

ON SOME SPECIES OF *XYLOSANDRUS* REITTER  
(SCOLYTIDAE : COLEOPTERA) FROM THE SUB-HIMALAYAN  
WEST BENGAL WITH DESCRIPTION OF A NEW SPECIES

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INTRODUCTION

The genus *Xylosandrus* was proposed by Reitter (1913) to accommodate *Xyleborus morigerus* from New Guinea. It remained valid until 1962, when Schedl considered it as a synonym of *Xyleborus* Eichhoff along with some other genera of the tribe Xyleborini. On the basis of widely separated procoxae, Browne (1963) revived its generic status. Recently, Wood (pers. comm.) further substantiated its validity indicating that the spacing of the procoxae of this genus varies from moderately narrow to very broad. In addition, certain other characters, such as antennal club with large basal corneous portion, protibiae with 4-6 socketed teeth and armed pronotum with rounded lateral margins are important for this genus. With this generic concept, as many as 15 species may be assigned to this genus from India, of which eight species including a new one are recognised from the sub-Himalayan West Bengal.

Further, a key for easy identification of species, has also been formulated for the first time. The synonym, morphological characters, range of distribution and variations, taxonomic and biological remarks pertaining to each of the species have also been provided. Mention may be made that the detailed description of each species has been incorporated due to its poor description available in the literature. The unidentified and identified material examined under some species, have been marked into two categories as 'A' and 'B' respectively.

Key to the genus *Xylosandrus* based on female only

1. Procoxae subcontiguous ; larger species, more than 4.00 mm     ...     ...     2  
— Procoxae widely separated ; smaller species, below 4.00 mm     ...     ...     3
2. Postero-lateral margins of declivity distinctly carinate ; posterior portion of

- pronotum with minute punctures ; declivity abruptly sloping ; body length 4.80 mm ... .. *X. gravidus* (Blandford)
- Postero-lateral margins of declivity not carinate, rather rounded with distinct tubercles ; posterior portion of pronotum with large punctures ; declivity rather gradually sloping ; body length 4.25-4.60 mm ... .. *X. ursinus* (Hagedorn)
3. Declivital surface with obsolete strial punctures, both striae and interstriae with granules and dense fine hairs ... .. 4
- Declivital surface with distinct strial and interstitial punctures , declivital interstriae with uniseriate row of hairs ... .. 6
4. Declivital face uniformly convex and gradually sloping, entire surface with confused granules ; posterior one-third of pronotum shiny, punctate and with dense hairs, but devoid of any tuft of hairs ; body length 2.20-2.50 mm ... .. *X. crassiusculus* (Motschulsky)
- Declivital face steep and abruptly sloping ; only interstitial granules confused, but strial granules in row, rather close and large ; posterior one-third of pronotum not shiny rather granulate, and with sparse hairs along with a median tuft of yellowish hairs ... .. 5
5. Declivital face strictly convex ; declivital interstriae with single row of small hairs along with dense microhairs ; discal striae of elytra feebly impressed marked by large punctures ; smaller species, body length 2.30-2.40 mm ... .. *X. discolor* (Blandford)
- Declivital face plano-convex ; declivital interstriae with single row of long fine hairs along with dense coat of pubescence ; discal striae of elytra not impressed only marked by shallow small punctures ; larger species, body length 2.80-2.90 mm ... .. *X. beasoni* sp. nov.
6. In profile, elytra strongly arching from base, declivital face abrupt ; body length 1.60-1.70 mm ... .. *X. morigerus* (Blandford)
- In profile, elytra feebly arching from base to apex ... .. 7
7. Strial puncture very large, distinct, each with a microhair ; body length 1.45 mm ... .. *X. mesuae* (Eggers)
- Elytral strial puncture very small, rather shallow devoid of microhair ; body length 1.88 mm ... .. *X. difficilis* (Eggers)

1. *Xylosandrus beelsoni* sp. nov.

(Fig. 1, a-f)

*Material examined* 4 Females, Rangirum (1846m), Darjiling Dist., coll. J. C. M. Gardner, 8.ix. 1929, ex. "*Symplocos theaeifolia*."

*Description* : *Female* : Body short and stout ; head and pronotum yellowish brown in colour, elytra slightly darker. Body length 2.80-2.90 mm, twice as long as wide.

Head globose ; frons plano-convex with a feeble median line ; surface finely reticulate with a few shallow punctures towards vertex and a few distinct carinulae converging towards epistomal margin ; vestiture of long sparse hairs. Eyes elongately

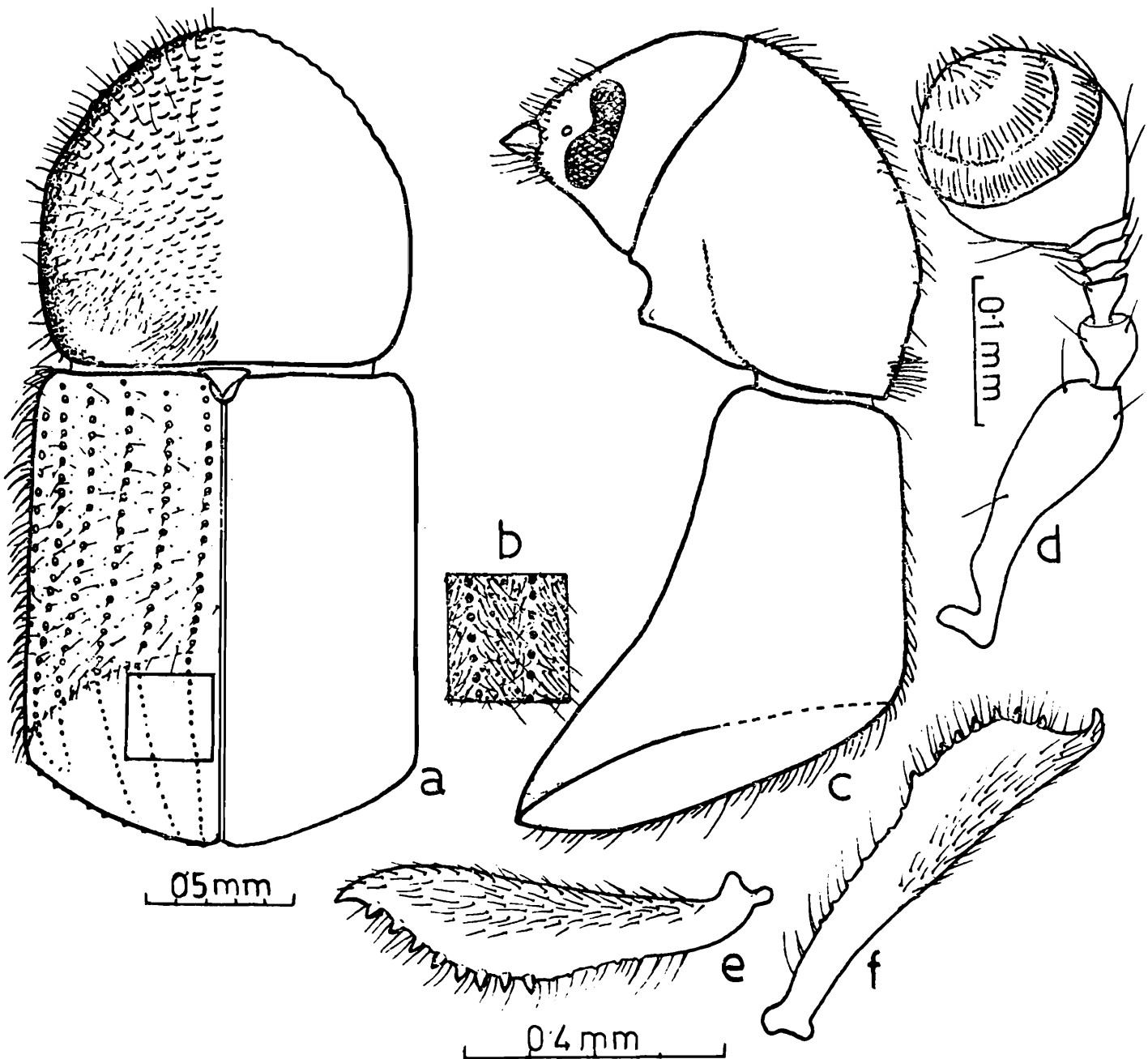


Fig. 1, a-f, *Xylosandrus beelsoni* sp. nov., Female: a, Pronotum and elytra in dorsal view ; b, enlarged portion of declivital face ; c, head, pronotum and elytra in lateral view ; d, antenna ; e, mesotibia ; f, protibia.

oval, broadly emarginate almost half of its width. Antennal scape short and stout; funicle with 5 segments; club obliquely truncate, on anterior face, basal corneous portion with revurved costate apical margin forming a complete ring to the apex, truncated face with two recurved sutures; posterior face devoid of any suture.

Pronotum subglobose, slightly wider than long, basal margin substraight, lateral sides feebly outcurved; anterior margin distinctly rounded and armed with 7-8 small asperities; summit conspicuous on basal third; entire surface with closely set small but distinct asperities in concentric rows, gradually smaller posteriorly except basal narrow strip, where only a few sparse small granules; entire surface with long erect hairs and postero-median portion with a dense patch of hairs.

Scutellum smooth, shiny and tongue-shaped.

Elytra upto truncated margin slightly wider than its own length and nearly as long as pronotum; basal margin substraight; lateral sides subparallel upto truncated margin, lower half of declivity converging posteriorly and terminating into an angular apex; discal striae feebly marked by small sparse shallow punctures, each with a microhair; interstriae flat and shiny, much wider than striae with irregular shallow, small punctures and with fine hairs. Declivital face abrupt, steep and convex; declivital margin on upper half somewhat rounded and lower half carinate; declivital face with striae 1, 2 and 3 complete, 4 and 5 forming a loop, all the striae marked by a row of closely set granules and microhairs, replacing punctures; interstriae punctures obsolete, but with irregular comparatively small granules and single row of fine long hairs along with dense coat of pubescence on entire surface. Procoxae moderately separated from each other, protibiae with 5 and both meso- and meta-tibiae with 8 teeth.

*Male* : Not available in material studied.

*Type-locality* : Rangirum (1846 m), Darjiling Dist., West Bengal, India.

*Type-specimens* : *Holotype* Female from a single source as under "Material" deposited in F.R.I., Dehra Dun.

*Paratypes* : Females from the same lot as above, deposited as follows (a) 2 Females, in F.R.I., Dehra Dun and (b) 1 Female, in Z.S.I., Calcutta.

*Comparison* : The species *Xylosandrus beelsoni* is close to *Xylosandrus discolor* (Blandford), but can be separated on the basis of following characters of the female : (i) Declivital face plano-convex in *X. beelsoni* (vs. declivital face strictly convex in *X. discolor*); (ii) Declivital interstriae with single row of long fine hairs along with dense coat of pubescence (vs. declivital interstriae with single row of small hairs along dense microhairs); (iii) Discal striae of elytra not impressed having small punctures (vs. elytral disc with feebly impressed striae marked by large

punctures) ; (iv) Pronotal summit conspicuous on basal third (*vs.* pronotal summit inconspicuous, dorsum uniformly convex) and (v) Larger species, body length 2.80-2.90 mm (*vs.* smaller species, body length 2.30-2.40 mm).

## 2. *Xylosandrus crassiusculus* (Motschulsky)

(Fig. 2, a-e)

1866. *Phloeotrogus crassiusculus* Motschulsky, *Bull. Imp. Nat. Moscou*, 39 : 403, Female, *Type-locality* : Mountain near Nuware Eliya, Sri Lanka.

1969. *Xyleborus crassiusculus* : Wood, *Gt. Basin Nat.*, 29 : 119.

1982. *Xylosandrus crassiusculus* : Wood, *Mem. Gt. Basin Nat.*, no. 6 : 766-768.

1986. *Xylosandrus crassiusculus* : Maiti and Saha, *Rec. zool. Surv. India, Occ. Paper*, no. 86 : 145-148.

1878 (1879). *Xyleborus semiopacus* Eichhoff, *Mem. Soc. Roy. Sci. Liege*, 8 (2) : 334.

1896. *Xyleborus semigranosus* Blandford, *Trans. ent. Soc. Lond.*, 211-212.

1908. *Dryocoetes bengalensis* Stebbing, *Indian For. Mem.*, Zool. 1 (1) : 12.

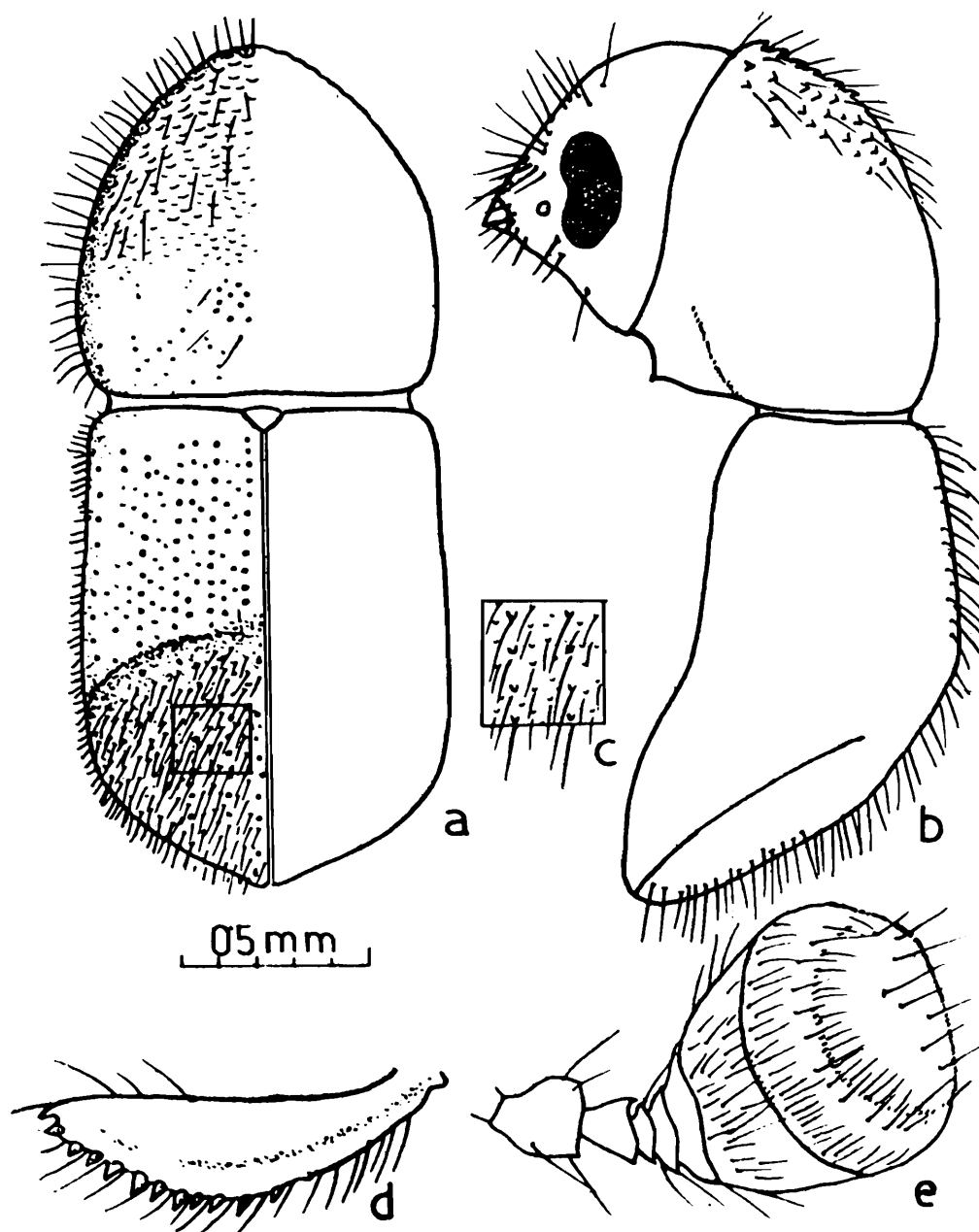


Fig. 2, a-e, *Xylosandrus crassiusculus* (Motschulsky), Female : Pronotum and elytra in dorsal view ; b, head, pronotum and elytra in lateral view ; c, enlarged portion of elytra in lateral view ; d, mesotibia ; e, antenna.

1908. *Xyleborus mascarensis* Hagedorn, *Dt. ent. Z.* p. 379.  
 1935. *Xyleborus okoumeensis* Schedl, *Stylops*, 4: 271-272.  
 1936. *Xyleborus declivigranulatus* Schedl, *J. Fed. Malay. St. Mus.* 18: 30

*Material examined*: (a) 125 exs. from Samsingh, Darjiling Dist., as follows: (i) 63 Females, coll. N. C. Chatterjee, in different dates between 16.ii. 1934 and 5.xii. 1934, ex. "*Lasiococca* sp." (ii) 2 Females, coll. Borer Project, ex. "*Amoora wallachii*"; (iii) 2 Females, coll. N. C. Chatterjee, 7 and 14.x. 1933, ex. "*Amoora wallachii*"; (iv) 4 Females, coll. Borer Project, 1933 ex. "*Acrocarpus fraxinifolius*"; (v) 2 Females, coll. C.F.C. Beeson, 17.ii. and 6.iii. 1934, ex. "*Sapium euginiaefolium*"; (vi) 1 Female, coll. Balwant Singh, ex. "*Ostodes paniculata*"; (vii) 3 Females, coll. Mohan Lal, January, 1934, ex. "Unknown wood"; (viii) 30 Females, coll. N. C. Chatterjee, 10.x. 1933, ex. "*Litsaea elongata* (Painle) and (ix) 18 Females, coll. N. C. Chatterjee, 10.x. 1933, ex. "swasanikat." (b) 1 Female, Dahura, Bagdoga, Darjiling Dist., coll. N. C. Chatterjee, 22.x. 1933, ex. "*Schima wallichii*." (c) 21 Females, Tista valley. Darjiling Dist., coll. J. C. M Gardner, 28.ix. 1929, ex. "Misc-timber" and "*Cedrela toona*" (d) 4 exs., Sukna, Darjiling Dist., coll. C. F. C. Beeson, as follows: (i) 3 Females, 12-13.viii. 1935, ex. "*Cryptocarya wightiana*" and (ii) 1 Female, 5.ix. 1935, ex. "unknown wood" (e) 13 exs., Gazalduba, Jalpaiguri Dist., coll. N. C. Chatterjee, as follows (i) 5 Females, 16.x. 1933, ex. "malata" (*Macaranga denticulata*) (ii) 2 Females, 14.x. 1933, ex. "archaya" and (iii) 6 Females, October, 1933, ex. "unknown wood."

*Description*: *Female*: Body stout and broad; head and pronotum chestnut brown, elytra comparatively darker, antennae and legs paler. Body length 2.20-2.50 mm, 2.5 times as long as wide.

Head globose; frons weakly convex surface coarsely granulate and with erect hairs, a few distinct carinulae on either side of distinct median line converging towards epistomal margin; sparsely punctate towards vertex.

Pronotum nearly as long as wide, lateral sides weakly outcurved; anterior margin narrowly rounded accommodating 8-9 weak asperities; summit feebly marked at the middle; nearly anterior two-thirds with fine asperities and presence of both small and long hairs; posterior portion finely reticulate with distinct punctures and usually with sparse fine hairs, more denser towards basal margin.

Scutellum fairly large and tongue-shaped.

Elytra 1.20-1.30 time as long as pronotum, 1.20-1.30 times as long as its own width; lateral sides subparallel upto basal two-thirds thence broadly rounded posteriorly; postero-lateral margins distinctly elevated with prominent carinae and confluent with interstria 7; discal striae marked by small and shallow punctures,

each with a microhair ; interstriae at least 3 times as wide as striae with irregular 2-3 rows of shallow punctures and granulate posteriorly ; interstriae with long erect hairs. Declivital face uniformly convex and gradually sloping, feebly elevated towards sutural apex ; surface opaque and striae punctures obsolete, rather with confused granules throughout ; vestiture consisting of small fine hairs and also uniseriate row of long stout setae.

*Male* : Not available in the material studied.

*Distribution* India : West Bengal (Darjiling and Jalpaiguri Dists.) ; also widely distributed in India ; Oriental Region to Japan, Pacific Islands to Hawaii, Tropical Africa and North America.

*Remarks* The species was described by Motschulsky (1866) as *Phloeotrogus crassiusculus* from Sri Lanka. Since then many species described under the genera *Dryocoetes* and *Xyleborus* from different territories of the Orient have been synonymised under this species. Wood (1969) transferred the species to the genus *Xyleborus* and subsequently in 1982 to *Xylosandrus*.

It is a very common pin-hole borer infesting the cut poles, branches of small to moderate size logs and newly swan timbers of numerous plants in the circum-tropics. In India, Stebbing (1908) described a species, *Dryocoetis bengalensis* from Assam, which was considered by Beeson (1930) as *X. semigranosus* Blandford. The latter species with its wide distribution in India remained valid until 1959, when Schedl synonymised it under *X. semiopacus* Eichhoff which was subsequently put under *Xyleborus crassiusculus*. However, Beeson (op.cit.) provided biological information and dealt with numerous host along with the accounts of gallery pattern, habit and habitat of the beetles under the name *Xyleborus semigranosus* in India. A few more new hosts are also recorded from the study area as follows : *Acrocarpus fraxinifolia*, *Amoora wallachii*, *Cryptocarya wightiana*, *Lasiococca* sp., *Litsaea elongata*, *Maranga denticulata*, *Sapium euginiaefolium* and *Schima wallachii*. Maiti and Saha (1986) recorded a few more hosts of this species from the Andamans.

There is considerable variation of size of this species from 2.20 to 2.50 mm which might led the earlier workers to confusion and erecting new species or variety. For example in Malaya, the females measuring 1.9 to 2.2 mm were considered as a separate species *X. declivigranulatus* Schedl which was nothing but the smaller forms of *X. semigranosus* (Browne, 1961).

### 3. *Xylosandrus difficilis* (Eggers)

(Fig. 3, a-b)

1923. *Xyleborus difficilis* Eggers, *Zool. Meded.*, 7 : 174-175, Female, *Type-locality* : Java, Indonesia  
 1930. *Xyleborus difficilis* : Beeson, *Indian Forest Rec. (Ent.)* : 14 (10) : 56.  
 1961. *Xylosandrus difficilis* : Browne, *Malay. Forest Rec.*, no. 22 : 165-166.

**Material examined :** A. 8 exs. from different parts of Darjiling Dist. : (i) 2 Females, Lopchu, coll. *J. C. M. Gardner*, 5.xi. 1929 and 28.i. 1930, ex. "*Litsaea elongata*"; (ii) 2 Females, Samsingh, coll. *N. C. Chatterjee*, 24.x. 1933 and 4.iv. 1934, ex. "jhankarikat," (iii) 1 Female, Senchal Range, coll. *J. C. M. Gardner*, 14.ix. 1929, ex. "unknow wood"; (iv) 2 Females, Tista Valley, coll. *J. C. M. Gardner*, 17.x. 1929, ex. "unknown wood" and (v) 1 Female, Rangirum, coll. *J. C. M. Gardner*, 6.ix. 1929, ex. "*Juglans regia*." B. (i) 7 Females, Lopchu, coll. *J. C. M. Gardner*, in different dates between 12.iii. 1929 and 8.iv. 1930, ex. "*Beilschmiedia sikkimensis*" and (ii) 5 Females, Samsingh, coll. *N. C. Chatterjee*, January, March and April, 1934, ex. "*Aphanamixis polystachya*" (det. S. L. Wood).

**Description :** *Female* : Body short and stout ; head, pronotum and elytra reddish brown to blackish brown. Body length 2.10-2.25 mm, 2.1-2.2 times as long as wide.

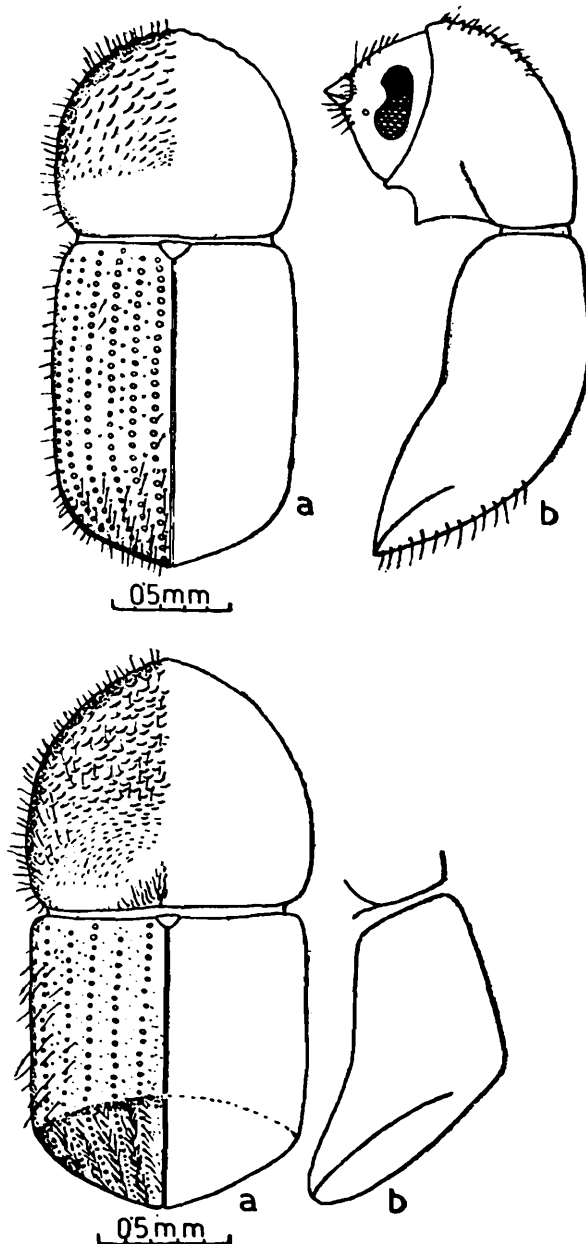


Fig. 3, a-b, *Xylosandrus difficilis* (Eggers), Female : a, Pronotum and elytra in dorsal view ; b, head, pronotum and elytra in lateral view.

Fig. 4, a-b, *Xylosandrus discolor* (Blandford), Female : a, Pronotum and elytra in dorsal view; b, elytra in lateral view.



Head globose ; frons plano-convex, with either weakly or fairly developed median line ; surface reticulate with sparse shallow punctures and long erect hairs.

Pronotum 1.1 times as wide as long ; lateral sides feebly outcurved and converging anteriorly ; anterior margin broadly rounded accommodating 7-9 fairly distinct asperities ; summit indistinct ; anterior half with closely set transverse distinct asperities and arranged some what in concentric rows, gradually becoming smaller posteriorly ; posterior half shiny with punctures and inconspicuous hairs, except on postero-median portion.

Scutellum subtriangular and comparatively large.

Elytra nearly 1.5 times as long as pronotum and 1.3 times as long as its width ; lateral sides subparallel upto basal three-fourths, thence converging posteriorly, with broadly rounded apex ; discal striae marked by shallow sparse punctures, devoid of any microhair ; interstriae flat, shiny much wider than striae, with uniseriate minute punctures and sparse erect hairs. Declivity commencing behind the middle, face steep and convex ; postero-lateral margins distinctly carinate and confluent with interstria 7 ; striae 1, 2 and 3 outcurved at the level of anterior portion of posterior half of declivity, marked by distinct close punctures ; interstriae with uniseriate sparse granules and long erect hairs. Procoxae widely separated from each other. Protibiae with 5 and both meso-and meta-tibiae with 10 teeth.

*Male* : Not available in the material studied.

*Distribution* : India : West Bengal (Darjiling Dist.) and Assam ; Indonesia, Malaysia and extends across the Pacific as far as to Fiji.

*Remarks* : This species is closely related to *X. mesuae* and was originally described under *Xyleborus* from Java. Subsequently, it was recorded from the intervening areas of eastern India (Assam) to Fiji in the Pacific. Recently, it has been transferred to the genus *Xylosandrus* by Browne (1961). However, the species is recorded here for the first time from the hilly tracts of north Bengal, thus extending its distribution further east of Assam. In Assam, it was recorded from a single host, *Gmelina arborea* (Beeson, 1930). Four hosts, namely *Aphanamixis polystachya*, *Beilschmiedia sikkimensis*, *Juglans regia* and *Litsaea elongata* are the additional hosts of the species from the sub-Himalayan West Bengal. In Malaya, the species is found infesting predominantly the stout twigs, poles and branches of smaller diameters (Browne, 1961). The species is never considered as economically important one, since the damage caused to the wood is generally superficial in nature. The colour varying from reddish brown to complete black is a common feature of the species.

4. *Xylosandrus discolor* (Blandford)

(Fig. 4, a-b)

1898. *Xyleborus discolor* Blandford, *Trans. ent. Soc. Lond.*, p. 429, Female, *Type-locality* : Sri Lanka.  
 1930. *Xyleborus discolor* : Beeson, *Indian Forest Rec. (Ent.)*, 14 (10) : 56.  
 1961. *Xylosandrus discolor* : Browne, *Malay. Forest. Rec.*, no. 22, p. 169.  
 1986. *Xylosandrus discolor* : Maiti and Saha, *Rec. zool. Surv. India, Occ. Paper*, no. 86 : 148-151.  
 1939. *Xyleborus posticestriatus* Eggers, *Arb. morph. taxon Ent.*, 6 : 119, Male.

*Material examined* 1 Female from Samsingh, coll. C.F.C. Beeson, 7.x. 1933, ex. "areri kanda."

*Description* : *Female* : Body short and stout ; head and pronotum pale brown ; elytra blackish brown ; antennae and legs pale brown. Body length 1.90-2.00 mm, twice as long as wide.

Head globose ; frons plano-convex with a feeble median line ; surface reticulate with a few shallow punctures towards vertex and a few fine carinulae converging towards epistomal margin ; vestiture of erect hairs.

Pronotum subglobose ; 1.1 times as wide as long ; anterior margin distinctly rounded and armed with 7-8 adpest asperities ; summit indistinct, entire surface with closely set small but distinct asperities in concentric rows, gradually becoming granulate posteriorly and with small erect hairs throughout ; postero-median portion with a dense patch of pubescence.

Scutellum smooth, shiny and tongue-shaped.

Elytra almost as long as pronotum and its own width ; lateral sides subparallel upto basal fifth, whence strongly converging posteriorly into an angular apex ; discal striae feebly impressed with shallow linear punctures, each with a microhair ; interstriae much wider than striae, with irregular shallow small punctures and sparse hairs. Declivital face abrupt, steep and convex, and declivital margin on upper half somewhat rounded and lower half carinate ; striae 1, 2 and 3 complete, 4 and 5 forming loop, all the striae marked by single row of closely set granules and microhairs, replacing punctures ; interstitial punctures also obsolete, but with irregular comparatively small granules and a single row of small hairs along with microhairs on entire surface. Procoxae moderately separated from each other, protibiae with 4 and both meso- and meta-tibiae with 8 teeth.

*Male* : Not available from the collection for study.

*Distribution* India : West Bengal (Darjiling Dist.), Andaman Isl., Assam, Tamil Nadu and Uttar Pradesh ; Burma, Indonesia, Malaysia, Sri Lanka, Sumba Isl. and Taiwan.

*Remarks* : This species has the unique character such as declivital striae marked by uniseriate close granules replacing punctures like those of *Xylosandrus besoni* sp. nov. and *X. crassiusculus* (Motschulsky). It is a fairly common shoot-and twig-borer of many a green plants in India, Sri Lanka, Burma, Malaya and Indonesia. In the present study, the species is collected only in a single occasion from an unidentified host in the study area. The biological features, such as developmental period, emergence of adults, gallery pattern, nest and brood size, etc. have been studied by different authors in different countries, namely, Beeson (1941) in India, Browne (1961) in Malaya and Kalshoven (1958 and 1959) in Indonesia.

### 5. *Xylosandrus gravidus* (Blandford)

(Fig. 5, a-c)

1898. *Xyleborus gravidus* Blandford, *Trans. ent. Soc. Lond.*, p. 427, Female, *Type-locality* : Chittagaon hills tracts, Bangladesh.  
 1914. *Xyleborus gravidus* : Stebbing, *Indian Forest Insects (Coleopt.)* p. 586.  
 1977. *Xyleborus gravidus* : Kumar and Chandra, *Oriental Ins.*, 11 (1) : 34.

*Material examined* : (i) 1 Female, Pashok, coll. *Ind. Mus.*, May, 1915; (ii) 6 Females, Samsingh, coll. *N.C. Chatterjee*, in different dates between 19.iii. and 14.iv. 1934, ex. "swasnikat" and (iii) 6 Females, Samsingh, coll. *Balwant Singh*, Nov. 1933, ex. "unknow wood" (*det. C.F.C. Beeson* as *Xyleborus gravidus* Blandford).

*Description* : *Female* : Body short and stout : head, posterior half of pronotum, antennae, legs yellowish brown and anterior slop of pronotum, elytra deep reddish brown and sometimes entire body reddish brown in colour. Body length 4.80 mm, 1.7 times as long as wide.

Head globose ; frons convex, medially slightly elevated with indistinct or obsolete median line, surface shiny with irregular punctures and long erect hairs.

Pronotum 1.1-1.2 times as wide as long ; basal margin substraight with median broad emargination ; lateral sides feebly outcurved, anterior margin produced to accommodate at least 6 pointed asperities, middle two very distinct, transverse summit nearly at middle ; anterior declivous portion with transverse asperities becoming smaller posteriorly ; posterior half shining with distinct sparse minute punctures ; vestiture of long hairs only on anteriorly and laterally, postero-median portion with a dense patch of recumbent hairs.

Scutellum small, distinctly broader than long.

Elytra 1.3 times as long as pronotum and nearly as long as its width ; basal margin feebly outcurved at the level of interstriae 2 and 3 ; lateral sides subparallel whence strongly converging posteriorly and terminating into an angular apex ; discal striae marked by sparse shallow and small punctures, without distinct micro-hair ; interstriae much wider than striae, surface flat and shiny with irregular rows

of minute punctures and a few sparse small hairs. Declivital face steep and flatly convex with oblique surface, declivital margins on upper half rounded and strongly carinate on lower half; striae impressed, with large close punctures, each with a microhair; all interstriae with 2-3 irregular rows of granules; surface with vestiture of short recumbent as well as uniseriate row of sparse long erect hairs. Procoxae subcontiguous; protibiae with 6 and both meso-and meta-tibiae with 11 teeth.

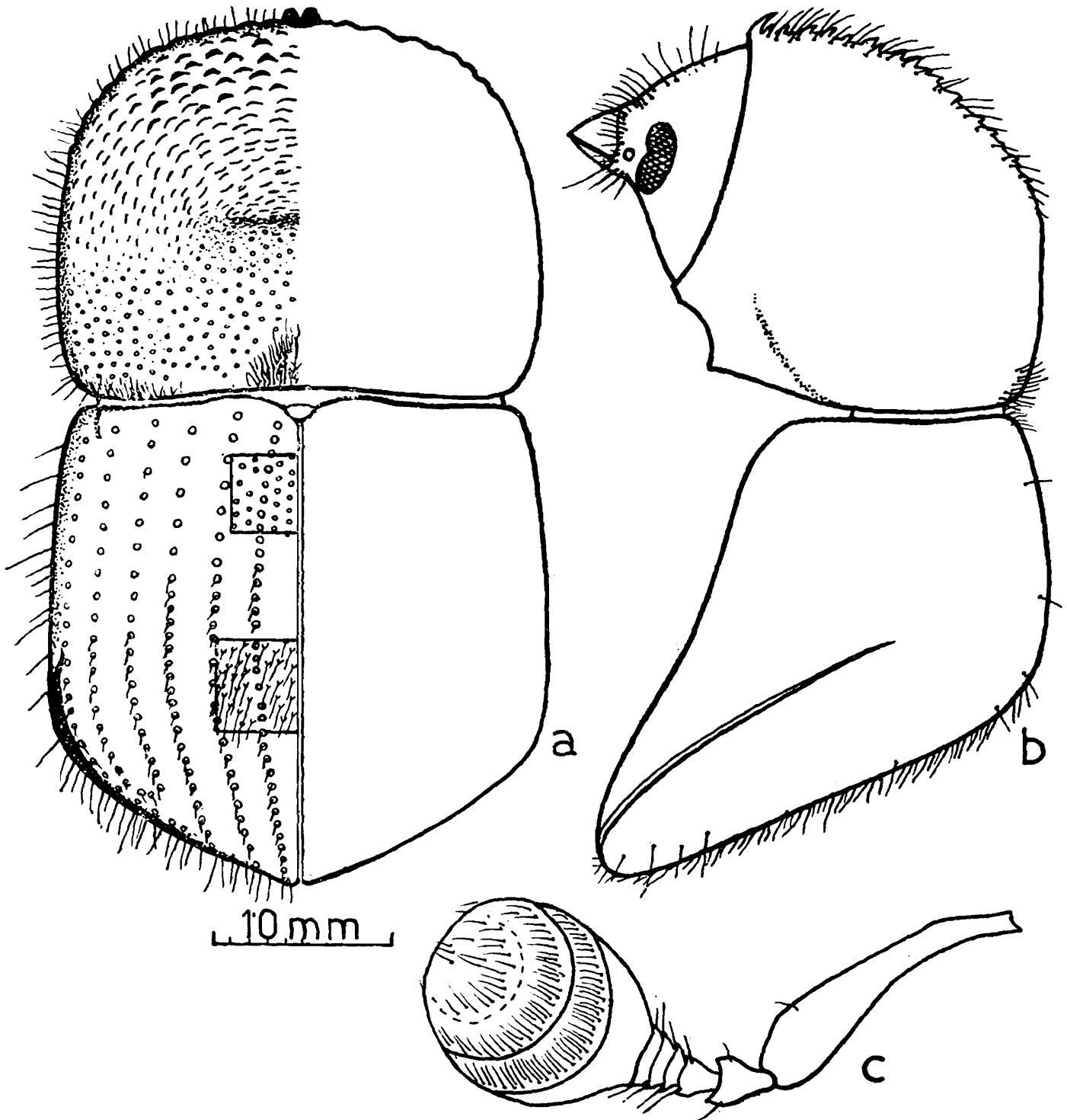


Fig. 5. a-c. *Xylosandrus gravidus* (Blandford) Female: a, Pronotum and elytra in dorsal view; head, pronotum and elytra in lateral view; c, antenna.

*Male* : Male not available in the material under study.

*Distribution* India : West Bengal (Darjiling Dist.) and Assam ; Bangladesh, Burma, Laos, Malaysia, North Vietnam, Thailand and Sri Lanka.

*Remarks* : This is a fairly widely distributed species in south east Asia. The examination of identified material exhibits some uniform deep brown colour throughout. But, the head, posterior half of pronotum, antennae and legs of some beetles from Samsingh are yellowish brown and anterior slop of pronotum and elytra of same individual are deep reddish brown in colour.

In all essential morphological characters, the species certainly belongs to the genus *Xylosandrus*, but almost contiguous procoxae serves as an unique character of the species.

The species has been recorded from a number of hosts (Beeson, 1930). In the study area has been collected from some unidentified host plants. This species is of possible economic importance, though it attacks on young trees (Beaver and Browne, 1975).

#### 6. *Xylosandrus mesuae* (Eggers)

(Fig. 6, a-c)

1930. *Xyleborus mesuae* Eggers, *Indian Forest Rec. (Ent')* 14 (9) : 6, Female, *Type-locality* : Kalimpong, West Bengal.

1930. *Xyleborus mesuae* : Beeson, *Indian Forest Rec. (Ent')*, 14 (10) : 69-70.

1963. *Xylosandrus mesuae* : Browne, *Ent. Ber.*, 23 : 55.

*Material examined* : Four Females (Holotype and 3 paratypes ) from Kalimpong, Darjiling Dist. 1910, ex. "*Mesua ferrea*."

*Description* : *Female* Body short and stout ; colour yellowish brown, elytra comparatively darker. Body length 1.46 mm (original-1.1 mm), 2.3 times as long as wide.

Head largely concealed under pronotum ; frons plano-conves with scattered punctures ; epistomal margin with a very few short hairs.

Pronotum just wider than long, lateral sides subparallel upto half then converging anteriorly, anterior margin narrowly rounded armed by 9-10 closely set of asperities ; summit indistinct ; anterior half with fine transverse asperities and few recumbent hairs ; posterior half shiny, punctures and hairs indistinct.

Scutellum small, broader than long.

Elytra 1.47 times as long as pronotum, 1.33 times as long as its width ; lateral sides subparallel upto three-fourths, thence broadly rounded posteriorly ; postero-lateral margins forming distinct carina, which extending upto interstriae 7 ; discal

striae marked by distinct punctures ; interstriae flat, shiny with sparse indistinct punctures. Declivital face abruptly sloping, face flatly convex ; striae distinctly impressed with close and large punctures, each with a microhair ; interstriae feeble elevated with uniseriate row of fine granules and recumbent hairs. Procoxae well separated ; protibiae with 5-6 and both meso-and meta-tibiae with 8 teeth.

*Male* : Not available in the material studied.

*Distribution* : India : West Bengal (Darjiling Dist.) and Uttar Pradesh (Siwalik).

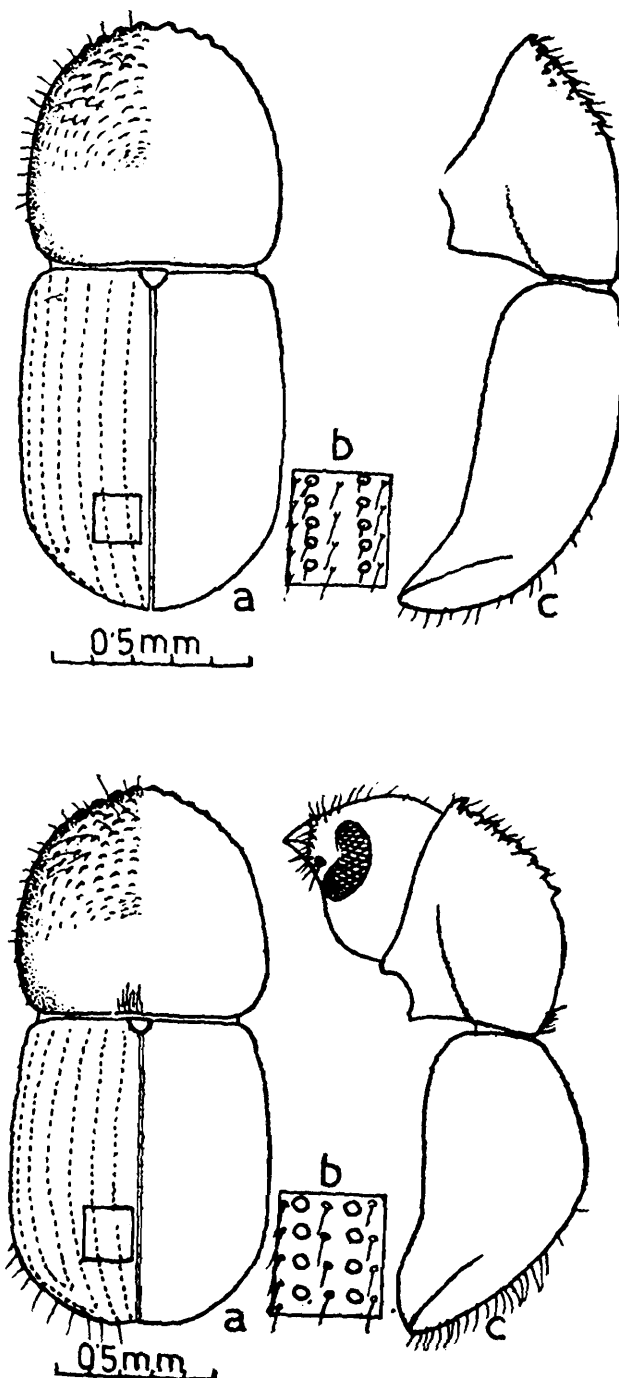


Fig. 6. a-c. *Xylosandrus mesuae* (Eggers), Female : a, Pronotum and elytra in dorsal view ; b, enlarged portion of elytral declivity ; c, pronotum and elytra in lateral view.

Fig. 7. *Xylosandrus morigenus* (Blandford), Female : a, head and pronotum in dorsal view ; b, enlarged portion of elytra declivity ; c, pronotum and elytra in lateral view.

*Remarks* : The species is so far known only from the hilly tract of Darjiling Dist., West Bengal. According to Beeson (1930), its record from Siwaliks (Phandowala) in U.P., is probably an error in labelling. It is reported as a twig borer of dying *Mesua ferrea* in association with *Xyleborus mucronatulus* Eggers in Kalimpong.

### 7. *Xylosandrus morigerus* (Blandford)

(Fig. 7, a-c)

1894. *Xyleborus morigerus* Blandford, *Insect life*, 6 : 264--265, Female and Male, *Type-locality* : New Guinea.  
 1930. *Xyleborus morigerus* : Beeson, *Indian Forest Rec.*, 14 (10) : 73.  
 1913. *Xylosandrus morigerus* : Reiter, *Wien. ent. Ztg.*, 32 (2) : 83. 1908. *Xyleborus coffeae* Wurth, *Salatiga Cultuurgids* 10 : 63-78.  
 1923. *Xyleborus luzonicus* Eggers, *Zool. Meded.*, 7 : 174.

*Material examined* : (a) 5 Females, Tista Valley, Darjiling, coll. J. C. M. Gardner, 29.ix., 7.x. and 27.xi. 1929, ex. "unknown wood"; (b) 13 Females, Samsingh, as follows : (i) 2 Females, coll. C. F. C. Beeson, 4.x. 1933, ex. "amboke" (*Eugenia formosa*); (ii) 8 Females, coll. C. F. C. Beeson, 7.x. 1933, ex. "arerikanda"; (iii) 2 Females, coll. N. C. Chatterjee, 26.x. 1933, ex. "Bamni pal" and (iv) 1 Female, coll. Mohan Lal, January, 1934 ex. "unknown wood."

*Description* : *Female* : Body short and stout, colour yellowish brown to complete black, antennae and legs rather paler. Body length 1.60-1.70 mm, nearly twice as long as wide.

Head globose, frons convex with a distinct median line; surface finely reticulate with sparse fine granules and long erect hairs.

Pronotum 1.1 times as wide as long basal margin substraight, lateral sides feebly outcurved with narrowly rounded anterior margin accommodating 5-6 transverse asperities; summit indistinct; anterior half with weak transverse asperities in concentric rows and bent hairs; posterior half without any puncture or granules; a few hairs laterally and at postero-median portion.

Scutellum comparatively large and tongue shaped.

Elytra 1.3 times as long as pronotum and 1.1 times as long as its width, slightly wider than pronotum; lateral sides subparallel upto four-fifth with broadly rounded apex; postero-lateral margin elevated forming distinct carinae extending to interstria 7; in profile, disc strongly convex, arching from base; surface smooth and shiny with indistinct striae marked by minute punctures, devoid of any microhair; interstriae flat with inconspicuous punctures and hairs. Declivital face abrupt, steep and convex; striae punctures rather close and distinct than on disc; interstriae with

uniseriate punctures and erect hairs, each puncture sometimes bearing minute granules. Procoxae widely separated, protibiae with 4 teeth and both meso- and metatibiae with 6 teeth.

*Male* : Not available in the present material.

*Distribution* : India : West Bengal (Darjiling Dist.) ; Indomalayan Region, imported to East Africa, Colombia and some of the polynesian islands (New Braitania, Samoa, Fiji, Hawaii), and Europe and America.

*Remarks* : The species is recorded here for the first time from the interior of the mainland of India, occurring in the hilly tracts of north Bengal. Prior to this, it was known only from some insular territories of the Indo-Malayan region and subsequently imported to many countries of the world. In north Bengal, it has been collected from a few localities infesting *Eugenia formosa* in addition to some unknown wood. The species was originally described from a orchid, *Dendrobium phalaenopsis* in New Guinea. The development of brood takes exceedingly short period of more than a week in Sri Lanka (Beeson, 1930). The species can easily be separated from all other members of the genus by its smaller body form and elytra arching from the base towards declivital summit.

### 8. *Xylosandrus ursinus* (Hagedorn)

(Fig. 8, a-b)

1908. *Xyleborus ursinus* Hagedorn, *Dt. ent. Z.*, p. 381, Female *Type-locality* : Ri-Rambe, Sumatra, Indonesia.  
 1927. *Xyleborus ursinus* : Eggers, *Treubia*, 9 : 406  
 1966. *Xyleborus ursinus* : Schedl, *Entom. Abh. Mus. Tierk. Dresden*, 35 : 75.  
 1986. *Xylosandrus ursinus* : Maiti and Saha, *Rec. zool. Surv. India, Occ. Paper No. 86* : 151-153.

*Material examined* : A. (i) 35 Females, Samsingh, different dates in between 17.x. 1933 and 31.i. 1934, ex. "*Sterculia colorata*" or "*Sapium eugeniaefolium*" and (ii) 3 Females Samsingh, coll. N.C. Chatterjee, 4.iii. 1934, ex. "*Castanopsis* sp.", B. 62 exs. from Samsingh, as follows : (i) 15 Females, coll. Mohan Lal, January, 1934, "unknown wood" ; (ii) 27 Females, coll. Balwant Singh, February, 1934, ex. "unknown wood" ; (iii) 1 Female, coll. Mohan Lal, December, 1934 ; (iv) 19 Females, coll. C. F. C. Beeson, 2.x. 1933, ex. "barkula"—(*Casearia glomerata*) (det. S.L. Wood).

*Description* : *Female* : Body broad and stout ; head blackish brown, pronotum and elytra pitchy black, antennae and legs light brown ; body densely hairy. Body length 4.25-4.40 mm, 1.8 times as long as its width.

Head globose ; frons plano-convex, surface finely reticulate with moderately close, deep scattered punctures and a few long hairs.



Pronotum globose, 1.23-1.28 times as wide as long, lateral sides moderately outcurved with broadly rounded anterior margin accommodating 5 median asperities, middle one largest; summit little behind the middle; distinct asperities on anterior declivous two-thirds, gradually larger anteriorly; posterior half with large, deep, close punctures; entire pronotum with dense long hairs.

Scutellum smooth, large and subrounded.

Elytra 1.4 times as long as and nearly as wide as pronotum and nearly as long as its width; lateral sides very weakly outcurved with broadly rounded apex, postero-lateral margins without any distinct carina rather with some close either small or large distinct granules; striae with close small shallow punctures, each with a microhair; interstriae flat, much wider than striae with irregular setiferous punctures. Declivity commencing a little before the middle, face weakly convex and gradually sloping posteriorly; striae fairly impressed marked by shallow, comparatively large punctures, each with a microhair; interstriae flat with irregular punctures, sparse granules and long erect dense hair. Procoxae subcontiguous; protibiae with 6 and both meso-and meta-tibiae with 9 teeth.

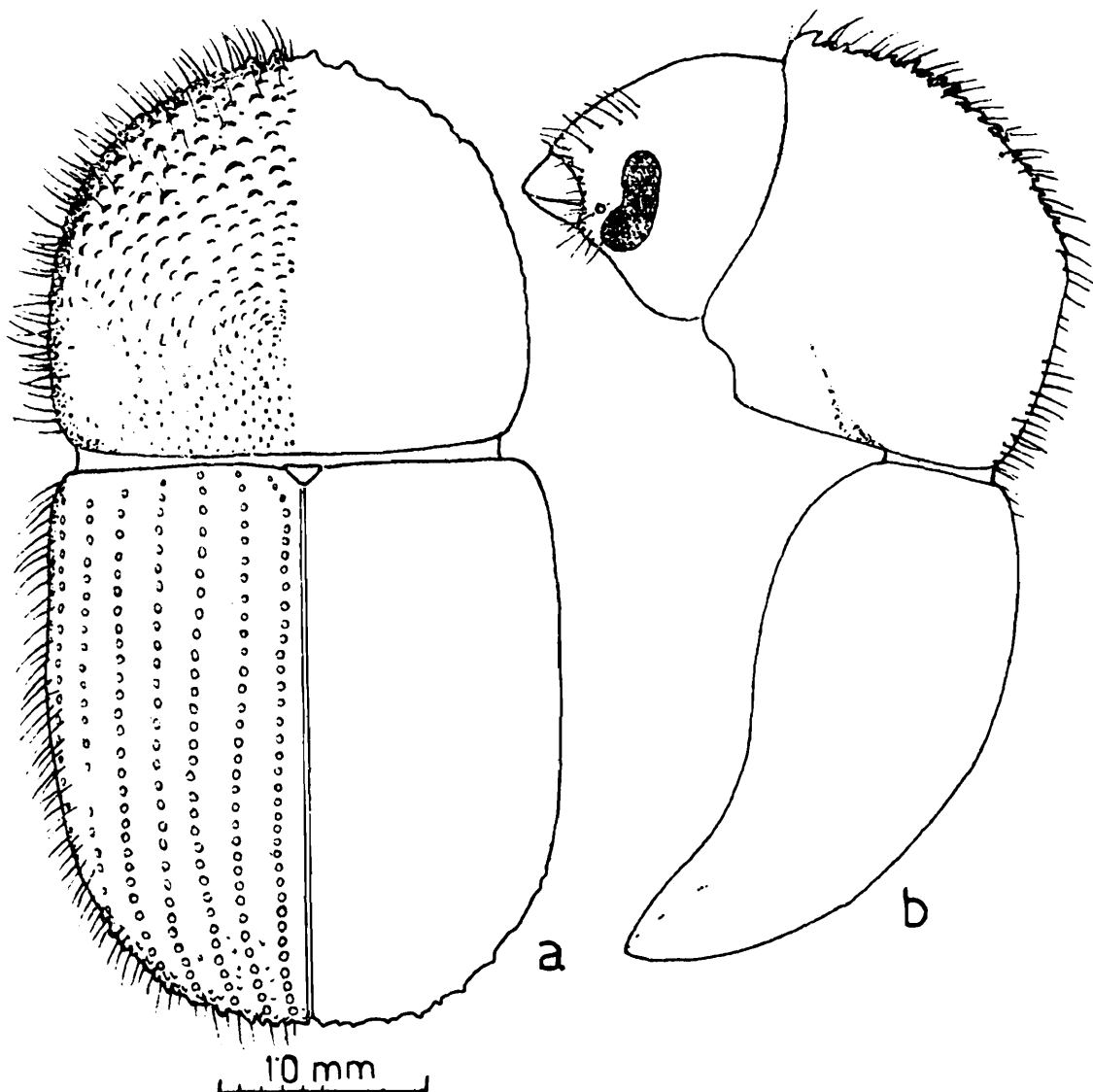


Fig. 8, a-b, *Xylosandrus ursinus* (Eggers), Female: a, Pronotum and elytra in dorsal view; b, head, pronotum and elytra in lateral view.

*Male* : Male not available in the material studied.

*Distribution* : India : West Bengal (Darjiling Dist.), and Nicobar Isl. ; Indonesia and Philippines.

*Remarks* : The stout and strong body from with profuse pilosity is an aid to the identity of the species. The tubercles on the postero-lateral margins of elytra vary considerably in the individual of different collection. However, the species was so far known from the different insular territories of the Orient including Great Nicobar Island. It is recorded here for the first time from the interior of Indian mainland occurring in the sub-Himalayan West Bengal. Recently, Maiti and Saha (1986) reported the species from felled logs of some four host-plants in the Great Nicobar. The new host records from the study area, are as follows : *Casearia glomerata*, *Castanopsis* sp., *Sterculia colorata* or *Sapium eugeniaefolium*.

#### SUMMARY

The paper deals with the taxonomic account of seven species of Scolytid beetles belonging to the genus *Xylosandrus* from the sub-Himalayan West Bengal, based on the material present in the Forest Research Institute, Dehra Dun. Of these species, *X. beelsoni* has been described as new to science and three species, namely, *X. difficilis* (Eggers), *X. morigerus* (Blandford) and *X. ursinus* (Hagedorn) are recorded for the first time from the area. A key for the identity of the species have been prepared for the first time. Each species has been dealt with synonymies, diagnostic character, range of distribution and variations, taxonomic and biological remarks etc.

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