Lech Borowiec

Revision of the genus *Spermophagus* SCHOENHERR

(Coleoptera: Bruchidae: Amblycerinae)

Genus

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Revision of the genus *Spermophagus* SCHOENHERR *(Coleoptera, Bruchidae, Amblycerinae)*

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ABSTRACT. The genus *Spermophagus* SCHOENHERR is revised, 90 species are treated as valid, eighteen of them described as new to the science: *bengalicus* (India), *coimbatorensis* (India), *coronatus* (Philippines), *dongdokiensis* (Laos), *drak* (Vietnam), *incertus* (Tanzania), *maai* (Thailand), *marmoreus* (South Africa, Kenya, Tanzania), *minutissimus* (Madagascar), *minutus* (Java), *multifloccosus* (Transvaal), *palmi* (Thailand), *pilipes* (Ethiopia), *punjabensis* (India), *ruandanus* (Ruanda), *samuelsoni* (Thailand, Malaysia), *siamensis* (Thailand), and *vietnamensis* (Vietnam); 29 new synonyms are proposed: *S. abdominalis* (FABRICIUS, 1781) (= *convolvuli* THUNBERG, 1816, = *rufiventris* BOHEMAN, 1833, = *guttulatus* SCHOENHERR, 1839, = *longicornis* PIC, 1918, = *diversipes* PIC, 1941, = *vadoni* PIC, 1942), *S. albosparsus* GYLLENHAL, 1833 (= *negligens* var. *andamanensis* PIC, 1917), *S. babaulti* PIC, 1921 (= *erythrinae* DECELLE, 1987), *S. caucasicus* BAUDI, 1886 (= *eous* LUKJANOVITSH et TER-MINASSIAN, 1957), *S. complectus* SHARP, 1886 (= *multilineolatus* PIC, 1918), *S. divergens* FAHRAEUS, 1871 (= *albopunctatus* MOTSCHULSKY, 1874, = *marshalli* PIC, 1903), *S. kochi* DECELLE, 1975 (= *kochi* ssp. *corrocaensis* DECELLE, 1975), *S. kuesteri* SCHILSKY, 1905 (= *S. swartukensis* ALI HUSSAIN et KADHIM, 1986), *S. latithorax* (BOHEMAN, 1829) (= *tomentosus* KLUG, 1835, = *gossypi* CHEVROLAT, 1871, = *natalensis* FAHRAEUS, 1871, = *trogodermioides* FAIRMAIRE, 1902, = *latipennis* PIC, 1918), *S. ligatus* CHEVROLAT, 1877 (= *atroapicalis* PIC, 1925), *S. moerens* BOHEMAN, 1839 (= *capensis* MOTSCHULSKY, 1874), *S. negligens* PIC, 1917 (= *javanus* PIC, 1918), *S. niger* MOTSCHULSKY, 1866 (= *bifasciolatus* MOTSCHULSKY, 1874, = *tonkineus* PIC, 1917, = *simoni* var. *immaculatus* PIC, 1922), *S. semiannulatus* PIC, 1918 (= *simoni* PIC, 1918), *S. sericeus* (GEOFFROY, 1785) (= *S. mesopotameca* ALI HUSSAIN et KADHIM, 1986), *S. sinensis* PIC, 1918 (= *kurseongensis* DECELLE, 1977), and *S. variolosopunctatus* GYLLENHAL, 1833 (= *formosanus* var. *subundulatus* PIC, 1917). New host records are given for 13 species.

CONTENTS

INTRODUCTION

The family *Bruchidae* comprises about 1600 species spread over all continents. Most are distributed in tropical and subtropical regions, about a half of the species are known from the New World. *Spermophagus* is one of the largest bruchid genera limited to the Old World except Australian Region.

Spermophagus was described by SCHOENHERR (1833), based on BOHEMAN's species *Spermophagus titivilitius* listed as "Habitat in Mexico". Subsequent authors described most species of the subfamily *Amblycerinae* in the genus , including those classified recently in the genera *Amblycerus* and *Zabrotes*. ZACHER (1930) paid attention to the fact that all species of the true *Spermophagus* were described from the Old World, while *Amblycerus* and *Zabrotes* are endemic in the New World. He did not examine the type of *S. titivilitius* but suggested that this species was not congeneric with Old World species of the genus *Spermophagus*, and created the genus *Euspermophagus* for all species from the Old World, with *S. sericeus* (GEOFFROY) as type-species. Several authors accepted his change of the names, although BRIDWELL (1946) suggested that *S. titivilitius* was erroneously recorded from Mexico, and that it was congeneric with the type species of *Euspermophagus*, necessitating his placing *Euspermophagus* in synonyms of *Spermophagus*. The problem was recently discussed by KINGSOLVER and BOROWIEC (1988), and they also suggested that *S. titivilitius*, and also two other species - *S. rufiventris* and *S. sophorae* - were recorded from the New World probably as a result of mislabeling or misinterpretation of the type locality. No doubt, true *Spermophagus* do not occur in the New World, and the genus is probably the only member of the subfamily *Amblycerinae* in the Old World (except introduced and established species of the genus *Zabrotes* HORN).

PIC (1917) described the genus *Pygospermophagus*, but in my opinion it is congeneric with *Spermophagus*, though I had no possibility to study the types of *Pygospermophagus brevicornis*, the only member of the genus, because the place of their preservation was unknown to me.

The purpose of this monograph is to re-define named species, describe new species, and to establish host plant references. I have defined species by using several morphological characters, especially of the male and female genitalia not studied hitherto in most species.

METHODS AND MATERIAL

Specimens from all important museum and private collections were used in this study. I examined all available types, except several types of the species revised recently by Dr. J. DECELLE. In those cases, I examined specimens determined by Dr. J. DECELLE. Synonymization of species whose types are unknown or unavailable to me was based on interpretation of original descriptions. Species described inaccurately or known from females only and thus impossible to unambiguously identify are listed at end of the systematic list of species.

To dissect male and female genitalia a completely relaxed beetle is held with the pygidium uppermost. With fine forceps, the apex of pygidium is gently lifted to expose the genitalia, the supporting membranes are severed with a fine needle, and the entire mass is removed with the forceps. The pygidium is then carefully restored to its normal closed state. Removal of the entire abdomen from very small specimens may be necessary to prevent extensive damage to the specimen.

The removed genitalia with visceral mass are then placed in cold, 10% KOH solution for 12 to 16 hours to remove muscle fibers and fat, the process may be accelerated by warming warm up the KOH solution to 80-90oC for not more than ten minutes. Cleared genitalia should be washed in distilled water to remove KOH and float away the tissues, then placed in 70% alcohol to remove trapped air, and finally removed to glycerin, or again to distilled water and Berlese fluid. In some cases the genitalia were rinsed in alcohol series of increasing concentration, then washed in xylene, and finally removed to Canada balsam. Plastic plates or plastic vial caps were used for preservation of genitalia.

The terminology of the parts of the male genitalia follows that proposed by KINGSOLVER (1970 b), and the terminology of the parts of the hind legs follows, with some modification, that of JOHNSON and KINGSOLVER (1973).

I have examined specimens from the following collections:

BM - Bishop Museum, Honolulu, USA,
BMNH - British Museum, Natural History, London, United Kingdom,
DEI - Deutsche Entomologisches Institut, Eberswalde, Germany,
DZPAS - Department of Zoology, Polish Academy of Sciences, Cracow, Poland,
HNHM - Hungarian Natural history Museum, Budapest, Hungary,
IZPAS - Institute of Zoology, Polish Academy of Sciences, Warsaw, Poland,
JS - coll. Jaromir STREJCEK
LB - coll. Lech BOROWIEC,
LU - Zoological Museum, Lund University, Lund, Sweden,
MCZ - Museum of Comparative Zoology, Harvard University, Cambridge, USA,
MHNG - Musee d'Histoire Naturelle, Geneve, Switzerland,
MNHM - Museum National d'Histoire Naturelle, Paris, France,
MRAC - Musee Royal d'Afrique Centrale, Tervuren, Belgium,
MTD - Museum fur Tierkunde, Dresden, Germany,
MZUF - Museo Zoologico dell'Universita, Firenze, Italy,
MZUT - Museo di Zoologia della Universita Torino, Torino, Italy,
NMB - Naturhistorisches Museum Basel, Basel, Switzerland,
NMP - Narodni Muzeum, Prague, Czechoslovakia,
NRS - Naturhistoriska Riksmuseet, Stockholm, Sweden,
USNM - United States National Museum, Washington, USA,
TM - Transvaal Museum, Pretoria, South Africa,
ZMHU - Zoologisches Museum, Humboldt Universitat, Berlin, Germany,
ZMLU - Zoological Museum, Lomonosov Uniwersity, Moscow, USSR.

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DESCRIPTION OF THE GENUS

Spermophagus SCHOENHERR, 1833

Spermophagus SCHOENHERR, 1833: 102; REDTENBACHER, 1849: 475, 1858: 672, 1874: 389; ALLARD, 1868: 86; BAUDI, 1887: 469; SCHILSKY, 1905: 41 C; PIC, 1913: 58; HOFFMANN, 1945: 101; BOTTIMER, 1968: 1040; KINGSOLVER, 1970 a: 470; KARAPETJAN, 1973: 75, 1985: 144; ARORA, 1977: 88; BRANDL, 1981: 11; DECELLE, 1983: 235; BOROWIEC, 1987: 63, 1988: 196.

Spermatophagus GISTEL, 1856: 375 (invalid emendation).

Euspermophagus ZACHER, 1930: 237 (type species: *Mylabris sericea* GEOFFROY, 1785); LUKJANOVITSH and TER-MINASSIAN, 1957: 189; EGOROV and TER-MINASSIAN, 1983: 53.

Type species: *Spermophagus titivilitius* BOHEMAN, 1833 (by original designation).

Small bruchids in the tribe *Spermophagini*. Body length 1.0-4.1 mm. Coloration usually uniformly black with only hind tibial spines reddish, occasionally whole beetle black. Sometimes basal antennal segments and fore and mid legs partly yellowish to reddish, occasionally elytra with red spots, or elytra and abdomen partly reddish, or whole beetle reddish. Vestiture varying from extremely scarce, barely visible to very dense, felt-like, uniform or with a pattern.

Head short (fig. 101), eyes emarginate at least to 1/3 length, usually to 2/3-3/4 length, frons with or without median keel, sometimes with impunctate median line. Mandibles, labial and maxillary palpi uniform, with no diagnostic characters. Antennae short to moderately long, not or only slightly sexually dimorphic, distal segments slightly eccentric, subfiliform to subserrate (figs. 120-126). Antennae usually extending to 1/3 and maximally to 2/3 elytral length.

Pronotum semicircular, always wider than long (fig. 100). Disc doubly punctured, large punctures usually disposed uniformly on whole disc, sometimes grouping on sides of disc. Lateral margin sharp, in lateral view straight to strongly convex. Anterior end of lateral carina of pronotal margin meeting or nearly meeting short, horizontal, supracoxal carina on an angulate lobe partly concealing posterior margin of eye when head is in repose (fig. 106).

Prosternal process short, triangular, not separating procoxae. Mesothorax very short, metathorax elongate, without parasutural rows. Surface of metathorax doubly punctured, large punctures dense, distance between punctures usually shorter than puncture diameter.

Scutellum small, triangular. Elytra 1.2-1.5 times as long as broad, without basal spines or teeth. Striae usually moderately punctate, sometimes finely or strongly punctate, punctures usually slightly wider than width of impressed row. Tenth stria complete. Intervals flat, finely punctured, often with irregular rows of shallow, large punctures, the large punctures often arranged in more or less regular rows.

Abdomen usually with sterna unmodified, first sternum in male occasionally with brush of extremely dense hairs, sometimes abdomen in male telescoped. Pygidium more or less oblique, doubly punctured, large punctures usually strong and dense.

Fore and mid legs usually unmodified, occasionally sexually dimorphic, fore and mid tibia with more or less developed external carina. Hind leg structure differs from that in most other bruchids. Hind coxa large, always with group of large punctures and more or less developed unpunctured area near hind trochanter. Hind femur only slightly expanded, ventral margin with external and internal carina, the external carina near apex with narrow by deep cleft, the internal carina without spines or teeth. Hind tibia more or less expanded apically, with dorsoventral, ventral and lateral carinae, dorsolateral carina absent

to distinct. Lateral carina sharp, smooth or minutely serrate. Apex of hind tibia oblique with small coronal denticles, and two large, sharp apical spines (fig. 108). Hind basitarsus elongate, often as long as or longer than hind tibia, arcuate, with lateral carina, apex acuminate. Claws usually with large basal tooth (fig. 103), occasionally simple or minutely appendiculate (figs. 102, 104, 105).

Sexual dimorphism. Antennae of male usually slightly longer than in female. In male posterior margin of last visible sternite slightly to strongly emarginate to receive apex of pygidium. In two species groups hind legs of male with rows of very long hair or setae (figs. 110-118), and external margin of antennae with row of perpendicular setae (fig. 120). Occasionally, in male fore and mid legs enlarged.

Male genitalia. Median lobe with dorsal and ventral valvae, varying from short to elongate. Internal sac without sclerites, or with minute sclerites, or with large sclerites. Base of median lobe spoon-like. Lateral lobes varying from extremely short, transverse to extremely long, tape-like, acuminate apically, sometimes each lobe divided into two secondary lobes. Sensory setae distinct or absent. Basal plate of lateral lobes elongate, tegmen uniform, usually with perpendicular keel.

Ovipositor. Usually distinct. In most species ovipositor is short to moderately long, with apical pubescent area bordered from basal part by oblique suture, apical and subapical groups of sensory setae, with internal pecten, and with strengthening marginal, and sometimes oblique or circular sclerites or pigmentation. Inside each lobe there is narrow sclerite with row of strong setae (pecten); in many species pecten has strongly enlarged base with group of strong setae. In some species apical part of ovipositor is strongly sclerotized with partly or completely reduced apical pubescent area and oblique suture, or apical lobes are divided into secondary lobes, occasionally ovipositor is strongly reduced, lacking internal structures and external sclerites with only a few apical sensory setae. The structure of ovipositor vary often within species groups and has no phylogenetic significance.

Taxonomic remarks. The genus *Spermophagus* belongs to the subfamily *Amblycerinae* with only three other genera - *Amblycerus* THUNBERG, 1815, *Zabrotes* HORN, 1885 and *Pygospermophagus* PIC, 1917. The genus *Amblycerus*, a member of the tribe *Amblycerini* differs in emargination of eye shallow, metathorax with parasutural sulci on either side of pleural cleft, elongate prosternal process completely separated procoxae, metatibia without prominent lateral carinae. Another three genera form the tribe *Spermophagini*. *Zabrotes* differs in absent supracoxal carina and tenth stria of elytra extending only halfway to apex of elytron. This genus is exclusively New World, but at least one species is a cosmopolitan pest, while the genus *Spermophagus* is exclusively Old World. Taxonomic position of the genus *Pygospermophagus* is unclear. It was created for the single species *Pygospermophagus brevicornis* PIC, 1917 from Magelie Bergen. The type location is unknown, the original description is laconic with no important details. In my opinion it is only a distinct member of the genus *Spermophagus* close to *hottentotus* species group.

GROUPS OF *SPERMOPHAGUS*

Species of the genus *Spermophagus* are rather uniform in their general structure and do not offer clear phylogenetic characters. I have proposed several species groups based mostly on structure of male genitalia correlated with some external characters, but many species have a unique structure of genitalia with no important external characters and

they are impossible to classify within any natural groups. The groups are not arranged in a phylogenetic sequence because I am unable to show their evolutionary relationships. In modern revisions of bruchid genera the classification is usually based on both morphological and biological characters (JOHNSON, 1970, 1983, 1990), but in the genus *Spermophagus* host plants of most species are unknown.

1. *sericeus* group - this group includes most of Palearctic species with body uniformly pubescent, hind tibia without dorsolateral carina, lateral carina serrate, internal sac without sclerites and lateral lobes usually elongate, tape-like. All species whose host plants are known feed on seeds of *Convolvulaceae*. The uniform pubescence, lack of dorosolateral carina of hind tibia, and internal sac lacking sclerites are probably plesiomorphic characters, but the serrate lateral carina of hind tibia is rather apomorphic. Three species of this group (*altaicus, klapperichi* and *maafensis*) have reduced basal tooths of tarsal claws - no doubt it an apomorphic character. This group includes: *S. altaicus, calystegiae, canus, confusus, klapperichi, kuesteri, maafensis, pubiventris* and *sericeus.*

2. *niger* group - includes Oriental species with elytra variegate, hind tibia with dorsolateral carina, lateral carina not serrate, internal sac without sclerites, sometimes with two bands of small granules, and lateral lobes elongate, tape-like. All species of the group are very similar externally and only genitalia are diagnostic. They feed in both *Convolvulaceae* and *Malvaceae* plants. This group is probably the most plesiomorphic of Oriental groups. The following species are included in the group: *S. aeneipennis, dongdokiensis, drak, kingsolveri, niger, punjabensis, semiannulatus*, and *variolosopunctatus.*

3. *titivilitius* group - includes Paleotropical species with ventral valve distinctly shorher than the dorsal, internal sac without large sclerites but with numerous, small spines, lateral lobes short, oval or circular, hind tibia usually without dorsolateral carina, lateral carina not serrate, body often partly reddish. Ovipositor strongly modified, with reduced oblique suture, apical pubescent area, and with only several apical sensory setae. This group includes: *S. abdominalis, sinensis* and *titivilitius.*

4. *albosparsus* group - includes Oriental species with elytra variegate, hind tibia without dorsolateral carina, lateral carina not serrate, median lobe elongate, slim, internal sac in apical part with numerous spines, and lateral lobes modified, strongly folded apically or shortened with irregular margins. This group includes *S. albosparsus, minutus* and *negligens.* I included in this group also *S. kuskai* but it has an intermediate position between *niger* and *albosparsus* groups. In external character *S. kuskai* is extremely similar to *S. albosparsus* but the median lobe without sclerites and unmodified lateral lobes near this species to *S. niger.*

5. *cederholmi* group - includes Oriental species with stout body, variegate elytra , hind tibia without dorsolateral carina, internal sac with at least three pairs of extremely large sclerites and strongly modified lateral lobes , without sensory setae. They feed on seeds of *Convolvulaceae.* This group includes *S. cederholmi* and *pfaffenbergeri.*

6. *mannarensis* group - includes Oriental species with strongly apomorphic male genitalia, ventral valve with concave anterior margin, internal sac without large sclerites but with groups of dense needles, basal plate of lateral lobes extremely broad and lateral lobes placed laterally to the basal plate. Elytral vestiture variegate, hind tibia with dorsolateral carina. They feed on seeds of *Malvaceae.* This group includes *S. mannarensis* and *S. coimbatorensis.*

7. *ligatus* group - includes large Oriental species with variegate elytra and hind tibia with sharp dorsolateral carina. The common structure is internal sac of median lobe with

two or three extremely large hook-like sclerites and an elongate tube-like or gutter-like sclerite in front of or behind the hooks. This group includes *S. excavatus, ligatus, maai*, and *palmi.*

8. *johnsoni* group - includes moderately large Oriental species with variegate elytra and hind tibia with dorsolateral carina, internal sac with at least two pairs of large sclerites and at least one spinose plate, lateral lobes moderately long, tape-like, rounded apically. This group includes *S. johnsoni* and *S. samuelsoni.*

9. *siamensis* group - includes species with variegate elytra, hind tibia without or with indistinct dorsolateral carina, dorsal valve about twice narrower than the ventral, internal sac with two or three pairs of large sclerites. This group includes *S. siamensis* and *vietnamensis.*

10. *humilis* group - includes small species from Africa and Canary Is. with elytra uniformly pubescent, rarely variegate, hind tibia without dorsolateral carina, internal sac without large sclerites but sometimes with bispinose sclerite in the middle, and lateral lobes unmodified. This group includes *S. humilis, incertus* and *lindbergorum.*

11. *albomaculatus* group - includes large Afrotropical species of strongly apomorphic apppearance. Elytral vestiture variegate, antennae and hind legs strongly sexually dimorphic, antennae of males along external margin with row of perpendicular setae, hind tibia along anterior margin with row of long, dense hair, median lobe with pair of large sclerites, ventral valve pentagonal, acute apically, lateral lobes elongate, tape like, ech lobe divided into two tapes. They feed on seeds of *Convolvulaceae.* This group includes *S. albomaculatus* and *pilipes.*

12. *hottentotus* group - includes moderately large to large Afrotropical species of strongly apomorphic appearance. Elytral vestiture uniform, antennae very short, extending at most to the base of pronotum, hind legs strongly sexually dimorphic, hind tibia and/or first hind tarsomere with row of dense long hair, median lobe without large sclerites, ventral valve usually short, obtuse apically, lateral lobes short, simple. This group includes: *S. bimaculatus, ciliatipes, eichleri, hottentotus, madecassus, newtoni* and *tandalensis.*

13. *multipunctatus* group - includes small Afrotropical species with variegate elytral vestiture, median lobe with at least two bands of dense needles, and usually a pair of spinifrom sclerites. Lateral lobes strongly modified, short, each lobe divided into two plates of different shape. Males of same species with brush of dense hair in the middle of first abdominal sternum. This group includes *S. marmoreus, monardi, multifloccosus, multiguttatus* and *multipunctatus.*

14. *latithorax* group - includes large Afrotropical species with variegate elytra, legs not sexually dimorphic, median lobe with several pairs of extremely large sclerites, lateral lobes short, oval or circular, margins with sensory setae. This group includes *S. latithorax* and *maynei.*

15. *kochi* group - includes moderately large Afrotropical species; elytra always with pale band along suture and pale spot in the middle of lateral margin. Median lobe without large sclerites but with two bands of dense needles. Lateral lobes short, tape-like, obtuse apically. Tarsal claws with reduced basal tooth. This group includes *S. albosuturalis, inlineolatus* and *kochi.*

16. *posticus* group - includes small Afrotropical species with elytra uniformly pubescent with darker apices, ventral valve rounded apically, internal sac with several apical spines, lateral lobes very short, transverse to subcircular. This group includes *S. posticus* and *ruandanus.*

17. *okahandjensis* group - includes small South African species with elytra variegate, ventral valve acute apically, internal sac with several apical spines, lateral lobes short, oval or modified. This group includes *S. endrodii, okahandjensis*, and *transvaalensis.*

18. *malvacearum* group - includes small Afrotropical species with variegate elytra, internal sac without large sclerites, lateral lobes moderately long, tape-like, acute or angulate apically with strongly enlarged base. This group includes *S. malvacearum, murtulai*, and *schroederi.*

KEY TO THE SPECIES

1. Palaearctic species ..... 2.
-. Oriental and Afrotropical species ..... 23.
2. Hind tibial spines black ..... 3.
-. Hind tibial spines reddish ..... 5.
3. Claws with reduced basal tooth. Mongolia, Russian Altai ..... *S. altaicus* KARAPETJAN (p. 29).
-. Claws with large basal tooth ..... 4.
4. Median lobe shorter, not constricted in preapical part (fig. 127); bases of lateral lobes in contact (fig. 129); ovipositor larger, well sclerotized, without oblique pubescent suture, with apex acute (fig. 415). West Palaearctic ..... *S. sericeus* (GEOFFROY) (p. 112).
-. Median lobe longer, constricted in preapical part (fig. 130); bases of lateral lobes distant (fig. 131); ovipositor smaller, weakly sclerotized, with oblique, pubescent suture and apex rounded (fig. 374). West Palaearctic ..... *S. calystegiae* (LUKJANOVITSH et TER-MINASSIAN) (p.35).
5. Claws of fore leg with reduced basal tooth (figs. 102, 104, 105) ..... 6.
-. Claws of fore leg with large basal tooth (fig. 103) ..... 8.
6. Elytral vestiture forms a distinct pattern (fig. 17). Caucasus, Iran, Middle Asia, Russian Far East, Korea ..... *S. caucasicus* BAUDI (p. 39).
-. Elytral vestiture uniform (figs. 43, 49) ..... 7.
7. Larger: 1.7-2.2 mm. Antennal segments 8-10 longer than wide. S. Spain, Morocco and Algeria. ..... *S. maafensis* BOROWIEC (p. 74).
-. Smaller: 1.3-1.4 mm. Antennal segments 8-10 not longer than wide. Jordan ..... *S. klapperichi* BOROWIEC (p. 65).
8. Fore and mid legs partly reddish or yellowish ..... 9.
-. Fore and mid legs black ..... 12.
9. Only apices of fore and mid femora reddish, tibiae black. Israel. ..... *S. wittmeri* BOROWIEC (p. 127).
-. Fore and mid tibiae partly or completely reddish or yellowish ..... 10.
10. Abdomen and elytra partly reddish. Paleotropical and East Palaearctic species, recorded from Crimea, probably erroneously .... *S. abdominalis* (FABRICIUS) (p. 19).
-. Abdomen and elytra black ..... 11.
11. Internal sac with large bispinose sclerite (fig. 188), ovipositor slimmer, sparsely pubescent apically, without arcuate pigmentation (fig. 412). Mongolia ..... *S. rufipes* (TER-MINASSIAN) (p. 106).
-. Internal sac without large sclerites (fig. 130), ovipositor stouter, densely pubescent apically, with arcuate pigmentation (fig. 374). Rare form from Sardinia and S. Spain ..... *S. calystegiae* (LUKJANOVITSH et TER-MINASSIAN) (p. 35).

ERRATA

p. 10, line24, change to:

6. Elytral vestiture forms a distinct pattern (figs. 17, 79) ..... 6a.
-. Elytral vestiture uniform (figs. 43, 49) ..... 7.
6a. Fore and mid legs uniformly black. Caucasus Iran, Middle Asia, Russian Far East, Korea ..... *S. caucasicus* BAUDI (p. 39).
-. Fore and mid legs partly reddish. Mongolia .....
.....*S. rufipes* (TER-MINASSIAN)(p. 106).

p. 10, lines 41-43: remove

12. Elytral vestiture extremely short and scarce, uniform dark brown (fig. 27). Base of pygidium with transverse band of dense, chalk-white hair. SE Europe, Caucasus and Asia Minor ..... *S. confusus* BOROWIEC (p. 47).
-. Elytral vestiture moderately short and dense to dense, uniformly greyish to olive-greyish or with spots and bands (figs. 19, 20, 28, 47, 98). Base of pygidium without transverse band of chalk-white hair, or with transverse band but in this case elytra and pronotum with distinct pattern of pale hair ..... 13.
13. Elytral vestiture uniform (figs. 16, 47, 98) ..... 14.
-. Elytral vestiture forms a distinct pattern of spots and bands (figs. 2, 19, 20, 28, 63) ..... 18.
14. Internal sac of median lobe with pair of large sclerites (fig. 181). Canary Is. only... ..... *S. lindbergorum* DECELLE (p. 73).
-. Internal sac of median lobe without large sclerites (figs. 138, 141, 152, 130). Species outside Canary Is. (except *S.kuesteri* recorded generally from Canary Is.)... ..... 15.
15. Elytral vestiture dense, covering body surface ..... 16.
-. Elytral vestiture moderately dense, not covering body surface ..... 17.
16. Antennal segments 8-10 about 1.6-2.0 times longer than wide. Lateral lobes elongate, tape like (fig. 153). Greece, Turkey and Lebanon ..... *S. pubiventris* BAUDI (p. 102).
-. Antennal segments 8-10 about 1.1-1.5 times longer than wide. Lateral lobes extremely short (fig. 142). Iran, Kazakh SSSR, W China ..... *S. canus* BAUDI (p. 36).
17. Median lobe longer, constricted in preapical part (fig. 130), lateral lobes long, acute apically (fig. 131). Apices of ovipositor shorter and broader (fig. 374). Rare form from Sardinia and S Spain ..... *S. calystegiae* (LUKJANOVITSH et TER-MINASSIAN) (p. 35).
-. Median lobe shorter. not constricetd in preapical part (fig. 138), lateral lobes short, rounded apically (fig. 140). Apices of ovipositor longer and slimmer (fig. 390). Mediterranean Subregion, Canary Is., the Near and Middle East, Middle Asia ..... *S. kuesteri* SCHILSKY (p. 67).
18. Hind tibial spines bifid or trifid apically (fig. 119). Form from Russian Far East, Korea and Japan ..... *S. abdominalis* (FABRICIUS) (p. 19).
-. Hind tibial spines simple apically (fig. 108) ..... 19.
19. Elytral vestiture without pattern of large spots and bands, only odd intervals with 1-3 small spots of pale hair (figs. 2, 63) ..... 20.
-. Elytral vestiture with distinct pattern of large spots and bands (figs. 7, 19, 20, 28) ..... 21.
20. Lateral lobes oval, not forming a ring surrounding median lobe (fig. 366). Paleotropics and Eastern Palearctic ..... *S. abdominalis* (FABRICIUS) (p. 19).
-. Lateral lobes elongate, form a ring surrounding median lobe (fig. 144). Russian Far East, China and Japan ..... *S. complectus* SHARP (p. 46).
21. Smaller, length below 2.3 mm. Vestiture moderately dense, forms moderately contrastive pattern of white spots and bands on greyish background (fig. 7). Oriental species, in Palaearctis recorded from Afghanistan ..... *S. albosparsus* (GYLLENHAL) (p. 26).
-. Larger, length above 2.4 mm. Vestiture extremely dense, forms contrasting pattern (figs. 19, 20, 28), pronotum with dark spot at base ..... 22.

22. Basal pronotal spot large (figs. 19, 20). Lateral lobes short, plicate, with sensory setae only at base (fig. 197), internal sac of median lobe with two extremely large spines (fig. 196). ..... *S. caricus* DECELLE (p. 37).
-. Basal pronotal spot small (fig. 28). Lateral lobes elongate with sensory setae also in apical part (fig. 199), internal sac of median lobe without large spines (fig. 198) .... *S. decellei* BOROWIEC (p. 49).
23. Oriental species ..... 24.
-. Afrotropical species ..... 60.
24. Elytra partly or completely reddish. Paleotropics .... S. *abdominalis* (FABRICIUS) (p. 19).
-. Elytra black ..... 25.
25. Abdomen partly or completely reddish ..... 26.
-. Abdomen black ..... 27.
26. Ventral valve of median lobe strongly acuminate apically (fig. 364), lateral lobes longer, oval, basal plate narrow, parallelsided (fig. 366). Paleotropics .... *S. abdominalis* (FABRICIUS) (p. 19).
-. Ventral valve of median lobe shorter, obtuse apically (fig. 358), lateral lobes shorter, almost circular, basal plate broad, sides convex (fig. 360). Erroneously described from Mexico, recently recorded from India ..... *S. titivilitius* BOHEMAN (p. 121).
27. Elytral vestiture uniform, or only third interval with small spot of pale hair ..... 28.
-. Elytral vestiture forms a pattern, sometimes reduced to 2-3 spots at odd intervals ..... 30.
28. Elytral vestiture ochraceous; basal plate of lateral lobes narrow, only slightly narrowed basally and apically (fig. 350). India, Ceylon, Africa. .... *S. sophorae* FAHRAEUS (p. 118).
-. Elytral vestiture dark brown; basal plate of lateral lobes broad, strongly narrowed basally and apically (figs. 244, 363) ..... 29.
29. Dorsal valve triangular (fig. 361). Lateral lobes very short, rounded apically (fig. 363). India, Bhutan, Sikkim, Yunnan ..... *S. sinensis* PIC (p. 116)
-. Dorsal valve truncate apically (fig. 230). Lateral lobes moderately elongate, angulate apically (fig. 244). Java ..... *S. kannegieterei* PIC (p. 63)
30. Fore tibiae and apex of fore femora partly reddish ..... 31.
-. Fore tibiae and femora black or dark brown ..... 32.
31. Antennae very long, in female extending to half length, in male to 3/4 length of elytra, segments 8-10 about 1.7-2.0 times longer than wide (fig. 124). Median lobe and lateral lobes strongly modified (figs. 352, 353). India, Ceylon and Vietnam .... *S. mannarensis* DECELLE (p. 78).
-. Antennae moderately long, in female extending to 1/3, in male to half length of elytra, segments 8-10 about 1.3-1.6 times longer than wide. Median lobe and lateral lobes moderately modified (figs. 364, 366) Paleotropics .... *S. abdominalis* (FABRICIUS) (p. 19).
32. Apex of elytra with large semicircular, dark spot (fig. 46). India and Vietnam .... *S. ligatus* CHEVROLAT (p. 72).
-. Elytra never with large apical, semicircular spot ..... 33.
33. Hind tibia without dorsolateral carina, or it is indistinct in basal third of tibia.. 34.
-. Hind tibia at least in basal third with sharp dorsolateral carina (fig. 109) ..... 42.

34. Elytral vestiture brown and white, without yellow hairs, in the middle of lateral part of elytra usually large dark spot margined by more or less complete bands of white hair (figs. 7, 45, 57, 65, 66). Internal sac of median lobe without sclerites (fig. 224), or only apically with dense small spines (figs. 215, 218, 221) ..... 35.
-. Elytral vestiture with brown, yellow and whitish spots, lateral part of elytra usually without large dark spot margined by white hair (figs. 21, 72, 89). Internal sac of lateral lobe with at least one pair of large sclerites (figs. 286, 306, 308, 343, 346) .. . . 38.
35. Internal sac of median lobe without sclerites (fig. 224). India. .... *S. kuskai* Borowiec (p. 69).
-. Internal sac of median lobe in apical part with numerous small spines (figs. 215, 218, 221) ..... 36.
36. Lateral lobes very short with irregular margin (fig. 222) Java .... *S. minutus* n. sp. (p. 84)
-. Lateral lobes longer, tape-like, plicate but with regular margin (figs. 216, 219) . 37.
37. Lateral lobes shorter, their external margin without setae or with simple seta (fig. 219). India, Ceylon, Nepal, Bangladesh, Andaman Is., Burma and W Malaysia .... *S. albosparsus* Gyllenhal (p. 26).
-. Lateral lobes longer, their external margin with at least 8 setae (fig. 216). Laos, Vietnam, Thailand, Java and Lombok ..... *S. negligens* Pic (p. 92)
38. Internal sac of median lobe with only a pair of large sclerites (fig. 286). Bhutan. .. . . *S. stemmleri* Decelle (p. 119).
-. Internal sac with at least two pairs of large sclerites (figs. 306, 308, 343, 346) .... 39.
39. Ventral valve of median lobe only 1,3-1.5 times wider than dorsal valve, apical part of internal sac with at least two pairs of hook-like sclerites (figs. 343, 346). Lateral lobes of characteristic shape (figs. 341, 344, 345) ..... 40.
-. Ventral valve of median lobe about twice wider than dorsal valve, apical part of internal sac without hook-like sclerites (figs. 306, 308). Lateral lobes as in figs. 307, 309 ..... 41.
40. Internal sac with only three pairs of large sclerites, between the first and second pair of sclerites space without sclerites but surface of sac strongly pigmented (fig. 343). India, Ceylon, Vietnam, Thailand, Indonesia, Philippines .... *S. pfaffenbergeri* Borowiec (p. 98).
-. Internal sac with numerous large sclerites, between the first and second pair of sclerites no strongly pigmented space (fig. 346). India and Ceylon .... *S. cederholmi* Decelle (p. 40).
41. Internal sac with two pairs of large sclerites, first pair hook-like, second spine-like (fig. 308). Lateral lobes short-oval (fig. 309). Thailand. .... *S. siamensis* n. sp. (p. 115).
-. Internal sac with three pair of large sclerites, first pair as bispinose plate, remainder pectiniform (fig. 306). Lateral lobes elongate, tape like (fig. 307). Vietnam .... *S. vietnamensis* n. sp. (p. 126).
42. Fore tibia and tarsi of male strongly dilated (fig. 107), mid tibia of male with sharp longitudinal carina. Ceylon and S India ..... *S. ceylonicus* Pic (p. 42).
-. Fore tibia and tarsi of male not dilated, mid tibia without longitudinal carina .. 43.

43. Anterior margin of dorsal valve of median lobe concave (fig. 352, 355). Basal plate of lateral lobes in anterior part very broad, lobes situated anterolaterally to plate (figs. 353, 356) ..... 44.
-. Anterior margin of dorsal valve never concave (figs. 303, 310, 316). Basal plate of lateral lobes in anterior part narrow to moderately broad, lobes situated apically to plate (figs. 304, 311, 317) ..... 45.
44. Larger: body length above 2.3 mm. First antennal segment black. Median lobe strongly constricted behind dorsal valve, anterior margin of dorsal valve deeply concave (fig. 355). Basal plate of lateral lobes not constricted behind strongly widened anterior part, apex with large plate (fig. 356). India *S. coimbatorensis* n. sp. (p. 45).
-. Smaller body length below 2.2 mm. First antennal segment usually reddish to brown, always paler than distal segments. Median lobe only slightly constricted behind dorsal valve, anterior margin of dorsal valve shallowly concave (fig. 352). Basal plate of lateral lobes constricted behind widened anterior part, apex without plate (fig. 353). Rare form with anterior legs black. India, Ceylon and Vietnam ..... *S. mannarensis* DECELLE (p. 78).
45. Internal sac with 2-3 extremely large hook-like sclerites (figs. 303, 310, 316) ..... 46.
-. Internal sac without large hook-like sclerites, but sometimes with spines, spinose plates (figs. 289, 291, 293, 327), often with no sclerites (figs. 154, 157, 160, 162, 165) ..... 48.
46. Ventral valve acuminate apically (fig. 310). Lateral lobes very short, almost circular (fig. 311). Sumatra ..... *S. excavatus* PIC (p. 56).
-. Ventral valve rounded apically (figs. 303, 316). Lateral lobes longer, oval to tape-like (figs. 304, 317) ..... 47.
47. Internal sac with two hook-like sclerites (fig. 316). Lateral lobes oval (fig. 317). Thailand ..... *S. maai* n. sp. (p. 75).
-. Internal sac with three hook-like sclerites (fig. 303). Lateral lobes tape-like (fig. 304). Thailand ..... *S. palmi* n. sp. (p. 97).
48. Ventral valve of median lobe tricuspidate (fig. 327). Philippines ..... *S. coronatus* n. sp. (p. 48).
-. Ventral valve simple (figs. 154, 157, 160, 162, 165, 289, 291, 293) ..... 49.
49. Internal sac with spines or\and spinose plates (figs. 289, 291, 293) ..... 50.
-. Internal sac without large sclerites (figs. 154, 157, 160, 162, 165) ..... 52.
50. Lateral lobes strongly modified, with sensory setae on internal margin only (fig. 294). Internal sac with numerous spines, without spinose plates (fig. 293). India ..... *S. bengalicus* n. sp. (p. 32).
-. Lateral lobes unmodified, tape-like, with sensory setae on both internal and external margin (figs. 290, 292). Internal sac with spinose plate (figs. 289, 291) ..... 51.
51. Ventral valve of median lobe larger, regularly pentagonal, acuminate apically, internal sac with two pairs of spines and spinose plate (fig. 289). Burma ..... *S. johnsoni* BOROWIEC (p. 62).
-. Ventral valve of median lobe smaller, ogive-like, internal sac with pair of spines and spinose and bidentate plate (fig. 291). Thailand and Penang Is ..... *S. samuelsoni* n. sp. (p. 108).
52. Outer margin of internal sac in the middle with elongate group of small granules (figs. 154, 157, 160) ..... 53.
-. Outer margin of internal sac without granules (figs. 162, 165, 168, 170) ..... 55.

53. Ventral valve triangular (fig. 157). Basal plate of lateral lobes at base with triangular pigmented area (fig. 158). India, Ceylon, Vietnam, Thailand and Laos ..... *S. aeneipennis* PIC (p. 23).
-. Ventral valve pentagonal or transverse (figs. 154, 160) ..... 54.
54. Ventral valve pentagonal (fig. 154). Lateral lobes densely pubescent (fig. 155). Whole Oriental Region ..... *S. niger* MOTSCHULSKY (p. 94).
-. Ventral valve transverse (fig. 160). Lateral lobes scarcely pubescent (fig. 161). India ..... *S. kingsolveri* BOROWIEC (p. 64).
55. Ventral valve regularly triangular (figs. 143, 162, 165) ..... 56.
-. Ventral valve pentagonal, transverse or ogive-like (figs. 168, 170, 172) ..... 58.
56. Lateral lobes form a ring surrounding median lobe, apex of each lobe obtuse (fig. 144). China, Japan, Korea, Russian Far East ..... *S. complectus* SHARP (p. 46).
-. Lateral lobes not forming a ring surrounding median lobe, acute apically (figs. 166, 163) ..... 57.
57. Median lobe constricted behind dorsal valve (fig. 165). Outer margin of lateral lobes with fine sensory setae, basal plate in basal part without rhomboidal pigmented area (fig. 166). Whole Oriental Region ..... *S. variolosopunctatus* GYLLENHAL (p. 124).
-. Median lobe not constricetd behind dorsal valve (fig. 162). Outer margin of lateral lobes with strong, spiniform setae, basal plate in basal part with rhomboidal pigmented area (fig. 163). Vietnam ..... *S. drak* n. sp. (p. 53).
58. Ventral valve ogive-like (fig. 170). Lateral lobes in apical half very narrow, subfiliform, unpubescent (fig. 171). India ..... *S. punjabensis* n. sp. (p. 103).
-. Ventral valve pentagonal to transverse (figs. 168, 172). Lateral lobes in apical half not subfiliform, pubescent (figs.169, 173) ..... 59.
59. Ventral valve pentagonal, median lobe slimmer (fig. 168). Outer margin of lateral lobe with sensory setae only in basal third (fig. 169). Laos ..... *S. dongdokiensis* n. sp. (p. 52).
-. Ventral valve transverse, median lobe stouter (fig. 172). Outer margin of lateral lobe with sensory setae on whole length (fig. 173). Philippines ..... *S. semiannulatus* PIC (p. 111).
60. Pronotum and/or elytra and/or abdomen partly reddish. Paleotropics ..... *S. abdominalis* (FABRICIUS) (p. 19).
-. Pronotum, elytra and abbdomen black, or only elytra with red posthumeral spot (figs. 14, 80) ..... 61.
61. Elytra with large, red posthumeral spot (figs. 14, 80) ..... 62.
-. Elytra black ..... 64.
62. Elytral vestiture scarce and short, surface appearing bare. Hind tibia of male arcuate, ventral margin of hind femora and anterior margin of hind tibiae with long hair (fig. 112). Tanzania, Ruanda ..... *S. bimaculatus* PIC (p. 33).
-. Elytral vestiture moderately dense to dense, occasionally scarce but surface never appearing bare. Hind tibia straight, ventral margin of hind femora and anterior margin of hind tibiae without long hair ..... 63.
63. Ventral valve acute apically, posterior half of internal sac without spines (fig. 364). Paleotropics ..... *S. abdominalis* (FABRICIUS) (p. 19).
-. Ventral valve trunctae apically, posterior half of internal sac with numerous spines (fig. 324). South Africa, Angola and Botswana ..... *S. rufonotatus* PIC (p. 107).

64. Anterior margin of male hind tibia and/or ventral margin of hind first tarsomere with long hair (figs. 110-118) ..... 65.
-. Anterior margin of male hind tibia and hind first tarsomere without long hair . 72.
65. Elytral vestiture with distinct pattern (figs. 6, 73). Each lateral lobe divided into two long tapes (figs. 338, 341) ..... 66.
-. Elytral vestiture uniform (figs. 24, 32, 36, 53, 68, 90). Lateral lobes short, not divided into two tapes (figs. 246, 252, 259-261) ..... 67.
66. Lateral lobes shorter, sensory setae of external tape of each lobe short, squamose to foliaceous (fig. 338). Tanzania, Zimbabwe. South Africa ..... *S. albomaculatus* DECELLE (p. 25).
-. Lateral lobes longer, sensory setae of external tape of each lobe long, erinaceous (fig. 341). Ethiopia ..... *S. pilipes* n. sp. (p. 100).
67. Base of pygidium with transverse band of extremely dense, chalk-white hair. Tanzania ..... *S. newtoni* BOROWIEC (p. 93).
-. Pygidium uniformly pubescent ..... 68.
68. Ventral margin of hind first tarsomere without long dense hair (figs. 117, 118) ..... 69.
-. Ventral margin of hind first tarsomere with long dense hair (figs. 113, 115, 116)..... 70.
69. Dorsal vestiture greyish. Central Africa ..... *S. ciliatipes* PIC (p. 44).
-. Dorsal vestiture dark brown. Madagascar ..... *S. madecassus* PIC (p. 76).
70. Body length over 3.5 mm. Male genitalia as in figs. 254, 259. South Africa ..... *S. hottentotus* FAHRAEUS (p. 57).
-. Body length below 3.5 mm ..... 71.
71. Body slimmer (fig. 32). Anterior margin of hind tibia with several long setae (fig. 115). Male genitalia (figs. 257, 261) Zambia ..... *S. eichleri* BOROWIEC (p. 54).
-. Body stouter (fig. 90). Anterior margin of hind tibia with long, dense hair (fig. 116). Male genitalia (figs. 245, 246)) Tanzania ..... *S. tandalensis* BOROWIEC (p. 120).
72. Hair of elytra placed obliquely to the middle of interval, so rows are not covered by hair and elytra appear longitudinally striped (fig. 15). Lateral lobes strongly modified (fig. 284, 285). Namibia ..... *S. brincki* DECELLE (p. 34).
-. Elytra not longitudinally striped. Lateral lobes of different shape ..... 73.
73. Pale hairs on elytra form spot along sutural interval, widened apically, and large spot in the middle of lateral margin (figs. 8, 44, 39). Tarsal claws with reduced basal tooth ..... 74.
-. Elytra uniformly pubescent or with distinct pattern but never with pale spot along suture and in the middle of lateral margin ..... 76.
74. Lateral lobes narrow, distance between base of lobes about 5-6 times wider than width of lobe at base (fig. 300). Tanzania ..... *S. inlineolatus* PIC (p. 61).
-. Lateral lobes broad, distance between base of lobes as wide as or narrower than width of lobe at base (figs. 296, 299) ..... 75.
75. Ventral valve subtriangular, angulate apically (fig. 295). Basal plate of lateral lobes gradually narrowed from base to apex (fig. 296). South Africa, Mozambique and Angola ..... *S. kochi* DECELLE (p. 66).

-. Ventral valve campanuliform with acuminate apex (fig. 298). Basal plate of lateral lobe broad to half length, and abruptly narrowed in apical half (fig. 299). Zambia . ..... *S. albosuturalis* PIC (p. 28).
76. Claws with reduced basal tooth ..... 77.
-. Claws with large basal tooth ..... 78.
77. Elytral vestiture greyish, uniform (fig. 71). Lateral lobes longer than wide, with no sensory setae (fig. 191). Namibia ..... *S. okahandjensis* DECELLE (p. 96).
-. Elytra with brown and greyish hair, pale hairs form spots on odd intervals, and usually transverse spot in the middle of intervals 7-11 (fig. 59). Lateral lobes transverse with a few long setae on anterior margin and several short setae in transverse suture (fig. 264). Gambia and South Africa ..... *S. moerens* BOHEMAN (p. 85).
78. Ventral valve tricuspidate (fig. 332). Ethiopia and Gambia .... *S. scotti* DECELLE (p. 110).
-. Ventral valve simple ..... 79.
79. Each lateral lobe divided into two plates - lower, transverse with row of strong spines along anterior margin, and upper of different shape with at least one long sensory seta (figs. 270, 276, 278, 281) ..... 80.
-. Lateral lobes not divided into two plates (figs. 239, 240, 319) ..... 83.
80. Upper plate of lateral lobe with oblique row of strong spines (fig. 281). Internal sac in the middle with simple spine, bidentate at anterior margin (fig. 279) South Africa ..... *S. multifloccosus* n. sp. (p. 87).
-. Upper plate of lateral lobe without oblique row of strong spines (figs. 270, 276, 278). Internal sac in the middle with two spines (figs. 268, 274, 277) ..... 81.
81. Ventral valve semispherical, with convex sides (fig. 277). Sudan, Ethiopia, Tanzania and Angola ..... *S. monardi* DECELLE (p. 86).
-. Ventral valve subtriangular, with concave sides (figs. 268, 274) ..... 82.
82. Upper plate of lateral lobe large, surface in basal half with spiniform setae, in apical half with fine setae and hair (fig. 270). Gambia, Senegal, Nigeria, Zair, Rwanda and Angola ..... *S. multipunctatus* PIC (p. 89).
-. Upper plate of lateral lobe small, surface without setae except two rows of spiniform setae along lateral margin (fig. 276). South Africa, Tanzania and Kenya .... *S. marmoreus* n. sp. (p. 79).
83. Apical third of internal sac with strongly sclerotized tape (fig. 228). South Africa and Kenya ..... *S. tristis* FAHRAEUS (p. 123).
-. Apical third of internal sac without strongly sclerotized tape, with numerous spines (fig. 234, 236), or without sclerites (fig. 200, 226) ..... 84.
84. Apical third of internal sac with strong spines (figs. 178, 192, 194, 232, 234, 236, 318, 329, 335) ..... 85.
-. Apical third of internal sac without strong spines (figs. 174, 206, 209), sometimes with fine needles (fig. 271) or small spines (fig. 226) ..... 95.
85. Large species, body length above 2.4 mm ..... 86.
-. Small species, body length below 2.3 mm ..... 89.
86. Ventral valve rounded apically (fig. 318). Elytral vestiture uniform, with indistinct apical spot of darker hairs (fig. 74) Senegal, Ghana, Nigeria, Republic of Congo, Ethiopia, Kenya and Tanzania ..... *S. posticus* CHEVROLAT (p. 101).
-. Ventral valve acute or angulate apically (figs. 232, 234, 236). Elytral vestiture forms a pattern (figs. 29, 55, 99) ..... 87.

87. Lateral lobes longer, constricted before apex (fig. 239). South Africa ..... *S. divergens* Fahraeus (p. 51).
-. Lateral lobes shorter, subcircular to oval, not constricted before apex (figs. 242, 243) ..... 88.
88. Internal sac with two elongate, serrate plates (figs. 236). Lateral lobes shorter, subcircular (fig. 243). Dorsal vestiture dense, paler, mostly yellowish, ochraceous and brown. Whole tropical Africa, including Cap Verde is., Prince Is. and Madagascar ..... *S. latithorax* Boheman (p. 70).
-. Internal sac without elongate, serrate plates (fig. 234). Lateral lobes longer, oval (fig. 242). Dorsal vestiture scarce to moderately dense, darker, mostly brown. Cameroon and Zair ..... *S. maynei* Pic (p. 82).
89. Elytral vestiture uniform or with indistinct apical darker spot (fig. 74, 78). Ventral valve rounded apically (figs. 265, 318) ..... 90.
-. Elytral vetiture forms a pattern (figs. 33, 56, 58, 87, 92). Ventral valve acute to angulate apically (figs. 178, 192, 194, 329) ..... 91.
90. Ventral valve distinctly wider than long (fig. 318). Basal plate of lateral lobes strongly constricted behind lobes (fig. 319). Senegal, Ghana, Nigeria, Republic of Congo, Ethiopia, Kenya and Tanzania ..... *S. posticus* Chevrolat (p. 101).
-. Ventral valve about as long as wide (fig. 265). Basal plate of lateral lobes not constricted behind lobes (fig. 266). Ruanda ..... *S. ruandanus* n. sp. (p. 105).
91. Fore and mid legs partly yellow. Lateral lobes strongly modified (fig. 179). Madagascar ..... *S. minutissimus* n. sp. (p. 83).
-. Fore and mid legs black ..... 92.
92. Lateral lobes very short, about as long as wide (fig. 336). Somalia. ..... *S. somalicus* Decelle (p. 117).
-. Lateral lobes longer as wide (figs. 193, 195, 330) ..... 93.
93. Internal sac in anterior third with bispinose sclerite, in posterior third with numerous spines of equal shape (fig. 329). Lateral lobes tape-like, with long setae along external margin (fig. 330). Zair, Tanzania and South Africa ..... *S. maurus* Fahraeus (p. 80).
-. Internal sac in anterior third without bispinose sclerite, in posterior third with several large spines of different shape (figs. 192, 194). Lateral lobes not tape-like , without long setae along external margin (figs. 193, 195) ..... 94.
94. Lateral lobes broadly oval, rounded apically (fig. 193). South Africa ..... *S. transvaalensis* Borowiec (p. 122).
-. Lateral lobes narrow, acute apically (fig. 195). South Africa. ..... *S. endrodii* Borowiec (p. 55).
95. Large species, length above 3.5 mm. Lateral lobes very short. along internal margin pigmented area with numerous short sensory setae (fig. 241). Zair, Kenya, Tanzania, Angola and South Africa ..... *S. babaulti* Pic (p. 30).
-. Smaller species, body length below 3.4 mm. Lateral lobes of different shape (figs. 185, 201, 204, 350) ..... 96.
96. Internal sac in the middle with bispinose sclerite (fig. 184). Whole tropical Africa including Madagascar ..... *S. humilis* Decelle (p. 58).
-. Internal sac in the middle without bispinose sclerite (figs. 200, 203, 349) ..... 97.
97. Elytral vestiture uniform ..... 98.
-. Elytral vestiture with pattern ..... 100.

98. Lateral lobes elongate, acute apically, their external margin with only few long setae (fig. 201). Whole tropical Africa. ..... *S. pygopubens* PIC (p. 104).
-. Lateral lobes short, rounded or angulate apically, margins with short setae (figs. 204, 350) ..... 99.
99. Elytral vestiture dense, ochraceous to olive-greyish, scutellum contrasting white pubescent. Lateral lobes abut thrice longer than wide (fig. 350). Gambia, Dahomey, Sudan, Ethiopia, India and Ceylon ..... *S. sophorae* FAHRAEUS (p. 118).
-. Elytral vestiture scarce, brown to greyish, scutellum pubescence the same as on elytra. Lateral lobes slightly wider than long (fig. 204). Whole tropical Africa .... *S. cicatricosus* GYLLENHAL (p. 43).
100. Elytra with broad transverse band of white hairs (fig. 81). Ethiopia and Tanzania ..... *S. schroederi* DECELLE (p. 109).
-. Elytra without transverse band of pale hairs ..... 101.
101. Internal sac with groups of needles in anterior part and in the middle (fig. 271). Distance between bases of lateral lobes wider than width of each lobe at base (fig. 276). Zair, Angola and Zimbabwe ..... *S. multiguttatus* PIC (p. 88).
-. Internal sac with groups of needles only in anterior part or without needles (figs. 174, 206, 209). Distance between bases of lateral lobes not wider than half width of each lobe at base (figs. 175, 207, 210) ..... 102.
102. Internal sac without groups of needles (fig. 174). Lateral lobes not widened at base (fig. 175). Tanzania ..... *S. incertus* n. sp. (p. 60).
-. Internal sac with groups of needles (figs. 206, 209). Lateral lobes widened at base (figs. 207, 210) ..... 103.
103. Inner margin of lateral lobes with setae only in basal half (fig. 210). Basal plate of lateral lobes at base with triangular pigmented area, anterior margin of the plate truncate (fig. 210). Ethiopia, Kenya, Zair, Rwanda and Angola .... *S. malvacearum* DECELLE (p. 77).
-. Inner margin of lateral lobes with setae on whole length (fig. 207). Basal plate of lateral lobes at base without triangular pigmented area, anterior margin of the plate in the middle with triangular process (fig. 207). Ethiopia, Kenya and Uganda .... *S. murtulai* PIC (p. 91)

SYSTEMATICS OF SPERMOPHAGUS

Spermophagus abdominalis FABRICIUS, 1781
(figs. 2-4, 119, 364-367)

Bruchus abdominalis FABRICIUS, 1781: 76; PIC, 1913: 13.

Spermophagus abdominalis: MUKERJI and CHATTERJEE, 1951: 19.

Bruchus convolvuli THUNBERG, 1816: 44; **n. syn.**

Spermophagus convolvuli: SCHONHERR, 1833: 113; MOTSCHULSKY, 1863: 519; PIC, 1913: 59; VAZIRANI, 1975: 755; DECELLE, 1975 c: 191.

Spermophagus rufiventris BOHEMAN, 1833: 107; ALLARD, 1868: 87; PIC, 1913: 61; KINGSOLVER and BOROWIEC, 1988: 82, **n. syn.**

Spermophagus glabratus BOHEMAN, 1833: 141; PIC, 1913: 59; KINGSOLVER and BOROWIEC, 1988: 82 (as syn. of *rufiventris*).

Spermophagus sublineatus BOHEMAN, 1839: 140; PIC, 1913: 62; VAZIRANI, 1975: 756; KINGSOLVER and BOROWIEC, 1988: 82 (as syn. of *rufiventris*).

Spermophagus guttulatus SCHÖNHERR, 1839: 141; PIC, 1913: 59, **n. syn.**
Spermophagus japonicus SCHILSKY, 1906: no. 94; PIC, 1913: 60; KINGSOLVER and BOROWIEC, 1983: 288, 1988: 82 (as syn. of *rufiventris*).
Euspermophagus japonicus: EGOROV, 1981: 51; EGOROV and TER-MINASSIAN, 1983: 56.
Spermophagus rufipennis PIC, 1917: 9; VAZIRANI, 1975: 756; KINGSOLVER and BOROWIEC, 1988: 82 (as syn. of *rufiventris*).
Spermophagus rufipennis v. *notatithorax* PIC, 1917: 9; KINGSOLVER and BOROWIEC, 1988: 82 (as syn. of *rufiventris*).
Spermophagus sparsemaculatus PIC, 1917: 10; KINGSOLVER and BOROWIEC, 1988: 82 (as syn. of *rufiventris*).
Spermophagus testaceiventris PIC, 1917: 11; KINGSOLVER and BOROWIEC, 1988: 82 (as syn. of *rufiventris*).
Spermophagus atromaculatus PIC, 1917: 11; KINGSOLVER and BOROWIEC, 1988: 82 (as syn. of *rufiventris*).
Spermophagus longicornis PIC, 1918 b: 8, **n. syn.**
Spermophagus kiotensis PIC, 1918 b: 8; KINGSOLVER and BOROWIEC, 1988: 83 (as syn. of *rufiventris*).
Spermophagus diversipes PIC, 1922: 16; KINGSOLVER and BOROWIEC, 1988: 83 (as syn. of *rufiventris*).
Spermophagus atriceps PIC, 1924: 456; KINGSOLVER and BOROWIEC, 1988: 83 (as syn. of *rufiventris*).
Spermophagus elisabethae PIC, 1924: 457; DECELLE, 1951: 191; KINGSOLVER and BOROWIEC, 1988: 83 (as syn. of *rufiventris*).
Spermophagus elisabethae v. *burgeoni* PIC, 1924: 457; KINGSOLVER and BOROWIEC, 1988: 83 (as syn. of *rufiventris*).
Spermophagus rufopygidialis PIC, 1928: 316; KINGSOLVER and BOROWIEC, 1988: 83 (as syn. of *rufiventris*).
Spermophagus notatipennis PIC, 1932: 332; VAZIRANI, 1975: 755; KINGSOLVER and BOROWIEC, 1988: 83 (as syn. of *rufiventris*).
Spermophagus albonotatus CHÛJÔ, 1937: 198; KINGSOLVER and BOROWIEC, 1988: 83 (as syn. of *rufiventris*).
Spermophagus undulatus CHÛJÔ, 1937: 199; KINGSOLVER and BOROWIEC, 1988: 83 (as syn. of *rufiventris*).
Spermophagus diversipes PIC, 1941: 2, **n. syn.**
Spermophagus vadoni PIC, 1942: 10, **n. syn.**

DESCRIPTION

Extremely variable species, widespread in whole Paleotropical Region and eastern part of Palearctic Region with tendency to form local geographical or ecological forms.

Length: 1.8-3.5 mm, width: 1.2-2.7 mm. Body varying from almost spherical to elongate-oval.

Colouration varying from uniformly red to uniformly black. Uniformly red specimens occur in northern India, West Africa, South Africa, occasionally in other regions, usually in mixed populations with pale and dark specimens. In eastern part of Palearctic Region only uniformly black specimens occur. In China and south Japan forms predominate with abdomen partly reddish, and fore and mid legs partly or completely reddish. In India and Indochina, especially in forest regions there occur forms with basal two antennal segments, fore and mid legs partly or completely, and abdomen partly red. In South Africa forms predominate with small body, basal 2-4 antennal segments, all or only fore and mid legs, abdomen, hind coxa red, and elytra with reddish oblique spot between humerus and interval 5. Except Palearctic populations, in various tropical regions various coloured specimens occur in the same place. Hind tibial spines always reddish.

Vestiture variable, from very scarce to dense, felt-like. In West and South Africa forms predominate with scarce, uniformly yellowish or whitish pubescence (fig. 4). In tropical forest regions forms are usually found with dense hairs, yellowish-brown with several white spots on pronotum and odd elytral intervals (fig. 3). The white spots vary from small, round to elongate, sometimes elytra appearing longitudinally striped. In specimens from Palearctic Region vestiture is rather constant, dark brownish with several pale, whitish or yellowish spots: 10-12 on pronotal disc, small elongate at base of intervals 3 and 5, small in 1/3 and 2/3 length of intervals 3 and 5, small elongate in the middle of intervals 7 and 9, and usually in 3/4 length of interval 9 (fig. 2). Pygidium in most forms uniformly yellowish

or whitish, sometimes with basal band of rusty, brown or chalk-white hairs, or with indistinct median line, or with two apical spots of darker hairs. Ventrites uniformly whitish or yellowish pubescent.

Head short, eyes emarginate to 2/3-3/4 length, frons as wide as width of eye, in specimens from Palearctic Region usually distinctly wider than eye width, without median keel. Antennae moderately long to long, extending to 1/3-1/2 length of elytra, segment 3 about 1.2-1.5 times longer than 2, segments 8-10 about 1.3-1.6 times longer than wide, in small specimens from West and South Africa antennae are extremely slimm, almost filiform. Pronotum 1.5-1.6 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole disc. Lateral margin in lateral view straight to moderately convex. Elytral rows finely to moderately punctate, intervals in small speimens without large punctures, in large specimens with almost regular row of large punctures. Large punctures on pygidium moderately dense, intervals 1.2-2.0 times wider than puncture diameter. Hind legs without sexual characters, hind tibia without or with indistinct dorsolateral carina, in specimens from eastern Palearctic usually with sharp dorsolateral carina, lateral carina not serrate, apical spines usually straight, long, sharp, of equal length or outer spine slightly shorter than the inner. In specimens from Primorie, Korea and partly from Japan hind tibial spines are often bifid or trifid apically (fig. 119). In the same specimen spines on one leg can be bifid and on second leg simple, or one of the spines of the same leg can be simple and second spine bifid or trifid. In collections from Korea and Primorie specimens with modified spines predominate. This character never occurs in specimens from tropical regions. Claws with large basal tooth.

Male. Sternum V emarginate to 3/4 length or up to base. Median lobe moderately long, ventral valve varying from subpentagonal to subtriangular with more or less concave sides, apex acuminate, dorsal valve with strongly concave sides and triangular median process, at base with bridge sclerite. Internal sac in anterior half divided into two tapes, each with dense small spines, especially along inner margins. Posterior half of sac with group of dense, very small spines (fig. 364). Lateral lobes short, oval, with apex rounded, margins with dense, moderately long setae, surface at base with several short setae (fig. 366). Base of lobes narrow, parallel-sided to slightly narrowed apically with pigmented margins. Spiculum not modified (fig. 365).

Female. Sternum V not emarginate. Ovipositor strongly modified, elongate, with completely reduced pecten, oblique pubescent suture and apical, pubescent lobes. Chaetotaxy reduced to two short apical setae and two longer subapical setae, and sometimes a few additional short apical setae (fig. 367).

Host plants. *Convolvulaceae*: *Ipomea guamoclit*, *I. raptans*, *I. purpurea*, *I. hederacea*, *Convolvulus* sp.

Distribution

Tropical Africa including Madagascar, Oriental Region, China, Japan, Korea, Russian Far East.

Types

Bruchus abdominalis: unknown to me. I have accepted this name in the genus *Spermophagus* after Mukerji and Chatterjee (1951).

Bruchus convolvuli: unknown to me.

Spermophagus rufiventris: Lectotype male, Brasilia, FALDERMAN, "Typus" (NRS, present designation); paralectotype male, the same data (NRS); paralectotype female, Tauria, STEVEN (NRS); paralectotype male, Caucasus, STEVEN (NRS).

Spermophagus glabratus: holotype female, Tauria, STEV. (NRS).

Spermophagus sublineatus: holotype female, India or., FALDERM. (NRS).

Spermophagus guttulatus: unknown to me.

Spermophagus japonicus: holotype, sex indet., Nippon Moyen env. de Tokio et Alpes de Nikko, J. HARMAND 1901 (MHNP).

Spermophagus rufipennis: unknown to me. I have examined specimens determined by M. PIC.

Spermophagus rufipennis var *notatithorax*: unknown to me.

Spermophagus sparsemaculatus: syntype, sex undet., N. O. Sumatra, Tebing-tinggi, Dr. SCHULTHEISS, coll. KRAATZ (DEI).

Spermophagus testaceiventris: holotype male, Yunnan (MHNP).

Spermophagus atromaculatus: lectotype male, Sumatra (MHNP); paralectotype female, Sumatra (MHNP).

Spermophagus longicornis: unknown to me.

Spermophagus kiotensis: holotype male, Kioto (MHNP).

Spermophagus diversipes PIC, 1922: holotype male, Island of Penang, BAKER (DEI).

Spermophagus atriceps: unknown to me.

Spermophagus elisabethae: holotype, sex indet., Elisabethville, 15 X 1923, SEYDEL (MRAC).

Spermophagus elisabethae var. *burgeoni*: unknown to me. I have examined specimens determined by M. PIC.

Spermophagus rufopygidialis: holotype, sex indet., Klong B., 1--7-26, Siam, W. R. S. LADELL (BMNH).

Spermophagus notatipennis: holotype, sex indet., Jawalgiri, North Salem, F. R. J. Sandal Insect Survey, 3 X 30 (BMNH).

Spermophagus albonotatus: unknown to me.

Spermophagus undulatus: unknown to me.

Spermophagus diversipes PIC, 1941: holotype male, Madagascar, Mandritsara, III.36, MICHEL (MHNP).

Spermophagus vadoni: holotype male, Madagascar R Maroantsetra, VADON (MHNP).

MATERIAL EXAMINED

GAMBIA: Bathurst, jan. 68, 1, T. PALM (LU); GUINEA: Conakry, V.1965, 1, K. FERENCZ (HNHM); SOUTH AFRICA: Cape Province, 5 XI 52, 12, in *Convolvulus* seed (USNM), Cape Province, Grahamstown, netted, 8 XII 1977, 6, S. ENDRODI (HNHM, LB); SUDAN : Sudan Govt., bred from bolls, "*S. elisabethae* v. *burgeoni* PIC det.", 1, G. R. F. MEDANI and H. D. JOHNSTON (BMNH); TANZANIA: Pugu, VII 13, 1, METHNER (ZMHU); Usaramo, II 14, 3, METHNER (ZMHU); Ugogo, VII 11, 1 (ZMHU); Sudl. Makonde Plateau, IV 12, 1 (ZMHU); BURMA: interc. 7 IV 1977, Hawaii, 3 (USNM); CHINA: XII 38, with seed of *Ipomea* sp., 32 (USNM); China, 21 IX 1938, in *Convolvulaceae* seed, 10 (USNM); China, in veg. seeds, 30 IX 1959, 2 (USNM); Manchuria, 5 II 40, with grass, 1 (USNM); HONGKONG: XII-24-63, with unidentified seeds prob. *Hibiscus* sp., 5, D. HUSNIK (USNM); Hongkong, China, intercepted Wash., 2 (USNM); INDIA: Bangalore,

1936, 12, P. S. Nathan (MHNP, LB); Coimbatore, XI 54, 1, P. S. NATHAN (BM); Coimbatore, 26 IV 15, on Red gram., 1 (USNM); Darjeeling, 24 VI 54, 1, ex *Ipomea purpurea* (USNM), Darjeeling, V 15-37, 1, ex *Ipomea purpurea* (USNM); Konkan, Dec. 1924, 10, in *Ipomea guamoclit* (USNM); Bombay, 1902, "*Spermophagus sublineatus* PIC det.", 1, BIRÓ (HNHM); Orissa, Bhubaneswar, 3 I 1973, 1, R. BIELAWSKI (IZPAS); Nedungadu, 1936, 9, P. S. NATHAN (MHNP); Fraserpet Coorg, F. R. I. Sandal Insects Survey, 30 X 30, "*rufipennis* PIC var.", 1 (BMNH); JAPAN: Oshima, VII-VIII 1897, 5, J. PERRIE (MHNP, LB); Archipel Liou-Kiou, Ile d'Oshima, 1895, 1, PERRIE (MHNP); Yokohama, July 1923, 3, J. F. ILLINGWORTH (BM); Japan, 3 Aug. 1986, Seattle, *Ipomea* sp., 8 (USNM); MACAO: 1, F. MUIR (BM); MALAYSIA: Island of Penang, 1, BAKER (USNM); TAIWAN: Puli (Hori), 500 m, 1953, 1 (BM), July 1953, Native collector, 1 (BM); THAILAND: Pattaya, 29 XI 1979, 1, 30 XI 1979, 5, 1 XII 1979, 1, 3 XII 1979, 2, 7 XII 1979, 2, 10 XII 1979, 1, T. PALM (LU, LB); Thailand interc., Feb. 1983, with *Dendrolobium* flower, 1 (USNM); Thailand interc., 6 June 1981, Honolulu, in *Ipomea*, 1 (USNM); Thailand interc., 6 May 1983, IFKIA, on *Ipomea raptans*, 6 (USNM); Thailand interc., 20 May 1963, in unknown *Convolvulaceae*, 7 (USNM); VIETNAM: Saigon, Jardin Botanique, 25 XI 1949, 1, J. BARBIER (MHNP); Thanh-My-An, para combustibles, dans la grappes de gousaca de *Crotularia striata*, 14 VII 49, J. BARBIER (MHNP, LB); Nha ho, 14 km N Phan Rang, 15 XI 1960, 2, J. L. GRESSITT (BM); Dai Lanh, N of Nha Trang, 30 XI-5 XII 60, 6, C. M. YOSHIMOTO (BM).

REMARKS

It is the only species distributed in three zoogeographic regions. Extremely variable in size, colour and vestiture, but it is the only species with tendency to have integument mostly reddish. Form with only abdomen red is very similar to *S. titivilitius* and differs only in structure of male genitalia (see figs. 358, 364). Black specimens from Eastern Palearctic are similar to *S. complectus* , but *S. abdominalis* differs in lateral lobes oval not surrounding median lobe (in *S. complectus* lateral lobes form a ring surrounding median lobe). In specimens of *S. abdominalis* from Korea, Japan and Russian Far East hind tibial spines are often bifid or trifid apically, while in *S. complectus* they are always simple.

Spermophagus aeneipennis PIC, 1917
(figs. 5, 157-159)

Spermophagus aeneipennis PIC, 1917: 9; DECELLE, 1975 c: 192; VAZIRANI, 1975: 754.

DESCRIPTION

Length: 2.0-2.4 mm, width: 1.4-1.8 mm.

Black, only hind tibial spines reddish. Dorsal surface often with brass tint.

Vestiture moderately dense, covering body surface, olive-brown and brown or grey and brown. Brown hair form large spot on pronotal disc in front of scutellum, smaller spots at base of elytral intervals 3-5, two spots in the middle of disc, small spot near middle of lateral margin and two spots at anterior margin. Spots sometimes coalescent or partly reduced. On elytra brown hair form spots in 1/6 length of intervals 2-4 and 7-9, spots near the middle of intervals 5-6 and 8-10, the spots sometimes coalescent in irregular transverse band, also apex of elytra brown, anterior margin of apical spot usually irregular (fig. 5). Pygidium uniformly olive-brown or grey pubescent, or with mixed olive-brown, grey

and brown hair but without distinct spots. Sometimes pygidium with narrow median line of paler hair. Ventral surface uniformly grey pubescent.

Head short, eyes emarginate to 2/3 length, frons as wide as width of eye, without keel, flat. Antennae moderately long, extending to 1/4 length of elytra. Segment 3 about 1.2 times longer than 2, segments 8-10 about 1.5-1.6 times longer than wide. Pronotum about 1.5 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole surface. Lateral margin in lateral view straight or slightly convex. Elytral rows moderately punctate, intervals with irregular rows of shallow, large punctures. Hind legs with no sexual characters, hind tibia with dorsolateral carina only in basal 1/3 length, lateral carina not serrate, apical spines sharp, straight, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate to half length. Median lobe short, distinctly narrowed from valvae to spoon. Ventral valve almost regularly triangular, apex acute, dorsal valve triangular, slightly narrower than dorsal, apex obtuse. Internal sac in anterior 2/3 length with two bands of small granules along margins (fig. 157). Lateral lobes long, tape-like, acute apically, spread out at an angle of 120. Inner margin of lobe in basal third darker pigmented and without sensory seate, distal part with dense and long setae. Outer margin of lobe with moderately long setae only in apical half. Basal plate broad, narrowed apically, with triangular sclerite at base (fig. 158). Spiculum gastrale not modified (fig. 159).

Female. Sternum V not emarginate. Ovipositor of standard type, with pecten and oblique, pubescent suture, apical lobes with numerous setae (fig. 405). It is very similar to ovipositors of other members of *S. niger* group and do not offer distinct diagnostic characters.

Host plant. *Convolvulaceae*: *Ipomea pestigridis*.

DISTRIBUTION

India, Ceylon, Vietnam, Thailand and Laos.

TYPE

Holotype female, Ceylon (MHNP).

MATERIAL EXAMINED

CEYLON: N. Centr. Prov., Kandurukanda, 20 mls NE Habarana, 8 II 62, loc. 57, 3, Lund University Expedition, BRINCK - ANDERSSON - CEDERHOLM (LU); INDIA: Bombay, Dec. 1924, in *Ipomea pestigridis*, 1 (USNM); S India, S. Coorg, Ammatti, 930 m, X 57, 1, P. S. NATHAN (BM); LAOS: Dong Dok, 22 XI 1965, 2, native collector (BM); Borikhane Prov., Paksane, 8 XII 1965, 1, native collector (BM); Vientiane Prov., Tha Ngone, 4 XII 1965, 2 native collector (BM); THAILAND: Banna, Chawang, near Nabon, 70 m, 4 Sept. 1958, 1, J. L. GRESSITT (BM); VIETNAM: M'Drak, E. of Ban Me Thuot, 4-600 m, 8-19 XII 60, 18, C. M. YOSHIMOTO (BM).

REMARKS

It is a member of *S. niger* group. All species of the group have internal sac of median lobe without large sclerites, hind tibia with dorsolateral carina, elytral vestiture with pattern. They are similar and differ in shape of ventral valve and lateral lobes. *S. aeneipennis*, *S. drak* and *S. variolosopunctatus* have ventral valve regularly triangular. *S. variolosopunc-*

tatus differs in median lobe constricted behind dorsal valve and basal plate of lateral lobes without triangular or rhomoboidal pigmented area. *S. drak* is the most similar to *S. aeneipennis* but has no group of granules in the middle of margin of internal sac (in *S. aeneipennis* this group is distinct, as in *S. niger*) and has outer margin of lateral lobes with strong, spiniform setae (in *S. aeneipennis* these setae are fine, capillary). DECELLE (1975) characterized this species by brass tint of body surface, but in my opinion, this character occurs also in other species of *S. niger* group, and specimens of *S. aeneipennis* often have no brass tint. In this group probably a "social mimicry" occurs - specimens of various species from the same locality are more similar to each other than specimens of the same species from different localities. In this group only male genitalia are diagnostic.

Spermophagus albomaculatus DECELLE, 1970
(figs. 6, 111, 120, 337-339, 368)

Spermophagus albomaculatus DECELLE, 1970: 262.

DESCRIPTION

Length: 2.8-3.1 mm, width: 2.0-2.1 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, dark brown with white spots: about 12 spots on pronotum, four spots on elytral interval 3, two spots in anterior half of intervals 5 and 7, two spots on posterior half of intervals 4 and 8, and three spots in posterior half of interval 6 (fig. 6). On pygidium marble pattern of white and brown hair. Ventral surface with uniform, scarce grey pubescence.

Head short, eyes emarginate to 2/3 length, frons as wide as eye, without median keel. Antennae moderately long, reaching slightly beyond humerus, segment 3 about 1.6 times longer than 2, segments 8-10 about 1.3 times longer than wide. Pronotum about 1.7 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole surface. Lateral margin in lateral view strongly convex. Elytral rows moderately punctate, intervals without large punctures. Hind legs sexually dimorphic. Hind tibia without or with indistinct dorsolateral carina, lateral carina not serrate. Hind tibial spines straight, sharp, of equal length. Tarsal claws with large basal tooth.

Male. Antennal segments 5-10 on inner margin with row of perpendicular long setae (fig. 120). Sternum V emarginate to 3/4 length. Hind tibia on inner margin with long, dense hair (fig. 111). Median lobe elongate, ventral and dorsal valve pentagonal, apex acute. Internal sac anteriorly with elongate needles on margins, behind the needles with group of small spines, behind the spines to half length with small spines on margins only, slightly behind the middle with two large sclerites in shape of elongate spines (fig. 337). Lateral lobes distinct, each lobe divided into two long tapes subangulate apically (fig. 338). Inner surface of external tape with squamiform sensory setae, outer margin of external tape with row of moderately long sensory setae; internal tape shorter than external, on margins and on inner surface with moderately long and dense sensory hair. Basal part of lobes broad, in anterior third U-shaped, in posterior part parallelsided. Spiculum gastrale not modified (fig. 339).

Female. Antennae without perpendicular setae. Sternum V not emarginate. Hind tibiae without long hair. Ovipositor distinct, each lobe dividied into two tapes, inner longer than outer, pecten in basal half very broad, with numerous setae not arranged in regular

rows, oblique suture almost perpendicular to axis, densley pubescent (fig. 368).

Host plant unknown.

DISTRIBUTION

Tanzania, Zimbabwe and South Africa.

TYPES

Holotype male, Tanzania, Makuyuni, 1300 m, 5 VI 1957, Mission Zool. IRSAC en Afrique orientale (MRAC, after DECELLE, 1970: 264); paratype male, South Africa, Transvaal, 16 miles NE of Pretoria, 26.12.55, G. RUDEBECK (LU); paratype female, S. Rhodesia, Bembisi, 27 VIII 1922, leg. Roy STEVENSON (TM); paratypes male and female, South Africa, Waterberg Dist., Plat River, 6-18 IV 1905, leg. G. SWIERSTRA (TM). DECELLE (1970) recorded also 4 other paratypes from MRAC, TM and NMP.

MATERIAL EXAMINED

No additional material.

REMARKS

With *S. pilipes* n. sp. it forms a natural group of very distinct species which differ from other species in tape-like lateral lobes , each lobe divided into two elongate tapes. They also differ from most species in anterior margin of male tibia with dense, long hair. This character occurs also in six species of *S. hottentotus* group but they differ in elytral vestiture uniform, while in *S. albomaculatus* group it forms a distinct marble pattern. Also male antennae with row of perpendicular setae along outer margin are unique for *S. albomaculatus* group. *S. pilipes* differs from *S. albomaculatus* in lateral lobes longer, sensory setae of external tape of each lobe long, erinaceous (in *S. albomaculatus* they are short, squamose to foliaceous).

Spermophagus albosparsus GYLLENHAL, 1833
(fig. 7, 218-220, 370)

Spermophagus albosparsus GYLLENHAL, 1833: 110; PIC, 1913: 58; DECELLE, 1975 c: 191; VAZIRANI, 1975: 755; WENDT, 1983: 97 (probably misidentified).

Spermophagus subsignatus GYLLENHAL, 1839: 139; PIC, 1913: 62; DECELLE, 1975 c: 191 (as syn.).

Spermophagus tessellatus MOTSCHULSKY, 1858: 97; PIC, 1913: 62; DECELLE, 1975 c: 191 (as syn.); SINGH, 1978: 199, 1981: 222; VAZIRANI, 1975: 756.

Spermophagus albofasciatus: PIC, 1913: 58 (error); VAZIRANI, 1975: 754; ARORA, 1977: 90, 1978: 34.

Spermophagus negligens v. *andamanensis* PIC, 1917: 10, **n. syn.**

Spermophagus negligens andamanensis: VAZIRANI, 1975: 755.

DESCRIPTION

Length: 1.8-2.2 mm, width: 1.3-1.8 mm.

Black, only hind tibial spines reddish. Maxillary palpi often brownish-red.

Vestiture moderately dense, not covering body surface, brown and white. White hair forms a distinct pattern on pronotal disc as in fig. 7, on elytra white two elongate spots at base of intervals 3 and 5, sutural interval at least to 2/3 length, complete but irregular transverse band in 2/3 of elytral length, and incomplete transverse band slightly in front of

the middle of elytra, interrupted on intervals 4-6, or 4 and 6 but with spot on interval 5. Pygidium with transverse basal band of white dense hair, and usually with narrow white median line. Ventral surface unformly whitish pubescent. The pattern of dorsal surface is rather constant, but sometimes hair of darker parts of elytra is paler brown and pale pattern is yellowish and contrast between pattern and basic vestiture is not as distinct as in specimens with brown and white pubescence.

Head short, eyes emarginate to 3/4 length. Frons as wide as width of eye, convex but without median keel. Antennae long, extending to half length of elytron. Segment 3 about 1.8 times longer than 2, segments 8-10 about 1.4 times longer than wide. Pronotum about 1.3 times wider than long, doubly punctured, large punctures dense, disposed almost uniformly on whole disc. Lateral margin in lateral view slightly convex. Elytral rows moderately punctate, intervals with irregular row of large punctures. Hind legs with no sexual characters, hind tibia without or with indistinct dorsolateral carina, lateral carina not serrate, apical spines straight, sharp, of equal length. Claws with large basal tooth.

Male. Abdomen telescoped. Sternum V emarginate up to base. Median lobe elongate, almost parallel-sided, ventral valve elongate, pentagonal, apex acute. Dorsal valve about twice narrower than the ventral, triangular. Internal sac in basal part with group of small spines, in the middle without sclerites, apically with numerous, dense sclerites - needles anteriorly, sharp spines posteriorly (fig. 218). Lateral lobes distinct, short, tape-like. Base of each lobe circular, with sensory setae on margins and shorter setae on whole surface. Distal part of lobe strongly foldedd, without sensory setae except simple long seta in 1/3 length of outer margin of lobe. Basal part of lobes elongate, slightly narrowed apically, microsculpture indistinct (fig. 219). Spiculum gastrale unmodified (fig. 220).

Female. Abdomen less telescoped. Sternum V emarginate to half length. Ovipositor of standard type with oblique pubescent suture, pecten in basal half arcuate with enlarged base, circular pigmentation present (fig. 370).

Host plants: *Malvaceae: Hibiscus cannabina, H. furcatus, H. sabaariffa.*

DISTRIBUTION

India, Ceylon, Nepal, Bangladesh, Andaman Is., Burma and W Malaysia.

TYPES

Spermophagus albosparsus: Lectotype female, India orient. FALDERMAN (present designation); paralectotype female, Bruch: Nepaul Ind. Or., STEVEN (NRS).

Spermophagus subsignatus: holotype male, Ind. occid., STEVEN (NRS).

Spermophagus tessellatus: lectotype male, 6 paralectotype males and two paralectotype females, Birmania (ZMLU, after DECELLE, 1975: 191).

Spermophagus negligens var. *andamanensis*: holotype female, "*albosparsus*", BOH. SCH. (LESEL), type (MHNP).

MATERIAL EXAMINED

BANGLADESH: Eastern Bengal, 25 VI 1924, on *Hibiscus cannabina*, 4 (USNM); BURMA: Yedashe, 9 III 1918, 1, FLETCHER (USNM); Pyinmana, 8 III 1918, 1, Y. R. RAO (USNM); CEYLON: N. Centr. Prov., Ritigala Nat. Reserve, 8 mls NW Habarana, 8 II 62, loc. 56: I, swept on veg. at small stream, 1, Lund University Ceylon Expedition, BRINCK-ANDERSSOM-CEDERHOLM (LU); N. Centr. Prov., Kandurukanda, 20 mls NE Habarana, 8 II

62, loc. 57, swept on veg. at small stream, 2, Lund University Ceylon Expedition, BRINCK-ANDERSSON-CEDERHOLM (LU); Ceylon, 1, NIETNER (IZPAS); INDIA: Kaziranga, Bagori, Mikir Hills, V 1961, 1 (ZMHU); S India, Anamalai Hills, Cinchana, 1050 m, IV 1956, 5, IV 1957, 1, P. S. NATHAN (BM); Shevaroy Hills, 1350 m, X 54, 1 (BM); Mangalore, from seeds of *Hibiscus furcata*, 6, J. C. BRIDWELL (USNM); India, bred from *Hibiscus sabaariffa*, 2 (USNM); Bombay State, 10 III 54, 5, P. X. PELTIER (USNM); Bombay, Nov. 1929, 1, J. C. BRIDWELL (USNM); Bombay, 10 X 81, 5, A. KUŚKA (LB); Orissa, Bhubaneswar, 3 I 1973, 2, R. BIELAWSKI (IZPAS); Bengal, Pusa, 14 VII 08, 1, FLETCHER (USNM); Goa, Mormugao, Jan. 25, 1, J. C. BRIDWELL (USNM); India, in *Hibiscus cannabina*, V 83, 56 (USNM), 28 June 58, on *Hibiscus cannabinus*, 8 (USNM), 26 May 24, 10 (USNM); MALAYSIA: Island of Penang, 1, BAKER (USNM); NEPAL: Kali Gandaki, Tatopani, shrubby hill, dry grasses and *Artemisia*, 1200 m, 5 IV 1983, 1, U. GARDENFORS (LU).

REMARKS

It is a member of *S. albosparsus* group. All species of this group have elongate median lobe, internal sac usually with numerous spines in apical half (except *S. kuskai*), but without large sclerites, hind tibia without or with indistinct dorsolateral carina and elytra with distinct pattern of pale hairs. *S. kuskai* differs in internal sac without spines, *S. minutus* differs in very short lateral lobes , with irregular margin. *S. negligens* is most similar to *S. albosparsus* and differs only in structure of lateral lobes, wich are longer, less plicate, and external margin with at least 8 setae, while in *S. albosparsus* lateral lobes are shorter, strongly plicate, extarnal margin with only one seta or no seta.

Spermophagus albosuturalis PIC, 1933
(fig. 8, 298, 299)

Spermophagus albosuturalis PIC, 1933: 688; DECELLE, 1951: 191.

DESCRIPTION

Length: 2.3 mm, width: 1.7.

Black, only hind tibial spines reddish.

Vestiture moderately dense, brown and white, partly covering body surface. White hair forms band along suture to 3/4 length of interval 1, widened apically to the third elytral row, spot in the middle of lateral margin of elytra, and occupies pronotum except median, large, circular spot of brown hair (fig. 8). Pygidium white pubescent. Ventrites uniformly whitish pubescent.

Head short, eyes deeply emarginate with only three facets beyond emargination. Frons about 1.6 times wider than long, with short and sharp median keel. Antennae elongate, extending to half length of elytron, segment 3 about 2.6 times longer than 2, segments 8-10 about 1.5-1.6 times longer than wide. Pronotum about 1.5 times wider than long. Disc doubly punctured, large punctures deep and dense, surface of disc appearing slightly rough. Lateral margin in lateral view strongly convex. Elytral rows deep, intervals with rows of large punctures. Puncturation of pygidium large and deep, distance between punctures as wide as puncture diameter. Hind legs without dimorphic characters, hind tibia without dorsolateral carina, lateral carina only in apical fourth slightly serrate, hind tibial spines long, sharp, of equal length. Tarsal claws without basal tooth.

Male. Sternum V emarginate to half length. Median lobe moderately elongate, Ventral valve transverse, rectangular, with acuminate median process, dorsal valve elipsoidal. Internal sac in anterior part with two bands of needles (fig. 298). Lateral lobes short, tape-like, apex rounded, margins with dense sensory setae. Basal plate in anterior third very broad, anterior margin in the middle with pubescent lobe, in posterior half narrow, bifurcate apically (fig. 299).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

Zambia.

TYPE

Holotype male, N. Rhodesia, Congo-Zambesi Watershed, 1928, Dr. H. S. EVANS (BMNH).

MATERIAL EXAMINED

No additional material.

REMARKS

It is a member of *S. kochi* group. See remarks under *S. kochi*.

Spermophagus altaicus KARAPETJAN, 1973
(figs. 9, 132-134, 372)

Spermophagus altaicus KARAPETJAN, 1973: 44; BOROWIEC, 1983 c: 288.

DESCRIPTION

Length: 1.8-2.1 mm, width: 1.2-1.5 mm.

Black, including hind tibial spines.

Vestiture olive-grey, uniform, moderately dense, not covering body surface (fig. 9).

Head short, eyes emarginate to 2/3 length, frons as wide as width of eye, without median keel. antennae moderately long, extending to 1/3 of elytral length, segment 3 about 1.2 times longer than 2, segments 8-10 about equal in length and width. Pronotum 1.5-1.7 times wider than long, disc simple punctured. Lateral margin in lateral view straight or slightly convex. Elytra short-oval, rows moderately punctate, intervals without large punctures. Hind legs without sexual characters. Hind tibia without dorsolateral carina, lateral carina serrate, apical spines sharp, outer slightly longer than inner. Tarsal claws with reduced basal tooth.

Male. Sternum V emarginate to half length. Median lobe moderately long, almost parallel-sided, ventral valve pentagonal, apex angulate, dorsal valve about twice narrower than ventral, triangular, apex acute. Internal sac without large sclerites, only basal part with two elongate groups of very small spines (fig. 132). Lateral lobes moderately long, tape-like, apex acute. Margins with long, dense, sensory setae. Basal third of dorsal surface of each lobe with numerous short setae. Basal plate of lobes broad, strongly narrowed apically (fig. 134). Spiculum gastrale as in fig. 133.

Female. Sternum V not emarginate. Ovipositor of standard type, with oblique pubescent suture, pecten without enlarged base, apical lobes broad, circular pigmentation distinct (fig. 372).

Host plant unknown.

DISTRIBUTION

Mongolia, USSR (Altai).

TYPE

Unknown to me. I have examined specimens determined by M. E. TER-MINASSIAN.

MATERIAL EXAMINED

MONGOLIA: Central Aimak, 25 km O Somon Lun, 1200 m, 25 VII 1968, 4 (HNHM); Central Aimak, 26 km O Somon Lun, 1180 m, 4 VII 1964, 5 (HNHM); Central Aimak, Zuun Chara, 1390 m, 8 VII 1963, 5, 850 m, 8 VII 1964, 1 (HNHM); Central Aimak, Kerulen, Njalga s. Burugastin chosu, 1200 m, 3 VII 1963, 1 (HNHM); Central Aimak, Ulan Bator, Nucht im Bogdo ul, 1500-1600 m, 21 VII 1967, 1 (HNHM); Bulgan Aimak, 30 km NNW Somon, Daschincilen, 1200 m, 15 VI 1968, 1 (HNHM); Bulgan Aimak, 5 km O Somon Lun, Abzaga, 1400 m, 2 VII 1964, 1 (HNHM); Sudgobi Aimak, Tachilga ul, zw. Zogt-Oroo und Dalanzadgad, 1550 m, 8 VII 1967, 1 (HNHM); Ostgobi Aimak, 40 km NW Chara-Eireg, 1150 m, 30 VI 1963, 19 (HNHM); Ostgobi Aimak, Ulan chosu, 38 km SO Cejren, 1200 m, 21 VI 1963, 1 (HNHM).

REMARKS

It is a member of *S. sericeus* group. *S. altaicus*, *S. sericeus* and *S. calystegiae* are the only species of the genus with hind tibial spines black. *S. altaicus* distinctly differs in tarsal claws without basal tooth.

Spermophagus babaulti PIC, 1921
(figs. 10-12, 226, 227, 241, 369)

Spermophagus Babaulti PIC, 1921: 15; DECELLE, 1951: 191, 1975 b: 28; ZAMPETTI, 1988: 108.
Spermophagus inlobatus PIC, 1924: 455; DECELLE, 1951: 190, DECELLE, 1975 b: 28 (as syn.).
Spermophagus erythrinae Decelle, 1987: 510, **n. syn.**

DESCRIPTION

Length: 3.6-4.0 mm, width: 2.6-3.0 mm.

Black, only hind tibial spines reddish.

Vestiture varying from uniform to variegate, dense, covering body surface (figs. 10-12). In the darkest form vestiture is uniformly brownish or yellowish, in intermediate form pronotum is almost uniformly brown pubescent or in the middle with large, slightly darker round spot, elytral hair brownish with yellowish brown band along suture and transverse band in the middle of elytra. In the most variegate form pronotum with white hair, only anterior margin with mixed white and yellow hair, and with large circular spot of black hair in the middle of disc; elytra with white band along suture and transverse white band in the middle, large humeral and apical spots black. Transverse white band near lateral

margin and suture widened, broad sutural part with small black spot on interval 3. Pygidium uniformly white pubescent or with indistinct spots of brownish hair. Ventral surface with uniform whitish pubescence.

Head short, eyes emarginate to 2/3 length, frons as wide as width of eye, convex without or with very short median keel. Antennae moderately long, extending to humeral callus. Segment 3 about 1.9-2.0 times longer than 2, segments 8-10 about as long as wide. Pronotum 1.6-1.7 times wider than long, double punctured. Large punctures disposed almost uniformly on whole surface. Lateral margin in lateral view strongly convex. Elytral rows moderately punctate, intervals with only few large punctures. Large punctures of pygidium scarce, space between punctures distinctly wider than puncture diameter. Hind legs with no sexual characters. Hind tibia without dorsolateral carina, lateral carina not serrate, apical spines long, sharp, outer spine distinctly longer than the inner. Claws with large basal tooth.

Male. Sternum V emarginate to 1/4 length. Median lobe long, ventral valve short, triangular, apex subacute, dorsal valve very short, regularly rounded. Internal sac in 2/3 anterior length divided into two tapes, each with very small needles or spines on whole length, apical 1/3 length with group of dense, small spines (fig. 226). Lateral lobes strongly modified. Each lobe very short, oval, near inner margin with elongate area margined by strong carinae, surface of the area with very dense and short setae, also dorsal and lateral margin of lobe with setae, longer in the dorsal part, shorter in the lateral. Basal plate of lateral lobes slightly widened in the middle, anterior part with dense, small needles (fig. 241). Spiculum gastrale strongly modified (fig. 227).

Female. Sternum V not emarginate. Ovipositor very long, with reduced oblique pubescent suture, pecten or circular sclerites, only apical lobes with several sensory setae (fig. 369).

Host plant: *Fabaceae: Erythrina* sp.

DISTRIBUTION

Zair, Kenya, Tanzania, Angola and South Africa.

TYPES

Spermophagus babaulti: holotype female, Kenya, Tana (MHNP, after DECELLE, 1975: 28).

Spermophagus inlobatus: holotype male, Zair, Banza Manteka (MHNP, after DECELLE, 1975: 28).

Spermophagus erythrinae: holotype female, Tanzania, Arusha, VII. 1938, bred ex. *Erythrina*, Van S.(National Museum, Kenya, Nairobi, after DECELLE, 1987: 511). Dr. J. DECELLE examined more specimens of *Spermophagus* reared from seeds of *Erythrina* (letter information) and confirmed my synonymization of *S. erythrinae* with *S. babaulti*.

MATERIAL EXAMINED

KENYA: Nairobi, 5450 ft., Lukusia, IV 32, 1, A. F. J. GEDYE (BMNH); Ukunda, Diani Persian, Mosque, sweeping and beatling, 17 IX 1985, 1, S. and L. MAHUNKA (HNHM); Ukunda, Diani Beach, sweeping, 29 IX 1985, 1, S. and L. MAHUNKA (HNHM); TANZANIA: Dar-es-Salaam, 69, 2, ARDÖ (LU); German Bridge, 14 VI 1916, 1, A. LOVERIDGE (LB); Shirati, III 1909, 1, IV 1909, 1, KATONA (HNHM, LB); SOUTH AFRICA: Zootpb.

dist., 6 IV 1914, 2, H. G. BREYER (TM).

REMARKS

It is a distict species with no close relatives. It is one of the largest species. Pale forms distinctly differs in elytral pattern of two large dark spots and pale band along suture and transverse pale band in the middle of elytra. Dark form with uniformly pubescent elytra is externally very similar to large specimens of *S. sophorae* and to uniformly pubescent specimens of *S. latithorax*. *S. sophorae* differs in white pubescent scutellum (in *S. babaulti* scutellum is on the same colour as elytra), *S. latithorax* differs in internal sac with extremely large sclerites (in *S. babaulti* internal sac has no large sclerites). Lateral lobes of *S. babaulti* are unique.

Spermophagus bengalicus n. sp.
(fig. 13, 293, 294)

DESCRIPTION

Length: 2.1 mm, width: 1.6 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, not covering body surface. Pronotum mostly brownish pubescent with several spots of yellowish hairs. Elytra mostly brown with yellowish spots: in 1/3 and 2/3 length of interval 5, at base of interval 3, in the middle of intervals 7-9, in 3/4 length of intervals 8-9 (fig. 13). Pygidium with basal band of yellowish dense hairs, narrow median line of yellowish hairs, and yellowish apex. Ventrites uniformly yellowish-grey, only dorsal angle of hind coxa with spot of extremely dense hairs.

Head short, eyes emarginate to 2/3 length. Frons slightly narrower than width of eye, with short median keel. Antennae moderately long, extending to 1/3 elytral length, segment 3 about twice longer than 2, segments 8-10 about 1.1 times longer than wide. Pronotum 1.6 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole disc. Lateral margin in lateral view regularly convex. Elytral rows moderately punctate, intervals with several indistinct, shallow, large punctures. Pygidium densely punctured, large punctures almost touching each other. Hind legs with no sexual characters, hind tibia without dorsolateral carina, lateral carina in apical 1/3 length serrate, hind tibial spines straight, sharp, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate up to base. Median lobe elongate. Ventral valve large, pentagonal, slightly narrowed basally, apex truncate. Dorsal valve about twice narrower than ventral, elongate, apex triangular. Internal sac in anterior third with small needles, slightly in front of the middle with elongate, bispinose sclerite, apically with numerous large spines (fig. 293). Lateral lobes elongate, tape-like, apex rounded. Inner margin with long dense setae, in the middle with small lobe with group of extremely dense setae. Outer margin with scarce, short setae. Basal plate elongate, narrow, margins broadly pigmented (fig. 294).

Female. Unavailable.

Host plant. *Malvaceae: Hibiscus cannabina.*

DISTRIBUTION

India (Eastern Bengal).

TYPE

Holotype male, Eastern Bengal, on *Hibiscus cannabina,* F.H.B. 52184, 25.VI.24; *Spermophagus*, Eastern Bengal, on *Hibiscus canabinus* [!] F.H.B. 1924 (USNM).

REMARKS

It is unique species with no close relatives. Externally it is very similar to many Oriental species with hind tibia with dorsolateral carina and elytra variegate. Lateral lobes of *S. bengalicus* are unique. In structure of median lobe it is similar to *S. johnsoni* but has no spinose plate (*S. johnsoni* has one spinose plate) but in the middle posesses bispinose sclerite (*S. johnsoni* has no bispinose sclerite). The presence of bispinose sclerite in the middle of internal sac nears *S. bengalicus* to *S. humilis, S. lindbergorum,* and *S. rufipes. S. rufipes* distinctly differs in fore and mid legs partly or completely reddish, *S. humilis* and *S. lindbergorum* differ in unmodified lateral lobes. In my opinion, bispinose sclerite developed independently in all these species, except *S. humilis* and *S. linbergorum* which are probably close relatives.

Spermophagus bimaculatus PIC, 1911
(fig. 14, 112, 248-250, 371)

Spermophagus bimaculatus PIC, 1911: 124, 1913: 58; DECELLE, 1956: 426, 1958: 84; BOROWIEC, 1986 c: 238.

DESCRIPTION

Length: 1.8-2.4 mm, width: 1.4-1.9 mm.

Black, hind tibial spines, and oval spot on elytron near humeral callus reddish.

Vestiture very scarce, barely visible, greyish (fig. 14).

Head short, eyes emarginate to half length, frons about 1.8 times wider than eye, without median keel. Antennae short, not extending to hind angles of pronotum. Pronotum about 1.6 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole surface of disc. Lateral margin in lateral view distinctly convex. Elytra equal in width and length, on sides slightly rounded. Elytral rows distinctly punctate, intervals with irregular row of large punctures. Hind legs with sexual characters, inner apical spine about twice longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate up to anterior margin. Ventral margin of hind femora with long, dense, yellow hair. Hind tibiae distinctly curved ventrad, without dorsolateral carina, on ventral margin with long, dense, yellow hair (fig. 112). Median lobe moderately long, ventral valve almost rectangular with small truncate apical process, dorsal valve rectangular. Internal sac in anterior half with two bands of small dense needles along margins, slightly behind the middle with two large hook-like sclerites, in posterior half without distinct sclerites (fig. 248). Lateral lobes short, almost square, inner part of dorsal margin with a few short setae, surface with several sensory pores. Base narrow in maximum width slightly behind the middle (fig. 249). Spiculum gastrale not modified (fig. 250).

Female. Sternum V not emarginate. Femora without hair. Hind tibiae almost straight, without hair. Ovipositor distinct, very broad, pecten arcuate with only few strong setae, circular pigmentation distinct, apical lobes strongly modified with strong setae or elongate

spines, anterior margin of ovipositor between apical lobes with bifurcate process (fig. 371).

Host plant. *Convolvulaceae: Ipomea* sp., *Diospyros mespiliformis*.

DISTRIBUTION

Tanzania, Ruanda.

TYPE

Unknown to me. I have examined specimens determined by dr. J. DECELLE.

MATERIAL EXAMINED

See BOROWIEC, 1986: 240. New material: TANZANIA, Kigoma, 12 XII 20, ex seed of *Ipomea*, 1, N. Y. GOODMAN (USNM); Kenkelbosch, 30 I 1920, ex *Diospyros mespiliformis* fruit, 1, H. L. SANFORD (USNM).

REMARKS

It is a member of *S. hottentotus* group. It differs distinctly from all species of the group in bicoloured elytra, with large red posthumeral spot. Such spot occurs also in *S. rufonotatus*, species of monotypic group, but it differs in moderately densely pubescent elytra (in *S. bimaculatus* elytra is extremely scarce pubescent, appearing bare), hind legs not sexually dimorphic (in *S, bimaculatus* strongly sexually dimorphic), internal sac with numerous large spines (in *S. bimaculatus* with only a pair of large spines).

Spermophagus brincki DECELLE, 1970
(fig. 15, 282-285, 373)

Spermophagus brincki DECELLE, 1970: 260.

DESCRIPTION

Length: 2.1-2.7 mm, width: 1.7-2.2 mm.

Black, hind tibial spines reddish. Second and last antennal segments in some specimens brownish-red.

Vestiture uniform grey, scarce, not covering surface. On elytra hair placed obliquely to the middle of interval, and rows are not covering by hair and, elytra appearing longitudinally striped (fig. 15). Base of pygidium with transverse band of dense hair, other surface extremely scarcely pubescent. Ventral surface uniformly greyish pubescent.

Head short, eyes emarginate to 3/4 length, frons without median keel. Antennae short, extending to hind corners of pronotum. Segment 3 about 1.4 times longer than 2, segments 8-10 about 1.2 times wider than long. Pronotum 1.7 times wider than long, double punctured. Large punctures disposed almost uniformly on whole disc. Front margin of each puncture with small granule and surface of pronotum appearing rough. Lateral margin in lateral view almost straight. Elytra with maximum width in anterior third. Rows distinctly punctured, intervals with shallow large punctures, surface between punctures slightly rough. Hind tibiae without sexual characters, apex of tibia with large coronal denticles, apical spines short, sharp, internal spine slightly longer than the external. Claws with large basal tooth.

Male. Sternum V emarginate to half length. Median lobe elongate, ventral valve almost regularly triangular, apex acute. Dorsal valve about twice narrower than the ventral with triangular apex. Internal sac in anterior sixth with group of small plates in lateral margin of sac, and group of small spines near end. Central part of sac without sclerites (fig. 282). Lateral lobes strongly modified. Each lobe with strongly sclerotised base, in apical part divided into two smaller lobes (fig. 284). Internal lobe on margin with row of sharp spine-like hair, external lobe at apex with a few long hair (fig. 285). Basal plate narrowed to apex and uniformly sclerotized. Spiculum gastrale not modified (fig. 283).

Female. Sternum V not emarginate. Ovipositor distinct, elongate, without pecten and oblique pubescent suture, apical lobes acute apically, with several sensory setae (fig. 373).

Host plant unknown.

DISTRIBUTION

Namibia.

TYPES

Holotype male, allotype female and paratype female, SW Afr., Kaokoveld, Anabib (Orupembe) 100 miles W Ohopoho, 12-13 VI 1951, No 339, Swedish South Africa Expedition, 1950-1951, BRINCK - RUDEBECK (LU).

MATERIAL EXAMINED

No additional material.

REMARKS

It is a distinct species with no close relatives. It is the only species with elytra longitudinally striped, and pronotum minutely granulate. Also lateral lobes are unique.

Spermophagus calystegiae (LUKJANOVITSH et TER-MINASSIAN, 1957)
(figs. 16, 130, 131, 374)

Euspermophagus calystegiae LUKJANOVITSH et TER-MINASSIAN, 1957: 193; BAGDASARJAN, 1967: 806; BATIASHVILI and ELERDASHVILI, 1969: 529.

Spermophagus calystegiae: KARAPETJAN, 1973 b: 80; BOROWIEC, 1981: 37-39, 1983a: 124, 1983b: 298, 1985 a: 4, 1988: 199; BRANDL, 1981: 11; DECELLE, 1983: 239; WENDT, 1988: 317; DECELLE and LODOS, 1989: 201.

Spermophagus calistegiae: KARAPETJAN, 1985: 148.

DESCRIPTION

Length: 1.4-2.7 mm, width: 1.0-2.0 mm.

Black, including hind tibial spines. Some specimens from Sardinia have antennae, legs, maxillary palpi, hind tibial spines and apex of elytra partly or completely reddish; some specimens from south Spain have reddish hind tibial spines, but these abnormal specimens are extremely rare, not more than 0.5% population.

Vestiture scarce to moderately dense, greyish, not covering body surface, uniform (fig. 16).

Head short, eyes strongly emarginate with only two facets behind emargination. Frons distinctly wider than width of eye, without median keel. Antennae moderately long, extending to 1/3 length of elytra, segment 3 about 1.7 times longer than 2, segments 8-10

about equal in length and width. Pronotum about 1.6 times wider than long, doubly punctured, large punctures scarce, disposed almost uniformly on whole surface. Lateral margin in lateral view regularly convex. Elytral rows moderately punctate, intervals with several shallow large punctures. Hind tibia with no sexual characters, without dorsolateral carina, lateral margin serrate. Hind tibial spines sharp, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate to half length. Median lobe moderately long, constricted behind valvae, ventral and dorsal valvae elongate, pentagonal, apex angulate, internal sac without sclerites (fig. 130). Lateral lobes long, tape-like, apex acute, margins with dense, long setae. Basal plate of lateral lobes narrow, strongly emarginate anteriorly so bases of lobes apart (fig. 131). Spiculum gastrale modified (fig.128).

Female. Sternum V not emarginate. Ovipositor of standard type, with oblique pubescent suture and circular pigmentation. Apex of apical lobes rounded (fig. 374).

Host plants. *Calystegia sepium, C. soldanella.*

DISTRIBUTION

Europe, except extreme north and British Isles, North Africa, Near East, Middle East, Middle Asia.

TYPE

Unknown to me.

MATERIAL EXAMINED

See BOROWIEC, 1985: 5.

REMARKS

It is a member of *S. sericeus* group. *S. calystegiae, S. altaicus* and *S. sericeus* are the only species with hind tibial spines black. *S. altaicus* differs in tarsal claws without basal tooth. *S. sericeus* differs only in structure of male genitalia and ovipositor (see key). *S calystegiae* forms also a colour aberration with hind tibial spines reddish. It occurs in Sardinia and South Spain. It is similar to sympathric *S. kuesteri* and *S. maafensis.* The latter differs in tarsal claws without basal tooth, *S. kuesteri* is usually larger, stouter, with short lateral lobes and median lobe not constricted behind ventral valve.

Spermophagus canus BAUDI, 1886
(figs. 18, 141, 142, 375)

Spermophagus canus BAUDI, 1887: 472; PIC, 1913: 58; BOROWIEC, 1985 a: 1, 1987: 612; WENDT, 1985: 283.

DESCRIPTION

Length: 2.7 mm, width: 2.0 mm.

Black, only hind tibial spines reddish.

Vestiture dense, felt-like, ochraceous, uniform, covering body surface (fig. 18). Ventral surface with uniform yellowish-grey pubescence.

Head short, eyes emarginate to 2/3 length, frons slightly wider than width of eye, without median keel. Antennae long, extending to half length of elytron, segment 3 about 1.8

times longer than 2, segments 8-10 about 1.4-1.5 times longer than wide. Pronotum 1.7 times wider than long, doubly punctured, large punctures scarce, on sides denselr than in the middle of disc. Lateral margin in lateral view slightly convex. Elytral rows moderately punctate, intervals with a few larger punctures. Hind legs with no sexual characters, hind tibia without dorsolateral carina, lateral carina only in apical half slightly serrate, hind tibial spines moderately long, sharp, outer spine distinctly longer than the inner. Claws with large basal tooth.

Male. Sternum V emarginate to 3/4 length. Median lobe moderately long, ventral valve regularly pentagonal, apex acute, dorsal valve narrower than the ventral, triangular, apex acute. internal sac without sclerites, only basal part with very small needles (fig. 141). Lateral lobes extremely short, subtriangular, apex obtuse, margins and surface with several short setae. Basal plate of lateral lobes broad, almost parallel-sided, anterior margin with short setae (fig. 142).

Female. Sternum V not emarginate. Ovipositor of standard type with oblique pubescent suture and circular pigmentation, pecten without enlarged base, apical lobes short, subangulate (fig. 375).

Host plant unknown.

DISTRIBUTION

Iran, Kazakh SSR, W China.

TYPE

Unknown to me.

MATERIAL EXAMINED

IRAN: Fars, Dasht-e-Arjan, 1650 m, 29 40'N/51 59'E, 1 VI 1974, 1 (LB); USSR: Kazakh SSR, Bekljar-bek near Cikment, 1 (HNHM).

REMARKS

It is a member of *S. sericeus* group. Externally it differs from all species of the group in elytral vestiture extremely dense, felt-like. Very short lateral lobes are unique and place this species in a separate position within *S. sericeus* group.

Spermophagus caricus DECELLE, 1982
(figs. 19, 20, 196, 197, 377)

Spermophagus caricus DECELLE, 1982: 31; BOROWIEC, 1985 a: 21; DECELLE and LODOS, 1989: 201.

DESCRIPTION

Length: 2.5-2.6 mm, width: 1.9-2.0 mm.

Black, only hind tibial spines reddish.

Vestiture dense, covering body surface. I have observed two colour forms of this species (figs. 19, 20). The first has dorsal vestiture with white, yellow and brown hairs. White hairs form two round spots in the middle of elytra, two behind the middle nearer elytral suture, two small spots on the back near lateral margin of elytra, and two transverse at elytral base. Yellow hairs form spot along suture, and two or three transverse irregular

bands: first on elytral bases, second in the middle of elytra, and sometimes third in front of elytral apices. Yellow hairs surround also white spots. The second form has only greyish and brownish hairs. Greyish hairs form spot along suture and three irregular bands or spots in elytra. Pronotum with greyish or yellowish hair and three spots: two small round at sides, and large at base. Size of basal spot variable, its anterior margin more or less emarginate. Pygidium white or greyish, with two large, apical spots, yellowish in tricoloured form, brownish in bicoloured form. Ventral part of body in tricoloured form with thorax mostly white pubescent and abdomen mostly yellow with white dorsal corners of sternites, hind coxa with yellow pubescence and white spot in dorsal corner; in bicoloured form whole ventral surface with greyish pubescence.

Head short, eyes emarginate to 3/4 length, frons slightly narrower than width of eye, with short median keel. Antennae very long, extending to 2/3 length of elytra. Segment 3 about 2.5 times longer than 2, segments 8-10 about 1.2-1.4 times longer than wide. Pronotum about 1.6 times wider than long, doubly punctured, large punctures scarce, disposed almost uniformly on whole disc. Lateral margin in lateral view strongly convex. Elytral rows moderately punctate, intervals without large punctures. Hind legs with no sexual characters, without dorsolateral carina, margin of lateral carina in apical half strongly serrate. Apical spines long, sharp, of equal length, outer spine distinctly curved. Claws with large basal tooth.

Male. Antennae longer. Sternum V emarginate to half length. Median lobe short and broad. Ventral valve pentagonal, slightly narowed basally, apex acuminate. Dorsal valve slightly narrower than ventral, apex acute, the valve in basal part with characteristic bridge sclerite. Internal sac in basal part with two groups of small spines, in the middle with pair of extremely large, elongate spines, and behind the large spines with dense, small spines (fig. 196). Lateral lobes short, elongate-oval, with strong microsculpture, margins without sensory setae, except one long seta at base of lateral margin and two or three short setae in front of the long seta. Basal plate of lateral lobes narrow, almost parallel-sided, strongly pigmented except narrow median area (fig. 197).

Female. Antennae shorter. Sternum V not emarginate. Ovipositor of standard type but elongate, with oblique pubescent suture, pecten base not enlarged, circular pigmentation reduced to small area at lateral margin of ovipositor, apical lobes short, obtuse apically (fig. 377).

Host plant unknown.

DISTRIBUTION

Greece (Rhodos), Lebanon, Turkey, Iran, USSR (Uzbek SSR).

TYPES

Holotype male, Turkey, Mugla, 5 VI 1973, sur *Pistacia* vere, N. LODOS leg. (MRAC, after DECELLE, 1982: 33).

MATERIAL EXAMINED

See BOROWIEC, 1985: 21.

REMARKS

It is unique species with no close relatives. Externally it is similar to *S. decellei* only.

They are the only Palearctic species with very contrasting dorsal pattern of dense hairs . *S. decellei* differs in pronotal basal spot small, median lobe without large spines, lateral lobes acute apically.

Spermophagus caucasicus Baudi, 1886
(figs. 17, 176, 177, 376)

Spermophagus caucasicus Baudi, 1887: 472, Pic, 1913: 59; Karapetjan, 1973 b: 83, 1985: 153; Borowiec, 1985 a: 20; Decelle and Lodos, 1989: 201.

Euspermophagus caucasicus: Lukjanovitsh and Ter-Minassian, 1957: 197; Bagdasarjan, 1967: 907; Wendt, 1983: 97.

Euspermophagus eous Lukjanovitsh et Ter-Minassian, 1957: 199; Egorov, 1981: 51; Egorov and Ter-Minassian, 1983: 57, **n. syn.**

Spermophagus eous: Borowiec, 1983 c: 286.

Description

Length: 1.7-2.1 mm, width: 1.3-1.5 mm.

Black, only hind tibial spines reddish. In specimens from Middle Asia integument often with brass tint.

Vestiture moderately dense, almost covering body surface, greyish and brown. On pronotal disc white hairs form two elongate spots at base in front of elytral interval 3, each spot extending from base to almost half length of pronotum; in front of the elongate spots usually small circular spot; also two elongate spots extending from anterior margin to 3/4 length of pronotum, in front of elytral interval 7. Sometimes pronotal spots partly coalescent. Elytra with greyish: elongate spots at base of intervals 3 and 5, small spots in 1/3 and 2/3 length of interval 3, elongate spot in the middle of interval 4, and transverse bands in 1/3 and 2/3 elytral length between intervals 5-11, the bands often coalescent with spot on interval 4, close large dark spot in the middle of lateral margin of elytra. Apices of elytra dark brown (fig. 17). Pygidium uniformly greyish pubescent, or with indistinct spots of darker hairs, or with basal band and median line of grey hairs and two large apical spots brown. Ventral part of body uniformly greyish pubescent.

Head short, eyes emarginate to 2/3 length. Frons slightly wider than width of eye, without median keel. Antennae moderately long, extending to 1/3 elytral length, segment 3 about 1.5 times longer than 2, segments 8-10 about 1.1-1.2 times longer than wide. Pronotum 1.6 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole surface. Lateral margin in lateral view slightly convex. Elytral rows moderately punctate, intervals with a few large, shallow punctures. Hind legs with no sexual characters. Hind tibia without dorsolateral carina, lateral carina serrate. Apical spines straight, sharp, of equal length. Tarsal claws with very small basal tooth.

Male. Sternum V emarginate to 3/4 length. Median lobe moderately long, ventral valve triangular, with slightly concave sides, apex angulate, dorsal valve about twice narrower than ventral, triangular, apex angulate. Internal sac without large sclerites, margins with very small needles (fig. 176). Lateral lobes moderately long, tape-like, apex rounded, margins with long, dense setae. Basal plate of lateral lobes broad, strongly narrowed apically (fig. 177).

Female. Sternum V not emarginate. Ovipositor of standard type, little characteristic, with oblique pubescent suture, pecten without enlarged base, no circular pigmentation, apical lobes subangulate (fig. 376).

Host plants. Probably *Calystegia sepium*, the beetles are usually collected in the flowers of this plant. In the Middle Asia it was reared from pods of turanga tree (SOBOLEVA, 1964).

DISTRIBUTION

Caucasus (Nakhichevan ASSR), Turkmen SSR, Uzbek SSR, Kirghiz SSR, Iran, Afghanistan, Russian Far East and Korea.

TYPES

Spermophagus caucasicus: Lectotype male, "*Spermophagus caucasicus*" BAUDI Lectotypus, designata da M. F. ZAMPETTI - 1980 (MZUT, present designation, the designation by ZAMPETTI has never been published); paralectotype, sex undet., no locality label (ZSD).

Euspermophagus eous: type unknown to me. I have examined specimens determined by M. E. TER-MINASSIAN.

MATERIAL EXAMINED

See BOROWIEC, 1983: 286, 1985: 21. New material: AFGHANISTAN: Kandahar-Kuna, 950 m, 6 III 53, 1, J. KLAPPERICH (LB); USSR: Tadijkistan, Javroz (prov. Dushanbe), Hissar Mt., 1300 m, 3, K. MAJER (JS).

REMARKS

It is unique species with no close relatives. The reduced basal tooth of tarsal claws near this species to palaearctic *S. maafensis* and *S. klapperichi*. Both these species differ in uniform elytral vestiture (in *S. caucasicus* variegate). Tarsal claws without basal tooth developed probably independently in several species and this character has no phylogenetic significance.

Spermophagus cederholmi DECELLE, 1975
(fig. 21, 346-348, 378)

Spermophagus cederholmi Decelle, 1975 c: 193; BOROWIEC, 1986 a: 786.
Spermophagus latescenta: YADAV, 1969: 259, 1973: 289, 292 (nomen nudum).
Spermophagus latescenta ARORA, 1977: 89; SINGH, 1978: 199; BOROWIEC, 1986 a: 786 (as syn.).

DESCRIPTION

Length: 2.0-2.6 mm, width: 1.5-1.9 mm.

Black, only hind tibial spines reddish.

Vestiture dense, covering body surface, yellowish and yellowish-brown. Darker hairs form indistinct spots on pronotum and small spots on odd elytral intervals, including small spot on elytral apices. The darker elytral spots arranged in more or less regular transverse line, but not appearing as bands (fig. 21). Pygidium uniformly yellowish pubescent or with indistinct dark spots, often with small spot of whitish hairs in the middle of basal margin. Ventral part of body with mixed white and yellowish hair. The dorsal pattern is rather constant but specimens differ in degree of contrast between darker and paler hairs.

Head short, eyes emarginate to 2/3 length. frons slightly narrower than width of eye, with short median keel. Antennae moderately long, extending to 1/3 length of elytra.

Segment 3 about 2.3 times longer than 2, segments 8-10 about 1.3 times longer than wide. Pronotum 1.6-1.7 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole surface. Lateral margin in lateral view moderately convex. Elytral rows moderately punctate, intervals without or with a few large, shallow punctures. Hind legs with no sexual characters. Hind tibia without dorsolateral carina, lateral carina in distal half slightly serrate, apical spines straight, sharp, the inner about 1.3 times longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate up to base. Median lobe moderately long, ventral valve pentagonal, apex acute, dorsal valve narrower than the ventral, subpentagonal, apex acute, Internal sac in anterior half divided into two tapes, each with small granulation, in posterior half with a pair of extremely large, elongate spines, each with additional small spines on dorsal surface, appearing cone-like; behind the large spines usually 10 (occasionally 9, 11 or 12) of large, hook-like sclerites (fig. 346) . Lateral lobes of characteristic shape, on margins without sensory setae, except convex part of inner margin with 3-5 setae (fig. 347). Spiculum not modified (348).

Female. Sternum V not emarginate. Ovipositor of standard type, elongate, with oblique pubescent suture, without circular pigmentation, pecten elongate without enlarged base, apical lobe obtuse, densely pubescent (fig. 378).

Host plant. *Convolvulaceae: Ipomea pestigridis.*

DISTRIBUTION

India and Ceylon.

TYPES

Holotype male, Ceylon, N. prov., Pali Aru, 20 mls NE Mannar, 15 II 1962, loc. 87, swept along roads, dry forest, Lund University Ceylon Expedition, BRINCK-ANDERSSON-CEDERHOLM (LU), paratype male, the same data (LU), allotype female, Ceylon, N. Centr. Prov., Kantalai, 8-9 II 62, loc. 58, Garden, Lund University Ceylon Expedition, BRINCK-ANDERSSON-CEDERHOLM (LU).

Spermophagus latescenta: unknown to me.

MATERIAL EXAMINED

See BOROWIEC, 1985: 786. New material: INDIA: Bombay, Sept. 24, 6, J. C. BRIDWELL (USNM); Bombay, Dec. 1924, in *Ipomea pestigridis*, 4 (USNM); S India, Nilgiri Hills, Kallar, 375 m, VIII 1957, 1, P. S. NATHAN (USNM); Punjab, Hoshiaspur, on *Lantana* flowers, 21 XI 18, 3, FLETCHER (USNM); Assam, 6 mi. N of Tinsukia, 15 III 44, 1, D. E. HARDY (USNM); Goa, Mormugao, Jun. 25, 1, J. C. BRIDWELL (USNM).

REMARKS

It is a member of *S. cederholmi* group. This group includes also *S. pfaffenbergeri*. These two species are characterized by unique lateral lobes, internal sac of median lobe with extremely large sclerites, hind tibia without dorsolateral carina. Both species of the group are very similar externally and differ only in structure of median lobe. In *S. cederholmi* internal sac posesses more than three pairs of large sclerites while in *S. pfaffenbergeri* internal sac has only three pairs of large sclerites. *S. cederholmi* is distributed only in India and Ceylon, while *S. pfaffenbergeri* is widely distributed in Oriental Region from India to Philippines and Sunda Is.

Spermophagus ceylonicus Pic, 1917
(fig. 22, 107, 321-323, 379)

Spermophagus ceylonicus Pic, 1917: 9; Decelle, 1975 c: 191.

Description

Length: 2.8-3.1 mm, width: 2.0-2.3 mm.

Black, only hind tibial spines reddish.

Dorsal vestiture moderately dense, not covering body surface. Greyish and brownish hairs form marble pattern (fig. 22). Pygidium and ventral surface uniformly grey pubescent.

Head short, eyes emarginate only to half length, frons slightly narrower than width of eye, convex, with short median keel. Antennae short, extending to humeral callus, segment 3 about 1.6 times longer than 2, segments 8-10 slightly longer than wide. Pronotum 1.5 times wider than long, doubly punctured, large punctures scarce, disposed almost uniformly on whole surface. Lateral margin in lateral view strongly convex. Elytral rows distinctly punctate, intervals without or with a few shallow, indistinct large punctures. Puncturation of pygidium in anterior half moderately dense, intervals about 1.1-1.5 times wider than puncture diameter, in posterior half extremely dense, punctures almost touching each other, surface appearing rugose. Legs with sexual characters. Hind tibial spines sharp, straight, outer spine slightly longer than the inner. Claws with large basal tooth.

Male. Inner margin of antenna with row of long, perpendiculer seate. Fore tibia and tarsi strongly dilated (fig. 107). Sole of tarsi with extremely dense and long hair. Mid tibia moderately dilated with sharp carina on outer margin, tarsi strongly dilated with densely pubescent sole. Hind tibia with sharp dorsolateral carina, lateral carina not serrate, anterior margin of tibia in distal half with several long setae. Abdomen telescoped, sternum V emarginate up to base. Median lobe elongate, ventral and dorsal valvae pentagonal with obtuse apex. Internal sac in anterior third with needles along margins, in the middle with a pair of large, clavate sclerites, and group of fine needles behind the large sclerites (fig. 321). Lateral lobes strongly modified. Each lobe divided into two short, strongly folded tapes, rounded apically, with long setae on margins. Basal plate of lateral lobes extremely broad, narrowed apically (fig. 322). Spiculum gastrale modified (fig. 323).

Female. Antennae without row of long setae. Fore and mid legs not dilated, mid tibia without carina. Hind tibia with strong dorsolateral carina but without long setae on anterior margin. Abdomen only slightly telescoped, sternum V emarginate to 1/5 length. Ovipositor of standard type, short, with oblique suture, pubescent area, and circular sclerite, pecten with enlarged base, apical lobes densely pubescent (fig. 379).

Host plant. *Convolvulaceae: Hewittia bicolor.*

Distribution

Ceylon, India (Goa).

Type

Holotype male, Ceylan (MHNP).

MATERIAL EXAMINED

INDIA: Goa, Mormugao, from seeds of *Hewittia bicolor*, Dec. 1924, 9, J. C. BRIDWELL (USNM, LB).

REMARKS

It is unique species with no close relatives. It differs distinctly from all species in fore leg of male strongly dilated, and mid tibia of male with longitudinal carina. Externally it is similar to large species of *S. ligatus* group but has no extremely large, hook-like sclerites in internal sac which are characteristic of *S. ligatus* group. Also structure of lateral lobes is unique.

Spermophagus cicatricosus GYLLENHAL, 1833

(figs. 23, 203-205, 382)

Spermophagus cicatricosus GYLLENHAL, 1833: 109; PIC, 1913: 59; DECELLE, 1951: 191, 1969: 296, 1973 b: 602.

DESCRIPTION

Length: 1.7-2.1 mm, width: 1.3-1.6 mm.

Black, only hind tibial spines reddish.

Vestiture scarce, uniform, brownish or greyish, not covering body surface, in specimens from west and central Africa usually very scarce, often almost invisible, in specimens from east Africa denser and paler (fig. 23).

Head short, eyes emarginate to 2/3 length. Frons as wide as wodth of eye, flat, without median keel. Antenna short, extending to humeral callus, segment 3 about 1.4 times longer than 2, segments 8--10 about equal in length and width. Pronotum 1.6 times wider than long, doubly punctured, large punctures dense and deep, dosposed almost uniformly on whole surface. Lateral margin in lateral view regularly convex. Elytral rows strongly punctate, intervals with irregular row of large, deep punctures. Pygidium strongly punctured, intervals about twice narrower than puncture diameter. Hind tibia with indistinct dorsolateral carina, lateral carina not serrate. Hind tibial spines sharp but short, in western populations outer spine is often very short, squamiform, about twice shorter than inner spine. Claws with large basal tooth.

Male. Hind tibia with longer and dense setae on anterior margin. Sternum V emarginate to 1/3 length. Median lobe moderately long, ventral valve rectangular, with apex truncate or with small apical angulation, dorsal valve similar to the ventral, internal sac without sclerites, only basal part with group of very small needles (fig. 203). Lateral lobes very short, anterior margin with moderately long setae, surface microsetose. Basal plate of lateral lobes elongate, slightly narrowed apically, with narrowly pigmented sides (fig. 204). Spiculum gastrale not modified (fig. 205).

Female. Hind tibia with shorter and scarcely setae on anterior margin. Sternum V not emarginate. Ovipositor slightly modified, oblique pubescent suture reduced to inner half of each lobe, pecten without enlarged base, no circular pigmentation, apical lobe short, rounded apically (fig. 382).

Host plant. *Convolvulaceae: Ipomea* sp.

DISTRIBUTION

Sierra Leone, Cameroon, Zair, Urundi, Kenya, Tanzania, Botswana, South Africa.

TYPES

Lectotype female, S. Leona, AFZELIUS, typus (NRS, present designation), paralectotype female, the same data (NRS).

MATERIAL EXAMINED

BOTSWANA: Bechuana Ld., 15 m SE Kai-Kai, IX-XI 1961, 1, MARSHALL, Kalahari Exp. (TM); Cameroon, Tome near Victoria, 22-31 I 1980, 3, Polish Student Exp. (LB); SOUTH AFRICA: Buffols R., 11 II 49, 2, KOCH (TM); TANZANIA: Shirati, IV 1909, 1, V 1909, 1, Katona (HNHM); Moschi, 1, F. RAU (HNHM); Nata, 15 II 1960, 1, Dr. SZUNYOGHY (HNHM).

REMARKS

It is a simple member of *S. cicatricosus* group but probably a relative of *S. hottentotus* group. Like members of *S. hottentotus* group it has elytral vestiture scarce, uniform, median lobe with no large sclerites, ventral valve short, lateral lobes short, not tape-like. Unlike members of *S. hottentotus* group its hind legs are only slightly sexually dimorphic. It is probably a much plesiotypic member of the lineage leading to *S. hottentotus* group.

Spermophagus ciliatipes PIC, 1927
(figs. 24, 251-253)

Spermophagus ciliatipes PIC, 1927: 13; BOROWIEC, 1986 c: 240.

DESCRIPTION

Length: 2.0 mm, width: 1.6 mm.

Black, only hind tibial spines reddish.

Vestiture scarce, greyish, uniform, not covering body surface (fig. 24).

Body almost spherical. Head short, without median keel. Antennae short, extending to hind angles of pronotum. Pronotum about 1.5 times wider than long, pronotal disc doubly punctured, space between punctures without microreticulation. Lateral margin in lateral view feebly convex. Elytra equal in length and width. Elytral rows distinctly punctate, elytral intervals with small primary puncturation and several large punctures. Pygidium strongly convex apically, coarsely and densely punctate, with no irregular rugosities. Ventral surface without diagnostic characters. Hind legs sexually dimorphic, hind tibial spines sharp, inner spine about twice longer than the outer. Claws with large basal tooth.

Male. Hind tibiae slightly curved ventrad, without dorsolateral carina, ventral margin with long, dense, yellow hair, in apical half of tibiae hair longer than in basal half. First tarsomere without hair. Median lobe moderately long, ventral valve short, transverse, apex truncate. Internal sac in anterior third with two elongate groups of needles, in the middle with two elongate large sclerites, in posterior third in numerous extremely small needles (fig. 251). Lateral lobes very short, subcircular in outline, margins without hair, surface in the middle with several small spines, at the internal margin surface with reticulate sculpture. Base almost parallel-sided, lateral margins broadly chitinized (fig. 252). Spiculum gastrale not modified (fig. 253).

Female unavailable.

Host plant unknown.

DISTRIBUTION

Central Africa.

TYPE

Holotype male, "Afrique Centrale" (MHNP).

MATERIAL EXAMINED

No additional material.

REMARKS

It is a member of *S. hottentotus* group. It differs from all species of the group in elytra moderately densely, greyish pubescent, while in other species the pubescence is extremely scarce and dark brown. In structure of median lobe and lateral lobes it is very similar to *S. bimaculatus*, but it differs in bicoloured elytra.

Spermophagus coimbatorensis n. sp.
(figs. 25, 355-357)

DESCRIPTION

Length: 2.4-2.6 mm, width: 1.8-2.0 mm.

Black, only hind tibial spines reddish.

Vestiture dense, covering body surface. Pronotum with pattern of mixed pale brown and greyish spots. Elytra pale brown with greyish: elongate spot at base of intervals 3 and 5, small spot in 1/4 length of interval 3, small spots in 1/3 length of interval 7 and 9, basal third of interval 6, transverse, irregular band in 2/3 length of elytra between intervals 3-9 (fig. 25). Pygidium greyish with indistinct median spot of pale brown hairs. Ventrites uniformly greyish pubescent.

Head short, eyes emarginate to 3/4 length, frons as wide as eye width, without or with indistinct median keel. Antennae elongate, extending to half length of elytra, segment 3 about 2.2 times longer than 2, segments 8-10 about 1.8 times longer than wide. Pronotum 1.6 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole disc. Lateral margin in lateral view strongly convex. Elytral rows moderately punctate, intervals with irregular row of large punctures. Pygidium densely punctured, large punctures almost touching each other. Hind legs with no dimorphic characters, hind tibia with dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, straight, inner spine slightly longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate to 2/3 length. Median lobe moderately elongate, ventral valve strongly modified, very short, apex slightly concave. Dorsal valve about twice narrower than ventral, extremely short, apex truncate. Internal sac in anterior part with two bands of small needles, in the middle with group of small, dense needles (fig. 355). Basal plate very broad, strongly narrowed apically, anterior margin at sides with oblique striation, lateral lobes elongate, tape-like, apex acute. Margins with long setae, inner margin about twice as densely setose as the outer (fig. 356). Spiculum gastrale modified (fig. 357).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

India.

TYPES

Holotype male, Coimbatore, 30.VI.12, K.S.P. coll., on a bush (USNM); paratype male, S. India, Anamalai Hills, Cinchana, 1050 m, IV-1956, P.S. NATHAN (BM); paratype male, Bombay, BIRÓ 1902, *Spermophagus uniformis* PIC, det. M. PIC, 1955 (HNHM).

REMARKS

It is a member of *S. mannarensis* group. Both species have unique male genitalia with ventral valve concave apically and basal plate of lateral lobes very broad and lateral lobes placed laterally to the basal plate. *S. coimbatorensis* differs from *S. mannarensis* in larger body and fore and mid legs completely black.

Spermophagus complectus SHARP, 1866
(figs. 63, 143-145)

Spermophagus complectus SHARP, 1866: 37.
Euspermophagus complectus: LGOROV, 1981: 51; LGOROV and TER-MINASSIAN, 1983: 57.
Spermophagus multilineolatus PIC, 1918 b: 7, **n. syn.**

DESCRIPTION

Length: 2.6-2.7 mm, width: 2.0 mm.

Black, only hind tibial spines reddish.

Vestiture scarce, not covering body surface, brown, with small whitish spots. Pronotum usually uniformly brown pubescent, sometimes with indistinct spots of mixed brown and whitish hairs on sides. Elytra with small spot in 1/3 length of elytral interval 3, and transverse spot in the middle of elytra between intervals 7-9, sometimes with indistinct transverse band in 2/3 length of elytral intervals 5-9 (fig. 63). Pygidium and ventral surface uniformly greyish pubescent.

Head short, eyes emarginate to 2/3 length. Frons slightly wider than width of eye with impunctate median line. Antennae moderately long, extending to humeral callus, segment 3 about 1.4 times longer than 2, segments 8-10 about equal in length and width. Pronotum 1.7 times wider than long, doubly punctured, large punctures scarce, disposed uniformly on whole surface or grouping on sides of disc. Lateral margin in lateral view strongly convex. Elytral rows moderately punctate, intervals with several indistinct large punctures, Pygidium doubly punctured, intervals between large punctures about 1.1-2.0 times wider than punctures diameter. Hind legs with no sexual characters, hind tibia with sharp dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, outer spine as long as 2/3 length of inner spine. Claws with large basal tooth.

Male. Abdomen strongly telescoped. Segment V emarginate up to base. End of pygidium extending almost to posterior margin of sternum I. Median lobe elongate, ventral and dorsal valvae triangular with slightly concave sides, internal sac without sclerites (fig. 143). Lateral lobes moderately long, tape like, apex obtuse, form incomplete ring around median lobe. Basal part narrow, almost parallel-sided, with strongly pigmented sides (fig. 144). Spiculum gastrale not modified (fig. 145).

Female. Unavailable.

Host plants. *Convulvulaceae: Calystegia hederacea, C. dahurica, C. sepium.*

DISTRIBUTION

Russian Far East, China, Japan

TYPES

Spermophagus multilineolatus: lectotype male, guNam (MHNP, present designation), two paralectotypes males, guNam (MHNP).

Spermophagus complectus: unknown to me. I have examined specimens determined by M. E. TER-MINASSIAN.

MATERIAL EXAMINED

USSR: Mantschourie, Ile Askold, 1880, 4, M. JANKOWSKI (MHNP, LB); Wladiwostok, Rečka, 6 VI 914, 1, 11 VII 914, 1, ČERSKIJ (LB).

REMARKS

It is a species of uncertain position, close to Oriental members of *titivilitius* group or Palearctic members of *sericeus* group. Median lobe without sclerites and lateral lobes forming a ring surrounding median lobe distinguish this species from species of both *titivilitius* and *sericeus* groups.

Spermophagus confusus BOROWIEC, 1986
(figs. 27, 135-137, 380)

Spermophagus confusus BOROWIEC, 1986 b: 163; DECELLE and LODOS, 1989: 201.

Spermophagus variolosopunctatus sensu SCHILSKY, 1905: no. 5; PIC, 1913: 63; BATIASHVILI and ELERDASHVILI, 1969: 530; KARAPETJAN, 1973 b: 80, 1985: 149; WENDT, 1978: 364, 1984: 166; ZAMPETTI, 1981: 85; BOROWIEC, 1983 a: 125, 1984: 300, 1985 a: 14.

Euspermophagus variolosopunctatus: LUKJANOVITSH and TER-MINASSIAN, 1957: 195; WENDT, 1983: 97.

DESCRIPTION

Length: 2.5-2.9 mm, width: 1.9-2.4 mm.

Black, only hind tibial spines reddish.

Vestiture extremely scarce, dark brown, not covering body surface (fig. 27). Pygidium with transverse, basal band of dense white hair, and sometimes with narrow, medial, longitudinal white line.

Body short-oval. Head short, eyes emarginate to 3/4 length, frons about 1.8 times wider than width of eye, with indistinct median keel or without keel. Antennae moderately long, reaching beyond humeral callus. Segment 3 about 1.7 times longer than 2, segments 8-10 about equal in length and width. Pronotum about 1.7 times wider than long. Disc doubly punctured, large punctures distributed almost uniformly on whole pronotal disc. Lateral margin in lateral view strongly convex. Elytral rows moderately punctured, intervals with several large punctures. Hind legs without sexual characters. Hind tibia without dorsolateral carina, lateral carina serrate, hind tibial spines sharp, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate to 2/3 length. Median lobe moderately long, slightly narrowed basally, ventral valve subtriangular with sides slightly concave, apex acuminate, internal sac without sclerites (fig. 135). Lateral lobes short, tape-like with apex angulate. Margins of each lobe with long, dense hair. Basal plate of lateral lobes very broad, strongly narrowed basally, with two long setae near anterior margin, and densely, short pubescence in anterior third (fig. 137). Spiculum gastrale as in fig. 136.

Female. Sternum V not emarginate. Ovipositor of standard type, little characteristic, with oblique pubescent suture, pecten without enlarged base, circular pigmentation absent, apical lobes angulate, with numerous long setae (fig. 380).

Host plant: *Convolvulaceae: Convolvulus arvensis, Calystegia sepium.*

DISTRIBUTION

Yugoslavia, Bulgaria, Greece, Roumania, Hungary, Turkey, USSR: Crimea, Georgia, Daghestan, Armenia.

TYPES

Holotype male, USSR, Georgia, Novy Afon, 24 V 1975, leg. S. TOTH (HNHM); allotype female, USSR, Georgia, Lake Ritsa, 26 VI 1975, leg. S. TOTH (HNHM); paratype, sex undet., Tauria [now Crimea], STEVEN "paratype of *Spermophagus variolosopunctatus*" (NRS); paratype male, Daghestan, LEDER, REITTER (LB); three paratype females, Hungary [now Roumania], Herkulesbad (NMP); paratype female, Herkulesbad, v. BODEMEYER (NMP); paratype male, Bosnia, Bracka (NMP); paratype, sex undet., Bosnia, Majavica, VI. ZOUFAL (NMP); paratype female, USSR, Georgia, Gulripsch, 31 V 1975, leg. K. SIN (HNHM); paratype female, Greece, Naussa, 20 V 1937, BARTON (NMP); paratype female, Greece, Pangeon Oros, 3 km NW of Kipia, 20 VI 1982, leg. R. DANIELSSON (LU); three paratype females, Turkey, ancient Termessos near Antalya, 900-1050 m, 30 V 1979, leg. B. MALKIN (BM, LB); paratype male, Turkey, ancient Termessos, prov. Antalya, 17 V 1981, leg. B. MALKIN (BM); paratype female, Bulgaria, Malko Tyrnovo, 2-5 V 1958, leg. B. PISARSKI (LB).

MATERIAL EXAMINED

See BOROWIEC, 1985: 14. New material: GREECE: Balkan, Korfu, 6, PAGANETTI (MTD), TURKEY: Taurus, Mardin, 1 (MTD); no locality, 1 (MTD); USSR: Russia merid., 1 (MTD); Georgia, VI 1976, 1, RATAJ (HNHM).

REMARKS

It is a member of *S. sericeus* group but with a rather separate position. It is the only species of the group with dorsal vestiture scarce, dark brown, but with pigidium with transverse band of extremely dense chalk-white hairs at base.

Spermophagus coronatus n. sp.
(fig. 26, 327, 328)

DESCRIPTION

Length: 2.1 mm, width: 1.6 mm.

Black, hind tibial spines reddish, fore and mid femora and two basal antennal segments reddish-brown.

Vestiture moderately dense, not covering body surface. Pronotum with pattern of mixed brown and whitish spots. Elytra with marble pattern of brown and whitish spots, and with larger brown spot behind humerus, in the middle of each side, and in apex of elytra (fig. 26). Pygidium and ventrites uniformly greyish pubescent.

Head short, eyes emarginate to half length. Frons as wide as width of eye, with short median keel. Antennae moderately long, extending to humerus, segment 3 about 1.2 times longer than 2, segments 8-10 about 1.2 times longer than wide. Pronotum 1.6 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole disc. Lateral margin in lateral view strongly convex. Elytral rows strongly punctate, intervals with irregular rows of large punctures. Pygidium densely punctured, large punctures almost touching each other. Hind legs with no sexual characters, hind tibia with dorsolateral carina, lateral carina not serrate. Hind tibial spines sharp, straight, inner spine about 1.5 times longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate to half length. Median lobe moderately elongate, ventral valve strongly modified, apex tricuspidate. Dorsal valve triangular, apex acute. Internal sac in anterior fourth with needles along sides, apically with pair of small spines, behind the spines sac densely granulate, at the end with a pair of large, elongate spines (fig. 327). Lateral lobes short, elongate-oval, apex rounded, margins with dense, moderately long setae. Basal plate narrow, elongate, slightly widened in the middle, margins narrowly pigmented (fig. 328).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

Philippines.

TYPE

Holotype male, Mt. Makiling, Laguna, P.I., VI-1-1932, F.C. HADDEN collector (BM).

REMARKS

It is unique species with no close relatives. Tricuspidate ventral valve distinguishes this species from all other world representatives of the genus except *S. scotti*. The armature of internal sac and structure of lateral lobes are quite different in both species, and tricuspidate ventral valve developed probably independently in each of them. They are strongly separated geographically. *S. scotti* occurs in eastern Africa while *S. coronatus* is probably endemic of Philippines.

Spermophagus decellei BOROWIEC, 1985
(figs. 28, 198, 199, 381)

Spermophagus decellei BOROWIEC, 1985 b: 465.

DESCRIPTION

Length: 2.7-2.8 mm, width: 2.1-2.2 mm.

Black, only hind tibial spines reddish.

Vestiture dense, brown, yellow and white, covering body surface. Dark brown hair form small, longitudinal spot at base of pronotum, round spot in 1/5 length of elytral intervals 2-5, elongate oblique spot beyond humeral callus, transverse spot in the middle between intervals 3 and 10, and large spot in elytral apex. White hairs cover larger part of pronotal disc and sutural interval, and form round spot beyond humerus between humeral spot and medial transverse spot (fig. 28). Other parts of elytra with yellow hair. Pygidium uniformly pubescent with mixed yellow and white hair.

Head short, eyes emarginate to 3/4 length. Frons narrow, with short and sharp longitudinal keel. Antennae moderately long, reaching to 1/4 length of elytra. Segment 3 about 1.5-1.7 times longer than 2, segments 5-10 distinctly longer than wide. Pronotum 1.7-1.8 times wider than long, semicircular. Pronotal disc doubly, densely punctured, large punctures disposed almost uniformly on whole pronotal disc. Pronotal margin in lateral view almost straight. Elytral intervals finely, doubly punctate. Large punctures not forming longitudinal rows. Punctures in elytral rows very large, but shallow, so that the rows appear chain-like. Puncturation of pygidium moderately dense, space between large punctures almost as wide as puncture diameter. Ventral surface with no diagnostic characters. Hind legs with no dimorphic characters, hind tibia without dorsolateral carina, lateral carina only in apical third slightly serrate. Hind tibial spines sharp, outer spine insignificantly longer than inner. Claws with large basal tooth.

Male. Antenna slightly longer than in female. Sternum V emarginate to 1/4 length. Median lobe elongate, ventral valve very short, transverse, apex acuminate. Dorsal valve similar to ventral. Internal sac in anterior part with large, cordiform sclerite compound with mumerous, small spines. Similar spines grouping beyond the large sclerite and in the middle of internal sac. Posterior half of internal sac without sclerites (fig. 198). Basal plate of lateral lobes short, in anterior third broad, with densely pubescent anterior margin. Lateral lobes moderately long, narrow, acute apically, with dense, long sensory setae on lateral margins (fig. 199).

Female. Antennae shorter than in male. Sternum V not emarginate. Ovipositor of standard type, with oblique pubescent suture, pecten with enlarged base, circular pigmented sclerite present, apex of apical lobes angulate (fig. 381).

Host plant unknown.

DISTRIBUTION

Iran.

TYPES

Holotype male, Iran, Fars, Dasht-e-Arjan, 1650 m, 29 40'N/51 59'E, 1 VI 1974, leg. A. SENGLET; allotype female and two paratype females, the same data (holotype, allotype and one paratype in MHNG, one paratype in LB).

MATERIAL EXAMINED

No additional material.

REMARKS

It is a unique species with no close relatives. See remarks under *S. caricus*.

Spermophagus divergens FAHRAEUS, 1871
(figs. 29, 232, 233, 239)

Spermophagus divergens FAHRAEUS, 1871: 445; PIC, 1913: 59.
Spermophagus albopunctatus MOTSCHULSKY, 1874: 250; PIC, 1913: 58, **n. syn.**
Spermophagus marshalli PIC, 1903: 170, 1913: 60, **n. syn.**

DESCRIPTION

Length: 3.4 mm, width: 2.7 mm.

Black, only hind tibial spines reddish.

Vestiture dense, covering body surface, grey and brown. Grey hair form a distinct pattern on pronotal disc: five spots in the middle of different shape, oval spot in front of scutellum, and two spots at base in front of interval 5. Elytral vestiture brown with grey pattern: small spots at base of intervals 4 and 6, two or three spots in 1/4 length of intervals 3 and 5, or 3, 4 and 5, large spot at humerus, transverse band in the middle between intervals 2 and 5, oblique band behind the middle between intervals 7 and 10, sometimes coalescent with medial band by small spot on interval 6, and large spot at apex (fig. 29). Pygidium uniformly grey pubescent or with two small brown spots at sides, base of pygidium sometimes with mixed yellow and grey hair.

Head short, eyes emarginate to 3/4 length. Frons without median keel. Antennae long extending to half length of elytron. Segment 3 about two times longer than 2, segments 8-10 about 1.9-2.1 times longer than wide. Pronotum about 1.7 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole pronotal disc. Lateral margin in lateral view slightly convex. Elytral rows moderately coarsely punctured, intervals with several very shallow larger punctures. Hind legs without dimorphic characters, hind tibial spines sharp and long, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate to 3/4 length. Median lobe very long, ventral valve transverse, subpentagonal, apex acuminate. Dorsal valve about twice narrower than the ventral, apex rounded. Internal sac in anterior sixth with four rows of minute spines, behind the spines sac divided into two tapes with small granulation, posterior part with several large sclerites: two large spines anteriorly, three pairs of about twice to thrice smaller spines behind the first pair, three or four elongate spines and two or three smalller spines posteriorly (fig. 232). Lateral lobes strongly modified. Each lobe moderately long, constricted before the apex and terminating with almost circular plate. Apical half of lobe in interior party with strongly sclerotized plate, internal margin of the plate with row of short hair, also internal margin of the lobe with short hair. basal part with maximum width in the middle, narrowed apically and basally (fig. 239). Spiculum gastrale as in fig. 233.

Female not dissected.

Host plant unknown.

DISTRIBUTION

South Africa.

TYPES

Spermophagus divergens: Holotype male, Caffraria, L. Vahlb. (NMS).

Spermophagus albopunctatus: holotype female, *Spermophagus albopunctatus* MOTSCH. Cap. b. sp. (ZMLU).

Spermophagus marshalli: Lectotype male, Escourt, Natal, MARSHALL, 1902-245, on veldt plants nr bush Ulundi Weenen Ca 31/12/92 (BMNH, present designation).

MATERIAL EXAMINED

South Africa, Johannesburg, 1 male, A. CAPENER (TM).

REMARKS

It is a unique species, probably most closely related to *S. latithorax* group. Like species of *latithorax* group it is large, its internal sac of median lobe with large spines in apical part is similar to that of *S. maynei*. *S. divergens* differs distinctly in lateral lobes modified, constricetd before apex, while in *latithorax* group lateral lobes are unmodified, oval to almost circular with no constriction.

Spermophagus dongdokiensis n. sp.

(figs. 30, 168, 169)

DESCRIPTION

Length: 1.8 mm, width: 1.3 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, not covering body surface. Pronotum with pattern of mixed brown and whitish spots. Elytra brown with whitish sutural interval, whitish elongate spots at base of intervals 3 and 5, and two irregular, transverse whitish bands in 1/3 and 2/3 elytral length (fig. 30). Pygidium brown with basal band of whitish hairs and narrow median line. Ventrites uniformly greyish pubescent.

Head short, eyes extremely deeply emarginate, with only two facets beyond emargination. Frons as wide as width of eye, without median keel. Antennae long, extending to half length of elytra, segment 3 as long as 2, segments 8-10 about 1.4 times longer than wide. Pronotum 1.6 times wider than long, doubly punctate, large punctures disposed almost uniformly on whole disc. Lateral margin in lateral view slightly convex. Elytral rows moderately punctate, intervals with irregular row of large punctures. Pygidium densely punctured, large punctures almost touching each other. Hind legs with no dimorphic characters, hind tibia without dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, straight, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate up to base. Median lobe moderately elongate, slightly narrowed basally and apically, ventral and dorsal valvae subpentagonal, slightly narrowed to base, apex angulate. Internal sac without sclerites (fig. 168). Lateral lobes elongate, tape-like, apex acute. Inner margin with dense and long setae on whole length, outer margin with setae only in basal fourth. Basal plate elongate, narrowed apically, margins broadly pigmented (fig. 169).

Female. Unavailable.

Host plant. Unknown.

DISTRIBUTION

Laos.

TYPE

Holotype male, Laos: Dong Dok, 1.XII.1965, Native Collector, Bishop Museum (BM).

REMARKS

It is a member of *S. niger* group. With *S. punjabensis* and *S. semiannulatus* it forms a subgroup with ventral valve not triangular and internal sac without bands of small granules. *S. punjabensis* differs in ogive-like ventral valve and *S. semiannulatus* differs in transverse ventral valve (*S. dongdokiensis* has ventral valve regularly pentagonal). See also remarks under *S. aeneipennis*.

***Spermophagus drak* n. sp.**
(figs. 31, 162-164, 383)

DESCRIPTION

Length: 2.0-2.3 mm, width: 1.5-1.8 mm.

Black, only hind tibial spines reddish. Surface of pronotum and elytra with indistinct brass tint.

Vestiture moderately dense, almost covering body surface. Pronotum yellowish with brown spots: two at anterior margin, four in transverse band in the middle, one in front of scutellum and transverse in front of intervals 3-5. Elytra mostly brown with yellowish spots: at base of odd intervals, in 1/3 length intervals 2-3, 7-9, in 2/3 length of interval 5, in 3/4 length of intervals 3, 7, 9. Sutural interval yellow (fig. 31). Sometimes spots in 1/3 and 2/3-3/4 length of elytra form irregular transvere bands. Pygidium uniformly yeflowish, or with indistinct basal band and narrow median line of densely, paler yellow hairs. Ventrites uniformly yellow pubescent.

Head short, eyes emarginate to 2/3 length. Frons slightly narrower than width of eye, without median keel. Antennae moderately long, extending to humerus, segment 3 about 1.4-1.6 times longer than 2, segments 8-10 as long as wide. Pronotum 1.4 times wider than long, doubly punctate, large punctures indistinct, grouping on sides. Lateral margin in lateral view straight to slightly convex. Elytral rows strongly punctate, intervals without or with several indistinct large punctures. Pygidium densely punctate, large punctures almost touching each other. Hind legs with no dimorphic characters, hind tibia in basal 1/2-2/3 length with dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, straight, inner spine 1.3 times longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate to 2/3 length. Median lobe short, slightly narrowed from valvae to spoon, ventral and dorsal valvae regularly triangular, apex angulate. Internal sac without sclerites or granules (fig. 162). Lateral lobes long, tape-like, margins with dense, long setae, central part of inner margin with strong, spiniform setae. Basal plate broad basally, distinctly narrowed apically. Basal part of plate with triangular, strongly pigmented sclerite, margins narrowly pigmented (fig. 163)). Spiculum gastrale not modified (fig. 164).

Female. Sternum V not emarginate. Ovipositor of standard type, very long, with oblique pubescent suture, without circular sclerite, pecten with enlarged base, apical lobes very short (fig. 383).

Host plant unknown.

DISTRIBUTION

Vietnam.

TYPES

Holotype male and 7 paratype males, Viet Nam, M'Drak, E of BanMeThuot, 8-19.XII.60, 4-600 m, C.M. YOSHIMOTO coll. (BM, 2 paratypes in USNM, 2 in LB).

REMARKS

It belongs to *S. niger* group, subgroup with triangular ventral valve. See remarks under *S. aeneipennis*.

Spermophagus eichleri BOROWIEC, 1986
(figs. 32, 257, 258, 261, 384)

Spermophagus eichleri BOROWIEC, 1986 c: 233.

DESCRIPTION

Length: 2.6-3.0 mm, width: 1.9-2.2 mm.

Black, only hind tibial spines reddish.

Dorsal vestiture scarce, uniformly dark brown, not covering body surface (fig. 32). Pygidium and ventral part of body with scarce, grey pubescence.

Head short, eyes narrowly but deeply emarginate, with only three facets beyond emargination. Frons about as wide as width of eye, without median keel. Antennae short extending to hind angles of pronotum, segment 3 about 1.2-1.3 times longer than 2, segments 8-10 about 1.3 times longer than wide. Pronotum about 1.5 times wider than long, pronotal disc doubly punctured, large punctures disposed almost uniformly on whole surface. Lateral margin in lateral view distinctly convex. Elytra slightly longer than wide, on sides almost parallel, rows distinctly punctate, intervals with irregular row of large punctures. Hind legs with dimorphic characters. Hind tibial spines sharp, outer spine distinctly longer than the inner. Tarsal claws with large basal tooth.

Male. Sternum V emarginate to 2/3 length. Punctures of pygidium in apical part coalescent in irregular rugosities. Hind tibia and first tarsomere on ventral margin with long, dense, yellow hair. Dorsolateral carina distinct only in basal half of tibia, lateral carina not serrate. Median lobe moderately long, ventral valve short, with rounded sides, apex subangulate. Internal sac with two groups of small spines and needles in ventral valve area, and group of moderately dense, very small needles in apical third (fig. 257). Lateral lobes very short, subangulate on sides, with very narrow median cleft. Sensory hair arranged in two transverse rows in apical part of lobe. Basal part narrowed basally and apically (fig. 261). Spiculum gastrale not modified (fig. 258).

Female. Sternum V not emarginate. Hind tibia and first tarsomere without hair, dorsolateral carina distinct on almost whole length of tibia. Ovipositor distinct, very broad, without oblique pubescent suture, with circular pigmentation, pecten without enlarged base, apical lobes very broad with concave anterior margin. Anterior margin of ovipositor between apical lobes with broad, deeply cleft process (fig. 384).

Host plant unknown.

DISTRIBUTION

Zambia.

TYPES

Holotype male and paratype female, N. Rhodesia , Lusaka, XI 1945, leg. Dr. W. EICHLER (holotype in IZPAS, paratype in LB); paratype female, the same locality, XII

TYPES

Holotype male and paratype female, N. Rhodesia , Lusaka, XI 1945, leg. Dr. W. EICHLER (holotype in IZPAS, paratype in LB); paratype female, the same locality, XII 1945, leg. Dr. W. EICHLER (IZPAS); allotype female, N. Rhodesia, Abercorn, 29 I 1947, leg. Dr. W. EICHLER (IZPAS).

MATERIAL EXAMINED

No additional material.

REMARKS

It is a member of *S. hottentotus* group. With *S. hottentotus* and *S. tandalensis* it forms a subgroup with elytral pubescence short, dark brown, pygidium uniformly pubescent, elytra immaculate, and first male tarsomere on ventral margin with long, dense hair. *S. hottentotus* differs in larger body, over 3.5 mm (in *S. eichleri* and *S. tandalensis* below 3.5 mm), and lateral lobes laterally with elongate tapes (no tapes in *S. eichleri* and *S. tandalensis*). *S. tandalensis* is very similar to *S. eichleri* but with stouter body, male hind tibia without dense hair (in *S. eichleri* with dense hair), and lateral lobes very short, transverse (in *S. eichleri* slightly longer than wide).

Spermophagus endrodii BOROWIEC, 1986
(fig. 33, 194, 195)

Spermophagus endrodii BOROWIEC, 1986 d: 201.

DESCRIPTION

Length: 2.0 mm, width: 1.4 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, yellowish and brownish, covering body surface. Darker hairs on pronotum form two spots at anterior margin, two large spots, partly connected, in the middle, and two spots at base. On elytra, darker hairs form two irregular bands in anterior half and large spots in apical part. Second interval with dark hairs on whole length, intervals 3 and 4 with dark hairs in anterior half, interval 3 with small paler spot at base (fig. 33). Pygidium with mixed darker and paler hairs. Ventral part of body uniformly pubescent.

Head slightly elongate, mouth part about as long as temporal, eyes emarginate to 3/4 length. Frons narrow, about twice narrower than width of eye, with distinct, short medial keel. Antennae long, extending to 2/3 body length. Antennal segment 3 about 2.3 times longer than 2. Segments 7-10 about 1.8 times longer than wide. Pronotum about 1.5 times wider than long, pronotal disc doubly punctured. Large punctures disposed almost uniformly on whole pronotal disc. Pronotal margin in lateral view distinctly convex. Elytra slightly longer than wide, intervals doubly punctured, large punctures not forming longitudinal rows. Elytral rows distinctly punctate. Pygidium moderately convex, with large and dense punctures. Ventral surface with no diagnostic characters. Hind legs with no dimorphic characters, hind tibia without dorsolateral carina, lateral carina not serrate. Hind tibial spines sharp, of equal length. Tarsal claws with large basal tooth.

Male. Sternum V emarginate to half length. Ventral lobe elongate, ventral valve subpentagonal with strongly acuminate apex. Dorsal valve distinctly wider than the ventral with apex acuminate. Internal sac in anterior third without sclerites, in the middle divided into two long tapes with very small sclerites, in posterior third with 6 pairs of large spine-like sclerites (fig. 194). Lateral lobes narrow but shortened, with strongly modified shape (fig. 195).

Female unavailable.

Host plant unknown.

DISTRIBUTION

South Africa (Transvaal).

TYPE

Holotype male: South Africa, Transvaal, Nylsvley, netted, 16 I 1978, leg. Dr. S. ENDRÖDI (HNHM).

MATERIAL EXAMINED

No additional material.

REMARKS

It belongs to *S. okahandjensis* group, which includes also *S. transvaalensis* and *S. okahandjensis*. All species have ventral valve of median lobe acuminate apically and internal sac with several spines in apical part. *S. endrodii* differs from both its relatives in broad dorsal valve and strongly modified lateral lobes , unique in whole genus (see fig. 195).

Spermophagus excavatus PIC, 1917
(figs. 34, 310-312)

Spermophagus excavatus PIC, 1917: 10.

DESCRIPTION

Length: 2.8 mm, width: 2.5 mm.

Black, only hind tibial spines reddish.

Vestiture scarce, mostly brownish-grey with brown spots: two small at base of intervals 2 and 4, two small in 1/3 length of intervals 6 and 8, seven forming irregular transverse band behind the middle, and irregular large spot at apices of elytra (fig. 34). Pygidium and ventral surface uniformly brownish-grey.

Head short, eyes emarginate to 2/3 length. Frons with extremely sharp and long median keel. Antennae moderately long, extending to humerus, segment 3 about 1.6 times longer than 2, segments 8-10 about 1.3 times longer than wide. Pronotum about 1.7 times wider than long, its sides in basal third almost parallel-sided. Disc doubly punctured, primary puncturation very small, secondary large puncturation dense, disposed almost uniformly on whole surface. Lateral margin in lateral view distinctly convex. Elytral intervals with several large punctures not arranged in rows, rows with large punctures, each puncture slightly wider than row. Hind legs with no dimorphic characters, tibia with sharp dorso-

pentagonal, with distinctly concave margins, acuminate apically. Internal sac with pair of extremely large hook-like spines (fig. 310). Lateral lobes short, almost circular, with moderately long hair on margins and scarce hair on whole surface. Basal plate broad, almost parallel-sided (fig. 311). Spiculum gastrale not modified (fig. 312).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

Sumatra.

TYPES

Lectotype male, Sumatra (MHNP, present designation). The paralectotype female is actually another species of the *niger* group.

MATERIAL EXAMINED

No additional material.

REMARKS

It belongs to *S. ligatus* group, including also *S. ligatus, S. maai* and *S. palmi.* All species of the group have internal sac with 2 or 3 extremely large hook-like sclerites and an elongate tube- or gutter like sclerite. *S. ligatus* differs in elytra uniformly pubescent with apical dark, semicircular spot, *S. maai* and *S. palmi* differ in ventral valve rounded apically (in *excavatus* acuminate). *S. palmi* differs also in the presence of three hook-like sclerites of internal sac (two in *excavatus* and *maai*) and in lateral lobes elongate, tape-like (circular in *excavatus*). In *S. maai* lateral lobes are elongate oval, about twice longer than wide (about as long as wide in *excavatus*).

Spermophagus hottentotus FAHRAEUS, 1839
(figs. 36, 254, 259, 385)

Spermophagus hottentotus FAHRAEUS, 1839: 135; PIC, 1913: 59; DECELLE, 1951: 191, 1970: 258; WENDT, 1978: 357; BOROWIEC, 1986 c: 231.

DESCRIPTION

Length: 3.6-4.1 mm, width: 2.7-3.0 mm.

Black, only hind tibial spines reddish.

Vestiture uniform, dark brown, covering body surface (fig. 36). Ventral surface with moderately dense, grey hair.

Head short, eyes emarginate to 3/4 length. Frons slightly wider than width of eye, without median keel. Antennae short, extending to 3/4 length of pronotum, segment 3 about 1.6 times longer than 2, segments 8-10 about as long as wide. Pronotum about 1.5 times wider than long, pronotal disc doubly punctured, large punctures disposed almost uniformly on whole surface. Lateral margin in lateral view strongly convex. Elytra slightly longer than wide, on sides almost parallel. Elytral rows distinctly punctate, elytral intervals with irregular row of large punctures. Hind legs with dimorphic characters. Hind

pentagonal, with distinctly concave margins, acuminate apically. Internal sac with pair of extremely large hook-like spines (fig. 310). Lateral lobes short, almost circular, with moderately long hair on margins and scarce hair on whole surface. Basal plate broad, almost parallel-sided (fig. 311). Spiculum gastrale not modified (fig. 312).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

Sumatra.

TYPES

Lectotype male, Sumatra (MHNP, present designation). The paralectotype female is actually another species of the *niger* group.

MATERIAL EXAMINED

No additional material.

REMARKS

It belongs to *S. ligatus* group, including also *S. ligatus, S. maai* and *S. palmi.* All species of the group have internal sac with 2 or 3 extremely large hook-like sclerites and an elongate tube- or gutter like sclerite. *S. ligatus* differs in elytra uniformly pubescent with apical dark, semicircular spot, *S. maai* and *S. palmi* differ in ventral valve rounded apically (in *excavatus* acuminate). *S. palmi* differs also in the presence of three hook-like sclerites of internal sac (two in *excavatus* and *maai*) and in lateral lobes elongate, tape-like (circular in *excavatus*). In *S. maai* lateral lobes are elongate oval, about twice longer than wide (about as long as wide in *excavatus*).

Spermophagus hottentotus FAHRAEUS, 1839
(figs. 36, 254, 259, 385)

Spermophagus hottentotus FAHRAEUS, 1839: 135; PIC, 1913: 59; DECELLE, 1951: 191, 1970: 258; WENDT, 1978: 357; BOROWIEC, 1986 c: 231.

DESCRIPTION

Length: 3.6-4.1 mm, width: 2.7-3.0 mm.

Black, only hind tibial spines reddish.

Vestiture uniform, dark brown, covering body surface (fig. 36). Ventral surface with moderately dense, grey hair.

Head short, eyes emarginate to 3/4 length. Frons slightly wider than width of eye, without median keel. Antennae short, extending to 3/4 length of pronotum, segment 3 about 1.6 times longer than 2, segments 8-10 about as long as wide. Pronotum about 1.5 times wider than long, pronotal disc doubly punctured, large punctures disposed almost uniformly on whole surface. Lateral margin in lateral view strongly convex. Elytra slightly longer than wide, on sides almost parallel. Elytral rows distinctly punctate, elytral intervals with irregular row of large punctures. Hind legs with dimorphic characters. Hind

formly on whole surface. Lateral margin in lateral view strongly convex. Elytra slightly longer than wide, on sides almost parallel. Elytral rows distinctly punctate, elytral intervals with irregular row of large punctures. Hind legs with dimorphic characters. Hind tibial spines sharp, outer distinctly longer than inner. Tarsal claws with large basal tooth.

Male. Sternum V emarginate to 2/3 length. In apical part of pygidium punctures coalescent in irregular rugosities. Hind tibia and first tarsomere on ventral margin with long, dense, yellow hair. Dorsolateral carina distinct only in basal half of tibia, lateral carina not serrate. Median lobe moderately long, ventral valve subtriangular with slightly concave sides, apex angulate. Dorsal valve broadly rounded. Internal sac without large sclerites, in anterior fourth with small needles, in the middle sac divided into two tapes, each with group of small spines on internal margin (fig. 254). Lateral lobes distinct, circular, each lobe with long tape placed laterally, dorsal margin of tape with sensory hair on whole length, ventral margin with hair only in apical half. Surface of circular part of lobe with several sensory pits and several setae near ventral margin (fig. 259).

Female. Sternum V not emarginate. Punctures on pygidium not forming irregular rugosities. Hind tibia with distinct lateral carina on whole length. Hind tibia and first tarsomere without long hair, only with short setae. Ovipositor distinct, strongly sclerotized, without oblique pubescent suture, with two groups of subapical sensory setae, pecten with strongly arcuate base, apices of apical lobes acute (fig. 385).

Host plant unknown.

DISTRIBUTION

South Africa.

TYPE

Holotype male, Cap. b. sp. (NRS); paralectotypes male and female, Cap (ZMHU).

MATERIAL EXAMINED

See BOROWIEC, 1986: 233. New material: SOUTH AFRICA: Kapland, 1 (HNHM); Capland, 1 (HNHM).

REMARKS

It is a member of *S. hottentotus* group. It is the largest species of the group, and one of the largest in the genus. See remarks under *S. eichleri*.

Spermophagus humilis DECELLE, 1970
(figs. 37, 38, 184-187, 386)

Spermophagus humilis DECELLE, 1970: 265; ZAMPETTI, 1988: 109.

DESCRIPTION

Length: 1.4-2.2 mm, width: 1.0-1.7 mm.

Black, hind tibial spines reddish. Two basal antennal segments usually partly brownish-red or red.

Vestiture varying from uniform, yellowish or grey to variegate, whitish, yellowish and brown, with several small spots (figs. 37, 38)

Head short, eyes emarginate to 2/3 length, frons about as wide as width of eye, convex, without or with short, indistinct median keel. Antenna moderately long, extending to 1/3 elytral length. Segment 3 about 1.7 times longer than 2, segments 8-10 about 1.5-1.7 times longer than wide. Pronotum about 1.6 times wider than long, doubly punctured, large punctures scarce, disposed almost uniformly on whole disc. Lateral margin in lateral view regularly convex. Elytral rows finely punctate, intervals without, or with a few large, shallow punctures. Puncturation of pygidium dense, punctures almost touching each other. Hind legs with no dimorphic characters, hind tibia without dorsolateral carina, lateral carina slightly serrate only in apical fourth. Claws with large basal tooth.

Male. Sternum V emarginate to half length. Median lobe moderately long, ventral valve pentagonal, slightly narrowed to base, dorsal sides concave, apex strongly acuminate, dorsal valve subtriangular with apex obtuse. Internal sac in anterior half with small dense spines along sides, in the middle with large bispinose sclerite, behind the sclerite with group of small spines (fig. 184). Lateral lobes moderately long, tape-like, apex obtuse, margins with long setae. In lateral view lobes distinctly curved posterad (fig. 186). Basal plate of lateral lobes narrow, narrowed apically, with strongly pigmented margins (fig. 185). Spiculum gastrale as in fig. 187.

Female. Sternum V not emarginate. Ovipositor of standard type, little characteristic, with oblique pubescent suture, pecten with strongly enlarged base, no circular sclerites, apical lobes short, obtuse apically (fig. 386).

Host plant unknown.

Distribution

Gambia, Nigeria, Sudan, Somalia, Ethiopia, Kenya, Malawi, Tanzania, Zimbabwe, Madagascar.

Types

Holotype male, Kigoma, IX.1918, R. Mayne (MRAC); paratype male, Victoria Falls, 17 V 1951, no. 308, Swedish South Africa Exp., Brinck-Rudebeck (LU).

Material examined

ETHIOPIA: Urso, III 1911, 2, Kovacs (HNHM); GAMBIA: Bathurst, Jan. 68, 4, Palm (LU, LB); KENYA: Likoni, sweeping near to seashore, 24 IX 1985, 1, S. and I. Mahunka (HNHM); MADAGASCAR: Amboromalandy, 2 VII 53, 1, F. Keiser (NMB); Nosy Be, Ambalafar, 18 V 58, 1, F. Keiser (NMB); MALAWI: Lower Shire Walley, netted, 23 III 1977, 2, S. Endrody-Younga (HNHM); NIGERIA: Muhi, Gongola St., 18 XI-9 XII 1979, 2, Polish Student Exp. (LB); SUDAN: Prov. N Darfur Haluf, 750 m, 10 km N EL Fasher, feuchtes Wadi, gekätschert, 31 VII 1977, 3, H. J. Bremer (HNHM, LB); TANZANIA: Assab, 1907, 1, Katona (HNHM); Inter Marti et Arusha, 1, Katona (HNHM); Laiverero, 22 I 1960, 1, Dr. Szunyoghy (HNHM).

Remarks

It is a member of *humilis* group, comprising two small Afrotropical species and one species from Canary Is., with median lobe without large sclerites or with median bispinose sclerite, and lateral lobes unmodified, moderately elongate, tape-like, with marginal sensory setae. *S. humilis* and *S. lindbergorum* have median bispinose sclerite while *S. incertus*

lacks this sclerite. *S. lindbergorum* differs in median sclerite elongate, obtuse apically (in *S. humilis* it is short and acute apically), ventral valve parallel-sided (narowed basally in *S. humilis*), and lateral lobes in lateral view straight (curved in *S. humilis*).

Spermophagus incertus n. sp.
(fig. 35, 174, 175)

DESCRIPTION

Length: 1.8 mm, width: 1.3 mm.

Black, hind tibial spines reddish, basal two antennal segments brownish-red.

Vestiture moderately dense, not covering body surface. Pronotum almost uniformly yellowish, with indistinct yellowish-brown spot in front of scutellum, on sides of disc and in front of intervals 6-7. Elytra with pattern of mixed yellowish and yellowish-brown spots (fig. 35). Pygidium mostly yellowish, on sides with large brownish spot. Ventrites uniformly yellowish.

Head short, eyes emarginate to 2/3 length. Frons as wide as width of eye, with short median keel. Antennae short, extending to hind angles of pronotum, segment 3 only slightly longer than 2, segments 8-10 as long as wide. Pronotum 1.6 times wider than long, densely punctate, large punctures disposed almost uniformly on whole disc. Elytral rows moderately punctate, intervals without large punctures. Pygidium densely punctate, large punctures almost touching each other. Hind legs with no dimorphic characters, hind tibia without dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, straight, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate to 2/3 length. Median lobe elongate, ventral valve of characteristic shape, dorsal valve with apex rounded. Internal sac without sclerites (fig. 174). Lateral lobes elongate, tape-like, apex acute, outer margin with dense, moderately long setae, inner margin only in basal half with 4 long setae. Basal plate narrow, elongate (fig. 175).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

Tanzania.

TYPE

Holotype male, Africa or., KATONA, Arusha-Ju, 1905.X (HNHM).

REMARKS

It is a member of *S. humilis* group. It differs from related *S. humilis* and *S. lindbergorum* in internal sac without median bispinose sclerite. See also remarks under *S. humilis*.

Spermophagus inlineolatus Pic, 1931 n. stat.
(figs. 39, 300-302)

Spermophagus multisignatus var. *inlineolatus* Pic, 1931: 26.

Description

Length: 2.7 mm, width: 2.0 mm.

Black, only hind tibial spines reddish.

Vestiture dense, brown and white, covering body surface. White hair forms band along suture to 3/4 length of interval 1, coalescent apically with oblique spot between rows 1 and 5, and spot in the middle of lateral margin (fig. 39). White hair covers base of pronotum, base and apex of pygidium, median pygidial line, lateral plates of mesosternum, angles of hind coxa and angles of abdominal sternites.

Head short, eyes deeply emarginate with only three facets beyond emargination. Frons about 1.6 times wider than long, with short and sharp median keel. Antennae elongate, extending to half length of elytron, segment 3 about 1.3 times longer than 2, segments 8-10 about 1.4-1.5 times longer than wide. Pronotum about 1.5 times wider than long. Disc doubly punctured, large punctures deep and dense, surface of disc appearing slightly rough. Lateral margin in lateral view strongly convex. Elytral rows deep, intervals with rows of large punctures. Puncturation of pygidium extremely large and deep, distance between punctures as wide as puncture diameter. Hind legs without dimorphic characters, hind tibia without dorsolateral carina, lateral carina only in apical fourth slightly serrate, hind tibial spines long, sharp, of equal length. Tarsal claws without basal tooth.

Male. Sternum V emarginate to 2/3 length. Median lobe narrow, anterior margin of ventral valve regularly rounded, dorsal valve with concave sides, subangulate apically, internal sac in anterior part with two bands of needles (fig. 301). Lateral lobes elongate, tape like, acute apically, margins with long, dense setae. Basal plate in basal part very broad, strongly narrowed apically, distance between lobes about for times wider than width of each lobe at base. Anterior margin of basal plate in the middle with small lobe (fig. 300). Spiculum gastrale not modified (fig. 302).

Female. Unavailable.

Host plant unknown.

Distribution

Tanzania.

Type

Holotype male, Tanganyika, Kilosa, IX 1929, Dr. G. A. K. Marshall (BMNH).

Material examined

TANZANIA: Lake Tanganyka, 12.1961, 1, de Moor (TM).

Remarks

It is a member of *S. kochi* group. It distinctly differs from its relatives in structure of lateral lobes which are narrow, acute apically (in other species lateral lobes are broad, rounded apically), and distance between bases of lateral lobes about four times wider than width of each lobe at base (in other species distance between lateral lobes is narrower or as wide as width of each lobe at base). See also remarks under *S. kochi*.

Spermophagus johnsoni Borowiec, 1986
(fig. 40, 289, 290)

Spermophagus johnsoni Borowiec, 1986a: 788.

Description

Length: 2.2-2.3 mm, width: 1.8 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, mostly brown. White hair form two spots at anterior margin, three spots in the middle, six spots at base, also hind corners of pronotum white. Elytra with numerous, small, white spots: three at base of intervals 3, 5, 7, elongate spot behind scutellum, small spot slightly behind base of interval 2, and elongate spot behind the middle of interval 2, two spots on interval 3, 5, 7, and 9, one spot behind the base of interval 4 and 6, and one spot behind humerus (fig. 40). Pygidium uniformly grey pubscent or with basal, transverse band of lighter hair.

Body oval. Head short, eyes emarginate to 2/3 length. Frons as wide as width of eye, with distinct medial keel. Antennae short, extending to humeral callus. Segment 3 about 1.6 times longer than 2, segments 6-10 slightly longer than wide. Pronotum semicircular, doubly punctured. Large punctures disposed almost uniformly on whole pronotal disc. Pronotal margin in lateral view feebly convex. Elytral rows moderately punctate. Elytral intervals finely punctate, with irregular rows of large punctures. Pygidium densely punctate, large punctures almost touching each other. Ventral surface without diagnostic characters. Hind legs with no dimorphic characters, hind tibia with dorsolateral carina, lateral carina not serrate. Hind tibial spines straight, sharp, of equal length. Claws with large basal tooth.

Male. Ventral lobe short, ventral valve large, pentagonal, apex acute, dorsal valve slightly smaller than the ventral, pentagonal, also acute apically. Internal sac in anterior third with two longitudinal, lateral bands of needles, in the middle without sclerites, in posterior third with two large spines and one large cone-like sclerite, and at the end with two pin-like sclerites. Between large spines and pin-like sclerites numerous very small spines (fig. 289). Lateral lobes moderately long, tape-like, only slightly narrowed apically, apex rounded. Margins of lobes with several, long, dense hair, surface of lobe with several shorter hair. Basal plate at base with transverse, darkly pigmented area and shortly, densely pubescent (fig. 290).

Female unavailable.

Host plant unknown.

Distribution

Burma.

Types

Holotype and paratype males, Birma, "*Spermophagus tesselatus* Motsch." (holotype in IZPAS, paratype in LB).

Remarks

With *S. samuelsoni* it forms *S. johnsoni* group. Both species have elytra with distinct

pattern, internal sac with at least two pairs of large spines, and and at least one spinose plate, and lateral lobes moderately elongate, tape like, rounded apically. *S. samuelsoni* differs in median lobe subangulate apically (in *S. johnsoni* acute), spinose plate and first two spines fused (in *S. johnsoni* separate).

Spermophagus kannegieterei Pic, 1911
(figs. 41, 230, 231, 244, 387)

Spermophagus kannegieterei Pic, 1911: 124, 1913: 60.

Description

Length: 3.5-3.7 mm, width: 2.7-2.8 mm.

Black, only hind tibial spines reddish.

Pronotal and elytral vestiture uniformly dark brown, dense, sometimes third elytral interval with small spot of greyish hair in 1/3 length, covering body surface (fig. 41). Scutellum contrasting white or yellowish pubescent. Pygidium and ventrites uniformly greyish pubescent.

Head short, eyes emarginate to 3/4 length. Frons slightly wider than eye, without median keel. Antennae moderately long, extending to humerus, segment 3 about 1.6 times longer than 2, segments 8-10 about 1.2 times longer than wide. Pronotum 1.6-1.7 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole disc. Lateral margin in lateral view slightly convex. Elytral rows moderately punctate, intervals with irregular rows of large punctures. Pygidium densely punctured, punctures almost touching each other. Hind legs with no sexual characters, hind tibia with dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, outer spine 1.4-1.6 times longer than the inner. Claws with large basal tooth.

Male. Sternum V emarginate to half length. Median lobe large, ventral and dorsal valvae transverse, internal sac in anterior part with two groups of needles, and in the middle with two groups of granules, surface of sac behind granules with small spines (fig. 230). Lateral lobes short, tape-like, angulate apically, margins with numerous sensory setae (fig. 244).

Female. Sternum V not emarginate. Ovipositor strongly modified, without oblique, pubescent suture, pecten and circular sclerite, apex angulate, with group of three long subapical sensory setae, and several short apical setae (fig. 387).

Host plant. Unknown.

Distribution

Indonesia: Java.

Type

Holotype female, Mana-Riang, Ranau Palembang, April 90, 2-3000, T. Z. Kannegieter (MHNP).

Material examined

INDONESIA: Java, Mts Djampangs, 1, Mreanger (MHNP).

Spermophagus kingsolveri Borowiec, 1986
(figs. 42, 160, 161)

Spermophagus kingsolveri Borowiec, 1986 a: 738.

Description

Length: 2.1-2.5 mm, width: 1.6-1.9 mm.

Black, only hind tibial spines reddish.

Vestiture scarce, yellowish-brown with several white spots (fig. 42). Pronotum with two spots at anterior margin, four in the middle, two on sides, and two at hind corners. Elytra with white spots at base of intervals 3 and 5, in front of the middle of intervals 3, 5, 7, 9, in 2/3 length of intervals 3, 5, 7. Pygidium with yellowish-brown pubescence and two or four small spots of light hair.

Body short, oval. Head short, eyes emarginate to 2/3 length. Frons about as wide as width of eye, without median keel. Antennae short, reaching to humeral callus. Segment 3 about 1.3 times longer than 2, segments 6-10 about 1.2-1.3 times longer than wide. Pronotum semicircular, doubly punctured. Large punctures distributed almost uniformly on whole pronotal disc. Pronotal margin in lateral view regularly convex. Elytral rows moderately punctate. Elytral intervals finely punctate with several large punctures in anterior third. Puncturation of pygidium dense, large punctures almost touching each other. Ventral surface without diagnostic characters. Hind legs without dimorphic characters, hind tibia with dorsolateral carina, lateral carina not serrate. Hind tibial spines straight, sharp, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate to half length. Median lobe stout, parallel-sided, ventral valve very short, transverse, apex acuminate. Dorsal valve subpentagonal, apex obtuse. Internal sac in the middle with two elongate groups of very small sclerites (fig. 160). Lateral lobes moderately long, tape-like, narrowed apically, apex acute, external and basal margins with moderately dense and short hair, internal margin with about twice scarcely and twice longer hair. Basal plate of the lobes narrow, without medial sclerites (fig. 161).

Female unavailable.

Host plant unknown.

Distribution

India.

Types

Holotype male, India, Bombay, 10 X 1981, leg. A. Kuska (IZPAS); paratype male, same data (LB).

Material examined

No additional material.

Remarks

It is a member of *S. niger* group. With *S. aeneipennis* and *S. niger* it forms a subgroup with elongate group of small granules in the middle of external margin of internal sac. These three species differ in shape of ventral valve. *S. aeneipennis* has ventral valve regu-