START
A Revision of the Genus *Sennius* of North and Central America (Coleoptera: Bruchidae)

By CLARENCE D. JOHNSON, Department of Biological Sciences, Northern Arizona University, and JOHN M. KINGSLVER, Systematic Entomology Laboratory, Agricultural Research Service

*Sennius* was based on *Bruchus cruentatus* Horn by Bridwell (1946), but, as with the other genera described in that paper, Bridwell did not indicate which species other than the type-species he considered to belong to *Sennius*. In subsequent publications Bottimer (1961, 1968) and Johnson (1968) transferred other species to *Sennius*, but no comprehensive generic description has been published.

Because a complete summary of characteristics for each of the New World genera of Bruchidae has not been published, listing of characteristics for *Sennius* is necessarily subject to refinement. For the present, however, we regard *Sennius* as a natural group related to *Stator* Bridwell, *Bruchidius* Schilsky, and most species now placed in *Acanthoscelides* Schilsky, as well as most of the monotypic genera described by Bridwell in 1946.

The geographical range of *Sennius* extends from the United States to the northern part of Argentina, with several species found in the West Indies. Many species are known from South America, but until the types of Maurice Pic can be examined, application of names to these entities must wait. *Sennius* is not known outside of the New World.

**GENUS SENNIIUS BRIDWELL**


*Type-Species.*—*Bruchus cruentatus* Horn, by original designation. Small to medium-sized bruchids in the tribe Acanthoscelidiini with the following morphological characteristics:

*Head* with frons obtusely ridged or bluntly carinate; antennae

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1The year in italic after the author’s name indicates the reference in Literature Cited, p. 102.
(fig. 4) not sexually dimorphic, distal segments slightly eccentric, not serrate, usually subequal in length to hind femur; in lateral view, venter of eye parallel with imaginary extension of line parallel with ventral surface of labium.

Prothorax with incomplete lateral carina usually present only as blunt posteralateral ridge; apex with short band of fine punctations; disk smoothly convex, without asperities except usually with short median basal channel; procoxae contiguous at apices, or slightly separated by vertical lamina of the prosternum, or well separated.

Elytra with striae regular, not distorted laterally, well marked, without basal gibbosities or asperities, except in Sennius militaris; basal striae present or absent; scutellum short, broad, bifid apically.

Hind femur (fig. 1) with ventral face flattened, mesoventral margin of face usually with single flattened subapical spine, occasionally with smaller secondary spine at base of first spine, lateral-ventral margin of face usually not carinate; femur relatively slender. Hind tibia (fig. 2) with transverse apicolateral row of spinules (tibial corona: see below), mucro relatively short, scarcely longer than coronal denticles; carinae usually complete (figs. 2, 3).

Abdomen with basal sternum unmodified; pygidium evenly rounded or slightly convex, without asperities; apical margin of last sternum of ♀ broadly emarginate to receive apex of pygidium, apical margin of last sternum of ♂ without emargination. ♂ genitalia (figs. 7, 8) with lateral lobes expanded mesally at apices; internal sac with arcuate or boat-shaped hinge sclerites at apical orifice of median lobe, apical closure valve of ejaculatory duct prominent, circular, or U-shaped, lateral pendulous sacs (diverticula) usually present near closure valve.

The terminology of parts of the male genitalia used in this bulletin follows that proposed by Kingsolver (1970). However, since the hinge sclerites in those organs are of prime importance in the definition of Sennius, a short explanation is given here. The term "hinge sclerites" is applied to a pair of arcuate often boat-shaped sclerites embedded in the internal sac on either side of the apical orifice and articulating laterally with the sclerotized side-walls of the median lobe. Their function is not definitely known, but they are assumed to act as springs to help evert the internal sac because they have been observed in some specimens to have failed to withdraw to their normal position after copulation. They may also serve as guidance rods during the initial stages of copulation.

Hinge sclerites are not unique for Sennius. They are found in
some species of Caryedes Hummel and in two or three South American species not closely related to Sennius. In some genera, e.g., Algarobius Bridwell, there is a pair of flat ovate sclerites near the apical orifice, but these are differently shaped than those in Sennius. The presence of arcuate hinge sclerites is one of the most reliable and consistent characters presently known for separating Sennius from various species now placed in Acanthoscelides, which are now difficult to distinguish by external features.

Because important generic and specific characteristics are found in the posterior leg in Sennius and in related genera, we consider it necessary to establish a nomenclature to aid in the description of this appendage. A survey of various genera in the Bruchinae indicates that the nomenclature here proposed can be utilized in all tribes except the Megacerini. In the standard morphological orientation the leg is extended along a nearly straight horizontal axis through the trochanter, femur, tibia, and tarsomeres, at an angle of 90° to the long axis of the body. The usual position found in living and preserved specimens is not as described above and is one in which the tibia is held at an angle to the femur and the posterior surface of the hind leg is apposed to the body.

In this bulletin the terms dorsal, ventral, anterior, and posterior will be used in the morphological sense for the first two pairs of legs. Thus what in living and preserved specimens are the lateral and mesal surfaces are morphologically the anterior and posterior surfaces, respectively. However, we consider that the strict use of these terms when referring to the hind legs would create unnecessary confusion. Therefore we will use ventral and dorsal in the morphological sense for the hind legs but will substitute lateral and mesal for anterior and posterior surfaces, respectively.

The trochanter is relatively constant throughout the Bruchinae and needs no special terms for its description.

The hind femur (fig. 1) is usually somewhat clavate but with the dorsal margin arcuate and the ventral margin sinuate. The mesal face is flat, the lateral face is convex, and the ventral face is narrowly flattened proximally and shallowly concave distally. In some genera the lateroventral margin of the ventral face is strongly carinate, but in Sennius this margin is only a blunt ridge. The mesoventral margin, however, is marked by a fine shining carina sometimes bearing fine recumbent spines, the entire structure nearly concealed by vestiture. In the apical one-fourth the carina is usually expanded into a flat, vertical, toothlike spine, and sometimes has one or two minute notches on the distal margin of the spine. The distal end of the femur is expanded slightly into two vertical lamellae flanking the insertion of the tibial base.
The hind tibia (fig. 2) is usually clavate, strongly arcuate proximally at insertion, and truncate distally. Its mesal face (fig. 3) is flattened, whereas the lateral face is convex and carinate. The distal margin is marked by a number of spines and spinules, which by their length and placement are useful in descriptions. The more or less prominent spine forming an extension of the ventral margin of the tibia is termed the mucro. For the remaining spinules collectively we propose the term tibial corona from which the adjective coronal can be formed.

For the carinae of the hind tibia in Sennius we are proposing the following terms:

- Ventral carina—extending from near tibial articulation along ventral margin and ending in the mucro (fig. 2).
- Lateral carina—extending from near articulation along lateral face and ending in lateral coronal spinule (fig. 2).
- Lateroventral carina—extending from near articulation between lateral and ventral carinae (fig. 2), but in Sennius not reaching distal margin and may be obsolete or absent. In some genera in the Bruchinae this carina may be paired with the ventral carina on the ventral margin.
- Dorso mesal carina—extending from near articulation on mesal face parallel to dorsal margin to distal margin (fig. 3) but rarely ending in a spinule.

These carinae are usually present in nearly the same relative positions throughout the Bruchinae except in Megacerus; however, in some South American forms one or more or all carinae may be absent.

The first tarsomere (fig. 2) is elongate and curved and usually bears a lateral, a mesal, and a ventral carina, the last ending in a blunt mucro. The second tarsomere (fig. 2) is short and subconical with a strong ventral carina, whereas the remaining tarsomeres are of the usual form in the Bruchidae.

From other North American genera having evenly spaced elytral striae without basal gibbosities and with an evenly convex pronotal disk, Sennius can be distinguished by one or more of the following features: Short apical mucro of metatibia, single spine on hind femur, carina usually lacking on outer ventral margin of the hind femur, and presence of arcuate hinge sclerites on either side of apex in median lobe of the male genitalia.

In the following discussion only the characters sufficient to distinguish Sennius from the other genera in the Acanthoscelidini will be given.

Until the problem of group definition in Acanthoscelides (sens. lat.) is resolved, any reference to Acanthoscelides must be made
Revision of the Genus *Sennius* with caution. A strict definition of the Obtectus group containing the type-species is given by Kingsolver (1968a) and Johnson (1970). Johnson (1970) has included a number of other species in the genus. Characteristics vary within the genus as it now stands and this compounds the problem of distinguishing other genera from it. The single character usually given in keys and descriptions to distinguish *Sennius* from *Acanthoscelides* is on the ventral margin near the apex of the hind femur; the former has a single spine and the latter is said to have a single spine with one, two, or three smaller spines following it. Although *Sennius* usually bears the single spine, *Acanthoscelides* varies from having no spines to having one spine plus three smaller spines. In instances where only a single spine is present, definite separation can be made by examining the male genitalia for hinge sclerites. The two genera cannot be consistently separated on any other character at present.

A similar problem exists in distinguishing *Sennius* from the large composite Old World genus *Bruchidius*. This genus is usually characterized by the possession of a single spine on the hind femur regardless of a number of possible intrageneric groupings based on other external characteristics, but here, too, the distinctive hinge sclerites of *Sennius* separate it from *Bruchidius*.

*Statror* resembles *Sennius* in several respects, e.g., short antennae not sexually dimorphic, single spine on the hind femur, regularly spaced striae, and evenly convex pronotum. It differs considerably in its complete, smooth, lateral pronotal carina and an external ventral carina on the hind femur, and in lacking hinge sclerites.


The following New World genera with a single spine on the hind femur or without any spines can be distinguished from *Sennius* by the absence of hinge sclerites in addition to these external characters: *Dahlibruchus* Bridwell and *Cosmobruchus* Bridwell by their elongate form and lack of lateral carinae on the metatibia; *Banerius* Bridwell and *Cercidiestes* Bridwell by the presence of a definite lateral carina on the pronotum; *Litruenus* Bridwell by the lack of lateral carinae on the hind tibia; *Netrumius* Bridwell
by the gibbous pronotum; *Abutiloneus* Bridwell by the lack of a spine on the hind femur or this only a minute spine; and *Megascelus* by the lack of a spine on the hind femur, although in certain species the inner ventral margin may be minutely serrate.

*Callosobruchus* Pic and *Bruchus* Linnaeus, found both in the New and Old Worlds, differ from *Sennius* by having an external spine on the hind femur.

The only reliable reports of the host plants of species of *Sennius* are those associated with *Cassia* (Leguminosae), although *Sennius* species are reported from other hosts.

**PHYLOGENETIC GROUPS WITHIN SENNIUS**

**Characters**

Precise delimitation of *Sennius* and its species groups is difficult at present because of insufficient knowledge. Certain groupings, however, are apparent. A study of South American species and host plants will undoubtedly modify the tentative groupings presented here.

Based on the external morphology, the male genitalia, and to some extent the host plants, we have arrived at a tentative list of phylogenetic groups, as given in the Appendix. External characters of most value in arriving at our scheme of classification were width of the frons, distance to which the prosternum separates the procoxae, distance between the elytral striae at their bases, presence or absence of spines at the base of the elytra, pattern of coloration of the elytra, disposition of the elytral vestiture, the shape and size of the spine at the apex of the hind femur, number of carinae on the hind tibia and first tarsomere, length of the mucro, body size, and body shape. Characters of the male genitalia of value were shape and size of the hinge sclerites, shape of the apex of the ventral valve, pattern of the armature of the internal sac, presence or absence of diverticula at the apex of the internal sac, shape of the median lobe, and depth of the cleft of the lateral lobes.

**Host Plants, Distribution, and Evolution**

Janzen (1969) discussed the coevolution of bruchids and their hosts, primarily from the point of view of the mechanisms evolved by plants to escape predators of their seeds. We consider that some generalizations can now be made concerning the choice of host plants by bruchids, the amount of seeds that are destroyed in any given seed crop, and the evolutionary adjustments made by
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bruchids to overcome the defensive mechanisms of their host plants. For example, in the genus *Sennius* there are groups of species that are similar morphologically and attack the same species of host plant.

At least two explanations are possible for the morphological similarities. The similarities may be due to convergence as a result of attacking the same species of host plant. Three of the species in the Guttifer group may be a result of convergent evolution since they attack *Cassia bicapsularis*. Another possibility is that perhaps two species with a close common ancestor have diverged allopatrically in the same host plant or in different hosts, with one of the species then shifting onto the host of its near relative. Apparently the Abbreviatus group is an example of one of these. The two very morphologically distinct species *Sennius celatus* and *leucostaurus* both attack *C. bicapsularis* (see pp. 34, 77). However, they are so similar in male genitalic characters that appear to be unrelated to adaptation to feeding in seeds that they are likely to be monophyletic.

Another interesting phenomenon is that some *Sennius* species (e.g., *celatus, fallax, instabilis, morosus*) attack the seeds of several host plants (see pp. 34, 56, 71, 86). Because some of these host plants are widespread, some species therefore have a wide distribution. Most of these widespread species are apparently made up of groups of somewhat distinct populations.

Our data also reveal what appear to be offshoots of the main evolutionary lines (the wide-ranging species) into new hosts or an isolated population of the principal host. *S. durangensis* of the Abbreviatus group appears to be an example of the former and *leucostaurus*, also of that group, appears to be an example of the latter. *S. celatus* and *instabilis* are the most wide-ranging species of the Abbreviatus group.

**Relationships of Groups**

We placed the 27 species included in this bulletin into the seven groups listed (p. 105) based on the characters previously given. Because we have not yet studied all the *Sennius* species, we believe that these species groups are tentative and subject to change. Therefore the species are arranged alphabetically in the systematics section of this bulletin rather than by groups of related species.

Combinations of characters were used rather than any single character to arrive at the groups. The closer the number of the group the more similar the groups are to one another, i.e., group 1
and group 7 seem to be the most distantly related. Male genitalic and external body characters were used to place them in the order listed. Most of the species in groups 1, 2, and 3 have a trilobed apex to the internal sac, whereas most of the other species lack lobes. Groups 5, 6, and 7 have large somewhat flattened bodies, whereas the others have more rounded bodies. The armature of the internal sac of groups 1, 2, and 3 is composed of concentrations of spines or has longer spines, whereas in groups 4, 5, 6, and 7 fine spicules are generally distributed throughout the internal sac.

(1) Guttifer Group.—The species in this group (p. 105) are all heavy bodied, the hinge sclerites are large, and the apex of the internal sac is trilobed. The several characters separating the four species in this group are treated in the guttifer discussion. S. russeolus and guttifer have more in common with one another than do inanis and breveapicalis. It appears that the resemblance between these four species, or at least between the two subgroups, is due to convergent evolution because all but S. breveapicalis breed in the seeds of Cassia bicapsularis.

S. guttifer ranges from Sinaloa, Mexico, to Guatemala and British Honduras, inanis from San Luis Potosi and Tamaulipas, Mexico, to British Honduras, breveapicalis from Panama to Colombia and Trinidad, and russeolus is known only from Panama. We interpret this distribution to be a result of competitive displacement of similar species of bruchids in the seeds of the same host plant.

S. guttifer and russeolus are similar in their morphology and are allopatric in their distribution, as are inanis and breveapicalis. S. guttifer and inanis are apparently sympatric only in British Honduras, but the former species is found along the west coast of Mexico and the latter along the east coast of Mexico. S. breveapicalis and russeolus are sympatric in Central America. It appears that guttifer and russeolus evolved from a common ancestor and guttifer has dispersed into Mexico and russeolus into Central America. Apparently the same is true of breveapicalis and inanis except that the latter species replaces guttifer along the east coast of Mexico.

The strongly trilobed apex of the internal sac links group 1 to most of group 2. The smaller body, smaller hinge sclerites, and a different pattern of the armature of the internal sac separate the two groups.

(2) Abbreviatus Group.—There are two subgroups and three species that are branches of the subgroups included here. Subgroup 1 (abbreviatus and instabilis) has the basic pattern of male genitalia that best serves as a link between the seven species. All
seven have a large dense mass of slender spicules near the base of
the internal sac, usually a pair of massive spiculate clusters near
the apex, and the apex is usually trilobed. Subgroup 2 (\textit{medialis}
and \textit{durangensis}) resembles subgroup 1 externally, and the geni
talia are weakly sclerotized versions of subgroup 1 (see also dis-
cussions of various species).

\textit{S. celatus}, \textit{leucoostauros}, and \textit{trinotaticollis} resemble each other
to some extent externally. All have dense white patches or bands
or stripes of hairs on the elytra, and the armature of the hind leg
is similar. These three species all have larger hinge sclerites than
the other four species, but the size and shape of the hinge sclerites
vary among the three.

The disposition of the armature of the internal sac also varies.
The internal sac of \textit{leucoostauros} is lined with slender spicules in
its basal one-half as in \textit{abbreviatus}. This mass of spicules is more
elongate in \textit{celatus}, and in \textit{trinotaticollis} it is expanded so that it
is continuous with the spicules at the apex of the internal sac. All
three have large diverticula near the apex of the internal sac, but
the armature at the apex is different among the species (figs. 33,
97, and 133).

Based on external characters and characters of the male geni
talia, \textit{leucoostauros} apparently represents an offshoot of \textit{abbreviatus}
and through \textit{trinotaticollis} links \textit{celatus} with \textit{abbreviatus} and \textit{in}
stabilis.

The two species in the Abbreviatus group with the most wide-
distribution are \textit{instabilis} (Sonora and Chihuahua, Mexico,
through Central America to Colombia and the West Indies) and
\textit{celatus} (Texas through Mexico and Central America to Brazil and
the West Indies). The other five species are more localized in their
distribution.

\textit{S. celatus} and \textit{instabilis} attack a variety of host plants (four
species and three species, respectively (pp. 31, 68), and this prob-
ably accounts for their wide distribution. Possibly these two species
represent the most primitive descendants of a common ancestor.
The other five species are much more limited in their distribution,
and each one (excluding \textit{trinotaticollis} and \textit{medialis}) is known to
attack only a single host. One possible explanation is that each of
these five species has evolved more specialized means to success-
fully attack their specific hosts than have their wide-ranging, less
specialized relatives, \textit{celatus} and \textit{instabilis}. Another possible inter-
pretation is that \textit{abbreviatus}, \textit{durangensis}, \textit{medialis}, \textit{leucoostauros},
and perhaps \textit{trinotaticollis} are actually relict species and are more
primitive than \textit{celatus} and \textit{instabilis}, if attacking a variety of hosts
can be considered as derived.
We believe that the first hypothesis is nearest to the truth than the second. *S. leucostaurus* illustrates this well. It attacks *C. bicapsularis* seeds as does *celatus*. However, where *leucostaurus* is present, far fewer specimens of *celatus* are found than *leucostaurus*. Apparently in a given habitat type the plant seeds are sufficiently different to allow the more highly specialized bruchid species to displace or almost displace the other. *S. celatus* is apparently general enough in its food preferences and evolutionary modifications to outcompete most other bruchids except in isolated ecotypes of plants.

*S. medialis* does not have the apex of the internal sac trilobed. This character as well as general external similarities allies group 2 with those species included in group 3.

(3) *Fallax* Group.—When the external anatomy of the six species included in this group (p. 54) is studied, one finds that the color of the integument and vestiture and the body size vary considerably, but the external structures are very similar. All have a small hind femoral spine, four carinae on the hind tibiae, a short mucro, and other general similarities.

However, the male genitalia of subgroup 1 (*fallax* and *auricomus*) are strikingly different from those of *alticola*, *chalcedermus*, *atripectus*, and *discolor* (subgroup 2). The genitalia of subgroup 1 have large sinuate hinge sclerites and large clusters of spicules near the middle of the internal sac; the apex of the internal sac is trilobed. The hinge sclerites of subgroup 2 are smaller, many fine spicules line the internal sac for most of its length, and the apex may or may not be trilobed. The lateral lobes of all six species are deeply cleft.

As with the Abbreviatus group, several species of group 3 have a very limited distribution, whereas *fallax* (Florida and the West Indies; northern Mexico south to Guatemala) and *discolor* (southern California to Texas, south through Mexico to Nicaragua) are much more widely distributed. *S. fallax* has 10 reported host plants, whereas *discolor* has only one. Apparently *auricomus* is a more specialized relative of *fallax* as *alticola*, *atripectus*, and *chalcedermus* apparently are of *discolor*.

The general external features of group 3 and group 4 (*incultellus*) are very similar except that in the latter the hind femur is mutic.

(4) *Incultellus* Group.—The male genitalia of *incultellus* are similar to those of group 3 only in that many fine spicules line the internal sac for its entire length.

(5) *Cruentatus* Group.—The loose assemblage of species in-
cluded in this group (p. 106) is associated by the following characters: An elytral color pattern that is usually a red spot; generally with a large strong spine near the apex of the hind femur; male genitalia with a slender median lobe; hinge sclerites that are moderate in size and usually curved; and the internal sac usually lined with spicules throughout much of its length and not strongly lobed at its apex.

*S. cruentatus, simulans, and obesulus* are more similar to each other in external structure and genitalic structures than to the other three species and are separated most easily by differences in the position of the red spots on the elytra.

*S. morosus* and *ensiculus* are similar in external appearance and structure, but the male genitalia (see discussion of *ensiculus*) indicate that these two species apparently are not closely related.

*S. whitei* appears to be a marginal member of *Sennius* but has more affinities with species in this group than with other species of *Sennius*. Characters atypical for *Sennius* that are present in *whitei* include large antennae and eyes, strongly carinate frons, and lateral lobes not deeply cleft.

*S. cruentatus* and *morosus* are the most widely distributed of the six species treated here. Perhaps they are the most primitive of the six species, but further information must be obtained before we can speculate on their evolutionary history.

The slightly flattened bodies of *cruentatus, simulans, and obesulus* ally the Cruentatus group with those species in group 6.

(6) *Militaris Group.*—*S. laminifer* and *militaris* are grouped together pending study of more specimens of the two species and of specimens of South American species of *Sennius*. Characters that ally the two species are their large size, a slightly flattened body, a raised median line on the frons extending from the frontoclypeal suture and terminating in a small flattened punctulate area on the vertex, and the large hind femoral spine. The many differences between the two species are treated in the discussion of *militaris*.

Since these two species apparently are not closely related, no speculations are made about their evolutionary history.

The slightly flattened body and large hind femoral spine ally the Militaris group with group 7.

(7) *Infactus Group.*—Because only one female specimen of *infactus* was available to us, this species will be more accurately placed after the male genitalia are examined. Externally it appears to be more similar to group 6 than to any other species group.
SPECIES INTRODUCED INTO THE UNITED STATES

Twelve specimens of a small gray species of Sennius labeled "L. Worth, Fla." were found in the Carnegie Museum Collection. This species has been identified as Sennius lateulbonotatus (Pic, 1929a: 23), NEW COMBINATION, described from Brazil. We have examined about 125 more specimens of this species, all collected from three localities in Brazil. Since we have not found more specimens of this species from the United States, we consider that its presence in Florida is due to an accidental introduction and that it is not established there.

KEY TO SENNIUS SPECIES

1. Spine near apex of hind femur about as long as or longer than width of base of hind tibia (fig. 44) ------------------------ 2
   Spine near apex of hind femur absent, or, if spine present, then from one-third to three-fourths as long as width of tibial base (fig. 6) ------------------------ 15

2 (1). Spine near apex of hind femur 1½ to two times as long as width of tibial base
   Spine near apex of hind femur about equal to or 1½ times as long as width of tibial base --------------------------------- 3

3 (2). Spine near apex of hind femur 1½ times as long as width of tibial base, without three small serrations on posterior margin (fig. 44); elytron sometimes all black, usually black with red-orange maculation; encompassing humerus, usually extending posteriorly in oblique line to second stria and almost to apex of elytron, attaining lateral margin of elytron and extending for fully seven-tenths length of elytron (fig. 42); maculation expanded at apex; if maculations smaller, then tending to be nearer lateral margin and apex, but always with faint prolongation toward humerus (fig. 43); sometimes with very small maculation near apex and lateral margin; tip of elytron usually black, occasionally dark brown; male genitalia as in figure 45; reared from seeds of Cassia fasciculata and nictitansi; Eastern United States, west to South Dakota, and south through Texas to State of Veracruz, Mexico ________8. cruentatus (Horn) (p. 38)

4 (2). Dense stripe of white hairs extending almost entire length of elytron on intervals between medial margin and stria 3 (fig. 181); pronotum usually with three dense patches of white and golden hairs at base (fig. 181); subapical spine of hind femur about 1½ times as long as width of tibial base; posterior margin of spine serrulate; macro one-sixth as long as first tarsomere; apical one-half of pygidium usually darker than basal one-half; male genitalia as in figure 133; Costa Rica to Colombia, Venezuela, and St. Augustine, Trinidad ____________8. trinotaticollis (Pic) (p. 66)

5 (4). Ground color of elytron varying from solid red orange to dark brown, elytral pubescence varying but without dense white band of hairs starting one-sixth from base and extending to one-half elytral length ------------------------
Ground color of elytron black, or black with red-orange maculation of variable size, or rarely, if uniform red orange, then with dense white band of hairs starting one-sixth from base and extending to one-half elytral length ______ 8

6 (5). Prosternum separating coxae for their entire length; elytron with uniform, sparse, golden hairs and small dense patches of white hairs basally on intervals between striae 2 and 3, and 4 and 5, and base of humerus, and small patches of dense, white hairs forming two broken bands, one about two-fifths from base and one about one-third from apex on intervals between striae 2 and 3, 4 and 5, 6 and 7, and 8 and 9 (fig. 121); male genitalia as in figure 123; reared from seeds of *Cassia bicapularis*; Paraiso and Alhajuelo, Panama ________________ S. ruscoticus, new species (p. 91)

Prosternum separating coxae for eight-tenths to nine-tenths their length; elytral pubescence and male genitalia not as above ________________________________________________ 7

7 (6). Striae 2 and 3, and 4 and 5, closer to one another at base than to adjacent striae; single small spine at bases of striae 2, 3, 4, and sometimes 5; elytron with sparse to moderately dense white or golden hairs; small dense patches of white hairs at base on intervals between striae 2 and 3, and 4 and 5; sometimes patch also at base of humerus; small dense patches of white hairs between striae 2 and 3, 4 and 5, 6 and 7, 8 and 9, about midway between base and apex, medial patch slightly more toward apex than others (fig. 68); male genitalia as in figure 70; reared from seeds of *Cassia bicaulescens*; Sinaloa, Mexico, to Barranquillo and Chiriqui, Panama, and Belize, British Honduras ________________ S. guttifer (Sharp) (p. 58)

8 (5). Elytron black with apical one-half with medial red-orange spot of variable size (fig. 126) or with red-orange lateral semicircular maculation (fig. 115); hind femur usually black; body flattened, about 1½ times as wide as deep; male genitalia as in figures 118 and 128

Elytron varying from all red orange to all black, often with medial stripe or medial band, sometimes with basal red-orange maculation, but not as above; hind femur usually with some red-orange coloration; body usually rounded, about as wide as deep; male genitalia not as above________ 10

9 (8). Elytron black except apical one-half usually with medial red-orange spot of variable size which may encompass two stria intervals or all (fig. 126) or elytron rarely all black with faint apical red-orange spot; male genitalia as in figure 128; reared from seeds of *Cassia leptadenia*; southern Arizona to Cuernavaca, Morelos, Mexico ________________ S. similans (Schaeffer) (p. 93)

Elytron black with red-orange semicircular maculation which do not attain humerus (fig. 115) or if elytron only with red-orange apical spot, then spot longer than broad, encompassing only striae 4 through 9 (fig. 116); male genitalia as in figure 118; Guatemala City, Guatemala, to Hiquito, San Mateo, Costa Rica ________________ S. obesusus (Sharp) (p. 98)

10 (8). Striae 2 and 3 closer to one another at base than to adjacent striae, striae 2 and 3 abbreviated at base by flattened bifurcate spine (fig. 105); elytron black with red macula-
tion extending apically from base to about one-half length of elytron, medially to stria 2 or 3 and laterally to margin (fig. 105) or sometimes maculation small, directly behind humerus, extending from stria 4 to 10; size large, length of pronotum-elytra 2.9 to 4.0 mm.; male genitalia as in figure 107; reared from “Huizache Pods”; Sonora, Mexico, to R. Sarstoon, British Honduras ———— S. militaris (Sharp) (p. 81)

Striae 3 and 4 closer to one another at base than to adjacent striae, without flattened bifurcate spine at base of striae 2 and 3; size smaller, length of pronotum-elytra 1.3 to 3.3 mm.; elytra not as above 11

Elytron with dense white medial band of hairs joining stripe of white hairs on medial margin, bands and stripes of elytra forming white cross on dorsum 12

Elytron with uniformly disposed hairs or with medial band but not forming white cross on dorsum 13

11 (10). Elytron with dense white medial band of hairs joining stripe of white hairs on medial margin, bands and stripes of elytra forming white cross on dorsum 12

Elytron with uniformly disposed hairs or with medial band but not forming white cross on dorsum 13

12 (11). Male genitalia as in figure 33; elytron usually with medial band starting one-sixth from base and extending to one-half elytral length, and apical spot, both usually red orange; elytral coloration varies to brown or black with medial red-orange band to rarely all black; band always attaining lateral margin, occasionally reaching only stria 3 medially; base of elytron always of a shade as dark or darker than remainder of elytron; undersurfaces varying from thoracic and first abdominal sternum black and remainder red orange to rarely all black; usually lateral and apical parts of paler shade; pygidium red orange to black; elytron with sparse white or intermixed white and golden hairs with dense white patches at bases of intervals between striae 2 and 3, 4, and 5; dense white band of hairs covering medial red-orange band and joining stripe of white hairs covering most of interval between striae 1 and 2 (fig. 31); also present in same position in those with all black elytra; reared from seeds of Cassia bicapsularis, biflora, laevigata, and occidentalis; Hidalgo County, Tex., to Brazil and Trinidad 8.

Male genitalia as in figure 97; elytron black with medial band of dense white hairs and stripe on medial margin of dense white hairs; striae 3 and 4 abbreviated at base (fig. 95); reared from seeds of Cassia bicapsularis; Hidalgo County, Tex., to Temascal, Oaxaca, Mexico, and Belize, British Honduras ———— S. leoninaeus, new species (p. 75)

13 (11). Size large, length of pronotum-elytra 3.0 to 3.3 mm.; elytron with uniform, moderately dense white or faint yellow hairs (fig. 90); ground color of elytron black; male genitalia as in figure 92; reared from seeds of Cassia sp.; State of Bahia, Brazil, to Mirandilla, Guatemala 8.

Size smaller, length of pronotum-elytra 1.3 to 2.6 mm.; elytral vestiture variegated or with bands of white hairs; elytron sometimes all black but usually with red-orange stripe or maculation; male genitalia not as above 14

14 (13). Spine near apex of hind femur strong, sometimes posterior margin crenate to serrate (fig. 111); male genitalia as in figure 112; elytron varies from all black to all red orange with dark-brown base, usually black with median red-orange stripe of variable width (fig. 110); elytron varies from sparse white hairs for those with mostly red-orange elytra to intermixed white and golden hairs with band of white hairs about two-fifths from base for those with darker elytra; reared from seeds of Cassia baumhdoioides, covetti, leptoscarpa, occidentalis, and roemeriana; western Arizona to central Texas and south through Mexico and America to Canal Zone, Panama ———— S. morogus (Sharp) (p. 84)
Revision of the Genus *Sennius*

Spine near apex of hind femur weak, posterior margin smooth (fig. 86); male genitalia as in figure 87; elytron usually black with red-orange maculation about one-half as long as elytron, extending from stria 2 to 9, slightly nearer base than apex, humerus always black so that maculation extends toward base and lateral margin (fig. 85); elytron with intermixed white and golden hairs at base, often with small dense patches on intervals between striae 2 and 3, and 4 and 5, brown at apex, usually more golden hairs medially covering maculation; if with all black elytron, then band of white hairs across elytra, slightly nearer base than apex; reared from seeds of *Cassia occidentalis* and *uniflora*; Alamos, Sonora, and Carimechi, Rio Mayo, Chihuahua, Mexico, through Central America to Colombia, South America, and following islands of West Indies: Trinidad, Hispaniola, St. Vincent, Puerto Rico, Jamaica, Grenada, Guadeloupe, Tobago

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15 (1). Elytron black with large red-orange maculation which attains lateral margin of elytron (figs. 5, 53, 85, 100, 136) or if occasionally all black or maculation not attaining lateral margin, then male genitalia as in figure 87.

16

Elytron all black or with combinations of colors but without maculation as described above

20

16 (15). Width of frons less than width of eye, frons much narrower in males than females; males with strong median frontal carina; elytron black with large red maculation beginning almost at base, extending medially to stria 2, laterally to elytral margin, and apically about one-half length of elytron (fig. 136); male genitalia as in figure 139; Pima and Cochise Counties, Ariz. to State of Mexico, Mexico

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8. *whitei*, new species (p. 99)

17

Width of frons about equal to width of eye; maculation not as above or elytra all black; male genitalia not as in figure 189

18

18 (17). Spine near apex of hind femur about two-thirds as long as width of tibial base (fig. 101); red-orange maculation usually extending from lateral margin to stria 1 (fig. 100), sometimes extending across entire elytron or maculation smaller, extending only to stria 2, lobelike extension of maculation toward base between humerus and midline; base of hind femur dark brown to black, remainder red orange; size small, length of pronotum-elytra 1.6 to 2.3 mm.; male genitalia as in figure 102; reared from seeds of *Cassia leptocarpa* and *tomentosa*; Pima and Cochise Counties, Ariz., south to Guatemala City, Guatemala

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8. *medialis* (Sharp) (p. 78)

19

19 (18). Size small, length of pronotum-elytra 1.4 to 1.9 mm.; elytron black with red-orange maculation usually beginning one-fifth from base and extending to one-fifth from apex, at-
taining lateral margin broadly and extending to stria 3 (fig. 53); sometimes slightly longer or wider; when maculation occasionally smaller, then not achieving lateral margin but extending to stria 3 and encompassing about medial one-third of elytron; male genitalia as in figure 55; reared from seeds of *Cassia* aff. *coveyi*; Mazatlan, Sinaloa, through States of Zacatecas, Durango, and Coahuila to State of Hidalgo, Mexico —— S. *ahrengensis*, new species (p. 47)

Size larger, length of pronotum-elytra 3.1 to 6.0 mm.; red-orange elytral maculation broad at lateral margin, gradually narrowing to first or second stria to form semicircle, lateroanterior margin of maculation beginning just behind humerus and extending to about one-fourth to one-third from apex (fig. 5); male genitalia as in figure 7; reared from seeds of *Cassia* *marilandica*; Texas north to Illinois, east to New York and Georgia —— S. *abreviatus* (Say) (p. 17)

20 (15). Spine near apex of hind femur one-third or less as long as width of tibial base or spine absent __________________________________________ 21

Spine near apex of hind femur one-half to three-fourths as long as width of tibial base __________________________________________ 25

21 (20). Lateroventral carina of tibia absent or if present at base then feeble, other three tibial carinae present (figs. 37 and 74); elytral vestiture of long bright golden hairs or base of elytron red-orange, a thin faint light-brown to dark-brown band about one-third from base, apical two-fifths of elytron of same color __________________________________________ 22

Not exactly fitting above description __________________________________________ 23

22 (21). Elytral vestiture of long bright golden hairs (fig. 36); male genitalia as in figure 38; reared from seeds of *Cassia* sp.; Mexico —— S. *chalcoderus*, new species (p. 35)

Lateroventral carina of tibia absent, other three tibial carinae present (fig. 74); male genitalia as in figure 75; base of elytron red-orange, humerus brown, a thin faint light-brown to dark-brown band about one-third from base, apical two-fifths of elytron of same color (fig. 73); reared from seeds of *Cassia bicaudalisis*; El Naranjo, San Luis Potosi and Tampico, Tamaulipas, Mexico, to Belize, British Honduras —— S. *incultellus*, new species (p. 61)

23 (21). Without spine near apex of hind femur (fig. 79); hind tibia with faint lateral and dorsomesal glabrous longitudinal carinae, ventral and lateroventral carinae absent; minute spine at base of stria 2; base of elytron dark brown or black, remainder of elytron brown or with vague median red-orange stripe (fig. 78); male genitalia as in figure 80; Tegucigalpa, Honduras, to Costa Rica __________________________________________ S. *incultellus*, new species (p. 61)

With spine near apex of hind femur; hind tibia with lateral, dorsomesal, ventral, and lateroventral carinae ________ 24

24 (23). Size smaller, length of pronotum-elytra 1.3 to 2.5 mm.; elytron usually black with median red-orange stripe expanded toward apex, stripe of brighter shade at base, sometimes elytron black with red-orange spot at base, or all black; elytron sometimes with vague medial and subapical bands of white hairs; usually brown spot between striae 6 and 8 halfway between base and apex; sometimes with interval between striae 2 and 3 covered with white hairs; male genitalia as in figure 65; reared from seeds of *Cassia* *bicarpalis*, *biflora*, c.f. *chiapensis*, *occidentalis*, *palyantha*, *reticulata*, and *torax*; Georgia south into Florida, Cuba, and Jamaica; Sinaloa, Mexico, south to Guatemala —— S. *fallax* (Boheman) (p. 54)

Size larger, length of pronotum-elytra 2.6 mm.; elytron red-orange, covered with golden or white hairs; male genitalia as in figure 12; reared from seeds of *Cassia* *occidentalis*; Quiche Mountains, Guatemala —— S. *alticola* (Sharp) (p. 22)
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25 (20). Elytron black, covered with sparse brown hairs except for thin band of white or golden hairs basally and broad medial transverse band of white or golden hairs (fig. 58); width of eye about 1 1/2 times that of frons; elytral striae 2 and 3 abbreviated at base, stria 2 deeply impressed at base after minute spine, minute spine also at base of stria 3 (fig. 58); spine near apex of hind femur gently sloping, not erect (fig. 59); male genitalia as in figure 60; Sonora and San Luis Potosi to Veracruz and Chiapas, Mexico. 

*---S. ensiculus*, new species (p. 50)  
Not exactly fitting above description 

26 (25). Head, most or all of undersurfaces of thorax, and sometimes lateral margins of humeri black; labrum, antennae, legs, and remainder of body red orange; very minute spines usually at bases of striae 2 to 6; male genitalia as in figure 18; reared from seeds of *Cassia* sp.; Jalisco, Mexico, to Monte Cristo, El Salvador. *---S. abripectus*, new species (p. 24)  
Coloration not as above; without spines at bases of elytral striae 2 to 6; male genitalia not as above 

27 (26). Spine near apex of hind femur one-half to three-fourths as long as width of base of hind tibia (fig. 49); elytron varying from all black to base black with remainder red orange, usually red orange with black basal, medial, and lateral margins (fig. 48); dorsal surface usually with golden to brown hairs or intermixed white, golden, and brown hairs in no definite pattern or all white; male genitalia as in figure 50; reared from seeds of *Cassia lindheimeriana*; southern California to Burnet County, Tex., south through Mexico to Nicaragua. *---S. discoiD? (Horn) (p. 43)  
Spine near apex of hind femur about one-half as long as width of base of hind tibia (fig. 22); elytron varying from black with small red-orange medial spot near base to all red orange, usually black with red-orange basal spot (fig. 21), or median stripe extending to apex with black lateral margin; elytron covered with uniform white, golden, or intermixed white and golden hairs; male genitalia as in figure 23; reared from seeds of *Cassia biflora*; Sinaloa, Mexico, to Venezuela. *---S. antioconus*, new species (p. 26)

**SYSTEMATICS OF SENNIUS**

*S. abbreviatus* (Say)  
(Figs. 5-9)

*Curculio abbreviatus* Say, 1824: 308.  
*Bruchus abbreviatus* Say, 1824: 308 (type locality unknown); Dohrn, 1879: 187.  
*B. abbreviatus* Horn bei Dohrn; Pic, 1913: 19.  
*B. bivulneratus* Horn, 1873: 325 (Southern and Western States); Dohrn, 1879: 187; Riley and Howard, 1892: 165; Schaeffer, 1907: 295; Fall, 1910: 165; Blatchley, 1910: 1237; Cushman, 1911: 494; Pic, 1913: 19; Zacher, 1952: 461.  
*Mylabris abbreviatus* Dohrn; Leng, 1920: 305.  
*M. bivulneratus* Leng, 1920: 305.  

Length (pronotum-elytra) 2.1-3.0 mm. Width 1.5-2.1 mm. Maximum thoracic depth 1.3-1.7 mm.
Male

Integument color

Head and labrum black, occasionally with faint red postocular spot; four basal antennal segments red orange to reddish brown, apical seven red orange to black; prothorax and procoxa black, remainder of leg red orange to brown, tarsi usually red orange; elytron black with red-orange maculation, maculation broad at lateral margin gradually narrowing to first or second stria to form a semicircle, lateral anterior margin of maculation beginning just behind humerus and extending to about one-fourth to one-third from apex (fig. 5); remainder of thorax black; mesothoracic femur usually dark brown to black, sometimes light brown, tibia red orange to black, tarsus usually red orange, sometimes slightly darker; metathoracic femur all black to dark brown laterally, sometimes with a small area of lighter color; tibia light brown to black, tarsus usually red orange, sometimes brown.

Vestiture

Body with white, golden, brown, or intermixed recumbent hairs; eye with medial fringe of sparse white hairs; postocular lobe with short white hairs; small postocular patch of dense white hairs; pronotum clothed with sparse brown and golden hairs medially, sometimes white laterally; elytron with sparse intermixed golden and brown hairs; undersurfaces with moderately dense white hairs, becoming more dense laterally; pygidium with sparse white hairs, dense basally, and forming a very dense spot medially, sometimes with white stripe of hairs along midline.

Structure

Head.—Short and broad, densely punctulate; frons usually with median glabrous line extending from frontoclypeal suture to vertex; usually with vague transverse sulcus between upper limits of eyes; frons width about equal to width of eye; ocular sinus about two-thirds as long as width of eye; distance from base of antennae to apex of labrum about one-half as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antennae reaching to humerus or slightly beyond.
Revision of the Genus Sennius

Prothorax.—Disk subcampanulate; punctate medially, punctations becoming coarser laterally; often with faint lateral carina extending one-half to two-thirds from base to coxal cavity; short median impressed line on median basal lobe; prosternum separating coxae for about three-fourths their length.

Mesothorax and Metathorax.—Scutellum transverse with lateral posterior teeth, clothed with very dense recumbent white hairs giving quadrate appearance; elytron about twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, coarsely punctate, very coarse at base, strial intervals punctulate; distance between striae at base subequal; humerus punctulate, glabrous shiny black; undersurfaces punctulate, with coarse punctures laterally; hind coxa punctate; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 6); inner ventral surface sometimes with faint longitudinal carina; femur armed with subapical acuminate spine about one-third to one-half as long as width of tibial base, or spine absent; tibia (fig. 6) with ventral, lateral, and dorsomesal glabrous longitudinal carinae, lateroventral carina faint; tibial corona with three to four spinules, mucro one-fifth or less as long as first tarsomere; without sinus at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

Abdomen.—First sternum not flattened medially, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, fifth emarginate; pygidium punctate, convex in lateral view.

Genitalia.—(Figs. 7–9) Median lobe moderate in length; in ventral view, ventral valve pointed apically, lateral margins convex, base almost as broad as apex of median lobe, arcuate in lateral view; hinge sclerites large, evenly, gently curved; armature of internal sac consisting of moderately long, very dense medial cluster of extremely fine spicules and two lateral clusters of long acute spines; apical one-half with scattered, intermixed fine spicules and small denticles. Lateral lobes expanded apically, cleft to about three-fourths their length (fig. 8).

Female

Similar to male but apical margin of last abdominal sternum subemarginate; hind femoral spine up to one-third as wide as tibial base, or spine sometimes absent.
Host plants

New records


Old records

Cassia marilandica Linnaeus: Riley and Howard, 1892: 165; Cushman, 1911: 505; Zacher, 1952: 461.

Location of type

Bruchus abbreviatus: Unknown.

Distribution


Discussion

(S. abbreviatus is in the Abbreviatus species group; see also discussions of celatus, durangensis, instabilis, leucaostaurus, medialis, and trinotaticollis.) Bottimer (1968) reviewed the nomenclatural history of abbreviatus. Although we consider the specific epithet abbreviatus would have best been handled by declaring it a nomen oblitum and using bivulnemtus (the name most commonly used to date in the literature), Bottimer has adopted abbreviatus and we will here abide by this decision. Presumably the type of abbreviatus is lost.

S. abbreviatus is similar to celatus, durangensis, instabilis, leucaostaurus, medialis, and trinotaticollis. These seven species we here refer to as the Abbreviatus species group. Based on external structures and the male genitalia it appears that abbreviatus and instabilis make up one subgroup under this group, medialis and durangensis are in a second subgroup, and leucaostaurus, trinota-

*Throughout this bulletin all information pertaining to distributional records is given essentially as it appeared on the insect labels.*
ticollis, and celatus are in a third more distantly related subgroup. Most of the species in the abbreviatus group have black elytra with red or red-orange maculations, but leucostauros has all black elytra and other species may vary from black elytra with red maculations to all black elytra within species (celatus, instabilis). Other external structures and coloration are variable and do not serve well as characters to associate the species into one group. The characters of the male genitalia have several features that link these seven species together, however. The genitalia of abbreviatus and instabilis are almost identical in structure and appear to represent the basic pattern, which is modified in varying degrees in the other five species. The median lobe is moderate in size, the hinge sclerites are rather large, the armature of the internal sac is densely lined with slender spicules in the basal one-half (fig. 7), with two large irregular spinous clusters near the apex of the sac and with the lateral diverticula lined with fine slender spicules. The lateral lobes of all seven species are cleft to about three-fourths their length.

S. instabilis and abbreviatus may be separated from each other by the usually larger hind femoral spine, hind femora, which are of a lighter hue, and an elytral maculation, which is produced anteriorly in the former (figs. 5 and 85). The male genitalia of instabilis have hinge sclerites, which are more explanate on their lateral margins, and the lateral margins of the ventral valve are slightly arcuate rather than convex (figs. 7 and 87). S. abbreviatus is confined to the Eastern United States, whereas the allopatric instabilis has a distribution from northern Mexico to South America and the West Indies.

S. durangensis and medialis are smaller and the male genitalia are much less sclerotized than in the other five species. The basic pattern, i.e., hinge sclerites, which are rather large, an internal sac with a cluster of spicules near the middle, and spicules apically, is the same in both these species as in abbreviatus though the sclerotization is much fainter. The diverticula of the apex of the internal sac are not as large as in other species of this group.

S. durangensis may be distinguished from medialis by its dark hind femur, longer elytral maculation (figs. 53 and 100), and its slightly more flattened body.

S. leucostauros has the elytra all black as does an occasional specimen of celatus, but specimens of the latter usually have black elytra with a basal red-orange band.
S. alticola (Sharp), New Combination
(Figs. 10-15)

*Bruceh us alticola* Sharp, 1885: 465 (Guatemala: Quiche Mountains); Pic, 1913: 14; Zacher, 1952: 461.

Length (pronotum-elytra) 2.5 mm. Width 1.7 mm. Maximum thoracic depth 1.3 mm.

**Male**

**Integument color**

Head, prothorax, procoxae, undersurfaces of thorax, and base of abdomen black; antennae, legs, remainder of body, and elytra red orange; broad, indistinct elytral band of a slightly lighter color slightly nearer base than apex; head without red-orange postocular spot.

**Vestiture**

Body with white and/or golden recumbent hairs; eye with medial fringe of white hairs; postocular lobe with short white hairs; postocular patch of dense golden hairs; pronotum and elytra with bright golden hairs, pronotum with scattered patches of white hairs and a medial stripe of white hairs; undersurfaces and pygidium with dense white and golden hairs.

**Structure**

*Head.*—Short and broad, densely punctulate; frons with faint median glabrous line of punctuations extending from frontoclypeal suture to vertex; usually with vague transverse sulcus between upper limits of eyes; frons width about the same as width of eye; ocular sinus about one-half as long as width of eye; distance from base of antennae to apex of labrum about one-half as long as distance from upper limits of eyes to apex of labrum; usually antennal segments 1, 3, and 4 filiform, 2 moniliform, 4 sometimes shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna reaching almost to humerus.

*Prothorax.*—Disk campanulate; punctate medially, punctations becoming coarser laterally; sometimes with vague lateral carina extending about one-half the distance from base to coxal cavity; short median impressed line on median basal lobe, line usually obscured by hairs; prosternum separating coxae for about eight-tenths their length.
Revision of the Genus *Sennius* 23

*Mesothorax and Metathorax.*—Scutellum small, transverse, with lateral posterior teeth, clothed with dense recumbent white hairs giving quadrate appearance (fig. 10); elytron slightly longer than broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, punctate, strial intervals punctulate; striae 3 and 4 closer to one another at base than to adjacent striae, others subequally spaced; humerus punctulate, with sparse hairs, shiny red orange; undersurfaces punctulate, becoming punctate laterally; hind femur constricted apically and basally, expanded medially to about width of coxa (fig. 11); ventral surface without carinae; femur armed with a subapical acuminate spine about one-third as long as width of tibial base; tibia with ventral, lateral, and dorsonesal glabrous longitudinal carinae, lateroventral carina feeble at base, obsolete at apex; tibial corona with about three spinules, mucro one-tenth or less as long as first tarsomere; without sinus at base of mucro; first tarsomere with ventral glabrous longitudinal carina, lateral and mesal carinae faint.

*Abdomen.*—First sternum not flattened medially, about as long as remaining sterna; posterior margin straight, sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

*Genitalia.*—(Figs. 12–14) Median lobe elongate; in ventral view, ventral valve ogival, lateral margins slightly sinuate with base nearly as broad as apex of median lobe, arcuate in lateral view; hinge sclerites moderately large with irregular mesal margins; armature of internal sac consisting of two elongate clusters of fine spicules above ventral valve, middle one-third of sac and lateral apical diverticula lined with fine acute denticles. Lateral lobes somewhat bowed in ventral view, cleft to about three-fourths their length, apices expanded mesally and terminating in a setose fingerlike projection.

**Female**

Similar to male but apical margin of last abdominal sternum straight, not emarginate.

**Host plants**

Old records

*Cassia* sp.: Zacher, 1952: 461, 472.
Location of type
British Museum (Natural History), London.

Distribution
Quiche Mountains, Guatemala.

Discussion
(S. alticola is in the Fallax species group; see also discussions of discolor, atripectus, and chalcodermus.) The only specimens of alticola that we were able to examine were the type-specimens. S. alticola is very similar to discolor, atripectus, and chalcodermus but differs slightly from all these species. Differences between alticola and chalcodermus are discussed under the latter species. From atripectus and discolor, alticola may be distinguished by its shorter mucro, less heavily sclerotized armature of the internal sac, and lateral lobes, which are more slender, are only slightly expanded at their apices, and are more heavily sclerotized.

S. atripectus, New Species
(Figs. 16-20)

Length (pronotum-elytra) 1.5-2.4 mm. Width 1.0-1.7 mm. Maximum thoracic depth 0.9-1.3 mm.

Male

Integument color
Head, most or all of undersurfaces of thorax, and sometimes lateral margins of humeri black; labrum, antennae, legs, and remainder of body red orange; head without red-orange postocular spot.

Vestiture
Body with white or golden recumbent hairs; eye with medial fringe of white or golden hairs; postocular lobe with short white hairs; small postocular patch of dense white or golden hairs; remainder of body with moderately dense to dense white or golden hairs; usually more dense on undersurfaces.

Structure

Head.—Short and broad, densely punctulate; frons usually with median glabrous line extending from frontoclypeal suture to vertex; usually with vague transverse sulcus between upper limits of eyes; frons width slightly less than width of eye; ocular sinus
about three-fourths as long as width of eye; distance from base of antennae to apex of labrum about one-half as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna usually reaching to humerus.

Prothorax.—Disk subcampanulate; punctate medially, punctations becoming coarser laterally; sometimes with vague lateral carina extending about one-half the distance from base to coxal cavity; short median impressed line on median basal lobe; proternum separating coxae for about nine-tenths their length.

Mesothorax and Metathorax.—Scutellum transverse (fig. 16) with lateral posterior teeth, clothed with very dense recumbent white hairs giving an almost quadrate appearance; elytron about twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, punctate, strial intervals punctulate; striae 2 and 4 closer to one another at base than to adjacent striae, others subequally spaced; very minute spines usually at bases of striae 2 to 6; humerus punctulate, glabrous, shiny red orange; undersurfaces punctate, becoming coarser laterally; hind femur constricted apically and basally, expanded medially to about width of coxa (fig. 17); inner ventral surface with a brown sometimes faint longitudinal carina, carina sometimes serrulate; femur armed with a subapical acuminate spine about two-thirds as long as width of tibial base; tibia with ventral, lateral, and dorsomesal glabrous longitudinal carinae, lateroventral carina, when occasionally present, faint; tibial corona with about three spinules, mucro about one-eighth or less as long as first tarsomere; without sinus at base of mucro; first tarsomere with ventral glabrous longitudinal carina, lateral and mesal carinae faint.

Abdomen.—First sternum not flattened medially, about as long as remaining sterna; posterior margin straight, sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

Genitalia.—(Figs. 18–20) Median lobe moderately long; in ventral view, ventral valve rather short, broad, lateral margins nearly straight, base nearly as broad as apex of median lobe, arcuate in lateral view; hinge sclerites small, falcate; armature of internal sac consisting of triangular cluster of fine spicules above ventral valve, a densely spiculate mass extending from apices of hinge sclerites to one-half length of sac, apical one-half
of sac and lateral apical diverticula more sparsely lined with slender acute spicules. Lateral lobes elongated, slightly bowed in ventral view, cleft for more than three-fourths their length, apices expanded mesally, setose.

Female

Similar to male but apical margin of last abdominal sternum straight, not emarginate.

Host plants


Type series


Holotype, allotype, and paratypes deposited in the U.S. National Museum of Natural History. Two paratypes returned to the British Museum (Natural History), London.

Discussion

(*S. atripectus* is in the *Fallax* species group; see also discussions of *alticola* and *discolor.*). *S. atripectus* is distinguished from its closest relatives, *alticola, chalcedermus,* and *discolor,* by its unique pattern of integumental color. It also differs from the first species in having a longer mucro and less heavily sclerotized and more expanded apices of the lateral lobes of the male genitalia (figs. 13 and 19). From the last species it differs primarily in the armature of the internal sac (figs. 19 and 50). The relatively sparse uniform hairs separate it from *chalcedermus,* which has uniformly dense, golden recumbent hairs (figs. 16 and 36).

*S. auricomus,* New Species

(Figs. 21-25)

Length (pronotum-elytra) 1.6–2.5 mm. Width 1.1–1.4 mm. Maximum thoracic depth 0.9–1.1 mm.
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**Male**

**Integument color**

Head black, labrum red orange to brown, without postocular spot; five basal antennal segments usually red orange, apical six red orange to light brown; prothorax red orange to black, intermediate forms usually with a vague medial darker band on dorsum; elytron varying from black with a small red-orange medial spot near base to all red orange; mostly black with red-orange basal spot (fig. 21), or a median stripe with black lateral margin extending to apex; undersurfaces of thorax usually black; abdomen and all legs red orange.

**Vestiture**

Body with white, golden, or intermixed white and golden hairs; eye with medial fringe of white or golden hairs; postocular lobe with short white hairs; small postocular patch of dense white or golden hairs; remainder of body with uniform white, golden, or intermixed white and golden hairs.

**Structure**

**Head.**—Short and broad, densely punctulate; frons usually with faint median glabrous line extending from frontoclypeal suture to vertex; sometimes with vague transverse sulcus between upper limits of eyes; frons width about equal to width of eye; ocular sinus about three-fourths as long as width of eye; distance from base of antennae to apex of labrum about one-half as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna reaching to humerus or slightly beyond.

**Prothorax.**—Disk subcampanulate; punctate medially, punctations becoming coarser laterally; sometimes with lateral carina extending two-thirds the distance from base to coxal cavity; short median impressed line on median basal lobe; prosternum separating coxae for about eight-tenths their length.

**Mesothorax and Metathorax.**—Scutellum transverse with lateral posterior teeth, clothed with very dense recumbent golden or white hairs, sometimes giving quadrate appearance; elytron about twice as long as broad; dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, punctate, strial intervals punctulate; striae 3 and 4 closer to one another at base than to adjacent striae, others subequally spaced, humerus punctulate, glabrous, or with sparse hairs, shiny black or red
orange; undersurfaces punctate, becoming coarser laterally; hind femur constricted apically and basally, expanded medially to about width of coxa (fig. 22); inner ventral surface with a brown sometimes faint longitudinal carina, carina sometimes serrulate; femur armed with a subapical acuminate spine about one-half as long as width of tibial base; tibia with ventral, lateral, and dorsomesal glabrous longitudinal carinae, lateroventral carina usually faint; tibial corona with about three spinules, mucro one-tenth or less as long as first tarsomere; without sinus at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

**Genitalia.**—(Figs. 23–25) Median lobe moderately elongated, expanded apically; in ventral view, ventral valve subtriangular, apex with small rounded nipple, base nearly as broad as apex of median lobe, lateral margins nearly straight, arcuate in lateral view; hinge sclerites greatly elongated, falcate, lateral margins explanate, apices microserrulate; armature of internal sac consisting of an elongate patch of fine spicules above ventral valve, two echinate clusters of long slender spicules at middle of sac, with patches and rows of fine spicules in apical folds of sac. Lateral lobes rather short, cleft to about three-fourths their length, apices setose, expanded mesally.

**Female**

Similar to male but apical margin of last abdominal sternum not emarginate.

**Host plants**

*Cassia* sp.: Venezuela, 5 March 1935, BPQ 084421 (L. L. Spessard).


**Type series**

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Holotype, allotype, and numerous paratypes deposited in the U.S. National Museum of Natural History. Paratypes retained in the collection of the senior author and also deposited in the following collections: California Academy of Sciences, San Francisco; Canadian National Collection of Insects, Ottawa; Field Museum of Natural History, Chicago; and the Museum of Comparative Zoology, Harvard University, Cambridge, Mass.

Discussion

(*S. auricomus* is in the *Fallax* species group; see also discussions of *discolor* and *fallax*.) This widespread yet relatively uncommon small pale species has a distribution from Sinaloa, Mexico, to Venezuela. Externally it resembles *alticola*, *atripectus*, *chalcoderma*, *discolor*, and *fallax*. Its small size, pale color, male genitalia, and characters given in the key separate it from all of these. The male genitalia are most similar to those of *fallax*, but the genitalia do differ significantly from each other.

**S. breveapicalis** (Pic), New Combination

(Figs. 26–30)

*Bruchus breveapicalis* Pic, 1922: 15 (Typetad [sic]).
*Acanthoscelides breveapicalis*: Blackwelder, 1946: 759.

Length (pronotum-elytra) 2.1–2.9 mm. Width 1.6–2.4 mm. Maximum thoracic depth 1.4–1.9 mm.

**Male**

Integument color

Entire body usually red orange, sometimes head, antenunal segments 5 or 6 to 10, and undersurfaces of mesothorax and metathorax reddish brown.

Vestiture

Body with yellowish-white, white, or dark-brown recumbent hairs; eye with medial fringe of yellowish-white hairs; postocular lobe with short white hairs; small postocular patch of dense yellowish-white hairs; pronotum with dense yellowish-white to white hairs in no apparent pattern; elytron with uniform yellowish-white hairs except for a patch of dark hairs near base between striae 3 and 4; band of dark hairs about two-fifths from apex and about apical one-tenth of elytron with some darker hairs (fig. 26);
undersurfaces and pygidium with dense white or yellowish-white hairs, base of pygidium with a small median patch of white hairs.

Structure

**Head.**—Short and broad, densely punctulate; frons with a median glabrous line or carina extending from frontoclypeal suture to vertex; with vague transverse sulcus between upper limits of eyes; frons width slightly less than width of eye; ocular sinus about one-half as long as width of eye; distance from base of antennae to apex of labrum about one-half as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 ecentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna almost reaching humerus.

**Prothorax.**—Disk subcampanulate; punctate medially, punctations becoming very coarse laterally; without lateral carina; median impressed line on median basal lobe, usually obscured by hairs; prosternum separating coxae for about eight-tenths their length.

**Mesothorax and Metathorax.**—Scutellum small, transverse, clothed with dense recumbent white hairs giving quadrate appearance; elytron about twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, coarsely punctate, strial intervals punctulate; striae 3 and 4, and 5 and 6 closer to one another at base than to adjacent striae (fig. 26); humerus with sparse hairs, shiny red orange or reddish brown; undersurfaces punctate, becoming coarser laterally; hind femur constricted apically and basally, expanded medially to about width of coxa (fig. 27); inner ventral surface with a brown longitudinal carina, carina often serrulate; femur armed with a subapical acuminate spine one to 1½ times as long as width of tibial base; tibia with ventral, lateral, and dorsomesal glabrous longitudinal carinae, lateroventral carina absent; tibial corona with three spinules, mucro strong, one-fifth to one-sixth as long as first tarsomere; slightly sinuate at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, slightly longer than remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

**Genitalia.**—(Figs. 28–30) Median lobe rather short, broad, especially at base; in ventral view, ventral valve short, broad, lat-
eral margins concave, apex truncate, base about three-fourths as broad as apex of median lobe, angulate in lateral view; hinge sclerites large, falcate, strongly hooked apically; armature of internal sac consisting of short acute denticles and spines densely lining sac from apices of hinge sclerites to apex of sac. Lateral lobes rather short, broad, cleft to about four-fifths their length, apices rounded, expanded mesally.

**Female**

Similar to male but apical margin of last abdominal sternum not emarginate.

**Host plants**

Unknown.

**Location of type**


**Distribution**

Panama: Gatun, Canal Zone; La Cherrera. Colombia: Rio Frio, Sevilla, and Aracataca, all Magdalena Province.

**Discussion**

(S. breveapicalis is in the Guttifer species group; see also discussions of guttifer, inanis, and russeolus.) S. breveapicalis is most similar to guttifer, inanis, and russeolus of those species treated in this bulletin. The similarities and differences are given in the discussion of those species.

We examined eight female specimens from Colombia and Trinidad, which were very similar in external structure to male specimens of breveapicalis, but the coloration, especially of the elytra, is different. The elytra of the female specimens vary from having the apices dark reddish brown to all the dorsal surfaces and parts of the undersurfaces of the same hue. We consider it best not to include these specimens in the description until the genitalia of males of the same color can be examined.

**S. celatus** (Sharp)

(Figs. 31-35)

Length (pronotum-elytra). 1.5-2.8 mm. Width 0.9-1.9 mm. Maximum thoracic depth 0.9-1.5 mm.

**Male**

**Integument color**

Head black, with red-orange postocular spot, labrum red orange to black; all antennal segments usually red orange, sometimes five basal segments red orange with remainder brown; prothorax varies from red orange to black, intermediates with paler shades laterally; procoxa and all legs usually red orange, sometimes with base of hind femur black; rarely in specimens with black upper parts hind leg black; last tarsomere usually brown to black; elytron (fig. 81) usually with a medial band starting one-sixth from base and extending to one-half elytral length, and an apical spot, both usually red orange; elytral coloration varying to brown or black with medial red-orange band to rarely all black; band always attaining lateral margin, occasionally reaching only stria 3 medially; base of elytron always of a shade as dark or darker than remainder of elytron; undersurfaces varying from thoracic and first abdominal sterna black and remainder red orange to rarely all black; usually lateral and apical parts of a paler shade; pygidium red orange to black.

**Vestiture**

Body with white or intermixed white and golden hairs; eye with faint medial fringe of sparse white hairs; postocular lobe with short white hairs; small postocular patch of dense white hairs covering red-orange postocular spot; pronotum with irregular patches of white or intermixed white and golden hairs, usually basally, medially, and laterally; elytron with sparse white or intermixed white and golden hairs with dense white patches at bases of intervals between striae 2 and 3, and 4 and 5; dense white band of hairs covering medial red-orange band and joining stripe of white hairs covering most of interval between striae 1 and 2; also present in the same position in those with all black elytra; undersurfaces with dense white or intermixed white and golden hairs, becoming more dense laterally; pygidium usually with dense white patches basally, one on each lateral margin and one medially, and a medial stripe of dense white hairs.

**Structure**

**Head.**—Short and broad, densely punctulate; frons usually with a median glabrous line extending from frontoclypeal suture to
vertex; usually with vague transverse sulcus between upper limits of eyes; frons width about equal to width of eye; ocular sinus about two-thirds to three-fourths as long as width of eye; distance from base of antennae to apex of labrum about two-fifths as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 usually filiform, 2 and 4 usually moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna sometimes reaching to humerus.

**Prothorax.**—Disk subcampanulate; punctate medially, punctations becoming coarser laterally; faint lateral carina extending two-thirds distance from base to coxal cavity; short median impressed line on median basal lobe; prosternum separating coxae for about nine-tenths their length.

**Mesothorax and Metathorax.**—Scutellum transverse with lateral posterior teeth, clothed with very dense recumbent white hairs giving quadrate appearance; elytron about twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, coarsely punctate, very coarse at base, strial intervals punctulate; striae 3 and 4 closer to one another at base than to adjacent striae, others subequally spaced; humerus punctulate, glabrous, shiny red orange to black; undersurfaces punctulate medially becoming punctate laterally; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 32); inner and outer ventral surfaces with faint longitudinal carinae, inner carina with minute serrations; femur armed with a subapical acuminate spine about as long as width of tibial base; tibia (fig. 32) with ventral, lateral, and dorsomesal glabrous longitudinal carinae, lateroventral carina faint; tibial corona with about three spinules, mucro one-eighth or less as long as first tarsomere; without sinus at base of mucro; first tarsomere with strong ventral and faint lateral and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, about as long as remaining sterna; posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

**Genitalia.**—(Figs. 33–35) Median lobe moderate in length; in ventral view, ventral valve with narrow rounded apex, lateral margins usually slightly convex, base almost as broad as apex of median lobe, arcuate in lateral view; hinge sclerites broad basally with narrow apices and evenly, gently curved; armature of internal sac consisting of very dense cluster of fine spicules in basal one-half grading to shorter denticles in apical limits or cluster; dense triangular cluster of dark spicules flanked by two elongate
lateral series of moderately fine spicules and scattered minute spicules in apical one-half. Lateral lobes expanded apically, cleft to about three-fourths their length (fig. 34).

Female

Similar to male but apical margin of last abdominal sternum subemarginate.

Host plants

New records

"Anise seed": Trinidad, BWI, intercepted Miami, Fla., 7 April 1946.

"Bicho seed" (Cassia occidentalis Linnaeus): Panama, 2 Nov. 1939 (collector unknown).

"Brusca seed" (C. occidentalis): Mexico (Palmer).


Cassia sp.: Mexico. S. Sonora, 22 May 1948 (collector unknown).


C. laevigata Willd.: Mexico, 1897 (I. N. Rose).


Old records


Location of type

British Museum (Natural History), London.
Distribution


Discussion

(S. celatus is in the Abbreviatus species group; see also discussion of abbreviatus.) This is one of the most widespread of our noneconomic New World bruchid species. Its presence in the United States is undoubtedly due to the introduction of one of its hosts, Cassia bicapsularis, into southern Texas. Because it attacks the widely distributed C. bicapsularis and occidentalis, it probably occurs much farther into South America than the Brazil locality noted here. Of the other hosts recorded, apparently C. biflora is not favored as only two rather depauperate individuals were reared from its seeds and the report of C. laevigata must be verified. The report of "wild bean" as a host by J. W. Monk probably refers to C. bicapsularis (see Bottimer, 1961, p. 294).

This species is unique in its structure in that most specimens have a light colored band on the basal one-half of the elytra and usually have spical spots of the same color (fig. 31). The male genitalia as well as the size of the hind femoral spine are used to identify it. It appears to be more closely related to leucostauros and trinotaticollis than to other species treated here.

The male genitalia of these three species represent a departure from the basic structure of abbreviatus in that the size of various parts is variable. The hinge sclerites of leucostauros and trinotaticollis are significantly larger than those of abbreviatus and celatus. The internal sac of leucostauros is lined by slender spicules in its basal one-half as is abbreviatus. This mass of spicules is more elongate in celatus and is expanded so that it is continuous red-orange apex, remainder of leg red orange.

All three have large diverticula near the apex of the internal sac, but the armature at the apex is different between species (figs. 7, 33, and 97).

Based on external body characters and those of the male genitalia, leucostauros apparently represents an offshoot of abbreviatus and, through trinotaticollis, links celatus with abbreviatus.

S. celatus, leucostauros, and trinotaticollis may be separated by examining the structures of the male genitalia, which are previously mentioned, and by those external structures in the key.
S. chalcodermus, New Species
(Figs. 36-41)

Length (pronotum-elytra) 3.2-3.3 mm. Width 2.1-2.2 mm. Maximum thoracic depth 1.5-1.6 mm.

Male

Integument color

Head, prothorax, procoxae, elytra, undersurfaces of thorax, and base of abdomen black; antennae, legs, and remainder of body red orange; head without red-orange postocular spot.

Vestiture

Body with dense golden and white recumbent hairs; eye with medial fringe of golden hairs; postocular lobe with short golden hairs; postocular patch of dense golden hairs; pronotum and elytra with long bright golden hairs; sometimes a faint white median line of hairs on pronotum, and obscure white patches at base of elytron on interval between striae 4 and 5; undersurfaces and pygidium with dense white and golden hairs.

Structure

Head.—Short and broad, densely punctulate; frons with strong median glabrous line extending from frontoclypeal suture to vertex; with vague transverse sulcus between upper limits of eyes; frons width about the same as width of eye; ocular sinus about one-half as long as width of eye; distance from base of antennae to apex of labrum about one-half as long as distance from upper limits of eyes to apex of labrum; usually antennal segments 1, 3, and 4 filiform, 2 moniliform, 4 sometimes shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna reaching almost to humerus.

Prothorax.—Disk campanulate; punctate medially, punctations becoming coarser laterally; sometimes with vague lateral carina extending about one-half the distance from base to coxal cavity; short median impressed line on median basal lobe, line usually obscured by hairs; prosternum separating coxae for about eight-tenths their length.

Mesothorax and Metathorax.—Scutellum small, transverse, with lateral posterior teeth, clothed with very dense recumbent white hairs giving quadrate appearance (fig. 36); elytron slightly longer than broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, punctate, strial intervals punctulate; striae 3 and 4 closer to one another at base
than to adjacent striae, others subequally spaced; humerus punctulate, with sparse hairs, shiny black; undersurfaces punctulate, becoming punctate laterally; hind femur constricted apically and basally, expanded medially to about width of coxa (fig. 37); ventral surface without carinae; femur armed with a subapical acuminate spine about one-third as long as width of tibial base; tibia with ventral, lateral, and dorsomesal glabrous longitudinal carinae, lateroventral carinae feebly at base, obsolete at apex; tibial corona with about three spinules, micro one-tenth or less as long as first tarsomere; without sinus at base of micro, first tarsomere with ventral glabrous longitudinal carina, lateral and mesal carinae, when present, faint.

**Abdomen.**—First sternum not flattened medially, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

**Genitalia.**—(Figs. 38-41) Median lobe elongate; in ventral view, ventral valve ogival, lateral margins sinuate with base as broad as apex of median lobe, arcuate in lateral view; hinge sclerites slender, moderately long; armature of internal sac consisting of mesal elongate cluster of fine spicules above ventral valve, middle one-third of sac and lateral apical diverticula lined with fine denticles. Lateral lobes somewhat bowed in ventral view, cleft to about three-fourths their length, apices expanded mesally into setose flat lobes.

**Female**

Similar to male but apical margin of last abdominal sternum straight, not emarginate.

**Host plants**

*Cassia* sp.: Mexico (N.Y., USDA Plant Quarantine interception, 20 November 1945, 46-2207).

**Type series**

Holotype ♂, allotype ♀, and four paratypes: Mexico. (N.Y., USDA Plant Quarantine interception, 20 November 1945, 46-2207) in *Cassia* sp. seeds. USNM 71399.

Holotype, allotype, and paratypes deposited in the U.S. National Museum of Natural History.

**Discussion**

(*S. chalcodermus* is in the *Fallax* species group; see also discussions of *discolor*, *alticola*, and *atripectus.*) The very dense golden hairs on the dorsal surfaces of specimens of this species
set it apart from any other species known to us. It is very similar to alticola but the red-orange elytra, broad indistinct elytral band, and much more sparse dorsal hairs of alticola separate the two species.

The male genitalia of the two are also very similar, but the apex of the median lobe of alticola is more pointed, the spicules of the internal sac are more coarse, and the hinge sclerites are not as long and are less arcuate.

**S. cruentatus** (Horn)

(Figs. 42-47)

*Bruchus cruentatus* Horn, 1873: 325 (Georgia, Illinois, Texas, Dakota [sic]); Sharp, 1885: 469; Riley and Howard, 1892: 166; Schaeffer, 1907: 296, 298; Fall, 1910: 165, 166; Blatchley, 1910: 1237; Cushman, 1911: 498, 506; Pic, 1913: 23; Zacher, 1952: 461.

*B. depressus* Fall, 1912: 321 (Florida: Orlando?); Pic, 1913: 23.


*B. nigrinus* Horn, 1873: 327 (Middle States); Schaeffer, 1907: 296; Fall, 1910: 166; Blatchley, 1910: 1237; Pic, 1913: 37; Zacher, 1952: 462.

*Mylabris cruentatus*: Leng, 1920: 305.

*M. nictitans*: Leng, 1920: 305; Kunhikannan, 1923: 18 (? misidentification).

*Acanthoscelides cruentatus*: Blackwelder, 1946: 759.


Length (pronotum-elytra) 1.6–2.9 mm. Width 1.2–2.2 mm. Maximum thoracic depth 0.9–1.4 mm.

**Male**

**Integument color**

Head black, occasionally faint red postocular spot, labrum usually black, sometimes red orange; usually four basal antennal segments red orange, sometimes basal five or all red orange, remaining segments brown to black; prothorax black, procoxa red brown to black, remainder of leg red orange to brown; tarsi slightly darker than remainder of leg; elytron black with red-orange maculation; maculation encompassing humerus, usually extending posteriorly in an oblique line to second stria and almost to apex of elytron, attaining lateral margin of elytron and extending for fully seven-tenths the length of the elytron (fig. 42) and expanded at apex; if maculation smaller, then tending to be nearer lateral margin and apex, but always with faint prolongation toward humerus (fig. 43); varying to a very small maculation near apex and lateral
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margin; or elytron may be all black; tip of elytron usually black, occasionally dark brown; if maculation small, then lateral margin of elytron dark brown or black, usually black, and maculation extending laterally only to between stria 4 and 9; remainder of thorax black; prothoracic and mesothoracic legs usually lighter in color than hind legs; mesothoracic femur dark brown to red orange, usually base darker than apex, mesothoracic tibia usually light brown to red orange and tarsi usually light brown, darker than remainder of leg; metathoracic leg varying from all black to base of femur dark brown, apex and remainder of leg red orange; hind femur usually dark, either dark brown to black occasionally with apex lighter in color than base; abdomen and pygidium black.

**Vestiture**

Body with white, golden brown, or intermixed uniform recumbent hairs; form with black elytron (*nigrinus*) usually with more golden and brown intermixed hairs on dorsum of pronotum and elytron; eye with medial fringe of sparse white hairs; postocular lobe with short white hairs; postocular patch of dense white hairs covering red postocular spot if present; mesepimeron usually with very dense white hairs.

**Structure**

**Head.**—Short and broad, densely punctulate; muzzle tends to be shorter than in other species of *Sennius*; frons usually with median glabrous line or carina extending from frontoclypeal suture to vertex; usually without vague transverse sulcus between upper limits of eyes; frons width about equal to width of eye; ocular sinus about one-half as long as width of eye; distance from base of antennae to apex of labrum about one-third to two-fifths as long as distance from upper limits of eyes to apex of labrum; antennal segments 1, 3, and 4 filiform, 2 moniliform, 2 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5 to 11 about as long as broad; antenna usually barely reaching humerus, sometimes extending to slightly beyond.

**Prothorax.**—Disk campanulate (fig. 42); subtruncate apically, anterolateral corners subangulate; punctulate medially, punctations becoming coarser laterally; very vague short median impressed line on median basal lobe or none; sometimes with very vague lateral carina extending from base to three-fifths the distance to coxal cavity; prosternum separating coxae for about ninetenths their length.

**Mesothorax and Metathorax.**—Scutellum transverse with very slight lateral posterior teeth, clothed with very dense recumbent
white hairs giving almost quadrate appearance; elytron about twice as long as broad, dorsal surface depressed between humerus and medial margin; striae deep, punctate, strial intervals punctulate; striae 3 and 4 closer to one another at base than to adjacent striae; adjacent striae subequally spaced; humerus minutely punctulate, glabrous, or with scattered hairs, red or shiny black; undersurfaces punctate, usually lateral parts with coarser punctures; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 44); inner ventral surface sometimes with faint longitudinal carina; femur armed with strong subapical acuminate spine 1½ times as long as width of tibial base, spine sometimes with a single tooth on posterior surface; tibia (fig. 44) with ventral, lateroventral, lateral, and dorsomesal glabrous longitudinal carinae; tibial corona with about four spinules, subequal in length, mucro about one-tenth as long as first tarsomere; without sinus at base of mucro; first tarsomere with faint ventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 unmodified; 5 emarginate, apex of ventral surface usually protruding ventrad; pygidium punctate, convex in lateral view.

**Genitalia.**—(Figs. 45–47) Median lobe moderate in length; in ventral view, ventral valve gradually narrowing to a blunt apex, lateral margins straight or slightly convex, base almost as broad as apex of the expanded median lobe, arcuate in lateral view; hinge sclerites large, slightly curved; armature of internal sac consisting of a small fan-shaped cluster of spicules at apical orifice between hinge sclerites, and a medial cluster of fine quadrangular to triangular denticles. Lateral lobes expanded apically, cleft to about two-thirds their length (fig. 46).

**Female**

Similar to male but apical margin of last abdominal sternum not emarginate, not protruding ventrally.

**Host plants**

**New records**

Texas. Dallas, 12 Nov. 1907 (Hunter).

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**Old records**


*Parkinsonia* sp.: Riley and Howard, 1892: 165; Zacher, 1952: 461.

**Location of type**


*B. depressus*: The specimen bearing the labels "Type 25051" and " Fla. Mar. 14" is here designated as lectotype for *B. depressus*, Museum of Comparative Zoology, Cambridge, Mass.

*B. nictitans*: Unknown.


**Distribution**


**Discussion**

(*S. cruentatus* is in the *Cruentatus* species group; see also discussions of *obesulus* and *simulans*.) The four names applied to this species are ample testimony to its variability, abundance, widespread distribution, and presence in collections. We have examined the types for all names except *nictitans* and we agree with Bottimer (1968) that these names refer to the same species. Although we have not seen the type of *nictitans*, it was reported by Motschulsky (1874) as reared from seeds of *Cassia nictitans*, a host of *cruentatus*, and, in the absence of more evidence, we believe that it should be considered as a synonym of *cruentatus*.

*S. cruentatus* is very similar to *obesulus* and *simulans*. The three usually have black bodies with red maculations on the elytra, strong hind femoral spines, more flattened bodies than other *Sennius*, and a rather simple internal sac of the male genitalia, which lacks both diverticula and strongly sclerotized denticles.

Externally the shape of the elytral maculation is used to separate *cruentatus*, *obesulus*, and *simulans*. The maculation of *cruentatus* (figs. 42 and 43) usually encompasses the humerus and
extends posteriorly in an oblique line to the second stria and almost to the apex of the elytron. It attains the lateral margin of the elytron and extends for fully seven-tenths the length of the elytron (fig. 42). If the maculation is smaller, then it tends to be nearer the lateral margin and apex, but it always has a faint prolongation toward the humerus (fig. 48). Occasionally when the elytron is solid black, distribution records and structures of the male genitalia must be used to separate cruentatus from the other two species.

The elytral maculation of obesus is usually hemispherical (fig. 115), and when it attains the lateral margin of the elytron, it attains it narrowly, narrower than the maximum length of the maculation. The maculation does not attain the humerus and is expanded medially in an even gentle curve. If the maculation consists of only a red-orange apical spot, then the spot is longer than broad and encompasses only the area from striae 4 to 9 (fig. 116). This latter form differs from simulans in that the apical elytral spot of the latter species is usually broader than long or when longer than broad, it encompasses striae 3 to 9 or more (fig. 126).

An occasional form of simulans may be all black with a faint apical red-orange spot.

The apex of the ventral valve of the male genitalia of cruentatus is truncate, whereas that of simulans and obesus is acutely produced. The denticles above the ventral valve in the base of the internal sac of cruentatus are much stronger and more heavily sclerotized than in the other two species.

The apex of the internal sac of obesus is weakly lobed, whereas that of simulans is without lobes. The armature of the sac is more heavily sclerotized in obesus. S. simulans is found from southern Arizona to Cuernavaca, Mexico. S. obesus occurs in southern Mexico and Central America.

The report of nigrius reared from Astragalus by Kunhikannan (1923) is undoubtedly in error as the bruchids reared from Astragalus are different from those in the genus Sennius.

S. cruentatus, obesus, and simulans are very similar to one another and form the nucleus of what we refer to as the Cruentatus species group. Other species included in this bulletin that are similar to these species and are placed in this species group are morosus, ensiculus, and whitei.

These six species have an elytral pattern that is usually black with a red maculation (except in ensiculus), the male genitalia have hinge sclerites that are moderate in size and usually curved,
and the internal sac is not strongly trilobed and is armed with short blunt denticles in most species. The lateral lobes are deeply cleft in all species except whitei.

The external structures of morosus and ensicus link them together and to the Cruentatus species group. The denticulate armature of the internal sac and the deeply cleft lateral lobes of ensicus and morosus link these two species together. S. whitei has denticulate armature but a shallow cleft in the lateral lobes. S. whitei is a marginal member of this group but is more closely allied to it than to any other species group.

Similarities between cruentatus, simulans, and obesulus are very pronounced as are those between morosus and ensicus. S. whitei is an aberrant member of this group and is not closely related to the others.

**S. discolor (Horn)**

*(Figs. 63-52)*

_Bruchus discolor_ Horn, 1873: 326 (Texas); Schaeffer, 1907: 222; Fall and Cockerell, 1907: 200; Fall, 1910: 165; Gushman, 1911: 506; Pic, 1913: 24; Zacher, 1952: 462.

_B. discopterus_ Fall, 1910: 167 (Elsinore, Southern California); Fall, 1912: 322; Pic, 1913: 24. NEW SYNONYMY.

B. _informus_ Sharp, 1885: 481 (Guatemala, San Gerónimo). NEW SYNONYMY.

_B. managuatus_ Pic, 1935: 66 (Managua, Nicaragua). NEW SYNONYMY.

_Acanthoscelides injinlus_ Blackwelder, 1946: 759.

_A. managuanus_ Blackwelder, 1946: 760.

_Mylabris discolor_ Leng, 1920: 305.

_M. discopterus_ Leng, 1920: 305.


Length (pronotum-elytra) 1.3–2.3 mm. Width 0.8–1.6 mm. Maximum thoracic depth 0.7–1.2 mm.

**Male**

Integument color

Head black, without red postocular spot, labrum red orange; five basal antennal segments red orange, apical six reddish brown, sometimes all red orange; prothorax black, procoxa reddish brown to black, remainder of leg red orange; elytron varying from all black to base black with remainder red orange, usually red orange with black basal, medial, and lateral margins (fig. 48); remainder of thorax black; mesothoracic and metathoracic legs all red orange, base of metathoracic femur occasionally black; pygidium and abdomen black.
Vestiture

Ventral surface of body with white recumbent hairs, dorsal surface usually with golden to brown hairs or intermixed white, golden, and brown hairs in no definite pattern or sometimes all white; eye usually with medial fringe of sparse white hairs; postocular lobe with short white hairs; small postocular patch of dense white hairs; pronotum sometimes with faint line of white hairs on midline; undersurfaces with moderately dense white hairs becoming dense laterally; pygidium with moderately dense white or intermixed white and golden hairs, sometimes with dense line of hairs along midline.

Structure

**Head.**—Short and broad, densely punctulate; frons usually with median glabrous line extending from frontoclypeal suture to vertex; usually with vague transverse sulcus between upper limits of eyes; frons width slightly less than width of eye; ocular sinus about two-thirds as long as width of eye; distance from base of antennae to apex of labrum about two-fifths as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; sometimes segments 3 to 11 eccentric; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna reaching to humerus or slightly beyond.

**Prothorax.**—Disk subcampanulate (fig. 48); punctate; short median impressed line on median basal lobe; vague lateral carina extending from base to two-thirds to three-fourths the distance to coxal cavity; prosternum separating coxae for about three-fourths their length.

**Mesothorax and Metathorax.**—Scutellum transverse with lateral posterior teeth, clothed with very dense recumbent white hairs giving quadrate appearance; elytron about twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, coarsely punctate, coarser at base, strial intervals punctulate; striae 3 and 4 usually closer to one another at base than to adjacent striae, others subequally spaced; humerus punctulate, glabrous, shiny black, sometimes red orange; ventral surfaces punctulate, becoming punctate laterally; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 49); inner and outer ventral surfaces usually with faint longitudinal carinae; femur armed with a subapical acuminate spine about one-half to three-fourths as long as width of tibial base; tibia with ventral, lateral, and
dorsomesal glabrous longitudinal carinae, lateroventral carina faint; tibial corona with about four small spinules, mucro one-tenth or less as long as first tarsomere; without sinus at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 6 emarginate; pygidium punctate, convex in lateral view.

**Genitalia.**—(Figs. 50-52) Median lobe moderate in length; in ventral view, ventral valve pointed apically, lateral margins convex, base nearly as wide as apex of median lobe, arcuate in lateral view; hinge sclerites small, strongly arcuate; armature of internal sac consisting of two lateral rows of closely packed elongate spicules in basal two-fifths and randomly, densely placed short acute denticles in apical three-fifths. Lateral lobes expanded apically, cleft to about two-thirds their length (fig. 51).

**Female**

Similar to male but apical margin of last abdominal sternum straight; hind femoral spine about one-half as long as width of tibial base.

**Host plants**

**New records**


**Old records**

*Cassia roemeriana* Scheele: Fall and Cockerell, 1907: 200; Cushman, 1911: 506; Zacher, 1952: 462.

*Prosopis* sp.: Cushman, 1911: 506; Zacher, 1952: 462.

*Parkinsonia* sp.: Cushman, 1911: 506; Zacher, 1952: 462.
Location of type

*B. discopterus*: MCZ Type 25052, Museum of Comparative Zoology, Cambridge, Mass.
*B. infirmus*: British Museum (Natural History), London.

Distribution


Discussion

(S. discolor is in the Fallax species group; see also discussions of *fallax* and *alticola.*) Many specimens of *Sennius morosus* and some of *Stator limbatus* (Horn) have been identified as *discolor* apparently because all three have reddish maculations on the elytra. This species is easily separated from *Stator limbatus* by generic characters. From *morosus* it differs in the shape of the elytral maculations (figs. 48, 110), the size of the apical hind femoral spine, and the very distinct differences in the male genitalia (figs. 50, 51, 107, 108).

Because *discolor* has been confused with two other species, the host plants *Prosopis* sp. and *Parkinsonia* sp. are undoubtedly in error. The report of *Cassia roemeriana* as a host is probably in error because only *morosus* has been reared from its seeds.

*S. discolor* varies little in external structure, but the armature of the internal sac of the male genitalia is more heavily sclerotized in larger specimens. The integumental and vestitural colors as well as body size vary considerably throughout the very wide range of the species. This variation in color and size apparently accounts for the four names that have been applied to this species. We have examined all the types on which the names were based, and although there are differences in size and coloration between the types, the external and genitalic structures are those of one species. *Bruchus managuensis* is smaller and paler than most individuals of *discolor*, but its external and internal structures clearly ally it with *discolor*. Further study may reveal many subspecies of *discolor*. In the northern parts of its range the specimens of *discolor* have mostly red-orange elytra and white, golden, or intermixed hairs. In the southern parts of its range more individuals are found with all black elytra and hairs with a bright golden sheen.
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*S. discolor* is very similar to *alticola*, *atripectus*, and *chaleodermius* in its structure. It differs externally from these three by the minor structural and color differences given in the key. These four species are somewhat similar to *fallax* in their external structure, but whereas *fallax* often has variegated elytral vestiture, the elytral vestiture of the other four is uniform or almost so. The male genitalia of *fallax* are distinctly different from those of the other four.

**S. durangensis**, New Species

(Figs. 53–57)

Length (pronotum-elytra) 1.4–1.9 mm. Width 0.9–1.3 mm. Maximum thoracic depth 0.8–1.1 mm.

**Male**

**Integument color**

Head black, labrum brown to black; postocular spot lacking; basal four or five antennal segments red orange to brown, apical segments black, sometimes 11th with some lighter color; prothorax and procoxa black; elytron black with red-orange maculation usually beginning one-fifth from base and extending to one-fifth from apex, attaining lateral margin broadly and extending to stria 3 (fig. 53); sometimes slightly longer or wider; when maculation occasionally smaller, then not achieving lateral margin but extending to stria 3 and encompassing about medial one-third of elytron; undersurfaces and pygidium black; prothoracic and mesothoracic femora usually dark brown to black basally with remainder of leg brown to light brown, usually mesothoracic legs darker than prothoracic; metathoracic leg usually black with light brown to brown medial surfaces; tibia and apex of femur sometimes of a lighter color.

**Vestiture**

Body with uniform white, golden, or intermixed white and golden hairs; eye with medial fringe of white hairs; postocular lobe with short white hairs; small dense postocular patch of white hairs; pronotum usually with broad medial stripe of moderately dense golden hairs, remainder of white hairs, sometimes with all white hairs or mostly golden hairs; elytron with sparse intermixed white and golden or white hairs; undersurfaces with sparse to moderately dense white hairs; pygidium with moderately dense white hairs, sometimes with medial dense white patch at base.
Structure

Head.—Short and broad, densely punctulate; frons with median glabrous line or carina extending from frontoclypeal suture to vertex; with vague transverse sulcus between upper limits of eyes; frons width slightly less than width of eye; ocular sinus about two-fifths as long as width of eye; distance from base of antennae to apex of labrum about one-third as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna reaching to humerus.

Prothorax.—Disk subcampanulate; punctate medially; punctations becoming coarser laterally; usually with vague lateral carina extending three-fifths the distance from base to coxal cavity; short median impressed line on median basal lobe; prosternum separating coxae for about nine-tenths their length.

Mesothorax and Metathorax.—Scutellum transverse with lateral posterior teeth, clothed with very dense recumbent white hairs; elytron slightly more than twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, punctate, strial intervals punctulate; striae 3 and 4 usually closer to one another at base than to adjacent striae, others subequally spaced, sometimes all subequal; humerus punctulate, with sparse hairs, shiny black; undersurfaces punctate mediially with scattered punctations laterally; hind femur constricted basally and apically, expanded mediially to about width of coxa (fig. 54); ventral surface without carinae; femur armed with a subapical acuminate spine about one-half as long as width of tibial base; tibia with ventral, lateral, and dorsomesal glabrous longitudinal carinae, lateroventral carina, when occasionally present, faint; tibial corona with about three spinules, mucro one-tenth or less as long as first tarsomere; slightly sinuate at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

Abdomen.—First sternum not flattened mediaily, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

Genitalia.—(Figs. 55–57) Median lobe moderately long, slender in ventral view, ventral valve ogival, lateral margins gently sinuate, base about one-half as broad as apex of median lobe, arcuate in lateral view; hinge sclerites large, falcate, appearing
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bifid basally, attenuate apically; armature of internal sac consisting of elongated cluster of fine spicules above ventral valve, a dense mass of slender spicules lining sac at middle, and rows of slender spicules extending into apical diverticula. Lateral lobes slender, slightly bowed, cleft to about four-fifths their length, setose, and expanded mesally.

**Female**

Similar to male but apical margin of last abdominal sternum not emarginate.

**Host plants**


**Type series**


Holotype, allotype, and numerous paratypes deposited in the U.S. National Museum of Natural History. Paratypes retained in the collection of the senior author and also deposited in the following collections: California Academy of Sciences, San Francisco; Canadian National Collection of Insects, Ottawa; Field Museum of Natural History, Chicago; Entomology Department, Texas A & M University, College Station; and the Museum of Comparative Zoology, Harvard University, Cambridge, Mass.
Discussion

(S. durangensis is in the Abbreviatus species group; see also discussions of abbreviatus, medialis, and instabilis.) S. durangensis is most similar to medialis and more remotely to abbreviatus. Its affinities are related in the discussions of those two species.

S. durangensis has been swept in large numbers from flowering Cassia crotalearioides, but we have never reared it from the seeds of this species.

S. ensiculus, New Species

(Figs. 58-62)

Length (pronotum-elytra) 1.1–1.9 mm. Width 0.7–1.3 mm. Maximum thoracic depth 0.6–1.1 mm.

Male

Integument color

Head black, labrum red orange to brown; postocular spot lacking; four, five, or six basal antennal segments and 11th red orange, remainder brown to dark brown, occasionally all red orange; prothorax, procoxa, elytron, undersurfaces, and pygidium black; prolegs and meso-legs red orange except basal one-half of mesofemur dark brown to black; hind femur usually black, sometimes slight tinge or red orange at apex, usually tibia mostly black with red-orange apex, remainder of leg red orange.

Vestiture

Body with white, golden, brown, or intermixed white and golden hairs; eye with medial fringe of white hairs; postocular lobe with short white hairs; small dense postocular patch of white hairs; pronotum with a broad medial stripe of brown hairs, remainder of prothorax with moderately dense white hairs; elytron with sparse brown hairs except for a thin band of white or golden hair basally and a broad medial transverse band of white or golden hairs (fig. 58); undersurfaces and pygidium with moderately dense white hairs, pygidium with a small medial patch of dense white hairs at base.

Structure

Head.—Short and broad, densely punctulate; frons with a sometimes faint median glabrous line extending from frontoclypeal suture to vertex; with vague transverse sulcus between upper limits of eyes; width of eye about 1½ times that of frons; occular sinus about three-fourths as long as width of eye; distance from base
of antennae to apex of labrum about one-half as long as distance
from upper limits of eyes to apex of labrum; antennal segments 1
and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent seg­
ments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about
as long as broad, 7 to 10 slightly broader than long; antenna
reaching to humerus.

Prothorax.—Disk subcampanulate; punctate medially, puncta­
tions becoming coarser laterally; lateral line or vague lateral cari­
na extending about one-half the distance from base to coxal cavity;
short median impressed line on median basal lobe; prosternum
separating coxae for about nine-tenths their length.

Mesothorax and Metathorax.—Scutellum transverse with later­
al posterior teeth, clothed with very dense recumbent white hairs;
elytron slightly more than twice as long as broad, dorsal surface in
an even, gentle convex curve between humerus and medial margin;
striae deep, punctate, strial intervals punctulate; stria 3 and 4
closer to one another at base than to adjacent striae, others sub­
equally spaced; striae 2 and 3 abbreviated at base, striae 2 deeply
impressed at base posterior to a minute spine, a minute spine also
at base of stria 3 (fig. 58); humerus punctulate, with sparse
brown hairs, shiny black; undersurfaces punctulate, scattered
punctations laterally; hind femur constricted basally and apically,
expanded medially to slightly more than width of coxa (fig. 59);
inner ventral surface sometimes with a vague longitudinal carina;
femur armed with a subapical acuminate spine about three-fourths
as long as width of tibial base, spine gently sloping, not erect;
tibia with ventral, lateral, and dorsomesal glabrous longitudinal
carinæ, lateroventral carina obsolete at apex; tibial corona with
about three spinules, mucro one-tenth or less as long as first
tarsomere; without sinus at base of mucro; first tarsomere with
ventral, lateral, and mesal glabrous longitudinal carinæ.

Abdomen.—First sternum not flattened medially, slightly longer
than remaining sterna, posterior margin straight; sterna 2 to 4
unmodified, 5 emarginate; pygidium punctulate, convex in lateral
view.

Genitalia.—(Figs. 60-62) Median lobe elongate, slender; in
ventral view, ventral valve elongate-triangular, lateral margins
nearly straight, base nearly as wide as apex of median lobe, arcu­
ate in lateral view; hinge sclerites moderately large, sinuate, ex­
planate laterally; armature of internal sac consisting of an elon­
gate cluster of fine spicules above ventral valve, middle one-third
of sac lined with fine acute spicules mixed with blunt denticles,
apical one-third of sac with two dense clusters of slender spicules.
Lateral lobes slender, slightly bowed, cleft to about three-fourths their length, apices setose, concave on ventral face but little expanded mesally.

**Female**

Similar to male but apical margin of last abdominal sternum not emarginate.

**Host plants**

Unknown.

**Type series**

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Holotype, allotype, and numerous paratypes deposited in the U.S. National Museum of Natural History. Paratypes retained in the collection of the senior author and also deposited in the following collections: British Museum (Natural History), London; California Academy of Sciences, San Francisco; California Insect Survey, University of California, Berkeley; Canadian National Collection of Insects, Ottawa; Department of Entomology and Limnology, Cornell University, Ithaca, N.Y.; Field Museum of Natural History, Chicago; the Museum of Comparative Zoology, Harvard University, Cambridge, Mass.; and the Snow Entomological Museum, The University of Kansas, Lawrence.

**Discussion**

(*S. ensiculus* is in the Cruentatus species group; see also discussion of *morosus*.) This minute species has no known close relatives but has more structures in common with *morosus* than to any other species known to us. *S. ensiculus* resembles small, dark specimens of *morosus* but may be separated from that species by its sloping hind femoral spine. Differences in the male genitalia are many. The ventral valve of *ensiculus* has a more pointed apex and has sinuate rather than falcate hinge sclerites, the middle one-third of the internal sac is lined with fine very faintly sclerotized acute spicules, and the apical one-third has two dense clusters of slender spicules rather than the elongate cluster of thorn-like spines in the middle one-half and the densely placed short denticles in the apical one-fourth of the internal sac of *morosus*. Since the male genitalia of the two species do not have a trilobed
apex of the internal sac, they are placed in the Cruentatus species group.

Most of the specimens of *ensiculus* we have examined were collected from higher elevations of the mountains of Mexico. This fact strongly suggests a montane species of host plant.

**S. fallax (Boheman), New Combination**

(Figs. 63–67)

*B. fallax*: Boheman, 1839: 59 (Jamaica); Pic, 1918: 25.
*B. xanthopus*: Suffrian, 1870: 156 (Cuba); Pic, 1918: 57. NEW SYNONYM.
*B. probus*: Sharp, 1885: 481 (Guatemala, Zapote); Pic, 1918: 43. NEW SYNONYM.

*Acanthoscelides fallax*: Blackwelder, 1946: 759.
*A. probus*: Blackwelder, 1946: 760.

Length (pronotum-elytra) 1.3–2.5 mm. Width 0.8–1.7 mm. Maximum thoracic depth 0.8–1.4 mm.

**Male**

Integument color

Head black, labrum brown; antennae red orange, apical seven segments sometimes light brown; prothorax black, procoxa and all legs light brown to red orange, last tarsomere usually dark brown to black; elytron usually black with median red-orange stripe expanded toward apex, stripe of a brighter shade at base, sometimes elytron black with red-orange spot at base, or all black; remainder of thorax black except hind coxa sometimes brown to red orange; abdomen usually black except last sternum sometimes brown to red orange.

Vestiture (fig. 63)

Body with white, golden, brown, or intermixed recumbent hairs; eye with medial fringe of sparse white hairs; postocular lobe with short white hairs; small postocular patch of dense white to brown hairs; pronotum clothed with white hairs sometimes forming a stripe along midline and basal and lateral spots; white hairs covering lateral margins, remainder intermixed brown and golden; elytron sometimes with vague medial and subapical bands of white hairs, remainder intermixed brown and golden; usually a brown spot between striae 6 and 8 halfway between base and apex; sometimes interval between striae 2 and 3 covered with white hairs; undersurfaces clothed with dense white hairs becoming very dense on lateral margins; pygidium with basal spots
and medial stripe of dense white hairs; remainder intermixed white and golden.

Structure

**Head.**—Short and broad, densely punctulate; frons usually with median glabrous line extending from frontoclypeal suture to vertex; usually with vague transverse sulcus between upper limits of eyes; frons width about equal to width of eye; ocular sinus one-half to two-thirds as long as width of eye; distance from base of antennae to apex of labrum about two-fifths to one-half as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and sometimes 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna reaching to humerus or slightly beyond.

**Prothorax.**—Disk subcampanulate; punctate; short median impressed line on median basal lobe; very vague lateral carina sometimes extending from base to two-thirds the distance to coxal cavity; prosternum separating coxae for about nine-tenths their length.

**Mesothorax and Metathorax.**—Scutellum transverse with lateral posterior teeth, clothed with very dense white hairs giving quadrate appearance; elytron about twice as long as broad, dorsal surface in an even, gentle convex curve from humerus to medial margin; striae deep, punctate, strial intervals punctulate; striae 3 and 4 closer to one another at base than to adjacent striae, others subequally spaced at base; humerus glabrous, shiny, usually black, sometimes red orange; undersurfaces punctulate, lateral margins and hind coxa with coarser punctures; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 64); inner and outer ventral surfaces usually with faint longitudinal carinae; femur armed with a subapical acuminate spine about one-third as long as width of tibial base; tibia (fig. 64) with ventral, lateral, and dorsomesal glabrous longitudinal carinae, lateroventral carina faint or absent; tibial corona with three to four spinules, mucro one-sixth or less as long as first tarsomere; without sinus at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.
Genitalia.—(Figs. 65-67) Median lobe moderate in length; in ventral view, ventral valve pointed apically, lateral margins slightly concave, base almost as broad as apex of median lobe, arcuate in lateral view; hinge sclerites large, elongate, curved at apex; armature of internal sac consisting of two elongate series of fine spicules at apical orifice between hinge sclerites, a pair of dense lateral triangular clusters of spicules medially, and irregular series and clusters of fine spicules in apical one-half. Lateral lobes expanded apically, cleft to about three-fourths their length (fig. 66).

Female

Similar to male but apical margin of last abdominal sternum subemarginate.

Host plants

New records


*C. reticulata* Willd.: Guatemala, 1932 (J. G. Solail).

*C. tora* Linnaeus: Florida. Polk County: Bartow, 10 March 1930 (L. Bottimer).
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**Old records**

*Cassia*: Boheman, 1839: 59.

**Location of type**

*B. fallax*: Naturhistoriska Riksmuseet, Stockholm.
*B. xanthopus*: Havana, Cuba (museum unknown).
*B. probus*: British Museum (Natural History), London.

**Distribution**


**Discussion**

(*S. fallax* is in the *Fallax* species group; see also discussions of *auricomus* and *discolor.*) The types of *Bruchus fallax* and *probus* were examined and we feel both these names and *B. xanthopus* refer to the same species. We have not been able to examine Suffrian’s type and therefore we have relied upon his original description of *B. xanthopus* for its identification.

There are two general forms of *fallax*. One is found in the United States and the West Indies and the other from northern Mexico south to Guatemala. The former usually is larger, tends to have a red-orange stripe in the center of the elytron, and has more white hairs sometimes in the form of bands across the elytron, whereas the elytra of the latter usually are all black with a lateral spot of brown hairs. The male genitalia are identical as are the other characters of the two forms. Specimens of each are found in the range of the other.

The latter form is what Sharp originally named *B. probus*. We consider that both forms are conspecific and that the variation is due to different hosts and geographical separation. The United States form was probably only recently introduced from the West Indies or from Mexico. Bottimer (1961) discussed the nature and probable history of the naturalization of the host plants *Cassia occidentalis* and *obtusifolia* and consequently *fallax* in the United States.

The records of the host *Dombeya natalensis* for *xanthopus* must be verified before they can be considered valid.

*S. fallax* is most similar in external and internal structure to
S. fallax is similar in external structure to *discolor*, *atripectus*, *alticola*, and *chalcodeermus*, but the male genitalia and other structures separate it from the these four (see *discolor* discussion, p. 46).

*S. guttifer* (Sharp), New Combination
(Figs. 68-72)

*Bruchus guttifer* Sharp, 1885: 465 (Mexico, Jalapa, Vera Cruz; Guatemala, Duenas, Capetillo); Pic, 1913: 27.
*Acanthoscelides guttifer*: Blackwelder, 1946: 759.

Length (pronotum-elytra) 1.9–2.7 mm. Width 1.3–2.0 mm. Maximum thoracic depth 1.0–1.6 mm.

**Male**

Integument color

Head sometimes black with large red-orange postocular spot or all red orange, usually red orange with frons and clypeus black; antennae usually all red orange, sometimes basal four segments red orange, apical seven dark brown; prothorax usually red orange with lateral margins black, sometimes disk dark reddish brown, procoxa usually red orange, sometimes dark brown, sometimes disk with vague darker maculations; elytron uniform red orange, reddish brown, dark reddish brown, or occasionally dark brown; undersurface of thorax usually black, remainder of undersurfaces, legs, and pygidium usually red orange, sometimes undersurfaces all red orange, occasionally undersurfaces, legs, and apex of pygidium dark brown.

Vestiture

Body with white or golden recumbent hairs; eye with medial fringe of white hairs; postocular lobe with short white hairs; small postocular patch of dense white or golden hairs; pronotum with sparse to moderately dense white hairs, usually narrow dense stripe along midline; dense white patch opposite interval between striae 3 and 4 and more dense on lateral margins; elytron with sparse to moderately dense white or golden hairs; small dense patches of white hairs at base on intervals between striae 2 and 3, and 4 and 5; sometimes a patch also at base of humerus; small dense patches of white hairs between striae 2 and 8, 4 and 5, 6 and 7, 8 and 9, about midway between base and apex, medial patch
slightly more toward apex than others (fig. 68); undersurfaces and pygidium with moderately dense to dense white or golden hairs.

**Structure**

**Head.**—Slightly elongate, densely punctulate; frons with a median glabrous raised line extending from frontoclypeal suture to vertex; with vague transverse sulcus between upper limits of eyes; frons width slightly less than width of eye; ocular sinus about one-half as long as width of eye; distance from base of antennae to apex of labrum about two-fifths as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antennae short, reaching base of elytron.

**Prothorax.**—Disk subcampanulate; punctate medially, punctations becoming coarser laterally; vague lateral carina extending from base to about one-third to one-half the distance to coxal cavity; short median impressed line on median basal lobe; prosternum separating coxae for about nine-tenths their length.

**Mesothorax and Metathorax.**—Scutellum transverse with lateral posterior teeth, clothed with dense recumbent white or golden hairs giving quadrate appearance; elytron slightly more than twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, coarsely punctate, strial intervals punctulate; striae 2 and 3, and 4 and 5 closer to one another at base than to adjacent striae; a single small spine at the bases of striae 2, 3, 4, and sometimes 5; humerus punctulate, with sparse hairs, shiny red orange or dark reddish brown; ventral surfaces punctulate with coarser punctations laterally; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 69); inner ventral surface usually with a longitudinal carina, carina sometimes serrulate; femur armed with a subapical acuminate spine, length of spine about equal to or slightly less than width of tibia; base; posterior margin of spine with from one to three minute serrations; tibia with ventral, lateral, and dorsomesal glabrous longitudinal carinae, lateroventral carina faint or absent; tibial corona with about three spinules, mucro longer than spinules, one-tenth or less as long as first tarsomere; without sinus at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 un-
modified; 5 emarginate; pygidium punctate, convex in lateral view.

Genitalia.—(Figs. 70-72) Median lobe moderately elongated; in ventral view, ventral valve triangular, lateral margins slightly arcuate, base about three-fourths as wide as apex of median lobe, arcuate in lateral view; hinge sclerites large, falcate, with lateral margins explanate; armature of internal sac consisting of two elongate clusters of fine spicules above ventral valve, middle one-third of sac densely lined with slender spicules, apical one-third with scattered patches of slender spicules in diverticula and area of gonopore valve. Lateral lobes moderately long, slightly bowed, cleft nearly to their base, finely setose, and expanded mesally at apices.

Female

Similar to male but apical margin of last abdominal sternum not emarginate.

Host plants

New records


Old records

None.

Location of type

British Museum (Natural History), London.

Distribution


Discussion

(S. guttifera is in the Guttiifer species group; see also discussions of brevicalpis, inanis, and russeolus.) In addition to the common heavy thick body, the male genitalia of guttiifer, brevicalpis, inanis, and russeolus have large strongly curved hinge sclerites and a strongly trilobed apex of the internal sac. Many characters
may be used to separate these four species, but they are here placed together because they resemble one another more closely than they do the other species treated here.

*S. guttifer* and *russeolus* usually have red to reddish-brown bodies and always have small patches of dense white hairs forming what appear to be broken bands on the elytra. These two characters separate *guttifer* and *russeolus* from *inanis* and *breveapicalis*, which usually have bodies of a lighter color and lack the dense patches of hairs on the elytra.

*S. guttifer* differs from *russeolus* by having one broken band of small dense patches of hair on the elytra rather than two; striae 2 and 3 are closer at their bases than are striae 3 and 4; the prosternum separates the procoxae for nine-tenths their length rather than for their entire length; the posterior margin of the apical spine of the hind femur has from one to three minute serrations rather than being entire; the male genitalia have lateral lobes that are cleft to nearly their base and the middle one-third of the internal sac is densely lined with slender spicules, whereas *russeolus* has lateral lobes that are cleft for slightly less than one-half their length and the internal sac has densely placed, slender short acute denticles lining it for almost its entire length (figs. 70 and 123).

*S. guttifer*, *russeolus*, and *inanis* have been reared from the seeds of *Cassia bicapsularis* but never in large numbers. It appears that all three bruchid species have not been especially successful in the seeds of this host and have a marginal existence in its seeds. The short broad form of the body in these three species could be the result of convergence since all three attack seeds of the same host species.

**S. inanis** (Sharp), New Combination

*(Figs. 73-77)*

*Bruchus inanis* Sharp, 1885: 464 (Mexico, Toxpan [sic]; British Honduras, Belize); Pic, 1913: 28.


Length (pronotum-elytra) 2.3–2.9 mm. Width 1.6–2.1 mm. Maximum thoracic depth 1.4–1.8 mm.

**Male**

Integument color

Head red orange to dark reddish brown, without postocular spot, labrum usually red orange, clypeus, frons, and vertex usually darker than remainder of head; basal four or five and the 11th antennal segments red orange, remainder reddish brown; prothorax reddish brown to dark reddish brown; procoxa red
orange to reddish brown; base of elytron red orange with brown humerus, a thin faint light brown to dark brown band about one-third from base, apical two-fifths of elytron of the same color (fig. 73); medial one-half of undersurface of thorax and sometimes abdomen dark reddish brown, lateral margins, legs, and pygidium red orange.

Vestiture

Body with white, brown, or yellowish-white hairs; eye with medial fringe of white or yellowish-white hairs; postocular lobe with short white hairs; postocular patch of dense white or yellowish-white hairs; pronotum with intermixed dense white and yellowish-white hairs in no apparent pattern; elytron with dense white hairs, apex may have brown hairs over apical brown integumental band, sometimes medial band of dense white hairs across apical integumental band (fig. 73); undersurfaces with dense white or yellowish-white hairs, becoming very dense laterally; pygidium with dense white or yellowish-white hairs.

Structure

**Head.**—Short and broad, densely punctulate; frons with median glabrous line or carina extending from frontoclypeal suture to vertex; with vague transverse sulcus between upper limits of eyes; frons width slightly less than width of eye; ocular sinus about one-half as long as width of eye; distance from base of antenna to apex of labrum about two-fifths as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna barely reaching to base of elytron.

**Prothorax.**—Disk subcampanulate; punctate medially, becoming coarser laterally; short median impressed line on median basal lobe obscured by hairs; without lateral carina; prosternum separating coxae for about nine-tenths their length.

**Mesothorax and Metathorax.**—Scutellum small, transverse, with lateral posterior teeth, clothed with dense recumbent white hairs giving quadrate appearance; elytron slightly less than twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin, area between medial margin and stria 2 faintly depressed for length of elytron; striae deep, punctate, strial intervals punctulate; striae 3 and 4 closer to one another at base than to adjacent striae, others subequally
spaced; humerus punctulate, with sparse hairs, red orange to dark brown; undersurfaces punctulate, with scattered punctures laterally; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 74); inner ventral surface with a faint longitudinal carina, carina sometimes serrulate; femur armed with a subapical acuminate spine one-fourth to one-third as long as width of tibial base; tibia with ventral, dorso-mesal, and faint lateral carinae, lateroventral carina absent; tibial corona with about three spinules, mucro one-eighth or less as long as first tarsomere; slightly sinuate at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, slightly longer than remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

**Genitalia.**—(Figs. 75-77) Median lobe moderately long; in ventral view, ventral valve subtriangular, lateral margins arcuate, base about one-half as broad as apex of median lobe, arcuate in lateral view; hinge sclerites large, sharply arcuate apically; armature of internal sac consisting of two faint lines of fine denticles above ventral valve, apical two-thirds of sac densely lined with fine spicules and denticles extending into lateral diverticula. Lateral lobes rather slender, moderately bowed, cleft to about three-fourths their length, setose, and expanded mesally at apices.

**Female**

Similar to male except apical elytral band always dark brown; apical margin of last abdominal sternum not emarginate.

**Host plants**

New records

*Cassia bicapsularis* Linnaeus: Mexico. Tamaulipas: Tampico (E. A. Schwarz).

Old records

None.

**Location of type**

British Museum (Natural History), London.

**Distribution**

Discussion

(S. inanis is in the Guttifer species group; see also discussions of breveapicalis, guttifer, and russeolus.) Of the species treated in this bulletin, inanis is most similar to breveapicalis, guttifer, and russeolus. The relationships of inanis with russeolus and guttifer are explained under the discussion of guttifer.

S. inanis and breveapicalis are more similar to one another than to the other two species mentioned previously. S. inanis differs from breveapicalis by having an apical hind femoral spine that is one-fourth to one-third as long as the width of the tibial base instead of one to 1 1/4 times as long; and breveapicalis has a stronger mucro one-sixth as long as the first tarsomere rather than one-eighth as long as in inanis.

The male genitalia of breveapicalis differ from those of inanis in several ways, but the characters of the ventral valve and the lateral lobes are most easily seen. The apex of the ventral valve of the former is truncate and the lateral margins concave, whereas in the latter species it has a gently rounded apex and arcuate lateral margins (figs. 28 and 75).

S. inanis seems to be most similar to the South American species Sennius lateapicalis (Pic), NEW COMBINATION, and S. subdiversicolor (Pic), NEW COMBINATION. Differences in the male genitalia separate S. inanis from both.

S. incultellus, New Species

(Figs. 78–82)

Length (pronotum-elytra) 1.4–1.7 mm. Width 0.9–1.0 mm. Maximum thoracic depth 0.7–0.9 mm.

Male

Integument color

Head black, without postocular spot; labrum and antenna red orange; prothorax black, procoxa red orange; base of elytron dark brown or black, remainder of elytron brown or with vague median red-orange stripe; undersurfaces of thorax dark brown to black; legs and pygidium red orange, undersurfaces of abdomen red orange to brown.

Vestiture

Body with white, golden, or intermixed white and golden hairs; eye with medial fringe of white hairs; postocular lobe with short white hairs; small postocular patch of dense white hairs; prothorax with uniform moderately dense golden hairs, white on lateral
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Margins; elytron with sparse golden or white hairs except usually with a medial band of moderately dense golden hairs (fig. 78); undersurfaces and pygidium with uniform moderately dense white hairs.

**Structure**

**Head.**—Short and broad, densely punctulate; frons with faint median glabrous line extending from frontoclypeal suture to vertex; with vague transverse sulcus between upper limits of eyes; frons width slightly less than width of eye; ocular sinus about one-half as long as width of eye; distance from base of antennae to apex of labrum about two-fifths as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antennae reaching to humerus.

**Prothorax.**—Disk subcampanulate; punctate; sometimes with vague lateral carina extending two-thirds the distance from base to coxal cavity; short median impressed line on median basal lobe; prosternum separating coxae for about eight-tenths their length.

**Mesothorax and Metathorax.**—Scutellum transverse with lateral posterior teeth, clothed with very dense white hairs giving quadrate appearance; elytron about twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, punctate, strial intervals punctulate; striae 3 and 4 closer to one another at base than to adjacent striae, others subequally spaced; minute spine at base of stria 2, humerus punctulate, glabrous or with sparse hairs, shiny dark brown; undersurfaces punctulate with scattered punctations laterally; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 79); ventral surface without carinae; femur without subapical spine; tibia with faint lateral and dorso-mesal glabrous longitudinal carinae, ventral and lateroventral carinae absent; tibial corona with about three spinules, mucro about one-sixth or less as long as first tarsomere; without sinus at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, slightly longer than remaining sterna, posterior margin straight; sterna 2 to 5 much shorter medially than laterally, 5 strongly emarginate; pygidium punctulate, convex in lateral view.

**Genitalia.**—(Figs. 80-82) Median lobe elongate, slender, strongly expanded apically; in ventral view, ventral valve sharply
acute, lateral margins slightly arcuate, base about two-thirds as broad as apex of median lobe, slightly arcuate in lateral view; hinge sclerites moderately large, strongly angulate basally, acute apically; armature of internal sac consisting of a dense lining of very dark fine spicules extending for entire length of sac, middle of sac with two large spines nearly concealed in fine spicules. Lateral lobes abruptly expanded apically, spatulate, cleft to about two-thirds their length.

**Female**

Similar to male but elytron all red orange except for narrow brown basal margin or elytron reddish brown with large medial red-orange maculation beginning one-sixth from base and extending to about two-fifths from apex and extending from medial margin to stria 9; elytron with uniform sparse white or golden hairs; first abdominal sternum about as long as remaining sternae; sternae 2 to 4 unmodified; 5 not emarginate.

**Host plants**

Unknown.

**Type series**


Holotype, allotype, and paratypes deposited in the U.S. National Museum of Natural History and in the collection of the senior author.

**Discussion**

(*S. incultellus* is in the Incultellus species group.) *S. incultellus* is unique for a species in this genus because it lacks both a spine at the apex of the hind femur and the ventral and lateroventral carinae of the hind tibia. In addition, sternae 2 to 5 of males are very much shortened medially and the fifth is strongly emarginate. Other external characters are very near those of other species of *Sennius*. The male genitalia possess the hinge sclerites typical of the genus but are distinctly different from those of any other *Sennius* species although they do resemble those of *whitei* superficially. If *incultellus* is closely related to other species, it is probably related to South American forms.
S. infractus, New Species
(Figs. 83, 84)

Length (pronotum-elytra) 2.0 mm. Width 1.3 mm. Maximum thoracic depth 1.0 mm.

Female

Integument color

Head black, labrum red orange, without postocular spot; five basal antennal segments red orange, apical six reddish brown; prothorax black, procoxa reddish brown, remaining areas of legs red orange; elytron and undersurfaces of thorax black; undersurfaces of abdomen reddish brown, pygidium black.

Vestiture

Body with uniform dense white recumbent hairs; eye with medial fringe of white hairs; postocular lobe with short white hairs; small vague postocular patch of white hairs.

Structure

Head.—Short and broad, densely punctulate; frons with median glabrous line extending from frontoclypeal suture to vertex; with vague transverse sulcus between upper limits of eyes; frons slightly wider than width of eye; ocular sinus about three-fourths as long as width of eye; distance from base of antennae to apex of labrum about two-fifths as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna reaching to humerus.

Prothorax.—Disk campanulate; punctate; glabrous lateral carina extending one-half the distance from base to coxal cavity; short median impressed line on median basal lobe; prosternum separating coxae for about eight-tenths their length.

Mesothorax and Metathorax.—Scutellum transverse with lateral posterior teeth, clothed with dense recumbent white hairs giving quadrate appearance; elytron slightly more than twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, punctate, strial intervals punctulate; striae 3 and 4 closer to one another at base than to adjacent striae, others subequally spaced; humerus punctulate, with sparse hairs, shiny black; undersurfaces punctulate, scattered coarser punctures laterally; hind femur constricted basally
and apically, expanded medially to about width of coxa (fig. 83); inner ventral surface with a brown longitudinal carina; femur armed with a subapical acuminate spine about two times as long as width of tibial base, spine with three small serrations on posterior margin; tibia with ventral, lateral, and dorsomesal glabrous longitudinal carinae, lateroventral carina becoming obsolete about two-fifths from apex; tibial corona with four spinules, mucro one-fifth as long as first tarsomere probably (tarsus missing from right hind leg, left hind leg missing); without sinus at base of mucro.

Abdomen.—First sternum not flattened medially, not as long as remaining sterna, posterior margin straight; sterna 2 to 5 unmodified, 5 not emarginate; pygidium punctate, slightly convex in lateral view.

Genitalia.—Not dissected.

Male

None seen.

Host plants

Unknown.

Type series

Holotype ♀ : British Honduras, M−tee Dist., January−February 1906. MCZ 31966.

Holotype deposited in Museum of Comparative Zoology, Harvard University, Cambridge, Mass.

Discussion

(S. infectus is in the Infractus species group.) This unique species is named on the basis of a single female specimen. It is obviously placed in Sennius without examining a male to determine whether hinge sclerites are present in the genitalia. Externally the large hind femoral tooth with serrations on the posterior margin is unique for a Sennius. It resembles other species of Sennius in its other external structures, but it is not closely related to any other species of Sennius.

S. instabilis (Sharp), New Combination

(Figs. 85−89)

Bruchus instabilis Sharp, 1885: 416 (Mexico, Toxpam [sic], Teapa, Paso del Macho; Guatemala, near the city, Chiacam, San Gerónimo, Capetillo; Honduras); Pic, 1913: 25.
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*B. ricinus* Pic, 1929b: 36 (Costa-Rica). NEW SYNONYMY.

*B. territalbanus* Pic, 1930: 10 (Costa-Rica). NEW SYNONYMY.

*Acanthoscelides insulabilis*: Blackwelder, 1946: 759.

*A. ricinus*: Blackwelder, 1946: 761.

*A. territalbanus*: Blackwelder, 1946: 761.

Length (pronotum-elytra) 1.5–2.4 mm. Width 1.0–1.6 mm. Maximum thoracic depth 0.9–1.5 mm.

**Male**

**Integument color**

Head black, usually with faint red-orange postocular spot; labrum brown to black; antennae usually all red orange, sometimes apical six or seven segments varying to dark brown; prothorax, procoxa, undersurfaces, and pygidium black, rarely some or all red orange; elytron varying from all black to all red orange except for humerus and base dark brown to black; elytron usually black with a red-orange maculation about one-half as long as elytron, extending from stria 2 to 9, slightly nearer base than apex, humerus always black so that maculation extends toward base and lateral margin (fig. 85); usually all legs red orange, sometimes base of hind femur black.

**Vestiture**

Body with white, brown, and golden recumbent hairs; eye with medial fringe of white hairs; postocular lobe with short white hairs; small postocular patch of dense white to golden hairs; pronotum with sparse brown hairs along midline, flanked by sparse white or intermixed white and golden hairs, becoming moderately dense white laterally; elytron with intermixed white and golden hairs at base, often with small dense patches on intervals between striae 2 and 3, and 4 and 5, brown at apex, usually more golden hairs medially covering maculation; if with all black elytron, then band of white hairs across elytra, slightly nearer base than apex; undersurfaces with moderately dense to dense white to golden hairs; pygidium usually with three basal spots, one medial and two lateral, and a thin median stripe of dense white to golden hairs, remainder with moderately dense uniform white to golden hairs.

**Structure**

**Head.**—Short and broad, densely punctulate; frons with median glabrous line or carina extending from frontoclypeal suture to vertex, slightly expanded at vertex; with vague transverse sulcus between upper limits of eyes; frons width slightly less than width of eye; ocular sinus about one-half as long as width of eye; dis-
tance from base of antenna to apex of labrum about two-fifths as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna almost reaching humerus.

**Prothorax.**—Disk subcampanulate; punctate, becoming coarser laterally; median impressed line on median basal lobe; vague lateral carina extending from base one-half to two-thirds the distance to coxal cavity; prosternum separating coxae for about ninetenths their length.

**Mesothorax and Metathorax.**—Scutellum transverse with lateral posterior teeth, clothed with dense recumbent white hairs giving quadrate appearance; elytron about twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, punctate, strial intervals punctulate; striae 3 and 4 usually closer to one another at base than to adjacent striae, others subequally spaced; humerus punctulate, glabrous, or with sparse hairs, shiny dark brown to black; undersurfaces punctulate with scattered punctations laterally; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 86); inner ventral surface sometimes with a faint brown longitudinal carina, carina sometimes serrulate; femur armed with a subapical acuminate spine varying from one-third as long as width of tibial base to equal to width of tibial base; tibia with ventral, lateral, and dorsomesal glabrous longitudinal carinae, lateroventral carina faint or absent; tibial corona with about three spinules, mucro one-sixth or less as long as first tarsomere; sometimes slightly sinuate at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

**Genitalia.**—(Figs. 87–89) Median lobe moderately long; in ventral view, ventral valve subtriangular, lateral margins slightly arcuate, base nearly as broad as apex of median lobe, arcuate in lateral view; hinge sclerites rather large, strongly arcuate, explanate on lateral margins; armature of internal sac consisting of two short rows of fine spicules above ventral valve, basal one-half of sac densely lined with slender spicules, with two large irregular spinous clusters near apex of sac, lateral diverticula lined with fine slender spicules, apex of sac surrounding gonopore lined with small denticles and spicules. Lateral lobes rather short, bowed,
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Cleft for three-fourths their length, setose, and strongly expanded at apices.

**Female**

Similar to male but apical margin of last abdominal sternum not emarginate.

**Host plants**

New records

*Amomum* sp.: Grenada. ( Intercepted by U.S. Department of Agriculture, NY 15 April 1946, 46–5945.)


Old records

None.

**Location of type**

*B. instabilis*: British Museum (Natural History), London.


**Distribution**


**Discussion**

(*S. instabilis* is in the Abbreviatus species group; see also discussions of *abbreviatus* and *leucostauros.*) *S. instabilis* is an extremely variable species, no doubt because of its widespread distribution. Specimens from the West Indies, eastern and southern Mexico, Central America, and Colombia, South America, are similar as are specimens from central and western Mexico. The latter specimens usually are smaller. They have a smaller hind femoral spine, darker antennal apices, shorter mucro, more deeply impressed and more punctate elytral striae, and smaller red-orange elytral maculations. The variation is gradual over the range of
the species, but similar specimens can be found in all parts of the range.  

*S. instabilis* is the only species of *Sennius* we have found that has any significant variation in the size of the hind femoral spine. The male genitalia and other structures used in its classification do not vary significantly throughout the range of this species.  

*S. instabilis* is separated from *durangensis*, *trinotaticollis*, *abbreviatus*, *leucostauros*, *medialis*, and the South American species *Sennius bondari* (Pic), NEW COMBINATION, by comparing the size and shape of the hind femoral spines, the shape of the elytral maculations, and the coloration of the legs. An elytral maculation that extends anteriorly and laterally past the dark humerus is unique for the genus and separates it from *abbreviatus* and *medialis*. It is sympatric with all these species except *abbreviatus*. The male genitalia are very similar in all seven species.  

The few specimens of *instabilis* that are all black may be separated from the two all black species, *leucostauros* and *bondari*, by noting that the latter two species have white hairs on their elytra that form a cruciate pattern.  

Externally *instabilis* resembles *morosus*, but they may be separated by the larger hind femoral spine and the elytral maculation that forms the median stripe of *morosus* (fig. 110) and the very dissimilar male genitalia (figs. 87 and 112).  

Only one specimen of *instabilis* was reared from the seeds of *Cassia occidentalis*. This may indicate that the seeds of this plant are not those preferred most by this species. In any case, more rearing data are needed.  

### S. laminifer (Sharp), New Combination  
(Figs. 90–94)  

*Bruchus laminifer* Sharp, 1885: 466 (Guatemala, Mirandilla 1,700 feet); Pic, 1913: 30.  
*B. fríbrygoennis* Pic, 1931: 34 (Brésil); Zacher, 1952: 462. NEW SYNONMY.  
*Acanthoscelides laminifer*: Blackwelder, 1946: 759.  
*A. fríbrygoennis*: Blackwelder, 1946: 759; Araújo e Silva et al., 1968: 373.  

Length (pronotum-elytra) 3.0–3.3 mm. Width 2.2–2.3 mm. Maximum thoracic depth 1.8–2.0 mm.  

### Male  

**Integument color**  

Head black, without red-orange postocular spot; prothorax, procoxae, elytra, undersurfaces, and pygidium black; antennae and legs red orange.
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**Vestiture**

Body with white or faint yellow recumbent hairs; eye with medial fringe of white hairs; postocular lobe with short white hairs; postocular patch of dense white hairs; pronotum, elytra, and pygidium with moderately dense white or faint yellow hairs; undersurfaces with very dense white or faint yellow hairs, more dense laterally.

**Structure**

*Head.*—Short and broad, densely punctate; frons with a median glabrous raised line extending from frontoclypeal suture and terminating in a small flattened punctulate area on vertex; with vague transverse sulcus between upper limits of eyes; frons width slightly less than width of eye; ocular sinus about two-thirds as long as width of eye; distance from bases of antennae to apex of labrum about one-half as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 about the same length as 3; 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna short, almost reaching base of elytron.

*Prothorax.*—Disk subcampanulate; punctate medially, punctations becoming coarser laterally; faint lateral carina extending from base to about one-half the distance to coxal cavity; short median impressed line on median basal lobe; prosternum separating coxae for about nine-tenths their length.

*Meso- and Metathorax.*—Scutellum transverse with lateral posterior teeth, clothed with dense recumbent white hairs giving quadrate appearance; elytron about twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, punctate, strial intervals punctulate; striae 3 and 4 closer to one another at base than to adjacent striae, others subequally spaced (fig. 90); humerus punctate, with sparse hairs, shiny black; ventral surfaces punctate, coarser punctations laterally; hind femur constricted apically and basally, expanded medially to about width of coxa (fig. 91); inner ventral surface with a faint glabrous longitudinal carina; femur armed with a subapical acuminate spine one to 1¼ times as long as width of tibial base; tibia with ventral, lateral, and dorso-mesal glabrous longitudinal carinae, lateroventral carina faint at base, obsolete at apex; tibial corona with about three spinules, mucro one-tenth or less as long as first tarsomere; slightly sinuate at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.
Abdomen.—First sternum not flattened medially, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

Genitalia.—(Figs. 92-94) Median lobe moderately long, rather broad; in ventral view, ventral valve triangular, apex with short prominent nipple, base nearly as broad as apex of median lobe, ventral apical margin with two rounded protuberances, valve arcuate in lateral view; hinge sclerites large, strongly arcuate, explanate on lateral margins; armature of internal sac consisting of two rows of fine spicules above ventral valve, scattered porelike spots in middle of sac, two large lateral diverticula lined with short acute denticles, elongate lamellate structure in middle near gonopore. Lateral lobes short, bowed, cleft to about two-thirds their length, setose, and expanded mesally at apices.

Female

Similar to male but apical margin of last abdominal sternum straight, not emarginate.

Host plants

*Cassia* sp.: Zacher, 1952: 462 (*S. friburgoensis*); Araújo e Silva et al., 1968: 373 (*S. friburgoensis*).

Location of type

*B. laminifer*: British Museum (Natural History), London.

Distribution

Guatemala. Brazil: Bahia.

Discussion

(*S. laminifer* is in the Militaris species group; see also discussion of *militaris*. *S. laminifer* is more similar to *militaris* than to other species treated in this bulletin. The relationships between the two species and to other species are related in the discussion of *militaris*.

Types for both *B. laminifer* and *B. friburgoensis* were examined and we consider both names refer to the same species despite the widely separated localities.
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*S. leucostauros*, New Species
(Figs. 95-99)

Length (pronotum-elytra) 1.8–2.3 mm. Width 1.1–1.7 mm. Maximum thoracic depth 0.8–1.3 mm.

**Male**

Integument color

Head black with small red-orange postocular spot, labrum usually brown; usually four basal antennal segments red orange, apical seven light brown to dark brown; prothorax, procoxa, elytron, undersurfaces, and pygidium black; all legs red orange except lateral surface of hind femur with a small black patch at base, varying to almost all of lateral surface black.

Vestiture

Body with white, brown, and golden recumbent hairs; eye with medial fringe of sparse golden or white hairs; postocular lobe with short white hairs; small postocular patch of dense white hairs; pronotum with faint median line of white hairs flanked by broad stripes of sparse brown hairs, basal white patches opposite bases of striae 4, and a white patch on either side of midline, about one-half from base and apex and midline and lateral margin (fig. 95); remainder with sparse intermixed brown and golden hairs, becoming more white and dense laterally; elytron with white hairs forming small dense patches at bases of strial intervals between striae 2 and 3, 4 and 5, 5 and 6; a medial band and a stripe of dense white hairs on medial margin; remainder of elytron with sparse intermixed golden and brown hairs; bands and stripes of elytra forming a white cross on dorsum (fig. 95); sometimes white hairs with faint yellow tint; undersurfaces with moderately dense white hairs, becoming denser laterally; pygidium with three dense white patches of hairs at base, one on each lateral margin and one medial, the medial patch confluent with thin median stripe of white hairs extending to and expanded at apex; remainder of pygidium with sparse intermixed brown and golden hairs.

Structure

**Head.**—Short and broad, densely punctulate; frons with median glabrous line or carina extending from frontoclypeal suture to vertex; with vague transverse sulcus between upper limits of eyes; frons width about the same as width of eye; ocular sinus about two-thirds as long as width of eye; distance from base of antennae to apex of labrum about two-fifths as long as distance
from upper limits of eyes to apex of labrum; antennal segments 1, 3, and 4 filiform, 2 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna reaching to humerus or slightly beyond.

**Prothorax.**—Disk subcampanulate; punctate medially, becoming coarser laterally; median impressed line on median basal lobe; vague lateral carina extending from base to two-thirds the distance to coxal cavity; prosternum separating coxae for about nine-tenths their length.

**Mesothorax and Metathorax.**—Scutellum transverse with lateral posterior teeth, clothed with dense recumbent white hairs giving quadrate appearance; elytron slightly more than twice as long as broad, dorsal surface in an even convex curve between humerus and medial margin; striae 3 and 4 usually closer to one another at base than to adjacent striae, others subequally spaced; striae 3 and 4 abbreviated at base (fig. 95); humerus punctulate with scattered hairs, black; undersurfaces punctulate medially, becoming punctate laterally; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 96); inner ventral surface with faint longitudinal carina, sometimes serrulate; femur armed with a subapical acuminate spine slightly longer than width of tibial base; tibia with ventral, lateral, and dorsomesal glabrous longitudinal carinae, without lateroventral carina; tibial corona with three spines, mucro one-eighth or less as long as first tarsomere; usually without sinus at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, slightly shorter than remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

**Genitalia.**—(Figs. 97–99) Median lobe moderately long; in ventral view, ventral valve broadly triangular, lateral margins nearly straight, base nearly as broad as apex of median lobe, arculate in lateral view; hinge sclerites large, falcate; armature of internal sac consisting of densely placed slender spicules lining wall of sac in basal one-half, rows of slender spicules lining lateral diverticula, fine spicules in region around gonopore valve. Lateral lobes slender, slightly bowed, cleft to about three-fourths their length, apices setose, expanded slightly mesally.
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**Female**

Similar to male but apical margin of last abdominal sternum not emarginate.

**Host plants**


**Type series**


Holotype, allotype, and numerous paratypes deposited in the U.S. National Museum of Natural History. Paratypes retained in the collection of the senior author and also deposited in the following collections: California Academy of Sciences, San Francisco; Canadian National Collection of Insects, Ottawa; Field Museum of Natural History, Chicago; and the Museum of Comparative Zoology, Harvard University, Cambridge, Mass.

**Discussion**

(*S. leucostauros* is in the *Abbreviatus* species group; see also discussions of *abbreviatus*, *celatus*, *tripinotaticollis*, and *instabilis*.)

*S. leucostauros* is related to *abbreviatus*, *instabilis*, *mediatus*, *tripinotaticollis*, and the South American species *bondari*. Differences and similarities are discussed under *abbreviatus*.

*S. leucostauros* has some black on the lateral margin of the hind femur and a femoral spine that is slightly longer than the width of the tibial base, whereas *bondari* has all red-orange hind femora and a hind femoral spine that is about two-thirds as long as the width of the tibial base. There are slight differences in the male genitalia as well.
Although this species was collected at only four localities, it is distinctly different from all other specimens examined.

**S. medialis** (Sharp), New Combination

*Bruchus medialis* Sharp, 1885: 470 (Mexico: Guanajuato); Pic, 1913: 24.
*B. auctus* Fall, 1910: 166 (Santa Rita Mountains, Ariz.). NEW SYNONYMY.
*Mylabris auctus*; Leng, 1920: 205.
*Acanthoscelides medialis*; Blackwelder, 1946: 760.

Length (pronotum-elytra) 1.6–2.3 mm. Width 1.2–1.6 mm. Maximum thoracic depth 1.0–1.4 mm.

**Male**

**Integument color**

Head black, sometimes with red postocular spot, labrum red orange to brown; antennal segments all red orange or basal five and the 11th red orange, others light brown to brown, sometimes 11th also brown; prothorax, undersurfaces except legs, and pygidium black; base and apex of elytron dark brown to black, red-orange maculation usually extending from lateral margin to stria 1 (fig. 100), sometimes extending across entire elytron or maculation smaller, extending only to stria 2, with lobelike extension of maculation toward base between humerus and midline; procoxa and remainder of legs red orange except last tarsomere and base of hind femur dark brown to black.

**Vestiture**

Body with white, golden, brown, or intermixed recumbent hairs; eye with medial fringe of sparse white hairs; postocular lobe with short white hairs; small postocular patch of dense white hairs; pronotum with a broad median stripe of intermixed brown and golden hairs, intergrading to white laterally, often with line of white hairs on median basal lobe; elytron with uniform white or intermixed white and golden hairs except a dense patch of white hairs extending from base to or almost to periphery of maculation on interval between striae 4 and 5; sometimes a similar patch between striae 2 and 3; undersurfaces and pygidium with uniform dense white hairs.

**Structure**

*Head.*—Short and broad, densely punctulate; frons usually with median glabrous line extending from frontoclypeal suture to vertex; usually with vague transverse sulcus between upper limits
of eyes; frons width about equal to width of eye; ocular sinus two-thirds to three-fourths as long as width of eye; distance from base of antennae to apex of labrum about one-third to one-half as long as distance from upper limits of eyes to apex of labrum; antennal segments variable in shape but usually 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna usually reaching nearly to humerus.

**Prothorax.**—Disk subcampanulate (fig. 100); punctate medi­ally, becoming coarser laterally; sometimes lateral carina ex­tending about one-half way to coxal cavity; short median im­pressed line on median basal lobe; prosternum separating coxae for about nine-tenths their length.

**Mesothorax and Metathorax.**—Scutellum transverse with lat­eral posterior teeth, clothed with very dense recumbent white hairs usually giving quadrate appearance; elytron about twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, punctate, puncta­tions more coarse at base, strial intervals punctulate; striae 3 and 4 usually closer to one another at base than to adjacent striae, others subequally spaced; humerus punctulate, shiny black, usu­ally glabrous; undersurfaces punctate, becoming more coarse laterally; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 101); usually faint longi­tudinal carinae on inner and outer ventral surfaces, sometimes scattered spinules on inner carina; femur armed with a subapical acuminate spine about two-thirds as long as width of tibial base; tibia (fig. 101) with ventral, lateral, and dorsomesal glabrous longitudinal carinae, lateroventral carina faint; tibial corona with 3 or 4 spinules, micro one-tenth or less as long as first tarsomere; without sinus at base of micro; first tarsomere with ventral and lateral glabrous longitudinal carinae, mesal carina faint.

**Abdomen.**—First sternum not flattened medially, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

**Genitalia.**—(Figs. 102-104) Median lobe moderate in length; in ventral view, ventral valve pointed apically, lateral margins convex, base almost as broad as apex of median lobe, arcuate in lateral view; hinge sclerites large, evenly, gently curved; armature of internal sac consisting of two elongate series of fine spicules at apical orifice, a sparse cluster of fine spicules in middle,
and four short longitudinal series of spicules apically. Lateral lobes expanded apically, cleft to about three-fourths their length (fig. 103).

Female

Similar to male but apical margin of last abdominal sternum not emarginate.

Host plants

New records


Old records

None.

Location of type

*B. medialis*: British Museum (Natural History), London.

The specimen deposited in the Museum of Comparative Zoology, Cambridge, Mass., and bearing the following labels is here designated lectotype for *B. auctus_ Fall: “Santa Rita Mts., Ariz. 5 to 8000 ft., July, F. H. Snow,” “Lectotype Brachus auctus Fall, C. D. Johnson 1969,” and “M.C.Z. Type 25046.”

Distribution

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**Discussion**

(*S. medialis* is in the Abbreviatus species group; see also discussions of *abbreviatius* and *instabilis*.) After examining the types of both *B. medialis* and *B. auctus* and studying many specimens from Central America, Mexico, and Arizona, we have concluded that both names apply to the same species.

*S. medialis* is similar to *abbreviatius* but differs in that *medialis* is smaller and has much less strongly sclerotized male genitalia, legs and antennae of a lighter color, a patch of white hairs between the bases of striae 4 and 5, and an anterior extension of the red elytral maculation.

The male genitalia of *durangensis* and *medialis* are similar in that both are weakly sclerotized versions of those of *abbreviatius*. Both of the former species are small but differ externally. Compared with *durangensis*, *medialis* has a red-orange rather than a black lateral margin of the hind femur, shorter and broader maculations on the elytra (figs. 53 and 100), and usually a thicker body.

**S. militaris** (Sharp), New Combination

(Figs. 105-109)

*Buchus militaris* Sharp, 1885: 468 (Mexico, Cerro de Plumas; British Honduras, R. Sarstoon); Pic, 1913: 35. *Acanthoscelides militaris*: Blackwelder, 1946: 760.

Length (pronotum-elytra) 2.9-4.0 mm. Width 2.0-3.0 mm. Maximum thoracic depth 1.5-2.0 mm.

**Male**

**Integument color**

Head black, labrum brown to black, occasionally with red postocular spot; four basal antennal segments red orange, remainder brown to black, sometimes all red orange internally, brown externally; prothorax black, procoxa usually black, sometimes red orange to brown; elytron black with red maculation extending apically from base to about one-half the length of the elytron, medially to stria 2 or 3, and laterally to margin (fig. 105); sometimes maculation small, directly behind humerus, extending from stria 4 to 10; usually undersurfaces, all legs, and pygidium black, sometimes legs all red orange.

**Vestiture**

Body with white, golden, or brown recumbent hairs; eye with medial fringe of sparse white hairs; postocular lobe with short
white hairs; small postocular patch of dense white hairs; pronotum clothed with sparse brown, golden, or white hairs medially, becoming dense white laterally; elytron with very sparse white, brown, or golden hairs, usually denser on elytra near scutellum; undersurfaces with very dense white hairs, more dense laterally; pygidium with uniform dense white hairs or with two spots of darker hairs on either side of midline about one-half from base to apex (fig. 105).

Structure

Head.—Short and broad, densely punctate; frons with a median glabrous raised line extending from pronotoclypeal suture and terminating in a small densely punctulate area on vertex; a transverse sulcus between upper limits of the slightly flattened eyes; frons width slightly wider than width of eye; ocular sinus about one-half as long as width of eye; distance from base of antennae to apex of labrum about one-third to one-half as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna short, almost reaching base of elytron.

Prothorax.—Disk subcampanulate; punctate medially, punctations becoming coarser laterally; lateral carina extending from base to about one-third to one-half the distance to coxal cavity; short median impressed line on median basal lobe; prosternum separating coxae for about nine-tenths their length.

Mesothorax and Metathorax.—Scutellum transverse with lateral posterior teeth, clothed with dense recumbent white hairs; elytron about twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, coarsely punctate, strial intervals punctulate; striae 2 and 3 closer to one another at base than to adjacent striae, others subequally spaced; striae 2 and 3 abbreviated at base by a flattened bifurcate spine (fig. 105); humerus punctulate, glabrous, shiny red or black; ventral surfaces punctate, coarser punctations laterally; hind femur constricted apically and basally, expanded medially to about width of coxa (fig. 106); inner ventral surface usually with a faint longitudinal carina, carina often serrulate; femur armed with a subapical acuminate spine about one to 11/4 times as long as width of tibial base; tibia with ventral, lateral, and dorsomesal glabrous longitudinal carinae; tibial corona with three to four spinules, mucro one-tenth or less as long as first tarsomere; slightly sinuate at base of mucro:
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first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

**Genitalia.**—(Figs. 107–109) Median lobe moderately long, rather broad; in ventral view, ventral valve triangular, lateral margins nearly straight, base nearly as wide as apex of median lobe, arcuate in lateral view; hinge sclerites moderately large, falcate; armature of internal sac consisting of dense mass of slender spicules lining sac in basal one-fourth, apical three-fourths densely lined with mixed slender spicules and small acute denticles. Lateral lobes moderately slender, cleft to about three-fourths their length, slightly bowed, scarcely expanded mesally.

**Female**

Similar to male but antenna slightly longer, extending to base of prothorax; apical margin of last abdominal sternum not emarginate; spots of pygidium displaced toward apex, touching pygidial margin, with shallow sulcus at apex of spot.

**Host plants**

**New records**


**Old records**

None.

**Location of type**

British Museum (Natural History), London.

**Distribution**


**Discussion**

(*S. militaris* is in the Militaris species group; see also discussion of *laminifer.*) Because *militaris* and *whitei* both have red maculations on or near the humeri they might, upon first examination, be confused. When the characters given in the key and the male genitalia of the two species are examined, it is easily seen that the two species are only remotely related.
S. militaris is not likely to be confused with laminifer because laminifer has all black elytra and lacks a flattened bifurcate spine at the base of striae 2 and 3. In addition, militaris male genitalia have more slender lateral lobes and the internal sac has a dense mass of slender spicules in its basal one-fourth, which are not present in the internal sac of laminifer. Such characters as large size, a somewhat flattened body, the raised median line on the frons extending from the frontoclypeal suture and terminating in a small flattened punctulate area on the vertex, and the large hind femoral spine are common and ally these two more closely to one another than to other species treated here.

Considerable variation in color and structure is exhibited between the six specimens of militaris that we examined. Further study of more specimens is necessary before this species can be well delimited.

"Huizache," a common name applied to Acacia farnesiana (Linnaeus), is the only record of a host for militaris that was available to us. This record must be verified because all reliable host records at our disposal indicate that all species of Sennius attack only seeds of species in the genus Cassia. We have collected many lots of seeds of A. farnesiana but we have yet to rear any militaris from any of them.

S. morosus (Sharp), New Combination
(Figs. 110–114)

Bruchus morosus Sharp, 1885: 467 (Mexico: Jalapa; Guatemala: Sabo and Purula in Vera Paz).
Bruchus discolor: Fall and Cockerell, 1907: 200 (not Horn, 1873: 326).

Length (pronotum-elytra) 1.3–2.6 mm. Width 0.9–1.7 mm. Maximum thoracic depth 0.8–1.6 mm.

Male

Integument color

Head black, occasionally with faint red postocular spot, labrum brown; antennal segments varying from all red orange to all black, usually basal segments of a lighter color, apical segments darker, sometimes apical segments of a lighter shade than others; prothorax black, procoxa usually black, sometimes red orange; legs usually all red orange except base of hind femur black, occasionally remaining areas of legs of a darker shade; elytron varies from all black to all red orange with dark brown base, usually black with a median red-orange stripe of variable width (fig. 110); remainder of body black.
Vestiture

Body with white and golden intermixed hairs or yellowish hairs on dorsum, white on venter, sometimes yellow; those with black elytra usually with more golden hairs; eye with medial fringe of sparse white hairs; postocular lobe with short white hairs; small postocular patch of dense white hairs: pronotum usually with a stripe of darker hairs along midline, white or intermixed white and golden hairs laterally; elytron varies from sparse white hairs for those with mostly red-orange elytra to intermixed white and golden hairs with a band of white hairs about two-fifths from base for those with darker elytra; undersurfaces and pygidium with dense white or yellow hairs becoming very dense on lateral margins; pygidium sometimes with a line of denser hairs on midline.

Structure

Head.—Short and broad, densely punctulate; frons usually with median glabrous line extending from frontoclypeal suture to vertex, expanded toward vertex; usually with vague transverse sulcus between upper limits of eyes; frons width about equal to width of eye; ocular sinus about two-thirds as long as width of eye; distance from base of antennae to apex of labrum about two-fifths to one-half as long as distance from upper limits of eyes to apex of labrum; usually antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically: 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna reaching to humerus or slightly beyond.

Prothorax.—Disk subcampanulate (fig. 110); punctate medially, punctations becoming coarser laterally; short median impressed line on median basal lobe; vague lateral carina extending from base to two-thirds the distance to coxal cavity; prosternum separating coxae for about three-fourths their length.

Mesothorax and Metathorax.—Scutellum transverse with lateral posterior teeth, clothed with very dense recumbent white hairs giving quadrate appearance; elytron about twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, punctate, coarsely punctate at base, strial intervals punctulate; striae 3 and 4 usually closer to one another at base than to adjacent striae, others subequally spaced; humerus punctulate, glabrous, shiny black; undersurfaces punctulate with coarse punctures laterally; hind femur constricted apically and basally, expanded medially to about width of coxa (fig. 111); inner and outer ventral surfaces usually with faint longitudinal
carinae; femur armed with a subapical acuminate spine about as long as width of tibial base; posterior margin of spine usually smooth but sometimes crenate to serrate; tibia with ventral, lateral, and dorsomesal glabrous longitudinal carinae, lateroventral carina faint; tibial corona with about four spinules, mucro one-sixth or less as long as first tarsomere; without sinus at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

**Genitalia.**—(Figs. 112–114) Median lobe moderate in length; in ventral view, ventral valve pointed apically, lateral margins straight or slightly concave, base as broad as apex of median lobe, arcuate in lateral view; hinge sclerites rather slender, falcate; armature of internal sac consisting of a faint spinulate membranous plate basally, a short dense cluster of slender spicules followed by an elongate cluster of thornlike spines in middle one-half, densely placed short denticles in apical one-fourth. Lateral lobes expanded apically, cleft for nearly their entire length (fig. 113).

**Female**

Similar to male but apical margin of last abdominal sternum subemarginate.

**Host plants**

New records


*C. voemeri

"Cayon" seed Leguminosae: Guatemala, 24 July 1941, San Francisco 17783.

Old records
None.

**Location of type**
British Museum (Natural History), London.

**Distribution**

**Discussion**
*(S. morosus is in the Cruentatus species group; see also discussion of ensiculus.)* Specimens of this species collected in the United States have been identified by specialists as *discolor* for many years. Johnson (1969) published information concerning the location of the holotype of *discolor* and we have found *morosus* to be similar in appearance to but quite distinct from *discolor* (see *discolor* discussion).

*S. morosus* is easily separated from *discolor* by its larger hind femoral spine and differences in the male genitalia. *S. morosus* has been confused with other species because of the great variation in elytral color patterns varying from all black to almost all red orange. Most specimens from the United States and northern Mexico have
mostly red-orange elytra, whereas those from farther south tend to have more black on the elytra. However, specimens that are mostly black do occur in the northern part of the range and those with red-orange elytral maculations are found in the southern part of the range. The male genitalia and external structures other than elytral coloration were almost identical in all specimens examined. Further study will probably reveal that this species consists of several subspecies.

Of the species included in this bulletin, *morosus* has more similarities with *ensiculus* than with any other but does differ significantly from it, primarily in the structures of the male genitalia. Both of these species are placed in the *cruentatus* species group primarily because of the size of the hind femoral spine and because the internal sac of the male genitalia is not strongly trilobed at its apex. For differences between *morosus* and *ensiculus*, see the discussion of *ensiculus*.

### S. obesulus (Sharp), New Combination

*(Figs. 115–120)*

*Bruchus obesulus* Sharp, 1885: 468 (Guatemala, near the city Capetillo); Pic, 1913: 37.

*Acanthoscelides obesulus* Blackwelder, 1946: 760.

Length (pronotum–elytra) 1.9–2.3 mm. Width 1.5–1.7 mm. Maximum thoracic depth 1.1–1.2 mm.

**Male**

**Integument color**

Head black, with faint red postocular spot, labrum usually black, sometimes red orange; sometimes four, usually five, basal antennal segments red orange, apical segments brown to black; prothorax, procoxa, undersurfaces, pygidium, and metathoracic legs black, sometimes tibia and tarsus of metathoracic legs brown; elytron black with red-orange semicircular maculation (fig. 115); maculation when attaining lateral margin, attaining it narrowly, narrower than maximum length of maculation; maculation not attaining humerus, constricted at base and apex, expanded medially in an even gentle curve; if elytron only with red-orange apical spot, then spot longer than broad, encompassing only striae 4–9 (fig. 116); remainder of proleg red orange; base of mesofemur brown, remainder of leg red orange.

**Vestiture**

Body with white recumbent hairs; eye with medial fringe of white hairs; postocular lobe with short white hairs; small postoc-
ular patch of dense white hairs; pronotum clothed with uniform dense white hairs; elytron with uniform moderately dense white or golden hairs; undersurfaces and pygidium with uniform dense white hairs, becoming denser laterally.

Structure

**Head.**—Short and broad, densely punctulate; frons with median glabrous line or carina extending from frontoclypeal suture to vertex; without vague transverse sulcus between upper limits of eyes; frons width about the same as width of eye; ocular sinus one-half to two-thirds as long as width of eye; distance from base of antennae to apex of labrum about one-third as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna reaching to humerus or slightly beyond.

**Prothorax.**—Disk subcampanulate; punctulate with scattered punctures; short obscure median impressed line on median basal lobe; lateral carina extending from base to two-thirds to three-fourths the distance to coxal cavity; prosternum separating coxae for about nine-tenths their length.

**Mesothorax and Metathorax.**—Scutellum transverse with lateral posterior teeth, clothed with dense recumbent white hairs; elytron about twice as long as broad, dorsal surface almost completely flattened between humerus and medial margin; striae punctate, strial intervals punctulate; striae 3 and 4 usually closer to one another at base than to adjacent striae, others subequally spaced, sometimes all subequal; humerus punctulate, with many fine hairs, black; undersurfaces punctulate medially, becoming punctate laterally; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 117); inner and outer ventral surfaces with longitudinal carinae, outer usually faint, inner sometimes with scattered spinules; femur armed with a subapical acuminate spine about as long as width of tibial base; tibia with ventral, lateroventral, lateral, and dorsomesal glabrous longitudinal carinae; tibial corona with about four spinules, mucro one-eighth or less as long as first tarsomere; without sinus at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, slightly shorter than remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.
Genitalia.—(Figs. 118–120) Median lobe slender; in ventral view, ventral valve ogival, lateral margins sinuate, apex acutely produced, base nearly as wide as apex of median lobe, arcuate in lateral view; hinge sclerites moderately long, slightly curved; armature of internal sac consisting of two slender lines of fine denticles above ventral valve, apical three-fourths densely lined with mixed, fine, blunt, and acute denticles. Lateral lobes moderately long, cleft to about two-thirds their length, slightly bowed, expanded mesally.

Female
Similar to male but apical margin of last abdominal sternum not emarginate.

Host plants
Unknown.

Location of type
British Museum (Natural History), London.

Distribution

Discussion
(S. obesulus is in the Cruentatus species group; see also discussions of cruentatus and simulans.) S. obesulus is a close relative of cruentatus and simulans. S. cruentatus has a distribution from the Eastern United States through Texas to northern Veracruz, Mexico. It ranges from southern Arizona to the State of Morelos, Mexico. These three species are separated by the characters given in the key and in the discussion of cruentatus.

Only five specimens of obesulus were available for study. Two were types from Guatemala City and Capetillo, Guatemala; two were from La Union, El Salvador, and one from Hiquito, San Mateo, Costa Rica. One specimen from Tecolutla, Veracruz, Mexico, resembles this species but has more affinities with cruentatus and is considered as belonging to that species. The next nearest collection of cruentatus was in Aransas County, Tex. More specimens of obesulus and ecological data are needed to determine the affinities of these three species. Data are especially needed from the east coasts of Mexico and Central America.
Revision of the Genus *Sennius*

*S. russeolus*, New Species

(Figs. 121–125)

Length (pronotum-elytra) 2.3–2.5 mm. Width 1.7–2.0 mm. Maximum thoracic depth 1.3–1.5 mm.

**Male**

*Integument color*

Head red orange; frons and clypeus dark brown to black; antennae red orange; pronotum usually red orange with vague dark reddish-brown maculation on disk, sometimes all dark reddish brown; procoxa red orange; elytron uniform reddish brown to dark reddish brown except for small vague red-orange patch at bases of striae 3 to 7; prothoracic and mesothoracic legs red orange, metathoracic legs red orange with some darker shade, usually a dark brown patch on lateral surface of hind femur; apical areas of leg usually dark brown; thorax usually dark brown medially with lateral margins red orange, sometimes all dark brown; abdomen usually red orange, sometimes basal and ventral surfaces dark brown; pygidium usually red orange, sometimes apex dark brown.

*Vestiture*

Body with white and golden hairs; eye with medial fringe of white or golden hairs; postocular lobe with short white hairs; small postocular patch of dense white or golden hairs; pronotum with intermixed white and golden hairs, disk with vague patches near midline and base in no consistent pattern; elytron with uniform sparse golden hairs and small dense patches of white hairs basally on intervals between striae 2 and 3, and 4 and 5, and base of humerus, and small patches of dense white hairs forming two broken bands, one about two-fifths from base and one about one-third from apex on intervals between striae 2 and 3, 4 and 5, 6 and 7, and 8 and 9; patches on interval between striae 2 and 3 slightly posterior to others (fig. 121); undersurfaces with dense white or golden hairs, becoming very dense laterally; pygidium with dense white or golden hairs, sometimes very dense at base.

*Structure*

**Head.**—Short and broad, densely punctulate; frons with median glabrous raised line extending from frontoclypeal suture to vertex; with vague transverse sulcus between upper limits of eyes; frons width slightly less than width of eye; ocular sinus about two-thirds as long as width of eye; distance from base of antennae to apex of...
labrum about two-fifths as long as distance from upper limits of 
eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 
moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 
subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly 
broaden than long; antenna reaching or almost reaching humerus.

Prothorax.—Disk campanulate; punctate medially, punctations 
becoming coarser laterally; without lateral carina; very vague short 
median impressed line on median basal lobe; prosternum separating 
coxae for their entire length.

Mesothorax and Metathorax.—Scutellum transverse with lateral 
posterior teeth, clothed with very dense recumbent white hairs 
giving quadrangular appearance; elytron slightly less than twice as long 
as broad, dorsal surface almost completely flattened between hu­
merus and medial margin; striae deep, coarsely punctate, strial in­
tervals punctulate; striae 3 and 4, and 5 and 6 closer to one another 
at base than to adjacent striae; humerus punctulate, with sparse 
hairs, shiny brown to black; undersurfaces punctulate, with coarse 
punctures laterally; hind femur constricted basally and apically, 
expanded medially to about width of coxa (fig. 122); inner ventral 
margin with a brown longitudinal carina, carina sometimes serru­
late; sometimes faint longitudinal carina on outer ventral surface; 
femur armed with a subapical acuminate spine about as long as 
width of tibial base; tibia with ventral, lateral, and dorsi­mesal 
glabrous longitudinal carinae, lateroventral carina absent; tibial 
corona with about three spinules, mucro one-twelfth or less as long 
as first tarsomere, not longer than coronal spinules; without sinus 
at base of mucro; first tarsomere with ventral, lateral, and mesal 
glabrous longitudinal carinae.

Abdomen.—First sternum not flattened medially, about as long 
as remaining sterna, posterior margin straight; sterna 2 to 4 un­
modified, 5 emarginate; pygidium punctate, convex in lateral view.

Genitalia.—(Figs. 123–125) Median lobe slender, expanded 
apically; in ventral view, ventral valve short, broad, triangular, 
lateral margins nearly straight, base as broad as apex of median 
lobe, arcuate in lateral view; hinge sclerites moderately large, 
slightly curved, and fusiform; armature of internal sac consisting 
of densely placed, slender, short, acute denticles lining sac. Lateral 
lobes slender, bowed in apical one-half, cleft for less than one-half 
their length, spines expanded only slightly, hollowed, and setose on 
ventral face.

Female

Similar to male but apical margin of last abdominal sternum not 
emarginate.
Revision of the Genus *Sennins*

**Host plants**

*Cassia bicapsularis* Linnaeus: Panama. Canal Zone: Paraiso, May 1911 (A. Busck).

**Type series**

Holotype ♂, allotype ♀, and two paratypes: Panama. Canal Zone: Paraiso, May 1911 (A. Busck). USNM 71898. One paratype each from Paraiso, Canal Zone, Panama, 18 January 1911 (E. A. Schwarz) and Alhajuelo, Panama, 4 April 1911 (August Busck).

Holotype, allotype, and paratypes deposited in the U.S. National Museum of Natural History.

**Discussion**

(*S. russeolulus* is in the *Guttifer* species group; see also discussions of *guttifer, inanis, and breveapicalis.*) *S. russeolulus* is similar to *breveapicalis* and *inanis* but is most similar to *guttifer*. *S. russeolulus* differs from the other three by characters given in the key and in the *guttifer* discussion. It also differs from *guttifer* in having small pale spots at the bases of the elytra and it is the only species of *Sennius* known to us whose coxae are separated by the prosternum for their entire length.

**S. simulans** (Schaeffer)

(Figs. 126–130)

*Bruchus simulans* Schaeffer, 1907: 296 (Huachuca Mts., Ariz.); Fall, 1910: 164; Pic, 1913: 50.

*Mylabriss simulans*: Leng, 1920: 305.


Length (pronotum-elytra) 1.7–2.5 mm. Width 1.1–1.8 mm. Maximum thoracic depth 0.8–1.5 mm.

**Male**

Integument color

Head black, sometimes with red postocular spot, labrum usually black, sometimes brown; four basal antennal segments red orange, apical seven dark brown to black; prothorax black, procoxa and anterior two pairs of legs red orange to reddish brown, metathoracic legs usually black, sometimes with apical areas brown; remainder of body black except apical one-half of elytron usually with a medial red-orange spot of variable size (fig. 126), encompassing only two striaal intervals or all; spot usually broader than
long, or if longer than broad, then encompassing striae 3 to 9 or more; elytron rarely all black with faint apical red-orange spot.

Vestiture

Body with white and golden recumbent hairs; eye with medial fringe of white hairs; postocular lobe with short white hairs; postocular patch of dense white hairs; pronotum clothed with uniform moderately dense white hairs; elytron with uniform moderately dense intermixed white and golden hairs; undersurfaces and pygidium with uniform moderately dense white hairs.

Structure

**Head.**—Short and broad, densely punctulate; frons with median glabrous line extending from frontoclypeal suture to vertex; sometimes with vague transverse sulcus between upper limits of eyes; frons width slightly less than width of eye; ocular sinus one-half to two-thirds as long as width of eye; distance from base of antennae to apex of labrum about two-fifths as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 and 4 moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna reaching to humerus or slightly beyond.

**Prothorax.**—Disk subcampanulate (fig. 126); punctate; short median impressed line on median basal lobe; faint lateral carina extending from base to two-thirds to three-fourths the distance to coxal cavity; prosternum separating coxae for about nine-tenths their length.

**Mesothorax and Metathorax.**—Scutellum transverse with lateral posterior teeth, clothed with dense recumbent white hairs; elytron about twice as long as broad, dorsal surface depressed between humerus and medial margin; striae deep, punctate, strial intervals punctulate; usually striae 3 and 4 closer to one another at base than to adjacent striae, others subequally spaced, sometimes all subequal; humerus punctulate, glabrous, shiny black; undersurfaces punctate medially, with coarser punctures laterally; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 127); inner and outer ventral surfaces with longitudinal carinae, outer usually faint, inner sometimes with scattered spinules; femur armed with a subapical acuminate spine about as long as width of tibial base; tibia (fig. 127) with ventral, lateroventral, lateral, and dorsomesal glabrous longitudinal carinae; tibial corona with three to four spinules, mucro one-sixth or
Revision of the Genus Sennillus

less as long as first tarsomere; without sinus at base of mucro; first tarsomere with ventral, lateral, and mesal glabrous longitudinal carinae.

Abdomen.—First sternum not flattened medially, slightly shorter than remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.

Genitalia.—(Figs. 128–130) Median lobe moderate in length; in ventral view, ventral valve pointed apically, lateral margins straight or slightly convex, base almost as broad as apex of median lobe, arcuate in lateral view; hinge sclerites large, curved; armature of internal sac consisting of two small dense clusters of fine spicules at apical orifice between hinge sclerites, and medial one-half with densely placed quadrate denticles tending to cluster into rows toward apex of sac. Lateral lobes expanded apically, cleft to about two-thirds their length (fig. 129).

Female

Similar to male but apical margin of last abdominal sternum subemarginate.

Host plants


Location of type

Holotype 42339, U.S. National Museum of Natural History.

Distribution


Discussion

(S. similans is in the Cruentatus species group; see also discussions of cruentatus and obesulus.) S. similans is very closely related to cruentatus and obesulus. The overall appearance and the male genitalia are similar. The shape and position of the elytral spots, the size of the hind femoral spine, slight differences in the male genitalia, and the differences in distribution separate the three.
S. trinotaticollis (Pic), New Combination
(Figs. 131-135)

Bruchus trinotaticollis Pic, 1930: 11 (Costa-Rica).
Acanthoscelides trinotaticollis: Blackwelder, 1946: 761.

Length (pronotum-elytra) 1.8–2.4 mm. Width 1.5–1.7 mm.
Maximum thoracic depth 1.3–1.4 mm.

Male

Integument color
Head black with red-orange postocular spot, labrum red orange; antennal segments usually red orange, sometimes five basal segments red orange with remainder light brown; prothorax usually black, sometimes reddish brown; procoxa and all legs usually red orange, sometimes dark red; elytron (fig. 131) with basal two-fifths red orange except humerus and area between stria 3 and medial margin light brown to brown, interval between striae 1 and 2 red orange almost to apex of elytron; remainder of elytron light brown to brown, sometimes red-orange spot near apex between striae 4 and 8 (fig. 131); undersurfaces dark brown to black medially with lateral surfaces red orange to reddish brown; usually basal one-half of pygidium red orange and apical one-half light brown to brown, sometimes uniform brown.

Vestiture
Body with white, golden, and brown hairs; eye with faint medial fringe of sparse white hairs; postocular lobe with short white hairs; small dense postocular patch of white hairs covering red-orange postocular spot; pronotum usually with three dense patches of white and golden hairs at base (fig. 131), remainder covered with sparse golden hairs; sometimes pronotum with the same pattern except covered with uniform intermixed golden and white hairs; elytron (fig. 131) with dense white hairs on intervals between medial margin and stria 1, striae 1 and 2, and 2 and 3, extending almost entire length of elytron except for patches of brown hairs at base and apex; intervals between striae 3 and 4, 4 and 5, 6 and 7, 8 and 9 with dense white hairs, alternate intervals with sparse white hairs, hairs extending from base to about one-third from base; humerus and remainder of elytron covered with sparse brown hairs; sometimes with patches of white hairs at apex; undersurfaces with dense white hairs; pygidium usually with dense white hairs on basal one-half, remainder with sparse brown hairs; sometimes brown hairs only forming a band across pygidium or only two large spots.
Revision of the Genus *Sennius*

### Structure

**Head.**—Short and broad, densely punctulate; frons with a median glabrous line or carina extending from frontoclypeal suture to vertex; vague transverse sulcus between upper limits of eyes; frons width slightly less than width of eye; ocular sinus about three-fifths as long as width of eye; distance from base of antennae to apex of labrum about two-fifths as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 usually filiform, 2 and 4 usually moniliform, 4 shorter than adjacent segments, 5 to 10 eccentric, 11 subacute apically; 5, 6, and 11 about as long as broad, 7 to 10 slightly broader than long; antenna sometimes reaching to humerus.

**Prothorax.**—Disk subcampanulate; punctate medially, punctations becoming coarser laterally; faint lateral carina sometimes extending two-thirds distance from base to coxal cavity; short median impressed line on median basal lobe usually obscured by hairs; prosternum separating coxae for about nine-tenths their length.

**Mesothorax and Metathorax.**—Scutellum transverse with lateral posterior teeth, clothed with very dense recumbent white hairs giving quadrate appearance; elytron about twice as long as broad, dorsal surface in an even, gentle convex curve between humerus and medial margin; striae deep, coarsely punctate, very coarse at base, stria 2 with deep punctures at base; striae intervals punctulate; striae 3 and 4 closer to one another at base than to adjacent striae, sometimes stria 2 very close to stria 3, others subequally spaced; usually a minute spine at base of stria 3; humerus punctulate, shiny brown, covered by fine hairs; undersurfaces punctulate medially becoming punctate laterally; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 132); inner ventral surface with faint longitudinal carina; femur armed with a subapical acuminate spine about 1 ½ times as long as width of tibial base, posterior margin of spine serrulate; tibia (fig. 132) with ventral, lateroventral, lateral, and dorsomesal glabrous longitudinal carinae; tibial corona with about three spinules, mucro one-sixth as long as first tarsomere; slightly sinuate at base of mucro; first tarsomere with ventral, lateroventral, lateral, and mesal glabrous longitudinal carinae.

**Abdomen.**—First sternum not flattened medially, about as long as remaining sterna, posterior margin straight; sterna 2 to 4 unmodified, 5 emarginate; pygidium punctate, convex in lateral view.
Genitalia.—(Figs. 133–135) Median lobe rather broad, expanded slightly apically; in ventral view, ventral valve subtriangular, apex with small nipple, base nearly as broad as apex of median lobe, lateral margin gently concave, strongly arcuate in lateral view; hinge sclerites large, angulate; armature of internal sac consisting of dense mass of slender spicules in basal one-half, lateral diverticula sparsely lined with longer slender spicules, spicules in apex of sac similar to those in basal one-half but sparsely distributed. Lateral lobes moderately long, cleft to about three-fourths their length, strongly expanded mesally at apex.

Female

Similar to male but apical margin of last abdominal sternum subemarginate.

Host plants

Unknown.

Location of type


Distribution


Discussion

(S. trinotaticollis is in the Abbreviatus species group; see also discussions of abbreviatus and celatus.) S. trinotaticollis is most similar to celatus in its coloration, external structures, and genitalia. Differences between the structures of the genitalia are discussed under celatus.

Externally trinotaticollis may be distinguished from celatus by its longer subapical femoral spine with serrations on its posterior margin and by the longer mucro. The pygidium of celatus is usually of a uniform color, whereas that of trinotaticollis is usually darker at its apex. S. celatus has a white band of hairs starting one-sixth from the base and extending to about one-half the length of the elytron, whereas trinotaticollis has a dense stripe of white hairs extending for almost the entire length of the elytron on the intervals between the medial margin and stria 3. The vestiture covers a red-orange maculation on the elytron.
S. whitei, New Species
(Figs. 136-141)

Length (pronotum-elytrum) 2.5–2.9 mm. Width 1.7–1.9 mm. Maximum thoracic depth 1.5–1.7 mm.

Male

Integument color

Head and labrum black, with distinct red-orange postocular spot; basal two or three antennal segments red orange, remainder black; prothorax, undersurfaces, and pygidium black, procoxa brown to black; elytron black with large red maculation beginning almost at base, extending medially to stria 2, laterally to elytral margin, and apically about one-half the length of elytron (fig. 136); prothoracic leg red orange; mesothoracic leg usually brown, sometimes red orange; metathoracic leg usually black, sometimes with tibia and tarsus brown.

Vestiture

Body with white, golden, or brown recumbent hairs; eye with medial fringe of sparse white hairs; postocular lobe with short white hairs; small postocular patch of dense white hairs; pronotum clothed with sparse brown and golden hairs medially, white laterally; elytron with moderately dense white hairs from medial margin to stria 2, remainder with sparse intermixed brown and golden hairs; undersurfaces with dense white hairs, becoming very dense laterally; pygidium with dense uniform hairs.

Structure

Head.—Long and narrow, densely punctate; frons with strong median glabrous carina extending from frontoclypeal suture to vertex; with vague transverse sulcus between upper limits of eyes; eye width about two to three times greater than width of frons; ocular sinus about two-thirds as long as width of eye; distance from base of antennae to apex of labrum about two-fifths as long as distance from upper limits of eyes to apex of labrum; antennal segments 1 and 3 filiform, 2 moniliform, 4 subeccentric, 5 to 10 eccentric, 11 subacute apically; 2 about as long as broad, remainder slightly longer than broad (fig. 138); antenna reaching past humerus to elytral one-third.

Prothorax.—Disk short, conical (fig. 136); densely punctate medially, punctations becoming coarser laterally; vague lateral carina extending one-third to one-half from base to coxal cavity;
usually without median impressed line on median basal lobe; prosternum separating coxae for about three-fourths their length.

Mesothorax and Metathorax.—Scutellum small, transverse with lateral posterior teeth, usually clothed with very dense recumbent white hairs; elytron about twice as long as broad, dorsal surface depressed between humerus and medial margin; striae deep, coarsely punctate, very coarse at base, strial intervals punctulate; striae 3 and 4 closer to one another at base than to adjacent striae, others subequally spaced; humerus punctulate, glabrous, shiny red; undersurfaces punctate, coarser punctures laterally; hind femur constricted basally and apically, expanded medially to slightly less than width of coxa (fig. 137); inner ventral surface with faint longitudinal carina, carina sometimes serrulate: femur armed with a subapical acuminate spine about one-half to two-thirds as long as width of tibial base; tibia (fig. 137) with indistinct ventral, lateroventral, lateral, and dorso-mesal glabrous longitudinal carinae; tibial corona with about three spinules, mucro one-tenth or less as long as first tarsomere, without sinus at base of mucro; first tarsomere with faint ventral, lateral, and mesal glabrous longitudinal carinae.

Abdomen.—First sternum not flattened medially, as long or longer than remaining sternae, posterior margin straight; sternae 2 to 4 unmodified, 5 emarginate, apex produced ventrad; pygidium punctate, convex in lateral view.

Genitalia.—(Figs. 139-141) Median lobe elongate; in ventral view, ventral valve pointed apically, lateral margins slightly convex, base about as broad as apex of median lobe, arcuate in lateral view; hinge sclerites long, thin with a unique curvature (fig. 139); armature of internal sac consisting of fine, densely placed, quadrrate, scalelike denticles in basal one-half gradually changing in shape to short acute denticles in apical one-half. Lateral lobes expanded apically, cleft to about one-third their length (fig. 140).

Female

Similar to male but frons with median glabrous line extending from frontoclypeal suture to vertex; frons width slightly less than width of eye; antenna less strongly eccentric than male; disk of prothorax subcampanulate; hind femur expanded medially to about width of coxa; apical margin of last abdominal sternum subemarginate.
Host plants

Unknown.

Type series


Holotype and allotype deposited in the U.S. National Museum of Natural History. One paratype retained in the collection of the senior author, two returned to the California Academy of Sciences, one to the British Museum (Natural History), and one to the University of Arizona.

Discussion

(S. whitei is in the Cruentatus species group; see also discussion of cruentatus.) Only seven specimens of this species were available to us for this study. B. E. White collected the only two specimens, both females, from southern Arizona and the species is named for him.

This is a distinct species but a marginal member of Sennius. The hinge sclerites and single hind femoral spine ally it with other species now placed in Sennius, but the large antennae and eyes and strongly carinate frons set it apart from those treated here. Superficially it resembles miliaris but differs in the structures listed previously and in the usually much smaller hind femoral spine. S. miliaris also has a flattened bifurcate spine at the base of striae 2 and 3, which also serves to separate the two species. S. whitei has more affinities with the cruentatus species group and it is tentatively placed there.
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APPENDIX

Synonymical List of Sennius Species

(1) Sennius abbreviatus (Say, 1824: 808)
   Bruchus bivulneratus Horn, 1873: 325
(2) Sennius alticola (Sharp, 1885: 465)
(3) Sennius atriceps Johnson and Kingsolver, new species
(4) Sennius auricomus Johnson and Kingsolver, new species
(5) Sennius brevicaudalis (Pic, 1922: 15)
(6) Sennius celatus (Sharp, 1885: 449)
(7) Sennius chalcodermus Johnson and Kingsolver, new species
(8) Sennius cruentatus (Horn, 1873: 325)
   Bruchus depressus Fall, 1912: 321
   Bruchus nictitans Motschulsky, 1874: 241
   Bruchus nigricans Horn, 1873: 327
(9) *Sennius discolor* (Horn, 1873: 326)

*Bruchus discopterus* Fall, 1910: 167.

NEW SYNONYMY

*Bruchus infirmus* Sharp, 1885: 481. NEW SYNONYMY

*Bruchus managuensis* Pic, 1935: 66. NEW SYNONYMY

(10) *Sennius durangensis* Johnson and Kingsolver, new species

(11) *Sennius ensiculus* Johnson and Kingsolver, new species

(12) *Sennius fulax* (Boheman, 1839: 59)

*Bruchus xanthopus* Suffrian, 1870: 156.

NEW SYNONYMY

*Bruchus probus* Sharp, 1885: 481. NEW SYNONYMY

(13) *Sennius guttifer* (Sharp, 1885: 465)

(14) *Sennius inanis* (Sharp, 1885: 464)

(15) *Sennius incultellus* Johnson and Kingsolver, new species

(16) *Sennius infractus* Johnson and Kingsolver, new species

(17) *Sennius instabilis* (Sharp, 1885: 466)

*Bruchus ricanus* Pic, 1929b: 36. NEW SYNONYMY

*Bruchus turrialbanus* Pic, 1930: 10.

NEW SYNONYMY

(18) *Sennius laminnifer* (Sharp, 1885: 466)

*Bruchus frisburgoensis* Pic, 1931: 34.

NEW SYNONYMY

(19) *Sennius leucostaurus* Johnson and Kingsolver, new species

(20) *Sennius medialis* (Sharp, 1885: 470)

*Bruchus auctus* Fall, 1910: 166. NEW SYNONYMY

(21) *Sennius militaris* (Sharp, 1885: 468)

(22) *Sennius moronius* (Sharp, 1885: 467)

(23) *Sennius obesus* (Sharp, 1885: 468)

(24) *Sennius russeolius* Johnson and Kingsolver, new species

(25) *Sennius simulans* (Schaeffer, 1907: 296)

(26) *Sennius trinolaticollis* (Pic, 1930: 11)

(27) *Sennius whitei* Johnson and Kingsolver, new species

**Phylogenetic Groups of Sennius Species**

(1) Guttifer group:

- *guttifer* (Sharp)
- *russeolius* Johnson and Kingsolver
- *breveapicalis* (Pic)
- *inanis* (Sharp)

(2) Abbreviatus group:

- *abbreviatus* (Say)
- *instabilis* (Sharp)
(2) Abbreviatus group—Con.
   medialis (Sharp)
durangensis Johnson and Kingsolver
leucostauros Johnson and Kingsolver
trinotaticollis (Pic)
celatus (Sharp)

(3) Fallax group:
   fallax (Boheman)
auricoma Johnson and Kingsolver
alticola (Sharp)
chaleodermus Johnson and Kingsolver
atripectus Johnson and Kingsolver
discolor (Horn)

(4) Incultellus group:
   incultellus Johnson and Kingsolver

(5) Cruentatus group:
   cruentatus (Horn)
obesulus (Sharp)
simulans (Schaeffer)
morosus (Sharp)
ensiculus Johnson and Kingsolver
whitei Johnson and Kingsolver

(6) Militaris group:
   militaris (Sharp)
laminifer (Sharp)

(7) Infractus group:
   infractus Johnson and Kingsolver

**Sennius Species and Their Host Plants**

<table>
<thead>
<tr>
<th>Sennius spp.</th>
<th>Cassia host plant species</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) abbreviatus (Say)</td>
<td>marilandica.</td>
</tr>
<tr>
<td>(2) alticola (Sharp)</td>
<td>Cassia sp.</td>
</tr>
<tr>
<td></td>
<td>occidentalis.</td>
</tr>
<tr>
<td>(3) atriplectus Johnson and Kingsolver</td>
<td>Cassia sp.</td>
</tr>
<tr>
<td>(4) auricoma Johnson and Kingsolver</td>
<td>biflora.</td>
</tr>
<tr>
<td>(5) brevecapicalis (Pic)</td>
<td>Unknown.</td>
</tr>
<tr>
<td></td>
<td>bicapsularis.</td>
</tr>
<tr>
<td></td>
<td>biflora.</td>
</tr>
<tr>
<td>(6) celatus (Sharp)</td>
<td>laevigata (?).</td>
</tr>
<tr>
<td></td>
<td>occidentalis.</td>
</tr>
</tbody>
</table>

*Except as indicated.*
(7) *chalcodermus*  
Johnson and Kingsolver  
Cassia sp.

(8) *cruenta* (Horn)  
fasciculata.

(9) *discolor* (Horn)  
lindheimeriana.

(10) *duranensis*  
Johnson and Kingsolver  
aff. covesii.

(11) *ensiculus* Johnson and Kingsolver  
Unknown.

(12) *fallax* (Boheman)  
bicapsularis.

(13) *guttifer* (Sharp)  
bicapsularis.

(14) *inani* (Sharp)  
bicapsularis.

(15) *incultellus* Johnson and Kingsolver  
Unknown.

(16) *infractus* Johnson and Kingsolver  
Unknown.

(17) *instabilis* (Sharp)  
Occidentalis.

(18) *laminifer* (Sharp)  
Cassia sp.

(19) *leucostaurus*  
Johnson and Kingsolver  
bicapsularis.

(20) *medialis* (Sharp)  
leptocarpa.

(21) *militaris* (Sharp)  
tomentosa.

(22) *morosus* (Sharp)  
Unknown.

(23) *obesus* (Sharp)  
Unknown.

(24) *russeolus* Johnson and Kingsolver  
bicapsularis.

(25) *simulans* (Schaeffer)  
leptadenia.

(26) *trinotaticollis* (Pic)  
Unknown.

(27) *whitei* Johnson and Kingsolver  
Unknown.
Plants Attacked by Sennius Species

Cassia host plant species

<table>
<thead>
<tr>
<th>Sennius spp.</th>
<th>Cassia host plant species</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Bauhinioidea</td>
<td>morosus (Sharp)</td>
</tr>
<tr>
<td></td>
<td>celatus (Sharp)</td>
</tr>
<tr>
<td></td>
<td>fallax (Boheman)</td>
</tr>
<tr>
<td>(2) bicopsularis</td>
<td>guttifer (Sharp)</td>
</tr>
<tr>
<td></td>
<td>insanus (Sharp)</td>
</tr>
<tr>
<td></td>
<td>leucostauros Johnson and Kingsolver</td>
</tr>
<tr>
<td></td>
<td>radians Johnson and Kingsolver</td>
</tr>
<tr>
<td></td>
<td>auricomus Johnson and Kingsolver</td>
</tr>
<tr>
<td>(3) biflora</td>
<td>celatus (Sharp)</td>
</tr>
<tr>
<td></td>
<td>fallax (Boheman)</td>
</tr>
<tr>
<td>(4) chamaechrista</td>
<td>cruentatus (Horn)</td>
</tr>
<tr>
<td>(5) c. f. chiapensis</td>
<td>fallax (Boheman)</td>
</tr>
<tr>
<td>(6) covesii</td>
<td>morosus (Sharp)</td>
</tr>
<tr>
<td></td>
<td>aff. covesii</td>
</tr>
<tr>
<td></td>
<td>durangensis Johnson and Kingsolver</td>
</tr>
<tr>
<td>(7) fasciculata</td>
<td>cruentatus (Horn)</td>
</tr>
<tr>
<td>(8) laevigata</td>
<td>celatus (Sharp)</td>
</tr>
<tr>
<td>(9) leptadenia</td>
<td>simulans (Schaeffer)</td>
</tr>
<tr>
<td>(10) leptocarpa medialis</td>
<td>morosus (Sharp)</td>
</tr>
<tr>
<td>(11) lindheimeriana</td>
<td>discoior (Horn)</td>
</tr>
<tr>
<td>(12) marilandica</td>
<td>abbreviatus (Say)</td>
</tr>
<tr>
<td>(13) nictitans</td>
<td>cruentatus (Horn)</td>
</tr>
<tr>
<td>(14) obtusifolia</td>
<td>fallax (Boheman)</td>
</tr>
<tr>
<td></td>
<td>alticola (Sharp)</td>
</tr>
<tr>
<td></td>
<td>celatus (Sharp)</td>
</tr>
<tr>
<td>(15) occidentalis</td>
<td>fallax (Boheman)</td>
</tr>
<tr>
<td></td>
<td>instabilis (Sharp)</td>
</tr>
<tr>
<td></td>
<td>morosus (Sharp)</td>
</tr>
<tr>
<td>(16) polyantha</td>
<td>fallax (Boheman)</td>
</tr>
<tr>
<td>(17) reticulata</td>
<td>fallax (Boheman)</td>
</tr>
<tr>
<td>(18) roemeriana</td>
<td>morosus (Sharp)</td>
</tr>
<tr>
<td>(19) tomentosa</td>
<td>medialis (Sharp)</td>
</tr>
<tr>
<td>(20) tora</td>
<td>fallax (Boheman)</td>
</tr>
<tr>
<td>(21) uniforma</td>
<td>instabilis (Sharp)</td>
</tr>
<tr>
<td>(22) Dombeya natalensis (?)</td>
<td>fallax (Boheman)</td>
</tr>
</tbody>
</table>

1 Except as indicated.
Figures 1–4.—*Sennius* sp.: 1, Hind femur, lateral view; 2, hind tibia and tarsus, lateral view; 3, hind tibia, mesal view; 4, antenna.
Figures 5-9.—*Semiaus abbreviatus*: 5, Dorsal aspect; 6, hind leg; 7, median lobe, ventral view; 8, lateral lobes, ventral view; 9, median lobe and lateral lobes, lateral view.
FIGURES 10–15.—*Sennius alticola*: 10, Dorsal aspect; 11, hind leg; 12, median lobe, ventral view; 13, lateral lobes, ventral view; 14, median lobe and lateral lobes, lateral view; 15, spiculum gastrale.
Figures 16-20.—Senuius atripectus: 16, Dorsal aspect; 17, hind leg; 18, median lobe, ventral view; 19, lateral lobes, ventral view; 20, median lobe and lateral lobes, lateral view.
FIGURES 21-25.—*Sennius auricomus*: 21, Dorsal aspect; 22, hind leg; 23, median lobe, ventral view; 24, lateral lobes, ventral view; 25, median lobe and lateral lobes, lateral view.
FIGURES 26-30.—Sennius brevicalis:  26. Dorsal aspect; 27. hind leg; 28. median lobe, ventral view; 29. lateral lobes, ventral view; 30. median lobe and lateral lobes, lateral view.
FIGURES 31-35.—Sennius celatus: 31, Dorsal aspect; 32, hind leg; 33, median lobe, ventral view; 34, lateral lobes, ventral view; 35, median lobe and lateral lobes, lateral view.
Figures 36-41.—*Sennius chalcodermus*: 36, Dorsal aspect; 37, hind leg; 38, median lobe, ventral view; 39, lateral lobes, ventral view; 40, median lobe and lateral lobes, lateral view; 41, spiculum gastrale.
Figures 42–47.—*Sennius cruentatus*: 42, dorsal aspect; 43, dorsal aspect; 44, hind leg; 45, median lobe, ventral view; 46, lateral lobes, ventral view; 47, median lobe and lateral lobes, lateral view.
FIGURES 48-52.—Sennius discolor: 48, Dorsal aspect; 49, hind leg; 50, median lobe, ventral view; 51, lateral lobes, ventral view; 52, median lobe and lateral lobes, lateral view.
FIGURES 53-57.—*Sennius durangensis*: 53, Dorsal aspect; 54, hind leg; 55, median lobe, ventral view; 56, lateral lobes, ventral view; 57, median lobe and lateral lobes, lateral view.
FIGURES 58-62.—*Semius ensiculus*: 58, Dorsal aspect; 59, hind leg; 60, median lobe, ventral view; 61, lateral lobes, ventral view; 62, median lobe and lateral lobes, lateral view.
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Figures 63-67. — *Sennius fallax*: 63, Dorsal aspect; 64, hind leg; 65, median lobe, ventral view; 66, lateral lobes, ventral view; 67, median lobe and lateral lobes, lateral view.
Figures 68-72.—Semnus guttifer: 68, Dorsal aspect; 69, hind leg; 70, median lobe, ventral view; 71, lateral lobes, ventral view; 72, median lobe and lateral lobes, lateral view.
FIGURES 73-77.—*Sennius inanis*: 73, Dorsal aspect; 74, hind leg; 75, median lobe, ventral view; 76, lateral lobes, ventral view; 77, median lobe and lateral lobes, lateral view.
FIGURES 78-82. — *Sennius incutellus*: 78, Dorsal aspect; 79, hind leg; 80, median lobe, ventral view; 81, lateral lobes, ventral view; 82, median lobe and lateral lobes, lateral view.
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**FIGURES 83—*Sennius infractus***: 83, Dorsal aspect; 84, hind leg. **FIGURES 85-89.**—*Sennius instabilis*: 85, Dorsal aspect; 86, hind leg; 87, median lobe, lobe, and lateral lobes, lateral view.
FIGURES 90-94.—*Sennius laminifer* 90, Dorsal aspect; 91, hind leg; 92, median lobe, ventral view; 93, lateral lobes, ventral view; 94, median lobe and lateral lobes, lateral view.
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**Figures 95-99.** *Sennius leucostatus*: 95, Dorsal aspect; 96, hind leg; 97, median lobe, ventral view; 98, lateral lobes, ventral view; 99, median lobe and lateral lobes, lateral view.
FIGURES 100–104.—Sennius medialis: 100, Dorsal aspect; 101, hind leg; 102, median lobe, ventral view; 103, lateral lobes, ventral view; 104, median lobe and lateral lobes, lateral view.
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FIGURES 110-114.—Sennius morosus: 110, Dorsal aspect; 111, hind leg; 112, median lobe, ventral view; 113, lateral lobes, ventral view; 114, median lobe and lateral lobes, lateral view.
FIGURES 115-120.—*Sennius obesulus*: 115, Dorsal aspect; 116, dorsal aspect; 117, hind leg; 118, median lobe, ventral view; 119, lateral lobes, ventral view; 120, median lobe and lateral lobes, lateral view.
FIGURES 121-125.—*Sennius russeolus*: 121, Dorsal aspect; 122, hind leg; 123, median lobe, ventral view; 124, lateral lobes, ventral view; 125, median lobe and lateral lobes, lateral view.
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**Figures 126–130.** *Sennius simulans*: 126, Dorsal aspect; 127, hind leg; 128, median lobe, ventral view; 129, lateral lobes, ventral view; 130, median lobe and lateral lobes, lateral view.
FIGURES 131-135.—Sennius trinotaticollis: 131, Dorsal aspect; 132, hind leg; 133, median lobe, ventral view; 134, lateral lobes, ventral view; 135, median lobe and lateral lobes, lateral view.
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**FIGURES 136-141.** *Sennius whitei*:
- 136, Dorsal aspect;
- 137, hind leg;
- 138, antenna;
- 139, median lobe, ventral view;
- 140, lateral lobes, ventral view;
- 141, median lobe and lateral lobes, lateral view.

END