

Subfamily PSAMMOECINAE

Genus Psammoecus Latreille

Psammoechus Latreille, 1829, in Cuv. Règne Anim. ed. 2,
5 : 135; Boudier, 1834, Annls Soc. ent. Fr. 3 : 368,
t. 7, f. C.

Psammoecus Latreille : Erichson, 1846, Naturgeschichte der
Insekten Deutschlands 3 : 329, 333; Reitter, 1885-86,
Franscisque Guillebeau : Tableaux Analytiques Determiner
europeins 1 : 9; 1911, Fauna Germanica 3 : 47,48;
Ganglbauer, 1899, Die Käfer Von Mitteleuropa 3 : 590;
Grouvelle, 1908, Annls Soc. ent. Fr. 77 : 474.

Type-species : Psammoecus bipunctatus (F.)

Psammoecus is a large genus comprised of minute beetles ranging from 2.13 to 3.35 mm in length. This genus was erected by Latreille (1829) for the species Dermestes bipunctatus (Fabricius). He arranged the genus in the family 'Eupodes' and placed at the end of the tribe 'Sagrides'. Boudier (1834) characterized the genus Psammoecus. Erichson (1846) placed this genus under the tribe Brontini of the family Cucujidae. Reitter (1885-86) erected the tribe Psammoecini under the family Cucujidae based on this genus. Ganglbauer (1899) and Grouvelle (1908) dealt Psammoecus under the tribe Psammoecini (Silvaninae: Cucujidae) and Reitter (1911) referred to the tribe Psammoecini (Cucujinae:Cucujidae). Hetschko (1930) in Junk's "Coleopterorum Catalogus" listed seventythree species under this genus, of which P. andrewesi Grouvelle (Nilgiri Hills), P. bellus Grouvelle (Madura:Tamil Nadu), P. graciosus Grouvelle (Nilgiri Hills), P. decoratus Grouvelle (Madura : Tamil Nadu), P. harmandi

Grouvelle (India), P. impressicollis Grouvelle (Nilgiri Hills), P. lepidus Grouvelle (Madura: Tamil Nadu), P. nitidus Grouvelle (Kanara : Karnataka) and P. incommodus (Walker) are recorded from India. The representatives of Psammoecus predominantly occur in the Oriental region including India. In the present study 208 examples have been studied, which are collected mostly by the author and staff of Coleoptera Section, Zoological Survey of India, and provided by different Museums of the World as loan. These above examples were collected mainly from Himalaya and its foot hills, gangetic West Bengal, Chhotanagpur plateau, South India including Nilgiri Hills. Fifteen species are dealt with here, of which five species are discovered as new to science; two species namely, P. delicatus Grouvelle and P. simoni Grouvelle are recorded for the first time from India. P. bellus Grouvelle is synonymised with P. nitidus Grouvelle, and larva of P. bipunctatus (F.) is described which is taken from the unpublished work of Sengupta and Crowson (see p. 288).

Definition :

General appearance (Fig.218) elongated, slightly ovoid, moderately convex, usually yellowish brown or reddish brown and rarely blackish brown, sometimes black spots on elytra and few joints of antenna blackish.

Head (Fig. 220) transverse, fronto-clypeal suture distinct, front margin of clypeus slightly rounded, eyes usually large and coarsely faceted, temple may or may not extended beneath eye, transverse impressed line on vertex behind eyes present, two lateral longitudinal striae on vertex originated near bases of antennae present. Tentorium as seen in figure. Antenna moderately long and slender, antennal insertions partly hidden under projection of frons, scape large and broadly elongated, joints 2-11 shorter and subequal, joint 11 somewhat acuminate at apex. Mandible (Fig. 227) about as broad as long, right mandible with 3 apical teeth and a blunt tooth beneath apical teeth, and left mandible with 3 apical teeth, mola well-developed, a large basal mandibular cavity present and opened dorsally. Maxilla (Fig. 228) with lacinia narrow and elongated and without apical spines, galea short and broad and its apex densely hairy; palpi with segment 2 larger than segment 3, apical segment largest and securiform. Labium (Fig. 229) with mentum somewhat quadrate, palpi with segment 2 short and broad, apical segment longer than segment 2 and its apex broadly rounded. Labrum (Fig. 230) transverse with apical margin slightly concave.

Prothorax (Fig. 221) usually transverse, usually with few more or less large denticles on lateral sides, front coxae contiguous, coxal cavities slightly elongated, cavities closed behind externally and internally, prosternal process broad at apex and its apical margin sinuate, sterno-pleural suture extending to lateral margin.

Meso-metathorax (Fig. 223) : Mesocoxae contiguous, cavities opened outwardly, lateral margins of mesosternal process slightly constricted across posterior two-third, sternal fitting between mesocoxae with a single knob, Metasternum transverse, median impressed line indistinct, hind coxae widely separated. Metendosternite simple and represented by two appophyses.

Wing and Elytra : Wing (Fig. 226) with single anal vein and radial cell, without anal cell and subcubital fleck. Elytra somewhat ovoid, side margins almost uniformly rounded, each elytron (Fig. 225) with 10 rows of strial punctures, sometimes with a row of large glandular punctures along lateral margin, without scutellary striole, epipleura narrowed and extended slightly before apex.

Legs (Fig. 222) moderately long and slender, trochanters short and simple, femora swollen towards middle, tibiae not broadened at apex and with a circlet of apical spurs; tarsal formula 5-5-5 in both sexes, tarsal segments 1-3 elongated and lobed below, segment 4 shortest and claws simple.

Abdomen (Fig. 224) slightly elongated, ventrite 1 longest, intercoxal process broad and its apical margin broadly pointed, femoral lines indistinct, ventrites 2-5 subequal. Aedeagus (Fig. 232) with median lobe broad and narrowed towards apex, median sturt long and its apex somewhat broadened; parameres

well-developed, elongated, more or less slender, with a few long apical and many short setae. Ovipositor (Fig.231) with well-developed paraprocts, valvifers, coxites and long styli attached on outer margin of apex of coxites.

Habitat : Found usually in haystack and vegetable garbage.

Distribution : Chiefly oriental.

KEY TO THE SPECIES OF PSAMMOECUS FROM INDIA

- 1. Elytra distinctly narrowed behind middle and sub-acuminate at apex; antenna unicolourous.
..... 2
- Elytra narrowed behind middle and rounded at apex, apical few joints of antenna blackish or darker than basal segments. 3
- 2. Blackish linear, longitudinal spots present on each elytron; head across eyes distinctly narrower than prothorax across anterior margin (1.00:1.42); lateral margins of prothorax and elytra distinctly explanate, six large glandular punctures along lateral margin of elytra (Fig. 205).
..... andrewesi Grouvelle

One small, rounded blackish spot on each elytron in posterior half; head across eyes about as wide as prothorax across anterior margin (1.00:1.009); lateral margin of prothorax not explanate and that of elytra finely explanate, thirteen large glandular punctures along lateral margin of elytra (Fig. 206) khasia sp.nov.

3. Teeth on lateral margin of prothorax minute, indistinct, either broader than long or about as broad as long (Fig. 207).4

Teeth on lateral margin of prothorax partly long, distinct and longer than broad (Figs.210,218). 6

4. None of antennal joints blackish, joints 7-10 slightly more reddish than other joints; three transverse blackish spots on elytra which interconnected by longitudinal sutural spot; no depression on lateral sides of pronotum, lateral margins of prothorax more or less abruptly narrowed behind middle (Fig.207). decoratus Grouvelle

Atleast two joints of antenna blackish; no transverse blackish spots on elytra; lateral sides of pronotum more or less depressed, lateral margins of prothorax gradually narrowed behind middle (Figs.208,209). 5

5. Apical part of antennal joint 7 and joints 8-10 blackish; head and prothorax blackish and elytra reddish brown; lateral margin of prothorax slightly wavy and sinuate before posterior angle. lepidus Grouvelle

Antennal joints 9 and 10 blackish; head, prothorax and elytra yellowish brown; lateral margin of prothorax not wavy and slightly rounded. harmandi Grouvelle

6. Antennal joints 10 and 11 yellowish white; prothorax markedly transverse, pronotum strongly depressed in front of prothoracic base and lateral margin widely explanate; teeth on lateral margin of prothorax narrow, markedly long and a few of them about four times as long as broad (Fig.210).7

Antennal joint 10 more or less blackish and joint 11 yellowish white; prothorax not markedly transverse as above (Figs.212,218), pronotum not strongly depressed in front of prothoracic base and lateral margin not widely explanate; teeth on lateral margin of prothorax variable, not markedly long and maximum three times as long as broad. 8

7. Eyes large and about half as long head, all antennal joints distinctly elongated, scape at least three times longer than wide; scape, pedicel, apical half of antennal joint 6 and joints 7-9 blackish; apex of prothoracic teeth somewhat blunt; elytral interstices about as wide as width of each puncture, lateral margin of elytra without any large glandular puncture; body covered with short, fine pubescence. ...
 delicatus Grouvelle

Eyes smaller and about one-third as long as head, antennal scape to joint 8 and joint 11 more or less elongated, joints 9 and 10 slightly transverse, scape about two times as long as wide; scape and pedicel yellowish, apical part of joint 7 and joints 8 and 9 blackish; apex of long prothoracic teeth pointed; elytral interstices narrower than width of each puncture, seven large glandular punctures along lateral margin of elytra; body covered with long, semierect and dense pubescence.
 complexus sp.nov.

8. Antennal joints 9 and 10 more or less blackish.
 9
 Atleast antennal joints 7-10 blackish.11

9. Elytra with a transverse blackish spot near apex and two rounded spots near middle, rounded spots with its extensions connected with transverse spots, two spots near humeral angles (Fig.212). wittmeri sp.nov.
Elytra without any transverse blackish spot. 10
10. Antennal joints 9 and 10 slightly darker than preceding joints and not distinctly blackish, joint 10 slightly elongated; eyes large and slightly shorter than half as long as head; a rounded indistinct blackish spot on each elytron near middle, interstices on each elytron at least as wide as each puncture in anterior half and wider than each puncture in posterior half; no depression on lateral sides of pronotum; species yellowish brown. ...bhutanicus sp.nov.
Antennal joints 9 and 10 distinctly blackish, joint 10 transverse; eyes small and about one-third of length of head; a somewhat transverse distinct blackish spot on each elytron near middle and with extension along suture, interstices on each elytron distinctly narrower than width of each puncture; lateral sides of pronotum slightly depressed; species yellowish brown to dark brown.
..... trilochana sp.nov.
11. Two transverse spots on elytra connected by longitudinal sutural spots and two small spots near humeral angles; antennal joints 7-10 distinctly and joint 6 slightly blackish (Fig. 215). simoni Grouvelle

Transverse spot on elytra absent, if present only near apex and prothorax with small teeth (Fig.216); antennal joints 7-10 blackish and apical part of joint 6 also blackish in cases.12

12. A transverse blackish spot on elytra at apical part; teeth on lateral margin of prothorax small, subequal and hardly elongated; no transverse or lateral depression on pronotum (Fig.216). gratiosus Grouvelle

No transverse blackish spot on elytra; teeth on lateral margin of prothorax subequal, partly long and at least twice as long as wide; a transverse depression on pronotum in front of prothoracic base and lateral depressions on pronotum sometimes present.13

13. Lateral margin of pronotum widely explanate (Fig.217). ..
..... nitidus Grouvelle

Lateral margin of pronotum not explanate (Fig.218). 14

14. Longitudinal sutural spot on elytra absent, prothorax markedly transverse (1.00:1.80) and transverse depression on pronotum in front of prothoracic base prominent, few teeth on lateral margin of prothorax longer than twice of its width. impressicollis Grouvelle

Longitudinal sutural spot on elytra present, prothorax less transverse (1.00:1.54-1.60) and transverse depression on pronotum in front of prothoracic base indistinct, teeth on lateral margin of prothorax hardly twice wider than long. trimaculatus Motschulsky

41. Psammoecus andrewesi Grouvelle

Psammoecus andrewesi Grouvelle, 1908, Annls Soc. ent. Fr.

77 : 476 (Type-loc. : Nilgiri Hills : India).

This is a distinct species and can be recognised by its elytra distinctly narrowed behind middle and subacuminate at apex, antenna unicolourous, blackish linear longitudinal spots on each elytron, head across eyes distinctly narrower than prothorax across anterior margin (1.00:1.42), lateral margins of prothorax and elytra distinctly explanate, six large glandular punctures along lateral margin of elytra.

General appearance (Fig. 205) elongated, oval, moderately convex, yellowish brown, blackish linear spots on elytra, antenna unicolourous, body covered with moderately long and semierect pubescence.

Head : Exposed part of head wider than long, eyes moderately large and coarsely faceted, length of eye shorter than half of length of head, temple short and not inflattened beneath eye, longitudinal striae on vertex well-marked and connected by a transverse stria posteriorly; puncturation on vertex coarse and dense, clypeus more or less smooth; setae projected forward. Antenna long and slender, scape large and about one and half times as long as broad; joints 2-10 shorter, subequal and more or less elongated; joint 11 elongated and acuminate at apex.

Prothorax transverse, convex, width across anterior margin wider than head across eyes, anterior margin rounded and slightly sinuate on either sides, maximum width across anterior one-third and slightly narrowed posteriorly, lateral sides rather explanate, lateral margin rounded and with few moderately large and distinct teeth, anterior and posterior angles obtuse, puncturation on pronotum coarse and dense and similar to that of vertex of head, setae on pronotal disc projected forward and on lateral sides directed outwardly. Scutellum subtriangular, transverse, more or less smooth. Elytra more than one and half times as long as broad, ovoid and widest beyond middle and subacuminate at apex, rows of punctures deep and large, interstices slightly narrower than width of each puncture in anterior half, rather broad and well-marked longitudinal depression along lateral margin, six large glandular punctures along lateral margin, lateral margin serrated in anterior half; setae moderately long and projected posteriorly, lateral margin with longer and almost erect setae; blackish linear longitudinal spots on each elytron and a longitudinal sutural spot near apex present.

Measurements : Total length 2.60-3.35 mm, width of head across eyes 0.66-0.73 mm, length of antenna 1.17-1.46 mm, width of prothorax across middle 0.75-0.92 mm, length of elytra 1.76-2.13 mm and width across middle 1.11-1.36 mm.

Materials examined : 3 ex. INDIA : MEGHALAYA, Garo Hills, 1 ex., 19.v.1976, W. Wittmer & C. Baroni; TAMIL NADU, Nilgiri, 71 km E. Coonoor, 1350 m, 1 ex., 19.xi.1972, Besuchet Löbl Mussard; NEPAL : Kathmandu, Gokaruaban, 1 ex., 12.vi.1976, W. Wittmer & C. Baroni.

Distribution : INDIA : Meghalaya, Tamil Nadu; NEPAL. So far this species is known from Tamil Nadu: India; in the present study it is first time recorded from Meghalaya, and Nepal.

42. Psammoecus khasia sp.nov.

This species is near P. andrewesi Grouvelle and can be separated by its elytra devoid of linear longitudinal spots but with two small rounded black spots in the posterior half, head across eyes about as wide as prothorax across anterior margin, lateral margin of prothorax not explanate and that of elytra finely explanate and with thirteen large glandular punctures.

General appearance (Fig. 206) elongated, oval, moderately convex, slightly shiny, reddish brown, blackish spots on elytra, antenna unicolourous, body covered with long and semierect pubescence.

Head : Exposed part of head wider than long, eyes moderately large and coarsely faceted, length of eye about one-third of length of head, temple short and not inflattened beneath eye, longitudinal striae on vertex long and well-marked and connected by a transverse stria posteriorly; puncturation on vertex coarse and dense, punctures slightly elongated, clypeus more or less smooth; setae projected forward. Antenna long and slender, scape moderately large and shorter than two times as long as broad; joints 2-8 shorter, subequal and elongated; joints 9-11 slightly wider of which joints 9 and 10 about as long as broad and joint 11 elongated and acuminate at apex. Prothorax transverse, convex, across anterior margin about as wide as head across eyes, anterior margin rounded, maximum width near middle, lateral margin slightly rounded and with nine small teeth, teeth about as broad as long, anterior and posterior angles obtuse; puncturation on pronotum coarse and dense, punctures somewhat rounded; setae on pronotal disc projected towards middle line and on lateral sides projected outwardly. Scutellum subtriangular, clearly transverse and more or less smooth. Elytra more than one and half times as long as broad, ovoid and widest near middle, narrowed behind middle and subacuminate at apex, rows of punctures large, interstices narrower than width of each puncture, lateral margin slightly explanate and with thirteen large glandular punctures, setae long and projected posteriorly, lateral margin with longer and almost erect setae, one rounded blackish spot on each elytron in

posterior half.

Measurements of holotype : Total length 2.55 mm, width of head across eyes 0.75 mm, length of antenna 1.17 mm, width of prothorax across middle 0.88 mm, length of elytra 1.76 mm and width across middle 1.10 mm.

Holotype 1 ex., INDIA : ASSAM, Kaziranga, Mikir Hills, 14.xi.1974, T. Sengupta, white flower of Medula tree (in Zoological Survey of India, Calcutta).

Distribution : INDIA : Assam.

43. Psammoecus decoratus Grouvelle

Psammoecus decoratus Grouvelle, 1919, Mém. Ent. 2 : 29

(Type-loc. : Madura : India).

This species can be recognised by none of its antennal joints is blackish but joints 7-10 slightly more reddish than other joints, prothorax slightly transverse and uniformly convex, lateral margin of prothorax with few minute and indistinct teeth, three transverse blackish spots on elytra, transverse spots connected by longitudinal sutural spot and lateral longitudinal spots leaving two somewhat rounded unpigmented area on each elytron.

General appearance (Fig.207) elongated, oval, moderately convex, slightly shiny, reddish brown, blackish spots on elytra

and antennal joints 7-10 more reddish than other joints, body covered with moderately long and semierect pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye about half as long as head, temple short and slightly inflattened beneath eye, longitudinal striae on vertex short and slightly marked; puncturation on vertex coarse and dense, clypeus more or less smooth; setae projected forward. Antenna long and slender, scape large and slightly longer than two times as long as broad; joints 2-7 shorter, subequal and elongated; joints 8-10 slightly wider than preceding joints, joint 8 about as long as broad and joints 9 and 10 slightly transverse, joint 11 elongated and acuminate at apex, scape-joint 6 reddish brown, joints 7-10 more reddish than preceding joints, joint 11 yellowish.

Prothorax slightly transverse, convex, across anterior margin about as wide as head across eyes, anterior margin rounded, maximum width near middle, lateral margins more or less parallel-sided and somewhat abruptly narrowed behind anterior two-third and slightly sinuate near posterior angle, lateral margin with six more or less visible teeth, teeth minute and broader than long, anterior and posterior angles obtuse, puncturation on pronotum coarse, dense and slightly coarser than that of vertex of head; setae on pronotal disc projected towards middle line and on lateral sides projected outwardly. Scutellum subtriangular,

slightly transverse and smooth. Elytra more than one and half times as long as broad, ovoid and widest near middle, rows of punctures moderately large and rounded, interstices about as wide as width of each puncture in anterior half and narrower posteriorly, setae moderately long and projected posteriorly, lateral margins with long and almost erect setae, three transverse blackish bands on elytra: one anterior, one middle and another near apex, bands connected along sutures by longitudinal sutural band and along lateral sides by lateral bands, transverse and longitudinal bands encircle two more or less rounded unpigmented area on each elytron.

Measurements of the 'Type' : Total length 3.00 mm, width of head across eyes 0.76 mm, length of antenna 1.50 mm, width of prothorax across middle 0.82 mm, length of elytra 1.85 mm and width across middle 1.17 mm.

Material examined : 1 ex. 'Type', INDIA : Tamil Nadu, Madura dist., Shembagnaur, 'Samboangau' mentioned in the label (in Mus. Nat. Hist. Nat., Paris).

Distribution : INDIA : Tamil Nadu.

44. Psammoecus lepidus Grouvelle

Psammoecus lepidus Grouvelle, 1908, Annls Soc. ent. Fr.

77 : 483, 488 (Type-loc. : Shembagnaur, Madura district : India).

This species is closely related to P. harmandi Grouvelle but can be separated by its apical part of antennal joint 7 and joints 8-10 blackish, head and prothorax blackish and elytra reddish brown, lateral margin of prothorax slightly wavy and sinuate before posterior angle.

General appearance (Fig.208) elongated, oval, moderately convex, slightly shiny, head and prothorax usually blackish brown and elytra yellowish brown, blackish spots on elytra and antennal joints 8-10 and apical part of joint 7 blackish, body covered with moderately long and semierect pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye about one-third as long as head, temple short and slightly inflattened beneath eye, longitudinal striae on vertex long and well-marked; puncturation on vertex coarse and dense, clypeus more or less smooth; setae projected forward. Antenna long and slender, scape large and about thrice as long as wide; joints 2-7 shorter, subequal and elongated; joints 8-10 slightly wider of which joint 8 slightly elongated, joint 9 about as long as broad and joint 10 slightly transverse, joint 11 elongated and acuminate at apex, scape-joint 7 yellowish brown, joints 8-10 and apical part of joint 7 blackish, joint 11 yellowish. Prothorax about as long as broad or slightly transverse, convex, width across anterior margin

slightly wider than head across eyes, anterior margin rounded, maximum width near anterior margin and narrowed posteriorly, lateral margin rounded and slightly sinuate before posterior angle; teeth on lateral margin of prothorax minute, indistinct and usually broader than long; anterior and posterior angles obtuse, puncturation on pronotum coarse and dense and slightly coarser than that of vertex of head, setae on pronotal disc projected towards middle line and on lateral margins projected outwardly. Scutellum subtriangular, about as broad as long and more or less smooth. Elytra slightly more than one and half times as long as broad, ovoid and widest near middle, rows of punctures large, interstices narrower than width of each puncture, setae moderately long and projected posteriorly, lateral margin with long and almost erect setae; a more or less rounded blackish spot on each elytron in posterior half, a longitudinal sutural spot more or less marked and narrowed posteriorly, rounded spot sometimes connected with the longitudinal spots by its extension. Aedeagus (Fig. 234) with median lobe broad, and abruptly narrowed and rather broadly pointed at apex, parameres long and slender, each paramere with a few apical long setae and few short setae on its surface.

Measurements : Total length 2.26-2.85 mm, width of head across eyes 0.61-0.69 mm, length of antenna 1.23-1.39 mm, width of prothorax across middle 0.64-0.76 mm, length of elytra 1.47-1.97 mm and width across middle 1.00-1.25 mm.

Materials examined : 81 ex. 'Type', 1 ex., INDIA : TAMIL NADU, Madura, Shembagnaur (in Mus. Nat. Hist. Nat., Paris); UTTAR PRADESH, Bhowali, 35 km from Kathgodam, 1736 m, 1 ex. 14.x.1976, T. Sengupta, Crysanthemam sp. (flower); Chambal, 1 ex. 19.x.1976, T. Sengupta haystack; KERALA, Cardamon H., Multapaltipres Munnar, 1700 m, 1 ex., 24.xi.1972, Besuchet Löbl Mussard; TAMIL NADU, Palni H., Berijam Lake; 2150 m, 56 ex., 14.xi.1972, Besuchet Löbl Mussard; Kodaikanal, 2100 m, 14 ex., Besuchet Löbl Mussard; 10 km N.-O Kodaikanal, 2150 m, 6 ex., 15.xi.1972, Besuchet Löbl Mussard; BHUTAN, Chimakothi, 1900-2300 m, 1 ex., 22.v., Nat. Hist. Mus. Basel-Bhutan Expedition 1972.

Distribution : INDIA : Uttar Pradesh, Kerala, Tamil Nadu; BHUTAN. So far this species is recorded from Tamil Nadu; in the present study this is first time recorded from Kerala, Uttar Pradesh; and Bhutan.

45. Psammoecus harmandi Grouvelle

Psammoecus harmandi Grouvelle, 1912, Bull. Mus. Paris 28:
413 (Type-loc. : ^{darjeeling,} India).

This species can be recognised by its teeth on lateral margin of prothorax minute and indistinct, lateral sides of the prothorax more or less depressed and its lateral margins slightly rounded and narrowed behind middle, antennal joints 9 and 10 blackish.

General appearance (Fig. 209) elongated, oval, moderately convex, slightly shiny, yellowish to reddish brown, blackish spots on elytra and antennal joints 9 and 10 blackish, body covered with moderately long and semierect pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye shorter than half of length of head, temple slightly long and slightly inflated beneath eye, longitudinal striae on vertex moderately long and slightly marked; puncturation on vertex coarse and dense, clypeus more or less smooth; setae projected forward. Antenna long and slender, scape moderately large and about two times as long as broad, pedicel short and elongated, joints 3-7 longer than pedicel and subequal; joints 8-11 slightly wider than joints 7 of which joint 8 slightly elongated, joint 9 about as broad as long, joint 10 slightly transverse and joint 11 slightly acuminate at apex; joints 9 and 10 blackish. Prothorax transverse, convex, across anterior margin about as wide as head across eyes, anterior margin rounded, lateral margin slightly rounded and with six minute teeth, anterior and posterior angles obtuse, puncturation on pronotum coarse and dense and almost similar to that of vertex of head, setae on pronotal disc projected towards middle line and on lateral sides projected outwardly. Scutellum subtriangular, transverse and more or less smooth.

Elytra about one and half times as long as broad, ovoid and widest near middle, rows of punctures moderately large and rounded, interstices narrower than width of each puncture, with moderately long and almost erect setae, a more or less rounded blackish spot on each elytron near middle and a somewhat rounded blackish sutural spot behind former spots. Aedeagus (Fig.235) with median lobe broad, gradually narrowed and slightly constricted above apex; parameres rather short, broadly elongated, each paramere with a few short setae on its surface and two long setae near apex, small glandular punctations on surface of parameres.

Measurements : Total length 2.85-3.08 mm, width of head across eyes 0.36-0.41 mm, length of antenna 1.41-1.55 mm, width of prothorax across middle 0.67-0.83 mm, length of elytra 1.83-2.02 mm and width across middle 1.17-1.33 mm.

Materials examined : 3 ex. INDIA : WEST BENGAL, Darjeeling dist., Jhepi, 37 km from Ghoombhanjang, 1 ex., 3.v.1976, T.K. Pal, under garbage of Cryptomaria leaves; SIKKIM, Gangtok, 1 ex., 25.iv.1976, T.K. Pal, under garbage of Cryptomaria leaves; NEPAL, Kathmandu 1 ex., 29.iii.1972, T. Sengupta, haystack.

Distribution : INDIA : West Bengal (Darjeeling District), Sikkim; NEPAL.

46. Psammoecus delicatus Grouvelle

Psammoecus delicatus Grouvelle, 1908, Annls Soc. ent. Fr.

77 : 477, 487 (Type-loc. : Sri Lanka).

This species can be recognised by its prothorax markedly transverse, pronotum strongly depressed in front of prothoracic base and its lateral sides widely explanate; teeth on lateral margin of prothorax narrow, markedly long and a few of them about four times as long as broad; antennal joints distinctly elongated, scape at least three times longer than wide; antennal scape and pedicel, apical part of joint 6 and joints 7-9 blackish, and joints 10 and 11 yellowish white.

General appearance (Fig. 210) elongated, oval, moderately convex, slightly shiny, yellowish to reddish brown, blackish spots on elytra; antennal scape and pedicel, apical part of joint 6 and joints 7-9 blackish.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye shorter than half of length of head, temple short and slightly inflattened beneath eye, longitudinal striae on vertex moderately long and well-marked; puncturation on vertex coarse and dense, clypeus more or less smooth; setae projected forward. Antenna long and slender, scape large and about thrice as long as wide, pedicel short

and elongated, joints 3-7 longer than pedicel and subequal, joints 8-11 slightly wider than joint 7 and elongated of which joint 11 acuminate at apex; scape, pedicel, apical part of joint 6 and joints 7-9 blackish. Prothorax transverse, convex, across anterior margin about as wide as head across eyes, anterior margin wavy; lateral margin outwardly curved and with nine teeth of variable size, teeth gradually being longer from anterior towards posterior side and attain its maximum length above penultimate teeth, longest tooth about four times as long as wide and all teeth somewhat blunt at apex; anterior and posterior angles obtuse, lateral margin of pronotum widely explanate and transverse prebasal impression prominent, puncturation on pronotum coarse and dense and slightly coarser than that of vertex of head, setae on pronotal disc scanty. Scutellum subtriangular, transverse and more or less smooth. Elytra more than one and half times as long as broad, ovoid and widest near middle, rows of punctures large and rounded, interstices about as wide as width of each puncture, setae moderately long and projected posteriorly, lateral margin with long and almost erect setae; two transverse blackish bands on elytra - one in anterior half and another at apex, bands connected along suture by longitudinal sutural band.

Measurements : Total length 2.41-2.57 mm, width of head across eyes 0.54-0.60 mm, length of antenna 1.38-1.44 mm, width of prothorax across middle (excluding lateral teeth) 0.58-0.66 mm, length of elytra 1.41-1.67 mm and width across middle 0.97-1.05 mm.

Materials examined : 3 ex. INDIA : KERALA, Cardamom H., Valara fall, 450-500 m, 1 ex., 25.xi.1972, Besuchet Löbl Mussard; SRI LANKA (Central); Kandy, 600 m, 1 ex., 15.i.1970, Mussard Besuchet Löbl; 1 ex. (particular locality not given), i. 1965, R. Mussard.

Distribution : INDIA : Kerala; SRI LANKA.

So far this species has only been recorded from Sri Lanka, in the present study this is first time recorded from South India.

47. Psammoecus complexus sp.nov.

This species is closely related to P. delicatus Grouvelle but can be separated by its eyes smaller and about one-third as long as head, antennal scape to joint 8 and joint 11 more or less elongated, and joints 9 and 10 slightly transverse; antennal scape and pedicel not blackish, apical part of antennal joint 7 and joints 8 and 9 blackish; apex of prothoracic teeth pointed, elytral interstices narrower than width of each puncture and seven large glandular punctures along lateral margin; body covered with long, semierect and dense pubescence.

General appearance (Fig. 211) elongated, oval, moderately convex, reddish brown, blackish spots on elytra and antennal joints 8 and 9 slightly blackish, body covered with long and

semierect pubescence.

Head : Exposed part of head wider than long, eyes moderately large and coarsely faceted, length of eye shorter than one-third of length of head, temple slightly long and slightly inflattened beneath eye, longitudinal striae on vertex long and well-marked, puncturation on vertex coarse and dense, puncturation on clypeus slightly finer, setae moderately long and projected forward. Antenna long and slender, scape moderately large and about two times as long as broad, pedicel short and slightly elongated; joints 3-7 longer than pedicel, subequal and elongated; joint 8 shorter than joint 7 and slightly elongated, joints 9 and 10 slightly transverse, and joint 11 elongated and acuminate at apex, apical part of joint 7 and joints 8 and 9 blackish. Prothorax transverse, convex, across anterior margin wider than head across eyes, anterior margin wavy and with few small denticles; lateral margin outwardly curved and with four teeth of variable size, anterior three teeth markedly long, about as long as three times as long as wide and somewhat pointed, longest tooth about four times as long as wide; lateral margin of pronotum explanate and transverse prebasal impression somewhat prominent, puncturation on pronotum coarse and dense and slightly coarser than that of vertex of head, setae on pronotal disc projected forward and on lateral sides and teeth projected outwardly.

Scutellum subtriangular, transverse and more or less smooth. Elytra shorter than one and half times as long as broad, ovoid and widest near middle, rows of punctures large and rounded, seven large glandular punctures along lateral margin, interstices narrower than width of each puncture, with moderately long and almost erect setae intermingled with long setae, two somewhat transverse blackish spots on each elytron and connected by a sutural spot.

Measurements of holotype : Total length 2.50 mm, width of head across eyes 0.64 mm, length of antenna 1.44 mm, width of prothorax across middle (excluding teeth) 0.76 mm, length of elytra 1.61 mm and width across middle 1.11 mm.

Holotype 1 ex., INDIA : WEST BENGAL, Darjeeling district, 3 km S. of Ghum, 12.iv.1967, Gy. Topal, Sifted mosses, (in Termesztudományi Museum, Budapest).

Distribution : INDIA : West Bengal (Darjeeling district).

48. Psammoecus wittmeri sp.nov.

This species is near P. graciosus Grouvelle but can be separated by its antennal joints 9 and 10 being black, eyes shorter, and characteristic spots of elytra (Fig.212).

General appearance (Fig. 212) elongated, oval, moderately convex, slightly shiny, reddish brown with blackish spots on

elytra and antennal joints 9 and 10 blackish, dorsal surface covered with moderately long and semierect pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye about one-third of length of head, temple short and slightly inflattened beneath eye, longitudinal striae on vertex moderately long; puncturation on vertex coarse and dense, clypeus more or less smooth; setae projected forward. Antenna long and slender, scape large and slightly longer than two times of its width; joints 2-7 short, subequal and elongated; joints 8-11 slightly wider of which joints 8 and 9 slightly elongated and joint 10 about as long as broad, joint 11 elongated and acuminate at apex; joints 1-8 reddish brown, joints 9 and 10 blackish, joint 11 yellowish. Prothorax convex, slightly transverse and narrowed posteriorly, slightly depressed on lateral sides, across anterior margin wider than head across eyes, anterior margin rounded and with two small teeth on either sides, lateral margins almost straight and with five more or less small teeth, anterior and posterior angles obtuse, puncturation on pronotum coarse and dense and slightly coarser than that of vertex of head. Scutellum subtriangular, transverse and smooth. Elytra about one and half times as long as broad, ovoid and widest near middle, rows of punctures deep and large, interstices about as wide as width of each puncture, two somewhat rounded black spots present

near middle and their extensions meet along suture, posterior to above spots a transverse spot present, two indistinct blackish spots near humeral angles.

Measurements of holotype : Total length 2.94 mm, width of head across eyes 0.75 mm, length of antenna 1.61 mm, width of prothorax across middle 0.73 mm, length of elytra 1.91 mm and width across middle 1.17 mm.

Holotype ♀, INDIA : WEST BENGAL, Darjeeling dist., Lebong, 1800-1900 m, 11.v.1975, W. Wittmer. (in Nat. Hist. Mus., Basel).

Distribution : INDIA : West Bengal (Darjeeling district).

49. Psammoecus bhutanicus sp.nov.

This species is closely related to P. trilochana sp.nov. but can be distinguished by its eyes distinctly larger and slightly shorter than half of length of head, antennal joints 9 and 10 not distinctly blackish but slightly darker than the preceding joints, rounded blackish spots on elytra indistinct, lateral sides of pronotum without any depression and interstices on elytra comparatively wider.

General appearance (Fig. 213) rather elongated, oval, moderately convex, slightly shiny, yellowish brown, faint blackish spots on elytra and antennal joints 9 and 10 darker than preceding joints, body covered with moderately long and semierect pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye slightly shorter than half of length of head, temple moderately long and slightly inflated beneath eye, longitudinal striae on vertex short and slightly marked; puncturation on vertex coarse and dense, clypeus more or less smooth; pubescence scanty and projected forward. Antenna long and slender, scape moderately large and about two times as long as broad; joints 2-6 shorter, subequal and elongated; joints 7-11 slightly wider than joint 6 and more or less elongated, joint 11 acuminate at apex. Prothorax transverse, convex, across anterior margin about as wide as head across eyes, anterior margin slightly rounded and slightly sinuate at sides; lateral margin outwardly curved and with six teeth of which third, fourth and fifth from anterior side distinctly longer and somewhat blunt; anterior and posterior angles obtuse, puncturation on pronotum coarse and dense and slightly coarser than that of vertex of head, pubescence on pronotal disc scanty. Scutellum subtriangular, transverse and more or less smooth. Elytra slightly longer than one and half times as long as broad, ovoid and widest near middle, rows of punctures moderately large and rounded, interstices about as wide as width of each puncture in anterior half and wider than each puncture in posterior half, with moderately long and semierect setae, a more or less rounded faint blackish spot on each elytron near middle.

Measurements of holotype : Total length 2.79 mm, width of head across eyes 0.69 mm, length of antenna 1.44 mm, width of prothorax across middle 0.70 mm, length of elytra 1.85 mm and width across middle 1.23 mm.

Holotype 1 ex., BHUTAN : Phuntsholing, 21.i.1969, S.K. Mitra (in Zoological Survey of India, Calcutta).

Distribution : BHUTAN.

50. Psammoecus trilochana sp.nov.

This species comes close to P. graciosus Grouvelle but can be distinguished from the latter species by its antennal joints 9 and 10 blackish but joints 7 and 8 not blackish, eyes shorter, prothorax less transverse and its lateral margin slightly sinuate before posterior angle, transverse blackish spot at the apex of elytra absent.

General appearance (Fig. 214) elongated, oval, moderately convex, slightly shiny, yellowish brown to blackish brown, blackish spots on elytra and antennal joints 9 and 10 blackish, body covered with moderately long and semierect pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye slightly longer than one-third of length of head, temple moderately long and slightly

inflattened beneath eye, longitudinal striae on vertex moderately long and slightly marked; puncturation on vertex coarse and dense, clypeus more or less smooth; setae projected forward. Antenna long and slender, scape moderately large and slightly longer than two times as long as broad, pedicel short and slightly elongated, joints 3-7 longer than pedicel and subequal; joints 8-11 slightly wider than joint 7 of which joints 8 and 9 slightly elongated and joint 10 about as broad as long, joints 11 elongated and acuminate at apex. Prothorax about as broad as long, convex, across anterior margin about as wide as head across eyes, anterior margin rounded and with few small denticles, lateral margin outwardly curved and slightly sinuate at posterior half, lateral margin with six moderately large teeth, teeth about as broad as long and somewhat blunt, anterior and posterior angles obtuse, puncturation on pronotum coarse and dense and almost similar to that of vertex of head, setae on pronotal disc projected towards middle line and on lateral sides projected outwardly. Scutellum subtriangular, transverse and more or less smooth. Elytra slightly shorter than one and half times as long as broad, ovoid and widest near middle, rows of punctures large and round, interstices narrower than width of each puncture, setae moderately long and projected posteriorly, lateral margins with long and almost erect setae, a somewhat oblique blackish spot on each elytron near middle and with extension along suture.

Aedeagus (Fig.233) with median lobe broad and rather pointed at apex; parameres long and slender, each paramere with two long apical setae and numerous short setae along its inner margin and on surface.

Measurements of holotype : Total length 2.79 mm, width of head across eyes 0.70 mm, length of antenna 1.63 mm, width of prothorax across middle 0.73 mm, length of elytra 1.75 mm and width across middle 1.10 mm.

Holotype ♂, NEPAL : Daman, 31.iii.1972, T. Sengupta, under cut long grass. Aedeagus dissected and mounted on cover slip and pinned with the holotype. Paratypes 12 ex., data same as holotype; Paratypes 3 ex., INDIA : HIMACHAL PRADESH, Simla, Mashobra, 2149 m, 25.vi.1975, T. Sengupta, beat of grass hanging on hills (in Zoological Survey of India, Calcutta).

Distribution : INDIA : Himachal Pradesh; NEPAL.

51. Psammoecus simoni Grouvelle

Psammoecus simonis Grouvelle, 1892, Annls Soc. ent. Fr.

61 : 488 (Type-loc. : Philippines).

Psammoecus simoni Grouvelle : Grouvelle, 1908, Annls Soc. ent. Fr. 77 : 476, 488.

This is a distinct species and can be recognised by its two characteristic transverse spots on elytra and two small rounded spots near humeral angles, and transverse spots

interconnected by longitudinal sutural spot.

General appearance (Fig. 215) elongated, oval, moderately convex, slightly shiny, yellowish brown with two transverse blackish spots on elytra, antennal joint 6 slightly and joints 7-10 distinctly blackish, body covered with moderately long and semierect pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye slightly shorter than half of length of head, temple short and slightly inflattened beneath eye, longitudinal striae on vertex moderately long and slightly marked; puncturation on vertex coarse and dense, clypeus more or less smooth; setae projected forward. Antenna long and slender, scape large and about two times as long as broad, joints 2-6 shorter and subequal; joints 7-11 slightly wider of which joint 7 slightly elongated, joint 8 about as broad as long, and joints 9 and 10 slightly transverse, joint 11 elongated and acuminate at apex; antennal joints 7-10 distinctly blackish. Prothorax transverse, convex, and narrowed posteriorly behind middle, across anterior margin slightly wider than head across eyes, anterior margin rounded, maximum width across fourth teeth from anterior side; lateral margin curved and with five more or less distinct teeth, third to fifth teeth from anterior side longer than others, maximum length of a tooth longer than its width and its apex somewhat blunt; transverse depression on pronotum in

front of prothoracic base slightly marked, anterior and posterior angles obtuse. Scutellum subtriangular, slightly transverse and more or less smooth. Elytra about one and half times as long as broad, ovoid and widest near middle, rows of punctures moderately large and rounded, interstices usually about as wide as width of each puncture, setae moderately long and projected posteriorly; two distinct transverse blackish spots near middle and apex, two smaller spots near humeral angles, transverse spots connected by longitudinal sutural spots.

Measurements : Total length 2.13-2.58 mm, width of head across eyes 0.66-0.67 mm, length of antenna 1.20-1.32 mm, width of prothorax across middle 0.67-0.69 mm, length of elytra 1.47-1.64 mm and width across middle 1.05-1.10 mm.

Materials examined : 4 ex. INDIA : WEST BENGAL, Calcutta, 1 ex., 30.xi.1971, T. Sengupta, under dead Pista plant beside a pond; 24 Parganas dist., S. Salt Lake, 1 ex., 17.i.1967, Gy. Topal, netted at dusk; SRI LANKA (Central): Mahaweli Ganga, à 7 miles de Kandy, 450 m, 1 ex., 15.i.1970; Weligma, 1 ex., 1899, W. Horn.

Distribution : INDIA : West Bengal; SRI LANKA ; MALAYSIA (Malacca); INDONESIA (Sumatra); PHILIPPINES; SEYCHELIES IS.; MADAGASCAR.

52. Psammoecus gratiosus Grouvelle

Psammoecus gratiosus Grouvelle, 1908, Annls Soc. ent. Fr.

77 : 484, 488 (Type-loc.: Nilgiri Hills : India).

This species can be recognised by its antennal joints 7-10 blackish, teeth on lateral margin of prothorax short and hardly elongated; elytra with two rounded blackish spots near middle, a longitudinal sutural spot in posterior half and a transverse spot at apex.

General appearance (Fig. 216) elongated, oval, moderately convex, slightly shiny, reddish brown, head and prothorax slightly darker, blackish spots on elytra and antennal joints 7-10 blackish, body covered with moderately long and semierect pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye about half as long as head, temple short and slightly inflattened beneath eye, longitudinal striae on vertex short and slightly marked; puncturation on vertex coarse and dense, clypeus more or less smooth; setae projected forward. Antenna long and slender, scape large and slightly longer than two times as long as broad; joints 2-6 shorter, subequal and elongated, joints 7-10 slightly wider of which joints 7 and 8 slightly elongated and joints 9 and 10 slightly transverse, joint 11 elongated and acuminate at apex, scape-joint 6 reddish brown, joints 7-10 blackish and joint 11 yellowish. Prothorax transverse, convex, across anterior margin about as wide as head across eyes, anterior margin rounded and slightly sinuate on either sides, maximum width in anterior half and narrowed posteriorly; lateral margin rounded and with six

distinct teeth, teeth small and some of them hardly longer than broad and their apex somewhat blunt; anterior and posterior angles obtuse; puncturation on pronotum coarse, dense and slightly coarser than that of vertex of head; setae on pronotal disc projected towards middle line. Scutellum subtriangular and about as broad as long and more or less smooth. Elytra more than one and half times as long as broad, ovoid and widest near middle, rows of punctures moderately large, interstices about as wide as width of each puncture, setae moderately long and projected posteriorly; three blackish spots - first spot more or less rounded on each elytron near middle, second spot slightly posterior to first spot and along suture, and third spot transverse and at apex.

Measurements of the 'type' : Total length 2.82 mm, width of head across eyes 0.60 mm, length of antenna 1.35 mm, width of prothorax across middle 0.64 mm, length of elytra 1.58 mm and width across middle 1.08 mm.

Material examined : 1 ex. 'Type', INDIA : TAMIL NADU, Nilgiri Hills, Andrewes (in Mus. Nat. Hist. Nat., Paris).

53. Psammoecus nitidus Grouvelle

Psammoecus nitidus Grouvelle, 1908, Annls Soc. ent. Fr. 77 : 479, 487 (Type-loc. : Kanara : India).

Psammoecus bellus Grouvelle, 1908, Annls Soc. ent. Fr.

77 : 485, 488 (Type-loc. : Chambagnor, Madura :
India) ; syn. nov.

This species can be recognised by its prothorax distinctly transverse and widely explanate at lateral sides, lateral margin with six distinct teeth, teeth partly long and more than twice longer than wide, antennal joints 7-10 blackish, elytra with a rounded spot on each elytron near middle and with a longitudinal sutural spot posterior to the rounded spots.

General appearance (Fig. 217) elongated, oval, moderately convex, slightly shiny, reddish brown, blackish spots on elytra and apical part^{of} antennal joint 6 and joints 7-10 blackish, pubescence scanty.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye about half as long as head, temple short and slightly inflattened beneath eye, longitudinal striae on vertex short and slightly marked; puncturation on vertex coarse and dense, clypeus more or less smooth. Antenna long and slender, scape large and about twice as long as broad; joints 2-6 shorter, subequal and elongated; joints 7-10 slightly wider of which joints 7-9 slightly elongated and joint 10 about as broad as long, joint 11 elongated and acuminate at apex, scape-joint 6 reddish brown, joint 7-10 and apical part of joint 6 blackish, and joint 11 reddish brown. Prothorax transverse,

convex, across anterior margin about as wide as head across eyes, anterior margin rounded and slightly sinuate on either sides of middle, maximum width across fourth teeth from anterior side and then narrowed posteriorly; lateral margin rounded and with six distinct teeth of which third, fourth and fifth from anterior side distinctly longer and their apex somewhat blunt, maximum length of a tooth slightly longer than twice of its width; anterior and posterior angles obtuse, puncturation on pronotum coarse and dense and slightly coarser than on vertex of head. Scutellum subtriangular, about as long as broad and more or less smooth. Elytra about one and half times as long as broad, ovoid and widest near middle, rows of punctures moderately large, interstices about as wide as width of each puncture, one more or less rounded spot on each elytron near middle and a longitudinal sutural spot slightly posterior to above spots present.

Measurements of the 'Type' : Total length 2.67 mm, width of head across eyes 0.67 mm, length of antenna 1.48 mm, width of prothorax across middle 0.79 mm, length of elytra 1.64 mm and width across middle 1.13 mm.

Materials examined : 2 ex. 'Type' of Psammoecus nitidus Grouvelle, 1 ex., INDIA : KARNATAKA ('Kanara' in the label); 'Type' of Psammoecus bellus Grouvelle, 1 ex., INDIA : TAMIL NADU, Madura, 'Chambagnor' (in Mus. Nat. Hist. Nat., Paris).

Remark : The author has compared the 'type' of P. bellus Grouvelle with that of P. nitidus Grouvelle and found no characteristic morphological differences between them. The author has therefore, synonymised P. bellus with P. nitidus.

54. Psammoecus impressicollis Grouvelle

Psammoecus impressicollis Grouvelle, 1908 Annls Soc. ent.

Fr. 77 : 480, 487 (Type-loc. : Nilgiri Hills : India).

This species is closely related to P. trimaculatus Motschulsky but can be separated by the absence of longitudinal sutural spot on elytra, prothorax more transverse and transverse depression near posterior margin of pronotum distinct.

General appearance elongated, oval, moderately convex, slightly shiny, reddish brown, blackish spots on elytra and antennal joints 7-10 blackish, body covered with moderately long and semierect pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye slightly shorter than half of length of head, temple short and slightly inflattened beneath eye, longitudinal striae on vertex long and well-marked; puncturation on vertex coarse and dense, clypeus more or less smooth; setae projected forward. Antenna long and slender, scape large and about twice as long as broad; joints 2-5 shorter, subequal and elongated; joints 6-10 slightly wider of which joint 6 slightly

elongated, joint 7 about as broad as long, joints 8-10 more or less transverse; joint 11 elongated and acuminate at apex, scape-joint 6 reddish brown, joints 7-10 and apical part of joint 6 blackish, joint 11 reddish brown. Prothorax transverse, convex, across anterior margin about as wide as head across eyes, anterior margin rounded, maximum width across fourth teeth from anterior end and then narrowed posteriorly; lateral margin more or less rounded and with six distinct teeth, of which third, fourth and fifth from anterior side distinctly longer and their apex somewhat blunt, maximum length of a tooth longer than twice of its width; anterior and posterior angles obtuse, transverse depression on pronotum in front of prothoracic base well-marked, setae on pronotal disc projected towards middle line. Scutellum subtriangular, about as broad as long and more or less smooth. Elytra shorter than one and half times as long as broad, ovoid and widest near middle, rows of punctures moderately large, interstices wider than width of each puncture, setae moderately long and projected posteriorly, a more or less rounded spot on each elytron near middle.

Measurements : Total length 2.93 mm, width of head across eyes 0.74 mm, length of antenna 1.45 mm, width of prothorax across middle 0.90 mm, length of elytra 1.89 mm and width across middle 1.33 mm.

Material examined : 1 ex. 'Type', INDIA : TAMIL NADU, Nilgiri Hills (in Mus. Nat. Hist. Nat., Paris).

Distribution : INDIA : Tamil Nadu.

55. Psammoecus trimaculatus Motschulsky

Psammoecus trimaculatus Motschusky, 1858, Etud. Ent. 7 :
45; Waterhouse, 1876, Entomologist's mon. Mag. 13 :
124; Reitter, 1879, Verh. zool-bot. Ges. Wien 29 :
509; Grouvelle, 1906, Annls Soc. ent. Fr. 75 : 125;
Grouvelle, 1908, Annls Soc. ent. Fr. 77 : 476. (Type-
loc. : Sri Lanka).

? Cucujus incommodus Walker, 1859, Ann. Mag. nat. Hist. (3)
3 : 53.

Telephanus cruciger Waterhouse, 1876, Entomologist's mon.
Mag. 13 : 125.

Motschulsky (1858) described this species from Sri Lanka. Grouvelle (1908) synonymised the species ? Cucujus incommodus Walker and Telephanus cruciger Waterhouse with this species. This is a common and most widely distributed species of Indian Psammoecus.

General appearance (Fig. 218) elongated, oval moderately convex, slightly shiny, yellowish brown to reddish brown, blackish spots on elytra and antennal joints 7-10 blackish, body covered with moderately long and semierect pubescence.

Head : Exposed part of head wider than long, eyes large and coarsely faceted, length of eye slightly shorter than half of length of head, temple short and slightly inflattened beneath

eye, longitudinal striae on vertex moderately long and slightly marked; puncturation on vertex coarse and dense, clypeus more or less smooth; setae projected forward. Antenna long and slender, scape moderately large and shorter than two times as long as broad; joints 2-6 shorter than scape, subequal and elongated; joints 7-11 slightly wider than joint 6 of which joint 7 slightly elongated, joint 8 about as broad as long, joints 9 and 10 slightly transverse, joint 11 elongated and acuminate at apex. Prothorax transverse, convex, across anterior margin narrower than head across eyes, anterior margin rounded, maximum width near middle; lateral margin outwardly curved and with six or seven teeth of variable length, longest teeth in the posterior half, slightly longer than broad and somewhat blunt at apex; anterior and posterior angles obtuse, puncturation on pronotum coarse and dense and slightly coarser than that of vertex of head, setae on pronotal disc projected forward and on lateral sides projected outwardly. Scutellum subtriangular, transverse and more or less smooth. Elytra shorter than one and half times as long as broad, ovoid and widest near middle, rows of punctures moderately large and rounded, interstices usually slightly wider than width of each puncture and sometimes about as wide as width of each puncture, setae moderately long and projected posteriorly, a more or less rounded blackish spot on each elytron in posterior half and a longitudinal sutural spot behind rounded spots, rounded spots.

sometimes connected with the sutural spot by its extensions. Aedeagus (Fig. 232) with median lobe long, gradually narrowed and pointed at apex; parameres long and slender, each paramere with a long apical seta and few short setae along its inner margin, a few short and rather dense setae also at its broad base.

Measurements : Total length 2.23-2.94 mm, width of head across eyes 0.64-0.73 mm, length of antenna 1.38-1.44 mm, width of prothorax across middle 0.64-0.79 mm, length of elytra 1.47-1.88 mm and width across middle 1.00-1.32 mm.

Materials examined : 89 ex. INDIA : ASSAM, Kaziranga, 1 ex., 14.xi.1974, T. Sengupta, garbage with hays; Phulbari, 1 ex., 24.xi.1974, T. Sengupta, leaf garbage; MEGHALAYA, Tura, 2 ex., 23.xi.1974, T. Sengupta, under dry cut grass; Shillong, 1 ex., 29.xi.1974, T. Sengupta, leaf garbage; 1 ex., 27.iv.1971, T. Sengupta, haystack; WEST BENGAL, Howrah district, Sankrail, 2 ex., 14.ii.1976, T.K. Pal, haystack; Sarda, 1 ex., H.G. Champion; BIHAR, Chaibasa, 2 ex., 8.i.1971, T. Sengupta, under dead grass; 1 ex., 19.x.1976, T. Sengupta, haystack; ORISSA, Daitari district, Jajpur-Keonihar, 1 ex., 27.xi.1967, beaten material; Bhubaneswar town, 1 ex., 11.xi.1967, Gy. Topal, singled material; UTTAR PRADESH, Anandnagar, 25 km from Lachmipur, 3 ex., 9.x.1976, T. Sengupta, haystack; Natanwa, 24 km from Lachmipur, 1 ex., 11.x.1976, T. Sengupta, by beating bush; Kosi, 4 ex., 18.x.1976, T. Sengupta,

haystack; Pantnagar, 2 ex., 21.iii.1971, T. Sengupta, haystack;
JAMMU & KASHMIR, Jammu 1 ex., 25.v.1972, T. Sengupta, haystack;
DELHI, 4 ex., 12.v.1972, T. Sengupta, hays of Jower; KARNATAKA,
North Coorg, Fraserpet, 1 ex., xii.30, N.C. Chatterjee; Bangalore,
50 ex., 10.xii.1971, T. Sengupta, under stack of hay of Rai Crop
(Mustard); TAMIL NADU, Madras, 1 ex., 29.xi.1971, T. Sengupta,
leaf garbage; Coimbatore, 440 m, 2 ex., 22.xi.1972, Besuchet Löbl
Mussard; Trichinopoly, 1 ex.; KERALA, Cardamon Hill, Vallara Fall,
950 m, 1 ex., 4.xi.1972; BHUTAN, Chimakothi, 1900-2300 m, 1 ex.,
Nat. Hist. Museum Basel-Bhutan Expedition 1972; Changra, 18 km
S. Tongsa, 1900 m, 1 ex., Nat. Hist. Museum Basel-Bhutan Expedition
1972; Kamjee, 850 m, 1 ex., Nat. Hist. Museum Basel-Bhutan Expedi-
tion 1972; NEPAL : Kathmandu, 1371 m, 7 ex., 28.iii.1972; Daman
2316 m, 1 ex., 29.iii.1972, T. Sengupta, dead grass.

Distribution : INDIA : Assam, Meghalaya, West Bengal,
Bihar, Orissa, Uttar Pradesh, Jammu & Kashmir, Delhi, Karnataka,
Tamil Nadu, Kerala; NEPAL; BHUTAN; SRI LANKA; BURMA; MALAYSIA;
JAPAN; MADAGASCAR.