Lech Borowiec

Revision of the genus *Spermophagus* SCHOENHERR

(Coleoptera: Bruchidae: Amblycerinae)

Genus

International Journal of Invertebrate Taxonomy

(Supplement)

B S

WROCŁAW 1991 POLAND

BIOLOGICA SILESIAE
ul. Partyzantów 19/3
Wrocław, Poland

correspondence:
skr. poczt. 2444
Wrocław 48, Poland

Fax: 0 - 71218995

Supplement edited by Lech Borowiec.

PL ISBN 83-900021-0-8
PL ISSN 0867-1710

Druk, Scorpion Co., ul. Koźmińska 78, 63-700 Krotoszyn, Poland

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

LECH BOROWIEC
Zoological Institute, University of Wroclaw, Sienkiewicza 21, 50-335 Wroclaw, Poland

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.

ACKNOWLEDGEMENTS

I would like to express my sincere thanks to Dr. R. J. ALDRIDGE (BMNH), Dr. N. BERTI (MNHM), Dr. S. BILY (NMP), Dr. M. BRANCUCCI (NMB), Dr. R. DANIELSSON (LU), Dr. J. DECELLE (MRAC), Dr. S. ENDRODY-YOUNGA (TM), Dr. J. KINGSOLVER (USNM), Dr.R. KRAUSE (MTD), Dr. I. LOBL (MHNG), Dr. S. MASCHERINI (MZUF), Dr. J. PAWLOWSKI (DZPAS), Dr.I. PERSSON (NRS), Dr. G. SAMUELSON (BM), Dr. Jaromir STREJCEK (JS); Dr. S. A. ŚLIPINSKI (IZPAS), H. WENDT (ZMHU) for the loan of specimens. I am especially grateful to Dr. J. DECELLE for the loan of several species whose types he revised recently, and for his help in identification of my private collection. I would like to thank also Dr. B. M. POKRYSZKO (Museum of Natural History, University of Wroclaw) for verification of my English. I am greatly indebted to all my colleagues from the Polish Taxonomical Society for the valuable directions and remarks to that had an effect on the final shape of the work.

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.
Eusperrnophagus 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 yellowish, 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

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, 1986 a: 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-

larly triangular, in *S. niger* it is pentagonal, while in *S. kingsolveri* ventral valve is transverse. See also remarks under *S. aeneipennis*.

Spermophagus klapperichi Borowiec, 1985
(figs. 43, 149-151, 388)

Spermophagus klapperichi Borowiec, 1985 a: 19.
Spermophagus caucasicus: Wendt, 1983: 97 (misidentification).

Description

Length: 1.3-1.4 mm, width: 1.0-1.1 mm.

Black, only hind tibial spines reddish.

Vestiture uniform, greyish or brownish, scarce, not covering body surface (fig. 43).

Body short, almost spherical. Head short, eyes emarginate to 3/4 length. Frons about 1.3 times wider than width of eye, without median keel. Antennae short, reaching to humeral callus. Segment 3 about 1.2 times longer than 2. Segments 8-10 about equal in length and width. Pronotum semicircular, doubly punctured, large punctures disposed almost uniformly on whole disc. Pronotal margin in lateral view feebly convex. Elytral rows moderately punctate. Elytral intervals with only a few large punctures in basal part. Puncturation of pygidium dense, large punctures almost touching each other. Ventral surface without diagnostic characters. Hind legs without dimorphic characters, hind tibia without dorsolateral carina, lateral carina strongly serrate. Hind tibial spines sharp, of equal length. Claws with very small basal tooth, the tooth in male smaller than in female.

Male. Sternum V emarginate to half length. Median lobe elongate, Ventral and dorsal valvae elongate, pentagonal, with acute apex. Internal sac without sclerites (fig. 149). Lateral lobes elongate, tape-like, narrowed apically with apex acute (fig. 150). Margins of lobes crenulate with long hair (fig. 151).

Female. Sternum V not emarginate. Ovipositor of standard type, with oblique pubescent suture, distinct circular pigmentation, pecten short with no enlarged base, apical lobes subangulate (fig. 388).

Host plant unknown.

Distribution

E Jordan.

Types

Holotype male, allotype female, and two paratype females, E Jordan, Homer near Amman, 600 m, 26 IV 1959, leg. J. Klapperich (holotype, allotype and paratype in HNHM, paratype in LB).

Material examined

No additional material.

Remarks

It is a member of *S. sericeus* group. It is a smallest species of the group. Reduced basal tooth of tarsal claws nears this species to *S. maafensis* and *S. altaicus*. The latter differs

distinctly in hind tibial spines black (reddish in *maafensis* and *klapperichi*), *S. maafensis* differs in antennal segments 8-10 longer than wide (in *klapperichi* as long as or shorter than wide), both species are also separated geographically - *S. klapperichi* occurs in Jordan, while *S. maafensis* is west mediterranean species recorded from S Spain, Morocco and Algeria. See also remarks under *S. sericeus*.

Spermophagus kochi DECELLE, 1975
(figs. 44, 295-297, 389)

Spermophagus kochi DECELLE, 1975 b: 28.
Spermophagus kochi ssp. *corrocaensis* DECELLE, 1975 b: 30, **n. syn.**

DESCRIPTION

Length: 2.6-3.0 mm, width: 1.9-2.2 mm.
Black, only hind tibial spines reddish.

Vestiture dense, brown, yellow and white, covering body surface (fig. 44). Yellow hair forms band along suture to 3/4 length of interval 1, and elongate spot in the middle of interval 2. White hair form small spot in 1/3 length of interval 3, large transvere spot in the middle of intervals 7 to 9, oblique spot in 3/4 length of intervals 3 to 5, cover base of pronotum, base and apex of pygidium, median pygidial line, lateral plates of mesosternum, angles of hind coxa and angles of abdominal sternites. White spots on pygidium and pronotum bordered by yellow hair, or basal band on pygidium only in the middle white and on sides yellow.

Head short, eyes deeply emarginate with only three facets beyond emargination. Frons about 1.6 times wider than long, in male with short and sharp median keel, in female without 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, in male distance between punctures as wide as puncture diameter, in female puncturation very dense, in apical part of pygidium appearing rugose. 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. Antennae slightly longer. Sternum V emarginate to 2/3 length. Pygidium more convex, scarcely punctate. Median lobe

Female. Antennae shorter. Pygidium largely and densely punctate. Sternum V not emarginate, but pygidium horizontal. Ovipositor of standard type, with oblique pubescent suture, with circular pigmentation, pecten without enlarged base, apical lobe bent externally, setae along inner margin of oblique suture strong, spiniform (fig. 389).

The specimen described as ssp. *corrocaensis* is slightly narrower than typical male, with dorsal surface mostly pale brown, except pattern as in typical form, and almost uniformly chalk-white pubescence on ventral side. In my opinion it is only a local form, not a true subspecies. Male genitalia as in typical form.

Host plant unknown.

DISTRIBUTION

South Africa, Mozambique, Angola.

TYPES

Spermophagus kochi: holotype male, Tsumkwe, Kungveld, I 1958, C. KOCH (TM); allotype female, Abachaus, Damaraland, XII 1951, G. HOBOHM (TM).

Spermophagus kochi ssp. *corrocaensis*: holotype male, betw. Modamedes and Rio Coroca, S. Angola, sept. 1951, C. KOCH (TM).

MATERIAL EXAMINED

MOZAMBIQUE: Lumbo, 1 X 1918, 1, LOVERIDGE (LB); SOUTH AFRICA: 1 (HNHM).

REMARKS

It is a member of *S. kochi group*. All species of the group have similar elytral pattern, with pale band along suture apically with oblique pale spot extending to third or fourth elytral row, and large pale spot in the middle of external margin of elytra. This group includes also *S. albosuturalis* and *S. inlineolatus*. The latter species differs distinctly in lateral lobes narrow, and distance between bases of lobes about four times wider than width of each lobe at base. *S. albosuturalis* differs in basal plate of lateral lobes in basal half almost parallel-sided in distal half strongly narrowed, while in *S. kochi* basal plate of lateral lobes is gradually narrowed from base to apex.

Spermophagus kuesteri SCHILSKY, 1905

(figs. 98, 138-140, 390)

Spermophagus Küsteri SCHILSKY, 1905: no. 4; PIC, 1913: 60; ESCALERA, 1914: 493; HOFFMANN, 1945: 103; CALDERON, 1962: 215; DECELLE, 1975 a: 139, 1983: 240, ZAMPETTI, 1979: 206, 1981: 85; BRANDL, 1981: 11; WENDT, 1978: 358, 1984: 166, 1985: 283; BOROWIEC, 1983 a: 125, 1984: 300, 1985 a: 9; DECELLE and LODOS, 1989: 202.

Euspermophagus kuesteri: LUKJANOVITSH and TER-MINASSIAN, 1957: 496; POPOV, 1966: 9; BAGDASARJAN, 1967: 807; BATIASHVILI and ELERDASHVILI, 1969: 530.

Spermophagus albipilis CHOBAUT, 1898: 87.

Spermophagus swartukensis ALI HUSSAIN et KADHIM, 1986: 50 (*swaratukensis* on p. 45), **n. syn.**

Spermophagus variolosopunctatus auct., part.

DESCRIPTION

Length: 2.0-3.0 mm, width: 1.5-2.4 mm.

Black, only hind tibial spines reddish.

Vestiture scarce, whitish, uniform on dorsal and ventral part of body, not covering body surface (fig. 98).

Head short, eyes emarginate to 2/3 length. Frons slightly wider than width of eye, without keel, sometimes with indistinct median impunctate line. Antennae moderately long, extending to humeral callus. Segment 3 about 1.5 times longer than 2, segments 8-10 slightly wider than long. Pronotum 1.5-1.6 times wider than long, doubly punctured, large punctures grouping mostly on sides of disc. Lateral margin in lateral view regularly convex. Elytral rows moderately punctate, intervals without or with indistinct large punctures.

Pygidium doubly punctured, large punctures shallow but dense, intervals 1.1-1.4 times wider than puncture diameter. Hind legs without sexual characters, hind tibia without dorsolateral carina or carina indistinct in basal half of tibia, lateral carina strongly serrate. Apical spines sharp, long, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate to half length. Median lobe moderately long, ventral valve subtriangular, apex angulate, dorsal valve slightly narrower than ventral, triangular, apex angulate, internal sac without sclerites (fig. 138). Lateral lobes moderately long, tape-like, apex obtuse, margins with dense, long sensory setae. Basal plate of lateral lobes broad, strongly narrowed to 1/3 length, anterior margin on sides with group of dense setae (fig. 140). Spiculum gastrale not modified (fig. 139).

Female. Sternum V not emarginate. Ovipositor of standard type, with oblique pubescent suture, without circular pigmentation, pecten long with no enlarged base, apical lobes narrow, angulate apically (fig. 390).

Host plant. *Convolvulaceae*: *Convolvulus althaeoides, C. arvensis, C. cantabrica.*

DISTRIBUTION

Mediterranean Subregion, including North Africa and the Near East, north to northern Spain, Alps, Roumania, also in Iran, Afghanistan, and Russian Middle Asia.

TYPES

Spermophagus kuesteri: lectotype male, Anatolien, Ak Chehir, 1900, KORB (designated by BOROWIEC, 1985: 10, MNHU); two paralectotype females and paralectotype male, the same data (MNHU); two paralectotype males and two paralectotype females, Anatolien, Konia, 1899, KORB (MNHU); two paralectotype females, Konia, KORB (MNHU); paralectotype female, Ak Chehir, KORB (MNHU); Paralectotype male and paralectotype female, Tunis, HORN (MNHU).

Spermophagus albipilis: unknown to me.

Spermophagus swartukensis: unknown to me. The drawings of male genitalia beyond a doubt to show the identity of *S. swartukensis* with *S. kuesteri.*

MATERIAL EXAMINED

See BOROWIEC, 1985: 9. New material: ALGERIA: Bouira, 12 VI 1971, 1, 13 VI 1971, 3, HOFFER and HORAK (JS); Ait Hassem, 18 VI 1971, 2, HOFFER and HORAK (JS); BULGARIA: Nessebar, 24 VI 1965, 1, 13 IX 1966, 1, T. PALM (LU); Zlatni Piasaci, 1-21 VIII 1970, 4, T. PALM (LU); Albena, 19 VIII-1 IX 1983, 4, 22 VI-5 VII 1985, 11, T. PALM (LU); GREECE: Peloponessos, Argos, 23-26 IV 1981, 1, B. MALKIN and A. RIEDEL (BM); Sparta, Taygetos Mts, Hway Kalamata-Sparta, 10 km E of Artemisia, 1000-1100 m, 5-10 VI 1981, 1, B. and H. MALKIN (BM); Samos, Valionthates valley, near Aghios Konstantinos, 23 V 1981, 3, B. and H. MALKIN (BM); Korfu, Gastauri, V 1964, 1, T. PALM (LU); Rhodos, 24 VI-4 VII 1958, 4, T. PALM (LU); ITALY: Genova, 16 VII 1944, 1, F. CAPRA (MCSNG); SPAIN: Granada, Pinos Genil, 21 VI 1967, 1 (IZPAS); Playa de Aro, 2-17 VII 1963, 1, T. PALM (LU); Puerto Real, 10 VII 1973, 1, M. TÓTH; Marbella, 10-30 IV 1960, 11, 1-21 VII 1962, 2, T. PALM (LU), 4 IV 1966, 1, 18 VI 1966, 3, A. SUNDHOLM (LU); Mallorca, Alcudia, 6-20 VIII 1977, 3, T. PALM (LU); TURKEY: Gorome, Cappadocia, 13-14 VI 1979, 1, B. and H. MALKIN (BM); Bogazkale (Yasilikaya), 30 km SE of Sungurlu, 7 VI 1979, 1, B. and H. MALKIN (BM); YUGOSLAVIA: Istria, Portoroz, 30 VI-17 VII 1959, 1,

T. Palm (LU); 14 km ENE of Dubrovnik, 29 VI 1975, I. L. Cederholm (LU).

Remarks

It is a member of *S. sericeus* group. Reddish hind tibial spines and large basal tooth of tarsal claws near this species to *S. confusus*, *S. pubiventris* and *S. canus*. *S. confusus* distinctly differs in elytral vestiture very short, dark brown and pygidium with transverse basal band of chalk-white hairs. *S. canus* and *S. pubiventris* differ in elytral vestiture dense, covering body surface (not covering body surface in *S. kuesteri*), and in different structure of lateral lobes - very short in *S. canus* and elongate, tape-like, acute apically in *S. pubiventris* (in *S. kuesteri* lateral lobes are moderrately elongate, obtuse apically). Forms of *S. calystegiae* with reddish hind tibial spines are very similar to *S. kuesteri* but in *S. calystegiae* lateral lobes are long, tape-like, acute apically more similar to lateral lobes of *S. pubiventris* than to those of *S. kuesteri*. See also remarks under *S. sericeus*.

Spermophagus kuskai Borowiec, 1986
(figs. 45, 224, 225)

Spermophagus kuskai Borowiec, 1986 a: 782.
Spermophagus albosparsus: Arora, 1977: 88 (misidentification).

Description

Length: 2.2 mm, width: 1.7 mm.

Black, only hind tibial spines reddish.

Vestiture scarce, brown and white. White hair forms on pronotum two spots at anterior margin, four in the middle, and four at base, also hind corners of pronotum with white hair. Elytra with white spots at base of intervals 3 and 5, white spot in front of the middle of interval 3, white band in front of the middle between intervals 5 and 9, and white band in posterior third between intervals 4 and 9 with interruption on interval 6 (fig. 45). Pygidium with white basal band and median line, and with two large, brown patches.

Body short, oval. Head short, eyes deeply emarginate, with only three facets beyond emargination. Frons about as wide as width of eye, without median keel. Antennae moderately long, reaching to half body length. Segment 3 about twice longer than 2, segments 6-10 about 1.7-1.8 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 irregular rows of large punctures. Pygidium densely punctate, large punctures almost touching each other. Ventral surface without diagnostic characters. Hind legs without dimorphic characters, hind tibia without 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. Ventral lobe very long, parallel-sided, ventral valve subpentagonal, apex acuminate. Internal sac without sclerites (fig. 224). Lateral lobes long, narrow, tape-like, narrowed apically with apex acuminate, margins with long hair (fig. 225).

Female unavailable.

Host plant. *Malvaceae: Abelmoschus esculentus* L. (after Arora, 1977: 88).

DISTRIBUTION

India.

TYPE

Holotype male, India, Bombay, 10 X 1981, leg. A. KUŠKA (IZPAS).

MATERIAL EXAMINED

No additional material.

REMARKS

It is a member of *S. albosparsus* group. It the only species of the group with internal sac without apical spines. See also remarks under *S. albosparsus*.

Spermophagus latithorax BOHEMAN, 1829
(figs. 99, 236-238, 391)

Bruchus latithorax BOHEMAN, 1829: 116.
Spermophagus latithorax: SCHÖNHERR, 1833: 108; PIC, 1913: 60; DECELLE, 1984: 54.
Spermophagus tomentosus KLUG, 1835: 42; PIC, 1913: 62; WENDT, 1978: 363, **n. syn.**
Spermophagus gossypi CHEVROLAT, 1871: 8; PIC, 1913: 59, **n. syn.**
Spermophagus natalensis FAHRAEUS, 1871: 445; PIC, 1913: 60, **n. syn.**
Bruchus trogodermoides FAIRMAIRE, 1902: 247; PIC, 1913: 62, **n. syn.**
Spermophagus latipennis PIC, 1918 b: 9, **n. syn.**
Spermophagus sp. near *gossypii*: PREVETT, 1966: 178, 1971: 285.

DESCRIPTION

Length: 2.4-3.4 mm, width: 1.7-2.7 mm.

Black, hind tibial spines reddish, first, and occasionally second, antennal segment completely or only its ventral side reddish or reddish-brown.

Vestiture dense, covering body surface, brownish, ochraceous or yellowish. Pronotum and elytra usually with several small spots of paler, whitish or greyish, hairs forming a marble pattern (fig. 99). Occasionally whitish hairs form indistinct irregular transverse bands in 1/3 and 2/3 elytral length. Scutellum usually with white hairs. Sometimes pale and darker hairs are mixed and do not form a distinct pattern, occasionally vestiture uniform brownish or ochraceous. Vestiture of pygidium varying from uniform, paler than vestiture of elytra, to variegate with irregular dark spot in the middle, or with basal band of ochraceous hairs and narrow median line, or with two dark spots apically. Ventrites uniformly pubescent or with mixed paler and darker yellowish or greyish hair.

Head short, eyes emarginate to half length. Frons slightly narrower than width of eye, usually with short median keel, extending from frontoclypeal suture to 2/3-3/4 length of frons, sometimes frons roof-like convex but without keel. Antennae moderately long, extending to humeral callus, segment 3 about 1.4-1.5 times longer than 2, segments 8-10 about 1.1 times longer than wide. Pronotum 1.7 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 several large punctures. Puncturation of pygidium in anterior half moderately dense to dense, intervals 1.2-1.5 times wider than puncture diameter, in posterior half extremely dense, punctures almost

touching each other, surface appearing rugose. Hind legs with no sexual characters, hind tibia with distinct dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, straight, outer slightly longer than inner. Claws with large basal tooth.

Male. Sternum V emarginate up to base. Median lobe moderately long, ventral valve short, rectangular, with small apical, medial process. Internal sac in anterior half divided into two granulose lobes, in the middle with pair of extremely large spines and pair of elongate serrate plates, behind the plates with 8-15 extremely large spines (fig. 236). The serrate plates varying in various populations from straight to arcuate (fig. 237). The number of apical sclerites is not correlated with geographic distribution or size of beetle. Lateral lobes short, almost circular, rounded apically, inner margin with a few short setae. Basal plate narrowed basally and apically (fig. 243). Spiculum gastrale slightly modified (fig. 238).

Female. Sternum V not emarginate. Ovipositor of standard type, elongate, with oblique pubescent suture, with short circular sclerite, pecten without enlarged base, apical lobes short, obtuse (fig. 391).

Host plant. *Convolvulaceae: Ipomea asarifolia; Caesalpiniaceae: Cassia didymobotrya.*

DISTRIBUTION

Gambia, Prince Is., Cap Verde Is., Togo, Ghana, Sierra Leone, Cameroon, Sudan, Ethiopia, Kenya, South Africa, Madagascar.

TYPES

Bruchus latithorax: holotype female, S. Leona, AFZELIUS (NRS).

Bruchus tomentosus: holotype male, Ile de Pr., ERM. (ZMHU).

Spermophagus gossypi: Lectotype female, Natal, Paris (NRS, present designation); paralectotype female, grain on Caty (NRS).

Spermophagus natalensis: lectotype female, Caffraria, J. VAHL. (present designation, NRS).

Bruchus trogodermoides: holotype female, Madagascar (MHNP).

Spermophagus latipennis: holotype female, Brit. O. Afrika (MHNP).

MATERIAL EXAMINED

CAMEROON: Tome near Victoria, 22-31 I 1980, 1, Polish Student Exp. (LB); CAP VERDE IS: Brava Achada Favatal, 3 III 1954, 1, LINDBERG (LB); Rombos Ilheu Grande, 27 II 1954, 1, LINDBERG (LB); Fogo Rib. Fonte Garinha, 17 II 1954, 1, LINDBERG (LB); Boavista Rabil, 31 I 1954, 3, LINDBERG (LB); ETHIOPIA: Vallis Erer, 1, KOVÁCS (HNHM); Sodere, sweep-netted, 17 XI 1980, 1, A. DEMETER (HNHM); GAMBIA: Bathurst, Jan. 68, 7, T. PALM (LU, LB); GHANA: Accra Plain ad Akuse et Osudoku Hill, 30 VII 1963, 1, M. PRÓSZYNSKA and J. PRÓSZYNSKI (IZPAS); KENYA: Malindi, aus Gerüsch geklopft, 25 VIII 1983, 1, H. J. BREMER (HNHM); Shantz, in seeds *Cassia didymobotrya*, 12 VI 20, 9, W. S. FISHER (USNM); TOGO: Bismarckburg, 3-10 XII 92, 1, L. CONRADT (ZMHU); SOUTH AFRICA: Tshakoma, Zpbg., Nov. 1931, 1, G. VAN SON (TM); Sea Park, VI 1950, 1, A. L. CAPENER (TM); SUDAN: Prov. N Darfur Haluf, 750 m, 10 km N of El Fasher, feuchtes Wadi, gekätschert, 31 VII 1977, 4, H. J. BREMER (HNHM, LB).

REMARKS

With *S. maynei* it forms *S. latithorax* group. Both species are large, length above 2.4 mm, with elytral vestiture forming a pattern, lateral lobes oval to circular and internal sac with extremely large sclerites. *S. maynei* differs in elytral vestiture scarce, ground colour of elytra brownish (in *S. latithorax* vestiture is moderately dense to dense, ground colour of elytra yellowish-brown), lateral lobes oval, longer than wide (in *S. latithorax* circular about as wide as long), internal sac without elongate serrate sclerite.

Spermophagus ligatus CHEVROLAT, 1877
(figs. 46, 313-315, 392)

Spermophagus ligatus CHEVROLAT, 1877: CXXXIV; PIC, 1913: 60.
Spermophagus atroapicalis PIC, 1929: 12.

DESCRIPTION

Length: 2.8-2.9 mm, width: 2.2-2.4 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense to dense, almost covering body surface. On pronotal disc marble pattern with yellowish or olive-grey and brown hairs. Elytra with large apical, semicircular spot of dark brown hairs (fig. 46). In front of the apical spot vestiture varying from uniform, yellowish or greyish, to variegate, with several spots of paler hairs on intervals 3, 5, 7, and 9, and usually front margin of the apical spot bordered with paler hairs. Pygidium with basal bicoloured band: anterior margin white or grey, posterior margin rusty. Other part of pygidium uniformly whitish or greyish pubescent, or with mixed whitish and yellowish hairs. In specimens with dorsal vestiture uniform, yellowish (except apical spot), pygidium is usually also uniformly pubescent or with indistinct basal band of dense hairs. Ventrites uniformly greyish or yellowish pubescent.

Head short, eyes emarginate to 2/3 length. Frons as wide as width of eye, with sharp median keel, extending from frontoclypeal suture to the middle of vertex, sometimes with small pit at end. Antennae moderately long, extending to humeral callus. Segment 3 about 1.5 times longer than 2, segments, 8-10 about 1.2 times longer than wide. Pronotum about 1.7 times wider than long, doubly punctured, large punctures deep, dense, disposed almost uniformly on whole disc. Elytral rows moderately punctate, intervals with several large punctures. Large punctures on pygidium dense, intervals about 1.1-1.3 times wider than puncture diameter. Hind legs with no sexual characters, hind tibia with sharp dorsolateral carina, lateral carina not serrate. Apical spines sharp, straight, inner spine about 1.3 times longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate to 3/4 length. Median lobe moderately long, ventral valve very short, broadly oval, apex truncate, dorsal valve oval, apex regularly rounded. Internal sac in anterior half squamose, in apical part with a pair of extremely large, hook-like sclerites (fig. 313). Surface of sac above spines with several long setae. Lateral lobes short, elongate oval, apex obliquely truncate, margins with dense, long setae, surface with several short setae. Basal plate of lateral lobes narrow, almost parallel-sided (fig. 314). Spiculum gastrale not modified (fig. 315).

Female. Sternum V not emarginate. Ovipositor of standard type, short, with oblique pubescent suture and circular pigmentation, pecten with slightly enlarged base, apical lobes densely pubescent (fig. 392).

Host plant. Unknown.

DISTRIBUTION

India, Vietnam.

TYPES

Spermophagus ligatus: holotype male, Ind. or., Neelgheriis roy., PERROTEL (NRS).
Spermophagus atroapicalis: Lectotype female, Hoa Binh (present designation, MHNP).

MATERIAL EXAMINED

INDIA: S. India, Nedungadu, 1936, 2, P. S. NATHAN (MHNP); Bangalore, 1936, 3, P. S. NATHAN (MHNP); Bengal, Barrackpore, 20 V 44, 1, D. E. HARDY (USNM); VIETNAM: Dalat, 1500 m, 26-27 IX 1960, 3 (USNM); 20 km S Dalat, 1300 m, 12 IX 1960, 1, J. L. GRESSITT (USNM).

REMARKS

It is a member of *S. ligatus* group. It differs from all species of the group, as well as from all other world species of the genus in elytral pattern with large semicircular apical spot. See also remarks under *S. excavatus*.

Spermophagus lindbergorum DECELLE, 1975
(figs. 47, 181-183)

Spermophagus lindbergorum DECELLE, 1975 a: 140.

DESCRIPTION

Length: 1.9 mm, width: 0.8 mm.

Black, only hind tibial spines reddish.

Vestiture dense, covering body surface, olive-greyish with indistinct marble pattern of lighter hair (fig. 47). Pygidium and ventral surface with uniform olive-greyish hairs.

Body almost sphaerical. Head short, eyes emarginate to 2/3 length. Frons as wide as width of eye, without median keel. Antennae short, extending to humeral callus. Segment 3 about 1.3 times longer than 2, segments 8-10 slightly longer than wide. Pronotum 1.6 times wider than long. Lateral margin in lateral view almost straight. Puncturation of disc doubly, large punctures disposed almost uniformly on whole pronotal disc. Elytra slightly longer than wide. Rows distinctly punctured, intervals with a few shallow, large punctures. Pygidium regularly convex, shallow but largely punctured, distance between punctures about 0.3-0.5 times shorter than puncture diameter. Ventral surface without diagnostic characters. Hind legs with no sexual characters, hind tibia without dorsolateral carina, lateral carina serrate. Hind tibial spines sharp, external slightly shorter than the internal. Claws with large basal tooth.

Male. Last sternum emarginate to 3/4 length. Median lobe elongate, ventral valve regularly pentagonal, apex acute, dorsal valve similar to the ventral. Internal sac in anterior third with numerous small spines and large sclerite composed of two long clubs (fig. 181). Posterior half of internal sac without sclerites. Lateral lobes moderately long, tape-like, with rounded apex. Each lobe with long sensory hair on margins, and distinct row along

external margin (fig. 182). Base almost parallel-sided. Spiculum gastrale strongly modified (fig. 183).

Female unavailable.

Host plant unknown.

DISTRIBUTION

Canary Is. (Tenerife).

TYPE

Holotype male, Canary Is., Tenerife, Barr. S. Antonio, 4.2.49, LINDBERG "*Spermophagus Küsteri*" SCHILS. Harald LINDBERG det., typ. no. 15145 coll. Mus. Helsingfors (ZMHU).

MATERIAL EXAMINED

No additional material.

REMARKS

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

Spermophagus maafensis BOROWIEC, 1985
(figs. 49, 145-148, 393)

Spermophagus maafensis BOROWIEC, 1985 a: 17.

DESCRIPTION

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

Black, only hind tibial spines reddish.

Vestiture scarce, greyish, uniform, not covering body surface (fig. 49).

Head short, eyes deeply emarginate, with only three facets behind incision. Frons 1.5 times wider than width of eye, without median keel, sometimes with indistinct, narrow median impunctate line. Antennae moderately long, extending to 1/4 length of elytra, segment 3 about 1.3 times longer than 2, segments 8-10 about 1.3 times longer than wide. Pronotum about 1.6 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole disc. Lateral margin in lateral view moderately to strongly convex. Elytral rows moderately punctate, intervals with several large punctures. Puncturation of pygidium dense, large punctures almost touching each other. Hind legs with no sexual characters, hind tibia without dorsolateral carina, lateral carina serrate, hind tibial spines sharp, straight, of equal length. Claws of fore and mid legs without basal tooth, of hind legs with very small basal tooth.

Male. Sternum V emarginate to half length. Median lobe elongate, ventral and dorsal valvae elongate-pentagonal. Internal sac without sclerites (fig. 146). Lateral lobes long, narrow, tape-like, acute apically, margins with dense, long setae (148). Basal plate of lateral lobes narrow, from base to 1/3 length distinctly narrowed, the remaining part parallel-sided (fig. 147). Spiculum gastrale as in fig. 145.

Female. Sternum V not emarginate. Ovipositor of standard type (fig. 393).

Host plant unknown.

DISTRIBUTION

S Spain, Morocco, Algeria.

TYPES

Holotype male, Morocco, Moyen Atlas, Azrou, 24 VI-2 VII 1926, leg. Lindberg (HU); paratype male, S Spain, Algeciras, 18 VII 1926, leg. LINDBERG (HU); paratype male, Algeria, Maafa (HNHM).

MATERIAL EXAMINED

ALGERIA: Bouira, 12 VI 1971, 1, 18 VI 1971, 1, HOFFER and HORAK (JS); Alger env., 15-16 V 1971, 2, HOFFER and HORAK (JS, LB); MOROCCO: Meknes (550 m), 1919, 1, R. BENOIT (MHNP); Maroc, 1 (NMB); Tanger, 1 (NMB).

REMARKS

It is a member of *S. sericeus* group. Reduced basal tooth of tarsal claws nears this species to *S. altaicus* and *S. klapperichi.* See remarks under *S. klapperichi.*

Spermophagus maai n. sp.
(figs. 50, 316, 317)

DESCRIPTION

Length: 2.9 mm, width: 2.3 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, not covering body surface. Pronotum and elytra with marble pattern of brown and whitish spots (fig. 50). Pygidium mostly brown pubescent with basal transverse band of rusty, dense hairs, and narrow median line. Ventrites mostly greyish pubescent, sides of hind margins of abdominal sternites with rusty hairs.

Head short, eyes emarginate only to half length, frons slightly wider than width of eye, without keel. Antennae moderately long, extending to humerus, segment 3 about 1.2 times longer than 2, segments 8-10 about 1.2-1.3 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 several large punctures. 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 3/4 length. Median lobe moderately long, ventral valve very short, subsemicircular, anterior margin regularly rounded, dorsal valve similar to ventral but anterior margin not as regular as in ventral valve, subangulate. Internal sac in the middle with a pair of extremely large, hook-like sclerites, sac behind sclerites strongly narrowed with tube-like structure along the middle (fig. 316). Lateral lobes short, apex broadly rounded, margins with dense long setae, surface with several short setae. Basal plate moderately broad, slightly narrowed apically (fig. 317).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

Thailand.

TYPE

Holotype male, Thailand (NW), Doi Suthep, 1278, III-29-V-4-1958, T.C. MAA collector (BM).

REMARKS

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

Spermophagus madecassus PIC, 1917
(figs. 53, 118)

Spermophagus madecassus PIC, 1917: 8.

DESCRIPTION

Length: 2.8 mm, width: 2.3 mm.

Black, only hind tibial spines reddish.

Vestiture extremely short and scarce, dark brown, not covering body surface (fig. 53). Ventral surface with extremely short brown hair.

Body short-oval. Head short, frons without median keel. Antennae short, extending to hind pronotal corners. Segment 3 about 1.3 times longer than 2, segments 8-10 slightly wider than long. Pronotum about 1.7 times wider than long. Disc duble punctured, large punctures disposed almost uniformly on whole surface of disc. Lateral margin in lateral view regularly convex. Elytral rows indistinctly punctured, intervals with several shallow, large punctures. Pygidium with extremely large and dense punctures but not appearing rugose. Hind tibia sexually dimorphic, lateral carina not serrate. Claws with large basal tooth.

Male. Hind tibia almost straight with dorsolateral carina. Inner margin with dense long hair, first tarsomere without hair (fig. 118). Internal apical spine about twice longer than the external. Genitalia not available to study (in the only known specimen abdomen has been partly destroyed by a dermestid beetle and genitalia are missing).

Female unavailable.

Host plant unknown.

DISTRIBUTION

Madagascar.

TYPE

Holotype male, Madagascar, Tananarive (MHNP).

REMARKS

It is a member of *S. hottentotus* group. Like *S. bimaculatus*, *S. newtoni* and *S. ciliatipes* it has no dense hairs on ventral edge of male first tarsomere. *S. bimaculatus* differs in bi-

coloured elytra , *S. newtoni* in pygidium with basal band of extremely dense, chalk-white hairs, and *ciliatipes* differs in elytral greyish vestiture (dark brown in *S. madecassus*).

Spermophagus malvacearum Decelle, 1971
(figs. 51, 209-211, 394)

Spermophagus malvacearum Decelle, 1971: 254, 1975b: 28; Zampetti, 1988: 109.

Description

Length: 2.0-2.1 mm, width: 1.3-1.4 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, almost covering body surface, mostly yellowish, pronotal disc with indistinct spots of darker yellowish-brown hairs in front of the scutellum, and in the middle of each side of basal margin. Elytra with indistinct spots of yellowish brown hairs in 1/4 length of interval 4, in the middle pf intervals 5, 6 and 9, 10, and with large apical spot (fig. 51). Pygidium and ventrites uniformly yellowish pubescent.

Head short, eyes emarginate to 3/4 length. Frons slightly wider than width of eye, without median keel. Antennae moderately long, extending to humeral callus, segment 3 about 1.2-1.3 times longer than 2, segments 8-10 slightly longer than wide. Pronotum only 1.4 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole disc. Lateral margin in lateral view moderately convex. Elytral rows moderately punctate, intervals with irregular row of large punctures. Puncturation of pygidium dense, intervals 1.1-1.3 times wider than puncture diameter. Hind legs with no sexual characters. Hind tibia without dorsolateral carina, lateral carina not serrate, hind tibial spines straight, sharp, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate to 2/3 length. Median lobe moderately long, ventral valve pentagonal with distinctly concave sides, apex acuminate, dorsal valve subtriangular with slightly concave sides, apex angulate. Internal sac divided into two tapes, in anterior fourth with band of dense needles along margins, other part of sac without distinct sclerites (fig. 209). Lateral lobes elongate, basal part of each lobe widened, cordiform, apex rounded to subangulate, outer margin with moderately long setae in basal 3/4 length, inner margin with only 5-7 long setae in basal half (fig. 210). Spiculum gastrale not modified (fig. 211).

Female. Sternum V not emarginate. Ovipositor of standard type, long, with oblique pubescent suture, without circular pigmentation, pecten with enlarged base, apical lobes densely pubescent (fig. 394).

Host plant. Probably *Malvaceae*, beetles have been collected from pinkflowered Malvaceous weed.

Distribution

Ethiopia, Kenya, Zair, Rwanda, Angola.

Types

Holotype male, Ethiopia, Djem-Djem Forest, 8000 ft, 8/9 X 1926, from pinkflowered Malvaceous weed, Dr. H. Scott (BMNH); five paratype males and five paratype females (BMNH).

MATERIAL EXAMINED

KENYA: Kitale, Vasin Gishu, 2100 m, 1, Mission de l'Omo (MHNP); M. Elgon, 2000 m, 30 I 79, 1, T. PALM (LU); ZAIR: Kisantu, VIII 1920, 1, P. VANDERIJST (MRAC); Luebo, 7 IX 1921, 1, H. SCHOUTEDEN (MRAC);

REMARKS

With *S. murtulai* and *S. schroederi* it forms *S. malvacearum* group characterized by elytra with pattern, tarsal claws with large basal tooth, internal sac without large sclerites, lateral lobes moderately elongate, narrow, each lobe with enlarged base. *S. schroederi* differs in contrasting elytral pattern , white hairs forming a transverse band in the middle of elytra (in *S. malvacearum* and *S. murtulai* elytral vestiture lacks contrasting white hairs). *S. malvacearus* and *S. murtulai* are very similar, but in *S. malvacearum* ventral valve is subtriangular while in *S. murtulai* ventral valve is square, basal plate of lateral lobes in *S. malvacearum* has triangular basal pigmented area (no such area in *S. murtulai*) and anterior margin truncate or concave (with triangular process in *S. murtulai*).

Spermophagus mannarensis DECELLE, 1986
(figs. 52, 124, 352-354, 395)

Spermophagus mannarensis DECELLE, 1986: 151.

DESCRIPTION

Length: 1.8-2.1 mm, width: 1.4-1.6 mm.

Black, hind tibial spines reddish. First two antennal segments always paler coloured than remaining segments, reddish, brownish-red or brownish, sometimes only on ventral side reddish. Apices of fore and mid femora, and fore tibiae often reddish to brownish, sometimes also mid tibiae in the middle or in apical half reddish.

Vestiture moderately dense, not covering body surface. Pronotum brownish pubescent with several paler spots, the spots partly coalescent. Elytra with elongate spots at base of intervals 3 and 5, elongate spot in the middle of interval 2, and two narrow bands in 1/3 and 2/3 elytral length between intervals 3-9, often interval 2 and 4 with elongate spot near apex, scutellum and anterior half of suture usually with white hairs (fig. 52). Pygidium with band of paler hairs at base, and usually two paler spots in the middle, sometimes pygidium uniformly yellowish-brown pubescent. Ventrites uniformly greyish pubescent.

Head very short, eyes emarginate to 2/3 length. Frons slightly wider than width of eye, without median keel. Antennae very long, extending to 1/2-2/3 elytral length, segment 3 about 1.5 times longer than 2, segments 8-10 about 1.7-2.0 times longer than wide. Pronotum 1.7 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole disc. Lateral margin in lateral view almost straight. Elytral rows moderately punctate, intervals with irregular row of large punctures. Puncturation of pygidium dense, punctures almost touching each other. Hind legs with no sexual characters, hind tibia with sharp dorsolateral carina, lateral carina not serrate, apical spines straight, sharp, the inner slightly longer than the outer. Claws with large basal tooth.

Male. Antennae longer, reaching to 2/3 elytral length, segments 8-10 about twice longer than wide (fig. 124). Sternum V emarginate to 2/3 length. Median lobe moderately long, ventral valve strongly modified, transverse, short, anterior margin with triangular

emargination, dorsal valve rectangular with regularly rounded anterior margin. Internal sac in anterior part with band of needles, in the middle with small group of needles medially and two long bands of needles along margins (fig. 352). Lateral lobes strongly modified, their bases fused with large plate, dorsolateral corners of the plate with narrow, acuminate tapes, ventral margin of the tapes with long, dense sensory setae. Basal part of lobes narrow, almost parallel-sided (fig. 353). Spiculum gastrale modified (fig. 354).

Female. Antennae shorter, reaching to half length of elytra, segments 8-10 about 1.7 times longer than wide. Sternum V not emarginate. Ovipositor of standard type, elongate, with oblique pubescent suture, with short circular pigmentation, pecten with strongly enlarged base, apical lobes angulate (fig. 395).

Host plants. *Malvaceae: Hibiscus esculenta, Merremia chryseides.*

DISTRIBUTION

India, Ceylon, Vietnam.

TYPES

Holotype male, Ceylan, Northern Province, Mannar District, Mannar Island, 2 mi. W Pesalai, 24 III 1970, 10 ft., DAVIS et ROWE leg (USNM); two paratypes males, the same data (USNM).

MATERIAL EXAMINED

CEYLON: 1 (NMB); INDIA: intr. to Wash., seed of *Hibiscus esculenta,* 28 VI 49, 1 (USNM); intr. to Wash., okra seed, 25 V 49, 1 (USNM); Bombay, Surat, 6 VI 04, 1 (USNM); Mangalore, Nov. 1926, 1, J. C. BRIDWELL (USNM); Mangalore, Feb. 1927, in *Merremia chryseides*, 6 (USNM); Coimbatore, 16 VII 13, 1 (USNM); Assam, 6 mi N of Tinsukia, 16 III 44, 1, D. E. HARDY (USNM); VIETNAM: Thanh-My-An, 20 II 49, J. BARBIER, Saigon, 1, J. BARBIER, pare à combustibles, "*Spermophagus filicornis* det L. BOROWIEC, Holotype" (MHNP); Saigon, 27 III 49, "*Spermophagus filicornis* det. L. BOROWIEC, Paratype", 2, J. BARBIER (MHNP, LB); Hanoi, 21 V 1966, 1, R. BIELAWSKI and B. PISARSKI (IZPAS); Hanoi, 2-6 V 90, 3, R. DOBOSZ (USM, LB); Hoa binh, Ha son binh prov., 4-7 VI 1986, 1, J. HORAK (JS).

REMARKS

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

Spermophagus marmoreus n. sp.
(figs. 54, 274-276, 396)

DESCRIPTION

Length: 1.7-2.3 mm, width: 1.3-1.6 mm.

Black, hind tibial spines reddish, basal antennal segment varying from yellowish brown to dark brown, second antennal segment often paler coloured than segments 3-11, brown with yellowish base, or brownish-black.

Vestiture moderately dense, not covering body surface. Pronotum and elytra usually with marble pattern of brown and greyish hairs (fig. 54). Sometimes, especially in small

specimens greyish spots mostly reduced and surface of pronotum and elytra appearing uniformly brown. Base of pygidium with transverse band of dense, rusty hairs, other parts with mixed brown and greyish hairs. Ventral surface uniformly greyish, upper corner of hind coxa usually with spot of dense hairs.

Head short, eyes emarginate to 2/3 length. Frons as wide as width of eye, without median keel. Last segment of maxillary palpi moderately elongate, apex obliquely truncate. Antennae moderately elongate, extending to 1/3 elytral length, segment 3 about 1.4 times longer than 2, segments 8-10 about 1.4 times longer than wide. Pronotum 1.5 times wider than long, doubly punctured, large punctures scarce but disposed almost uniformly on whole disc. Elytral rows finely punctate, intervals without or with several indistinct, shallow punctures. Pygidium densely punctate, large punctures almost touching each other. Hind legs with no dimorphic characters, hind tibia with obtuse dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, the outer about 1.4 times longer than inner. Claws with large basal tooth

Male. First abdominal sternum in the middle with brush of extremely dense hairs. Sternum V emarginate to 3/4 length. Median lobe moderately elongate, ventral valve subtriangular with strongly concave sides, apex elongate-acuminate, dorsal valve short, apex rounded. Internal sac in anterior half with needles along sides, in the middle with a pair of elongate spines, each with hook-like apex, sac beyond the spines with extremely dense, small spines and needles (fig. 274). Lateral lobes strongly modified, each lobe divided into two extremely short plates, anterior margin of each plate with rows of setae, posterior plate also with several extremely strong, squamiform setae. Basal plate moderately broad, narrowed apically (fig. 276). Spiculum gastrale not modified (fig. 275).

Female. First abdominal sternum without brush of dense hairs. Sternum V not emarginate. Ovipositor of standard type, short and broad, with oblique pubescent suture, without circular pigmentation, pecten with strongly enlarged base, apical lobes angulate (fig. 396).

Host plant. *Asteraceae: Carthamus tinctorius.*

DISTRIBUTION

South Africa, Kenya, Tanzania.

TYPES

Holotype male, allotype female, 12 paratypes, S. Africa, Transvaal, Nylsvley, cow dung trap; 3.II.1978, leg.: Dr. S. ENDRÖDI (holotype, allotype, 8 paratypes in HNHM, 4 paratypes in LB); paratype male, 2000 m, T. PALM, Kenya, M. Elgon, 26 I 79 (LU); one paratype male and two paratypes female, Africa or., KATONA, Shirati 1909.IV [one female without date](2 HNHM, 1 LB); 9 paratypes, South Africa, interc. 1960, in *Carthamus tinctorius,* 10 more specimens (USNM).

REMARKS

It belongs to *S. multipunctatus* group. See remarks under *S. multipunctatus.*

Spermophagus maurus FAHRAEUS, 1871
(figs. 56, 329-331, 397)

Spermophagus maurus FAHRAEUS, 1871: 445; Pic, 1913: 60; Decelle, 1951: 191.

DESCRIPTION

Length: 1.8-2.1 mm, width: 1.1-1.5 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, not covering body surface. pronotum mostly dark brown with pattern of greyish hair as in fig. 56. Elytra mostly brown, with three irregular transverse bands of pale hairs: at base, in 1/3 and 2/3 elytral length. Apical part dark often with one or two small pale spots (fig. 56). Pygidium with whitish basal band of very dense hairs and narrow median line, and two large brown apical spots. Ventrites uniformly greyish pubescent.

Head short, eyes emarginate to 2/3 length. Frons slightly narrower than width of eye, in male with sharp, in female with indistinct median keel. Antennae moderately long, extending to humeral callus, segment 3 about 1.6 times longer than 2, segments 8-10 slightly longer than wide. Pronotum about 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. Puncturation of pygidium very dense, 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.

Male. Abdomen telescoped. Sternum V emarginate up to base. Median lobe elongate, ventral and dorsal valvae pentagonal, slightly narrowed to base, apex of ventral valve truncate. Internal sac in anterior fourth with dense needles and bispinose sclerite, in the middle without sclerites, in apical third with numerous, dense, moderately large spines (fig. 329). Lateral lobes moderately long, tape-like, directed outwards, only outer margin with long setae. Basal plate narrowed apically with strongly pigmented margins (fig. 330). Spiculum gastrale modified (fig. 331).

Female. Abdomen not telescoped. Sternum V not emarginate. Ovipositor of standard type, long, with oblique suture and large pubescent area, without circular pigmentation, pecten without enlarged base, apical lobes very short (fig. 397).

Host plant. *Malvaceae: Hibiscus* sp.

DISTRIBUTION

Zair, Tanzania, South Africa.

TYPE

Lectotype female, "Typus", Caffraria, L. VAHL. (present designation, NRS); paralectotype male, Caffraria, L. VAHL. (NRS).

MATERIAL EXAMINED

SOUTH AFRICA: in *Hibiscus* seeds, 1 X 1935, 8 (USNM); TANZANIA: Mwomero, 19 VII 1916, 1, A. LOVERIDGE (LB);

REMARKS

It is a unique species with no close relatives. Internal sac with bispinose scleritre in anterior part and numerous spines apically is unique, also lateral lobes with base of each lobe bent externally are characteristic. *S. somalicus* at first glance is similar to *S. maurus* especially in size and vestiture, and median lobe with numerous spines apically, but it has no bispinose sclerite. Lateral lobes in *S. somalicus* are extremely short, subtriangular.

Spermophagus maynei Pic, 1924

(figs. 55, 234, 235, 242, 398)

Spermophagus maynei Pic, 1924: 456.

Description

Length: 2.6-2.7 mm, width: 2.1 mm.

Black, only hind tibial spines reddish.

Vestiture scarce to moderately dense, not covering body surface, brown and white. Pronotum mostly brown with several small, white spot. Elytra with 2-3 spots on each odd interval, small spot at base of interval 2, 4 and 6, and usually small spot in 3/4 length of interval 4 (fig. 55). Scutellum with white pubescence. Pygidium with basal band of whitish hairs, narrow median line of pale hair, and two large apical, brown spots. Ventrites uniformly greyish pubescent.

Head short, eyes emarginate to half length, frons about as wide as width of eye, with short, sharp median keel. Antennae short, extending to hind angles of pronotum. 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 disposed almost uniformly on whole disc. Lateral margin in lateral view strongly convex. Elytral rows moderately punctate, intervals with several large punctures. Puncturation of pygidium dense, in anterior half punctures almost touching each other but surface not appearing rugose, in apical half appearing rugose. Hind legs with no dimorphic characters, hind tibia with dorsolateral carina, lateral carina not serrate or slightly serrate in apical fifth, hind tibial spines straight, sharp, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate to 3/4 length. Median lobe moderately long, ventral valve short, sides regularly rounded, apex with triangular process. Dorsal valve narrower than ventral but similarly shaped. Internal sac divided into two bands, in the middle densely granulose, behind the granulation with four pairs of large spines (fig. 234). Lateral lobes elongate oval, rounded apically, margin only at top with short setae (fig. 242). Spiculum gastrale modified (fig. 235).

Female. Sternum V not emarginate. Ovipositor of standard type, very long, with oblique pubescent suture, without circular pigmentation, pecten without enlarged base, apical lobes short, obtuse (fig. 398).

Host plant unknown.

Distribution

Cameroon, Zair.

Type

Syntype male, Benza Mazola 13/15-VI-1911, R. Mayné (MHNP).

Material examined

CAMEROON: Duala, 1, coll. David (NMP); Tome near Victoria, 22-31 I 1980, 2, Polish Student Exp. (LB).

Remarks

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

Spermophagus minutissimus **n. sp.**
(figs. 58, 178-180, 399)

DESCRIPTION

Length: 1.4-1.9 mm, width: 1.0-1.2 mm.

Black, fore and mid legs, three basal antennal segments, and hind tibial spines yellowish-red. Antennal segments 4-11 varying from yellowish-red to brownish. Hind legs varying from yellowish-brown to black.

Vestiture moderately dense, not covering body surface. Pronotum with pattern of mixed brownish and greyish hairs. Elytra brown with several whitish spots: at base of odd intervals, in 1/4 of length of intervals 2, 3 and 5, in 1/3 length of intervals 7-9, in 2/3 length of intervals 2-5, and 3/4 length of intervals 6-9 (fig. 58). Pygidium uniformly greyish pubescent or with small spot of dense hairs in the middle of basal margin. Ventrites uniformly greyish pubescent.

Head short, eyes emarginate to 2/3 length. Frons as wide as width of eye, without median keel. Antennae moderately long, extending to humerus, segment 3 as wide as or slightly shorter than 2, segments 8-10 about 1.2 times longer than wide. Pronotum 1.5 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 irregular row of 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, inner spine about 1.8 times longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate to 3/4 length. Median lobe moderately elongate, ventral and dorsal valve subpentagonal with sides broadly rounded, apex angulate. Internal sac in anterior part with group of fine needles, apically with numerous elongate strong needles (fig. 178). Lateral lobes extremely small, apex rounded, with only three apical setae. Basal plate moderately broad, anterior margin tricuspidate (fig. 179). Spiculum gastrale slightly modified (fig. 180).

Female. Sternum V not emarginate. Ovipositor of standard type, with oblique pubescent suture, with short circular pigmentation, pecten with enlarged base, apical lobes short, obtuse (fig. 399).

Host plant unknown.

DISTRIBUTION

Madagascar.

TYPES

Holotype male, allotype female, 16 paratypes, Madagascar, Amborovy, 25.VI.58, F. KEISER (holotype, allotype and 8 paratypes in NMB, 4 paratypes in LB, 2 paratypes in MRAC).

REMARKS

It is a unique species with no close relatives. Internal sac with numerous spines in anterior half and numerous squamose spines in posterior half, very short lateral lobes with only three apical sensory setae are unique. Besides *S. abdominalis* it is the only Afrotropi-

cal species with fore and mid legs yellowish-red. *S. abdominalis* differs in usually larger body, above 2.0 mm (below 2.0 mm in *minutissimus*), and partly reddish abdomen and\or elytra .

Spermophagus minutus n. sp.
(figs. 57, 221-223, 400)

DESCRIPTION

Length: 1.5-2.2 mm, width: 1.1-1.7 mm.

Black, hind tibial spines reddish, basal two antennal segments brownish-red to brown, sometimes only ventral side of segments brownish coloured.

Vestiture moderately dense, almost covering body surface. Pronotum mostly brown, with pattern of whitish hairs. Elytra brown with whitish spots: in basal 1/3 length of first interval, elongate spots at base of intervals 3 and 5, transverse spot in 1/3 and 2/3 length of intervals 7-9, sometimes also elongate spot in the middle of intervals 2 and 4 (fig. 57). Pygidium brown with basal band of dense, white hairs, sometimes with narrow median line of whitish hairs. Ventrites uniformly whitish pubescent.

Head short, eyes emarginate to 3/4 length. Frons as wide as width of eye, without median keel. Antennae long, extending to half length of elytra, segment 3 about twice longer than 2, segments 8-10 about 1.3 times longer than wide. Pronotum 1.5 times wider than long, doubly punctate, large punctures disposed almost uniformly on whole disc. Lateral margin in lateral view straight to slightly convex. 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 up to base. Median lobe elongate, ventral valve elongate-pentagonal, apex acute. Dorsal valve triangular, apex acute. Internal sac in anterior part with group of needles, apically with numerous moderately large spines (fig. 221). Lateral lobes short, margins irregularly emarginate, with only a few sort setae. Basal plate elongate, narrow, margins broadly pigmented (fig. 222). Spiculum gastrale not modified (fig. 223).

Female. Sternum V not emarginate. Ovipositor of standard type, short, with oblique pubescent suture, without circular pigmentation, pecten with strongly enlarged base, apical lobes obtuse (fig. 400).

Host plant unknown.

DISTRIBUTION

Indonesia (Java).

TYPES

Holotype male, allotype female, five paratype males and two paratype females, Java, Djakarta, 6.V.1959, leg. B. PISARSKI et J. PRÓSZYŃSKI; Inst. Zool. P.A.N. Warszawa 58/59 (holotype, allotype and 4 paratypes in IZPAS, 2 paratypes in LB, 1 paratype in MRAC); three paratype males, Java, Baluran, Beokol ad Banjuwangi, 13.V.1959, leg. B. PISARSKI et J. PRÓSZYŃSKI; Inst. Zool. P.A.N., Warszawa 58/59 (2 IZPAS, 1 LB).

REMARKS

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

Spermophagus moerens BOHEMAN, 1839
(figs. 59, 262-264, 401)

Spermophagus moerens BOHEMAN, 1839: 138; PIC, 1913: 60; DECELLE, 1970: 258; WENDT, 1978: 359.
Spermophagus capensis MOTSCHULSKY, 1874: 251; PIC, 1913: 58, **n. syn.**

DESCRIPTION

Length: 1.8-2.0 mm, width: 1.4-1.6 mm.

Black, only hind tibial spines reddish.

Vestiture scarce, not covering body surface. Pronotum with mixed brown or greyish hair, not forming a pattern. Elytra mostly brown with spots of greyish hair, usually basal third of sutural interval with pale hairs, pale are also small spots in 2/3 length of odd intervals, small spots in 1/3 length of intervals 3, 5, 7, and transverse spot in the middle of intervals 7-11 (fig. 59). Occasionally whole elytral surface covered by mixed brown and greyish hairs. Pygidium always with transverse, basal band of dense whitish hairs, narrow median line, and two large apical spots brown. Ventrites uniformly greyish pubescent.

Head short, eyes emarginate to 3/4 length. Frons slightly narrower than width of eye, convex, usually without median keel, sometimes with short keel extending from fronto-clypeal suture to 1/3 frons length, occasionally (males only) the keel extending to vertex. Antennae long, sexually dimorphic. Pronotum 1.6 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole disc. Lateral margin in lateral view slightly convex. Elytral rows finely punctate, intervals without large punctures. Puncturation of pygidium dense, punctures almost touching each other. Hind legs with no dimorphic characters, hind tibia without dorsolateral carina, lateral carina not serrate, apical spines straight, sharp, of equal length. Claws without basal tooth.

Male. Antennae longer, extending to 3/4 length of elytra, segment 3 about twice longer than 2, segments 8-10 about 1.5-1.7 times longer than wide. Sternum V emarginate to 2/3 length. Median lobe short, ventral valve subcircular with apex rounded, dorsal valve triangular, apex acute. Internal sac in anterior half divided into two granulose tapes, in the middle with a pair of extremely large spines, behind the spines with 10-13 slightly smaller spines (fig. 262). Lateral lobes very short, transverse, each in 1/3 length of lobe with transverse row of short, dense setae, anterior margin with 4-5 long setae. Basal plate narrow, almost parallel-sided with strongly pigmented margins (fig. 264). Spiculum gastrale modified (fig. 263).

Female. Antennae shorter, extending to 1/3 elytral length, segment 3 about 1.7 times longer than 2, segments 8-10 about 1.3 times longer than wide. Sternum V not emarginate. Ovipositor of standard type, long, with oblique pubescent area, without circular pigmentation, pecten without enlarged base, apical lobes very short (fig. 401).

Host plant unknown.

DISTRIBUTION

Gambia, South Africa.

TYPES

Spermophagus moerens: lectotype male, "Typus", Caffraria (NRS); paralectotype male, Caffraria, ECKL. (NRS).

Spermophagus capensis: holotype male, Cap. b. sp. (ZMLU).

MATERIAL EXAMINED

GAMBIA: Bathurst, Jan. 68, 1, T. PALM (LU); SOUTH AFRICA: Basutoland, Mokhotlong, 6 VI 51, 7200 ft., Swedish South Africa Expedition, 1950-51, 7, BRINCK-RUDEBECK (LU); Transvaal, Johanesburg, 24.8.1905, 1 (TM); Thabina, Zpb. Dist., XI 1905, 1, G. SWIESTRA (TM); Natal, Weenen, XI-XII 1923, 1, I 1924, 1, XI 1924, 1, H. P. THOMASSET (TM); Cape Prov., Grahamstown, netted, 8 XII 1977, 7, S. ENDRODI (HNHM, LB); Cape prov., Plettenberg Bay, Keurboom, netted, 9 XII 1977, 1, S. ENDRODI (HNHM).

REMARKS

It is a unique species with no close relatives. Ventral valve rounded apically and internal sac with several spines in posterior third near this species to *S. posticus* and *S. ruandanus*, but *S. moerens* distinctly differs in reduced basal tooth of tarsal claws. Members of *S. okahandjensis* group have similar armature of internal sac, and especially *S. okahandjensis* is similar by tarsal claws also without basal tooth but it differs in ventral valve acuminate apically. Very short, transverse lateral lobes near *S. moerens* to *S. ruandanus* but *S. moerens* has reduced basal tooth of tarsal claws and elytra with pattern of pale spots while in *S. ruandanus* tarsal claws are toothed and elytral vestiture is uniform with indistinct darker spot in apex of elytra.

Spermophagus monardi DECELLE, 1975
(figs. 60, 277, 278)

Spermophagus monardi DECELLE, 1975 b: 26

DESCRIPTION

Length: 2.0-2.1 mm, width: 1.6 mm.

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

Vestiture moderately dense, not covering body surface, ochraceous and whitish hairs form a marble pattern on pronotum and elytra (fig. 60). Pygidium with basal transverse, ochraceous band, and sometimes with small ochraceous spots in the middle, other part with whitish hairs. Ventrites uniformly greyish pubescent.

Head short, eyes emarginate to 3/4 length. Frons as wide as width of eye, without median keel. Antennae long extending to half length of elytra, segment 3 about 1.7 times longer than 2, segments 8-10 about 1.7 times longer than wide. Pronotum about 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 finely punctate, intervals without large punctures. Puncturation of pygidium moderately dense, intervals about as wide as puncture diameter. Hind legs with no dimorphic characters, hind tibia without 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 moderately long, ventral and dorsal valve pentagonal with regularly rounded sides, apex acute. Internal sac in anterior third with dense needles along margin, in the middle granulose, behind the granulation with a pair of small spines and two groups of short needles and elongate spines (fig. 277). Lateral lobes strongly modified, each lobe divided into two lobes - first larger, elongate oval, transverse, with long setae on margins and shorter setae on dorsal surface, second lobe small, transverse, with a row of squamiform setae along anterior margin. Basal plate narrowed basally and apically with maximum width in 1/3 length, margins strongly pigmented (fig. 278).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

Angola, Ethiopia, Sudan, Tanzania.

TYPE

Holotype male, Angola, riviere Mbale, region du fleuve Kubango, X.1928 (MHNP).

MATERIAL EXAMINED

ETHIOPIA: Urso, III 1911, 1, KOVACS (HNHM); SUDAN: Vei District, "*S. multipunctatus* PIC det.", 22.7.18, 1, H. W. BEDFORD (BMNH); Prov. N Darfur Haluf, 750 m, 10 km N El Fasher, feuchtes Wadi, gekatschert, 31 VII 1977, 1, H. J. BREMER (HNHM); TANZANIA: Lake Victoria, Mwanza, 30 IX 1929, "*S. multipunctatus* var. probable PIC det.", 1, Dr. G. A. K. MARSHALL (BMNH).

REMARKS

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

Spermophagus multifloccosus n. sp.
(figs. 61, 279-281)

DESCRIPTION

Length: 2.1 mm, width: 1.4 mm.

Black, hind tibial spines reddish, dorsal surface of basal anntennal segment dark brown, ventral surface yellowish-brown.

Vestiture moderately dense, not covering body surface. Pronotum uniformly grey. Elytra with marble pattern of greyish and brownish spots (fig. 61). Base of pygidium with transverse band of dense, rusty hairs, other part with mixed greyish and brownish scarce hairs. Ventrites uniformly greyish.

Head short, eyes emarginate to 2/3 length. Frons as wide as width of eye, without median keel. Last segment of maxillary palpi very short, truncate apically. Antennae moderately long, extending to 1/3 length of elytra, segment 3 about 1.4 times longer than 2, segments 8-10 about 1.5 times longer than wide. Pronotum 1.4 times wider than long, doubly punctured, large punctures scarce but disposed almost uniformly on whole disc. Lateral margin in lateral view regularly convex. Elytral rows finely punctate, intervals with several indistinct 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, the outer slightly longer than the inner. Claws with large basal tooth.

Male. First abdominal sternum in the middle with brush of extremely dense hairs. Sternum V emarginate to 3/4 length. Median lobe moderaterly elongate, ventral valve pentagonal with acuminate apical process, dorsal valve about 1.6 times narrowr than the ventral, apex regularly rounded, internal sac in basal part with groups of needles along margins, in the middle with elongate sclerite, anterior margin of the sclerite with two teeth. Sac behind the sclerite with dense, numerous small spines and needles (fig. 279). Lateral lobes strongly modified, each lobe divided into two short plates. Anterior plate smaller, anterior margin of the plate with two rows of short setae. Posterior plate larger, with oblique row of extremely strong spines. Basal plate broad, narrowed basally and apically, anterior margin with several granules, margins moderately broadly pigmented (fig. 281). Spiculum gastrale slightly modified (fig. 280).

Female. Unavailable.

Host plant unknown.

Distribution

South Africa (Transvaal).

TYPE

Holotype male, S. Africa, Transvaal, Nylsvley, cow dung trap; 3.II.1978, leg.: Dr. S. ENDRODI (HNHM).

REMARKS

It belongs to *S. multipunctatus* group. See remarks under S. *multipunctatus*.

Spermophagus multiguttatus PIC, 1917
(figs. 62, 271-273, 402)

Spermophagus multiguttatus PIC, 1917: 10; DECELLE, 1951: 1917, 1975 b: 27.

DESCRIPTION

Length: 1.7-2.3 mm, width: 1.3-1.6 mm.

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

Vestiture moderately dense, not covering body surface. Pronotum and elytra with marble pattern of brown and greyish hairs (fig. 62). Base of pygidium with transverse band of dense, rusty hairs, other part with mixed brown and greyish hairs. Ventral surface uniformly greyish, upper corner of hind coxa usually with spot of densely hairs.

Head short, eyes emarginate to 2/3 of length. Frons as wide as width of eye, without median keel. Last segment of maxillary palpi moderately elongate, apex obliquely truncate. Antennae moderately elongate, extending to 1/3 of elytral length, segment 3 about 1.4 times longer than 2, segments 8-10 about 1.4 times longer than wide. Pronotum 1.5 times wider than long, doubly punctured, large punctures scarce but disposed almost uniformly on whole disc. Elytral rows finely punctate, intervals without or with several indistinct, shallow punctures. Pygidium densely punctate, large punctures almost touching each

other. Hind legs with no dimorphic characters, hind tibia with obtuse dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, outer about 1.4 times longer than inner. Claws with large basal tooth.

Male. Sternum V emarginate to half length. Median lobe moderately long, ventral and dorsal valvae subtraingular with deeply concave sides and strongly acuminate apex. Internal sac in anterior part and in the middle with groups of needles along sides, apically with dense small needles (fig. 271). Lateral lobes narrow, elongate, acute apically, each lobe at base with small secondary lobe. Basal plate broad, narrowed apically (fig. 273). Spiculum gastrale not modified (fig. 272).

Female. Sternum V not emarginate. Ovipositor distinct, oblique pubescent suture distinct in internal half of each lobe only, pecten fused with strong sclerotization of external part of each lobe, no circular sclerite, apical lobes hook-like (fig. 402).

Host plant unknown.

DISTRIBUTION

Zair, Angola and Zimbabwe.

TYPE

Syntypes male and female, Salisbury, Sept, 98, On mosasa (BMNH).

MATERIAL EXAMINED

ZAIR: Albertville, I 1933, 1, L. Burgeon (MRAC); ANGOLA: Huambo, 1934, 1, J. Pimentel (MRAC).

REMARKS

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

Spermophagus multipunctatus PIC, 1917
(figs. 64, 268-270)

Spermophagus multipunctatus PIC, 1917: 11; DECELLE, 1951: 191, 1969: 296, 1975 b: 26; ZAMPETTI, 1988: 108.

DESCRIPTION

Length: 1.8-2.0 mm, width: 1.3-1.4 mm.

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

Vestiture moderately dense, not covering body surface. On pronotum and elytra brown and greyish hairs form a marble-pattern (fig. 64). Pygidium with basal transverse band of extremely dense, yellowish or ochraceous hairs, without median line but sometimes with two small spots of yellowish hair in the middle. Other part of pygidium brown or with mixed brown, yellowish and greyish hairs. Ventrites uniformly greyish pubescent.

Head short, eyes emarginate to 2/3 length, frons narrower than width of eye, without median keel. Antennae moderately long, extending to 1/3 length of elytra, segment 3 about 1.6 times longer than 2, segments 8-10 about 1.6 times longer than wide. Pronotum 1.4-1.5 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. Puncturation of pygidium

dense, punctures almost touching each other. Hind legs with no dimorphic characters, hind tibia without dorsolateral carina, lateral carina not serrate. Hind tibial spines sharp, the outer slightly longer than the inner. Claws with large basal tooth.

Male. First abdominal sternum in the middle with brush of extremely dense hair. Sternum V emarginate to 2/3 length. Median lobe moderately long, ventral valve subpentagonal, narrowed basally, sides slightly concave, apex acuminate, dorsal valve subtriangular, apex acute, internal sac in anterior third with two bands of dense needles, in the middle with two elongate spines, behind the spines without sclerites (fig. 268). Lateral lobes strongly modified, each lobe divided into two lobes, dorsal lobe short-oval, on whole surface with dense squamiform setae, ventral lobe very short, transverse, anterior margin with row of short setae. Basal plate narrowed basally and apically, margins narrowly pigmented (fig. 270). Spiculum gastrale as in fig. 269.

Female. First abdominal sternum without brush of dense hair. Sternum V not emarginate. Ovipositor of standard type, with oblique pubescent suture, without circular pigmentation, pecten with strongly enlarged base, apical lobes narrow, subangulate (fig. 403).

Host plant unknown.

DISTRIBUTION

Gambia, Senegal, Nigeria, Zair, Rwanda, Angola.

TYPE

Holotype female, Senegal (MHNP).

MATERIAL EXAMINED

Gambia, Bathurst, Jan. 68, 1, PALM (LU).

REMARKS

It belongs to *S. multipunctatus* group. This group includes also *S. marmoreus, S. monardi, S. multifloccosus,* and *S. multiguttatus*. All species are moderately large, dorsal pubescence form a marble pattern, basal two antennal segments are usually brown to brownish-red, the last segment of labial palpi is short and stout. All species are extremely similar externally and only male genitalia are diagnostic. Lateral lobes in this group are strongly modified, each lobe is divided into two plates of different shape, only in *S. multiguttatus* this division is indistinct and each lobe is elongate, narrow, with only a small lobe at base. In *S. multiguttatus* internal sac has two groups of needles, shorter in anterior part and longer in the middle but has no spines in the middle. *S multiguttatus* is probably a much plesiotypic form in the group. The other four species have internal sac with only anterior groups of needles or if posterior group is present, then it is not longer than the anterior group, in the middle of sac there are two elongate spines (in *S. multifloccosus* fused). *S. monardi* differs in semispherical ventral valve (in *S. multipunctatus* and *S. marmoreus* ventral valve is subtriangular with concave sides, in *S. multifloccosus* triangular with straight sides but acuminate apical process). Posterior plate of lateral lobes in *S. monardi* is large, similar as in *S. multipunctatus* but surface of the plate has no spiniform setae, and basal plate of lateral lobes is narrow, only slightly narrowed apically, while in *S. multipunctatus* basal plate is broad strongly narrowed apically. *S. multifloccosus* differs distinctly in posterior plate of lateral lobes with oblique row of strong spines, in *S. marmoreus* dorsal plate has no oblique row of spines but strong spines occur on external margin of the plate.

Spermophagus murtulai Pic, 1924 n. stat.
(figs. 67, 206-208)

Spermophagus maynéi var. *murtulai* Pic, 1924: 456.

Description

Length: 1.8-2.0 mm, width: 1.3-1.5 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, not covering body surface. Pronotum mostly dark brown pubescent, with several small spots of greyish hairs. Elytra mostly dark brown, with several small spots of greyish hairs: elongate at base of intervals 3 and 5, in the middle of interval 2, in 1/3 and 2/3 length of intervals 3 and 7-9, the spots form two irregular transverse bands (fig. 67). Pygidium and ventrites uniformly greyish pubescent.

Head short, eyes emarginate to 3/4 length. Frons as wide as eye width, without median keel. Antennae moderately long, extending to 1/4 length of elytra, segment 3 about 1.4 times longer than 2, segments 8-10 about 1.2-1.3 times longer than wide. Pronotum 1.5 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. Puncturation of pygidium dense, punctures almost touching each other. Hind legs with no dimorphic characters, hind tibia without 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 short, ventral valve pentagonal, narrowed basally, apex acute, dorsal valve with anterior margin almost truncate with small median process. Internal sac in anterior part with two bands of dense needles, the remaining part without sclerites (fig. 206). Lateral lobes elongate, tape-like, apex acute, basal part exteriorly widened, margins with long setae, widened basal part with dense short setae. Basal plate broad, narrowed apically, margins narrowly pigmented (fig. 207). Spiculum gastrale as in fig. 208.

Female. Unavailable.

Host plant unknown.

Distribution

Ethiopia, Kenya, Uganda.

Type

Me unknown. I have examined specimens determined by J. Decelle.

Material examined

ETHIOPIA: Bourié, Bord de la Riv. Omo, 600 m, 1, Mission de l'Omo, G. A. Rambourg, P. A. Chapuis, R. Jeannel, 1932-33 (MHNP); KENYA: Elgon Saw niill, M Elgon, Ver Est (Camp II), 2470 m, 2, Mission de l'Omo, G. A. Ramburg, P. A. Chapuis, R. Jeannel, 1932-33 (MHNP); UGANDA: Mujenje, IX 1913, Katona (HNHM).

Remarks

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

Spermophagus negligens Pic, 1917
(figs. 65, 66, 215-217, 404)

Spermophagus negligens Pic, 1917: 10.
Spermophagus javanus Pic, 1918 b: 8, **n. syn.**

Decsription

Length: 2.0-2.3 mm, width: 1.5-1.7 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, not covering body surface, brown and white. White hair on pronotal disc forms a distinct pattern as in figs. 65, 66, on elytra two elongate white spots at base of intervals 3 and 5, sutural interval at least to 2/3 length, complete but irregular transverse band in 2/3 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 dimorphic characters, hind tibia 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. 215). Lateral lobes elongate, tape like, strongly folded, apex rounded. Inner margin in 1/4 basal length with three long setae, in 1/3 length with simple long seta, outer margin with moderately long setae in basal 3/4-4/5 length. In specimens from Indochina lateral lobes are longer, narrower than in specimens from Sunda Is., with outer margin of each lobe setose to 4/5 length. Surface of basal part of each lobe with several short setae. Basal plate of lateral lobes narrow, with strong microsculpture, especially specimens from Sunda Is. have very strong microsculpture (fig. 216). Spiculum gastrale not modified (fig. 217).

Female. Abdomen not telescoped. Sternum V emarginate to half length. Ovipositor of standard type, with oblique pubescent suture, without circular pigmentation, pecten with enlarged base, apical lobes obtuse apically (fig. 404).

Host plants unknown.

Distribution

Vietnam, Thailand, Laos, Java and Lombok.

TYPES

Spermophagus negligens: holotype male, Lombok, Pringabaja, April 1896, H. FRUHSTORFER (MHNP).

Spermophagus javanus: holotype female, Java (MHNP).

MATERIAL EXAMINED

INDONESIA: Java, Djakarta, 6 V 1959, 3, B. PISARSKI and J. PROSZYNSKI (IZPAS, LB); Java, Batavia, 1 IV 1909, 1, BRYANT and PALMER (USNM); Java, Baluran, Beokol ad Banjuwangi, 13 V 1959, 1, B. PISARSKI and J. PROSZYNSKI (IZPAS); Java, Bogor, 26 VIII 1964, 1, M. DELFINADO (BM); LAOS: Nongtevada, 8 IX 1965, 1, 18 XI 1965, 1, 2 XII 1965, 2, native collector (BM, LB); Vientiane Prov., Tha Ngone, 4 XII 1965, 1, native collector (BM); Dong Dok, 7 IX 1965, 1, 22 XI 1965, 1, 1 XII 1965, 1, 6 XII 1965, 3 (BM, LB); Annam, Laos, 1, "*Spermophagus bifasciatus* MOTSCH. A. HOFFMANN det. (HNHM); THAILAND: Chiengmai, Ban-tin-doi, 350 m, 13 XI 1957, 1, J. L. GRESSITT (BM); Trang prov., Khaophappha, Khaochang, 200-400 m, 11 I 1964, 1, G. A. SAMUELSON (BM); Saraburi Prov., Ban Muak Lek. Nat. Park, 6 VI 1965, 1, P. D. ASHLOCK (BM); Khao Yai Nat. Park, 8 XI 1977, 1 G. F. HEVEL (BM); VIETNAM: M'Drak E of BanMeThuot, 4-600 m, 8-19 XII 1960, 4, C. M. YOSHIMOTO (BM, LB); 22 km S of Nha Trang, 20-26 XI 1960, 1, C. M. YOSHIMOTO (BM); Ninh Hoa N. of Nha Trang, 28 XI 1960, 1, C. M. YOSHIMOTO (BM); Dai Lanh N. of Nha Trang, 30 XI-5 XII 1960, 1, C. M. YOSHIMOTO (BM); Di Linh (Djiring), 1000 m, 27 IX-14 X 1960, 1, C. M. YOSHIMOTO (BM); Karyu, Danar, 200 m, 13-28 II 1961, 1, N. R. SPENCER (BM); Mt. Lang Bian, 1500-2000 m, 19 V-8 VI 1961, 1, N. R. SPENCER (BM).

REMARKS

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

***Spermophagus newtoni* BOROWIEC, 1986**
(figs. 68, 114, 255, 256, 260)

Spermophagus newtoni BOROWIEC, 1986 c: 237.

DESCRIPTION

Length: 3.4 mm, width: 2.6 mm.

Black, only hind tibial spines reddish.

Dorsal vestiture extremely short and scarce, brownish (fig. 68), probably uniform (in the only known specimen almost whole dorsal surface is wiped away). Base of pygidium with transverse band of extremely dense, chalk-white hair. Ventral surface bare.

Body elongate-oval. Head short, frons without median keel. Antennae very short, not extending to hind angles of pronotum. Pronotum about 1.7 times wider than long. Lateral margin in lateral view distinctly convex. Puncturation of disc doubly, space between punctures with distinct microreticulation. Elytra slightly longer than wide, on sides almost parallel. Elytral rows distinctly punctate, elytral intervals with small, dense punctures and with irregular rows of large punctures. Pygidium moderately convex, with large, very deep punctures. In basal part of pygidium distances between punctures larger than puncture diameter, in apical punctures touching each other, but not forming irregular rugosities.

Ventral surface with no diagnostic characters. Hind legs sexually dimorphic. Claws with large basal tooth.

Male. Sternum V emarginate up to anterior edge. Hind tibia distinctly curved ventrad, without dorsolateral carina. Ventral margin with very dense, long yellow hair (fig. 114). First tarsomere without hair. Median lobe long, ventral valve very short, transverse, apex slightly convex. Dorsal valve also very short, transverse. Internal sac without large sclerites, only part under ventral valve with two groups of extremely small needles (fig. 255). Lateral lobes very short, triangular, ventral margin and hind corners with very short sensory hair. Base almost parallel-sided with broadly chitinized margins (fig. 260). Spiculum gastrale not modified (fig. 256).

Female unavailable.

Host plant unknown.

DISTRIBUTION

Tanzania.

TYPE

Holotype male, Tanganyika Territory, Ngami-Mtori, 4 IV 1916, leg. A. LOVERIDGE (MCZ).

MATERIAL EXAMINED

No additional material.

REMARKS

It is a member of *S. hottentotus* group. It differs from all species of the group in pygidium with basal transverse band of extremely dense, chalk-white hair. See also remarks under *S. madecassus*.

Spermophagus niger MOTSCHULSKY, 1866
(figs. 69, 154-156, 405)

Spermophagus niger MOTSCHULSKY, 1866: 405; PIC, 1913: 60; DECELLE, 1975 c: 192.
Spermophagus bifasciolatus MOTSCHULSKY, 1874: 250; PIC, 1913: 58, **n. syn.**
Spermophagus tonkineus PIC, 1917: 8.
Spermophagus formosanus PIC, 1917: 9, part; BOROWIEC, 1986 a: 786 (as syn.).
Spermophagus formosanus v. *subundulatus* PIC, 1917: 9, part.
Spermophagus simoni var. *immaculatus* PIC, 1922: 16, **n. syn.**

Description

Length: 1.8-2.2 mm, width: 1.3-1.7 mm.

Black, only hind tibial spines reddish. Vestiture moderately dense, not covering body surface. In dark coloured specimens pronotum and elytra dark brown pubescent with spots of greyish hairs on each side of pronotum and in the middle of elytral intervals 7-9 (fig. 69). In pale form dorsal pubescence is variegate, pronotum with several spots of greyish hairs, spots partly coalescent, elytra mostly greyish with brown spots in 1/4 length of intervals 2-4, 7-8, in the middle of intervals 7-9, and with large brown apical spot. All intermediates exist between pale and dark colured forms. Pygidium and ventrites uniformly

greyish pubescent, or pygidium with indistinct basal band of dense hairs and narrow median line. This species is often similarly pubescent to the common sympathric species of the same locality i.e. to *S. ~~laosensis~~ negligens*, *S. variolosopunctatus, S. pfaffenbergeri,* so forms from the same locality are more similar to the other species from the same locality than to specimens of *S. niger* from other geographic regions (social mimicry).

Head short, eyes emarginate to 3/4 length. Frons as wide as width of eye, without median keel. Antennae moderately long, extending to humeral callus, segment 3 about 1.3 times longer than 2, segments 8-10 about 1.1-1.2 times longer than wide. Pronotum 1.4-1.5 times wider than long, disc doubly punctured, large punctures disposed almost uniformly on whole disc. Lateral margin in lateral view moderately convex. Elytral rows moderately punctate, intervals with irregular row of large punctures. Puncturation of pygidium moderately dense to dense, intervals 1.1-1.5 times wider than puncture diameter. Hind legs with no dimorphic characters. Hind tibia with dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, straight, of equal length or inner spine slightly longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate to 1/2-2/3 length. Median lobe moderately long, slightly widened in the middle, ventral and dorsal valve pentagonal, apex angulate. Internal sac without sclerites, in the middle with two bands of granules along sides (fig. 154). Lateral lobes elongate, tape-like, apex acute, margins with long setae, inner margin densely pubescent than the outer. Basal plate narrow, narrowed apically, base with two triangular, strongly pigmented plates (fig. 155). Spiculum gastrale not modified (fig. 156).

Female. Sternum V not emarginate. Ovipositor of standard type, strongly sclerotized, with oblique pubescent suture, without circular pigmentation, pecten with enlarged base, apical lobes scarcely pubescent (fig. 405).

Host plant. *Malvaceae: Urena lobata, Hibiscus* sp., *Lantana* sp.

DISTRIBUTION

India, Ceylon, China, Taiwan, Vietnam, Thailand, Malaysia, Indonesia, Philippines (Palawan).

TYPES

Spermophagus niger: holotype male, Ceylan, Nura-Ellia (after DECELLE, 1975: 192, ZMLU).

Spermophagus bifasciolatus: holotype male, Agra, Ind. or. (ZMLU).

Spermophagus tonkineus: holotype male, Ho Lang (Tonkin), LANCAY (MHNP).

Spermophagus formosanus: lectotype male and three paralectotypes, Kankau, Koshun, Formosa, H. SAUTER, VIII 1912 (IZPAS).

Spermophagus simoni v. *immaculatus*: holotype female, P. Princesa, Palawan, BAKER (MHNP).

MATERIAL EXAMINED

CEYLON: Sabaragamuwa, Prov. Hatherleigh, 1 mile S Rakwana at 1700 ft., 28 II 62, loc. 101, at rapid stream, 2, Lund University Ceylon Expedition, BRINCK-ANDERSSON-CEDERHOLM (LU); C.P.Kandy, L. Blake's Drive, 16 XII 53, 1, F. KEISER (NMB); C.P. Haragama, 2 I 54, 1, F. Keiser (NMB); Ceylon, 3, NIETNER (IZPAS); CHINA: Kuangtung, Cunhua, 96 km NO ad Canton, 30 XI 1965, 1, R. BIELAWSKI (IZPAS); Hainan, Groove near

Beggar Village, SW of Nodos, 9 Jul. 1929, 1, Lingnan Univ. Exp. (USNM); INDONESIA: Java, M^{t} Ardjoeno, 1, M^{me} E. WALSH (MHNP); Java, Sarangan, Lawoe-Geb., 1500-2000 m, 2, H. Overbeck (MTD); Dili, May 1892, 1, W. DOHERTY (MHNP); INDIA: Anamalai Hills, Cinchana, 1050 m, IV 1956, 1, IV 1957, 1, P. S. NATHAN (BM); Punjab, Hoshiaspur, 21 XI 18, on *Lantana*, 1, FLETCHER (USNM); Coorg, Virajpet, 22 III 54, with *Hibiscus* sp. seeds, 10, W. B. WOOD (USNM); Assam, Chabua, 28 Oct. 1943, 2, 20 II 1944, 1, D. E. HARDY (USNM); Assam, 6 mi NW Digboi, 30 III 1944, 1, D. E. HARDY (USNM); Darjeeling, 2 VI 36, in seed of *Urena lobata*, 1, GOULDMAN (USNM); India, 28 V 1936, 2, 8 June 1936, 4, in seed of *Urena lobata* (USNM); MALAYSIA: Cameron Highl., Berinchang, 1500 m, 23 I 1981, 1, T. PALM (LU); Pahang, Frasers Hill, October 1948, 1, N. L. KRAUSS (USNM); Borneo, Sarawak, Sarikei Dist., Rejang Delta, 15-26 VII 1958, 1, T. C. MAA (USNM); TAIWAN: Formosa, Kankau (Koshun), V 1912, 1, H. SAUTER, paralectotype of *S. formosanus* var. *subundulatus* PIC, 1917 (DEI); Kosempo, 22 V 1912, 1, H. SAUTER, paralectotype of *S. formosanus* var. *subundulatus* PIC, 1917 (DEI); Taipei Hsien, Tienmu, 150 m, 8 XI 1957, 1, T. C. MAA (BM); Hori (Puli), July 1953, 4, July 1954, 3, naive collector (BM); Mizuho, 200 m, 22 IV 32, 1, J. L. GRESSITT (USNM); THAILAND: S. Banna, Nakhon, 108 m, 5-10 V 58, 1, T. C. MAA (BM); VIETNAM: M'Drak, E of Ban Me Thuot, 4-600 m, 8-19 XII 60, 16, C. M. YOSHIMOTO (BM); Mt. Lang Bian, 1500-2000 m, 19 V-8 VI 1961, 1, N. R. SPENCER (BM); Fyan, 1200 m, 11 VII-9 VIII 61, 1, N. R. SPENCER (BM); 6 km S Dalat, 1400-1500 m, 9 VI-7 VII 1961, 1, N. R. SPENCER (BM); Yen-Bay, 1910, 6, DUSSAULT (NMB).

REMARKS

It belongs to *S. niger* group. See remarks under *S. kingsolveri* and *S. aeneipennis*.

Spermophagus okahandjensis DECELLE, 1973
(figs. 71, 190, 191)

Spermophagus okahandjensis DECELLE, 1973 a: 139; WENDT, 1978: 360; BOROWIEC, 1986 d: figs. 5, 8.

DESCRIPTION

Length: 1.8 mm, width: 1.3 mm.

Black, hind tibial spines reddish. Basal two antennal segments and front femora brownish.

Vestiture uniform, greyish, moderately dense, almost covering body surface (fig. 71). Ventral surface uniformly greyish pubescent, metathoracic episternum with spot of dense whitish hair.

Head elongate, eyes emarginate to 3/4 length. Frons with sharp median keel extending to line uniting hind margin of eyes. Antennae long, extending to half length of elytra, segment 3 about twice longer than 2, distal segments broken in the only known specimen. Pronotum 1.6 times wider than long, praescutellar lobe on sides with short elongate impression. Sides of pronotum not as convex as in other species. Disc doubly punctured, large punctures disposed almost uniformly on whole surface. Lateral margin in lateral view slightly convex. Elytra about 1.1 times wider than long. Rows distinctly punctured, intervals with several shallow, large punctures. Apex of pygidium rugose punctate. Hind legs with no dimorphic characters, hind tibia without dorsolateral carina, lateral carina

not serrate, apical spines sharp, inner spine slightly longer than the outer. Claws with reduced basal tooth.

Male. Sternum V emarginate to 3/4 length. Median lobe moderately long, slightly widened in front of basal spoon, ventral valve pentagonal, apex acuminate, dorsal valve almost as wide as the ventral. Internal sac in anterior half with bands of small granules along sides, in posterior half with 18 large sclerites, first pair spine-like, second pair of spinose plates, remainder spine-like of various size. Between large sclerites several small spines (fig. 190). Lateral lobes short, oval, apex rounded, margins without hair, surface with several sensory pores. Basal plate of lateral lobes narrow, slightly widened posteriorly, with several pores at base (fig. 191).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

Namibia.

TYPES

Holotype male, D. S-W Africa, Okahandya, CASPER S.G. (ZMHU).

MATERIAL EXAMINED

No additional material.

REMARKS

It is a member of *S. okahandjensis* group. The most similar species of the group is *S. transvaalensis* which has lateral lobes oval, but differs in broader ventral valve , stouter lateral lobes with distinct sensory pores and short marginal setae (in *S. okahandjensis* lateral lobes are narrower, sensory pores indistinct, no marginal setae). Basal plate of lateral lobes is slightly widened apically in *S. okahandjensis,* slightly narrowed apically in *S. transvaalensis*. See also remarks under *S. endrodii.*

Spermophagus palmi n. sp.

(figs. 70, 303-305)

DESCRIPTION

Length: 3.1 mm, width: 2.4 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, covering body surface. Pronotum and elytra with pattern of mixed brownish and greyish spots (fig. 70). Pygidium mostly brownish, in upper corners with spots of dense, greyish hairs, with short median line extending to 1/3 length of pygidium. Ventrites uniformly greyish pubescent, upper corner of hind coxa with spot of dense hairs.

Head short, eyes emarginate to half length, frons as wide as eye width, with sharp, extremely long median keel, extending from frontoclypeal suture to anterior margin of pronotum. Antennae moderately long, extending to 1/4 elytral length, segment 3 about 1.3 times longer than 2, segments 8-10 about 1.6 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 several large punctures. Pygidium densely punctate, 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 about 1.3 times longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate to 2/3 length. Median lobe moderately elongate, constricted behind valvae. Ventral valve very small, subtriangular, apex obtuse. Internal sac in anterior 2/3 length divided into two tapes, each tape densely granulose, especially in anterior half. Apex of sac with three extremaly large, hook-like sclerites, behind the sclerites elongate, gutter-like sclerite (fig. 303). Lateral lobes moderately elongate, apex rounded, margins and base with dense, long setae. Surface of each lobe with several short setae. Basal plate widened at base, narrowed apically, basal 1/4 length unpigmented, apical 3/4 length wholly pigmented, whole surface microsetose (fig. 304). Spiculum gastrale not modified (fig. 305).

Female. Unavailable.

Host plant. Unknown.

DISTRIBUTION

Thailand.

TYPE

Holotype male, Pattaya, 1979, T. PALM, 30/11 (LU).

REMARKS

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

Spermophagus pfaffenbergeri BOROWIEC, 1986
(figs. 72, 343-345, 406)

Spermophagus pfaffenbergeri BOROWIEC, 1986 a: 786.

DESCRIPTION

Length: 2.0-2.2 mm, width: 1.5-1.9 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, not covering body surface, brownish and greyish (figs. 72). In pale form greyish hairs predominate, pronotum with three spots of brown hairs in the middle, spot in front of scutellum, and spots in the middle of each side of basal margin. Elytra mostly grey pubescent with small spots of brown hairs on odd intervals and elytral apex. In dark form brown hairs predominate, pronotum with four spots of pale hairs in the middle and two spots on sides. Elytra mostly brown with small spots of pale hairs at base of intervals 3 and 5, in 1/3 and 2/3 length of intervals 3 and 5, in the middle of intervals 7-9, and 3/4 length of interval 8. Between pale and dark forms all intermediate occurs. The contrast between pale and dark hairs varies individually. Pygidium with three spots of dense, pale hairs at base, sometimes with basal band, often with narrow median line and two large apical brown spots. Ventrites uniformly greyish pubescent.

Head short, eyes emarginate to 1/2 length, frons distinctly narrower than width of eye, with sharp, short median keel. Antennae moderately long, extending to humeral callus, segment 3 about twice longer than 2, segments 8-10 about 1.2-1.3 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 moderately convex. Elytral rows moderately punctate, intervals with irregular row of large punctures. Puncturation of pygidium dense, 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, inner spine slightly longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate up to base. Median lobe moderately long, ventral valve short, transverse, with triangular apical process, dorsal valve triangular, apex angulate. Internal sac in anterior 2/3 length divided into two tapes, in the middle with a pair of extremely large spines, sac behind the spines strongly sclerotized but without sclerites, beyond the sclerotization with two pairs of large hook-like spines (fig. 343). Lateral lobes of characteristic shape, anterior margin with only a few short setae. Basal plate narrow, parallel-sided, margins narrowly pigmented (fig. 344). Original description of this species based on teratological specimen with modified lateral lobes (fig. 345).

Female. Sternum V not emarginate. Ovipositor of standard type, long, with extremely large apical pubescent area, with circular sclerite, pecten without enlarged base, apical lobes extremely short (fig. 406).

Host plant. *Convolvulaceae: Ipomea pestigridis.*

DISTRIBUTION

India, Ceylon, Vietnam, Thailand, Indonesia, Philippines.

TYPES

Holotype male, Ceylon, leg. NIETNER (IZPAS).

MATERIAL EXAMINED

INDIA: Bombay, Dec. 1924, in *Ipomea pestigridis*, 2 (USNM); INDONESIA: Djakarta, 6 V 1959, 1, B. PISARSKI and J. PRÓSZYŃSKI (IZPAS); Baluran, Beokol ad Banjuwangi, 13 V 1959, 1, B. PISARSKI and J. PRÓSZYŃSKI (IZPAS); Balabac, 3, STAUDINGER (MHNP); PHILIPPINES: Palawan, 3 km NE Tinabog, 11 V 1962, Malaise Trap, 1, H. HOLTMANN (BM); Biliran Is., 1927, 1, C. F. BAKER (USNM); Los Banos, March-June 1925, 2, Pemberton (BM); Laguna, Mt. Makiling, 400 ft., 19 VI 31, 1, F. C. HADDEN, 1 VI 32, 1, F. C. HADDEN, 100 m, 16 V 1932, 1, F. C. HADDEN (BM); THAILAND: NW Chiangmai Prov., Chiangdao, 450 m, 5-11 IV 1958, 1, T. C. MAA (BM); Nakorn Phanom, 29 XII 51, 1, R. E. ELBEL (USNM); VIETNAM: 17 V 1949, 1, sur fleur du *Convolvulaceae*, J. BARBIER (MHNP); 15-35 km NW of Phan Rang, 8-16 XI 1960, 2, C. M. YOSHIMOTO (BM); Nha Ho, 14 km N Phan Rang, 15 XI 1960, 6, C. M. YOSHIMOTO (BM); Karyu, Donar, 200 m, 13-28 II 1961, 2, N. R. SPENCER (BM).

REMARKS

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

Spermophagus pilipes n. sp.
(figs. 73, 110, 340-342, 407)

DESCRIPTION

Length: 2.9-3.1 mm, width: 2.2-2.3 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, almost covering body surface. Pronotal and elytral disc, and pygidium with marble pattern of white and brown hairs (fig. 73). White or brown spots predominate . Ventrites uniformly greyish pubescent.

Head short, eyes emarginate only to half length. Frons sexually dimorphic. Antennae moderately long, extending slightly beyond humeral callus, segment 3 about 1.4-1.5 times longer than 2, segments 8-10 about 1.2 times longer than wide. Pronotum 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 without or with shallow indistinct large punctures. Pygidium densely punctate, large punctures almost touching each other. Hind legs sexually dimorphic, hind tibia in basal half with dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, straight, the inner 1.5-1.8 times longer than outer. Claws with large basal tooth.

Male. Frons slightly narrower than width of eye with long median keel extending from frontoclypeal suture to the middle of vertex, in holotype median keel prolonged to the end of vertex. Inner margin of antennal segments 5-11 with row of long, perpendicular setae. Outer margin of ventral side of hind femora, anterior margin of hind tibia, and ventral margin of hind first tarsomere with long, dense hair (fig. 110). Sternum V emarginate to 1/3-1/2 length. Median lobe elongate, dorsal and ventral valvae pentagonal, apex acute. Internal sac in anterior half with needles along margins, the needles gradually smaller from base to the middle of sac, in the middle with pair of sickle-like sclerites, behind the sclerites with moderately dense needles (fig. 340). Lateral lobes strongly modified. Each lobe divided into two long tapes. External tape broad, in apical half margins with dense, long, extremely strong setae. Internal tape narrow, margins with short and dense setae. Basal plate in basal part U-shaped, behind the base almost parallel-sided with margins narrowly pigmented (fig. 341). Spiculum gastrale slightly modified (fig. 342).

Female. Frons distinctly narrower than width of eye but without median keel. Antennae without perpendicular setae. Hind legs without dense hairs. Sternum V not emarginate. Ovipositor modified, short, with oblique pubescent area, without circular sclerites, pecten with enlarged base, apical lobes divided into two secondary lobes, anterior very narrow, posterior broad (fig. 407).

Host plant. *Convolvulaceae: Ipomea cairica.*

DISTRIBUTION

Ethiopia.

TYPES

Holotype male, allotype female, paratypes male and female, from seeds of *Ipomea cairica*, from Dessie, Abyssinia, Sp I 60552, FHB 51237 Washington DC June 5, 24 (holotype, allotype, and paratype female in USNM, paratype male in LB).

REMARKS

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

Spermophagus posticus CHEVROLAT, 1877
(figs. 74, 318-320, 410)

Spermophagus posticus CHEVROLAT, 1877: CXXXV ; PIC, 1913: 61; DECELLE, 1975 b: 27.
Spermophagus senegalensis var. PIC, 1931: 423 (nomen nudum); DECELLE, 1975 b: 27 .
Spermophagus senegalensis v. *nigrodenudatus* PIC, 1939: 24; DECELLE, 1975: 27 (as syn.) .
Spermophagus senegalensis PIC, 1942: 7; DECELLE, 1975 b: 27 (as syn.).

DESCRIPTION

Length: 1.9-2.6 mm, width: 1.4-2.0 mm.

Black, only hind tibial spines reddish.

Vestiture scarce to moderately dense, not covering body surface, on pronotum, pygidium and ventrites uniformly greyish. Elytra greyish with apical spot of brown hairs, occasionally uniformly pubescent (fig. 74).

Head short, eyes emarginate to 2/3 length, frons slightly narrower than width of eye, convex, usually with sharp median keel. Antennae moderately long, extending to 1/3 length of elytra, segment 3 about twice 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 regularly convex. Elytral rows moderately punctate, intervals with indistinct large punctures. Pygidium densely punctured, punctures almost touching each other. Hind legs with no dimorphic characters, hind tibia with sharp dorsolateral carina, lateral carina not serrate, hind tibial spines straight, sharp, the inner slightly longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate to 1/3 length. Median lobe moderately long, of characteristic shape, apex rounded, dorsal valve very short. Internal sac in anterior 2/3 length with median line of needles, beyond the middle with small spines, apically with group of 12-16 large spines or comb-like sclerites (fig. 318). Lateral lobes very short, in shape of oval plate with setae on whole margin. Basal plate constricted before the lobes, widened behind constriction, narrowed apically (fig. 319). Spiculum gastrale not modified (fig. 320).

Female. Sternum V not emarginate. Ovipositor of standard type, with oblique pubescent suture, without circular pigmentation, pecten without enlarged base, apical lobes short, obtuse (fig. 410).

Host plant unknown.

DISTRIBUTION

Senegal, Ghana, Nigeria, Republic of Congo, Ethiopia, Kenya, Tanzania.

TYPES

Spermophagus posticus: holotype female, Old Calabar (NRS).

Spermophagus senegalensis v. *nigrodenudatus:* holotype female, Haut-Senegal-Niger (after DECELLE, 1975: 27, MNHP).

Spermophagus senegalensis: lectotype male, Senegal (MHNP).

MATERIAL EXAMINED

ETHIOPIA: 8 km S Dessie, 19 IX 1980, 13, DEMETER (HNHM, LB); Koka, at light, 21 X 1980, 3, DEMETER (HNHM); Maraquo, 1912, 2, KOVACS (HNHM); Vallis Erer, 4, KOVACS (HNHM); Eritrea, Asmara, KOVACS, 2 (HNHM); GHANA: Legon ad Accra, 11 VI 1963, 1, 9 VII 1963, 1, M. PRÓSZYŃSKA and J. PRÓSZYŃSKI (IZPAS); KENYA: Kilkoni, sweeping near to seashore, 24 IX 1985, 2, S. and L. MAHUNKA (HNHM); TANZANIA: inter Marti et Arusha, 1, KATONA (HNHM); USA River, 3900 ft., at light, 1965, 2, J. SZUNYOGHY (HNHM).

REMARKS

With *S. ruandanus* it forms a natural group of species with ventral valve rounded apically, internal sac with several spines apically, lateral lobes short, transverse to subcircular, elytral vestiture uniform with indistinct dark spot on apex of elytra. *S. ruandanus* differs in lateral lobes transverse with transverse row of short setae (in *S. posticus* lateral lobes are subcircular with no transverse row of short setae), basal plate of lateral lobes not constricted behind lobes (strongly constricted in *S. posticus*), ventral valve about as long as wide (distinctly wider than long in *S. posticus*).

Spermophagus pubiventris BAUDI, 1866
(figs. 75, 152, 153, 409)

Spermophagus variolosopunctatus var. *pubiventris* BAUDI, 1887: 471; ABEILLE DE PERRIN, 1888: 89.
Spermophagus Kusteri var. *pubiventris*: SCHILSKY, 1905: no. 4; PIC, 1913: 60.
Spermophagus pubiventris: HOFFMANN, 1954: 202 (based on misidentified specimen); BOROWIEC, 1985 a: 11; DECELLE and LODOS, 1989: 202.

DESCRIPTION

Length: 2.0-2.4 mm, width: 1.6-2.0 mm.

Black, only hind tibial spines reddish or brownish. In weakly sclerotized specimens maxillary palpi and third tarsal segment of fore and mid legs reddish or brownish.

Vestiture uniform, olive-greyish, dense, covering body surface but not felt-like (fig. 75).

Head short, eyes emarginate to 2/3 length. Frons about as wide as width of eye, without median keel. Antennae slender and long, reaching to half of body. Segment 3 about 1.5 times longer than 2, segments 7-10 very long, 1.6-2.0 times longer than wide. Pronotum semicircular, doubly punctured. Large punctures on sides of pronotal disc larger and more dense than in the middle of pronotum. Lateral margin in lateral view regularly convex. Elytral rows moderately coarsely punctate, intervals with large punctures on entire length, disposed irregularly or only on short distance arranged in rows. Ventral side without diagnostic characters. Hind legs with no dimorphic characters, hind tibia without dorsolateral carina, lateral carina serrate. Hind tibial spines sharp, equal in length. In some specimens outer spine darker than the inner, especially dorsally. Claws with large basal tooth.

Male. Sternum V emarginate to 3/4 length. Median lobe long, parallel-sided. Ventral valve subtriangular, apex angulate. Internal sac with minute spines in front part, other parts without sclerites (fig. 152). Lateral lobes long, tape-like, with acute apex. Margins with long and dense hair, only apical third of inner margin bare. Basal plate narrowed apically (fig. 153).

Female. Sternum V not emarginate. Ovipositor of standard type, with oblique pubescent suture, with circular pigmentation, pecten short, apical lobes very short (fig. 409).

Host plant unknown.

DISTRIBUTION

Greece, Turkey and Lebanon.

TYPE

Unknown to me.

MATERIAL EXAMINED

See BOROWIEC, 1985: 14.

REMARKS

It is a member of *S. sericeus* group. See remarks under *S. kuesteri* and *S. sericeus*.

***Spermophagus punjabensis* n. sp.**
(figs. 76, 170, 171)

DESCRIPTION

Length: 2.1 mm, width: 1.6 mm.

Black, hind tibial spines reddish, second antennal segment reddish-brown.

Vestiture scarce, not covering body surface, uniform, on pronotum and elytra brownish (fig. 76), pygidium and ventrites greyish.

Head short, eyes emarginate to 3/4 length. Frons about 1.8 times wider than eye, without keel. Antennae moderately long, extending to humerus, segment 3 about 1.6 times longer than 2, segments 8-10 as long as 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 irregular rows of large punctures. Pygidium densely punctate, 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, of equal length. All claws broken in the only known specimen.

Male. Abdomen telescoped. Sternum V emarginate up to base. Median lobe moderately elongate, ventral valve subpentagonal, apex obtuse. Internal sac without sclerites (fig. 170). Lateral lobes elongate, apical half filiform, only small piece at base of each lobe with setae. Basal plate moderately broad, narrowed apically, margins pigmented (fig. 171).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

NW India.

TYPE

Holotype male, Panjab and U Provinces, VI-X India, RL WOGLUM coll. (USNM).

REMARKS

It is a member of *S. niger* group. It differs from all species of the group in ventral valve ogive-like and lateral lobes in apical half very narrow, filiform. See also remarks under *S. dongdokiensis.*

Spermophagus pygopubens PIC, 1930
(figs. 77, 200-202, 411)

Spermophagus pygopubens PIC, 1930: 9; DECELLE, 1951: 192, 1975 b: 28.

DESCRIPTION

Length: 1.9-2.6 mm, width: 1.3-2.0 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, uniformly greyish, not covering body surface (fig. 77).

Head short, eyes emarginate to 3/4 length, frons 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 as long as wide. Pronotum 1.5 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 row of large punctures. Pygidium densely punctured, punctures almost touching each other. Hind legs with no dimorphic characters, hind tibia without dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, short, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate to half length. Median lobe moderately long, ventral and dorsal valve subtriangular, apex acute. Internal sac in anterior fourth with needles along margins, other part without sclerites (fig. 200). Lateral lobes elongate, tape-like, apex acute, only outer margin with scarce, long setae. Basal plate moderately broad, narrowed apically (fig. 201). Spiculum gastrale strongly modified (fig. 202).

Female. Sternum V not emarginate. Ovipositor of standard type, elongate, with oblique pubescent suture, without circular pigmentation, pecten short with slightly expanded base, apical lobes very short, obtuse (fig. 411).

Host plant. *Malvaceae: Hibiscus cannabina, H. sabaariffa.*

DISTRIBUTION

Algeria, Guinea, Mali, Ghana, Nigeria, Republic of Congo, Algeria, Nigeria, Ghana, Zair, Zambia, South Africa.

TYPE

Holotype male, Guinee (MHNP).

MATERIAL EXAMINED

ALGERIA: 5 V 42, seed of *Hibiscus sabaariffa,* 8 (USNM); GHANA: 21 I 1963, *Hibiscus cannabina,* 4 (USNM); NIGERIA: Yankari Game Reserve, Wikki, 11 VIII 78, bird carcasse, 1, DEMETER (HNHM)l; SOUTH AFRICA. Transvaal, Boekenhoutskloof, 30 km NE Pretoria, netted, 14 I 1978, 1, S. ENDRODI (HNHM); Transvaal, Nylsvley, netted, 16 I

1978, 1, S. ENDRODI (HNHM); Damaraland, Abachaus, XII 1951, 2, G. HOBOHM (TM); Samendeigei, Kaukau-Kumgv., VI 1951, 1, C. KOCH (TM); Kabulabula, Chobe River, 11-24/7/1930, 1, V.-L. Kal. Exp. (TM); Pretoria, 10 VI 59, with *Hibiscus* sp. seed, 9, J. E. MABRY Jn. (USNM); ZAIR: 7 IX 60, with *Hibiscus* sp., 4, F.T. KENWORTHY (USNM); ZAMBIA: Livingstone. 7 X 1941, 1, W. EICHLER (IZPAS); Zambia interc., germoplasm, 16 March 1981, *Hibiscus* sp., 3 (USNM).

REMARKS

It is a unique species with no close relatives. It is the only Afrotropical species with dorsal vestiture uniformly greyish, body slightly elongate, and internal sac without spines. Uniformly pubescent forms of *S. humilis* differs distinctly in stout, almost spherical body, and internal sac with bispinose sclerite. Small specimens of *S. sophorae*, also with uniformly pubescent elytra differ in scutellum with white pubescence. *S. cicatricosus* is the most similar, but it is usually brown pubescent, with ventral valve transverse (subcircular in *pygopubens*), and with lateral lobes very short, transverse, rounded apically (long, tape-like, acute apically in *pygopubens*).

Spermophagus ruandanus n. sp.
(figs. 78, 265-267)

DESCRIPTION

Length: 2.1 mm, width: 1.6 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, uniformly greyish, only apex of elytron with spot of brownish hair (fig. 78).

Head short, eyes emarginate to 2/3 length, frons as wide as width of eye, without median keel. Antennae moderately long, extending slightly behind humeral callus, segment 3 about 1.4 longer than 2, segments 8-10 about 1.4 times longer than wide. Pronotum 1.7 times wider than long, doubly punctured, large punctures grouping on sides of disc. Lateral margin in lateral view regularly convex. Elytral rows moderately punctate, intervals with irregular rows of 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 not serrate, hind tibial spines straight, sharp, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate to 2/3 length. Median lobe moderately long, ventral and dorsal valvae of characteristic shape (fig. 265), internal sac divided into two tapes, in anterior half with dense needles along inner margin of each tape, in apical part with 16 elongate spines. Lateral lobes very short, angulate on sides, each lobe in the middle with transverse rows of short setae, margins without setae. Basal plate short, almost parallel-sided (fig. 266). Spiculum gastrale modified (fig. 267).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

Ruanda.

TYPE

Holotype male, Sudl. Makondi Plateau, IV.12 (ZMHU). The holotype was selected by Dr. J. DECELLE but not described hitherto.

REMARKS

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

Spermophagus rufipes (TER-MINASSIAN, 1975)
(figs. 79, 188, 189, 412)

Euspermophagus rufipes TER-MINASSIAN, 1975: 247
Spermophagus rufipes: WENDT, 1985: 284.

DESCRIPTION

Length: 2.0 mm, width: 1.5 mm.

Black, fore and mid femora and tibiae, hind tibial spines reddish. Hind legs partly reddish. Tarsi brownish-red to black. First two antennal segments reddish-brown.

Vestiture moderately dense, on pronotum yellowish, uniform, on elytra mostly yellowish with white spots: elongate in 2/3 length of intervals 3 and 5, elongate at basal half of interval 9, small in 3/4 length of interval 9 (fig. 79). Pygidium at base and apically whitish, on sides with spots of yellowish hairs. Ventrites uniformly whitish pubescent.

Head short, eyes emarginate to 2/3 length. Frons about as wide as width of eye, convex but without median keel. Antennae moderately long extending to 1/4 elytral length, segment 3 about 1.4 times longer than 2, segments 8-10 about 1.3 times longer than wide. Pronotum 1.5 times wider than long, doubly punctrured, large punctures disposed almost uniformly on whole disc. Elytral rows finely punctate, intervals without large punctures. Puncturation of pygidium dense, 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 without basal tooth.

Male. Sternum V emarginate to half length. Median lobe moderately long, ventral and dorsal valvae elongate, subtriangular, apex acute. Internal sac in the middle with bispinose sclerite, in anterior and posterior parts without sclerites (fig. 188). Lateral lobes elongate, tape-like, apex obtuse, margins with long, moderately dense setae. Basal plate narrow, slightly narrowed apically (fig. 189).

Female. Sternum V not emarginate. Ovipositor of standard type, narrow, with oblique pubescent suture, without circular pigmentation, pecten without enlarged base, apical lobes obtuse (fig. 412).

Host plant unknown.

DISTRIBUTION

Mongolia.

TYPE

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

MATERIAL EXAMINED

MONGOLIA: Bajanchongor Aimag, Ich-bogd, 25 km S of Bogd, 1350 m, 1, 20 km S of Bogd, 1300 m, 2, 1-24.7.79, leg. DORN (ZMHU); Chovdaiaimak, Schuravzel, Bulgan gol, 25 V 1974, 1, R. PIECHOCKI (HNHM).

REMARKS

It is a unique species with no close relatives. Internal sac with bispinose sclerite and fore and mid legs partly reddish distinguish it from all Palearctic species of the genus. See also remarks under *S. bengalicus*.

***Spermophagus rufonotatus* PIC, 1903**
(figs. 80, 324-326)

Spermophagus rufonotatus PIC, 1903: 171, 1913: 61; DECELLE, 1975 b: 25; ERNST et al., 1989: 296.

DESCRIPTION

Length: 2.9 mm, width: 2.3 mm.

Black, each elytron with large red spot occupying area between humerus and half width of elytron. Hind tibial spines reddish.

Vestiture scarce, not covering body surface, brown and grey. Pronotal disc mostly grey, with brown spot in the middle. Elytra with brown vestiture, only red spot with grey hair (fig. 80). Pygidium and ventral surface with grey pubescence.

Head short, eyes deeply emarginate, with only three facets beyond emargination. Frons slightly narrower than width of eye without median carina. Antennae long, extending to half length of elytron. Segment 3 about two times longer than 2, segments 8-10 about 1.5-1.6 times longer than wide. Pronotum about 1.8 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 rows of large punctures. Hind legs with no dimorphic characters, hind tibial spines sharp, short, of equal length. Claws with large basal tooth.

Male. Abdomen telescoped, sternum V emarginate to base. Median lobe moderately long, ventral valve oval, apex truncate. Internal sac strongly modified, anterior half with dense spines and large horn-like sclerite, posterior half with six rows of spines, on side large, dentiform, in apical part elongate, needle-like (fig. 324). Lateral lobes short, subtriangular, apex rounded, margins with short hair, also whole surface with scarce, short hair (fig. 326). Spiculum gastrale modified (fig. 325).

Female me unavailable.

Host plant: *Mimosaceae: Acacia tortilis* ssp. *heterocantha*.

DISTRIBUTION

South Africa (Natal, Transvaal), Angola and Botswana.

TYPE

Lectotype male, Natal, Marshall, des. by J. DECELLE (1975) (BMNH).

MATERIAL EXAMINED

NE Transvaal, Grootdraai, X 1927, 1 , H. LANG (TM).

REMARKS

It is a unique species with no close relatives. Besides *S. bimaculatus* it is the only species with large red, posthumeral spot. *S. bimaculatus* differs distinctly in extremely scarce elytral vestiture (moderately dense in *rufonotatus*), hind tibia of male arcuate with anterior margin pubescent (straight and unpubescent in *rufonotatus*), median lobe without large sclerite in anterior part (with large sclerite in anterior part in *rufonotatus*).

***Spermophagus samuelsoni* n. sp.**

DESCRIPTION (figs. 82, 291, 292)

Length: 2.4-2.5 mm, width: 2.0-2.1 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, almost covering body surface. Pronotum and elytra with marble pattern of mixed brown and whitish spots (fig. 82). Pygidium with basal transverse band of dense, whitish hairs. Ventrites uniformly whitish pubescent.

Head short, eyes emarginate to 2/3 length. Frons slightly narrower than width of eye, with short median keel. Antennae moderately long, extending to humerus, segment 3 about 1.4 times longer than 2, segments 8-10 about 1.4 times longer than wide. Pronotum very broad, 1.8 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 several indistinct large punctures. Pygidium densely punctate, 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 1.3 times longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate up to base. Median lobe moderately elongate. Ventral valve broad, anterior margin regularly rounded, dorsal valve subtriangular, apex obtuse. Internal sac in anterior fourth with bands of dense, fine needles along margins, in the middle with squamose plate and a pair of large spines, behind the middle with a pair of spines about twice smaller than first pair, apically with two pairs of small spines. Surface of sac behind the large spines finely squamose (fig. 291). Lateral lobes moderately elongate, tape-like, apex rounded, margins with dense long setae, surface with short setae. Basal plate elongate, slightly narrowed apically, basal part of plate microsetose (fig. 292).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

Thailand, Malaysia.

TYPES

Holotype male, Thailand, Trang Prov., Khaophappha Khaochang, 200-400 m, 30-31.XII.1963, G.A. SAMUELSON Collector, Bishop (BM); paratype male, [Malaysia]: Island of Penang, BAKER (USNM).

REMARKS

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

Spermophagus schroederi Decelle, 1973
(figs. 81, 212-214, 408)

Spermophagus schroederi Decelle, 1973a: 137; Wendt, 1978: 361.

Description

Length: 1.7-1.8 mm, width: 1.3 mm.

Black, hind tibial spines reddish, fore and mid leg dark brown.

Vestiture scarce, not covering body surface, brown and silver. Pale hair forms irregular margin of pronotal disc, small elongate spots at base of intervals 3 and 5, broad transverse band in the middle of elytra and spot along suture from median band to base of pronotum, including scutellum (fig. 81). Pygidium with basal transverse band of silver hair. Ventral part of body with uniform whitish pubescence.

Head short, eyes emarginate to 3/4 length. Frons slightly wider than width of eye, without median keel. Antennae long, extending almost to half length of elytra. Segment 3 about 1.3 times longer than 2, segments 8-10 about 1.3 times longer than wide. Pronotum about 1.6 times wider than long. Disc doubly punctured, large punctures disposed almost uniformly on whole surface. Lateral margin in lateral view almost straight. Elytra about 1.1 times wider than long, rows distinctly punctured, intervals with row of large, shallow punctures. Hind legs with no dimorphic characters, hind tibia without dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate to 2/3 length. Median lobe short gradually widened from valvae to spoon, ventral valve regularly triangular, dorsal valve slightly wider than ventral. Internal sac with very small needles at base of ventral valve, other part without sclerites (fig. 212). Lateral lobes moderately long, tape like, with enlarged base of each tape, margins with long, dense hair. Basal plate of lateral lobes parallel-sided, slightly widened behind lobes (fig. 213). Spiculum gastrale as in fig. 214.

Female. Sternum V not emarginate. Ovipositor distinct, with oblique pubescent suture, circular pigmentation only in external part, pecten short, apical lobes hook-like (fig. 408).

Host plant unknown.

Distribution

Ethiopia, Tanzania.

Types

Holotype male, A. d. Sammlung Dr. Chr. Schroder's, Massaisteppe, Kihuiro 9/7 (ZMHU); allotype female, A. d. Sammlung dr. Chr. Schroder's, Massaisteppe, Gonia 12/5 (ZMHU).

Material examined

Ethiopia: Lake Langano, sweep-netted, 12 X 1980, no. 191, 3, A. Demeter (2 HNHM, 1 LB).

Remarks

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

Spermophagus scotti Decelle, 1971
(figs. 83, 332-334, 413)

Spermophagus scotti Decelle, 1971: 257.

Description

Length: 1.9-2.1 mm, width: 1.5-1.7 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, not covering body surface, on pronotum uniform, yellowish-grey. Elytra mostly yellowish-grey pubescent with spots of brownish hairs: in 1/3 length of odd intervals, in the middle of intervals 5-9, at end of intervals 3-5 but brown spot not extending to apex of elytra, at apex of intervals 6-9 (fig. 83). Pygidium uniformly yellowish-grey pubescent or with two small apical spots of brownish hairs. Ventrites uniformly yellowish-grey.

Head short, eyes emarginate to 3/4 length. Frons about as wide as width of eye, without median keel or with narrow impunctate, median line. Antennae moderately long, extending to 1/3 elytral length, segment 3 about 1.6 times longer than 2, segments 8-10 about 1.4 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 finely punctate, intervals without large punctures. Pygidium moderately irregularly punctate, space between punctures 1.1-2.0 times wider than puncture diameter. Hind legs with no sexual characters, hind tibia without dorsolateral carina, lateral carina not serrate, apical spines straight, sharp, the inner slightly longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate up to base. Median lobe moderately long, ventral valve strongly modified, tricuspidate, median plate acuminate, dorsal valve triangular, acute. Internal sac in anterior half with dense needles arranged in two bands, in apical half with two bands of dense granules and 14-19 large spines, first pair of the spines about twice larger than remainder spines (fig. 332). Lateral lobes elongate, tape like, apex with strongly pigmented fusiform plate. Outer margin of each lobe and apical plate with moderately long, dense setae, inner margin without setae, surface of each lobe and basal part of inner margin with 3-5 moderately long setae. Basal plate moderately broad, strongly pigmented, only with a narrow median, unpigmented line (fig. 333). Spiculum gastrale strongly modified (fig. 334).

Female. Sternum V not emarginate. Ovipositor of standard type, with oblique pubescent suture, with circular pigmentation, pecten elongate, without enlarged base, apical lobes short, obtuse (fig. 413).

Host plant unknown.

Distribution

Ethiopia, Gambia.

Type

Holotype male, Abyssinia, Djem-Djem Forest, 8000-9000 ft., 21-25 IX 1926, Dr. H. Scott "In wild rose flower".

MATERIAL EXAMINED

GAMBIA: Bathurst, jan. 68, 2, PALM (LU).

REMARKS

It is a unique species with no close relatives. Tricuspidate ventral valve distinguishes it from all species of the genus except *S. coronatus* but both species differ distinctly in structure of male genitalia, they are also separated geographically, *S. coronatus* is known only from Philippines, *S. scotti* from Ethiopia and Gambia.

Spermophagus semiannulatus PIC, 1918
(figs. 84, 172, 173, 414)

Spermophagus semiannulatus PIC, 1918 b: 7.
Spermophagus simoni PIC, 1918 a: 303, **n. syn.**

DESCRIPTION

Length: 2.2-2.5 mm, width: 1.5-1.8 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, not covering body surface. Pronotum dark brown with distinct pattern of whitish spots (fig. 84). Elytra dark brown with whitish sutural interval, base of intervals 3 and 5 and incomplete transverse whitish bands in 1/3 and 2/3 elytral length. Aanterior band usually interrupted in interval 4. Pygidium with whitish basal transverse band, whitish narrow median line and large brown lateral spots. Ventrites uniformly whitish pubescent, upper corners of coxa usually with spot of extremely dense hairs.

Head short, eyes emarginate to 3/4 lengt. Frons as wide as or slightly wider than width of eye, without median keel. Antennae moderately long, extending to humeral callus, segment 3 about as long as 2 or only slightly longer, segments 8-10 about 1.3 times longer than wide. Pronotum 1.5 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole disc. Lateral margin in lateral view regularly convex. Elytral rows strongly punctate, intervals with irregular row of large punctures. Puncturation of pygidium dense, punctures almost touching each other. Hind legs with no sexual characters, hind tibia with sharp dorsolateral carina, lateral carina not serrate, apical spines sharp, straight, inner about 1.3 times longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate to 1/5 length. Median lobe moderately long, in the middle slightly widened, ventral valve short, rounded on sides, apex subangulate, dorsal valve subtriangular with apex obtuse. Internal sac without sclerites (fig. 172). Lateral lobes long, tape-like, apex acute, inner margin with long dense setae, outer margin with two setae near the middle, one long seta at base, and 4-5 setae at basal margin. Basal plate narrow, narrowed apically, sides strongly pigmented (fig. 173).

Female. Sternum V not emarginate. Ovipositor of standard type, long, with oblique pubescent suture, without circular pigmentation, pecten with enlarged base, apical lobes densely pubescent (fig. 414).

Host plant unknown.

DISTRIBUTION

Philippines.

TYPES

Spermophagus semiannulatus: holotype female, Manille, E. SIMON (MHNP).
Spermophagus simoni: syntype female, Luzon Thorey, coll. HAAG (DEI).

MATERIAL EXAMINED

PHILIPPINES: Laguna, Mt. Makiling, 24 V 31, 1, 400 ft., 19 VI 31, 5, 100 m, 16 V 32, 2, 200 ft., 1 VI 32, 4, F. C. HADDEN (BM, LB); Laguna, Agr. College, 14 V 31, *Tephrosia candida*, 1, F. C. HADDEN (BM); Negros or., 1 km N Dumaguet, 5 I 1961, 1, H. TORREVILLAS (BM); Culion Is., 6 km W Culion, 8 VI 1962, forest, 1, H. HOLTMANN (BM); Busuanga Is., 6 km SE San Nicolas, Malaise Trap, 21 V 1962, 1, H. HOLTMANN (BM).

REMARKS

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

Spermophagus sericeus (GEOFFROY, 1785)

(figs. 1, 100, 101, 106, 108, 127-129, 415)

Mylabris sericea GEOFFROY, 1785: 112.
Spermophagus sericeus: BEDEL, 1901: 354; PIC, 1913: 61; HOFFMANN, 1945: 101; CALDERON, 1962: 215; ZAMPETTI, 1977: 127; 1979: 206, 1981: 84, BRANDL, 1981: 11; BOROWIEC, 1981: 37, 1982: 243, 1985: 125 a, 1983 b: 298, 1983 c: 289, 1984: 300; 1985 a: 6; DECELLE, 1983: 239; WENDT, 1984: 166, 1985: 284, 1986: 111, 1988: 317; KARAPETJAN, 1985: 147; DECELLE and LODOS, 1989: 203.
Spermophagus sericeus ssp. *afghanicus* BOROWIEC, 1985 a: 7.
Euspermophagus sericeus: POPOV, 1966: 8; BAGDASARJAN, 1967: 806; BATIASHVILI and ELERDASHVILI, 1969: 530; KARAPETJAN, 1973: 78; TER-MINASSIAN, 1973: 82,1975: 247; EGOROV, 1981: 50; EGOROV and TER-MINASSIAN, 1983: 56; WENDT, 1983: 97.
Spermophagus cardui BOHEMAN, 1829: 117.
Spermophagus sulcifrons KÜSTER, 1848: no. 52.
Spermophagus euphorbiae KÜSTER, 1848: no. 54.
Spermophagus cisti: SCHILSKY, 1905: no. 3.
Spermophagus mesopotameca ALI HUSSAIN et KADHIM, 1986: 53, **n. syn.**

DESCRIPTION

Length: 1.9-2.4 mm, width: 1.4-1.9 mm.
Black, including hind tibial spines.
Vestiture scarce to moderately dense, not covering body surface, uniform, greyish (fig. 1). Specimens from Middle Asia, especially from Afghanistan, are usually densely pubescent.
Head short, eyes emarginate to 3/4 length. Frons slightly wider than width of eye, without median keel. Antennae moderately long, extending to 1/4 elytral length, segment 3 about 1.5 times longer than 2, segments 8-10 in populations outside Afghanistan 1.1-1.2 times longer than wide, in populations from Afghanistan 1.3-1.4 times longer than wide. Pronotum 1.5-1.6 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole disc or grouping on sides. Elytral rows moderately punctate, intervals with several shallow, large punctures. Puncturation of pygidium dense, punctures almost touching each other. Hind legs with no sexual characters, hind tibia without dorsolateral carina, lateral carina serrate, hind tibial spines sharp, straight, outer spine 1.2-1.3 times longer than inner. Claws with large basal tooth.

Male. Sternum V emarginate to 1/3 length. Median lobe moderately long, not constricted behind ventral valve, ventral and dorsal valvae subtraingular with regularly convex sides, internal sac without sclerites (fig. 127). Lateral lobes long, tape-like, apex acute, bases of lobes in contact. Basal plate long, narrow, margins narrowly pigmented (fig. 129). Spiculum gastrale strongly modified (fig. 128).

Female. Sternum V not emarginate. Ovipositor strongly sclerotized, without pubescent oblique suture, circular pigmentation complete, pecten long, without enlarged base, apical lobes acute, without apical setae (fig. 415).

Host plants. *Convolvulaceae: Convolvulus arvensis, C. pseudocantabrica, C. soldanella, C. althaeoides.*

DISTRIBUTION

West Palaearctic east to Central Mongolia, south to northern China, Afghanistan, Northern Iran. Populations from Afghanistan were described as separate subspecies *S. sericeus afghanicus* BOROWIEC characterized by body generally slimmer, densely pubescent, antennae slimmer with distal segments more elongate.

TYPE

Spermophagus sericeus: Neotype female, Paris (MHNP).
Spermophagus cardui: unknown to me.
Spermophagus sulcifrons: unknown to me
Spermophagus euphorbiae: unknown to me.
Spermophagus mesopotameca: unknown to me. The drawings of male genitalia beyond a doubt to show the identity of *S. mesopotameca* with *S. sericeus.*

MATERIAL EXAMINED

ALBANIA: Berat, 12 VI 1952, 1 (DZPAS), Pek, 1917, 3 (HNHM), Kula Lums, 1918, 1 (HNHM); ALGERIA: Sidi bel Abbes, 1 (DZPAS); AUSTRIA: Wien, 27 (DZPAS); BULGARIA: Pirin, Bansko, 20 VI 1956, 1 IZPAS), Sandanski, 23 VI 1976, 1, L. BOROWIEC (LB); Dobruja, Shabla, 6 VI 1979, 4, L. BOROWIEC (LB); Black Sea Coast: Burgas, Mandra Lake, 18 VIII 1959, 2 (IZPAS), Batova near Varna, 17 VIII 1950, 1 (IZPAS), Longoza, 10 VII 1960, 24 (IZPAS), Arkutino, 9 VI 1979, 18-25 VI 1980, 40, L. BOROWIEC (LB); Vitosha, Bojana, 21 V 1959, 21 (IZPAS), Boiansko Blato, 25 V 1959, 1 (IZPAS); Makedonia, Petric, 11 VI 1959, 1, 7 VIII 1959, 1 (IZPAS); Stara Planina, Levskigrad, 23 VIII 1959, 1 (IZPAS), Vraca, 26 VIII 1950, 4 (IZPAS); Sredna Gora, Stara Zagora, 2 VI 1959, 4 (IZPAS); Rila, Kotsherinovo, 8 VIII 1959, 1 (IZPAS); Central Rodopi, Asenovgrad, 26 V 1959, 1 (IZPAS); East Rodopi, Kyrdzhali, 1 VI 1959, 1, 15 X 1963, 1 (IZPAS); Stranja, Gramatikovo, 21 VIII 1959, 3 (IZPAS); CHINA: Gobi, Valee de San Ko Tsivan Tse, 1909, 10, Dr. VAILLANT (MHNP); Nan-Chan, Tien Chouei Tsing, 1200 m, Juni 08, 1, Dr. L. VAILLANT (MHNP); FRANCE: Marseille, V 1958, 12 (HNHM); GREECE: Morea, Hagios Vlassis, 1 (HNHM); HUNGARY: Ohata near Debrecen, 27 V 1957, 3 (IZPAS), Tihany, 10 VI 1957, 6 (IZPAS), Batorliget near Nairegyhaza, 28 V 1957, 9 (IZPAS), Tapolca near Miscolc, 3 VI 1957, 7 (IZPAS), Budapest, Gellert hegy, 12 VI 1957, 3 (IZPAS), Sashegy, 18 V 1957, 22 (IZPAS), Fulopszallas, 35 km W Kecskemet, 7 V 1959, 21 (IZPAS), Villany, 36 km S Pecs, 27 V 1959, 30 (IZPAS), Bukkhegys, Szilvasvarad, 20 V 1959, 5 (IZPAS), Nagy Mezo, 20 V 959, 3 (IZPAS), Mecsekhegys, Tetye near Pecs, 26 V 1959, 5 (IZPAS), Csakvar near Budapest, 9 VI 1957, 4 (IZPAS),

Budapest, Janoshegy, 1 VI 1951, 1 (IZPAS), Velence, 40 km SW Budapest, 14 V 1959, 3 (IZPAS), Pecsvarad, 26 V 1959, 3 (IZPAS), Tenkes-hegys, Mariagyüd, 30 km S Pecs, 27 V 1959, 3 (IZPAS), Gyon, 40 km S Budapest, 7 V 1959, 1 (IZPAS), Paks, 26 V 1959, 1 (IZPAS), Pilis-hegys, Szentendre, 24 V 1959, 1 (IZPAS), Eger, 20 V 1959, 1 (IZPAS), Badacsony, 18 IX 1956, 2 (IZPAS), Simontornya, 26 V 1959, 1 (IZPAS), Inarcs near Budapest, 19 V 1957, 1 (IZPAS), Montes Budenses, 21 V 1957, 2 (IZPAS), Hortobagy N. P., Ujszentmargita, 28 V 1974, 1, 13 VI 1974, 1, 25 VI 1974, 2, 16 VII 1974, 1, 9 IX 1974, 1, 12 IX 1974, 2 (HNHM), Püspökladany, 7-9 VII 1975, 2, 26 VIII 1976, 2 (HNHM), Hortobágy-Máta, 22-23 V 1975, 1, 27 V 1976, 3 (HNHM), Nagyiván, 22-23 V 1975, 1 (HNHM), Tiszacsege, 28 VI 1976, 1 (HNHM), Egyek, 24 IV 1975, 15-18 V 1975, 1, 26-27 V 1976, 1, 29 V 1974, 2, 16-27 VI 1975, 12, 10-11 VII 1975, 1, 14 VII 1976, 2, 17 VII 1974, 3, 25 VIII 1976, 3, 11 IX 1974, 4 (HNHM), Kiskunsagi N. P., Tabdi, 13 IX 1979, 2, 21 IX 1978, 1 (HNHM), Dömsöd, 27 VIII 1979, 2 (HNHM), Lakcitelek, 26 VII 1977, 4 (HNHM), Bócsa, 13 VI 1979, 1 (HNHM), Dabas, 12 VI 1979, 2 (HNHM), Kéleshalom, 26 V 1962, 4 (HNHM); IRAN: Golhak near Teheran, 1400 m, VI-VIII 1961, 3 (HNHM); IRAQ: Baghdad, Rashdiya, 29 IV 1978, 2 (DZPAS), Baghdad, 4 IV 1961, 7, 9 IV 1961, 3 (IZPAS), 10 km NW Baghdad, 9 IV 1961, 2 (IZPAS), Shahraban, 3 IV 1961, 2 (IZPAS); ITALY: Sardinia, Sassari, Mores, 1906, 2 (HNHM), Cagliari, V 1903, 1 (HNHM), Sicily, M. Cofano NW Trapani, 14 V 1970, 20 (IZPAS), Taormina, VI 1938, 9 (IZPAS); JORDAN: Homer near Amman, 600 m, 26 IV 1959, 4 (HNHM), Amman, 800 m, 23 IV 1958, 1, 22 VII 1959, 1 (HNHM), Fuhez near Amman, 1000 m, 14 IX 1958, 1 (HNHM), Jericho, 200 m u. M., 31 III 1959, 1 (HNHM); MOROCCO: Marrakes, 16 VI 1979, 2 (IZPAS), Ouarzazat, 26 VI 1979, 1 (IZPAS); ROUMANIA: Dobrogea, Valul Traian, 1 X 1958, 5, 19-20 VI 1959, 5 (IZPAS), Baserabi, 3 X 1958, 1 (IZPAS), Bhneasa near Bucuresti, 6 X 1964, 3 (IZPAS), Danube delta, Sulina, 8-10 VII 1959, 1 (IZPAS), Tulcea, 21 IX 1957, 3 (HNHM), Bucuresti, 2 (HNHM); SPAIN: Pinos Genil, 14 km of Granada, 21 VI 1967, 5 (IZPAS), prov. Huelva, La Rabida, 2-5 VI 1967, 2 (IZPAS); TURKEY: Ivris, 21 VII 1906, 1 (HNHM), Malikoi, 1 VI 1925, 2 (HNHM), Angora, 26 V 1925, 4 (HNHM); USSR: Ukraine, Tarnopol, 52 (DZPAS), Lvov, 23 V, 3 (DZPAS), Bukovina, Prelipce near Zastavna, 18 V 1887, 7 (DZPAS), Borščev, 27 VII 1906, 12 VI 1907, 7 X 1906, 20 VI 1906, 11 (DZPAS), Ivankov near Borščev, 22 VIII 1906, 14 VIII 1906, 6 (DZPAS), Bedrykovce near Zalesčiki, 6 VI 1889, 2 (DZPAS), Grodek near Zalesčiki, 2 VII 1906, 3 (DZPAS), Babin near Zastavna, 14 VII 1887, 1 (DZPAS), Horodenka, 25 VI 1921, 1 (DZPAS), Okno, 20 IX 1909, 3 (DZPAS), Crimea, Jaila, 17 VI 1956 (IZPAS), Odessa, Limany, 15 VI 1956, 4 (HNHM); Bessarabia, Kobylka, 1893, 2 (HNHM), Kisineff, 2 (HNHM), Telosoro, 1 (HNHM), Georgia, Suchumi, 16 IX 1955, 1 (IZPAS); Kazakh SSR, Aulie-Ata, 2 (HNHM), Uzbekh SSR, Samarkand, V 1916, 1 (DZPAS); Turkmenian SSR, Repetek, 1 (DZPAS); Caucasus, Krasna Poliana, 2 (DZPAS), Macesta, 24 VI 1956, 24 (HNHM), Tiflis, 1893, 3 (HNHM), Araxestal, 2 (HNHM), Eriwan, 1893, 1 (HNHM); YUGOSLAVIA: Dalmatia, Ins. Lokrum, 7 VIII 1958, 2 (HNHM), Trsteno, Bot. Garden, 5 VIII 1958, 5 (HNHM), Jjalo, VIII 1906, 1 (HNHM), Cattaro, VIII 1906, 2 (HNHM), Kraljevo, V 1957, 2 (HNHM), Serbia, Nis, X 1902, 1 (HNHM), Montenegro, Berane, 1917, 4 (HNHM), Kosovo Polje, Mitrovica, 9 (HNHM), Rudnik, Mitrovica, 1917, 4 (HNHM), Zavidovic, 8 IX 1903, 5, 9 VIII 1903, 1 (HNHM).

REMARKS

It is a member of *S. sericeus* group. This group includes most Palearctic species with

uniformly pubescent elytra, serrate lateral carina of hind tibia and median lobe lacking scerites. Three species of the group have hind tibial spines black: *S. altaicus, S. sericeus* and *S. calystegiae. S. altaicus* differs distinctly in reduced basal tooth of tarsal claws. *S. calystegiae* is externally very similar to *S. sericeus* and differs only in structure of genitalia. In *S. calystegiae* median lobe is longer, constricetd behind ventral valve (not constricted in *S. sericeus*), bases of lateral lobes distant (in *sericeus* in contact). Ovipositor of *S. calystegiae* is of standard type, with oblique pubescent suture (*in sericeus* without suture). *S. cardui* was synonymizes with *S. sericeus* by BEDEL (1901), *S. sulcifrons* and *S. euphorbiae* were synonymized with *S. cardui* by BAUDI (1887) and SCHILSKY (1905). Types of these species have never been revised, and it is possible that same of these names are senior synonyms of *S. calystegiae.* I had no possibility to study types of these three names.

***Spermophagus siamensis* n. sp.**
(figs. 85, 308, 309)

DESCRIPTION

Length: 2.6 mm, width: 2.0 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, almost covering body surface. Pronotum with pattern of mixed brown and yellowish-grey spots. Elytra brown with yellowish-grey spots: at base of intervals 1-6, in 1/3 length of intervals 3, 5, 7, 9, in 2/3 length of intervals 3-5, 7. Sutural interval in basal half also yellowish-grey (fig. 85). Pygidium with mixed brown and yellowish-grey hairs. Ventrites uniformly yellowish-gray pubescent.

Head short, eyes emarginate to 2/3 length. Frons twice narrower than eye width, with sharp median keel. Antennae moderately long, extending to 1/3 elytral length, segment 3 very long, 3.2 times longer than segment 2, segments 8-10 about 1.3 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 several indistinct, large punctures. Pygidium densely punctate, large punctures almost touching each other. Hind legs with no dimorphic characters, hind tibia in basal half with indistinct dorsolateral carina, lateral carina in apical half slightly crenulate. Inner spine of hind tibia straight, sharp, both outer spines in the only known specimen broken. Claws with large basal tooth.

Male. Sternum V emarginate to 2/3 length. Median lobe moderately elongate, strongly constricted behind valvae, ventral valve pentagonal, narrowed basally, apex obtuse, dorsal valve about twice narrower than the ventral, subtriangular, apex obtuse. Internal sac in basal 1/3 length divided into two tapes, each in anterior margin with group of needles, surface of tapes squamose to granulate, in the middle of sac a pair of small spines with strongly enlarged base, apically a pair of elongate spines (fig. 308). Lateral lobes short, oval, margins and basal half of surface with moderately long setae. Basal plate narrow, slightly constricted behind the lobes, margins broadly pigmented (fig. 309).

Female. Unavailable.

Host plant. Unknown.

DISTRIBUTION

Thailand.

TYPE

Holotype male, Siam, Doi Sotep, 8.II.1928, once mackie [?], inside fruit, per T.D.A. COCKERELL; inside fruit, Doi Sutep, Siam [three illegible words], Jardin; *Spermophagus ?tesselatus* MOTS. [PIC's handwritting](USNM).

REMARKS

With *S. vietnamensis* it forms a natural group of species with variegate elytral vestiture, hind tibia without dorsolateral carina, dorsal valve about twice narrower than ventral valve, internal sac with two or three pairs of large sclerites. *S. vietnamensis* differs in internal sac with three pairs of large sclerites (two pairs in *S. siamensis*), lateral lobes longer, about four times longer than wide (about twice longer than wide in *siamensis*).

Spermophagus sinensis PIC, 1918

(figs. 86, 361-363, 416)

Spermophagus sinensis PIC, 1918 b: 9.
Spermophagus kurseongensis DECELLE, 1977: 405, **n. syn.**

DESCRIPTION

Length: 2.3-2.8 mm, width: 1.6-1.9 mm.

Black, only hind tibial spines reddish.

Pronotal and elytral vestiture uniformly dark brown, dense, covering body surface (fig. 86). Scutellum contrasting white or yellowish pubescent. Pygidium and ventrites uniformly yellowish or greyish pubescent.

Head short, eyes emarginate to 3/4 length. Frons slightly wider than eye, without median keel. Antennae moderately long, extending to 1/3 elytral length, segment 3 about 1.4 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 regularly 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 without dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, outer spine 1.6-2.0 times longer than the inner. Claws with large basal tooth.

Male. Sternum V emarginate to half length. Median lobe moderately long, ventral valve strongly modified, rectangular with bulbiform median process, dorsal valve triangular, apex acute. Internal sac divided into two tapes, without large sclerites, inner margin of each tape at base with group of small spines, apical half of sac with squamiform small sculpture (fig. 361). Lateral lobes very short, subcircular, margins without setae, surface with several short setae. Basal plate very broad, gutter-like, strongly narrowed apically (fig. 363). Spiculum gastrale modified (fig. 362).

Female. Sternum V not emarginate. Ovipositor strongly modified, without oblique pubescent suture, circular pigmentation and pecten, anterior margin of apical lobes serrate, sensory setae only in small area near apex of each lobe (fig. 416).

Host plant. *Convolvulaceae: Porana racemosa.*

DISTRIBUTION

India (Darjeeling), Bhutan, Sikkim, China (Yunnan).

TYPES

Spermophagus sinensis: holotype male, Yunnan (MHNP).

Spermophagus kurseongensis: holotype male, Kamjee, 850 m, 13.5, Nat.-Hist. Museum Base-Bhutan Expedition 1972 (NMB).

MATERIAL EXAMINED

INDIA: Darjeeling, juni, 5, leg. FRUHSTORFER (MHNP, LB); Darjeeling, from seeds of *Porana racemosa*, 19 (USNM, LB); SIKKIM: 1927, 1, C. F. BAKER (USNM).

REMARKS

It is a member of *S. titivilitius* group. This group includes also *S. titivilitius* and *S. abdominalis*. *S. abdominalis* differs in body mostly reddish, black forms of *S. abdominalis* differs in elytra with pale spots (uniformly brown in *sinensis*), basal plate of lateral lobes narrow, parallel-sided (broad, narrowed apically in *sinensis*). *S. titivilitius* differs in abdomen partly reddish (black in *sinensis*), and ventral valve with angulate apical process (obtuse in *sinensis*).

Spermophagus somalicus DECELLE, 1979

(figs. 87, 335, 336)

Spermophagus somalicus DECELLE, 1979: 82.

DESCRIPTION

Length: 1.7 mm, width: 1.3 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, covering body surface. Pronotum with yellowish hair and two indistinct spots of brownish hair in the middle of disc. Elytra with mostly yellowish pubescence, brownish hair form several spots or bands: interval 3 and 5 with small spot at base, interval 3 with two spots apically, and interval 5 with one spot in front of apex; also intervals 7 and 9 with two preapical spots; in 1/4 length of elytron oblique band between intervals 5 and 9, also irregular band behind the middle of elytron between intervals 6 and 10 (fig. 87). Pygidium with mixed yellowish and brownish hair, ventral surface uniformly whitish pubescent.

Head short, frons without median keel. Antennae moderately long, extending slightly behind humeral callus. Segment 3 about 1.5 times longer than 2, segments 8-10 about 1.6 times longer than wide. Pronotum 1.7 times wider than long with sides in 2/3 posterior length only slightly rounded. Lateral margin in lateral view slightly convex. Disc doubly punctured, large punctures almost uniformly disposed on whole surface. Elytral rows moderately large pnctured, intervals with only few large punctures. Hind legs with no sexual characters, hind tibia without dorsolateral carina. Hind tibial spines sharp, internal spine only slightly longer than the external. Claws with large basal tooth.

Male. Sternum V emarginate to half length. Median lobe long, Ventral valve pentagonal, apex acute, dorsal valve pentagonal but shorter than the ventral. Internal sac in anterior half with two bands of needles, behind the middle with numerous, dense, strongly pigmented small spines, in apical part with several large spine-like or nail-like large sclerites (fig. 335). Lateral lobes extremely short, subtriangular, apex subangulate, surface with

several small sensory hair, base almost parallel-sided (fig. 336).

Female unavailable.

Host plant unknown.

DISTRIBUTION

Somalia

TYPE

Holotype male, Somalia, Sar Uanle, 30-V-73 trapp B, ora 7, zona 6, no. 6710 Mus. Firenze (MZF).

MATERIAL EXAMINED

No additional material.

REMARKS

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

Spermophagus sophorae FAHRAEUS, 1839
(figs. 88, 349-351, 417)

Spermophagus sophorae FAHRAEUS, 1839: 136; PIC, 1913: 62; KINGSOLVER and BOROWIEC, 1988: 82; ZAMPETTI, 1988: 109.
Spermophagus sophrae (sic!): VAZIRANI, 1975: 756.
Amblycerus sophorae: BLACKWELDER, 1946: 763.
Spermophagus fulvopubens PIC, 1918 b: 9; DECELLE, 1977: 406 (as syn.).
Spermophagus uniformis PIC, 1932: 332; VAZIRANI, 1975: 756; DECELLE, 1977: 406 (as syn.).

DESCRIPTION

Length: 2.0-3.4 mm, width: 1.6-2.6 mm.

Black, only hind tibial spines reddish.

Vestiture dense, covering body surface, on pronotum and elytra ochraceous to olive-greyish, scutellum contrasting white pubescent (fig. 88). Pygidium and ventrites whitish, pygidium sometimes with band of dense hairs at base and narrow, median, indistinct line.

Head short, eyes emarginate to 2/3 length. Frons as wide as width of eye, without median keel. Antennae moderately long, extending to 1/4 elytral length, segment 3 about 1.8 times longer than 2, segments 8-10 about 1.3-1.4 times longer than wide. Pronotum about 1.5 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 without large punctures. Pygidium moderately to densely punctate, space between punctures 1.1-1.5 times wider than puncture diameter. Hind legs with no sexual characters, hind tibia with dorsolateral carina, lateral carina not serrate, hind tibial spines straight, sharp, outer spine slightly longer than the inner. Claws with large basal tooth.

Male. Sternum V emarginate up to base. Median lobe moderately elongate, ventral and dorsal valvae subpentagonal with slightly concave sides, apex angulate. Internal sac in anterior half with needles along margins, in the middle with irregular folds (fig. 349). Lateral lobes short, subtriangular, apex angulate. Margins with dense, short setae. Basal plate elongate, widened in the middle, margins strongly pigmented (fig. 350). Spiculum gastrale

slightly modified (fig. 351).

Female. Sternum V not emarginate. Ovipositor strongly modified, narrow, elongate, without oblique pubescent suture, circular pigmentation and pecten, inner margin of apical lobes strongly sclerotized, apices with scarce setae (fig. 417).

Host plants. *Convolvulaceae: Ipomea obscura, Porana racemosa.*

DISTRIBUTION

Africa: Gambia, Dahomey, Sudan, Ethiopia; Asia: Ceylon, India

TYPES

Spermophagus sophorae: lectotype male, in sem. Sophora, Chili, FALDERM. (NRS).

Spermophagus fulvopubens: holotype, sex undet., Haut Dahomey (MHNP).

Spermophagus uniformis: holotype female, Fraserpet, Coorg, F. R. I. Sandal Insect Survey, 12 IX 30 (BMNH).

MATERIAL EXAMINED

CEYLON: C. P., Haragama, 2 I 54, 1, F. KAISER (NMB); Peradeniya, 14-18 XII 1910, 1, A. LUTHER, 1 (LB); ETHIOPIA: Sodere, sweep-netted, 17 XI 1980, 2, A. DEMETER (HNHM); GAMBIA: Bathurst, Jan. 68, 1, T. PALM (LU); Brikama, 22 XI 1984, 2, T. PALM (LU); INDIA: Coimbatore, VIII 1951, 2, P. S. NATHAN (BM); Bombay, X 1924, from seeds of *Ipomea obscura*, 6 (USNM); Darjeeling, 9 VI 34, from seeds of *Porana racemosa*, 25, PRINCE (USNM); SUDAN: Medani, "*elisabethae* sec BLAIR", 6.8.21, 1, J. E. M. MEDLER (BMNH).

REMARKS

It is unique species. Besides *S. abdominalis* it is the only species distributed in both Oriental and Afrotropical Regions. Pale, uniform elytral vestiture and white pubescent scutellum distinguish it from most species, only *S. sinensis* has white scutellum contrasting with uniformly pubescent elytra, but in *S. sinensis* elytral vestiture is dark brown while in *S. sophore* it is yellowish to olive-greyish. Male genitalia of *S. sophorae* are also unique.

Spermophagus stemmleri DECELLE, 1977
(figs. 89, 286-288)

Spermophagus stemmleri DECELLE, 1977: 407.

DESCRIPTION

Length: 2.0 mm, width: 1.4 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense, not covering body surface. Grey, brown, and yellowish hairs form on pronotum and elytra a marble pattern (fig. 89). Pygidium yellowish-grey pubescent, with basal transverse band and median line of dense hairs. Ventrites uniformly greyish pubescent.

Head short, eyes emarginate to 2/3 length. Frons as wide as width of eye, without medial keel but with narrow impunctate line. Antennae moderately long, extending to 1/4 elytral length, segment 3 about 1.4 times longer than 2, segments 8-10 about 1.5-1.6 times longer than wide. Pronotum 1.5 times wider than long, doubly punctured. Large punctures

disposed almost uniformly on whole disc. Elytral rows strongly punctate, intervals with irregular row of large punctures. Pygidium densely punctate, large punctures almost touching each other. Hind legs with no sexual characters, hind tibia without dorsolateral carina, lateral carina not serrate, hind tibial spines sharp, straight, the outer slightly longer than the inner. Claws with large basal tooth.

Male. Median lobe short, ventral valve subpentagonal, apex acute, dorsal valve subtriangular, apex acuminate. Internal sac in anterior half with dense needles along margins, in the middle with a pair of large, elongate spines, behind the spines with small dense squamules (fig. 286). Lateral lobes short, tape like, apex subangulate, inner margin with long and dense setae, outer margin with short and dense setae. Basal plate broad, distinctly narrowed apically (fig. 287). Spiculum gastrale short (fig. 288).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

Bhutan.

TYPES

Holotype male, Phuntsholing-Thimphu, 1680 m (ZMB).

REMARKS

It is a unique species with no close relatives. Hind tibia without dorsolateral carina and internal sac with only a pair of spines distinguish it from all Oriental species.

Spermophagus tandalensis BOROWIEC, 1986
(figs. 90, 245-247)

Spermophagus tandalensis BOROWIEC, 1986 c: 235.

DESCRIPTION

Length: 2.5 mm, width: 1.9 mm.

Black, only hind tibial spines reddish.

Dorsal vestiture dark brown, scarce, not covering body surface (fig. 90). Pygidium and ventral surface with extremely short brownish-grey hair.

Head short, eyes emarginate to 3/4 length. Frons slightly wider than width of eye, without median keel. Antennae short, extending to hind angle of pronotum, segment 3 about 1.3 times longer than 2, segments 8-10 about as long as wide. Pronotum about 1.6 times wider than long. Lateral margin in lateral view distinctly convex. Puncturation of pronotal disc doubly, large punctures disposed almost uniformly on whole disc. Elytra equal in length and width, on sides slightly rounded. Elytral rows distinctly punctate, elytral intervals with irregular rows of large punctures. Pygidium moderately convex, largely and densely punctate, but punctures not arranged irregular rugosities. Hind legs with dimorphic characters, lateral carina of hind tibia not serrate. Hind tibial spines sharp, outer spine shorter than the inner. Tarsal claws with large basal tooth.

Male. Sternum V emarginate to 2/3 length. Hind tibia straight, with dorsolateral carina. Ventral margin of hind tibia and first tarsomere with long, dense, yellow hair. Median

lobe moderately long, ventral and dorsal valvae pentagonal, internal sac in anterior third with two bands of small needles, and in posterior third with area of dense, small needles (fig. 245). Lateral lobes short, oval, margins with short sensory setae. Basal plate narrow (fig. 246). Spiculum gastrale not modified (fig. 247).

Female unavailable.

Host plant unknown.

DISTRIBUTION

Tanzania.

TYPES

Holotype male, D. O. Afrika, Tandala (HNHM).

MATERIAL EXAMINED

No additional material.

REMARKS

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

Spermophagus titivilitius BOHEMAN, 1833
(figs. 91, 358-360)

Spermophagus titivilitius BOHEMAN, 1833: 106; PIC, 1913: 62; KINGSOLVER and BOROWIEC, 1988: 106.

DESCRIPTION

Length: 3.3 mm, width: 2.1 mm.

Black, abdomen and hind tibial spines reddish, apex of basal two antennal segments reddish.

Vestiture in the only examined specimen mostly thread-bare, elytra moderately dense yellowish brown with indistinct paler spots: in 3/4 length of interval 3, in 1/3 and 2/3 of interval 5, in the middle of interval 7 and in 3/4 length of interval 8 (fig. 91).

Head short, eyes emarginate to 2/3 of length, frons about as wide as width of eye, without median keel. Antennae moderately long, extending to 1/3 of elytral length, segment 3 about 1.4 times longer than 2, segments 8-10 about 1.3 times longer than wide. Pronotum 1.7 times wider than long, doubly punctured, large punctures disposed almost uniformly on whole disc. Elytral rows moderately punctate, elytral intervals with irregular row of large punctures. Hind legs with no sexual characters, hind tibia with indistinct dorsolateral carina, lateral carina not serrate, hind tibial spines straight, sharp, of equal length. Tarsal claws with large basal tooth.

Male. Sternum V emarginate to 2/3 of length. Median lobe moderately elongate with large basal spoon, ventral valve almost square with apical obtuse process, dorsal valve subpentagonal with apex acute. Internal sac in anterior part with two groups of small spines, behind the spines with transverse bridge, in the middle sac strongly foldened and in apical third with numerous small spines (fig. 358). Lateral lobes very short, almost circular, margins with dense, short sensory setae. Basal plate broad, narrowed basally and apically (fig. 360). Spiculum gastrale slightly modified (fig. 359).

Female. Unavailable.
Host plant unknown.

DISTRIBUTION

Wrongly described from Mexico. DECELLE (1983) recorded one specimen from Pondicherry (India).

TYPE

Holotype male, *Spermophag. Fischeri* FALD., Mexico FALD. (NRS).

MATERIAL EXAMINED

No additional material.

REMARKS

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

Spermophagus transvaalensis BOROWIEC, 1986
(figs. 92, 192, 193)

Spermophagus transvaalensis BOROWIEC, 1986 d: 201.

DESCRIPTION

Length: 1.9-2.0 mm, width: 1.3-1.5 mm.
Black, only hind tibial spines reddish.

Vestiture moderately dense, white and yellow, or white and dark brown, covering body surface. Dark hair forms several spots on pronotum: two at anterior margin, four in transverse row in the middle, two at base near to interval 4. Elytral vestiture mostly dark, pale hair forms band along suture covering interval 1 and part of interval 2, elongate spots at base of intervals 3, 5, 7, and two irregular, transverse bands in the middle of elytra (fig. 92). Pygidium pale with several darker spots disposed regularly on whole surface. Ventral part of body uniformly pubescent. The form with white and brown hair is coloured more contrastingly than the form with white and yellow hair.

Head moderately elongate, eyes emarginate to 2/3 length. Frons narrow, slightly narrower than width of eye, with distinct median keel. Antennae long and slim, reaching to 2/3 body length, antennal segment 3 about 2.1 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 slightly convex. Elytra stout, intervals doubly punctured, large punctures shallow, not forming longitudinal rows. Elytral rows distinctly punctate. Ventral surface with no diagnostic characters. Hind legs without sexual 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, acuminate apically. Dorsal valve distinctly wider than the ventral. Internal sac in anterior third without sclerites, in the middle divided into two tapes with extremely small dense sclerites, in posterior third with 10-11 large, spine-like sclerites (fig. 192). Lateral lobes shortened, oval, rounded apically, each sensory point distinctly impressed, sensory setae very short (fig. 193).

Female unavailable.
Host plant unknown.

Distribution

South Africa (Transvaal).

TYPES

Holotype and paratype, males, S. Africa, Transvaal, Nylsvley, 3 II 1978, cow-dung trap, leg. Dr. S. ENDRÖDI; 2 male paratypes, the same locality, 16 I 1978, netted, leg. Dr. S. ENDRÖDI (holotype and 2 paratypes in HNHM, one paratype in LB).

MATERIAL EXAMINED

No additional material.

REMARKS

With *S. okahandjensis* and *S. endrodii,* it forms a natural group of species distributed in Namibia and South Africa, characterized by small body, variegate elytral vestiture, elongate antennae, frons with median keel, lateral lobes elongate, ventral valve subpentagonal, acuminate apically, internal sac in posterior third with several large spine-like sclerites. *S. endrodii* differs in strongly modified lateral lobes, acute apically. *S. okahandjensis* differs distinctly in reduced basal denticle on the tarsal claw and greater number (20) of sclerites in the internal sac.

Spermophagus tristis FAHRAEUS, 1871
(figs. 93, 228, 229, 240, 418)

Spermophagus tristis FAHRAEUS, 1871: 444; PIC, 1913: 62.

DESCRIPTION

Length: 3.1 mm, width: 2.2 mm.
Black, only hind tibial spines reddish.

Vestiture moderately dense, covering body surface, whitish and brownish hair forms a marble pattern (fig. 93), pygidium with basal band and median line of pale hair. Ventral surface uniformly whitish pubescent, only posterior margin of each abdominal sternite witx mixed brown and whitish hair.

Head short, eyes emarginate to 3/4 length, frons as wide as width of eye, without median keel. Antennae moderately long, extending to 1/3 elytral length, segment 3 about twice longer than 2, segments 8-10 about 1.3 times longer than wide. Pronotum about 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 indistinctly punctured, intervals without large punctures. Puncturation of pygidium large and dense, punctures almost touching each other. Hind legs with no sexual characters, hind tibia without dorsolateral carina, lateral carina not serrate. hind tibial spines long, sharp, of equal length. Claws with large basal tooth.

Male. Sternum V emarginate to 1/3 length. Median lobe long, ventral and dorsal valvae pentagonal, ventral valve with apical, truncate process, internal sac in anterior half with

dense strong needles, in apical half with strongly sclerotized tape (fig. 228). Lateral lobes moderately long, tape-like, apex rounded, margins with long sensory setae, basal plate narrow, parallel-sided (fig. 240). spiculum gastrale not modified (fig. 229).

Female. Sternum V not emarginate. Ovipositor of standard type, elongate, with oblique pubescent suture, without circular pigmentation, pecten without enlarged base, apical lobes densely pubescent (fig. 418).

Host plant unknown.

DISTRIBUTION

South Africa, Kenya.

TYPES

Lectotype female, "Typus", Caffraria, J. VAHL. (NRS); paralectotype male, the same data (NRS).

MATERIAL EXAMINED

KENYA: near Malindi, 25 VIII 1983, 1, H. J. BREMER (HNHM).

REMARKS

It is a unique species with no close relatives. Internal sac in posterior third with strongly sclerotized tape distinguishes it from all other species of the genus.

Spermophagus variolosopunctatus GYLLENHAL, 1833
(figs. 94, 95, 165-167, 419)

Spermophagus variolosopunctatus GYLLENHAL, 1833: 110; BOROWIEC, 1986 b: 161.
Spermophagus variolosopunctatus var. *maculatus* SCHILSKY, 1905: no. 5; BOROWIEC, 1986 b: 161 (as syn.).
Spermophagus formosanus var. *subundulatus* PIC, 1917: 9, **n. syn.**

DESCRIPTION

Length: 2.0-2.4 mm, width: 1.5-1.8 mm.

Black, only hind tibial spines reddish.

Vestiture moderately dense to dense, usually covering body surface. In the palest form ground colour of dorsal vestiture brown with several whitish or yellowish spots on pronotal disc, and on elytra: elongate spots at base of intervals 3, 5, 7, elongate spot in the middle of interval 2, elongate spots in 1/3 and 2/3 length of intervals 3, 5, 7-9, and sometimes in 2/3 length of intervals 4 and 6. In the darkest form brown hairs predominate, pronotum with only two spots of pale hairs on sides, elytra with small spots at base of intervals 3 and 5, in 1/3 length of intervals 7-9, and 2/3 length of interval 8. Between these forms there are all intermediates. Pygidium in all forms with transverse basal band of whitish or yellowish hairs, and ususally with narrow median line. Ventrites uniformly yellowish or whitish.

Head short, eyes emarginate to 3/4 length, frons as wide as width of eye, convex but without keel. Antennae moderately long extending to 1/3 elytral length, segment 3 about 1.4 times longer than 2, segments 8-10 usually 1.4-1.5 times longer than wide, occasionally longer. Pronotum 1.4 times wider than long, doubly punctured, large punctures disposed

almost uniformly on whole disc. Lateral margin in lateral view regularly to strongly convex. Elytral rows moderately to strongly punctate, intervals with irregular row 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, the inner slightly longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate to 1/3 of length. Median lobe moderately elongate, slightly constricted behind valvae and widened in the middle. Ventral and dorsal valvae subtriangular, apex angulate, internal sac without sclerites (fig. 165). Lateral lobes elongate, tape like, apex acute, margins with long, dense setae. Base of each lobe forms a gutter. Basal plate broad, strongly narrowed apically, margins in anterior half strongly pigmented (fig. 166). Spiculum gastrale not modified (fig. 167).

Female. Sternum V not emarginate. Ovipositor of standard type, elongate, with oblique pubescent suture and circular pigmentation, pecten without enlarged base, apical lobes obtuse (fig. 419).

Host plant unknown.

Distribution

China (Hainan), Taiwan, India, Sikkim, Laos, Thailand, Vietnam, Malaysia, Indonesia (Java). The lectotype of *S. variolosopuncatus* was described from Tauria (= Crimea), but it has been probably mislabelled.

Types

Spermophagus variolosopunctatus: lectotype male, Tauria, Steven (NRS, designated by Borowiec, 1986: 163). Paralectotype of *S. variolosopunctatus* belongs to *S. confusus* Borowiec, 1986.

Spermophagus formosanus var. *subundulatus*: lectotype male, Kosempo, Formosa, H. Sauter X 1911 (present designation, DEI). Paralectotypes belong to *S. niger* Motschulsky, 1866.

Material examined

CHINA: Hainan Is., Grove nr. Beggar Village, SW of Nodoa, 9 July 1929, 1, Lingnan Univ. Exp. (USNM); INDIA: Anamalai Hills, Cinchana, 1050 m, IV 1956, 4, P. S. Nathan (BM); INDONESIA: Java occ., Sukabumi, 2000', 1893, 6, H. Fruhstorfer (MHNP, LB); Java, Sarangan, Lawoe-Geb., 1500-2000 m, 2, H. Overbeck (MTD); Dili, May 1892, 1, W. Doherty (MHNP); LAOS: Nongtevada, 23 XI 1965, 1, native collector (BM); MALAYSIA: Island of Penang, 1, Baker (USNM); SIKKIM: 1927, 1, C. F. Baker (USNM); TAIWAN: Kosempo, Formosa, 22 V 1912, 3, H. Sauter, paralectotypes of *S. formosanus* Pic, 1917 (DEI); Kwantzeling, Tainan Hsien, 250 m, 6-7 IV 1965, 1, C. M. Yoshimoto (BM); Hori (Puli), June 1954, 3, July 1954, 13, native collector (BM); Mizuho, 200 m, 22 IV 32, 1, J. L. Gressitt (BM); Tzepeng, Taitung hsien, I-II 1964, 1, T. C. Maa (BM); Liukuei, Kaosiung hsien, III-IV 1964, 1, T. C. Maa (BM); THAILAND: S Banna, Nakhon, 108 m, 5-10 V 58, 1, T. C. Maa (BM); VIETNAM: M'Drak, E of Ban Me Thuot, 4-600 m, 8-19 XII 60, 15, C. M. Yoshimoto (BM); Dalat, 1500 m, 29 IV-4 V 1960, 1, L. W. Quate, 26-27 IX 1960, 1, C. M. Yoshimoto (BM); Ban Me Thuot, 500 m, 20-24 XII 1960, 1, C. M. Yoshimoto (BM); Dai Lanh, N of Nha Trang, 30 XI-5 XII 60, 1, C. M. Yoshimoto (BM); Fyan, 1200 m, 11 VII-9 VIII 61, 1, N. R. Spencer (BM).

REMARKS

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

***Spermophagus vietnamensis* n. sp.**
(figs. 96, 306, 307)

DESCRIPTION

Length: 2.3-2.5 mm, width: 1.8-1.9 mm.
Black, only hind tibial spines reddish.

Vestiture moderately dense, almost covering body surface. Pronotum almost uniformly yellowish with indistinct yellowish-brown spots in front of scutellum and on sides of disc. Elytra mostly yellowish pubescent with indistinct spots of brownish hairs: in 1/4 length of intervals 3, 7-9, in the middle of intervals 3-5, 7-9, also apex of elytron brown. Spots in the middle of elytra partly coalescent, form irregular transverse band, or apical spot connected with median band and apical half of elytra brown, except sutural interval and indistinct spot of yellowish hairs in 5/6 length of interval 5 (fig. 96). Pygidium yellowish with indistinct, narrow median line of densely hairs. Ventrites uniformly yellowish-grey pubescent.

Head short, eyes emarginate only to half length. Frons twice narrower than width of eye, convex, with short but sharp median keel. Antennae moderately long, extending to humeral callus, segment 3 about twice longer than 2, segments 8-10 about as long as 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 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 sharp, straight, inner spine slightly longer than the outer. Claws with large basal tooth.

Male. Sternum V emarginate up to base. Median lobe short, valvae strongly modified. Ventral valve subpentagonal with concave sides and angulate apex, dorsal valve about twice narrower than the ventral, apex rounded. Internal sac in anterior half divided into two bands, anterior margin of each band with group of needles, bands densely granulate, apical half of sac with three pairs of large sclerites, first pair bispinose with enlarged base, second and third pair in form of 3-4 elongate spines with common base (fig. 306). Lateral lobes short, elongate-oval, margins with only a few short setae, surface of each lobe with dense squamiform microsculpture. Basal plate narrow, slightly widened basally, margins broadly pigmented (fig. 307).

Female. Unavailable.

Host plant unknown.

DISTRIBUTION

Vietnam.

TYPES

Holotype and two paratypes males, Viet Nam, Phan Thiet, 4-7.XI.1960, C.M. YOSHIMOTO collector (BM).

REMARKS

It belongs to *S. siamensis* group. See remarks under *S. siamensis*.

Spermophagus wittmeri BOROWIEC, 1985
(figs. 97, 420)

Spermophagus wittmeri BOROWIEC, 1985 b: 463.

DESCRIPTION

Length: 1.5-2.0 mm, width: 1.2-1.4 mm.

Black. Two basal antennal segments, apices of front and mid femora and hind tibial spines reddish.

Vestiture moderately dense, covering body surface, greyish or yellowish, each elytron with several small, brown patches: one on 1/4 length of interval 3, one on 1/2 length of interval 9, four of 3/4 length of intervals 3, 5, 7 and 9, and one larger on elytral apex (fig. 97). Pygidium uniformly pubescent or with indstinct median line of light hair.

Body oval. Head short, eyes emarginate to 3/4 length. Frons slightly wider than width of eye, without median keel. Antennae short, reaching to humerus. Segment 3 about 1.5 times longer longer than 2, segments 8-10 equal in length and width. Pronotum about 1.4 times wider than long. Pronotal sides in posterior 2/3 of length almost rectilinearly narrowed anterad, so that pronotal outline is almost trapezial, not semicircular as in most species of the genus. Puncturation of pronotal disc moderately dense, doubly; large punctures distributed almost uniformly on whole pronotal disc. Pronotal margin in lateral view regularly convex. Elytral rows finely punctate, elytral intervals uniformly finely punctate. Ventral surface without diagnostic characters. Hind tibia without dorsolateral carina, lateral carina serrate only in apical third. Hind tibial spines sharp, ot equal length. Claws with large basal tooth.

Male unavailable.

Female. Ovipositor of standard type, elongate, with oblique pubescent suture and circular pigmentation, pecten without enlarged base, apical lobes obtuse (fig. 420).

Host plant unknown.

DISTRIBUTION

Israel.

TYPES

Holotype female, Israel, Ein Gedi, 23 III 1963, leg. W. WITTMER; four paratypes females, same data (holotype and three paratypes in MHNG, one paratype in LB).

MATERIAL EXAMINED

No additional material.

REMARKS

This species has been described only from females and its taxonomic position is uncertain. It differs distinctly from all other Palearctic species in apices of fore and mid femora reddish and elytra with several dark spots.

SPECIES INCERTAE SEDIS

Below, I listed several species of uncertain taxonomical position. For most of these species location of the types is unknown to me, types of two species are unavailable for study, and one species is known only from the holotype female. It is redescribed, but its taxonomic status is unclear. It may be a good species, or synynym of some species hitherto known from males only.

Spermophagus braunsi Pic, 1935

Spermophagus braunsi Pic, 1935: 66.

Described from Eastern Africa. Type location me unknown.

Spermophagus brevipes Pic, 1927

Spermophagus brevipes Pic, 1927: 13.

Described from Sudan. Type location me unknown.

Spermophagus dilatatus Motschulsky, 1874

Spermophagus dilatatus Motschulsky, 1874: 249; Pic, 1913: 59.

Described from Syria. Type location me unknown.

Spermophagus fochi Pic, 1919

Spermophagus fochi Pic, 1919: 3.

Described from Bogor (Java Is). Type location me unknown.

Spermophagus heydeni Allard, 1868

Spermophagus heydeni Allard, 1868: 102; Pic, 1913: 59.

Described from Ethiopia. Type location me unknown.

Spermophagus hottentotus v. *abyssinicus* Pic, 1927

Spermophagus hottentotus v. *abyssinicus* Pic, 1927: 12.

Described from Ethiopia. Type location me unknown. True *S. hottentotus* occurs only in South Africa. The variety described by Pic is probably another species of *hottentotus* group.

Spermophagus lugubris Fahraeus, 1871
(figs. 48, 421)

Spermophagus lugubris Fahraeus, 1871: 444, Pic, 1913: 60.

aeneipennis PIC, 1917: 9.	**India,Ceylon, Vietnam, Thailand, Laos**
albomaculatus DECELLE, 1970: 262.	**Tanzania, Zimbabwe, South Africa**
albosparsus GYLLENHAL, 1833: 110. *subsignatus* GYLLENHAL, 1829: 139. *tesselatus* MOTSCHULSKY, 1858: 97. *negligens* v. *andamanesis* PIC, 1917: 10. *albofasciatus* PIC, 1913: 58, nomen nudum.	**India, Ceylon, Nepal, Bangladesh, Andaman Is., Burma, W Malaysia**
albosuturalis PIC, 1933: 688.	**Zambia**
altaicus KARAPETJAN, 1973: 44.	**Mongolia, Russian Altai**
babaulti PIC, 1921: 15. *inlobatus* PIC, 1924: 455. *erythrinae* DECELLE, 1987: 510.	**Zair, Kenya, Tanzania, Angola, South Africa**
bengalicus n. sp.	**India**
bimaculatus PIC, 1911: 124.	**Tanzania, Ruanda**
brincki DECELLE, 1970: 260.	**Namibia**
calystegiae (LUKJANOVITSH et TER-MINASSIAN, 1957: 193 (Euspermophagus).	**Western Palearctic**
canus BAUDI, 1887: 472	**Iran, Kazakh SSR, W China**
caricus DECELLE, 1982: 31.	**Rhodos Is., Lebanon, Turkey, Iran, Uzbek SSR**
caucasicus BAUDI, 1887: 472 *eous* (LUKJANOVITSH et TER-MINASSIAN, 1957: 199)(*Euspermophagus*)	**Caucasus, Middle Asia, Iran, Afghanistan, Russian Far East, Korea**
cederholmi DECELLE, 1975 c: 193. *latescens* ARORA, 1977: 89.	**India, Ceylon**
ceylonicus PIC, 1917: 9.	**S India, Ceylon**
cicatricosus GYLLENHAL, 1833: 109.	**Sierra Leone, Zair, Cameroon, Urundi, Kenya, Tanzania, Botswana, South Africa**
ciliatipes PIC, 1927: 13.	**Central Africa**
coimbatorensis n. sp.	**India**
complectus SHARP, 1866: 37. *multilineolatus* PIC, 1918 b: 7.	**Russian Far East, China, Japan**

confusus BOROWIEC, 1986 b: 163. *variolosopunctatus* auct. not Gyllenhal, 1833.	**SE Europe, Turkey, Caucasus**
coronatus n. sp.	**Philippines**
decellei BOROWIEC, 1985 b: 465.	**Iran**
divergens FAHRAEUS, 1871: 445. *albopunctatus* MOTSCHULSKY, 1874: 250. *marshalli* PIC, 1903: 170.	**South Africa**
dongdokiensis n. sp.	**Laos**
drak n. sp.	**Vietnam**
eichleri BOROWIEC, 1986 c: 233.	**Zambia**
endrodii BOROWIEC, 1986 d: 201.	**South Africa**
excavatus PIC, 1917: 10.	**Sumatra**
hottentotus FAHRAEUS, 1839: 135.	**South Africa**
humilis DECELLE, 1970: 265.	**Tropical Africa, Madagascar**
incertus n. sp.	**Tanzania**
inlineolatus PIC, 1931: 26 (var. of multisignatus).	**Tanzania**
johnsoni BOROWIEC, 1986 a: 788.	**Burma**
kannegieterei PIC, 1911: 124.	**Java**
kingsolveri BOROWIEC, 1986 a: 783.	**India**
klapperichi BOROWIEC, 1985 a: 19.	**Jordan**
kochi DECELLE, 1975 b: 28. *corrocaensis* DECELLE, 1975 b: 30 (ssp. of *kochi*).	**South Africa, Angola, Mozambique**
kuesteri SCHILSKY, 1905: no. 4. *albipilis* CHOBAUT, 1898: 87. *swartukensis* ALI HUSSAIN et KADHIM, 1986: 50.	**Mediterranean Subregion, Iran, Afghanistan, Middle Asia**
kuskai BOROWIEC, 1986 a: 782.	**India**
latithorax BOHEMAN, 1829: 116. *tomentosus* KLUG, 1835: 42. *gossypi* CHEVROLAT, 1871: 8. *natalensis* FAHRAEUS, 1871: 445. *trogodermoides* FAIRMAIRE, 1902: 247. *latipennis* PIC, 1918 b: 9.	**Tropical Africa, Madagascar Cap Verde Is., Prince Is.**

ligatus CHEVROLAT, 1877: CXXXIV. *atroapicalis* PIC, 1925: 12.	**India, Vietnam**
lindbergorum DECELLE, 1975 a: 140.	**Canary Is.**
maafensis BOROWIEC, 1985 a: 17.	**S Spain, Algeria, Morocco**
maai n. sp.	**Thailand**
madecassus PIC, 1917: 8.	**Madagascar**
malvacearum DECELLE, 1971: 254.	**Ethiopia, Kenya, Zair, Rwanda, Angola**
mannarensis DECELLE, 1986: 151.	**India, Ceylon, Vietnam**
marmoreus n. sp.	**South Africa, Kenya,Tanzania**
maurus FAHRAEUS, 1871: 445.	**Zair, Tanzania, South Africa**
maynei PIC, 1924: 456.	**Zair, Cameroon**
minutissimus n. sp.	**Madagascar**
minutus n. sp.	**Java**
moerens BOHEMAN, 1839: 138. *capensis* MOTSCHULSKY, 1874: 251.	**South Africa, Gambia**
monardi DECELLE, 1975 b: 26.	**Angola, Tanzania, Ethiopia, Sudan**
multifloccosus n. sp.	**South Africa**
multiguttatus PIC, 1917: 10.	**Zimbabwe**
multipunctatus PIC, 1917: 11.	**Gambia, Senegal, Nigeria, Zair, Rwanda, Angola**
murtulai PIC, 1924: 456.	**Ethiopia, Kenya, Uganda**
negligens PIC, 1917: 10. *javanus* PIC, 1918 b: 8.	**Indochina, Java, Lombok**
newtoni BOROWIEC, 1986 c: 237.	**Tanzania**
niger MOTSCHULSKY, 1866: 405. *bifasciolatus* MOTSCHULSKY, 1874: 250. *tonkineus* PIC, 1917: 8. *formosanus* PIC, 1917: 9. *simoni* var. *immaculatus* PIC, 1922: 16.	**Oriental Region incl. Philippines and Sunda Is.**
okahandjensis DECELLE, 1973 a: 139.	**Namibia**
palmi n. sp.	**Thailand**

pfaffenbergeri BOROWIEC, 1986 a: 786.	**Oriental Region incl. Philippines and Sunda Is.**
pilipes n. sp.	**Ethiopia**
posticus CHEVROLAT, 1877: CXXXV. *senegalensis* var. *nigrodenudatus* PIC, 1939: 24. *senegalensis* PIC, 1942: 7.	**Senegal, Ghana, Nigeria Rep. of Congo, Ethiopia, Kenya, Tanzania**
pubiventris BAUDI, 1887: 471 (var. of variolosopunctatus).	**Greece, Turkey, Lebanon**
punjabensis n. sp.	**India**
pygopubens PIC, 1930: 9.	**Algeria, Nigeria, Ghana, Zair, Zambia, South Africa**
ruandanus n. sp.	**Ruanda**
rufipes TER-MINASSIAN, 1975: 247 (Euspermophagus).	**Mongolia**
rufonotatus PIC, 1903: 171.	**South Africa, Angola, Botswana**
samuelsoni n. sp.	**Thailand, Malaysia**
schroederi DECELLE, 1973 a: 137.	**Ethiopia, Tanzania**
scotti DECELLE, 1971: 257.	**Ethiopia, Gambia**
semiannulatus PIC, 1918 b: 7. *simoni* PIC, 1918 a: 303.	**Philippines**
sericeus (GEOFFROY, 1785: 112) (Mylabris). *cardui* BOHEMAN, 1829: 117. *sulcifrons* KÜSTER, 1848: no. 52. *euphorbiae* KÜSTER, 1848: no. 54. *mesopotameca* ALI HUSSAIN et KADHIM, 1986: 53. *ssp. afghanicus* BOROWIEC, 1985 a: 7.	**Western Palearctic**
siamensis n. sp.	**Thailand**
sinensis PIC, 1918 b: 9. *kurseongensis* DECELLE, 1977: 405.	**India, Bhutan, Sikkim, Yunnan**
somalicus DECELLE, 1979: 82.	**Somalia**
sophorae FAHRAEUS, 1839: 136. *fulvopubens* PIC, 1918 b: 9. *uniformis* PIC, 1932: 332.	**Gambia, Dahomey, Sudan, Ethiopia, Ceylon, India**
stemmleri DECELLE, 1977: 407.	**Bhutan**
tandalensis BOROWIEC, 1986 c: 235.	**Tanzania**

titivilitius BOHEMAN, 1833: 106.	**India**
transvaalensis BOROWIEC, 1986 d: 201.	**South Africa**
tristis FAHRAEUS, 1871: 444.	**South Africa, Kenya**
variolosopunctatus GYLLENHAL, 1833: 110. *variolosopunctatus* var. *maculatus* SCHILSKY: no. 5.	**Oriental Region excl. Philippines**
vietnamensis n. sp.	**Vietnam**
wittmeri BOROWIEC, 1985 b: 463.	**Israel**

Species incertae sedis

braunsi PIC, 1935: 66.	**East Africa**
brevipes PIC, 1927: 13.	**Sudan**
dilatatus MOTSCHULSKY, 1874: 249.	**Syria**
fochi PIC, 1919: 3.	**Bogor (Java Is.)**
heydeni ALLARD, 1868: 102.	**Ethiopia**
hottentotus var. abyssinicus PIC, 1927: 12.	**Ethiopia**
lugubris FAHRAEUS, 1871: 444.	**South Africa**
multisignatus PIC, 1902: 146.	**South Africa**
subdenudatus Motschulsky, 1874: 251.	**Manchuria**
tigridis ALI HUSSAIN et KADHIM, 1986: 54.	**Iraq**
turanicus (LUKJANOVITSH et TER-MINASSIAN, 1957: 195) (Euspermophagus).	**Tian-Shan Mts.**

PLANTS FED UPON BY SPECIES OF *SPERMOPHAGUS*

Host plants	*Spermophagus* spp.
Asteraceae	
Carthamus tinctorius	*marmoreus*
Caesalpiniaceae	
Cassia didymobotrya	*latithorax*
Convolvulaceae	
Calystegia dahurica	*complectus*
C. hederacea	*complectus*
C. sepium	*calystegiae, ?caucasicus, complectus, confusus*
C. soldanella	*calystegiae*
Convolvulus althaeoides	*kuesteri, sericeus*
C. arvensis	*confusus, kuesteri, sericeus*
C. cantabrica	*kuesteri*
C. pseudocantabrica	*sericeus*

C. soldanella	*sericeus*
C. sp.	*abdominalis*
Diospyros mespiliformis	*bimaculatus*
Hewittia bicolor	*ceylonicus*
Ipomea asarifolis	*latithorax*
I. cairica	*pilipes*
I. guamoclit	*abdominalis*
I. hederacea	*abdominalis*
I. obscura	*sophorae*
I. pestigridis	*aeneipennis, cederholmi, pfaffenbergeri*
I. raptans	*abdominalis*
I. sp.	*bimaculatus, cicatricosus*
Porana racemosa	*sinensis, sophorae*
Fabaceae	
Erythrina sp.	*babaulti*
Malvaceae	
Abelmoschus esculentus	*kuskai*
Hibiscus cannabina	*albosparsus, bengalicus, pygopubens*
H. esculenta	*mannarensis*
H. furcatus	*albosparsus*
H. sabaariffa	*albosparsus, pygopubens*
H. sp.	*maurus, niger*
Lantana sp.	*niger*
Merremia chryseides	*mannarensis*
Urena lobata	*niger*
Mimosaceae	
Acacia tortilis ssp. *heterocantha*	*rufonotatus*

REFERENCES

ABEILLE DE PERRIN, E., 1888. Tableau synoptique des Bruchides et Urodonides Franvais. Rev. Ent., **7**: 77-90.

ALI HUSSAIN A., KADHIM A. A., 1986. New species of *Spermophagus* SCH. (*Coleoptera: Bruchidae*) from Iraq. Journ Biol. Scien. Res., 1986, **17**: 43-57 (in Arabian).

ALLARD, E., 1868. Etude sur le groupe des Bruchites d'Europe et du Bassin de la Méditerrannée. Ann. Soc. Ent. Belg., **11**: 83-124.

ARORA, G. L., 1977. Taxonomy of the *Bruchidae* (*Coleoptera*) of Northwest India. Orient. Insects, suppl. **7**: 1-132.

ARORA, G. L., 1978. Taxonomy of the *Bruchidae* (*Coleoptera*) of Northwest India Part II. Larvae. Orient. Insects, suppl. **8**: 1-48.

BAGDASARJAN, B. A. 1967. Zhuki-zernovki (*Coleoptera, Bruchidae*) Megrinskogo Raiona Armyanskoi SSR. Ent. Obozr., **46**: 805-807.

BATIASHVILI, I. D., ELERDASHVILI, N. L., 1969. K izucheniyu fauny zernovok (*Coleoptera, Bruchidae*) Gruzii. Ent. Obozr., **48**: 524-531.

BAUDI, F., 1866. Rassegna della specie della famiglia dei Milabridi (Bruchidi degli autori) viventi in Europa e regioni finitime. Nat. Sicil., **6**, 4-5: 1-119.

BAUDI, F., 1890. Mylabridum seu Bruchidum recensioni a Flaminio Baudi conscriptae addenda. Deutsche Ent. Zeitschr., **1890**: 337-347.

BEDEL, L., 1901. Faune des Coleopteres du Bassin de la Seine, 5, *Phytophaga. Lariidae*. Paris, 1889-1901: 341-366.

BLACKWELDER, R. E., 1946. Checklist of the Coleopterous Insects of Mexico, Central America, the West Indies, and South America. U. S. Natl. Mus. Bul., **185**: 551-763.

BOHEMAN, C. H., 1829. Novae Coleopterorum species. Nouv. Mem. Soc. Nat. Mosc., **1**: 101-133.

BOHEMAN, C. H., 1833. in: C. J. SCHONHERR, Genera et species curculionidum, cum synonymia hujus familiae, vol. I. Paris.

BOHEMAN, C. H., 1839. in: C. J. SCHONHERR, Genera et species curculionidum, cum synonymia hujus familiae, vol. V. Paris.

BOROWIEC, L., 1981. The identification of *Spermophagus sericeus* (*Geoffroy*, 1785) and *S. calystegiae* (LUKJANOVITSH and TER-MINASSIAN, 1957)(*Coleoptera, Bruchidae*). Pol. Pismo Ent., **51**: 37-39.

BOROWIEC, L., 1982. *Spermophagus sericeus* (GEOFFROY, 1785)(*Coleoptera, Bruchidae*) z podwójnym aparatem kopulacyjnym. Prz. Zool., **26**: 243-244.

BOROWIEC, L., 1983 a. Survey of seed-beetles of Bulgaria (*Coleoptera, Bruchidae*). Pol. Pismo Ent., **53**: 107-127.

BOROWIEC, L., 1983 b. Uwagi o polskich strakowcach (*Coleoptera, Bruchidae*). Pol. Pismo Ent., **53**: 291-300.

BOROWIEC, L., 1983 c. Contribution to the knowledge of Korean and Mongolian seed-beetles (*Coleoptera, Bruchidae*). Pol. Pismo Ent., **53**: 281-289.

BOROWIEC, L., 1984. The seed-beetles from Turkey (*Coleoptera, Bruchidae*). Pol. Pismo Ent., **54**: 295-301.

BOROWIEC, L., 1985 a. Notes on Palaearctic *Spermophagus* SCHOENHERR (*Coleoptera, Bruchidae, Amblycerinae*), with description of two new species. Pol. Pismo Ent., **55**: 3-24.

BOROWIEC, L., 1985 b. Two new species of *Spermophagus* SCHOENHERR (*Coleoptera, Bruchidae, Amblycerinae*) from Israel and Iran. Pol. Pismo Ent., **55**: 463-468.

BOROWIEC, L., 1986 a. On the Oriental *Spermophagus* SCHOENHERR (*Coleoptera, Bruchidae, Amblycerinae*), with description of four new species. Pol. Pismo Ent., (1985) **55**: 781-790.

BOROWIEC, L., 1986 b. The specific status of *Spermophagus variolosopunctatus* GYLLENHAL, 1833 (*Coleoptera, Bruchidae, Amblycerinae*), with description of a new species. Pol. Pismo Ent., **56**: 161-164.

BOROWIEC, L., 1986 c. The *hottentotus* group of *Spermophagus* SCHOENHERR (*Coleoptera, Bruchidae, Amblycerinae*), with descriptions of three new species. Pol. Pismo Ent., **56**: 229-241.

BOROWIEC, L., 1986 d. Two new species of *Spermophagus* SCHOENHERR from South Africa (*Coleoptera, Bruchidae: Amblycerinae*). Ann. Hist.-Nat. Mus. Nat. Hung., **78**: 201-203.

BOROWIEC, L., 1987 a. The seed-beetles (*Coleoptera, Bruchidae*) from the Middle East. Pol. Pismo Ent., **57**: 601-616.

BOROWIEC, L., 1987 b. The genera of seed-beetles (*Coleoptera, Bruchidae*). Pol. Pismo Ent., **57**: 3-207.

BOROWIEC, L., 1988. *Bruchidae* - strąkowce (*Insecta: Coleoptera*). In: Fauna of Poland, vol. 11, PWN, Warszawa, 226 pp.

BOTTIMER, L. J., 1968. Notes on *Bruchidae* of America North of Mexico with a list of world genera. Canadian Ent., **100**: 1009-1049.

BRANDL, P., 1981. 89. Familie: *Bruchidae* (Samenkafer). In: FREUDE, HARDE, LOHSE, Die Kafer Mitteleuropas, vol. **10**: 7-29.

CALDERON, M., 1962. The *Bruchidae* of Israel. Riv. Parassit., **23**: 207-216.

CHEVROLAT, A., 1871. Description de six Coleopteres exotiques. Ann. Soc. Ent. Belg., **14**: 5-8 + 1 tab.

CHEVROLAT, A., 1877. Diagnoses de nouvelles especes de Bruchides. Bull. Ann. Soc. Ent. Fr., **7**: CXXXIV-CXXXV.

CHOBAUT, A., 1898. Description de quelques especes et varietes nouvelles de Coleopteres algeriens. Rev. Ent., **17**: 74-88.

CHUJO, M., 1937. Some additions and revisions of *Bruchidae* (*Coleoptera*) from the Japanese Empire. Trans. Nat. Hist. Soc. Formosa, **27**: 167-168.

DECELLE, J. E., 1951. Contribution a l'etude des *Bruchidae* du Congo belge (*Col. Phytophaga*). Rev. Zool. Bot. Afr., **45**: 172-192.

DECELLE, J., 1956. XCIX. *Coleoptera Bruchidae*. In: Contributions a l'etude de la faune entomologique du Ruanda-Urundi (Mission P. BASILEWSKY 1953). Ann. Mus. Congo, Zool., **51**: 423-426.

DECELLE, J., 1958. Contribution a l'etude des Bruchidae du Congo Belge (*Col. Phytophaga*)(Deuxieme note). Rev. Zool. Bot. Afr., **58**: 75-84.

DECELLE, J., 1969. XVII. *Coleoptera Bruchidae*. In: Le Parc National du Niokolo-Koba (Senegal) Fascicule III. Mem. I. F. A. N., **84**: 287-296.

DECELLE, J., 1970. *Coleoptera: Bruchidae*. In: South African Animal Life, **14**: 256-266.

DECELLE, J., 1971. Bruchides (Col.) recoltes en Abyssinie Centrale par l'expedition H. SCOTT et J. OMER COOPER (IX.1926-I.1927). Bull. Ann. Soc. R. Ent. Belg., **107**: 243-259.

DECELLE, J., 1973 a. Nouvelles especes africaines et malgaches de Coleopteres Bruchides des collections du Museum fur Naturkunde de Berlin. Rev. Zool. Bot. Afr., **87**: 131-141.

DECELLE, J., 1973 b. Contribution a la faune du Congo (Brazzaville Mission A. VILLIERS et A. DESCARPENTRIES. CVIII. Coleopteres *Bruchidae*. Bull. I. F. A. N., **35**: 597-602.

DECELLE, J., 1975 a. Les *Bruchidae* (*Coleoptera*) des iles Canaries. Bull. Annls Soc. R. Belge Ent., **111**: 109-142.

DECELLE, J., 1975 b. Les Coleopteres Bruchides d'Angola. Publ. Cult. Co. Diam. Ang., **89**: 13-32.

DECELLE, J., 1975 c. *Coleoptera: Bruchidae* de Ceylan. Ent. Scand., Suppl. **4**: 179-194.

DECELLE, J., 1977. Ergebnisse der Bhutan-Expedition 1972 des Naturhistorischen Museums in Basel. *Coleoptera*: Fam. *Bruchidae*. Entomol. Basilien., **2**: 393-409.

DECELLE, J., 1979. Etude d'une collection de Coleopteres Bruchides de Somalie. Monit. Zool. Ital., n. s. suppl. 12, **9**: 79-88.

DECELLE, J., 1982. Une nouvelle espece de *Spermophagus* SCHONHERR (*Coleoptera: Bruchidae: Amblycerinae*) de Turquie. Bull. Ann. Soc. R. Belge Ent., **118**: 31-34.

DECELLE, J., 1983. Le genre *Spermophagus* SCHONHERR en Europe occidentale (Col. *Bruchidae Amblycerinae*). Bull. Soc. Ent. Fr., **150**: 235-241.

DECELLE, J., 1984. Les Coleopteres *Bruchidae* de l'Archipel du Cap Vert (*Insecta: Coleoptera*). Cour. Forsch.-Inst. Senckenberg, **68**: 49-55.

DECELLE, J., 1986. Une nouvelle espece de *Spermophagus* SCHOENHERR (*Coleoptera: Bruchidae: Amblycerinae*) du Sri Lanka (Ceylan). Bull. Annls Soc. R. Belge Ent., **122**: 151-153.

DECELLE, J., 1987. Les *Bruchidae* (*Coleoptera*) afrotropicaux infeodes aux *Erythrina* (*Fabaceae*). Revue Zool. Afr., **101**: 507-511.

DECELLE, J., LODOS, N., 1989. Contribution to the study of Legume Weevils of Turkey (*Coleoptera: Bruchidae*). Bull. Annls Soc. R. Belge Ent., **125**: 163-212.

EGOROV, A. B., 1981. O faunye zernovok (*Coleoptera, Bruchidae*) Vostochnoj Sibiri i Dalnego Vostoka. In: Noviye svedeniya o nasekomykh Dal'nego Vostoka. Vladivostok, 1981: 43-54.

EGOROV, A. B., TER-MINASSIAN, M. E., 1983. Zhuki-zernovki Vostochnoj Sibiri i Dal'nego Vostoka SSSR. Vladivostok, 61 pp.

ERNST, W. H. O., TOLSMA, D. J., DECELLE, J. E., 1989. Predation of seeds of *Acacia tortilis* by insects. Oikos, **54**: 294-300.

FABRICIUS, J. C., 1781. Species Insectorum exhibentes eorum differentias, specificas, synonyma auctorum, loca natalia, metamorphosin adiectis observationibus, descriptionibus. II. Hamburgi et Kilonii, 494 pp.

FAHREUS, O. I., 1839. in: C. J. SCHONHERR, Genera et species curculionidum, cum synonymia hujus familiae, vol. V. Paris.

FAHREUS, O. I., 1871. *Coleoptera* Caffrariae, annis 1838-1854 a J. A. WAHLBERG collecta. Fam. *Brenthidae, Anthribidae* et *Bruchidae*. Ofv. Vetensk. Akad. Forh., **28**: 433-452.

FAIRMAIRE, L., 1902. Materiaux pour la faune Coleopterique Malgache. Ann. Soc. Ent. Belg., **46**: 236-271.

GEOFFROY, E. L., 1785. in: A. F. FOURCROY, Entomologia Parisiensis, sive Catalogus Insectorum, quae in Agro Parisiensi reperiuntur. **1**. Paris, 231 pp.

GYLLENHAL, L., 1833. in: C. J. SCHONHERR, Genera et species curculionidum, cum synonymia hujus familiae, vol. **I**. Paris.

GYLLENHAL L., 1839. in: C. J. SCHONHERR, Genera et species curculionidum, cum synonymia hujus familiae, vol. **V**. Paris.

HOFFMANN, A., 1945. Coleopteres Bruchides et Anthribides. Faune de France, **44**. Paris, 184 pp.

HOFFMANN, A., 1954. Contribution a l'etude de la zone d'inondation du Niger (Mission G. Remaudiere). IX. Coleopteres *Curculionidae* et *Bruchidae*. Bull. Inst. Franc. Afr. Noire, **16**: 185-203.

JOHNSON, C. D., 1970. Biosystematics of the Arizona, California, and Oregon species of the seed beetle genus *Acanthoscelides* SCHILSKY (*Coleoptera: Bruchidae*). Univ. Calif. Publ. Entomol., **59**: 116 pp.

JOHNSON, C. D., 1983. Ecosystematics of Acanthoscelides (*Coleoptera: Bruchidae*) of Southern Mexico and Central America. Misc. Publ. Ent. Soc. Amer., **56**: 1-370.

JOHNSON, C. D., 1990. Systematics of the seed beetle genus *Acanthoscelides* (*Bruchidae*) of Northern South America. Trans. Amer. Ent. Soc., **116**: 297-618.

JOHNSON, C. D., KINGSOLVER, J. M., 1973. A revision of the genus *Sennius* of North and Central America (*Coleoptera: Bruchidae*). U. S. Dept. Agric. Tech. Bull., **1462**: 135 pp.

KARAPETJAN, A. P., 1973 a. Novyi vid zernovok (*Coleoptera, Bruchidae*) iz SSSR. Dokl. Akad. Nauk Arm. SSR, **57**: 44-46.

KARAPETJAN, A. P., 1973 b. Reviziya Armyanskikh predstavitelei roda *Spermophagus* SCHOENHERR (*Coleoptera, Bruchidae*). Biol. Zhurn. Arm., **26**: 75-84.

KARAPETJAN, A. P., 1985. Zernovki (*Bruchidae*). Fauna Armyanskoi SSR. Nasekomye zhestkokrilye. Erewan, 171 pp.
KINGSOLVER, J. M., 1970 a. A synopsis of the subfamily *Amlycerinae* BRIDWELL in the West Indies, with descriptions of new species (*Coleoptera: Bruchidae*). Trans. Amer. Ent. Soc., **96**: 469-497.
KINGSOLVER, J. M., 1970 b. A study of male genitalia in *Bruchidae* (*Coleoptera*). Proc. Ent. Soc. Wash., **72**: 370-386.
KINGSOLVER, J. M., BOROWIEC, L., 1988. The genus *Spermophagus* in the New World (*Coleoptera, Bruchidae*). Elytron, **2**: 81-84.
KLUG, J., 1835. in: Verzeichniss von Thieren und Pflanzen, welche auf einer Reise um die Erde gesammelt wurden von A. ERMAN, Berlin.
KUSTER, H. C., 1848, Die Kafer Europas, 15. Nurnberg, pages unnumbered, species 1-100.
LUKJANOVITSH, F. K., TER-MINASSIAN, M. E., 1957. Zhuki-zernovki (*Bruchidae*). Fauna SSSR, Zhestkokrilye, XXIV, 1. Moskwa-Leningrad, 209 pp.
MOTSCHULSKY, V., 1858. Etudes entomologiques, **7**: p. 97.
MOTSCHULSKY, V., 1866. Essai d'un catalogue des insectes de l'Ile de Ceylan. Bull. Soc. Nat. Mosc., 1866, **2**: 405.
MOTSCHOULSKY, V., 1874. Enumeration des nouvelles especes de Coleopteres rapportes de ses voyages. 13-Article. Bull. Soc. Nat. Mosc., **47**: 203-252
MUKERJI, S., CHATTERJEE, S.N., 1951. Morphology of the genital structures of some of the *Bruchidae* (*Lariidae*) of India and Ceylon and their taxonomic importance. Ind. Journ. Ent., **13**: 1-28.
PIC, M., 1902. Description de Bruchides nouveaux. Naturaliste, **24**: 146.
PIC, M., 1903. Coleopteres de l'Afrique australe. Rev. Ent., **22**: 165-171.
PIC, M., 1907. Coleopteres exotiques nouveaux ou peu connus. Echange, **23**: 134-135.
PIC, M., 1911. Diagnoses preliminares de 30 Coleopteres exotiques. Echange, **27**: 122-124.
PIC, M., 1913. *Bruchidae*. Coleopterorum Catalogus, Pars 55. Berlin, **74** pp.
PIC, M., 1917. Descriptions abregees diverses. Melang. Exot.-Ent., **26**: 1-24.
PIC, M., 1918 a. Trois nouveaux *Spermophagus* SCHOENH. (*Col., Bruchidae*). Bull. Soc. Ent. Fr., **1917**: 302-303.
PIC, M., 1918 b. Courtes descriptions diverses. Melang. Exot.-Ent., **27**: 1-24.
PIC, M., 1919. Coleopteres exotiques en partie nouveaux. Echange, **35**: 2-3.
PIC, M., 1922. Nouveautes diverses. Melang. Exot.-Ent., **35**: 1-32.
PIC, M., 1924. Nouveaux *Bruchidae* du Congo Belge. Rev. Zool. Afr., **12**: 455-460.
PIC, M., 1927. Nouveautes diverses. Melang. Exot.-Ent., **48**: 1-32.
PIC, M., 1928. Nouveaux Coleopteres *Malachidae* et *Bruchidae*. Bull. Soc. Ent. Fr., **1928**: 314-316.
PIC, M., 1929. Coleopteres exotique en partie nouveaux. Echange, **45**: 11-12.
PIC, M., 1930. Nouveautes diverses. Melang. Exot.-Ent., **55**: 1-36.
PIC, M., 1931. Nouveautes diverses. Melang. Exot.-Ent., **57**: 1-36.
PIC, M., 1932. Nouveaux *Bruchidae* des Indes. Ann. Mag. Nat. Hist., (**10**)9: 329-333.
PIC, M., 1933. Coleopteres nouveaux. Ann. Mag. Nat. Hist., (**10**)11: 686-689.
PIC, M., 1935. Neue *Bruchidae* (*Col.*). Ent. Ainz., **15**: 65-66.
PIC, M., 1939. Coleopteres exotiques en partie nouveaux. Echange, **55**: 24.
PIC, M., 1941. Opuscula martialis, IV. Echange, num. spec., 16 pp.
PIC, M., 1942. Opuscula martialis, VI. Echange, num. spec., 16 pp.
POPOV, C. W., 1966. Prouchvaniya v'rkhu z'rnoyaditye (*Bruchidae*) w B'lgariya. Ann. Univ. Sofia, **60**: 1-14.
PREVETT, P. F., 1966. Observations on the biology of six species of *Bruchidae* (*Coleoptera*) in Northern Nigeria. Ent. Mon. Mag., **102**: 174-180.
PREVETT, P. E., 1971. The larvae of some Nigerian *Bruchidae* (*Coleoptera*). Trans. R. Ent. Soc. Lond., **123**: 247-312.
REY, C., 1893. Famille des Bruchides. Echange, **100**: 37.
SCHILSKY, J., 1905. *Bruchidae*, in: Die Kafer Mitteleuropas, 41. Heft. Nurnberg, pages unnumbered, species 1-100.
SCHONHERR, C. J., 1833. Genera et species curculionidum, cum synonymia hujus familiae. Tomus **I**. Paris, 681 pp.
SHARP, D., 1886. On the *Bruchidae* of Japan. Ann. Mag. Nat. Hist., **18** (5): 34-38.
SINGH, T., 1978. The male accessory glands in *Bruchidae* (*Coleoptera*) and their taxonomic significance. Ent. Scand., **9**: 198-203.
SINGH, T., 1981. A taxonomic study of the wing of *Bruchidae* (*Coleoptera*). Orient. Insects, **15**: 221-225.
SOBOLEVA, L. W., 1968. Zernovki (sem. *Bruchidae*) ushchel'ya Kondara. In: Ushchel'ye Kondara, kn. 2. Dushanbe: 124-128.
TER-MINASSIAN, M. E., 1973. 212. *Bruchidae*. Ergebnisse der zoologischen Forschungen von Dr. Z. KASZAB in der Mongolei (*Coleoptera*). Reichenbachia, **14**: 75-83.
TER-MINASSIAN, M. E., 1975. Obzor zhukov-zernovok (*Coleoptera, Bruchidae*) Mongolii. In: Nasekomye Mongolii, **3**: 243-248.

THUNBERG, C. P., 1816. Fyra nya arter *Bruchus* Slagtet. Vetens. Acad. Handl., **1**: 43-47.

UDAYAGIRI, S., WADHI, S. R., 1982. A key to world bruchid genera. NBPGR Sci. Monogr., **5**: 3-16.

VAZIRANI, T. G., 1975. A contribution to the knowledge of Oriental *Bruchidae*. Journ. Bombay Nat. Hist. Soc., **72**: 740-757.

WENDT, H., 1978. Der Bruchiden-Typen der Koleopteren-Sammlung des Zoologisches Museums Berlin. Mitt. Zool. Mus. Berl., **54**: 353-367.

WENDT, H., 1983. Bruchiden aus dem Museum A. KOENIG Bonn, gesammelt von J. KLAPPERICH (*Col. Phytophaga*). Deutsche Ent. zeitschr., N.F., **30**: 93-98.

WENDT, H., 1984. Zur Kenntnis der Bruchidenfauna Bulgariens (*Col. Phytophaga*). Deutsche Ent. Zeitschr., N.F., **31**: 153-167.

WENDT, H., 1985. Uber die Bruchiden-Fauna der Mongolei (*Coleoptera, Chrysomelidae*). Mitt. Zool. Mus. Berl., **61**: 279-285.

WENDT, H., 1986. Beitrage zur Insektenfauna der DDR: *Coleoptera - Bruchidae* (*Chrysomeloidea*). I. Zur Biologie und Verbreitung. Mitt. Zool. Mus. Berl., **62**: 103-133.

WENDT, H., 1988. Beitrage zur Insektenfauna der DDR: *Coleoptera - Bruchidae* (*Chrysomeloidea*). II. Bestimmungstabellen der heimischen Arten. Mitt. Zool. Mus. Berl., **64**: 311-318.

YADAV, J. S., 1969. Chromosome number and sex-chromosome mechanism in *Bruchidae* (*Coleoptera*). Res. Bull. Panjab Univ. (N.S.), **20**: 259-260.

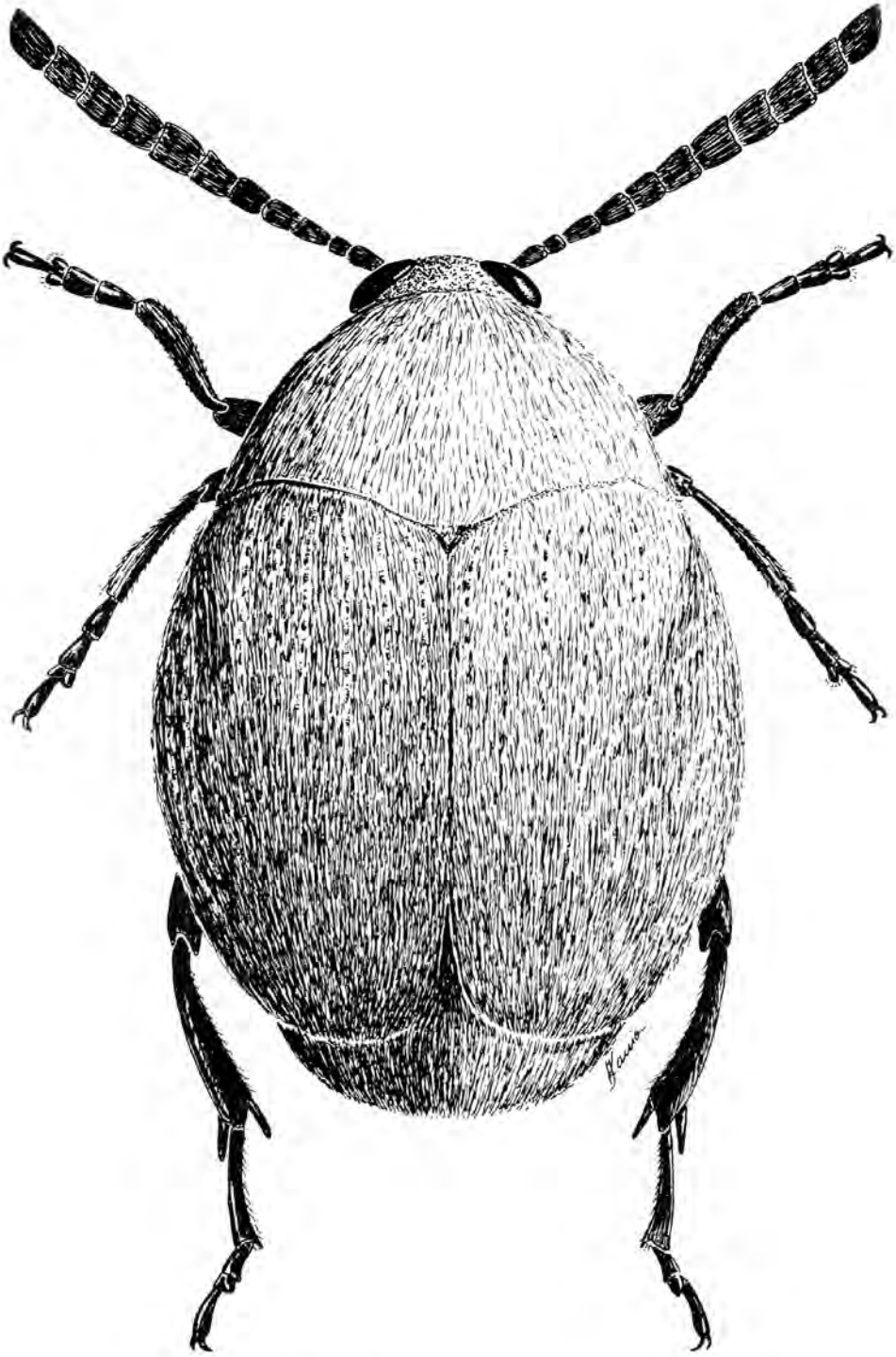
YADAV, J. S., 1973. Chromosomes of seven species of *Bruchidae* (*Coleoptera*) from North India. Genetica, **44**: 288-297.

ZAMPETTI, M., 1979. Contributo alla conoscenza dei *Bruchidae* del Libano (*Coleoptera*). Fragm. Entomol., **15**: 201-207.

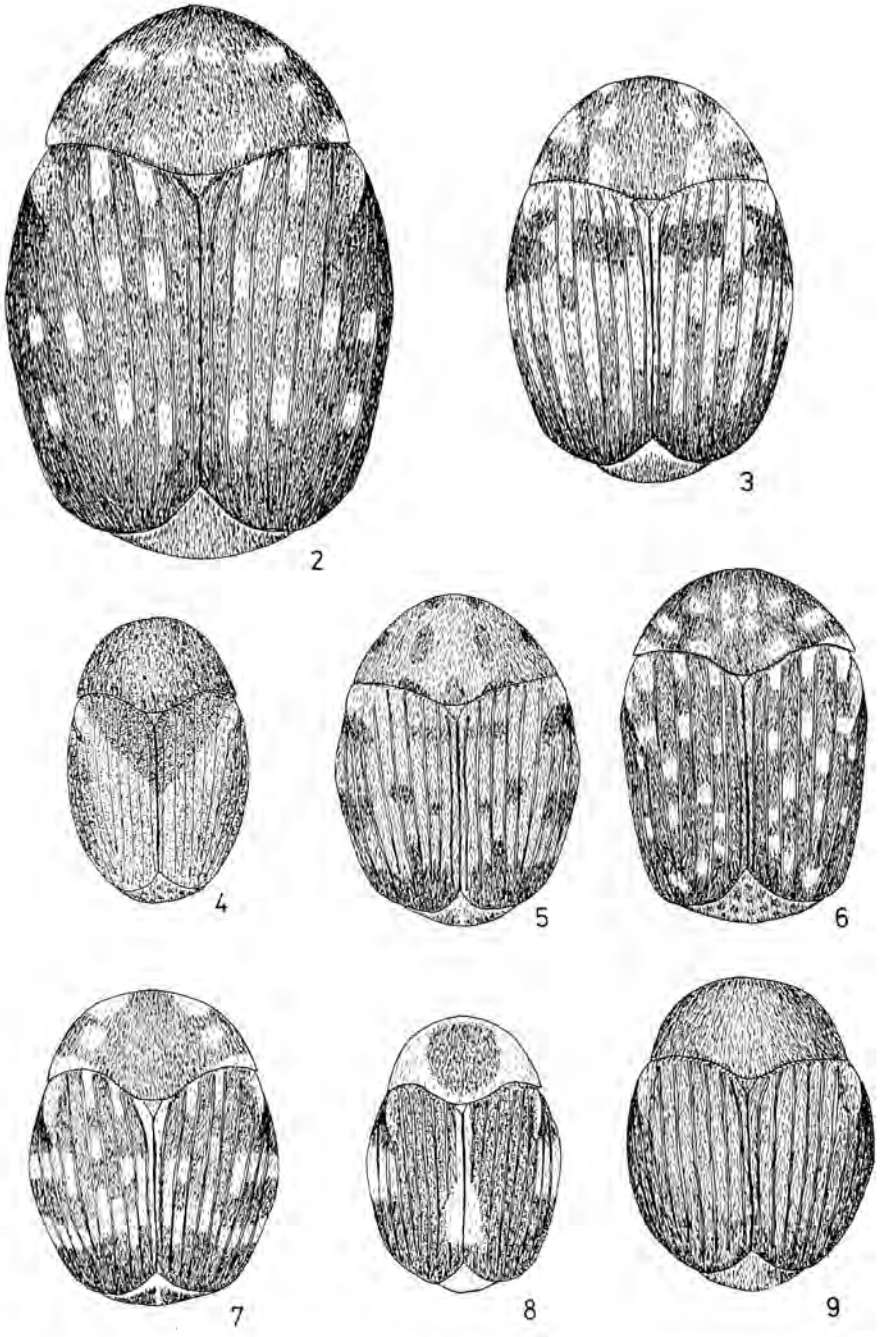
ZAMPETTI, M., 1981. Contributo alla conoscenza dei bruchidi di Turchia. I. (*Coleoptera, Bruchidae*). Fragm. Entomol., **16**: 73-87.

ZAMPETTI, M., 1988. Appunti sui Bruchidi dell'Africa Orientale (*Coleoptera, Bruchidae*). Fragm. Entomol., **21**: 101-110.

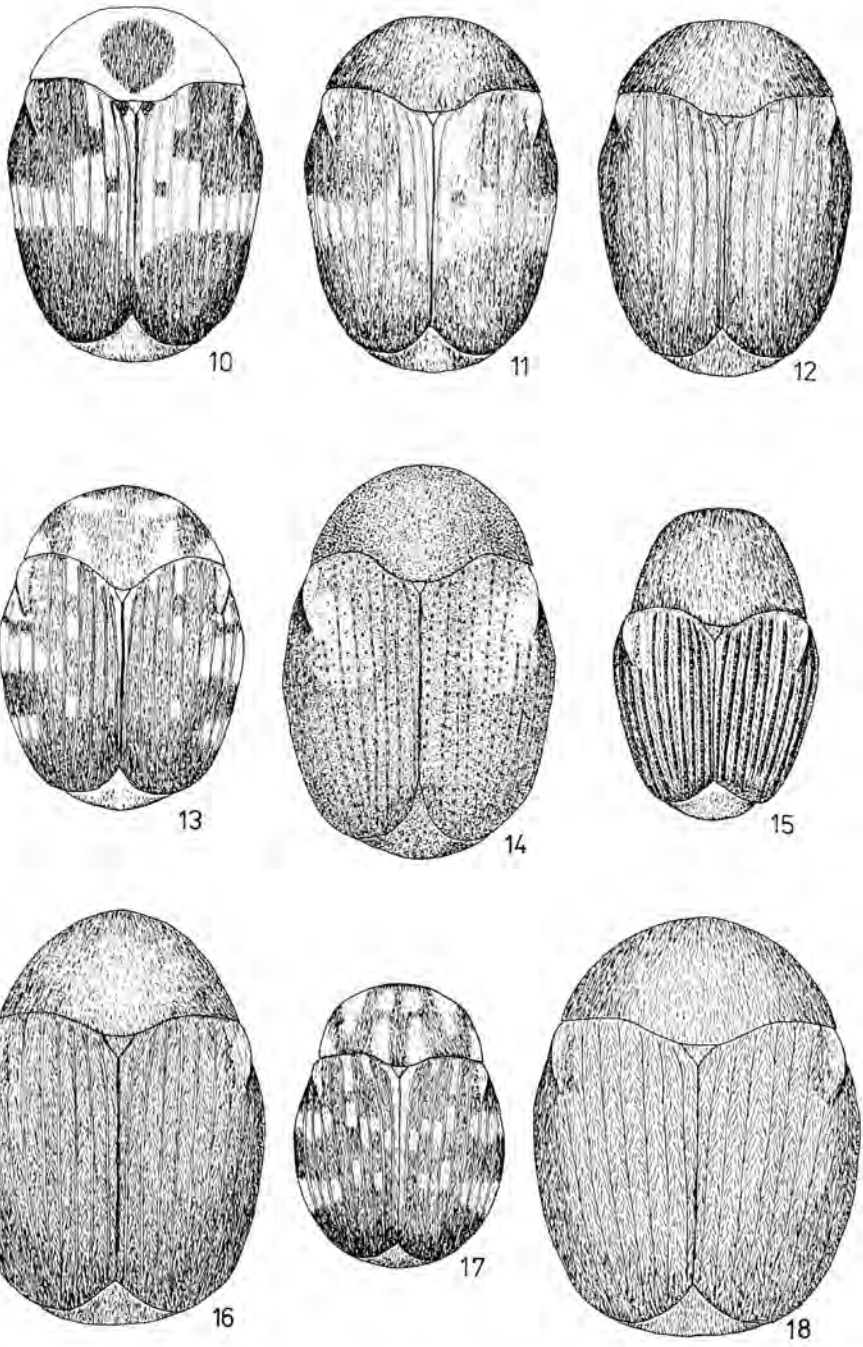
FIGURES



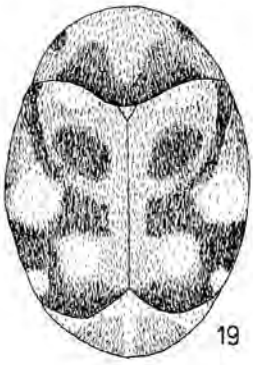
1. *Spermophagus sericeus* (GEOFFROY)

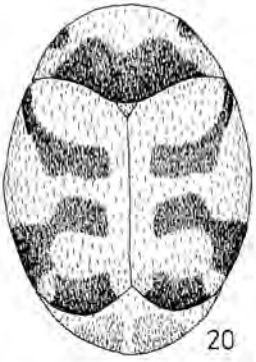


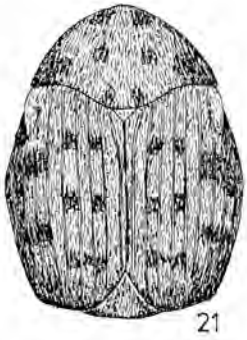
2-9. Dorsal pattern: 2-4 - *Spermophagus abdominalis*, 5 - *S. aeneipennis*, 6 - *S. albomaculatus*, 7 - *S. albosparsus*, 8 - S. *albosuturalis*, 9 - *S. altaicus*

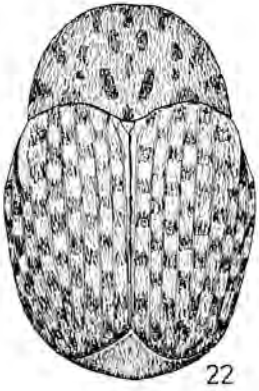


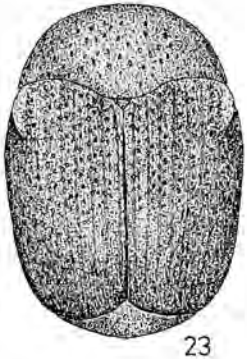
10-18. Dorsal pattern: 10-12 - *Spermophagus babaulti*, 13 - *S. bengalicus*, 14 - *S. bimaculatus*, 15 - *S. brincki*, 16 - *S. calystegiae*, 17 - *S. caucasicus*, 18 - *S. canus*

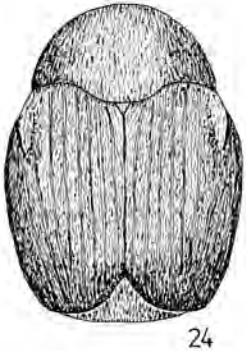


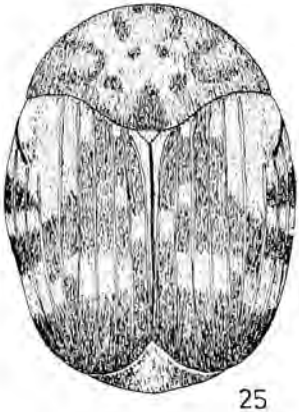


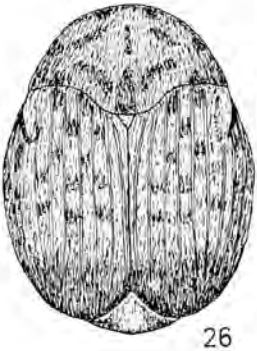


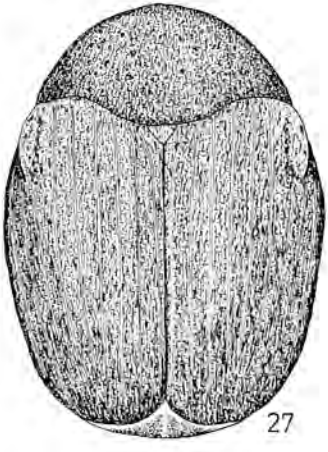




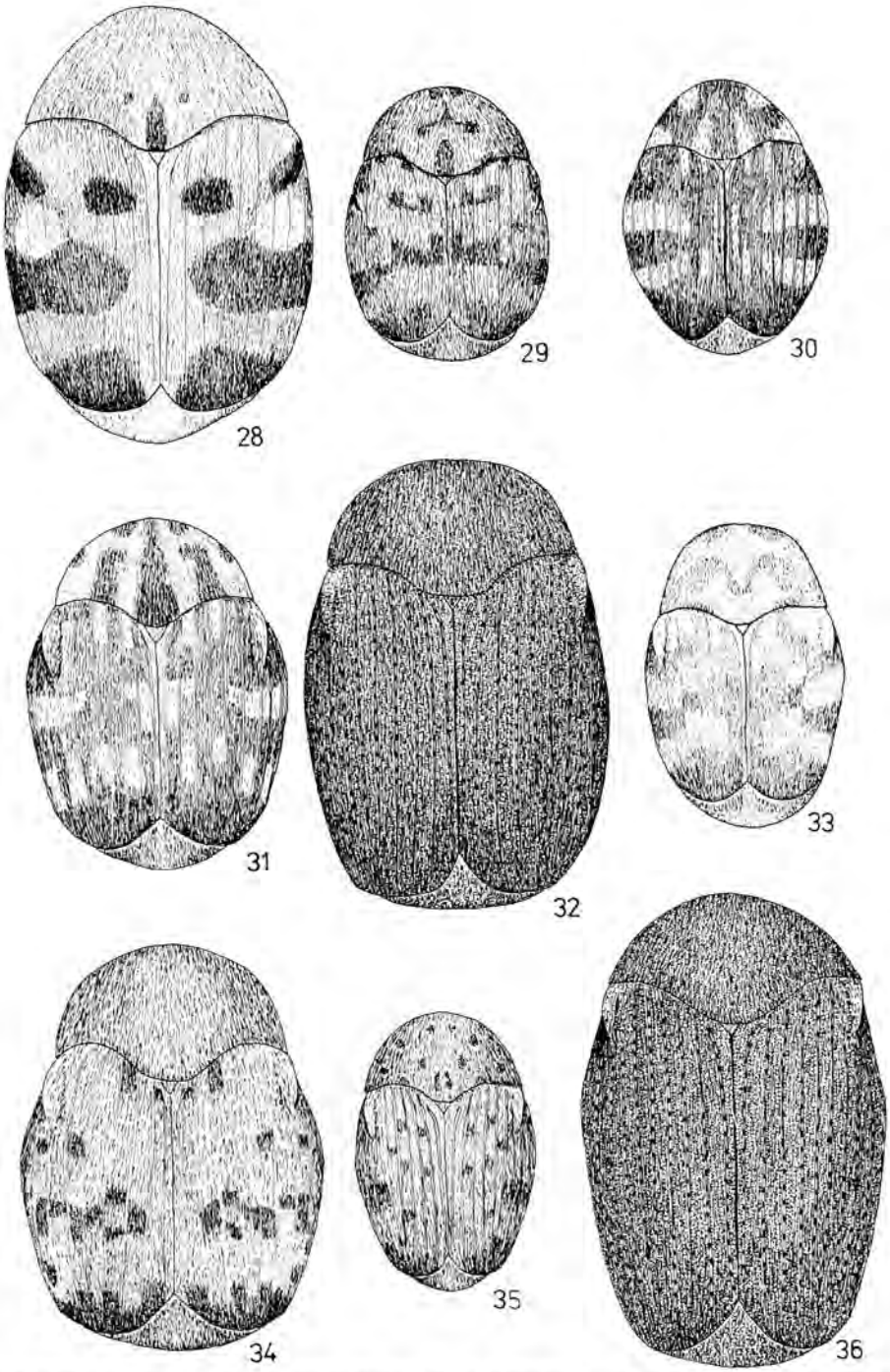




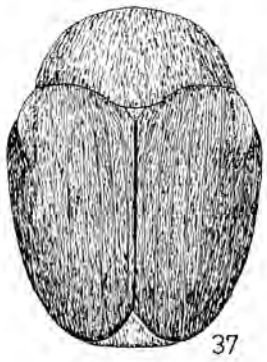


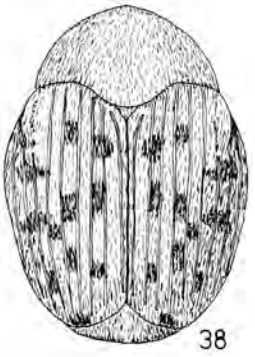


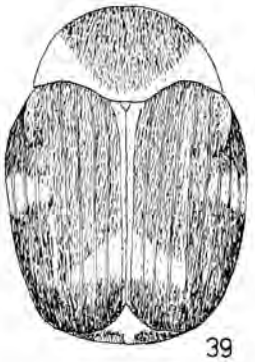
19-27. Dorsal pattern: 19, 20 - *Spermophagus caricus*, 21 - *S. cederholmi*, 22 - *S. ceylonicus*, 23 - *S. cicatricosus*, 24 - *S. ciliatipes*, 25 - *S. coimbatorensis*, 26 - *S. coronatus*, 27 - *S. confusus*

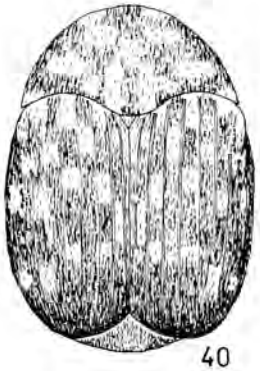


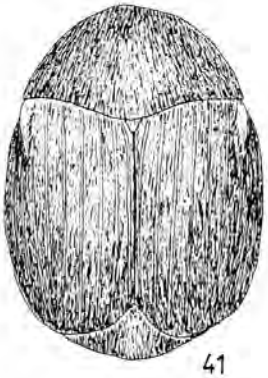
28-36. Dorsal pattern: 28 - *Spermophagus decellei*, 29 - *S. divergens*, 30 - *S. dongdokiensis*, 31 - *S. drak*, 32 - *S. eichleri*, 33 - *S. endrodii*, 34 - *S. excavatus*, 35 - *S. incertus*, 36 - *S. hottentotus*

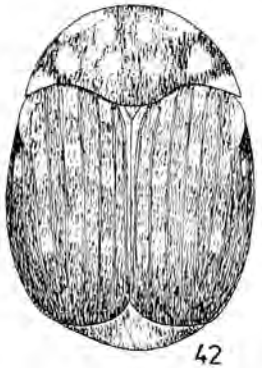


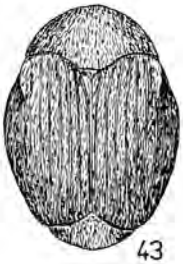


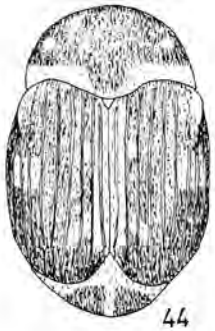


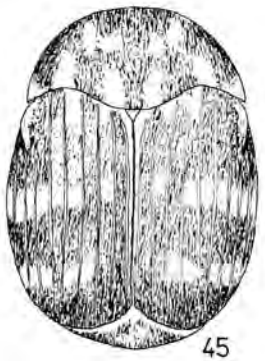




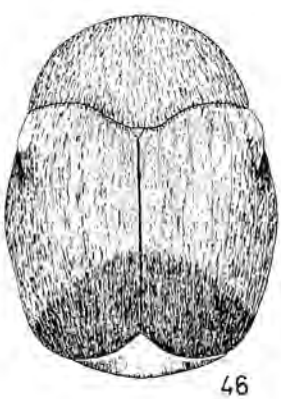




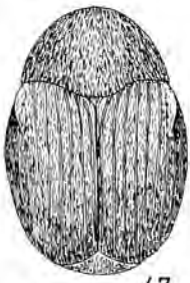




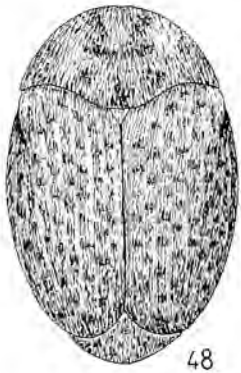
37-45. Dorsal pattern: 37, 38 - *Spermophagus humilis*, 39 - *S. inlineolatus*, 40 - *S. johnsoni*, 41 - *S. kannegieterei*, 42 - *S. kingsolveri*, 43 - *S. klapperichi*, 44 - *S. kochi*, 45 - *S. kuskai*



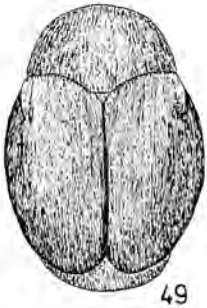
46



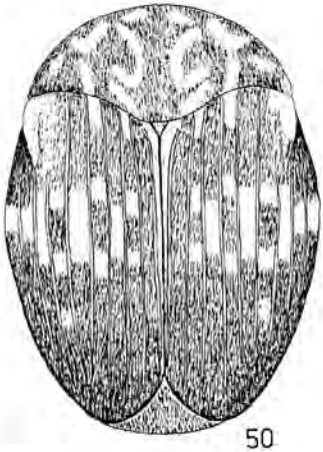
47



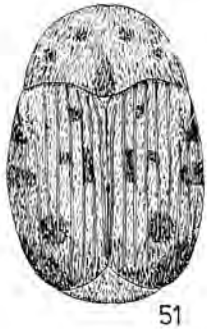
48



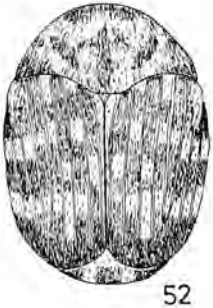
49



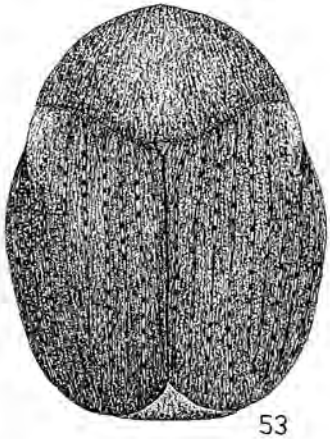
50



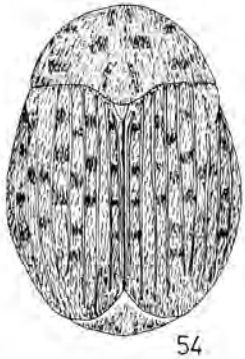
51



52

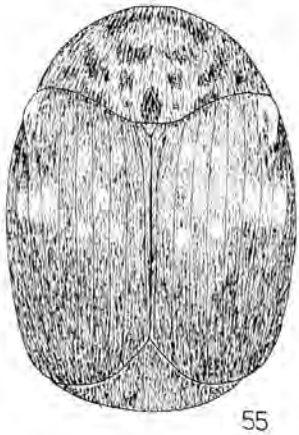


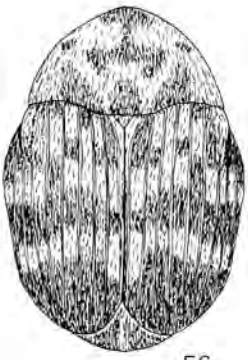
53

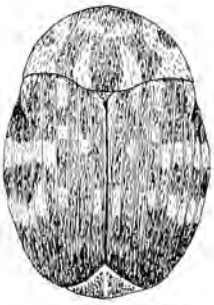


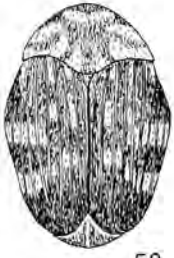
54

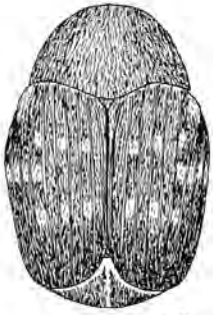
46-54. Dorsal pattern: 46 - *Spermophagus ligatus*, 47 - *S. lindbergorum*, 48 - *S. lugubris*, 49 - *S. maafensis*, 50 - *S. maai*, 51 - *S. malvacearum*, 52 - *S. mannarensis*, 53 - *S. madecassus*, 54 - *S. marmoreus*

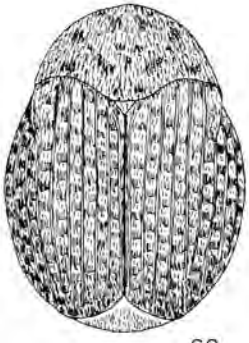


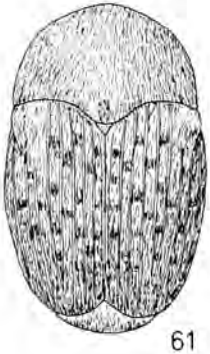


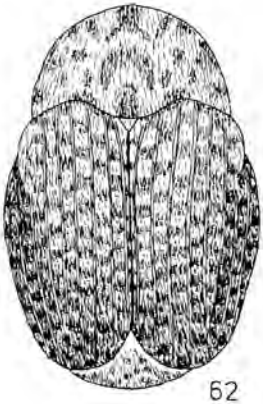


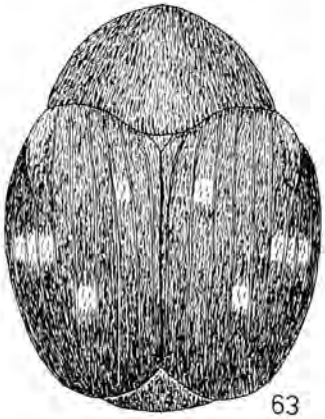




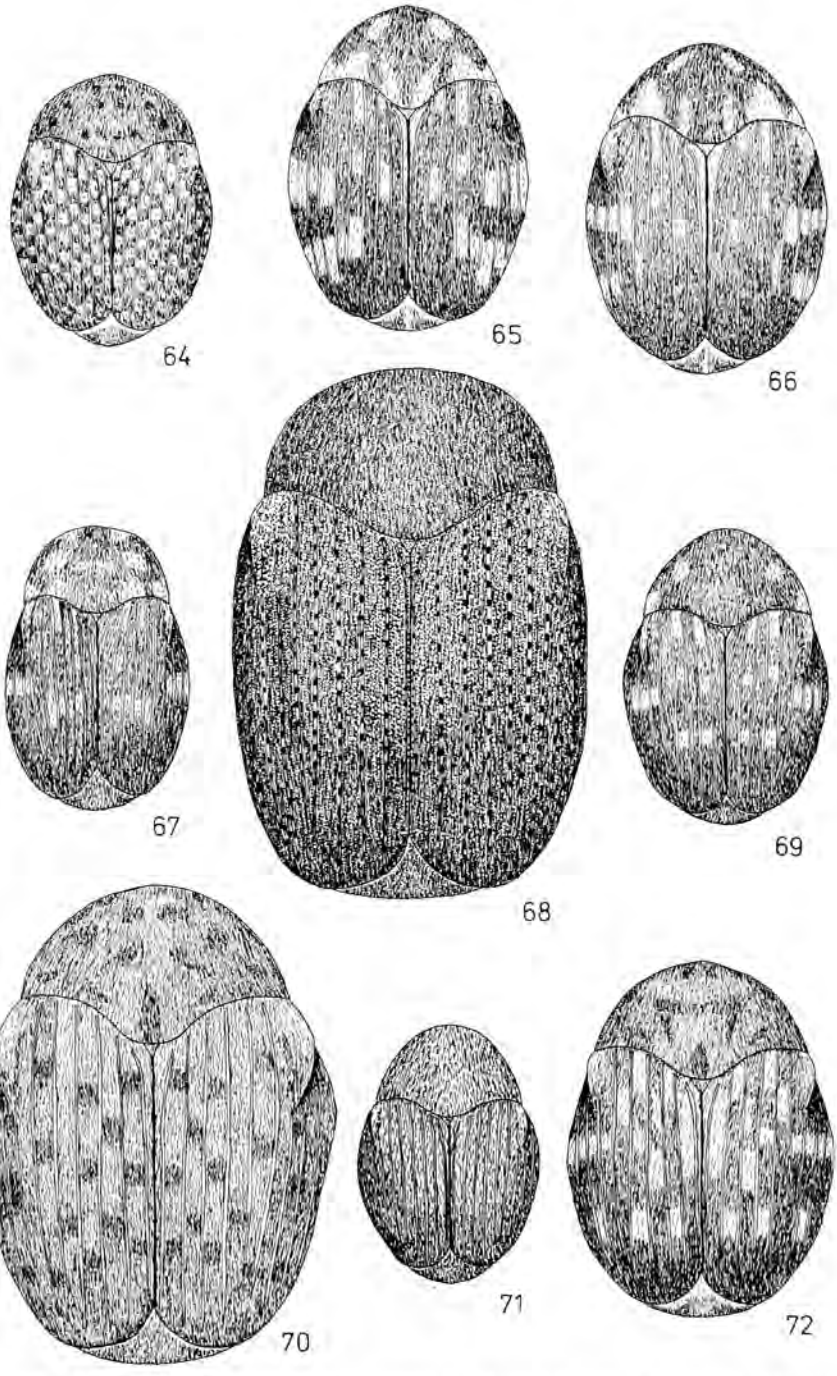




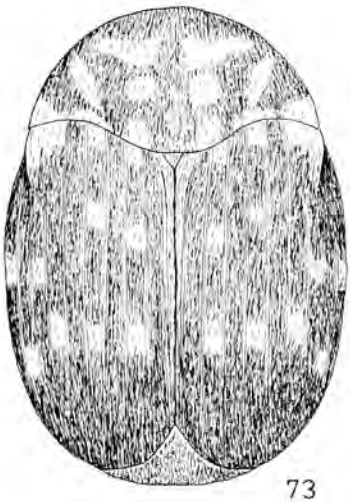




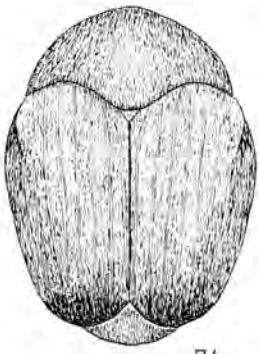
55-63. Dorsal pattern: 55 - *Spermophagus maynei*, 56 - *S. maurus*, 57 - *S. minutus*, 58 - *S. minutissimus*, 59 - *S. moerens*, 60 - *S. monardi*, 61 - *S. multifloccosus*, 62 - *S. multiguttatus*, 63 - *S. complectus*



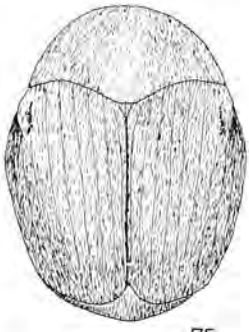
64-72. Dorsal pattern: 64 - *Spermophagus multipunctatus*, 65, 66 - *S. negligens*, 67 - *S. murtulai*, 68 - *S. newtoni*, 69 - *S. niger*, 70 - *S. palmi*, 71 - *S. okahandjensis*, 72 - *S. pfaffenbergeri*



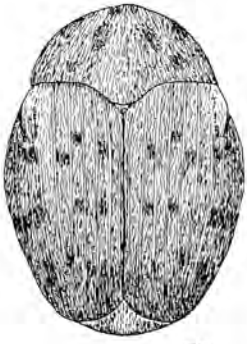
73



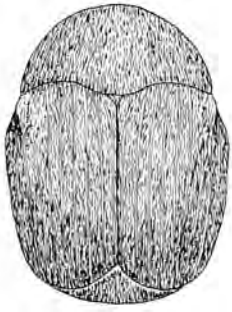
74



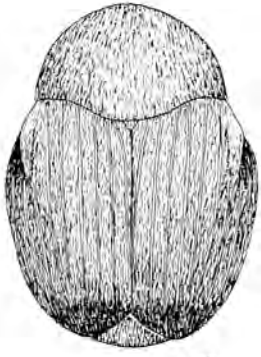
75



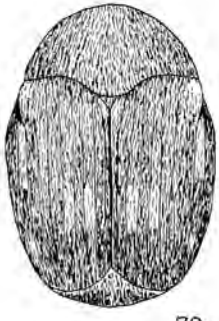
76



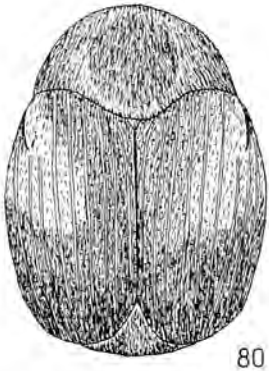
77



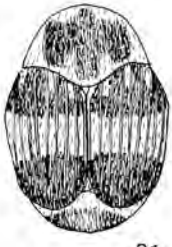
78



79

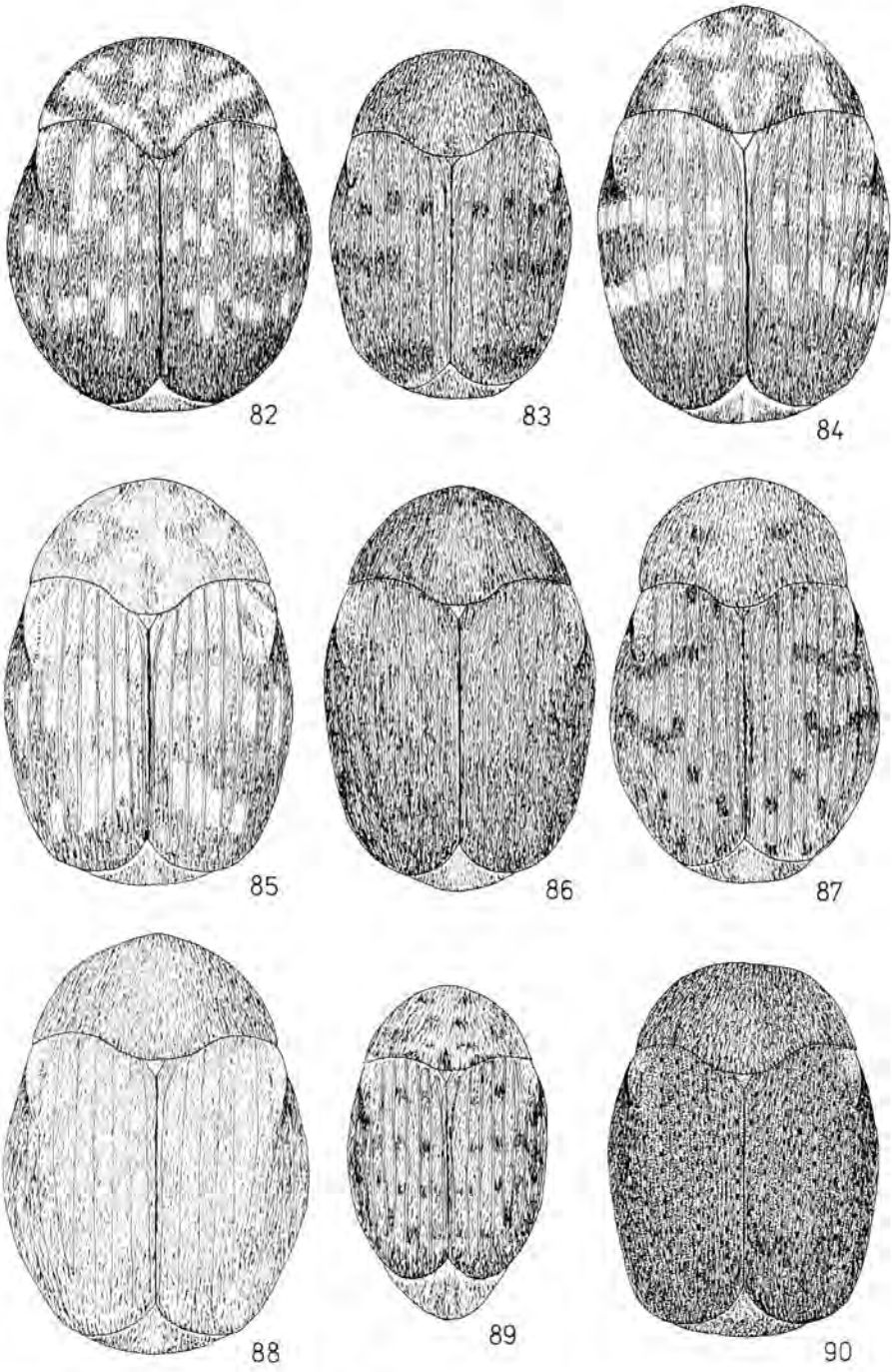


80

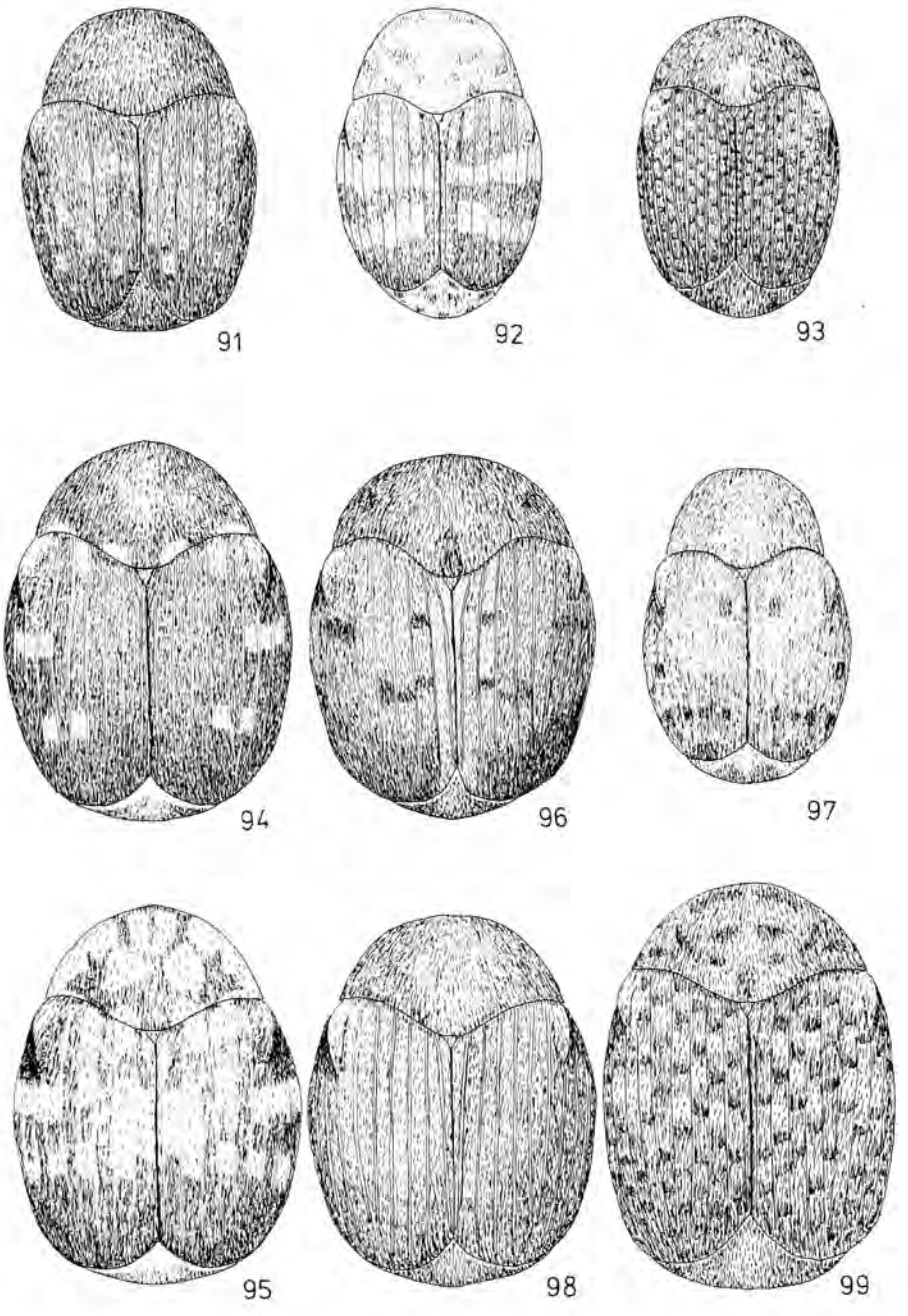


81

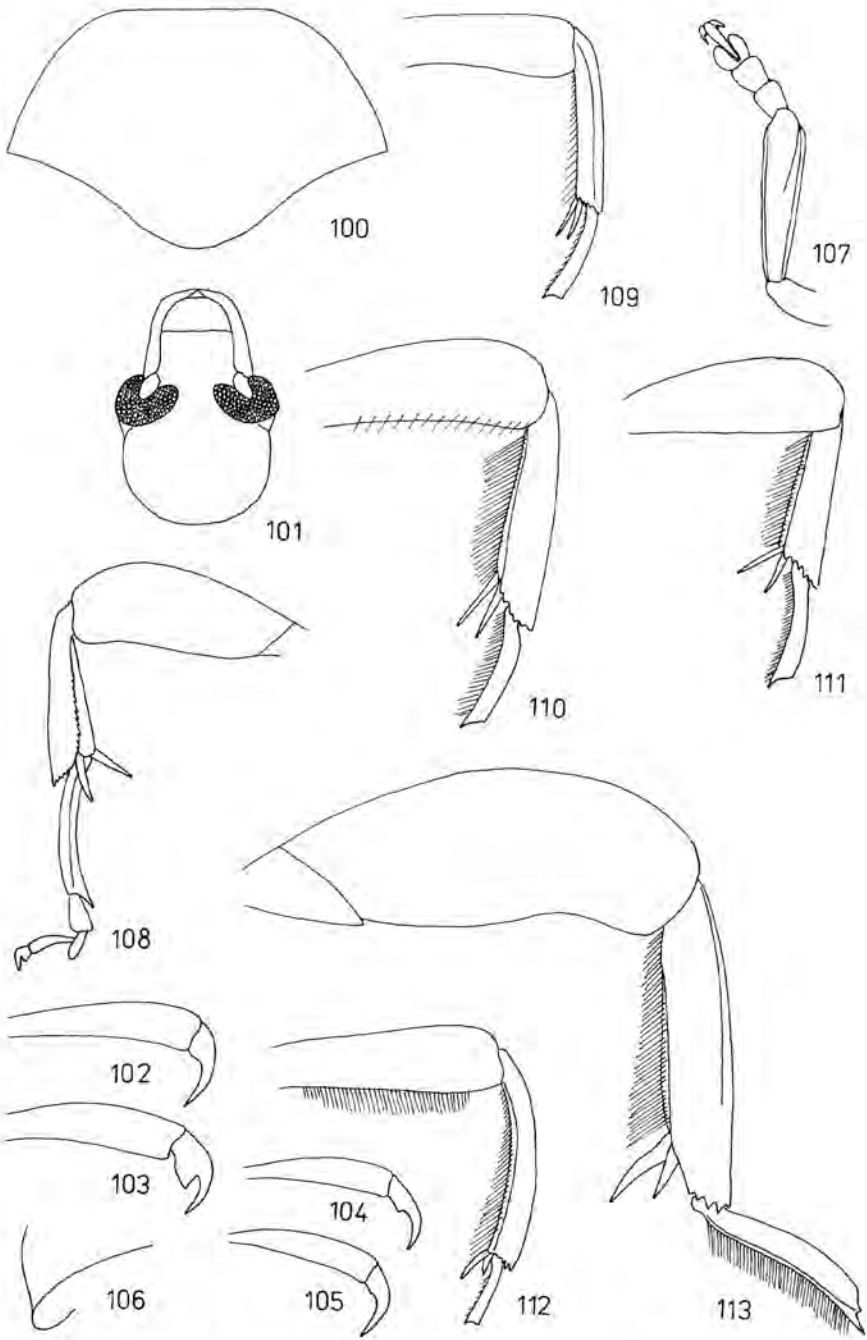
73-81. Dorsal pattern: 73 - *Spermophagus pilipes*, 74 - *S. posticus*, 75 - *S. pubiventris*, 76 - *S. punjabensis*, 77 - *S. pygopubens*, 78 - *S. ruandanus*, 79 - *S. rufipes*, 80 - *S. rufonotatus*, 81 - *S. schroederi*



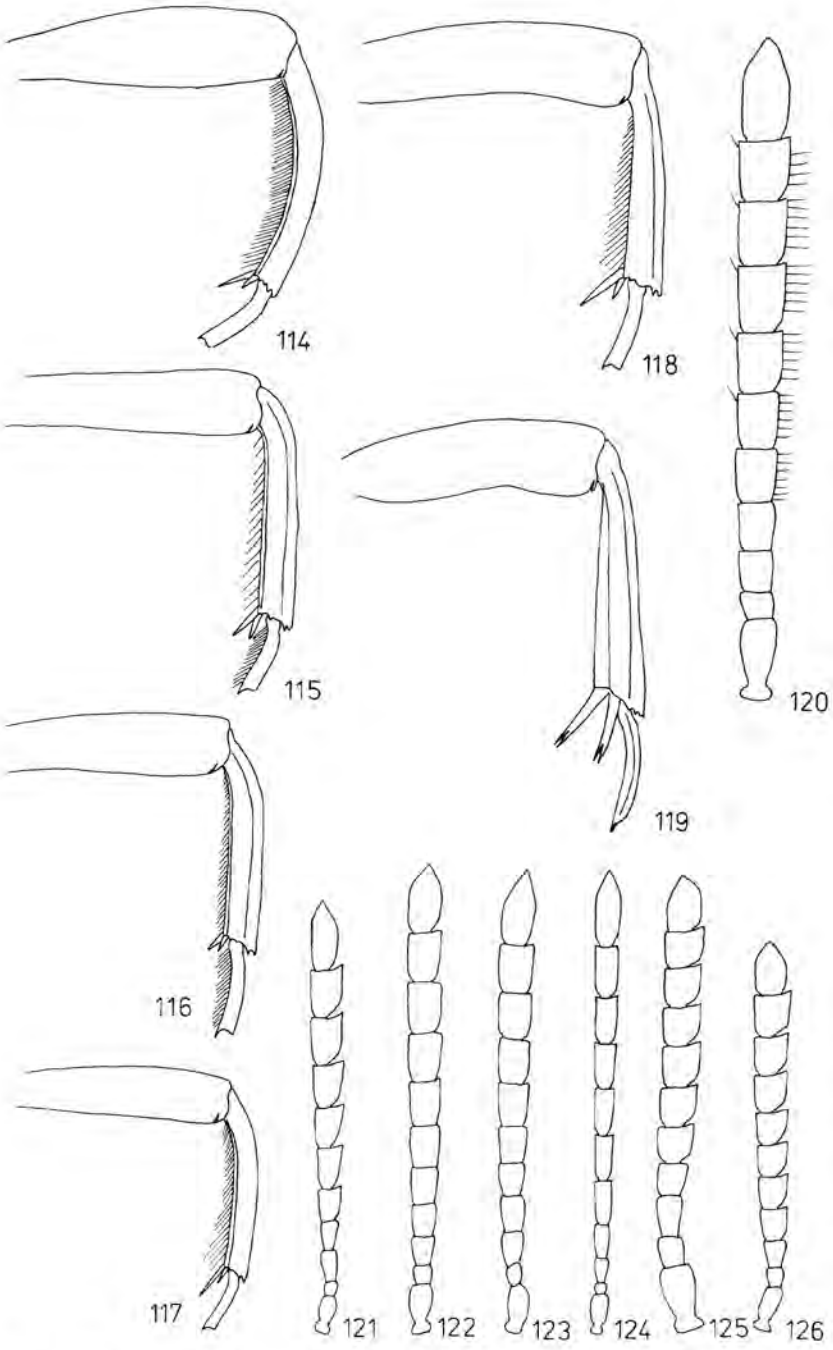
82-90. Dorsal pattern: 82 - *Spermophagus samuelsoni*, 83 - *S. scotti*, 84 - *S. semiannulatus*, 85 - *S. siamensis*, 86 - *S. sinensis*, 87 - *S. somalicus*, 88 - *S. sophorae*, 89 - *S. stemmleri*, 90 - *S. tandalensis*



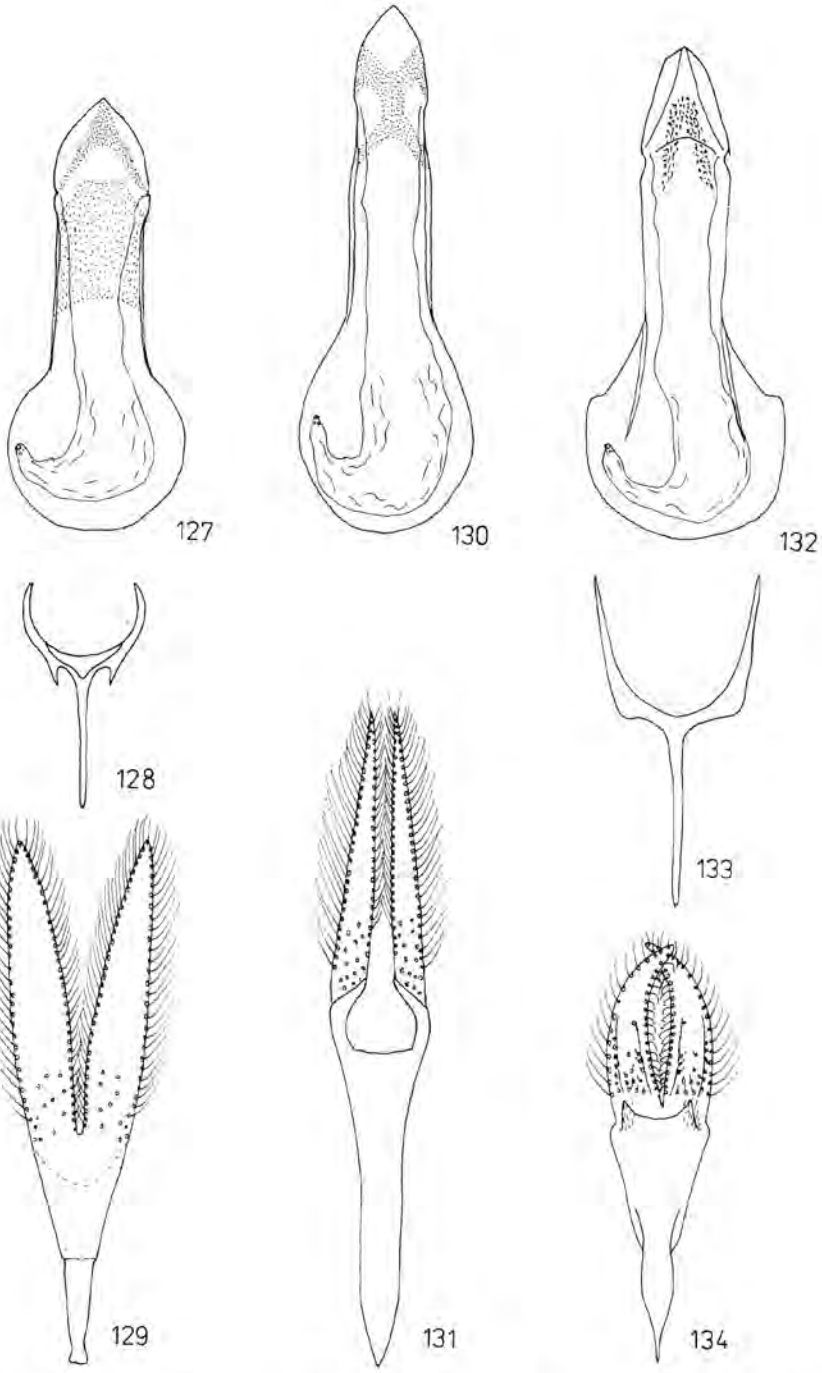
91-99. Dorsal pattern: 91 - *Spermophagus tiivilitius*, 92 - *S. transvaalensis*, 93 - *S. tristis*, 94, 95 - *S. variolosopunctatus*, 96 - *S. vietnamensis*, 97 - *S. wittmeri*, 98 - *S. kuesteri*, 99 - *S. latithorax*



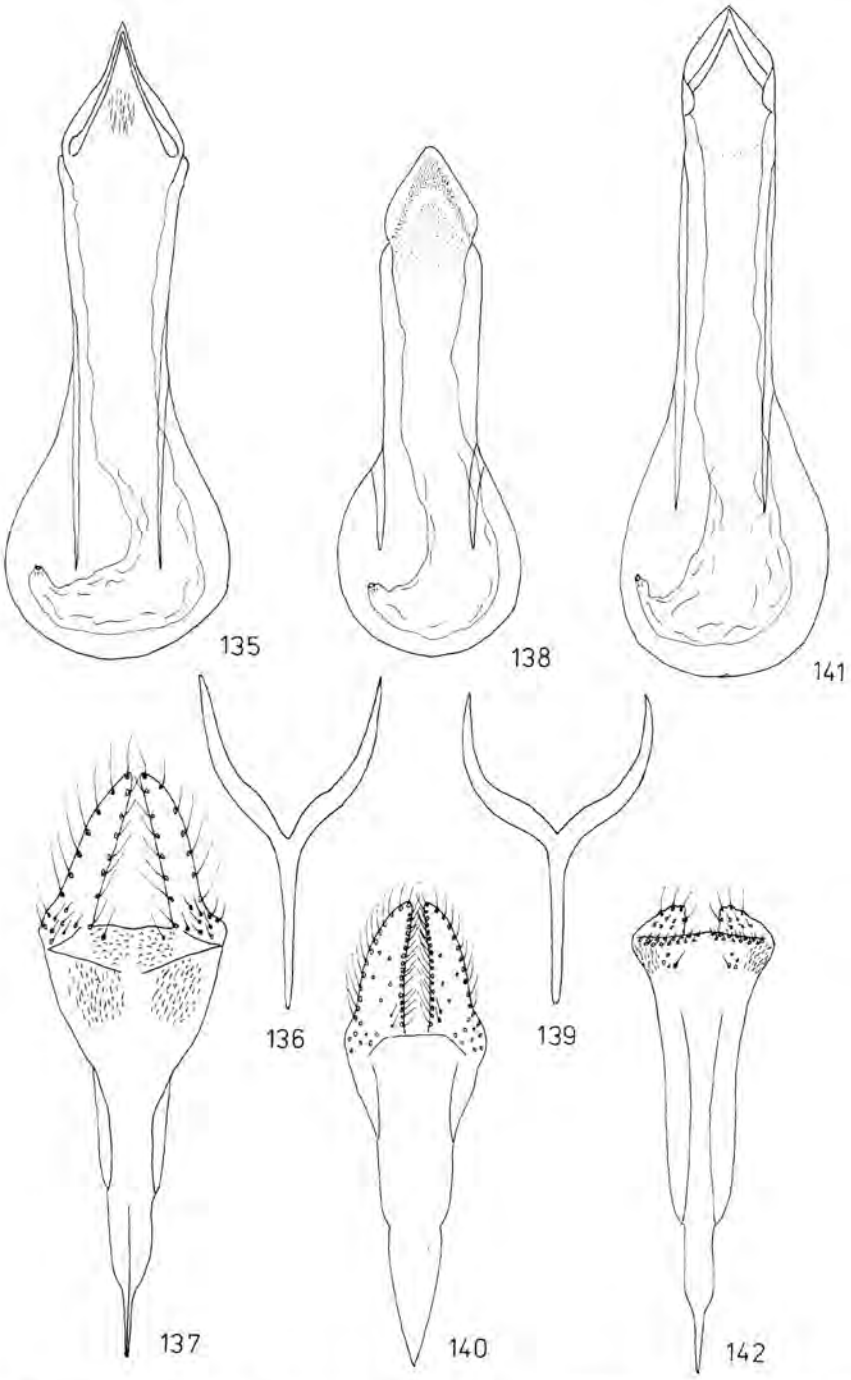
100, 101, 106, 108. *Spermophagus sericeus*: 100 - pronotum, 101 - head, 106 - anterior part of lateral margin of pronotum, 108 - hind leg. 102-105. Claws of fore leg: 102 - *S. maafensis*, 103 - *S. kuesteri*, 104 - *S. klapperichi*, female, 105 - *S. klapperichi*, male. 107. *S. ceylonicus*: fore tibia and tarsus. 109-113. Hind leg: 109 - *S. ceylonicus*, 110 - *S. pilipes*, 111 - *S. albomaculatus*, 112 - *S. bimaculatus*, 113 - *S. hottentotus*



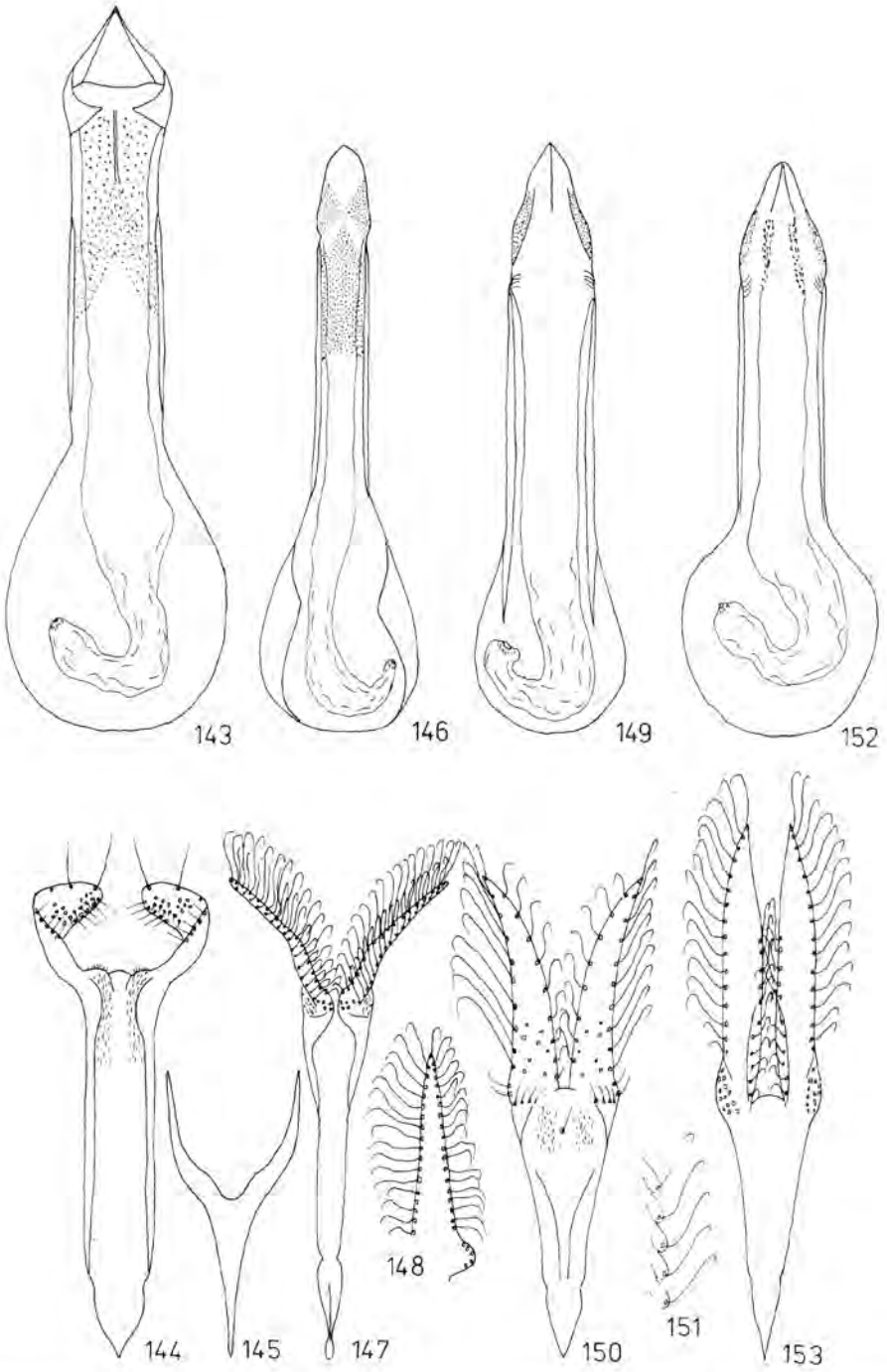
114-119. Hind leg: 114 - *Spermophagus newtoni*, 115 - *S. eichleri*, 116 - *S. tandalensis*, 117 - *S. ciliatipes*, 118 - *S. madecassus*, 119 - *S. abdominalis*. 120-126. Antenna: 120 - *S. albomaculatus*, 121 - *S. albosuturalis*, 122 - *S. ceylonicus*, 123 - *S. excavatus*, 124 - *S. mannarensis*, 125 - *S. wittmeri*, 126 - *S. scotti*



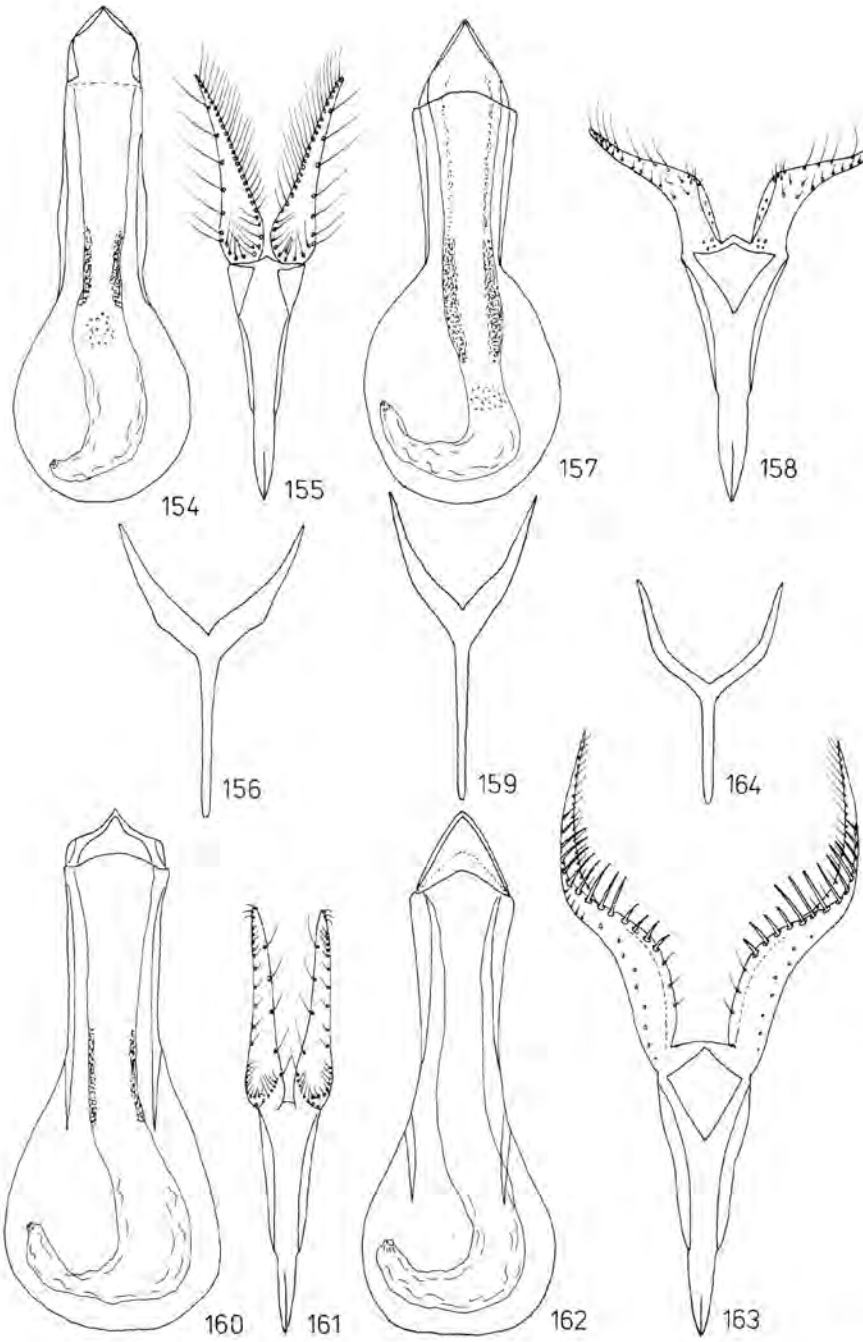
127-134. Male genitalia: 127-129 - *Spermophagus sericeus*, 130, 131 - *S. calystegiae*, 132-134 - *S. altaicus*. 127, 130, 132: median lobe, 128, 133: spiculum gastrale, 129, 131, 134: lateral lobes



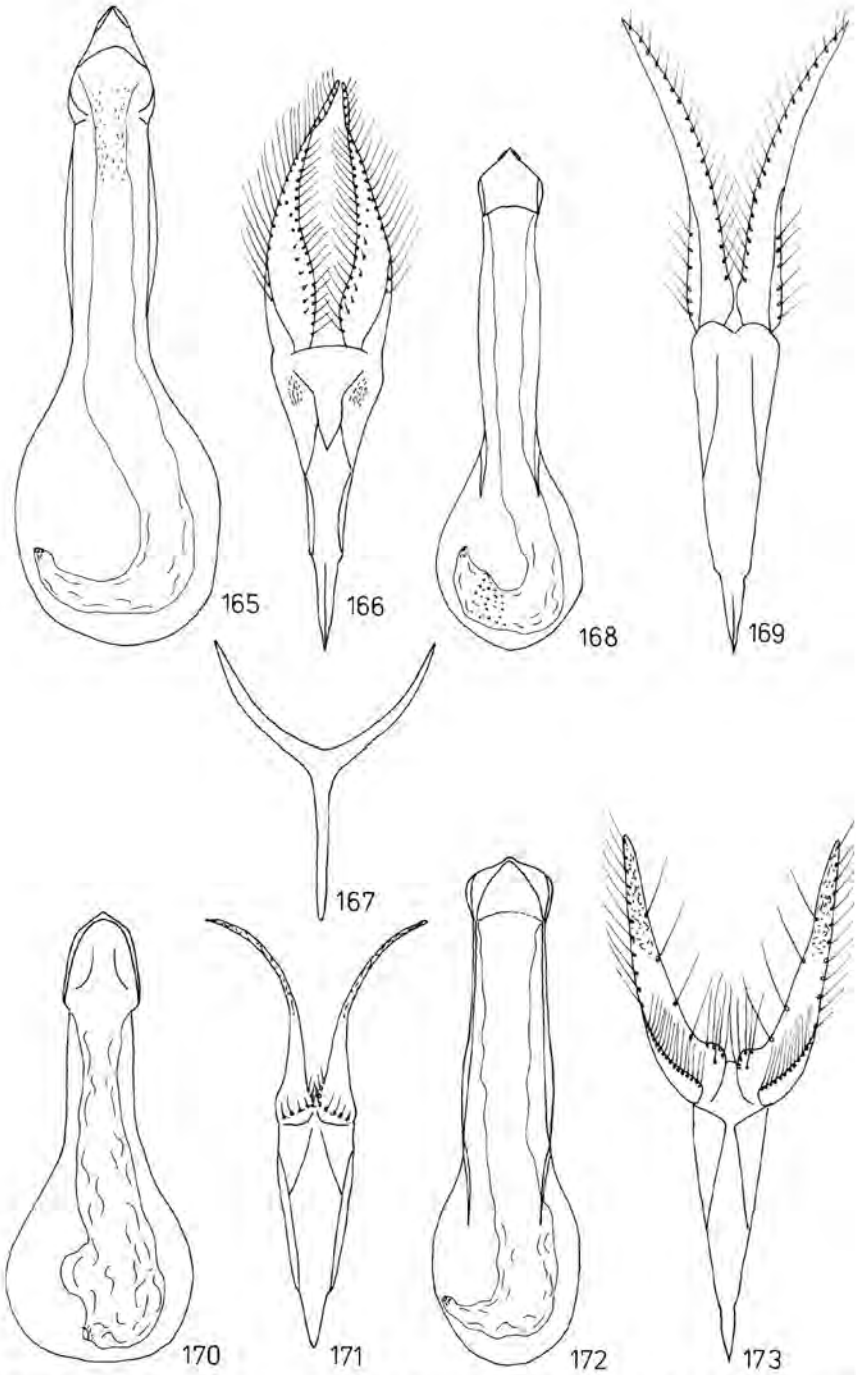
135-142. Male genitalia: 135-137 - *Spermophagus confusus*, 138-140 - *S. kuesteri*, 141, 142 - *S. canus*. 135, 138, 141: median lobe, 136, 139: spiculum gastrale, 137, 140, 142: lateral lobes



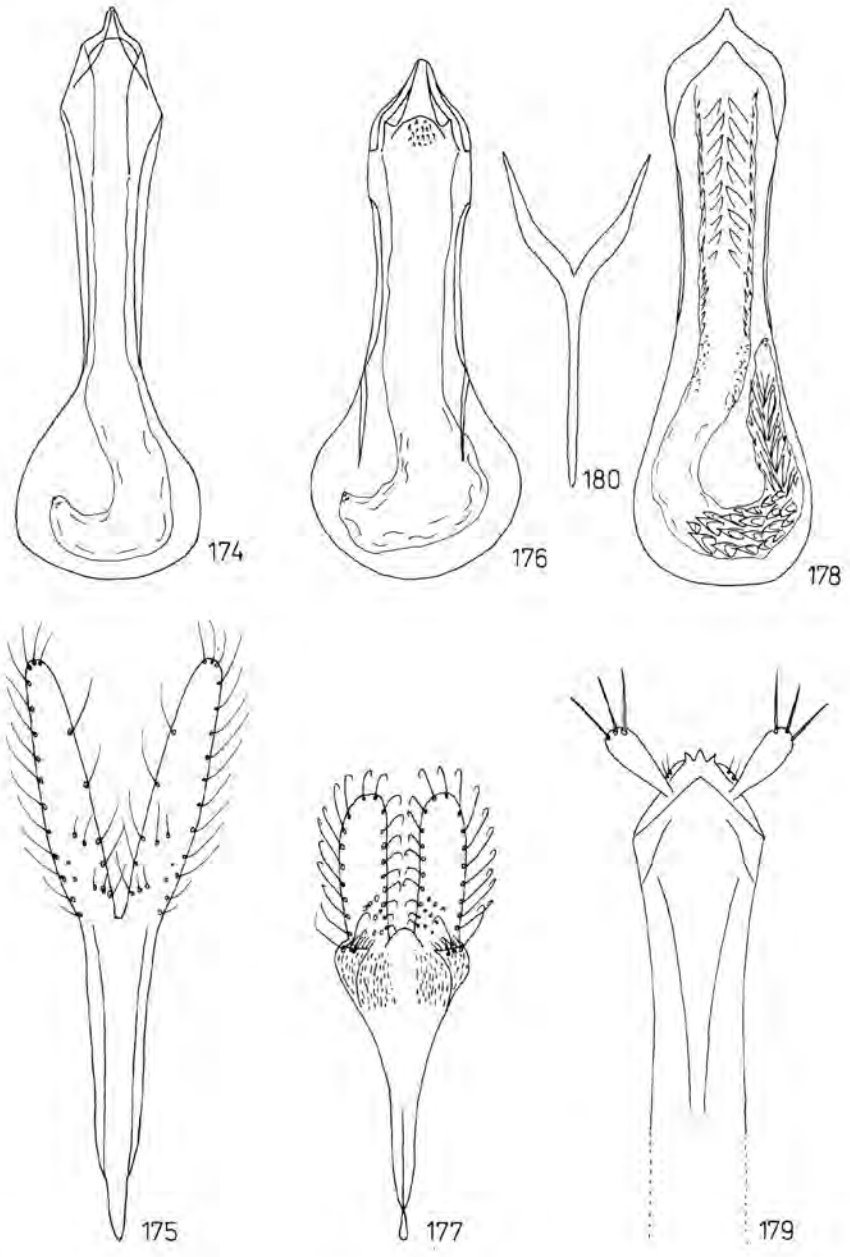
143-153. Male genitalia: 143-145 - *Spermophagus complectus*, 145-148 - *S. maafensis*, 149-151 - *S. klapperichi*, 152, 153 - *S. pubiventris*. 143, 146, 149, 152: median lobe, 144, 147, 148, 150, 153 :lateral lobes, 145: spiculum gastrale, 151: margin of lateral lobe



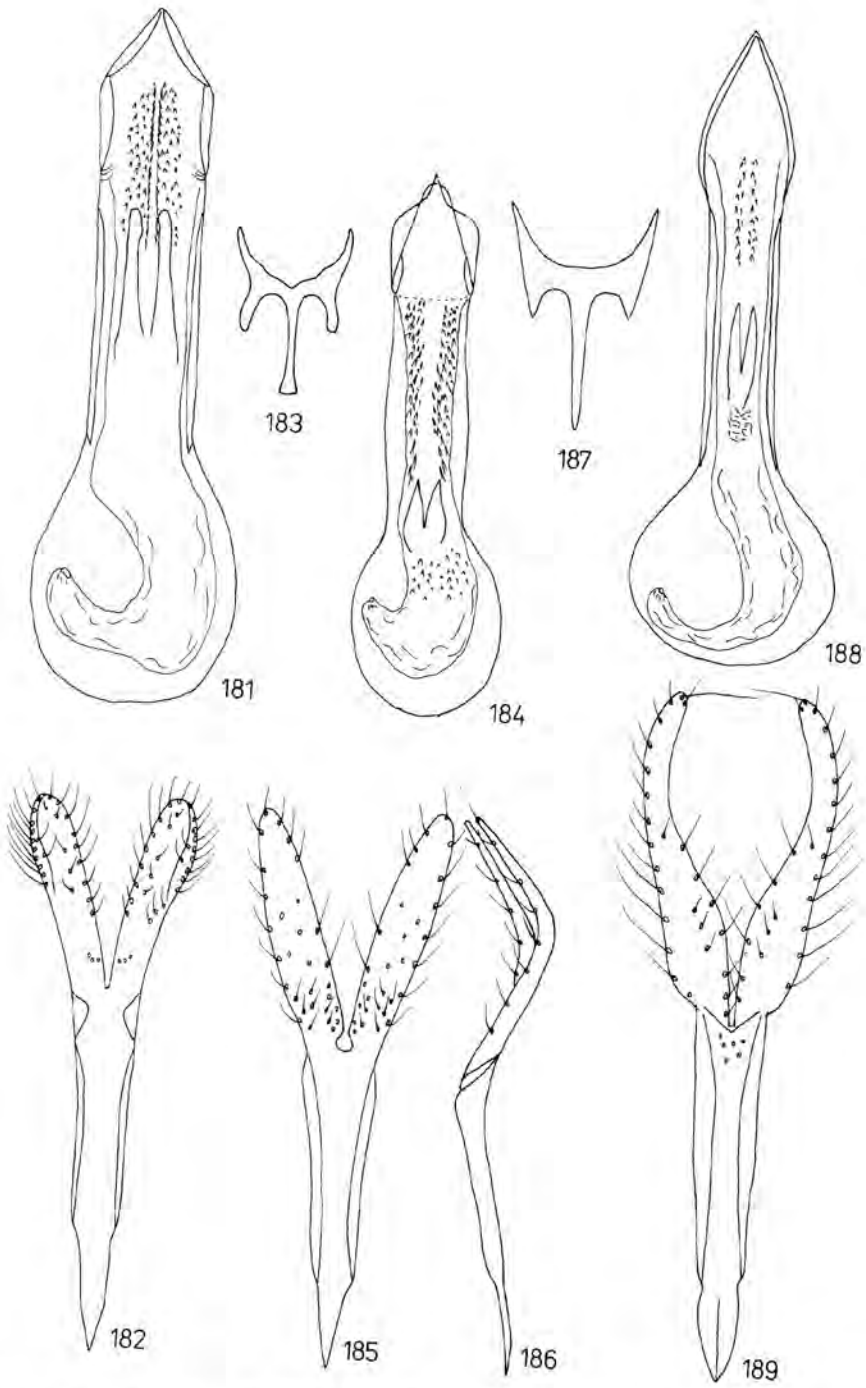
154-164. Male genitalia: 154-156 - *Spermophagus niger*, 157-159 - *S. aeneipennis*, 160, 161 - *S. kingsolveri*, 162-164 - *S. drak*. 154, 157, 160, 162: median lobe, 155, 158, 161, 163: lateral lobes, 156, 159, 164: spiculum gastrale



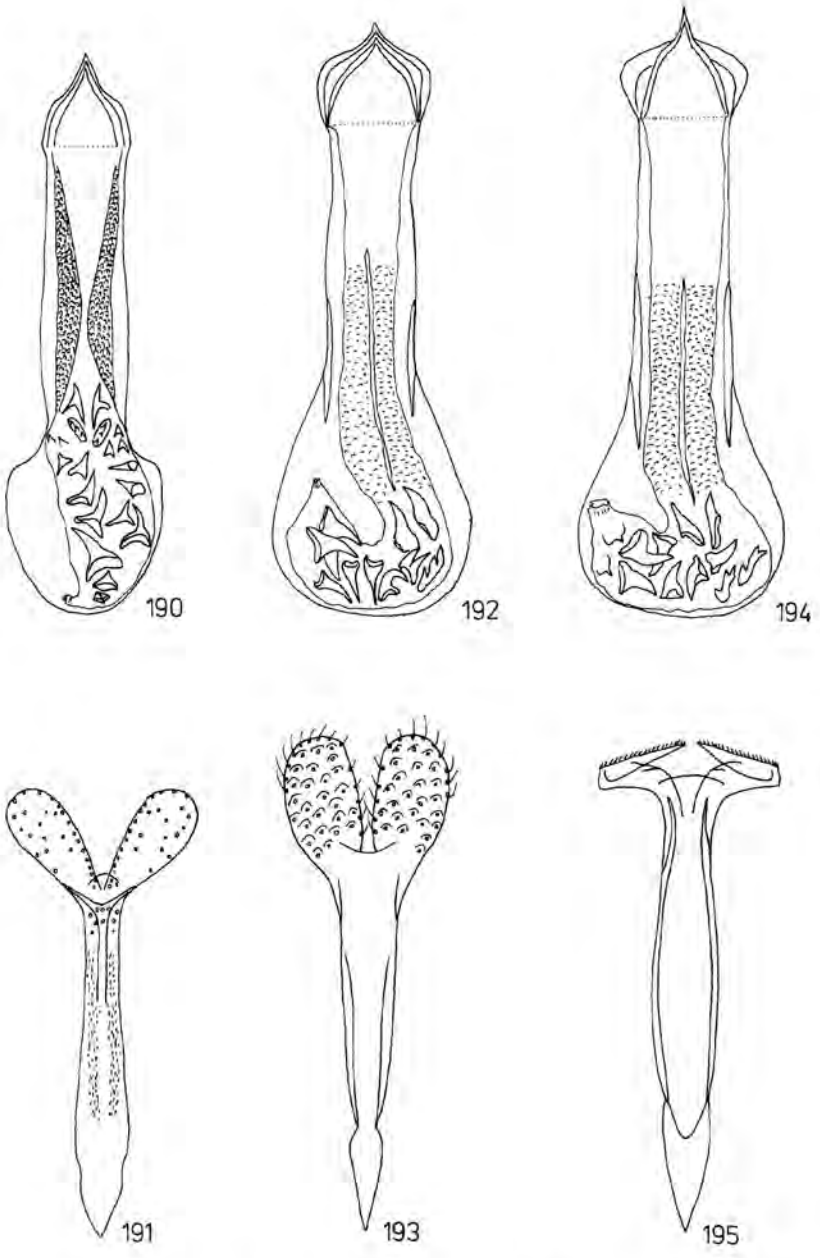
165-173. Male genitalia: 165-167 - *Spermophagus variolosopunctatus*, 168, 169 - *S. dongdokiensis*, 170, 171 - *S. punjabensis*, 172, 173 - *S. semiannulatus*. 165, 168, 170, 172: median lobe, 166, 169, 171, 173: lateral lobes, 167: spiculum gastrale



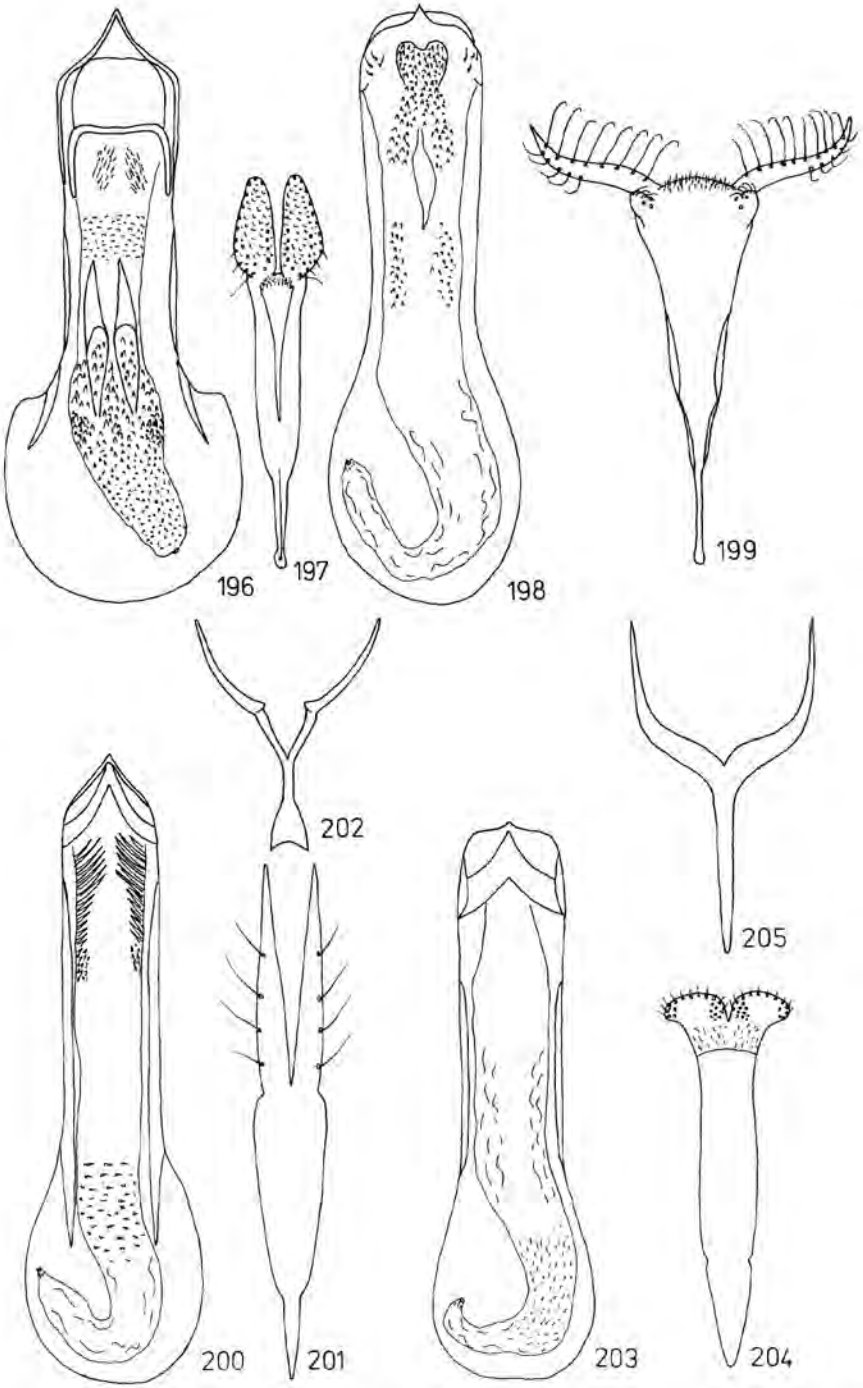
174-180. Male genitalia: 174, 175 - *Spermophagus incertus*, 176, 177 - *S. caucasicus*, 178-180 - *S. minutissimus*. 174, 176, 178: median lobe, 175, 177, 179: lateral lobes, 180: spiculum gastrale



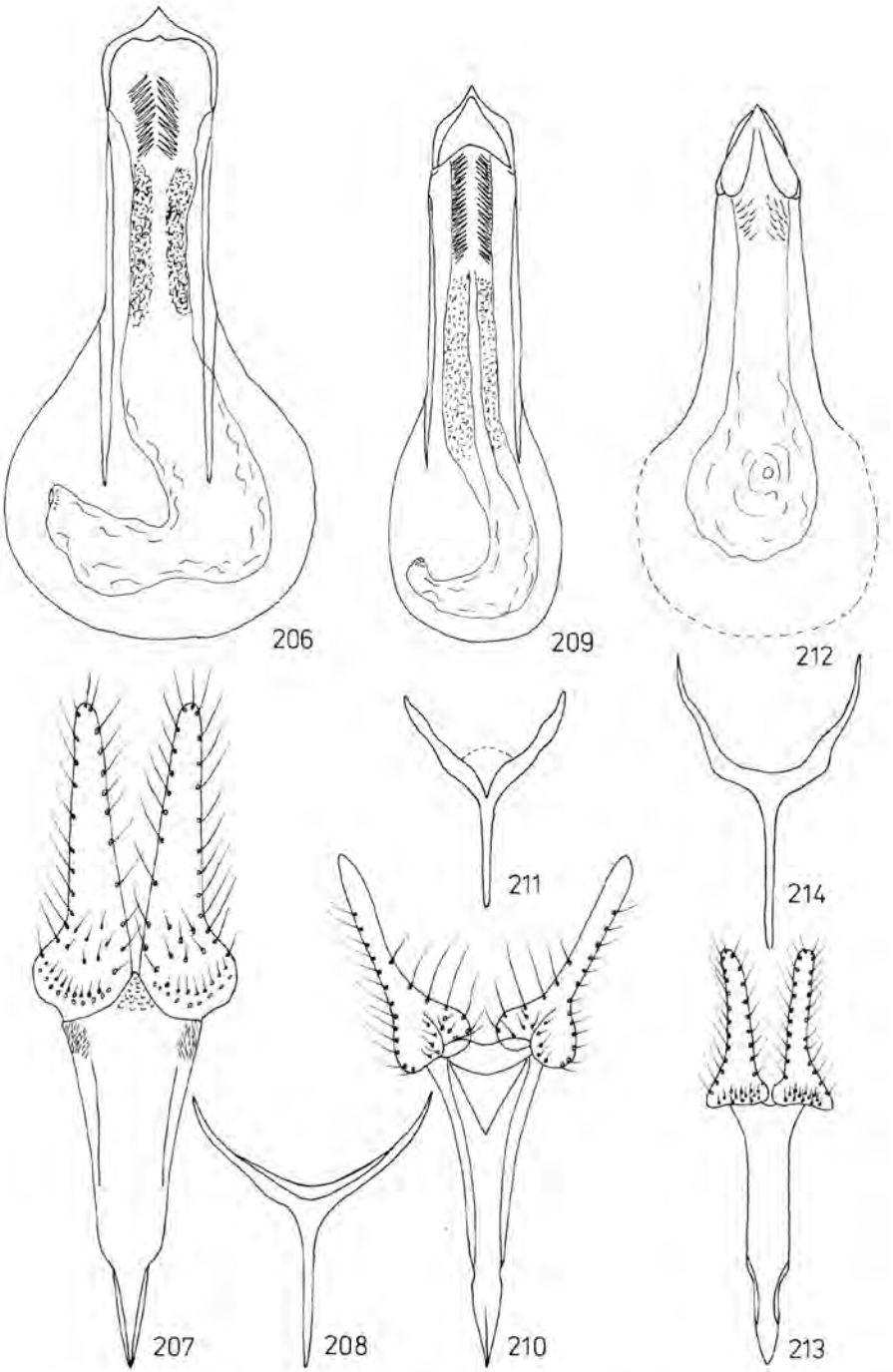
181-189. Male genitalia: 181-183 - *Spermophagus lindbergorum*, 184-187 - *S. humilis*, 188, 189 - *S. rufipes*. 181, 184, 188: median lobe, 182, 185, 186, 189: lateral lobes, 183, 187: spiculum gastrale



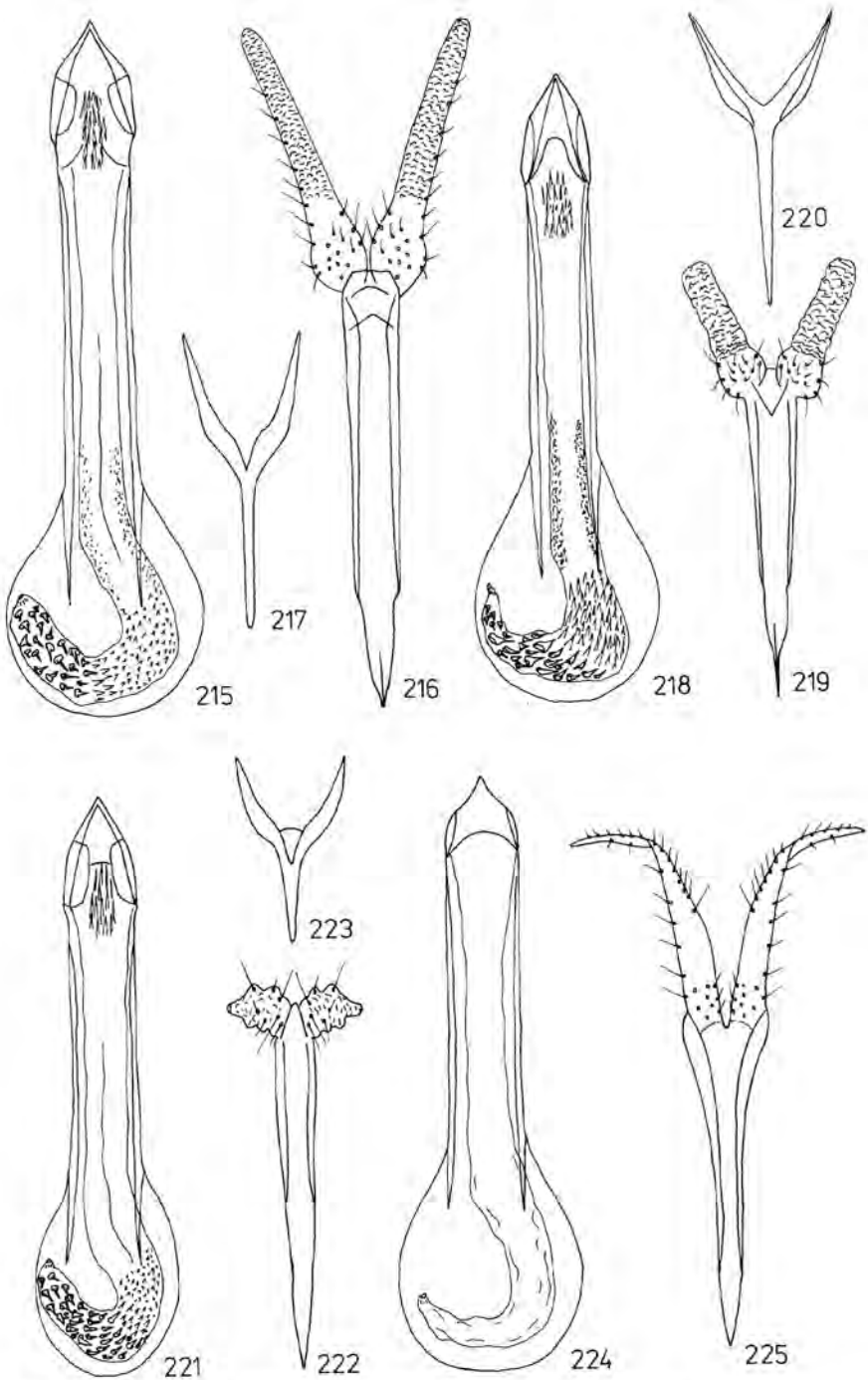
190-195. Male genitalia: 190, 191 - *Spermophagus okahandjensis*, 192, 193 - *S. transvaalensis*, 194, 195 - *S. endrodii*. 190, 192, 194: median lobe, 191, 193, 195: lateral lobes



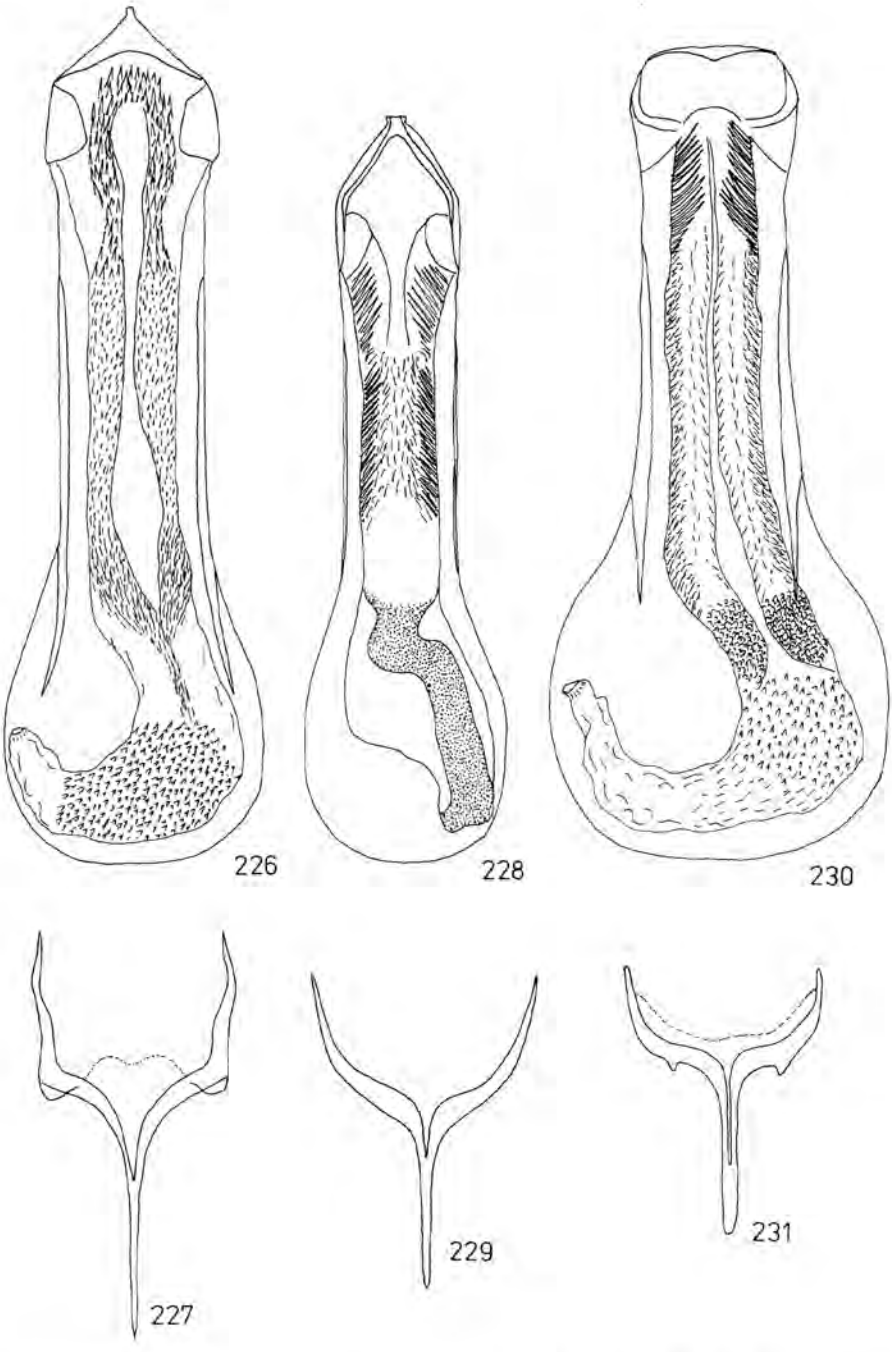
196-205. Male genitalia: 196, 197 - *Spermophagus caricus*, 198, 199 - *S. decellei*, 200-202 - *S. pygopubens*, 203-205 - *S. cicatricosus*. 196, 198, 200, 203: median lobe, 197, 199, 201, 204: lateral lobes, 202, 205: spiculum gastrale



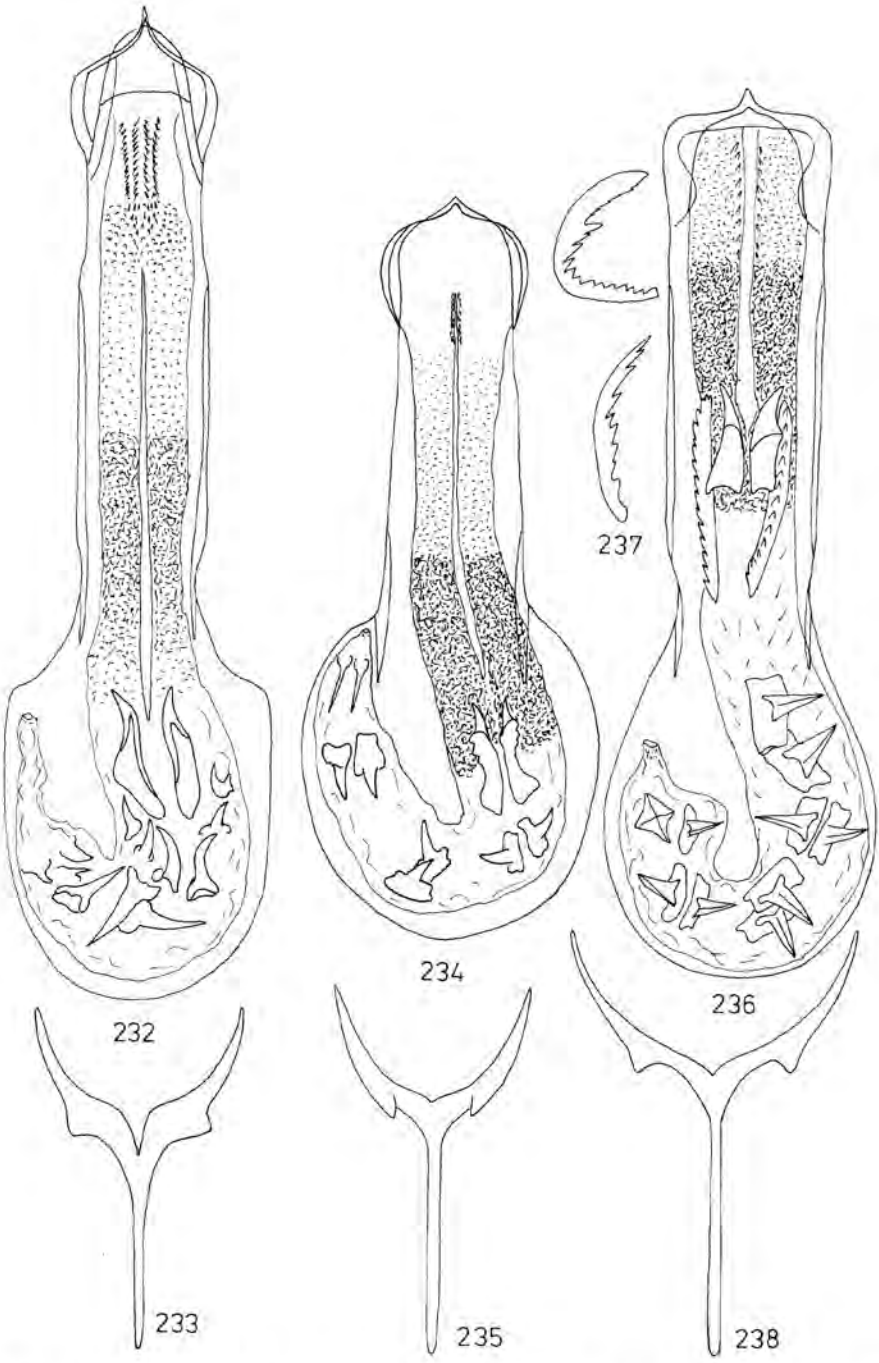
206-214. Male genitalia: 206-208 - *Spermophagus murtulai*, 209-211 - *S. malvacearum*, 212-214 - *S. schroederi*. 206, 209, 212: median lobe, 207, 210, 213: lateral lobes, 208, 211, 214: spiculum gastrale



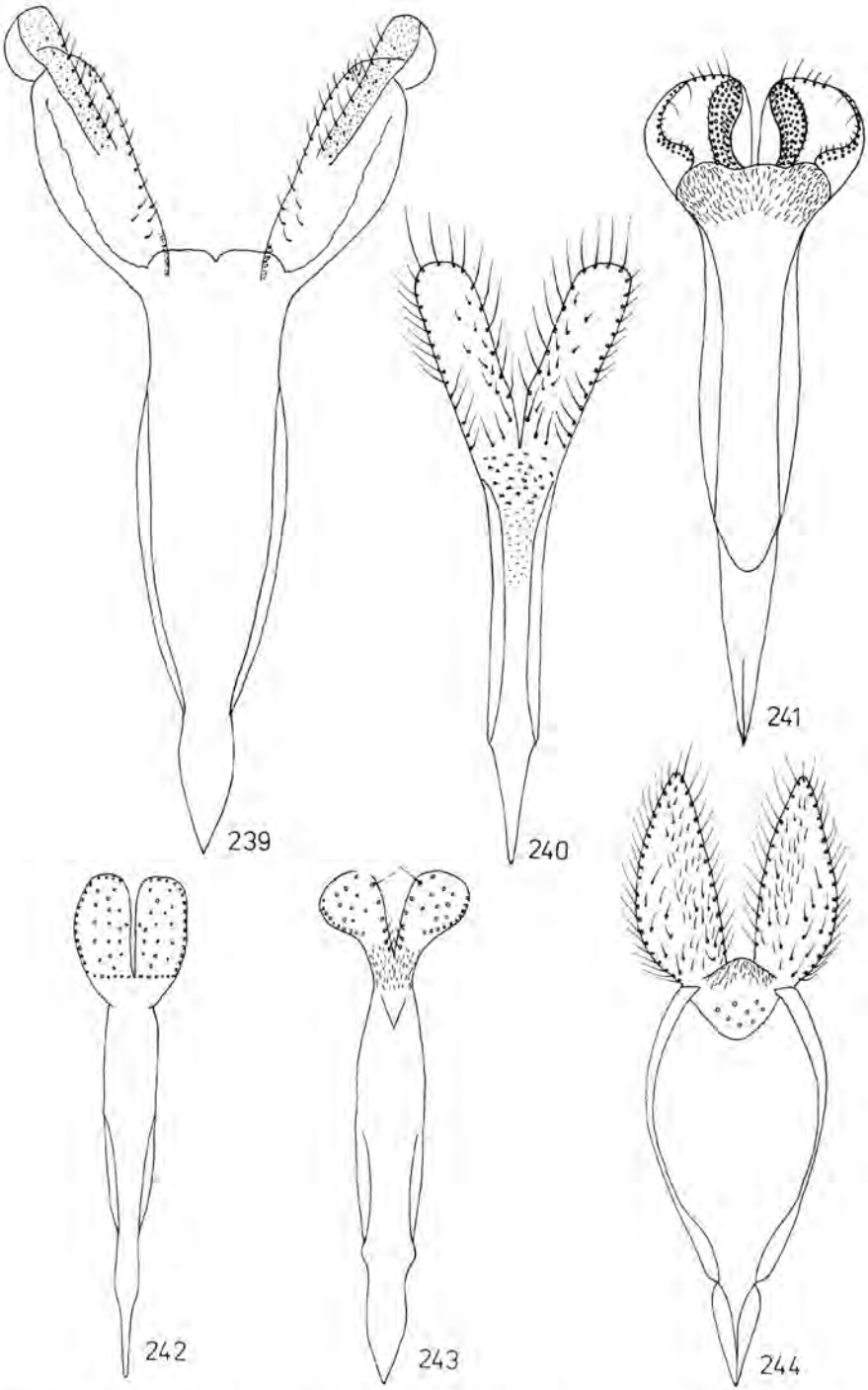
215-225. Male genitalia: 215-217 - *Spermophagus negligens*, 218-220 - *S. albosparsus*, 221-223 - *S. minutus*, 224, 225 - *S. kuskai*. 215, 218, 221, 224: median lobe, 216, 219, 222, 225: lateral lobes, 217, 220, 223: spiculum gastrale



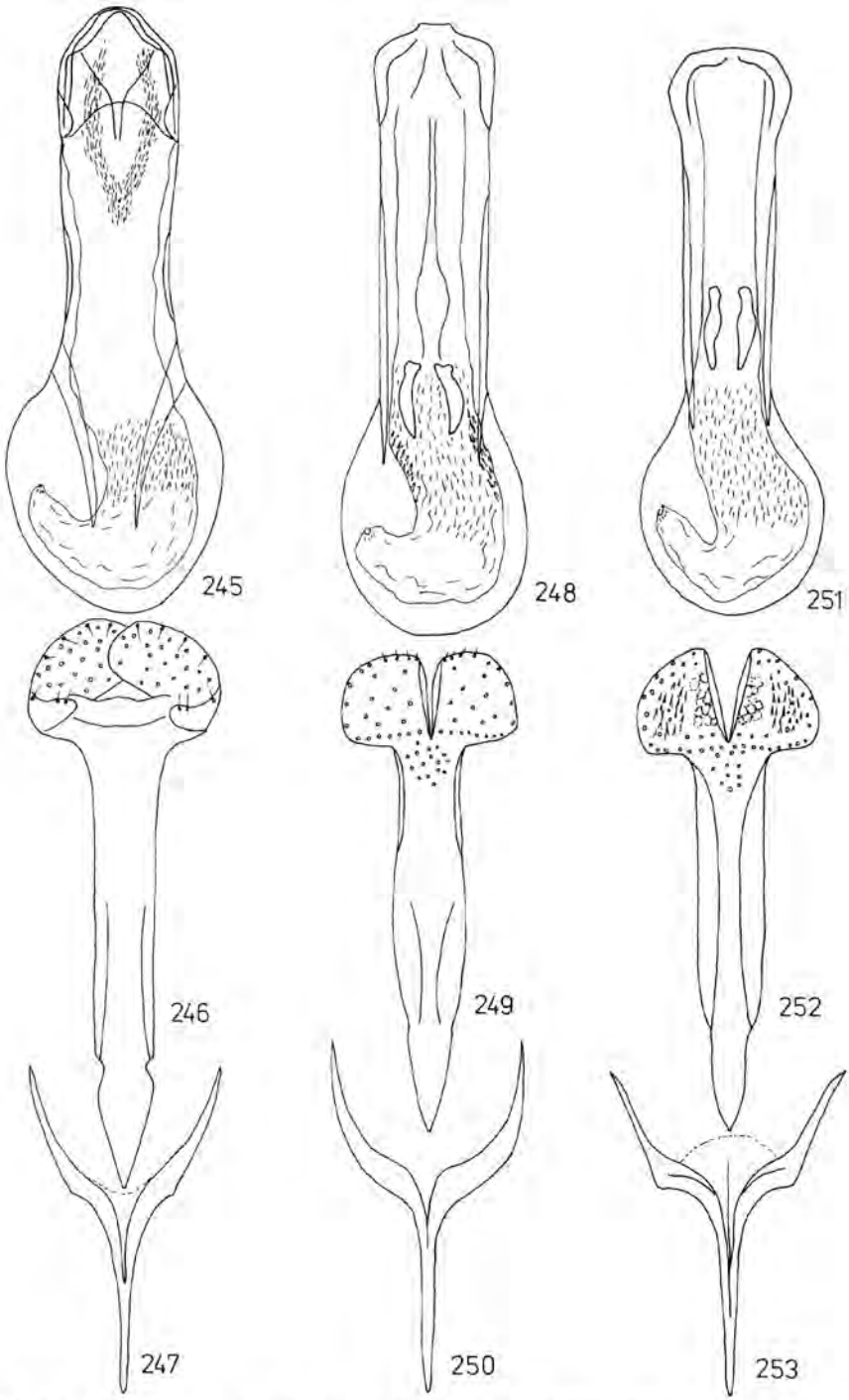
226-231. Male genitalia: 226, 227 - *Spermophagus babaulti*, 228, 229 - *S. tristis*, 230, 231 - *S. kannegieterei*. 226, 228, 230: median lobe, 227, 229, 231: spiculum gastrale



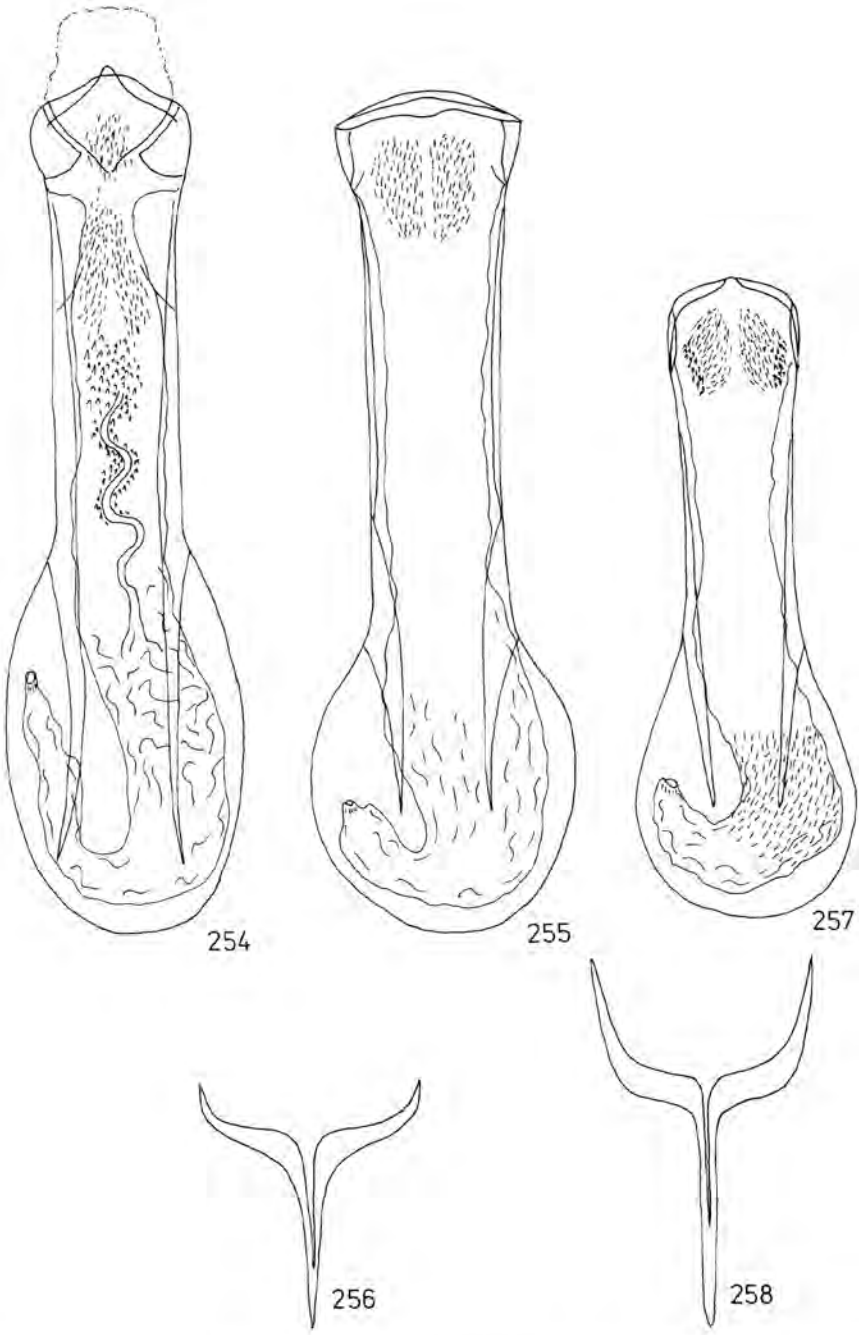
232-238. Male genitalia: 232, 233 - *Spermophagus divergens*, 234, 235 - *S. maynei*, 236-238 - *S. latithorax*. 232, 234, 236: median lobe, 233, 235, 238: spiculum gastrale, 237: variation of serrate plate of internal sac



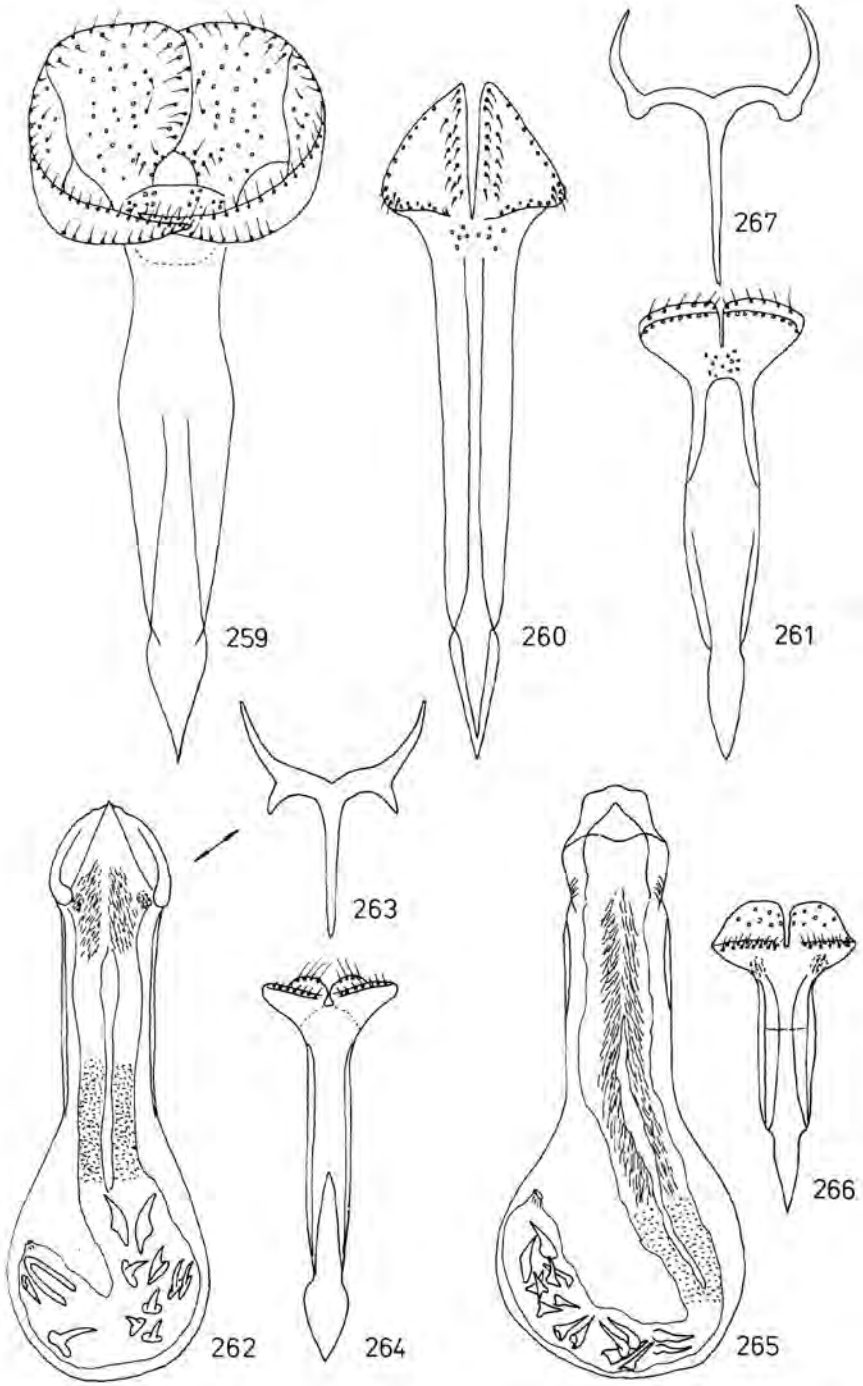
239-243. Lateral lobes: 239 - *Spermophagus divergens*, 240 - *S. tristis*, 241 - *S. babaulti*, 242 - *S. maynei*, 243 - *S. latithorax*, 244 - *S. kannegieterei*



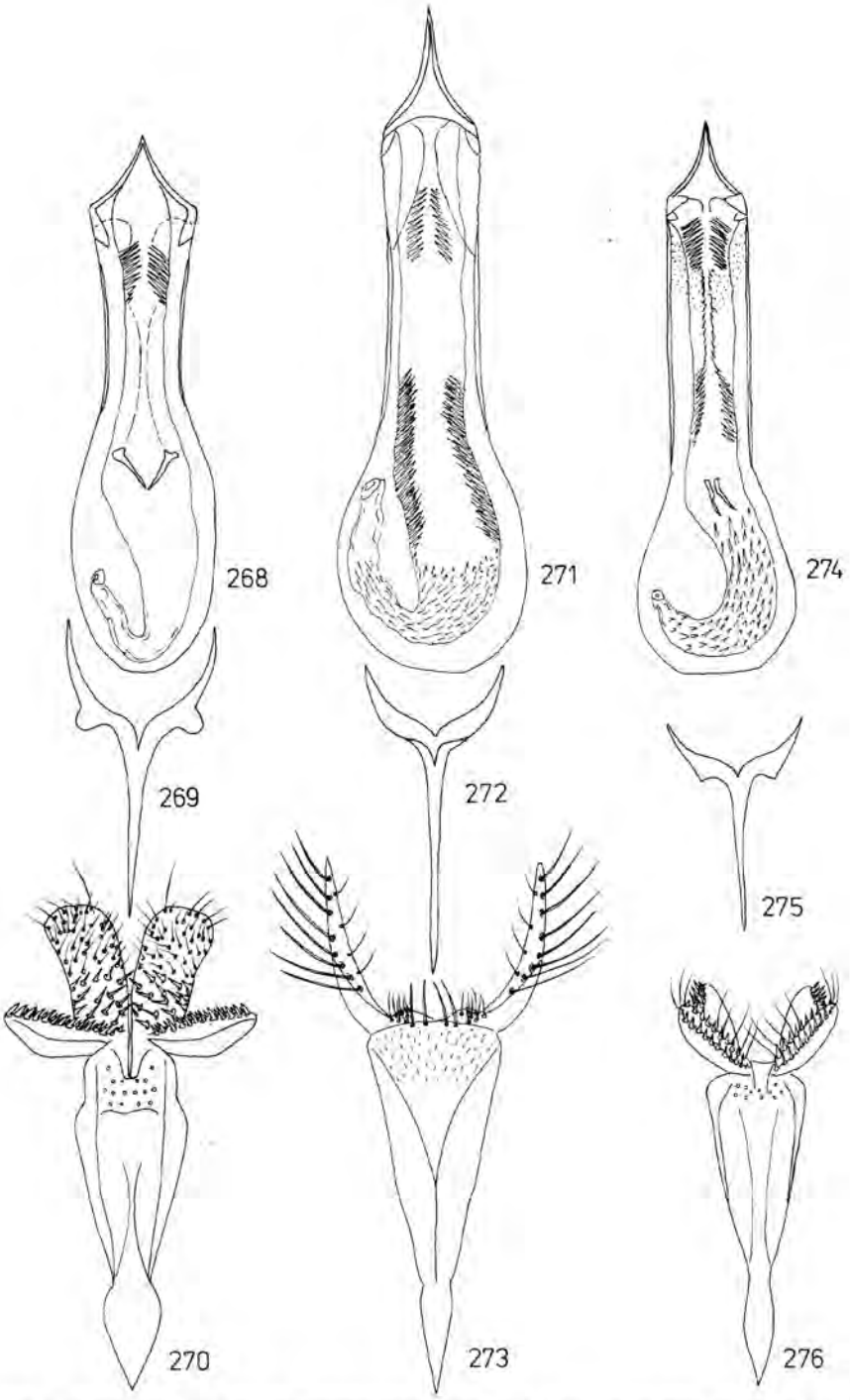
245-253. Male genitalia: 245-247 - *Spermophagus tandalensis*, 248-250 - *S. bimaculatus*, 251-253 - *S. ciliatipes*. 245, 248, 251: median lobe, 246, 249, 252: lateral lobes, 247, 250, 253: spiculum gastrale



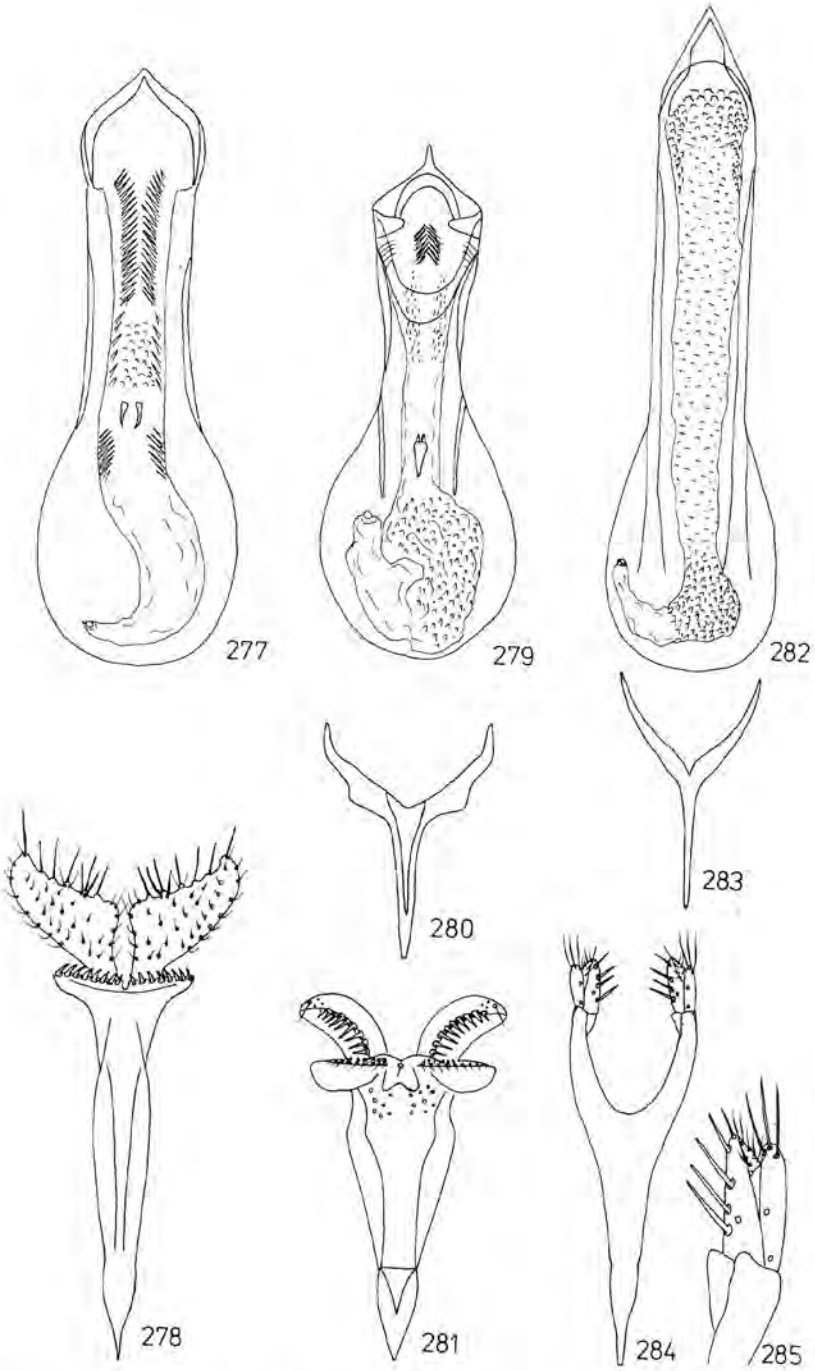
254-258. Male genitalia: 254 - *Spermophagus hottentotus*, 255, 256 - *S. newtoni*, 257, 258 - *S. eichleri*. 254, 255, 257: median lobe, 256, 258: spiculum gastrale



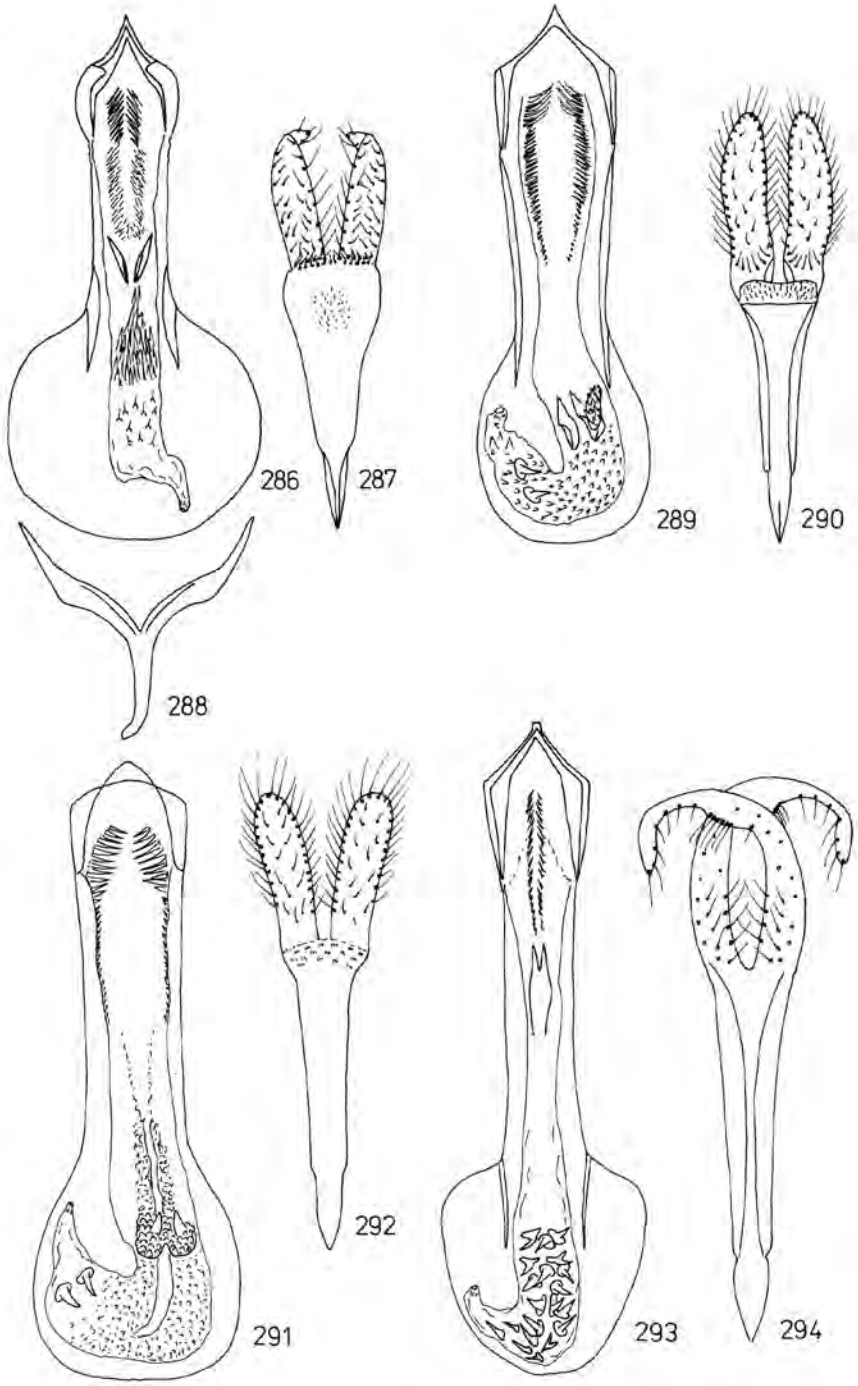
259-267. Male genitalia: 259 - *Spermophagus hottentotus*, 260 - *S. newtoni*, 261 - *S. eichleri*, 262-264 - *S. moerens*, 265-267 - *S. ruandanus*. 259-261, 264, 266: lateral lobes, 262, 265: median lobe,263, 267: spiculum gastrale



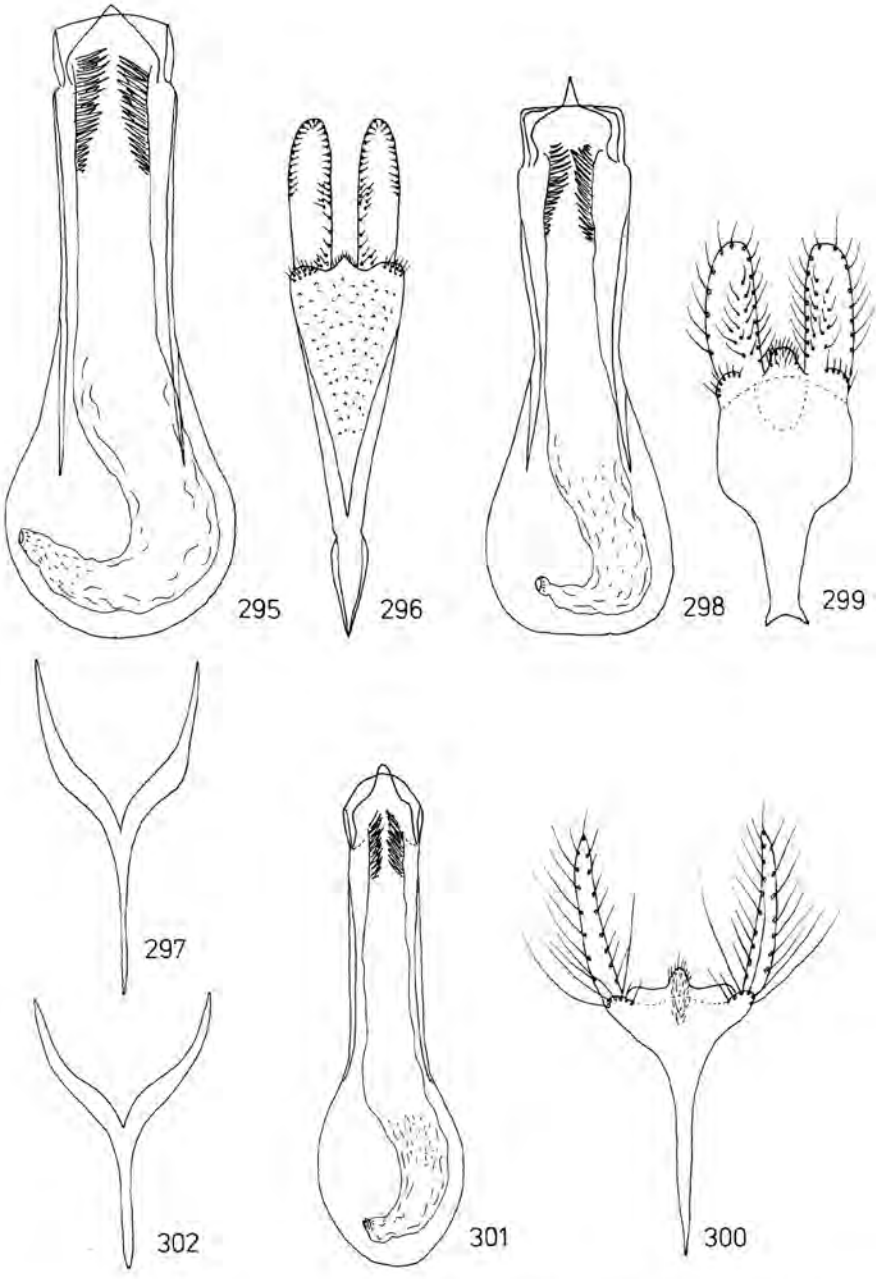
268-276. Male genitalia: 268-270 - *Spermophagus multipunctatus*, 271--273 - *S. multiguttatus*, 274-276 - *S. marmoreus*. 268, 271, 274: median lobe, 269, 272, 275: spiculum gastrale, 270, 273, 276: lateral lobes



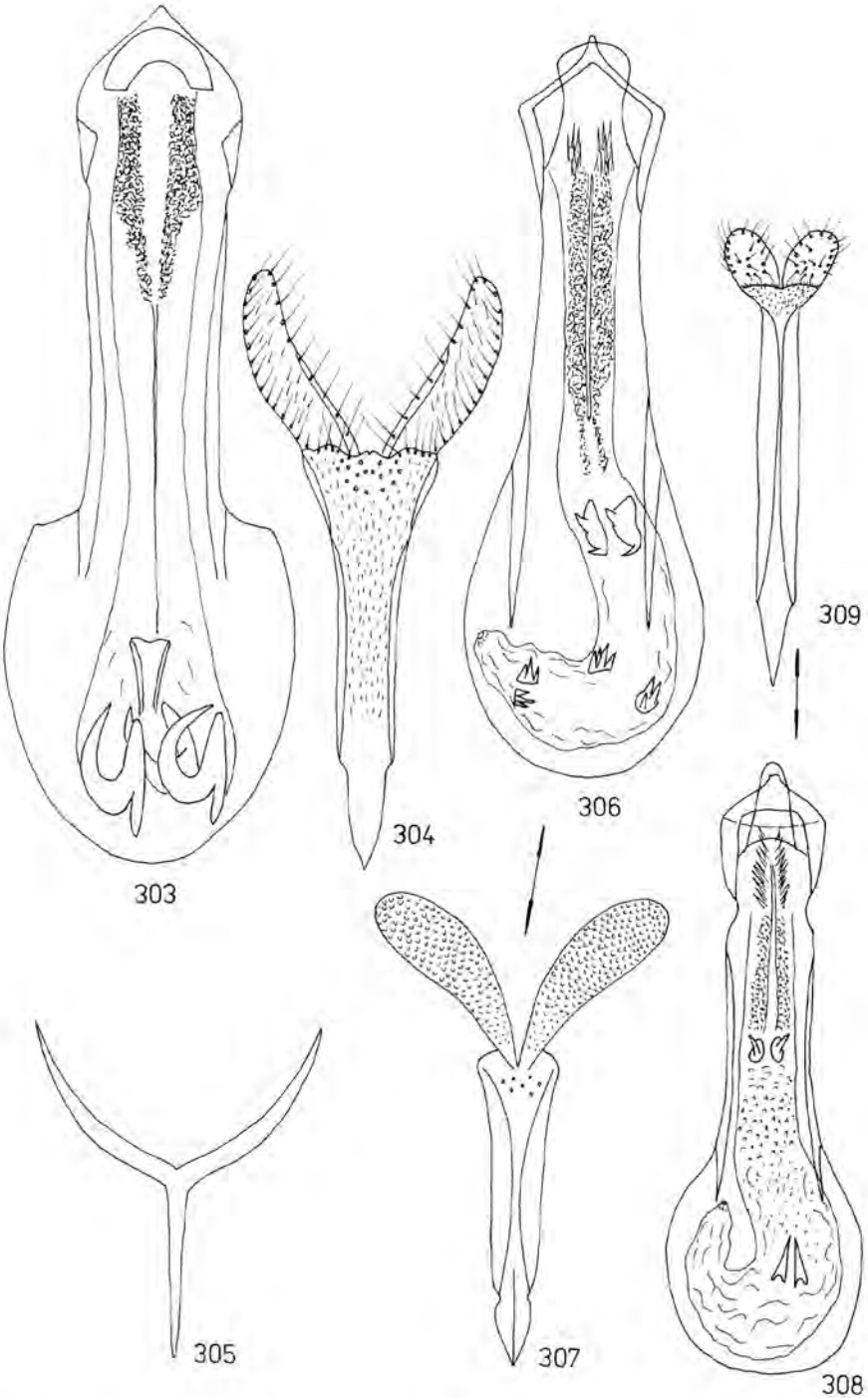
277-285. Male genitalia: 277, 278 - *Spermophagus monardi*, 279-281 - *S. multifloccosus*, 282-285 - *S. brincki*. 277, 279, 282: median lobe, 278, 281, 284: lateral lobes, 285: apex of lateral lobe, 280, 283: spiculum gastrale



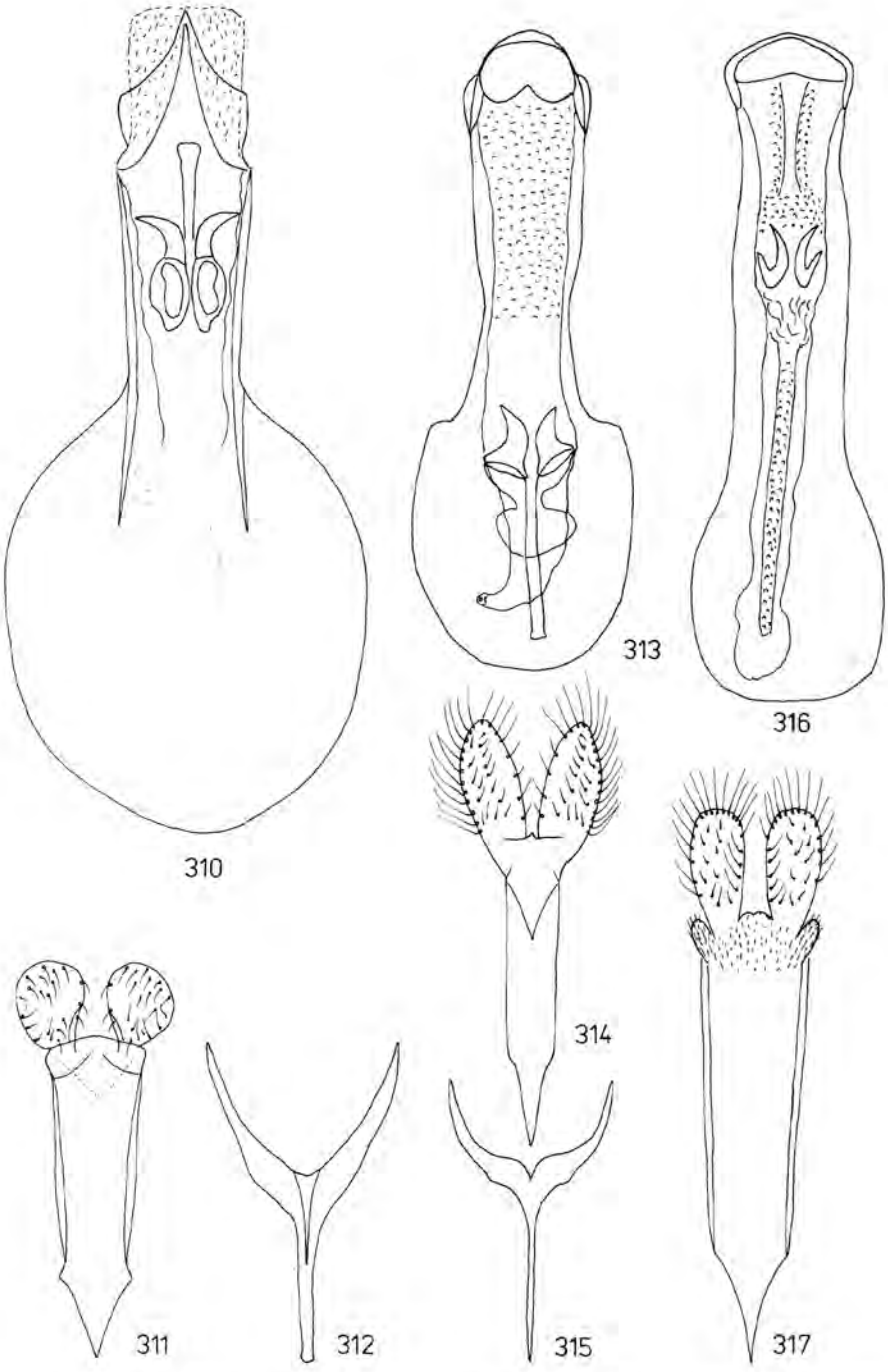
286-294. Male genitalia: 286-288 - *Spermophagus stemmleri*, 289, 290 - *S. johnsoni*, 291, 292 - *S. samuelsoni*, 293, 294 - *S. bengalicus*. 286, 289, 291, 293: median lobe, 287, 290, 292, 294: lateral lobes, 288: spiculum gastrale



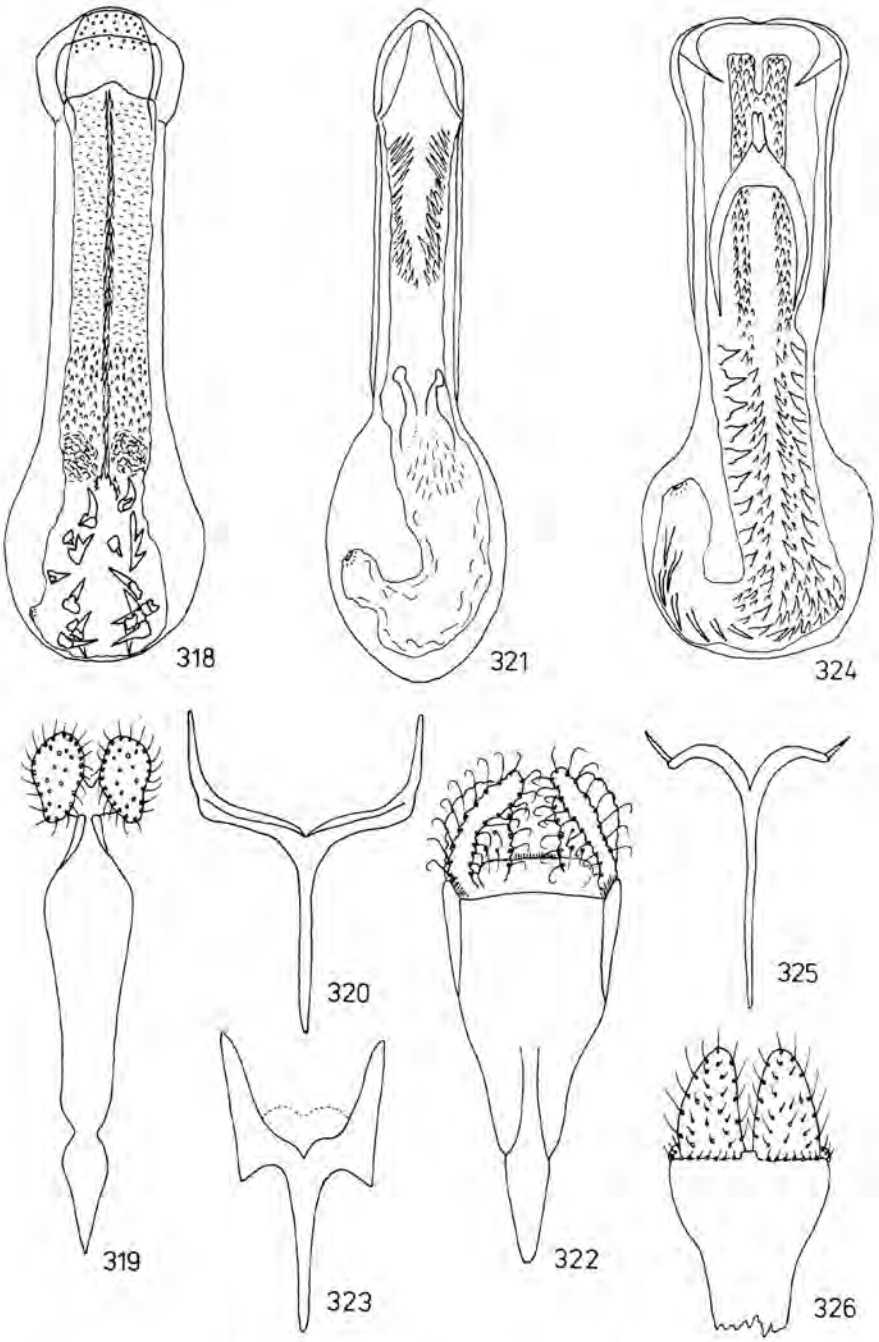
295-302. Male genitalia: 295-297 - *Spermophagus kochi*, 298, 299 - *S. albosuturalis*, 300-302 - *S. inlineolatus*. 295, 298, 301: median lobe, 296, 299, 300: lateral lobes, 297, 302: spiculum gastrale



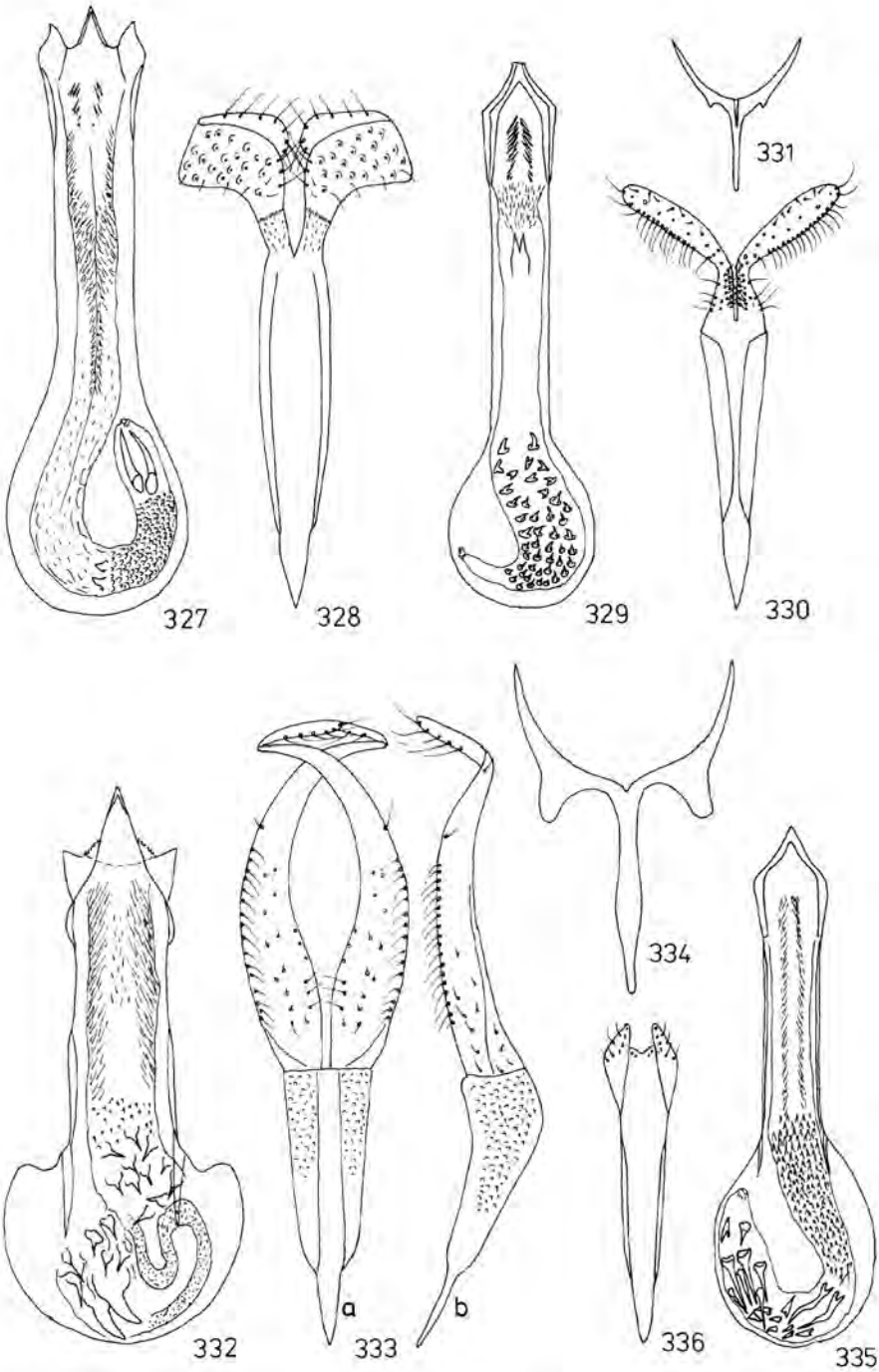
303-309. Male genitalia: 303-305 - *Spermophagus palmi*, 306, 307 - *S. vietnamensis*, 308, 309 - *S. siamensis*. 303, 306, 308: median lobe, 304, 307, 309: lateral lobes, 305: spiculum gastrale



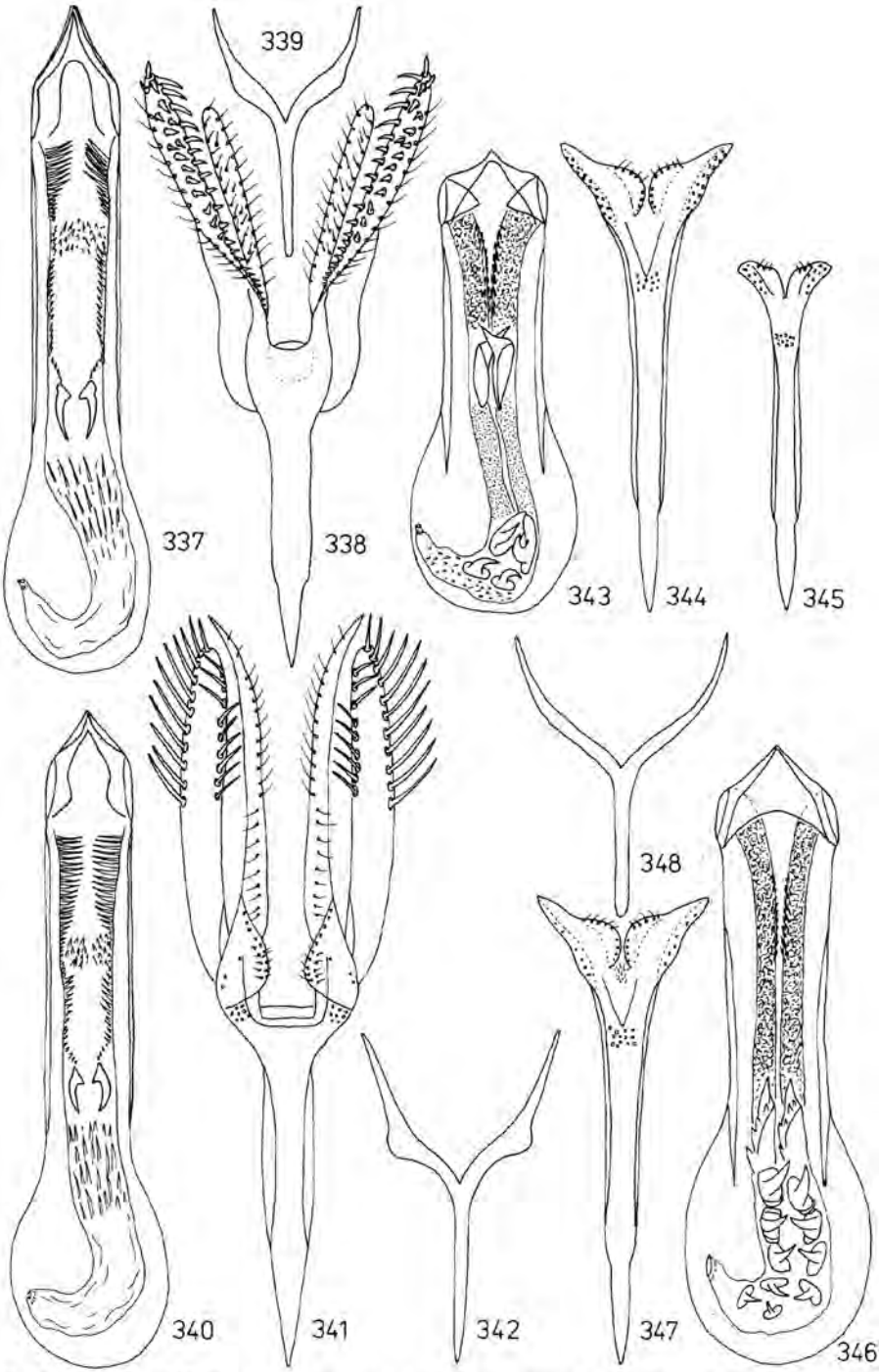
310-317. Male genitalia: 310-312 - *Spermophagus excavatus*, 313-315 - *S. ligatus*, 316, 317 - *S. maai*. 310, 313, 316: median lobe, 311, 314, 317: lateral lobes, 312, 315: spiculum gastrale



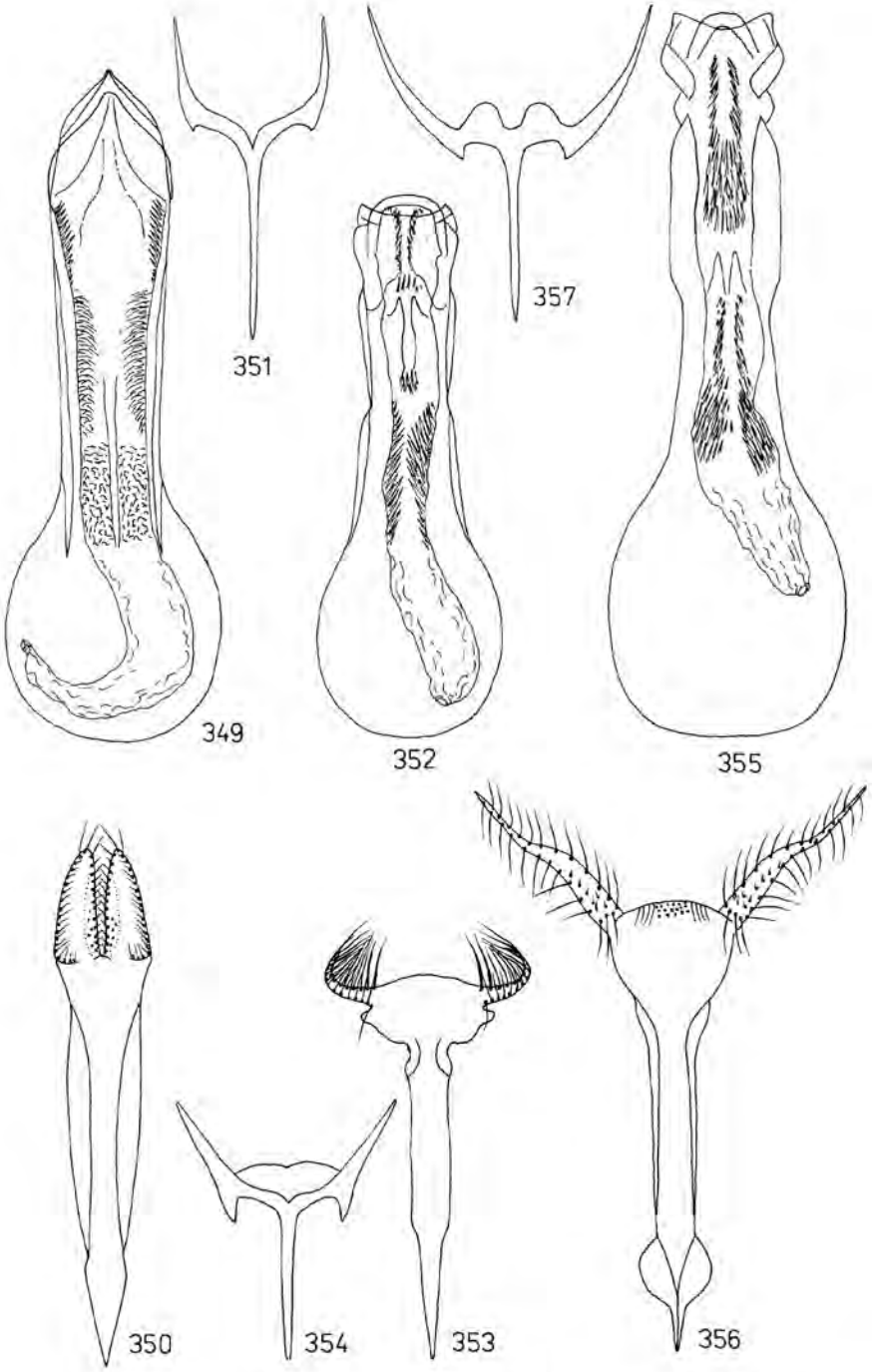
318-326. Male genitalia: 318-320 - *Spermophagus posticus*, 321-323 - *S. ceylonicus*, 324-326 - *S. rufonotatus*. 318, 321, 324: median lobe, 319, 322, 326: lateral lobes, 320, 323, 325: spiculum gastrale



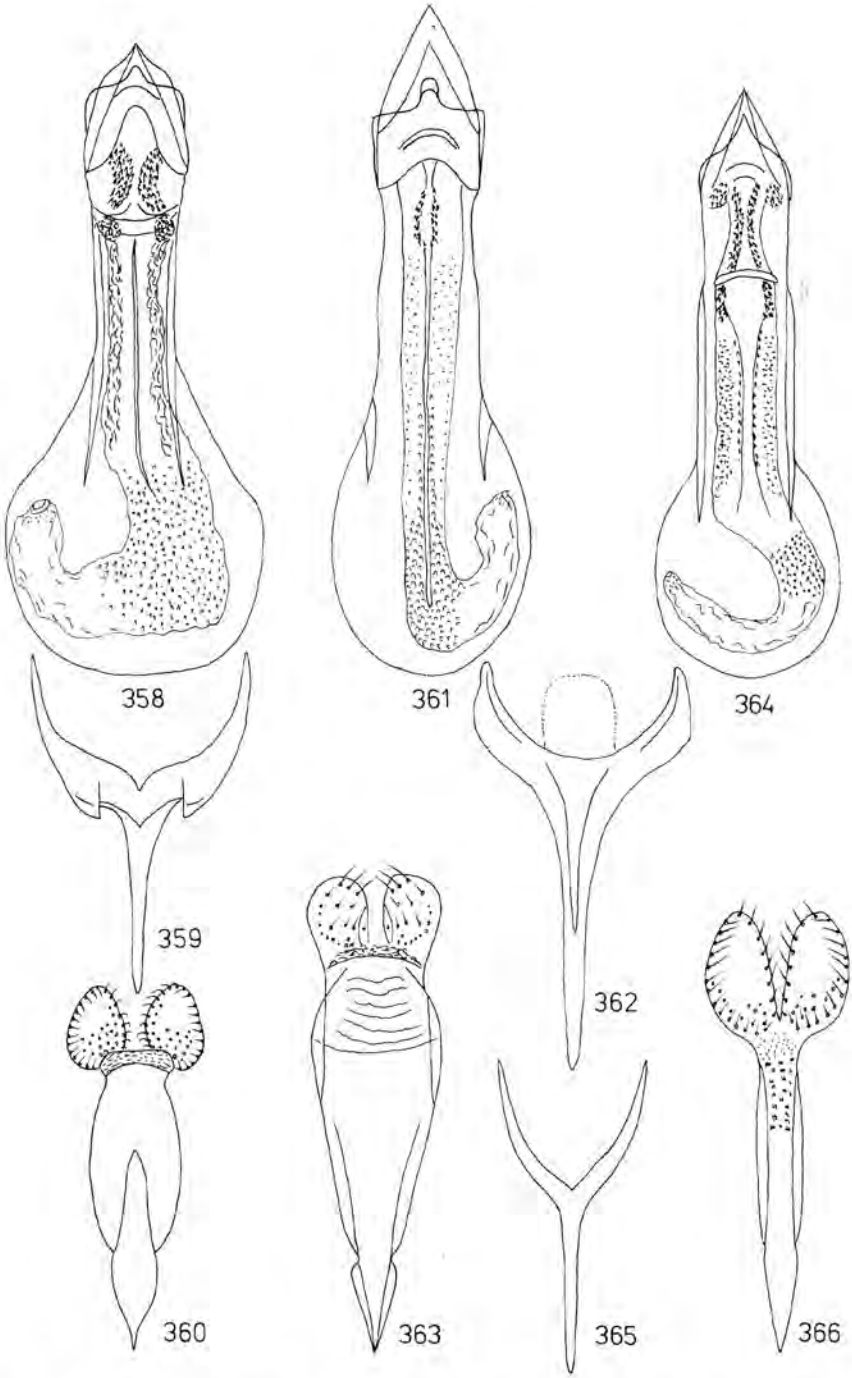
327-336. Male genitalia: 327, 328 - *Spermophagus coronatus*, 329-331 - *S. maurus*, 332-334 - *S. scoti*, 335, 336 - *S. somalicus*. 327, 329, 332, 335: median lobe, 328, 330, 333 (a - ventral, b - lateral), 336: lateral lobes, 331, 334: spiculum gastrale



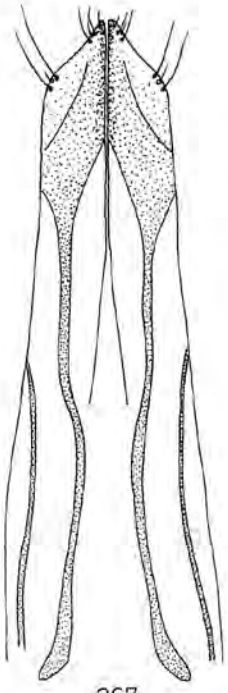
337-348. Male genitalia: 337-339 - *Spermophagus albomaculatus*, 340--342 - *S. pilipes*, 343-345 - *S. pfaffenbergeri*, 346-348 - *S. cederholmi*. 337, 340, 343, 346: median lobe, 338, 341, 344, 345 (teratological), 347: lateral lobes, 339, 342, 348: spiculum gastrale



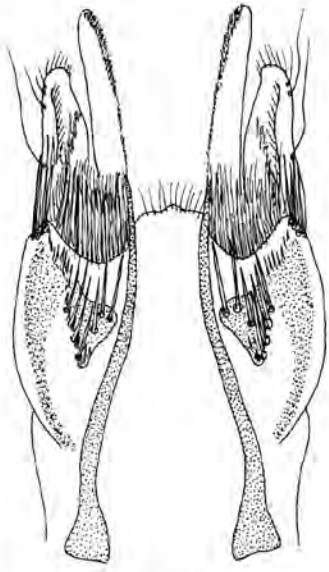
349-357. Male genitalia: 349-351 - *Spermophagus sophorae*, 352-354 - *S. mannarensis*, 355-357 - *S. coimbatorensis*. 349, 352, 355: median lobe, 350, 353, 356: lateral lobes, 351, 354, 357: spiculum gastrale



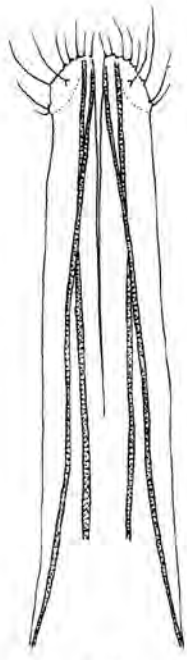
358-366. Male genitalia: 358-360 - *Spermophagus titivilitius*, 361-363 - *S. sinensis*, 364-366 - *S. abdominalis*. 358, 361, 364: median lobe, 360, 363, 366: lateral lobes, 359, 362, 365: spiculum gastrale



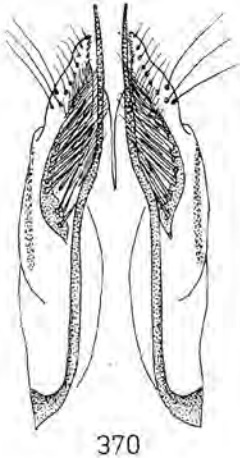
367



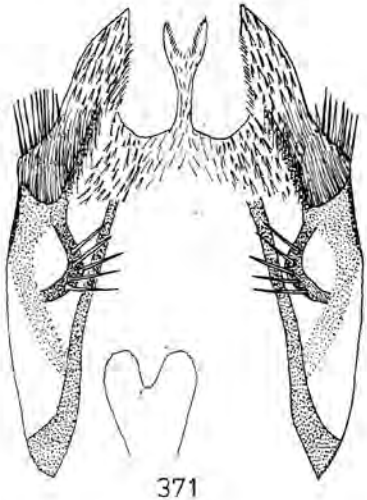
368



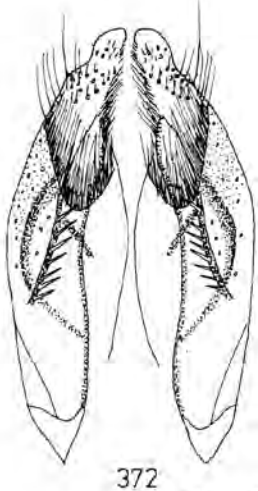
369



370

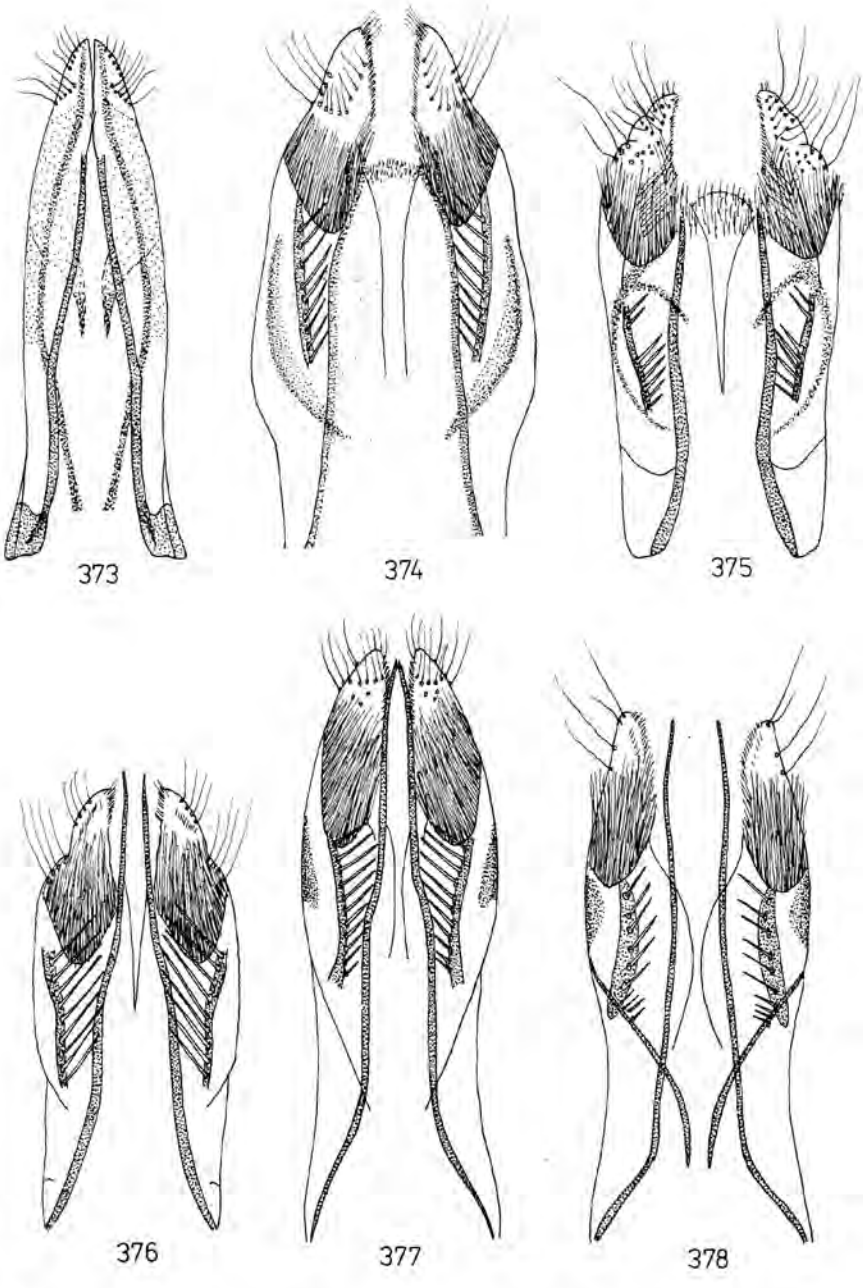


371

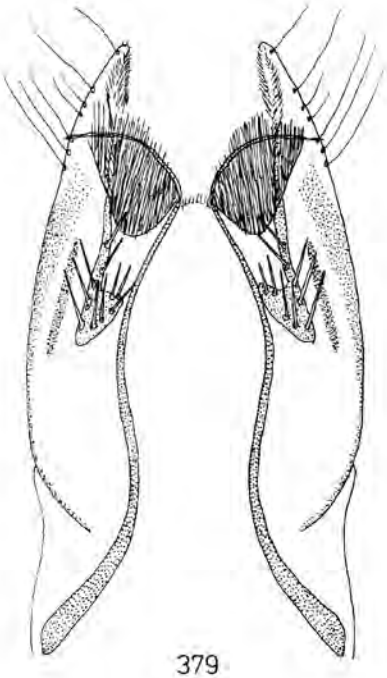


372

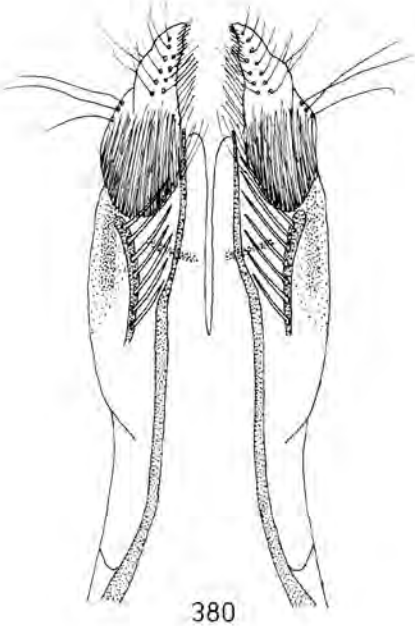
367-372. Ovipositor: 367 - *Spermophagus abdominalis*, 368 - *S. albomaculatus*, 369 - *S. babaulti*, 370 - *S. albosparsus*, 371 - *S. bimaculatus*, 372 - *S. altaicus*



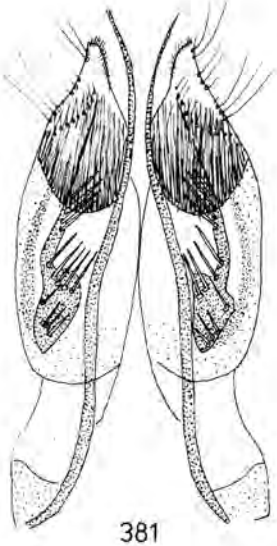
373-378. Ovipositor: 373 - *Spermophagus brincki*, 374 - *S. calystegiae*, 375 - *S. canus*, 376 - *S. caucasicus*, 377 - *S. caricus*, 378 - *S. cederholmi*



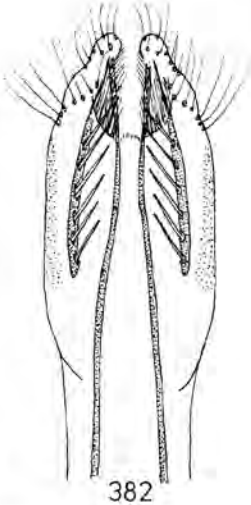
379



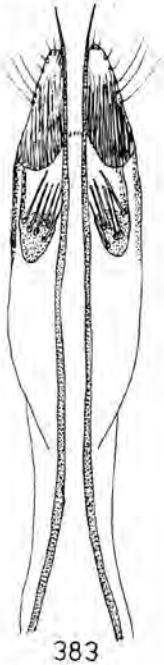
380



381

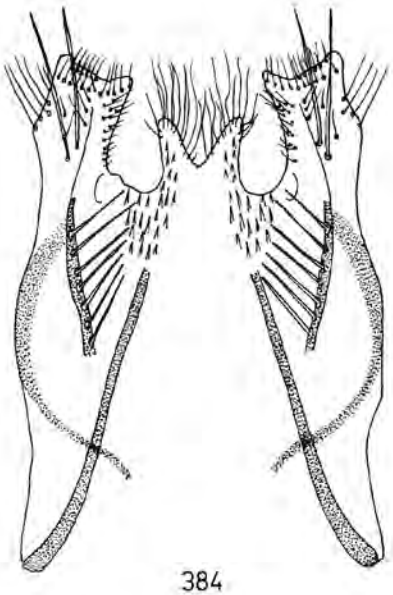


382

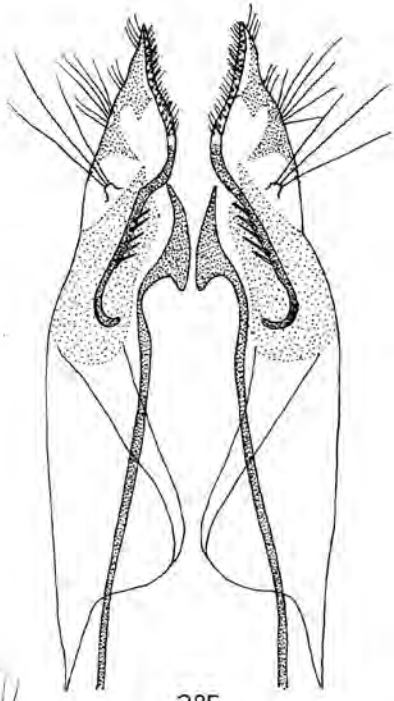


383

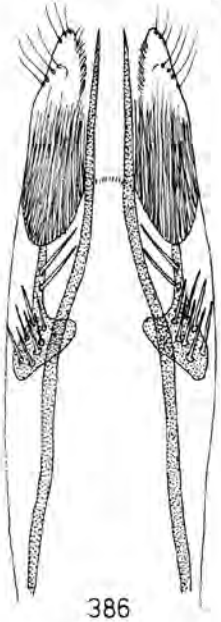
379-383. Ovipositor: 379 - *Spermophagus ceylonicus*, 380 - *S. confusus*, 381 - *S. decellei*, 382 - *S. cicatricosus*, 383 - *S. drak*



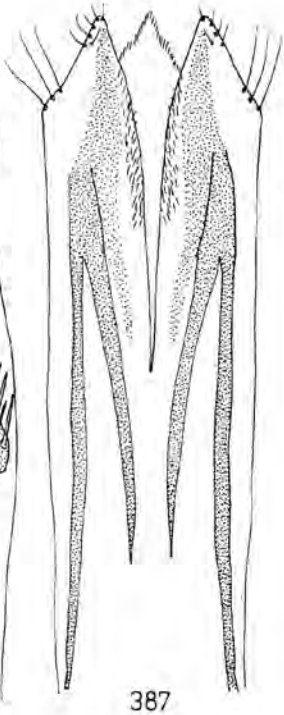
384



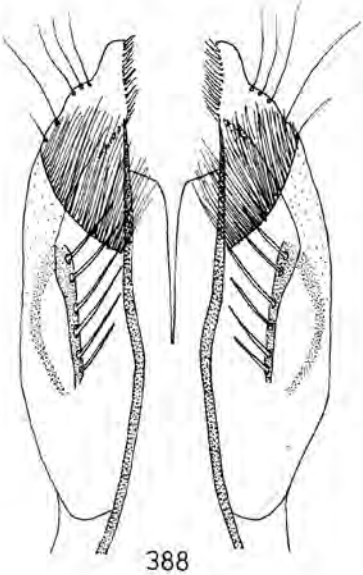
385



386

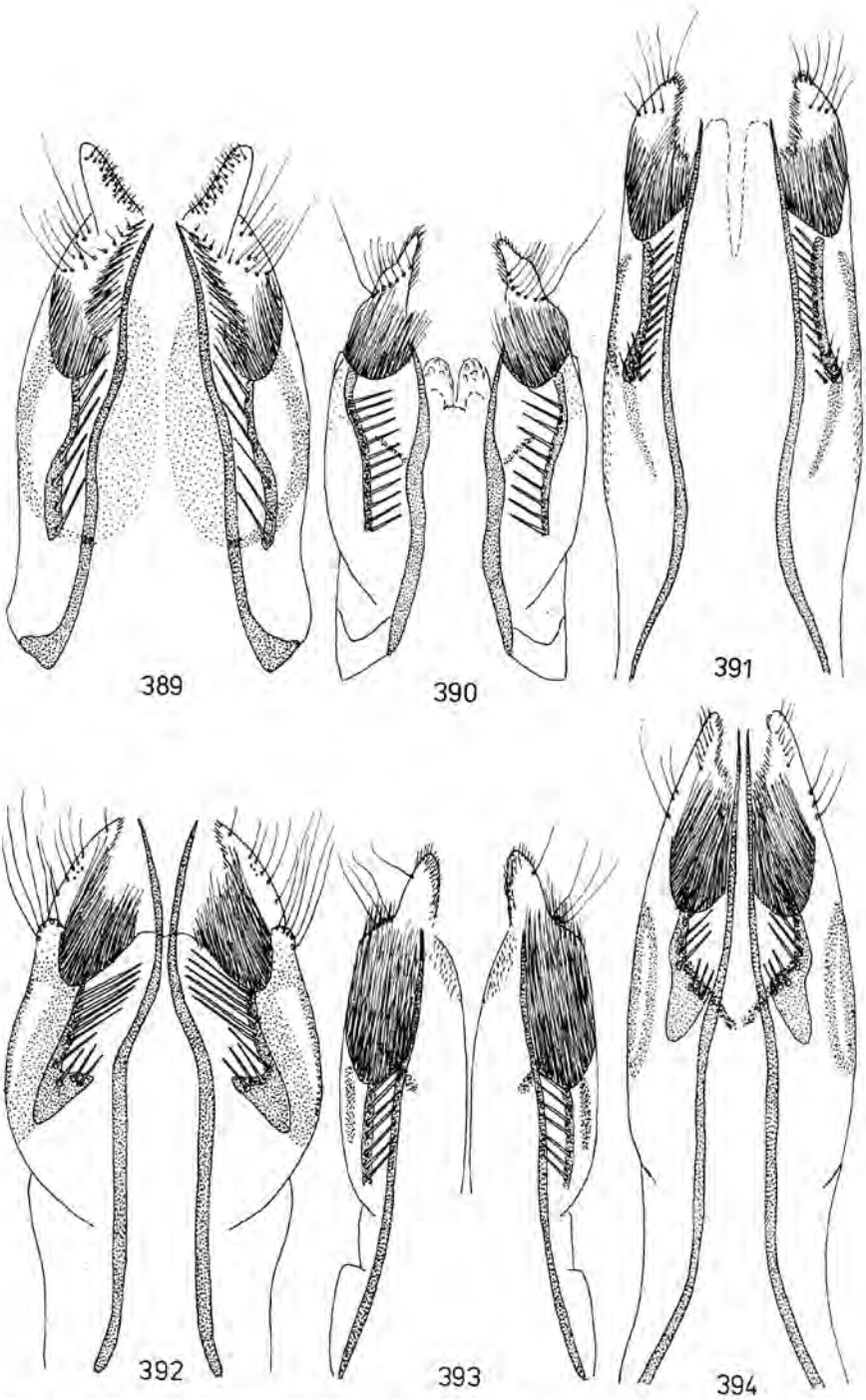


387

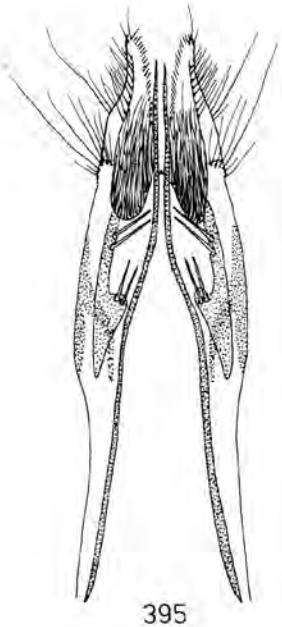


388

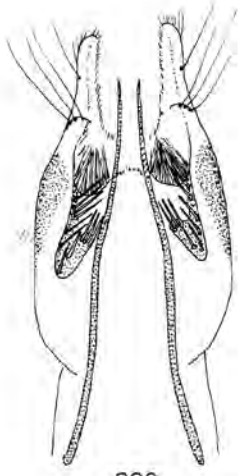
384-388. Ovipositor: 384 - *Spermophagus eichleri*, 385 - *S. hottentotus*, 386 - *S. humilis*, 387 - *S. kannegieterei*, 388 - *S. klapperichi*



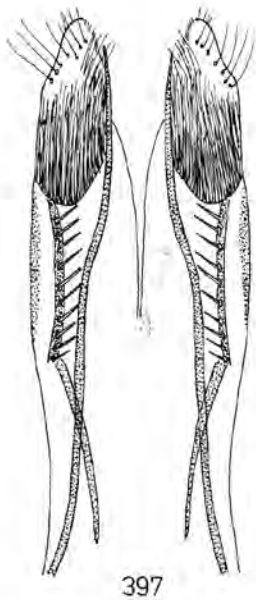
389-394. Ovipositor: 389 - *Spermophagus kochi*, 390 - *S. kuesteri*, 391 - *S. latithorax*, 392 - *S. ligatus*, 393 - *S. maafensis*, 394 - *S. malvacearum*



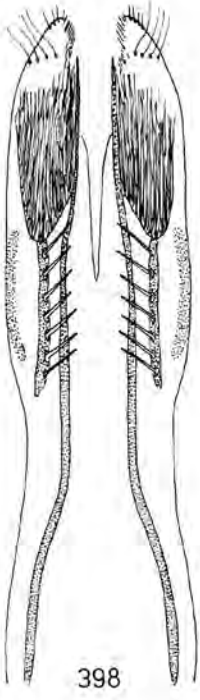
395



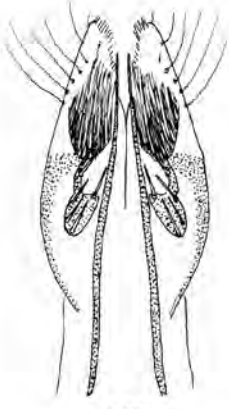
396



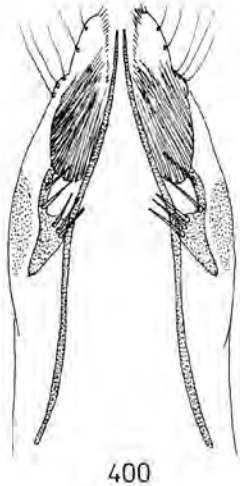
397



398

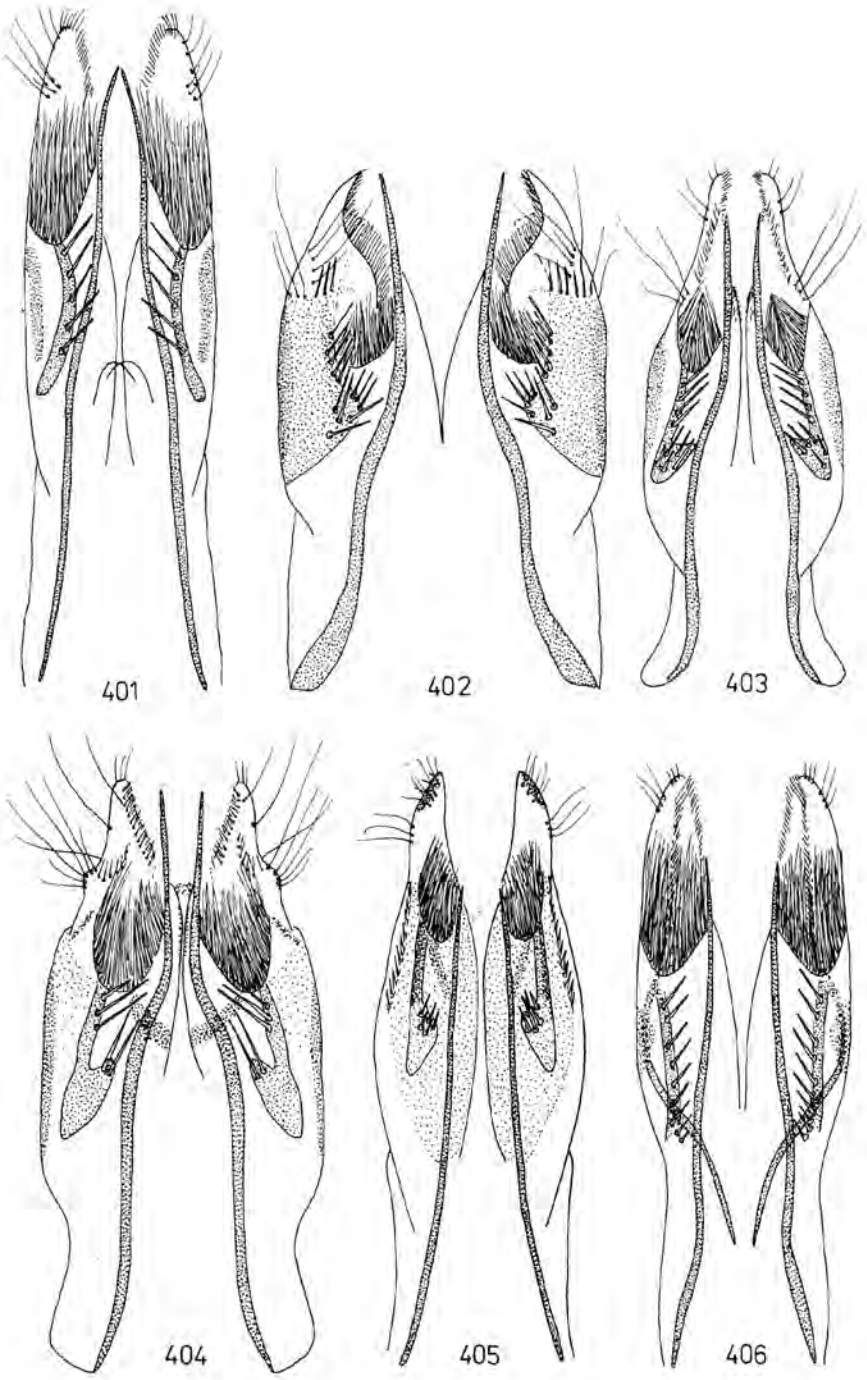


399

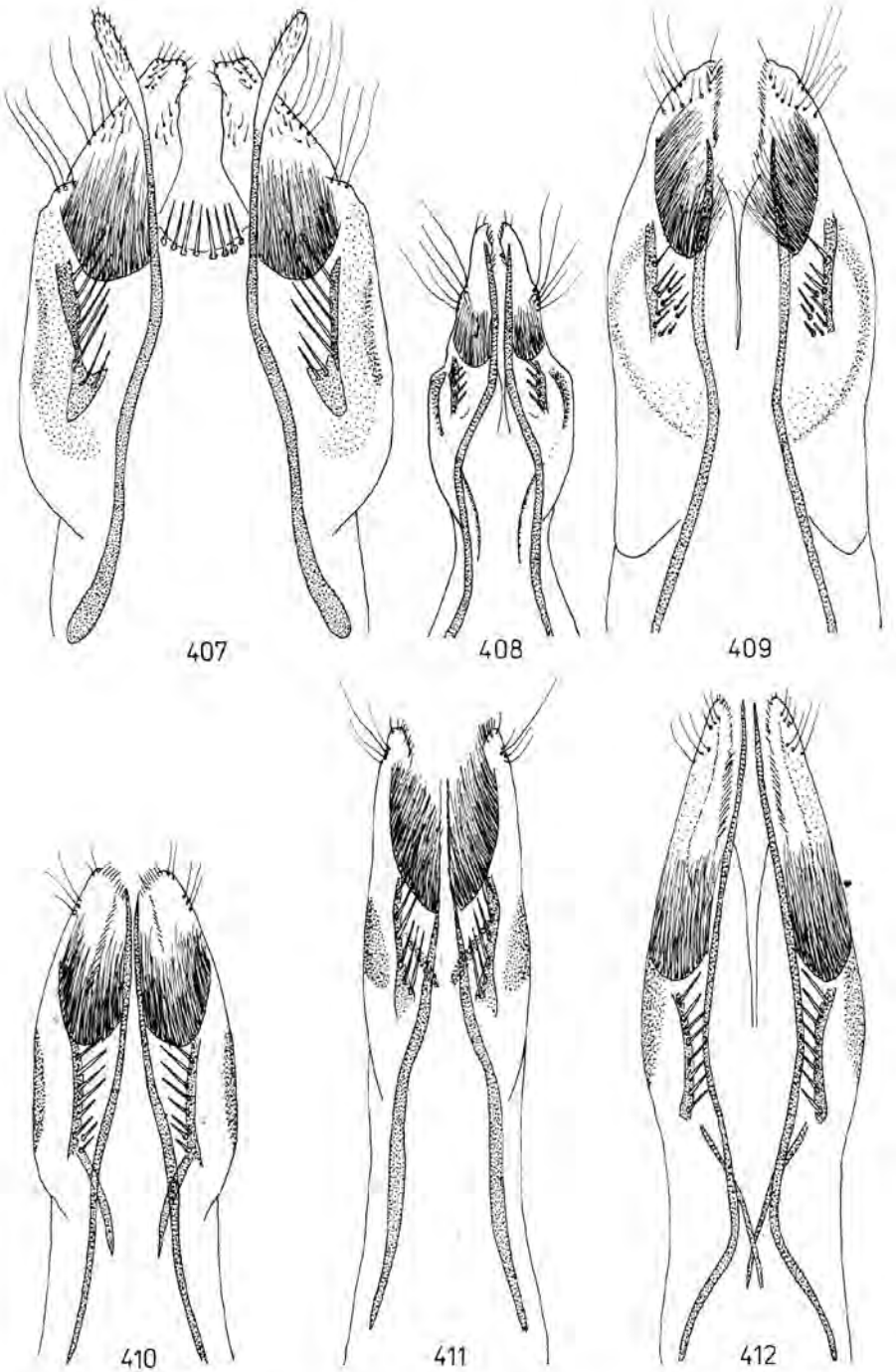


400

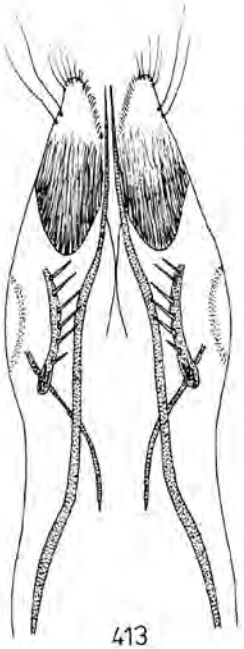
395-400. Ovipositor: 395 - *Spermophagus mannarensis*, 396 - *S. marmoreus*, 397 - *S. maurus*, 398 - *S. maynei*, 399 - *S. minutissimus*, 400 - *S. minutus*

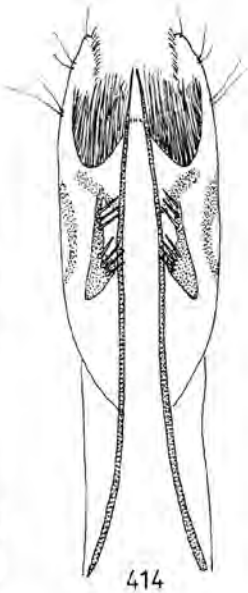


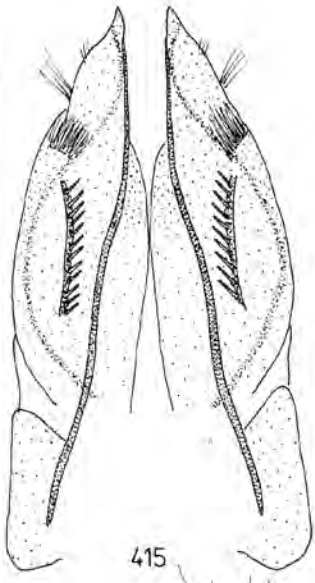
401-406. Ovipositor: 401 - *Spermophagus moerens*, 402 - *S. multiguttatus*, 403 - *S. multipunctatus*, 404 - *S. negligens*, 405 - *S. niger*, 406 - *S. pfaffenbergeri*

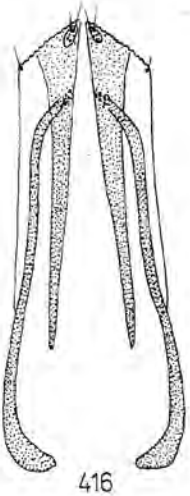


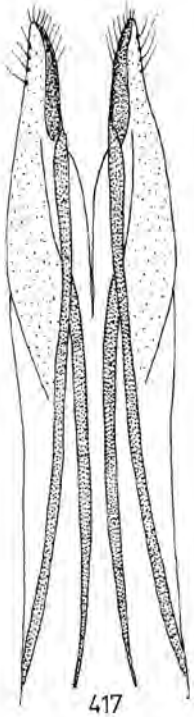
407-412. Ovipositor: 407 - *Spermophagus pilipes*, 408 - *S. schroederi*, 409 - *S. pubiventris*, 410 - *S. posticus*, 411 - *S. pygopubens*, 412 - *S. rufipes*

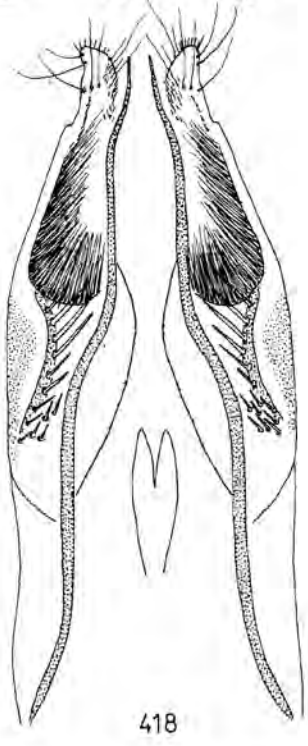




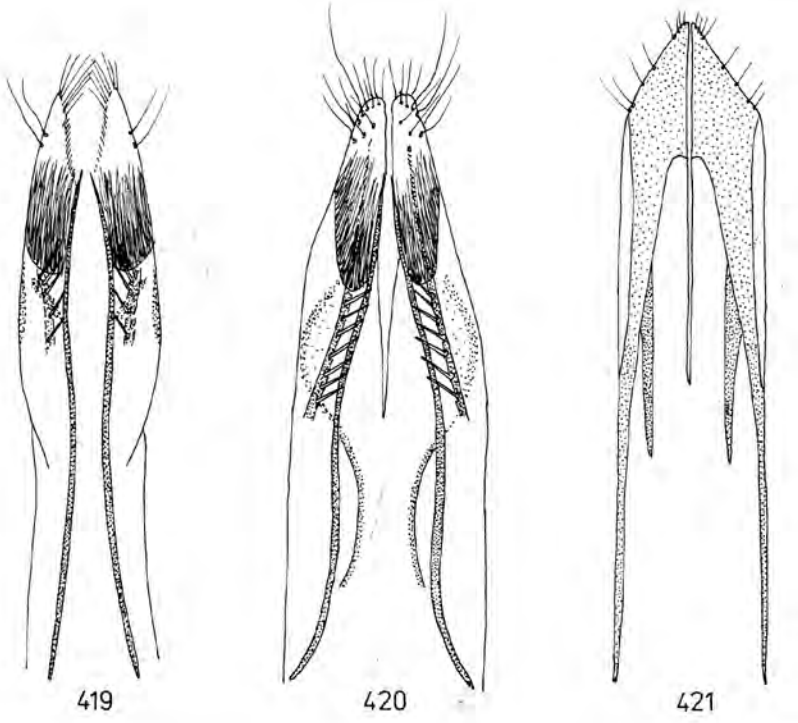








413-418. Ovipositor: 413 - *Spermophagus scotti*, 414 - *S. semiannulatus*, 415 - *S. sericeus*, 416 - *S. sinensis*, 417 - *S. sophorae*, 418 - *S. tristis*



419-421. Ovipositor: 419 - *Spermophagus variolosopunctatus*, 420 - *S. wittmeri*, 421 - *S. lugubris*

INDEX OF LATIN NAMES OF BEETLES

(new species in bold, synonyms in italics)