, and the intervals sometimes are moderately undulate on the basal 1/4. The median area of the mesosternum may be subquadrate or weakly subcarinate on the sides (scarcely to weakly set off from the lateral areas), there may be several scales on the lateral areas above the middle coxae, and the scales of the mesepisternum may be mostly short and/or mostly moderately narrow. The margins of the median impression of the metasternum sometimes are not distinctly subcarinate (primarily in the females), but they are carinate (strongly raised) in a few males. The basal margin of abdominal sternum 1 occasionally is not produced forward, and often it is only weakly produced forward. All three impressions of sternum 5 may be small, moderately shallow to moderately deep, although often they are large, deep or very deep (the median one sometimes very large, very deep). A very small to small praemucro may be present also on the middle legs, or on the middle and hind legs of several males. Length, pronotum + elytra: 3.29-5.47 mm (4.26 ± 0.41).

TYPE LOCALITY. Argentina, Provincia de Misiones, Río Paraná.

NOTES ON THE TYPES. A) *foveostriatum*: Holotype (by monotypy) male (not dissected), with the following labels: 1) [rectangular; white; printed in blue ink] Rosario / de S. Fé; 2) [rectangular; white; printed in black ink] coll. / H.Stempelmann; 3) [rectangular; white] [handwritten in black ink] Tyloderma / foveostriata / n.sp. / [printed in black ink] det.E.Voß.; 4) [rectangular; red; printed in black ink] Holotypus; 5) [rectangular; white; printed in black ink] Coll. DEI / Eberswalde; 6) [rectangular; white; handwritten in blue ink] foveastriata [*sic*] / Voss.

Pinned. Abdominal sterna 1-2 are partially broken by the pin, and 2-5 are pushed inward; tarsal segment 5 of the right fore leg and the tarsus and small portion of the apex of the tibia of the right middle leg are missing. Length (pronotum + elytra): 4.70 mm (1.35 + 3.35), the prothorax and elytra with a ratio (length/width) of 1.00 and 1.81, respectively. Deposited in DEIC.

B) *innotatum*: Lectotype (**here designated**) male (not dissected), with the following labels: 1) [rectangular; white; printed in black ink] REPUBLIQUE ARG^{NE} / Rio-Parana / Territoire des Missions; 2)

[rectangular; white; printed in red ink] TYPE; 3) [rectangular; pale blue; printed in black ink] MUSEUM PARIS / 1949 / Col. A.HUSTACHE; 4) [rectangular; white; handwritten (by Hustache) in black ink] T. obliquata / m. / v. innotata [*sic*] / m.; 5) [rectangular; red; printed in black ink] LECTOTYPE / Tyloderma / innotatum / Hustache / G.J.Wibmer 1989.

Card-mounted, glued on its venter. Length (pronotum + elytra): 4.78 mm (1.41 + 3.37), the prothorax and elytra with a ratio (length/width) of 1.06 and 1.79, respectively. Deposited in MNHP.

Described from an unspecified number of specimens. Also two paralectotypes are designated, with the same data as the lectotype, and one paralectotype with 1st label: [on upper surface] Bs. Aires / Ciudad / 8-II-14 [incorrectly listed in original description as 3-II-14] / [on undersurface] J M Bosq / 787. Also one paralectotype is designated (bottom specimen of three on pin) with 1st label: R$^{EP.}$ ARGENTINA / Prov. Buenos Aires / 190 [year blank] / C.Bruch; and 2nd label: 8. (the two other specimens on the pin are *T. inaequale* Voss).

REMARKS AND COMPARATIVE NOTES. Although very difficult to separate externally from *T. simile* and *T. obliquatum*, *T. innotatum* generally is somewhat larger and more robust, and the scales on the mesepisternum usually are broader overall than in those two species. *Tyloderma innotatum* has smaller postocular lobes than *T. simile*, a more reddish cuticle than *T. obliquatum*, and larger elytral strial punctures and narrower intervals than *T. inaequale*. All the other species in the *aeneotinctum* group can be distinguished from *T. innotatum* because they have moderately to very distinct punctures on the flanks of the prothorax (only weakly to moderately distinct on most of the apical 3/5 in *T. danforthi*).

PLANT ASSOCIATIONS. Many specimens have been collected from *Polygonum* sp., *P. punctatum* Elliot and *P. persicarioides* H.B.K., and one from *P. acre* H.B.K. [=*punctatum*] (Polygonaceae). In addition, one was obtained on *Ludwigia* sp., one on *L. peploides* ssp. *montevidensis* (Sprengel) Raven (Onagraceae), and one on *Oenothera mollissima* L. (Onagraceae).

RANGE. Known from Argentina, Bolivia, Paraguay, and Uruguay (see Fig. 138).

MATERIAL EXAMINED. I have on hand 810 specimens from BMNH, CBPC, CWOB, DEIC, ELSC, FSCA, GJWC, HAHC, MACN, MLPC, MNHP, MZSP, NZAC, RDCC, URMC and USNM, with the following data: **ARGENTINA**: (24) A.Breyer. **Buenos Aires**: [no date] (1) J.Bosq, [no date] (1) Breyer, III-99 (1), IV-95 (1), XI-04 (2), [no date] (1 paralectotype), C.Bruch, [no date] (4) H.Richter, II-48 (2), [no date] (3), [no collector]; Ciudad [Buenos Aires] 8-II-14 (1 paralectotype) J.M.Bosq; Buenos Aires, San Isidro, *Oenothera mollissima* L. 25-II-82 (1) H.& A.Howden; 19 km SE Campana, at night 29-IX-68 (15) L.& C.W.O'Brien; Dique [del Río] Luján 12-XII-53 (2) J.B.Daguerre; Ezeiza, *Ludwigia repens* X-68 (1) B.D.Perkins & P.M.Berger; General Pacheco, at night 29-IX-68 (2) L.& C.W.O'Brien; Isla Martín García, IV-38 (1), 1938 (3), M.J.Viana; La Plata, (1) A.R.Bezzi, (1) [no collector]; [Las] Flores 27-II-15 (2) Bosq; Quilmes, II-15 (1), [no date] (8), [no collector]; Rosas, Ferrocarriles Sud (2) J.B.Daguerre; San Fernando, I-55 (5), I-59 (1), II-54 (4), II-57 (1), III-62 (1), XI-57 (3), XI-62 (4), XII-53 (2), XII-54 (5), Daguerre; Tandil (2) M.Viana; Tigre 28-IX-68 (1) C.W.O'Brien; 7 km NW Tigre, at night 28-IX-68 (16) L.& C.W.O'Brien; Villa Calzada XI-41 (2) Kuschel. **Chaco**: 50 km NE Resistencia 25-I-89 (1) C.W.& L.O'Brien & G.Wibmer. **Córdoba**: Valle de los Reartes (3) A.G.Frers. **Corrientes**: 3 km E Corrientes, night, 17-I-89 (1), 18-I-89 (2), C.& L.O'Brien & Wibmer. **Entre Ríos**: 25-IX-51 (1) [no collector]; 37 mi S Ceibas (Hwy. 12), treading *Polygonum* 14-IV-78 (1) C.W.O'Brien; Concordia (1) Daguerre; La Paz, II-30 (1) Bosq, I-74 (2) Cesari. **Formosa**: Ciudad [Formosa] II-49 (1) A.Martínez; Gran [as Grau] Guardia II-53 (1) [no collector]. [**Jujuy**]: San Salvador de Jujuy, night 21-X-68 (4) L.& C.W.O'Brien. **Misiones**: Río Paraná (lectotype + 2 paralectotypes) [no collector]. **Salta**: Orán (1) Koehler. **Santa Fe**: (1) [no collector]; Río San Javier, Estancia La Noria, 17-XII-11 (1), 22-XII-11 (1), 23-XII-11 (1), G.E.Bryant; Rosario de Santa Fe (holotype of *T. foveostriatum*) H.Stempelmann; Villa Ana, Ferrocarriles Santa Fe X-24 (1) K.J.Hayward. **Santiago del Estero**: (1) [no collector]; Río Salado (1) Wagner. **Tucumán**: 5 km S Lules, at night 17-X-68 (1) L.& C.W.O'Brien; 12 km S Lules, at night 19-X-68 (16) L.& C.W.O'Brien; 13 km S Lules, at night 17-X-68 (6) L.& C.W. O'Brien. **BOLIVIA**: **Santa Cruz**: 4 mi E Portachuelo, at night 24-III-78 (1) G.B.Marshall, at night 11-IV-78 (1) L.O'Brien & Marshall, at night 27-III-78 (1) C.W.& L.O'Brien; 10 mi W Portachuelo, at night 27-III-78 (1) G.B.Marshall, at UV light, 27-III-78 (1), 26-IV-78 (1), C.W.O'Brien; 10 mi W Puerto Banegas, at night 25-III-78 (4), at night, on *Polygonum* 25-III-78 (17), G.B.Marshall; Pump Station Colpa, 9 mi W Warnes, at light 16-IV-78 (1) C.W.& L.B.O'Brien & G.B.Marshall; Saavedra, Agr. Exp. Sta., blacklight trap, 4-I-60 (1), 5-I-60 (1), 27-XII-59 (4), 28-XII-59 (1), R.B.Cumming, Saavedra Res. Sta., UV trap 27-III-78 (1) C.R.Ward & C.W.O'Brien; 4 mi E Santa Cruz, at night, on *Ludwigia* (erect, 3ft tall) 21-IV-78 (1) C.W.O'Brien & Marshall. **PARAGUAY**: (1) [no collector]; Santa Clara, Río Confuso IV-56 (1) [no collector]; Santo Jesusito (1) [no collector]. [**Central**]: Asunción 5-VII-68 (4) L.& C.W.O'Brien; Piquete Cué, 36 km N Asunción, at night 13-X-68 (1) L.B.& C.W.O'Brien; 3 km E Ypacaraí, at night, 6-VII-68 (2), 7-X-68 (8), 10-X-68 (3), L.& C.W.O'Brien. **Cordillera**: Inst. Agr. Nac. Caacupé 2-X-80 (1) R.D.Cave; San Bernardino, Lago Ypacaraí, at night 11-X-68 (2), at night, on *Polygonum acre* 11-X-68 (1), L.B.& C.W.O'Brien. **URUGUAY**: (1) [no collector].

Canelones: Bañados de Carrasco 15-XII-60 (2) M.A.Monné; Camino Las Brujas, aguas cañadas 9-X-38 (1) [no collector]. **Colonia**: *ca* 2 km E Ruta 21 km 186, at night 30-XII-78 (7) G.J.& Z.Wibmer; Piedra de los Indios, Ruta 21, 31-XII-85 (1), at night 20-XII-85 (5), G.J.Wibmer, 19-XI-78 (10), 7-XII-78 (3), 26-XII-78 (2), 28-XII-78 (1), 29-XII-78 (4), at night, 7-XII-78 (50), 10-XII-78 (100), 23-XII-78 (198), swept *Polygonum punctatum* 6-I-77 (25), G.J.& Z.Wibmer, de noche, a la luz 21/23-I-76 (1) G.J.Wibmer & Z.Assandri, at night, on *Ludwigia peploides* var. *montevidensis* 31-I-76 (1), at night, on *Polygonum punctatum* & *P. persicarioides* 19-I-76 (18), night, on *Polygonum punctatum*, 22-I-76 (20), 30-I-76 (28), 7-II-76 (5), Z.I.& G.J.Wibmer; Playa Arenisca 15-XII-85 (1) G.J.Wibmer; Arroyo San Pedro, Ruta 21 km 194, 4-I-84 (2), 22-XII-85 (1), G.J.Wibmer, 29-XII-85 (4) G.J.Wibmer & C.S.Morey; San Pedro, 5-I-79 (3) G.J.Wibmer, 6-I-79 (2), 11-I-79 (2), 8-XII-78 (7), 24-XII-78 (1), swept *Polygonum punctatum* 24-XII-78 (15), G.J.& Z.Wibmer. **Montevideo**: [Montevideo], Sayago, trampa de luz, 6/7-XI-66 (2), 12-XI-69 (1), L.E.F.A., So. Amer. Paras. Lab. 20-XII-42 (1) Berry; Parque Lecocq 3-I-79 (1) G.J.Wibmer; Santiago Vázquez, 6-III-60 (6), 20-III-61 (1), 2/13-XI-60 (3), 13-XI-60 (7), C.S.Morey; Villa Colón, de noche, a la luz 5-XI-65 (1) C.S.Morey. **San José**: Balneario Kiyú 28-X-70 (1) L.E.F.A. **Tacuarembó**: Arroyo Sauce de Tranqueras 10-I-64 (10) F.Achaval & A.Dolber. **Treinta y Tres**: Santa Clara de Olimar 10-II-60 (4) L.C.de Zolessi. **[COUNTRY?]**: Isla Santiago I-14 (1) [no collector]; [no locality (probably ARGENTINA)] (6) [no collector]. The record from Brazil (Wibmer & O'Brien 1986) was based on a misidentification of *T. sayi*.

26. *Tyloderma simile* Wibmer, new species
(Figs. 63, 105, 137)

HOLOTYPE MALE. Elytra (in lateral view) weakly convex in *ca* basal 3/4; cuticle mostly reddish brown, with some areas of elytra darker, tarsi brownish red, and antennae brownish; scales medium to long, most moderately narrow cuneiform, whitish. **Rostrum**. In lateral view, weakly set off from frons, very weakly subcarinate on apical 2/5, with some scales on basal 1/2 (mainly on sides above scrobes); dorsal surface almost smooth, with punctures scarcely to weakly distinct, very small to small, shallow, moderately sparse to moderately dense on basal 1/2, each with mainly medium-sized seta, or scale, unevenly moderately dense on apical 1/2, each with mainly medium-sized seta. **Head**. Interocular distance moderately narrower than rostrum at lower margins of eyes, frons with short, moderately broad, moderately deep sulcus, and vertex with moderately deep fovea near frons; punctures scarcely distinct, minute to very small, shallow, moderately sparse to moderately dense; with very narrow sulcus above each eye. **Prothorax**. 1.11 X as long as wide; postocular lobes moderately rounded; scales forming weakly distinct lateral bands on basal 1/5 of disc; punctures scarcely distinct, most minute, very shallow on disc, and on flanks moderately distinct along subapical constriction and above fore coxae (much larger and deeper than those on disc), scarcely distinct to indistinct elsewhere. **Elytra**. 1.78 X as long as wide, 2.29 X as long as prothorax; each elytron with black, oblique, somewhat irregularly shaped fascia near middle, and blackish macula near declivity on intervals 2-4 (scarcely distinct on right elytron), and scales unevenly scattered on surface, denser at times forming some clusters (more obvious on apical 1/2); strial punctures mostly large (some medium-sized), most separated by *ca* own diameter (moderately evenly distributed) on basal 2/5, weakly distinct on most of apical 1/2 (on striae 1-2 distinctly larger and deeper on apical portions than immediately in front of declivity); strial grooves subobsolete on basal 1/2, most weakly distinct on apical 1/2; most intervals *ca* as wide as, to somewhat narrower than strial punctures on basal 2/5, weakly to moderately undulate, mostly weakly to moderately convex, 2, 3 and 9 strongly convex on apical portions but not forming regularly shaped carina. **Mesosternum**. Median area subquadrate on sides, scarcely set off from lateral areas, lateral areas above middle coxae with some medium-sized, fine setae; mesepisternum with some short to medium-sized, narrow to moderately narrow scales (few along anterior margin), mesepimeron with some short, fine to moderately fine setae. **Metasternum**. Median area with broad, oval, smooth impression apicad of middle continued toward apex as distinct sulcus. **Abdomen**. Sternum 5 with three medium-sized, deep impressions; punctures small to medium-sized, most moderately deep (few deep) between hind coxae and along base on sternum 1, most minute, very shallow on remainder of sternum 1 and on sternum 2, most very small, shallow to moderately shallow on sterna 3-4, and small to medium-sized, moderately deep to deep on sternum 5. **Legs**. Outer angle of hind coxal cavity largely closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin moderately produced forward); anterior surface of hind coxa finely reticulate; femur with inner margin moderately rounded; uncus large, weakly to moderately curved, arising between middle of apex of tibia and inner apical angle, weakly to moderately oblique to axis of tibia; praemucro very small, *ca* 1/7 from apex of tibia on fore and middle legs, oblique to axis of tibia and directed away from uncus, obsolete on hind legs; tarsal segment 5 lacking subapical denticles. **Genitalia**. See Fig. 63. **Length**. Pronotum + elytra: 4.08 mm (1.24 + 2.84).

ALLOTYPE FEMALE. Similar to male except uncus arising near middle of apex of tibia, moderately oblique to axis of tibia; praemucro large, subapical, almost perpendicular to axis of tibia on all legs. **Genitalia**. See Fig. 105. **Length**. Pronotum + elytra: 4.68 mm (1.42 + 3.26).

INTRASPECIFIC VARIATION. Most of the scales may be medium-sized. In a few specimens, the rostrum is moderately set off from the frons. The rostrum may be subcarinate on the whole of the apical 1/2, or not subcarinate at all. The dorsal surface may be smooth, with the punctures scarcely distinct, minute to very small, or mostly weakly rugosely punctate, with the punctures weakly distinct, very small to small, shallow to moderately shallow, and moderately dense to dense. The setae may be short to medium-sized throughout on the dorsal surface, or only short on the apical 1/2. The frons may have a long sulcus (sometimes reaching the vertex, rarely much broader and deeper at the middle), or a shallow to moderately deep fovea, and the fovea of the vertex may be indistinct. The punctures of the head may be scarcely to weakly distinct, most very small, shallow to moderately shallow, and unevenly moderately dense, and occasionally most are weakly distinct, and small. The prothorax has a ratio (length/width) of 1.02-1.12 (1.07 ± 0.03). The pronotal punctures may be minute to very small, and rarely, those on the flanks are weakly to moderately distinct on most of the apical 3/5. The elytra are 1.70-1.87 (1.78 ± 0.05) times as long as wide, and 2.15-2.49 (2.34 ± 0.09) times as long as the prothorax. The darker markings are quite variable, with the declivital macula sometimes indistinct and the median fascia very reduced. Most strial punctures may be separated by less than their own diameter on the basal 2/5, and they may be weakly to moderately distinct on most of the apical 1/2. The intervals may be mostly weakly convex, and 2, 3 and 9 occasionally are only moderately convex on their apical portions. The median area of the mesosternum may be weakly (or rarely distinctly) subcarinate on the sides (weakly to moderately set off from the lateral areas). The setae may be short to medium-sized on the lateral areas above the middle coxae, and the mesepisternum also may have a few scalelike setae. The impression on the median area of the metasternum may be only moderately distinct, or occasionally very distinct (with subcarinate margins), and rarely it is located near the middle. The median impression of abdominal sternum 5 may be small to large, and the lateral ones small, sometimes all three replaced by some medium-sized, deep punctures. The punctures may be minute to very small on the apical portion of sternum 1 and on sternum 2, rarely they are minute on sterna 3-4, and most may be small on sternum 5. In one individual, the lateral basal angle of abdominal sternum 1 is truncate and the basal margin is not produced forward, but often the basal margin of sternum 1 is distinctly produced forward. Occasionally, the uncus is almost perpendicular (to weakly oblique) to the axis of the tibia in males. The praemucro may be only medium-sized in some females; it may be located about 1/6 from the apex of the tibiae in some males, and in a few specimens it is present on all the legs, small. Length, pronotum + elytra: 3.64-4.82 mm (4.28 ± 0.28).

ETYMOLOGY. The Latin adjective *similis* means resembling.

TYPE LOCALITY. Brasil, Estado de Minas Gerais, Arinos.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; whitish with narrow black edge; printed in black ink] Arinos / M.Gerais - Brasil / 6 - 8. XI. 1964 / Exp. Dep. Zool.; 2) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / simile / Wibmer 1989.

Point-mounted. The club and last 2 funicular segments of the left antenna, and the left tarsal claw of the right middle leg are missing. Deposited in MZSP.

REMARKS AND COMPARATIVE NOTES. This species has larger postocular lobes than *T. innotatum*, and the strial punctures are somewhat more obvious on the apical 1/2 of the elytra than in *T. obliquatum*. Also, these two species often lack a sulcus around the dorsal margin of the eyes. *Tyloderma innotatum* currently is allopatric with *T. simile*, and *T. obliquatum* is parapatric with it. *Tyloderma simile* has larger postocular lobes, larger elytral strial punctures and narrower intervals than *T. inaequale*. All the other species in the *aeneotinctum* group can be distinguished from *T. simile* because they have moderately to very distinct punctures on the flanks of the prothorax (only weakly to moderately distinct on most of the apical 3/5 in *T. danforthi*).

RANGE. Known only from the states of Minas Gerais, Rio de Janeiro and São Paulo in Brazil (see Fig. 137).

MATERIAL EXAMINED. Holotype, allotype, and 39 paratypes (41 specimens) from MNHP and MZSP, with the following data: **BRAZIL: Goiás**: Cabeceiras (Lagoa Formosa) 24/27-X-64 (1) Exp. Dep. Zool. **Minas Gerais**: Arinos 6/8-XI-64 (holotype + allotype + 25) Exp. Dep. Zool. **Rio [de] Janeiro**: (4) de Castelnau. **São Paulo**: Salesópolis, Est. Biol. Boraceia 12-II-63 (9) L.Silva & H.Reichardt. Paratypes will be deposited also in BMNH, CWOB, DZUP, GJWC, MNRJ and USNM.

27. *Tyloderma obliquatum* Hustache
(Figs. 64, 106, 137)

Tyloderma obliquata Hustache 1939:102-103 [description]; Blackwelder 1947:863 [checklist]; Papp 1979:201 [catalog].
Tyloderma obliquatum Hustache; Wibmer & O'Brien 1986:223 [checklist].

MALE. Elytra (in lateral view) unevenly moderately convex in *ca* basal 4/5; cuticle mostly brownish red, with some areas on each elytron black, tarsi dark brownish red, and antennae brownish; scales medium to long, most moderately narrow cuneiform, whitish yellow. **Rostrum**. In lateral view, weakly set off from frons, with some scales on basal 1/2 (more obvious near margins and on sides above scrobes); dorsal surface mostly smooth, with punctures scarcely distinct, minute to very small, very shallow, unevenly moderately dense on basal 4/7, each with short to medium-sized seta, or scale, somewhat larger and deeper on apical 3/7, each with mainly short seta. **Head**. Interocular distance moderately narrower than rostrum at lower margins of eyes, and frons with long, narrow, shallow sulcus reaching vertex; punctures scarcely distinct, minute to very small, very shallow, unevenly moderately dense; lacking sulcus above each eye. **Prothorax**. 1.07 X as long as wide; postocular lobes weakly rounded; scales forming weakly distinct lateral bands on basal 3/5 of disc; punctures scarcely distinct, minute, very shallow on disc, and on flanks moderately distinct along subapical constriction and above fore coxae (much larger and deeper than those on disc), subobsolete elsewhere. **Elytra**. 1.70 X as long as wide, 2.30 X as long as prothorax; each elytron with black, oblique fascia near middle between intervals 6 and 2, and black macula near declivity on interval 3, and scales scattered on surface, somewhat denser at times but not forming obvious bands; strial punctures mostly large (some medium-sized), several separated by more than own diameter (unevenly distributed) on basal 2/5 of striae 2-4, most separated by *ca* own diameter or little more on remaining striae, subobsolete on most of apical 1/2 (on striae 1-2 distinctly larger and deeper on apical portions than immediately in front of declivity); strial grooves subobsolete on basal 1/2, moderately to very distinct on apical 1/2; intervals 1-3 and 9-10 somewhat wider than strial punctures, remaining intervals *ca* as wide as, to somewhat narrower than strial punctures on basal 2/5, most almost straight to weakly undulate, mostly weakly to moderately convex throughout, not forming regularly shaped, apical carina. **Mesosternum**. Median area subcarinate on sides, weakly set off from lateral areas, lateral areas above middle coxae with some short, fine setae, and scales; mesepisternum with some medium-sized, narrow to moderately narrow scales, mesepimeron with few short, fine setae, and scales. **Metasternum**. Median area with broad, oval, smooth impression apicad of middle continued toward apex as very distinct sulcus. **Abdomen**. Sternum 5 with three (large, somewhat transverse, median; medium-sized, round, lateral) deep impressions; punctures small to medium-sized, moderately deep between hind coxae on sternum 1, scarcely distinct, minute to very small, very shallow to shallow on remainder of sternum 1 and on sternum 2, small, moderately shallow on sterna 3-4, and most small, moderately deep on sternum 5. **Legs**. Outer angle of hind coxal cavity almost completely closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin distinctly produced forward); anterior surface of hind coxa finely reticulate; femur with inner margin moderately rounded; uncus large, moderately curved, arising between middle of apex of tibia and inner apical angle, weakly to moderately oblique to axis of tibia; praemucro small to medium-sized on fore and middle legs, very small on hind legs, *ca* 1/7 from apex of tibia on fore legs, *ca* 1/6 from apex on middle and hind legs, distinctly oblique to axis of tibia and directed away from uncus on all legs; tarsal segment 5 lacking subapical denticles. **Genitalia**. See Fig. 64. **Length**. Pronotum + elytra: 3.96 mm (1.20 + 2.76).

FEMALE. Similar to male except uncus arising near middle of apex of tibia; praemucro large, subapical. **Genitalia**. See Fig. 106. **Length**. Pronotum + elytra: 3.68 mm (1.16 + 2.52).

INTRASPECIFIC VARIATION. The elytra may be only weakly convex. The scales may be narrow to moderately narrow, sometimes most are medium-sized, and occasionally they are whitish. Rarely, the rostrum is moderately set off from the frons, occasionally it may be weakly subcarinate on the apical 1/2, or it may have a very short, narrow and shallow sulcus near the middle. The punctures may be scarcely to weakly distinct, most very small, dense on the basal 4/7, and the setae may be short to medium-sized on the apical 3/7. The frontal sulcus is very short to long, narrow to moderately broad, and shallow to deep, and occasionally there may be one (or rarely two), small fovea(e) on the vertex above the frontal sulcus. The punctures of the head may be almost indistinct, most minute, moderately sparse to moderately dense, or scarcely to weakly distinct, most very small and moderately dense, and some specimens have a narrow sulcus above each eye. The prothorax has a ratio (length/width) of 0.98-1.15 (1.06 ± 0.03). The postocular lobes sometimes are moderately rounded. The pronotal punctures may be scarcely to weakly distinct, minute to very small, to almost indistinct, and the obvious punctures on the flanks of the prothorax occasionally are only moderately larger and deeper than the ones on the disc. The elytra are 1.65-1.84 (1.74 ± 0.04) times as long as wide, and 1.90-2.46 (2.26 ± 0.08) times as long as the prothorax.

Sometimes there is a macula or short fascia on each elytron about 1/4 from the base between intervals 5 and 3. Most strial punctures may be separated by about their own diameter (moderately evenly distributed) on the basal 2/5, and they may be scarcely to weakly distinct on most of the apical 1/2. Some strial grooves may be weakly distinct in part on the basal 1/2, and most may be only weakly to moderately distinct on the apical 1/2. Some intervals may be moderately undulate on the basal 1/4. The median area of the mesosternum often is moderately rounded to subquadrate on the sides (not to scarcely set off from the lateral areas), and occasionally it is distinctly subcarinate (moderately set off from the lateral areas). The impression of the median area of the metasternum may be very distinct (with subcarinate margins), or only moderately distinct. All three impressions on abdominal sternum 5 may be round, small to medium-sized, and moderately shallow, or indistinct, replaced by a few medium-sized, deep punctures. The punctures may be weakly distinct, very small to small and moderately shallow on abdominal sterna 1-2 (moderately deep to deep between the hind coxae and sometimes along the base on sternum 1), or shallow to moderately shallow on sterna 3-5. The basal margin of abdominal sternum 1 may be only moderately produced forward, and the inner margin of the femora may be strongly rounded. The praemucro may be only weakly oblique to the axis of the tibia, and it is minute (almost indistinct) on the hind legs (and even on the middle legs) of some males, and small on the hind legs of a few males. Length, pronotum + elytra: 2.73-4.72 mm (3.97 ± 0.38).

TYPE LOCALITY. Argentina, Provincia de Corrientes, San Roque.

NOTES ON THE TYPE. Lectotype (**here designated**) female (not dissected), with the following labels: 1) [rectangular; white; handwritten in black ink] CORRIENTES / San Roque / II-1920, Bosq; 2) [rectangular; white; printed in red ink] TYPE; 3) [rectangular; pale blue; printed in black ink] MUSEUM PARIS / 1949 / Col. A.HUSTACHE; 4) [rectangular; white; handwritten (by Hustache) in black ink] Tyloderma / obliquata / m.; 5) [rectangular; red; printed in black ink] LECTOTYPE / Tyloderma / obliquatum / Hustache / G.J.Wibmer 1989.

Card-mounted, glued on its venter. The left hind leg, the 5th tarsal segment of the right middle leg, and the 4th and 5th tarsal segments of the right hind leg are missing. Length (pronotum + elytra): 3.68 mm (1.27 + 2.41), the prothorax and elytra with a ratio (length/width) of 1.15 and 1.66, respectively. Deposited in MNHP.

Also four paralectotypes are designated, with the same data as the lectotype.

REMARKS AND COMPARATIVE NOTES. This species usually is smaller than the sympatric *T. innotatum* and the allopatric *T. simile*, and usually has narrower scales on the mesepisternum than *T. innotatum*. *Tyloderma obliquatum* often lacks the very narrow sulcus present around the dorsal margin of the eyes in the very closely related *T. simile*, and has larger elytral strial punctures and narrower intervals than *T. inaequale*. All the other species in the *aeneotinctum* group can be distinguished from *T. obliquatum* because they have moderately to very distinct punctures on the flanks of the prothorax (only weakly to moderately distinct on most of the apical 3/5 in *T. danforthi*).

PLANT ASSOCIATIONS. Several specimens were obtained on *Ludwigia* sp. and *L. peploides* ssp. *montevidensis* (Sprengel) Raven (Onagraceae), and also on *Polygonum* sp., *P. punctatum* Elliot, and *P. persicarioides* H.B.K. (Polygonaceae). Also one on *Eichhornia crassipes* (Mart.) Solms. (Pontederiaceae), probably an incidental record.

RANGE. Known from Argentina, Bolivia, Brazil, Paraguay, and Uruguay (see Fig. 137).

MATERIAL EXAMINED. I have on hand 313 specimens from BMNH, CBPC, CHAH, CWOB, ELSC, FSCA, GJWC, MACN, MLPC, MNHP, MZSP, NZAC, RDCC, URMC and USNM, with the following data: **ARGENTINA**: **Buenos Aires**: [no date] (1) J.Bosq, III-99 (2), IV-95 (1), C.Bruch, 30-III-41 (1) [collector illegible]; 19 km SE Campana, at night 29-IX-68 (19) L.& C.W.O'Brien; Martínez 4-X-26 (1) Bridarolli; Rosas, Ferrocarriles Sud (7) J.B.Daguerre; San Fernando, III-57 (1), XII-62 (1), Daguerre; 7 km NW Tigre, at night 28-IX-68 (2) L.& C.W.O'Brien; 13 mi E Zárate (Hwy. 12), at night, on *Ludwigia* and general sweeping 14-IV-78 (15) C.W.O'Brien. **Chaco**: Napenay 8-XII-39 (1) Birabén & Bezzi; 17 km N Resistencia 25-I-89 (1) C.W.& L.O'Brien & G.Wibmer; Ruta 90, 61 km NW of Resistencia, on *Polygonum* 24-III-75 (1) [no collector]; Bridge Road 200 m W of Río Tragadero, *Eichhornia crassipes* 18-III-75 (1) [no collector]. **Corrientes**: 3 km E Corrientes, night, 17-I-89 (1), 18-I-89 (4), C.& L.O'Brien & Wibmer; Mburucuyá, Estancia Santa Teresa, on *Polygonum* 17-III-75 (1) [no collector]; San Roque II-20 (lectotype + 4 paralectotypes) Bosq; Santo Tomé, IX-27 (1), X-28 (6), [no collector]. **Entre Ríos**: 13 km S Ceibas, Hwy. 12 14-I-89 (2) C.& L.O'Brien & G.Wibmer; 28 mi S Ceibas (Hwy. 12), treading *Ludwigia* & *Myriophyllum* 14-IV-78 (1) C.W.O'Brien; 37 mi S Ceibas (Hwy. 12), treading *Polygonum* 14-IV-78 (18) C.W.O'Brien; Delta [del Río Paraná] (2) [no collector]; Gualeguay XII-43 (3) Bosq; La Paz I-74 (1) Cesari; Paranacito (5) [no collector]. **Formosa**: Gran [as Grau] Guardia II-53 (1) [no collector]. **Misiones**: Capiovi [as Capiovy] 5-IV-71 (1) C.M.& O.S.Flint,Jr.; Leandro N. Alem XII-61 (1) A.Martínez; Río Paraná (1) [no collector]. **Santa Fe**: (2) H.Richter; Depto. San Javier, Colonia Mascias XII-60 (3) M.Viana; Santo Tomé, Río Salado 30/31-III-71 (2) C.M.& O.S.Flint,Jr.; Villa Ana, Ferrocarriles Santa Fe XII-24 (1)

K.J.Hayward. **Tucumán**: 5 km S Lules, at night 17-X-68 (1) L.& C.W.O'Brien; 12 km S Lules, at night 19-X-68 (7) L.& C.W.O'Brien; 13 km S Lules, at night 17-X-68 (1) L.& C.W.O'Brien. **BOLIVIA**: **Santa Cruz**: Ayacucho 13/14-V-69 (10) P.& P.Spangler; Palma Sola Refinery, 8 mi S Santa Cruz, at light 17-IV-78 (1) O'Briens & Marshall; 4 mi E Portachuelo, at night 27-III-78 (1) G.B.Marshall, at night, 24-III-78 (1), 27-III-78 (1), C.W.& L.O'Brien; 10 mi W Portachuelo, at night, 24-III-78 (6), 26-III-78 (17), 27-III-78 (2), 11-IV-78 (4), UV trap 26-III-78 (1), G.B.Marshall, at UV light 27-III-78 (6) C.W.O'Brien, 26-III-78 (3), at night, 24-III-78 (4), 26-III-78 (10), 19-IV-78 (1), C.W.& L.O'Brien, 19-IV-78 (1) C.W.O'Brien & Marshall; 14 mi SW Portachuelo, at night 24-III-78 (4) G.B.Marshall, at night 22-III-78 (1) C.W.O'Brien, treading aquatic plants 27-III-78 (2) C.W.& L.B.O'Brien; 10 mi W Puerto Banegas, at night 25-III-78 (5) G.B.Marshall; Saavedra, Agr. Exp. Sta., blacklight trap, 4-I-60 (1), 5-I-60 (4), 28-XII-59 (1), R.B.Cumming; 4 mi E Santa Cruz, at night 21-IV-78 (5), at night, on *Ludwigia* (erect, 3ft tall) 21-IV-78 (1), treading *Ludwigia* 21-IV-78 (1), C.W.O'Brien & Marshall. **BRAZIL**: **Goiás**: Jataí, Fazenda Nova Orlandia I-64 (2) Martins, Morgante & Silva. **Mato Grosso**: Entrance Transpantanal Hwy., 17 km S Poconé, UV trap 4-V-81 (1) D.P.Wojcik; Xingu XI-61 (1) Alvarenga & Werner. **Rio Grande do Sul**: Pôrto Alegre, at light 7-I-69 (1) L.B.& C.W.O'Brien. **Santa Catarina**: Nova Teutonia, 27°11'S 52°23'W, 300-500m I-71 (1) F.Plaumann. **São Paulo**: Piracicaba, blacklight trap 15-XI-65 (1) C.A.Triplehorn. **PARAGUAY**: Cué 21-I-46 (1) Williner. **Central**: Areguá 30-VIII-80 (1) R.D.Cave; Asunción, 5-VII-68 (14) L.& C.W.O'Brien, 12-V-72 (1) R.H.Russel; 15 km NE Asunción 21-VI-69 (1) P.& P.Spangler; Capiatá 7-VII-68 (1) C.W.& L.O'Brien; 2 km W Luque 23-VI-69 (2) P.& P.Spangler; Ypacaraí 22-VI-69 (1) P.& P.Spangler; 3 km E Ypacaraí, at night, 6-VII-68 (1), 7-X-68 (15), 10-X-68 (21), L.& C.W.O'Brien; 4 km E Ypacaraí, 11-X-68 (2), at night 10-X-68 (1), C.W.& L.O'Brien. **Cordillera**: Inst. Agr. Nac. Caacupé 10-XI-81 (1) R.D.Cave; San Bernardino 22-VI-69 (2) P.& P.Spangler. **Presidente Hayes**: 7 km N Benjamín Acerval, night 12-X-68 (3) C.W.& L.O'Brien; Villa Hayes, at night 13-X-68 (2) C.W.O'Brien. **URUGUAY**: **Artigas**: Arroyo Pintado, Ruta 30 km 5, trampa luz 1-XII-77 (1) C.S.Morey. **Colonia**: *ca* 2 km E Ruta 21 km 186, at night 30-XII-78 (1) G.J.& Z.Wibmer; Paso de la Arena, [*ca*] Ruta 21 km 184, at night, on *Ludwigia peploides* var. *montevidensis* 18-I-76 (2) Z.I.& G.J.Wibmer; Piedra de los Indios, Ruta 21, 31-XII-85 (1) G.J.Wibmer, at night, 10-XII-78 (3), 23-XII-78 (2), G.J.& Z.Wibmer, at night, on *Polygonum punctatum* & *P. persicarioides* 19-I-76 (1), night, on *Polygonum punctatum* 22-I-76 (1), Z.I.& G.J.Wibmer. **Rivera**: Sierra de la Aurora, Arroyo de la Aurora, de noche, a la luz 12/26-I-71 (3) M.A.Monné, M.Moratorio, C.S.Morey & G.Wibmer. **Tacuarembó**: Paso [del] Borracho 22-I-64 (1) A.Dolber & F.Achaval.

28. *Tyloderma inaequale* Voss
(Figs. 33, 65, 107, 139)

Tyloderma inaequalis Voss 1943:227-228 [description] & 229 [in key]; Papp 1979:200 [catalog]; Wibmer & O'Brien 1986:223 [checklist].

MALE. Elytra (in lateral view) weakly convex in *ca* basal 4/5; most of head, prothorax, elytra and legs brown to brownish black, with part of head, rostrum, some scale covered areas of elytra, and most of venter and pleura brownish red to reddish brown; scales mostly long, narrow to moderately narrow aciculate (some setalike), whitish. **Rostrum**. In lateral view, weakly set off from frons, with moderately sparse to dense scales on basal 3/5; dorsal surface mostly weakly rugosely punctate throughout, with punctures very small, moderately shallow, moderately dense to dense on basal 5/9, each with long seta, on apical 4/9 somewhat larger and deeper, each with mostly short seta. **Head**. Interocular distance moderately narrower than rostrum at lower margins of eyes, and frons with medium-sized, moderately narrow, moderately shallow sulcus; punctures weakly distinct, very small, moderately shallow to shallow, unevenly moderately dense on middle of frons, scarcely distinct, minute, shallow, moderately sparse elsewhere; with very narrow sulcus above each eye. **Prothorax**. 1.02 X as long as wide; postocular lobes weakly rounded; scales forming weakly to moderately distinct lateral bands on basal 3/5 of disc; punctures scarcely distinct, minute, very shallow to shallow on disc (slightly larger and deeper on apical 1/3), and on flanks moderately distinct along subapical constriction and above fore coxae (much larger and deeper than those on disc), subobsolete elsewhere. **Elytra**. 1.78 X as long as wide, 2.47 X as long as prothorax; scales on each elytron mainly along basal portion of interval 2, and forming oblique band from humerus to suture *ca* 3/7 from base, and broad band near declivity, somewhat transverse from suture to interval 3, then bifurcate toward interval 8; strial punctures mostly medium-sized (some large), most separated by own diameter or more (unevenly distributed) on basal 2/5, scarcely to weakly distinct on most of apical 1/2 (on striae 1-2 distinctly larger and deeper on apical portions than immediately in front of declivity); most strial grooves subobsolete on basal 1/2, most weakly distinct on apical 1/2 (9th moderately to very distinct on apical 3/5); most intervals moderately wider than strial punctures on basal 2/5, most almost straight to weakly undulate, mostly weakly convex, 2, 3, and 9 moderately convex on apical portions but not forming regularly shaped

carina. **Mesosternum.** Median area subcarinate on sides, weakly set off from lateral areas, lateral areas above middle coxae with few short to medium-sized, fine setae; mesepisternum with some short to medium-sized, narrow to moderately narrow scales, mesepimeron with some short, fine setae. **Metasternum.** Median area with broad, oval, smooth impression (with subcarinate margins) apicad of middle continued toward apex as very distinct sulcus. **Abdomen.** Sternum 5 with three medium-sized, very deep impressions; punctures medium-sized, moderately deep between hind coxae on sternum 1, most very small, shallow on remainder of sternum 1 and on sternum 2, small, moderately shallow on sterna 3-4, and most small, moderately shallow to moderately deep on sternum 5. **Legs.** Outer angle of hind coxal cavity (Fig. 33) almost completely closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin distinctly produced forward); anterior surface of hind coxa finely reticulate; femur with inner margin moderately rounded; uncus very large, broad (somewhat massive on fore legs), moderately curved (inner margin almost straight on fore legs), arising between middle of apex of tibia and inner apical angle, almost perpendicular to axis of tibia on fore legs, weakly oblique on middle and hind legs; praemucro small, *ca* 1/7 from apex of tibia, moderately oblique to axis of tibia and directed away from uncus on all legs; tarsal segment 5 lacking subapical denticles. **Genitalia.** See Fig. 65. **Length.** Pronotum + elytra: 4.44 mm (1.28 + 3.16).

FEMALE. Similar to male except uncus more slender, arising near middle of apex of tibia, weakly to moderately oblique to axis of tibia on all legs; praemucro large, subapical, weakly oblique to axis of tibia on all legs. **Genitalia.** See Fig. 107. **Length.** Pronotum + elytra: 4.64 mm (1.38 + 3.26).

INTRASPECIFIC VARIATION. The body is elongate oval to very elongate suboval, and the elytra may be unevenly moderately convex in lateral view. The cuticle occasionally is mostly brownish red to reddish brown, and the scales are medium to long. The rostrum may be scarcely to moderately set off from the frons. The rostrum may be subcarinate on the basal 5/9, and the dorsal surface may be mostly smooth, with the punctures scarcely distinct, minute to very small, most sometimes moderately dense only, or weakly to moderately rugosely punctate, with the punctures very small to small, most dense. The scales sometimes are mostly setalike on the head. The frontal sulcus is very short, narrow, and moderately shallow, to long (almost reaching the base of the rostrum), moderately broad, and deep, and sometimes there is a small to medium-sized, shallow to deep impression or fovea on the vertex near the frontal sulcus. The punctures of the head may be very small throughout (weakly distinct), to minute throughout (scarcely distinct). The prothorax has a ratio (length/width) of 0.97-1.13 (1.05 ± 0.04), and the postocular lobes may be weakly to moderately rounded, sometimes subtruncate. The pronotum occasionally has a narrow, moderately shallow, median, subapical depression. The pronotal punctures may be mostly very small (somewhat more obvious than described), or minute throughout (almost indistinct), and the obvious ones on the flanks may be only weakly to moderately distinct, only moderately larger and deeper than those on the disc. The elytra are 1.69-1.94 (1.81 ± 0.05) times as long as wide, and 2.19-2.65 (2.39 ± 0.10) times as long as the prothorax, and their lighter areas are very variable in size. Sometimes, the strial punctures are moderately unevenly to moderately evenly distributed. Most strial grooves may be weakly to moderately distinct throughout. Most intervals may be about as wide as the strial punctures on the basal 2/5, and 2, 3 and 9 sometimes form a weakly developed, apical carina. The median area of the mesosternum sometimes is distinctly subcarinate on the sides, moderately set off from the lateral areas. The mesepisternum may have more scales than described, all medium-sized. The impression of the median area of the metasternum may lack the subcarinate margins, especially in some females. The basal margin of abdominal sternum 1 sometimes is only moderately produced forward. The median impression of sternum 5 may be large to very large, whereas the lateral ones may be large. The punctures may be moderately shallow on the apical portion of sternum 1 and on sternum 2, and moderately shallow to moderately deep on sterna 3-5. The inner margin of the femora may be strongly rounded, the uncus arises from the inner apical angle of the tibia in some males, and the praemucro is located about 1/5-1/6 from the apex of the tibia in several males. Length, pronotum + elytra: 3.14-5.14 mm (4.28 ± 0.35).

TYPE LOCALITY. Argentina, "Rosario b.[bei] Cordoba" (probably in Santa Fe Province, between Rosario and the border with Córdoba Province).

NOTES ON THE TYPE. Lectotype (**here designated**) male (not dissected), with the following labels: 1) [rectangular; white; printed in black ink] Rosario b.Cordoba / ARGENTINIEN; 2) [rectangular; white; printed in black ink] coll. / H.Stempelmann; 3) [rectangular; white] [handwritten in black ink] Tyloderma / inaeqüalis / n.sp. / [printed in black ink] det.E.Voß.; 4) [rectangular; red; printed in black ink] Syntypus; 5) [rectangular; white; printed in black ink] Coll. DEI / Eberswalde; 6) [rectangular; white; handwritten in blue ink] Tyloderma / inaequalis / Voss; 7) [rectangular; red; printed in black ink] LECTOTYPE / Tyloderma / inaequale / Voss / G.J.Wibmer 1989.

Pinned. Tarsal segments 2-5 of the left hind leg are missing, and the right hind leg is almost completely removed from its socket by the pin. Deposited in DEIC.

The second syntype probably was destroyed together with most of Voss' collection.

REMARKS AND COMPARATIVE NOTES. The darker color, usually smaller elytral strial punctures, and usually broader intervals distinguish this species from all others in the *aeneotinctum* group. The males can be recognized also by the large, broad, almost massive uncus present on the fore legs and almost perpendicular to the axis of the tibia.

PLANT ASSOCIATIONS. Several specimens were treaded or swept from *Ludwigia peploides* ssp. *montevidensis* (Sprengel) Raven, *L. repens* Forst. [probably misidentifications of *L. peploides*], and *L. uruguayensis* (Camb.) Hara (Onagraceae). One specimen each was obtained on *Pistia stratiotes* L. (Araceae) and *Pontederia cordata* L. (Pontederiaceae), probably incidental records.

RANGE. Known from Argentina, Bolivia, southern Brazil, Paraguay, and Uruguay (Fig. 139).

MATERIAL EXAMINED. I studied 443 specimens from AMNH, BMNH, CBPC, CHAH, CWOB, DEIC, GJWC, IRSB, MACN, MCZC, MHNM, MLPC, MNHP, MZSP, NZAC, URMC and USNM, with the following data: **ARGENTINA**: **Buenos Aires**: [no date] (6) J.Bosq, IV-95 (2), [no date] (2 syntypes of *T. innotatum*), C.Bruch, [no date] (5) H.Richter, [no date] (3) [no collector]; 19 km SE Campana, at night 29-IX-68 (135) L.& C.W.O'Brien; Isla Martín García, VI-36 (2), 1938 (1), M.J.Viana; La Plata, (2) A.R.Bezzi, (1) Spegazzini, (2) [no collector]; [Las] Flores XII-17 (2) [J.M.Bosq]; Punta Lara XII-59 (1) A.Martínez; Quilmes 9-II-19 (1) Bosq; Rosas, Ferrocarriles Sud, (13) J.B.Daguerre, (1) [no collector]; San Fernando, IV-56 (1), VIII-62 (1), X-54 (2), XII-54 (1), XII-62 (2), Daguerre; San Pedro (1) A.G.Frers; Tigre, 16-I-16 (1) [J.M.Bosq], 1938 (1) M.J.Viana; 7 km NW Tigre, at night 28-IX-68 (3) L.& C.W. O'Brien; Villa Calzada XI-41 (1) Kuschel. **Chaco**: 2 km N Resistencia 25-I-89 (10) C.W.& L.O'Brien & G.Wibmer. **Corrientes**: Charca Los Gitanos, Ruta 5 km 2, on *Ludwigia* 13-I-83 (1) I.Y.Bruquetas; 3 km E Corrientes, 17-I-89 (1), night, 17-I-89 (35), 18-I-89 (51), C.& L.O'Brien & Wibmer; 180 km S of Corrientes, *Ludwigia repens* 15-IX-72 (1) C.J.DeLoach & H.A.Cordo; Ruta 27, 40 km NE of Goya, sweeping *Ludwigia repens* 13-III-75 (1) [no collector]. **Entre Ríos**: Gualeguay XII-46 (1) [G.Kuschel]; La Paz I-74 (4) Cesari; Liebig XI-74 (1) Zelich. **Formosa**: Ciudad [Formosa] II-49 (1) A.Martínez; 22 km W Clorinda 26-I-89 (1) C.W.& L.O'Brien & G.Wibmer. **La Pampa**: General Pico (1) J.M.Bosq. **Santa Fe**: (2) H.Richter; Depto. San Javier, Colonia Mascias XII-60 (2) M.Viana; Rafaela (3) Bosq; Río San Javier 5-I-12 (1) G.E.Bryant; Río San Javier, Estancia La Noria, 9-I-12 (1), 14-XII-11 (1), 16-XII-11 (1), 17-XII-11 (1), 22-XII-11 (1), 23-XII-11 (2), 24-XII-11 (1), G.E.Bryant; Rosario b.[ei? (near?)] Córdoba (lectotype) H.Stempelmann; Villa Ana, Ferrocarriles Santa Fe XII-24 (21) K.J.Hayward. **Santiago del Estero**: (2) Wagner. **Tucumán**: 12 km S Lules, at night 19-X-68 (1) L.& C.W.O'Brien; 13 km S Lules, at night 17-X-68 (1) L.& C.W.O'Brien. **BOLIVIA**: **Santa Cruz**: 500m XI-55 (1) Zischka; 4 mi E Portachuelo, at night 24-III-78 (1) C.W.& L.O'Brien; 10 mi W Portachuelo, at night, 24-III-78 (1), 26-III-78 (1), G.B.Marshall, at UV light 27-III-78 (2) C.W.O'Brien, at night 24-III-78 (1) C.W.& L.O'Brien; 10 mi W Puerto Banegas, at night 25-III-78 (1) C.W.& L.O'Brien. **BRAZIL**: **Rio Grande do Sul**: Pelotas 12-XI-50 (1) C.Biezanko; Pôrto Alegre, at light 7-I-69 (1) L.B.& C.W.O'Brien. **Santa Catarina**: Nova Teutonia, 27°11'S 52°23'W, 300-500m, XII-63 (1), XII-70 (3), F.Plaumann. **PARAGUAY**: [**Central**]: 3 km E Ypacaraí, at night, 6-VII-68 (1), 7-X-68 (3), 10-X-68 (1), L.& C.W.O'Brien; 4 km E Ypacaraí, 11-X-68 (1), at night 10-X-68 (1), C.W.& L.O'Brien. [**Cordillera**]: San Bernardino, Lago Ypacaraí, at night, on *Pistia stratiotes* 11-X-68 (1) C.W.O'Brien, at night 11-X-68 (1) L.B.& C.W.O'Brien. [**Presidente Hayes**]: 7 km N Benjamín Acerval, night 12-X-68 (1) C.W.& L.O'Brien. **URUGUAY**: **Canelones**: Bañados de Carrasco, en la resaca 27-V-51 (1) P.R.San Martín. **Colonia**: *ca* 2 km E Ruta 21 km 186, at night 30-XII-78 (1) G.J.& Z.Wibmer; [Arroyo] San Pedro, Ruta 21 km 194, 4-I-84 (3) G.J.Wibmer, 30-XII-83 (1) G.J.& Z.A.Wibmer; Paso de la Arena, [*ca*] Ruta 21 km 184, at night, on *Pontederia cordata* 18-I-76 (1) Z.I.& G.J.Wibmer; Piedra de los Indios, Ruta 21, 31-XII-85 (3), swept *Ludwigia peploides* 24-XII-83 (2), G.J.Wibmer, de noche, a la luz 17-X-70 (1) G.J.Wibmer & Z.Assandri; Playa Arenisca, in "resaca" [drift], on *Salvinia auriculata* 11-IV-76 (2) Z.I.& G.J.Wibmer; Real de San Carlos 28-XII-68 (1) G.J.Wibmer; Riachuelo, en la resaca 31-VIII-57 (1) L.C.de Zolessi & Z.Silva Durán; San Pedro, treaded or swept *Ludwigia uruguayensis* 5-I-79 (4) G.J.Wibmer, 11-I-79 (4), swept *Ludwigia peploides* ssp. *montevidensis* 8-XII-78 (3), swept *Ludwigia uruguayensis* 24-XII-78 (1), treaded *Ludwigia uruguayensis*, 6-I-79 (26), 11-I-79 (4), G.J.& Z.Wibmer. **Montevideo**: 1-III-17 (1) J.Tremoleras; [Montevideo], Sayago, trampa de luz 6/7-XI-66 (1) L.E.F.A.; Santiago Vázquez 13-XI-60 (1) C.S.Morey. **Río Negro**: San Javier (1) G.J.Fernández. **Rivera**: Sierra de la Aurora, Arroyo de la Aurora, de noche, a la luz 12/26-I-71 (1) M.A.Monné, M.Moratorio, C.S.Morey & G.Wibmer. **San José**: Balneario Kiyú, 7-X-70 (1), 28-X-70 (1), L.E.F.A. **Tacuarembó**: Arroyo Sauce de Tranqueras 10-I-64 (1) F.Achaval & A.Dolber. [**COUNTRY?**]: [probably ARGENTINA] (8) [no collector].

The *subpubescens* group

DESCRIPTION. Cuticle mostly brownish red to brownish (often appearing blackish to naked eye); scales (Figs. 11-12) short to very long, very narrow to moderately narrow aciculate (few to most setalike)

or obsolete. **Rostrum**. Punctures minute to small, very shallow to moderately deep; antennae with funicle 5-segmented. **Head**. Weakly to moderately depressed above eyes, usually with some scales along inner margins of eyes, and sometimes few on vertex. **Prothorax**. Apical margin weakly to distinctly notched above postocular lobes (Fig. 22); pronotal disc (Figs. 11-12) with scales relatively scarce, most along margins forming at most small clusters or weakly distinct bands. **Elytra** (Figs. 11-12). Scales not forming transverse band at or near declivity; strial punctures minute to medium-sized on basal 2/5. **Abdomen**. Sternum 5 with three shallow to moderately deep, subapical impressions (lateral ones sometimes scarcely distinct); punctures minute to very small (larger between hind coxae) on sterna 1-4, and minute to medium-sized on sternum 5. Semiaquatic.

REMARKS AND DIAGNOSTIC CHARACTERS. This group is known from the Mississippi Valley in the United States to central Argentina. It can be recognized by the following combination of characters: antennae with 5-segmented funicle; head weakly to moderately depressed above eyes; and apical margin of prothorax usually moderately to distinctly (rarely only weakly) notched above postocular lobes (Fig. 22).

SPECIES INCLUDED.

29. *T. brevisquameum* n. sp.
30. *T. schoenherri* n. sp.
31. *T. subpubescens* Casey
32. *T. cupreum* Hustache
33. *T. longisquameum* n. sp.
34. *T. aeneum* Hustache

29. *Tyloderma brevisquameum* Wibmer, new species
(Figs. 11, 66, 108, 133)

HOLOTYPE MALE. Elytra (in lateral view) weakly convex in *ca* basal 3/4; cuticle mostly dark brownish, with postocular lobes and abdominal sterna 3-5 brownish red to reddish brown, femora reddish brown, and antennae, tibiae and tarsi light brownish; scales (Fig. 11) mostly short, most moderately narrow to narrow aciculate (few setalike). **Rostrum**. Subcarinate on basal 1/2; dorsal surface weakly rugosely punctate throughout except for moderately distinct, smooth clypeal area, with punctures scarcely distinct on basal 1/2, much more obvious on apical 1/2, very small, shallow, moderately dense to dense, each with mostly very short to short, recumbent seta (slightly longer, scalelike near margins and on sides above scrobes). **Head**. Interocular distance *ca* as wide as rostrum at lower margins of eyes, frons with small, moderately shallow impression near vertex, and vertex with small, moderately shallow impression; punctures scarcely to weakly distinct, most very small, shallow, moderately dense (somewhat larger, more obvious on middle of frons). **Prothorax** (Fig. 11). Slightly wider than long, widest *ca* 2/5 from base, with sides moderately rounded; postocular lobes strongly rounded; pronotal disc with some scales on midline on apical 1/3, and forming on each side small lateral cluster at base, small lateral cluster *ca* 2/5 from base, and small submedian cluster *ca* 3/5 from base; punctures mostly weakly distinct, very small, shallow, moderately dense on disc (somewhat larger and deeper toward margins), and on flanks most weakly to moderately distinct throughout (on apical 3/5 somewhat to moderately larger, deeper and denser than those on disc, on basal 2/5 *ca* as large and deep as, to somewhat larger and deeper than those on disc, unevenly sparser). **Elytra** (Fig. 11). 1.54 X as long as wide, 2.19 X as long as prothorax, with ventrally moderately produced apices; surface almost unicolored, with scales mostly moderately dense, forming numerous spots or clusters not all symmetrical on both elytra; strial punctures medium-sized, mostly moderately deep, most separated by less than own diameter (fairly evenly distributed) on basal 2/5 of most striae (somewhat larger and deeper on striae 9-10); most strial grooves weakly distinct except near apices (1-2 moderately distinct throughout, 9 moderately distinct on most of apical 3/5); most intervals *ca* as wide as, or somewhat wider than (1-3 moderately wider than) strial punctures on basal 2/5. **Mesosternum**. Median area subquadrate on sides, scarcely set off from lateral areas; mesepisternum with few short, moderately narrow scales (one or two on anterior margin), mesepimeron with row of short setae. **Abdomen**. Punctures small to medium-sized, moderately deep between hind coxae and along base on sternum 1, very small, shallow on remainder of sternum 1, minute, very shallow on sternum 2, minute to very small, shallow on sterna 3-4, and very small to small, moderately shallow on sternum 5. **Legs**. Anterior surface of hind coxa finely reticulate; uncus medium-sized, moderately curved, arising between middle of apex of tibia and inner apical angle; praemucro very small, *ca* 1/6 from apex of tibia, weakly oblique to axis of tibia and directed away from uncus on all legs. **Genitalia**. See Fig. 66. **Length**. Pronotum + elytra: 3.00 mm (0.94 + 2.06).

ALLOTYPE FEMALE. Similar to male except uncus arising near middle of apex of tibia; praemucro medium-sized, subapical, almost perpendicular to axis of tibia on all legs. **Genitalia**. See Fig. 108. **Length**. Pronotum + elytra: 3.16 mm (0.99 + 2.17).

INTRASPECIFIC VARIATION. In a few specimens the elytra are more convex from 2/5 to 3/4 from the base, with the highest point located about 3/5 from the base. The basal portion of the metepisternum often is reddish brown, and abdominal sterna 3-4 (and rarely 5) are only brownish red to brownish, and 5 sometimes only brownish red. The rostrum rarely is only weakly arcuate, in a few specimens it is not

obviously subcarinate on the basal 1/2, and rarely there is a short, narrow and shallow sulcus near the middle. The rostrum may be smooth on the apical 2/5, and the punctures on the basal 1/2 may be weakly distinct, and rarely dense to very dense. The frontal impression (and/or the impression on the vertex) often is obsolete, although the frontal impression may become a medium-sized, moderately deep to deep fovea, or even a sulcus (medium-sized, narrow, or rarely long, broad and shallow, or very long but moderately narrow, reaching the vertex), and the vertex rarely has a medium-sized, deep fovea. The punctures may be weakly distinct, dense to very dense on the middle of the frons, or rarely throughout the head. The prothorax has a ratio (length/width) of 0.95-1.05 (0.99 ± 0.03). Its sides may be almost subparallel in the basal 4/7, or only weakly rounded. The pronotal punctures may be more obvious, moderately deeper and a little larger and denser, or a little smaller and moderately sparse to moderately dense, or even minute. The elytra are 1.48-1.68 (1.60 ± 0.05) times as long as wide, and 2.08-2.42 (2.25 ± 0.09) times as long as the prothorax. They may be gradually lighter colored on part or all of the apical 1/2, but showing little contrast with the basal 1/2. The strial punctures may be moderately unevenly distributed, most separated by their own diameter or more on the basal 2/5 of the disc, but more often they are separated by about their own diameter. The median area of the mesosternum sometimes is slightly to weakly subcarinate on the sides, weakly set off from the lateral areas. The scales of the mesepisternum may be short to medium-sized, moderately narrow to moderately broad, and often there are a few of them along the anterior margin. The punctures may be medium-sized, moderately deep to deep, moderately dense to dense on the basal 2/3 of sternum 1, and most punctures of sternum 5 may be small. Often, the anterior surface of the hind coxae is finely to very finely reticulate, and the praemucro is small to minute in males, medium to large in females. Length, pronotum + elytra: 2.48-3.49 mm (2.96 ± 0.16).

ETYMOLOGY. The Latin compound epithet *brevisquameus* means with short scales.

TYPE LOCALITY. Brasil, Estado do Mato Grosso, Entrance to Transpantanal Highway, 17 kilometers south of Poconé.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] BRAZIL,MatoGrosso / Entr.Transpantanal / Hwy.,17km.S.Poconé / 24-4-1981,D.P.Wojcik; 2) [rectangular; white; printed in black ink] UV / trap; 3) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / brevisquameum / Wibmer 1989.

Point-mounted. From CWOB; deposited in MZSP.

REMARKS AND COMPARATIVE NOTES. The mostly short scales on the elytra, and mesepisternum with some obvious scales on the surface and along the anterior margin, distinguish this species from all others in the *subpubescens* group.

RANGE. Known only from a small area in Mato Grosso State, Brazil, and Venezuela (see Fig. 133).

MATERIAL EXAMINED. Holotype, allotype, 283 paratypes, and 3 non-paratypes (NP) (288 specimens) from CWOB and UCVM, with the following data: **BRAZIL: Mato Grosso**: Cáceres, EMPA Res. Sta., UV trap 5-VIII-84 (3) D.P.Wojcik; Fiscal Caça & Pesca, 13 km S Poconé, St. Rd. 060, UV trap 9-VII-84 (1) D.P.Wojcik; Entrance Transpantanal Hwy., 17 km S Poconé, UV trap, 24-IV-81 (holotype + allotype + 259 + 2NP), 4-V-81 (17), D.P.Wojcik; Rio Arica Bridge, Cuiabá - Rondonópolis Rd. near km 391, UV trap 22-IV-81 (1) D.P.Wojcik; Várzea Grande County, Cuiabá, Parque de Exposição, blacklight trap (1NP) R.Williams. **VENEZUELA: Apure**: Hato El Frío, Fundo Ceibote, 100m 20-V-75 (1) C.J. Rosales. **Bolívar**: 4 km W Las Adjuntas, 870ft 30-VII-88 (1) C.& L.O'Brien & G.Wibmer. Paratypes will be deposited also in AMNH, BMNH, CBPC, CHAH, DEIC, DZUP, ELSC, FSCA, GJWC, IRSB, MACN, MCZC, MLPC, MNHP, MNRJ, MZSP, RSAC, TAMU and USNM.

30. *Tyloderma schoenherri* Wibmer, new species
(Figs. 67, 109, 127)

HOLOTYPE MALE. Elytra (in lateral view) moderately convex in *ca* basal 4/5; cuticle mostly brownish red, with head, rostrum, prothorax (except postocular lobes), and some areas of venter and legs dark brownish red, and scape and 1st funicular segment light brownish red; scales mostly medium to long, moderately narrow aciculate (few setalike). **Rostrum**. Weakly subcarinate on *ca* basal 3/10, with long, moderately narrow, moderately deep sulcus (broader and deeper toward apex) from 3/10 to 4/7 from base, and with some medium-sized scales on basal 1/2 (more obvious near margins and on sides above scrobes); dorsal surface moderately rugosely punctate except for moderately distinct, smooth clypeal area, with punctures mostly small, moderately deep, very dense on basal 7/10, somewhat smaller, shallower on apical 3/10, each with short to medium-sized, recumbent to subrecumbent seta, or scale. **Head**. Interocular distance somewhat narrower than rostrum at lower margins of eyes, and frons lacking distinct impression; punctures moderately distinct, small, moderately deep, mostly dense on frons and above eyes, smaller, shallower toward vertex. **Prothorax**. As long as wide, with sides subparallel in *ca* basal 2/5, weakly rounded; postocular lobes moderately rounded; pronotal disc with scales relatively scarce, most along

ut not forming distinct bands; punctures moderately distinct, small, moderately deep, moderately dense on disc (somewhat denser on apical 1/3, somewhat larger and deeper on margins), and on very distinct throughout, moderately larger and deeper than those on disc. **Elytra**. 1.61 X as long as ue, 2.22 X as long as prothorax, with ventrally slightly produced apices; surface almost unicolored, with scales mostly long, forming oblique band on basal 1/3 between striae 3 and 6 (denser on interval 4), and sparsely covering apical 4/7; strial punctures mostly medium-sized (some small), mostly deep, most separated by own diameter or more (moderately unevenly distributed) on basal 2/5 (somewhat denser on striae 1-2, much denser on striae 9-10); strial grooves subobsolete on basal 2/5, most weakly (9th strongly) distinct on most of apical 3/5; most intervals *ca* as wide as, or somewhat wider than (1-3 moderately wider than) strial punctures on basal 2/5. **Mesosternum**. Median area moderately rounded on sides, not set off from lateral areas; mesepisternum with few short, fine, recumbent setae, mesepimeron with row of few, scarcely distinct, very short setae. **Abdomen**. Punctures small to medium-sized, moderately deep to deep between hind coxae on sternum 1, very small, moderately shallow on remainder of sternum 1 and on sterna 2-4, and small to medium-sized, moderately deep on sternum 5. **Legs**. Anterior surface of hind coxa finely reticulate; uncus medium-sized, weakly to moderately curved on fore and middle legs, small, weakly curved on hind legs, arising near inner apical angle of tibia on all legs; praemucro minute, subapical on fore legs, obsolete on middle and hind legs. **Genitalia**. See Fig. 67. **Length**. Pronotum + elytra: 3.29 mm (1.02 + 2.27).

ALLOTYPE FEMALE. Similar to male except uncus arising between middle of apex of tibia and inner apical angle; praemucro small to medium-sized, subapical, very weakly oblique to axis of tibia and directed away from uncus on all legs. **Genitalia**. See Fig. 109. **Length**. Pronotum + elytra: 3.83 mm (1.23 + 2.60).

INTRASPECIFIC VARIATION. In some individuals the elytra and part of the legs are reddish brown, whereas other specimens may be almost completely dark brownish red. Often, the rostrum is not obviously subcarinate, and the rostral sulcus sometimes is narrow and moderately shallow, occasionally medium-sized, not exceeding the middle of the rostrum, rarely short, weakly distinct. In a few specimens the frons has a round or oval, shallow impression, or also there may be a round, shallow impression on the vertex. The prothorax has a ratio (length/width) of 0.95-1.07 (1.00 ± 0.03). It may be widest subbasally, with the sides converging weakly to near the middle, or the sides may diverge very weakly to about 2/5 from the base. In a few specimens the postocular lobes are moderately to strongly rounded, and occasionally the anterior margin of the prothorax is not distinctly notched, or only moderately so, above the postocular lobes. In some specimens the pronotal punctures are mostly moderately dense, or mostly dense. The elytra are 1.55-1.75 (1.65 ± 0.05) times as long as wide, and 2.11-2.41 (2.25 ± 0.08) times as long as the prothorax, and their apices may be ventrally weakly produced. The strial punctures may be separated by their own diameter or less on the basal 2/5, and rarely many are only moderately deep. The strial grooves may be weakly to moderately distinct throughout. The median area of the mesosternum may be subquadrate on the sides (scarcely set off from the lateral areas), and the mesepisternum may be subglabrous. The uncus of several males is small on the hind legs, and in a few males the praemucro is small, weakly oblique to the axis of the tibia and directed away from the uncus. Length, pronotum + elytra: 2.73-3.87 mm (3.33 ± 0.21).

ETYMOLOGY. I am honored to name this species after the Swedish weevil specialist Carl J. Schönherr, who described many weevil genera and published the first significant natural classification of Curculionoidea.

TYPE LOCALITY. República Dominicana, Provincia La Altagracia, 31 kilometers north of Higüey.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] DOM.REP., LaAltag. / 31km.N.Higüey / August 1, 1979 / C.W.O'Brien; 2) [rectangular; white; printed in black ink] on *Ludwigia / octovalvis*; 3) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / schoenherri / Wibmer 1989.

Point-mounted. Deposited in CWOB.

REMARKS AND COMPARATIVE NOTES. The mostly scalelike scales distinguish this species from *T. cupreum*, *T. subpubescens* and *T. brevisquameum* (which possess at least many setalike scales), and also from the glabrous *T. aeneum*; and unlike *T. longisquameum*, *T. schoenherri* has the prothorax distinctly narrowed in front of the subapical constriction. It also has deeper punctures on the flanks of the prothorax and on abdominal sternum 5 than those five species.

PLANT ASSOCIATIONS. Many specimens were obtained on *Ludwigia octovalvis* (Jacq.) Raven (Onagraceae) on separate occasions.

RANGE. Known from the Dominican Republic, Guadeloupe, and Haiti (see Fig. 127).

MATERIAL EXAMINED. Holotype, allotype, 167 paratypes, and 1 non-paratype (NP) (170 specimens) from BNHM, CWOB, ELSC, MCZC and USNM, with the following data: **DOMINICAN REPUBLIC: El Seibo**: 1 km N El Valle, 2-VIII-79 (15) G.B.Marshall, 2-VIII-79 (15) C.W.O'Brien,

2-VIII-79 (2) L.B.O'Brien; 9 km N Pedro Sánchez 2-VIII-79 (1) G.B.Marshall. **La Altagracia**: 2 km SW Campo Nuevo, 1-VIII-79 (5) G.B.Marshall, on *Ludwigia octovalvis* 1-VIII-79 (19) C.W.O'Brien; 31 km N Higüey, 1-VIII-79 (8) G.B.Marshall, feeding on *Ludwigia octovalvis* 1-VIII-79 (12), on *Ludwigia octovalvis* 1-VIII-79 (holotype + allotype + 49), C.W.O'Brien, 1-VIII-79 (11) C.W.& L.O'Brien & G.Marshall, on *Ludwigia octovalvis* 1-VIII-79 (1) L.B.O'Brien. [**Samaná**]: Sánchez VII-38 (5) Darlington. [**San Cristóbal**]: Villa Altagracia VII-38 (1) Darlington. **San Juan**: 6 km W San Juan, 7-VIII-79 (10) C.W.O'Brien, at night, on *Ludwigia octovalvis* 7-VIII-79 (6) C.W.O'Brien & Marshall, 7-VIII-79 (1) L.B.O'Brien. [**Trujillo**]: San Cristóbal, 35m, 2-XI-71 (1), 17-XI-71 (1NP), J.& S.Klapperich. **GUADELOUPE**: Grande Terre VII-63 (2) J.Maldonado. **HAITI**: Carrefour Muriani 29/30-XI-25 (1) W.A.Hoffman; [*ca* 1 km NE Carrefour] Moussignac, [18°23'N 73°06'W], [sweeping] 18-IX-45 (1) E.L.Sleeper; Port-au-Prince & vicinity 1/5-IX-34 (1) Darlington. Paratypes will be deposited also in ACCC, BMNH, FSCA, GJWC, MNHP, RSAC and TAMU.

31. *Tyloderma subpubescens* Casey
(Figs. 68, 110, 126)

Tyloderma subpubescens Casey 1892:449 [in key] & 455 [description]; Mitchell & Pierce 1911:57 [biological note]; Hustache 1936:182 [catalog]; Papp 1979:201 [catalog]; Wibmer 1981:15 [in key], 43-45 [redescription and biological notes], & Figs. 2, 18, 34, 64, 82, 110, 136; O'Brien & Wibmer 1982:142 [checklist].

MALE. Elytra (in lateral view) weakly convex in *ca* basal 4/5; cuticle mostly dark brownish red, with legs and antennae light brownish; scales medium to long, narrow to moderately narrow aciculate (some setalike). **Rostrum**. Weakly subcarinate on basal 1/2, with few scales on sides above scrobes; dorsal surface weakly rugosely punctate except for moderately distinct, smooth clypeal area, with punctures very small to small, shallow to moderately shallow, mostly moderately dense to dense throughout, each with very short, recumbent seta. **Head**. Interocular distance somewhat narrower than rostrum at lower margins of eyes, and frons with short, moderately broad, shallow sulcus; punctures weakly distinct, very small to small, shallow to moderately shallow, moderately dense on frons, smaller, shallower, somewhat sparser toward vertex. **Prothorax**. 1.04 X as long as wide, widest *ca* 2/5 from base, with sides moderately rounded; postocular lobes moderately rounded; pronotal disc with some scales near margins on basal 1/3, denser at base; punctures weakly distinct, very small, shallow to moderately shallow, moderately sparse to moderately dense on disc (distinctly larger and deeper toward margins), and on flanks most moderately distinct on apical 3/5 (much larger and deeper, somewhat denser than those on disc), most weakly distinct on basal 2/5 (somewhat larger and deeper than those on disc). **Elytra**. 1.52 X as long as wide, 1.96 X as long as prothorax, with ventrally weakly produced apices; surface almost unicolored, with scales on each elytron forming oblique band on basal 1/3 between striae 3 and 6, and sparsely covering apical 2/5; strial punctures mostly medium-sized (some small), moderately deep to deep, most separated by *ca* own diameter (moderately evenly distributed) on basal 2/5; most strial grooves weakly distinct in part, 9th moderately distinct on apical 3/5; most intervals *ca* as wide as, or somewhat wider than (1-3 moderately wider than) strial punctures on basal 2/5. **Mesosternum**. Median area moderately rounded on sides, not set off from lateral areas; mesepisternum and mesepimeron with few, mostly indistinct, minute setae. **Abdomen**. Punctures small, moderately shallow to moderately deep between hind coxae and along base on sternum 1, minute to very small, shallow on remainder of sternum 1 and on sterna 2-4, and small, moderately shallow on sternum 5. **Legs**. Anterior surface of hind coxa finely reticulate; uncus medium-sized, moderately curved, arising between middle of apex of tibia and inner apical angle; praemucro very small, subapical, almost perpendicular to axis of tibia on fore and middle legs, obsolete on hind legs. **Genitalia**. See Fig. 68. **Length**. Pronotum + elytra: 2.84 mm (0.96 + 1.88).

FEMALE. Similar to male except uncus arising near middle of apex of tibia; praemucro small to medium-sized, subapical on all legs. **Genitalia**. See Fig. 110. **Length**. Pronotum + elytra: 3.12 mm (1.04 + 2.08).

INTRASPECIFIC VARIATION. The color of the cuticle varies from light brownish red to dark brownish, with the legs sometimes almost completely tan. The rostrum may not be obviously subcarinate, or it may be weakly subcarinate throughout, and the rostral punctures may be dense throughout. The frontal sulcus sometimes is narrow or even indistinct, or it may be just a round, very shallow impression. A few specimens have a small, moderately deep to deep impression or sulcus on the vertex, which often is present together with the frontal sulcus. On some specimens all of the punctures of the head are shallow, sometimes dense. The prothorax has a ratio (length/width) of 1.02-1.18 (1.11 ± 0.04). Its sides may be only weakly rounded, and occasionally the apical margin is only weakly to moderately notched above the postocular lobes. Rarely there is a small to medium-sized, shallow to moderately shallow impression on each side of the pronotal disc about 3/10 from the base. The pronotal punctures may be scarcely distinct,

minute to very small, or more obvious and moderately shallow throughout. The elytra are 1.42-1.66 (1.52 ± 0.05) times as long as wide, and 1.68-2.05 (1.85 ± 0.10) times as long as the prothorax. The strial punctures may be sparser (or rarely somewhat denser), and occasionally they are smaller, then most intervals are somewhat to moderately wider than the punctures. Most strial grooves may be weakly (or rarely moderately) distinct throughout. The median area of the mesosternum rarely is subquadrate on the sides, scarcely set off from the lateral areas. The mesepisternum and mesepimeron may be subglabrous. The uncus may be moderately to strongly curved in some males; the praemucro is weakly to moderately oblique and directed toward the uncus in some females, whereas three male specimens from Honduras have the praemucro present on all tibiae. Length, pronotum + elytra: 2.45-3.40 mm (2.96 ± 0.18).

TYPE LOCALITY. U.S.A., Texas, Travis County, Austin, on the Colorado River above Columbus.

NOTES ON THE TYPE. Holotype (by monotypy) male (not dissected), with the following labels: 1) [rectangular; white; printed in black ink, with black dot under "e" handwritten in black ink, a code for "Austin - On the Colorado River above Columbus" (D.R. Whitehead, pers. comm.)] Tex.; 2) [rectangular; white; printed in black ink] CASEY / bequest / 1925; 3) [rectangular; red] [printed in black ink] TYPE USNM / [handwritten in black ink] 37442; 4) [rectangular; white; handwritten in black ink] subpubescens.

Point-mounted. Length (pronotum + elytra): 2.91 mm (1.04 + 1.87), the prothorax and elytra with a ratio (length/width) of 1.08 and 1.42, respectively. Deposited in USNM.

REMARKS AND COMPARATIVE NOTES. The known range of *T. subpubescens* separates this species from all others in the group. Otherwise, it is difficult to separate *T. subpubescens* from *T. cupreum*, but *T. subpubescens* has deeper punctures on the flanks of the prothorax, distinct throughout, whereas in *T. cupreum* they are weakly distinct to subobsolete on the basal 2/5.

PLANT ASSOCIATIONS. This species is known to breed in *Polygonum punctatum* Elliot, *P. portoricense* Bertero, and *P. pensylvanicum* L. (Polygonaceae). In addition, many specimens were collected on *P. hydropiperoides* Michaux and *P. acuminatum* H.B.K.

RANGE. Known from Guatemala, Honduras, Mexico, Nicaragua, and the United States (see Fig. 126).

MATERIAL EXAMINED. In addition to the 512 specimens studied earlier (Wibmer 1981:44-45), I have seen 5 specimens from AMNH, CWOB, MCZC and USNM, with the following data: **GUATEMALA**: [**Alta Verapaz**]: Panzós, 100ft 17-VII-47 (1) C.& P.Vaurie. [**Izabal**]: Los Amates (1) Kellerman. **MEXICO**: **Michoacán**: Pátzcuaro 7-VII-64 (1) P.J.Spangler. **Tamaulipas**: Río Corona, 30 km NE Ciudad Victoria 23-III-80 (1) E.G.Riley. [**COUNTRY?**]: [locality illegible] trampa luz IX-69 (1) A.Cevallos.

32. *Tyloderma cupreum* Hustache
(Figs. 22, 69, 111, 135)

Tyloderma cuprea Hustache 1940:135-136 [description]; Blackwelder 1947:863 [checklist]; Papp 1979:199 [catalog].

Tyloderma cupreum Hustache; Wibmer & O'Brien 1986:223 [checklist].

MALE. Elytra (in lateral view) moderately convex in *ca* basal 5/6; cuticle mostly dark brownish red, with part of elytra reddish brown to dark reddish brown, and scape, 1st funicular segment, postocular lobes and legs light brownish; scales mostly medium to long, narrow to very narrow aciculate (many setalike). **Rostrum**. Weakly subcarinate, with few scales on sides above scrobes; dorsal surface almost smooth (clypeal area weakly distinct), with punctures minute to very small, shallow, moderately dense to dense, each with very short to short, recumbent seta. **Head**. Interocular distance somewhat narrower than rostrum at lower margins of eyes, and frons with small, moderately shallow, round impression toward vertex; punctures (Fig. 22) weakly distinct, most very small, shallow, moderately dense on frons, minute, very shallow, moderately sparse elsewhere. **Prothorax**. 1.04 X as long as wide, widest *ca* 3/7 from base, with sides weakly rounded; postocular lobes weakly rounded; pronotal disc with scales relatively scarce, most medium-sized, mainly forming weakly distinct lateral bands on basal 2/5 of disc; punctures very weakly distinct, most very small, moderately sparse to moderately dense on disc (somewhat larger, deeper, unevenly denser toward margins), and on flanks (Fig. 22) most moderately distinct on apical 3/5 (distinctly larger and deeper than those on disc), most weakly distinct on basal 2/5 (somewhat larger and deeper than those on disc). **Elytra**. 1.63 X as long as wide, 2.25 X as long as prothorax, with ventrally weakly produced apices; with most of apical 1/3 light reddish brown, and weakly oblique fascia *ca* 1/4 from base dark reddish brown, and scales mostly long, mostly sparse, forming (denser) weakly oblique band on basal 1/3 covering lighter fascia of each elytron; strial punctures mostly medium-sized (some small), moderately deep on striae 1-8, medium-sized, deep on striae 9-10, most separated by own diameter or less on basal 1/3 of striae 1-2 and 9-10, by more than own diameter on striae 3-8 (moderately unevenly distributed); most strial grooves weakly distinct throughout, 9th moderately distinct on apical 3/5; most intervals moderately wider than strial punctures on basal 2/5. **Mesosternum**. Median area partially subcarinate on sides, weakly set off from lateral areas; mesepisternum and mesepimeron with few, weakly distinct, short to very short

setae. **Abdomen.** Punctures small, moderately deep between hind coxae on sternum 1, mostly indistinct on remainder of sternum 1 and on sternum 2, minute, very shallow on sterna 3-4, and very small, shallow to moderately shallow on sternum 5. **Legs.** Anterior surface of hind coxa finely to moderately finely reticulate; uncus medium-sized, weakly curved, arising near inner apical angle of tibia; praemucro obsolete on all legs. **Genitalia.** See Fig. 69. **Length.** Pronotum + elytra: 2.86 mm (0.88 + 1.98).

FEMALE. Similar to male except uncus arising between middle of apex of tibia and inner apical angle; praemucro small, subapical, moderately oblique to axis of tibia and directed away from uncus on all legs. **Genitalia.** See Fig. 111. **Length.** Pronotum + elytra: 3.17 mm (0.93 + 2.24).

INTRASPECIFIC VARIATION. The large lighter area of each elytron may be weakly to very distinct, sometimes comprising most of the apical 2/5, the lighter fascia located about 1/4 from the base of each elytron may be scarcely distinct, and most of the scales may be setalike. At times there are some scales on the dorsal surface of the rostrum on the basal 1/2. The rostrum may be almost indistinctly to moderately subcarinate on the basal 1/2. The punctures may be moderately distinct, very small to small throughout, or very weakly distinct, and minute throughout. The frontal impression may be large, oval, reaching the base of the rostrum, to small, shallow, scarcely distinct, and occasionally there is a round, shallow impression on the vertex. The punctures may be moderately dense to dense, weakly distinct, to almost indistinct. The prothorax has a ratio (length/width) of 0.98-1.07 (1.03 ± 0.02). Sometimes the sides are moderately rounded, and rarely they are subparallel in the basal 1/2. The pronotal punctures are very small (weakly distinct), to minute (scarcely distinct). The elytra are 1.51-1.72 (1.65 ± 0.05) times as long as wide, and 2.05-2.41 (2.24 ± 0.08) times as long as the prothorax. Their apices rarely are ventrally moderately produced. The strial punctures on the basal 1/3 may be medium-sized (many separated by less than their own diameter on all the striae) or mostly small (then the intervals are moderately to much wider than the punctures). The strial grooves may be moderately distinct throughout, or at least on the basal 1/2. The median area of the mesosternum may be subquadrate to weakly subcarinate, occasionally only moderately rounded, and the mesepisternum and mesepimeron may be subglabrous. The punctures may be medium-sized between the hind coxae and also along the base on sternum 1, and there may be some weakly distinct, minute, sparse punctures on the remainder of sternum 1 and on sternum 2. The uncus of some males is small, or moderately curved. A few males (including the lectotype) have a small or medium-sized, almost subapical praemucro on the fore legs, and it may be medium-sized in some females, weakly oblique to almost perpendicular to the axis of the tibia. Length, pronotum + elytra: 2.15-3.75 mm (2.96 ± 0.20).

TYPE LOCALITY. Argentina, Provincia de Buenos Aires, Isla Martín García.

NOTES ON THE TYPE. Lectotype (**here designated**) male (not dissected), with the following labels: 1) [rectangular; white; printed in black ink except for handwritten date] BUENOS AIRES ARGENTINA / ISLA MARTIN GARCIA / 6-1936 M.J.VIANA; 2) [rectangular; white; printed in red ink] TYPE; 3) [rectangular; pale blue; printed in black ink] MUSEUM PARIS / 1949 / Col. A.HUSTACHE; 4) [rectangular (lower right hand corner broken off); white; handwritten (by Hustache) in black ink] Tyloderma / cuprea / m.; 5) [rectangular; red; printed in black ink] LECTOTYPE / Tyloderma / cupreum / Hustache / G.J.Wibmer 1989.

Card-mounted, glued on its venter. Length (pronotum + elytra): 3.18 mm (1.02 + 2.16), the prothorax and elytra with a ratio (length/width) of 1.00 and 1.57, respectively. Deposited in MNHP.

The second syntype is missing.

REMARKS AND COMPARATIVE NOTES. This species is very similar to *T. subpubescens*, but *T. cupreum* can be distinguished from it and also from *T. schoenherri* because in *T. cupreum* the punctures on the basal 2/5 of the flanks of the prothorax are mostly weakly distinct to subobsolete, whereas they are deeper and distinct throughout in the allopatric *T. subpubescens* and *T. schoenherri*. If abraded it can be confused with the sympatric *T. aeneum*, which has a similar color pattern on the elytra, but the latter has more prominent humeri, and very distinct 10th elytral strial grooves. The usually weakly rounded postocular lobes, and elytra lighter colored also on the apical portions distinguish *T. cupreum* fairly well from *T. longisquameum*, and very easily from *T. brevisquameum*. The prothorax of a very depauperate specimen from Uruguay has the same shape as in *T. longisquameum*, but the postocular lobes are weakly rounded and the scales are only medium-sized, placing it in *T. cupreum*.

PLANT ASSOCIATIONS. Some of the specimens studied were collected on *Ludwigia peploides* (H.B.K.) Raven, *L. repens* Forst. [probably misidentifications of *L. peploides*] (Onagraceae), *Pistia stratiotes* L. (Araceae), or *Eichhornia* sp. (Pontederiaceae), a few treading *Polygonum* sp. (Polygonaceae) or *Pontederia* sp. (Pontederiaceae), and one feeding on *Nymphaea amazonum* Mart. *et* Zucc. (Nymphaeaceae).

RANGE. Known from Argentina, Bolivia, Brazil, Paraguay, and Uruguay (Fig. 135).

MATERIAL EXAMINED. I have on hand 862 specimens from BMNH, CBPC, CWOB, DZUP, ELSC, FSCA, GJWC, HAHC, MACN, MCZC, MLPC, MNHP, MZSP, NZAC, RDCC, UCVM, URMC and USNM, with the following data: **ARGENTINA: Buenos Aires:** 19 km SE Campana, at night 29-IX-68

, L.& C.W.O'Brien; Ciudad [Buenos Aires], a la luz 25-XII-18 (1) Bosq; Isla Martín García, V-35 (1), VI-36 (lectotype), 1938 (2), M.J.Viana; La Plata, (1) Spegazzini, (1) [no collector]; Luján (3) HH.Maristas; Rosas, Ferrocarriles Sud (7) J.B.Daguerre; San Fernando, IV-54 (1), X-54 (1), XII-55 (1), XII-62 (1), Daguerre; Tigre X-55 (1) Daguerre; Zelaya II-51 (1) J.B.Daguerre. **Chaco**: Colonia Benítez XII-57 (1) A.Martínez; Ruta 16, 37 km E of [Presidencia Roque] Sáenz Peña, on *Pistia* 23-III-75 (1) [no collector]; 2 km N Resistencia 25-I-89 (9) C.W.& L.O'Brien & G.Wibmer; 17 km N Resistencia 25-I-89 (1) C.W.& L.O'Brien & G.Wibmer. **Corrientes**: (1) [no collector]; Charca Los Gitanos, Ruta 5 km 2, on *Ludwigia peploides*, 20-X-82 (1), 28-X-82 (1), on *Pistia stratiotes* & *Ludwigia peploides* 13-I-83 (2), I.Y.Bruquetas; 3 km E Corrientes, 17-I-89 (1), night, 17-I-89 (164), 18-I-89 (212), C.& L.O'Brien & Wibmer; 180 km S of Corrientes, *Ludwigia repens* 15-IX-72 (1) C.J.DeLoach & H.A.Cordo; Ruta 27, 35 km NE of Goya, *Ludwigia repens* 13-III-75 (1) [no collector]; INTA, arrozal var. semienana, 5-I-84 (1), 25-I-84 (2), I.Y.Bruquetas; Laguna Brava, 7 km E Corrientes, Hwy. 5, handpicked feeding on *Nymphaea amazonum* 17-I-89 (1) C.W.O'Brien & G.Wibmer. **Entre Ríos**: 13 km S Ceibas, Hwy. 12 14-I-89 (1) C.& L.O'Brien & G.Wibmer; La Paz I-74 (1) Cesari. **Formosa**: 2 km S Clorinda 26-I-89 (12) C.W.& L.O'Brien & G.Wibmer; 22 km W Clorinda 26-I-89 (17) C.W.& L.O'Brien & G.Wibmer; 34 km SW Clorinda 26-I-89 (16) C.W.& L.O'Brien & G.Wibmer; 40 km SW Clorinda 26-I-89 (3) C.W.& L.O'Brien & G.Wibmer; Gran Guardia I-53 (3) Foerster. **Salta**: [Depto. General José de] San Martín, Pocitos XI-59 (1) A.Martínez. **San Luis**: 18 km S Arizona, 250m 18/23-I-82 (1) H.& A.Howden. **Santa Fe**: 16-XI-27 (1) Benito; Depto. San Javier, Colonia Mascias XII-60 (11) M.Viana; Reconquista 26-XI-39 (1) Birabén & Bezzi; Río San Javier, Estancia La Noria, 17-XII-11 (1), 21-XII-11 (1), G.E.Bryant; Santo Tomé, Río Salado 30/31-III-71 (1) C.M.& O.S.Flint,Jr.; Villa Ana, Ferrocarriles Santa Fe XII-24 (11) K.J.Hayward. **Santiago del Estero**: Añatuya IV-63 (2) Kohler; Campo del Cielo I-34 (1) Bosq. **Tucumán**: 5 km S Lules, at night 17-X-68 (2) L.& C.W.O'Brien. **BOLIVIA**: **Beni**: Reyes 10-XI-56 (1) L.E.Peña. **Santa Cruz**: 500m, XI-55 (2), 5-XII-55 (2), Zischka; Ayacucho 13/14-V-69 (1) P.& P.Spangler; 4 mi E Cotoca, at night 21-IV-78 (3) C.W.O'Brien & Marshall; 4 mi E Portachuelo, at night, 24-III-78 (2), 27-III-78 (3), G.B.Marshall, at night, 24-III-78 (8), 27-III-78 (17), C.W.& L.O'Brien, treading *Pontederia* 24-III-78 (2) C.W.& L.O'Brien & Marshall; 10 mi W Portachuelo, UV trap 26-III-78 (2) G.B.Marshall, at UV light, 26-III-78 (2), 27-III-78 (1), C.W.O'Brien; 14 mi SW Portachuelo, at night 24-III-78 (2) G.B.Marshall, at night 24-III-78 (1) C.W.& L.O'Brien; 5 mi W Puerto Banegas 25-III-78 (1) G.B.Marshall; 10 mi W Puerto Banegas, at night 25-III-78 (4) G.B.Marshall, at night, feeding on *Pistia* 25-III-78 (1) C.W.& L.O'Brien; Saavedra, Agr. Exp. Sta., blacklight trap, 4-I-60 (33), 5-I-60 (45), 27-XII-59 (13), 28-XII-59 (1), 30-XII-59 (2), R.B.Cumming, Saavedra Res. Sta., UV trap, 15-IV-78 (1), 17-IV-78 (9), H.Serrate, UV trap, 22-III-78 (13), 25-III-78 (3), C.Ward & C.W.O'Brien; Prov. of San Esteban, Muyurina, 49 km N of Santa Cruz, 1120ft, blacklight trap, 12-X-59 (1), 19-X-59 (1), 26-X-59 (9), 22-XI-59 (1), 27-XII-59 (5), R.B.Cumming; 4 mi E Santa Cruz, at night 21-IV-78 (5), at night, on *Ludwigia* (erect, 3ft tall) 21-IV-78 (7), treading *Ludwigia* 21-IV-78 (1), treading *Polygonum* 21-IV-78 (8), C.W.O'Brien & Marshall; Prov. Sara, 2 km NW of Santa Rosa, blacklight trap 21-II-69 (1) A.Martínez & R.E.Woodruff. **BRAZIL**: **Mato Grosso**: Cáceres, EMPA Res. Sta., UV trap, 28-I-85 (3), 31-I-85 (3), 7-II-85 (1), 5-VIII-84 (1), 5-IX-84 (1), D.P.Wojcik; Entrance Transpantanal Hwy., 17 km S Poconé, UV trap 24-IV-81 (1) D.P.Wojcik. **Rio [Grande do] Sul**: Cachoeirinha 13-XII-80 (1) IRGA. **[Santa Catarina]**: Nova Teutonia, 27°11'S 52°23'W, 300-500m XII-60 (1) F.Plaumann. **PARAGUAY**: **Alto Paraná**: 27 km W Puerto Presidente Stroessner 26-I-83 (1) E.G.Riley. **Central**: Asunción, at light 30-XII-72 (1) L.Lautenschlager, 5-VII-68 (5) L.& C.W.O'Brien, 16-I-83 (3) E.G.Riley, 13-V-72 (5) [no collector]; Capiatá 7-VII-68 (1) C.W.& L.O'Brien; 4 km S Limpio 13-X-68 (1) C.W.O'Brien; Piquete Cué, at light 13-X-68 (2) C.W.& L.O'Brien; 3 km E Ypacaraí, at night, 6-VII-68 (9), 7-X-68 (12), 10-X-68 (27), L.& C.W.O'Brien; 4 km E Ypacaraí, 11-X-68 (9), at night 10-X-68 (10), C.W.& L.O'Brien. **Cordillera**: Distrito Piribebuy, Piraretá, at blacklight 31-X-81 (4) R.D.Cave; Inst. Agr. Nac. Caacupé, 25-IX-81 (1), at blacklight 23-X-81 (1), R.D.Cave; San Bernardino, Lago Ypacaraí, at night, on *Pistia stratiotes* 11-X-68 (1) C.W.O'Brien, at night 11-X-68 (7), at night, on *Eichhornia* 11-X-68 (1), L.& C.W.O'Brien. **[Itapúa]**: Hohenau (1) H.Jacob. **Presidente Hayes**: 7 km N Benjamín Acerval, night 12-X-68 (2) C.W.& L.O'Brien; Villa Hayes, at night 13-X-68 (1) C.W.O'Brien. **URUGUAY**: **Canelones**: Bañados de Carrasco 27-V-51 (1) L.C.de Zolessi. **Colonia**: [Arroyo] San Pedro, Ruta 21 km 194 4-I-84 (1) G.J.Wibmer; Parque San Pedro, en la resaca 23/25-VIII-70 (1) M.S.Moratorio, Z.Assandri & G.J.Wibmer; Playa Arenisca, in "resaca" [drift], on *Salvinia auriculata* 11-IV-76 (11) Z.I.& G.J.Wibmer; Riachuelo, en la resaca 31-VIII-57 (1) L.C.de Zolessi & Z.Silva Durán. **Montevideo**: [Montevideo], Sayago, trampa de luz 16-I-67 (1) L.E.F.A. **Rocha**: Ruta 19, 4 km N 18 de Julio 6-II-89 (2) C.W.& L.O'Brien & G.Wibmer. **San José**: Balneario Kiyú 7-X-70 (1) L.E.F.A.

33. *Tyloderma longisquameum* Wibmer, new species
(Figs. 12, 70, 112, 131)

HOLOTYPE MALE. Elytra (in lateral view) scarcely convex in basal 3/10, and weakly convex to *ca* 3/4 from base; cuticle mostly light brownish red, with legs and part of elytra somewhat more reddish; scales (Fig. 12) very long on elytra, medium to long elsewhere, narrow to moderately narrow aciculate (few setalike). **Rostrum.** Not carinate nor sulcate; dorsal surface weakly rugosely punctate throughout except for weakly distinct, smooth clypeal area, with punctures very small, shallow, moderately dense to dense, each with mostly very short to short, recumbent to subrecumbent seta (short to medium-sized on basal 1/2 near margins and on sides above scrobes). **Head.** Interocular distance slightly narrower than rostrum at lower margins of eyes, and frons with small, moderately shallow fovea near vertex; punctures weakly distinct, very small, shallow to moderately shallow, most moderately sparse to moderately dense on frons, slightly shallower toward vertex. **Prothorax** (Fig. 12). 1.07 X as long as wide, widest *ca* 2/5 from base, with sides very weakly rounded; postocular lobes moderately rounded; pronotal disc with scales on each side forming moderately sparse lateral band on basal 3/4 (denser near base); punctures very weakly distinct, very small, very shallow, most sparse to moderately sparse (somewhat denser on apical 1/4), and on flanks most moderately distinct on apical 3/5 (moderately to distinctly larger, deeper and denser than those on disc), most weakly distinct on basal 2/5 (somewhat larger, deeper and denser than those on disc). **Elytra** (Fig. 12). 1.55 X as long as wide, 2.00 X as long as prothorax, with ventrally weakly produced apices; each elytron with transverse, dark reddish brown fascia from 3/5 to 5/6 from base, and scales forming short band at base of interval 2, weakly oblique band *ca* 3/10 from base from stria 1 to interval 6 then obliquely toward but not reaching humerus, and sparsely covering part of apical 2/5; strial punctures mostly medium-sized (some small), moderately deep, most separated by *ca* own diameter (fairly evenly distributed) on basal 1/3 of striae 1-8 (deeper, denser on striae 9-10); strial grooves weakly distinct on basal 1/3, mostly subobsolete on apical 2/3 (9th weakly to moderately distinct on apical 2/5); intervals moderately wider than strial punctures on basal 1/3. **Mesosternum.** Median area subquadrate on sides, scarcely set off from lateral areas; mesepisternum and mesepimeron subglabrous. **Abdomen.** Punctures medium-sized, moderately deep between hind coxae and partially along base on sternum 1, mostly minute, very shallow on remainder of sternum 1 and on sternum 2, and very small, shallow to moderately shallow on sterna 3-5. **Legs.** Anterior surface of hind coxa finely alveolate; uncus medium-sized, moderately curved, arising near inner apical angle of tibia; praemucro minute, subapical on fore legs, obsolete on middle and hind legs. **Genitalia.** See Fig. 70. **Length.** Pronotum + elytra: 2.97 mm (0.99 + 1.98).

ALLOTYPE FEMALE. Similar to male except uncus arising between middle of apex of tibia and inner apical angle; praemucro small, subapical, almost perpendicular to axis of tibia on all legs. **Genitalia.** See Fig. 112. **Length.** Pronotum + elytra: 2.93 mm (1.01 + 1.92).

INTRASPECIFIC VARIATION. The elytra may be weakly convex in all of the basal 3/4. The rostrum may have a short, narrow, shallow sulcus near the middle, and the punctures may be more obvious, only moderately shallow. The frontal fovea may be medium-sized, moderately deep, to subobsolete, or it may become a short to medium-sized, moderately shallow sulcus, and rarely there is a small, shallow impression on the vertex. The prothorax has a ratio (length/width) of 1.03-1.15, with the sides also subparallel in the basal 1/2. The punctures may be scarcely distinct to subobsolete on the basal 2/3 of the pronotum, and most on the basal 1/2 of the flanks may be moderately larger and deeper than those on the disc. The elytra are 1.52-1.61 times as long as wide, and 1.87-2.16 times as long as the prothorax. Their lighter subapical area is light to dark reddish brown, and sometimes the elytra are a little more reddish on the basal 3/10 on the areas partially covered with scales. The strial punctures may be somewhat denser on the disc also, and the strial grooves may be weakly to moderately distinct on the basal 3/4. The median area of the mesosternum may be weakly subcarinate on the sides, weakly set off from the lateral areas, and the punctures may be minute to very small on most of abdominal sternum 1 and on sternum 2. Length, pronotum + elytra: 2.83-3.13 mm.

ETYMOLOGY. The Latin compound epithet *longisquameus* means with long scales.

TYPE LOCALITY. Argentina, Provincia de Santa Fe, Departamento San Javier, Colonia Mascias.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink except for "F" in "Fe" (handwritten over printed "S", a lapsus)] ARG.,P.SantaFe, / Colonia Mascias, / Dept. SanJavier / Dec. 1960 M.Viana; 2) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / longisquameum / Wibmer 1989.

Point-mounted. Deposited in MACN.

REMARKS AND COMPARATIVE NOTES. The longer scales and the prothorax little narrowed in front of the subapical constriction separate *T. longisquameum* from all the other species in the group. It is very close to *T. cupreum*, but *T. longisquameum* usually has larger postocular lobes, the lighter area of each elytron is subapical only, and the anterior surface of the hind coxae is finely alveolate.

RANGE. Known only from eastern Argentina (see Fig. 131).

MATERIAL EXAMINED. Holotype, allotype, 4 paratypes, and 1 non-paratype (NP) (7 specimens) from MACN, NZAC and USNM, with the following data: ARGENTINA: **Buenos Aires**: (1) J.Bosq; San Fernando IX-61 (1) Daguerre. **Santa Fe**: Depto. San Javier, Colonia Mascias XII-60 (holotype + allotype + 1 + 1NP) M.Viana. [**COUNTRY?**]: [probably ARGENTINA] (1) [no collector]. One paratype will be deposited in CWOB, the non-paratype will be deposited in GJWC.

34. *Tyloderma aeneum* Hustache
(Figs. 71, 113, 134)

Tyloderma aenea Hustache 1939:103 [description]; Blackwelder 1947:863 [checklist]; Papp 1979:198 [catalog].

Tyloderma aeneum Hustache; Wibmer & O'Brien 1986:223 [checklist].

Tyloderma metallica Voss 1943:228 [description] & 229 [in key]; Papp 1979:200 [catalog] **(NEW SYNONYMY)**.

Tyloderma metallicum Voss; Wibmer & O'Brien 1986:223 [checklist].

MALE. Elytra (in lateral view) moderately convex in *ca* basal 5/6; cuticle mostly dark brownish red, with scape and most of first 2 funicular segments, postocular lobes, abdomen, legs, and part of elytra light brownish red, and remainder of antennae brownish; scales obsolete. **Rostrum**. Not carinate nor sulcate; dorsal surface smooth (clypeal area weakly distinct), with punctures minute, very shallow, moderately sparse to moderately dense, each with very short, mostly recumbent seta. **Head**. Interocular distance somewhat narrower than rostrum at lower margins of eyes, and frons with small, round, moderately shallow impression toward vertex; punctures scarcely distinct, minute, very shallow, moderately sparse to moderately dense. **Prothorax**. 1.04 X as long as wide, widest *ca* 2/5 from base, with sides weakly rounded; postocular lobes moderately rounded; punctures mostly indistinct on disc, and on flanks some weakly to moderately distinct along subapical constriction and few weakly to very weakly distinct above fore coxae (moderately to distinctly larger and deeper than those on disc), subobsolete elsewhere. **Elytra**. 1.58 X as long as wide, 2.31 X as long as prothorax, with ventrally weakly produced apices; with *ca* apical 1/4 and oblique fascia on basal 1/3 light brownish red; strial punctures scarcely distinct, very small to small, shallow, separated by more than own diameter (moderately evenly distributed) on basal 2/5 of striae 1-8, moderately distinct, most small, moderately deep, separated by *ca* own diameter on striae 9-10; strial grooves 1-8 subobsolete, 9th moderately distinct, 10th very distinct; intervals much wider than strial punctures on basal 2/5. **Mesosternum**. Median area weakly subcarinate on sides, weakly set off from lateral areas; mesepisternum and mesepimeron subglabrous. **Abdomen**. Punctures mostly small, moderately shallow to moderately deep between hind coxae on sternum 1, scarcely distinct, minute, very shallow on remainder of sternum 1 and on sterna 2-5. **Legs**. Anterior surface of hind coxa finely reticulate; uncus small, almost straight on fore legs, arising from inner apical angle of tibia, weakly curved on middle and hind legs, arising near inner apical angle; praemucro minute, subapical on fore legs, obsolete on middle and hind legs. **Genitalia**. See Fig. 71. **Length**. Pronotum + elytra: 3.11 mm (0.94 + 2.17).

FEMALE. Similar to male except uncus weakly curved on all legs, arising between middle of apex of tibia and inner apical angle; praemucro small, subapical, almost perpendicular to axis of tibia on all legs. **Genitalia**. See Fig. 113. **Length**. Pronotum + elytra: 3.11 mm (0.97 + 2.14).

INTRASPECIFIC VARIATION. The rostrum may have a short, shallow sulcus near the middle. The frontal impression may be medium-sized, or moderately deep, and there may be a round, moderately deep impression on the vertex above the frontal impression. The prothorax has a ratio (length/width) of 0.95-1.14, and the punctures on the flanks may be almost indistinct except along the subapical constriction. The elytra are 1.50-1.64 times as long as wide, and 2.05-2.33 times as long as the prothorax. The strial punctures may be a little more obvious on the basal 1/2 of the disc, and the strial grooves may be weakly distinct on the basal 3/4. The praemucro is a little larger on the fore legs of one male. Length, pronotum + elytra: 2.56-3.48 mm.

TYPE LOCALITY. Argentina, Provincia de Buenos Aires.

NOTES ON THE TYPES. A) *aeneum*: Lectotype (**here designated**) female (not dissected), with the following labels: 1) [rectangular; white; printed in black ink except for handwritten day, month and last digit of year] R$^{EP.}$ ARGENTINA / Prov. Buenos Aires / 9. VII 190? [last digit illegible, crossed by pin] / C. Bruch; 2) [rectangular; white; handwritten in black ink] 181.; 3) [rectangular; white; printed in red ink] TYPE; 4) [rectangular; pale blue; printed in black ink] MUSEUM PARIS / 1949 / Col. A.HUSTACHE; 5) [rectangular; white; handwritten (by Hustache) in black ink] Tylod. / aenea / m.; 6) [rectangular; red; printed in black ink] LECTOTYPE / Tyloderma / aeneum / Hustache / G.J.Wibmer 1989.

Card-mounted, glued on its venter. The 5th tarsal segment of the right fore leg is missing. Length (pronotum + elytra): 3.14 mm (1.02 + 2.12), the prothorax and elytra with a ratio (length/width) of 1.13

and 1.50, respectively. Deposited in MNHP.

The second syntype is missing. The size of 5 mm given by Hustache for that specimen seems excessive for this species.

B) *metallicum*: Holotype (by monotypy) male (not dissected), with the following labels: 1) [rectangular; white; printed in black ink] Rosario b.Cordoba / ARGENTINIEN; 2) [rectangular; white; printed in black ink] coll. / H.Stempelmann; 3) [rectangular; white] [handwritten in black ink] Tyloderma / metallica / n.sp. / [printed in black ink] det.E.Voß.; 4) [rectangular; red; printed in black ink] Holotypus; 5) [rectangular; white; printed in black ink] Coll. DEI / Eberswalde; 6) [rectàngular; white; handwritten in blue ink] metallica / Voss.

Pinned. The right elytron is partially cracked by the entrance of the pin, the metasternum is partially broken by the exit of the pin, the abdomen is somewhat removed from its normal position, and the right hind leg is missing. Length (pronotum + elytra): 2.90 mm (0.95 + 1.95), the prothorax and elytra with a ratio (length/width) of 0.95 and 1.50, respectively. Deposited in DEIC.

REMARKS AND COMPARATIVE NOTES. The very distinct 10th elytral strial grooves, more depressed head above the eyes, and mostly scarcely distinct punctures on the flanks of the prothorax (except along the subapical constriction) readily distinguish this species from all others in the *subpubescens* group.

PLANT ASSOCIATIONS. Four specimens were obtained while treading *Ludwigia* (Onagraceae) and *Myriophyllum* (Haloragaceae), and this species probably breeds in the former genus.

RANGE. Known only from eastern Argentina and southwestern Uruguay (see Fig. 134).

MATERIAL EXAMINED. I was able to study 13 specimens from CWOB, DEIC, GJWC, MACN, MLPC and MNHP, with the following data: **ARGENTINA: Buenos Aires**: 9-VII-0? [last digit illegible] (lectotype) C.Bruch; Martínez 4-X-26 (1) Bridarolli. **Entre Ríos**: 4 mi S Ceibas (Hwy. 12), at night 14-IV-78 (2), treading *Ludwigia* & *Myriophyllum* 14-IV-78 (4), C.W.O'Brien. [**Santa Fe**]: Rosario de Santa Fe I-32 (1) [no collector]; Rosario b.[ei? (near?)] Córdoba (holotype of *T. metallicum*) H.Stempelmann. **URUGUAY: Colonia**: Playa Arenisca, in "resaca" [drift], on *Salvinia auriculata* (3) Z.I.& G.J. Wibmer.

The *fasciatum* group

DESCRIPTION. Elytra (in lateral view) moderately to strongly convex in *ca* basal 4/5 (Fig. 2); cuticle mostly smooth, shining to very shining, mostly black (in *T. cubense* mostly dark reddish brown). **Rostrum**. In lateral view, usually moderately to strongly set off from frons, evenly, moderately to strongly arcuate in basal 2/3-3/4, slightly to moderately depressed in apical 1/3-1/4, carinate or subcarinate in whole or in part. **Head**. Frons usually with medium to very large, deep to very deep fovea (in *T. fasciatum* obsolete, or small, moderately deep); eyes with dorsal and inner margins weakly to distinctly angulate with head. **Prothorax** (Fig. 10). Usually distinctly wider than long (in *T. circumcaribbeum* rarely *ca* as long as wide), widest basally or subbasally, with sides converging weakly to very weakly to near middle, or sides subparallel in *ca* basal 3/7-4/7; postocular lobes (Fig. 2) strongly to very strongly rounded; pronotal disc usually with medium to very large, shallow to moderately deep impression on each side *ca* 1/4 from base. **Scutellum** (Fig. 10). Medium to large, broad to very broad ovoid, with narrow end toward prothorax. **Elytra**. Apices ventrally moderately (Fig. 2) to strongly produced (Fig. 3); scales covering large portion of apical 3/7, or forming four narrow to very broad, weakly undulate to zig-zag bands (Fig. 10) or four rows of mostly large spots (Fig. 2) (near base, *ca* 3/10 from base, *ca* 3/5 from base, and near declivity); interval 2 and outer interval (and to lesser degree 1, 3 and 9) forming moderately tuberculate to tuberculate, oblique, apical carina (Figs. 2-3, 10). **Mesosternum**. Median area with medium to long, fine, dense to very dense, suberect to erect, plumose hairs arising from minute to very small punctures. **Legs**. Anterior surface of hind coxa (not visible in *T. albidomaculatum*) mostly very finely reticulate; tarsal segment 5 with dense to very dense, mostly suberect setae on ventral surface (very distinct on apical 1/2-3/5 in lateral view). All probably semiaquatic.

REMARKS AND DIAGNOSTIC CHARACTERS. This group is primarily Neotropical, with *T. circumcaribbeum* extending into the Nearctic region in southern Florida. The *fasciatum* group can be recognized by the following combination of characters: postocular lobes (Fig. 2) strongly to very strongly rounded; elytral apices ventrally moderately to strongly produced (Figs. 2-3); interval 2 and outer interval (and to lesser degree 1, 3 and 9) form moderately tuberculate to tuberculate apical carina (Figs. 2-3, 10); and mesosternum with medium to long, dense to very dense, suberect to erect, plumose hairs arising from minute to very small punctures.

SPECIES INCLUDED.

35. *T. cubense* n. sp.
36. *T. fasciatum* (Pascoe)
37. *T. albidomaculatum* n. sp.
38. *T. subfasciatum* n. sp.
39. *T. pallidum* n. sp.
40. *T. circumcaribbeum* Wibmer

35. ***Tyloderma cubense*** Wibmer, **new species**
(Figs. 72, 114, 127)

HOLOTYPE MALE. Body elongate suboval, elytra (in lateral view) moderately convex in *ca* basal 4/5; prothorax and elytra dark reddish brown, with head, rostrum, venter, pleura and tarsi somewhat darker, and most of femora and tibiae somewhat lighter; scales short to medium-sized, most moderately broad to broad suboval, yellowish, many imbricate. **Rostrum.** In lateral view, weakly set off from frons, evenly, moderately arcuate in basal 2/3, slightly depressed in apical 1/3, with weakly developed carina on most of basal 3/5; dorsal surface moderately rugosely punctate throughout except for weakly distinct, smooth, almost impunctate, transverse clypeus, with punctures small, and moderately deep. **Head.** Not rugosely striate, with few scales around eyes; frons with large, very deep fovea; punctures moderately distinct, most small, moderately deep, unevenly dense (sparser toward middle of vertex), each with short to medium-sized, moderately fine to moderately coarse (many scalelike), recumbent seta; eyes moderately convex, with dorsal margin distinctly angulate and inner margin weakly to moderately angulate with head; with very narrow sulcus above each eye. **Prothorax.** 0.87 X as long as wide, with sides subparallel in basal 4/7; pronotal disc with large, roundish, shallow impression on each side *ca* 1/4 from base, and scales very dense, forming very broad lateral bands on basal 3/5; punctures small, moderately deep on disc, and on flanks very distinct throughout, distinctly larger and deeper than those on disc, each puncture with recumbent to subrecumbent seta, mostly short, moderately fine on disc, mostly medium-sized, moderately fine to moderately coarse (many scalelike) on flanks. **Elytra.** 1.59 X as long as wide, 2.62 X as long as prothorax, with ventrally moderately produced apices; scales on each elytron mainly forming short band near base on intervals 3-4, broad zig-zag band from humerus to stria 1 *ca* 3/7 from base, and covering large portion of apical 3/7; strial punctures mostly medium-sized, deep, most separated by own diameter or little more (fairly evenly distributed) on basal 2/5, moderately distinct on most of apical 1/2 (on striae 1-2 somewhat larger and deeper on apical portions than immediately in front of declivity), some punctures with short, fine to moderately fine seta, most with scale; most intervals *ca* as wide as, or somewhat wider than (1-3 and 10 moderately wider than) strial punctures on basal 2/5 of disc, almost straight to weakly undulate, mostly weakly convex throughout, more convex near apex of each elytron forming moderately tuberculate carina. **Mesosternum.** Median area moderately rounded on sides, not set off from lateral areas, lateral areas above middle coxae with many medium-sized, fine to moderately fine, recumbent to subrecumbent setae; mesepisternum with many medium-sized (few narrow, setalike) scales (some along anterior margin). **Metasternum.** Lateral areas with moderately narrow, impunctate stripe against metepisternum; punctures small to medium-sized on median area, medium-sized on lateral areas. **Abdomen.** Sternum 5 with three shallow, roundish impressions. **Legs.** Outer angle of hind coxal cavity almost completely open (apex of metepisternum rounded off and lateral basal angle of abdominal sternum 1 pointed); uncus medium-sized, weakly curved, arising near inner apical angle of tibia, weakly oblique to axis of tibia; praemucro medium-sized, *ca* 1/6 from apex of tibia on fore legs, *ca* 1/5 from apex on middle legs, moderately oblique to axis of tibia and directed away from uncus, obsolete on hind legs. **Genitalia.** See Fig. 72. **Length.** Pronotum + elytra: 5.21 mm (1.44 + 3.77).

ALLOTYPE FEMALE. Similar to male except uncus arising near middle of apex of tibia; praemucro subapical, weakly oblique to axis of tibia on all legs. **Genitalia.** See Fig. 114. **Length.** Pronotum + elytra: 5.00 mm (1.41 + 3.59).

INTRASPECIFIC VARIATION. The rostral carina is moderately developed in the allotype. The prothorax has a ratio (length/width) of 0.87-0.92. In the allotype, the pronotal impressions are moderately deep. The elytra are 1.57-1.59 times as long as wide, and 2.56-2.62 times as long as the prothorax. In the allotype, the lateral basal angle of abdominal sternum 1 is subtruncate.

ETYMOLOGY. The adjective *cubensis* is derived from Cuba.

TYPE LOCALITY. Cuba, Provincia de Granma, south edge of Manzanillo, 20°21'N 77°07'W, 60 meters above sea level.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink except for handwritten date] CUBA: Manzanillo, / 2021/7707, 60m, / 27-IX-80 / E.L. Sleeper; 2) [rectangular; white; printed in black ink] E.L.Sleeper / Collection; 3) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / cubense / Wibmer 1989.

Point-mounted. Deposited in ELSC.

REMARKS AND COMPARATIVE NOTES. Distinguished from the other species in the group by the broader bands of scales near the margins of the pronotal disc, not obviously curved toward the midline. Five other species (*T. circumcaribbeum*, *T. aeneotinctum*, *T. danforthi*, *T. setarium* and *T. insulicola*) are known from Cuba, but they are easily distinguished from *T. cubense*.

RANGE. Known only from Cuba in the Greater Antilles (see Fig. 127).

MATERIAL EXAMINED. Holotype and allotype (2 specimens) from ELSC and USNM, with the

following data: **CUBA**: [**Granma**]: Cayamas "1.6" (allotype) E.A.Schwarz; Manzanillo, 20°21'N 77°07'W, 60m 27-IX-80 (holotype) E.L.Sleeper.

36. *Tyloderma fasciatum* (Pascoe)
(Figs. 10, 73, 115, 140)

Analcis fasciatus Pascoe 1881:306-307 [description].
Tyloderma fasciatus (Pascoe); Hustache 1936:181 [catalog].
Tyloderma fasciata (Pascoe); Blackwelder 1947:863 [checklist]; Papp 1979:199 [catalog].
Tyloderma fasciatum (Pascoe); Wibmer & O'Brien 1986:223 [checklist].
Analcis Decorus [*sic*] Dejean 1835:295 & 1836:320 [checklist; *nomen nudum*].

MALE. Body oval, elytra (in lateral view) moderately convex in *ca* basal 4/5; cuticle mostly black; scales medium-sized, moderately broad, subcuneiform to suboval, yellowish, most imbricate. **Rostrum**. In lateral view, moderately set off from frons, evenly, strongly arcuate in basal 2/3, weakly depressed in apical 1/3, with well-developed carina on basal 1/5 (extending onto frons), and weakly developed carina on apical 2/5; dorsal surface moderately rugosely punctate throughout except for moderately distinct, smooth, almost impunctate, subtriangular clypeal area, with punctures mostly small, moderately deep. **Head**. Mostly somewhat rugosely striate, with large spot of scales between eyes and on base of rostrum; frons lacking median fovea; punctures moderately distinct, small, moderately deep, dense to very dense throughout, each with scarcely distinct, very short, fine, recumbent seta; eyes moderately convex, with dorsal and inner margins distinctly angulate with head; with narrow sulcus above each eye. **Prothorax** (Fig. 10). 0.90 X as long as wide, widest subbasally, with sides converging very weakly to near middle; pronotal disc lacking impressions, with scales forming broad lateral bands on basal 2/5, then bifurcate apicad, with short arm laterad and ventrad and long arm obliquely mesad reaching midline *ca* 3/5 from base; punctures small, most moderately shallow on disc (somewhat larger and deeper on apical portion), and on flanks moderately to very distinct throughout (on apical 3/5 much larger and deeper, on basal 2/5 moderately larger and deeper than those on disc), each puncture with recumbent seta, mainly very short, fine on disc, mainly short, moderately fine on flanks. **Elytra** (Fig. 10). 1.54 X as long as wide, 2.51 X as long as prothorax, with ventrally strongly produced apices; scales on each elytron forming four moderately to very broad, weakly undulate bands not discontinuous at striae (subbasal, transverse from near suture to stria 6; *ca* 3/10 from base, weakly oblique from stria 1 to interval 10, then along interval 10 shortly backward, and forward to near base; *ca* 3/5 from base, weakly oblique between striae 1 and 8; and near declivity, transverse); strial punctures mostly medium-sized (some small), moderately deep to deep, many separated by 2 diameters or more (moderately unevenly distributed) on basal 1/4 of striae 1-8, medium to large, deep, separated by own diameter or less on basal 1/4 of stria 9 and on stria 10, weakly distinct on most of apical 1/2 (on striae 1-2 distinctly larger and deeper on apical portions than immediately in front of declivity), each puncture with scarcely distinct, minute, fine seta; intervals 1-9 much wider than strial punctures on basal 1/4, almost straight, mostly weakly convex throughout, more convex near apex of each elytron forming moderately tuberculate carina. **Mesosternum**. Median area subcarinate on sides, weakly set off from lateral areas, lateral areas above middle coxae with many short, moderately fine, recumbent setae; mesepisternum with many short, moderately fine setae. **Metasternum**. Lateral areas with broad, impunctate stripe against metepisternum; punctures mostly medium-sized on median and lateral areas. **Abdomen**. Sternum 5 with three very deep, roundish impressions. **Legs**. Outer angle of hind coxal cavity partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin not produced forward); uncus medium-sized, weakly curved, arising near inner apical angle of tibia, weakly oblique to axis of tibia; praemucro small, *ca* 1/6 from apex of tibia on fore legs, *ca* 1/5 from apex on middle and hind legs, moderately oblique to axis of tibia and directed away from uncus on all legs. **Genitalia**. See Fig. 73. **Length**. Pronotum + elytra: 4.82 mm (1.37 + 3.45).

FEMALE. Similar to male except uncus moderately curved, arising between middle of apex of tibia and inner apical angle, moderately oblique to axis of tibia; praemucro large, subapical. **Genitalia**. See Fig. 115. **Length**. Pronotum + elytra: 4.98 mm (1.31 + 3.67).

INTRASPECIFIC VARIATION. The scales are light yellow to ferruginous, fairly consistent within individuals, and in some specimens they are not distinctly imbricate on the elytra. The rostral carina may be moderately developed throughout (rarely subobsolete), or there may be a short, moderately deep sulcus near the middle. The dorsal surface of the rostrum may be only weakly to moderately rugosely punctate, with many of the punctures very small. The frons may have a small, moderately deep fovea (present in the holotype), or it may be at least somewhat impressed on the middle, and rarely there is a medium-sized, moderately deep fovea on the vertex. The punctures of the head may be only moderately dense to dense, and the sulcus above each eye may be moderately narrow or obsolete. The prothorax has a ratio (length/width) of 0.80-0.94 (0.88 ± 0.03), and the sides may be subparallel in the basal 1/2 or they may

y to near the middle. The pronotal punctures may be minute, scarcely distinct on the disc, moderately deep throughout. The elytra are 1.40-1.62 (1.54 ± 0.05) times as long as wide, 2 (2.62 ± 0.11) times as long as the prothorax, and the band of scales located about 3/10 from occasionally is discontinuous between stria 7 and the middle of interval 8. The strial punctures medium to large, mostly deep, few separated by more than their own diameter on the basal 1/4, the intervals are as wide as or only moderately wider than the strial punctures. The mesepisternum may have a few scales on the dorsal portion of the anterior margin. The lateral basal angle of odominal sternum 1 may be subtruncate, and the median impression of sternum 5 may be very large, and elongate (transverse). The praemucro is medium-sized in some males. Length, pronotum + elytra: 3.82-5.22 mm (4.60 ± 0.23).

TYPE LOCALITY. Brasil, Estado do Amazonas, probably Tefé.

NOTES ON THE TYPE. Holotype (by monotypy) female (not dissected), with the following labels: 1) [round; white with broad red edge; printed in black ink] Holo- / type; 2) [oval; pink; handwritten in black ink] Amazons; 3) [rectangular; white; handwritten in black ink] Analcis / fasciatus / type Pasc.; 4) [rectangular; white; printed in black ink] Pascoe Coll. / B.M.1893-60.; 5) [rectangular; white; handwritten in black ink] Analcis / fasciatus Pasc. (same handwriting on labels 3 and 5).

Pinned with a minuten, then pinned to a card mount. Somewhat teneral, with the cuticle not distinctly black (especially on the venter and pleura), and the head reddish; the metasternum and metepisterna somewhat removed by the minuten from their normal position. Length (pronotum + elytra): 4.25 mm (1.10 + 3.15), the prothorax and elytra with a ratio (length/width) of 0.81 and 1.58, respectively. Deposited in BMNH.

REMARKS AND COMPARATIVE NOTES. This species is easily distinguished from all other species in the genus by the scale pattern of the prothorax and the elytra, and by the large spot of scales located between the eyes. If the scales are abraded, the strong impressions where they originate are very evident. Also, it is distinguished from the other species in the group by the lack of (or at most small) frontal fovea.

PLANT ASSOCIATIONS. One specimen was collected on *Ludwigia peruviana* (L.) Hara (Onagraceae).

RANGE. Known from Argentina, Bolivia, Brazil, French Guiana, Paraguay, Trinidad, Uruguay, and Venezuela (see Fig. 140).

MATERIAL EXAMINED. I have seen 155 specimens from AMNH, BMNH, CBPC, CIBC, CWOB, DZUP, ELSC, FSCA, GJWC, IRSB, MACN, MCZC, MLPC, MNHP, MNRJ, MZSP, NZAC, RDCC, UCVM, URMC and USNM, with the following data: **ARGENTINA**: (1) A.Breyer. **Buenos Aires**: (1) C.Bruch; [Las] Flores 27-II-15 (1) Bosq. **Catamarca**: (1) [no collector]. **Chaco**: Resistencia, (1) Mallo, at light 4/9-IV-40 (1) H.L.Parker, 15-X-36 (1), 8-XI-36 (1), XI-35 (1), [no date] (4), [no collector]. **Corrientes**: (1) [no collector]. **Formosa**: 2 km S Clorinda 26-I-89 (3) C.W.& L.O'Brien & G.Wibmer; Gran [as Grau] Guardia II-53 (2) [no collector]. **Misiones**: (2) [no collector]. [**Santa Fe**]: Reconquista 23/24-II-41 (11) [no collector]; Villa Ana, Ferrocarriles Santa Fe XII-24 (1) K.J.Hayward. **BOLIVIA**: **Santa Cruz**: II-56 (1) G.Pinckert; 500m XI-55 (1) Zischka; 10 mi W Portachuelo, at night, 26-III-78 (1), 11-IV-78 (1), G.B.Marshall, at UV light, 27-III-78 (1), 26-IV-78 (1), C.W.O'Brien; 5 mi W Puerto Banegas, on *Jussiaea peruviana* 25-III-78 (1) C.W.& L.B.O'Brien; 10 mi W Puerto Banegas, at night 25-III-78 (1) G.B.Marshall, at night 25-III-78 (1) C.W.& L.O'Brien; Saavedra, Agr. Exp. Sta., blacklight trap, 3-I-60 (1), 5-I-60 (4), 7-I-60 (1), 27-XII-59 (3), 28-XII-59 (2), 30-XII-59 (4), R.B.Cumming; 4 mi E Santa Cruz, at night 21-IV-78 (1) C.W.O'Brien & Marshall. **BRAZIL**: **Amazonas**: (1) [no collector]; [Ega? (now Tefé [Papavero 1973:260])] (holotype) [no collector]. **Bahia**: Encruzilhada, 960m XI-72 (1) M.Alvarenga. **Ceará**: Itaiçaba IV-40 (1) [no collector]. **Espírito Santo**: Córrego Itá XI-56 (1) W.Zikán; Linhares, Parque Sooretama, 21-X-58 (3), 25-X-58 (2), at light, 15-X-58 (1), 18-X-58 (1), 23-X-58 (2), 18-XI-60 (1), J.Zajciw, 17/27-X-62 (2) F.S.Pereira; Parque Sooretama 7-XI-64 (1) F.Oliveira Wemer & C.A.Seabra. **Mato Grosso [do Sul]**: Salobra, Instituto Oswaldo Cruz, I-41 (1), 1/9-III-40 (2), [no collector]. **Minas Gerais**: Manhuaçu XI-72 (1) M.Alvarenga; Pedra Azul XI-72 (3) M.Alvarenga. **Rio de Janeiro**: 21-I-69 (0) L.& C.W.O'Brien; [as **D. Federal**] Ilha do Governador, 12-X-55 (1), 17-X-54 (1), M.Alvarenga; [as **Guanabara**] Lagoa de Marapendi 19-X-64 (1) P.R.San Martín & M.A.Monné. **Rio Grande do Norte**: Ceará Mirim, 6/7-VII-69 (1), 7/8-VII-69 (1), P.& P.Spangler; Natal VI-51 (1) M.Alvarenga. **São Paulo**: Piracicaba, blacklight 2-XII-65 (1), blacklight trap 13-XII-65 (1), C.A.Triplehorn; Ubatuba 15-II-68 (1) [ses]. **FRENCH GUIANA**: Cayenne (3) [no collector]; Pariacabo, Rivière de Kourou (1) [no collector]; [s] Roches de Kourou (3) [no collector]. **PARAGUAY**: **Central**: Asunción, 16-I-83 (2), at night 15-I-83 E.G.Riley; Colonia Nueva Italia 10-X-40 (1) P.Willim; near Ñemby 11-I-83 (1) E.G.Riley; 3 km E Acaraí, at night 7-X-68 (1) C.W.& L.O'Brien. **Cordillera**: Caacupé, Inst. Agr. Nac., 1-XII-80 (1), II-80 (2), 5-XII-80 (5), R.D.Cave; 7 km W Caacupé, at night 11-X-68 (1) C.W.& L.O'Brien. **esidente Hayes**]: 7 km N Benjamín Acerval 12-X-68 (1) C.W.& L.O'Brien; Santa Clara, Río Confuso

(1) [no collector]. **TRINIDAD**: Curepe, mercury vapor trap IX-79 (1) M.J.W.Cock. **URUGUAY Canelones**: Piedras de Afilar 29-III-36 (1) C.S.Carbonell. **VENEZUELA**: **Barinas**: Cachicamo, selva de Caparo, 200m 25-VIII-70 (2) Gaiani; Reserva Forestal Caparo, Campamento Cachicamo [as Cachicamos], 100m 6/14-VIII-69 (2) J.Salcedo & F.Zambrano. **Bolívar**: 4 km W Las Adjuntas, 870ft 30-VII-88 (4) C.& L.O'Brien & G.Wibmer. [**Delta**] **Amacuro**: San José de Amacuro 3-XI-80 (1) S.Valero. **Guárico**: Calabozo 15/16-VI-66 (1) J.& B.Bechyné; Estación Biológica de los Llanos, 7 km ESE Calabozo, 380ft, at light 21-VII-88 (1) C.W.& L.B.O'Brien & G.J.Wibmer; 13 km NW San Fernando de Apure, UV, 23-VII-88 (11), 24-VII-88 (1), C.& L.O'Brien & G.Wibmer. **Monagas**: Jusepín, 60m 24-X-65 (1) C.J.Rosales & F.Fernández Y. **Portuguesa**: San Nicolás, 180m V-75 (1) S.Clavijo. [**COUNTRY?**]: [probably ARGENTINA] (1) [no collector].

37. *Tyloderma albidomaculatum* Wibmer, new species
(Figs. 2, 116, 140)

HOLOTYPE FEMALE. Body oval, elytra (in lateral view) strongly convex in *ca* basal 4/5 (Fig. 2); cuticle mostly black; scales short, moderately broad to broad, cuneiform to suboval, whitish, most imbricate. **Rostrum**. In lateral view, strongly set off from frons (Fig. 2), evenly, strongly arcuate in basal 3/4, slightly depressed in apical 1/4, with distinct carina (well-developed on basal 4/7, weakly to moderately developed on apical 3/7); dorsal surface mostly weakly rugosely punctate (clypeal area moderately distinct, smooth, almost impunctate, subtriangular), with punctures very small, shallow to moderately shallow. **Head**. Rugosely striate except above eyes, with few scales between eyes; frons with medium-sized, deep fovea; punctures (Fig. 2) weakly distinct because of rugosity, very small to small, moderately shallow, moderately sparse to moderately dense, each with very short to short, fine to moderately fine, recumbent seta; eyes weakly convex, with dorsal and inner margins distinctly angulate with head; lacking sulcus above each eye. **Prothorax**. 0.83 X as long as wide, widest subbasally, with sides converging very weakly to near middle; pronotal disc with medium-sized, shallow impression on each side *ca* 1/4 from base, and scales (Fig. 2) forming moderately broad to broad lateral bands on basal 2/5, then obliquely mesad but not reaching midline; punctures mostly small (some very small), shallow to moderately shallow on disc (larger and deeper on apical 1/3), and on flanks (Fig. 2) very distinct along subapical constriction and above fore coxae (much larger and deeper than those on disc), weakly distinct elsewhere (most *ca* as large and deep as those on disc), each puncture with mostly very short, fine to moderately fine, recumbent to subrecumbent seta. **Elytra**. 1.37 X as long as wide, 2.55 X as long as prothorax, with ventrally moderately produced apices (Fig. 2); scales on each elytron (Fig. 2) forming four rows of mostly large spots located mainly on even-numbered intervals, covering interval and most of adjacent striae (near base, almost straight; *ca* 3/10 from base, strongly undulate, with spot on interval 4 much more apicad than others, lacking from interval 8; *ca* 3/5 from base, moderately undulate, with spot on interval 4 more apicad than others; and near declivity, weakly undulate); strial punctures mostly very large, deep to very deep, most separated by own diameter or more (moderately evenly distributed) on basal 1/3, moderately distinct on most of apical 1/2 (on striae 1-2 *ca* as large and somewhat deeper on apical portions than immediately in front of declivity), each puncture with scarcely distinct, minute, fine seta; most intervals as wide as, or narrower than strial punctures on basal 1/3, weakly to moderately undulate, weakly to moderately convex on basal 4/5, more strongly so on apical 1/5 of each elytron forming moderately tuberculate carina. **Mesosternum**. Median area subcarinate on sides, weakly set off from lateral areas, lateral areas above middle coxae with many medium to long, moderately fine to moderately coarse, subrecumbent to suberect setae; mesepisternum with several short, moderately coarse to coarse (some scalelike) setae, and scales (some setae along anterior margin). **Metasternum**. Lateral areas with very broad, very shining, impunctate stripe against metepisternum (Fig. 2); punctures medium to large on median area, medium-sized on lateral areas. **Abdomen**. Sternum 5 with three (elongate, transverse, median; roundish, lateral) very deep impressions. **Legs**. Outer angle of hind coxal cavity (Fig. 2) partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin not produced forward); tibia with inner margin very weakly sinuate; uncus medium-sized, moderately curved arising between middle of apex of tibia and inner apical angle, moderately oblique to axis of tibia praemucro large, subapical, almost perpendicular to axis of tibia on all legs. **Genitalia**. See Fig. 116. **Length**. Pronotum + elytra: 4.76 mm (1.34 + 3.42).

MALE. Unknown.

INTRASPECIFIC VARIATION. Known from the holotype only.

ETYMOLOGY. The Latin compound epithet *albidomaculatus* means with whitish spots.

TYPE LOCALITY. Brasil, Estado do Mato Grosso, Barra do Rio Tapirapé.

NOTES ON THE TYPE. Holotype (by designation) female (dissected), with the following labels: [rectangular, whitish with narrow black edge; printed in black ink] Barra do Tapirapé / MT - Brasi

2-16.I.1966 / B.Malkin col.; 2) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / albidomaculatum / Wibmer 1989.

Point-mounted. Deposited in MZSP.

REMARKS AND COMPARATIVE NOTES. The scale pattern of *T. albidomaculatum*, the strongly convex body, and the very broad, very shining, impunctate stripes on the lateral areas of the metasternum against the metepisterna easily distinguish this striking species from all others in the genus.

RANGE. Known only from the type locality in northeastern Mato Grosso State, Brazil (see Fig. 140).

38. *Tyloderma subfasciatum* Wibmer, new species
(Figs. 3, 74, 117, 140)

HOLOTYPE MALE. Body oval, elytra (in lateral view) moderately convex in *ca* basal 4/5; cuticle mostly black; scales mostly medium-sized, moderately broad subcuneiform, yellow, most imbricate. **Rostrum.** In lateral view, strongly set off from frons, evenly, strongly arcuate in basal 2/3, moderately depressed in apical 1/3, with distinct carina (well-developed on basal 2/5, moderately developed on apical 1/3, weakly developed on median area); dorsal surface moderately rugosely punctate throughout except for moderately distinct, smooth, almost impunctate, somewhat transverse clypeus, with punctures mostly small, moderately shallow to moderately deep on basal 2/3, somewhat smaller and shallower on apical 1/3. **Head.** Not rugosely striate, with few scales between eyes and on base of rostrum; frons with medium-sized, very deep fovea; punctures moderately to very distinct, small to medium-sized, moderately deep, dense to very dense on middle, much sparser above eyes, each with very short, fine, recumbent to subrecumbent seta; eyes moderately convex, with dorsal margin distinctly angulate and inner margin weakly to moderately angulate with head; with narrow sulcus above each eye. **Prothorax.** 0.91 X as long as wide, with sides subparallel in *ca* basal 3/7; pronotal disc with large, shallow, scarcely distinct impression on each side *ca* 1/4 from base, and scales forming moderately broad lateral bands on basal 2/5, then bifurcate apicad, with short arm laterad and ventrad and long arm obliquely mesad but not reaching midline; punctures small, most moderately shallow on disc, and on flanks most moderately to very distinct throughout, distinctly larger and deeper than those on disc on apical 1/2, somewhat larger and deeper on basal 1/2, each puncture with mostly very short, fine, recumbent seta. **Elytra.** 1.47 X as long as wide, 2.36 X as long as prothorax, with ventrally strongly produced apices (Fig. 3); scales on each elytron forming four moderately narrow to moderately broad bands mostly discontinuous at striae (near base, moderately undulate, transverse between intervals 2 and 5; *ca* 3/10 from base, moderately to strongly undulate, weakly oblique from middle of sutural interval to interval 8; *ca* 3/5 from base, moderately undulate to zig-zag shaped, weakly oblique from middle of sutural interval to interval 8; and near declivity, weakly undulate, almost transverse); strial punctures mostly large (some medium-sized), deep to very deep, most separated by more than own diameter (moderately unevenly distributed) on basal 1/4 of disc (somewhat denser on lateral striae), very distinct on most of apical 1/2 (on striae 1-2 *ca* as large and somewhat deeper on apical portions than immediately in front of declivity), each puncture with scarcely distinct, minute, fine seta; most intervals as wide as, or narrower than strial punctures on basal 1/4, weakly to moderately undulate, weakly to moderately convex on basal 4/5, more strongly so on apical 1/5 of each elytron forming tuberculate carina (Fig. 3). **Mesosternum.** Median area moderately rounded on sides, not set off from lateral areas, lateral areas above middle coxae with some medium to long, fine, subrecumbent to suberect setae; mesepisternum with some short, moderately fine setae, and scales (few along anterior margin). **Metasternum.** Lateral areas with moderately narrow, impunctate stripe against metepisternum; punctures medium to large on median and lateral areas. **Abdomen.** Sternum 5 with three elongate (median transverse), very deep impressions. **Legs.** Outer angle of hind coxal cavity partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin not produced forward); uncus medium-sized, weakly curved, arising near inner apical angle of tibia, weakly to moderately oblique to axis of tibia; praemucro medium-sized on fore legs, *ca* 1/7 from apex of tibia, small on middle legs, *ca* 1/6 from apex of tibia, weakly to moderately oblique to axis of tibia and directed away from uncus, obsolete on hind legs. **Genitalia.** See Fig. 74. **Length.** Pronotum + elytra: 4.83 mm (1.44 + 3.39).

ALLOTYPE FEMALE. Similar to male except uncus moderately curved, arising between middle of apex of tibia and inner apical angle; praemucro large, subapical on fore legs, apical on middle and hind legs, almost perpendicular to axis of tibia on all legs. **Genitalia.** See Fig. 117. **Length.** Pronotum + elytra: 5.36 mm (1.49 + 3.87).

INTRASPECIFIC VARIATION. The prothorax has a ratio (length/width) of 0.86-0.91. In the allotype, the punctures on the basal 1/2 of the flanks are somewhat smaller and shallower than those on the disc. The elytra are 1.47-1.50 times as long as wide, and 2.36-2.60 times as long as the prothorax.

ETYMOLOGY. The Latin participle *subfasciatus* means more or less banded.

TYPE LOCALITY. Brasil, Estado do Amazonas, Benjamin Constant.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; whitish with narrow black edge; printed in black ink] Benjamin Constant / Amazonas, Brasil / 18 - 28. IX. 1962 / K. Lenko - col.; 2) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / subfasciatum / Wibmer 1989.

Point-mounted. The tibia and tarsus of the left hind leg are broken off, glued on the point; the last 4 tarsal segments of the left fore leg, and the last 3 tarsal segments of the right hind leg are missing. Deposited in MZSP.

REMARKS AND COMPARATIVE NOTES. This species can be distinguished from *T. fasciatum*, *T. cubense* and *T. albidomaculatum* by the tuberculate oblique carina at the apex of each elytron, and by the larger and deeper metasternal punctures. *Tyloderma subfasciatum* can be separated from *T. pallidum* and *T. circumcaribbeum* by the distinctly yellow scales and because the pronotal bands of scales are bifurcate at their apices.

RANGE. Known only from the state of Amazonas in Brazil (see Fig. 140).

MATERIAL EXAMINED. Holotype and allotype (2 specimens) from MZSP, with the following data: **BRAZIL: Amazonas:** Benjamin Constant 18/28-IX-62 (holotype) K.Lenko; Manaus VIII-62 (allotype) K.Lenko.

39. *Tyloderma pallidum* Wibmer, new species
(Figs. 75, 118, 140)

HOLOTYPE MALE. Body oval, elytra (in lateral view) moderately convex in *ca* basal 4/5; cuticle mostly black; scales short to medium-sized, moderately broad subcuneiform, whitish yellow, most imbricate. **Rostrum.** In lateral view, strongly set off from frons, evenly, strongly arcuate in basal 2/3, weakly depressed in apical 1/3, with distinct carina (moderately developed on basal 2/5, weakly developed on apical 3/5); dorsal surface moderately rugosely punctate throughout except for weakly distinct, smooth, almost impunctate, subtriangular clypeal area, with punctures small, moderately deep on basal 1/2, somewhat smaller, shallower on apical 1/2. **Head.** Not rugosely striate, with few scales between eyes; frons with large, very deep fovea; punctures moderately to very distinct, most small, moderately deep, dense on middle, much sparser above eyes, each with very short to short, fine, recumbent seta; eyes moderately convex, with dorsal margin distinctly angulate and inner margin weakly angulate with head; with narrow sulcus above each eye. **Prothorax.** 0.98 X as long as wide, with sides subparallel in *ca* basal 1/2; pronotal disc with very large, roundish, moderately deep impression on each side *ca* 1/4 from base, and scales (most abraded in holotype) forming moderately broad lateral bands on basal 2/5, then obliquely mesad reaching midline *ca* 4/7 from base; punctures small, most moderately shallow on disc, and on flanks most moderately to very distinct throughout, much larger and deeper than those on disc on apical 1/2, only moderately larger and deeper on basal 1/2, each puncture with mostly short, fine, recumbent seta. **Elytra.** 1.51 X as long as wide, 2.21 X as long as prothorax, with ventrally strongly produced apices; scales on each elytron forming four moderately narrow to moderately broad bands partly discontinuous at striae (near base, transverse from interval 2 to interval 4; *ca* 3/10 from base, zig-zag shaped, weakly oblique from interval 2 to interval 7; *ca* 3/5 from base, zig-zag shaped, weakly oblique from stria 1 to interval 8; and near declivity, transverse); strial punctures mostly very large, very deep, most separated by *ca* own diameter (fairly evenly distributed) on basal 1/3, very distinct on most of apical 1/2 (on striae 1-2 *ca* as large and deep on apical portions and immediately in front of declivity), each puncture with scarcely distinct, minute, fine seta; most intervals distinctly narrower than strial punctures on basal 1/3, weakly to moderately undulate, mostly moderately convex throughout, more convex near apex of each elytron forming tuberculate carina. **Mesosternum.** Median area moderately rounded on sides, not set off from lateral areas, lateral areas above middle coxae with some medium to long, fine, subrecumbent to suberect setae; mesepisternum with some short, fine to moderately coarse setae (few, coarser, along anterior margin). **Metasternum.** Lateral areas with moderately narrow, impunctate stripe against metepisternum; punctures medium to large on median and lateral areas. **Abdomen.** Sternum 5 with three (lateral roundish, median transverse) deep impressions. **Legs.** Outer angle of hind coxal cavity partially closed by rounded off apex of metepisternum and especially by truncation of lateral basal angle of abdominal sternum 1 (basal margin not produced forward); uncus medium-sized, weakly curved, arising near inner apical angle of tibia, weakly oblique to axis of tibia; praemucro very small, *ca* 1/6 from apex of tibia on fore legs, *ca* 1/5 from apex on middle legs, almost perpendicular to axis of tibia, obsolete on hind legs. **Genitalia.** See Fig. 75. **Length.** Pronotum + elytra: 4.50 mm (1.40 + 3.10).

ALLOTYPE FEMALE. Similar to male except uncus arising between middle of apex of tibia and inner apical angle, moderately oblique to axis of tibia; praemucro small, subapical on fore legs, almost apical on middle and hind legs. **Genitalia.** See Fig. 118. **Length.** Pronotum + elytra: 5.10 mm (1.50 + 3.60).

INTRASPECIFIC VARIATION. In one paratype the scales are moderately broad to broad. The rostral carina may be well-developed throughout, and the frontal fovea may be very large. The prothorax has a ratio (length/width) of 0.86-0.98. It may be widest subbasally, with the sides converging very weakly to near the middle, and the pronotal impressions may be smaller and shallower. The elytra are 1.39-1.52 times as long as wide, and 2.17-2.70 times as long as the prothorax. The impressions of sternum 5 may be smaller (the median one roundish), and the praemucro is very weakly oblique to the axis of the tibia and directed toward the uncus in one of the female paratypes. Length, pronotum + elytra: 3.65-5.58 mm.

ETYMOLOGY. The Latin adjective *pallidus* means pale.

TYPE LOCALITY. Venezuela, Apure, 5 kilometers north of San Juan de Payara, Highway 2.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] VENEZ.Apure,350', / 5km.N.SanJuan de / Payara,7-25-88,C&L / O'Brien&G.Wibmer; 2) [rectangular; white; printed in black ink] at night, / on *Ludwigia*; 3) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / pallidum / Wibmer 1989.

Point-mounted. Deposited in CWOB.

REMARKS AND COMPARATIVE NOTES. The larger and deeper metasternal punctures and tuberculate oblique carina at the apex of each elytron distinguish this species from *T. cubense*, *T. albidomaculatum* and *T. fasciatum*, and the whitish yellow scales of *T. pallidum* separate it from *T. circumcaribbeum* and *T. subfasciatum*.

PLANT ASSOCIATIONS. Seven of the eight specimens were collected on *Ludwigia* sp. (Onagraceae).

RANGE. Known from Trinidad and Venezuela (see Fig. 140).

MATERIAL EXAMINED. Holotype, allotype, and 6 paratypes (8 specimens) from CWOB, GJWC and MCZC, with the following data: **TRINIDAD**: Cedros 4-V-29 (1) Darlington; Ni. Penal, on *Ludwigia* sp. 6-III-80 (1) M.J.W.Cock. **VENEZUELA**: **Apure**: 5 km N San Juan de Payara, [Hwy. 2], at night, on *Ludwigia* 25-VII-88 (holotype + allotype + 4) C.& L.O'Brien & G.Wibmer. One paratype will be deposited in BMNH.

40. *Tyloderma circumcaribbeum* Wibmer
(Figs. 76, 119, 127, 142)

Tyloderma circumcaribbeum Wibmer 1981:15 [in key], 41-43 [description and biological notes], & Figs. 16, 29, 48, 60, 61, 81, 111, 149; O'Brien & Wibmer 1982:141 [checklist].

HOLOTYPE MALE (redescription). Body oval, elytra (in lateral view) moderately convex in *ca* basal 4/5; cuticle mostly black; scales short, moderately narrow to moderately broad subcuneiform, pearlescent white, few imbricate. **Rostrum**. In lateral view, strongly set off from frons, evenly, moderately arcuate in basal 2/3, moderately depressed in apical 1/3, with distinct carina (moderately developed on basal 2/5, weakly developed on apical 2/5, indistinct on middle as scarcely punctate, somewhat triangular area); dorsal surface moderately rugosely punctate throughout except for moderately distinct, smooth, almost impunctate, subtriangular clypeal area, with most punctures small, moderately deep on basal 1/2, somewhat smaller, shallower on apical 1/2. **Head**. Not rugosely striate, with few scales along inner margins of eyes; frons with large, very deep fovea; punctures moderately to very distinct, small to medium-sized, moderately deep, dense to very dense on frons and above eyes, unevenly sparser toward vertex, each with mainly very short, fine, recumbent seta; eyes moderately convex, with dorsal and inner margins weakly to moderately angulate with head; with narrow sulcus above each eye. **Prothorax**. 0.95 X as long as wide, widest subbasally, with sides converging weakly to near middle; pronotal disc with large, irregularly shaped, moderately deep impression on each side *ca* 1/4 from base, and weakly depressed apically along midline, and scales relatively scarce, forming on each side moderately narrow lateral band on basal 1/4, and small sublateral cluster near middle; punctures small, moderately shallow to moderately deep on disc, and on flanks very distinct throughout, much larger and deeper than those on disc, each puncture with mainly very short, fine, recumbent seta. **Elytra**. 1.49 X as long as wide, 2.21 X as long as prothorax, with ventrally moderately produced apices; scales on each elytron forming four narrow to moderately narrow, zig-zag shaped bands not discontinuous at striae (near base, transverse between intervals 2 and 6; *ca* 3/10 from base, weakly oblique between striae 1 and 8; *ca* 3/5 from base, almost transverse between striae 1 and 8; and near declivity, transverse); strial punctures mostly large (some very large), deep to very deep, most separated by own diameter or more (moderately unevenly distributed) on most of basal 1/3 of striae 1-4 (much denser near base and on outer striae), by *ca* own diameter on remaining striae, very distinct on most of apical 1/2 (on striae 1-2 *ca* as large and somewhat deeper on apical portions than immediately in front of declivity), each puncture with scarcely distinct, minute, fine seta; intervals 1-4 *ca* as wide as strial punctures on most of basal 1/3, outer intervals mostly narrower than strial punctures, weakly to moderately undulate, some

moderately convex throughout, some weakly convex on part of apical 1/2, more convex near apex of each elytron forming tuberculate carina. **Mesosternum.** Median area moderately rounded on sides, not set off from lateral areas, lateral areas above middle coxae with some medium to long, fine, subrecumbent to suberect setae; mesepisternum with some short to medium-sized, fine setae, and scales (few scales along anterior margin). **Metasternum.** Lateral areas with moderately narrow, impunctate stripe against metepisternum; punctures medium to large on median and lateral areas. **Abdomen.** Sternum 5 with three deep, roundish impressions. **Legs.** Outer angle of hind coxal cavity almost completely open (apex of metepisternum rounded off and lateral basal angle of abdominal sternum 1 subtruncate); uncus large, weakly curved, arising near inner apical angle of tibia, moderately oblique to axis of tibia (more strongly so on hind legs); praemucro small, *ca* 1/6 from apex of tibia on fore legs, *ca* 1/5 on middle and hind legs, moderately oblique to axis of tibia and directed away from uncus on all legs. **Genitalia.** See Fig. 76. **Length.** Pronotum + elytra: 4.65 mm (1.45 + 3.20).

ALLOTYPE FEMALE. Similar to male except uncus somewhat more curved, arising near middle of apex of tibia; praemucro large, subapical, weakly oblique to axis of tibia. **Genitalia.** See Fig. 119. **Length.** Pronotum + elytra: 4.75 mm (1.45 + 3.30).

INTRASPECIFIC VARIATION. Some of the scales may be medium-sized. The rostral carina may be distinct throughout (often well-developed on the basal 2/5), or only scarcely distinct. There may be very dense punctures on the dorsal area of the head. The prothorax has a ratio (length/width) of 0.89-1.00 (0.95 ± 0.03); the sides may converge only very weakly to near the middle, and the apical depression of the pronotal disc often is very distinct. The elytra are 1.39-1.59 (1.49 ± 0.04) times as long as wide, and 2.10-2.49 (2.26 ± 0.09) times as long as the prothorax. The density of the strial punctures is variable on the disc, and they may be sparser on the outer striae. The impressions on sternum 5 may be very deep. The praemucro is almost perpendicular to the axis of the tibiae in some females, and it is scarcely distinct in some males. Length, pronotum + elytra: 4.00-5.18 mm (4.52 ± 0.24).

TYPE LOCALITY. U.S.A., Florida, Collier County, Highway 41, Ochopee.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] FLA. CollierCo. / Ochopee, June15, / 1977 C.W.O'Brien& / GJWibmer at light; 2) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / circumcaribbeum / Wibmer, 1981.

Point-mounted. Deposited in CWOB.

REMARKS AND COMPARATIVE NOTES. The pearlescent white scales, the median apical depression on the pronotum, and known distribution, distinguish this species from all others in the *fasciatum* group.

PLANT ASSOCIATIONS. Several paratypes were beaten from *Ludwigia* sp., nine from *L. erecta* (L.) Hara, and two from *L. octovalvis* (Jacq.) Raven (Onagraceae).

RANGE. Known from Belize, Costa Rica, Cuba, Ecuador, Guatemala, Honduras, Mexico, Panama, and southern Florida in the United States (see Figs. 127 and 142).

MATERIAL EXAMINED. In addition to the type series of 100 specimens (Wibmer 1981:42-43), I have seen 27 specimens from AMNH, CBPC, CHAH, CWOB, ELSC, MCZC, RSAC, TAMU and USNM, with the following data: **COSTA RICA: Heredia**: 1 km S Puerto Viejo 4/5-VI-84 (1) E.Riley, D.Rider, & D.LeDoux; Finca La Selva, 3 km S Puerto Viejo, 10°26'N 84°01'W 18-VI-85 (1) H.A.Hespenheide; La Selva Biol. Sta., 3 km S Puerto Viejo, 10°26'N 84°01'W 16-IV-88 (1) H.A.Hespenheide. **CUBA: [Granma]**: Manzanillo, 60m 27-IX-80 (1) E.L.Sleeper. **ECUADOR: Pichincha**: Tinalandia, 12 km E Santo Domingo de los Colorados, *ca* 2500ft 11/17-V-86 (2) J.E.Eger. **GUATEMALA: Petén**: Tikal 28-VI-74 (2) W.E.Steiner. **MEXICO: Campeche**: Bolonchén de Rejón 21-VI-85 (1) F.Arias; Chicana Ruins, 6 mi E Xpujil, 700ft, tropical seasonal forest 13/14-VII-83 (1) R.Anderson; El Tormento 13-VI-85 (6) F.Arias. **Chiapas**: Corozal V-84 (7) Barrera. **Quintana Roo**: 20 km N Felipe Carrillo Puerto 12/14-VI-83 (1) E.Riley; Kohunlich Ruins, *ca* 30 mi E Chetumal, 350ft, mixed Cohune palm forest 15/16-VII-83 (1) R.Anderson; Xcan Nuevo 6-VI-59 (1) P.& C.Vaurie. **[COUNTRY?]**: (1) Deyrolle.

The *elongatum* group

DESCRIPTION. Body (Fig. 17) elongate oval to very elongate oval. **Rostrum** (Fig. 25). Scarcely to weakly set off from frons; sides apicad of scrobes with medium to long, fine to moderately fine, moderately dense to dense, mostly subrecumbent setae; lateral portions of scrobes almost perpendicular (to moderately oblique [Fig. 25]) to axis of rostrum, and antennae inserted *ca* 3/10-4/9 from base. **Head.** Interocular distance much narrower than rostrum at lower margins of eyes; eyes moderately to strongly convex, *ca* 1/3-2/5 concealed by postocular lobes when rostrum in repose. **Prothorax** (Fig. 17). Widest at or near base. **Elytra** (Fig. 17). Humeri obliquely truncate, weakly prominent, and ventrally weakly to moderately produced apices; scales mainly single or forming small to large clusters. **Mesosternum.** Median

medium to long, fine, moderately to very dense, suberect to erect setae or plumose hairs, lateral above middle coxae with several long, fine, subrecumbent to suberect setae. **Legs.** Outer angle of coxal cavity almost completely open as in Fig. 31 (apex of metepisternum rounded off and lateral al angle of abdominal sternum 1 pointed); tarsal segment 5 with dense to very dense, subrecumbent to uberect setae on ventral surface (in lateral view, very distinct on apical 2/3 in *T. obrieni*, moderately distinct on basal 3/5 in *T. elongatum*). Semiaquatic or aquatic.

REMARKS AND DIAGNOSTIC CHARACTERS. This group is represented by two largely sympatric species distributed in central South America. The *elongatum* group can be recognized by the following combination of characters: body (Fig. 17) elongate oval to very elongate oval, with humeri obliquely truncate and weakly prominent; interocular distance much narrower than rostrum at lower margins of eyes; and eyes moderately to strongly convex.

SPECIES INCLUDED.

41. *T. obrieni* n. sp.

42. *T. elongatum* n. sp.

41. *Tyloderma obrieni* Wibmer, new species
(Figs. 25, 80, 120, 141)

HOLOTYPE MALE. Cuticle mostly blackish red (appearing black to naked eye), with postocular lobes, margin and apex of each elytron, coxae, *ca* basal 2/5 of femora and inner surface of tibiae reddish black, tarsi dark brownish red, and antennae reddish brown to brownish; scales medium to long, most moderately narrow aciculate (some setalike), white to somewhat translucent. **Rostrum.** In lateral view, weakly set off from frons (Fig. 25), subgibbous in *ca* basal 2/3, weakly depressed in apical 1/3, with long, narrow, moderately shallow to moderately deep sulcus (widest and deepest *ca* 2/5 from base); dorsal surface smooth, with punctures minute, moderately sparse on basal 1/2, unevenly denser on apical 1/2, each with very short to short seta, sides apicad of scrobes with medium to long, mostly moderately dense setae; lateral portions of scrobes moderately oblique to axis of rostrum, and antennae inserted *ca* 4/9 from base. **Head.** Some scales between eyes and at base of rostrum, and few on vertex; punctures (Fig. 25) scarcely distinct, minute, very shallow, moderately sparse to moderately dense; with narrow sulcus above each eye. **Prothorax.** As long as wide, weakly constricted subapically on flanks; postocular lobes (Fig. 25) subtruncate (weakly rounded); scales scarce on disc, forming lateral clusters (small, basal; very small, *ca* 4/7 from base); punctures on flanks (Fig. 25) weakly to moderately distinct along subapical constriction and above fore coxae, scarcely distinct to subobsolete elsewhere. **Elytra.** 2.00 X as long as wide, 2.74 X as long as prothorax, with ventrally weakly produced apices; scales mainly forming elongate spot at base of interval 2, and some small to large clusters along dorsal striae or intervals, not all symmetrical on both elytra; most strial punctures separated by 2 diameters or more (unevenly distributed) on basal 1/3, each puncture with minute to very short, fine (somewhat scalelike) seta; strial grooves mostly subobsolete, 9th very distinct on apical 3/5; intervals mostly weakly (10th moderately to strongly) convex, more convex near apex of each elytron forming moderately tuberculate, oblique carina, each interval with one or two rows of moderately distinct, mainly short, fine to moderately fine (some scalelike) setae. **Mesosternum.** Median area moderately rounded on sides, not set off from lateral areas, with moderately developed median carina, and long, fine, moderately dense, suberect to erect setae; mesepisternum with some medium to long, setalike scales (few along anterior margin). **Metasternum.** Lateral areas abruptly, moderately depressed in front of hind coxae. **Abdomen.** Sternum 5 weakly convex, with three large impressions. **Legs.** Moderately slender to slender; anterior surface of hind coxa almost smooth; femur covered with fine setae (medium-sized, very dense, mostly suberect on inner margin, short to medium-sized, sparse to moderately sparse, mostly recumbent elsewhere); uncus medium-sized, almost straight, arising from inner apical angle of tibia, almost perpendicular to axis of tibia on fore legs, weakly oblique on middle and hind legs; praemucro obsolete on all legs; tarsal segment 5 with very dense, mostly suberect setae on ventral surface (very distinct on apical 2/3 in lateral view). **Genitalia.** See Fig. 80. **Length.** Pronotum + elytra: 4.54 mm (1.21 + 3.32).

ALLOTYPE FEMALE. Similar to male except uncus weakly curved, arising near middle of apex of tibia, weakly oblique to axis of tibia on all legs; praemucro medium-sized, apical, almost perpendicular to axis of tibia. **Genitalia.** See Fig. 120. **Length.** Pronotum + elytra: 5.18 mm (1.41 + 3.77).

INTRASPECIFIC VARIATION. Some specimens (perhaps somewhat teneral) are mostly reddish black, and all the scales may be white. The rostrum may be only moderately subgibbous; the rostral sulcus often is only medium-sized (located near the middle of the rostrum), weakly to very distinct, or even indistinct, and the rostral punctures occasionally are much more distinct than described, very small, moderately dense to dense. Rarely there is a short, moderately broad, moderately deep sulcus on the vertex. The prothorax has a ratio (length/width) of 0.92-1.04 (0.96 ± 0.03). Sometimes it is moderately constricted subapically on the flanks, and the postocular lobes rarely are truncate (almost straight). The elytra are 1.74-2.11 (1.93 ± 0.07) times as long as wide, and 2.65-3.05 (2.81 ± 0.10) times as long as the

prothorax. Some to many strial punctures may be only small on the basal 1/3, and in some specimens many of them are separated only by their own diameter on the basal 1/3. The apical carina may be only moderately developed. The impressions on abdominal sternum 5 may be scarcely distinct, or shallow but distinct, and rarely the median one is moderately deep to deep. In some males, the uncus is weakly oblique to the axis of the tibia on the fore legs, and moderately oblique on the middle and hind legs; and in some females the praemucro is small on all the legs. Length, pronotum + elytra: 4.06-5.42 mm (4.63 ± 0.33).

ETYMOLOGY. I take great pleasure in naming this species after Charles W. O'Brien, my friend of many years and former professor, with whom I have enjoyed many lively discussions on our favorite beasts, the weevils.

TYPE LOCALITY. Argentina, Provincia de Buenos Aires, Ruta 12, 13 miles east of Zárate.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] ARGENTINA, B.A., / 13mi.E.Zarate(Hwy. / 12)Apr.14,1978 at / nightC.W.O'Brien; 2) [rectangular; white; printed in black ink] on *Ludwigia* and / general sweeping; 3) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / obrieni / Wibmer 1989.

Point-mounted. Deposited in CWOB.

REMARKS AND COMPARATIVE NOTES. The broad band of very dense setae covering the inner margin of all the femora (especially obvious on the fore legs) readily separates this species from all others in the genus. Also it can be separated from *T. elongatum* because in *T. obrieni* the scrobes are moderately oblique to the axis of the rostrum and the antennae are inserted about 4/9 from the base of the rostrum (in *T. elongatum* the scrobes are almost perpendicular to the axis of the rostrum and the antennae are inserted about 3/10 from the base of the rostrum), and the setae of the intervals are much more obvious, contrasting with the dark cuticle.

PLANT ASSOCIATIONS. Cordo & DeLoach (1982) collected several specimens on *Ludwigia peploides* (H.B.K.) Raven (Onagraceae), and considered this to be its host plant. In the material examined, numerous specimens were obtained by sweeping or treading *Ludwigia* sp., and one was collected on *L. repens* Forst. [probably a misidentification of *L. peploides*].

RANGE. Known from Argentina, southern Brazil, Paraguay, and Uruguay (Fig. 141).

MATERIAL EXAMINED. Holotype, allotype, 85 paratypes, and 4 non-paratypes (NP) (91 specimens) from BMNH, CBPC, CJDL, CWOB, GJWC, MACN, MLPC, NZAC, URMC and USNM, with the following data: **ARGENTINA: Buenos Aires**: 9-VII-05 (2) C.Bruch, [no date] (1) H.Richter; 19 km SE Campana, at night 29-IX-68 (1) L.& C.W.O'Brien; Isla Martín García VI-36 (1) M.J.Viana; 13 mi E Zárate (Hwy. 12), at night, on *Ludwigia* and general sweeping 14-IV-78 (holotype + allotype + 41 + 4NP) C.W.O'Brien. **Chaco**: 2 km N Resistencia 25-I-89 (1) C.W.& L.O'Brien & G.Wibmer. **Corrientes**: 3 km E Corrientes, night, 17-I-89 (2), 18-I-89 (3), C.& L.O'Brien & Wibmer. **Entre Ríos**: Ruta 12, *Ludwigia repens* 6-III-75 (1) [no collector]; 28 mi S Ceibas (Hwy. 12), treading *Ludwigia* & *Myriophyllum* 14-IV-78 (3) C.W.O'Brien; Delta [del Río Paraná] (3) [no collector]; La Paz I-74 (9) Cesari. **Formosa**: Ruta 11, 57 km SW of Capital City [Formosa], on *Ludwigia* 5-IV-75 (1) [no collector]. **Santa Fe**: 21-IX-80 (1) Bridarolli; Villa Ana, Ferrocarriles Santa Fe X-24 (1) K.J.Hayward. **Tucumán**: 12 km S Lules, at night 19-X-68 (2) L.& C.W.O'Brien. **BRAZIL: Rio Grande do Sul**: Pelotas 27-X-56 (1) Biezanko. **PARAGUAY: [Central]**: 3 km E Ypacaraí, at night 10-X-68 (2) L.B.& C.W.O'Brien. **URUGUAY: Artigas**: Barra del [Arroyo] Yucutujá 2-II-52 (1) C.S.Carbonell. **Rocha**: Ruta 16, 2 km SE Castillos 4-II-89 (1) C.W.& L.O'Brien & G.Wibmer; Ruta 15, 13 km N La Paloma Jcn., treading *Ludwigia* 4-II-89 (7) C.W.& L.O'Brien & G.Wibmer. Paratypes will be deposited also in DZUP and MZSP.

42. *Tyloderma elongatum* Wibmer, new species
(Figs. 17, 79, 121, 143)

HOLOTYPE MALE. Cuticle mostly light brownish, with most of pronotum somewhat darker, apical 3/5 of rostrum, flanks of prothorax and oblique fascia on each elytron (Fig. 17) dark brownish, and head and basal 2/5 of rostrum brownish black; scales (Fig. 17) mostly short to medium-sized, moderately broad, subcuneiform to suboval, whitish. **Rostrum**. In lateral view, scarcely set off from frons, evenly, moderately arcuate in *ca* basal 1/2, and slightly depressed in apical 1/2, weakly subcarinate on apical 2/3, with some very short to short scales on dorsal surface; dorsal surface almost smooth, with punctures minute to very small, dense to very dense, each with minute to very short seta, or short scale, sides apicad of scrobes with medium to long, mostly dense setae; lateral portions of scrobes almost perpendicular to axis of rostrum, and antennae inserted *ca* 3/10 from base. **Head**. Scales unevenly scattered, short, sparse to moderately dense on frons, longer, denser (except above eyes) elsewhere; punctures weakly distinct, most very small, moderately shallow, moderately dense to dense; lacking sulcus above each eye. **Prothorax** (Fig. 17). 1.04 X as long as wide, scarcely constricted subapically on flanks; postocular lobes fairly evenly,

rounded; scales very short to short on dorsum, short on flanks, scattered on surface, not forming ... or bands; punctures on flanks weakly to moderately distinct on apical 1/2, and scarcely distinct on basal 1/2. **Elytra** (Fig. 17). 1.86 X as long as wide, 2.54 X as long as prothorax, with ventrally moderately produced apices; each elytron with oblique, broad, dark fascia from below and behind humerus to suture near middle, and scales relatively scarce, single or forming very small clusters, denser as larger clusters on intervals 4 and 6 at basal margin of dark fascia; most strial punctures separated by *ca* own diameter (moderately evenly distributed) on basal 1/4 (smaller, shallower on striae 1-2, larger, deeper on striae 6-10), setae indistinct; most strial grooves subobsolete (10th very distinct) on basal 1/2, most weakly distinct on apical 1/2 (9th very distinct on apical 3/5); intervals mostly weakly convex, more convex near apex of each elytron forming moderately developed, oblique carina, each interval with row of mostly indistinct, minute, fine setae. **Mesosternum**. Median area subquadrate on sides, scarcely set off from lateral areas, with well-developed median carina (very broad toward anterior margin), and medium to long, fine, dense to very dense, suberect to erect, plumose hairs; mesepisternum with several mostly long, fine to moderately fine setae, and few scales (some setae along anterior margin). **Metasternum**. Lateral areas moderately gradually, weakly to moderately depressed in front of hind coxae. **Abdomen**. Sternum 5 almost flat, with three medium-sized impressions. **Legs**. Slender; anterior surface of hind coxa finely reticulate; femur covered with mostly short, fine, moderately sparse to moderately dense, mostly recumbent setae (most medium to long, moderately dense to dense, subrecumbent to suberect on inner margin), and few scales; uncus large, moderately curved, arising near outer apical margin of tibia, weakly to moderately oblique to axis of tibia; praemucro very small on fore legs, minute (scarcely distinct) on middle legs, *ca* 1/8 from apex of tibia, almost perpendicular to axis of tibia, obsolete on hind legs; tarsal segment 5 with dense to very dense, subrecumbent to suberect setae on basal 3/5 of ventral surface (moderately distinct in lateral view), apical 2/5 subglabrous. **Genitalia** (of paratopotype). See Fig. 79. **Length**. Pronotum + elytra: 4.01 mm (1.13 + 2.88).

ALLOTYPE FEMALE. Similar to male except praemucro large, apical, almost perpendicular to axis of tibia on all legs. **Genitalia**. See Fig. 121. **Length**. Pronotum + elytra: 4.31 mm (1.26 + 3.05).

INTRASPECIFIC VARIATION. The darker areas of the body sometimes are darker than described, and some specimens are mostly brownish red to dark brownish red, with lighter legs. The rostrum may be only weakly arcuate (a little more strongly so about 1/3 from the base), and often is not subcarinate. The rostrum may have a broad, moderately deep sulcus or impression on the basal 3/10, or a medium-sized, shallow sulcus or impression near 3/10 from the base. The punctures of the head may be mostly shallow, moderately sparse to moderately dense, and some specimens have a narrow sulcus above each eye. The prothorax has a ratio (length/width) of 0.97-1.10 (1.04 ± 0.03). It may be weakly to not distinctly constricted subapically on the flanks, and the postocular lobes may be slightly subtruncate. All the punctures on the flanks may be shallow, moderately dense, and occasionally a few of them are moderately deep. The elytra are 1.74-1.96 (1.86 ± 0.06) times as long as wide, and 2.41-2.73 (2.56 ± 0.09) times as long as the prothorax. The dark fasciae may be variable in size, almost indistinct on some specimens, and sometimes the scales are somewhat denser along parts of most striae. Most strial punctures may be small on the basal 1/4 of the disc, then the intervals are much wider that the strial punctures, and rarely some intervals are narrower than the strial punctures on the basal 1/4 of the disc. The strial grooves may be subobsolete throughout, or some may be weakly distinct on the disc on the basal 1/2 also. The apical carina may be only weakly developed except at the very apex. The median area of the mesosternum may be moderately rounded on the sides (not set off from the lateral areas) to weakly subcarinate (weakly set off from the lateral areas). The mesepisternum often has setae only (mainly medium-sized, some to most scalelike, recumbent to subrecumbent), but rarely it has some scales and only a few setae. The impressions of abdominal sternum 5 may be almost indistinct. Some males have a small, almost subapical praemucro on the fore legs, and a few of them also have a small praemucro on the middle legs or on the middle and hind legs, about 1/10 from the apex of the tibia, and the praemucro may be only small or medium-sized in some females. Length, pronotum + elytra: 3.29-4.91 mm (3.99 ± 0.27).

ETYMOLOGY. The Latin participle *elongatus* means lengthened.

TYPE LOCALITY. Uruguay, Departamento de Colonia, San Pedro, 1.5 kilometers southwest, then 2 kilometers northwest of Ruta 21, kilometer 186 (about 10.5 kilometers north-northwest of Colonia del Sacramento).

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] URUGUAY. Colonia, / San Pedro,G.J.&Z. / Wibmer, 6-I-1979; 2) [rectangular; white; printed in black ink] treaded *Ludwigia* / *uruguayensis*; 3) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / elongatum / Wibmer 1989.

Point-mounted. The last 2 tarsal segments of the right middle leg are missing. From GJWC; deposited in CWOB.

REMARKS AND COMPARATIVE NOTES. The medium to long, dense to very dense setae on the sides of the rostrum (contrasting highly with the short to very short, sparse setae on the dorsal surface) and the basally inserted antennae distinguish this species from all others in the genus. *Tyloderma elongatum* has mostly shorter and broader scales than *T. obrieni*, and none are somewhat translucent.

PLANT ASSOCIATIONS. Among the specimens studied, many were hand-picked, treaded or swept from *Ludwigia* sp., *L. peploides* (H.B.K.) Raven, *L. peploides* ssp. *montevidensis* (Sprengel) Raven, *L. repens* Forst. [probably misidentifications of *L. peploides*], and *L. uruguayensis* (Camb.) Hara (Onagraceae), one was hand-picked from *Polygonum* sp. (Polygonaceae), and four were collected on *Azolla filiculoides* Lam. (Salviniaceae).

RANGE. Known from eastern Argentina, Bolivia, southern and southwestern Brazil, Paraguay, and Uruguay (Fig. 143).

MATERIAL EXAMINED. Holotype, allotype, 408 paratypes, and 33 non-paratypes (NP) (443 specimens) from BMNH, CBPC, CWOB, FSCA, GJWC, MACN, MLPC, MNHP, MZSP, NZAC, URMC and USNM, with the following data: **ARGENTINA: Buenos Aires:** (1) J.Bosq, (1) H.Richter, (1) [no collector]; Arroyo El Moro, 30 km NE Necochea, sweeping *Alternanthera*, *Ludwigia* and mixed other aquatics 27-II-79 (2) G.Buckingham; 19 km SE Campana, at night 29-IX-68 (13 + 1NP) L.& C.W.O'Brien; Ezeiza, *Jussiaea repens* var. *montevidensis* 25-I-67 (1) L.Andres, *Ludwigia repens* X-68 (1) B.D.Perkins; Laguna Chascomús, sobre *A. filiculoides* [as *folliculoides*] 23-XII-65 (4) Ronderos; Laguna Chascomús at Arroyo San Felipe 20-II-74 (1) O.S.Flint,Jr.; Las Flores 27-II-68 (8 + 1NP) O.S.Flint,Jr.; Rosas, Ferrocarriles Sud (6NP) J.B.Daguerre; San Fernando XII-62 (1) Daguerre; 13 mi E Zárate (Hwy. 12), at night, on *Ludwigia* and general sweeping 14-IV-78 (20) C.W.O'Brien. **Chaco:** 2 km N Resistencia 25-I-89 (1) C.W.& L.O'Brien & G.Wibmer. **Corrientes:** Charca Los Gitanos, Ruta 5 km 2, centro, on *Ludwigia peploides* 22-IV-82 (1 + 1NP), on *Ludwigia* 13-I-83 (1), on *Ludwigia peploides* 20-X-82 (1), I.Y.Bruquetas; 24 km W Ituzaingó, swept underwater, mostly grasses 23-I-89 (1) C.& L.O'Brien & G.Wibmer. **Entre Ríos:** I-12 (1) G.E.Bryant; Ruta 12 (antiguo lugar de *Myriophyllum*), *Ludwigia repens* 6-III-75 (1) [no collector]; 4 mi S Ceibas (Hwy. 12), at night 14-IV-78 (4) C.W.O'Brien; 26 mi S Ceibas (Hwy. 12) 14-IV-78 (1) C.W.O'Brien; 28 mi S Ceibas (Hwy. 12), treading *Ludwigia* & *Myriophyllum* 14-IV-78 (15 + 2NP) C.W.O'Brien; Concordia (1) Daguerre; Gualeguay XII-43 (2) Bosq; La Paz I-74 (14) Cesari. **Formosa:** 22 km W Clorinda 26-I-89 (3) C.W.& L.O'Brien & G.Wibmer; 34 km SW Clorinda 26-I-89 (21) C.W.& L.O'Brien & G.Wibmer. **BOLIVIA: Santa Cruz:** 500m XI-55 (3) Zischka; 4 mi E Portachuelo, at night, 24-III-78 (1), 27-III-78 (3), C.W.& L.O'Brien; 10 mi W Portachuelo, at UV light 27-III-78 (2) C.W.O'Brien; 14 mi SW Portachuelo, at night, handpicked from *Polygonum* 22-III-78 (1), treading aquatic plants 27-III-78 (2 + 1NP), G.B.Marshall, at night 22-III-78 (1NP) C.W.O'Brien, treading aquatic plants 27-III-78 (8) C.W.& L.B.O'Brien; Pump Station Caranda, 20 mi SW Portachuelo, at light 22-III-78 (1) C.W.O'Brien, at light 13-IV-78 (1) L.B.O'Brien; Saavedra, Agr. Exp. Sta., blacklight trap, 27-XII-59 (4), 30-XII-59 (1), R.B.Cumming, Saavedra Res. Sta., UV trap 22-III-78 (5) C.R.Ward & C.W.O'Brien; San Diego II-56 (1) G.Pinckert; Prov. of San Esteban, Muyurina, 49 km N of Santa Cruz, 1120ft, blacklight trap 2-XI-59 (1) R.B.Cumming; 4 mi E Santa Cruz, treading *Ludwigia* 21-IV-78 (2) C.W.O'Brien & Marshall. **BRAZIL: Mato Grosso [do Sul]:** Corumbá 21/23-II-54 (1) C.Gans & F.Pereira. **Rio Grande do Sul:** Pôrto Alegre IX-41 (1) R.Kleerekoper. **PARAGUAY: [Presidente Hayes]:** Santa Clara, Río Confuso (1) [no collector]. **URUGUAY: Colonia:** *ca* 2 km E Ruta 21 km 186, at night 30-XII-78 (1 + 1NP) G.J.& Z.Wibmer; Paso de la Arena, [*ca*] Ruta 21 km 184, at night, on *Ludwigia peploides* var. *montevidensis*, 18-I-76 (1), 23-I-76 (2), Z.I.& G.J.Wibmer; Piedra de los Indios, Ruta 21, at night, 7-XII-78 (1NP), 10-XII-78 (1), 23-XII-78 (2), G.J.& Z.Wibmer, at night, on *Ludwigia peploides* var. *montevidensis* 31-I-76 (1) Z.I.& G.J.Wibmer; Playa Arenisca, in "resaca" [drift], on *Salvinia auriculata* 11-IV-76 (2) Z.I.& G.J.Wibmer; Reducto, hand-picked or treaded *Ludwigia peploides* ssp. *montevidensis* 29-XII-78 (5 + 2NP), on *Ludwigia peploides* var. *montevidensis* 29-I-76 (1), G.J.& Z.Wibmer; San Pedro, treaded or swept *Ludwigia uruguayensis* 5-I-79 (30 + 2NP) G.J.Wibmer, 11-I-79 (20 + 2NP), swept *Ludwigia peploides* ssp. *montevidensis* 8-XII-78 (1), swept *Ludwigia uruguayensis* 24-XII-78 (3), treaded *Ludwigia uruguayensis*, 6-I-79 (holotype + allotype + 120 + 8NP), 11-I-79 (41 + 2NP), G.J.& Z.Wibmer. **Rivera:** Sierra de la Aurora, Arroyo de la Aurora, de noche, a la luz 12/26-I-71 (1) M.A.Monné, M.Moratorio, C.S.Morey & G.Wibmer. **Rocha:** Ruta 16, 2 km SE Castillos 4-II-89 (4) C.W.& L.O'Brien & G.Wibmer; Ruta 19, 4 km N 18 de Julio 6-II-89 (2) C.W.& L.O'Brien & G.Wibmer; Ruta 15, 13 km N La Paloma Jcn., treading *Ludwigia* 4-II-89 (8 + 2NP) C.W.& L.O'Brien & G.Wibmer; Ruta 14, 24 km SE Lascano 6-II-89 (1) C.W.& L.O'Brien & G.Wibmer. Paratypes will be deposited also in AMNH, CHAH, DEIC, DZUP, ELSC, HAHC, HPSC, IRSB, MCZC, MNRJ, RDCC, RSAC, TAMU and UCVM.

SCRIPTION. Body oval (Figs. 14-16); scales obsolete. **Rostrum.** In lateral view, weakly to very y set off from frons (Fig. 26), moderately subgibbous in basal 1/2 and moderately depressed in apical , usually with very short to medium-sized sulcus *ca* 1/3 from base (Figs. 19-20); lateral portions of crobes weakly oblique to axis of rostrum (Fig. 26), and antennae inserted *ca* 2/5 from base. **Head.** Interocular distance moderately (Fig. 19) to much narrower (Fig. 20) than rostrum at lower margins of eyes, and frons (Figs. 19-20) with short to long sulcus, sometimes very long, extending (narrow) onto vertex (Fig. 20); eyes strongly convex, with dorsal margin moderately angulate and inner margin often weakly angulate with head, *ca* 2/5-1/2 concealed by postocular lobes when rostrum in repose. **Prothorax** (Figs. 14-16). Distinctly wider than long, widest at base; postocular lobes (Fig. 26) subtruncate (weakly rounded). **Abdomen.** Sternum 5 lacking impressions. **Legs.** Outer angle of hind coxal cavity almost completely open as in Fig. 31 (apex of metepisternum rounded off and lateral basal angle of abdominal sternum 1 pointed); anterior surface of hind coxa smooth to very finely reticulate.

REMARKS AND DIAGNOSTIC CHARACTERS. This distinctive group is composed of two currently parapatric species distributed from Panama to central Argentina. It can be recognized by the following combination of characters: scales obsolete (Figs. 14-16); rostrum moderately subgibbous in basal 1/2 and moderately depressed in apical 1/2 (Fig. 26); and lateral portions of scrobes weakly oblique to axis of rostrum (Fig. 26), and antennae inserted *ca* 2/5 from base of rostrum.

SPECIES INCLUDED.

43. *T. variabile* n. sp.

44. *T. nigromaculatum* Hustache

43. *Tyloderma variabile* Wibmer, new species
(Figs. 14, 15, 20, 77, 122, 142)

HOLOTYPE MALE. Cuticle mostly light brownish, with most of flanks of prothorax and basal 1/2 of flanks of elytra slightly darker, and head and most of rostrum moderately darker. **Rostrum.** Sides apicad of scrobes with mostly medium to long, moderately dense to dense setae. **Head** (Fig. 20). Interocular distance much narrower than rostrum at lower margins of eyes, and frons with long, moderately broad, deep sulcus; with narrow sulcus above each eye. **Prothorax** (Figs. 14-15). 0.87 X as long as wide, with sides converging very weakly to near middle; punctures moderately distinct, most small, moderately shallow, unevenly moderately dense on disc (distinctly larger and deeper toward margins), and on flanks moderately to very distinct throughout, much larger and deeper than those on disc, each puncture with mostly very short, fine, mostly recumbent seta. **Elytra** (Figs. 14-15). 1.59 X as long as wide, 2.61 X as long as prothorax; punctures on striae 1-2 distinctly larger and deeper on apical portions than immediately in front of declivity; most intervals *ca* as wide as, or somewhat wider than strial punctures on basal 1/4, weakly undulate. **Mesosternum.** Lateral areas above middle coxae almost impunctate, subglabrous; mesepisternum with some medium-sized, moderately fine, subrecumbent setae, mesepimeron with some short to medium-sized, moderately fine, subrecumbent setae. **Metasternum.** Median area almost flat, and lateral areas gradually, weakly depressed in front of hind coxae. **Abdomen.** Sternum 1 weakly convex on middle, sternum 5 moderately convex; punctures small to medium-sized, moderately shallow to moderately deep between hind coxae on sternum 1, very small to small, moderately shallow to moderately deep on remainder of sternum 1 and on sternum 2, and small, moderately deep on sterna 3-5. **Legs.** Moderately slender to slender; anterior surface of hind coxa smooth; uncus medium-sized, moderately curved, arising between middle of apex of tibia and outer apical margin, moderately oblique to axis of tibia; praemucro minute (scarcely distinct on fore legs), *ca* 1/8 from apex of tibia on all legs; tarsal segments 1-3 with dense setae on dorsal surface. **Genitalia.** See Fig. 77. **Length.** Pronotum + elytra: 3.58 mm (0.99 + 2.59).

ALLOTYPE FEMALE. Similar to male except uncus arising near outer apical margin of tibia; praemucro medium-sized on fore legs, large on middle and hind legs, apical, weakly oblique to axis of tibia and directed toward uncus on all legs. **Genitalia.** See Fig. 122. **Length.** Pronotum + elytra: 3.98 mm (1.12 + 2.86).

INTRASPECIFIC VARIATION. Five of the 13 specimens on hand (three from Panama, two from Brazil) are almost completely light brownish (Fig. 14), sometimes a little darker in part, like the holotype. The remaining eight (one from Panama, two from Brazil, the two from Peru, the one from Bolivia, and the two from Venezuela) have dark brownish black to black areas as follows: part to most of the head and rostrum, the flanks of the prothorax except for the postocular lobes, most of the flanks of the elytra on the basal 1/2-3/5, large area of each elytron near the declivity from the suture to interval 5 (almost round when both elytra at rest [see Fig. 15]), part to most of the pleura, and parts of the legs. The two from Peru, one from Brazil, the one from Bolivia, and the two from Venezuela (Fig. 15) also have a very broad fascia on the basal 1/2 of the pronotum (continuous with the darker areas of the flanks), and the former three also

have a broad transverse fascia near the base of each elytron from the suture to stria 4 (Fig. 15). Occasionally there is a weakly developed carina on the apical 3/5 of the rostrum. The frontal sulcus may be shallow, scarcely distinct, to broad, very deep, very distinct, occasionally extremely long, reaching the top of the head. The prothorax has a ratio (length/width) of 0.85-0.94, and the sides may be subparallel in the basal 1/2. The elytra are 1.44-1.59 times as long as wide, and 2.36-2.61 times as long as the prothorax. Some dorsal intervals may be distinctly wider than the strial punctures. Abdominal sternum 5 may be only weakly convex, and the anterior surface of the hind coxa is not completely smooth in one of the paratypes. Length, pronotum + elytra: 3.45-4.14 mm.

ETYMOLOGY. The Latin adjective *variabilis* means changeable.

TYPE LOCALITY. Panamá, Zona del Canal, Isla Barro Colorado.

NOTES ON THE TYPE. Holotype (by designation) male (dissected), with the following labels: 1) [rectangular; white; printed in black ink] CANAL ZONE,Barro / Colorado Is.,UV / trap 3 (26m.high) / 29-IX-1977H.Wolda; 2) [rectangular; red; printed in black ink] HOLOTYPE / Tyloderma / variabile / Wibmer 1989.

Point-mounted. The club and 6th funicular segment of the right antenna are missing. Deposited in CWOB.

REMARKS AND COMPARATIVE NOTES. Although variable in color, *T. variabile* is otherwise fairly consistent. The lighter colored legs and convex abdominal sternum 5 separate it easily from *T. nigromaculatum*. In addition, *T. variabile* usually has a broad, black subbasal fascia on the flank of each elytron, whereas *T. nigromaculatum* has a broad, black fascia on the basal 3/4-5/6 of the flank of each elytron, interrupted above the hind coxa (from about 1/5 to 2/5 from the base).

RANGE. Known from Bolivia, Brazil, Panama, Peru, and Venezuela (see Fig. 142).

MATERIAL EXAMINED. Holotype, allotype, and 11 paratypes (13 specimens) from BMNH, CHAH, CWOB, MZSP, UCVM and USNM, with the following data: **BOLIVIA**: **Santa Cruz**: 4 mi E Portachuelo, at night 24-III-78 (1) C.W.& L.O'Brien. **BRAZIL**: **Amazonas**: Manaus VIII-62 (1) K.Lenko; Manaus [as Manaos] (Trail.), came to light VIII-74 (1) [no collector]. **Mato Grosso**: Cáceres, EMPA Res. Sta., UV trap 28-I-85 (1) D.P.Wojcik. **Piauí**: Teresina VIII-52 (1) A.K.Oliveira. **PANAMA**: **Canal Zone**: Barro Colorado Is., UV trap 1 (3m high) 5-VI-77 (allotype), UV trap 3 (26m high), 26-V-77 (1), 29-IX-77 (holotype), H.Wolda, 1/9-V-64 (1) W.D.& S.S.Duckworth. **PERU**: **Ucayali**: Laguna [as Lake] Yarinacocha [formerly in **Loreto**], 10 km NW Pucallpa, 150m, at light, 9-XII-71 (1), 10-XII-71 (1), R.T.Schuh. **VENEZUELA**: **Guárico**: 13 km NW San Fernando de Apure, UV 23-VII-88 (1) C.& L.O'Brien & G.Wibmer. **Monagas**: Uverito, en luz de neón 24-I-79 (1) C.J.Rosales & J.A.González. One paratype will be deposited in GJWC.

44. *Tyloderma nigromaculatum* Hustache
(Figs. 16, 19, 26, 29, 78, 123, 142)

Tyloderma nigromaculata Hustache 1939:101-102 [description]; Blackwelder 1947:863 [checklist]; Papp 1979:200 [catalog].

Tyloderma nigromaculatum Hustache; Wibmer & O'Brien 1986:223 [checklist].

MALE. Cuticle mostly yellow-orange, with most of head, rostrum, most of pleura and legs, apical margin and broad fascia at base of pronotum (narrower toward midline [Fig. 16]), part of flanks of prothorax, scutellum, part of flanks of elytra, and three large maculae on each elytron (Fig. 16) black, and antennae yellowish to light brownish. **Rostrum**. Sides apicad of scrobes with medium-sized, moderately sparse setae. **Head** (Fig. 19). Interocular distance moderately narrower than rostrum at lower margins of eyes, and frons with medium-sized, broad, deep sulcus near vertex, continued as narrow, moderately deep sulcus on vertex; lacking sulcus above each eye. **Prothorax** (Fig. 16). 0.85 X as long as wide, with sides converging moderately to near middle; punctures weakly distinct, minute to very small, shallow, moderately sparse to moderately dense on disc (somewhat larger, deeper near apex), and on flanks (Fig. 26) moderately distinct along subapical constriction (distinctly larger and deeper than those on disc), few weakly distinct above fore coxae, scarcely distinct elsewhere, each puncture with mainly indistinct seta. **Elytra** (Fig. 16). 1.54 X as long as wide, 2.55 X as long as prothorax; each elytron with three large, black, dorsal maculae (*ca* 1/4 from base and behind middle, not reaching sutural interval, and on apical 1/4, reaching suture), and broad, black fascia on basal 3/4 of flank (discontinuous from *ca* 1/5 to 2/5 from base); punctures on striae 1-2 somewhat larger and deeper on apical portions than immediately in front of declivity; intervals moderately to distinctly wider than strial punctures on basal 1/4, almost straight. **Mesosternum**. Lateral areas above middle coxae impunctate, glabrous; mesepisternum and mesepimeron glabrous. **Metasternum**. Median area almost flat, and lateral areas moderately abruptly, moderately depressed in front of hind coxae **Abdomen**. Sternum 1 very weakly concave on middle, sternum 5 almost flat to slightly concave; punctures small to medium-sized, moderately deep to deep between hind coxae on sternum 1, minute to very small

/ on remainder of sternum 1 and on sternum 2, very small, moderately shallow on sterna 3-4, and ..l to medium-sized, moderately deep on sternum 5. **Legs.** Very slender; anterior surface of hind coxa ery finely reticulate; uncus small, weakly curved, arising near inner apical angle of tibia, weakly oblique to axis of tibia; praemucro very small, *ca* 1/7 from apex of tibia on fore legs, small, *ca* 1/5-1/6 from apex on middle and hind legs, moderately oblique to axis of tibia and directed away from uncus on all legs; tarsal segments 1-3 with moderately sparse setae on dorsal surface. **Genitalia.** See Fig. 78. **Length.** Pronotum + elytra: 3.29 mm (0.93 + 2.36).

FEMALE. Similar to male except metasternum moderately convex on median area and abdominal sternum 1 moderately convex on middle; uncus moderately curved, arising between middle of apex of tibia and inner apical angle, moderately oblique to axis of tibia; praemucro medium-sized, almost subapical on all legs. **Genitalia.** See Fig. 123. **Length.** Pronotum + elytra: 3.23 mm (0.93 + 2.30).

INTRASPECIFIC VARIATION. The pleura may be only brownish, the flanks of the prothorax sometimes are black only above the fore coxae, occasionally the black, basal pronotal fascia is narrow or even obsolete, the scutellum may be light or dark brownish, the flanks of the elytra rarely are black on the whole of the basal 5/6, and the maculae on the disc are variable in size, but the basal ones never reach the sutural interval and the apical one always reaches the suture. The frontal sulcus may be short to long, moderately narrow to very broad, moderately shallow to very deep, the sulcus on the vertex may be short to long, narrow to moderately broad, shallow to deep, sometimes obsolete, and there may be a narrow sulcus above each eye. The prothorax has a ratio (length/width) of 0.81-0.91 (0.87 ± 0.03). The pronotal punctures sometimes are scarcely distinct, minute throughout except near the apex, or more obvious, very small, moderately shallow, moderately dense to dense, and the punctures of the flanks may be more obvious also, especially above the fore coxae. The elytra are 1.39-1.55 (1.46 ± 0.04) times as long as wide, and 2.30-2.69 (2.45 ± 0.10) times as long as the prothorax. The intervals may be only moderately wider than the strial punctures on the basal 1/4. In a few specimens the mesosternum has a moderately developed median carina. The lateral areas of the metasternum may be abruptly depressed in front of the hind coxae, and the praemucro is obsolete on all legs in a few males. Length, pronotum + elytra: 2.53-3.75 mm (3.16 ± 0.23).

TYPE LOCALITY. Argentina, Provincia de Buenos Aires, Tigre.

NOTES ON THE TYPE. Lectotype (**here designated**) female (not dissected), with the following labels: 1) [rectangular; white; handwritten in black ink] Tigre / 16-I-1916; 2) [rectangular; white; printed in red ink] TYPE; 3) [rectangular; pale blue; printed in black ink] MUSEUM PARIS / 1949 / Col. A.HUSTACHE; 4) [rectangular; white; handwritten (by Hustache) in black ink] Tyloderma / nigromaculata / m.; 5) [rectangular; red; printed in black ink] LECTOTYPE / Tyloderma / nigromaculatum / Hustache / G.J.Wibmer 1989.

Lectotype (top specimen of two on pin) card-mounted, glued on its venter. The 4th and 5th tarsal segments of the right middle leg are broken off but still held by the 3rd. The club and 6th funicular segment of the left antenna are broken off, attached to the side of the specimen between the prothorax and the mesepisternum. Length (pronotum + elytra): 3.41 mm (0.94 + 2.47), the prothorax and elytra with a ratio (length/width) of 0.83 and 1.50, respectively. Deposited in MNHP.

Also seven paralectotypes are designated (one mounted on the same pin as the lectotype, glued on its dorsum), with same data as the lectotype although different handwriting (one syntype is missing), and one paralectotype with 1st label: Bs. As / III.1915.

REMARKS AND COMPARATIVE NOTES. The very obvious elytral markings and lack of scales readily distinguish this species from all others in the genus.

PLANT ASSOCIATIONS. Many specimens of this beautiful species have been collected on *Ludwigia* sp., *L. peploides* ssp. *montevidensis* (Sprengel) Raven, *L. repens* Forst. [probably misidentifications of *L. peploides*], and *L. uruguayensis* (Camb.) Hara (Onagraceae), both during the daytime and at night. They are found commonly near the flowers at the tips of the stems.

RANGE. Known from Argentina, Bolivia, southern Brazil, Paraguay, and Uruguay (see Fig. 142).

MATERIAL EXAMINED. I have on hand 983 specimens from BMNH, CWOB, FSCA, GJWC, MACN, MLPC, MNHP, NZAC, RDCC, URMC and USNM, with the following data: **ARGENTINA: Buenos Aires:** III-15 (1 paralectotype), [no date] (2), J.Bosq; Arroyo Videla, Ruta 3, 14 mi S of Azul, *Ludwigia repens* 26-II-75 (2) [no collector]; Delta, Dique Río Luján XII-42 (1) [no collector]; Ezeiza, *Ludwigia repens* 11-XII-68 (3) B.D.Perkins; Punta Lara 17-I-32 (11) Bosq; Quilmes (3) [no collector]; Rosas, Ferrocarriles Sud, (2) J.B.Daguerre, (1) [no collector]; San Fernando, II-54 (2), XII-54 (7), Daguerre; Tigre 16-I-16 (lectotype + 7 paralectotypes) [J.Bosq]; Tigre, Las Conchas 21-XI-53 (3) Daguerre; 5 km NW Tigre, at night 28-IX-68 (1) L.& C.W.O'Brien; 13 mi E Zárate (Hwy. 12), at night, on *Ludwigia* and general sweeping 14-IV-78 (5), on *Ludwigia* 14-IV-78 (5), C.W.O'Brien; Zelaya, 16-IV-55 (1), X-62 (1), XII-62 (2), Daguerre. **Chaco:** Ruta 90, 61 km NW of Resistencia, sweeping *Ludwigia* 24-III-75 (1) [no collector]; Ruta 16, 37 km E of [Presidencia Roque] Sáenz Peña, on *Pistia* 23-III-75 (1) [no collector].

Córdoba: Alta Gracia 1929 (1) A.Breyer. **Corrientes**: 3 km E Corrientes, 17-I-89 (15), night, 17-I-89 (21), 18-I-89 (6), C.& L.O'Brien & Wibmer; 180 km S of Corrientes, *Ludwigia repens* 15-IX-72 (2) C.J.DeLoach & H.A.Cordo; Manantiales (1) Birabén; 3 km W San Cosme 18-I-89 (1) C.& L.O'Brien & G.Wibmer; 3 km W Valencia 29-I-89 (3) C.& L.O'Brien & G.Wibmer. **Entre Ríos**: 13 km S Ceibas, Hwy. 12 14-I-89 (3) C.& L.O'Brien & G.Wibmer; Concordia, II-36 (3) Bosq, [no date] (5) Daguerre. **Formosa**: 34 km SW Clorinda 26-I-89 (5) C.W.& L.O'Brien & G.Wibmer; 40 km SW Clorinda 26-I-89 (7) C.W.& L.O'Brien & G.Wibmer. **Salta**: Tartagal ??-43 (1) G.L.Harrington. **Santa Fe**: 16-XI-30 (2) Bridarolli; Villa Ana, Ferrocarriles Santa Fe XII-24 (3) K.J.Hayward. **Tucumán**: *Jussiaea repens* var. *montevidensis* 6-I-67 (1) L.Andres. **BOLIVIA**: **Santa Cruz**: Palma Sola Refinery, 8 mi S Santa Cruz, at light 17-IV-78 (1) O'Briens & Marshall; 4 mi E Portachuelo, at night 24-III-78 (1) G.B.Marshall, at night 24-III-78 (1) C.W.& L.O'Brien; 10 mi W Portachuelo, at UV light 27-III-78 (1) C.W.O'Brien; 14 mi SW Portachuelo, at night 24-III-78 (1) G.B.Marshall, at night 22-III-78 (1) C.W.O'Brien, treading aquatic plants 27-III-78 (1) C.W.& L.B.O'Brien; 10 mi W Puerto Banegas, at UV light 25-III-78 (1) C.W.O'Brien; Saavedra, Agr. Exp. Sta., blacklight trap, 4-I-60 (2), 5-I-60 (3), 30-XII-59 (1), R.B.Cumming, Saavedra Res. Sta., at light 26-III-78 (1) C.W.O'Brien; Prov. of San Esteban, Muyurina, 49 km N of Santa Cruz, 1120ft, blacklight trap, 12-X-59 (1), 27-XII-59 (1), R.B.Cumming; 4 mi E Santa Cruz, at night 21-IV-78 (24), at night, on *Ludwigia* (erect, 3ft tall) 21-IV-78 (4), treading *Ludwigia* 21-IV-78 (27), C.W.O'Brien & Marshall. **BRAZIL**: [**Rio Grande do Sul**]: Pelotas 7-XII-52 (1) C.Biezanko. **PARAGUAY**: **Cordillera**: Inst. Agr. Nac. Caacupé, 25-IX-81 (1), 12-X-80 (1), R.D.Cave. **URUGUAY**: **Canelones**: Bañados de Carrasco 11-XII-57 (1) R.Saccone & M.A.Monné; 3 km NW Ruta 101 & 2 km SW Ruta 102 3-I-79 (1) G.J.Wibmer & C.M.Bentancourt. **Colonia**: *ca* 2 km E Ruta 21 km 186, at night 30-XII-78 (23) G.J.& Z.Wibmer; [Arroyo] San Pedro, Ruta 21 km 194 4-I-84 (2) G.J.Wibmer; Paso de la Arena, [*ca*] Ruta 21 km 184, 16-I-72 (7) G.J.Wibmer & Z.Assandri, at night, on *Ludwigia peploides* var. *montevidensis* 23-I-76 (1) Z.I.& G.J.Wibmer; Piedra de los Indios, Ruta 21, [no date] (1) O.C.de Assandri, 31-XII-85 (2), swept *Ludwigia peploides* 24-XII-83 (19), G.J.Wibmer, 7-XII-78 (2), 26-XII-78 (3), 29-XII-78 (1), at night, 7-XII-78 (5), 10-XII-78 (35), 23-XII-78 (22), G.J.& Z.Wibmer, 28-XII-85 (7) G.J.Wibmer & C.S.Morey; Reducto, hand-picked *Ludwigia peploides* ssp. *montevidensis* 5-XII-78 (6), hand-picked or treaded *Ludwigia peploides* ssp. *montevidensis* 29-XII-78 (9), swept *Ludwigia peploides* ssp. *montevidensis* 29-XII-78 (2), G.J.& Z.Wibmer; San Pedro, treaded or swept *Ludwigia uruguayensis* 5-I-79 (65) G.J.Wibmer, 11-I-79 (27), hand-picked or treaded *Ludwigia peploides* ssp. *montevidensis* 6-I-79 (38), swept *Ludwigia peploides* ssp. *montevidensis* 8-XII-78 (58), swept *Ludwigia uruguayensis*, 8-XII-78 (113), 24-XII-78 (98), treaded *Ludwigia uruguayensis*, 6-I-79 (180), 11-I-79 (30), G.J.& Z.Wibmer. **Rocha**: Ruta 16, 2 km SE Castillos 4-II-89 (3) C.W.& L.O'Brien & G.Wibmer; Ruta 15, 13 km N La Paloma Jcn., treading *Ludwigia* 4-II-89 (3) C.W.& L.O'Brien & G.Wibmer; Ruta 14, 24 km SE Lascano 6-II-89 (1) C.W.& L.O'Brien & G.Wibmer.

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LITERATURE CITED

Blackwelder, R. E. 1947. Checklist of the coleopterous insects of Mexico, Central America, the West Indies, and South America. Part 5. Bulletin. United States National Museum, no. 185, pp. I-IV, 765-925.

Blatchley, W. S. 1919. Some new or scarce Coleoptera from western and southern Florida.--III. The Canadian Entomologist 51(3):65-69.

Blatchley, W. S. 1925. Notes on the Rhynchophora of eastern North America with descriptions of new species, III. Journal of the New York Entomological Society 33(2):87-113.

Blatchley, W. S. 1930. Blatchleyana. A list of the published writings of W. S. Blatchley, A.B., A.M., LL.D. of Indianapolis, Indiana and Dunedin, Florida. Together with a chronology of his life: the fixation of types of new genera and species described by him, etc., etc. The Nature Publishing Co., Indianapolis, Indiana. 77 pp.

Blatchley, W. S., and C. W. Leng. 1916. Rhynchophora or weevils of North Eastern America. The Nature Publishing Co., Indianapolis, Indiana. 682 pp., illus.

Boheman, C. H. 1844. *In* Schönherr, C. J., Genera et species curculionidum, cum synonymia hujus familiae. Roret, Paris; Fleischer, Lipsiae. Vol. 8, pt. 1, pp. 1-442.

Casey, T. L. 1892. Coleopterological notices. IV. Annals of the New York Academy of Sciences 6(7-12):359-712.

Champion, G. C. 1905. Biologia Centrali-Americana. Insecta. Coleoptera. Rhynchophora. Curculionidae. Curculioninae (part), vol. 4, pt. 4, pp. 441-600, illus.

Champion, G. C. 1910. Biologia Centrali-Americana. Insecta. Coleoptera. Rhynchophora. Curculionidae. Calandrinae [and appendix to the Curculioninae], vol. 4, pt. 7, pp. i-vi, 79-221, illus.

Chevrolat, [L. A.] A. 1879. Diagnoses de Coléoptères Européens et exotiques. Le Naturaliste 1(16):126.

Chevrolat, [L. A.] A. 1880. Diagnoses de Curculionides de la Guadeloupe. Le Naturaliste 2(32): 251-253.

Cordo, H. A., and C. J. DeLoach. 1982. Notes on the weevils *Tyloderma*, *Auleutes*, and *Onychylis* that feed on *Ludwigia* and other aquatic plants in southern South America. The Coleopterists Bulletin 36(2):291-297, illus.

Costa-Lima, A. [M.] da. 1938. Um novo gorgulho, broca da couve (Coleoptera: Curculionoidea). Memorias do Instituto Oswaldo Cruz 33(1):49-52, illus.

Costa-Lima, A. [M.] da. 1956. Insetos do Brasil. 10° Tomo, Coleópteros, 4.ª e última parte. Escola Nacional de Agronomia. Série Didática no. 12, pp. 3-373, illus.

Danforth, S. T. 1926. An ecological study of Cartagena Lagoon, Porto Rico, with special reference to the birds. The Journal of the Department of Agriculture of Puerto Rico 10(1):1-130, illus.

Dejean, [P. F. M. A.] 1833-1836. Catalogue des Coléoptères de la collection de M. le Comte Dejean, [2nd. ed.]. Méquignon-Marvis & Sons, Paris. 443 pp. [Fasc. 4, pp. 257-360 (1835).]

Dejean, [P. F. M. A.] 1835. See Dejean, [P. F. M. A.], 1833-1836.

Dejean, [P. F. M. A.] 1836. See Dejean, [P. F. M. A.], 1836-1837.

Dejean, [P. F. M. A.] 1836-1837. Catalogue des Coléoptères de la collection de M. le Comte Dejean, . . . Troisième édition, revue, corrigée et augmentée. Méquignon-Marvis & Sons, Paris. xiv + 503 pp. [Fasc. 1-4, pp. 1-384 (1836).]

Faust, J. 1896. Reise von E. Simon in Venezuela. Curculionidae. Stettiner Entomologische Zeitung 57:33-136. (Pars tertia.)

Gemminger, [M.], and [E.] von Harold. 1871. Catalogus Coleopterorum hucusque descriptorum synonymicus et systematicus. Gummi, Monachii. Vol. 8, Curculionidae, pp. 2181-2668 [+ 11 pp. ("Index Generum", "Addenda", "Corrigenda").]

Germar, E. F. 1837. *In* Schönherr, C. J., Genera et species curculionidum, cum synonymia hujus familiae. Roret, Paris; Fleischer, Lipsiae. Vol. 4, pt. 1, pp. [I-II], 1-600.

Horn, G. H. 1873. Contributions to a knowledge of the Curculionidae of the United States. Proceedings of the American Philosophical Society 13:407-469.

Hustache, A. 1930. Curculionides de la Guadeloupe. Faune des Colonies Françaises, vol. 4, fasc. 1, pp. 1-148, illus. (Deuxième partie.)

Hustache, A. 1936. Coleopterorum Catalogus. Junk, 's-Gravenhage. Pars 151, Curculionidae: Cryptorrhynchinae, pp. 1-317 (Vol. 29).

Hustache, A. 1939. Curculionides nouveaux de l'Argentine et autres régions Sud-Américaines. Anales de la Sociedad Cientffica Argentina 128:99-124.

Hustache, A. 1940. Curculionides nouveaux de l'Argentine et autres régions Sud-Américaines (Deuxième note). Anales de la Sociedad Cientffica Argentina 129:112-144.

Kissinger, D. G. 1964. Curculionidae of America north of Mexico. A key to the genera. Taxonomic Publications, South Lancaster, Massachusetts. v + 143 pp., illus.

Lacordaire, [J.] T. 1866. Histoire naturelle des insectes. Genera des Coléoptères ou exposé méthodique et critique de tous les genres proposés jusqu'ici dans cet ordre d'insectes. Roret, Paris. Vol. 7, pp. 1-620. (Contenant les familles des Curculionides (suite), Scolytides, Brenthides, Anthribides et Bruchides.)

LeConte, J. L. 1857. Report upon insects collected on the survey. *In* Reports of explorations and surveys for a railroad route from the Mississippi River to the Pacific Ocean, vol. 9, no. 1, pp. 1-72, illus. [A preprint; the report was published in 1860.]

LeConte, J. L. [ed.]. 1859. The Complete writings of Thomas Say on the entomology of North America. Vol. 1, pp. i-xxiv, 1-412, illus; vol. 2, pp. i-iv, 1-814, illus.

LeConte, J. L. 1876. *In* LeConte, J. L., and G. H. Horn.

LeConte, J. L., and G. H. Horn. 1876. The Rhynchophora of America, north of Mexico. Proceedings of the American Philosophical Society 15(96):i-xvi, 1-455.

LeConte, J. L., and G. H. Horn. 1883. Classification of the Coleoptera of North America. Smithsonian Miscellaneous Collections, no. 507, pp. I-XXXVIII, 1-567, illus.

Mitchell, J. D., and W. D. Pierce. 1911. The weevils of Victoria County, Texas. Proceedings of the Entomological Society of Washington 13(1):45-62.

O'Brien, C. W., and G. J. Wibmer. 1982. Annotated checklist of the weevils (Curculionidae *sensu lato*) of North America, Central America, and the West Indies (Coleoptera: Curculionoidea). Memoirs of the American Entomological Institute, no. 34, pp. i-ix, 1-382.

Papavero, N. 1973. Essays on the history of Neotropical Dipterology, with special reference to collectors (1750 - 1905). Museu de Zoologia, São Paulo. Vol. 2, pp. i-iii, 217-446, illus.

Papp, C. S. 1979. An illustrated catalog of the Cryptorhynchinae of the New World with generic descriptions, references to the literature and deposition of type material (Coleoptera: Curculionidae). State of California. Department of Food and Agriculture. Division of Plant Industry. Laboratory Services--Entomology, (1979), pp. I-XVIII, 1-467, illus.

Pascoe, F. P. 1881. New Neotropical Curculionidae.--Part V. Annals and Magazine of Natural History, ser. 5, 7:299-308.

Pierce, W. D. 1907. On the biologies of the Rhynchophora of North America. Studies from the Zoological Laboratory. The University of Nebraska, no. 78, pp. 249-320, illus.

Pierce, W. D. 1916. Studies of weevils (Rhynchophora) with descriptions of new genera and species. Proceedings of the United States National Museum 51:461-473, illus.

Rye, E. C. 1878. Insecta, Coleoptera, pp. 7-122. *In* Zoological Record for 1876, vol. 13.

Say, T. 1831. Descriptions of new species of Curculionites of North America, with observations on some of the species already known. New Harmony, Indiana. Pp. 1-30. [Reprinted 1859, LeConte (ed.), vol. 1, pp. 259-299.]

Schönherr, C. J. 1833. Genera et species curculionidum, cum synonymia hujus familiae. Roret, Paris. Vol. 1, pt. 1, pp. I-XV, 1-381; pt. 2, pp. 383-681 [+ pp. 683-685 (Corrigenda).]

Schönherr, C. J. 1837. Genera et species curculionidum, cum synonymia hujus familiae. Roret, Paris; Fleischer, Lipsiae. Vol. 4, pt. 1, pp. [I-II], 1-600.

Sleeper, E. L. 1960. Notes on the Curculionoidea II. The Ohio Journal of Science 60(2):83-88, illus.

Suffrian, E. 1872. Verzeichniss der von Dr. Gundlach auf der Insel Cuba gesammelten Rüsselkäfer. Archiv für Naturgeschichte 38(1):156-207.

Vanin, S. A. 1986. Systematics, cladistic analysis, and geographical distribution of the tribe Erodiscini (Coleoptera, Curculionidae, Otidocephalinae). Revista Brasileira de Entomologia 30(3-4):427-670, illus.

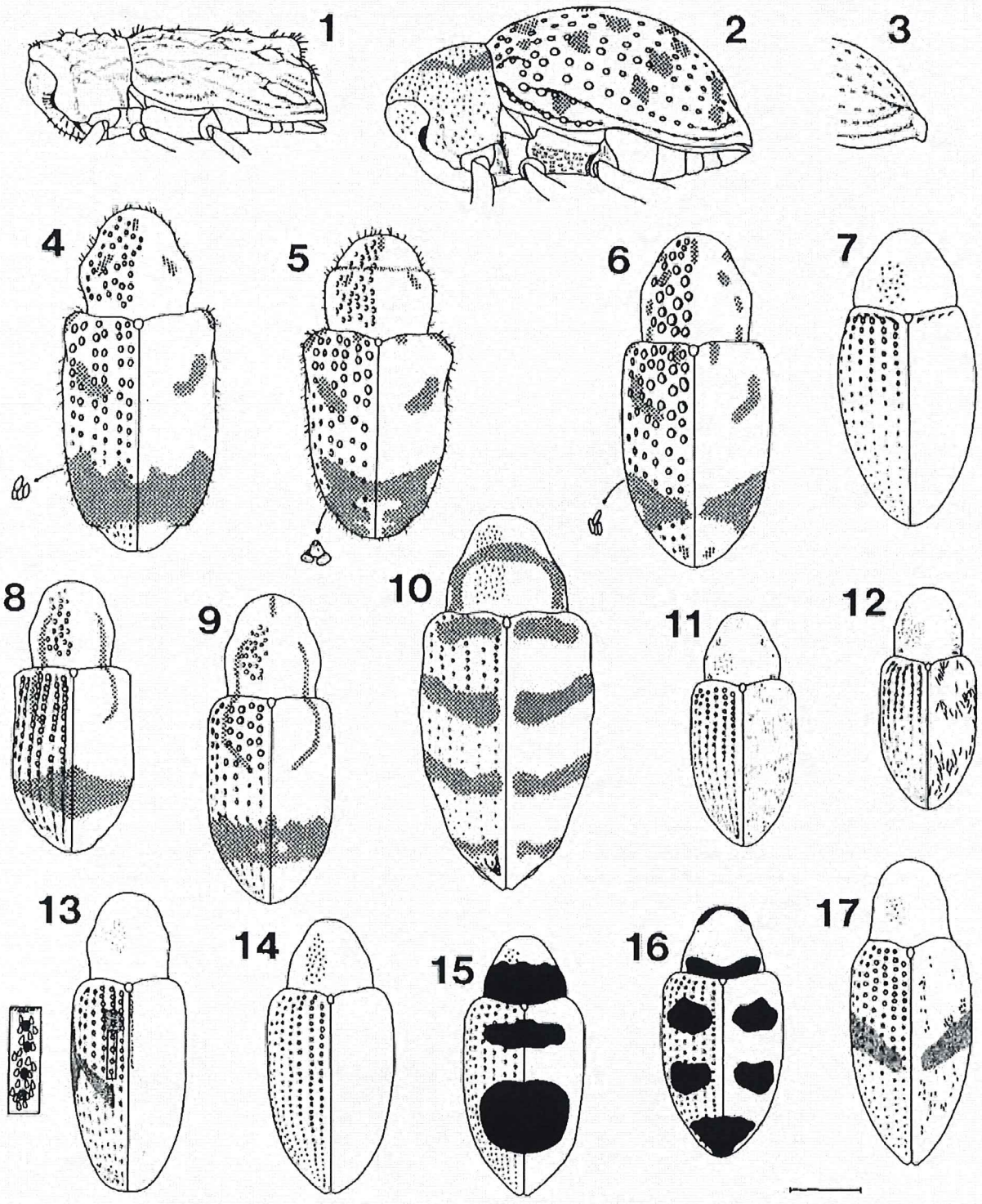
Voss, E. 1943. Einige neue Rüsslerarten aus Argentinien und Paraguay. (Coleoptera: Curculionidae.) (106. Beitrag zur Kenntnis der Curculioniden.) Arbeiten über morphologische und taxonomische Entomologie aus Berlin-Dahlem 10(4):225-236, illus.

Wibmer, G. J. 1981. Revision of the New World weevil genus *Tyloderma* in America north of Mexico (Coleoptera: Curculionidae: Cryptorhynchinae). Southwestern Entomologist, Suppl. no. 3, pp. 1-95, illus.

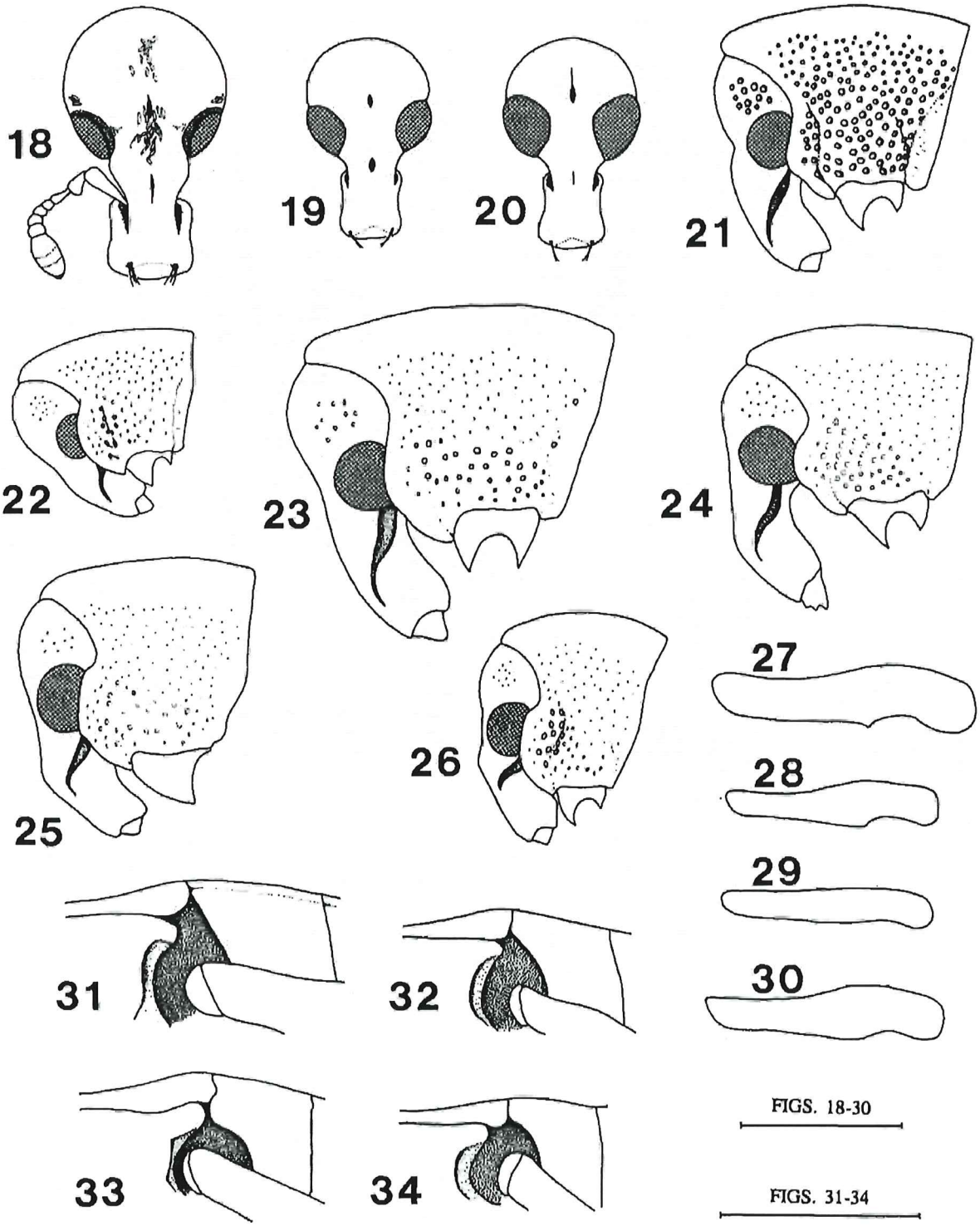
Wibmer, G. J., and C. W. O'Brien. 1986. Annotated checklist of the weevils (Curculionidae *sensu lato*) of South America (Coleoptera: Curculionoidea). Memoirs of the American Entomological Institute, no. 39, pp. i-xvi, 1-563.

Wolcott, G. N. 1936. "Insectae Borinquenses". A revision of " 'Insectae Portoricensis'. A preliminary annotated check-list of the insects of Porto Rico, with descriptions of some news [*sic*] species". Jour. Dept. Agr. P. R. Vol. 7, No. 1 (January 1924), pp. 313, fig. 2. San Juan, March 5, 1924 and "First supplement to Insectae Portoricensis". Jour. Dept. Agr. P. R., Vol. 7, No. 4 (October 1924), pp. 38-43, San Juan, August 1924. The Journal of Agriculture of the University of Puerto Rico 20(1):1-627, illus. [+ 3 pp. (Errata), unnumbered.]

Wolcott, G. N. 1951. The insects of Puerto Rico. Coleoptera. The Journal of Agriculture of the University of Puerto Rico, 1948(1950[1951]), 32(2):225-416, illus.



Figs. 1-17, *Tyloderma* spp. (1-2) Lateral view: 1, *T. tuberculatum* [punctures omitted]; 2, *T. albidomaculatum* [scales stippled]. (3) Lateral view of apex of elytra: *T. subfasciatum*. (4-17) Dorsal view, showing some detail of punctation and scale cover [4-6 & 8-10, scales stippled]: 4, *T. setarium*; 5, *T. hustachei*; 6, *T. foveolatum*; 7, *T. baridium*; 8, *T. expansum*; 9, *T. elegantulum*; 10, *T. fasciatum*; 11, *T. brevisquameum*; 12, *T. longisquameum*; 13, *T. lepidogramma*; 14-15, *T. variabile*; 16, *T. nigromaculatum*; 17, *T. elongatum*. Line = 1 mm.



Figs. 18-34, *Tyloderma* spp. (18-20) Head, dorsal surface [punctures omitted]: 18, *T. foveolatum*; 19, *T. nigromaculatum*; 20, *T. variabile*. (21-26) Head and prothorax, lateral view, showing some detail of punctation [setae and scales omitted]: 21, *T. frontale*; 22, *T. cupreum*; 23, *T. diversum*; 24, *T. natator*; 25, *T. obrieni*; 26, *T. nigromaculatum*. (27-30) Hind femur, lateral view [punctures omitted]: 27, *T. setarium*; 28, *T. frontale*; 29, *T. nigromaculatum*; 30, *T. aeneotinctum*. (31-34) Hind coxal cavity and surrounding structures [punctures omitted]: 31, *T. glabrescens*; 32, *T. aeneotinctum*; 33, *T. inaequale*; 34, *T. baridium*. Lines = 1 mm.

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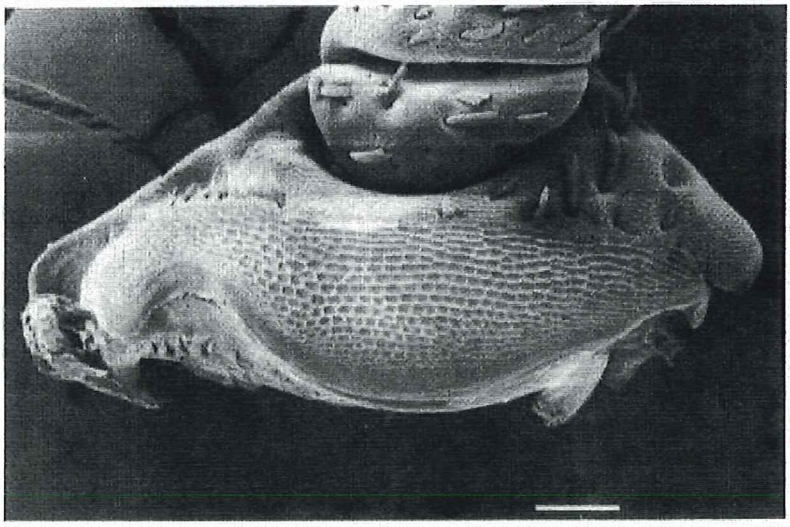

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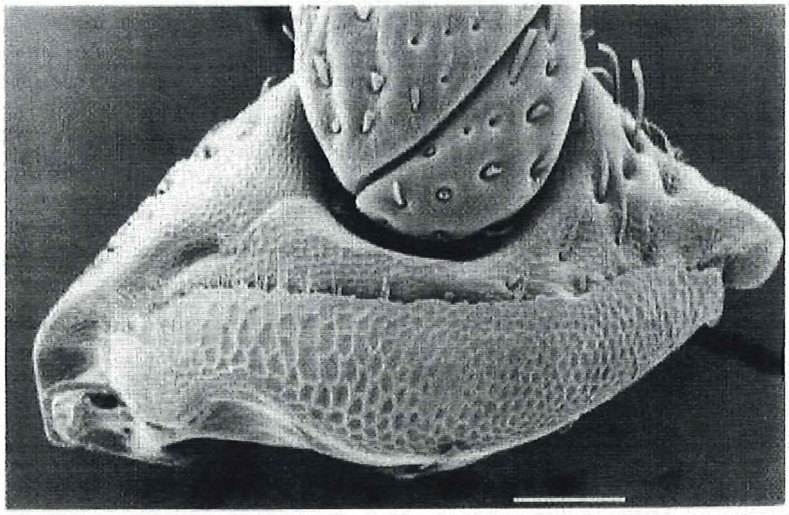

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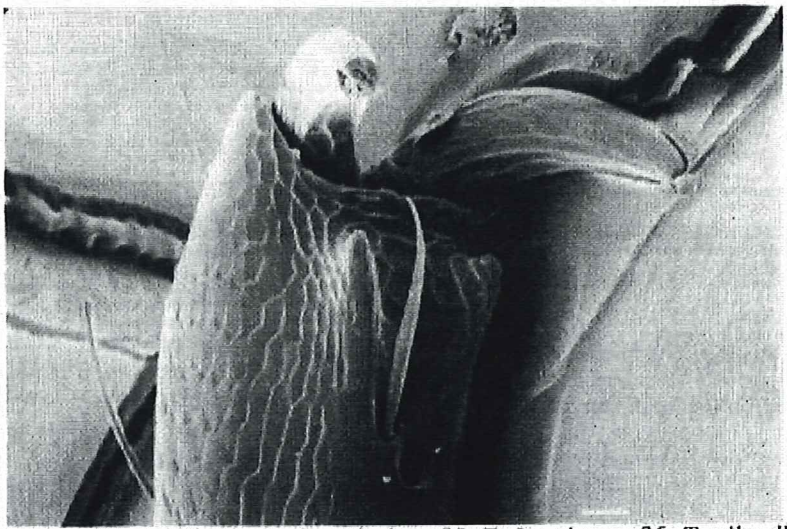
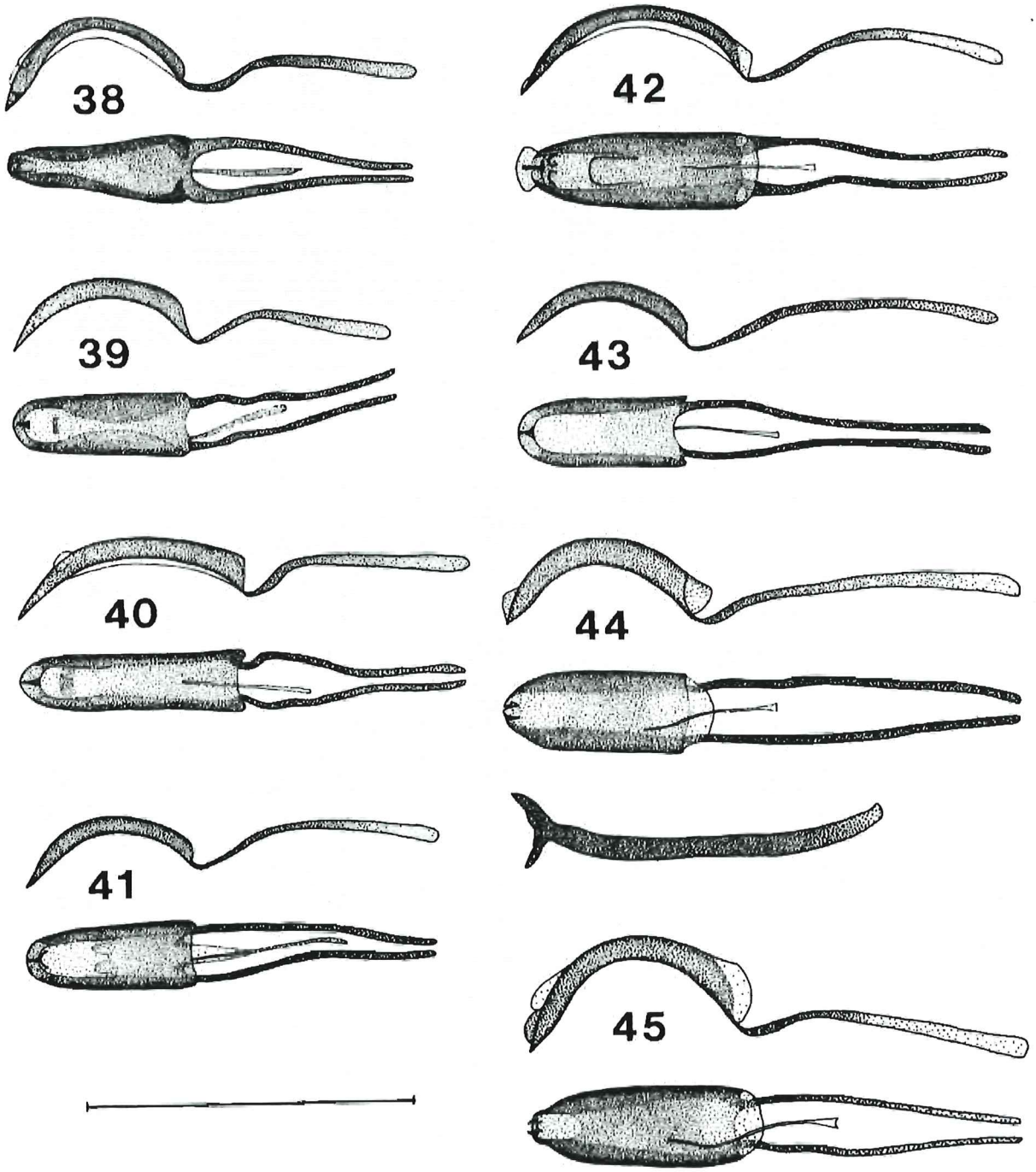
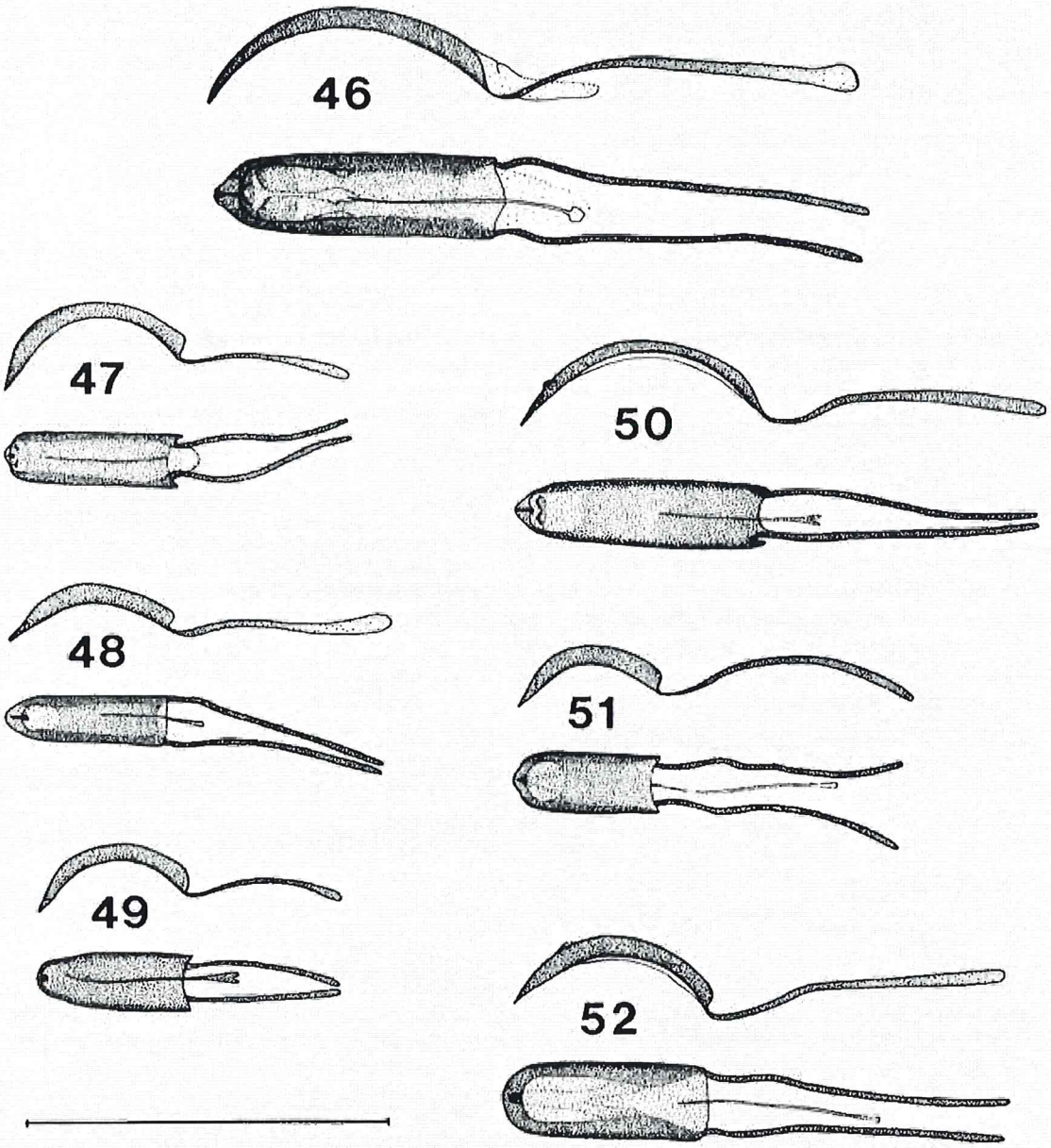


Figs. 35-37, *Tyloderma* spp. (35-36) Hind coxa, frontal view: 35, *T. foveolatum*; 36, *T. pilosellum*. Lines = 100 µm. (37) Apical portion of tarsal segment 5, lateroventral view: *T. aeneotinctum*. Line = 10 µm.



Figs. 38-45, *Tyloderma* spp. (H = holotype, P = paratype), phallus (dorsal and lateral views): 38, *T. setarium*; 39, *T. brassicae*; 40, *T. tuberculatum* (H); 41, *T. pilosellum*; 42, *T. hustachei* (P); 43, *T. subpilosum* (H); 44, *T. foveolatum* [including spiculum gastrale]; 45, *T. pseudofoveolatum* (H). Line = 1 mm.



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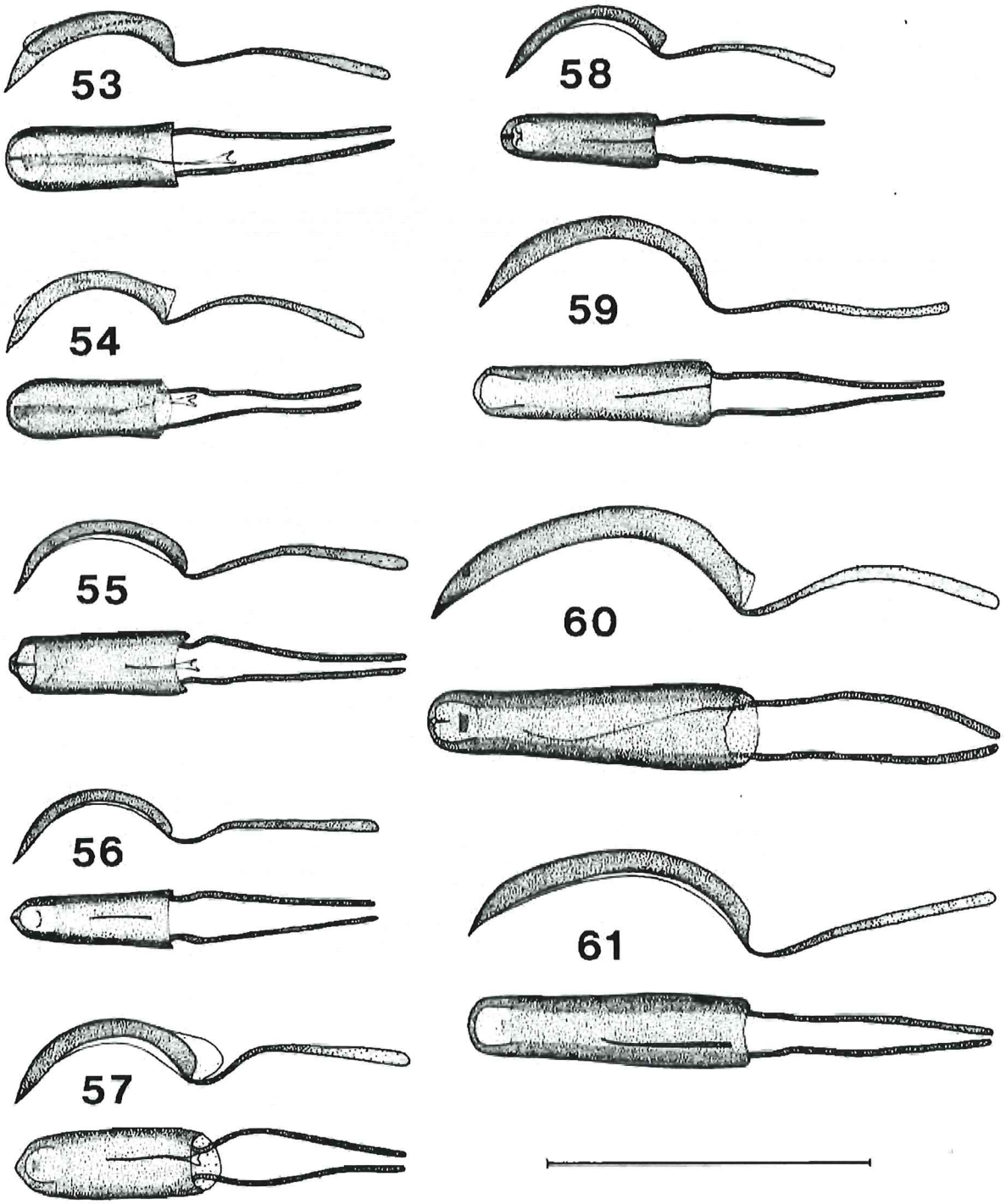
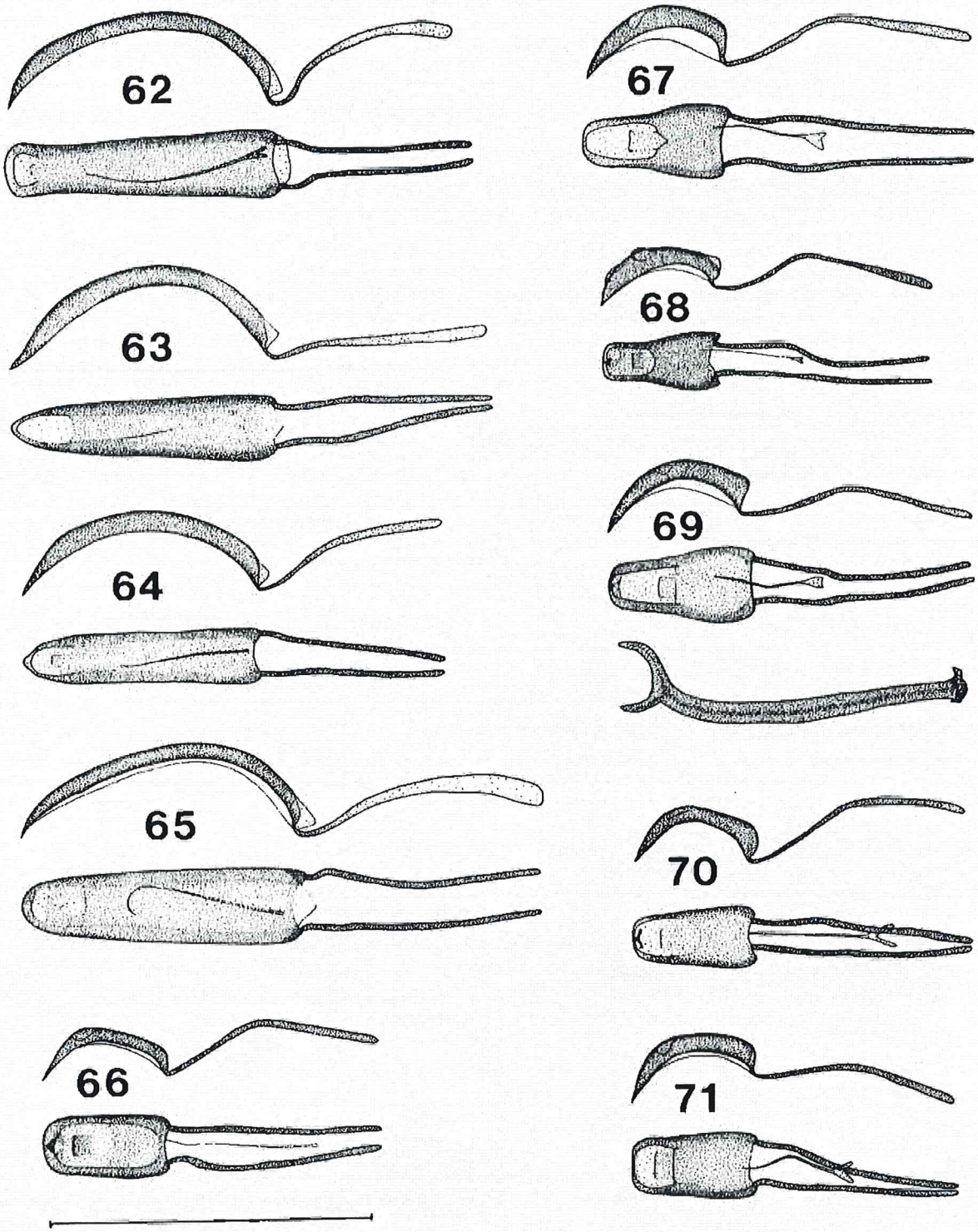
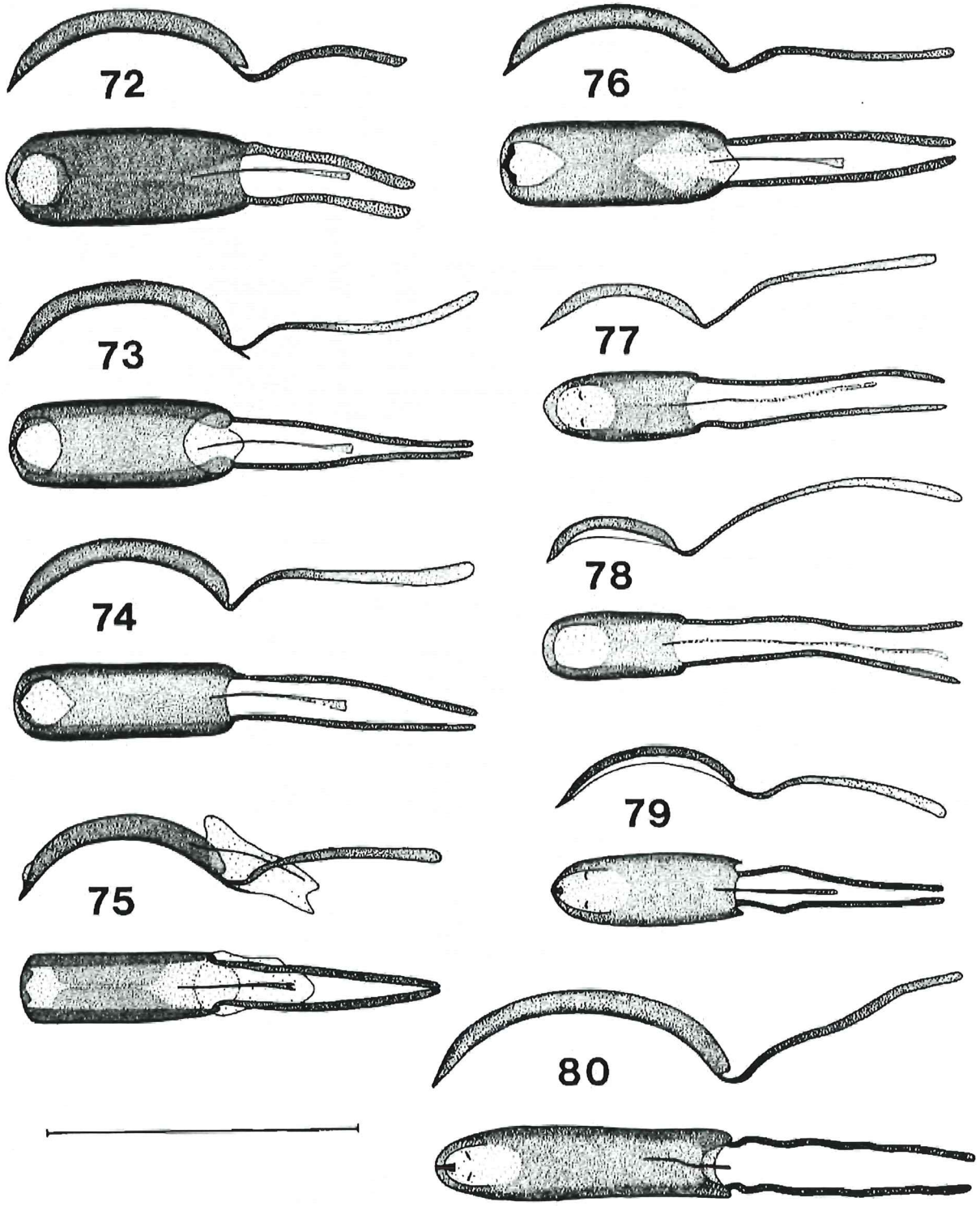


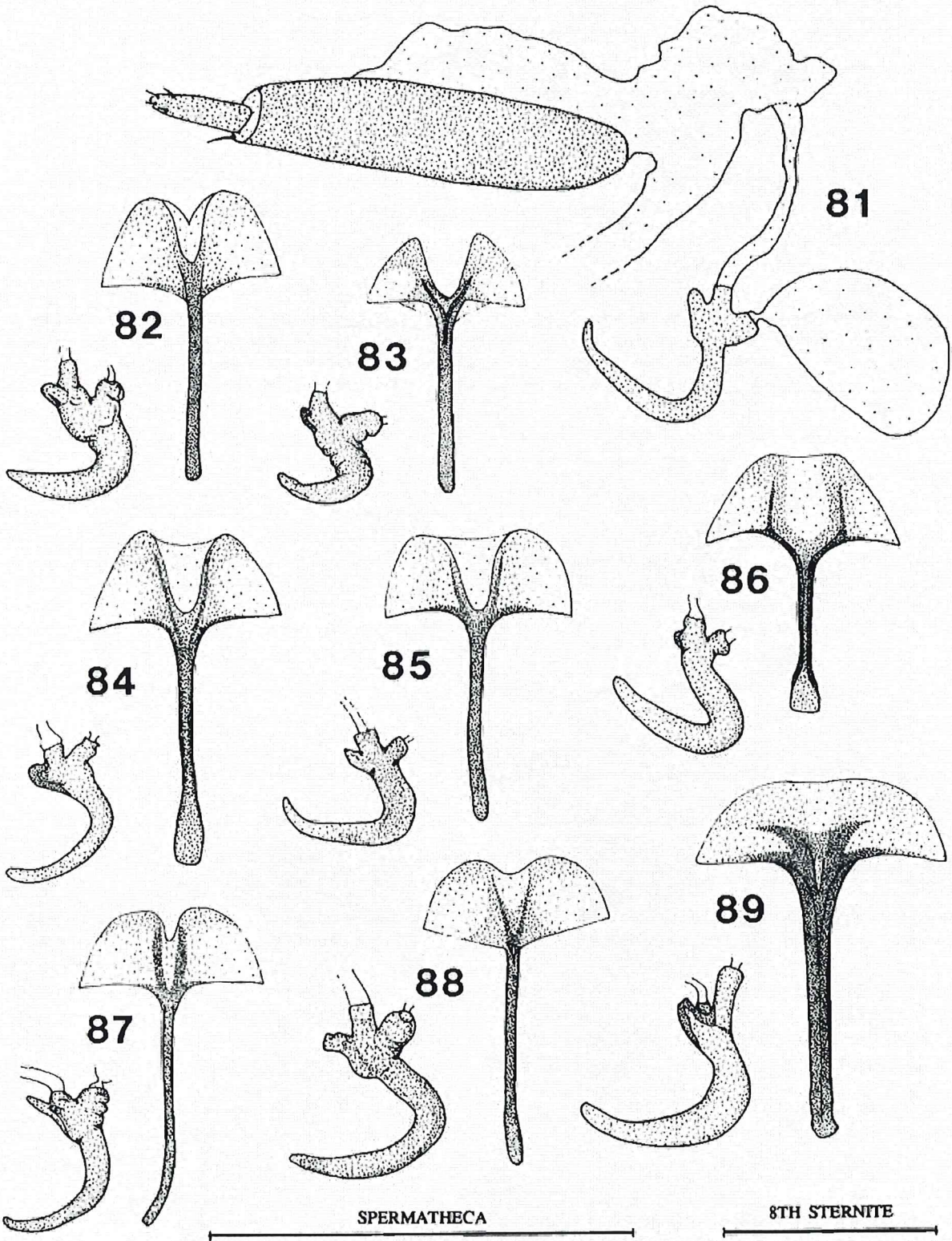
Figs. 53-61, *Tyloderma* spp. (H = holotype, P = paratype), phallus (dorsal and lateral views): 53, *T. natator* (H); 54, *T. lepidogramma* (P); 55, *T. affine* (P); 56, *T. frontale* (H); 57, *T. striatum*; 58, *T. aeneotinctum*; 59, *T. diversum* (H); 60, *T. sayi* (H); 61, *T. danforthi*. Line = 1 mm.



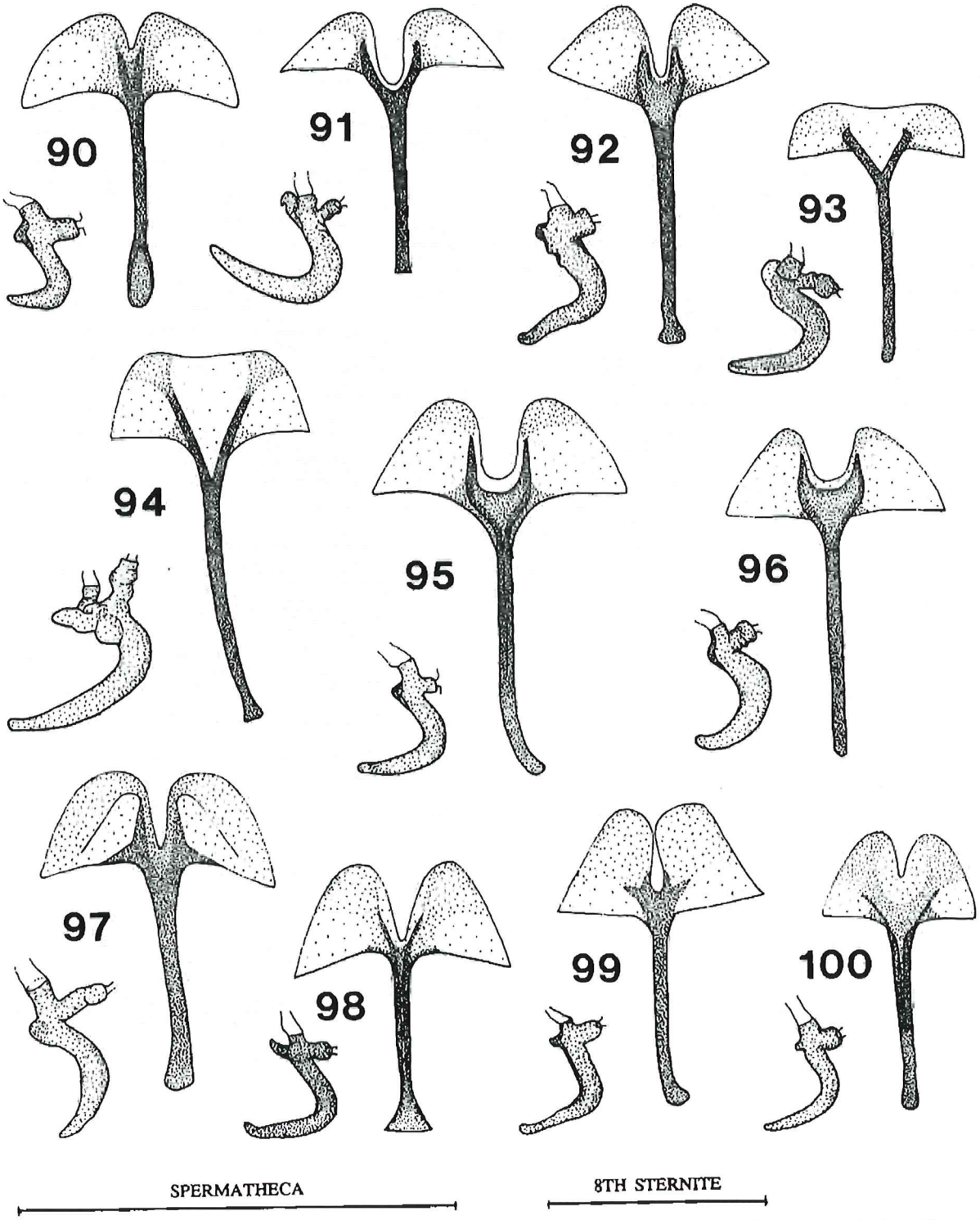
Figs. 62-71, *Tyloderma* spp. (H = holotype), phallus (dorsal and lateral views): 62, *T. innotatum*; 63, *T. simile* (H); 64, *T. obliquatum*; 65, *T. inaequale*; 66, *T. brevisquameum* (H); 67, *T. schoenherri* (H); 68, *T. subpubescens*; 69, *T. cupreum* [including spiculum gastrale]; 70, *T. longisquameum* (H); 71, *T. aeneum*. Line = 1 mm.



Figs. 72-80, *Tyloderma* spp. (H = holotype, P = paratype), phallus (dorsal and lateral views): 72, *T. cubense* (H); 73, *T. fasciatum*; 74, *T. subfasciatum* (H); 75, *T. pallidum* (H); 76, *T. circumcaribbeum* (H); 77, *T. variabile* (H); 78, *T. nigromaculatum*; 79, *T. elongatum* (P); 80, *T. obrieni* (H). Line = 1 mm.



Figs. 81-89, *Tyloderma* spp. (A = allotype). (81) female genitalia (right coxite and stylus, vagina, bursa copulatrix, spermathecal duct, spermatheca, spermathecal gland): *T. foveolatum*. (82-89) female 8th sternite (ventral view [setae not included]) and spermatheca (lateral view): 82, *T. setarium*; 83, *T. brassicae*; 84, *T. pilosellum*; 85, *T. subpilosum* (A); 86, *T. hustachei* (A); 87, *T. pseudofoveolatum* (A); 88, *T. foveolatum*; 89, *T. baridium*. Lines = 0.5 mm.



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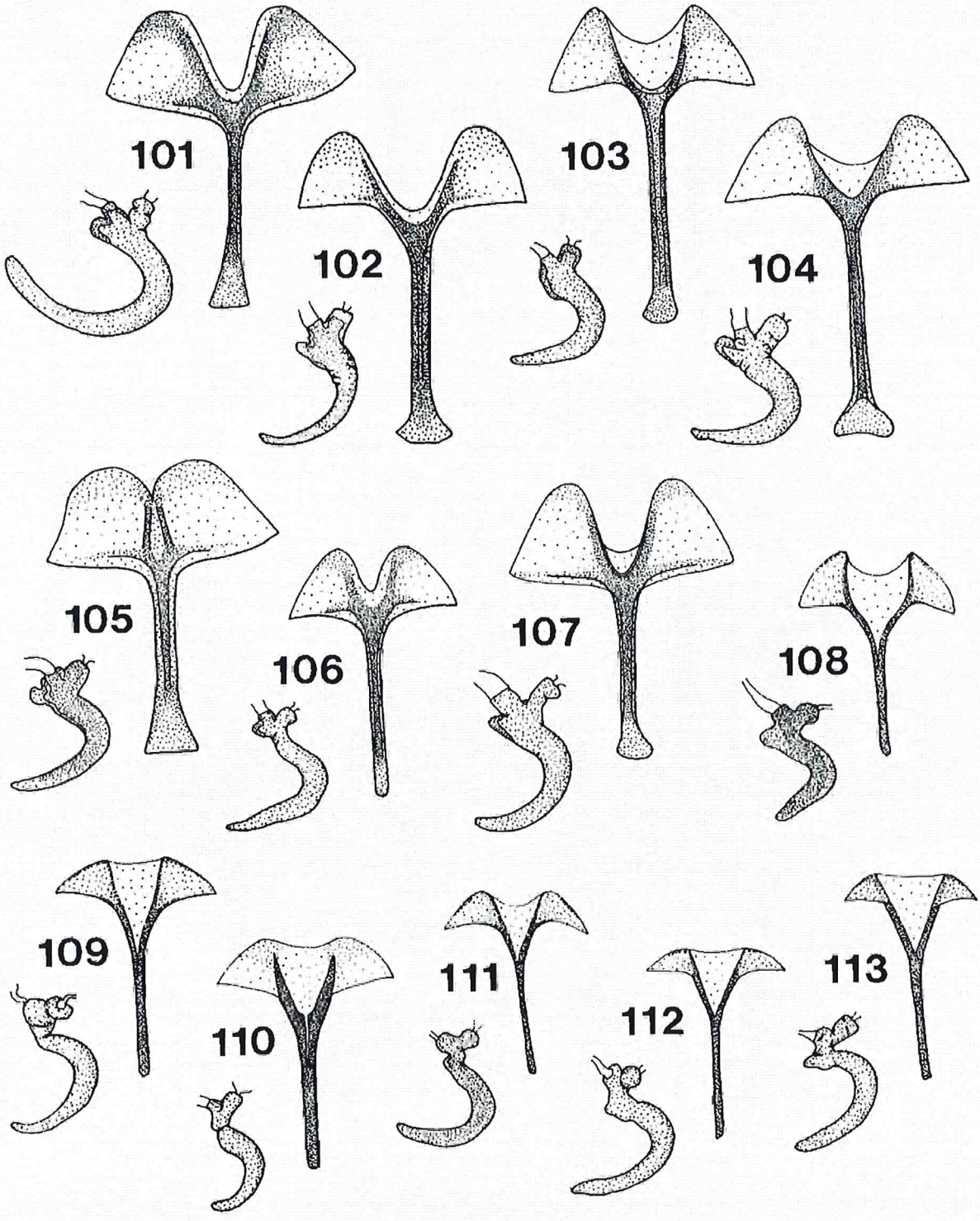

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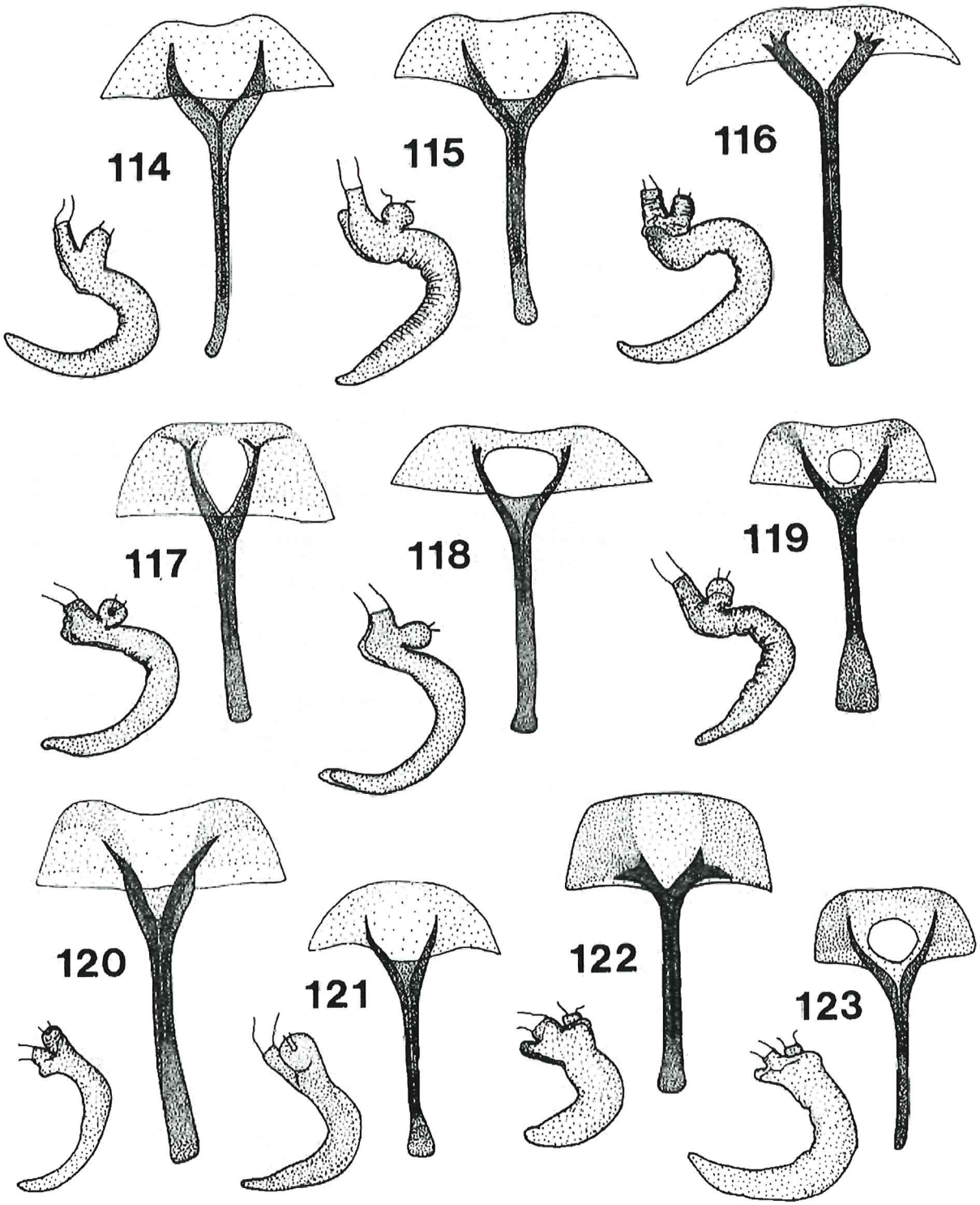

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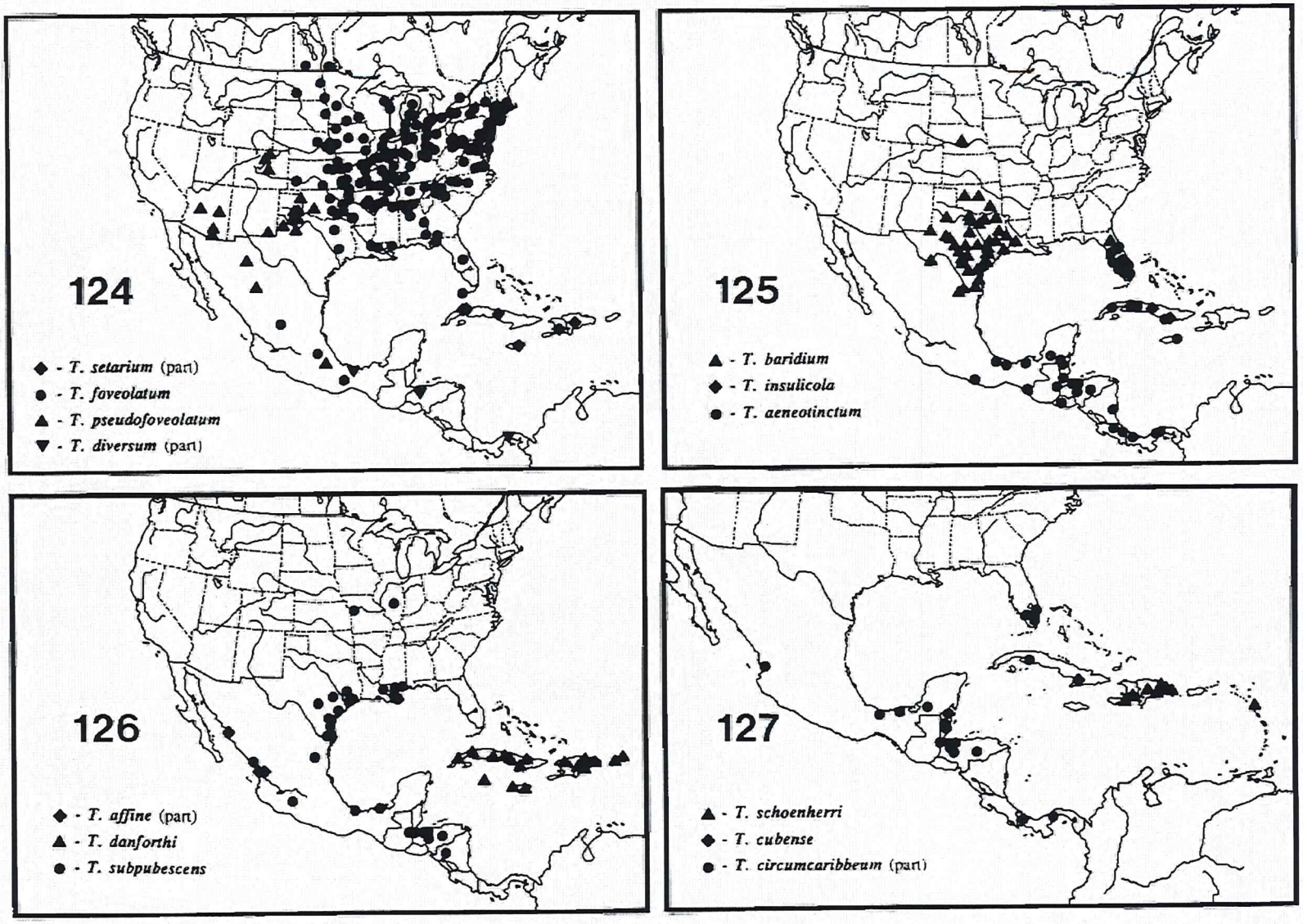

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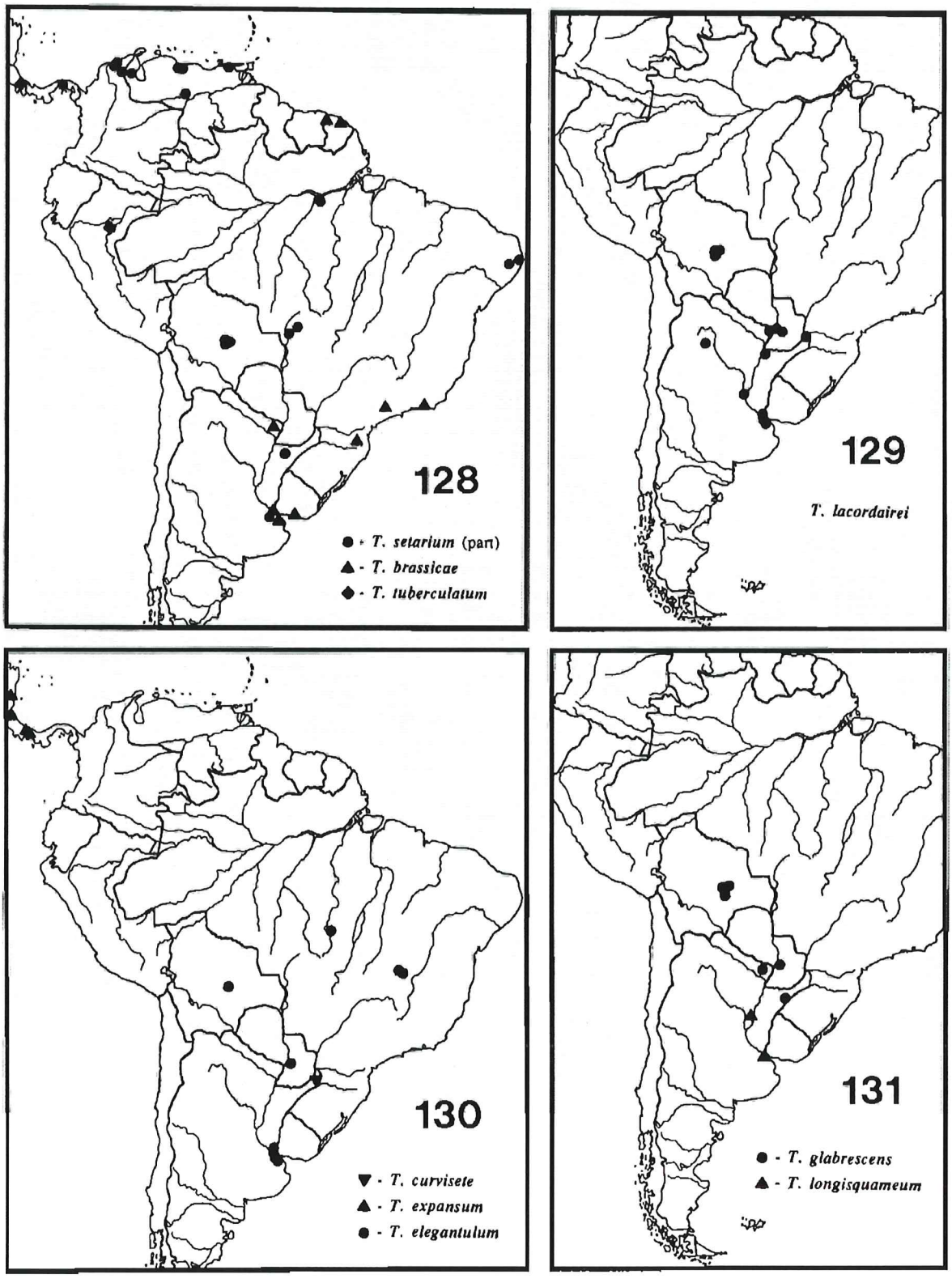

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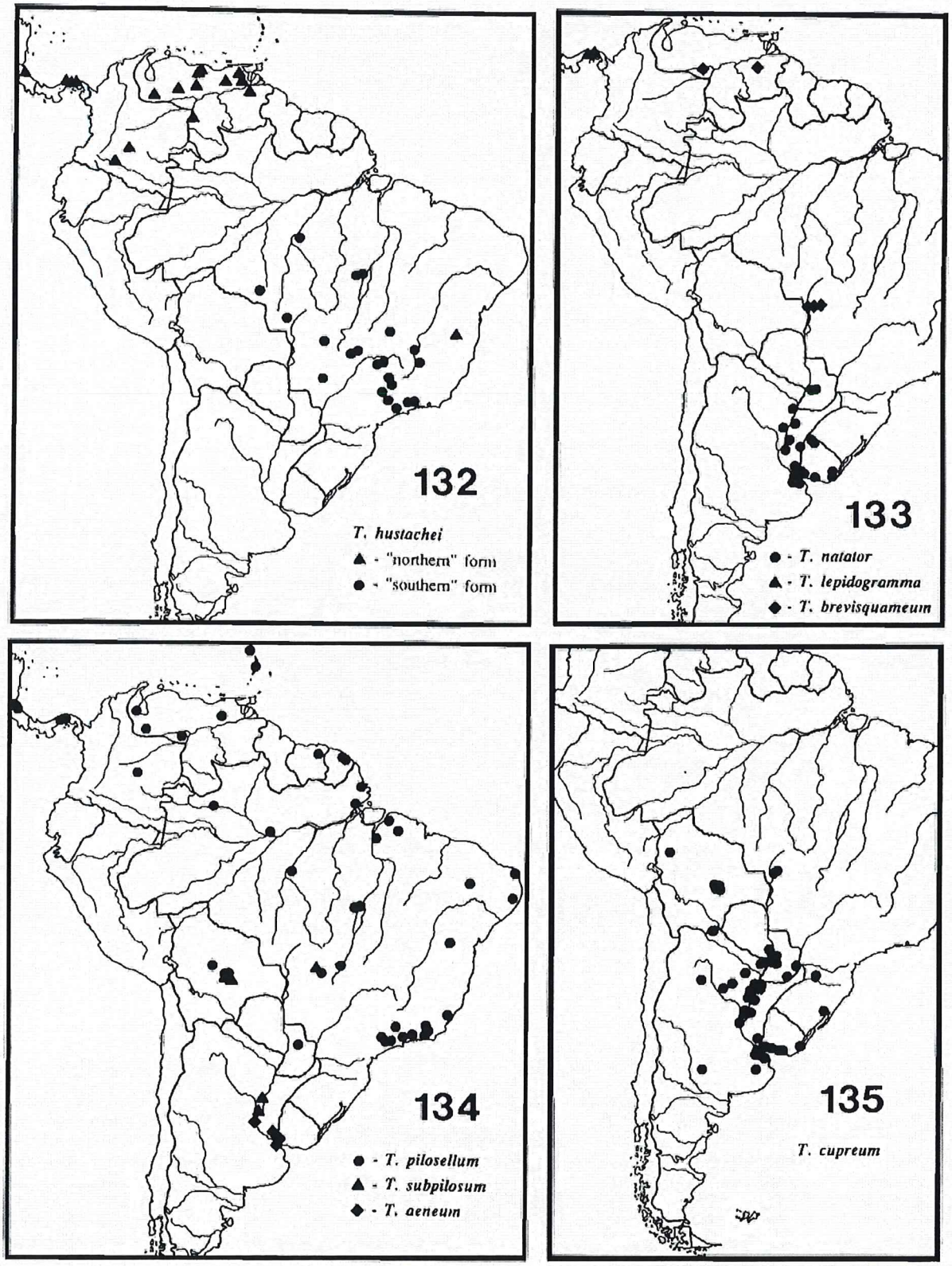

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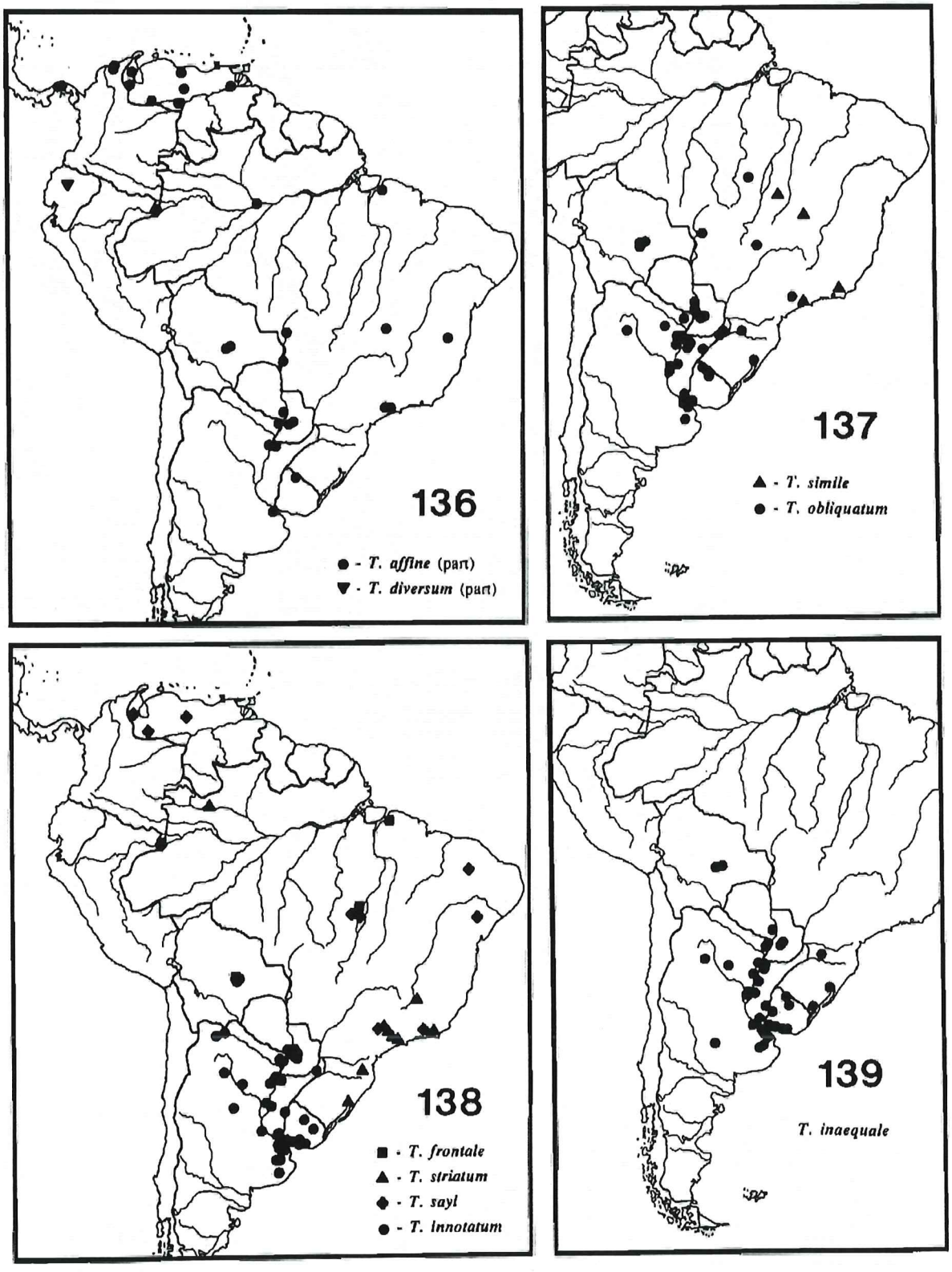

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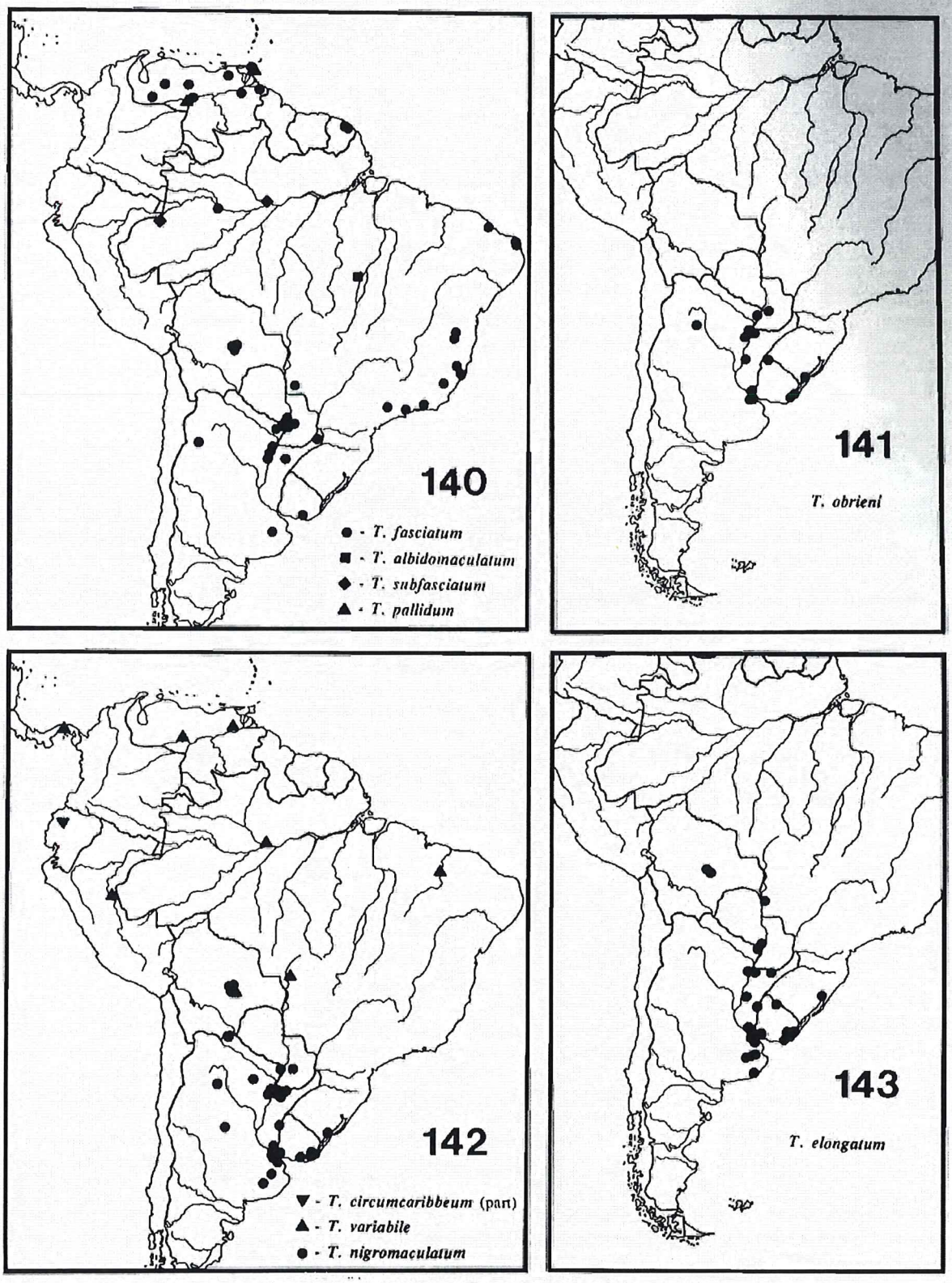

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