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INTRODUCTION

Thysanoptera or Thrips, the plant infesting small insects are found on big or small plants. Sometimes they damage economic plants considerably. Earlier Muraleedharan (1982), Sen and Muraleedharan (1977), Sen et al. (1988), worked for North Eastern parts of India and reported about 105 sps. From Sikkim 17 species have been recorded so far. A brief diagnostic character is given for the recorded species.

SYSTEMATIC ACCOUNT

Order THYSANOPTERA
Sub-order TEREBRANTIA
Family THRIPIDAE

1. Anaphothrips sudanensis Thybom
2. Ctenothrips niger Kudo
3. Lefroyothrips lefroyi (Bagnall)
4. Megaleurothrips distalis (Kerny)
5. Stenchaetothrips biformis (Bagnall)
6. Taeniothrips major (Bagnall)
7. Thrips beharensis (Ram. & Maig.)
8. Thrips flavus (Schrank)
9. Thrips hawaiiensis (Morgen)

Suborder TUBULIFERA
Family PHLAEOPTHRIIDAE

1. Elaphrothrips curviceps Priesner
2. Elaphrothrips denticollis (Bagnall)
3. Elaphrothrips procer (Schmutz)
4. Elaphrothrips spiniceps Bagnall
5. Gigantothrips elegans Zimmerman
6. Haplothrips gowdeyi Franklin
7. Haplothrips ganglbaueri Schmutz
8. Liothrips aberrans Muralee & Sen

Key to suborder

Abdominal segment X tubular. Female without saw like ovipositor. Forewing without longitudinal veins and setae ..............................................
......................................................... Suborder TUBULIFERA
Abdominal segment X rarely tubular. Female always with saw like ovipositor. Forewing with veins and setae on veins .................................
......................................................... Suborder TEREBrANTIA

Suborder TEREBrANTIA
Family THRIPIDAE

Key to the genera

1. Prothorax without any major setae, only with 2 conspicuous setae at hind angle. Antennae 8-segmented. Wings not very broad, setae on veins weak. Abdominal tergum IX of female without a pair of well developed mediodorsal setae and males often with one or two pairs of stout thorn like setae on abdominal segment IX ............................... Anaphothrips Uzel.

- Prothorax with major setae and with one or two conspicuous setae at hind angles and usually with 2-6 pairs of post marginal setae ............................................. 2.

Antennae 7 segmented, very rarely 8-segmented due to split in the style ............ 6

3. Forewings with a regular series of setae in both veins. Head constricted behind eyes, checks bulged. Males with subapical glandular area, one on each abdominal sterna III - VIII. Terminal setae on abdominal tergite X long and stout and sternite without accessory setae ........................................... Ctenothrips Franklin.

- Forewings without regular series of setae.. 4

4. Head with only one pair of anteocellar. Abdominal tergite VIII with or without a comb. .................. Taeniothrips Amyot & Serville.

- Head with 2 pairs of anteocellars ............ 5

5. Postocular in two rows. Males with 6 setae on abdominal tergum IX ........................................... Lefroyothrips Priesner.

- Postocular in a single row. Head not constricted behind eyes, parallel sided ; check narrowed posteriorly. Antennae showing sexual dimorphism .............. Megaleurothrips Karney.

6. Spinula on meso and metasternum absent or weakly developed in metasternum only. Maxillary palpi 2-segmented. Antennal segment 2 with middorsal seta ........... Stenchaetothrips Bagnall.

- Spinulla on mesosternum distinct, absent on metasternum. Abdominal tergites without posterior marginal flange. Sternites with or without glandular areas in males; accessory setae on abdominal sternites in both sexes may or may not be present. Forelegs unarmed ... ........................................... Thrips Linn.

Genus Anaphothrips Uzel


1. Anaphothrips sudanensis Trybow.


Diagnosis : Body brown, abdomen anteriorly light brown, posteriorly brown. Head almost as long as wide. Prothorax, hind angle without conspicuous setae. Setae on veins weak.

Material : 1♀, Tadong, 25.8.97. coll. T. D. Soota

Distribution : India, Throughout

Elsewhere : Widely distributed.

Genus Ctenothrips Franklin


2. Ctenothrips niger Kudo


Diagnosis : Body colour blackish brown, forewing dark brown, setae dark brown. Head as long as wide, check surface reticulate, constricted behind eyes. Eyes large, half of head length. Post ocular well developed. Mouth long. Antennae 8-segmented, segment 3 longest. Prothorax as long as head. Anterior margin with 2 pairs of setae, inner much longer than outer, post angular 2 pairs, posterior margin with 2 pairs of setae. Meso and metanotum hexagonally reticulate, spinula present only on mesosternum. Fore-wings pointed, both the veins with a regular series of setae. Abdominal tergite and sternite with hexagonal reticulation. Segment X tube like. Completely divided longitudinally.

Material : 1♀, Yumthang, 7.vii.89, coll. S. Chatterjee.

Distribution : India : Sikkim.

Elsewhere : Nepal.

Genus Lefroyothrips Priesner

1938. Lefroyothrips Priesner. Treubia. 16 (4) : 499. 3.

3. Lefroyothrips lefroyi (Bagnall)


**Diagnosis**: Long post ocular region of the head with strong transverse lines dorsally, tergite IX with 3 pairs of stout thorns in males.

**Material**: 1♀; Sikkim, 25.III.89; D. K. Mondal.

**Distribution**: India, Sikkim, U. P., W. B.

**Elsewhere**: widely distributed.

**Genus** *Megaleurothrips* Bagnall


4. *Megaleurothrips distalis* (Karny)


**Diagnosis**: Antennae dark; distally clear area on forewing absent. Postocular is a single row.

**Material**: 1♀, Sikkim, 25.III.89; D. K. Mondal.

**Distribution**: India; widely distributed.

**Elsewhere**: Distributed widely

**Genus** *Stenchaetothrips* Bagnall


5. *Stenchaetothrips biformis* (Bagnall)


**Diagnosis**: Antennal segments 1st & 2nd brownish, 3, 4 & 5 segments pale, 6th & 7th brown, wing with rows of setae, 2nd row with 10 setae. Body dark brown except foretibiae and tarsi. Abdominal tergite II VII with serration; comb of setae on tergite VIII incomplete medially.

**Material**: 6♀; Tadong, 25.vii.77, T. D. Soota.

**Distribution**: India, M. P.; U. P., H. P., Sikkim; Orissa, T. N., W. B.

**Elsewhere**: China, Formosa, Sumatra, Java.

**Genus** *Taeniothrips* Amyot & Serville


6. *Taeniothrips major* Bagnall


**Diagnosis**: Antennal segment 3 dark color, origin of ocellar setae III on a line joining the posterior ocelli.

**Material**: 3♀, 1. Lachen, 2.vii.89 : Thangpoo, 15.viii.89, S. Chatterjee.

**Distribution**: India; Sikkim, U. P.

**Elsewhere**: Nepal.

**Genus** *Thrips* Linnaeus


**Key to the species of genus Thrips Linn**

1. Mouth cone very long and narrow, surpassing base of prosternum, Maxillary palpi long and slender..............*beharellsis* (Ram. & Marg.)

   - Mouth cone not surpassing base of prosternum

   ........................................................................... 2

2. Abdominal sternae II VII without accessory setae. Forewing with 10 (4+3+3) upper and 11-15 lower vein setae. Body yellow..............

   ..........................................................*flavus* Schrank.

   - Abdominal sternites with 6-10 pairs of accessory setae. Forewing 10-11 upper and 12-13 lower vein setae*hawaiiensis* (Morgan)

7. *Thrips beharellsis* (Ram. & Marg.)


**Diagnosis**: Mouth cone very long and narrow, surpassing base of presternum, maxillary palpi long and slender. Body pale.

**Material**: 4♀, Churengthang, 10.viii. 79; S. M. Ali.

**Distribution**: India, Bihar, Sikkim, Meghalaya.

8. *Thrips flavus* Schrank


**Diagnosis**: Antennae 7 segmented, sometimes 8-segmented due to split of segment 7, segments 4-5 brownish distally, 6-7 brown. Interoculur setae placed within ocellar triangle. Meta-scutum longitudinally striate, 2nd row with 10-11 setae.


**Distribution**: India, H. P., J & K., Punjab; Meghalaya, T. N. Sikkim.

**Elsewhere**: Europe, N. America, Nepal, Korea, Japan, Malwai.

9. *Thrips hawaiiensis* (Morgan)


**Diagnosis**: Mesoscutal inner pair of setae placed at anterior margin. Head and thorax light. Antennae 7-segmented, sometimes segment 8 due to split of style, segment 4 & 5 pale yellowish at base, forewing with 10-11 upper vein setae. Abdominal tergite VIII with complete comb.

**Material**: 2♀ Chunthang, 10.viii.79. S. M. Ali.

**Distribution**: India; widely distributed.

**Elsewhere**: Widely distributed.

Suborder TUBULIFERA

Family PHLAEOTHRIPIDAE

**Key to the genera**

Maxillary stylet broadened at apex, broader than labial pulp. Fore tarsal tooth developed in males, reduced or absent in females ..................

……………………………………… *Elaphrothrips* Buffa

- Maxillary stylet slender, never broadened, narrower than labial palp...................... 1

1. Foretarsi unarmed in both sexes, mouth cone elongate, pointed to narrowly reduced. Head 1.1 1.7 times as long as wide and almost twice as long as pronotum. Fore femora mostly thin ......................... *Liothrips* Uzel.

Fore tarsi armed in both sexes or armed only in males ........................................ 2.

2. Tube very much longer than head. Ocellar hump produced. Tube not pilose. Setae on abdominal segment IX fine, not short and blunt

……………………………………………………………………….. *Gigantothrips* Zimmerman.

- Tube shorter than head or about as long as head. Pronotum about as long as head. Antennal segment 3 not very symmetrical. Fore femora of females usually simple, almost enlarge in males .......... *Haplothrips* Serville.

Genus *Elaphrothrips* Buffa


**Key to the species of genus Elaphrothrips**

1. Cephalic production pronounced, about 0.9-1.2 times as long as wide. Oedymorous males devoid of sickle like setae at the apex of fore femora. All tibiae basally more brownish and yellowish beyond middle. Antennal segment 3 yellowish with a tinge brown at apex, 4 & 5 distinctly yellowish at basal half, rest brownish
DAS et al.: Insecta: Thysanoptera

........................................... denticollis (Bagnall)

- Cephalic production much shorter, distinctly wider than long, almost 0.5 times as long as wide ................................................. 2.

2. Foretarsi of females unarmed; all tibiae basally more brownish and yellowish distally. Antennal segment 3 yellowish with a tinge of brown at apex, 4 & 5 yellow at proximal half & brown distally. Anteromarginals shorter than anteroregulars, mid lateral, epimeral and postangulares almost subequal ............................... .

........................................... curviceps Priesner.

- Foretarsi of females armed, all tibiae uniformly brown ............................................................. 3

3. Body setae brown. Antennal segment 3 brown with yellowish distal tip, 4 & 5 proximally yellow and brown distally .... procer Schmutz

- Body setae hyaline. Antennal segment 2, 3 grayish yellow, rest brown ; 4-8 brown ........

........................................... spiniceps Bagnall.

10. Elaphrothrips curviceps Priesner


Material: 1♀, Rangpo, 16.11.76 A. R. Bhowmik.

Distribution: India, Meghalaya, Manipur, Sikkim, W. B.

Elsewhere: Bhutan, Laos, Malaya, Java Sumatra, Thailand.

11. Elaphrothrips denticollis (Bagnall)


Diagonosis: Head long, oednermerous males without sickle like setae at the apex of fore femora. Tibiae brownish at base. Antennal segments 3, 4 & 5 yellowish at base, rest brownish.


Distribution: India, Assam, Meghalaya, Kerala, Karnataka, Sikkim, T. N., Tripura.

Elsewhere: Sri Lanka, Burma, Malaya, Java, Borneo.

12. Elaphrothrips procer (Schmutz)


Distribution: India, Kerala, Karnataka, Maharashtra, Manipur, Sikkim, T. N., W. B.

Elsewhere: Sri Lanka; Laos.

13. Elaphrothrips spiniceps Bagnall


Diagonosis: Cephalic production much wider than long. Tibiae brown. Body setae hyaline. Forewing with 42-55 double fringes. Head about 1.9 times as long as width across eyes. Anteocular spines long & strong. Abdominal segment 8 about as long as broad. Tube slender about 4 times as long as broad at base.
Material: 1♀, Gantok, F. M. Bailey
Distribution: India, Sikkim, U. P., W. B.
Elsewhere: Nepal, Burma, Taiwan, Java.

Genus *Gigantothrips* Zimmerman


14. *Gigantothrips elegans* Zimmerman


Diagnosis: Antennal segments 1, 2, 7 & 8 and distal portion of 3, 4 & 6 brown, rest yellow. Femora brown, fore tibiae yellow. Forewings with 25-28 double fringes. Tube not pilose.

Material: 1♀, S Ranipool. 25.V.94. B. C. Das

Distribution: India, Bihar, Orrissa, Kanataka, Sikkim, T. N.

Elsewhere: Japan, Java, Philippines, Thailand.

Genus *Haplothrips* Amyot & Serville


Key to the species of genus *Haplothrips*

Antennal segment 2 with O+1 sense cone. Antennal segment 3 with brownish yellow, 4, 5 & 6 successively darker ........................... Ganglbaueri Schmutz.

Antennal segment 3 with 1+1 or 1+2 sense cones. Antennal segment 3 yellowish, 3-8 uniformly shaded ............... gowdeyi (Franklin)

15. *Haplothrips ganglbaueri* Schmutz


Diagnosis: Body pale brown. fore femora brown. Antennae 7 segmented, 3rd segment pale, rest brownish, post ocular setae long.

Material: 1♂, Tadong, 25.VIII.77; T. D. Soota.

Distribution: India ; Widely distributed.

Elsewhere: Bangladesh, Sri Lanka, Pakistan, Java, Phillipines.

16. *Haplothrips gowdeyi* (Franklin)

1921. *Haplothrips gowdeyi* (Franklin), Watson, Fla. Ent. 4 : 34.

Distribution: India ; Andaman Is., Meghalaya, Rajasthan, T. M., Tripura, Sikkim, W. B.

Elsewhere: Bangladesh, Sri Lanka

Genus *Liothrips* Uzel


17. *Liothrips aberrans* Murelee & Sen


Diagnosis: Body color brown, all femora, mid and hind tibiae brown, fore tibiae and tarsi yellowish, antennal segment 1 & 2 brown, 3 yellow, 4-6 distally brownish, 7 & 8 pale brown, wing transparent, all setae dark brown.

Head longer than wide, cheek crenulate with 1-2 setae. Eyes large. Post ocular long. Mouth cone pointed.

Prothorax shorter than head. Epimeral suture complete. Forewing with 13-18 double fringes. Mesopraesternum incomplete, restricted to two trinangular selerites.
Material: 1♀, Phensong (Gantok), 25.IV.76, A. R. Bhowmik.

Distribution: India, Sikkim, W. B.

SUMMARY

Only 17 species under 11 genera have been recorded from Sikkim. From the present recorded species it is seen that both suborders are more or less equally represented. But it is expected that this number may go up if it is explored more extensively.

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REFERENCES


INSECTA: COLEOPTERA: ADEPHAGA: CICINDELIDAE (TIGER BEETLES)

P. MUKHOPADHYAY and S. K. HALDER
Zoological Survey of India, 'M'-Block, New Alipore, Kolkata-700 053

INTRODUCTION

The family Cicindelidae belongs to the suborder Adephaga under the order Coleoptera of Insecta. The members of this family are commonly known as tiger beetles and are remarkable for their activity and ferocity. They are also known as predacious beetles because of their hunting and feeding on other insects particularly ants, small beetles, bugs, caterpillars and nymphs or dead bodies of large and more active insects with the help of their powerful mandibles and long legs adapted for rapid running. Some of them are usually found in open sunny places where the soil is sandy or dusty and also in moist ground near streams, ponds and sea-shore (e.g. Cicindela L.) while the others are predominantly arboreal and found in foliage and bark (Neocollyris Horn, Tricondyla Latreille). The former belongs to the soil burrowing group and lays their eggs singly in a pit and the latter belongs to the twig boring group whose females cuts a short vertical tunnel on the twig with the help of hook present in ovipositor and deposits the eggs therein. Little is known about the length of the life cycle of Indian Cicindelidae.

This group of beetles have attracted much attention of a number of workers like Dover and Rebeiro (1923), Heynes-wood and Dover (1928), Mandl (1969-78), Pajni and Bedi (1972), Saha and Halder (1986), Biswas and Rynth (1987), Saha, Halder and Biswas (1995). Some of the authors treated Paussidae and Cicindelidae as a two distinct subfamily of the family Carabidae. The members of this family are easily recognised by its head being large with prominent eyes, inner lobe of maxillae elongated and provided with an articulated hook like processes at the end, antennae filiform and 11 segmented, clypeus extending laterally in front of insertion of antennae, elytra covering or nearly covering the abdomen, first three segments of ventrites connate, legs long, slender with five jointed tarsi.

Present study is based on the materials collected by different survey parties of Zoological Survey of India from Sikkim. A systematic list, key to the subfamilies, genera and species recorded from Sikkim including the references of the studied material have also been included in this work. The astrix marked (*) species given in the list are being reported from the literature.

SYSTEMATIC ACCOUNT: LIST OF THE TAXA

Suborder ADEPHAGA
Family CICINDELIDAE
Subfamily I. COLLYRINAE

Genus 1. Collyris Fabricius, 1801

*1. C. longicollis F., 1787

Genus 2. Neocollyris Horn, 1901

2. N. redtenbacheri (Horn), 1912
*3. N. attenuata (Redt.), 1912
*4. N. bonelli Guer, 1834
*5. N. fuscitarsis Schm. Goeb, 1846
*6. N. crassicollis Chaud., 1864
7. N. saphyrina (Chaud.), 1850
*8. N. smaragdina Horn, 1894.
9. *N. insignis* Chaud, 1864

Genus 3. *Tricondyla* Latreille, 1822

10. *T. macrodera* Chaudoir, 1860

Subfamily II. CICINDELINAE

Genus 4. *Cicindela* Linnaeus, 1735

11. *C. chloropleura* Chaud.
12. *C. assanensis* Parry, 1845
13. *C. sexpunctata* F., 1775
14. *C. oberthuri* Fleutiaux, 1893
15. *C. rugosiceps* Chaud., 1865

*16. C. imperfecta* Chaud. var. *atelesta* Chaud., 1854
17. *C. dromicoides* Chaud., 1852
18. *C. funebris* Schm. Goeb., 1846

*19. C. angulata* F., 1798

*20. C. cardoni* Fleut., 1890

*22. C. chloris* Hope, 1831
23. *C. funerea* MacLeay
24. *C. albopunctata* Chaud., 1852

Family CICINDELIDAE

Key to the subfamilies of the family CICINDELIDAE

1. Episterna of the metasternum very narrow and more or less strongly furrowed .................. COLLYRINAE

   Episterna of the metasternum very narrow but broad and smooth; outer lobe of maxillary palpi normal and well developed.................................CICINDELINAE

   Subfamily COLLYRINAE

Key to the genera of the subfamily COLLYRINAE

1. Wings always present, labrum with seven teeth; Ventrites never entirely connate .......... 2

   Wings absent; labrum with six teeth; ventrites connate; head deeply excavate, elytra narrowed in front and dilated behind .... *Tricondyla* Latr.

2. Head very widely and deeply excavated between the eyes; size larger and ranges from 18-27 mm; vertex very short behind the eyes ................................................................. *Collyris* F.

   Head bistriated between the eyes; size comparatively smaller and ranges from 9-23 mm; vertex more or less long behind the eyes ................................................................. *Neocollyris* Horn

Genus 1. *Collyris* Fabricius, 1801


1. *Collyris longicollis* F. 1787


   Material examined : Not Seen.

   Distribution : India : Assam, Sikkim, Bihar, Karnataka. Elsewhere : SIAM.

Genus 2. *Neocollyris* Horn, 1901


Key to the species of the genus *Neocollyris* Horn

1. Species smaller and ranges from 8-13 mm; vertex of head longer and narrower; elytra closely and finely punctured .......................2

   Species comparatively larger and ranges from 13-15 mm; vertex shorter and more wider behind eyes; elytra strongly punctured ..........3

2. Three central teeth of labrum broad and blunt; head distinctly longer than broad; pronotum much constricted before base; elytra distinctly and regularly punctured ................................................................. *redtenbacheri* (Horn).
Five intermediate teeth of labrum strong and blunt; head slightly longer than broad; pronotum a little shorter and less constricted before base; elytra finely and closely punctured .............................................. *attenuata* Redt.

3. Vertex of head shorter and more widened behind the eyes; species ranges from 13 to 15 mm ................................................................. 4

- Vertex long; species larger and ranges from 15 to 22 mm .............................................. 5.

4. Head rather large; colour variable from cyanous, blue or dark but without any violaceous tinge; pronotum strongly constricted at base, disc of the pronotum not striolate ... .................................................................. *bonelli* Guer.

- Head large; colour usually blue with violaceous tinge; pronotum moderately constricted at base, disc of the pronotum with distinct rugose striation ....................... *fuscitarsis* Schm.Goeb.

5. Pronotum more dilated behind and much less constricted in front; first two segments of antennae reddish and gradually darker towards apex, body very stout .... *crassicollis* Chaud.

- Pronotum less dilated behind; body less stout and sometimes elongated ....................... 6

6. Pronotum cylindrical and without well developed collarum .......... *saphyrina* (Chaud.)

- Pronotum with well developed collarum ............. 7

7. Antennae long; base of the elytra strongly punctured ....................... *insignis* Chaud.

- Antennae shorter; base of the elytra finely punctured ....................... *samaragdina* Horn.

2. *Neocollyris redtenbacheri* (Horn), 1864

1864. *Collyris attenuata* Chaud. (nee. Redt.), Ann. Soc. ent. Fr., P. 523, pl. 9, fig. 19.


**Material examined**: 1 ex., India : Sikkim : Jorethung, 11. IV. 1999, P. H. Roy coll.

**Distribution**: India : West Bengal, Assam, Sikkim, Himachal Pradesh, Meghalaya, Nagaland.

- **Elsewhere**: Nepal : Myanmar : Tenasserim.

**Remarks**: This species is recorded here for the first time from Sikkim.

3. *Neocollyris attenuata* Redt., 1912


**Material examined**: Not seen.

**Distribution**: India : Himachal Pradesh, West Bengal, Assam, Sikkim.

4. *Neocollyris bonelli* Guer, 1834


**Material examined**: Not seen.

**Distribution**: India : West Bengal, Assam, Nagaland, Sikkim.

- **Elsewhere**: Myanmar, Tenasserim, Indonesia

5. *Neocollyris fuscitarsis* Schm.-Goeb., 1846


**Material examined**: Not seen.

**Distribution**: India; Assam; Sikkim.

- **Elsewhere**: Myanmar, Cochin-China, Indonesia, Malacca.
6. Neocollyris crassicollis Chaud., 1864


Material examined: Not seen.

Distribution: India: Sikkim.

7. Neocollyris saphyrina (Chaud.) 1850


Distribution: India: West Bengal, Assam, Sikkim.

Elsewhere: Nepal.

8. Neocollyris smaragdina Horn, 1894


Material examined: Not seen.

Distribution: India: West Bengal, Sikkim.

Elsewhere: Bhutan.

9. Neocollyris insignis Chaud, 1864


Material examined: 1 ex. India: Sikkim, 1864.

Distribution: India: West Bengal, Meghalaya, Sikkim.

Elsewhere: Myanmar, Bhutan.

Genus 3. Tricondyla Latreille, 1822


10. Tricondyla macrodera Chaudoir, 1860


Distribution: India: West Bengal, Assam, Sikkim.

Elsewhere: Tonkin, Bhutan.

Subfamily II CICINDELINAE

Genus 4. Cicindela Linnaeus, 1735


Key to the species of the genus Cicindela L.

1. Ventral side of the body usually without pubescence or partially pubescent .......... 2
   - Ventral side of the body densely pubescent 5

2. Margins of elytra brilliantly and broadly metallic; length ranges from 8-12 mm ...........
   - Margins of elytra not or only narrowly metallic .................................................. 3

3. Elytra usually oblong with parallel side margins and well marked shoulders ...........
   - Elytra less oblong and parallel sided .......... 4

Elsewhere: Myanmar, Bhutan.

Genus 3. Tricondyla Latreille, 1822


10. Tricondyla macrodera Chaudoir, 1860


Distribution: India: West Bengal, Assam, Sikkim.

Elsewhere: Tonkin, Bhutan.

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   - Margins of elytra not or only narrowly metallic .................................................. 3

3. Elytra usually oblong with parallel side margins and well marked shoulders ...........
   - Elytra less oblong and parallel sided .......... 4
4. Sides of the pronotum without setae ........... 
   .............................................. sexpunctata F.
- Sides of the pronotum and sometimes disc with 
  more or less pronounced setae; elytra without 
  crescent shaped patch extending from the 
  shoulders, genae with a few scattered hairs 
   ............................................ oberthuri Fleut.

5. Species small, its average length ranges from 
8 to 10 mm and very rarely attaining 11 or 12 
mm .......................................................... 6
- Average length of the species ranges from 12-
16 mm and rarely 10-11 mm ....................... 9

6. Elytra even ; species obscure, dark, with or 
without more or less distinct light markings 
   .................................................................... 7
- Elytra variegated metallic or velvety; if velvety, 
it is with or without large punctures distributed 
on the disc ......................... rugosiceps Chaud.

7. Elytra more or less uneven, velvety or with 
velvety patches, but not foveolate ............ 8
- Elytra narrower and somewhat widened behind 
and very finely sculptured; more or less 
distinctly foveolate or subfoveolate; pronotum 
subquadrate, genae with long white hairs ..... 
..... imperfecta Chaud. var. atelesta Chaud.

8. Labrum testaceous, head large with the eyes 
not very prominent, elytra much narrower at 
base than behind middle, apices much produced 
................................. dormicoides Chaud.
- Labrum short, testaceous; head broad with the 
eyes moderately prominent ; elytra with its 
side almost straight and depressed before apex 
.............................. funebris Schm. Goeb.

9. Elytra with a particular pattern of margin 
beyond spots or patches ......................... 10
- Elytra without any particular pattern of marking 
beyond spots or patches ....................... 11

10. Dorsal surface obscurely bronze in colour with 
coppery or greenish reflection or its ground 
colour almost black; the 4th segment of antenna 
with thick set of hairs; elytra with white 
markings extending from shoulder to apex, a 
lunulate patch at apex, a reverse 's' shaped 
patch at middle, a patch with transverse 
extension at about first third and connected 
with apical patch at its border...angulata F.
- Dorsal surface dark brown in colour with more 
or less distinct reflections; the 4th segment 
of antennae without any set of hairs; each elytron 
with a crescent shaped spot at the shoulder, a 
short transverse band near middle followed by 
a small distinct spot near suture and a lunulate 
band at apex ................................ cardoni Fleut.

11. Average length of the species from 10 to 14 
mm ............................................................ 12
- Length of the species ranges from 15 to 18 
mm; Pronotum almost square with its side 
margin straight; elytra considerably broader than 
the pronotum and with a whitish spot at the 
shoulder and other three spots varying in size, 
of which central one, more or less 
commas shaped and its extremity turning towards 
the apex ................. aurelenta F. vergula Fleut.

12. Elytra with small white spots; dorsal surface 
fully covered with more or less distinct hairs 
................................. albopunctata Chaud.
- Elytra with three white spots at side margins 
and disc of the pronotum clothed with hairs 
except centre ................................. 13

13. Elytra with a distinct spot at its shoulder; dorsal 
surface bright green in colour; clypeus densely 
pubescent ................................. chloris Hope
- Elytra without any spot at its shoulder; dorsal 
surface dull greenish bronze in colour; clypeus 
scarcely pubescent......... funerea Macleay.

11. Cicindela chloropleura Chaudoir, 1865

1912. Cicindela chloropleura : Fowler. The Fauna of British 
India including Ceylon and Myanmar. Col. : Genl. 
Intro. and Cicindelidae and Paussidae. PP. 327.

Material examined : 1ex. India : Sikkim : 
Shishney, 2.v. 1962, S. Ali Coll.

Distribution : India : West Bengal, Himachal 
Pradesh, Sikkim.
Elsewhere: Bangladesh.

Remarks: This species is recorded here for the first time from Sikkim.

12. Cicindela assamensis Parry, 1845


Distribution: India: West Bengal, Assam, Manipur, Sikkim

Elsewhere: Bangladesh, Myanmar, Penang

13. Cicindela sexpunctata F. 1775


Distribution: India: West Bengal, Bihar, Maharashtra, Tamil Nadu, Kashmir, Sikkim, Andaman and Nicobar Islands.

Elsewhere: Myanmar China, Bangladesh, Vietnam

14. Cicindela oberthuri Fleutiaux, 1893


Distribution: India: West Bengal, Sikkim.

15. Cicindela rugosiceps Chaud., 1865


Distribution: India: Tamil Nadu, Karnataka, Sikkim.

Remarks: This species is recorded here for the first time from Sikkim. They are very active even making on slaughter on flying termites (Fowler, 1912).


Material examined: Not seen.

Distribution: India: West Bengal, Bihar, Sikkim.

Elsewhere: Bangladesh.

17. Cicindela dromicoides Chaud, 1852


**Material examined:** 1 ex., India: Sikkim: Gangtok, 5. v. 1962, G. Ramakrishna.

**Distribution:** India: West Bengal, Meghalaya, Bihar, Uttar Pradesh, Himachal Pradesh, Sikkim.

*Elsewhere:* Nepal.

18. *Cicindela funebris* Schm.-Goeb, 1846


**Material examined:** 3 ex., INDIA: Sikkim: Ind. Mus. Colln.

**Distribution:** India: Nagaland, Manipur, West Bengal, Punjab, Sikkim.

*Elsewhere:* Myanmar.

19. *Cicindela angulata* F. 1798


**Material examined:** Not seen.

**Distribution:** India: Kashmir, Uttar Pradesh, Sikkim.

*Elsewhere:* Bhutan, Bangladesh, Myanmar, China, Hongkong.

20. *Cicindela cardoni* Fleut., 1890


**Material examined:** Not seen.

**Distribution:** India: West Bengal, Bihar, Sikkim, Maharashtra, Karnataka, Tamil Nadu.

*Elsewhere:* Myanmar.


**Distribution:** India: West Bengal, Assam, Nagaland, Sikkim.

*Elsewhere:* Bhutan, Bangladesh, Myanmar, China, Hongkong.

22. *Cicindela chloris* Hope, 1831


**Material examined:** Not seen.

**Distribution:** India: Kashmir, Uttar Pradesh, Sikkim.

*Elsewhere:* Nepal.

23. *Cicindela funerea* Macleay, 1825


Distribution: India: West Bengal, Assam, Bihar, Maharashtra, Himachal Pradesh, Sikkim.

Elsewhere: Bangladesh, Myanmar, Indonesia, Indochina.

24. Cicindela albopunctata Chaud, 1852


Material examined: 1 ex., India: Sikkim: A.V. Knyveth Colln.

Distribution: INDIA: West Bengal, Sikkim, Punjab, Himachal Pradesh, Uttar Pradesh.

Elsewhere: Nepal, Bhutan.

SUMMARY

The present paper is based on the study of the total collections made by different survey parties of Zoological Survey of India from different districts of Sikkim including the National collection present in the Coleoptera Section. Besides this, some species which were recorded from Sikkim as per literature has also been included here to make a complete list of species recorded from Sikkim. This include a total of 24 species under four genera belonging to two sub families viz. Collyrinae and Cicindelinae. Of which three species viz. Neocollyris redtenbacheri (Horn), Cicindela chloropleura Chaud, and Cicindela rugosiceps Chaud are recorded here for the first time from Sikkim. Besides this, key to the subfamilies, genera and species recorded from Sikkim have been provided. Relevant references, collection and distributional data are also provided.

ACKNOWLEDGEMENTS

We are highly indebted to Dr. J. R. B. Alfred, Director, Zoological Survey of India for giving the opportunity to study the group. Thanks are also due to Dr. G. K. Srivastava, Additional Director (retd.) and Dr. S. K. Mitra, Joint Director (Retd.) for their encouragement and valuable suggestions.

REFERENCES


HORN, W. 1926. Cicindelidae in S. Schenkling's Coleopterum Catalogus, 1 (Pars. 86) : 1-345.


INSECTA : COLEOPTERA
FAMILY. GYRINIDAE AND FAMILY. DYTISCIDAE

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INTRODUCTION

Of the 18 families of aquatic Coleoptera known from the World, representatives of 13 families spreading over all the four suborders are known from India. Among them the family Gyrinidae, Dytiscidae and Hydrophilidae are the dominant families. Present paper dealt with the family Gyrinidae and Dytiscidae and latter family Hydrophilidae will be dealt separately.

The members of the family Gyrinidae are commonly known as ‘whirligig beetles’ because of their habit of swimming in groups on the surface of ponds and quiet streams. They are aquatic both in adult and larval stages. The major workers who dealt with the group are Fabricius (1781), Regimbart (1882-83), Vazirani (1958-84) and very recently Biswas, Mukhopadhyay and Saha (1994), Vazirani (1984) has recorded 46 species under the family Gyrinidae from India. Of which, eight species under the genus Orectochilus Eschscholtz were recorded from Sikkim in Fauna of India (Coleoptera). In the present study author dealt with the single species available in the unidentified collection. So till to date eight species belonging to the genus Orectochilus are known from Sikkim.

The members of the other family Dytiscidae are commonly known as ‘Predaceous diving beetles’ and are most perfectly adapted to aquatic life. They are very active swimmers and preying on all other small water life. They are in habit in both fresh and brackish water. They also serve as food for carnivores or omnivorous fishes. The major workers who dealt with this group are Brancucci (1983), Zimmermam (1920), Vazirani (1953-80), Balfour-Browne (1946), Guignot (1954-58), Biswas, Mukhopadhyay and Saha (1994) etc.

Present study is based on the materials collected by different survey parties of Zoological Survey of India from different districts of Sikkim. This include eight species of the genus Orectochilus Eschscholtz under the family Gyrinidae and 32 species under 13 genera belonging to the five subfamilies of the family Dytiscidae. Of which 20 species under 9 genera belonging to the family Dytiscidae are recorded here for the first time from Sikkim and one species recorded for the first time from India. Besides this, a systematic list, key to the families, subfamilies, genera and species with references recorded from Sikkim have also been included here. The axstri mark (*) species given in the list are being reported here from the literature.

SYSTEMATIC ACCOUNT: LIST OF THE TAXA

Family I GYRINIDAE
Subfamily I ORECTOCILINAE

Genus 1. Orectochilus Eschscholtz, 1833
1. O. (S. Str.) marinus Regimbart, 1891
*2. O. (Patrus) desgodinsi desgodinsi Regim. 1886.
*3. O. (P.) cuneatus Regimbart, 1891
*4. O. (P.) cribratellus metallescens Regimbart, 1907
*5. O. (P.) metallicus Regimbart, 1883.
6. O. (P.) figuratus Regimbart, 1891.
7. O. (P.) oblongiusculus Regimbart, 1886.
8. O. (P.) gangeticus (Widemann), 1930.

Family II. DYTISCIDAE
Subfamily 2. NOTERINAE
Genus 2. Canthydrus Sharp, 1882
9. C. laetabilis (Walker), 1882

Subfamily 3. LACCOPHILINAE
Genus 3. Laccophilus Leach, 1817
10. L. chinensis Boheman, 1858
11. L. flexuosus Aube, 1838
12. L. inefficiens (Walker), 1983
13. L. indicus Gschwendtner, 1983
14. L. medialis Sharp, 1882
15. L. parvulus Aube, 1838
16. L. ritsemae Regimbart, 1880
17. L. Sharpi Regimbart, 1889
18. L. uniformis Motschulsky, 1859

Subfamily 4. HYDROPORINAE
Tribe (A) Hydrovatini
Genus 4. Hydrovatus Motschulsky, 1855
19. Hydrovatus sp.

Tribe (B) Bidessini
Genus 5. Guignotus Houlbert, 1934
20. G. angularis (Klug), 1954
21. G. flammulatus (Sharp), 1854
22. G. inconstans (Regimbart), 1963
23. G. pusillus (F.), 1845

Genus 6. Uvarus Guignot, 1939
24. U. genitilis Sharp

Subfamily 5 COLYMBETINAE
Tribe (C) Agabatini
Genus 7. Lacconectus Motschulsky, 1855
*25. L. (S.Str.) fulvescens Mots., 1855

Tribe (D) Agabini
Genus 8. Agabus Leach, 1817
26. A. (Gaurdytes) amoenus sinuaticollis Regimbart

*27. A. (Dichonectes) lobonyx Guignot, 1952
Genus 9. Platynectes Regimbart, 1887
*28. P. (Gueorguivtes) kashmirensus Balfour-Browne, 1944

Tribe (E) Colymbetini
Genus 10. Rhantus Stephens, 1835
29. R. (S. Str.) punjabensis Vazirani, 1970
30. R. (S. Str.) sikkimensis, Regimbart, 1899
31. R. (S. Str.) sexualis Zimmermann, 1919

Tribe (F) Copelatini
Genus 11. Copelatus Erichson, 1832
32. Copelatus sp.

Subfamily 6. DYTISCINAE
Tribe (G) Eretini
Genus 12. Eretes Castalenaou, 1833
33. E. sticticus (Linnaeus) 1833

Tribe (H) Hydaticini
Genus 13. Hydaticus Leach, 1817
34. H. (G.) fabricii Macleay, 1833
35. H. (G.) leechi Sato, 1961
36. H. (G.) vittatus (F.) 1838
Tribe (I) Cybisterini

Genus 14. *Cybister* Curtis, 1827

37. *C. convexus* Sharp, 1882
38. *C. ventralis* Sharp, 1882
39. *C. sugillatus* Erichson, 1934
40. *C. tripunctatus asiaticus* Sharp, 1899

Key to the families of aquatic Coleoptera
(GYRINIDAE & DYTISCIDAE)

1. Eyes divided by side of the head appearing as
dorsal and ventral pair; antennae short and
stout; middle and hind legs short and flattened,
tarsi folding, fanwise ................ GYRINIDAE

– Eyes not divided; antennae elongate, slender;
hind legs modified for swimming, tarsi flattened
and usually fringed with long hairs ............

................................................ DYTISCIDAE

Family I GYRINIDAE
Subfamily I ORECTOCHILINAE

Genus 1. *Orectochilus* Eschscholtz, 1833

II, PP. 59.


Key to the species of the genus
*Orectochilus* Eschscholtz

1. Pronotum and elytra entirely pubescent
punctate; lateral margin of pronotum not
bordered; apical margin of Clypeus slightly
concave; labrum two times broader than long;
elytral epipleurae reddish ................................

.................................................. *murinus* Regimbart

– Lateral side of Pronotum and elytra pubescent
punctate but glabrous in the middle .......... 2

2. Labrum transverse and one and half times
broader than long; Lateral margin of elytra
black; pronotum almost impunctate; elytra with
carina in females ................. *gangeticus* (Wied.)

– Labrum, usually 3-4 times broader than long

.................................................. *o. obliquisculus* Regimbart

3. Pronotum and elytra with yellow border .... 4

– Pronotum and elytra not yellow bordered; apical
margin of labrum hardly convex with reddish
cilia, scutellum small and triangular; pubescence
of elytra touching the suture at middle and its
external apical angle with a small spine .......

.................................................. *desgodinsi desgodinsi* Regimbart

4. Lateral pubescence on elytra broader than on
pronotum; labrum 4-times broader than long;
scutellum triangular and visible in male .......

.................................................. *cuneatus* Regimbart

– Lateral pubescence on elytra not broader than
on pronotum........................................ 5

5. Smooth area on the pronotum and elytra
cardiform ........................................... 7

– Smooth area on the pronotum and elytra oval

.................................................... 6

6. Colour bronze-black, puncturation on elytra
moderate; very closely arranged with distinct
reticulation .................... *metallicus* Regimbart

– Colour bluish black; elytra strongly punctured

.................................................. *cribratellus* *metallescens* Regimbart

7. Lateral pubescence on elytra dilated just before
middle; head brown with reddish clypeus;
scutellum as long as broad in both sexes ...

.................................................. *figuratus* Regimbart

– Lateral pubescence on elytra dilated behind
middle; head bronze-black with ferruginous
clypeus; scutellum two times broader than long
in male and almost invisible in female .......

.................................................. *oblongiusculus* Regimbart

1. *Orectochilus* (S. Str.) *murinus* Regimbart, 1891

60 : 709.

19.

India. *Coleoptera: Gyrinidae and Haliplidae*, P. 39-40.

Distribution: India: Sikkim, Himachal Pradesh, Uttar Pradesh, West Bengal, Assam, Meghalaya.

Elsewhere: Bhutan, Indochina.

2. Orectochilus (Patrus) desgodinsi desgodinsi Regimbart, 1886


Material examined: Not seen.

Distribution: India: West Bengal, Bihar, Sikkim.

Elsewhere: Bhutan.

3. Orectochilus (Patrus) cuneatus Regimbart, 1891


Material examined: Not seen.

Distribution: India: West Bengal, Sikkim, Punjab, Himachal Pradesh, Uttar Pradesh.

Elsewhere: Nepal.

4. Orectochilus (Patrus) cribratellus metallescens Regimbart, 1907

1907. Orectochilus cribratellus metallescens Regimbart, Ann. Soc. ent. Fr., 76 : 260

Material examined: Not seen.

Distribution: India: West Bengal, Assam, Arunachal Pradesh, Sikkim.

Elsewhere: Bhutan.

5. Orectochilus (Patrus) metallicus Regimbart, 1883


Material examined: Not seen.

Distribution: India: West Bengal, Sikkim, Uttar Pradesh.

Elsewhere: Nepal.

6. Orectochilus (Patrus) figuratus Regimbart, 1891


Material examined: Not seen.

Distribution: India: West Bengal, Sikkim.

Elsewhere: Nepal.

7. Orectochilus (Patrus) oblongiusculus Regimbart, 1886

1886. Orectochilus oblongiusculus Regimbart, Ann. Soc. ent. Fr., (6) 6 : 262, pl. 4, fig. 11.

Material examined: Not seen.

Distribution: India: West Bengal, Meghalaya, Sikkim, Punjab, Himachal Pradesh, Uttar Pradesh.

8. Orectochilus (Patrus) gangeticus
   (Wiedmann), 1838


Material examined: Not seen.
Distribution: India: West Bengal, Bihar, Assam, Sikkim, Uttar Pradesh.
Elsewhere: Bangladesh, Indonesia.

Subfamily 2 NOTERINAE

Genus 2. Canthydrus Sharp, 1882


9. Canthydrus laetabilis (Walker). 1882


Distribution: India: West Bengal, Orissa, Assam, Sikkim, Tripura, Punjab, Gujrat, Rajasthan, Uttar Pradesh, Andhra Pradesh, Kerala.
Elsewhere: Srilanka, Bangladesh, Nepal.
Remarks: This species is recorded here for the first time from Sikkim.

Subfamily 3. LACCOPHILINAE

Genus 3. Laccophilus Leach, 1817


Key to the species of genus Laccophilus Leach

1. Reticulation of pronotum and elytra (at least at the base) double ........................................... 2
   – Reticulation of elytra and very often of pronotum simple .................................................. 7
2. Elytra with well marked sinuous stripes or with regular wavy lines, not or very briefly
interrupted sub basally. Very little reticulation on elytra visible on the basal third .......... 3

- Sinuous stripes on elytra very often coalesce and distinctly interrupted in a sub basal band. Reticulation on elytra clearly visible on the basal third ........................................ 4

3. Species ranges from 3.9 — 4.4 mm in length; stripes on elytra double and strongly sinuous. Elytral surface with punctures at many points where meshes meet .......... flexuosus Aube

- Species ranges from 3.2 — 3.5 mm in length. Elytra marked with regular wavy lines. Elytral surface with punctures at a few points where meshes meet .......... indicus Gschwendtner

4. Transverse testaceous sub basal band on the elytra with its border strongly excavate ..... 5

- Transverse testaceous subbasal band on the elytra with its anterior border straight...........

5. Male Penis truncate apically ................................................................. medialis Sharp

- Male Penis terminating in a point ..................... 6

6. Male Penis short. in lateral view. with its ventral ridge angled in the posterior ..................

- Male Penis elongate, in lateral view, with its ventral ridge angled near base ..................

7. Species large ranging 3.6 — 4.1 mm in length; left paramere in male very short and as broad as long ....................... sharpi Regimbart

- Species of moderate size ranging 3 — 3.7 mm in length. Left paramere in male elongate and about twice as long as broad .......... 8

8. Elytra usually with distinct sinuous stripes and occasionally abbreviated or very rarely absent. Penis of male truncate at apex ................................

- Elytra testaceous with brown irrorations, sometimes only slightly distinct. Penis in male terminating in a blunt point ...................

10. Laccophilus chinensis Boheman, 1858


Distribution : India : West Bengal, Assam, Sikkim.

Elsewhere : Nepal, Bhutan, Bangladesh, China, Hongkong, Japan, Taiwan, Vietnam, Laos, Thailand.

11. Laccophilus flexuous Aube, 1838

1838. Laccophilus flexuous Aube. In Dajean's species Coleopteres, 6 : 430.


Distribution : India : West Bengal, Bihar, Orissa, Tripura, Sikkim, Madhya Pradesh, Gujrat, Rajasthan, Maharashtra, Uttar Pradesh, Himachal Pradesh, Andhra Pradesh, Karnataka, Tamil Nadu.

Elsewhere : Iran, Iraq, Japan, Burma, Sri Lanka, Pakistan, Nepal, Indonesia, Hongkong.

Remarks : This species is recorded here for the first time from Sikkim.

12. Laccophilus inefficiens (Walker), 1882


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**Distribution**: India : West Bengal, Bihar, Orissa, Sikkim, Tripura, Uttar Pradesh, Punjab, Maharashtra, Madhya Pradesh, Andhra Pradesh, Karnataka, Tamil Nadu, Kerala.


**Remarks**: This species is recorded here for the first time from Sikkim.


**Distribution**: India : West Bengal, Sikkim, Tripura.

Elsewhere : Bangladesh.

**Remarks**: This species is recorded here for the first time from Sikkim.

14. *Laccophilus medialis* Sharp, 1882


**Distribution**: India : West Bengal, Sikkim.


**Remarks**: This species is recorded here for the first time from Sikkim.

15. *Laccophilus parvulus* Aube, 1838


**Distribution**: India : West Bengal, Assam, Sikkim, Bihar, Tripura, Manipur, Orissa, Madhya Pradesh, Maharashatra, Rajasthun, Gujarat, Andhra Pradesh, Tamil Nadu.

Elsewhere : Bangladesh, Sri Lanka, Pakistan, Thailand, Malaysia, Indonesia, Vietnam.

**Remarks**: This species is recorded here for the first time from Sikkim.

16. *Laccophilus ritsemae* Regimbart, 1880


**Distribution**: India : Sikkim, Andaman & Nicobar Islands.

Elsewhere : Indonesia, Philippines.

**Remarks**: This species is recorded here for the first time from Sikkim.
17. **Laccophilus sharpi** Regimbart, 1889


**Distribution**: INDIA : Sikkim, Tripura, Bihar, Orissa, Madhya Pradesh, Maharashtra, Rajasthan, Gujarat, Uttar Pradesh, Tamil Nadu, Andaman I.s.

**Elsewhere**: Myanmar, Pakistan, Nepal, Sri Lanka, Japan, China, Iraq.

**Remarks**: This species is recorded here for the first time from Sikkim.

18. **Laccophilus uniformis** Motschulsky, 1859


**Remarks**: The detailed study regarding the species will be dealt separately.

### Tribe A. *Hydrovatini*

**Genus 4. Hydrovatus** Motschulsky, 1855


19. *Hydrovatus* sp.


**Remarks**: This species is recorded here for the first time from Sikkim.

### Tribe B. *Bidessini*

**Genus 5. Guignotus**, Houlbert, 1934


**Key to the species of the genus Guignotus Houlbert**

1. Laterobasal plica on pronotum not continued on elytra at all .................. *flammulatus* (Sharp)
   - Latero basal plica distinctly continued on elytra ........................................ 2

2. Length of the species less than 2 mm ........
   - Length of the species more than 2 mm ........................................ 3

3. Punctuation on elytra dense, strong and a little feeble along margin, length ranges from 2.5 to 2.75 mm .................. *angularis* (Klug.)
– Punctuation on elytra fine; the length of the species ranges from 2.0 – 2.2 mm 

\[ \text{pusillus} \ (F.) \]

20. **Guignotus angularis** (Klug), 1954.


**Distribution:** India : Sikkim.

**Elsewhere:** Pakistan, Egypt, Tunisia, Algeria.

**Remarks:** This species is recorded here for the first time from India.

21. **Guignotus flammulatus** (Sharp), 1954.


**Distribution:** India : Bihar, Sikkim, Orissa, Rajasthan, Maharashtra, Goa, Karnataka.

**Elsewhere:** Sri Lanka, Nepal, Malaysia, Bhutan, Burma, Indonesia.

**Remarks:** This species is recorded here for the first time from India.

22. **Guignotus inconstans** (Regimbart), 1963


**Distribution:** India : Bihar, Sikkim, Orissa, Rajasthan, Maharashtra, Goa, Karnataka.

**Elsewhere:** Sri Lanka, Nepal, Malaysia, Bhutan, Burma, Indonesia.

**Remarks:** This species is recorded here for the first time from India.

23. **Guignotus pusillus** (Fab.), 1945


**Distribution:** India : Sikkim, Kashmir, Madhya Pradesh, Uttar Pradesh, Rajasthan.

**Elsewhere:** Palaeartic Region.

**Remarks:** This species is recorded here for the first time from Sikkim.

Genus 6. **Uvarus** Guignot, 1939


24. **Uvarus genitilis** (Sharp) 1963


**Distribution**: India : Bihar, Sikkim, Orissa.

**Elsewhere**: Pakistan, Sri Lanka, Malaysia.

**Remarks**: This species is recorded here for the first time from Sikkim.

**Subfamily 5. COLYMBETINAE**

**Key to the genera of the subfamily COLYMBATINAE**

1. Metafemora with a group of ciliae at the posterior apical angle (Agabini) ........................ 2
   – Metafemora without a group of ciliae at the posterior apical angle ................................ 3

2. Pronotum not so short, its side margin rebordered with two lines of transverse punctures, pronotum not convex in the middle near scutellum ........................ Agabus Leach
   – Pronotum short and about four times broader than long, base of pronotum convex in the middle near scutellum .......................................................... Platyneectes Regimbart

3. Posterior claws unequal (Colymbetini) ; elytral sculpture without any transverse striales ; male with 3-basal segments of protarsi and mesotarsi dilated or compressed and thickened ....
   – Posterior claws equal ................................ 4

4. Hind coxal lines divergent anteriorly and coming so close together as almost to touch median line and turn outwards almost at right angle to hind coxal processes ; sides of pronotum not distinctly margined (Copelatini) .........................

**Tribe (C) Agabatine**

Genus 7. Lacconnectus Motschulsky, 1855


25. Lacconnectus (S.Str.) fulvescens
   Motschulsky, 1855


**Material examined**: Not seen.

**Distribution**: India : West Bengal, Manipur, Sikkim.

**Elsewhere**: Burma, Malaysia, Indonesia.

**Tribe (D) Agabini**

Genus 8. Agabus Leach, 1817


**Key to the species of the genus Agabus Leach**

1. Prosternal process neither discoidal nor a plate; reticulation on elytra rounded and almost regular. Apex of penis bifid, head rufo ferrugineus .................................................. (Gaurodytes) amoenus sinuaticollis Regimbart
   – Prosternal process very large in the inform of discoidal or subdiscoidal plate, its apex simple;
reticulation on dorsal side very strong; apex of penis not bifid; head and pronotum black .......... (Dichonectes) lobonyx Guignot.

26. Agabus (Gaurodytes) amoenus sinuaticollis Regimbart, 1970


Distribution : India : Meghalaya, Sikkim, Himachal Pradesh, Uttar Pradesh.

Elsewhere : China.

Remarks : Present study recorded the species for the first time from Sikkim.

27. Agabus (Dichonectes) lobonyx Guignot, 1952


Material examined : Not seen.

Distribution : India : Sikkim.

Genus 9. Platynectes Regimbart, 1887


28. Platynectes (Gueorguivtes) kashmirenus Balfour Browne, 1944

1844. Platynectes lineatus Redtenbacher, in Hugel's kashmir, 4 : 503, f.5.


1977. Platynectes (Gueorguivtes) kashmirenus : Vazirani, Cat. Oriental Dytiscidae, PP. 68.

Material examined : Not seen.


Tribe (E) Colymbetini

Genus 10. Rhantus Stephens, 1835


Key to the species of the genus Rhantus Stephens

1. Elytral sculpture consisting of simple reticulation, not super imposed by minute punctures at least in basal half ................. 

........................................ sexualis Zimmermann

– Elytral sculpture consisting of reticulation super imposed by minute punctures ................. 2

2. Form oval and less than 10.5 mm. in length; Head blackish, anteriorly ferruginous with an indistinct oval spot on vertex; anterior tarsal claws moderately curved, equal and slender in male; penis strongly curved ................. sikkimensis Regimbart

– Form elongate and its length ranges from 11.0-11.4 mm; Head ferruginous with indistinct indeterminate markings; anterior tarsal claws simple and subequal in male; penis moderately curved .................
29. Rhantus (S. Str.) *Punjabensis*
   Vazirani, 1970


*Distribution* : India : Sikkim, Himachal Pradesh.

*Elsewhere* : Pakistan.

*Remarks* : This species is recorded here for the first time from Sikkim.

30. *Rhantus* (S. Str.) *sexualis*
   Zimmermann, 1919


*Distribution* : India : Sikkim, Himachal Pradesh.

*Elsewhere* : China.

31. *Rhantus* (S. Str.) *sikkimensis* Regimbart, 1899


*Distribution* : India : West Bengal, Meghalaya, Sikkim, Himachal Pradesh, Punjab.

*Elsewhere* : Pakistan, Burma, China.


*Distribution:* India: Sikkim, Rajasthan, Goa, Tamil Nadu, Andaman Is.

*Elsewhere:* Indonesia, Vietnam, Philippines.

*Remarks:* This species is recorded here for the first time from Sikkim.

35. **Hydaticus (Guignotites) leechi** Sato, 1961


*Distribution:* India: Sikkim, Andaman Is.

*Elsewhere:* Indonesia, Vietnam.

*Remarks:* This species is recorded here for the first time from Sikkim.

36. **Hydaticus (Guignotites) vittatus** (Fabricius), 1838


*Distribution:* India: West Bengal, Sikkim, Tripura, Uttar Pradesh, Gujarat, Tamil Nadu.

*Elsewhere:* Indonesia.

*Remarks:* This species is recorded here for the first time from Sikkim.
Tribe (I) Cybisterini

Genus 14. Cybister Curtis, 1827


Key to the species of the genus Cybister Curtis

1. Elytra without yellow lateral stripe .............. 2
   - Elytra with yellow lateral stripe .................. 3
2. Pronotum with reddish margin on the sides; abdominal sternites with indistinct spot on each side ........................................ sugillatus Er.
   - Pronotum without any reddish margin on the sides; 3rd and 4th abdominal sternites with small reddish spot on side .......... convexus Sharp.
3. Elytra with yellow lateral stripe extending to and covering epipleurae, species without any sexual sculpture in the form of longitudinal or zig-zag striations in female ............................................... tripunctatus asiaticus Sharp
   - Elytra with yellow lateral strips submarginal, not extending to the epipleurae at the base; species generally with elytral sexual sculpture in the form of longitudinal or zig-zag striations ........................................ ventralis Sharp.

37. Cybister convexus Sharp, 1882


Distribution : India : West Bengal, Assam, Tripura, Orissa, Sikkim, Madhya Pradesh, Karnataka.

Elsewhere : China

Remarks : This species is recorded here for the first time from Sikkim.

38. Cybister ventralis Sharp, 1882

**Distribution**: India: Sikkim, Tripura, Rajasthan, Gujarat, Tamil Nadu, Andaman Is.

**Elsewhere**: Pakistan, Sri Lanka, Myanmar, Nepal, Bangladesh, Afghanistan.

**SUMMARY**

A comprehensive taxonomic account of Orectochilinae (Gyrinidae) and Noterinae, Laccophilinae, Hydroporinae, Colymbetinae and Dytiscinae of the family Dytiscidae with reference to the species known from Sikkim India is presented. It includes 8 species of the genus *Orectochilus* Eschscholtz under the family Gyrinidae and 32 species under 13 genera belonging to 5-subfamilies of the family Dytiscidae. Of which the species *Guignotus angularis* (Klug) is recorded for the first time from India and 20 species under 9 genera are recorded for the first time from Sikkim. Besides this, a systematic list, key to the families, subfamilies, genera and species with references material examined and distribution have also been included here.

**ACKNOWLEDGEMENT**

Authors are grateful to the Director, Zoological Survey of India for providing laboratory facilities. Thanks are also due to Dr. G.K. Srivastava, Additional Director (Retd.) and Dr. S.K. Mitra, Joint Director (Retd.) for their encouragement and suggestions for improvement of the paper.

**REFERENCES**


GUIGNOT, F. 1954 b. Dytiscides recolte's par la Yale North India Expedition on Kashmir et an Pendjab.


INTRODUCTION

The family Hydrophilidae belongs to the superfamily Hydrophiloidea of the suborder Polyphaga : Coleoptera. The members of this family are commonly known as ‘water scavenger beetle’ and majority of which are truly aquatic. Some of them are terrestrial and found in moist places like dung, decaying vegetable garbage, under crevices in oozing trunk, rotten banana and such other places also. This insect varies from small to large in size and can be easily distinguished by its maxillary palpi which may be mistaken as antennae. The systematic position of the subfamilies of this family is interesting and controversial. Knisch (1924) divided the family Hydrophilidae into eight subfamilies viz. Hydraeninae, Limnebiinae, Spercheinae, Helophorinae, Epimentopinae, Hydrochinae, Sphaeridiinae and Hydrophilinae. Other major workers who dealt with the group are d’Orchymont (1928), Crowson (1981), Lawrence (1982), Sharp (1890), Regimbartia (1903), G.C.Champion (1920), Balfour Browne (1948), Jayaswal (1971) & Very recently schoold (1992-95), Bameul (1993, 1996). Of them schoold (1992) revised the genus Berosus Leach of the oriental region. Sato (1979) dealt with the Indian species. Later Biswas and Mukhopadhyay (1995) provided the latest account of Hydrophilidae from West Bengal, wherein, they dealt with 40 species belonging to 19 genera. Prior to this study, only two species viz. Ochthebius (Hymenodes) explanatus d’orchymont and Pachysternum cardoni d’orchymont were recorded from Sikkim. Present study includes a total of twenty two species under thirteen genera belonging to three subfamilies viz. Hydraeninae, Sphaeridiinae and Hydrophilinae from Sikkim, of which, one species, Pachysternum nigrovittatum Motsch. is recorded here for the first time from India and 19 species under 12 genera are recorded here for the first time from Sikkim.

SYSTEMATIC ACCOUNT: LIST OF THE TAXA

Family HYDROPHILIDAE

Subfamily I. HYDRAENINAE

Genus 1. Ochthebius Leach. 1815
1. Ochthebius (Hymenodes) explanatus d’orchy. 1937.

Subfamily II. SPHAERIDIINAE

Tribe I. Sphaeridiini

Genus 2. Coelostoma Brulle. 1835
2. C. horni Regimbart. 1902
3. C. stultum Walker. 1858

Genus 3. Dactylosternum Wollaston. 1854
4. D. hydrophiloides (M’Leay). 1825
5. D. abdominale F. 1792
Tribe II. Cercyonini
Genus 4. Cercyon Leach, 1817
6. C. (C.) vicinalis Walker, 1859

Tribe III. Megasternini
Genus 5. Pachysternum Mots., 1863
7. P. cardoni d’orchymont, 1926
8. P. nigrovittatum Mots., 1863

Subfamily III. : HYDROPHILINAE
Tribe IV. Hydrobiini
Genus 6. Paracymus Thomson, 1867
9. P. evanescens (Sharp), 1890.
Genus 7. Ameter Semenov, 1900
10. A. rugosus Knisch, 1924
Genus 8. Laccobius Erichson, 1837
11. L. simulans d’orchymont, 1923
12. L. orientalis Knisch, 1924
Genus 9. Helocharis Mulsant, 1844
13. H. lentus Sharp, 1890
14. H. crenatus Regimbart, 1903
15. H. pallens (Macleay), 1825
Genus 10. Enochrus Zaitzev, 1919
16. E. escuriens (Walker), 1858

Tribe V. Hydrophilini
Genus 11. Sternalophus Solier, 1834
17. S. rufipes (F.), 1792

Tribe VI. Berosini
Genus 12. Berosus Leach, 1817
18. B. fairmairei Zaitzev, 1908
19. B. indicus Mots., 1861
20. B. pulchellus M’Leay, 1825
21. B. nigriceps (F.), 1801

Genus 13. Regimbartia Zaitzev, 1908
22. R. attenuata (F.), 1801

Family HYDROPHILIDAE

Key to the subfamilies of the family HYDROPHILIDAE
1. First joint of hind tarsi very short, often not visible from above ................................. 2
   - First joint of hind tarsi elongate; antennae usually longer than maxillary palpi................. SPHAERIDINAE

2. Second joint of hind tarsi elongate and longer than third; metasternum prolonged into a sharp elongate spine; antennae shortened and as long as or often shorter than maxillary palpi........ HYDROPHILINAE
   - Second joint of hind tarsi short or about as long as third joint; front coxal cavities open behind, metasternum not prolonged into a sharp spine; antennae shorter than maxillary palpi. HYDRAENINAE

Subfamily I. HYDRAENINAE
Genus 1. Ochthebius Leach, 1815
1. Ochthebius (Hymenodes) explanatus d’orchy, 1937


Distribution : India : Sikkim.
Subfamily II. SPHAERIDIINAE

Key to the tribes of the subfamily SPHAERIDIINAE

1. Antennae inserted under a laminated border and concealing the base from above; head not narrowed immediately before eyes .................. Sphaeridiini
   - Antennae inserted free and its base visible from above; head abruptly narrowed before eyes. .......................................................... 2

2. Mesocoxae never widely separated ............ Cercyonini
   - Mesocoxae very widely separated ................................ Megasternini

Tribe I. Sphaeridiini

Key to the genera of the tribe Sphaeridiini

1. Elytra with only one sutural stria and irregularly punctured; club of antenna very long .......... Coelostoma Brulle
   - Elytra with several striae including sutural stria and punctuation on it regularly arranged; antennal club comparatively shorter .................. Dectylosternum Wollasten.

Genus 2. Coelostoma Brulle, 1835

Key to the species of the genus Coelostoma Brulle

1. Maxillary palpi yellow in colour and species smaller in size ............... horni Regimbart
   - Maxillary palpi not yellow in colour and species comparatively larger in size .................. stultum Walker

2. Coelostoma horni Regimbart, 1902


Remarks : This species is recorded here for the first time from Sikkim.

3. Coelostoma stultum Walker, 1858


Distribution : India : Bihar, Assam, Sikkim.


Remarks : This species is recorded here for the first time from Sikkim.

Genus 3. Dactylosternum Wollasten, 1854


Key to the species of the genus Dactylosternum Woll.

1. Elytral striae 3 & 4 and 6 & 7 are united before the tip of the elytra; species larger in size .................. hydrophiloides (M'Leay)
   - Elytral striae 6 & 7 united in the form of ‘V’ before the tip of the elytra; species smaller in size .................. abdominale F.
4. *Dactylosternum hydrophiloides* M’Leay, 1825


**Distribution**: India: West Bengal, Bihar, Assam, Meghalaya, Rotung, Sikkim, Western India.

**Elsewhere**: Indochina, Fokien, Formosa, Sunda Is., Tonkin, Indonesia, Phillipines, Laos, Annam, Myanmar, Singapore.

**Remarks**: This species is recorded here for the first time from Sikkim.

6. *Cercyon (Cercyon) vicinalis* Walker, 1859


**Distribution**: India: West Bengal, Sikkim.

**Elsewhere**: Sri Lanka, Indo-China, Tonkin, Sunda Is., Indonesia, Formosa, Philippines.

**Remarks**: This species is recorded for the first time from Sikkim.

5. *Dactylosternum abdominale* F., 1792


**Distribution**: India: West Bengal, Sikkim, Andaman Is.

**Elsewhere**: Sri Lanka, North, Middle and South America.

**Remarks**: This species is recorded here for the first time from Sikkim.

**Tribe III. Megasternini**

Genus 5. *Pachysternum* Mots., 1863


**Key to the species of the genus Pachysternum Mots.**

1. Sexual dimorphism strongly developed .......... 
   ........................................... *nigrovittatum* Mots.

- Sexual dimorphism very feebly or not developed; elytra not reticulate and strongly punctured .......... *cardoni* d’orchym.

7. *Pachysternum cardoni* d’orchymont, 1926


**Distribution**: India: Sikkim.

8. *Pachysternum nigrovittatum* Motsch., 1863


*Distribution*: India : Sikkim.

*Elsewhere*: Sri Lanka.

*Remarks*: This species was earlier recorded by *Motschulsky* (1863) from Sri Lanka. Present study recorded the species for the first time from India (Sikkim).

Subfamily III. HYDROPHILINAE

**Key to the tribes of the subfamily HYDROPHILINAE**

1. Scutellum is not longer than its width at base, antennae 9 segmented ........................................ 2
   - Scutellum long, triangular; antennae 8-segmented; eyes convex and hind legs with long swimming hairs .................. *Berosini*

2. Meso and metasternal carina not reunited ...
   ............................................................................ *Hydrobiini*
   - Meso and metasternal carina fused to form one ridge .................. *Hydrophilini*

Tribe IV. Hydrobiini

**Key to the genera of the tribe Hydrobiini**

1. Maxillary palpi robust and short nearly as long as antennae or shorter, their last joint as long or usually longer than penultimate. Elytra with sutural stria, if not, antennae less than 9-segmented ........................................ 2
   - Maxillary palpi more slender, longer than antennae with last joint shorter than penultimate. If last joint is longer than preceeding, the antennae have less than 9-segments. Elytra without any sutural stria ................................. 4

2. Second joint of intermediate and posterior tarsi not longer than first, sometimes even of same size. Elytra irregularly punctured and with sutural stria ............... *Paracymus* Thomson

   - First joint of intermediate and posterior tarsi very short, second joint much longer .............. 3

3. Posterior trochanters elongate at apex and separated from femora. Posterior tibiae curved, elytra usually striate punctate .............................
   ............................................................................ *Laccobius* Er.

   - Posterior trochanters not enlarged and posterior tibiae not curved; elytra regularly striate punctate and its outer margin dentate, at least at base, striae 5 and 6, exceptionally 6 and 7 shortened and united behind ............................................ *Ametor* Semenov

4. Second joint of maxillary palpi with anterior side concave or straight, convex on posterior side; palpi sometimes very long .............................. *Helochares* Mulsant

   - Maxillary palpi rather short, never very long with second joint convex on anterior side and concave posteriorly, the last joint bending outwardly. Eyes rounded .................................
   ............................................................................ *Enochrus* Zaitzev

**Genus 6. Paracymus** Thomson, 1867


**9. Paracymus evanescens** (Sharp), 1890


*Distribution*: India : West Bengal, Bihar, Sikkim.

Remarks: This species recorded here for the first time from Sikkim.

Genus 7. **Ametor** Semenov, 1900


10. **Ametor rugosus** Knisch, 1924


Remarks: This species recorded here for the first time from Sikkim.

Genus 8. **Laccobius** Erichson, 1837


Key to the species of the genus **Laccobius** Er.

1. Elytra striated and regularly punctured; hind angle of pronotum rounded ...
   - Puncturation on elytral striae rather fine and distant ............................................ lentus Sharp

11. **Laccobius simulans** d'orchym., 1923


Distribution: India: West Bengal, Bihar, Sikkim, Meghalaya, Uttar Pradesh.

Remarks: The species is recorded here for the first time from Sikkim.

12. **Laccobius orientalis** Knisch, 1924


Distribution: India: Uttar Pradesh, Sikkim.

Remarks: The species is recorded here for the first time from Sikkim.

Genus 9. **Helochares** Mulsant, 1844

1920. **Helochares** Tullgren & Wahlgren, *Svenska Ins.*, (2) PP. 234, 235.

Key to the species of the genus **Helochares** Mulsant

1. Elytra striated and regularly punctured ....... 2
   - Elytra not striated and not regularly punctured ............................... pallens (MacLeay)

2. Puncturation on elytral striae strong and deep ........................................ crenatus Regimbart
   - Puncturation on elytral striae rather fine and distant ........................ lentus Sharp

13. **Helochares lentus** Sharp, 1890


Distribution: India: West Bengal, Bihar, Assam, Sikkim.

Remarks: This species is recorded here for the first time from Sikkim.

14. Helochares crenatus Regimbart, 1903


Distribution: India: West Bengal, Sikkim, Pandicherry.

Elsewhere: Indo-China, Sunda Is., Philippines, Indonesia, F.M.S., Cochin-China, Cambodia, Tonkin.

Remarks: This species is recorded here for the first time from Sikkim.

15. Helochares pallens (MacLeay), 1825


Distribution: India: West Bengal, Bihar, Assam, Sikkim.

Elsewhere: Syria, Madagascar, Africa, Egypt, Tonkin, F.M.S., Philippines, Indonesia, N. Oceania.

Remarks: This species recorded here for the first time from Sikkim.

Genus 11. Enochrus Zaitzev, 1919


1856. Philhydrus Solier, Ann. Soc. ent. Fr., 8: 91.

16. Enochrus escuriens (Walker), 1858


Distribution: India: West Bengal, Sikkim, Nicobar Is.


Remarks: This species recorded here for the first time from Sikkim.

Tribe V. Hydrophilini

Genus 11. Sternolophus Solier, 1834


17. Sternolophus rufipes (F.), 1792


Distribution India: West Bengal, Bihar, Sikkim, Punjab, Maharashtra, Kashmir, S. India.

Elsewhere: Asia, Sunda is, Burma, Philippines, Japan, Formosa, Indonesia, F.M.S., Indochina, China, Sri Lanka.

Remarks: This species is recorded here for the first time from Sikkim.

Tribe VI. Berosini

Key to the genera of the tribe Berosini

1. Antennae composed of seven segments (4+3); five ventral segments not retractile; upper surface never uniformly deep and shining black ............................................. Berosus Leach.
   - Antennae composed of eight segments (5+3), only four ventral segments not retractile; upper surface always deep and shining black; Metasternum with a simple carina along the middle ....................................... Regimbartia Zaitzev.

Genus 12. Berosus Leach, 1817


Key to the species of the genus Berosus Leach

1. Apex of elytra with spine ....................... 3
2. Apex of elytra without any apical spine .... 2
2. Larger species ranging from 4.8 to 7.0 mm. in length; upper surface yellowish brown ........ ............................................. fairmairei Zaitzev.
   - Smaller species, less than 4.8 mm in length; elytra distinctly striated with smooth interval; sutural angle rounded and divergent in male and acute and weakly convergent in female ........................................... indicus Motschulsky.
3. Pronotum with black patch ........................
   ............................................. pulchellus Mac, Leay.
   - Pronotum without black patch ........................
   .................................................... nigriceps F.

18. Berosus fairmairei Zaitzev, 1908


Distribution: India: West Bengal, Bihar, Sikkim, Delhi, Rajasthan, Kerala, Andaman Is.

Elsewhere: Indo-China, Indonesia, Tonkin, Laos, Annam, Siam, F.M.S., Philippines, Pakistan, Nepal, Bangladesh, Myanmar, China, Hongkong, Japan, Taiwan, Thailand, Malaysia.

Remarks: This species is recorded here for the first time from Sikkim.

19. Berosus indicus Motschulsky, 1861


Distribution: India: West Bengal, Bihar, Sikkim, Punjab, Rajasthan, Uttar Pradesh, Karnataka, Goa, Tamil Nadu, Pondicherry, Kerala.


Remarks: This species is recorded here for the first time from Sikkim.

20. Berosus pulchellus M’Leay, 1825


Distribution: India: West Bengal, Bihar, Sikkim, Maharashtra, Rajasthan, Delhi, Haryana, Uttar Pradesh, Karnataka, Tamil Nadu, Pondicherry, Kerala.

Elsewhere: Indonesia, Australia, Philippines, Sri Lanka, Indo-china, Annam, Formosa, Tonkin, Myanmar, Iran, Nepal, Bangladesh, Laos, Vietnam, China, Japan, Hongkong, Thailand, Taiwan, Malaysia.

Remarks: This species is recorded here for the first time from Sikkim.

21. *Berosus nigriceps* (Fabricius), 1801


Distribution: India: West Bengal, Sikkim, Delhi, Uttar Pradesh, Rajasthan, Madhya Pradesh, Tamil Nadu.

Elsewhere: Pakistan, Bangladesh, Sri Lanka, Nepal, Mesopotamia, Persia, Yemen, Iraq, Iran.

Remarks: This species is recorded here for the first time from Sikkim.

Genus 13. *Regimbartia* Zaitzev, 1908


22. *Regimbartia attenuata* (F.), 1801


Distribution: India: West Bengal, Bihar, Sikkim.


Remarks: This species is recorded here for the first time from Sikkim.

SUMMARY

This study is based mainly on the collections made by different survey parties of Zoological Survey of India and the national collection present in the Section. This include a total of twenty two species under thirteen genera belonging to three subfamilies viz. Hydraeninae, Sphaeridiinae and Hydrophilinae of which, one species under the genus *Pachysternum* Mots. is recorded here for the first time from India and 19 species under 12 genera are recorded for the first time from Sikkim. Besides this, key to the subfamilies, tribes, genera and species where necessary have also been provided. Distributional data of each species has been given from the published records as well as the actual study of the specimens. Selected synonyms, collection data of each species have also given.

ACKNOWLEDGEMENT

Authors are highly indebted to Dr. J.R.B. Alfred, Director, Zoological Survey of India for giving laboratory facilities. Thanks are also due to Dr. G.K. Srivastava, Additional Director (Retd.) and Dr. S.K. Mitra, Joint Director (Retd.) for suggestions and encouragement to complete the work.
REFERENCES


INTRODUCTION

Family Histeridae belongs to Superfamily Histeroidea which consists of three families namely, Sphaeritidae, Synteliidae and Histeridae. This family is well represented in the Indian sub-continent. Beetles of this family are very small to medium in size, very hard and of various shapes namely, round, oval, elongated or oblong and flat. They are predacious in habit both in larval and adult form. They occur in various habitats namely in soil, in termite and ant nests, in dung of various animals, under loose bark and carcasses of animals.

The Indian fauna of Histeridae was studied by early workers like Fabricius (1798), Paykul (1811), Widemann (1819-21), Erichson (1834), Redtenbacher (1848), Marseul (1853-54), Thomson (1862), Lewis (1892-1894). Amongst above workers Marseul and Lewis studied extensively on the Indian-subcontinent fauna and described a large number of Indian species. Later Bickhardt (1913-1921) and Cooman (1932) contributed more to our knowledge. Recently Therond (1970-78), Mazur (1975-86) and Gomy (1976) contributed further to our knowledge.

Indian authors Pal and Biswas (1985) initiated the study on this work and studied the fauna of Namdapha, Arunachal Pradesh. Later Chakraborty and Biswas (1995) worked out fauna of West Bengal. They have further studied fauna of Meghalaya (in press), fauna of Tripura (in press) and now this fauna of Sikkim.

As regards the Histeridae fauna of Sikkim very little attention has been paid so far. Desbordes (1923) has recorded the only known species, *Hister inexspectatus* from Gopaldhara, Sikkim.

Till now about 175 species under 34 genera are known from India in comparison to about 200 genera and 3000 species all over the world.

The present paper deals with materials received from different survey parties of this department. Type specimens have been deposited in the collection of Zoological Survey of India, Calcutta.

SYSTEMATIC ACCOUNT: LIST OF THE TAXA

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<td>Subfamily III. ABRAEINAE</td>
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<td><em>A. copricola</em> Cooman 1932</td>
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Subfamily IV. DENDROPHILINAE

Genus 6. *Platylomalus* Cooman 1948

6. *P. mendicus* (Lewis) 1892
7. *P. oceanitis* (Marseul) 1855

Subfamily V. HISTERINAE

Tribe-3. *Tribalini*

Genus 7. *Tribalus* Erichson 1834

8. *T. colombius* Marseul 1864

Tribe-4. *Histerini*

Genus 8. *Atholus* Thomson 1862

9. *A. coelestis* (Marseul) 1857
10. *A. philippinensis* (Marseul) 1854
11. *A. silvicola* (Lewis) 1901

Genus 9. *Hister* Linnaeus 1767

12. *H. coracinus* Erichson 1834
13. *H. paraincognitus* n. sp.
14. *H. planiceps* Lewis 1888
15. *H. pullatus* Erichson 1834

Genus 10. *Peranus* Lewis 1906

16. *P. maindroni* (Lewis) 1901

Genus 11. *Chronus* Lewis 1914

17. *C. scaliformis* Desbordes 1923

Tribe-5. *Platysomini*

Genus 12. *Hyposolenus* Lewis 1907

18. *H. bengalensis* (Lewis) 1906

Genus 13. *Platylister* Lewis 1892

19. *P. atratus* (Erichson) 1834
20. *P. borneolus* (Marseul) 1861

Genus 14. *Platysoma* Leach 1817

21. *P. brahmani* Lewis 1910
22. *P. confucii* Marseul 1857

State Founa Series 9, Fauna of Sikkim

Family HISTERIDAE

Key to the subfamilies of HISTERIDAE

1 (2) Head directed horizontally infront, non-retractible within pronotum; mandibles long; propygidium and elytra in the same plane; body extremely flat.................................

.................................................. *Hololeptinae*

2 (1) Head inclined, retractible; propygidium and elytra not in the same plane.

3 (4) Antennae inserted infront, near internal border of eyes, often with a little pit opened infront ................................. *Abraeinae*

4 (3) Antennae inserted under lateral border of frons, between eyes and base of mandibles.

5 (6) Prosternum without distinct lobe anteriorly, internal groove placed immediately before anterior coxae, elytral striae are oblique lines outwardly and shortened posteriorly........

.................................................. *Saprininae*

6 (5) Prosternum with a distinct anterior lobe, generally limited by a transverse sutural line.

7 (8) Both sides of the prosternal lobe as well as the prosternum before the anterior coxae are grooved to accomodate the funicle of antennae at rest............. *Dendrophilinae*

8 (7) None of the sides of prosternum grooved as above; antennae are accomodated in the antennal fossettes at the anterior angles of prosternum................................. *Histerinae*

Subfamily I. HOLOLEPTINAE

Genus 1. *Hololepta* Paykul 1811


1. *Hololepta indica* Erichson 1834

1834. *Hololepta indica* Erichson, in *Klug Jahrb Ins.* : 90


Distribution: India: Sikkim (East), Assam, Meghalaya, and West Bengal. Also known from Indonesia, New Guinea and Formosa.

Remarks: This species is first time recorded from Sikkim. It often infests banana plants and generally found under bark of felled logs in forest area.

Subfamily II SAPRININAE

Key to the genera of subfamily SAPRININAE

1 (2) Smaller in size; frons convex with angular transverse wrinkles; pattern of dorsal striae etc. as in the members of the subfamily; prosternum with antero-lateral foveae, prosternal striae gradually converging anteriorly and united angularly............... Hypocaccus Thomson

2 (1) Small to medium in size; frons weakly convex and finely punctate; dorsal striae oblique, shortened behind, generally 4 in numbers (rarely 5); sutural present, continue along the apical margin of the elytrae upto where it forms the marginal, sometimes shortened at the base or reunite by an arch at the dorsal 4th; humeral fine, oblique, close to the 1st. dorsal, often joined with the internal subhumeral; the external subhumeral when exist reduced to a short basal rudiment; elytrae strongly punctate posteriorly; prosternum without any antero-lateral foveae, prosternal striae diverging and meeting anteriorly, narrowest in the middle, limited by a border which meeting one more exterior ...... Saprinus Erichson

Genus 3. Saprinus Erichson 1834


2. Saprinus cupreus Erichson 1834


Distribution: India: Sikkim, Bombay and Nilgiri Hills. Also known from Capland.

Remarks: This species is recorded for the first time from Sikkim.

Subfamily III ABRAEINAE

Key to the genera of subfamily ABRAEINAE

1 (2) Body suborbicularly convex; scutellum very small, indistinct; hind tarsi with 5 articles

................................. Abraeus Leach
2 (1) Body oval, weakly convex, shining; scutellum very small, triangular; hind tarsi with only 4 articles ....... Acritus Le Conte

Tribe 1. Abraeini

Genus 4. Abraeus Leach 1817

1817. Abraeus Leach, Zool. Miscell. III, P. 76

4. Abraeus indicus Lewis 1888


Distribution: India: Sikkim. Also known from Myanmar.

Remarks: This species was originally described from Rangoon, Myanmar. It is first time recorded from India as well as Sikkim.

Tribe 2. Acritini

Genus 5. Acritus Le Conte 1853


5. Acritus copricola Cooman 1932

1932. Acritus copricola Cooman, Bull. Mus. 2 serie, T. iv. No. 4 : 402


Distribution: India: Sikkim, West Bengal, U. P., Kerala and Kranataka. Also known from Vietnam.

Remarks: Recorded for the first time from Sikkim.

Subfamily IV. DENDROPHILINAE

Genus. Platylomalus Cooman 1948

1948. Platylomalus, Cooman, Notes Ent. Chin., 12 : 134

Key to the species of the genus Platylomalus

1 (2) Oblong oval, larger in size (2-2.5 mm length); mesosternum without any transverse stria .................. mendicus (Lew)
2 (1) Oval, smaller in size (2.20 mm Length); mesosternum with a bisinuous almost arched transverse stria ................................................................. oceanitis (Marseul)

6. Platylomalus mendicus (Lewis) 1892

1948. Platylomalus mendicus, Cooman, Notes Ent. Chin., 12 : 134


Distribution: India: Sikkim. Also known from Java and Japan.

Remarks: This species was first described from Japan. Lewis reported it from Java in 1899. It is a new record from India as well as Sikkim.

7. Platylomalus oceanitis (Marseul) 1855


Distribution: India: Sikkim, Meghalaya, Tripura and West Bengal. Also known from Philippines, Myanmar, Malacca, Malaysia and Sumatra.
Remarks: This species generally feeds on the larvae of under-bank fauna in the felled trees. It is a new record from Sikkim.

Subfamily V. HISTERINAE

Key to the tribes of subfamily HISTERINAE

1 (2) Mesosternum truncated or feebly rounded in front (rarely broadly but evenly emarginate); true frontal stria absent; pronotum without lateral striae; front tibiae narrow with fine spine on external edge, not dented. Tribe 3. Tribalini

2 (1) Mesosternum emarginate in front; frontal stria generally present; pronotum rarely with one or more lateral striae (except Macrosternus Mars., Asolenus Lewis and Baonia Lewis); front tibiae much broadened with external edge dented.

3 (4) Tarsal groove of front tibiae straight, distinctly bordered at the inner edge only. Tribe 4. Histerini

4 (3) Tarsal groove of front tibiae 'S' shaped, strongly cleft, sharply defined. Tribe 5. Platysomini

Tribe 3. Tribalini

Genus 7. Tribalus Erichson 1834


8. Tribalus colombius Marseul 1864

1864. Tribalus colombius Marseul, Abeille 1 : 335


Distribution: India: Sikkim, Meghalaya (West Garo Hills) and Assam. Also known from Sri Lanka and Myanmar.

Remarks: This species also feeds on under bark fauna like the previous one. Its a new record of this species from Sikkim.

Tribe 4. Histerini

Key to the genera of the tribe Histerini

1 (2) Mesosternum roundedly truncated anteriorly; prosternal keel narrow, flat at the base; antennal fossettes closer, deep, non-circular; pronotum generally with a fovea near the anterior angle which is sometime punctate, with a single lateral stria; elytra with a subhumeral, five dorsal and a sutural striae; frontal stria present; arched, generally complete. Atholus Thomson

2 (1) Mesosternum weakly to strongly sinuous anteriorly.

3 (4) Upper surface uniformly, closely and microscopically punctate; body short, oval and depressed; head flat, not impressed. frontal stria arched and complete, scape of the antennae angulate on the outer edge. Chronus Lewis

4 (3) Upper surface generally smooth, not punctate as mentioned above; body medium to large and thick.

5 (6) Mesosternum very weakly sinuous anteriorly; prosternal keel narrow, base flat; front concave, stria biarcuate; pronotum narrowed at the base, with a lateral stria and distinct fovea behind the anterior angle; antennal fossettes wider, less deep, not circular; elytra, humeral stria generally absent, 5th and sutural striae when complete join at the base, anterior tibiae 3-dented. Peranus Lewis

6 (5) Mesosternum strongly to weakly sinuous even straight in front with a stria generally interrupted in middle; prosternal keel wider, projecting round at the base; frontal stria semicircular, some times interrupted or absent; pronotum wider at the base with a marginal stria and one or two lateral striae, antennal fossettes well limited; elytra dialated
at shoulder, humeral stria fine, oblique, subhumerals sometimes absent, 5 dorsal striae of which the internals shortened or absent as well as the sutural; anterior tibiae triangular, compressed, dented, terminated by two equal spines...........................

Genus 8. Atholus Thomson 1862


Key to the species of the genus Atholus

1 (2) 1-3 dorsal striae entire; pronotum without foveae at the anterior angles. 4th dorsal stria reaching beyond the middle, 5th and sutural shorter, apical, almost reaching the middle; subhumeral strong, like a furrow, shortened at both ends. ......................... philippinensis (Marseul)

2 (1) 1-4 dorsal striae entire; pronotum with foveae at the anterior angles.

3 (4) Fovea on the pronotum sparsely punctate; 5th and sutural stria of same length, reaching the middle; internal subhumeral stria reduced to an oblong puncture ........... ..................... coelestis (Marseul)

4 (3) Fovea on the pronotum smooth; 5th reaching the middle, sutural a little longer than 5th, internal subhumeral stria long and deep near the base ......................... silvicola (Lewis)

9. Atholus coelestis (Marseul) 1857


Distribution : India : Sikkim, Meghalaya, Tripura, West Bengal and Tamil Nadu. Also known from China, Myanmar and Sri Lanka.

Remarks : It is a widely distributed species. Recorded for the first time from Sikkim.

10. Atholus philippinensis (Marseul) 1854


Distribution : India : Sikkim and Meghalaya (Khasi Hills). Also known from Myanmar and Philippines.

Remarks : This species is recorded for the first time from Sikkim.

11. Atholus silvicola (Lewis) 1901


**Distribution**: India: Sikkim, Meghalaya, Tripura and West Bengal.

**Remarks**: This is an indigenous species. Only found in India. Recorded first time from Sikkim.

**Genus 9 Hister Linnaeus 1767**


**Key to the species of the genus Hister**

1 (2) Frons without any stria; pronotum with only one internal stria, a little shortened at the base; elytra with a long external subhumeral stria, 1-3 dorsal striae entire, 4-5 and sutural reduced; propygidium and pygidium evenly and densely punctate; prosternum wider between the coxae, without striae, mesosternum emarginate, stria entire; anterior tibiae falciform, with 5-6 teeth ...................... planiceps Lewis.

2 (1) Frons with distinct stria.

3 (4) Frontal stria semicircular, pronotum with two lateral striae, external very short, near the anterior angle, internal entire; elytra with a short, arch like, external subhumeral at the out side of the humerus, 1-3 dorsal striae entire, 4 apical, short with a puncture or small trait at the base, 5 apical, obsolete, sutural rudimentary or absent; propygidium and pygidium marked with large, sparse punctures only at the base; prosternum bistriate, mesosternum sinuous, stria entire; anterior tibiae 3 dentate ...................... coracinus Erichson.

4 (3) Frontal stria not semicircular but biangular or otherwise.

5 (6) Frons plane, with a biangular 'M' like interrupted stria; anterior margin of pronotum sinuous, with two lateral striae, external shortened before middle, internal entire, lateral margin depressed at middle; elytra with a long external subhumeral, 1-3 dorsal striae entire, very fine, 1 st often indistinct in middle, 4-5 and sutural apical, obsolete; propygidium and pygidium finely and densely punctate ...................... paraincognitus n. sp.

6 (5) Frons concave, with a 'T' like stria; anterior margin of pronotum bisinuious, with two lateral striae, external short, internal entire; elytra with a short internal subhumeral, 1-4 dorsal striae entire, 5th apical, short, sutural a little longer than 5th; propygidium and pygidium finely and sparsely punctate pullatus Erichson

12. Hister coracinus Erichson 1834


**Distribution**: India: Sikkim, Hardwar (U.P). Also known from Bhutan and Sri Lanka.

**Remarks**: Recorded for the first time from Sikkim.

13. Hister paraincognitus sp. nov.

Body elongate oval, weakly convex, black and shining. Antennae brown. club greyish. funicle blackish brown. Head medium sized, subtriangular. frons plane, with a biangular 'M' like interrupted stria; labrum short, squarish, weakly sinuous in front; mandibles robust, dentate, curved with a sharp tip. Pronotum wider than long, arched at the base with a small antescutellar stria, lateral margin weakly arched with a depression at middle. anterior margin narrowed and strongly sinuous. anterior angles acute, projecting; marginal stria entire along the sides and anterior angles, interrupted behind the head. anterior margin with two isolated distinct punctures each behind the eyes, lateral margin with two similar punctures, one at the anterior one third and the other below the posterior two third, a little above the base, on the marginal stria; two lateral striae united anteriorly behind the eyes, external shortened...
before base or at the middle, internal complete, entire behind the head, not touching the basal margin of pronotum. Scutellum small, triangular. Elytrae longer than broad, widest at the base, swollen at the humerus, narrowed and weakly arched at the end with a weak subapical impression; lateral border inflexed, without a marked groove, punctate strongly; apart from these punctuation six isolated big punctures are found on each side of the elytrae close to the external subhumeral striae, which is complete, 1-3 dorsal striae fine, entire, 4-5 and sutural short, apical and obsolete 1st dorsal stria interrupted or indistinct in the middle and 3rd dorsal stria very fine and interrupted below the middle towards apex. Propygidium very compactly punctate, punctures are smaller than the size of interspaces; pygidium convex, more densely punctate. Prosternum angular at the base, lobe short, inclined, bordered and punctate; mesosternum deeply and angularly sinuous in front with two marginal stria, the anterior most is restricted to the corners only, posterior one runs along the sinuous margin, entire. Anterior tibiae with six small teeth, anterior one bifid; posterior tibiae with seven or eight pairs of spines.

**Measurements**: Length 7.11-8.00 mm, Width 5.11-5.44 mm.

**Holotype**: Thanggu, North Sikkim, alt. 3842 m. 20.viii. 1989, S.S.Saha Coll.

**Paratype**: 1 ex., Thanggu, North Sikkim, alt. 3842 m; 13.vii. 1989, S.S.Saha Coll.

**Remarks**: This species appears very close to *H. incognitus* Marseul, but differs considerably by the following characters. In *H. incognitus* head is rounded, pronotum almost straight at the base and without any depression on lateral margins; two isolated punctures on the anterior margin and none on the lateral margins; dorsal striae 1-3 fine, entire, external subhumeral shortened at the base and no isolated punctures close to the subhumeral striae; base of the prosternum obtuse, mesosternum with two marginal stria. The species under consideration can not be placed under *incognitus* Marseul. More over marseul has mentioned only India as the locality. Considering all these facts the species under consideration is placed under the name *H. paraincognitus* as a new species. More over this species differs considerably by the size and other important characters from the only known Histeridae species from Sikkim (British India) *H. inexspectatus* Desbordes.

14. **Hister planiceps** Lewis 1888


**Distribution**: India: Sikkim. Also known from Myanmar.

**Remarks**: This species was originally described from Myanmar. This is the first time record of this species from Sikkim as well as India.

15. **Hister pullatus** Erichson 1834


**Distribution**: India: Sikkim, Assam, Meghalaya, West Bengal and Tripura.

**Remarks**: This species is an indigenous species of India. It has not yet been reported from out-side India. It is a new record of this species from Sikkim.
Genus 10. **Peranus** Lewis 1906


16. **Peranus maindroni** (Lewis) 1901


*Distribution*: India: Sikkim. Also known from Kurraichi, Pakistan.

*Remarks*: It is recorded for the first time from Sikkim.

Genus 11. **Chronus** Lewis 1914

17. **Chronus scaliformis** Desbordes 1923

1923. *Chronus scaliformis* Desbordes, Bull. Soc. ent. Fr., **26**: 60


*Distribution*: India: Sikkim, West Bengal and Meghalaya.

*Remarks*: It is an indigenous species. Recorded for the first time from Sikkim.

Tribe 5. **Platysomini**

Key to the genera of the tribe **Platysomini**

1 (2) Anterior tibiae much dilated with two prominent stump like teeth at external margin, larger species, anterior margin of mesosternum with a deep groove ...........

........................................... *Hyposolenus* Lewis.

2 (1) Anterior tibiae not much dilated, with at least three teeth at external margin, smaller to medium sized beetles, anterior margin of mesosternum with a shallow groove.

3 (4) External margin of the Pygidium arched, usually medium sized beetles .................

........................................... *Platylister* Lewis

4 (3) External margin of the Pygidium plain or convex, usually smaller in size .................

........................................... *Platysoma* Leach.

Genus 12. **Hyposolenus** Lewis 1907


18. **Hyposolenus bengalensis** (Lewis) 1906


*Distribution*: India: Sikkim, West Bengal (Darjeeling Dist.)

*Remarks*: It appears to be an indigenous species. Recorded from Sikkim for the first time.

Genus 13. **Platylister** Lewis 1892


Key to the species of the genus **Platylister**

1 (2) Frons subconcave, stria straight; anterior margin of pronotal groove bisinuous,
marginal stria entire, lateral striae entire, continued at the base; 1-3 dorsal striae entire, 4 and 5 strongly reduced. others absent; elytral marginal stria extending up to the suture along the apical margin ..........

.................... atratus (Erichson)

2 (1) Frons strongly concave, stria only on the eyes: anterior margin of pronotum bisinuous, marginal stria interrupted, lateral stria entire; 1-3 dorsal entire, 4 and 5 apical, strongly reduced, sutural absent .............

......................... borneolus (Marseul)

19. Platylister atratus (Erichson) 1834


Distribution: India: Sikkim, West Bengal, Meghalaya, Tripura and Tamilnadu.

Remarks: Recorded for the first time from Sikkim.

20. Platylister borneolus (Marseul) 1861


Distribution: India: Sikkim, West Bengal and Meghalaya. Also known from Borneo.

Remarks: Recorded for the first time from Sikkim.

Genus 14. Platysona Leach 1817


Key to the species of the genus Platysona

1 (2) Sutural stria present, short, below the middle; frons weakly depressed, stria complete; pronotum with the marginal stria obscurely interrupted behind the eyes, lateral striae entire, lateral area is broadly punctate, punctation varying in size; 1-3 dorsal striae entire, 4 apical, reaching the middle, 5 two third of 4 in length; apical margin of elytrae punctate; propygidium and pygidium covered with large ocellate punctures .... brahmani Lewis.

2 (1) Sutural stria absent, frons weakly depressed, stria entire; pronotum with the marginal stria absent behind the head, lateral striae entire, sinuous; 1-3 dorsal striae entire, 4-5 equal, shortened at middle; propygidium and pygidium covered with spacious punctures only at their bases ........................................ confucii Marseul.

21. Platysona brahmani Lewis 1910


Distribution: India: Sikkim, West Bengal and Uttar Pradesh. Also known from Bhutan.

Remarks: Its a new record of this species from Sikkim.

22. Platysona confucii Marseul 1857


**Distribution**: India: Sikkim, West Bengal, Assam, Meghalaya, Tripura and Andaman Islands. Also known from Myanmar, China, Sumatra, Philippines and Sri Lanka.

**Remarks**: Very widely distributed species. Recorded for the first time from Sikkim.

**SUMMARY**

The present paper deals with 125 exs. of Histeridae beetles falling under 22 species, under 14 genera belonging to 5 tribes under 5 subfamilies. Amongst these, the species, *H. paraincognitus*, has been described as new to science. All the species reported here are recorded for the first time from Sikkim. Keys to the subfamilies; tribes, genera and species have been provided. Relevant collection data and important references under each species have also been provided.

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INSECTA : COLEOPTERA : SCARABAEIDAE

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INTRODUCTION

The Coleoptera comprising beetles is the largest Order in the Class Insecta. It contains a large number of groups, of which one is the Scarabaeidae or popularly known as “Dung beetles”. Generally, they are phytophagous and coprophagous in nature. Some of them are very attractive due to their very beautiful colouration and shining appearance. They can also be recognized by their characteristic form of antennae.


Altogether 25 species under 13 genera belonging to 5 subfamilies are dealt with in this paper, and all the species are recorded for the first time from Sikkim. All the taxa have been keyed and synonymies for the species have also been cited wherever necessary.

SYSTEMATIC ACCOUNT : LIST OF TAXA

Family  SCARABAEIDAE
Subfamily I. CETONIINAE

Genus 1. Diceros Lacordaire
1. D. childreni (Westwood)

Genus 2. Protaetia Burmeister
2. P. fusca (Herbst)

Genus 3. Oxycetonia Arrow
3. Q. jucunda Faldermann

Genus 4. Clinteria Burmeister
4. C. spuria Burmeister
5. C. spilota (Hope)

Subfamily II. DYNASTINAE

Genus 5. Xylotrupes Hope
6. X. gideon (Linnaeus)

Genus 6. Alissonotum Arrow
7. A. crassum Arrow

Genus 7. Phyllognathus Eschscheltz
8. P. dienysius (Fabricius)

Subfamily III. RUTELINAE

Genus 8. Popillia Serville
9. P. cupricollis Hope
10. P. feae Kraatz

Genus 9. Callistopopillia Ohaus
11. C. iris (Candeze)

Genus 10. Mimela Kirby
12. M. passerinii Hope
13. M. princeps Hope
14. M. bicolor Hope

Genus 11. Anomala Samouelle
15. A. bilunata Fairmaire
16. *A. rugosa* Arrow
17. *A. varicolor* Gyllenthal
18. *A. variegata* Hope
19. *A. bilobata* Arrow
20. *A. flavopicta* Arrow
21. *A. grandis* (Hope)
22. *A. rufiventris* Redtenbacher

Subfamily IV. COPRINAE
Genus 12. *Catharsius* Hope
23. *C. molossus* (Linnaeus)
24. *C. granulatus* Sharp

Subfamily V. MELOLONTINAE
Genus 13. *Apogonia* Kirby
25. *A. cribricollis* Burmeister

Subfamily I. CETONIINAE

Key to the genera of CETONIINAE

1. Sides of the scutellum concave, apex extremely sharp .................................................. *Clinteria*
   - Sides of the scutellum straight, convex or sinuous .......................................................... 2

2. Base of the pronotum in a transverse line ................................................................. *Diceros*
   - Base of the pronotum not in a transverse line .............................................................. 3

3. Clypeus not elongate, rather broad in front ................................................................. *Protaetia*
   - Clypeus elongate, narrow in front ................................................................. *Oxycetonia*

Genus 1. *Diceros* Lacordaire 1856


1. *Diceros childreni* (Westwood) 1842

1842. *Heterorrhina childreni* Westwood, Arcana Ent., 1: 139, Pl. 36, fig. 3.


*Distribution*: India: West Bengal, Meghalaya and Sikkim.

*Remarks*: First time recorded from Sikkim.

Genus 2. *Protaetia* Burmeister, 1842


2. *Protaetia fusca* (Herbst) 1790


*Distribution*: India: West Bengal & Sikkim.

*Elsewhere*: Myanmar, Malaysia, North Queensland, South China and Thailand.

*Remarks*: First time recorded from Sikkim.

Genus 3. *Oxycetonia* Arrow, 1910


3. *Oxycetonia jucunda* (Faldermann) 1835


Distribution: India: West Bengal, Manipur, Meghalaya & Sikkim.

Remarks: First time recorded from Sikkim.

Genus 4. Clinteria Burmeister 1842


Key to the species of genus Clinteria

1. Pronotum bearing spots on each side of the middle.......................... spuria Burmeister
   – Pronotum bearing a longitudinal median line spilota Hope

   4. Clinteria spuria Burmeister 1847


Distribution: India: Manipur, Meghalaya & Sikkim.

5. Clinteria spilota (Hope) 1831


Distribution: India: West Bengal (Darjiling), Himachal Pradesh, Uttar Pradesh and Sikkim.

Remarks: First time recorded from Sikkim.

Subfamily II. DYNASTINAE

Key to the genera of DYNASTINAE

1. Basal joint of hind tarsus similar to those .... succeeding .............................................. Xylotrupes
   – Basal joint of hind tarsus more or less triangular .......................................................... 2

2. Mandibles deeply notched externally; sexes similar ......................................................... Alissonotum
   – Mandibles not notched externally; sexes dissimilar ................................ Phyllognathus

Genus 5. Xylotrupes Hope 1837


6. Xylotrupes gideon (Linnaeus) 1767


Distribution: India: West Bengal (Darjiling), Assam, Kerala, Maharashtra, Meghalaya and Sikkim.

Elsewhere: Sri Lanka.

Remarks: First time recorded from Sikkim.

Genus 6. Alissonotum Arrow 1908


7. Alissonotum crassum Arrow 1908


Material examined: 2 exs., 1 ex., India, East Sikkim, Ranipul, 22.v. 1994; 1 ex., Pandom, 5.x. 1993, all are collected by B.N. Das & Party.

Distribution: India: West Bengal, Bihar and Sikkim.

Elsewhere: Bangladesh and Myanmar.

Remarks: First time recorded from Sikkim.
Genus 7. Phyllognathus Eschscholtz 1830


8. Phyllognathus dionysius (Fabricius) 1910


Distribution: India: West Bengal (Darjiling), Bihar, Karnatak, Orissa and Sikkim.

Elsewhere: Sri Lanka.

Remarks: First time recorded from Sikkim.

Subfamily III. RUTELINAE

Key to the genera of RUTELINAE

1. Pronotum excised before the scutellum ............ 2
   - Pronotum not excised before the scutellum. .................................................

2. Hind coxae not acutely produced at the base. .................................................
   - Hind coxae acutely produced at the base ......................................................

3. Prosternum strongly elevated and bent abruptly forward ........................................
   - Prosternum rarely elevated and never bent abruptly forward .............................

Genus 8. Popillia Serville 1825


Key to the species of genus Popillia

1. Elytra without distinct dorsal foveae ............
   ........................................................................ cupricollis Hope
   - Each elytron with a foveae before the middle .............................................. feae Kraatz

9. Popillia cupricollis Hope 1831


Distribution: India: West Bengal (Darjiling), Assam, Himachal Pradesh, Uttar Pradesh and Sikkim.

Elsewhere: Nepal.

Remarks: First time recorded from Sikkim.

10. Popillia feae Kraatz, 1892.


Distribution: India: West Bengal (Darjiling), Assam and Sikkim.
Elsewhere: Myanmar, Thailand, Malaysia.

Remarks: First time recorded from Sikkim.

Genus 9. \textit{Callistopopillia} Ohaus 1903


11. \textit{Callistopopillia} \textit{iris} (Candeze) 1869


Distribution: India: West Bengal (Darjiling), Kashmir and Sikkim.

Elsewhere: Tibet.

Remarks: First time recorded from Sikkim.

Genus 10. \textit{Mimela} Kirby 1825


Key to the species of genus \textit{Mimela}

1. Pygidium clothed with conspicuous hair..........................\textit{passerinii} Hope

- Pygidium without conspicuous hair .................. 2

2. Upper surface green or chiefly green ......................... \textit{princeps} Hope

- Upper surface red, yellow or golden yellow .......................... \textit{bicolor} Hope

12. \textit{Mimela passerinii} Hope 1842


Distribution: India: West Bengal (Darjiling), Jammu & Kashmir and Sikkim.

Elsewhere: West China and Tibet.

Remarks: First time recorded from Sikkim.

13. \textit{Mimela princeps} Hope 1842


Material examined: 1 ex., India, North Sikkim, Mongan, 31.v. 1994, B.C. Das & Party Coll.

Distribution: India: West Bengal (Darjiling), Meghalaya and Sikkim.

Elsewhere: Bangladesh, Bhutan and Vietnam.

Remarks: First time recorded from Sikkim.

14. \textit{Mimela bicolor} Hope 1836


Material examined: 1 ex., India, South Sikkim, Namchi, 1.vi. 1997, Dr. S. Biswas & Party.

Distribution: India: West Bengal (Darjiling), Assam and Sikkim.

Elsewhere: Nepal.

Remarks: First time recorded from Sikkim.
Genus 12. Anomala Samouelle 1819


Key to the species of genus Anomala

1. Base of the pronotum completely margined .................................................. 2
   - Base of the Pronotum not completely margined ........................................ 6

2. Longer claw cleft on the middle feet .......... 3
   - Longer claw of the front feet only cleft ...... ........................................... variegata Hope

3. Front tibia tridentate ........................................ 4
   - Front tibia bindentate .............. biodata Arrow

4. Smaller size ................................................... 5
   - Larger size, dark patch upon the pronotum.. ............................................ varicolor Gyllenthal

5. Elytra with opaque lateral areas .................. ........................................................ bilunata Fairman
   - Elytra very closely sculptured ................................................................. rugosa Arrow

6. Elytra showing strongly-marked striae or lines of punctures.............. flavopicta Arrow,
   - Elytra without strongly-marked grooves or lines of punctures .................... 7

7. Upper surface bright green ...... grandia Hope
   - Upper surface dark coppery ............ ....................................................... rufiventris Redtenbacher

15. Anomala bilunata Fairmaire 1888


1917. Anomala bilunata, Arrow, Fauna Brit. India (Coleoptera : Lamellicornia)

Material examined : 4 exs.; 1 ex., India, East Sikkim, Ranipool, 26. v. 1997, 3 exs., South Sikkim, Namchi, 1.vi., 1997, both collected by Dr. S. Biswas and Party.

Distribution : India : West Bengal (Darjiling), Manipur and Sikkim.

Elsewhere : Vietnam and S. China.

Remarks : First time recorded from Sikkim.

16. Anomala rugosa Arrow 1899


Distribution : India : West Bengal (Darjiling), Himachal Pradesh, Uttar Pradesh and Sikkim.

Elsewhere : Nepal.

Remarks : First time recorded from Sikkim.

17. Anomala varicolor Gyllenthal 1817


Distribution : India : West Bengal (Darjiling) & Jalpaiguri), Bihar, Karnataka, Tamil Nadu, Uttar Pradesh and Sikkim.

Elsewhere : Sri Lanka.

Remarks : First time recorded from Sikkim.

18. Anomala variegata Hope 1831


*Distribution*: India: West Bengal (Darjiling and Kalimpung) and Sikkim.

*Elsewhere*: Nepal.

*Remarks*: First time recorded from Sikkim.

19. **Anomala bilobata** Arrow 1912


*Distribution*: India: West Bengal (Calcutta, Darjiling and Murshidabad) and Sikkim.

*Elsewhere*: Myanmar; China.

*Remarks*: First time recorded from Sikkim.

20. **Anomala flavopicta** Arrow 1912


*Distribution*: India: West Bengal (Darjiling) and Sikkim.

*Remarks*: First time recorded from Sikkim.

21. **Anomala grandis** (Hope) 1840


*Distribution*: India: Assam, Meghalaya, Orissa, Chennai and Sikkim.

*Elsewhere*: Myanmar.

*Remarks*: First time recorded from Sikkim.

22. **Anomala rufiventris** Redtenbacher 1848


*Distribution*: India: West Bengal (Darjiling) Manipur, Meghalaya, Uttar Pradesh and Sikkim.

*Elsewhere*: Bhutan.

*Remarks*: First time recorded from Sikkim.

Subfamily IV. COPRINAE

Diagnostic character of the genus *Catharsius* known from Sikkim.

Hind tibia with one spur, middle coxae widely separated, the tarsi more or less flat and tapering.

Key to the species of the genus *Catharsius*

1. Head with a small smooth area adjoining each eye ........................................... *molosius* Linnaeus

– Head without smooth area adjoining each eye. lateral prominence on each side of the pronotum *granulatus* Sharp

Genus 13. **Catharsius** Hope 1846

23. Catharsius molossus (Linnaeus)


Distribution: India: Assam, Orissa, Uttar Pradesh, Maharashtra, Himachal Pradesh, Karnataka, Kerala, Andaman Island, Arunachal Pradesh, West Bengal and Sikkim.

Remarks: First time recorded from Sikkim.

24. Catharsius granulatus Sharp 1875


Material examined: 1 ex., India, East Sikkim, Rorathang, 4.x. 1993, B.N. Das & Party.

Distribution: India: Bihar, Uttar Pradesh and Sikkim.

Elsewhere: Pakistan, Sri Lanka.

Remarks: First time recorded from Sikkim.

Subfamily V. : MELOLONTHINAE

Genus 14. Apogonia Kirby


25. Apogonia cribricollis Burmeister

1855. Apogonia cribricollis Burmeister, Handb. Ent. 4 (2) : 256.


Distribution: India: Assam & Sikkim.

Elsewhere: Vietnam, Hongkong.

Remarks: First time recorded from Sikkim.

SUMMARY

The present paper deals with 25 species under the 14 genera belonging to 5 subfamilies of Lamellicorn beetles from Sikkim. All the dealt species are recorded for the first time from the State of Sikkim.

Distributional records of all the species in this paper have been provided on the basis of available literature and collections present in Zoological Survey of India.

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INSECTA : COLEOPTERA : RHIZOPHAGIDAE

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INTRODUCTION

The Rhizophagidae with about 250 species are a moderately large family and are represented in all major biogeographic regions. Species of Rhizophagidae have been found under bark of old logs, ascomycetes fungi, haystacks, decaying vegetation and are sometime called 'root-eating beetles' The concept of Rhizophagidae suffered from changes since Redtenbacher (1854) until Crowson (1955) defined the group in the present sense bringing Monotominae : Cucujidae under it. By the way, genera listed by Méquignon (1914) and Hetschko (1930) under Rhizophagidae, and Monotominae : Cucujidae respectively were considered to belong to this family. Crowson (loc. cit.) transferred 3 genera to the families Smicripidae, Lyctidae and Curculionidae. Sengupta (1977, 1988) added 4 genera from India and he (1988) considered two subfamilies under Rhizophagidae. The present account is based on some recent collection made by the author in Sikkim plus earlier material records from the State.

Characters of Family Rhizophagidae

Body elongated, somewhat parallel-sided, cylindrical to subdepressed, with short clubbed antenna and truncate elytra exposing tip of pygidium, light to dark brown in colour.

Head about as broad as long or little elongate, without fronto-clypeal suture, antennal insertions hidden under projection of frons, 10-segmented antenna with 1- or 2-segmented club, small to moderately large eyes not much protruding, often with distinct tempora, on ventral side often with strongly or weakly developed antennal cavities, anterior part of gular region often with transverse curved impressed line, gular sutures widely separated; mandible often partially exposed, with one or two apical teeth, mola well developed, rarely with mandibular cavity; maxilla with well developed lacinia but never with apical spine. galea slender, palpi with apical segment elongate, segments 2 and 3 subequal or rarely segment 2 markedly large (Monotoma); labium with mentum about as broad as long or little elongate, palpi often with apical segment elongate and sometimes with larger segment 2 than apical one (Monotoma); labrum usually not distinguishable.

Prothorax of variable proportion from distinctly elongate to little transverse, pronotal disc often more or less depressed, front coxal cavities usually rounded with hidden trochantins and rarely little transverse with partially exposed trochantins, coxal cavities broadly closed behind, prosternal process more or less broad at apex.

Mesos-metathorax : Mesoscoxae closely situated, mesoscochal cavities open outwardly (rarely closed), sternal fitting between mesoscoxae often with a projection from metasternum; metasternum transverse, with median impressed line, hind coxae closely situated or little widely separated.

Elytra somewhat parallel-sided, punctures usually in linear rows, without scutellary striole. epipleura narrow and often complete up to apex. Hind wing with 1 to 3 anal veins, no radial cell, often with r-m cross vein or its trace.

Legs moderately long, trochanters usually simple, femora more or less swollen, tibiae broadened at apex with two apical spurs; tarsal
formula 4-4-4, or 5-5-4 in male and 5-5-5 in female, or 5-5-5 in both sexes.

Abdomen narrow-elongate, ventrities freely articulated, ventrite 1 longer than others, intercoxal process narrow with pointed apex to broad with truncate apex, femoral lines present or absent. Aedeagus uninverted cucujoid-type, tegmen complete or incomplete, no distinct parameres, often with a pair of thread-like median strut. Ovipositor with separate paraprocts, valvifers, coxites and styli.

key to subfamilies of RHIZOPHAGIDAE

1. Front coxal cavities transverse with exposed trochantins; no transverse impression or line on anterior part of gular region of head, antennal cavities well developed and converging; 3 anal veins on wing; labrum exposed .................. RHIZOPHAGINAE*
- Front coxal cavities round with hidden trochantins; with a transverse impression or line on anterior part of gular region of head, antennal cavities weakly developed and diverging; usually with 1 anal vein on wing

LIST OF TAXA

Family RHIZOPHAGIDAE
Subfamily MONOTOMINAE

1. Montoma spinicollis Aubé
2. Europs sp.
3. Mimemodes harmandi (Grouvelle)
4. Tarunius punctatus Sengupta

Key to the genera and species of RHIZOPHAGIDAE

1. Segment 2 of both maxillary and labial palpi markedly large, apical segment smaller; dorsal surface largely pubescent and dull .................. Montoma spinicollis Aubé
- Segment 2 of both maxillary and labial palpi normal and smaller than apical segment; dorsal surface glabrous or sparsely pubescent and more or less shiny .......................... 2

2. Antennal club 2-segmented. Anterior part of gular region without longitudinal grooves but with a transverse line. Abdominal ventrite 1 without femoral lines .................. Europs sp.
- Antennal club 1-segmented ...................... 3

3. Head large, at least as wide as prothorax or wider; short femoral lines on abdominal ventrite 1; antennal scape large and trapezoidal in male; prothorax broader than long. Scoop at apex of tempora indistinct ....................... Mimemodes harmandi (Grouvelle)
- Head normal, not wider than prothorax; no femoral lines on abdominal ventrite 1; antennal scape in male not trapezoidal; prothorax elongate. Elongated impressed area on middle of pronotal disc ............................................. Tarunius punctatus Sengupta.

Subfamily MONOTOMINAE

Genus I. Montoma Herbst

1793. Monotoma Herbst, Käfer 5 : 22
[Type-species : Monotoma picipes Herbst].

Diagnosis : Elongated, moderately depressed, somewhat elliptical with narrower anteriorly, densely setose and dull. Head elongate, eyes moderately large, tempora well developed, transverse impressed line on vertex behind eyes, 10-segmented antenna moderately long with 1-segmented club, mandible with bifid apical teeth, maxillary galea narrow and finger-like, segment 2 of maxillary palpi markedly large, segment 3 transverse, apical segment short; labium with transverse mentum, segment 2 of labial palpi large and apical segment minute. Prothorax usually elongate, sides serrate, pronotum more or less excavated, front coxal cavities closed behind, prosternal process broader apically than between coxae; mesocoxae moderately widely separated; elytra exposes at least one abdominal segment, striate-punctate; tarsi 5-5-4 in male and 5-5-5 in female; intercoxal process of first abdominal ventrite broad and truncate apically, no femoral lines.

* Subfamily not recorded from Sikkim.
1. *Monotoma spinicollis* Aubé


**Diagnosis**: Elongate-elliptical, dark brown, clothed with somewhat squamiferous steae; elongated head with anterior clypeal margin little arcuate, vertex somewhat excavated on sides, eyes about one-fifth as long as head and hardly larger than antennal scape; antennal segments 4-9 about as broad as long or little transverse, club elongate-oblong; elongate prothorax widest behind middle and narrowed anteriorly, front margin arcuate, side margins sinuate, anterior spines slightly produced, pronotum with a pair of shallow depressions above base, head and pronotum coarsely punctate; elytra less than one and a half times as long as broad, sides little arched, punctures deep and large. Length - 2-2.2 mm.


**Distribution**: India: West Bengal, Sikkim (new record); Middle Europe, Mediterranean islands of Corceca; Atlantic islands of Madeira, Cape Verde, Canary, St. Helena, Guadeloupe etc.; East Africa.

Genus II. *Europs* Wollaston


[Type-species: *Europs impressicollis* Wollaston].

**Diagnosis**: Elongate, dorsally depressed, subparallel, with scanty pubescence and shining. Head about as broad as long, eyes large, tempora well developed, transverse impressed line on vertex behind eyes, 10-segmented antenna with 2-segmented club, mandible with single apical tooth, maxilla with fan-like lacinia, apical segment of maxillary palpi longest, labium with ligula about as broad as long, apical segment of labial palpi longest. Prothorax about as broad as long, sides finely serrate, pronotum not excavate but punctate, front coxal cavities closed behind, prosternal process broader apically than between coxae, mesocoxae moderately widely separated; elytra exposes one abdominal segment, striate-punctate; tarsi 5-5-4 in male and 5-5-5 in female; intercoxal process of first abdominal ventrite moderately broad and rounded apically, no femoral lines.

2. *Europs* sp.

**Diagnosis**: Narrow, elongated, subparallel, dorsal surface moderately strongly punctate and sparsely setose; clypeal margin of head little indented, sides of frons somewhat raised above antennal bases, eyes slightly shorter than half as long as head, temple about one-third as long as eyes, antennal segments 4-9 more or less transverse, apical segment of club about as broad as long and wider than penultimate one, punctation on vertex moderately coarse with interspaces much wider than punctures, prothorax marginally elongate, widest near middle and sides weakly rounded, anterior and posterior angles not produced, pronotum moderately coarsely punctate leaving a dorso-median part; elytra less than twice as long as broad, sides feebly arched, elytral punctures about as coarse as pronotal ones or little stronger. Length - 1.7-2.1 mm.


Genus III. *Mimemodes* Reitter


[Type-species: *Bactridium monostomum* Reitter].

**Diagnosis**: Elongated, dorsally depressed, subparallel with scanty pubescence and moderately shiny. Exposed part of head slightly transverse, with distinct neck constriction. eyes moderately large, tempora well developed, transverse impressed line on vertex behind eyes, 10-
segmented antenna with 1-segmented club, mandible with bifid apical tooth and with dorsal cavity near base; maxillary lacinia sword-like and setose, apical segment of maxillary palpi longest and fusiform; labium with mentum slightly elongate and somewhat triangular, apical segment of labial palpi longest and somewhat fusiform. Prothorax slightly transverse and little narrowed posteriorly, sides finely serrate, pronotum not excavate, front coxal cavities closed behind and intercoxal process broad at apex, mesocoxae separated about as wide as front coxae, mesocoxal cavities narrowly closed; elytra exposes one abdominal segment, striate-punctate; tarsi 5-5-4 in male and 5-5-5 in female; intercoxal process of first abdominal ventrite rather narrow and rounded apically, with short femoral lines.

3. Mememodes harmandi (Grouvelle)


Diagnosis : Narrow, elongated, subparallel, dorsal surface moderately strongly punctate and sparsely setose; clypeal margin of head little indented, sides of frons below antennal bases excavated, temple slightly shorter than eyes and angulate, no distinct scoop on tempora, antennal scape in male large and trapezoidal, antennal segments 4-9 more of less transverse, club elongate-oblong, frons weakly excavate, punctuation on vertex moderately coarse with interspaces wider; transverse prothorax little narrowed posteriorly, front angles almost right angle, pronotum moderately coarsely punctate leaving a small impunctate space near middle; elytra slightly longer than one and a half times as long as broad, sides little arched, punctures moderately large. Length – 2.6-2.8 mm.


Distribution : India : West Bengal (Darjeeling district), Sikkim (new record).

Genus IV. Tarunius Sengupta

1977. Tarunius Sengupta, Oriental Ins. 11 : 532

[ Type species : Tarunius punctatus Sengupta. ]

Diagnosis : Elongated, dorsally depressed, subparallel and shiny. Head elongate, with prominent neck constriction, eyes moderately large, tempora well developed, transverse impressed line on vertex behind eyes, 10-segmented antenna with 1-segmented club, mandible with single apical tooth, apical segments of maxillary and labial palpi longest. Prothorax subquadrate, sides finely serrate, pronotum with an elongated medial impressed area, front coxal cavities closed behind and intercoxal process broad at apex, mesocoxae moderately widely separated; elytra exposes one abdominal segment, striate-punctate; intercoxal process of first abdominal ventrite rather narrow and rounded apically, no femoral lines.

4. Tarunius punctatus Sengupta


Diagnosis : Narrow, elongated, subparallel, dark brown, dorsal surface moderately strongly punctate and almost glabrous; anterior clypeal margin of head arcuate, temple shorter than eyes, antennal segments 4-9 more or less transverse, club elongate-oblong, frons weakly excavate, punctuation on vertex coarse and moderately dense, punctures on frons and clypeus finer; prothorax nearly subparallel, front angles almost right angles and hind angles rounded. either extremities of impressed area on pronotum little deeper, pronotal punctures more densely arranged than on vertex, interspaces narrower than punctures only except front margin and near middle of disc; elytra longer than one and a half times as long as broad, sides little arched, punctures moderately large. Length 2.3 mm.

Material : 2 ex. (holotype and paratype). India :

Distribution: India: Sikkim.

SUMMARY

The paper deals with 4 species under 4 genera of 1 subfamily from Sikkim. Monotoma spinicollis, Aubé and Mimemodes harmandi (Grouvelle) are first time recorded from this State. The species are systematically keyed and characterized.

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INTRODUCTION

The Silvanidae are a moderately large family of the section Clavicornia of the superfamily Cucujoidea. The silvanids are usually small (1.3-4.5 mm.), reddish-brown and occasionally with dorsal spot. They are largely associated with litter or vegetation debris and a good number of species are subcorticolous by habit. A few species cause considerable damage to stored food products of vegetable origin. The Silvanidae seem to be more diversely represented in the tropical and subtropical climates than in the temperate zones. The representatives of the family occur in all the main continental areas of the world, but so far a few species only have been recorded from New Zealand and the oceanic islands. Subsequent to Grouvelle (1908, 1912) the works of Pal and Sengupta (1977, 1979, 1984); Pal (1981, 1985); Pal, Sengupta and Crowson (1984); and Sengupta and Pal (1996) have contributed to the knowledge of Silvanidae of India. The present account is based on the collections made by various parties of Zoological Survey of India since 1976 plus those by the author from Sikkim. These represent 15 species under 7 genera.

Characters of Family Silvanidae

Body small to moderately large (1.3-11.6 mm.), usually parallel-sided and somewhat flattened, or sometimes ovoid and subconvex, elytral punctuation in rows.

Head usually little elongate, sometimes transverse, usually with a transverse impressed line on vertex behind eyes, fronto-clypeal suture present or absent, antennal insertions hidden or exposed but never distinctly dorsal; gular sutures well separated, anterior part of gular region without longitudinal grooves, genal process normal; antenna 11-segmented, often with 3-segmented club and sometimes without club; mandible with two or three apical teeth, mola well developed, on dorsal side sometimes with a large cavity, otherwise cavity reduced to a vestige and without dorsal tubercle; maxilla with distinct lacinia and galea, lacinia narrow and with or without apical spine, galea broad and its apex densely hairy, palpi with apical segment rarely secundiform; labium with mentum transverse; palpi with apical segment rarely secundiform or transverse or distinctly smaller than segment 2.

Prothorax usually elongate and sometimes transverse, side margins often serrated and sometimes with distinct teeth, pronotum without distinct prebasal impression, prosternum moderately broad with apical margin almost straight, front coxae usually closely and rarely widely situated, trochantins hidden; coxal cavities somewhat rounded, usually externally closed behind and rarely open.

Elytra punctured in regular rows and usually with 9 rows of punctures, rarely with a scutellar striaule, epipleura usually complete. Wing usually with single anal vein, sometimes with three or five anal veins; devoid or radial cell, R-m cross vein and subcubital fleck.

Mesocoxae often closely situated, sternal fitting between mesocoxae usually in a straight line and sometimes with a narrow projection from metasternum, mesocoxal cavities broadly opened outwardly; hind coxae transverse and moderately
MAP OF SIKKIM
widely separated; metendosternite often reduced and without lateral plates, sometimes well developed with anterior tendons.

Legs moderately long, trochanters short and simple, femora swollen towards middle, tibiae slightly broadened at apex and usually with two spurs, tarsal formula 5-5-5 in both sexes, tarsal segments 1 to 3 usually simple or slightly lobed below.

Abdomen covered by elytra, all ventrites freely articulated, ventrite 1 longest and ventrites 2 to 5 more or less equal in length, ventrite 1 sometimes with open femoral lines, intercoxal process variable. Aedeagus uninverted cucujoid-type, median lobe usually broadly elongated and with a median strut, articulated parameres well developed. Ovipositor well developed with separate paraprocts, valvifers, coxites and styli.

LIST OF TAXA

Family SILVANIDAE
Subfamily SILVANINAE

1. Silvanus lewisi Reitter
2. Silvanus difficilis Halstead
3. Silvanoprus scuticollis (Walker)
4. Silvanoprus indicus Pal & Sengupta
5. Silvanoprus longicollis (Reitter)
6. Silvanoprus cephalotes (Reitter)
7. Silvanoprus angusticollis (Reitter)
8. Silvanoides cribricollis (Grouvelle)
9. Protosilvanus lateritius (Reitter)
10. Monanus concinnulus (Walker)
11. Monanus (Monanops) rambicus Pal

Subfamily PSAMMOECINAE

12. Psammoecus harandi Grouvelle
13. Psammoecus bambusae Pal
14. Psammoecus trimaculatus Motschulsky

Subfamily : CRYPTAMORPHINAE
15. Cryptamorpha sculpitfrons Reitter

Family SILVANIDAE
Subfamily SILVANINAE

Genus I. Silvanus Latreille


(Type-species : Ips unidentata Olivier).

Diagnosis: Head devoid of fronto-clypeal suture, eyes moderately large and coarsely faceted, temple often flattened beneath eye, transverse impressed line on vertex behind eyes, 11-segmented antenna with 3-segmented club, antennal insertions hidden under projection of frons, mandible with 3 apical teeth, apical segments of maxillary and labial palpi fusiform; prothorax usually elongate, side margins finely serrated, front coxal cavities closed and prosternal process broad at apex, mesocoxae narrowly separated; wing with single anal vein; each elytron with 9 rows of strial punctures; tarsi of legs simple; intercoxal process of first abdominal ventrite broad and its apical margin broadly pointed, no femoral lines.

1. Silvanus lewisi Reitter

1876. Silvanus lewisi Reitter, Col. Hefte 15 : 76.

Diagnosis: Yellowish to reddish-brown and covered with short pubescence; eyes about half as long as head, temple shorter than one eye facet and its outer apical angle pointed, punctuation on vertex coarse and dense; elongated prothorax with anterior spine about half as long as eye and its tip pointed, lateral depressions on pronotal disc slightly marked, punctuation on pronotum coarse and dense and almost similar to that of vertex of head, elytra about twice as long as wide, parallel-sided with margins little wavy, punctures deep and large. Length 2.08-2.47 mm.

Distribution: India: Assam, Meghalaya, Sikkim (new record), West Bengal, Himachal Pradesh, Tamil Nadu, Karnataka, Kerala, Andaman Is.; Sri Lanka; Vietnam; Taiwan; Japan; Malaysia; Singapore; Indonesia; Philippines; New Guinea; Solomon Is.; Australia; Congo; Ghana.

2. Silvanus difficilis Halstead


Diagnosis: Reddish-brown and covered with short pubescence; eyes slightly shorter than half of length of head, temple about as long as 1.5 to 2 eye facets with broad outer apical angle, punctuation on vertex coarse and dense; elongated prothorax, anterior spine about half as long as eye with slightly blunt tip, well developed lateral depressions on pronotal disc, punctuation on pronotum coarse and dense and almost similar to that of vertex of head; elytra little more than twice as long as broad, side margins little wavy, punctures deep and large. Length 2.20-2.50 mm.


Distribution: India: Arunachal Pradesh, Assam, Meghalaya, Sikkim (new record), West Bengal, Himachal Pradesh, Uttar Pradesh, Madhya Pradesh, Maharashtra, Kerala, Tamil Nadu, Andaman Is.; Sri Lanka; Myanmar; Vietnam; Taiwan; Malaysia; Singapore; Indonesia; Philippines; Moluccas; I. Delcas; Solomon Is.; Samoan Is.; Australia; New Ireland; West Africa.

Genus II. Silvanoprus Reitter


Diagnosis: Head devoid of fronto-clypeal suture, eyes moderately large and coarsely faceted, temple usually flattened beneath eye, vertex with a transverse impressed line behind eyes, 11-segmented antenna with 3-segmented club, antennal insertions hidden under projection of frons, mandible with well developed mola and 3 apical teeth, apical segments of maxillary and labial palpi fusiform; prothorax usually elongate and rarely transverse, side margins finely serrated, front angles with more or less prominent spines, front coxal cavities closed and prosternal process broad at apex, mesocoxae closely situated; wing with single anal vein; each elytron with 9 rows of strial punctures; tarsal segment 3 of legs strongly lobed below; intercoxal process of first abdominal ventrite broad but narrowed towards apex and slightly pointed, coxal lines closed and usually narrowly separated from posterior margins of hind coxal cavities.

3. Silvanoprus scuticollis (Walker)


Diagnosis: Yellowish to reddish-brown and covered with short pubescence; eyes slightly shorter than half of length of head, temple about as long as one eye facet and its outer apical angle slightly pointed, punctuation on vertex coarse and dense; prothorax broader than long and distinctly narrowed posteriorly, widest across anterior spines, anterior spine about two-thirds as long as eye, lateral depressions on pronotum slightly developed; punctuation on pronotum almost similar to that of vertex of head; elytra slightly less than twice as long as broad, side margins little wavy, punctures deep and large. Length—2.17-2.55 mm.

haystack; Marchak, 1600 m., 12 km. O-Gangtok, 6 ex., 3.x. 1993, T.K. Pal, ex. stored maize.

**Distribution**: India: Assam, Meghalaya, Sikkim, West Bengal, Bihar, Uttar Pradesh, Tamil Nadu; Sri Lanka; Malaysia; Indonesia; Japan; East Africa; Madagascar; France; Guyana; West Indies.


**Diagnosis**: Yellowish to reddish-brown and covered with short pubescence; eyes slightly less than half of length of head, temple about as long as 2 to 3 eye facets and its outer apical margin broad, temple not flattened beneath eye, punctuation on vertex coarse and dense; prothorax elongate, slightly narrowed posteriorly, anterior spine short and its tip broadly pointed; side margins curved and sinuate near extremities, lateral depressions on pronotum slightly developed, punctuation on pronotum almost similar to that of vertex of head; elytra about twice as long as broad, side margins little wavy, punctures deep and large. Length 2.20 – 2.33 mm.


**Distribution**: India: Assam, Meghalaya, Sikkim; Bhutan.


**Diagnosis**: Yellowish to blackish-brown and covered with short pubescence; eyes short, temple long, slightly longer than length of eye and its outer margin slightly rounded, antennal scape large and about twice as long as broad, antennal segments 2-8 narrow-elongate, punctuation on vertex coarse and ocellate; prothorax elongated and almost parallel-sided, anterior spine small, about half as long as eye and projected forward, punctuation on pronotum almost similar to that of vertex of head and little finer anteriorly, lateral depressions on pronotum indistinct; elytra about twice as long as broad, side margins little wavy, punctures deep and large. Length 2.20 – 2.40 mm.


**Distribution**: India: Assam, Meghalaya, Sikkim, (new record), West Bengal, Uttar Pradesh, Tamil Nadu; Sri Lanka; Malaysia; Indonesia; China; Japan; Madagascar; East Africa.


**Distribution**: India: Assam, Meghalaya, Sikkim, West Bengal, Uttar Pradesh, Tamil Nadu; Sri Lanka; Malaysia; Indonesia; China; Japan; Madagascar; East Africa.

*Distribution*: India: Assam, Meghalaya, Sikkim, West Bengal, Bihar, Uttar Pradesh, Delhi, Karnataka, Tamil Nadu; Bhutan; Nepal; Sri Lanka; Indonesia; Japan.

7. *Silvanoprus angusticollis* (Reitter)


*Diagnosis*: Reddish-brown to blackish-brown and covered with short pubescence; eyes slightly less than half of length of head, temple shorter than one eye facet and its outer apical angle pointed, temple flattened beneath eye, punctuation on vertex coarse and dense; elongated prothorax widest across anterior spines, slightly narrowed posteriorly behind middle, anterior spine moderately long, slightly shorter than half of length of eye and projected antero-laterally, lateral depressions on pronotum slightly developed, punctuation on pronotum almost similar to that of vertex of head; elytra about twice as long as broad, side margins little wavy, punctures deep and large. Length 2.55 - 3.00 mm.


*Distribution*: India: Meghalaya, Sikkim, West Bengal (Darjiling District), Uttar Pradesh, Kashmir, Tamil Nadu; Bhutan; Nepal; Japan.

Genus III. *Silvanoides* Halstead


[Type-species: *Silvanoides cheesmanae* Halstead].

*Diagnosis*: Head devoid of fronto-clypeal suture, eyes large and coarsely facetted, temple flattened beneath eye and shelf-like, transverse impressed line on vertex behind eyes indistinctly visible, 11-segmented antenna moderately long, segments 4 to 8 transverse or about as broad as long, club 3-segmented, mandible with well developed mola and 3 apical teeth, apical segments of both maxillary and labial palpi fusiform, maxillary lacinia with apical spine; prothorax elongate, front angles with prominent spines beneath level of anterior margin, side margins finely denticulate, front coxal cavities closed behind and prosternal process broad at apex, mesocoxae moderately widely separated, wing with single anal vein, each elytron with 9 rows of strial punctures, tarsi of legs simple; intercoxal process of first abdominal ventrite broad and broadly pointed at apex, femoral lines opened.

8. *Silvanoides cribricollis* (Grouvelle)


*Diagnosis*: Reddish-brown, rather shiny and covered with short pubescence; eyes large and about half as long as head, temple slightly shorter than width of an eye facet and sloped downward, punctuation on vertex fine and sparse; elongated prothorax slightly narrowed posteriorly, anterior spine short broad and its tip somewhat pointed, side margins curved and slightly sinuate near posterior angles, lateral depressions on pronotal disc moderately developed, punctuation on sides of pronotum coarser than near middle; elytra more than twice as long as broad, side margins feebly wavy, punctures deep and large. Length 2.6 mm.

Distribution: India: Arunachal Pradesh, Meghalaya, Sikkim (new record); Indonesia.

Genus IV. Protosilvanus Grouvelle


[Type-species: Silvanus lateritius Reitter].

Diagnosis: Elongated, rather parallel-sided, head devoid of fronto-clypeal suture, eyes large and coarsely faceted, temple flattened beneath eye and shelf-like, vertex with a distinct transverse impressed line behind eyes, II-segmented antenna with 3-segmented club, antennal insertions hidden under projection of frons, mandible with well developed mola and 3 apical teeth, maxillary lacinia without apical spine, segments 2 of both maxillary and labial palpi longer than apical segments; prothorax elongated, front angles with prominent spines, side margins finely denticulate, front coxae widely separated and coxal cavities closed behind, sterno-pleural suture extending to lateral margin, mesocoxae widely separated; wing with single anal vein, each elytron with 9 rows of strial punctures, interstice 7 more or less carinate; tarsi of legs simple; intercoxal process of first abdominal ventrite broad and broadly pointed at apex, coxal lines closed, bordering hind margins of hind coxae.

9. Protosilvanus lateritius (Reitter)


Diagnosis: Dorsally flattened, yellowish- to reddish-brown and covered with short pubescence; eyes about half as long as head, temple shorter than width of an eye facet and sloped downward, antennal segments 9 and 10 with apical spines, puncturation on vertex coarse and dense; elongated prothorax slightly narrowed behind middle, widest across anterior spines. Lateral depressions on pronotum well developed, puncturation on pronotum almost similar to that of vertex of head; elytra more than twice as long as broad, almost parallel-sided with side margins slightly wavy, punctures deep and large, interstice 7 strongly carinate and extending slightly more than anterior three-fourths. Length 2.94–4.64 mm.


Distribution: India: Arunachal Pradesh, Assam, Meghalaya, Sikkim (new record), West Bengal, Bihar, Uttar Pradesh, Himachal Pradesh, Kerala, Tamil Nadu, Andaman Is.; Nepal; Bangladesh; Myanmar; Sri Lanka; Thailand; Vietnam; Malaysia; Singapore; Indonesia; Philippines; Taiwan; China; Japan.

Genus V. Monanus Sharp

1879. Monanus Sharp, Trans. ent. Soc. Lond. 2 : 85
[Type-species : Monanus crenatus Sharp].


Diagnosis: Head devoid of fronto-clypeal suture, eyes moderately large and coarsely faceted, temple flattened beneath eye, transverse impressed line on vertex behind eyes absent, 11-segmented antenna with 3-segmented club, antennal insertions hidden under projection of frons, mandible with well developed mola and 3 apical teeth, apical segments of maxillary and labial palpi longer than other segments and fusiform, maxillary lacinia without apical spine; prothorax about as
broad as long, side margins with a few setose denticles, front coxae contiguous and coxal cavities closed behind, sterno-pleural suture extending usually to anterior denticle, mosocoxae contiguous; wing with single anal vein, each elytron with 9 rows of strial punctures, alternate interstices with single and double rows of pubescence; tarsal segments 2 and 3 of legs strongly lobed below; intercoxal process of first abdominal ventrite broad and its apex slightly rounded, coxal lines closed.

10. Monanus concinnulus (Walker)


**Diagnosis**: Moderately convex, rather shiny, yellowish- to reddish-brown and with black markings on elytra, covered with short pubescence; eyes shorter than one-third of length of head, temple about as long as 1.5 eye facets and its outer apical angle slightly pointed, antenna shorter than head and prothorax together, puncturation on vertex coarse and dense; quadrate prothorax slightly rounded anteriorly, side margin with about ten small and blunt denticles and each denticle bears an anteriorly directed seta, puncturation on pronotum almost similar to that of vertex of head; elytra shorter than twice as long as broad, side margins almost uniformly curved, a transverse black spot near middle and that extends towards apex along suture, punctures large. Length 1.60 – 2.30 mm.


**Distribution**: India : Meghalaya, Sikkim (new record), West Bengal, Bihar, Uttar Pradesh, Delhi, Tamil Nadu, Karnataka; outside India this species is widely distributed in both the Old and New Worlds.

11. Monanus (Monanops) rambicus Pal


**Diagnosis**: Elongated, flattened, somewhat parallel-sided, reddish-brown, slightly shiny and covered with short pubescence; eyes shorter than half as long as head, temple about as long as 2 to 2.5 eye facets and its outer apical angle broad; slightly elongated prothorax widest near anterior third, anterior angle with a short and broad spinous projection, lateral margin with nine well marked denticles, puncturation on pronotum coarse and dense and almost similar to that of vertex of head; elytra about 2.5 x as long as broad, rather parallel-sided, punctures moderately large, interstices about as wide as punctures. Length 3.3 – 3.5 mm.


**Distribution**: India : Sikkim (new record), West Bengal (Darjiling District).

Subfamily PSAMMOECINAE

Genus VI. Psammoecus Latreille

[Type-species: *Dermestes bipunctatus* (Fabricius)].


**Diagnosis**: Elongate, slightly ovoid; head with fronto-clypeal suture, two lateral longitudinal striae on vertex originating near base of antennae, eyes moderately large and coarsely faceted, temple may or may not extend beneath eye, transverse impressed line on vertex behind eyes, 11-segmented antenna with no distinguishable club, antennal insertions somewhat dorso-lateral, mandible with a large basal mandibular cavity and 3 apical teeth, apical segments of maxillary and labial palpi securiiform or transverse, maxillary lacinia without apical spine; prothorax usually transverse, side margins with more or less prominent denticles, front coxae contiguous and coxal cavities closed behind, apical margin of prosternal process little sinuate, sterno-pleural suture extending to lateral margin; wing with single anal vein; each elytron with 10 rows of strial punctures; tarsal segments 1 to 3 of legs lobed below; intercoxal process of first abdominal ventrite broad and its apical margin broadly pointed, coxal lines almost marginal striae of hind coxal cavities.

12. *Psammoecus harmandi* Grouvelle


**Diagnosis**: Elongate-ovoid, moderately convex, slightly shiny, yellowish- to reddish-brown with blackish spots on elytra and antennal segments 9 and 10 blackish, covered with moderately long pubescence; eyes shorter than half of length of head, temple moderately long and slightly flattened beneath eye, antenna long and slender, scape moderately large and about twice as long as broad, segments 3 to 7 longer than pedicel, segments 8 to 11 slightly wider than segment 7, segment 11 elongate and slightly acuminate at apex, punctuation on vertex coarse and dense; prothorax transverse, anteriorly about as wide as head across eyes, front margin and side margins slightly rounded, side margin with six minute teeth, punctuation on pronotum almost similar to that of vertex of head; elytra about one and a half times as long as broad, widest near middle, punctures moderately large, interstices narrower than punctures, a more or less rounded blackish spot on each elytron near middle and a somewhat rounded sutural spot behind them. Length 3.0 mm.


**Distribution**: India: Arunachal Pradesh, West Bengal (Darjeeling District), Sikkim; Nepal.

13. *Psammoecus bambusae* Pal


**Diagnosis**: Elongate-ovoid, subdepressed, slightly shiny, yellowish-brown with blackish spots on elytra, apical part of clypeus and antennal segments 7 to 10 blackish, covered with long pubescence; eyes about half as long as head, temple moderately long and slightly flattened beneath eye, antenna long and slender, antennal structure almost similar to that in *P. harmandi*, puncturation on vertex coarse and dense; prothorax distinctly transverse and narrowed posteriorly, anterior margin about as wide as head across eyes and sinuate on either side on middle, side margin slightly rounded bearing seven distinct denticles, punctuation on pronotum slightly denser than on vertex of head; elytra more than one and a half times as long as broad, widest near middle, punctures large and interstices narrower than punctures, two elongated yellowish areas on both anterior and posterior halves of blackish elytra. Length 3.6 mm.

**Distribution**: India : Sikkim.

14. *Psammoecus trimaculatus* Motschulsky


**Diagnosis**: Elongate-void, moderately convex, slightly shiny, yellowish-brown with blackish spots on elytra and antennal segments 7-10 blackish, covered with moderately long pubescence; eyes slightly shorter than half of length of head, temple short and slightly flattened beneath eye, antenna long and slender, antennal structure almost similar to that in *P. hannandi* only except segments 7 to 11 wider than preceding segment, punctuation on vertex coarse and dense; prothorax transverse, across anterior margin narrower than head across eyes, front margin and side margins feebly rounded, side margin with six or seven teeth of variable length, punctuation on pronotum almost similar to that of vertex of head; elytra shorter than one and a half times as long as broad, widest near middle, punctures moderately large, interstices about as wide as or wider than punctures, a more of less rounded blackish spot on each elytron in posterior half and a longitudinal sutural spot present behind them. Length 2.3 mm.


**Distribution**: India : Arunachal Pradesh, Assam, Meghalaya, Sikkim (new record), West Bengal, Bihar, Orissa, Uttar Pradesh, Jammu & Kashmir, Delhi, Karnataka, Tamil Nadu, Kerala; Nepal; Bhutan; Sri Lanka; Myanmar; Malaysia; Japan; Madagascar.

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**Subfamily CRYPTAMORPHINAE**

Genus VIII. *Cryptamorpha* Wollaston


[Type-species : *Cryptamorpha musae* Wollaston = *desjardinsi* (Guérin-Ménéville).]


**Diagnosis**: Elongated, subparallel; head with fronto-clypeal suture, two longitudinal grooves present on lateral sides and often united, additional longitudinal impressed lines originating from lateral grooves and extending posteriorly to outer margin, eyes usually large and coarsely facetted, temple slightly flattened beneath eye, no transverse impressed line on vertex behind eyes, 11-segmented antenna with no distinguishable club, antennal insertions partly hidden under projection of frons, anterior part of gular region with a transverse groove, mandible with a large basal mandibular cavity, right mandible with 3 and left mandible with 2 apical teeth, apical segments of maxillary and labial palpi elongated and fusiform, maxillary lacinia without apical spine; prothorax elongated to transverse, front coxae contiguous and coxal cavities closed behind, apical margin of prosternal process little sinuate, sterno-pleural suture extending to lateral margin; mesocoxae contiguous; wing with 5 anal veins; each elytron with ten rows of strial punctures and a scutellary striole; tarsal segments 1 and 2 of leg slightly lobed below, segment 3 bilobed; intercoxal process...
margin slightly rounded, coxal lines almost marginal striae of hind coxal cavities.

15. Cryptamorpha sculptifrons Reitter


**Diagnosis:** Elongated, moderately depressed, reddish-brown and covered with short pubescence; eyes shorter than half of length of head, longitudinal grooves on vertex unite posteriorly and U-shaped, antenna long and slender, segments 9 to 11 slightly broader than preceding segments, punctuation on vertex minute, rather indistinct and sparse; prothorax elongated, convex and widest near middle, side margins rounded, a transverse impressed line near posterior margin of pronotum, punctuation on pronotum coarse and dense; elytra less than twice as long as broad, widest behind middle, punctures large and interstices about as wide as punctures, scutellary striole consists of about seven punctures. Length 3.6 mm.

**Distribution:** India: Sikkim, West Bengal (Darjiling District); Bhutan; Japan; China.

**Key to the Subfamilies, genera and species of Silvanidae**

1. Head without fronto-clypeal suture and devoid of longitudinal groove or striae on vertex; antennal insertions hidden under projection of frons, with distinct antennal club (Silvaniae).
   .......................................................... 2
   - Head with distinct fronto-clypeal suture and a pair of longitudinal grooves or striae on vertex; antennal insertions more or less exposed; no distinguishable antennal club ...................... 12

2. Lateral margin of prothorax finely serrated and without large teeth or denticles; tarsi simple or only segment 3 lobed. ................................. 3
   - Lateral margin of prothorax with ten blunt denticles; tarsal segments 2 and 3 strongly lobed (Monanus Sharp) ........................................ 11

3. Dorsal surface markedly flattened; sterno-pleural suture of prothorax extending to lateral margin, front coxae widely separated, apical segments of maxillary and labial palpi shorter than segment 2; antennal segments 9 and 10 with apical spines at extremities; 7th elytral interstices carinate ........................................... 11.
   - Dorsal surface moderately flattened; sterno-pleural suture of prothorax extending to anterior spine, front coxae less widely separated; apical segments of maxillary and labial palpi longest; antennal segments 9 and 10 devoid of apical spines; elytral interstices not carinate ......... 4

4. Tip of anterior spines lying beneath level of front margin of prothorax; antennal segments 4 to 8 about as broad as long; femoral lines on abdominal ventrite 1 open; dorsal surface of head and prothorax sparsely punctate and somewhat shiny .............................................. Silvanoides cribricollis (Grouvelle)
   - Tip of anterior spines lying in a same level or beyond front margin of prothorax; antennal segments 4 to 8 elongate; coxal lines on abdominal ventrite 1 close; dorsal surface of head and prothorax densely and coarsely punctate and rather dull ......................... 5

5. Tarsi simple and not lobed (Silvanus Latreille) ........................................................................ 6
   - Tarsal segment 3 strongly lobed below (Silvanoprus Reitter) ............................................ 7

6. Temple short and represented by a thin platform, length of temple shorter than width of one eye facet and its outer apical angle pointed ....
   ............................................................. Silvanus lewisi Reitter
   - Temple distinct and thick, length of temple longer than one eye facet and its outer apical angle broad ....... Silvanus difficilis Haltead

7. Prothorax broader than long, width of prothorax across anterior spines more than 1.5 x as broad
as width across posterior angles, prothorax distinctly narrowed posteriorly, lateral margins almost straight, shape of prothorax rather triangular .................................
            Silvanoprus scuticollis (Walker)

- Prothorax longer than broad, width of prothorax across anterior spines less than 1.25 x as broad as width across posterior angles, prothorax slightly narrowed posteriorly behind middle, lateral margin distinctly curved, shapes of prothorax different .......................... 8

8. Temple of head moderately long and not flattened beneath eye, about as long as two to three eye facets and inwardly notched.............
            Silvanoprus indicus Pal & Sengupta

- Temple of head very short or long and distinctly flattened beneath eye; temple either short, thin with outer apical angle pointed or long with outer apical margin rounded .................. 9

9. Temple of head short, length of temple about as long as one or two eye facets and its outer apical angle somewhat pointed; punctuation of head and prothorax reticulate-type, coarse and dense .................. 10

- Temple of head long, length of temple about as long as eye or longer than eye and its outer apical margin rounded; punctuation of head and prothorax ocellate-type, coarse and somewhat globular ....................
            Silvanoprus longicollis (Reitter)

10. Front and middle femora with a distinct spine near middle; lateral margins of prothorax more or less uniformly curved outwardly; anterior spine of prothorax small, projected in front and about as long as one-fourth of eye ..............
            Silvanoprus cephalotes (Reitter)

- Front and middle femora devoid of any spine; lateral margins of prothorax distinctly wavy and sinuate across anterior one-third; anterior spine of prothorax larger, about half as long as eye and projected somewhat outwardly (Reitter) ............ Silvanoprus angusticollis

11. Elytra ovoid, moderately convex and hardly twice as long as broad, transverse blackish spot near middle of elytra; sterno-pleural suture of prothorax extending to anterior denticle...
            Monanus (s. str.) concinnulus (Walker)

- Elytra parallel-sided, dorsally flattened and more than twice (2.5 x) as long as broad, elytra unicolourous; sterno-pleural suture of prothorax extending to lateral margin and far below anterior denticle........................................
            Monanus (Monanops) rambicus Pal

12. Apical segments of labial and maxillary palpi seciform or strongly transverse; elytra ovoid and without scutellary striales; head devoid of curved transverse groove on anterior part of gular region; tarsal segments 1 to 3 lobed below (Psammoecinae) Psammoecus Latreille ......

- Apical segments of labial and maxillary palpi elongated and more or less fusiform; elytra more or less parallel-sided with distinct scutellary striae; head with a distinct transverse groove on anterior part of gular region; tarsal segments 3 bilobed and segments 1 and 2 slightly unilobed. Longitudinal grooves of head unite on posterior side of vertex to form U-shaped structure, slightly elongate prothorax widest near middle (Cryptamorphinae) ......
            Cryptamorpha sculptifrons Reitter

13. Antennal segments 9 and 10 blackish; teeth on lateral margin of prothorax minute, either broader than long or about as broad as long .......... Psammoecus harmandi Grouvelle

- Antennal segments 7 to 10 blackish; teeth on lateral margin of prothorax partly long, distinct and longer than broad .............. 14

14. Elytral pattern of four light regions on blackish base, dorsal surface subdepressed; front margin of prothorax sinuate on either side of middle .............. Psammoecus bambusae Pal

- Elytra without pattern of four light regions, three blackish spots on yellowish-brown base; front margin of prothorax slightly rounded...
            Psammoecus trimaculatus Motschulsky
SUMMARY

The paper deals with 15 species under 7 genera of 3 subfamilies of which 6 species are recorded for the first time from the State of Sikkim. The species are systematically keyed and characterized.

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REFERENCES


INTRODUCTION

The Languriidae with about 900 species are a well-defined family of the section clavicomia under the superfamily Cucujoidea. The languriids are small to large, elongate-oval to narrow-elongate, subcylindrical to slightly flattened, and often glabrous. They are usually bicoloured or metallic and are commonly called 'lizard beetles.' The Languriidae have world-wide distribution but predominantly found in the tropical parts of both the Old and New worlds. Larvae of many species are stem borers and their adults feed on pollen or the foliage of host plants. Many a forms are found in rotting vegetation and some others remain associated with stored agricultural products.

Following the publication of Arrow’s ‘Fauna’ in 1925 not much works on this family have come out from the Indian subregion. Only recently, Sengupta and Mukherjee (1977, 1979, 1985) have dealt with the languriines of Himalaya and described a new genus from this part. Subsequently, Pal (1992) recorded a few species from Arunachal Himalaya. Variety of vegetation in different altitudes in the humid forests in Sikkim have facilitated a good assemblage of languriids in this part. The present account is based on some recent collection made by the author in Sikkim plus earlier material records from this State.

Characters of Family Languriidae

Head usually transverse, rarely with distinct tempora, vertex often with a pair of stridulatory files or occasionally single, often with transverse impressed line on vertex behind eyes, often with fronto-clypeal suture, eyes moderately large, gular sutures well separated, antenna 11-segmented with club variable, antennal insertions somewhat exposed; mandible usually with two apical teeth, mola more or less developed; maxilla with well developed lacinia, galea and palpi, lacinia often bears three apical spines, apical segment of palpi elongate and never secusiform; mentum often transverse, ligula often bilobed, apical segment of labial palpi usually with truncate tip and rarely elongate-fusiform.

Prothorax a little elongate to little transverse, side margins often smooth, occasionally crenulate, pronotum usually bears prebasal impressions and sometimes a basal transverse groove, front coxae slightly transverse, intercoxal process moderately broad, coxal cavities usually open and occasionally closed.

Elytra striate-punctate, with or without scutellary striole, epipleura complete. Wing often with four anal veins and sometimes less in number, often with anal cell when wing has four anal veins, but without anal cell if with less anal veins, usually with subcubital fleck.

Mesocoxae moderately to widely separated, mesocoxal cavities closed outwardly by sterna, mesepimeral pockets usually present. Metasternum sometimes with femoral lines, metacoxae rather narrowly to moderately widely separated; metendosternite usually with moderately widely separated anterior tendons.

Legs moderately long, trochanters usually broadly elongate but never heteromeroid, tibiae often little widened apically and with two normal
spurs, tarsal formula 5-5-5 with segment 4 often reduced.

Abdomen covered by elytra, five ventrites freely articulated and more or less equally long, ventrite 1 often with femoral lines.

Aedeagus on one side when retracted, with articulated parameres, median lobe bears long struts. Ovipositor often with apically pointed coxites, with styli attached laterally.

**Key to Subfamilies of LANGURIIDAE**

1. Front coxal cavities externally as well as internally closed; elytra without scutellary striae; stridulatory file on head if present, single and median; first anal vein of wing may or may not running into subcubital fleck .......... CRYPTOPHILINAE

- Front coxal cavities externally open behind, if closed then internally open and elytra with scutellary striae; stridulatory file on head if present, double; first anal vein not running into subcubital fleck ........................................... 2

2. Trochanters narrow and distinctly elongate; sternal fitting between mesocoxae with two knobs; scutellary striae of elytra and stridulatory files on head absent; wing with less than four anal veins ... TORAMINAE *

- Trochanters not very narrow-elongate, sternal fitting between mesocoxae with single knob, rarely in straight line; elytra with scutellary striae and stridulatory files present on head; wing with four anal veins usually .................. 3

3 2-Segmented antennal club ................................ SETARIOLINAE *

- Antennal club with more than two segments ................................................. 4

4. Antennal club often with more than three segments, antennal insertions dorso-lateral, head with fronto-clypeal striae; maxillary galea short and broad, mandibular mola poorly developed; front coxal cavities internally closed behind ........................................... LANGURIINAE

- Antennal club 3-segmented, antennal insertions lateral, fronto-clypeal striae absent; maxillary galea narrow-elongate, mandibular mola well developed and projecting; front coxal cavities internally open behind .......... LOBERINAE*

**LIST OF TAXA**

Family LANGURIIDAE

Subfamily LANGURIINAE

1. *Megalanguria metasternalis* (Crotch)
2. *Pachylanguria collaris* (Crotch)
3. *Pachylanguria elongata* (Fabricius)
4. *Pachylanguria variiventris* (Kraatz)
5. *Penetanguria elateroides* (Crotch)
6. *Penetanguria notopedalis* Crotch
7. *Caenolanguria birmanica* (Harold)
8. *Doubledaya ruficollis* Kraatz
9. *Doubledaya viator* White
10. *Doubledaya severini* Fowler
11. *Doubledaya ustulata* Arrow
12. *Doubledaya dilatipes* (Gorham)
13. *Doubledaya mouhoti* (Crotch)
14. *Anadastus gratus* Gorham
15. *Anadastus loricatus* Arrow
16. *Anadastus dohertyi* Arrow

Subfamily CRYPTOPHILINAE

17. *Cryptophilus integer* (Heer)
18. *Xenoscelinus* sp.

**Key to the Genera of Languriinae**

1. Elytral epipleura indistinct ......................... 2

- Elytral epipleura well defined ..................... 4

2. Antennal club distinctly broad and abrupt .......... *Megalanguria* Arrow

- Antennal club less broad and not very abrupt ................................................. 3

3. Pronotum margined at base. Elytra not acuminate at apex, scutellum elongate and angulate behind .......... *Pachylanguria* Crotch

* not recorded from Sikkim.
Pronotum not margined at base. Elytra little produced behind abdominal apex ............. Pentelanguria Crotch

4. Eyes finely facetted........................................ 5

- Eyes coarsely facetted. Elytra with prominent humeral angles ........ Caenolanguria Gorham

5. Head dilated in front of eyes, asymmetrical in female. Shoulders of elytra not tuberculate .................................. Anadastus Gorham

- Head not dilated in front of eyes and symmetrical in both sexes. Elytral apices not separately rounded .................. Doubledaya White

Family LANGURIIDAE
Subfamily LANGURIINAE

Genus I. Megalanguria Arrow


Diagnosis : Broad-elongate; head large with finely faceted eyes situated wide apart, vertex with a pair of stridulatory files near middle, 11-segmented antenna with 4-segmented club, long mandible with bifid apex, apical segment of maxillary palpi fusiform, apical segment of labial palpi elongate; transverse prothorax distinctly rounded at sides, prosternal process bluntly bilobed at apex and deeply sulcate on each side; elytra broader at shoulders than prothorax, rounded at apex, epipleurae not distinct.

1. Megalanguria metasternalis (Crotch)


Diagnosis : Facies broadly elongate, steel blue or purple coloured with sides of pronotum broadly reddish orange; head with antennal club broad and abrupt, vertex finely punctate and clypeus little strongly punctate; base of pronotum little depressed and finely margined, lateral foveae small, pronotum unevenly punctured at middle; elytra little more shiny than head and pronotum with a slight swelling behind middle, with inconspicuous lines of rather large punctures and interspaces with fine punctures; ventrally sides of prothorax with reddish orange bands and a pair of same coloured patch on metasternum. Length—15-20 mm.

Distribution : India : Sikkim.

Genus II. Pachylanguria Crotch

1876. Pachylanguria Crotch, Cist. Ent. 1 : 377 [Type-species : Pachylanguria pavoae Wollaston].

1876. Tetralangura Crotch, Cist. Ent. 1 : 378


Diagnosis : Facies elongate with short antennae, head with finely faceted eyes, vertex with or without a pair of stridulatory files, 11-segmented antenna with 4-segmented club, mandible with bifid apex, maxillary lacinia tridentate, apical segment of maxillary palpi elongate, ligula broadly bilobed and apical segment of labial palpi board; transverse prothorax with distinct basal margin, front coxae moderately widely separated, prosternal process little produced behind coxae and with a pair of lateral grooves; elytra narrower posteriorly but not acuminate at apex, epipleurae not distinct; first abdominal ventrite with femoral lines.

Key to the species of Pachylanguria Crotch

1. Shoulders of elytra not prominent, embraced by hind angles of prothorax ............. 2

- Shoulders of elytra prominent, not embraced by hind angles of prothorax ..........

.......................................................... collaris Crotch

2. Ventral surface red, with terminal segment of abdomen blackish ....... elongata (Fabricius)

- Ventral surface except prothoracic episterna, anterior part of metasternum, first two abdominal ventrites and a soft on anterior part
of other abdominal segments bright reddish

2. Pachylanguria collaris Crotch

1876. Pachylanguria collaris Crotch, Cist. Ent. 1: 377

Diagnosis: Facies elongate and not markedly narrowed behind, steel blue coloured with prothorax orange red, moderately shiny; head with antennal club abrupt, club segments transverse and closely set, vertex closely and densely punctate; prothorax convex with sides rounded, slightly narrowed posteriorly, front angles blunt and hind angles acutely produced, pronotum more finely and sparsely punctate than vertex, pronotum finely transversely wrinkled near front margin; scutellum somewhat triangular with little rounded apex, elytral shoulders finely prominent, with inconspicuous lines of rather large punctures and interspaces with fine close punctures; ventrally prosternal process, a median spot and two lateral spots on prosternum blackish, a pair of lateral reddish spots on abdominal ventrites. Length-12-16 mm.

Distribution: India: Sikkim.

3. Pachylanguria elongata (Fabricius)

1801. Trogosita elongata Fabricius, Systema Eleutheratorum. 1: 152.
1825. Languria pyramidalis Macleay, Annulosa Javan. : 44.

Diagnosis: Facies narrow elongate, dark metallic blue or coppery in colour with prothorax reddish, shiny; head with antennal club abrupt, club segments transverse and closely set, vertex closely and densely punctate; prothorax with sides nearly parallel, front angles blunt, hind angles acutely produced and closely applied to elytral shoulders, pronotum coarsely punctate near middle and more feebly towards sides, a roundish depression in middle of pronotal base and minute lateral foveae; scutellum transverse and pointed at apex; elytral shoulders not prominent, with distinct lines of punctures and interspaces with fine punctures, sides straight and little convergent posteriorly, apex finely serrated; ventral surface largely reddish. Length-12-17 mm.

Distribution: India: Sikkim, West Bengal (Darjeeling District); Bangladesh; Myanmar; Thailand; Malaysia; Indonesia.

4. Pachylanguria variiventris (Kraatz)


Diagnosis: Facies elongate and not markedly narrowed behind, dark metallic blue or green, pronotum with reddish broad lateral bands and a small blackish spot at middle of each lateral band; head with antennal club abrupt, club segments transverse and closely set, vertex closely and densely punctate; prothorax with sides nearly parallel, front margin rounded and front angles slightly produced, hind angles acutely produced and closely applied to elytral shoulders, pronotum coarsely punctate near middle and more feebly towards sides, a roundish depression in middle of pronotal base and lateral foveae minute; scutellum transverse and acutely pointed behind; elytral shoulders not prominent, with linear rows of moderately strong punctures and intervals with fine punctures, sides straight and little convergent.
posteriorly, apices feebly truncate; ventrally reddish except prothoracic episterna, anterior part of metasternum, abdominal ventrites 1 and 2, and a pair of united spots at anterior margin of each segment. Length-13-19 mm.

**Distribution**: India : Sikkim, Meghalaya; Myanmar; Vietnam.

**Genus III. Pentelanguria** Crotch


[Type-species: *Penlelanguria elateroides* Crotch].

**Diagnosis**: Facies elongate, head with coarsely facetted large eyes, II-segmented antenna with 5-segmented club; prothorax little elongate, pronotum margined at sides but not at base; elytra without humeral carina and apex little produced, epipleurae not prominent.

**Key to the species of Pentelanguria** Crotch

1. Coppery brown and shining; head and pronotum densely punctured ..........................................
   ............................................... elateroides Crotch
   - Greenish and shining; head and pronotum sparsely punctured ....... notopedalis Crotch.

5. *Pentelanguria elateroides* Crotch.

**Diagnosis** : Facies narrowly elongate; steel blue in colour, prothorax orange-red except its front and hind margins narrowly, a small spot in middle and one on each side a little before middle are blackish, shiny; head with short antennae, antennal segment 3 slightly elongate, club segments transverse and rather closely set, vertex rather coarsely and densely punctate; prothorax with sides rather straight and gently convergent anteriorly, anterior angles little produced and blunt, posterior angles acute; scutellum triangular and acutely pointed behind; elytra with indistinct lines of large punctures, intervals with finer punctures, sides straight and convergent posteriorly, a spine at inner edge just before apex. Length-19 mm.


**Distribution**: India : Sikkim, West Bengal (Darjiling District).

6. *Pentelanguria notopedalis* Crotch

**Diagnosis** : Very similar to elateroides, can be differentiated by the characters in the key. Length 15.5 mm.


**Distribution**: India : Sikkim.

**Remarks**: The distinction between elateroides and notopedalis as revealed from the above specimens are not enough to recognise them as separate good species. Arrow (1925) also had similar doubt. Antero-lateral angles of last abdominal ventrites in notopedalis are reddish but in elateroides the entire segment is blackish, the only convincing character I could recognise. I have not examined the types of these two species and therefore, not in a position to make any definitive comment about the status fo these species.

**Genus IV. Caenolanguria** Gorham

[Type-species: *Languria coarctata* Crotch].

**Diagnosis** : Facies elongate with moderately slender legs and antennæ; head without stridulatory files, coarsely facetted prominent eyes, 11-segmented antenna with 3-segmented club (rarely 4 to 5-segmented), mandible with bifid tip, maxillary lacinia tridentate, apical segment of maxillary palpi elongate, ligula bilobed and apical
segment of labial palpi securiform; prothorax contracted towards base, pronotum margined laterally and basally, front coxae not widely separated and prosternal process produced behind coxae; elytra rather parallel in anterior half and then gradually narrowed posteriorly, epipleurae distinct, first abdominal ventrite with acutely pointed intercoxal process.

7. *Caenolanguria birmanica* (Harold)


**Diagnosis**: Facies elongate, deep chocolate brown with head and prothorax little paler; head with antennal segments 1 to 7 little elongate, antennal club 3-segmented and not very broad, vertex finely and sparsely punctate, eyes moderately large; prothorax slightly transverse, sides rounded and little sinuate before hind angles, pronotal base little depressed, lateral foveae very small, pronotal punctures fine and sparse; scutellum about as broad as long; elytral base wider than pronotal base with rows of small but distinct punctures. Length—5.4-5.5 mm.


**Distribution**: India : Sikkim, Uttar Pradesh; Myanmar.

Genus V. *Doubledaya* White


**Diagnosis**: Facies elongate; head dilated beneath laterally making eyes little bit dorsal in position, eyes finely faceted, 11-segmented antenna with 3- or 4-segmented club, mandible with bifid tip, maxillary lacinia tridentate, apical segment of maxillary palpi narrow-elongate, apical segment of labial palpi securiform; prothorax may be of different proportions, front coxae not widely separated and prosternal process produced behind coxae; elytra more or less convergent posteriorly, epipleurae distinct; first abdominal ventrite with narrow intercoxal process.

**Key to the species of Doubledaya White**

1. Elytra without sharp outer apical angles ..... 2
   - Elytra with sharp outer apical angles .......... 5

2. Apices of elytra not produced or fringed ... 3
   -- Apices of elytra produced and finely fringed.
      Head dark and antennal club 3-segmented ..
      ............................................ ruficollis Kraatz

3. Pronotum longitudinally sulcate along middle line........................ viator White
   - Pronotum not longitudianally sulcate ............ 4

4. Elytra steel-blue, head and pronotum reddish severini Fowler
   - Body reddish-brown with apex of elytra blue black........................ ustulata Arrow

5. Body entirely greenish-black .................
   ............................................ dilatipes Gorham
   - Species reddish-brown with apex of elytra and legs blackish ................. mouhoti Crotch

8. *Doubledaya ruficollis* Kraatz


**Diagnosis**: Facies moderately elongate, with slender legs and short antennae, deep metallic blackish-green with anterior part of head and pronotum reddish, ventrally sides of the body and
abdomen reddish, very shiny; head with antennal segments 1-8 elongate, antennal club compact and 3-segmented, vertex almost devoid of punctures; prothorax contracted behind, pronotum with a longitudinal median groove and deeply impressed basal foveae, basal margin narrow, hind angles acute, pronotal surface almost similar to vertex; scutellum rather transverse and obtusely pointed behind; elytra with closely set rows of large punctures. Length-14-20 mm.

**Distribution**: India: Arunachal Pradesh, Nagaland, Meghalaya, Sikkim; Vietnam.

9. *Doubledaya viator* White


**Diagnosis**: Facies elongated, moderately narrow, brick-red with antennae and legs partly blackish, ventrally sides of metasternum and first abdominal ventrite with black patches, head with antennal club loose and 4-segmented; prothorax about as broad as long (male) or transverse (female), pronotum with a longitudinal median sulcus, lateral foveae well marked, basal margin raised; scutellum transverse and acute at apex, elytra with closely set rows of deep punctures. Length-15-25 mm.

Distribution: India: Meghalaya, Sikkim, West Bengal (Darjeeling District), Andaman and Nicobar Is.; Bangladesh; Myanmar; Thailand; Vietnam.

10. *Doubledaya severini* Fowler


**Diagnosis**: Facies elongate, slender, bright orange-red with elytra steel-blue, and eyes, antennae, legs and tip of abdomen blackish, rather shining; head with antennal club 4-segmented and rather broad, vertex almost smooth and with only a few minute sparse puncture; prothorax elongated (male) or transverse, distinctly contracted at base, pronotum rather convex, transversely impressed near base, lateral foveae deeply impressed, hind angles acute; scutellum transverse and acute at apex; elytra with prominent shoulders, apices truncate, with closely set rows of strong punctures. Length 15 mm.

**Distribution**: India: Sikkim, West Bengal (Darjeeling District).

11. *Doubledaya ustulata* Arrow


**Diagnosis**: Facies elongate, slender, brick-red with tip of elytra blue-black, and eyes, antennae and legs blackish; head with short antenna bearing an abrupt 4-segmented club, vertex very finely and sparsely punctate; prothorax about as broad as long (male) or transverse, narrowed towards base, pronotum with a short median groove near base, lateral foveae well marked and divergent anteriorly, pronotum with minute and very sparse punctures; elytra narrowed posteriorly, apices truncate, with closely set rows of coarse and deep punctures. Length-15 mm.

**Distribution**: India: Sikkim, West Bengal (Darjeeling District), Nagaland; Bangladesh, Myanmar; Laos.

12. *Doubledaya dilatipes* (Gorham)


**Diagnosis**: Facies elongate, slender, golden brown with tinge of metallic green, shiny, ventral surface reddish-brown; head with moderately long antenna bearing a 5-segmented club, eyes
moderately large, vertex very finely and sparsely punctate; prothorax little elongate (male) or transverse (female), pronotal base markedly impressed near middle, with a short longitudinal median groove near base, lateral foveae little divergent, hind angles right angle, pronotum with fine and moderately sparse punctures; scutellum little transverse, obtusely angulate at apex; elytra narrowed posteriorly, shoulder rather prominent and little raised, distinctly striate-punctate, apices truncate and forming two closely placed dentations. Length 5 mm.


Distribution: India: Sikkim (new record); Myanmar.

13. Doubledaya mouhoti (Crotch)


Diagnosis: Facies elongate, bright brick-red with apical part of elytra and major part of antennae blackish, and ventrally metasternum, abdomen and legs (except trochanters) blackish, species shining; head with short antenna bearing a 5-segmented club, vertex moderately coarsely and densely punctate; prothorax about as broad as long (male) or transverse (female), sides rounded and distinctly margined, pronotal base markedly impressed near middle, lateral foveae moderately long and divergent, pronotum moderately coarsely and densely punctate, scutellum pentagonal, rather sharply angulate at apex; elytra narrowed posteriorly, shoulders rather prominent, regular rows of coarse and deep punctures, apical angles of elytra sharp. Length 6.5 - 13.0 mm.

Distribution: India: Sikkim, West Bengal (Darjeeling District); Myanmar; Vietnam; Malaysia; Indonesia.

Genus VI. *Anadastus* Gorham


Diagnosis: Facies elongate; head not dilated beneath laterally, eyes finely facetted, 11-segmented antenna with 3- to 5-segmented club, mandible with a blunt tooth just behind sharp apical tooth, maxillary lacinia with an apical spine, apical segment of maxillary palpi fusiform, apical segment of labial palpi globular; prothorax somewhat quadrate, front coxae not widely separated and prosternal process produced behind coxae; intercoxal process of first abdominal ventrite moderately narrow and its tip not pointed, with a paired (femoral) lines; elytra somewhat parallel, epipleurae distinct.

Key to the species of *Anadastus* Gorham

1. Antennal club 5-segmented,..........................2
   – Antennal club 4-segmented .. *gratus* Gorham

2. Antennal club compact and broad; extremity of abdomen blackish, remaining part reddish
   *loricatus* Arrow
   – Antennal club segments loosely arranged and not broad; abdomen uniformly reddish ..........
   .................................................. *dohertyi* Arrow

14. *Anadastus gratus* Gorham


Diagnosis: Facies elongate, rather paralleled, orange-red with elytra metallic greenish-black, antennal club and distal part of legs blackish; head with antennal club 4-segmented and rather loosely articulated, vertex finely and sparsely punctate; quadrate prothorax little narrowed posteriorly, front angles blunt and hind angles...
acute, pronotal base markedly impressed, lateral foveae short, pronotal punctures little coarser than on vertex; elytral shoulders rather prominent and little tumid, with regular rows of coarse and deep punctures, elytral interstices smooth and shining, apex not distinctly truncate. Length—3.75 mm.


**Distribution**: India: Sikkim (new record); Myanmar.


**Diagnosis**: Facies elengate; reddish with head, a diffused patch at the middle of front margin of pronotum, elytra and legs brassy, distal part of antenna blackish, ventrally middle of prosternum, metasternum and tip of abdomen brassy; head with eyes moderately large, antennal club rather compact and 5 segmented, vertex very finely and sparsely punctate; prothorax about as broad as long, sides feebly rounded and little narrowed posteriorly, pronotal base strongly punctate and median part of pronotal disc almost similarly punctate as on vertex of head, lateral foveae nearly parallel; elytra narrowed posteriorly, sides little curved, with regular rows of moderately coarse punctures, apex of elytra truncate. Length—8mm.

**Distribution**: India: Sikkim.


**Diagnosis**: Facies elongate, rather parallel-sided; metallic bluish-black with head and prothorax reddish, legs and antenna blackish; head with eyes moderately large, antennal club 5-segmented and rather loosely articulated, vertex with moderately coarse and sparse punctures; prothorax little transverse, sides feebly rounded and little narrowed posteriorly, front angles blunt and hind angles acute, pronotal base little depressed near middle and coarsely punctate, lateral foveae divergent in front, pronotal punctures little finer than on vertex; elytral shoulders little prominent, with regular rows of moderately coarse punctures, apex not distinctly truncate. Length—3.80-4.25 mm.


**Distribution**: India: Sikkim (new record), Arunachal Pradesh (Patkai hills).

### Key to the Genera of Cryptophilinae

1. Third tarsal segment lobed below with minute fourth segment; head with single stridulatory file; trochanters broadly elongate; sternal fitting between mesocoxae with closely situated double knobs; first anal vein of wing not running into subcubital fleck ..............................................
   - 
   - Tarsi simple with fourth segment little shorter than segment 3; head without stridulatory file; trochanters short and broad; sternal fitting between mesocoxae in a straight line; first anal vein of wing running into subcubital fleck ....
   - 
   - *Cryptophilus* Reitter

   - *Xenoscelinus* Grouvelle

### Subfamily CRYPTOPHILINAE


[Type-species: *Cryptophagus integer* Heer]

**Diagnosis**: Facies elongate, more or less ovoid; head with transverse impressed line on dorsal side behind eyes, antennal insertion hidden under projection of frons, 11-segmented antenna with 3-segmented club, mandible bidentate at tip,
maxillary lacinia with a bifid apical spine, apical segment of maxillary palpi fusiform, apical segment of labial palpi elongate; prothorax transverse, front coxal cavities closed, prosternal process broad at apex and apical margin little emarginate; elytral epipleurae distinct, punctures not in regular rows; intercoxal process of first abdominal ventrite broad and its apex rounded.

17. *Cryptophilus integer* (Heer)


**Diagnosis**: Facies elongate-ovoid, subdepressed, punctate pubescent, reddish-brown in colour; head with coarsely facetted moderately large eyes, antennal segments 1-8 almost moniliform, segments 9 and 10 weakly transverse and segment 11 about as broad as long, club segments loosely articulated; pronotum finely margined, sides gently rounded, front and hind angles not pronounced; transverse scutellum impunctate; elytral punctures not very coarse and somewhat diffused, elytral apex rounded.

Length—2.2–2.5 mm.


**Distribution**: Many parts of World through transport of food grains (Aitken, 1975).

Genus VIII. *Xenoscelinus* Grouvelle


[Type-species: *Xenoscelinus malaicus* Grouvelle].

**Diagnosis**: Facies elongate-oval, subdepressed; head with transverse impressed line on vertex behind eyes, interocular margins of frons and lateral sides of clypeus finely ridged, eyes moderately large and prominent, antennal insertions hidden under projections of frons, 11-segmented antenna with a 3-segmented club, mandible stout with sharply bifid tip and well developed mola, maxillary galea and lacinia normal, apical segment of maxillary palpi nearly cylindrical, mentum transverse and subtriangular, apical segment of labial palpi elongate-oval; prothorax transverse, front angles blunt and hind angles little sharp, front coxal cavities closed with broad prosternal process; elytra with distinct punctate striae, epipleura strongly ridged, intercoxal process of first abdominal ventrite broad and its apex rounded, with femoral lines.

18. *Xenoscelinus* sp.

**Diagnosis**: Facies elongate-ovoid, subdepressed, glabrous and shining, reddish-brown in colour, tip of mandible little blackish; head with coarsely facetted large eyes, antenna little longer than head and somewhat moniliform, apical segment of club distinctly narrower and shorter than penultimate one; pronotum wider than head, sides weakly arcuate and distinctly margined, front angles slightly projected, pronotal disc weakly convex, rather strongly and densely punctate and comparable to that of vertex of head; transverse scutellum impunctate; elytral base wider than pronotal base and sides weakly arcuate, strial punctures strong, interstices with minute disperse punctures, elytral apex rounded.

Length—2.3 mm.

**Material**: 1 ex., India: Sikkim. South District, Karfektar, Jorethang, 650m., 10.iii.1996, T.K.Pal, ex. under bark (Mango)

**Remarks**: This species resembles *X. bicolor* Grouvelle but differs slightly in having minute punctures on elytral interstices.

**SUMMARY**

The paper deals with 18 species under 8 genera of 2 subfamilies of which 3 species are recorded for the first time from the State. The species are systematically keyed and characterized.
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INTRODUCTION

The Erotylidae with about 2500 species from the World are a well defined large family of the section Clavicornia under the superfamily Cucujoidea. The representatives of Erotylidae are small to large, elongate-ovoid, generally brightly coloured and are commonly called as “pleasing fungus beetles”. The Erotylidae have world-wide distribution, with more abundance in warmer parts of both the Old and New Worlds and with a fewer representatives from temperate regions. They are usually fungus feeders of certain basidiomycetes, with adults and larvae sometimes found together. Hosts may be mushrooms, bracket fungi, or soft hyphae filled bark. They are often found in moist woodland areas and adult beetles are generally gregarious, whether on the host plant or in hiding.

Following the publication of Arrow’s “Fauna” in 1925 not much works have come out from the Indian subregion. Only recently, Pal (1992) has dealt with erotylids of Arunachal Himalaya with description of 2 species. The present account is based on some recent collection made by the author in different districts of Sikkim plus earlier material records from this State.

Characters of Family Erotylidae

Facies ranging from suborbicular, hemispherical to elongate-elliptical, more or less convex, rarely pubescent.

Head transverse, eyes large, no fronto-clypeal suture, stridulatory files usually present and double; 11-segmented antenna usually with 3-segmented club, rarely club of more than 3 segments, antennal insertions dorso-lateral or lateral; on ventral side gular sutures widely separated, without antennal cavities; mandible with well developed mola and usually with two apical teeth; maxilla with well developed galea and lacinia, lacinia often with apical spine, apical segment of palpi may be elongate to transverse and secuiform; labium with mentum variously shaped, ligula not well developed, apical segment of palpi elongate or transverse.

Prothorax usually transverse and narrowed in front, sides smooth, pronotum usually with prebasal impression, front coxal cavities more or less well separated, prostermal process broad. front coxal cavities closed with hidden trochantins.

Elytra often striato-punctate but occasionally with confused punctures, no scutellar strole, epipleura well developed. Wing usually with four anal veins, anal cell, radial cell, r-m cross vein and subcubital fleck.

Mesoxocae widely separated, coxal cavities closed laterally by sterna; metasternum often transverse and occasionally with coxal lines, metacoxae widely separated, metendosternite with moderately widely separated anterior tendons.

Legs moderately long, trochanters simple, tibiae often expanded apically, tarsal formula 5-5-5.

Abdomen fully covered by elytra, ventrites more or less equal in length, ventrite 1 sometimes with coxal lines. Aedeagus retracted on one side, with articulated parameres, median lobe bearing...
one or two struts. Ovipositor with well developed paraprocts, valvifers, coxites and styli.

**Key to the Subfamilies of EROTYLIDAE**

1. Fourth tarsal segment scarcely reduced, subequal to third and attached in normal manner to end of third segment; apical segment of maxillary palpi cylindrical, not transverse or triangular; mentum strongly transverse ..................DACNINAE
   - Fourth tarsal segment strongly reduced, not more than half length of width of third, attached mediadorsally to third segment; apical segment of maxillary palpi strongly transverse or triangular; mentum not transverse ..............2

2. Elytra nonstriate, confusedly punctate with large black punctures; prothorax at base but little more than half as wide as greatest common elytral width.........................EROTYLINAEB
   - Elytra regularly straite-punctate; prothorax at base subequal to greatest common clytral width ..............TRIPLACINAE (= TRITOMINAE)

* Not recorded from Sikkim.

**LIST OF TAXA**

**Family**  EROTYLIDAE

**Subfamily**  DACNINAE

1. *Episcapha quadrimacula* (Wiedemann)
2. *Megalodacne tonkinensis* (Heller)
3. *Megalodacne vitalisi* Arrow
4. *Megalodacne laevis* Arrow
5. *Megalodacne singhalensis* (Csiki)

**Subfamily**  TRITOMINAE

6. *Aulacochilus quadripustulatus* (Fabricius)
7. *Aulacochilus nigrorufus* Pal
8. *Spondotriplax fulviceps* Arrow
9. *Cyrtomorphus dux* Arrow
10. *Tritoma laxicornis* Arrow

**Key to the Genera of Erotylidae**

1. Mentum strongly transverse; terminal segment of maxillary palpi elongate and fusiform; three basal segments of palpi not widening from first to third ........................................2
   - Mentum not transverse; terminal segment of maxillary palpi transverse and securiform; three basal segment of tarsi widening from first to third ........................................................................3

2. Third antennal segment slightly longer than fourth segment .......... *Episcapha* Lacordaire
   - Third antennal segment distinctly longer than fourth segment ..... *Megalodacne* Lacordaire

3. Sides of mouth cavity with rather sharp edge or carinate. Body form oval; all the coxae with oblique femoral lines ............................................................... *Aulacochilus* Lacordaire
   - Sides of mouth cavity form flat plates or lobes ........................................................................4

4. Antennal club 3-segmented .........................5
   - Antennal club 5-segmented ........................................... *Spondotriplax* Crotch

5. Apical segment of antennal club about as wide as preapical segment; head with stridulatory files .......... *Cyrtomorphus* Lacordaire
   - Apical segment of antennal club narrower than preapical segment; head without stridulatory files .............. *Tritoma* Fabricius

**Family**  EROTYLIDAE

**Subfamily**  DACNINAE

Genus I. *Episcapha* Lacordaire

[Type-species : *Engis quadrimacula* Wiedemann].

*Diagnosis*: Oblong, often moderately pubescent, head partly inserted into prothorax; maxillary lacinia without spine, apical segment of palpi fusiform; mentum transverse, apex of ligula bilobed; front margin of prothorax emarginate, prosternum moderately broad; legs simple with tarsal segments 1-3 not broad, 4th segment smaller; elytral punctures confused or linear; no femoral lines on abdomen.
1. **Episcapha quadrimacula** (Wiedemann)


**Diagnosis**: Facies elongate-ovoid, subdepressed and covered with fine pubescence; head with large eyes, 11-segmented antenna with 3-segmented club, 3rd antennal segment slightly longer than 4th; transverse prothorax with lateral margins gently curved and converging in front, a pore at each extremity of lateral margin; elongate ovoid elytra with confused punctures; blackish body with each elytron decorated with two transverse orange bands one at base and other before apex and rather irregular in outline, anterior band immediately behind shoulder with an extended base to basal margin. Length—9–14 mm.

**Material**: 3 ex. ‘Sikkim’ (no other data in label).

**Distribution**: India : Sikkim, West Bengal, Uttar Pradesh, Tamil Nadu; Sri Lanka; Myanmar; Vietnam; Malaysia; Indonesia; Philippines.

Genus II. **Megalodacne** Crotch


**Diagnosis**: Facies oblong, usually glabrous, head partly inserted into prothorax, no stridulatory file, 11-segmented antenna with 3-segmented club, 3rd antennal segment markedly longer than the 4th, mouthparts similar to *Episcapha*; transverse prothorax with front margin emarginate, leg structure similar to *Episcapha*.

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**Key to the Species of Megalodacne LACORDAIRE**

1. Prothorax transverse, slightly broader than long ................................................................. 2

- Prothorax markedly transverse, about 1.5 times at broad as long ........................................ 3

2. Humeral angles of elytra red ........................................ ............................... 2

- Humeral angles of elytra black ........................................ ............................... 3

3. Pronotum finely and sparsely punctured ......... ............................... vitalisi Arrow

- Pronotum coarsely and densely punctured ... ............................... singhalensis (Csiki)

2. *Megalodacne tonkinensis* (Heller)


**Diagnosis**: Facies elongate-ovoid, subdepressed; head with coarsely faceted moderately large eyes, antennal club not much broader than long, pronotum finely bordered, with rather fine and sparse punctures lateral margins gently curved; elytra with linear rows of punctures, interstices also minutely punctate; blackish body, each elytron decorated with two transverse orange bands—one at base and other before apex, the first extending from shoulder to near the suture touching base at two points, the second one emits three angular processes in front and two behind. Length 8–11 mm.

**Distribution**: India : Sikkim, Manipur; Myanmar; Vietnam.

3. *Megalodacne vitalisi* Arrow


PAL : Insecta : Coleoptera : Erotylidae

Diagnosis: Facies elogate-ovoid and moderately convex, dorsum smooth and shining; head strongly punctate with coarsely facetted large eyes, 3rd antennal segment fairly longer than 4th; prothorax slightly broader than long with sides little convergent in front and rather parallel behind, front angles acutely produced with pronotal disc strongly and evenly punctate; lateral margins of elytra narrowly flanked, punctures in longitudinal rows with interspaces minutely punctate; blackish body, each elytron with two reddish spots one in both anterior and posterior halves, spots lateral but not reaching margin, anterior spot extends to near suture and reaching base leaving only a small black area, posterior spot placed before apex which is arched behind and produced at three points anteriorly. Length 6.5–9.0 mm.

Distribution: India: Sikkim, West Bengal (Darjeeling District); Myanmar; Vietnam.

4. Megalodacne laevis Arrow


Diagnosis: Facies elongate-ovoid, somewhat convex, shining, legs rather long; head with coarsely facetted prominent eyes, antennal club not much broad and segments loosely articulated, vertex coarsely and densely punctate; prothorax distinctly transverse, sides rounded and little contracted near base, pronotum rather finely and sparsely punctate; elytra with linear rows of fine punctures, interstices minutely punctate; blackish body, each elytron decorated with two transverse orange bands, the first extending from side to near suture including humeral angle, the second placed before apex with irregular margin. Length—7 mm.


Subfamily: TRITOMINAE

Genus III. Aulacochilus Lacordaire

1842. Aulacocheilus Lacordaire, Monog. Erotyl. : 245
[Type-species: Erotyllus javanus Guerin-Meneville].

Diagnosis: Facies ovoid, usually glabrous; head without stridulatory file, 11-segmented antenna with 3-segmented club, 3rd antennal segment much longer than 4th, mandible with bifid tip, apical segment of maxillary palpi transverse; transverse prothorax with front margin emarginate, broad prosternum, all coxae with oblique femoral lines; legs simple with tarsal segments 1 to 3 gradually wider and 4th one minute; elytra with linear punctures.

Key to the Species of Aulacochilus LACORDIARE

1. Blackish elytra decorated with two pairs of reddish-brown spots, one subbasal and another subapical pair .............................................

.......................... quadripustulatus Fabricius
Blackish elytra decorated with one pair of reddish-brown spots near base ..................
.................................................. nigrorufus Pal

6. Aulacochilus quadripustulatus (Fabricius)

Diagnosis : Facies elongate-ovoid, rather convex; head with moderately large eyes, antennal club broad, antennal segments 10 and 11 closely articulated, vertex coarsely and densely punctate; side margins of prothorax ridged and gently curved, pronotal punctures little sparser than vertex; outer margin of elytra gently flattened, gradually converging from a little behind humeral angle towards apex, blackish body with each elytron decorated with two transverse orange bands, the first one extending from basal margin to near external margin leaving humeral angle, its posterior border tridentate, the second one situated before apex and not touching outer or sutural margin, both its anterior and posterior borders dentate. Length–9 mm.


Distribution : India : Sikkim (new record), Andaman Is.; Myanmar; Vietnam; Malaysia; Indonesia.

7. Aulacochilus nigrorufus Pal

Diagnosis : Facies elongate-ovoid, convex; head with large eyes, fronto-clypeal suture little arcuate, antennal club rather compact with more or less transverse segments, punctuation on vertex moderately coarse and dense; side margins of prothorax rounded, feebly raised and pits on either extremity very small, pronotum with coarse dense punctures; broadly elongate elytra with rounded sides and edges narrowly flanked, each elytron decorated with a reddish-brown irregular spot occupying greater part of anterior half, spot not reaching either internal or external or basal margin. Length 6.0 6.4 mm.


Distribution : India : Arunachal Pradesh, Sikkim (new record).

Genus IV. Spondotriplax Crotch
1876. Spondotriplax Crotch, Cist. Ent. 1 : 469
[ Type-species : Spondotriplax endomychoides Crotch ].

Diagnosis : Facies broadly ovoid with moderately stout legs; head broad, 11-segmented antenna with 5-segmented club, sides of mouth-cavity moderately dilated, apical segment of maxillary palpi markedly transverse; transverse prothorax with front coxae widely separated, mesocoxae with femoral lines; elytra with linear punctures.

8. Spondotriplax fulviceps Arrow

Diagnosis : Facies elongate-ovoid; blackish body with head, basal part of antennae, part of elytra and abdomen yellowish; head with finely faceted small eyes, apical three segments of antennal club broad and closely articulated, vertex rather coarsely and densely punctate; front angles of prothorax little produced and hind angles quadrate; interstices of elytra minutely punctate, a pair of transverse humeral and a post-median transverse yellowish patch on blackish elytra. Length 3.5 mm.

Distribution : India : Sikkim, West Bengal (Darjiling).
Genus V. *Cyrtomorphus* Lacordaire,

   [Type-species: *Cyrtomorphus pantherinus* Lacordaire.]

*Diagnosis:* Facies ovoid; head deeply inserted into prothorax, with stridulatory files, 11-segmented antenna with 3-segmented club, labrum distinct, apical segment of maxillary palpi markedly transverse, ligula bilobed, apical segment of labial palpi subglobular; transverse prothorax with closely situated coxae; elytra with linear punctures.

9. *Cyrtomorphus dux* Arrow


*Diagnosis:* Facies broadly ovoid; reddish body with base of pronotum blackish, a transverse patch placed before middle of elytral suture, a round spot behind middle of base, a larger lateral spot behind shoulder and an oblique patch before apex of each elytron; head with finely faceted small eyes, apical segment of antennal club much smaller than preceding one, vertex finely and densely punctate; prothorax about two and half times as broad as long, sides gently curved, front angles little blunt, pronotum almost similarly punctate as on vertex; linear punctures on elytra not very distinct. Length—9-11 mm.

*Distribution:* India : Sikkim, Meghalaya.

Genus VI. *Tritoma* Fabricius

   [Type-species: *Tritoma bipustulata* Fabricius.]


*Diagnosis:* Facies ovoid; head deeply inserted into prothorax, with two longitudinal stridulatory files, 11-segmented antenna with 3-segmented club, sides of mouth cavity form hemispheric lobes, with antennal cavities, apical segment of maxillary palpi markedly transverse, ligula narrow, apical segment of labial palpi securiform; transverse prothorax with moderately widely separated coxae, prosternal process with anteriorly converging lines; elytra with linear punctures.

10. *Tritoma laxicornis* Arrow


*Diagnosis:* Facies elagete-ovoid, moderately convex, shiny; head with small eyes, antennal segment 3 distinctly longer than 2nd and 4th, club segments loosely articulated with the apical one subglobose, blackish. vertex densely punctate; transverse prothorax with sides slightly curved and finely margined, front angles blunt and hind angles nearly rectangular, pronotum finely punctate, dorsal and ventral sides orange-yellow; two small blackish spots near middle of front margin and two similar spots at hind margin; eyltral interstices finely punctate, blackish; abdomen orange-yellow. Length—5-6 mm.

*Distribution:* India : Sikkim.

**SUMMARY**

The paper deals with 10 species under 6 genera under 2 subfamilies of which 3 species are recorded for the frist time from the State of Sikkim. The species are systematically keyed and characterized.

**ACKNOWLEDGEMENTS**

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Arrow, G. J. 1925. The Fauna of British India, including Ceylon and Burma; Coleoptera: Clavicornia (Erotylidae, Languriidae and Endomychidae). xv + 1 - 416 pp., 1 pl., 1 map; Taylor and Francis, London.

INTRODUCTION

The Endomychidae with about 1300 species are a sufficiently distinct family of the section Clavicornia under the superfamily Cucujoidae. The endomychids are small to large, broadly ovoid to elongate and narrow, strongly convex to moderately flattened, often brightly coloured and are commonly called as 'handsome fungus beetles'. The Endomychidae have world-wide distribution, more diverse in tropical Asia and a few genera predominate in Holarctic Regions. Most endomychids are sporophagous or consume softer tissues of various fungi. They are often seen beneath bark or in rotten wood, decayed fruit refuse or may be collected in leaf litter. In moist woodland areas they are frequently seen.

Following the publication of Arrow's 'Fauna' in 1925 not much works have come out from the Indian subregion. In recent past, Vazirani and Saha (1972) described 1 new species, and Strohecker (1974, 1975, 1982, 1983) described at least 11 new species and recorded a few more species from the Indian territory. The present account is based on some recent collection made by the author plus earlier material records from this State.

Characters of Family Endomychidae

Body broadly ovate to elongate and narrow, strongly convex to moderately flattened, glabrous but occasionally clothed with hairs, and often brightly coloured.

Head with fronto-clypeal suture, eyes moderately large, vertex occasionally bears stridulatory files, antennal insertions lateral or dorso-lateral; antenna 10- or 11-segmented with 3-segmented club, rarely 4- or 5-segmented; mandible usually well developed, apical teeth three or less, mola well developed; maxillary lacinia and galea well developed, lacinia with or without apical spine, apical segment elongated and more or less fusiform; labium is more subject to variation in form, mentum strongly chitinized, apical segment of labial palpi truncate apically.

Prothorax often transverse, side margins usually smooth and rarely serrulate, front edge sometimes has a stridulatory membrane, pronotal disc often with paired basal impressions, grooves or carinae, and a transverse prebasal groove, prosternum moderately long to very short, front coxae subglobular or slightly transverse with hidden trochantins.

Elytra entire, punctuation usually confused, epipleura usually incomplete. Wing devoid of radial cell and usually without anal cell, with a trace of subcubital fleck.

Mesosternum sometimes reduced and concealed, anteriorly excavate or bicarinate, mesocoxae narrowly to moderately widely separated, mesocoxal cavities narrowly open outwardly; metasternum transverse, rarely with femoral lines, hind coxae widely separated, metendosternite usually with widely separated anterior tendons.

Legs short to moderately long, trochanters simple or slightly heteromeroid; narrow tibia slightly broadened at apex and without prominent apical spurs, tarsal formula 4-4-4 or 3-3-3, tarsi either simple, or segment 3 reduced with segment 1 and 2 lobed. Five abdominal ventrites freely articulated.
ventrite 1 longer than others and sometimes with femoral lines, often with five pairs of spiracles. Aedeagus with or without articulated parameres, median lobe devoid of strut. Ovipositor with fused valvifers and coxites.

Key to the subfamilies of Endomychidae*

1. First abdominal ventrite with femoral lines; no prebasal impression on pronotum, front coxae little transverse; apical segment of maxillary palpi broad and securoform; seven pairs of abdominal spiracles ................................................................. SPHAEROSOMINAE
   - First abdominal ventrite without femoral lines; pronotum with a transverse subbasal groove and two longitudinal impressions, front coxae globular; apical segment of maxillary palpi elongate and not securoform; five pairs of abdominal spiracles ........................................ 2

2. Tarsi pseudotrimerous, penultimate segment minute and almost fused with apical segment, second segment lobed. ENDOMYCHINAE
   - Tarsi linear, 3-segmented or 4-segmented with penultimate segment exposed ................................ 3

3. Antenna 4-or 5-segmented, short and stout .................................................. TROCHOIDEINAE
   - Antenna 10-or 11-segmented, slender and long ............................................. MYCETAEINAE

LIST OF TAXA

Family ENDOMYCHIDAE
Subfamily ENDOMYCHINAE

1. Cymbachus spilotus Arrow
2. Spathomeles decoratus Gerstaecker
3. Engonius varicornis Arrow
4. Encymon cinctipes Gorham
5. Ancylopus pictus indianus Strohecker
6. Ancylopus nigrothoracica sp. nov.
7. Endomychus bicolor Gorham
8. Chondria araneola Arrow
9. Danae sericea Arrow

Family ENDOMYCHIDAE

Key to the Tribes and Genera of ENDOMYCHINAE

1. Front margin of pronotum provided with a stridulatory membrane (Eumorphini) ............ 2
   - Front margin of pronotum without stridulatory membrane ......................................................... 6

2. Front coxae widely separated ..................... 3
   - Front coxae closely situated ..................... 5

3. Prosternal process bifid at the tip ................
   - Prosternal process not bifid at the tip ......... 4

4. Segments of antennal club very closely and almost immovably articulated ..................
   - Segments of antennal club rather loosely and movably articulated. Tip of mandible pointed.
   - Antennal club broad, basal segment of club about three times as wide as the preceding segment.
   - Antennal club not broad, basal segment of club hardly one and half times as wide as the preceding segment ......... Ancylopus Costa

5. Body not pubescent dorsally; not unicolourous; ligula elongate (Endomychinae) ............
   - Body densely pubescent; unicolourous; ligula truncate and produced laterally.... (Stenotarsini)

7. Tarsi slender. Sides of elytra not dilated ......

* Subfamilial classification after Crowson, 1955; Sphaerosominae is at present considered as a separate family (Sphaerosomatidae) but not recorded in India. Of other three subfamilies only Endomychinae is yet recorded from Sikkim.
Tarsal segment 2 dilated. Mesosternum narrow and not excavated in front. Danae Reiche

Subfamily ENDOMYCHINAE

Genus I. Cymbachus Gerstaecker

1842. Cymbachus Gerstaecker, Archiv f. Naturg. 23 (1) : 233

[Type-species: Cymbachus pulchellus Gerstaecker].

Diagnosis: Facies elongate-ovoid, glabrous; head with eyes strongly transverse and rather prominent, 11-segmented antenna with 3-segmented broad club, segment 3 about as long as segments 4 and 5 together, mandible with a sharp apical tooth and short tooth just behind it, maxillary lacinia slender, apical segment of maxillary palpi narrowly elongate at tip, apical segment of labial palpi broadly oval; transverse prothorax with a stridulatory membrane on front margin, lateral foveae on pronotum not long, front coxae moderately widely separated, prosternal apex bifid, transverse mesosternum with a sharp anterior process, elytra convex and rounded at sides.

1. Cymbachus spilotus Arrow


Diagnosis: Facies elongate, broadly ovoid, moderately shining, bluish-black with purplish elytra and each elytron decorated with two pale yellow spots one behind humerus and other at posterior third close to side margin; head with large eyes, antenna long with short broad club, all three club segments distinctly transverse, vertex finely punctate; transverse prothorax converge anteriorly, sides feebly sinuate, front angles blunt and hind angles acute, pronotal base finely margined and lateral foveae fine and short, pronotum similarly punctate as on vertex of head; elytra coarsely and densely punctate, punctures on yellow spots finer, margins narrowly reflexed, apex rounded. Length 7 mm.

Distribution: India: Sikkim.

Genus II. Spathomeles Gerstaecker

1857. Spathomeles Gerstaecker, Archiv f. Nat. 23 (1) : 218

[Type-species: Spathomeles anaglyptus Gerstaecker].


Diagnosis: Facies elongate, subparallel, head with rather large eyes, 11-segmented antenna with 3-segmented club, segment 3 nearly twice as long as segment 4, mandible with a sharp apical tooth and a short tooth just behind it, apex of maxillary lacinia hairy, apical segment of maxillary palpi broad-elongate, front margin of ligula arcuate, apical segment of labial palpi strongly transverse; prothorax with a stridulatory membrane on front margin, lateral foveae on pronotum distinctly impressed, front coxae not widely separated and prosternal process contracted between coxae, prosternal process rather pointed at apex, metasterum more or less excavated, elytra rather prominent at shoulders with sides slightly rounded.

2. Spathomeles decoratus Gerstaecker


Diagnosis: Facies elongate, less ovoid, moderately shining, blackish body with each elytron decorated with four orange-yellow spots — an oval one near scutellum, two placed transversely near middle and a transverse irregular one before apex, head with two shallow pits between eyes, moderately long antenna with short broad club, club segments closely set, vertex sparsely punctate; transverse prothorax with pronotum distinctly margined, transversely impressed beyond middle, with two deep pits placed transversely before middle and an elevated area on each side near basal margin, side margins raised, front angles projected and blunt and hind angles acute, pronotum more densely punctate than vertex;
scutellum broadly transverse; elytra markedly convex, broader than prothorax at base, shoulders prominent, nearly straight from shoulders to middle and then narrowed behind, apex rounded, finely and rather sparsely punctate, in male with a sharp hooked process near suture behind middle and directed posteriorly. Length-12-15 mm.

**Distribution**: India: Sikkim, Arunachal Pradesh, West Bengal.

**Genus III. Engonius** Gerstaecker


**Diagnosis**: Elongate-oblong with long antennae and legs; head deeply inserted into prothorax, dorsally with a stridulatory area, eyes narrow and coarsely faceted, 11-segmented antenna with 3-segmented club, segment 3 about as long as segments 4 and 5 together, mandible with a sharp apical tooth and a short tooth behind it, maxillary lacinia and galea narrow, apical segment of maxillary palpi a little elongate, apical segment of labial palpi transverse; transverse prothorax with a stridulatory membrane on front margin, side margins raised, pronotal base margined and lateral foveae distinctly impressed, front coxae narrowly separated and prosternal process contracted between coxae, mesosternum subquadrate between middle coxae; elytral shoulders prominent and sides gently rounded.

3. *Engonius variicornis* Arrow


**Diagnosis**: Facies elongate-oblong, convex; blackish body with two transverse yellow bands upon each elytron-one near base, reaching almost outer margin and slightly constricted near middle, another one before apex and not reaching either outer or sutural margin, species shiny; head with rather long antenna bearing a compact club, vertex with minute indistinct punctures; prothorax more than twice as wide as long, somewhat parallelsided, front angles projected and bluntly rounded, hind angles nearly rectangular, pronotal base deeply sulcate, lateral foveae parallel and reaching almost middle, pronotum almost similarly punctate as on vertex; semicircular scutellum almost smooth; elytra rather densely punctate, little dilated behind shoulders and then gently narrowed posteriorly. Length-5 mm.

**Distribution**: India: Sikkim, Arunachal Pradesh.

**Genus IV. Encymon** Gerstaecker


**Diagnosis**: Facies elongate-ovoid with long antennae and legs; head with eyes obliquely transverse, 11-segmented antenna with 3-segmented club, scape to segment 8 except 2nd quite elongate, segment 3 about as long as segments 4 and 5 together, mandible with tip produced and bifid, maxillary lacinia short, apical segment of maxillary palpi elongate, ligula with narrow lateral lobes, apical segment of labial palpi broad and compressed; prothorax broader in front and contracted behind, front angles projecting, front margin with distinct stridulatory membrane, pronotal base with a deep sulcus and lateral foveae distinctly impressed, front coxae narrowly separated, mesosternum narrow between middle coxae; elytra convex with sides distinctly rounded.

4. *Encymon cinctipes* Gorham


**Diagnosis**: Facies elongate, not very broad, blackish, shiny, apices of femora bright orange-yellow; head with fronto-clypeal suture deeply grooved, antennal club not very broad, vertex finely punctate; prothorax transverse, pronotum entirely margined, sides diverging from base and then obtusely angulate near middle, front angles strongly produced and somewhat blunt, lateral foveae on pronotum about as long as one-third of its length; scutellum transverse and smooth; elytra
moderately long, rather convex, each elytron with a subsutural stria, shoulders prominent, side margins little reflexed and gently rounded, surface finely punctate. Length-7-8.5 mm.

**Distributions**: India: Sikkim, Arunachal Pradesh, Assam; Myanmar.

**Genus V. Ancylopus** Costa

1854. *Ancylopus* Costa, *Fauna del Regno Napoli, Coleotterei* 1: 14

[Type-species: *Endomychus melanocephalus* Olivier].

**Diagnosis**: Facies elongate, moderately broad, rather parallel-sided with moderately long antennae and legs; head with rather prominent eyes, 11-segmented antenna with 3-segmented narrow club, scape to segment 8 elongate, segment 3 about as long as segments 4 and 5 together, mandible with tip produced and bifid (at least for left), maxillary lacinia short, apical segment of maxillary palpi elongate, ligula with two lobes, apical segment of labial palpi broad transverse; prothorax transverse, emarginate in front, front margin with distinct stridulatory membrane, pronotal base with strongly impressed marginal stria and moderately long lateral foveae, front coxae almost contiguous and prosternal process

narrowly pointed at apex, mesocoxae moderately widely separated, hind coxae widely separated and intercoxal process of first abdominal ventrite broad and truncate at apex; elytra moderately long with narrowly deflexed side margins.

5. **Ancylopus pictus indianus** Strohecker


1858. *Ancylopus melanocephalus pictus* : Gerstaecker, *Mon. Endom.*: 190


**Diagnosis**: Facies broadly elongate, subdepressed; orange-yellow with head and antennae, basal margin of elytra, its suture except near apex, a rectangular patch on outer margin near middle and an oval patch before apex of each elytron blackish; head with eyes coarsely facetted and separated by little more than three times of the diameter, club little broader than rest of antenna, segments 9 and 11 elongate and segment 10 about as broad as long, dorsal surface moderately coarsely and densely punctate and pubescent; transverse prothorax little narrower behind middle, front angles projecting and not very acute, hind angles nearly right angle, side margins finely raised; in female pronotum with a median longitudinal depression and anterior end of lateral fovea on each side connected with it by a deep curved oblique channel, pronotum more finely punctate than on head; transverse scutellum impunctate; elytra separately rounded at apex, base of elytra little emarginate, each elytron with a broad oblique depression from behind scutellum to beyond middle, moderately coarsely and densely punctate; in male mesotibial tooth large and sharp, inner edge of metatibia undulate and sharply serrulate. Length-5.0-5.8 mm.


Fig. 1. *Ancylopus nigrothoracica*, sp. nov., Dorsal view (scale = 2.5 mm.).
Insecta: Coleoptera: Endomychidae

Distribution: India: Sikkim (new record), Uttar Pradesh, Bihar, Tamil Nadu; Afghanistan.

6. Ancylopus nigrothoracica sp. nov.

Facies (Text fig. 1) broadly elongate, moderately convex. Little shiny, entirely blackish body with four yellow patches on elytra, species little shiny.

Exposed part of head little broader than long, apical margin of clypeus little rounded, eyes moderately large, transverse, coarsely facetted, separated by about four times of diameter; antennal insertions widely separated, antenna moderately long and slender, scape moderately large and broadly elongate, pedicel shorter, narrower and elongate, segment 3 about as long as segments 4 and 5 together, segments 4-8 short and subequal, 3-segmented club gradually wider apically, segments loosely articulated; puncturation on vertex moderately fine and not dense, puncturation on clypeus finer, finely pubescent.

Prothorax transverse (1:1.2), widest little beyond middle, narrowed both anteriorly and posteriorly, sides feebly bisinuate, front angles projecting and not very acute, hind angles nearly right angle, pronotum moderately convex near middle and sides little flattened, side margins finely raised, pronotum base with a deep marginal stria, lateral foveae narrow, deeply impressed and extending up to little below middle, puncturation on pronotum almost similar as on vertex of head, finely pubescent. Scutellum transverse, finely punctate-pubescent.

Elytra broadly elongate (1.4:1.0), little wider than prothorax at base, widest near middle, lateral edges very narrowly flanked, shoulders little prominent, sides gently rounded and separately rounded at apex; puncturation confused, moderately fine and not dense; each elytron decorated with two large yellow spots, first one situated little below base, second transverse and situated considerably above apex, coloured spot not touching either outer or inner margin.

Ventral surface shiny, almost impunctate, entirely blackish, tarsi of legs little paler than remaining part.

Measurements of holotype: Total length 6.6 mm., width of head across eyes 1.3 mm., length of antenna 3.5 mm., length and width of prothorax 1.6 mm. and 2.4 mm., length and width of elytra 4.5 mm. and 3.1 mm.


Distribution: India: Sikkim

Comments: This species differs from A. pictus (Wiedemann) by its body colour black with only four yellow patches on elytra, prothorax less transverse, pronotum in female devoid of median longitudinal depression and lateral sulci on base not touching it.

Genus VI. Endomychus Panzer

1857. Endomychus Panzer, Ent. Tasch. : 175
   [Type-species: Chrysomela coccinea Linnaeus].

Diagnosis: Facies ovoid with moderately long antennae and legs; head with prominent eyes, 11-segmented antenna with 3-segmented club, antennal segment 3 little longer than segments 2 and 4, mandible with tip minutely trifid, maxillary lacinia narrow, apical segment of maxillary palpi elongate, ligula little elongate, apical segment of labial palpi pointed at tip; prothorax transverse, front margin devoid of stridulatory membrane, pronotum with strongly impressed basal stria, front coxae moderately widely separated, mesocoxae moderately widely separated and mesosternum somewhat quadrate, hind coxae widely separated; elytra convex with sides gently rounded.
7. *Endomychus bicolor* Gorham


*Diagnosis*: Facies elongate, broadly ovoid, blackish with elytra and abdomen orange-yellow, species shiny; head with eyes projecting and finely faceted, all segments of antenna more or less elongate, club narrow elongate and segments loosely articulated, vertex finely punctate; prothorax markedly transverse, wider posteriorly, biemarginate in front, sides finely margined and rather straight, front angles blunt and hind angles slightly acute, lateral foveae on pronotum extending about one-third of length, minutely and sparsely punctate; scutellum triangular; elytral shoulders little prominent, sides evenly rounded, finely and sparsely punctate. Length — 6 mm.

*Distribution*: India : Sikkim.

Genus VII. *Chondria* Gorham

[Type-species: *Chondria lutea* Gorham].

*Diagnosis*: Facies elongate-ovoid or subglobose with slender legs and antennae, body pubescent; head with prominent eyes, 11-segmented antenna with 3-segmented club, mandible with pointed tip, apical segment of maxillary palpi fusiform, ligula truncate apically, apical segment of labial palpi broad and transverse, prothorax transverse; with front margin emarginate, pronotum with broad elevated borders, front coxae rather closely situated, meso- and hind coxae more widely separated, tarsal segment 1 cylindrical, segment 2 lobed, segment 3 small and segment 4 longest; elytra without dilated margin and distinct epipleura.

8. *Chondria araneola* Arrow


*Diagnosis*: Facies hemispherical convex, reddish-brown with elytra blackish except narrow lateral rim, club of antenna darker than remaining part, species shiny with dense long pubescence; head with eyes widely placed, antennal segments 1–8 (except 2) more or less elongate, apical segment of antennal club elongate and club segments loosely articulated; prothorax markedly transverse, lateral borders of pronotum raised and little hollowed, front angles bluntly produced, lateral foveae deep crescent-shaped, finely and sparsely punctate; elytra a little elongate, sides rounded and margins narrowly reflexed, humeral angles moderately sharp, apex a little angulate by joining of two elytron, with rows of moderately large punctures, rows distinctly impressed on sides than on middle. Length — 2.5 mm.

*Distribution*: India : Sikkim.

Genus VIII. *Danae* Reiche

[Type-species: *Danae rufula* Reiche.]

*Diagnosis*: Facies elongate-ovoid and not very convex, with long legs and antennae, body pubescent; head with large eyes, 11-segmented antenna with 3-segmented loose and symmetrical club, mandible with bifid tip, apical segment of maxillary palpi fusiform, ligula truncate apically, apical segment of labial palpi broad and transverse, prothorax transverse with basal margin closely applied to base on elytra, side margins of pronotum raised, prosternum produced behind coxae as prominent lobe; meso- and hind coxae moderately widely separated; tarsal segment 1 elongate, segment 2 lobed and dilated, segment 3 small and segment 4 longest; elytra without dilated margin.

9. *Danae sericea* Arrow

**Diagnosis**: Facies elongate-ovoid, moderately convex, yellowish-brown, legs and antennae blackish except basal part, densely pubescent; head with eyes widely placed, antennal scape and pedicel yellowish; transverse prothorax with side margins sinuate behind middle, borders of pronotum moderately wide and raised, basal groove terminating on sides in very short lateral foveae, front angles blunt and hind angles acutely produced; elongate elytra rounded at sides and not very broad at shoulders, with irregular fine punctures. Length — 3.9 mm.


**Distribution**: India: Meghalaya, Sikkim (new record).

**SUMMARY**

The paper deals with 9 species under 8 genera of 1 subfamily of which 1 species is new (*Ancylopus nigrothoracica*). The species are systematically keyed and characterized.

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INSECTA : COLEOPTERA : COCCINELLIDAE

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INTRODUCTION

The Coccinellidae beetles, popularly known as lady bird beetles are very common in forested and agricultural area. These beetles are of profound economic importance as many of them predate on crop or plant pests like Aphids, Mealy bugs, Scale insects and other soft bodied pests of plants. Members of the subfamily Epilachninae are phytophagous, causing injury to the crops.

Some important contributions were made by the early workers from Sikkim. Mulsant (1850) described five species and weise (1895) recorded three species. Kapur (1958) noted that eleven species are found in Sikkim. In his extensive work Kapur (1963) added another thirtyfour species, of which eleven are new to science. So a total of fifty three species are already known from Sikkim.

In this present study another thirty four species are added to the Sikkim fauna, of which one is new to science. Hence the total numbers of species raised to eightyseven.

SYSTEMATIC ACCOUNT

Family COCCINELLIDAE

Subfamily I. STICHOLOTINAE

Tribe 1. Sticholotini

Genus 1. Sticholotis Crotch

1. Sticholotis sp.

Genus 2. Jauravia Motschulsky

2. J. quadrinotata Kapur

Subfamily II. SCYMNINAE

Tribe 2. Stethorini

Genus 3. Stethorus weise

3. Stethorus sp.

Tribe 3. Scymnini

Genus 4. Scymnus Kugelann

4. S. (pullus) apiciflavus Motschulsky
5. S. (pullus) brunnescens Mots.
6. S. (pullus) posticalis (Sicard)
7. S. (pullus) pyrocheilus Mulsant
8. S. (pullus) quadrillum Mots.

Genus 5. Pullus Mulsant

9. P. bhaumiki sp. nov.
10. P. bourdilloni Kapur
11. P. higstoni Kapur
12. P. testacecollis Kapur

Tribe 4. Aspidimerini

Genus 6. Cryptogonus Mulsant

13. C. ariasi (Muls.)
14. C. bimaculatus Kapur
15. C. complexus var. posticus Kapur
16. C. himalayensis Kapur
17. C. hingstoni Kapur
18. C. orbiculus (Gyllen.)
19. C. postmedialis Kapur
20. C. quadriguttatus (Weise)
21. C. trioblitus (Gorham)
Subfamily III CHILOCORINAE

Tribe 5. Platynaspini

Genus 7. Platynaspis Redtenbacher

22. P. kapuri Chakraborty & Biswas

Tribe 6. Chilocorini

Genus 8. Brumus Mulsant

23. B. suturalis Fabricius

Genus 9. Chilocorus Leach

24. C. braeti Weise
25. C. hauseri Weise

Subfamily IV. COCCIDULINAE

Tribe 7. Coccidulini

Genus 10. Singhikalia Kapur

26. S. ornata Kapur

Tribe 8. Exoplectrini

Genus 11. Sumnius Weise

27. S. cardoni Weise

Tribe 9. Noviini

Genus 12. Rodolia Mulsant

28. R. guerini (Crotch)
29. R. sp.

Subfamily V. COCCINELLINAE

Tribe 10. Coccinellini

Genus 12. Oenopia Mulsant

30. O. kirbyi Mulsant
31. O. luteopustulata Mulsant
32. O. quadripunctata Kapur
33. O. sauzeti Mulsant

Genus 13. Coelophora Mulsant

34. C. bissellata Mulsant
35. C. nitidicollis Kapur
36. C. sexareata Mulsant
37. C. unicolor (Fab.)

Genus 14. Adonia Mulsant

38. A. Variegata (Goeze)

Genus 15. Anisolemnia Crotch

39. A. dilatata Fabricius

Genus 16. Aiolocaria Crotch

40. A. dodecaspilota (Hope)
41. A. hexaspilota (Hope)

Genus 17. Leis Mulsant.

42. L. dimidiata (Fabricius)

Genus 18. Calvia Mulsant

43. C. durgae Kapur
44. C. pasupati Kapur
45. C. pinaki Kapur
46. C. shiva Kapur
47. C. sykesi (Crotch)
48. C. trilochana Kapur

Genus 19. Adalia Mulsant

49. A. tetraspilota (Hope)

Genus 20. Lioadalia Crotch

50. L. luteopicta (Mulsant)

Genus 21. Callineda Crotch

51. C. sedecemnotata Fabricius

Genus 22. Synharmonia Gangibauer

52. S. signatella (Mulsant)
Genus 23. *Coccinella* Linnaeus

53. *C. septempunctata* Linnaeus  
54. *C. transversalis* Fabricius

Genus 24. *Menochilus* Timberlake

55. *M. sexmaculatus* (Fabricius)

Genus 25. *Ballia* Mulsant

56. *B. eucharis* Mulsant  
57. *B. gustavi* Mulsant  
58. *B. zephirinae* Mulsant  
59. *Ballia* sp.

Tribe 11. *Psylloborini*

Genus 26. *Halyzia* Mulsant

60. *H. sanscrita* Mulsant  
61. *H. straminea* Hope

Genus 27. *Illeis* Mulsant

62. *I. bistigmosa* (Mulsant)  
63. *I. confusa confusa* Timberlake  
64. *I. indica* Timberlake

Subfamily VI. *EPILACHNINAE*

Tribe 12. *Epilachnini*

Genus 28. *Epilachna* Chevrolat

65. *E. bengalica* (Dieke)  
66. *E. congener* Gorham  
67. *E. flavicollis* (Thunberg)  
68. *E. gibbera* Crotch  
69. *E. grayi* Mulsant  
70. *E. macularis* Mulsant  
71. *E. marginicollis* Hope  
72. *E. mystica* Mulsant  
73. *E. mysticoides* (Sicard)  
74. *E. undecimspilota* Hope

Genus 29. *Henosepilachna* Li

75. *H. boisduvali* (Mulsant)  
76. *H. dodecastigma* (Wiedmann)  
77. *H. indica* (Mulsant)  
78. *H. ocellata* (Redtenbacher)  
79. *H. processa* (Weise)  
80. *H. septima* (Dieke)  
81. *H. sikkimica* (Kapur)  
82. *H. vigintioctopunctata* (Fabricius)

Genus 30. *Afidenta* Dieke

83. *A. mimetica simplex* Dieke  
84. *A. parvula* (Crotch)

Genus 31. *Afidentula* Kapur

85. *A. himalayana* Kapur  
86. *A. manderstjernae* (Mulsant)

Genus 32. *Afissula* Kapur

87. *A. sancta* (Crotch)

Family COCCINELLIDAE

Key to the subfamilies of COCCINELLIDAE

1. Terminal segment of maxillary palpi elongate oval or elongate conical; mentum very narrowly articulated with submentum; the ninth sternite of male flat, triangular; head capsule sometimes projecting anteriorly ..................................................................................................................... STICHOLOTINAE

− Terminal segment of maxillary palpi strongly divergent apically or nearly parallel sided, rarely slightly convergent apically; mentum usually not very narrowly articulated with submentum; the ninth sternite of male linear or clavate; head capsule not projecting anteriorly .......................... 2

2. Antennae relatively short, at most about two-thirds as long as head width, often very short, strongly modified and inserted frontally, laterally or ventrally; the terminal segment of maxillary palpi generally nearly parallel sided, never
strongly divergent apically; clypeus normal or
strongly expanded laterally; meso- and
metasterna usually broadly and compactly
articulated and middle coxal cavities broadly
separated; femora relatively stout or sometimes
strongly depressed ........................................ 3

- Antennae relatively long, at least about one­
half as long as the head-width, usually longer
than two-third and inserted frontally, laterally
or dorsally; the terminal segment of maxillary
palpi usually strongly divergent apically; clypeus
never strongly expanded laterally; meso- and
metasterna always feebly and narrowly
articulated, separating middle coxal cavities
narrowly; femora relatively slender, never
strongly depressed ........................................ 4

3. Clypeus strongly expanded laterally; anterior
margin of pronotum deeply and trapezoidally
concave and lateral portions very strongly
descending below; elytral base distinctly
broader than pronotal base; metasternum
distinctly impressed for the reception of middle
femore; elytral epipleure relatively broad and
its inner carina reaching elytral apex; tibiae
often angulate externally ....................................
................................................... CHILOCORINAE

- Clypeus not strongly expanded laterally;
anterior margin of pronotum not deeply or
trapezoidally concave, lateral portion descending
below but not very strongly; elytral base slightly
broader than pronotal base; elytral epipleura
very narrow and its inner carina not reaching
the elytral apex but ending near two-third of
the elytral length from base ..................................
........................................................ SCYMNINAE

4. Female genital plate (9th sternite) always very
elongate; dorsum pubescent, weakly or
moderately convex; compound eyes never coarsely faceted; antennae always
eleven segmented and more or less dorsally
inserted; abdomen composed of six visible
segments; tarsi cryptotetramerous ............... 5

5. Dorsum glabrous; mandibles with a bifid or
multidenticulate tip and also with a basal tooth;
mesepimeron nearly triangular, its posterior
margin almost straight or slightly angulate,
mentum relatively narrowly articulated with
submentum and distinctly divergent apically;
inner margin of female genital plate without
notch or small emargination and with a stylus
near the inner corner; sipho of male genitalia
rather long and usually strongly curved with a
well developed capsule, median piece of tegmen
usually not very slender ........................................
.................................................. COCCINELLINAE

- Dorsum pubescent; mandibles with a
multidenticulate tip and without a basal tooth;
mesepimeron quadrate, its posterior margin
distinctly angulate; mentum very broadly
articulated with submentum and convergent
apically; inner margin of female genital plate
with notch or small emargination and with a
stylus at far outward from the inner corner of
female genital plate; sipho of male genitalia
rather short and weakly curved without a well
developed capsule, median piece of tegmen
tubular and slender .......... EPILACHNINAE.

Subfamily I. STICHOLOTINAE

Tribe 1. Stichlotini

Key to the Genera of Tribe
STICHOLOTINII

1. Dorsum glabrous; frons not emarginate around
antennal insertions; antennae eleven segmented
...................................................... Sticholotis

- Dorsum pubescent; frons emarginate around
antennal insertions; antennae eleven segmented
...................................................... Jauravia

Genus 1. Sticholotis Crotch

1874. Sticholotis Crotch. Revision of the Coleopterous family
Coccinellidae. p. 200
1. **Sticholotis sp.**


*Remarks*: This species is reddish brown in colour, each elytron with a moderately large black spot near the humerus and at the centre of the disc, small black spot one at the middle of lateral margin, another near the apex, just below the middle there is a small black spot in between lateral margin and suture and a small spot near the apex close to the suture. In total those are six in number, the central one on the disc meeting its counterpart on the other elytron. Due to lack of literature and standard identified material we could not place this material to its place.

Genus 2. **Jauravia** Motschulsky


2. **Jauravia quadrinotata** Kapur


*Remarks*: The specimen is light brown in colour and very small in size. Due to insufficient material species could not be identified.

Tribe 2. **Stethorini**

Genus 3. **Stethorus** Weise


3. **Stethorus** sp.


*Remarks*: The specimen is light brown in colour and very small in size. Due to insufficient material species could not be identified.

Tribe 3. **Scymnini**

Key to the Genera of Tribe Scymnini

1. (2) Femoral line of the first abdominal sternite complete .......... *Pullus*, *Scymnus* (Pullus)

2. (1) Femoral line of the first abdominal sternite incomplete .......... *Scymnus* (sensusstricto)

Genus 4. **Scymnus** Kugelann

Key to the species of the Genus
Scymnus (Pullus)

1. Elytra yellowish brown, reddish brown, dark brown or black, without testaceous apex ... 2
   - Elytra black, except the apical testaceous portion ......................................................... 3
2. Pronotum and elytra uniformly yellowish brown to dark brown without any spot or marking, body elongate oval .......................................................... brunnescens Mots.
   - Pronotum and elytra black; each elytron with one large sub-humeral, oblique oval and one subapical small oblique oval reddish brown spot quadrillum Mots.
3. Pronotum testaceous, without any spot; base of the apical testaceous area of the elytron convex and directed anteriourly ......................... apiciflavus Mots.
   - Pronotum reddish brown with a basal or median black spot; apical testaceous portion narrow. 4
4. Smaller species, pronotal black spot semi circular situated at the basal margin ................. pyrocheilus Mulsant
   - Larger species, pronotal black spot rectangular, situated at the median line, extending from base to anterior margin ................ posticalis Sicard

4. Scymnus (pullus) apiciflavus Motschulsky

1858. Scymnus apiciflavus Motschulsky, Etud, Ent., Heslingfors, 7 : 119 (Type-loc. China)

Material studied: 1 ex., Rangpo, alt. 450 m. E. Sikkim, 19, iv. 1976; 2 exs; Gangtok alt. 1704 m. 24.iv. 1976, A.R. Bhowmik Coll. 4 exs; Rangpo, alt. 400m. 26.xii. 1975, G.K. Srivastava Coll. 10 exs; Rangpo, 23.i. 1979; 1 ex; Gangtok, 2.iii. 1979; 2 exs; Rhenok, alt. 1130 m. 10.iii. 1979; 3exs; Rongli, 12.iii, 1979; 1ex; Gangtok, 25.xii. 1980, S.K. Saha Coll. 1ex., Serten Forest area, 17.iv. 1983, B.N. Das & Party coll. All from East Sikkim. 2 exs; Chungthang, West Sikkim, 25.iv. 1994, S.K. Saha Coll.

Distribution: India: Sikkim, Meghalaya and Tripura. Also known from Burma.

Remarks: This is a new record of this species from Sikkim.

5. Scymnus (pullus) brunnescens Motschulsky


Distribution: India: Sikkim, Meghalaya, Assam, West Bengal, Central and South India, Andamans. Also known from Sri Lanka.

Remarks: Recorded for the first time from Sikkim.

6. Scymnus (pullus) posticalis (Sicard)


Material studied: 5 exs., Rangpo, alt. 450m. 19. iv. 1976; 2 exs; Gangtok alt. 1704., 24.iv. 1976, A.R. Bhaumik Coll. 4 exs; Rangpo, alt. 400m. 26.xii. 1975, G.K. Srivastava Coll.10 exs; Rangpo, 23.i. 1979; 1 ex; Gangtok, 2.iii. 1979; 2 exs; Rhenok, alt. 1130m. 10.iii. 1979; 3exs; Rongli, 12,iii, 1979; 1ex; Gangtok, 25.xii. 1980, S.K. Saha Coll. 1ex., Serten Forest area, 17.iv. 1983, B.N. Das & Party coll. All from East Sikkim. 2 exs; Chungthang, West Sikkim, 25.iv. 1994, S.K. Saha Coll.

Distribution: India: Sikkim, Meghalaya and Tripura. Also known from Burma.

Remarks: This is a new record of this species from Sikkim.

7. Scymnus (pullus) pyrocheilus Mulsant

1853. Scymnus (pullus) pyrocheilus Mulsant, Ann. Soc. Linn. Lyon 1 : 281 (Type-loc. Calcutta)


*Distribution*: India: Sikkim, Meghalaya, Tripura, West Bengal and Andamans. Also known from Nepal.

*Remarks*: Recorded for the first time from Sikkim.

8. *Scymnus (pullus) quadrillum* Motschulsky


*Distribution*: India, Sikkim, Tripura, Delhi, Karnataka and Goa.

*Remarks*: It is a very widely distributed species and recorded for the first time from Sikkim.

Genus 5. *Pullus* Mulsant


**Key to the Species of the Genus Pullus Mulsant**

1. Pronotum testaceous, elytra black except the apical one-third which is testaceous............ 2
   - Pronotum black or reddish testaceous; elytra reddish testaceous or bordered black along the base, suture and external margin black; always with the apical part less than one-third of its length is testaceous........................................ 3

2. Body oval, smaller in size, 1.48 – 1.60 mm long and 1.03 – 1.06 mm width; basal margin of the testaceous area almost straight with a little extension of black along the suture and lateral margin towards apex........................................... *bhaumiki* n. sp.
   - Body oblong oval, larger in size, 2.00 mm. long. and 1.40 mm. width; basal margin of the testaceous area almost straight to widely rounded ................................. *hingstoni* Kapur

3. Apical one-forth of the elytra testaceous, widely emarginate at the base; oblong oval, 2.20 mm long and 1.50 mm. width................................. *testacecollis* Kapur
   - Apical one-seventh of the elytra testaceous, testaceous area on each elytron is oval; oblong oval, larger species, 2.5mm. long and 1.75 mm width ......................... *bourdilloni* Kapur

9. *Pullus bhaumiki* sp. nov.

Body oval, moderately convex (Text. Fig. IA) with fairly distinct humeral calli; pubescence greyish, moderate in length and sparse; the frons, mouth-parts, antennae and pronotum reddish brown; basal two third of the elytra dark brown and apical one third yellowish brown; basal margin of the testaceous area almost straight with a little extension of black along the suture and lateral margin. Underside dark, except prothorax, legs and abdominal sternites which are yellowish brown. *Head* rather coarsely and densely punctate, pubescence moderately long, subdepressed, directed anteriorly, greyish; eyes finely facetted; antennae club shaped, eleven segmented. *Pronotum* convex, a little less than twice as broad as long, slightly narrowed and very weakly convex laterally, weakly emarginate anteriorly; narrowly but distinctly margined; the anterior angles subacute, the posterior ones rather subrounded and obtuse; punctuation uniform, moderately coarse, shallow and sparse; pubescence longer and suberect, mostly directed antero-medially except in the median basal area where it is more inclined towards the longitudinal median line and rather
Fig. 1. *Pullus bhaumolo* sp.n. A) outline of the beetle showing colour pattern; B) male genitalia except sipho; C) sipho; D) femoral line on the first abdominal sternite.
irregularly directed near the posterior angles. Scutellum small subtriangular, with a few fine punctures. Elytra, much longer than broad, moderately convex; humeral angles rounded, lateral margins narrowly bordered from the base to a little below the middle; apical angles narrowly rounded; punctuation coarse, rather sparse and impressed more distinctly than that on the pronotum and head; interspaces moderately smooth. Pubescence nearly as long as that on the pronotum but relatively stronger, sparse suberect and greyish, directed backward, pattern of pubescence on elytra not clear due to the lack of pubescence on the major area. Underside with generally short and depressed pubescence and with fine to coarse and impressed punctuation; the prosternal carinae almost straight, very weakly concave anteriorly and convergent towards the anterior margin; punctuation on the pro-and mesosternum fine and impressed that on the metasternum coarse and impressed and fairly close. The femoral lines complete. (Text. Fig. 1D), semicircular, extending beyond the middle of the first abdominal segment; the pubescence on the terminal sternites of the abdomen relatively long, depressed and directed posteriorly.

Male genitalia (Fig. 1B,C) with a sub-transverse and well-developed basal piece, the long trabes, the elongate oval parameres, each bearing a number of long and delicate setae; the median lobe conical, a little longer than parameres; the sipho distinctly long and narrow, the siphonal capsule elongate, its inner arm narrower than the outer one, the terminal part is weakly flattened and twisted with the tip fringed irregularly.

Length 1.48 – 1.60mm.; breath 1.03 – 1.06 mm.


Paratypes : 2 exs, with the same data as the holotype, deposited in the National Collection of Z.S.I., Calcutta.

Comparison : This species is apparently very close to Pullus pallidicollis (Mulsant), Pullus hingstoni Kapur and pullus testacecollis Kapur by its pattern of pronotum and elytra but differs from all by its smaller size and narrowness of the body. P. pallidicollis is more rounded and convex, the testaceous area of the two elytra together gives a semilunar appearance. Length 1.93 mm; breadth 1.54 mm. P. testacecollis is oblong oval, much longer, elytra black, except apical one-fourth is testaceous; each Length 2.20mm; breadth 1.5mm, each testaceous apical part is broadly curved at the base. P. hingstoni is less elongate than P. testacecollis, Length 2.00 mm; breadth 1.4 mm, elytra as above except the apical one-third is testaceous, basal margin of each testaceous portion together almost straight or widely rounded.

This species has been named as regards to Mr. A.R. Bhaumik who devoted his whole service life in the study of Indian Coccinellidae as an assistant to Dr. A. P. Kapur in Zoological Survey of India.

10. Pullus bourdilloni Kapur

1955. Pullus bourdilloni Kapur. Rec. India Mus. 53. (3 & 4) 335-338 (Type loc.–Nepal.)


Distribution : This species is known from Nepal and Sikkim.

11. Pullus hingstoni Kapur


Material studied : Material was not available for study.

Distribution : This species was described from
Tsuntung and Singhik, Sikkim.

12. *Pullus testacecollis* Kapur


*Material studied:* Material was not available for study.

*Distribution:* This species is known only from Sikkim.

**Tribe 4. Aspidimerini**

**Genus 6. Cryptogonus** Mulsant


**Key to the Species of the Genus Cryptogonus Muls.**

1. Prosternal Carinae as long as the prosternum, meeting each other at the anterior margin ...
   .......................................................................................... 2
   – Prosternal Carinae shorter than the length of prosternum, nearly two-third as long, meeting each other in a rounded arch away from the anterior margin ........................................ 3

2. Carinae much narrower at the base than the width of prosternal process, subparallel in the basal half and widening in the anterior half before meeting each other in an arch at the apical margin of prosternum; body rounded oval, 2-2.25 mm. long, elytra black except the apical one-third is reddish testaceous with the basal black area meeting it and being convex near the sutural and concave towards the external margins .............................................................. *Complexus* var. *posticus* Kapur
   – Carinae as wide apart at the base as the width of prosternal process, subparallel in the basal half and narrow in the apical half; body oblong oval 2.25-2.50 mm. long, elytron slightly tapering towards the apex, black except the testaceous apical one-third with its margin towards the base subtransverse being a little convex in the middle and at the external margin ........................................... *himalayensis* Kapur

3. Elytron reddish brown or testaceous with black spots .................................................. 4
   – Elytron black with yellow testaceous spots .......................................................... 7

4. Elytron with one large oblong – oval discal, black spot, slightly near the suture, body subrounded 2.15-2.30 mm. long ................. ................................. *bimaculatus* Kapur
   – Elytron usually with three black spots ...... 5

5. Pronotum black, except the anterolateral corners which have a quadrate, yellowish spot; elytra yellowish brown with the basal, apical and part of external margin bordered black; the basal border on each elytron widest in the middle, the apical rather subquadrate and projecting into the yellowish area of the disc; the external indistinctly marked off and narrow; the first spot subrounded, confluent with the external margin, slightly nearer the base, the second semicircular, sutural, situated on the mid-transverse line, forming a rounded spot together with its counterpart on the other elytron; body oblong-oval 1.5-1.7 mm long and 1.9-2.15mm. width .......... *trioblitus* (Gorham)
   – Pronotum yellowish brown with a median black spot .................................................. 6

6. Black spot on pronotum transverse oval, situated at middle of the base of pronutum; humeral spot absent; first spot sub rounded, moderately large, situated a little below the humeral callus; second semi-circular, sutural, forming a complete rounded spot with its counterpart on the other elytron; third much smaller, rounded and situated in the centre of the posterior half of elytron; body subrounded, 2.8mm. long ...................... *ariasii* (Mulsant)
   – Black spot on pronotum transverse or rounded, situated in the middle and along the anterior margin; humeral spot small and rounded; the second larger, sutural, forming a complete rounded spot with its counterpart on the other
elytron situated a little anterior to the transverse middle line; the third of the same size and shape as the sutural and situated on the transverse middle line, slightly nearer the suture than the external margin; body subrounded, 2.8 mm. long ......................... *hingstoni* Kapur

7. Elytron with two testaceous spots situated one behind the other in the anterior and posterior halves, distinct from each other; body oblong oval, 2.3-2.7 mm long .............................................. *quadriguttatus* (Weise)

- Elytron with one testaceous spot only .................. 8

8. Elytral spot oblong oval, usually one-third as long as elytron, situated in the middle of its length, close to the suture, body oblong oval, 2.2-2.8 mm. long ...... *orbiculus* (Gyllenhal)

- Elytral spot transverse-oval, reniform or quadrate, always confined to the posterior half of elytron, body oblong oval, 2-2.5 mm. long *postmedialis* Kapur

13. *Cryptogonus ariasi* (Mulsant)


*Distribution*: India: Sikkim, West Bengal (Darjeeling Dist.) and Northern Indian. Also known from Burma.

14. *Cryptogonus bimaculatus* Kapur


*Distribution*: India: Sikkim, West Bengal (Darjeeling Dist.), Assam, Tripura, Nagaland and Arunachal Pradesh. Also known from Bhutan, Burma and Thailand.

*Remarks*: This is a new record of this species from Sikkim.

15. *Cryptogonus complexus* Kapur


*Distribution*: India: Sikkim (Singhik), Assam, Meghalaya and Tripura. Also known from Bhutan and Burma.

*Remarks*: The specimens studied here belong to variety *Posticus* Kapur (1948).

16. *Cryptogonus himalayensis* Kapur


*Material studied*: Material was not available for study.

*Distribution*: India: Sikkim (Singhik). Also known from Bhutan and Burma.
17. Cryptogonus hingstoni Kapur


Material studied: Material was not available for study.

Distribution: India : Sikkim.

18. Cryptogonus orbiculus (Gyllenhal)


Distribution: India : Sikkim, West Bengal, Assam, Tripura, Maharashatra, Tamil Nadu. Also known from Bhutan, Burma, Sri Lanka, Malay, Indonesia, China and Japan.

Remarks: This present study includes the variety fulvocinctus (Mulsant) which is a little different by the colour pattern of elytra. Here the discal spot is absent and the entire external border distinctly testaceous and confluent with the apical one-third.

This species is recorded for the first time from Sikkim.

19. Cryptogonus postmedialis Kapur


Material studied: 2 exs., Shingbang, W. Sikkim, alt. 5900 m. 15.x. 1959, B.K. Tikadar Coll.; 1ex., Toong, alt. 1440m, 10.v. 1962 and 2exs. Kewzing, alt. 1800m. 20.v. 1962, S. Ali Coll.

Distribution: India : Sikkim, West Bengal (Darjeeling) and U.P. (Kumaon Hills). Also known from Bhutan and Burma.

20. Cryptogonus quadriguttatus (Weise)

1895. Aspidiphorus quadriguttatus Weise, Dtsch. ent. Z., p. 326 (Type-loc. – Sikkim)

1931. Cryptogonus quadriguttatus (Weise), Korschfsky, Coleopt. Cat., 16 pars 118 : 174


Distribution: India : Sikkim, Assam, Meghalaya, U.P. (Kumaon), West Bengal and Goa. Also known from Bhutan.

21. Cryptogonus trioblitus (Gorham)


Distribution: India : Sikkim, Assam (Patkai
Remarks: The material under study was previously determined by Dr. A.P. Kapur. Although this is the first time record of this species from Sikkim.

Subfamily III CHILOCORINAE

Key to the Tribes of the Subfamily CHILOCORINAE

1. Antennae very short, 7 segmented; meso coxal cavities broadly separated; metendo-sternite with a short stalk; tarsi true trimerous; abdomen composed of five visible segments in both sexes. Body small, less than 2 mm. in length, dorsum pubescent ........................................... Telsimini*

   - Antennae longer, 7-10 segmented, meso coxal cavities moderately separated; metendo-sternite with a rather long stalk; tarsi cryptotetramerous; abdomen composed of six visible segments at least in male. Body larger, more than 2 mm. in length, dorsum pubescent pubescent .............................

2. Dorsum pubescent; cardo of maxilla distinctly expanded laterally; femora strongly flattened and set into foveae of underside of body; abdomen composed of six distinct visible segments in both sexes ............ Platynaspini

   - Dorsum glabrous; Cardo of maxilla not expanded laterally, femora normal; abdomen composed of five visible segments in female and in six male ...................................... Chilocorini

Tribe 5. Platynaspini

Genus 7. Platynaspis Redtenbacher

1843. Platynaspis Redtenbacher, Tentamen Dispos. Gen., p. 6, 11.

1932. Platynaspis Redtenbacher : Korschefsky. Coleopt., Cat., Pars 120. p. 231

22. Platynaspis kapuri Chakraborty & Biswas

2000. State fauna series – Coccinellidae of Tripura


Distribution: India: Sikkim, West Bengal (Siliguri) and Tripura.

Remarks: Key has not been provided for single species. This species can be recognised by the colour pattern given below. Pronotum black except the lateral margins below eyes which is yellowish; elytra and scutellum black, elytra with narrow brownish-yellow apical margin, each elytron with a transverse, wavy brownish yellow discal spot, close to the suture. It is a new record of this species from Sikkim.

Tribe 6. Chilocorini

Key to the Genera of Tribe Chilocorini

1. Anterior tibiae and the other two with a triangular tooth on outer margin at extremity of tarsal groove; body subhemispherical; pronotum almost emerginate towards the outer corners where it does not lie against the elytral margins; elytral margin feebly reflexed. epipleurae deeply incurved; antennae 8-segmented ......................... Chilocorus Leach

   - Anterior tibiae without any such tooth as mentioned above but middle and posterior tibiae with tibial spurs; body shortly oval, moderately convex; pronotum lies for the most part against the elytral margin; elytral margin not reflexed; antennae 9- segmented ................................

............................................ Brumus Mulsant

Genus 8. Brumus Mulsant


1932. Brumus Mulsant, Korschefsky. Coleopt. Cat. 16 pars 120. p. 265

23. Brumus suturalis (Fabricius)


Distribution: India: Sikkim, Meghalaya, Tripura, West Bengal, Madhya Pradesh, Maharashtra, Karnataka and Goa. Also known from Nepal, Bhutan and Sri Lanka.

Remarks: It is a very widely distributed species and can be easily recognised by its shortly oval and moderately convex body with pronotum reddish brown; elytra testaceous, each elytron with a narrow black longitudinal stripe at middle and a black sutural border forming 3 black, narrow and almost parallel strips in total. Strips are free at both ends. This is a new record of this species from Sikkim.

Genus 9. Chilocorus Leach

1815. Chilocorus Leach, in Brewster, Edinb. Encyclo., ix. 116

1932. Chilocorus Leach: Korschefsky. Coleopt. Cat., 16 pars 120, p. 237

24. Chilocorus braeti Weise

1895. Chilocorus braeti Weise, Ann. Soc. ent. Belg., 39 : 154 (Type-loc. – Kurseong, N. Bengal)


Material studied: No material was available for study.

Distribution: India: Sikkim. Also known from Burma and Tali, Yunan.

Remarks: No information about the diagnostic characters is available at present.

Subfamily IV. COCCIDULINAE

Key to the Tribes of Subfamily COCCIDULINAE

1. Antennae short, about a half as long as head capsule, eight segmented, weakly clubbed; labrum broader than clypeus; mentum with a very narrow base; prosternal process strongly raised; junction between meso-and metasterna very narrow; tibiae angulate externally; tarsi true trimerous; eyes finely facetted ..........

.......................... Noviini

– Antennae longer, generally longer than head capsule, ten or eleven segmented, strongly clubbed; labrum narrower than clypeus; base of mentum not very narrow; prosternal process not raised; junction between meso-and metasterna moderate in its width; tibiae simple, not angulate externally; tarsi cryptotetramerous or true tetramerous; eyes generally coarsely facetted...........................................2

2. Tarsi true tetramerous, composed of four distinct segments, scarcely dilated apically, third segment not much shorter than the second; antennae ten-segmented; metendo sternite very short; abdomen composed of five visible segments.................... Lithophilini

– Tarsi cryptotetramerous, composed of four segments but appear to be composed of three segments, the second segment dilated apically and the third segment very small, much shorter than the second; metendosternite moderate........................3

3. Abdomen composed of six segments; compound eyes coarsely facetted..................

.................................................. Coccidulini
- Abdomen composed of five segments, compound eyes finely facetted ......................

.................................................... Exoplectrini

Tribe 7. Coccidulini

Genus 10. Singhikalia Kapur


26. Singhikalia ornata Kapur


Material studied : No material was available for study.

Distribution : India : Sikkim (Singhik).

Tribe 8. Exoplectrini

Genus 11. Sumnius Weise


1931. Sumnius Korschinsky, Coleopt. Cat., 16 : pars 118, p.94

27. Sumnius cardoni Weise

1892. Sumnius cardoni Weise, Ann. Soc. Ent. Belg. 36 : 30 (Type-loc. – India : Bengal)


Distribution : India : Sikkim, Bengal. Also known from S. China and Thailand.

Remarks : This species is first time recorded from Sikkim.

Tribe 9. Noviini

Genus 12. Rodolia Mulsant


28. Rodolia guerini (Crotch)

1874. Vadalia guerini Crotch. A revision of the Coleopterous family Coccinellidae p. 282 (Type-loc.–Pondichery, India)

1931. Rodolia guerini (Crotch) : Korschinsky, Coleopt. cat. 16 pars 118. p. 101


Material studied : No material was available for study.

Distribution : India : Sikkim. Also known from Bhutan.

29. Rodolia sp.


Remarks : Smaller beetles, oblong oval in shape, body carmine red, each elytron with two transverse spots, anterior one at the base and the posterior one a little below the middle. It is a completely different species amongst the known Indian species and may be placed as new to science.

Subfamily V. COCCINELLINAE

Key to the Tribes of Subfamily COCCINELLINAE

1. Anterior margin of clypeus with an anterior projection on each side; antennae inserted very close to the eyes, antennal club compact, the pre-apical segment broader than long; mandibles always with a bifid tip, inner margin entire; maxillary galea conical; anterior margin of pronotum usually deeply emerginate and with angulate corners; body yellow to reddish testaceous with usually black markings on the pronotum and elytra; habit carnivorous ........

.................................................... Coccinellini

- Anterior margin of clypeus truncate without any projection on each side; antennae inserted
infront a little away from the eyes, antennal club loosely segmented, the pre-apical segment longer than broad; mandibles bifid, often with multidenticate tip, inner margin finely serrated; maxillary galea quadrate; anterior margin of pronotum weakly sinuate with rounded corners; body yellowish or light testaceous, Pronotum with a pair of black spots but elytra without any black markings; habit fungivoros

**Psylloborini**

**Tribe 10. Coccinellini**

**Key to the Genera of Tribe Coccinellini**

1. Elytral base much broader than pronotum, elytral epipleuron entire; body hemispherical, or short oval; dorsum strongly or moderately convex .......................................................................................................................................... 2
   - Elytral base a little broader than pronotum, elytral epipleuron not entire, ceasing before the apex; body oval; dorsum convex .......... 11
2. Pronotum more or less deeply impressed along the lateral margin; lateral side of elytra broadly expanded externally and not marginate. Body size very large ............................................................. 3
   - Pronotum not impressed along the lateral margin; lateral side of elytra marginate and not broadly expanded laterally; body size moderate to small ..................................... 6
3. Anterior margin of clypus distinctly roundedly emarginate, lateral margin of pronotum strongly rounded, widest at middle, weakly sinuous at the apices; prothoracic hypomeron impressed only at the anterior part; mesosternum slightly emarginate; femoral line incomplete with an oblique lateral part .......................................................... ............................. ............................. Aiolocaria
   - Anterior margin of clypeus straight; lateral margin of pronotum almost straight, widest at base, femoral line incomplete ....................... 4
4. Basal corners of pronotum angulate, lateral margin almost straight; prosternal process with parallel carinae; claw with a tooth at base .. .................................................................................................................. Callicaria
   - Basal corners of pronotum rounded, lateral margin sinuous at the apex; elytra margined; femoral line complete ............................................ 5
5. Lateral side of pronotum strongly rounded; metasternum slightly and mesosternum deeply emarginate, elevated, strigously punctate; epipleurae foveolate .......................... Anisolemnia
   - Lateral side of pronotum almost straight; metasternum and mesosternum as above; thoracic foveae evident; elytral epipleurae deeply concave; antennae not very long, terminal segment semicircular ............................................. Cyphocaria
6. Prosternal process with a pair of subparallel carinae, converging and reaching to the middle; inner margin of the elytral epipleurae is reduced at about three-fourths; femoral line terminal, reaching the lateral margin .................. Leis
   - Prosternal process with a pair of parallel carinae, almost at the base .................. 7
7. Antennae long: pronotum with an impressed line following the anterior margin, sometimes obsolete in the middle; the inner margin of the elytral epipleurae is narrowed at about four fifths ....................................................... Ballia
   - Antennae short .............................................. 8
8. The terminal segment of antennae divergent, antennae short, club three jointed, the terminal segment very large and obliquely placed, appearing secuiriform; mesosternum sinuate; femoral line v-shaped ....................... Callineda
   - The terminal segment of antennae convergent apically, elytral epipleurae about one-sixth as broad as body width, smaller in size .......... 9
9. The terminal segment of antennae pointed at apex, antennae short, nearly as long as or shorter than frons; lateral side of elytra not marginate ............................................. Menochilus
   - The terminal segment of antennae not pointed at apex ............................................................. 10
10. Thoracic foveae well marked; antennae short, club compact, subfusiform; elytral epipleuron not marked with fovea; prosternal carinae reaching almost to the anterior margin of the prosternal process ............................ Oenopia
CHAKRABORTY & BISWAS: Insecta : Coleoptera : Coccinellidae

- Thoracic fovea not marked; antennae long, slender, club loosely set. 9th and 11th segment generally longer than broad; elytral epipleuron with distinct fovea; prosternal carinae reaching almost half of the prosternal process .................. Coccinella

Genus 12. Oenopia Mulsant


Key to the Species of the Genus Oenopia Muls.

1. Elytra testaceous yellow or yellowish brown

- Elytra black, each elytron with a sub-basal, obliquely oval and postmedian roundish flavus spot, lateral margin flavus with two flavus semicircular spots on it .................. quadripunctata Kapur

2. Each elytron bordered black only on the sutural margin .......................................................... kirbyi Muls.

- Each elytron completely bordered black, on its lateral as well as sutural margin, sutural black margin thickened in the middle, each elytron furnished with a premedian large, irregularly rounded and a post median large irregularly oval black spots; pronotum black except the anterolateral two-third flavus ................. sauzei Muls.

3. Sutural margin, much thickened near the base, often with one elongated black spot at the humeral callus and one irregularly rounded black spot at the posteriour two thirds .................. luteopustulata Muls.

- Sutural margin dilated into a large round black spot just beyond the middle, and into a smaller one immediately before the apex, there are also two large black spots on each elytron, one quadangular discoidal, just touching the callus the other rounded near the margin at posterior two-thirds ................. sauzetti Muls.

30. Oenopia kirbyi Mulsant

1850. Oenopia kirbyi Mulsant, Spec. Trim. Securipalp.: 425
(Type-loc. -Eastern India)

Distribution: India: Sikkim, Meghalaya, and West Bengal. Also known from Bhutan and Burma.

Remarks: This widely distributed species shows considerable variation in the elytral colour pattern. In the present study we found the varieties – Pracuae Weise, nigromaculata Mader and thibetina Mulsant.

32. Oenopia quadripunctata Kapur


Distribution: India: Sikkim, Meghalaya, Tripura and West Bengal. Also known from Bhutan and Burma.

33. Oenopia sauzeti Mulsant

CHAKRABORTY & BISWAS: Insecta: Coleoptera: Coccinellidae


Distribution: India: Sikkim, Tripura, West Bengal, Kumaon Hill, (U.P.), Murree and Dalhousie Hills (Punjab). Also known from Nepal and Bhutan.

Genus 13. Coelophora Mulsant


Key to the Species of the Genus Coelophora Muls.

1. Pronotum and elytra yellowish brown without any marking ......................... unicolor (Fab.)
   - Pronotum and elytra yellowish brown with marking .................................................. 2

2. Pronotum yellowish with two median, broadly oval black spots near the base and two small round black spots, one at each postero-lateral corner; elytra yellowish brown, each elytron with six large, round black spots, of which two semicircular and sutural, common to both the elytron .................................................. bissellata Muls.
   - Pronotum black .................................................. 3

3. Pronotum black except the lateral margins which are flavus, almost quadrangular and extends almost near the base; elytra yellowish brown, each elytron completely margined with black border and divided into two anterior and one posterior compartments by black markings .................. sexareata Muls.
   - Pronotum mostly shining black with a green lustre, except along the anterior and lateral margins which are translucent, anterior margin of the black part of pronotum with two deep and oblique notches near each anterior angle; elytra testaceous except for a common sutural black stripe and an ill defined, rather piceous, submarginal vitta running close to lateral margin, tapering at either end .................. nitidicollis Kapur

34. Coelophora bissellata Mulsant

1850. Coelophora bissellata Mulsant. Spec. Trim. Securipalp. p. 400 (Type-loc.: Bengal)


**Distribution**: India: Sikkim, Meghalaya, Tripura, Assam, West Bengal, U.P. (Kumaon Hills) and S. India. Also known from Bhutan, Nepal, Indonesia, Malacca, Philippines and New Guinea.

**Remarks**: Spot-patterns on elytra varies, sometimes without any spots on elytra. Widely distributed species.

35. *Coelophora nitidicollis* Kapur


**Material studied**: No material was available for study.

**Distribution**: India: Sikkim (Tsuntang, alt. 7000 ft.)

36. *Coelophora sexareata* Mulsant

1853. *Coelophora sexareata* Mulsant, Ann. Soc. Linn. Lyon. 1 : 181 (Type-loc.-N. India)


**Distribution**: India: Sikkim, Meghalaya, Assam, Tripura, West Bengal. Also known from Nepal, Bhutan, Burma and China.

37. *Coelophora unicolor* (Fab.)

1792. *Coccinella unicolor* Fabricius, Ent. Syst., 1, 267 (Type-loc. – India)


**Distribution**: India: Sikkim, Pondichery, Chota Nagpur (Bihar), Andaman Islands and Himalayan Border. Also known from Thailand.

**Remarks**: This is the first record of this species from Sikkim.

Genus 14. *Adonia* Mulsant

1846. *Adonia* Mulsant, Securipalp. p. 39

1932. *Adonia* Muls. : Korschefsky, Coleopt., Cat., 16. pars 120, p. 345

38. *Adonia variegata* (Goeze)

1777. *Coccinella variegata* Goeze, Entomol. Beytrage 1 : 246 (Type-loc-Europe)


**Distribution**: India: Sikkim, West Bengal (Darjeeling), Kashmir and U.P. (Mussoorie Hills). Also known from Nepal, Tibet, China, and Middle
Africa.

Remarks: This species is recorded for the first time from Sikkim.

Genus 15. *Anisolemnia* Crotch


39. *Anisolemnia dilatata* Fabricius

1775. *Anisolemnia dilatata* Fabricius, *Syst. Ent.*, p. 82 (Type-loc. –Indochina)


*Distribution*: India: Sikkim, Meghalaya. Also known from Nepal, Manchuria, China, Indonesia.

Remarks: Recorded for the first time from Sikkim.

Genus 16. *Aiolocaria* Crotch


**Key to the Species of the Genus *Aiolocaria* Crotch**

1. Pronotum light yellow with a black median strip extending from base to the anterior margin, broadest at the base, anterolateral margin light yellow; elytra brown, each elytron with a humeral black, elongated spot, one small black discal spot and the other marginal strip like marking in the same level as the discal one; sutural margin black only upto the middle of the body, thickened a little below the scutellum *hexaspilota* (Hope)

- Pronotum light yellow with two black, conjugated spots at the base, leaving anterior and lateral margin yellow; elytra light yellow with the external margins brownish; each elytron with six large black spots, of which two sutural spots are common to both the elytron, apical spot is conjugated with its close spot on the postero-lateral margin .................. *dodecaspilota* (Hope)

40. *Aiolocaria dodecaspilota* (Hope)

1831. *Coccinella 12-spilota* Hope, in Gray, *Zoological Miscellany*, p. 31. (Type-loc.–Nepal)


*Material studied*: No material was available for study.

*Distribution*: India: Sikkim. Also known from Nepal, Burma, Bhutan and Thailand.

41. *Aiolocaria hexaspilota* (Hope)

1831. *Coccinella 6-spilota* Hope, in Gray, *Zoological Miscellany*, p. 31 (Type-loc-Nepal).


*Distribution*: India: Sikkim. Himalaya, Kashmir, Northern India. Also known from Burma and Nepal.

Genus 17. *Leis* Mulsant


42. *Leis dimidiata* (Fabricius)

1781. *Coccinella dimidata* Fabricius, *Species Insectorum*, p. 94 (Type-loc. -India)


*Distribution*: India: Sikkim, West Bengal (Darjeeling), Manipur, Punjab, Kashmir. Also known from Nepal, Bhutan, China and Japan.

Genus 18. *Calvia* Mulsant


**Key to the Species of the Genus Calvia Muls.**

1. Pronotum uniformly coloured. black or testaceous ..............................................2
   - Pronotum not uniformly coloured, with marking or black spots ..................................3

2. Pronotum black, except the broad, lateral testaceous area on either side and relatively narrower, testaceous to translucent border along with anterior margin; in the middle of each testaceous area is a straw yellow, suboval spot; scutellum black; elytra black with moderately wide testaceous external border, each elytron with six roundish, straw-yellow spots and a common spot near the apex ................................................................. shiva Kapur
   - Pronotum testaceous, with three, rather ill defined longitudinal, straw-yellow vittae, one in the centre and other two on each side; scutellum straw-yellow; elytra testaceous, each elytron with three, straw-yellow rather narrow vittae of uneven breadth, joined along the base and at the external apical area of the elytron .......................................................... trilochana Kapur

3. Pronotum marked with a 'M' shaped spot or marking ............................................5
   - Pronotum marked with two black spots ....4

4. Pronotum straw-yellow with a pair of large, quadrate, black spots on the base; scutellum straw-yellow; elytra straw-yellow except a narrow, translucent, testaceous border along the external margin, each elytron with six large black spots of which two suturals are common to each elytron ............... pasupati Kapur
   - Pronotum brown with two subrounded black spots; scutellum brown; elytra brown, each elytron with six comparatively smaller black spots of which two spots on the suture are common to each elytron........... pinaki Kapur

5. Pronotum translucent with broad, rather 'M' shaped orange testaceous spot in the middle with three additional straw-yellow spots, the central one is oval and smallest, the other two elongate and touching the basal and anterior margins but not the lateral margins; scutellum straw-yellow; elytra orange-testaceous except the testaceous and translucent external borders; each elytron with five roundish to shortly oval, straw-yellow testaceous spots ......................................................... durgae Kapur
   - Pronotum light green to light brown in colour, marked with an irregular 'M' in brownish red colour; scutellum greenish ochreous; elytra greenish ochreous tinged with red along the suture, each elytron marked with three very small black dots ....................... sykesi (Crotch)

43. *Calvia durgae* Kapur


*Material studied*: No material was available for study.

*Distribution*: India: Sikkim.

44. *Calvia pasupati* Kapur

Material studied: No material was available for study.

Distribution: India: Sikkim.

45. Calvia pinaki Kapur


Material studied: No material was available for study.

Distribution: India: Sikkim.

46. Calvia shiva Kapur


Material studied: No material was available for study.

Distribution: India: Sikkim.

47. Calvia sykesi (Crotch)


Material studied: 1 ex., Rongli, E. Sikkim, alt. 830 m. 20.xii. 1975, G.K. Srivastava Coll.

Distribution: India: Sikkim, Meghalaya.

48. Calvia trilochana Kapur


Material studied: No material was available for study.

Distribution: India: Sikkim.

Genus 19. Adalia Mulsant


49. Adalia tetraspilota (Hope)


Material studied: No material was available for study.

Distribution: India: Sikkim and Kashmir. Also known from Nepal, Turkistan, Afghanistan and Baluchistan (Pakistan).

Genus 20. Lioadalia Crotch


50. Lioadalia luteopicta (Mulsant)


Distribution: India: Sikkim, Northern U.P. Dehra Dun. and Eastern India. Also known from Nepal, Bhutan, Tibet and China.

Remarks: This is the first published record of this species from Sikkim.

Genus 21. Callineda Crotch


51. *Callineda sedecimnotata* Fabricius

1801. *Callineda sedecimnotata* Fab., *Syst. Eleuth.*, 1. p. 370. (Type-loc. – Philippines)


Distribution: India: Sikkim, W. Bengal, (Darjeeling). Also known from Philippines, Indonesia, Malacca, Celebes and Ceram.

Remarks: This is a new record of this species from Sikkim

Genus 22. *Synharmonia* Ganglbauer


52. *Synharmonia signatella* (Mulsant)

1866. *Harmonia signatella* Mulsant, *Mem, Acad. Lyon.*, 15 : 58 (Type-loc. – North India)


Material studied: 1ex., Chufunfun, N. Sikkim, alt. 1667m, 24.iv. 1959, A.G.K. Menon Col.

Distribution: India: Sikkim, West Bengal, (Darjeeling), Manipur. Also known from Burma, Bhutan and Japan.

Genus 23. *Coccinella* Linnaeus


Key to the Species of the Genus *Coccinella* Linn.

1. Elytra yellowish brown, each elytron with three small oval black spots and a common pear shaped scutellar black spot, totalling to seven spots, in some examples the elytral spots are enlarged and confluent; pronotum black except the anterior corners which are flavus and quadrangular. ........... *septempunctata* Linn.

- Elytra testaceous yellow, each elytron with a triangular black marking on the sub humeral area, with a wavy, black, postmedian band confluent with the black sutural margin, a subquadrate black spot at three – fourth of the external margin, further two common spots, one immediately behind the setellum and the other before the apex, present on the suture .................................. *transversalis* Fab.

**Distribution:** India: Sikkim, Meghalaya, Tripura, West Bengal, Kerala, S. India, Goa and Andaman Islands. Also known from South East Asia, Thailand, Japan and Australia.

**Remarks:** Very widely distributed species, generally found in plains. First time recorded from Sikkim.

**Genus 24. Menochilus** Timberlake


55. *Menochilus sexmaculatus* (Fabricius)

1781. *Coccinella sexmaculata* Fabricius. *Spec. Ins.* p. 96 (Type-loc.-East India)


**Distribution:** India: Sikkim, Meghalaya, Tripura, West Bengal, Kerala, S. India, Goa and Andaman Islands. Also known from South East Asia, Thailand, Japan and Australia.

**Remarks:** Very widely distributed species, generally found in plains. First time recorded from Sikkim.

**Genus 24. Menochilus** Timberlake


55. *Menochilus sexmaculatus* (Fabricius)

1781. *Coccinella sexmaculata* Fabricius. *Spec. Ins.* p. 96 (Type-loc.-East India)


**Distribution:** India: Sikkim, Meghalaya, Tripura, West Bengal, Kerala, S. India, Goa and Andaman Islands. Also known from South East Asia, Thailand, Japan and Australia.

**Remarks:** Very widely distributed species, generally found in plains. First time recorded from Sikkim.
**Distribution**: India: Sikkim, Meghalaya, Tripura, West Bengal and Andaman Islands. Also known from Nepal, Indonesia, Philippines, Thailand, Celebes, New Guinea and Japan.

**Remarks**: This is a new record of this species from Sikkim.

**Genus 25. Ballia Mulsant**


**Key to the Species of the Genus Ballia Mulsant**

1. Elytra light ochreous without any black spots ......................................................... 2

- Elytra yellowish ochreous with black spots or markings............................................. 3

2. Pronotum light ochreous, moderate in size, without any sorts of marking........... *Ballia* sp.

- Pronotum yellowish brown with the sides ochreous; elytra with ten yellowish brown spots arranged as follows – two basal, one scutellar, three medial, three transverse and one sutural at the posterior two-third and one apical. The scutellar and the sutural spots are common to both the elytron; scutellum dark brown ........ ................................................. *gustavi* Muls.

3. Pronotum yellowish, without any black spots or marking; each elytron generally with three, sometimes with four small black spots in a manner – one at the humeral callus, two a little before the transverse median line and one at the posterior two-third; scutellum dark brown ......................... *eucharis* Muls.

- Pronotum yellowish ochreous with two converging, black vittae on either side of the median line; each elytron marked with ten large black spots, arranged as in *B. gustavi* Muls ................................................. *zephirinae* Muls.

**56. Ballia eucharis Mulsant**


**Distribution**: India: Sikkim, Meghalaya, Also known from Bhutan and South China.

**Remarks**: Recorded for the first time from Sikkim.

**57. Ballia gustavi Mulsant**


**Material studied**: No material was available for study.

**Distribution**: India: Sikkim and Meghalaya. Also known from Nepal.

**58. Ballia zephirinae Mulsant**

1866. *Ballia zephirinae* Mulsant, *Mem. Acad. Lyon.*, 15: 190 (Type-loc. –India)


**Distribution**: India: Sikkim and Meghalaya.

**59. Ballia sp.**


**Remarks**: Specimens are very similar in colour to the species *B. eucharis* Muls. but without any black spots. More over the size is also smaller.
Tribe 11. Psylloborini

Key to the Genera of Tribe PSYLLOBORINI

1. Elytra uniformly coloured, pale yellowish, or yellowish creamy or pale yellowish brown; without any spots or markings .......................................................... \textit{Illeis} Mulsant

- Elytra yellowish or yellowish creamy in colour, always marked with spots or markings ........ ........................................ \textit{Halyzia} Mulsant

Genus 26. \textit{Halyzia} Mulsant


Key to the Species of the Genus \textit{Halyzia} Muls.

1. Pronotum yellow, with two brown spots on each side and close to the median line; elytra yellow, each elytron with four brown spots, basal one is the largest, close to the scutellum, sutural margin brownish, the second one at the mid-transverse line is close to the suture and a little shorter than the basal one, other two near the external margin moderate in size. ...

- Pronotum brown, with five white spots, two on each side and one at the base on the median line, extending narrowly to the disc; elytra brown, each elytron with nine whitish elongated spots and two whitish vittae of unequal length, running from base to three fourths of its length, the internal vittae meeting with the third spot close to the suture which is bordered white ................................ \textit{straminea} Hope

\begin{itemize}
\item 60. \textit{Halyzia sanscrita} Mulsant
\end{itemize}

\begin{itemize}
\item 1853. \textit{Halyzia sanscrita} Mulsant, \textit{Ann. Soc. Linn. Lyon.}, 1 : 152 : (Type-loc.—N. India)
\end{itemize}


\textit{Distribution}: India : Sikkim, H.P. (Simla). Delhi. Also known from Bhutan and Tibet.

61. \textit{Halyzia straminea} (Hope)


\textit{Distribution}: India : Sikkim, Simla, (Darjeeling), W. Bengal. Also known from Nepal.

Genus 27. \textit{Illeis} Mulsant


Key to the Species of the Genus \textit{Illeis} Muls.

1. Tip of sipho (male genitalia), bifurcate, external margin of the median lobe of male genitalia a little wavy, tip sharp and strongly hooked; body relatively large, (over 5.00 mm), less convex and distinctly narrowed towards the apex, pale yellow in colour ........ \textit{indica} Timberlake

- Tip of sipho (male genitalia) entire, not bifurcate, body relatively smaller (4.3 mm.) in size; tip of median lobe not strongly hooked ................................................................. 2

2. External margin of median lobe (male genitalia) almost straight and very weakly and gradually curved at the tip; tip of sipho subround, weakly curved with a notch at the top; body distinctly narrowed towards apex; grayish yellow ...... ................................ \textit{confusa confusa} Timb.

- External margin of median lobe straight upto two-third of its length then bented suddenly; tip of sipho strongly arched, without any notch at tip; body orbicular; pale yellow in colour ................................ \textit{bistigmosa} (Muls)
62. *Illeis bistigmosa* (Mulsant)

1850. *Psyllobora bistigmosa* Mulsant, Annls. Soc. Agric. Lyon. 2: 168 (Type-loc. – Penang)


*Distribution:* India : Sikkim, Goa and South Andamans. Also known from Sri Lanka Celebes, Indinesoa, Sumba, Thailand, Philippines and Penang.

*Remarks:* This is a new record of this species from Sikkim.

63. *Illeis confusa confusa* Timberlake


*Distribution:* India : Sikkim. Also known from China, Hongkong.

*Remarks:* This species is recorded for the first time from India (Sikkim).

64. *Illeis indica* Timberlake


*Distribution:* India : Sikkim, Meghalaya, Tripura, West Bengal, Delhi and Andaman Islands. Also known from Pakistan and Thailand.

*Remarks:* This species is also recorded for the first time from Sikkim.

Subfamily VI. EPILACHNINAE

Tribe 12. Epilachnini

**Key to the Genera of Tribe Epilachnini**

1. Tarsal claws without any basal tooth, body oval, moderate in size .............................................

............... *Epilachna* Chevrolat

– Tarsal claws with basal tooth ...................... 2

2. Sixth visible abdominal sternite of female longitudinally divided; body oval, large; yellowish setae present on upper edge of male aedeagus

............... *Henosepilachna* Li

– Sixth visible abdominal sternite of female entire, not divided longitudinally ...................... 3

3. Body sub-hemispherical; antennae shorter than headwidth; mandibles large, curved, provided with three major teeth situated at different levels, the apical tooth is the longest and has two prominent dentules one on either side, the subapical and median tooth as well as the molar surface bear a large numbers of dentules, basal tooth on tarsal claws subquadrate; male genitalia not well developed .......... ...............

............... *Afidenta* Dieke

– Body not sub-hemispherical .................... 4

4. Body short-oval, small, antennae subequal to the head-width; mandibles subtriangular in shape, apex is provided with three teeth, without any dentulation; basal tooth on tarsal claws sub-triangular; male genitalia well developed

............... *Afissula* Kapur

– Body elongate oval, legs relatively longer; antennae a little longer than head-width; mandibles with three apical and one median teeth, without any serration; basal tooth sub-triangular; male genitalia well developed; female genital plate elongate and tapering ...

............... *Afissula* Kapur
Genus 28. *Epilachna* Chevrolat


**Key to the Species of the Genus *Epilachna* Chevrolat**

1. Pronotum reddish brown, without any spot or marking .......................................................... 2
   - Pronotum black or reddish brown with median black spot ...................................................... 3

2. Each elytron with five rounded, medium sized black spots, arranged as 2+2+1 .......................... .......................... flavicollis (Thunberg)
   - Each elytron with six large, elongated black spots or macula of which scutellar and discal are common to both the elytron, the sub-apical and discal maculas are only rounded in shape ........................................ macharlist Mulsant

3. Pronotum black, except the external lateral margin which is reddish brown in colour .......................... 4
   - Pronotum reddish brown with a single oval or transverse black spot on the disc........................ 5

4. Elytra black, each elytron with seven yellow rounded spots, arranged as 2+2+2+1, anterior margin of pronotum reddish testaceous ...........
   - Elytra reddish brown, each elytron with seven black spots arranged as 2+3+2 & scutellar and discal spot close on the suture to meet their counter part on the other elytron ...........................
   - Elytra reddish brown, each elytron with six black spots arranged as 2+2+2, of which spots No.3 and 5 are well developed ................................................ marginicollis Hope

5. Pronotum with an elongated oval sub rounded black spot on the disc ..................................... 6
   - Pronotum with a transverse black spot on the disc ................................................................. 8

6. Elytra with transverse, band like spots; pronotum with a median, oblong black spot, extending from the anterior margin to the base; elytra black, each elytron with six reddish brown or testaceous spots, arranged as 1+2+2+1, spot shapes varies, scutellar oval, apical sub-triangular, others tranverse, body large gibbera Crotch
   - Elytra with distinct, small and rounded spots 7

7. Pronotal spot median, extending from the anterior margin to the scutellum; scutellum black; elytra reddish brown, each elytron with six black spots, arranged as 2+2+2+, of which humeral, and two sutural, one near scutellum and the other at the posterior one-third are large, the other spots are smaller, the subapical one is horizontal; body oval ................................................................. bengalica (Dieke)
   - Pronotal spot close to the anterior margin, sub- triangular, roundish; scutellum reddish brown; elytra reddish brown, each elytron with six small black spots arranged as 2+2+2, of which the scutellum and the discal are situated on the sutural line and common to both the elytron; body small orbicular .......................... congener Gorham

8. Elytra without distinct spots, spots enlarged into bands which coalesce at places to enclose one to three roundish cells close to the suture and sometimes two incomplete cells near the external margin; pronotal spot small, black and transverse ................................. mystica Mulsant
   - Elytra with distinct spots ........................................... 9

9. Smaller species, (Length 4.00mm) elongate oval; each elytron with five black spots, arranged as 2+2+1, humeral spot elongated and curves like “C” discal spot transverse and subapical one subtriangular, pronotal spot transverse, black ........................ mysticoides (Sic.)
   - Larger species, (Length 7.5mm) oval; each elytron with six black spots, arranged as 2+2+2 of which spots No. 3 and 5 are well developed; pronotal spot transverse, black broad and subtriangular .......................... grayi Mulsant

65. *Epilachna bengalica* (Dieke)


**Distribution**: India : Sikkim, West Bengal (Darjeeling). Also known from Bhutan.

66. *Epilachna congener* Gorham


**Distribution**: India : Sikkim, West Bengal (Darjeeling) and North East India. Also known from Burma.

67. *Epilachna flavicollis* (Thunberg)


**Distribution**: India : Sikkim, Meghalaya, West Bengal, (Darjeeling) Tripura. Also known from Sri Lanka, Burma, Indonesia, Celebes, Sarawak, Taiwan, Penang and Thailand.

**Remarks**: Recorded first time from Sikkim.

68. *Epilachna gibbera* Crotch


**Material studied**: No material was available for study.

**Distribution**: India : Sikkim.

69. *Epilachna grayi* Mulsant


**Distribution**: India : Sikkim, U.P. (Kumaon Hills), N. Bengal and (Abhor Hills) Assam, Tamil Nadu (Nilgiri Hills). Also known from Indonesia (Java). Formosa and Nepal.

**Remarks**: Recorded for the first time from Sikkim.

70. *Epilachna macularis* Mulsant


**Material studied**: 1 ex., Zamphuk, W. Sikkim, alt 890 m., 2.x. 1959, B.K. Tikader coll.

**Distribution**: India : Sikkim, Assam. Also known from Nepal, S. China, Tibet and Thailand.

71. *Epilachna marginicollis* (Hope)

1831. *Coccinella marginicollis* Hope. in Gray, *Zoological Miscellany*, p. 31. (Type-loco - Nepal)


**Material studied**: 2 exs., Lachen, alt. 2706m., 10-2. vi. 1959 and 1 ex., Chumba, alt. 336m., 24. vi. 1959, A.G.K. Menon coll, both from N. Sikkim.

**Distribution**: India : Sikkim, North Bengal. Also known from Nepal, Burma and Bhutan.

**72. *Epilachna mystica* Mulsant**


**Distribution**: India : Sikkim, North Bengal, U.P. (Kumaon Hills), Karnataka (Bangalore). Also known from Nepal, Burma and Bhutan.

**73. *Epilachna mysticoides* (Sicard)**


**Distribution**: India : Sikkim, N. Bengal. Also known from Nepal.

**74. *Epilachna undecimspilota* Hope**

1831. *Coccinella II-spilota* Hope in Gray’s *Zoological Miscellany*, p.-31 (Type-lóc. –Nepal)


**Material studied**: No material was available for study.

**Distribution**: India : Sikkim, W.Bengal (Darjeeling) and Assam. Also known from Nepal, Bhutan and Burma.

**Genus 29. *Henosepilachna* Li**


**Key to the Speices of the Genus *Henosepilachna* Li**

1. Elytral apex with distinct sutural angle; medium sized beetles .................................................. 2

2. Elytral apex without distinct sutural angle... ................................................................................. 3

3. The external median black spot (No. 4) on the elytra generally touching the external margin of elytra .......................................................................................................................... 4

4. Large (above 7 mm in length) sized beetles ..................................................................................... 5

5. Medium (below 7 mm in length) sized beetles .................................................................................. 6
5. Discal spot on elytra large, transverse; each elytron with six black spots, arranged as 2+2+2+..........................__indica__ Mulsant

- Discal spot on elytra small, rounded; each elytron generally with seven black spots, may increase to twelve, arranged as 3+2+1+1..........................__processa__ Weise

6. Medium sized beetles. Pronotum generally with five, sometimes with seven black spots; elytral spots varies in number from generally six to fourteen on each elytron..........................__dodecastigma__ (Wiedmann)

- Pronotum generally spotless, rarely with one faint median black spot; each elytron with six black spots, 3rd spot far away from suture than 1 and 5, the latter two are equidistant from suture; 3 oval, with tip towards suture; situated on callus; 4 subrounded and touching the elytral margin ...........__boisduvali__ (Mulsant)

7. Pronotum generally with five to seven small black spots; number of spots on each elytron vary from six to fourteen, spots simple ..................................__septima__ (Dieke)

- Pronotum with five black spots, a long median and other two small, round spots one on each side; each elytron with six round black spots surrounded by orange ring or ocelli ..................__ocellata__ (Redt.)

76. **Henosepilachna dodecastigma**  
(Wiedemann)

1823. _Coccinella dodecastigma_ Wiedemann, _Zool. Mag._, Kiel, 2 : 73-74 (Type-loc.—Bengal)


**Distribution**: India: Sikkim, Meghalaya, Tripura, West Bengal and Andaman Islands. Also known from Burma, North-Vietnam and Indonesia.

77. **Henosepilachna indica** (Mulsant)

1850. _Epilachna indica_ Mulsant, _Ann. Soc. Agric. Lyon._, 2 (2) : 776-777. (type-loc. India)


**Material studied**: No material was available for study.

**Distribution**: India: Sikkim, Meghalaya, Assam and West Bengal. Also known from Burma, China, Malaya, Indonesia (Java) and North-Vietnam.

78. **Henosepilachna ocellata** (Redtenbacher)

1844. _Epilachna ocellata_ Redtenbacher, in Hugel, _Kaschmir—undas Reich der Siek IV, 2. p. 563_ (Type-loc. Kashmir)


**Material studied**: 3 exs. from Sikkim, no other data available.

**Distribution**: India: Sikkim, West Bengal, Kashmir. Also known from Nepal and Bhutan.

**Remarks**: New record from Sikkim.
Chakraborty & Biswas: Insecta: Coleoptera: Coccinellidae

79. Henosepilachna processa (Weise)

1908. Epilachna wismanni Mulsant ab. processa Weise, Stettin.-ent. ztg., 69: 217 (Type-loc. – Burma)


Distribution: India: Sikkim, Meghalaya, Maharashtra, Tripura, Andaman Islands. Also known from Burma, Malaya, Taiwan and Thailand.

Remarks: Recorded for the first time from Sikkim.

80. Henosepilachna septima (Dieke)


Distribution: India: Sikkim, Meghalaya, Tripura, West Bengal, U.P., M.P., Punjab, Haryana, Himachal Pradesh, Goa, Kerala, Tamil Nadu and Andaman Islands. Also known from Bhutan, China, Japan, Formosa, Philippines, Sunda Islands, Thailand, New Guinea, Australia and Tasmania.

Remarks: Recorded for the first time from Sikkim.

81. Henosepilachna sikkimica (Kapur) Comb. nov.


Distribution: India: Sikkim.

82. Henosepilachna vigintioctopunctata (Fabricius)

1775. Coccinella 28-punctata Fabricius, Syst. ent., p.84. (type-loc. Tranquebar)

1850. Epilachna vigintioctopunctata (Fab.): Spec. Trim. Securipalp., P. 834

1980. Henosepilachna vigintioctopunctata (Fab.): Chunram & Sasaji, Oriental Insects, 14 (4) 484


Distribution: India: Sikkim, Meghalaya, Tripura, West Bengal, U.P., M.P., Punjab, Haryana, Himachal Pradesh, Goa, Kerala, Tamil Nadu and Andaman Islands. Also known from Bhutan, China, Japan, Formosa, Philippines, Sunda Islands, Thailand, New Guinea, Australia and Tasmania.

Genus 30. Afidenta Dieke


Key to the Species of the Genus Afidenta Dieke,

1. Pronotum reddish brown with a transverse row of four black, rounded spots; elytra reddish, each elytron with six rounded black spots ...

383. Afidenta mimetica simplex Dieke

1996. Afidenta mimetica simplex Dieke : Chakraborty et. al.,
Zool. Surv. India. State fauna series 3: Fauna of
West Bengal. Part 6B : 481.

Material studied: 2exs., Phodong, E. Sikkim,
10. ix. 1993, S.K. Chatterjee Coll.; 1ex., Rangpo,
E. Sikkim, 14.iv. 1994, P.H. Roy Coll.; 1ex.,
Chungthang, N. Sikkim, 25.iv. 1994, S. Saha Coll.;
and 1ex Chungthang, N. Sikkim, 2.iv. 1996. R.N.
Tiwari Coll.

Distribution: India: Sikkim, Meghalaya, West
Bengal, Himachal Pradesh and Andaman Islands.
Also known from Taiwan, China and Tibet.

Remarks: Recorded for the first time from
Sikkim.

84. Afidenta parvula (Crotch)
1874. Epilachna parvula Crotch, Revis. Cocc. p. 80. (Type-
loc. – India)

Material studied: 1ex., Bigton, W. Sikkim,
9.iv. 1959 and 1ex., Rishikhola, alt. 994m., 7.v.
1959, A.G.K. Menon Coll.; 1 ex., Shingbang,
5900m., W. Sikkim, 15.x. 1959. B.K. Tikader Coll.;
3exs.; Knyvett, no other data; 1ex., Nanga, alt.,

Distribution: India: Sikkim, West Bengal
(Darjeeling). Also known from Nepal.

Remarks: The collections present in Z.S.I.
labelled as Afissa parvula (Crotch). All the
materials have a small basal tooth at the base of
claw, and the sixth abdominal sternite in female
not divided longitudinally. So I place those materials
under the genus Afidenta, following Li

Genus 31. Afidentula Kapur

Key to the Species of the Genus
Afidentula Kapur

1. Pronotum with a large quadrangular black spot,
whose basal margin is broadly tricuspid; each
eytron with seven black spots, arranged as 2+ 
2+ ½+ 2, body length 4.3–5.1mm .................
........................................... himalayana Kapur
– Pronotum generally without distinct spot; each
eytron with six black spots arranged 2+ 2+ 
½+ 1, the subapical spot is subquadrate; body
length 3.4 mm .... manderstjernae (Mulsant)

85. Afidentula himalayana Kapur
Hist.) Ent. 14 (1) : 12-16. (Type-loc.–Sikkim,
Darjeeling)
1979. Afidentula himalayana Kapur : Bielawaski,
Entomologica Basiliensia 4 : 84.

Material studied: 1ex., Upper Pelling, W.
Sikkim, 6.v. 1948 A.K. Hazra Coll.

Distribution: India : Sikkim, West Bengal
(Darjeeling). Also known from Bhutan.

86. Afidentula manderstjernae (Mulsant)
Lyon. 1.P. 256 (Type-loc.–Asia, Sikkim)
Indian Mus. 53 : 325.

Material studied: 1ex., Gangtok, E. Sikkim,
1976, A.R. Bhaumik Coll.; 1ex., Rangy, Nathula
Road, 12.viii. 1979, M. Prasad Coll.; 7exs.,
and 1ex., 14.iv. 1983, B.N. Das Coll.; 1ex., Singhik,
E. Sikkim, 3.xi. 1992, A.K. Hazra Coll.; and 1ex.,
Yumthung, N. Sikkim, 3xii. 1992, M.S. Shisodia
Coll.; 2exs, Phensang, W. Sikkim, 25.iv. 1994 and
1ex., Detam, 29.iv. 1994, S.K. Saha Coll.; 1ex.,

Distribution: India : Sikkim, West Bengal,
(Darjeeling). Also known from Nepal, Bhutan and
China.

Genus 32. Afissula Kapur
87. *Afissula sanscrita* (Crotch)

1874. *Epilachna sanscrita* Croich, Revis, Cocc., P. 82 (Type-loc. – India)


*Distribution*: India : Sikkim. Also known from Tibet.

**SUMMARY**

The present paper deals with 1117 exs of eighty seven species under thirty two genera, belonging to twelve tribes under six subfamilies. Of which thirty three species are recorded for the first time from Sikkim and *P. bhaumiki* has been described as new to science. Keys to the sub families, tribes, genera and species have been provided. Relevant synonymies, collection data and geographical distribution have been included.

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INTRODUCTION

The Discolomidae with some 400 species are a sharply defined family of the section Clavicornia under the superfamily Cucujoidea. Species of Discolomidae have been found under bark and on fungi grown upon log. Though the representatives of the family occur in tropical and subtropical parts of both the Old and New worlds but are more diversely represented in the eastern hemisphere. They are known from America, Africa, South-east Asia, China, Japan, Pacific Islands to Australia, but are yet to be recorded from Europe and New Zealand. Horn (1878) established this family for *Discoloma* Erichson, Matthews (1887) proposed a family, Pseudocorylophidae for *Aphanocephalus* Wollaston to exclude it from Corylophidae. Sharp (1895) included *Holophygus* Sharp, *Notiophygus* Gory with *Discoloma* in Discolominae, thence treated under Colydiidae. Scott (1908) considered *Fallia* Erichson, *Discoloma*, *Notiophygus*, *Holophygus* and *Aphanocephalus* together in Discolomidae. John (1944) used the family-name 'Notiophygidae' instead of 'Discolomidae' for the assemblage, and he (1945) characterized the family and distinguished it from related ones. He afterwards (1958 onwards) continued to use the name 'Discolomidae' for the family. John (1959) subdivided the family into five subfamilies. Pal (1992) recorded Discolomidae with two species from Arunachal Pradesh and subsequently in 1997 described three species from Sikkim.

Characters of Family Discolomidae

Facies broad, elongate-oblong to oval or rounded; dorsally convex, surface tuberculate or smooth.

Head small in comparison to large prothorax, often inserted under pronotum, eyes small to moderately large, usually with a fronto-clypeal suture, without transverse line on vertex behind eyes, antennal insertions dorso-lateral or dorsal but not hidden under projection of frons, clypeus large and wider anteriorly; on ventral side gular sutures widely separated, no antennal cavities, antenna 8 to 10-segmented with 1-segmented large club. Mandible with 3 apical teeth, protheca and mola well-developed; maxillary lacinia without apical spine, segment 2 of maxillary palpi markedly larger than segment 3, apical segment of palpi elongate and narrowed towards apex; mentum of labium normal, ligula broadly triangular, segments 2 and 3 of palpi large and elongate.

Prothorax transverse, narrowed in front, sides smooth or wavy, no prebasal impression on pronotum, front coxae rounded, coxal cavities closed or narrowly open.

Elytra broad, convex, punctures irregular, epipleura broad and complete. Species may be aterous or winged, no anal vein on wing, cubitus bifurcate at tip.

Mesocoxae widely separated, mesocoxal cavities closed, sternal fitting between mesocoxae not with knob-like projections, metasternum usually without median impressed line, metendosternite short and represented by two appophyses.
Metacoxae widely separated, rounded, lateral prolongations hidden.

Legs moderately long, trochanters simple or slightly heteromeroid, tarsal formula 3-3-3 in both sexes, tarsi simple or slightly incrassate.

Abdomen short and broad, ventrites freely articulated, ventrite 1 longest and without femoral lines. Aedeagus in resting condition turned on one side, no distinct parameres.

**Key to the Subfamilies of DISCOLOMIDAE**

1. Body distinctly tuberculate, tubercles often form thick lumps on edges and giving rise to more or less waved contour; edge of pronotum and edge of elytron form an obtuse angle when viewed from side ........ NOTIOPHYGINAE*
   - Body smooth or only slightly tuberculate; edge of pronotum and edge of elytron form almost a straight line or slightly angulate ............... 2

2. Body contour with almost parallel-sided elytra; hair on body partly clubbed or split-tip ........... PONDONATINAE *
   - Body contour greatly arched oval with sides of elytra rounded; hairs if present not like above ........................................................... 3

3. Body strikingly coloured with yellow and black, with two hair forms of different length ........ CAPHALOPHANINAE *
   - Body not strikingly bicoloured; without hair forms as above ................................................................. 4

4. Body greatly convex with narrow ridge or crest-like edge area; surface almost shining bright, hair pits and pseudopores very minute .................. APHANOCEPHALINAE
   - Body flat-convex, with wide edge area as well as a smooth contour; tubercles on body not or little raised, their gland ducts often visible .... DISCOLOMINAE *

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* Subfamilies not recorded from sikkim.
brown), two pairs of lateral marginal pits near humeral angles and near basal third present; fronto-clypeal suture situated just in front of antennal bases; aedeagus with proximal and distal ends of median lobe broad, distal edge of tegminal cap bifid and devoid of hairs.

\[ \ldots \]

2. Front margin of prothorax almost unemarginate or indistinctly emarginate; antennal club segment with single preapical annulation. Proximal end of tegminal cap form a broad finger-like projection. \[ \textit{convexus} \] Pal

Front margin of prothorax rather narrowly and slightly emarginate; antennal club with two preapical annulations. Proximal end of tegminal cap devoid of finger-like projection but produced into spinous projection. \[ \ldots \] \[ \textit{sikkima} \] Pal

1. \textit{Aphanocephalus superbus} Pal


\textit{Diagnosis} : Body oblong-ovate, finely punctate-pubescent, uniformly dark reddish-brown except antennae and legs. Exposed part of head markedly transverse, largely concealed from above by pronotum, fronto-clypeal suture situated considerably in front of antennal bases, frontal and clypeal part with pubescence denser and more distinct than on pronotum, eyes moderately large and partly visible from dorsal side, antennae little longer than pronotum, club about one-fourth as long as antenna and with single preapical annulation; prothorax twice as broad as long, narrowed in front, front margin deeply emarginate, front angles broadly pointed, side margins feebly rounded and finely bordered, one pair of lateral pits visible on front angles, posterior angles acute, basal margin convex and deeply sinuate near extremities, pronotum uniformly dark reddish-brown throughout, punctuation fine and sparse; elytra about as broad as long and about 2.5 \( x \) longer than prothorax, sides evenly rounded and finely bordered, punctures simple, point-like impressions on cuticle and little coarser than on pronotum. Aedeagus with distal end of median lobe recurved, proximal end recurved and pointed, distal edge of tegminal cap spatulate and beset with hairs.

Length 1.18 mm.


\textit{Distribution} : India : Sikkim

2. \textit{Aphanocephalus convexus} Pal


\textit{Diagnosis} : Body oblong-ovate, shiny, finely punctate-pubescent, uniformly dark reddish-brown except for paler front margin of pronotum. Exposed part of head transverse, almost concealed from above by pronotum, fronto-clypeal suture situated just in front of antennal bases, clypeus with pubescence denser and more distinct than on pronotum, eyes small and partly visible from dorsal side, antenna shorter than pronotum, club about one-forth as long as antenna and with single preapical annulation; prothorax twice as broad as long, narrowed in front, front margin unemarginate, lateral and front margin almost circular, lateral margin finely bordered, two pairs of lateral pits situated close to front and hind angles, pale band uninterrupted from one posterior angle to other, punctuation fine and sparse, pubescence short and rather indistinct, elytra little transverse and about 2.5 \( x \) as long as prothorax, sides evenly rounded and finely bordered, punctures almost similar as on pronotum, pubescence short and rather indistinct. Aedeagus with median lobe forming a tube with distal end (containing median orifice) foot-shaped; tegmen forming a cap-piece enveloping the median lobe, its proximal end forming a broad finger-like projection and distal end characteristically bifid. Length 2.16 mm.
Fig. 1. *Aphanocephalus sikkima* Pal: a) Dorsal view (scale= 1 mm.); b) Exposed part of head and antenna (scale= 0.5 mm.); c) Aedeagus, Lateral view.
Fig. 2. *Aphanocephalus convexus* Pal: a) Dorsal view (scale= 1 mm.); b) Exposed part of head and antenna (scale= 0.5 mm.); c) Aedeagus. Lateral view.
Fig. 3. *Aphanocephalus superbus* Pal: a) Dorsal view (scale= 1 mm.); b) Exposed part of head and antenna (scale= 0.5 mm.); c) Aedeagus, Lateral view.

Distribution: India: Sikkim.

3. Aphanocephalus sikkima Pal

Diagnosis: Body oblong-ovate, shiny, finely punctate-pubescent, uniformly dark reddish-brown except for paler front margin of pronotum. Exposed part of head transverse, almost concealed from above by pronotum, fronto-clypeal suture situated just in front of antennal bases, clypeus with pubescence denser and more distinct than on pronotum, eyes small and visible only from ventral side, antenna about as long as pronotum, club about one-fourth as long as antenna and with two preapical annulations; prothorax more than twice as broad as long, narrowed in front, front margin slightly emarginate, lateral margin feebly rounded and finely bordered, two pairs of lateral pits close to front and hind angles, basal margin convex and deeply sinuate near extremities, antero-lateral border paler than remaining part of pronotum, pale band interrupted near antero-medial portion, punctuation fine and sparse, pubescence short and rather indistinct; elytra about as broad as long and 2.8 x as long as prothorax, sides evenly rounded and finely bordered, punctures, simple, point-like impressions on cuticle, little coarser and denser than on pronotum, pubescence short and rather indistinct. Median lobe of aedeagus forming a tube with distal end broad and blunt; tegmen forming a cap-piece enveloping the median lobe, ventral edge of its proximal end produced into short spinous structure, its distal end bifid. Length—1.96 mm.


Distribution: India: Sikkim.

SUMMARY

The paper deals with 3 species under 1 genus of 1 subfamily from the territory of Sikkim. The species are systematically keyed and characterized.

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INTRODUCTION

The Colydiidae are a moderately large family of the superfamily Cucujoidea, still insufficiently understood at all taxonomic levels, due in large part to the artificiality of the family in classical usage. Over the years the family Colydiidae has been used as a repository of various genera, both Clavicornia and Heteromera, which possessed features like 4-segmented tarsi and clubbed antennae (Lawrence, 1980). The constitution of the family has changed considerably since the publication of Hetschko's Catalogue in 1930. Crowson (1955) made notable changes in the constitution of Colydiidae. He transferred Cerylonini, Murmidiinae and Euxestinae to the Clavicorns family Cerylonidae, and retained the remaining Colydiids under the Heteromera. In recent past there was a consideration by some coleopterists dealing with higher taxa (especially J. F. Lawrence) that Colydiidae as delineated by Crowson (1955) to be an assemblage of both clavicorns and heteromerans. The most recent treatment by Pal and Lawrence (1986) has accepted the genera close to Bothrideres (Bothriderinae sensu Crowson) as a separate family, Bothrideridae. But in the present account Crowson's treatment of Colydiidae, as regard to the limit of the family, is followed.

The Colydiids are small to moderately large beetles, those occur in both adult and larval stages in dead wood, under bark, leaf litter etc. Several species are predators on wood inhabiting larvae of insects. They are common throughout the world. Since Grouvelle (1908) Pal (1984) and Pal and Slipinski (1984) described three species from India. The present account is based on some collection made by the author in Sikkim.

Characters of Family Colydiidae
(sensu lato)

General form elongate-oblong to slender and parallel-sided, markedly flattened to subconvex or cylindrical glabrous or rugose, shiny or dull.

Head elongate to transverse, eyes small to large, usually constricted behind eyes, frontoclypeal suture present or absent, antennal insertions dorso-lateral or hidden under projection of frons, antenna 10- or 11-segmented with 1- or 2-segmented club, club occasionally of more segments, gular sutures well separated, with or without antennal grooves on ventral side. Mandible large, with 2 or 3 apical teeth, without dorsal mandibular cavity. Maxilla with separate well developed lacinia and galea. lacinia with or without apical spine, apical segments of maxillary palp elongate. Labium with mentum transverse, apical segment of palp elongate.

Prothorax strongly elongate to transverse, pronotum with varying grades of sculpture from more or less smooth to bearing ridges and furrows. front coxae separated narrowly to moderately widely, trochantins hidden, coxal cavities open or close.

Mesocoxae usually moderately separated. sternal fitting between mesocoxae in straight line or with a knob from metasternum, mesocoxae closed outwardly, metendosternite well developed with anterior tendons well separated, hind coxae moderately to widely separated.
Elytra fully cover abdomen dorsally, puncturation in regular rows, without scutellar striae, epipleura well developed. Wing with 3 to 4 anal veins, usually with subcubital fleck.

**Legs**: trochanters short and simple or may be highly reduced and concealed at base of femora, tibiae usually broadened at apex with a few spurs, tarsal formula 4-4-4, tarsal segments usually simple.

**Abdomen**: 5 visible ventrites, ventrite 1 usually longer than others, intercoxal process narrow-acuminate to broad-truncate, with or without femoral lines, 7 pairs of functional spiracles.

**LIST OF TAXA**

**Family** COLYDIIDAE

**Subfamily** BOTHRIDERINAE

1. *Pseudobothrideres velatus* Grouvelle
2. *Triboderus andrewesi* Grouvelle
3. *Machlotes incisus* Pascoe
4. *Teredolaemus major* Champion

**Subfamily** COLYDIINAE

5. *Trachypholis hispida* (Weber)
6. *Cerchanotus orientalis* (Slipinski)
7. *Colobicus parilis* Pascoe
8. *Microprius demissus* (Pascoe)
9. *Bitoma siccana* (Pascoe)
10. *Hyberis similis* Grouvelle
11. *Neotrichus afoveicollis* sp. nov.
12. *Pycnomerus nitidicollis* (Reitter)

**Key to the subfamilies, tribes, genera and species of Colydiidae from Sikkim**

1. Antennal insertions hidden under projection of frons when viewed from above (Colydiinae) .................................................. 2
2. Antennal insertions dorsal and exposed (Bothriderinae) .................................................. 9

2. Tibiae with large, nonarticulated spine or tooth at outer apical angle; procoxal cavities closed behind. Dorsally glabrous (Pycnomerini) ............................................. *Pycnomerus nitidicollis* (Reitter)

3. Pronotum and elytra with prominent longitudinal carinae or costae ............................................. 4
4. Pronotum and elytra without longitudinal carinae ...................................................................... 5

4. Pronotum with lateral margins broadly explanate, usually transverse; antennal grooves on ventral side of head long and extending beyond posterior margin of eye .................................. *Microprius demissus* (Pascoe)

5. Lateral margins of pronotum not explanate, usually subquadrate; antennal grooves on ventral side of head shorter and not extending beyond middle of eyes .................................. *Bitoma siccana* (Pascoe)

5. Antenna 10-segmented with 1-segmented club. Head without distinct post-ocular temple before neck constriction; dorsal surface tuberculate; lateral border of pronotum widely explanate and explanate flank at least as wide as eye. *Hyberis similis* Grouvelle

6. Form elongate-elliptical, prothorax markedly transverse ...................................................... 7
7. Form elongate, subparallel, prothorax elongate or slightly transverse ..................................... 8

6. Antennal segment 3 at least as long as segments 4 and 5 together; intercoxal process of first abdominal ventrite angulate apically, antennal groove on ventral side of head long and little convergent posteriorly ........................................... *Colobicus parilis* Pascoe

7. Antenna segment 3 shorter than segments 4 and 5 together; intercoxal process of first abdominal ventrite broad and more or less
truncate apically; antennal groove on ventral side of head long and divergent posteriorly. All elytral intervals uniformly setose; pronotum with two moderately distinct protuberance ................................................... Trachypholis hispida (Weber)

8. Pronotum little transverse; antennal cavities on ventral side of head long and extending beyond posterior margin of eyes. Sides of pronotum narrowly explanate and rather convergent posteriorly ................................................... Cerchantous orientalis (Slipinski)

- Pronotum elongate to about as broad as long; antennal cavities on ventral side of head shorter and not extending up to posterior margin of eyes. Pronotum devoid of any lateral foveae ........................................... Neotrichus afoveicollis sp. nov.

9. Trochanters highly reduced and concealed within notch at base of femora; protibial spurs usually unequal in length, one being enlarged and strongly curved and hooked; elytra almost always with longitudinal ridges of carinae (Bothriderini) ............................................. 10

- Trochanters not reduced and easily visible; protibial spurs more or less equal in length, neither greatly enlarged nor hooked; elytra without longitudinal ridges or carinae. Intercoxal process of first abdominal ventrite narrow and acuminate apically; front coxal cavities open; antennal club consists of two strongly appressed segments often look like one segment; no antero-median longitudinal process on prosternum. Body blackish (Teredini) ............................................. Teredolaemus major (Champion)

10. Pronotum with a deep transverse fovea interrupting admedian pair of longitudinal carinae. Anterior tibiae expanded towards apices and with well developed external apical teeth; metasternum and first abdominal ventrite with well marked femoral lines ................................. Machlotes incisus Pascoe

- Pronotum without longitudinal carinae .... 11

11. Antenna 11-segmented; metasternum and first abdominal ventrite with femoral lines. Pronotal tubercle (encircled by fovea) nearly rectangular with its anterior border angularly notched ... Pseudobothrideres velatus (Grouvelle)

- Antenna 10-segmented; metasternum devoid of femoral lines. Pronotum with elongate impression which widened anteriorly ................. Triboderus andrewesi Grouvelle

Family COLYDIIDAE
Subfamily BOTHRIDERINAE

Genus I. Pseudobothrideres Grouvelle

1908. Pseudobothrideres Grouvelle. Annls. Soc. ent. Fr. 77 : 438

[Type-species: Pseudobothrideres neglectus Grouvelle].

Diagnosis : Elongate-elliptical to rather parallel-sided, subdepressed. Head with eyes moderately prominent, 11-segmented antenna with 2-segmented club, penultimate segment of antennal club broader and larger than apical one, ventrally antennal groove long, mandible with 2 apical teeth, maxillary lacinia with a bifid apical spine, apical segments of maxillary and labial palpi elongate and fusiform. Prothorax trapezoidal with sides little sinuate before base, pronotum with a rectangular tubercle encircled by well marked sulcus, front coxae moderately widely separated; prosternal process broad. expanded apically and with transverse impressed suture between coxae; mesocoxae moderately widely separated, metasternum with well marked femoral lines; elytra striate-punctate, alternate interstices carinate; tibia of legs with two apical spurs, tarsal segments 1 to 3 subequal in length; intercoxal processs of first abdominal ventrite broad and truncate apically, with well marked femoral lines.

1. Pseudobothrideres velatus Grouvelle


Diagnosis : Elongate, subparallel, reddish-brown, slightly shiny; eyes about one-third as long as head, anterior clypeal border straight, fronto-clypeal suture straight, punctuation on vertex coarse and dense, antenna short, antennal
Insecta: Coleoptera: Colydiidae

segments 3 to 8 more or less transverse and slightly widening anteriorly; elongate prothorax with front angles slightly projected, side margins finely bordered and sinuate before posterior angles, pronotal tubercle nearly rectangular with its anterior margin angularly notched, punctuation on pronotum elongate and finer than on vertex of head; elytra more than twice as long as broad, slightly broadened from shoulders to about middle, carinae more strongly raised on apical part, all carinae joined apically except third one which ends freely, strial punctures minute. Length 5.2 mm.


Distribution: India: Sikkim (new record), Tamil Nadu; Thailand; Vietnam.

Genus II. Triboderus Grouvelle

[Type-species: Triboderus andrewesi Grouvelle].

Diagnosis: Elongate-oblong, subdepressed. Head with eyes moderately large, 10-segmented antenna with 2-segmented club, penultimate segment of antennal club larger than apical one, ventrally antennal groove long, mandible with 2 apical teeth, apical segments of maxillary and labial palpi elongate and fusiform. Prothorax trapezoidal with sides little sinuate before bases, median longitudinal impression on pronotal disc, anterior and posterior extremities of impression with deeper depressions, prosternal process broad, expanded apically and with transverse impressed suture between coxae, mesocoxae moderately widely separated, metasternum without femoral lines; elytra striate-pectinate, alternate interstices carinat; tarsal segments 1 to 3 subequal in length; intercoxal process of first abdominal ventrite broad and truncate apically, with well marked femoral lines.

2. Triboderus andrewesi Grouvelle


Diagnosis: Elongate-oblong, reddish-brown, slightly shiny; eyes about half as long as head, anterior clypeal border straight, fronto-clypeal suture straight, punctuation on vertex coarse, dense and little elongate, antenna short, antennal segments 3 to 8 more or less transverse and slightly widening anteriorly; elongate prothorax with front angles slightly projected, side margins finely bordered, anterior depression on impressed area of pronotal disc about one-third as wide as pronotum, posterior depression little wider than half as wide as anterior depression, punctuation on pronotum coarser than on vertex of head; elytra about twice as long as wide, carinae of interstices 3 and 5 terminate freely before apical margin, strial punctures small and little coarser anterad. Length 2.60–3.20 mm.


Distribution: India: Sikkim (new record), Karnataka.

Genus III. Machlotes Pascoe

1863. Machlotes Pascoe, J. Ent. 2 : 36
[Type-species: Machlotes porca tus Pascoe].

Diagnosis: Elongate, subparallel. Head with prominent eyes, 11-segmented antenna with 2-segmented club, ventrally antennal groove moderately long bordering inner margin of eye, mandible with 3 apical teeth, maxillary lacinia with an apical spine, apical segments of maxillary and labial palpi elongate and fusiform. Prothorax more or less elongate, little narrowed posteriorly, pronotum with six longitudinal carinae, midmedian pair of carinae interrupted near base by a deep transverse fovea, front coxae moderately widely separated, metasternum with indistinctly marked femoral lines; each elytron with six longitudinal carinae, intervals with large punctures, tibiae of legs with a strong apical spur on inner margin and bidentate on outer margin, tarsal segments 1
to 3 subequal in length; intercoxal process of first abdominal ventrite broad and truncate apically, with indistinctly marked femoral lines.

3. Machlotes incisus Pascoe


*Diagnosis*: Elongate, subcylindrical, longitudinally costate, blackish brown, dull; head with eyes about half as long as head, anterior clypeal border truncate, fronto-clypeal suture little arcuate, clypeal punctuation moderately coarse and separated by less than one diameter, punctuation on frons and vertex coarser than those on clypeus, antenna short, antennal segments 3 to 9 more or less transverse, apical segment of antennal club shorter and narrower than basal one; elongate prothorax (1.3:1.0) little convergent posteriorly, anterior border arcuate, lateral borders almost straight and each with a tooth behind middle; pronotal carinae broad and rounded dorsally, punctures on carinae similar in size to those of clypeus but sparser, outer carina joining lateral border near anterior and posterior angles and also connected with lateral tooth; elytra more than twice as long as broad, almost parallel-sided and narrowed for apical third, carinae strongly raised but sutural ones little feebly, all carinae except third one joined apically, punctures moderately large and deep. Length - 4.2 mm.


*Distribution*: India: Sikkim (new record); Philippines; Malaysia.

Genus IV. Teredolaemus Sharp


[Type-species: Teredus politus Lewis].

*Diagnosis*: Elongate, subcylindrical; Head with eyes prominent, 11-segmented antenna with 2-segmented club, two club segments so closely appressed appear one, gular region of head devoid of antennal cavities, mandible with 3 apical teeth, maxillary lacinia with a bifid apical spine, apical segments of maxillary and labial palpi elongate and somewhat fusiform. Prothorax subsquare, sides little arched, pronotum devoid of carinae or foveae, front coxal cavities open, coxae closely situated, prosternal process narrow and rather pointed at apex and not reaching up to posterior border of prosternum, mesocoxae narrowly separated; elytra striate-punctate, devoid of carinae; tibiae of legs with circket of apical spurs, tarsal segments 1 little longer than segments 2 and 3, segment 4 longest; intercoxal process of first abdominal ventrite not broad and rather pointed apically, devoid of femoral lines.

4. Teredolaemus major Champion


*Diagnosis*: Elongate, parallel-sided, blackish, shining; eyes larger than half as long as head, clypeal margin and fronto-clypeal suture little arcuate; punctures on vertex moderately coarse, antenna moderately long with a broad-oval club; prothorax about as broad as long, little narrowed posteriorly behind anterior third, punctures on pronotum sparser than on vertex of head; elytra more than twice as long as broad, rounded at apex, apical declivity rather broadly and longitudinally excavate near suture, with some irregular rows of punctures placed between punctate striae. Length 4.4 mm.


*Distribution*: India: Sikkim (new record), Uttar Pradesh.

Subfamily COLYDIINAE

Genus V. Trachypholis Erichson


[Type-species: Opatrum hispidum Weber].

*Diagnosis*: Elongate-elliptical, subdepressed, dorsally with rugose sculptures and covered with
short squamous hairs. Head with prominent eyes, 11-segmented antenna inserted under projection of frons, 3rd antennal segment about as long as segments 4 and 5 together, antennal club 2-segmented, ventrally antennal groove long bordering inner margin of eye, mandible with 2 apical teeth, apical segments of labial and maxillary palpi elongate and somewhat fusiform. Prothorax broader than long, sides more or less rounded, front margin emarginate, front coxae rather closely situated and front coxal cavities open, prosternal process moderately broad and not much expanded apically, mesocoxae separated almost as wide as front coxae, metasternum devoid of femoral lines, elytra striate-punctate, tibiae of legs with no distinct apical spurs, tarsal segments 1 to 3 subequal in length; intercoxal process of first abdominal ventrite broad and broadly angulate apically.

5. Trachypholis hispida (Weber)


Diagnosis: Broadly oval, surface dark brown, clothed with yellowish-white squamiferous setae; head with shallow longitudinal impressions over antennal bases, eyes shorter than half as long as head, frontal margin above slightly elevated; prothorax strongly transverse, front margin arcuate medially and strongly sinuate on sides near front angles, lateral margins arched, widest behind middle, pronotal sides explanate, two admedian small protuberance on pronotum, pronotal disc with erect setae and on borders directed laterally; elytra little more than one and half times as long as broad, widest near middle and narrowed at apical third, alternate interstices on elytra without setae, setae above two successive rows of punctures converge towards setal interval giving rise to appearance of linear arrangement of 3 rows of setae at regular intervals. Length—4.5—6.4 mm.


Distribution: India: Sikkim; Sri Lanka; Myanmar; Thailand; Vietnam; Philippines; Indonesia.

Genus VI. Cerchanotus Erichson

[ Type-species: Syntarsus asperulus Fairmaire, by subsequent designation. ]

Diagnosis: Elongated, subparallel, moderately depressed, dull, covered with squamiform setae. Head with prominent eyes, 10-segmented antenna with 2-segmented club, antenna inserted under projection of frons, ventrally antennal groove long reaching below posterior level of eye, mandible with 2 apical teeth, apical segments of maxillary and labial palpi elongate. Prothorax broader than long, sides dentate, front coxae separated by less than diameter of coxae, front coxal cavities open, mesosternal process a little narrower than prosternal apex, metasternum devoid of femoral lines, elytra striate-punctate, tibiae of legs with no distinct apical spurs, tarsal segments 1 to 3 subequal in length and division between segments 1 and 2 not apparently distinct; intercoxal process of first abdominal ventrite narrowed towards apex, no femoral lines.

6. Cerchanotus orientalis (Slipinski) comb. nov.

Diagnosis: Facies as noted above; head transverse, anterior clypeal margin almost straight, surface flat with slightly rugose punctures, punctures with whitish squamiform setae, eyes nearly half as long as head and studded with short whitish setae; transverse prothorax slightly convergent basally, pronotal sides narrowly explanate and dentate, front angles acute, pronotum coarsely punctate and covered with whitish squamiform setae; elytra less than twice as long as broad, parallel-sided and rounded apically, each elytron with 9 rows of deep punctures, with semirecumbent whitish squamiform setae. Length - 2.8 mm.


Distribution: India: Sikkim; Bhutan; Nepal; Sri Lanka; Indonesia (Sumatra).

Genus VII. Colobicus Latreille

1807. Colobicus Latreille, Genera Crustaceorum et insectorum, 2 : 9

[Type-species: Colobicus marginatus Latreille].

Diagnosis: Elongate-ovoid, subdepressed, covered with short squamiform setae. Head with prominent eyes, 11-segmented antenna inserted under projection of frons, 3rd antennal segment longer than segments 4 and 5 together; antennal club 2-segmented, ventrally antennal groove long and little convergent posteriorly, mandible with 2 apical teeth, apical segments of labial and maxillary palpi elongate and somewhat fusiform. Prothorax broader than long, sides rounded, front margin deeply emarginate, front coxae separated less than diameter of coxae, front coxal cavities open, mesosternal process a little narrower than prostatic apex, metasternum devoid of femoral lines, elytra striate-punctate, tibiae of legs with no distinct apical spurs, tarsal segments 1 to 3 subequal in length; intercoxal process of first abdominal ventrite broadly pointed at apex, no femoral lines.

7. Colobicus parilis Pascoe


Diagnosis: Elongate, oblong, dark brown; head transverse, anterior clypeal margin almost straight, surface flat with slightly rugose punctures and punctures with setae, eyes shorter than half as long as head, antennal segment 3 about as long as three successive segments together; transverse prothorax with anterior margin little arcuate medially and strongly sinuate to produce front angles, widest near posterior third, pronotal sides moderately explanate and margin finely serrulate, transverse striations on explanate portions, pronotum with a prebasal impression, punctures on pronotal disc slightly rugose and setose; elytra about 1.5 times as long as broad, sides narrowly explanate, interstices wider than rows of punctures, with recumbent short squamiform setae. Length - 3.8 mm.


Distribution: India: Sikkim (New record), Kerala (Mahe); Myanmar; Philippines; Indonesia (Moluccas); Hawaii Is.

Genus VIII. Microprius Fairmaire

1868. Microprius Fairmaire, Annls. Soc. ent. Fr. (4) 8 : 779

[Type-species: Microprius terrenus Fairmaire].


Diagnosis: Elongated, subparallel, rather depressed, sparsely pubescent but no squamiform setae, pronotum and elytra longitudinally carinate. Head with prominent eyes, 11-segmented antenna with 2-segmented club, antenna inserted under projection of frons, antennal segments 3 to 9 subequal in length and shorter than scape and
15. *Microprius* demissus (Pascoe)


**Diagnosis**: Elongated, subdepressed, dark brown and dorsally very dull, finely setose; head transverse, anterior clypeal margin little arcuate, sides of head behind antennal base raised to form carinae-like structure, eyes about half as long as head, antenna about as long as head, no tubercles on dorsum but coarsely punctate; transverse prothorax widest near middle, sides of pronotum widely explanate and concave, margins serrated, an U-shaped additional carina in anterior half and a X-shaped additional carina on posterior half on the midline of pronotum between two pairs of lateral carinae, punctures on pronotum almost similar as on head; elytra about twice as long as broad, sides narrowly explanate and margins serrated, each elytron with five sharp longitudinal carinae not joined either anteriorly or posteriorly. Length — 2.4 mm.


**Distribution**: India : Sikkim (New record), Tamil Nadu.

Genus IX. *Bitoma* Herbst

( Type-species : *Tritoma crenata* Fabricius.)


**Diagnosis**: Elongated, subparallel, almost cylindrical, pronotum and elytra longitudinally carinate and body sparsely pubescent. Head with prominent eyes, 11-segmented antenna with 2-segmented club, antenna inserted under projection of frons, antennal segments 4 to 9 subequal in length and shorter than preceding segments, ventrally antennal groove short and extending not beyond middle of eye, mandible with 2 apical teeth, apical segments of labial and maxillary palpi elongate and somewhat fusiform. Prothorax subquadrate, side margins crenulate, pronotum convex medially with sides not explanate, two pairs of longitudinal carinae (sublateral and admedian) on pronotum with a pair of short carinae between admedian carinae, front coxae separated not wider than diameter of coxae, front coxal cavities open, mesosternal process little narrower than prosternal apex, metasternum devoid of femoral lines; elytra striate-punctate, alternate interstices feebly carinate, tibiae of legs with two spurs at outer apical angle and with a single one at inner side, tarsal segments 1 to 3 subequal in length; intercoxal process of first abdominal ventrite narrowed towards apex, with short femoral lines.

9. *Bitoma siccana* (Pascoe)

1885. *Xuthia parallela* Sharp, J. Linn. Soc. Lond. 19 : 70

Diagnosis: Elongated, subcylindrical reddish-brown to dark brown, not shining and finely setose; head transverse, anterior clypeal margin little emarginate medially, frons and vertex slightly impressed laterally, sides of head behind antennal base raised to form carinae-like structure, eyes about half as long as head, rugose granular punctures on dorsal side; quadrate prothorax with anterior margin arcuate medially, two pairs of well developed carinae on pronotum with the additional carinae in anterior half short and rather parallel, side margins finely sinuate and widest in anterior half, punctuation on pronotum almost similar as on vertex on head; elyra little more than twice as long as broad, each elytron with five feeble longitudinal carinae not joined either anteriorly or posteriorly. Length — 2.5–3.2 mm.


Distribution: India : Sikkim (new record), West Bengal, Tamil Nadu; Bhutan; Nepal; Myanmar; Sri Lanka; Japan; Indonesia; Seychelles Is.; Mascarene Is.; New Guinea; New Caledonia; Madagascar; Reunion; Mauritius; Guinea Bissau; South Africa; Saudi Arabia.

Genus X. Hyberis Pascoe
1860. Hyberis Pascoe, J. Ent. 1 : 112
| Type-species : Hyberis araneiformis Pascoe |

State Fauna Series 9, Fauna of Sikkim

Diagnosis: Elongate-oval, convex, surface dull and tuberculate. Head with moderately large eyes, no distinct post-ocular temple, 10-segmented antenna with 1-segmented club, antennal club with a preapical annulation, antenna inserted under projection of frons, ventrally antennal groove moderately long and reaching almost posterior border of eye, mandible with 2 apical teeth, apical segments of labial and maxillary palpi elongate. Prothorax transverse, sides more or less arched and dentate, pronotum medially convex with sides explanate, front coxae moderately widely separated and mostly concealed by prosternal process, prosternal process rounded apically, front coxal cavities open; mesocoxae a little less widely separated than front coxae, no femoral lines on metasternum; elytra with no distinct puncture but tuberculate; tibiae of legs with no distinct apical spurs, tarsal segments 1 to 3 subequal in length; intercoxal process of first abdominal ventrite broad and truncate apically, no femoral lines.

10. Hyberis similis Grouvelle

Diagnosis: Broadly elongate, blackish-brown, covered with thick setae; head transverse, anterior clypeal margin arcuate, frons little elevated above antennal bases, eyes about one-third as long as head, antenna about as long as prothorax, antennal club slightly elongate, apical part of club about one-third as long as club and densely setose, round tuberculate punctures on dorsal side bearing setae; transverse prothorax with anterior margin arcuate medially and with deeply sinuate on sides, anterior half of lateral margin arcuate and then sinuate and narrowed posteriorly, about 5-7 large teeth on lateral margin in anterior half and smaller teeth in posterior half, explanate lateral flank of pronotum not as wide as eyes, two admedian elevated humps on pronotal disc, punctures on pronotal disc larger and more rugose than those on head; elytra shorter than one and half times as long as broad and gradually narrowed in posterior third, sides dentate, large tuberculate punctures arranged in rows, 2 small admedian elevations near base. Length—4.0–4.4 mm.

Distribution: India: Arunachal Pradesh, Sikkim (new record).


[Type-species: Neotrichus hispidus Sharp].

Diagnosis: Elongated, subparallel, no longitudinal carinae on pronotum and elytra, body covered with squamiform setae. Head with moderately large eyes, temple slightly extended like shelf beneath eye, 11-segmented antenna with 2-segmented club, antenna inserted under projection of frons, antennal segments 4 to 9 subequal in length and shorter than preceding segments, ventrally antennal groove moderately long, little convergent posterad and reaching not up to posterior border of eye, mandible with 2 apical teeth, apical segments of labial and maxillary palpi elongate and somewhat fusiform. Prothorax elongate or subquadrate, side margins denticulate, pronotum more or less convex medially, front coxae separated not wider than diameter of coxae, front coxal cavities open; mesosternal process narrower than prosternal apex, metasternum devoid of femoral lines; elytra striate-punctate, interstices not carinate, tubercles separated by less than their diameter and each bearing an erect squamiform seta, clypeal apex non-tuberculate. Prothorax about as broad as long, sides almost straight and slightly narrowed from apices to bases, anterior margin strongly arcuate medially and deeply sinuate on sides near front angles, front angles strongly produced and posterior angles not very well marked, pronotum with moderately impressed preapical and prebasal margins, lateral margins very narrowly explanate and distinctly dentate; pronotal disc set with rugose tubercles and larger in size than those on head, tubercles separated by much less than their diameter and each bearing an erect squamiform seta. Scutellum about as broad as long, truncate apically and impunctate. Elytra more than twice as long as broad (2.2 : 1.0), convex and dorsally a bit flattened, rather parallel-sided, narrowed at apical third with rounded apex, sides not explanate, punctures of striae coarse, separated longitudinally by about one diameter, interstices little narrower than diameter of punctures, intervals between punctures on striae feebly tuberculate and each bearing a semi-erect squamiform seta. Punctuation on ventral side much finer, no squamiform seta.

Measurements of holotype: Total length 2.88 mm., width of head 0.55 mm., length of antenna 0.50 mm., length and width prothorax 0.74 and 0.74 mm., length and width of elytra 1.85 and 0.83 mm.


Distribution: India: Sikkim

Comments: This species shows resemblance with an African species, N. foveatus Pope. But this species can be distinguished from the above one by the absence of deep lateral fovae near middle of pronotum and interstices between rows of punctures on elytra little narrower than diameter of punctures.
Genus XII. *Pycnomerus* Erichson

1842. *Pycnomerus* Erichson, Archiv für Naturgeschichte. 8 (1) 214

[Type-species: *Ips terebrans* Olivier].


**Diagnosis**: Elongated, subparallel, moderately depressed, punctate body with ribbed elytra, glabrous and shiny. Head with moderately large eyes, postocular temple may be short or long, 11-segmented moniliform antenna with 2-segmented club (sometimes segments 10 and 11 fused into 1-segmented club), antennal insertions hidden under projection of frons, no distinct antennal groove on ventral side, mandible with 2 apical teeth, apical segments of labial and maxillary palpi elongate and fusiform. Prothorax usually little elongate; sides smooth (rarely finely serrate), pronotum moderately convex, side margins not explanate but finely bordered, front coxae separated wider than diameter of coxae, prosternal process expanded apically, front coxal cavities closed, mesosternal process narrower than prosternal apex, metasternum devoid of femoral lines; elytra striate-punctate, interstices not carinate but ribbed, tibiae of legs with a distinct tooth at outer apical angle and spine at inner apical angle, tarsal segments 1 to 3 subequal in length; intercoxal process of first abdominal ventrite broad and truncate apically, no femoral lines.

12. *Pycnomerus nitidicollis* (Reitter)


**Diagnosis**: Moderately broadly elongate, reddish-brown, shiny; head transverse, anterior clypeal margin emarginate, frons little elevated above antennal bases, two sublateral small elongate depressions near antennal bases, antenna slightly longer than head, antennal segments 2 to 9 transverse, segments 10 and 11 distinctly separated and more or less transverse, eyes shorter than half as long as head, dorsal surface moderately coarsely punctate; punctures separated by about a diameter or little more; prothorax little elongate; widest in anterior third and little narrower posteriorly, front angles slightly produced and hind angles not prominent, pronotal sides smooth and finely bordered, with two transverse admedian prebasal depressions, punctures on pronotal disc coarse near middle and little finer anterad and posterad; elytra more than twice as long as broad, almost parallel-sided at basal two-thirds and then narrowed to rounded apex, interstices little raised and rounded dorsally, interstices 2 and 4 fused at level of posterior border of fourth abdominal ventrite, interstices, 6, 7 and 8 fused at level of posterior border of third abdominal ventrite. Length—2.9–3.1 mm.


**Distribution**: India : Sikkim (new record), Tamil Nadu; Sri Lanka;

**SUMMARY**

The paper deals with 12 species under 12 genera of 2 subfamilies of which 1 species is new (*Neotrichus afoveicollis*) and 1 species (*Machlotes incisus* Pascoe) is recorded first time from India; several new records from the State of Sikkim are made. The species are systematically keyed and characterized.

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Fig. 1. *Neotrichus afoveicollis* sp. nov., Dorsal view (scale = 1.0 mm.).
REFERENCES


INTRODUCTION

The Inopeplidae are a sufficiently distinct small family of the section Heteromera under the superfamily Cucujoidea. The inopeplids are often broadly elongate, flattened with abbreviated elytra, and are seen under bark or in decaying wood. The representatives of the family are mostly found in the tropical parts of the World. The constitution of the group has undergone changes till Crowson (1955). Hetschko (1930) listed 3 of 52 species under the genus *Inopeplus* Smith from India, while treating it under the family Cucujidae (Cucujinae: Inopeplini). Blackwelder (1942) referred *Inopeplus* to the family Staphylinidae, because of apparent similarity of exposed abdominal segments. Crowson (op. cit.) recognised the distinct family status of Inopeplidae and included the genera *Inopeplus*, *Diagrypnodes* Waterhouse and *Aciphus* Oliff in it. Sengupta, Pal and Mukhopadhyay (1977) ascertained its systematic position and described 3 more species from India. Subsequently Pal (1992 a, b) added 3 more species from eastern Himalaya. Till now only 3 species are recorded from the State of Sikkim.

CHARACTERS OF FAMILY INOPEPLIDAE

Body elongated, moderately broadened, largely flattened and galbrous.

Head more or less prognathous, sometimes little rostrate, eyes entire and more or less emarginate, fronto-clypeal suture prominent, 11-segmented antenna without distinct club, antennal insertions partly hidden under frons, ventrally gular sutures widely separated, without antennal cavities; mandible largely exposed, mola well developed, without any mandibular cavity; maxillary lacinia and galea well developed, palp long and segments 2-4 elongate; mentum transverse, apical two segments of labial palpi elongate; labrum exposed. Prothorax transverse and narrowed towards base, side margins often with denticles, front coxae somewhat oblique with hidden trochantins, coxal cavities open. Mesothorax moderately large, mesocoxal cavities outwardly closed by sterna, metasternum usually without median impressed line, mesoscoxae and hind coxae rather widely separated. Elytra truncate at apex, exposing a few abdominal tergites, epipleura narrow or incomplete; hind wings usually lack radial cell or anal cell. Trochanters not distinctly heteromeroid, tibiae provided with apical spurs, tarsi usually 5-5-4. First two ventrites of abdomen may be connate. Aedeagus trilobed-type, with accessory lobes attached to fused parameres.

LIST OF TAXA

Family INOPEPLIDAE

1. *Inopeplus decisus* (Walker)
2. *Inopeplus biocellatus* (Motschulsky)

Key to the species of INOPEPLIDAE

1. Head and prothorax reddish .....................2
   - Head and prothorax blackish. Lateral margin of prothorax with two posterior and one
Insecta: Coleoptera: Inopepilidal

anterior denticles; a whitish longitudinal spot from near base to apex of each elytron......

**Inopeplus decisus** (Walker)

2. Elytra blackish with a whitish rounded spot on each elytron; abdominal segments 4 and 5 exposed

**Inopeplus biocellatus** (Motschulsky)

- Elytra entirely black and without any spot; abdominal segment 2 partly and segments 3 to 5 completely exposed

**Inopeplus nitidus** Sengupta, Pal & Mukherjee

**Family** INOPEPLIDAE

**Genus** Inopeplus Smith


**Diagnosis:** Elongated, flattened, blackish, shiny and last 3 abdominal segments exposed. Head broader than long, eyes moderately large and coarsely facetted, inner margin of eye with a semicircular depression, punctuation on vertex moderately dense, antenna moderately long, prothorax transverse, flattened, widest near front margin and narrowed posteriorly, side margin of pronotum with one anterior and two posterior denticles, punctuation on pronotum slightly sparser than on vertex; elytra elongate, impunctate, a whitish longitudinal spot near base to apex of each elytron. Length—3.0 mm.


**Distribution:** India: Arunachal Pradesh, Sikkim, West Bengal, Uttar Pradesh, Kerala, Tamil Nadu; Sri Lanka.

2. **Inopeplus biocellatus** (Motschulsky)


**Diagnosis:** Broadly elongate, flattened, shiny, head and prothorax reddish brown, elytra black with whitish large round spot at middle, last 2 segments of abdomen completely exposed. Head transverse, clypeus truncate at apex with concave invagination, fronto-clypeal suture little concave, a short impressed median line present on vertex, punctuation on vertex moderately large and closely arranged, eyes large and rather finely facetted, a short linear groove present below eye, antenna...
moderately long, scape and pedicel yellowish brown and segments 3-11 blackish; prothorax transverse, flattened, widest near middle, side margin with four denticles, posterior two denticles closely placed, sides finely bordered; elytra about as broad as long, widest near apex, an outwardly directed metathoracic spine present near middle of elytra, blackish elytra with a large oblong whitish spot. Length—5.3 mm.


Distribution: India: Arunachal Pradesh, Meghalaya, Sikkim, West Bengal (Darjiling district).


Diagnosis: Elongated, flattened, shiny, head and prothorax reddish brown, remaining parts blackish brown, last 3 segments of abdomen exposed. Head broader than long, fronto-clypeal suture inwardly curved, punctuation on vertex coarse and moderately dense with a small impunctate area at middle, eyes moderately large and coarsely faceted, a semicircular depression surrounding inner margin of eye, antenna moderately long, scape and pedicel yellowish brown and segments 3-11 blackish; prothorax transverse, flattened, widest across second teeth from anterior side, side margin with four distinct denticles, anterior two denticles comparatively larger, sides narrowly bordered, punctuation on pronotum slightly finer than that of vertex; elytra about as broad as long, widest near apex; an outwardly directed metathoracic spine near middle of elytra, punctuation on elytra coarse and almost similar as on sides of pronotum, abdominal segment 2 party and 3-5 completely exposed.

Length — 4.5 mm.


Distribution: India: Arunachal Pradesh, Sikkim.

**SUMMARY**

The paper deals with 3 species under 1 genus from the territory of Sikkim. The species are systematically keyed and characterized.

**ACKNOWLEDGEMENTS**

The author is indebted to the Director, Zoological Survey of India for providing necessary facilities for the work.

**REFERENCES**


INTRODUCTION

The family Cerambycidae belongs to the superfamily Chrysomeloidea of the order Coleoptera: Insecta. The members of the family are commonly known as ‘longicorn beetles’. They are predominant in tropics and distributed throughout the world. It includes a huge assemblage of phytophagous insects of great economic importance as pests of agricultural, horticultural, forest trees and valuable timbers. This is one of the largest family of the order coleoptera containing 35,000 species under 4000 genera in 11-subfamilies from the world (Lawrence, 1982). Beeson (1941) has recorded 1200 species from Indian region. Later Breuning (1960-66) added a little over 300 species from India. So altogether 1500 species are known from India. Recently Mukhopadhyay and Biswas (1995) has made a consolidated work on the cerambycid fauna of Meghalaya where they recorded 71 species under 44 genera belonging to five subfamilies from Meghalaya. Besides this, the workers like Gahan (1906), Stebbing (1914), Bhasin and Roowal (1954) have made valuable contribution to various aspects of this group.

As regards cerambycid fauna of Sikkim is concerned, our present state of knowledge remains still very incomplete and there is no comprehensive works on the cerambycid fauna of Sikkim. However, prior to this study only 41 species under 30 genera belonging to four subfamilies were recorded from Sikkim. The present authors has tried to bring all scattered informations together. Present study is based on a collection made by different survey parties of Zoological Survey of India during 1912 to 1994 and the old collection present in the section. The study also includes the species reported by earlier workers including the material which are not available during the study to get an upodate account of longicorn beetles of Sikkim. Altogether 75 species under 49 genera belonging to four subfamilies have been dealt in this paper.

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36. *G.* (S.Str.) *pulchella* Thoms.
37. *G.* (S. Str.) *sulphurea* Thoms.

Genus 26. *Stibara* Hope, 1840

39. *S.* *tetraspilota* Hope

Tribe XII. Phytoeciini

Genus 27. *Dasylinda* Thomson, 1868

40. *D.* *testacea* Saund

Genus 28. *Nupserha* Thomson, 1860

41. *N.* *annulata* Thoms.
42. *N.* *fricatror* Dalm. in Schonh.
43. *N.* *ventralis* Gah.

Genus 29. *Oberea* Muls., 1839

44. *O.* (amaurostoma) *posticata* Gahan

Subfamily II. PRIONINAE

Tribe XIII. Prionini

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48. *A.* *costipenne* White

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Subfamily III. DISTENIINAE

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50. *D.* *audax* Pas.

Subfamily IV. CERAMBYCINAE

Tribe XVI. Cerambycini

Genus 36. *Plocæderus* Thoms., 1861

51. *P.* *obesus* Gahan.

Genus 37. *Hoplocerambyx* Thoms., 1864

52. *H.* *spinicornis* Newm.

Tribe XVIII. Callichromini

Genus 38. *Aphrodisium* Thomson, 1864

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54. *A.* *hardwickianum* White
55. *A.* *cribricolle* Vande Poll

Genus 39. *Anubis* Thomson. 1864

56. *A.* *inermis* white
57. *A.* *fimbriatus* Bates
58. *A.* *bipustulatus* Thoms.

Genus 40. *Polyzonus* Casteln. 1840

59. *P.* *bizonatus* White
60. *P.* *brevipes* Gahan

Genus 41. *Chloridolum* Thoms., 1864

61. *C.* *nympha* White

Genus 42. *Chelidonium* Thoms., 1864

62. *C.* *sinense* Hope

Genus 43. *Zonopterus* Hope, 1843

63. *Z.* *flavitarsis* Hope
Tribe XVIII. Clytini
Genus 44. Perissus Chevr., 1863
64. P. mutabilis Gahan

Genus 45. Demonax Thoms, 1861
65. D. nigromaculatus Gah.
66. D. leucoscutellatus (Hope)

Genus 46. Xylotrechus Chevr., 1860
67. X. smeii Lap et Gory
68. X. incurvatus Chevr.
69. X. contortus Gah.
70. X. subdepressus Chevr.

Genus 47. Caloclytus Fairm, 1861
71. C. annularis F.

Genus 48. Rhaphuma Pascoe, 1858
72. R. fulgurata Gahan

Tribe XIX. Rosaliini
Genus 49. Rosalia Serville, 1833
73. R. hariola Thoms.
74. R. decempunctata Westwood
75. R. formosa Saund.

Family CERAMBYCIDAE

Key to the Sub-families of the family CERAMBYCIDAE

1. Head infront vertical or bent inwards well below the thorax; last joint of maxillary palpi pointed at apex; fore tibiae usually with a groove beneath .................. LAMIINAE
– Head infront oblique or subvertical; last joint of maxillary palpi not pointed at apex; fore tibiae not grooved beneath ...............2

2. Inner lobe of maxillae obsolete or very small; gula without mentigerous process; prothorax marginate at sides; front coxae rarely strongly transverse .................. PRIONINAE
– Inner lobe of maxillae well developed; prothorax not marginate at sides; front coxae rarely strongly transverse ......................3

3. Head very short in front, gula with distinct mentigerous process; mandible with molar tooth at base; antennae close to the base of the mandible .................. DISTENIINAE
– Head variable in form but distinctly narrowed behind eyes; gula with or without mentigerous process; mandible never provided with molar tooth at base ................ CERAMBYCINAE

Subfamily LAMIINAE

Key to the tribes of the subfamily LAMIINAE recorded from Sikkim

1. Metepisternum narrow and not broadened anteriorly ........................................ 3
– Metepisternum large and broadened anteriorly .............................................2

2. First four visible abdominal sternite equal or decreasing gradually in length; episterna of metathorax wide .................. Phytocertiini
– First four visible abdominal sternite unequal; episterna of metathorax comparatively less wide .......................... Glenini

3. Tarsal claws divergent ................................ 4
– Tarsal claws divaricate ..................7

4. A prominent ciatrix on lateral side of scape making it apparently truncated ...... Mesosini
– Scape without such ciatrix ..................5

5. Middle tibiae without preapical groove, mesocoxal cavity open .................. Niphonini
– Middle tibiae with a preapical groove ..........6

6. Scape especially long and slender .............. Hippopsini
– Scape never specially long and slender, front coxae very prominent and conical .................. Xylorhizini

7. Dorsal surface of scape strongly granular, form robust, antennae fringed or tuberculated, 3rd segment of antennae longer than 4th .......... Batocerini
MUKHOPADHYAY & HALDER: Insecta: Coleoptera: Insecta

- Scape of antennae not granular .................. 8

8. Scape of antennae with a ciarix, mesocoxal cavity open .............................................. 9

- Scape of antennae without a ciarix, if rarely, with one; mesocoxal cavity closed .......... 10

9. Eyes subdivided; length of head and pronotum together either as long as or little less than elytra .................................................. Gnomini

- Eyes emarginate; head and pronotum together much shorter than elytra .......... Monochamini

10. Middle tibiae without external groove; antennae with a lateral depression on apical part of 4th segment and broad lateral groove on apical part of following segment ........................................... Ceroplesini

- Middle tibiae with external groove; species never so elongated; antennae very strong .... ........................................... Pterognathini

Subfamily LAMIINAE

Tribe I Monochamini

Genus 1. Agnoderus Thoms., 1864


1. Agnoderus desperatus Thoms.

1857. Agnoderus desperatus Thoms., Archives Ent. 1 : 295

Material examined : Not Seen.

Distribution : India : Sikkim.

2. Agnoderus gnomoides Thoms.


Material examined : 1 ex., India : Sikkim (N); Mallidhin, 15, VII. 1959, A.G.K. Menon Colln.

Distribution : India : Sikkim.

Genus 2. Polytretus Gahan, 1893


3. Polytretus cribripennis Gahan,


Material examined : Not Seen.

Distribution : India : Sikkim.

Genus 3. Callophora Thoms., 1864


4. Callophora Sollii (Hope)


Material examined : Not seen.

Distribution : India : Assam, Sikkim.


Genus 4. Monochamus Guér.-Méneville, 1826


5. Monochamus bimaculatus Gahan


Material examined : 1 ex.; India : Sikkim; 1 ex.; Sikkim: E. Himalayas, V. 1912.

Distribution : India : Sikkim, Eastern India.

Elsewhere : Myanmar.


1881 Monochamus versteegi Rits., Notes Leydeu, 3 : 155.

Material examined : 6 ex., India, Sikkim (no other data).

Distribution : India : Assam, Meghalaya, Sikkim.


Remarks : This species is recorded here for the first time from Sikkim.

Genus 5. Epepeotes Pascoe, 1866

7. **Epepeotes guttatus** Guér


*Material examined*: 1 ex., India : Sikkim (No other data).

*Distribution*: India : Meghalaya, Sikkim, Himalaya.

*Remarks*: This species is recorded here for the first time from Sikkim.

8. **Epepeotes uncinnatus** Gah.


*Material examined*: 3 ex., India : Sikkim (No other data).

*Distribution*: India : Meghalaya, Sikkim, North India.

*Elsewhere*: Myanmar.

*Remarks*: This species is recorded here for the first time from Sikkim.

Genus 9. **Macrochenus** Guér., 1843


9. **Macrochenus Guerini** White


*Material examined*: 3 ex., India : Sikkim (No other data).

*Distribution*: India : Meghalaya, Sikkim.

*Elsewhere*: Bangladesh.

*Remarks*: This species is recorded here for the first time from Sikkim.

10. **Macrochenus tigrinus** Olivier


*Material examined*: 2 ex., India : Sikkim (No other data).

*Distribution*: India : Tamil Nadu, Sikkim.

*Elsewhere*: Sri Lanka.

*Remarks*: This species is recorded here for the first time from Sikkim.

Genus 7. **Aristobia** Thomson, 1868


11. **Aristobia clathrator** Thomson


*Material examined*: 1 ex., India : Sikkim (No other data).

*Distribution*: India : Meghalaya, Sikkim.

*Elsewhere*: Bangladesh.

*Remarks*: This species is recorded here for the first time from Sikkim.

12. **Aristobia horridula** Hope in Gray


1848. *Aristobia horridula fasciculata* Redtinb. in Hugel, *Kaschm.* 4 (2) : 552, t. 27. f. 2.

*Material examined*: 1 ex., India : Sikkim (No other data).

*Distribution*: India : Meghalaya, Sikkim.

*Elsewhere*: Myanmar.

*Remarks*: This species is recorded here for the first time from Sikkim.

13. **Aristobia testudo** Voet


*Material examined*: 3 ex., India : Sikkim (No other data) : 1 ex., Sikkim : Singtam, 30. ix. 93, B.N.Das Colln.

*Distribution*: India : Meghalaya, Sikkim.

*Elsewhere*: China.

*Remarks*: This species is recorded here for the first time from Sikkim.
Genus 8. **Blepethaeus** Pascoe, 1866


14. **Blepethaeus succinctor** Chevr.


*Material examined*: 1ex., India: Sikkim: E. Himalaya, V. 1912.

*Distribution*: India: Assam, Meghalaya, Sikkim.

*Elsewhere*: China, Malacca, Tenasserim.

*Remarks*: This species is recorded here for the first time from Sikkim.

Genus 9. **Epicedia** Thoms., 1864


15. **Epicedia officinarator** White


*Material examined*: 3ex., India: Sikkim (No other Data).

*Distribution*: India: Assam, Sikkim.

*Elsewhere*: Myanmar.

*Remarks*: This species is recorded here for the first time from Sikkim.

Genus 10. **Leprodera** Thomson, 1857


16. **Leprodera officinarator** Lacord.


*Material examined*: 1ex., India: Sikkim (No other data).

*Distribution*: India: Sikkim, Ostinden.

*Remarks*: This species is recorded here for the first time from Sikkim.

Genus 11. **Dihammus** Thomson, 1864


17. **Dihammus punctifrons** Gahan


*Material examined*: 1ex., India: Sikkim (No other data).

*Distribution*: India: Sikkim.

*Elsewhere*: Myanmar, Tenasserim.

*Remarks*: This species was earlier recorded from Burma and Tenasserim. In the present study it is being recorded for the first time from India (Sikkim).

Tribe II **Agniini**

Genus 12. **Paragnia** Gahan, 1893


*Material examined*: Not seen.

*Distribution*: India: Sikkim.

Tribe III **Batocerini**

Genus 13. **Batocera** Cast., 1840


19. **Batocera Parryi** Hope


*Material examined*: Not seen.

*Distribution*: India: West Bengal, Assam, Meghalaya, Sikkim, Arunachal Pradesh.

*Elsewhere*: Bangladesh.
20. Batocera lineolata Chev. var. adelpha Thomson


Material examined: 2 ex., India, Sikkim (No other data); 1 ex., Sikkim : Mangan, 28 v. 1994, B.C. Das Colln.

Distribution: India : West Bengal, Assam, Sikkim.

Elsewhere: China, Japan.

Remarks: This species is recorded here for the first time from Sikkim.


Material examined: 4 ex., India: Sikkim (No other data)

Distribution: India : West Bengal, Meghalaya, Sikkim.

Elsewhere: Nepal, Indonesia, Philippines.

Remarks: This species is recorded here for the first time from Sikkim. Two specimens belong to variety titana Thom.

22. Batocera rubus Linn.


Distribution: India : West Bengal, Assam, Meghalaya, Sikkim, Himalaya.

Remarks: This species is recorded here for the first time from Sikkim.

23. Batocera tyrannolamia roylei Hope


1915. Batocera tyrannolamia roylei : Kriesche, Monogr., P. 75.

Material examined: 1 ex., India: Sikkim (No other data); 1 ex., Sikkim : Rongpo, 12. ii. 92, A.K. Hazra Colln.

Distribution: India : West Bengal, Assam, Meghalaya, Kashmir, Sikkim.

Remarks: This species is recorded here for the first time from Sikkim.

Genus 14. Apriona Chevr., 1852


24. Apriona germari (Hope)

1831. Lamia germari Hope in Gray, Zool. Miscell. 1: 28

Material examined: 3 ex., India : Sikkim (No other data).

Distribution: India: West Bengal, Meghalaya, Sikkim.

Elsewhere: Pakistan, Bangladesh.

Remarks: This species is recorded here for the first time from Sikkim.

Tribe IV. Gnomini

Genus 15. Imantocera Thomson, 1857

1857. Imantocera Thomson, Arch. Ent. 1: 188.

25. Imantocera penicillata Hope in Gray

1831. Imantocera penicillata Hope in Gray, Zool. Misc., 1: 17

Material examined: 1 ex., India : Sikkim (No Other data).

Distribution: India: Meghalaya, Sikkim, N. India.

Elsewhere: Myanmar.
Remarks: This species is recorded here for the first time from Sikkim.

Tribe V. Mesosini

Genus 16. Coptops Serv., 1835


26. Coptops leucostictica White


Material examined: 10ex., India: Sikkim (No other data).

Distribution: India: Assam, Sikkim.

Remarks: This species is recorded here for the first time from Sikkim.

Genus 17. Agelasta Newmann, 1842

1842. Agelasta Newm., Ent., 1 : 288

27. Agelasta bifasciata regularis Br.

Material examined: 1ex., India: Sikkim (No other data).

Distribution: India: Sikkim.

Elsewhere: Bangladesh.

Remarks: This species was earlier recorded from Bangladesh; In the present study it is being recorded for the first time from India (Sikkim).

Tribe VI Ceroplesini

Genus 18. Diastocera Thomson, 1857


28. Diastocera Wallichi Hope in Gray


Material examined: 2ex., India: Sikkim.

Distribution: India: West Bengal, Bihar, Meghalaya, Sikkim, Arunachal Pradesh, Himalaya, Uttar Pradesh.

Tribe VII. Petrognathini

Genus 19, Ithocritus Lacord, 1872


29. Ithocritus ruber Hope


Material examined: 8ex, India: Sikkim (No other data).

Distribution: India: West Bengal, Assam, Meghalaya, Sikkim, Himalaya.

Tribe VIII. Xylorrhizini

Genus 20 Xylorrhiza Cast., 1840


30. Xylorrhiza adusta Wied.


Material examined: 1ex., India: Sikkim (No other data).

Distribution: India: West Bengal, Sikkim.

Elsewhere: Burma Malacca.

Remarks: This species is recorded for the first time from Sikkim.

Tribe IX. Niphonini

Genus 21. Pterolophia Newm., 1842


31. Pterolophia sp.


Remarks: This genus is so far recorded from Myanmar, China, Philippines, Sri Lanka and Indonesia. Now the genus is being recorded here for the first time from India. The determination of species will be dealt elsewhere because of lack of availability of literature at present.
Genus 22. *Lychrosis* Pasc., 1866


32. *Lychrosis zebrinus* Pasc.


*Material examined*: 14ex., *India* : Sikkim (No other data).

*Distribution*: India : West Bengal, Sikkim, Meghalaya, Kerala

Genus 23. *Sthenias* Cast., 1840


33. *Sthenias franciscanus* Thoms.


*Distribution*: India : West Bengal, Sikkim.

Tribe X. *Hippopsini*

Genus 24. *Smermus* Lacord., 1872


34. *Smermus mniszechi* Lacord.


*Material examined*: 1ex., *India* : Sikkim.

*Distribution*: India : Sikkim.

*Elsewhere*: Bangladesh.

*Remarks*: This species is recorded here for the first time from Sikkim.

Tribe XI. *Gleneini*

Genus 25. *Glenea* Newm., 1842

1842 *Glenea* Newm., *Entomologist.*, 1: 301.


35. *Glenea* (S. Str.) *indiana* Thoms.

1857 *Genea* (S.Str.) *indiana* Thoms., *Archives Entomol.*, 1: 141.

*Material examined*: 8ex., *India* : Sikkim (No other data)

*Distribution*: India : Meghalaya, Sikkim,

*Elsewhere*: Myanmar

*Remarks*: This species is recorded here for the first time from Sikkim.

36 *Glenea* (S. Str.) *pulchella* Thoms.


*Material examined*: 28ex., *India* : Sikkim (No other data); 1ex., Sikkim, E.T.A; 1ex., Sikkim 2951; 3ex., Sikkim, E.T.Atkinson, 1ex., Sikkim, 

\[
\frac{2951}{3} = \frac{3281}{8} 
\]


*Distribution*: India : West Bengal, Meghalaya, Sikkim, Manipur, Karnataka, Tamil Nadu.

*Elsewhere*: Myanmar, Bangladesh.

37. *Glenea* (S.Str.) *sulphurea* Thoms.


*Distribution*: India : Meghalaya, Sikkim.

*Elsewhere*: Bangladesh, Indonesia, Cambodia.

*Remarks*: This species is recorded here for the first time from Sikkim.

38. *Glenea* (Stiroleuca) *obesa* Thoms.

1857 *Glenea* (stiroleuca) *obesa* Thoms., *Archives Ent. 1: 145

*Material examined*: 2ex., *India* : Sikkim (No other data).

*Distribution*: India : West Bengal, Assam, Arunachal Pradesh, Sikkim, Uttar Pradesh

*Elsewhere*: Bangladesh.
Genus 26. *Stibara* Hope, 1840


39. *Stibara tetraspilota* Hope


*Material examined*: 6ex, India: Sikkim (No other data).

*Distribution*: India: Assam, Meghalaya, Sikkim.


Tribe XII. Phytoeciini

Genus 27. *Dasylinda* Thomson, 1868


40. *Dasylinda testacea* Saund


*Material examined*: Not seen.

*Distribution*: India: Meghalaya, Sikkim.

Genus 28. *Nupserha* Thomson, 1860


41. *Nupserha annulata* Thoms.


*Material examined*: 30ex., India: Sikkim (No other data).

*Distribution*: India: West Bengal, Meghalaya, Sikkim.

*Remarks*: This species is recorded for the first time from Sikkim.

42. *Nupserha fricator* Dalm. in Schönh.

1817. *Nupserha fricator* Dalm. in Schönh., *Syst. Ins.* 1: 3.


*Material examined*: 1ex, India: Sikkim (No other data).

*Distribution*: India: West Bengal, Sikkim, Arunachal Pradesh.

*Elsewhere*: Indonesia, Malacca; Sri Lanka, Myanmar

43. *Nupserha ventralis* Gahan.


*Distribution*: India: West Bengal, Sikkim.

*Elsewhere*: Myanmar

*Remarks*: This species is recorded here for the first time from Sikkim.

Genus 29. *Oberea* Muls., 1839


44. *Oberea Amaurostoma posticata* Gah.


*Distribution*: India, West Bengal, Assam, Meghalaya, Sikkim.

*Elsewhere*: Myanmar.
Subfamily II. PRIONINAE

Key to the tribes of the subfamily PRIONINAE recorded from Sikkim

1. Met-episternum converging posteriorly, either narrowly truncate or pointed at apex; antennae inserted near the base of the mandible; head sloping in front; third joint of tarsi cleft almost to the base ................................ Aegosomini
   - Met episternum parallel sided, broadly truncate behind ................................................... 2

2. First joint of antennae extending one third of the length of the body; Labrum distinct and never triangular ................................. Prionini
   - First joint of antennae short, scarcely longer than broad; labrum triangular ........................................... Acanthrophorini

Tribe XIII. Prionini

Key to the genera of the tribe Prionini recorded from Sikkim

1. Mandibles long, curving downwards and backwards, narrowing towards apex .......... 2
   - Mandibles vertical or oblique, not curved-Pronotum bituberculate ............................................... Ancyloprotus White

   - Antennae as long as or longer than body, finely denticulated beneath and 12-jointed. Pronotum feebly convex, marginal teeth long and spiniform Paraphrus Thoms.

Genus 30. Lophosternus Guerin, 1844


45. Lophosternus indicus Hope

1831. Lophosternus indicus Hope (Prionus), Gray’s Zool. Misc., P. 27.


Distribution : India : West Bengal, Sikkim.
Elsewhere : Nepal, Bhutan.

Genus 31 Paraphrus Thomson, 1861


46. Paraphrus granulosus Thoms. (Cyrtognathus)

1861. Paraphrus granulosus Thoms. (Cyrtognathus) Essai class. Ceramb. P. 186

Material examined : Not seen.
Distribution : India : Sikkim.
Elsewhere : Myanmar, Siam.

Genus 32. Ancyloprotus, White, 1853

1853 Ancyloprotus White, Cat. coleopt. B.M. Longic, 1 : 19.

47. Ancyloprotus bigibbosus White

1853 Ancyloprotus bigibbosus white, Cat. Coleopt. B.M. Longic, 1 : 19, pl. 1, fig. 4.

Material examined : 1ex, India : Sikkim; 1ex, Sikkim: Mongphu (No other data).
MUKHOPADHYAY & HALDER: Insecta: Coleoptera: Insecta


Remarks: This species is recorded here for the first time from Sikkim.

Tribe XIV. Aegosomini

Genus 33. Aegosoma Serville, 1832


Material examined: Not seen.

Distribution: India: Assam, Sikkim, Manipur.

Tribe XV. Acanthophorini

Genus 34 Acanthophorus Serv., 1832


49. Acanthophorus serraticornis Oliv.

1795. Acanthophorus serraticornis Oliv. (Prionus), Ent. 4 (No. 66) : 14, pl. 9, fig. 33.

Material examined: lex., India: Sikkim (No other data); lex., Sikkim (N): Singhek Dak Bungalow, 18. IX. 1940, B. Prasad & S. L. Hora Colln.

Distribution: India: Sikkim, Tamil Nadu, Karnataka, Kerala.

Remarks: This species is recorded here for the first time from Sikkim.

Sufamily III. DISTENIINAE

Genus 35. Dynamostes Pascoe, 1857


50. Dynamostes audax Pasc.


Material examined: Not seen.

Distribution: India: Sikkim, Manipur.

Subfamily IV. CERAMBYCINAE

Key to the tribe of the subfamily CERAMBYCINAE recorded from Sikkim

1. Eyes coarsely faceted. Mesocoxal cavity open. Front coxal cavity closed; intercoxal process of prosternum dilated at apex................................. Cerambycini
   - Eyes finely faceted..................................... 2

2. Front coxa not conical, angulated or outerside and its cavities open posteriorly.............................. Rosalini
   - Front coxae rounded and not angulated on outerside......................................................... 3

3. Scutellum large, triangular with acute apex; Front coxal cavities closed or narrowly closed posteriorly ................ Callichromini
   - Scutellum small and comparatively less acute at apex. Front coxal cavity open posteriorly.......................... Clytini

Tribe XVI. Cerambycini

Genus 36. Plocadederus Thomson, 1861

1861. Plocadederus Thomson., Essai Class. ceramb., P 197
51. *Plocœderus obesus* Gahan


*Material examined*: Not seen.

*Distribution*: India : West Bengal, Assam, Sikkim, Arunachal Pradesh.

*Elsewhere*: Myanmar, Siam, Sri Lanka.

Genus 37. *Hoplocerambyx* Thomson, 1864


52. *Hoplocerambyx spinicornis* Newman


*Material examined*: 1 ex., India : Sikkim (No other data).

*Distribution*: India : West Bengal, Assam, Meghalaya, Sikkim, Uttar Pradesh.

*Elsewhere*: Nepal, Myanmar, Indonesia, South Afganistan, Penang, Singapore, Philippine.

*Remarks*: This species is recorded here for the first time from Sikkim.

Tribe XVII. *Callichromini*

Genus 38. *Aphrodisium* Thomson, 1864


State Fauna Series 9, *Fauna of Sikkim*

53. *Aphrodisium robustum* Bates


*Material examined*: Not seen.

*Distribution*: India : West Bengal, Sikkim, N-W-India.

54. *Aphrodisium hardwickianum* White

1853. *Aphrodisium hardwickianum* White (callichorma), *Cat. coleopt.-B.M. Longic*, P. 162.

*Material examined*: 1 ex., India : Sikkim.

*Elsewhere*: Nepal.

*Remarks*: This species is recorded here for the first time from India (Sikkim).

55. *Aphrodisium cribricolle* Van de Poll


*Material examined*: Not seen.

*Distribution*: India : Sikkim.

Genus 39. *Anubis* Thomson, 1864


56. *Anubis inermis* White


*Distribution*: India : West Bengal, Sikkim.

*Elsewhere*: Myanmar, Siam, Malay- Peninsula, South China.
57. *Anubis fimbriatus* Bates


*Material examined* : 2ex, India : Sikkim, E.T. Atkinson; 2ex, Sikkim. (No other data).

*Distributed* : India : Sikkim.

*Elsewhere* : Myanmar, Siam, Cochin-China, Malay-Peninsula.

58. *Anubis bipustulatus* Thomson


*Material examined* : Not Seen.

*Distribution* : India : Sikkim.

*Elsewhere* : Myanmar, Siam, Malay-Peninsula

Genus 40. *Polyzonus* Casteln. 1840


59. *Polyzonus bizonatus* White


*Material examined* : Not seen.

*Distribution* : India : Sikkim.

*Elsewhere* : Myanmar, Siam, Tenasserim, Siam.

60. *Polyzonus brevipes* Gahan


*Material examined* : Not seen.

*Distribution* : India : Sikkim.

*Elsewhere* : Myanmar

Genus 41 *Chloridolum* Thomson, 1864


61. *Chloridolum nympha* white


*Material examined* : Not seen.

*Distribution* : India : West Bengal, Sikkim, Manipur.

Genus 42. *Chelidonium* Thomson, 1864


62 *Chelidonium sinense* Hope


*Material examined* : Not seen.

*Distribution* : India : Sikkim, Manipur.

*Elsewhere* : Myanmar, China

Genus 43. *Zonopterus* Hope, 1843


63. *Zonopterus flavitarsis* Hope


*Material examined* : 1ex., India, Sikkim, E.T. Atkinson.

*Distribution* : India : Sikkim, Meghalaya.

*Elsewhere* : Bangladesh.

*Remarks* : This species is recorded here for the first time from Sikkim.

Tribe XVIII. Clytini

Key to the genera of the tribe Clytini recorded from Sikkim

1. Antennae more or less widely separated at base........................................................................... 2
2. Head in front with one to five more or less distinct carinae. First joint of hind tarsus about twice as long as the next two joints together ........................................ Xylotrechus Chevrolat

- Head not carinated in front. First joint of hind tarsus less than twice the length of second & third joints together .......... Perissus Chevr.

3. Antennal joints not spined at apex .............. 4

- Third and Fourth joints, sometimes fifth and sixth joints of antennae spined at apex. Third joint of antennae longer than fourth ......................... Demonax Thomson

4. Antennae rather closely approximated at base, third joint little or not longer than the first. Elytra moderately long, truncated at the apex and its outer angle dentate. ........................................ Caloclytus Fairm.

- Antennae sub approximate at the base, third joint distinctly longer than first. Elytra long, very slightly narrowed posteriorly and truncated at the apex ..................... Rhaphuma Pascoe

Genus 44 Perissus Chevr., 1863


64. Perissus mutabilis Gahan


Material examined : Not seen.

Distribution : India : Sikkim.

Elsewhere : Myanmar, Siam.

Genus 45 Demonax Thoms. 1861


65. Demonax nigromaculatus Gahan


Material examined : Not seen.

Distribution : India : Sikkim.

66. Demonax leucoscutellatus (Hope)


Distribution : India : Assam, Nagaland, Manipur, Sikkim.

Elsewhere : Nepal.

Genus 46. Xylotrechus Chevr., 1860


Key to the species of the genus Xylotrechus Chevr. recorded from Sikkim

1. Eyes large, the face corresponding contracted in the middle. Vertex of head marked with a fine carina which divides anteriorly into two fine carinae. Disc of pronotum with two rounded dark brown spots with a smaller one on each side ................. smeii Lap et Gory

- Eyes smaller, face not contracted in the middle ......................................................... 2

2. Head, prothorax and elytra densely covered with luteous yellow pubescence. Prothorax longer than broad and rather feebly rounded at the sides ........................................ 3

- Head, prothorax and elytra densely covered with ochreous yellow ubescence, varied above with dark brown spots and bands. Prothorax rounded at the sides and almost as wide in the middle as the base of the elytra.......................... subdepressus Chevr.

3. Elytra with (i) a short narrow band extended backwardly from the shoulder, curved inwardly to the disc and then bent forwards (ii) second band narrow and extended backwardly from suture (iii) third band directed obliquely
forwards to the middle of the disc (iv) fourth band smaller than third with a lateral spot, a little before apex .............. incurvatus Chevr.

First elytral band reduced to two spots, one behind the shoulder and other on the disc; second band runs backwardly, third band forms distinct arcuate curve, fourth band reduced to crescentic spots and placed nearly to the third. ........... 04 .................

contortus Gahan.

67. Xylotrechus Smei Lap et Gory


Material examined : 1ex, India : Sikkim (No other data).

Distribution : India : West Bengal, Sikkim.

Elsewhere : Bhutan.

Remarks : This species is recorded here for the first time from Sikkim.

68. Xylotrechus incurvatus Chevr.


Distribution : India : West Bengal, Sikkim, Manipur.

Elsewhere : Myanmar.

Remarks : This species is recorded here for the first time from Sikkim.

69. Xylotrechus contortus Gahan


Material examined : Not seen.

Distribution : India : Sikkim, Manipur.

Elsewhere : Bhutan

70. Xylotrechus subdepressus Chevr.


Material examined : Not Seen.

Distribution : India : Assam, Manipur, Sikkim.

Elsewhere : Bangladesh.

Genus 47. Caloclytus Fairm. 1864


71. Caloclytus annularis F.

1787. Caloclytus annularis F. Mant. Ins. 1 : 156.


Material examined : 3ex, India : Sikkim (labelledas Chlorophorus annularis F) : 5ex, Sikkim (Labelled as Isotomus annularis (F).

Distribution : India : North West to Assam, Sikkim.

Elsewhere : Myanmar, Siam, China, Japan, Malay Peninsula, Archipelago to New Guinea.

Remarks : This species is recorded here for the first time form Sikkim.

Genus 48. Rhaphuma Pascoe. 1858

72. **Rhaphuma fulgurata** Gahan


**Material examined**: Not seen.

**Distribution**: India: Sikkim.

**Tribe XIX. Rosaliini**

Genus 49. **Rosalia** Serville, 1833


73. **Rosalia hariola** Thoms


**Material examined**: Not seen.

**Distribution**: India: West Bengal, Sikkim.

74. **Rosalia decempunctata** Westwood

1848. *Rosalia decempunctata* Westw. (Purpuricenus), *Cab. or Ent.*., P. 59, pl. 29, fig. 2.


**Material examined**: Not seen.

**Distribution**: India: West Bengal, Assam, Sikkim.

**Elsewhere**: Indonesia.

75. **Rosalia formosa** Saund


**Material examined**: 2ex, India: Sikkim (No other data).

**Distribution**: India: West Bengal, Assam, Meghalaya, Sikkim.

**Elsewhere**: Myanmar, Indonesia.

**SUMMARY**

The present paper consolidates information available on cerambycid fauna of Sikkim. It deals with 75 species under 49 genera belonging to four sub-families. Of which a total of 31 species under 21 genera belonging to three sub-families are recorded here for the first time from Sikkim and 4 species under four genera of the subfamily Lamiinae and the species viz. *Aprodisium hardwickianum* white of the sub-family cerambycinidae are recorded here for the first time from India. Distributional data of the species has been given from the published records as well as the actual study of the specimens. Key to the subfamilies, tribes, genera and species where necessary have been provided.

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**REFERENCES**


INTRODUCTION

The members of the family Curculionidae are commonly known as weevils and is one of the largest family of the order Coleoptera (Insecta). So far this family includes 50,000 species under 4500 genera spreading over 72 subfamilies from all over the world. Of which 36 subfamilies are recorded from India. They can be easily distinguished by its pronounced rostrum and geniculate antennae though there are few exceptions where rostrum is so short as to be almost absent.

Four Swedish workers, Schönhers, Boheman, Gyllen and Fahraeus (1833-1845) are the foundation maker of this family. Other workers who deals this family are Laccordiare (1833-66), LeConte (1874), Gemminger and Von Harold (1871), G.A.K. Marshall (1916), Heller (1941) etc. Harold (1871) published their catalogue on the family curculionidae and included 10,150 species under it. Marshall (1916) published The Fauna of British India including Ceylon and Myanmar’ Heller and Voss has done most of their taxonomic works on oriental weevils. H.R. Pajni (1990) has published another Fauna of India volume on the subfamily Ereminae after Marshall (1916).

They are entirely vegetable feeders and the larvae are apodus ie. legless and some of them are serious pests to stored grains, fruits, agricultural crops and forest trees. They feed on cambium of roots, stems, flowers, seeds and rotten wood. They are also defoliators, leafrollers, leafminers, wood borers and sand dwellers.

SYSTEMATIC LIST

Family CURRICULIONIDAE

Sub Family I. BRACHYDERINAE

1. Cyphides
   Genus 1. Eustalida Faust, 1892
   1. E. bomfordi Fst.
   2. D. indicus Mshl.

Group 2. TANYMECIDES

Genus 3. Geotragus Schönherr. 1855
4. G. subfasciatus Desbr.
5. G. himalayanus Boh.

Genus 5. Tanymecus Schönh., 1826
7. T. versicolor Mshl.

Genus 6. Leptomias Faust. 1866
8. L. waltoni Mshl.

Sub Family II. CLEONINAE

Tribe 1. Cleonini
Genus 7. Xanthoprochilus Bedel, 1909
9. X. faunus Oliv.
Genus 8. *Nemoxenus* Faust. 1964

10. *N. zebra* chevr

Tribe 2. Lixini

9. *Hypolixus* Desbrochers, 1898


Genus 10. *Lixus* Fabricius, 1801

12. *L. languidus* Faust

13. *L. praecuae* Faust

Subfamily III. HYLOBIINAE

Tribe Palpalosomini

Genus 11. *Peribleptus* Schönh., 1843


Sub Family IV. CRYPTORRHYNCHINAE

Tribe Ithyporini

Subtribe Ithyporina

Genus 12. *Mecocorynus* Schonh., 1826


Genus 13. *Desmidophorus* Schönh., 1837

16. *D. branchmanum* Faust

17. *D. confucii* Boh. in Schönh.,

18. *D. hebes* F.

Subfamily V. RHYNCHOPHORINAE

Tribe Rhynchophorini

Subtribe Rhynchophori

Genus 14 *Cyrtostrachelus* Schönherr, 1838


20. *C. longimanus* F.

21. *C. himalayanus* Heller


Genus 15. *Otidognathus* Lacord, 1866

23. *O. subfasciatus* Chevr.

Genus 16. *Protocerius* Schönh., 1838


Genus 17. *Tetratopus* Chevr., 1882

25. *T. longicollis* Faust

Genus 18. *Cercidocerus* Schönh., 1838


27. *C. rufipes* Gunther

Genus 19. *Odoiporus* Chevr., 1885


Key to the subfamilies of the family CUCULIONIDAE recorded from Sikkim

1. The mentum comparatively large and filling or nearly filling the buccal cavity behind the mandibles, and their palpi; mandible pincer like and obtuse with deciduous cusp or its scar; submentum not pedunculate; scrobes of the rostrum lateral, each forming sublinear furrow curving downwards in the front of the eye..

.................................................................................................................... BRACHYDERINAE

2. Pygidium of male divided ........................................3

- Pygidium of both sexes undivided; side piece of metathorax very wide, epimera large........

.................................................................................................................... RHYNCHOPHORINAE

3. Ungues simple; pygidium not exposed ........4

- Ungues appendiculate; toothed or cleft; eyes more or less covered in repose; body oval; pygidium not exposed ................................................................. CRYPTORRHYNCHINAE

4. Lateral angles of first ventral segment uncovered ................................ CLENONINAE

- Lateral angles of first ventral segment not visible; mentum transverse, labial palpi large

.................................................................................................................... HYLOBIINAE
Family CURCULIONIDAE
Subfamily I. BRACHYDERINAE

Group 1 CYPHIDES

Genus 1, Eustalida Faust, 1891

1. Eustalida bomfordi Faust

1891. Eustalida bomfordi Faust, Stett. Ent. Zeit., p. 264

Material examined : lex., India : Sikkim, Khydell Colln.,
Distribution : India : West Bengal, Sikkim.

Genus 2. Dermatoxenus Mshl. 1916


2. Dermatoxenus indicus Mshl.


Material examined : Not Seen.
Distribution : India : Nagaland, Sikkim.

3. Dermatoxenus helleri Mrhl.


Material examined : Not seen.
Distribution : India : Meghalaya, Manipur, Sikkim.

Group 2. TANYMECIDES

Genus 3. Geotragus Schönherr, 1845


1863. Piazomias (Part), Lacordaire, Gen. Col. 6 : 90


Material examined : 3ex., India : Sikkim; lex., Sikkim : Mongphu (no other data).
Distribution : India : West Bengal, Bihar, Sikkim.

Elsewhere : Bhutan

5. Geotragus himalayanus Boh.


Material examined : Not Seen.
Distribution : India : West Bengal, Sikkim.

Genus 4. Astycus Schönh., 1826


6. Astycus chrysochlorus Wied.

1823. Curculio chrysochlorus Wied., Zool. Mag., 2 (1) : 122
Material examined: Not Seen.

Distribution: India: Bihar, Orissa, Assam, Sikkim

Elsewhere: Myanmar, Bangladesh.

Genus 5. Tanymecus Schönherr, 1826


1. Tanymecus versicolor Mshl.


Material examined: Not Seen.

Distribution: India: Bihar, Assam, Meghalaya, Sikkim, Uttar Pradesh.

Elsewhere: Bangladesh.

Genus 6. Leptomias Faust, 1866


8. Leptomias Waltoni Mshl.


Material examined: Not Seen.

Distribution: India: Sikkim

Elsewhere: Tibet

Subfamily II. CLEONINAE

Key to the tribe of the subfamily CLEONINAE recorded from sikkim

1. Antennae with placoid sensilla; Rostrum usually short, scaly; scrobes reaching up to apex and visible anteriorly from above, usually with rostral carina or furrow. Body with scales..............

.................................................................................. Cleonini

– Antennae without placoid sensilla; Rustrum cylindrical more or less shining; scrobes not reaching up to apex and not visible anteriorly from above; usually without rostral carina or furrow .................................. Lixini

Tribe 1 Cleonini

Genus 7. Xanthoprochilus Bedel, 1909


9. Xanthoprochilus faunus Oliv.

1807. Xanthoprochilus faunus ol. Ent. 5 (nr. 83) : 267, t 24, f. 242.

Material examined: 4ex, India : Sikkim (No other Data)

Distribution: India: West Bengal, Bihar, Assam, Meghalaya, Sikkim, Orissa, Tamil Nadu, Uttar Pradesh.


Remarks: This species is recorded here for the first time from Sikkim.


10. Nemoxenus zebra, Chevr.


Material examined: 1ex., India : Sikkim : Mungphu; 1ex., Sikkim (No other data)

Elsewhere: Sri Lanka, Myanmar.

Remarks: This species is recorded here for the first time from Sikkim.

Tribe 2. Lixini

Genus 9. Hypolixus Desbrochers, 1898

1898. Hypolixus Desbrochers, Frelon, 7 : 54.


Material examined: 1ex., India: Sikkim.

Distribution: India: West Bengal, Sikkim, Tamil Nadu

Elsewhere: Indonesia, Myanmar, Hanoi.

Genus 10. Lixus Fabricius, 1801.

1893. Eutumatus Desbr., F relon, 3 : 12

12. Lixus languidus Faust

Material examined: 16 ex, India: Sikkim (No other data).

Distribution: India: West Bengal, Sikkim.

Elsewhere: China.

Remarks: This species is recorded here for the first time from Sikkim.

13. Lixus pracuae Faust

Material examined: 4ex, India: Sikkim: Mungphu; 3ex, Sikkim.

Distribution: India: West Bengal, Sikkim.

Elsewhere: Myanmar.

Remarks: This species is recorded here for the first time from Sikkim.

Subfamily III. HYLOBIINAE

Tribe Paepalosomini

Genus 11. Peribleptus. Schönh., 1843


Material examined: 3ex, India: Sikkim (No other data).

Remarks: This species is recorded here for the first time from Sikkim.

Subfamily IV. CRYPTORRHYNCHINAE

Tribe Ithyporini
Subtribe Ithyporina


15. Meccocorynus varipes Wied.
1819. Meccocorynus varipes Wied. Zool. Mag., 1 (3) 178


Distribution: India: West Bengal, Assam, Sikkim.

Genus 13. Desmidophorus Schönh., 1837

16. Desmidophorus brachmanum Faust

Material examined: 7ex, India: Sikkim. 1ex, Sikkim, Mongphu.

Distribution: India: West Bengal, Sikkim.

Elsewhere: China.
17. *Desmidophorus confucii* Boh. in Schönh.


Material examined : 1ex., India : Sikkim (No other data).

Distribution : India : Sikkim.

Elsewhere : Myanmar, China

Remarks : This species is recorded here for the first time from India (Sikkim).

18. *Desmidophorus hebes* F.


Material examined : 1ex, India : Sikkim.

Distribution : India : West Bengal, Assam, Sikkim.

Elsewhere : Myanmar, China, Philippines, Cambodia.

Remarks : This species is recorded here for the first time from Sikkim.

Subfamily V RHYNCHOPHORINAE

Tribe Rhynchophorini

Subtribe Rhynchophori

Genus 14. *Cyttotrichelus* Schönherr, 1838


19. *Cyttotrichelus buqueti* Guér. Var. dux Boh. in Schönh.,


Material examined : 1ex., India : Sikkim.

Distribution : India : West Bengal, Assam, Sikkim.

Elsewhere : Myanmar.

20. *Cyttotrichelus longimanus* F.

Material examined: 3ex, India: Sikkim; 2ex., Sikkim: Mungphu.

Distribution: India: Sikkim.

Elsewhere: Malacca, Indonesia.

Remarks: This species is recorded here for the first time from India (Sikkim)

Genus 17 Tetratopus Chevr., 1882


25. Tetratopus longicollis Faust


Material examined: 2ex., India: Sikkim, VI. 1913; 1ex. Sikkim: Mungphu.

Distribution: India: Sikkim.


1829. Cercidocerus Schönherri Guér., Iconogr. Régne anim., pp. 179


Material examined: 2ex, India: Sikkim: Mungphu; 1ex., Sikkim.

Distribution: India: Sikkim.

Elsewhere: Myanmar, Indonesia

Remarks: This species is recorded here for the first time from India (Sikkim).

27. Cercidocerus rufipes Günther


Material examined: Not Seen.

Distribution: India: Assam, Sikkim.

Genus 19. Odoiporus Chevr., 1885


28. Odoiporus longicollis Oliv.

1807. Odoiporus longicollis ol., Ent. 5 (Nr. 83) : 86, t. 28, f. 413.


Distribution: India: Sikkim, Andaman Island.

Elsewhere: Sri Lanka, Myanmar.

Remarks: This species is recorded here for the first time from Sikkim.

SUMMARY

The Present paper consolidates the information available on weevils fauna from Sikkim. It includes 28 species under 19 genera belonging to five sub families viz. Brachyderinae, cleoninae, hylobiinae, cryptorrhynchinae and rhynchopilorinae. Of which 3 species under 3 genera are recorded for the first time from India and 8 species under 7 genera belonging to four subfamilies are recorded for the first time from Sikkim. Distributional data of the species has been given from the published records as well as actual study of the specimens. Key to the subfamilies, tribes where necessary have also been provided.

ACKNOWLEDGEMENTS

Authors are grateful to Dr. J.R.B. Alfred. Director, Zoological Survey of India for providing laboratory facilities to complete the work. Our thanks are also due to Dr. G.K. Srivastava. Additional Director (retd.) and Dr. S.K. Mitra. Joint Director (retd.) for suggestions and constant encouragement to complete the work.
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INSECTA : COLEOPTERA : PLATYPODIDAE

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INTRODUCTION

The members of the family Platypodidae are commonly known as 'Pin hole borer or shot hole borer or ambrosia beetle. They are known as ambrosia beetle because of its dark brown or black in colour caused due to presence of the peculiar fungus known as ambrosia growing in the tunnel made by themselves.

They live exclusively in the wood of the trees feeding on the sap of the tree. They attack both the living as well as dead trees, felled logs and the logs present in timber depot causing considerable damage to the timber industry. They mostly live in or favoured the injured tissues that are in the process of dying. They complete on regeneration in the host tissues having sufficient moisture for further generation. Their geographical history shows that they evolved in a similar environment early in the differentiation of Rhynchophorus stock.

The classification of the family has not yet been satisfactorily constructed. Several taxonomists has placed the family platypodidae together with scolytidae. Sharp has considered that only four families viz. Anthribidae, curculionidae, scolytidae including platypodidae can be accepted under the division of Rhynchophora. He has also showed that the family platypodidae is the most aberrant of all Rhynchophora. However, the classification of this group made by schedel (1972) is followed here for the present study of this group.

They can be easily distinguished by its body as long as all the remaining joints taken together, six segmented antennae, side of the prothorax emarginate for the reception of legs and head is remarkably short, flat and broader than prothorax and there is no trace of rostrum.

So far only 85 species under 6 genera belonging to three subfamilies viz. Diaporinae, Crossotarsinae and Platypodenae are known from India. The present study is based on the materials collected from Sikkim by different survey parties of Zoological Survey of India. This include five species under two genera belonging to two subfamilies. A list of host plants so far recorded for various species are also provided in this work. A key to the subfamilies and species have also been included.

SYSTEMATIC ACCOUNT : LIST OF TAXA

Order COLEOPTERA
Family PLATYPODIDAE
Subfamily I. PLATYPODINAE

Genus 1. Platypus Herbst. 1793
1. Platypus solidus walker
2. P. indicus Strohmeyer
3. P. secretus Sampson
4. P. cupulatus Chapuis

Subfamily II. DIAPORINAE

Genus 2. Diacavus Schedl. 1933
5. D. furtivus Sampson
Key to the subfamilies of the family PLATYPODIDAE

1. Front coxae contiguous ........................................ 2
   - Front coxae widely separated ............................ DIAPORINAE

2. In male outer face of the fore tibia marked by transverse carina but in female transverse carina is reduced and at least partly reduced by granules; (not recorded from Sikkim) .. CROSSOTARSINAE
   - In both sexes, the outer face of fore tibia marked by a variable number of transverse carina .................................. PLATYPODINAE

Subfamily I. PLATYPODINAE

Genus 1. Platypus Herbst, 1793

1938. Platypinus Schedl, Verh. VII. Int. Kong, pp. 397 (1939)
1938. Platypinus Schedl, Verh. VII. Int. Kong. 397 (1939)

Herbst (1793) first established the genus Platypus for the type species Bostrichus Cylindrus F. from Germany. The validity of the genus was in doubt for a long time. This genus is for the most part exotic but represented by several species in the Indian region, particularly from Sri Lanka. So far 47 species are recorded from India and 9 species from Sri Lanka. The member of the species cause a considerable damage to the timber of various species of forest trees belonging to the families like Leguminosae, Rubiaceae, Combretaceae, Bombacaceae, Dipterocarpaceae, Bignoniaceae, Moraceae, Euphorbiaceae, Urticaceae, Sterculiaceae, Sapindaceae, Myrtaceae, Verbanaceae etc.

This genus can be easily distinguished by its (i) head as wide as thorax in male, and a little less in female in (ii) segments of maxillary palps more or less compressed and membranous (iii) mentum in male with its base dilated or linear (iv) femoral grooves of pronotum angulate at both extremities except the species quercivorus Murayama (v) apex of elytra varies in sexes and (vi) pygidium covered up in both sexes.

**Distribution**: It is distributed in all zoogeographical regions but in tropical America it acquires the maximum diversity.

Key to the male species of Platypus Herbst recorded from Sikkim

1. Apex of elytra not truncate but terminating into a greatly narrowed end ................................ solidus Walker
   - Apex of elytra truncate and not terminating into a narrowed end ............................................. 2

2. Elytral declivity without spine or tubercle ....
   - Elytral declivity with spine or tubercle and with oblique depression ........................................ indicus Strohmeyer

3. No depression on elytra. Prothorax subquadrangle ................................ secretus Sampson
   - Elytra with more or less circular depression. Prothorax oblong with a median line in front .............. cupulatus Chapuis

   1. Platypus solidus Walker, 1858

1866. Platypus pilifrons Chapuis, Monograph platyp. : 265.


**Distribution**: India : West Bengal, Assam, Orissa, Uttar Pradesh, Madhya Pradesh,
Maharashtra, Tamil Nadu, Karnataka, Kerala, Andamans, Sikkim.

Elsewhere: Indonesia, Myanmar, Malaya, Philippines, Formosa.

Remarks: This species is widely distributed in India and reported from the various host plants viz. Acacia catechu, Acrocarpus fraxinifolia, Albizia lebbek, A. odoratissima, A. procera (Mimosae: Leguminosae); Adina cordifolia, Adina sessilifolia, Anthocephalus cadamba (Rubiaceae); Anogeissus latifolia wall., Terminalia beleria (combretaceae); Bombax malabaricum (Bombacaceae); Buchanania latifolia, Lannea grandis, Mangifera indica, Semecarpus heterophylla (Anacardiaceae); Butea frondosa, Dalbergia sissoo, (papilionaceae); Chloroxylon, swietenia (Meliacae); Cinnamomum cecidodaphne (Lauraceae); Dipterocarpus pilous, Shorea robusta (Dipterocarpaceae); Doliarchandron stipulata, Sterum spernum cheleniodes (Bignoniaceae); Ficus religiosa, Ficus tsiela (Moraceae), Hevea braziliensis, Mallotus albus (Euphorbiaceae), Holopotea integrifolia (Urticacae), Pterospermum acerifolium, Sterculia villosa (Sterculiaceae), Schleichera trijuga ( Sapindaceae), Tectona grandis (Verbenaceae). In the present study the species has been collected from the sap portion of fire wood which are abundant in this locality.

2. Platypus indicus Strohmeyer, 1910


Distribution: India : Assam, Sikkim, Tamil Nadu.

Remarks: This species were collected in daytime while attacking on fire wood. This species were recorded from the host plants like Bombax insignis, Bombax malabaricum (Bombacaceae), Dalbergia assamica (Papilionaceae).

Dipterocarpus pilous (Dipterocarpaceae), Ficus asperrima, Ficus bengalensis, Ficus infectoria, Ficus glomerata (Moraceae), Poinciana elata (Leguminosae : Caesalpiniae), Spondias mangifera (Anacardiaceae) etc.

3. Platypus secretus Sampson, 1921


Material examined : 8♂♂, 3♀♀; India : Sikkim : Rongpo : Mamrin, altitude 300 m, 5.IV.1982, R. K. Varshney and party.


Remarks: This species is distributed throughout Indomalayan region and recorded from the host plants like Albizaa udialis, Albizia stipulate (Mimosae: Leguminosae); Anthocephalus cadamba (Rubiaceae); Dalbergia assamica (Papilionaceae); Dipterocarpus pilous (Dipterocarpaceae); Lannea grandis (Anacardiaceae); Sterculia ornata (Sterculiaceae) Terminalia beleria (Combretaceae) etc.

4. Platypus cupulatus Chapuis, 1865

1865. Platypus cupulatus Chapuis, Monogr. Platyp. 27. 39, 278-279, fig. 167. a-d.


Distribution: India : West Bengal, Sikkim, Tamil Nadu, Andaman Island.

Elsewhere : Myanmar, Bhutan, Indonesia, Malacca.

Remarks: This species is found throughout Indomalayan region to New Guinea and recorded from the host plants like Bombax malabaricum (Bombacaceae); croton sp. (Euphorbiaceae); Dipterocarpus stipulata, Shorea, eximia, shorea lerosula, Shorea robusta, Shorea rugosa
and in female the elytra simple with its slightly convex apex; last abdominal sternite in male very large and deeply concave but in female last abdominal sternite rather large and convex.

**Distribution**: India, Malay, Vietnam and Philippines.

5. *Diacavus furtivus* Sampson, 1923


**Remarks**: It is observed in the field that this species attack both standing as well as recently felled log, particularly main trunks and large branches. This species is so far recorded from the host plants like *Dipterocarpus indicus, Shorea robusta* (Dipterocarpaceae) and *vertica lanceafolia*.

### List of Platypodid species associated with host plants

<table>
<thead>
<tr>
<th>Name of the species</th>
<th>Name of the Host plants</th>
<th>Name of the species</th>
</tr>
</thead>
</table>
**Name of the species** | **Name of the Host plants** | **Name of the species**
--- | --- | ---
Euphorbiaceae | Hevea braziliensis, Mallotus albus |  
Urticaceae | Holoptelea integrifolia |  
Sterculiaceae | Sterculia villosa |  
Sapindaceae | Schleicheria trijuga |  
Verbenaceae | Tectona grandis. |  

2. *Platypus indicus* Strohmeyer

Name of the species: *Platypus indicus* Strohmeyer

Name of the Host plants: Bombacaceae

Leguminosae: Papilionaceae *Dalbergia assamica*

Leguminosae: Calsalpinicae *Poinciana elata*

Moraceae: *Ficus asperrima F. bengalensis, F. infectoria F. glomerata.*

Anacardiaceae: *Spondias mangifera.*

3. *Platypus secretus* Sampson

Name of the species: *Platypus secretus* Sampson

Name of the Host plants: Leguminosae: *Mimosae Albizia udica, A. stipulata*

Leguminosae: *Papilionaceae Dalbergia assamica*

Rubiaceae | *Anthecephalus cadamba*

Dipterocarpaceae | *Dipterocarpus pilosus*

Anacardiaceae | *Lannea grandis*

Sterculiaceae | *Sterculia ornata*

Combretaceae | *Terminalia bellerica*

4. *Platypus cupulatus* Chapuis

Name of the species: *Platypus cupulatus* Chapuis

Name of the Host plants: Bombacaceae

Euphorbiaceae | *Croton sp.*

Dipterocarpaceae | *Dipterocarpus Stipulata, shorea eximia*

Bignoniaceae | *Dolichandrone stipulata*

Apocynaceae | *Dyera costulata*

Myrtaceae | *Eugenia glomerata, Eugenia jambolana*

Anacardiaceae | *Lannea grandis*

Leguminosae: *Papilionaceae Pterocarpus dalbergioides*

Leguminosae: *Mimosae Xyilia dolabriformis*

Verbanaceae | *Tectona grandis*

Combretaceae | *Terminalia bellerica*

**Subfamily II: Diaporinae**

5. *Diacavus furtivus* Sampson

Name of the species: *Diacavus furtivus* Sampson

Name of the Host plants: Dipterocarpaceae

*Dipterocarpus indicus, Shorea robusta*

Species of *Platypodiidae* recorded from Sikkim attacked the plants belonging to the following families:

<table>
<thead>
<tr>
<th>Name of the family of the infested plants</th>
<th>Genus <em>Platypus</em> Herbst</th>
<th>Genus <em>Dipterocarpus</em> Schedl</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>solidus</strong> Walker</td>
<td><strong>indicus</strong> Strohmeyer</td>
<td><strong>secretus</strong> Sampson</td>
</tr>
<tr>
<td>1. Leguminosae</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>2. Anacardiaceae</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>3. Dipterocarpaceae</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>4. Combretaceae</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
REMARKS

If we considered the species of platypodidae recorded from the plants, particularly in family level, it is observed that all the four species of Platypus Herbst are recorded from the plants belonging to the families like Laguninoseae and Anacardiaceae and the species Platypus solidus walker is the only species recorded from the plants of the families like Meliacea, Lauraceae, urticaceae and sapindaceae. Further all the four species of the genus Platypus are recorded from different plant species belonging to the papilionaceae of Laguminosae but the species solidus walker, indicus strohmeyer and secretus sampson from the plant species belonging to the same genus viz. Dalbergia and the latter two species are from the same plant species viz. Dalbergia assamica. The species solidus walker and cupulatus chapuis are recorded also from Butea forndosa and pterocarpus dalbergioides respectively. Of the four species of Platypus, three species except indicus strohmeyer are recorded from the plants belonging to Mimosae of Leguminosae. The species solidus walker, indicus strohmeyer, and cupulatus chapuis are recorded from the three plant families viz. Cambretriceae, Bombaceae and Bignoniaceae.

It has also been observed that the Platypus solidus walker is the species damaging maximum plant species belonging to 15 families and Diacavus furtivus sampson is the only species found to damage the plants belonging to the family Dipterocarpaceae.

SUMMARY

The Paper deals with 5 species belonging to 2 genera under two subfamilies. All the species are recorded here for the first time from Sikkim. Key to the subfamilies, genera and species have been provided, wherever necessary. Relevant references, collection and distributional data along with diagnostic character of the genera are also provided. In addition a list of host plants including remarks are also incorporated.

ACKNOWLEDGEMENT

The authors are highly indebted to Dr. J.R.B. Alfred, Director, Zoological Survey of India for giving the opportunity to work on the group. Thanks are also due to Dr. G. K. Srivastava, Scientist SG (retd.) and Dr. S. K. Mitra, Scientist SF, (retd.) Zoological Survey of India for offering valuable suggestions for its improvement.
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STEBBING, E.P., 1914. Indian Forest Insect of Economic Importance, (Coleoptera), 648pp., Pls. London (Govt. of India Pub.).

INTRODUCTION

Elateridae is one of the largest family of the order Coleoptera under the super-family Elateroidea. The adult members of the family are commonly known as click beetles. They can be easily distinguished by its body being mostly elongated, heavily sclerotized and its head being sunk in the large prothorax; pointed posterior angle of prothorax; a pointed process on the undersurface of prothorax which fits into a cavity on the mesosternum; short and serrated antennae, the serration may be much prolonged; elytra hard and cover the abdomen and their size varied from few millimeters to 5-6 cm. The larvae of the these beetles are commonly known as 'wire worms' and are mainly rootfeeders. They usually damage the roots of maize, wheat, small grasses, deodar seedlings etc. and are widely distributed throughout the world. More than 9000 species under 400 genera were recorded from the world (Lawrence, 1982). Candeze in his catalogue (1891) has recorded 200 species under 40 genera from India. Other major workers on this family are Candeze (1860-1898), Fleutiaux (1910-1950), Schwarz (1990-1907), Von Hayek (1973-1979), Platia and Schimmel (1990 onwards). Very recently a comprehensive work on the Indian Fauna of Elateridae have been attempted by L. K. Vats (1991 onwards) with special emphasis on the materials of North East India.

So far the fauna of Sikkim is concerned, Westwood (1848) first recorded the species Alaus sordidus from Sikkim. Later Candeze (1891) in his catalogue has recorded 3 species viz. Alaus sordidus Westwood, Adelocera collisa Candeze and Silesis sericeus Candeze from Sikkim. Further Candeze (1892) described the species Agonischius atkinsoni from Sikkim, Later Stibick (1968) recorded two new species from Sikkim. Recently Schimmel and Platia (1991) has published seven new species under the genus Silesis Candeze, five new species of Penia Hope and one new species of Parassikia Schimmel & Platia from Sikkim. In 1993, Schimmel has recorded three species under the genus Ampedus Dejean from Sikkim of which two species described as new to science.

The present work of the family Elateridae is based on a total collection of 211 examples made from different districts of Sikkim by various parties of Zoological Survey of India including the national collection present in Zoological survey of India. This include 45 species under 16 genera belonging to 9 sub families with description of one new species each under the genera Meristhus Candeze and Cardiophorus Eschscholtz respectively. Besides this, materials of some species which were recorded from Sikkim but not available for study has also been included in the classified list of Elateridae with * marks to make a complete list of species recorded from Sikkim. Altogether 77 species under 23 genera belonging to the 12 sub-family are recorded from Sikkim, of which 10 species are recorded for the first time from India, 28 species are recorded for the first time from Sikkim with description of two new species. It also include key to the subfamilies, genera and species with distributional data of each species from published records as well as from actual study of the specimens.
CLASSIFIED LIST OF ELATERIDAE
RECORDED FROM Sikkim

Subfamily AGRYPNINAE

I. Genus *Lanelater* Arnett.
1. *L. cinereus* (Candeze)
2. *L. fuscipes* (Fabricius)
3. *L. luridus* (Fabricius)
4. *L. robustus* (Fleutiaux)
5. *L. sp.*

II. Genus *Agrypnus* Eschscholtz
6. *A. argillaceus* (Solsky)
7. *A. bipapulatus* (Candeze)
8. *A. brunneipennis* (Candeze)
9. *A. coenosus* (l-lope)
10. *A. costicollis* (Candeze)
11. *A. jurulosus* (Candeze)
12. *A. lapideus* (Candeze)
13. *A. lutosus* (Candeze)
14. *A. planus* Vats & Kashyap
15. *A. serrula* (Candeze)
16. *A. truncatus* (Herbst)
17. *A. tuberculosus* Vats & Kashyap

III. Genus *Adelocera* Latreille

*18. A. collisa* Candeze
19. *A. adspersus* (Candeze)
20. *A. Sp.*

IV. Genus *Meristhus* Candeze

*21. M crenulatus* n.sp.

2. Subfamily HEMIRRHIPINAE

V. Genus *Calais* Castelnau

22. *C. berus* (Leconte)
23. *C. sculptus* (Westwood)
24. *C. sordidus* (Westwood)

3. Subfamily ADRASTINAE

VI. Genus *Silesis* Candeze

*25. S. fruhstorferi* Schimmel & Platia
*26. S. humilis* Schimmel & Platia
*27. S. incognitus* Schimmel & Platia
*28. S. parvulus* Schimmel & Platia
*29. S. pasangi* Schimmel & Platia
*30. S. schawalleri* Schimmel & Platia
*31. S. sericeus* Candeze
*32. S. wittmeri* Schimmel & Platia

4. Subfamily OXYNOPTERINAE

VII. Genus *Pectocera* Hope

33. *P. cantori* Hope
34. *Pectocera* sp.

5. Subfamily CAMPSOSTERNINAE

VIII. Genus *Campeosternus* Lareille

35. *C. dohrni* Westwood
36. *C. stephensi* Hope.
37. *C. sp.*

6. Subfamily SENDONINAE

IX. Genus *Penia* Hope

*38. P. concolor* Schimmel & Platia
39. *P. eschscholtzi* Hope
*40. P. girardi* Schimmel & Platia
*41. P. holzschuhi* Schimmel & Platia
*42. P. longiuscula* Schimmel & Platia
*43. P. marmorata* Schwarz
*44. P. martensi* Schimmel & Platia
*45. P. opatroides* Candeze
*46. P. plagiata* Candeze
*47. P. raii* Schimmel & Platia
*48. P. rugosa* Schimmel & Platia
49. *P. sachtlebeni* Dolin & Suzuki
50. *P. wittmeri* Dolin & Suzuki
X. Genus *Sendonia* Castelnau

*51. S. emodi* (Candeze)

7. Subfamily *DENTICOLLINAE*

XI. Genus *Plectrosternus* Lacordaire

52. *P. rufus* Lacordaire

XII. Genus *Hemiops* Castelnau

53. *H. crassa* Gyllenhall

54. *H. flava* Castelnau

XIII. Genus *Trophyonus* Reitter

*55. T. namsooa* Stibick

*56. T. rungbongi* Stibick

8. Subfamily *DIMINAE*

XIV. Genus *Paracsikia* Schimmel & Platia

*57. P. parvula* Schimmel & Platia

9. Subfamily *ELATERINAE*

XV. Genus *Agonischius* Candeze

*58. A. altus* Candeze

*59. A. atkinsoni* Candeze

XVI. Genus *Aphanobius* Eschscholtz

60. *A. longithorax* Wiedemann.

XVII. Genus *Ampedus* Dejean

*61. A. (S. Str.) brancucci* Schimmel

*62 A. (S. Str.) (Parelater) coccineus* (Candeze)

*63 A. (S. Str.) skkimensis* Schimmel

XVIII. Genus *Chiagosnius*

*64. C. metallicus* (Candeze)

*65. C. longus* (Candeze)

XIX. Genus *Dicronychus* Castelnau

*66. D. cinnamomeus* Candeze

10. Subfamily *MELANOTINAE*

XX. Genus *Melanotus* Eschscholtz

67. *M. fuscus* (Fabricius)

68. *M. longicornis* Candeze

69. *M. sp.*

XXI. Genus *Neodiploconus* Candeze

70. *N. angulatus* Candeze

*71. N. prominens* (Erichson)

72. *N. ornatus* Candeze

11. Subfamily *CARDIOPHORINAE*

XXII. Genus *Cardiophorus* Eschscholtz

73. *C. aequabilis* Candeze

74. *C. manulectus* Candeze

75. *C. moori* Candeze

76. *C. serratus* n. sp.

w12. Subfamily *NEGASTRINAE*

XXII. Genus *Quasimus* Gozis

77. *Q. (S.Str.) brancucci* Dolin.

Key to the Indian Subfamilies of the family *ELATERIDAE* from Sikkim

1. Prosternal suture opened or deeply grooved for receiving the antennae at rest. Some times these grooves are for tarsi............................

............................................. *AGRYPNINAE*.

- Prosternal suture closed or narrowly grooved.

............................................. 2

2. Frontal carina entire, often with a hole on the top of the anterior border ...................... 3

- Frontal carina faint/weak in the middle (between the eyes) ...................... 5

3. Pronotum more or less globular with the lateral margin reduced to a fine suture, Scutellum cordiform ..................... *CARDIOPHORINAE*

- Pronotum more or less convex, Scutellum differs in shape but never cordiform ........ 4
4. Mesocoaxae open to both mesepimeron and mesepistemum, mouth parts prognathous, claws simple. DENTICOLLINAE
   - Mesocoaxae open to mesepimeron but closed to mesepistemum, mouth parts inferior, claws pectinate. MELANOTINAE.

5. Setae present at the base of the claw. HEMIRRHIPINAE
   - Setae absent at the base of the claw. .......................... 6

6. Meso and metasternum distinct, joined by a definite suture. .......................... 7
   - Meso and metasternum connate, suture indistinct or absent. ........................................ 8

7. Tarsi with 2, 3 and 4 or 3 and 4 articles dialated or lamellated, mouthparts prognathous. SENDONINAE
   - Tarsi normally simple, without pads, mouthparts inferior. ELATERINAE

8. Elytra very broad to apex, non-striate, notched and spinose at apex. OXYNOPTERINAE
   - Elytra acuminate to apex, striate, spinose and usually mucronate at apex. CAMPSOSTERNINAE

Subfamily AGRYPNINAE

Key to the genera of the subfamily AGRYPNINAE known from Sikkim

1. Body blackish or blackish brown in colour .......................................................... 2
   - Body muddy brown in colour .......................................................... cinereus (Candeze)

2. Antennae not extended beyond the middle of the prothorax .................................. 3
   - Antennae extended beyond the middle of the prothorax .................................. 4

3. Body blackish, shining and comparatively thinner, apex of posterior angles of pronotum strongly pointed. fuscipes (Fabricius)
   - Body brownish black, dull and comparatively robust and stouter, apex of pronotum pointed robustus (Fleutiaux)

4. Elytral apex rounded. Lanelater sp. 1
   - Elytral apex subrounded. luridus (Fabricius)

I. Genus Lanelater Arnett

1952. Lanelater Arnett, R. H. Wasmann J. Biol. 10 : 105.

Arnett (1952) errected the genus Lanelater for the species Agrypnus schotti Le Conte and designated the species as a type species of the genus by original designation and transferred the species Agrypnus cinereus Candeze, A. robustus Fleutiaux, Elater fuscipes F., E. luridus F. under the genus Lanelater. In the present paper we have recorded 5 species from Sikkim.

Key to the species of genus Lanelater Arnett recorded from Sikkim

1. Body blackish or blackish brown in colour.......................................................... 2
   - Body muddy brown in colour .......................................................... cinereus (Candeze)
1. *Lanelater cinereus* (Candeze)

- **Material Examined**: 5 exs.; 3 ex., India: Sikkim, Date and Collector not known; lex., India: Sikkim, Knyvelt Collector, Date not known; lex., India: Sikkim: E. Sikkim: Singtam, 14. IX. 1993, S. K. Chatterjee Coll.

- **Distribution**: India: Sikkim. The published locality of this species is 'des Indes Orientles'.

- **Remark**: In the present study this species is recorded for the first time from Sikkim.

2. *Lanelater fuscipes* (F.)

- **Material Examined**: 1 ex, India: Sikkim; Date and Collector has not been recorded.

- **Distribution**: India: Sikkim, Delhi Rajasthan, Uttar Pradesh, Karnataka, Tamil Nadu, West Bengal.

- **Elsewhere**: Java, Ethiopia, Kenya, Arabia, Uganda and Baluchistan.

- **Remark**: This species is recorded for the first time from India.

3. *Lanelater luridus* (Fabricus)


- **Distribution**: India: Sikkim, S. India.

- **Elsewhere**: Java, Ethiopia, Kenya, Arabia, Uganda and Baluchistan.

- **Remark**: This species is recorded from Sikkim for the first time.

4. *Lanelater robustus* (Fleutiaux)

- **Material Examined**: 1 ex; India: Sikkim Date of Collector not found.

- **Distribution**: India: Sikkim, Eleswhere: Java.

- **Remark**: This species is recorded for the first time from India.

5. *Lanelater* sp. 1

- **Material Examined**: 1ex; India: Sikkim E. Sikkim: Ranipool, 24 V. 1997, Miss P. Chakraborty Coll.; at light.

- **Remark**: This species is very similar to *L. luridus* but differ in certain characters like, size
of the antennae, shape of the elytral apex and size of the punctures on pronotum. But, due to the presence of single specimen, its specific determination has not been attempted here. It will be done separately later on.

II Genus *Agrypnus* Eschscholtz


Eschscholtz (1829) first established the genus *Agrypnus* with 12 species, the type species was designated as *Elater murinus* Linnaeus by Arnett in 1952. Von Hayek (1973, 1979) has recorded 501 species of *Agrypnus* from the World, of which 46 are from India. Vats & Kashyap (1992) has recorded 40 new species of this genus from India. In this paper, we have recorded 12 species from Sikkim.

Key to the species of genus *Agrypnus* from Sikkim

1. Lateral margin of the pronotum entire

2. Lateral margin of the pronotum crenulate

3. Propleurae and metasternum with grooves

4. Propleurae and metasternum without grooves *brunneipennis* (Candeze)

5. Propleural grooves either distinct or indistinct

6. Propleural grooves absent

7. Prosternopleural suture groove approaches to the middle of prosternum

8. Prosternopleural suture groove extended beyond the middle of prosternum

9. Apex of posterior angles of prothorax either pointed or subpointed

10. Apex of posterior angles of prothorax truncated

11. Punctuation on pronotum double

12. Punctuation on pronotum simple

6. *Agrypnus argillaceus* (Solsky)


Material Examined: lex., India: Sikkim 1915-16, Carmichael Coll.

Distribution: India: Sikkim

Elsewhere: Vladivostock.

Remark: This species is recorded for the first time from India.

7. *Agrypnus bipapulatus* (Candeze)


**Distribution**: India : Sikkim. Elsewhere Japan and China.

**Remark**: This species is recorded for the first time from India.

8. *Agrypnus brunneipennis* (Candeze)


**Material Examined**: 1 ex., India : Sikkim Date and Collector not recorded.

**Distribution**: India : Sikkim, North India.

**Remark**: This species is recorded for the first time from Sikkim.

9. *Agrypnus coenosus* (Hope)


**Material Examined**: 8 exs., 4 ex, India : Sikkim; date & Collector not recorded; 3 ex, India : Sikkim; Manghpu, date and Collector not recorded; 1 ex; India : Sikkim : N. Sikkim; Lachung, alt. 2727 m., 30. VI. 1959, A. G. K. Menon Coll.

**Distribution**: India : Sikkim

**Elsewhere**: Nepal.

**Remark**: This species is for the first time recorded from Sikkim.

10. *Agrypnus costicollis* (Candeze)


**Distribution**: India : Sikkim Assam, North India.

**Elsewhere**: Yunnan, Cambodia and Tonkin.

**Remark**: This species is for the first time recorded from Sikkim.

11. *Agrypnus jurulosus* (Candeze)


**Material Examined**: 1 ex., India : Sikkim, Date and Collector not recorded.

**Distribution**: India : Sikkim, Himachal Pradesh, Bihar Tripura.

**Remark**: This species is recorded from Sikkim for the first time.

12. *Agrypnus lapideus* (Candeze)


**Material Examined**: 1 ex., India : Sikkim : N. Sikkim, A. G. K. Menon Coll, date of collection not recorded.

**Distribution**: India : Sikkim Kashmir.

**Elsewhere**: Nepal, Laos and Tonkin.

**Remark**: This species is recorded for the first time recorded from Sikkim.

13. *Agrypnus lutosus* (Candeze)


**Material Examined**: 1 ex., India: Sikkim Date and Collector not found.

**Distribution**: India: Sikkim, Punjab.

**Remark**: This species is recorded from Sikkim for the first time.


**Material Examined**: 2 exs., 1 ex., India; Sikkim, N. Sikkim; Thernleu, alt. 3167 m., 13. VI. 1959; A. J. K. Menon Coll., 1 ex., India: Sikkim: N. Sikkim: Lachung; alt 2727 m.; 2. VII. 1959; A. G. K. Menon Coll.

**Distribution**: India: U. P., Sikkim.

**Remark**: This species is also recorded from Sikkim for the first time.

15. *Agrypnus serrulo* (Candeze)


**Material Examined**: 2 exs., 1 ex., India; Sikkim: E. Sikkim: Rangpo; alt. 1400 m.; 16. IX. 09, Museum Collection; 1 ex.: India Sikkim: E. Himalaya; v. 1912; Collector not recorded.

**Distribution**: India: Sikkim

**Elsewhere**: Yunan.

**Remark**: The published locality of this species is in India border; but it is recorded from Sikkim for the first time.

16. *Agrypnus truncatus* (Herbst)

1806. *Elatier truncatus* Herbst, *Kafer* 10 : 95, pl. 166, fig. 2


**Distribution**: India: Sikkim, Uttar Pradesh.

**Remark**: This species is for the first time recorded from Sikkim.

17. *Agrypnus tuberculosus* Vats & Kashyap


**Material Examined**: 1 ex., India: Sikkim: Singtam, 15. IV 1994; P. H. Roy & Pty Coll.

**Distribution**: India: Sikkim, Uttar Pradesh.

**Remark**: This species is for the first time recorded from Sikkim.

III. Genus *Adelocera* Latreille


The genus *Adelocera* was established by Latreille 1829 and *Elater ovalis* Germar was designated astype species of this genus. Von Hayek (1973) included 75 species under this genus from the world of which 12 are recorded from India. Later in 1992, seven species as a new to science were added by Vats and Kashyap, which are widely distributed in North West India.

**Key to the species of genus Adelocera recorded from Sikkim**

1. Body blakish ...................... *Adelocera* sp.
   - Body blackish with yellowish patches ........
     ...................... *adspersus* (Candeze)

18. *Adelocera adspersus* (Candeze)


**Distribution**: India: Sikkim, Delhi.
Remark: The species is recorded for the first time from Sikkim.

19. *Adelocera* sp. 1


Remark: The material is an interesting, but due to lack of necessary literatures and the presence of single specimen the specific determination has not been attempted here.

IV. Genus. *Meristhus* Candeze. 1857


The genus *Meristhus* was established by Candeze in 1857 and designated *Elater lepidotus* Beauvois (by original designation) as type species of this genus. von Hayek (1973) has recorded 8 species of the genus *Meristhus* from the world, of which only one was from Indian border and one from Sri Lanka. Ohira & Becker (1973) has recorded two new species of this genus from Nepal. In this paper, we have described a new species from Sikkim.

20. *Meristhus crenulatus* n. sp. (Figs 1, 2.)

Body moderately elongate and more or less convex above; surface a little shining; blackish brown except around margins of pronotum, basal area of elytra with a pair of poorly defined, a pale yellow spots at the posterior third, these spots variable; vestiture of two types, one of thick, eract, scales sparse and arranged in a row on elytral intervals; the other type consisting of smaller, decumbent, setae on head and pronotum, and semi-eract, setae in a row on elytral intervals.

Head small, shallowly impressed at middle; surface coarsely and deeply punctate; clypeal margin prominent over antennal insertions. Antennae short, ending before the anterior margin of prothorax; basal segment robust and subcylindrical; second segment small, subcylindrical, and clearly longer than wide; third segment shortest, subclavate and clearly shorter than fourth one, fourth to tenth segments distinctly serrate at first then changing to moniliform, each segment slightly wider than long; last segment oblong, ovate and weakly pointed apically.

Pronotum 1.4 times wider than long, narrowest at anterior angles, widest near middle; sides crenulate and clearly sinate just before posterior angles, weakly rounded at middle, disc gently convex, with a very shallow, median, longitudinal groove rather sparse on disc than base and lateral sides; posterior angles very short and truncated, without any carina. Scutellum very slightly longer than wide with a longitudinal/prosternal carina at middle suture deeply grooved on anterior half, tarsal groove on proepisternum rather deep, well defined on posterior edge, tarsal groove on metasternum shallow, not clearly defined.

Elytra about 1.5 times longer than width; sides gradually wider towards middle then rounded and gradually narrowing towards apex; striae unimpressed with scales, punctuation usually small and scattered; few are large and deep; intervals flattened and with small punctures. First and second abdominal segments with very vague tarsal depression. Legs slender, tarsi simple; claws simple.

Male Genitalia (Fig 2.)—Phallobase rounded with two small apical processes at two sides, parameres with subapical process; aedeagus longer than parameres, tubular, apex pointed, furcae reaching the anterior margin of paramere.

Female: Cannot be distinguished externally from male.

*Material Examined*: Total length of the body 2.80 mm, breadth 1 mm; length of head 0.3 mm, width of the herd across the middle 0.8 mm, length of antenna, 1.2 mm; length of prothorax 0.7 mm, width of prothorax across the middle 1 mm, length of elytra 1.8 mm, width of elytron across the middle 1.2 mm.


**Distribution**: India: Sikkim.

The species *M. Crenulatus* appears closer to *M. longicollis* Candeze from Bengal and *M. nepalensis* ohira & Becker from Nepal, but can easily be separated from the former by pronotum wider than long, crenulated lateral margin, the posterior angles of the pronotum truncated without carina; elytra with sides gradually narrowing towards acute apex with indistinct pale yellow spots on elytra at posterior third; and from the later by the absence of erect scales on alternate elytral intervals, scutellum without longitudinal carina and posterior angles of pronotum with carina.

2. *Subfamily HEMIRRHIPINAE*

**V. Genus. Calais Castelnau**


The genus *Calais* was established by Castelnau in 1836 and designated *Elater excavatus* Fabricius as type species of this genus. Schwarz (1906) has recorded 8 species of this genus from India. In this paper authors have recorded three species of this genus from Sikkim.

**Key to the species of genus Calais Castelnau from Sikkim**

1. Dorsal surface of the body uniformly black. ............................................ *berus* (Le Conte)
   — Dorsal surface of the body bicoloured, black with yellowish patches. .......................... 2

2. Head and pronotum coarsely and sparsely punctured ................. *sculptus* (Westwood)
   — Head and pronotum finely and densely punctured .................. *sordidus* (Westwood)

**21. Calais berus** (Le Conte)


**Distribution**: India: Sikkim.

**Elsewhere**: South America

**Remark**: This species is recorded for the first time from India.

**22. Calais sculptus** (Westwood)


**Material Examined**: 2exs.; lex.; India: Sikkim; date and collector not known; lex.; India: Sikkim. Schlagintwent Coll., Date not known.

**Distribution**: India: Sikkim, India border.

**Elsewhere**: Tonkin, Siam.

**Remark**: This species is recorded from Sikkim for the first time.

**23. Calais sordidus** (Westwood)


**Material Examined**: 3exs; lex., India: Sikkim: Gangtok; 16. VIII. 1959; A. G. K. Menon Coll, lex., India: Sikkim, Date & Collector not found; lex., India: Sikkim; N. Sikkim: Chungthang; alt 1551 m; 28. VII. 1959; A. G. K. Menon Coll.
Insecta: Coleoptera: Elateroidea: Elateridae

Distribution: India: Sikkim, Tamil Nadu.

3. Subfamily OXYNOPTERINAE

VI. Genus. Pectocera Hope


This genus was established by Hope in 1872 and designated Pectocera cantori Hope (Present designation) as type species of this genus. Candeze (1891) has recorded 6 species from the world, of which 2 are from India. In the present paper 2 species of the genus Pectocera are recorded from Sikkim. Both are recorded for the first time from Sikkim.

Key to the species of genus Pectocera Hope from Sikkim

1. The antennae is pectinate, no carina on the pronotum .................. cantori Hope.
   - The antennae is serrated, two longitudinal carina on the mid dorsal surface of the pronotum ...................... Pectocera sp.

24. Pectocera cantori Hope


Distribution: India: Sikkim, Assam.
Elsewhere: Tibet.

Remark: This species is recorded from Sikkim for the first time.

25. Pectocera sp.


Remarks: This specimen does not possess the lamellated antennae as that of Pectocera cantori, but the other characters help it to come under the genus Pectocera. But, due to the lack of other specimens and necessary literature, this material has not been treated as a new species. The specimen will be studied later specifically.

4. Subfamily CAMPSOSTERNINAE

VI. Genus. Campsosternus Latreille


The genus was originally established by Latreille, 1834. The type species of the genus was designated as Elater fulgens Fabricius (Monobasic). In Candeze’s Catalogue (1891) 46 species from the world including 10 species from India has been recorded. In this paper, 3 species of this genus have been recorded from Sikkim.

Key to the species of genus

Campsosternus Latreille for Sikkim

1. Pronotum bicoloured, red and black ............ 2
   - Pronotum unicoloured, black ......................... ......................... Campsosternus sp.

2. Size small (16-18 mm), pronotum finely and densely punctured .......... dohri Westwood.
   - Size larger (35-37 mm.), pronotum finely but sparsely punctured .......... stephensi Hope.

26. Campsosternus dohri Westwood

1848. Campsosternus dohri Westwood, Cabinet Orient. Ent. : 17 : pl. 35, f. 3.

Material Examined: lex. ; India : Sikkim : E. Himalaya; May, 1912; Collector not recorded.

Distribution: India : Sikkim.
Elsewhere: Annam.
Remark: This species is for the first time recorded from India.

27. Campsosternus stephensi Hope

1831. Campsosternus stephensi Hope; Zool. Miscel. 25

Material Examined: lex.; India: Sikkim; N. Sikkim: Linthoke; alt 1394m; 6.V. 1959; A. G. N. Menon Coll.

Distribution: India: Sikkim, Bengal.

Remark: This species is recorded from Sikkim for the first time.

28. Campsosternus sp.


Remark: The material differs from C. stephensi Hope, by the colour of the body and length of antennae. But, due to lack of necessary literature the specific determination has not been attempted here. It will be studied separately later.

5. Subfamily SENDONINAE

VIII. Genus. Penia Hope, 1831


The genus was established by Hope in 1831 and the type species was designated as Penia eschscholtzi Hope (Monobasic) Candeze (1891) has recorded 16 species of this genus from the world but all but from Asia. Out of the 13 species of Penia recorded from Sikkim by Schimmel and Platia (1991) we have recorded only 2 species in this paper.

Key to the species of genus Penia Hope from Sikkim

1. Body with combination of two colours yellowish brown and blackish brown, prothorax clearly broader than long, antennae not extended up to the mesocoxae ........................................ eschscholtzi Hope
   - Body unicoloured, blackish brown, prothorax longer than broad, antennae extended beyond the mesocoxae ........................................ wittmeri Dolin & Suzuki

29. Penia eschscholtzi Hope

1831. Penia eschscholtzi Hope, in Gray, zool. Miscell: 26

Material Examined: lex., India: Sikkim; date and Collector not known.

Distribution: India: Sikkim; N. India.

Elsewhere: Nepal.

Remark: This species was recorded from Sikkim for the first time by Schimmel & Platia (1991).

30. Penia wittmeri Dolin & Suzuki


Distribution: India: Sikkim, West Bengal.

Elsewhere: Nepal.

Remark: This species was recorded from Sikkim for the first time by Schimmel & Platia (1991).

6. Subfamily DENTICOLLINAE

Key to the genera of the subfamily DENTICOLLINAE from Sikkim

I. Antennae pectinate, starting from 4th antenomere .......... Plectrosternus Lacordaire
   - Antennae serrate .......... Hemiops Castelnau

IX. Genus. Plectrosternus Lacordaire


The genus was established by Lacordaire in 1857 and designated Plectrosternus rufus Lacordaire (Monobasic and by original designation) as type species of this genus. Candeze in his catalogue (1891) has recorded, only a single species P. rufus from ‘Indes-Orientales’. In this present paper only one species has been recorded from Sikkim.

31. Plectrosternus rufus Lacordaire

1957. Plectrosternus rufus Lacordaire, Gen. Col. IV: 228

Material Examined: 6 exs., India: Sikkim; date and Collector not recorded.

Distribution: India: Sikkim, Bengal, Assam.
Elsewhere: Srilanka, Bangladesh, Myanmar, Cochin-China, Formosa.

Remark: This species has been recorded from Sikkim for the first time.

X. Genus. Hemiops Castelnau

1833. Hemiops Castelnau, Dejean Cat. ed. 3: 95

The genus was established by Castelnau in 1833 and the type species was designated as Hemiops flava Castelnau designated by Hyslop, 1921. In Candeze’s Catalogue (1891) 7 species of this genus was recorded from the world but all from Asia, of which single species was from India. In the present paper 2 species of the genus Hemiops has been recorded from India.

Key to the species of the genus Hemiops Castelnau from Sikkim.

1. Pronotum with a narrow depression on the mid-dorsal part ……………. flava Castelnau
   – Pronotum without any depression ……………
   ……………………………………………………… crassa Gyllenhall

32. Hemiops flava Castelnau

1836. Hemiops flava Castelnau, in Silber, Rev. Ent. 4: 15

Material Examined: 1ex., India: Sikkim; 1915-16, Carmichael Coll.

Distribution: India: Sikkim, Assam, West Bengal.

Elsewhere: Myanmar, Malay Pen., Indonesia, China, Philippinies. Formosa, Indo-China, South Asia, Laos, Siam.

Remark: This species is recorded from sikkim for the first time.

33. Hemiops crassa Gyllenhall


Material Examined: 11 exes., 6exs., India; Sikkim; Date and Collector not recorded; 4 ex., India: Sikkim; Knyvett Coll, date of collection not recorded; 1ex., India: Sikkim: N. Sikkim; 1959, A. G. K. Menon Coll.

Distribution: India: Sikkim

Elsewhere: Indonesia.

Remark: This species has been recorded from India for the first time.

7. Subfamily ELATERINAE

Key to the genera of the subfamily ELATERINAE from Sikkim

1. Lateral sutures of pronotum inflexed infront .................................................. AgonischiuS Candeze
   – Lateral sutures of pronotum is normal……..2
2. Posterior coxae broader exteriorly, mesosternum inclined ............................................. Aphanobius Eschscholtz
   – Posterior coxae narrow, mesosternum normal ............................................. Dicronychus Castelnau
XI. Genus. Agonischius Candeze


The genus Agonischius was established by Candeze in 1863 and the type being Agonischius pectoralis Candeze (designated by Hyslop, 1921). Candeze (1891) has listed 70 species from the world, of which 8 was from India. In the present study single species of this genus has been recorded from Sikkim.

34. Agonischius altus Candeze

1957. Agonischius altus Candeze, Elat. nouv. 4 : 54


Distribution : India : Sikkim, West Bengal.

Remark : This species has been recorded from Sikkim for the first time.

XII. Genus. Aphanobius Eschscholtz.


This genus was established in 1829 by Eschscholtz, the type species was designated as Aphanobius longicollis Eschscholtz (by designation of Candeze). Candeze (1891) has listed a total of 15 species of Aphanobius from Sikkim.

35. Aphanobius longithorax Wiedemann

1823. Aphanobius longithorax Wiedemann, Zool. Mag. 2(1) : 185

Material Examined : lex.; India : Sikkim : E. Himalaya, date and collector not recorded.

Distribution : India : Sikkim, Bengal.

Remark : This species is recorded from Sikkim for the first time.

XIII. Genus. Dicronychus Castelnau


The genus was established by Castelnau in 1848 and the type species was designated as Dicronychus senegalensis Castelnau (designated by Hyslop, 1921). Candeze (1891) has recorded 14 species from the world, of which one species was from India : Bengal. In the present paper single species of this genus has been recorded from Sikkim.

36. Dicronychus cinnamomeus Candeze

1857. Dicronychus cinnamomeus Candeze, Elat. nouv. 1 : 56.

Material Examined : lex.; India : Sikkim; date and collector not recorded.

Distribution : India : Sikkim, Bengal.

Remark : This species is first time recorded from Sikkim, in this present paper.

8. Subfamily MELANOTINAE

Key to the genera of the subfamily MELANOTINAE from Sikkim

1. Pronotum with lateral basal groove, posterior coxae non-angular.............................................

......................... Melanotus Eschscholtz

– Pronotum without any basal groove, posterior coxae angular at middle ............................................. Priopus Castelnau

XIV. Genus. Melanotus Eschscholtz, 1829


Melanotus is the type genus of the subfamily Melanotinae and the type species was Elater fusciceps Gyllenhal. Candeze (1891) has recorded 139 species of this genus from the world, of which
10 were from India. In the present paper 3 species of the genus *Melanotus* has been recorded from Sikkim.

**Key to the species of the genus *Melanotus* Eschscholtz recorded from Sikkim**

1. Antennae long, extended upto the middle coxae ................................................................. 2
   - Antennae short, extended only beyond the middle of the pronotum ........ *Melanotus* sp.

2. The carina on the posterior angle of pronotum long, extended upto the middle of the pronotum ........................................... *fuscus* (Fabricius)
   - The carina on the posterior angle of pronotum short ............... *longicornis* Candeze

37. *Melanotus fuscus* (Fabricius)


**Distribution**: India: Sikkim, India Border.

**Remark**: This species is recorded from Sikkim for the first time.


**Material Examined**: 2exs; 1ex., India: Sikkim; E. Sikkim: Ranipool; 18.IV.1993; B. N. Das & Pty.

**Remark**: This species is closely related to *M. fuscus* (Fabricius) but differs by its size of antenna and punctuation. But due to lack of more materials and literatures the specific determination has not been attempted here. It will be done later on.

**XIV. Genus. *Priopus* Castelnau**


The genus was established by Candeze in 1857 and the type was designated as *Diploconus peregrinus* Candeze. 2 species has been recorded, in the present study.

**Key to the species of the genus *Priopus* Candeze from Sikkim**

1. Body reddish brown, pronotum with a black longitudinal line on the mid-dorsal part........... ................................. *ornatus* (Candeze)
   - Body blackish brown, pronotum unicoloured, without any longitudinal markings ..................... *angulatus* (Candeze)

40. *Priopus angulatus* (Candeze)


Material Examined: lex., India: Sikkim, Moti Ram Coll; Date of Collection not known.

Distribution: India: Sikkim.


Remark: This species is for the first time recorded from India.

41. Priopus ornatus (Candeze)


Material Examined: lex., India: Sikkim, Date and Collector not recorded.

Distribution: India: Sikkim.

Remark: This species is also recorded from India for the first time.

9. Subfamily CARDIOPHORINAE

XVI. Genus. Cardiophorus Eschscholtz.

1829. Cardiophorus Eschscholtz., In Thon. Arch. 2 : 34


Cardiophorus was originally described by Eschscholtz in 1829 and the type species was designated as Elater ruficollis Fabricius. Candeze (1891) has recorded 307 species from the world including 41 species of this genus from India. In the present paper 3 species of this genus has been included from Sikkim.

Key to the species of the genus Cardiophorus Esch. recorded from Sikkim

1. Elytra with four yellow, rounded spots .......... .............................. moori Candeze
– Elytra unicoloured, without any spot .......... 2

2. Pronotum with double punctation, punctures are sparse .................................. aequabilis Candeze
– Pronotum with single punctation, punctures are dense .................................. tibialis Erichson

42. Cardiophorus aequabilis Candeze


Distribution: India: Sikkim, Haryana.

Remark: First time recorded from Sikkim.

43. Cardiophorus moori Candeze

1860. Cardiophorus moori Candeze, Mon. Elat. 3 : 206; pl. 3.f.20.


Distribution: India : Sikkim, Tamil Nadu.

Remark: This species is for the first time recorded from Sikkim.

44. Cardiophorus tibialis Erichson.


Distribution: India: Sikkim, Uttar Pradesh.

Elsewhere: Greece and Spain.

Remark: This species is for the first time recorded from Sikkim.

45. *Cardiophorus serratus* n. sp. (Figs. 3-4).

Body elongated and more or less convex above; surface little shining; blackish brown except the sides of the elytra which is reddish brown; antennae and legs are brown, pubescence whitish, evenly distributed all over the body. Claws brown and simple.

Head small, blackish brown, slightly broader than long, surface depressed anteriorly; frons with anterior margin almost straight, pubescence whitish, punctation simple, dense and small. Antennae brown, short, ending before the anterior margin of procoxae; basal segment robust, second segment distinctly shorter than the third; fourth to tenth segments distinctly serrate, last segment ovate, constricted near apex.

Pronotum blackish brown, as long as broad, narrowest at anterior angles; sides almost straight and slightly sinuate just before the posterior angles, pronotal disc convex, sub-marginal line extending much beyond the middle of the prothorax; pubescence whitish, punctures unevenly spaced, simple, dense and small; posterior angles pointed, without any carina. Scutellum blackish brown, cordiform. Prosternum reddish brown, punctuation simple, dense, prosternal spine margined in front of coxae. Metasternum slightly emarginate between mesocoxae.

Elytra about 2.2 times longer than width, sides gradually widening to near middle then rounded and gradually widening to near middle then rounded and gradually narrowing towards acute apex; pubescence whitish, dense, striae punctures small; interstriae slightly convex, more convex towards anterior; sides subparallel. Legs slender, tarsi and claws simple.

Male genitalia Fig. 4 – Phallobase with round anterior margin, parameres divergent, gently curved outwards, distal part with a very small subapical process, aedeagus longer than parameres, slender, gradually narrows posteriorly, apex pointed.

Female: Cannot be distinguished externally from male.

Measurements: Total length of the body 9.8 mm; length of the head 0.8 mm; width of the head across the middle 5.0 mm; length of the antennae 1.8 mm; length of prothorax 2.7 mm; width of the prothorax across the middle 2.7 mm; length of the elytra 6.2 mm, width of the elytra at middle 2.8 mm.


Distribution: India: Sikkim.

The species *C. serratus* sp. nov. is closely related to *C. doggeri* Vats and Chauhan described from Himachal Pradesh, but can be easily separated by its frons being almost straight at its anterior margin, punctuation simple, prosternal spine margined in front of coxae and the anterior margin of scutellum is not indented and antennal segments from 4th to 10th distinctly serrated.

SUMMARY

The present paper is based on the study of the total collection made by different survey parties of Zoological Survey of India from different districts of Sikkim including the National Collection present in the Coleoptera Section. Besides this, the materials of some species which were recorded from Sikkim, but not available for study has also been included here to make a complete list of species recorded from Sikkim. This includes a total of 77 species belonging to 23 genera under 12 subfamilies, with descriptions of two new species viz. *Meristhus crenulatus* sp. nov. and *Cardiophorus serratus* sp. nov. from Sikkim.
Fig. 1. Dorsal view of *Meristhus crenulatus* n. sp.

Fig. 2. Dorsal view of aedeagus of *Meristhus crenulatus* n. sp.

Fig. 3. Dorsal view of *Cardiophorus serratus* n. sp.

Fig. 4. Dorsal view of aedeagus of *Cardiophorus serratus* n. sp.
Besides this 10 species are recorded here for the first time from India and 28 species also recorded for the first time from Sikkim. First reference and recent valid names of the genera and species have also been given. It also includes the distributional data of each species from published records and actual study of the specimen. Key to the subfamilies, genera and species have been provided. Illustrations of the dorsal figure and genitalia of the new species are also given.

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INSECTA : COLEOPTERA : STAPHYLINIDAE

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INTRODUCTION

The Staphylinidae is one of the largest families of the superfamily Staphylinoidae, distributed throughout the World. About 30,000 species are known from the world and more than 2000 species have been recorded so far from India. Bernhauer (1915), Fauvel (1895), Kraatz (1859) and Motschulsky (1858) are the pioneer workers of the family Staphylinidae. Prior to Cameron’s work on fauna of British India series (1930, 1931,1932, 1939, 1943-1945) no comprehensive work on Indian fauna of Staphylinidae have been done by any authors.

Cameron in his fauna of British India series recorded 51 species from Sikkim. Besides work of Cameron, in recent times Biswas and Sengupta (1980,1983 and 1989) described seven species from Sikkim.

In this present work 85 species are newly recorded from Sikkim of which 9 species are for the first time recorded from India and last another 11 species are recorded as new to science from Sikkim. Thus the total number of species known from Sikkim comes to 143.

The present work on the family Staphylinidae is based on the collection brought from different districts of Sikkim by various recent survey parties from Zoological Survey of India, and other oldest collections present in the National Zoological Collection. Materials of some species recorded from Sikkim were not available for study, however for the sake of completeness these species are also included in this work. This study is based on 407 examples comprising 143 species under 59 genera and 7 subfamilies. Key to the subfamilies, tribes, genera and species, and distributional data of each species of the family Staphylinidae for Sikkim have been provided. Under systematic account arrangement of the taxa have been done after Cameron.

The specimens dealt with in this paper are deposited in the collection of Zoological Survey of India, Kolkata.

SYSTEMATIC ACCOUNT

(* denotes new records from Sikkim and ** new records from India)

Subfamily (I) : OXYTELINAE

Tribe I. Piestini

1. Apatetica Westwood
   1. sikkimi Fauvel
2. Eupiestus Kraatz
   2. sculpticollis Kraatz
3. Holosus Motschulsky
   3. *olisthaeriformis Fauvel
   4. *brevipennis Fauvel
   5. *longipennis Cameron
   6. aberrans Fauvel
4. Lspinus Erichson
   7. bhaumiki, sp. nov.
   8. *iyeri Bernhauer
   9. *coriaceus Fauvel
Tribe II. Eleusiini

5. Eleusis Castelnau
10. *andrewesi* Cameron
11. sikkimensis, sp. nov.
12. biswasi, sp. nov.
13. **faeae** Fauvel
14. *humilis* Erichson

Tribe III. Leptochirini

6. Borolinus Bernhauer
15. sikkimensis Bernhauer
16. minutus Castelnau

7. Priochirus Sharp
17. *Triacanthochirus* apicalis Eppelsheim
18. *(T.)* bipunctatus (Fauvel)
19. *(Plastus)* eucerus Cameron
20. *(Cephalomerus)* bifoveatus Eppelsheim
21. *(C.)* rubiginosus Cameron
22. *(C.)* sanguinosus Motschulsky

Tribe IV. Omaliini

8. Anthobium Stephens
23. *(Eusphalerum)* indicum Champion
24. *(E.)* sikkimi Fauvel

9. Omalium Gravenhorst
25. *cariosum* Cameron

10. Phloeonomus Heer
26. *(Phloeositiba)* gangtokensis, sp. nov.
27. *(P.)* basui, sp. nov.
28. *(P.)* bhaumiki, sp. nov.

Tribe V. Oxytelini

11. Coprophilus Latreille
29. **(Zonophilus)* subplagiatus Cameron

12. Oxytelopsis Fauvel
30. pseudopsina Fauvel

13. Oxytelus Gravenhorst
31. *(Caccoporus)* varipennis Kraatz
32. *(C.)* incisus Motschulsky
33. *(C.)* bengalensis Erichson
34. *(Tanycaerurus)* hingstoni Cameron

14. Anotylus Thomson
35. *micans* (Kraatz)
36. **rufus* (Kraatz)

15. Bledius Leach
37. *(Pucerus)* ranglicus Biswas & Sengupta
38. *(P.)* teestaius Biswas & Sengupta
39. *(P.)* bali Biswas & Sengupta
40. *(P.)* suravius Biswas & Sengupta
41. *(P.)* niloticus Erichson
42. *(P.)* gracilicornis Kraatz

Tribe VI. Osoriini

16. Osorius Latreille
43. Calvus Eppelsheim

Subfamily (II) : STENINAE

17. Stenus Latreille
44. **(Hypostenus)* birmanus* Fauvel
45. *(H.)* kurseonginus Cameron
46. *(H.)* wasmanni Fauvel
47. *(H.)* rajpurianus Cameron
48. *(H.)* barbatus Neit.
49. *(H.)* ventricosus Fauvel
50. *(H.)* decanus Biswas
51. *(H.)* rufoplagiatus (Champion)
52. *(H.)* millepunctus Fauvel
53. *(H.)* sikkimensis, sp. nov.
54. *(Mesostenus)* virgula Fauvel

18. Dianous Samouelle
55. obliqenotatus Champion
Subfamily (III) : EUAESTHETINAE

19. Stenaesthetus Sharp
   56. *sunioides Sharp

Subfamily (IV) : PAEDERINAE

Tribe VII. Pinophilini

20. Palaminus Erichson
   57. *monticola Cameron
   58. *indicus Kraatz
   59. *andrewesi Cameron

Tribe VIII Paederini

21. Paederus fabricius
   60. *fusicipes Curtis
   61. *nigricornis Bernhauer

22. Dibelonetes Sahlberg
   62. sikkimensis Biswas & Sengupta

23. Astenus Stephens
   63. *bispinus (Motschulsky)
   64. *gracilentus Fauvel
   65. sikkimensis, sp. nov.
   66. asitus Biswas & Sengupta
   67. jhopus Biswas & Sengupta
   68. *indicus (Kraatz)

24. Stilicopsis Sachse
   69. *trinotata Kraatz
   70. *pallida Cameron

25. stilicus Latreille
   71. *rufescens Sharp
   72. *ceylonensis Kraatz
   73. *gracilis Eppelsheim
   74. *parvus Cameron

26. Acanthoglossa Kraatz
   75. *testaceipennis Kraatz

27. Medon Stephens
   76. birmanus Fauvel
   77. **breviusculus (Kraatz)
   78. *planatus Bernhauer

79. rangpoensis, sp. nov.
28. Lithocharis Boisd.
   80. nigriceps Kraatz
29. Lobochitus Bernhauer
   81. nigerrimus Kraatz
30. Charichirus Sharp
   82. *chinensis (Boh.)

31. Scopaeus Erichson
   83. * germanus Cameron
   84. *puncticeps Kraatz
   85. **micrus Kraatz
   86. *humilis Cameron
   87. *nitidulus Motschulsky
   88. gangtokensis, sp. nov.

32. Lathrobium Gravenhorst
   89. semicaeruleum Cameron
   90. brunneum Cameron

33. Cryptobium Mannerheim
   91. sikkimense Cameron
   92. bernhaueri var. distinctum Cameron

Subfamily (V) : STAPHYLININAE

Tribe IX. Xantholinini

34. Metolinus Cameron
   93. leucocnemis (Kraatz)
35. Leptacinus Erichson
   94. *gracilis Fauvel
   95. parumpunctatus Gyll.

36. Pachycorynus Motschulsky
   96. *dimidiatus Motschulsky

37. Mitomorphus Kraatz
   97. *indicus Kraatz

38. Indoscitalinus Heller
   98. rudis (Eppelsheim)
   99. *anachoreta (Fauvel)

39. Othius Stephens
   100. ruficornis Cameron
Tribe X. Staphylinini

40. Neobisnius Ganglb.
   101. *praelongus* Gemm.

41. Philonthus Curtis
   102. industanus Fauvel
   103. azuripennis Cameron
   104. distincticornis Cameron
   105. obsoletus Eppelsheim
   106. subjectus Cameron
   107. nigricoxis Cameron
   108. rivularis Cameron
   109. *convalescens* Eppelsheim
   110. sikkimensis, sp. nov.

42. Stevensis Cameron
   114. longipennis Cameron

43. Paratolmerus Cameron
   115. pilosiventris Cameron

44. Staphylinus Linnius
   116. (Goerius) olivaceus Cameron
   117. (G.) prainae Eppelsheim
   118. (Pseudocypus) aereus Cameron

45. Rhynchochilus Sharp
   119. **argenteus** Fauvel

46. Craspedomerus Bernhauer
   120. violaceipennis Cameron
   121. caeruleipennis Cameron

47. Creophilus Mannerheim
   122. sikkimensis Wendeler

Tribe XI. Quediini

48. Quedius Stephens
   123. (Microsaurus) stevensi Cameron
   124. (Sauridus) ripicola Cameron
   125. (Raphius) himalayicus Bernhauer

49. Indoquedius Cameron
   126. sikkimensis (Cameron)
   127. aberrans (Cameron)
   128. filicornis (Eppelsheim)

Subfamily (VI) : TACHYPORINAE

Tribe XII. Tachyporini

50. Conosoma Kraatz
   129. hemisphaericum Bernhauer

51. Tachinus Gravenhorst
   130. *lugubris* Cameron

52. Tachyporus Gravenhorst
   131. *flavopictus* Fauvel
   132. triangulum Cameron
   133. himalayicus Bernhauer

53. Tachinomorphus Kraatz
   134. fulvipes (Erichson)

54. Coproporus Kraatz
   135. *fasciipennis* Kraatz
   136. *melanarius* (Erichson)

Tribe XIII. Symmixini

55. Symmixus Bernhauer
   137. sikkimensis Bernhauer

Subfamily (VII) : ALEOCHARINAE

Tribe XIV. Myrmedoniini

56. Cordalia Jacobs
   138. *vestita* (Boh.)

57. Falagria Mannerheim
   139. *(Stenagria) granulata Cameron
   140. *(S.Str.) vicina cameron

58. Amaurodera Fauvel
   141. opacicollis (Epelsheim)
   142. *elegans* Cameron

59. Astilbus Stephens
   143. stevensi Cameron
Key to the subfamilies of the family
STAPHYLINIDAE from Sikkim

1. Prothoracic spiracles concealed [except in Platystethus and Thinobius (but then the suture dehiscent) and Lithocharis and Cryptobium] by the triangular epimera, which externally are fused with the pronotal epipleura ................................................................. 2
   – Prothoracic spiracles exposed, or, if concealed, the epimera are free .................. 5
2(1). Ist segment of the maxillary palpi elongate.
   Posterior coxal conical .................................. 3
   – 1st segment of the maxillary palpi very short ..................................................... 4
3(2). Tarsi 5, 5, 5 .................................. STENINAE
   – Tarsi 4, 4, 4 or 5, 5, 4 .................................. EUAESTHETINAE 4
4(2). Antennae inserted under a thickened marginal border of the head. Tarsi variable ............................................................... OXYTELINAE
   – Antennae inserted under the prominent anterior angles of the front margin of the head. Tarsi 5, 5, 5. .................................. PAEDERINAE
5(1). Antennae inserted on the front margin of the head. Prothoracic spiracles exposed ........... STAPHYLININAE
   – Antennae inserted at the inner border of the eye. Prothoracic spiracles exposed or covered by a free-lying epimeron ...................... 6
6(5). Elytra not extending beyond the metathorax; the prothoracic spiracles exposed .......... ALEOCHARINAE
   – Elytra usually extending beyond the metathorax; the epipleura separated by a fine sharp keel from the dorsal surface. The prothoracic spiracles usually exposed, but covered by free-lying epimera in Tachinus, Tachinomorphus and Tachinoderus ............... TACHYPORINAE

Subfamily OXYTELINAE

Key to the tribes and genera of the subfamily OXYTELINAE

1. Head with two ocelli (except occasionally in Hygrogeus). First ventral segment of the abdomen keeled in the middle. The posterior trochanters large ...................... Omaliini 10
   – Head without ocelli ........................................... 2
2(1). Anterior coxal cavities close behind ........
   ................................................................. leptochirini 9
   – Anterior coxal cavities open behind .......... 3
3(2). First ventral segment of the abdomen keeled in the middle .................................. 4
   – First ventral segment not keeled (except in Apocellagria and 3-segmented tarsi) ....
   ................................................... oxytelini 12
4(3). Anterior coxae very small, not prominent. Tongue at least in part membranous .......... 5
   – Anterior coxae large, prominent. Tongue entirely corneous; more or less cylindrical species ...
   ......................... Osoriini (Osorius Latreille)
5(4). Anterior trochantin exposed as a long tongue-shaped process behind the posterior margin of the prosternum and separated from the epipleura by a suture. Parallel depressed species. Tarsi 5-segmented .................. Eleusiini (Eleusis Castelnau)
   – Anterior trochantin small, not or but slightly exposed .................................. Piestini 6
6(5). Abdomen bordered .................................. 7
   – Abdomen not bordered ................................. 8
7(6). Thorax keeled .................. Eupiestus Kraatz
   Thorax not keeled ............... Apatetica Westw.
8(6). Abdomen striate at the sides. Fourth segment of the maxillary palpi elongate. More or less convex species with the facies of certain Tachyporinae ............... Holosus Motschulsky
   Abdomens rarely striate at the sides. Fourth segment of the maxillary palpi less elongate.
More or less parallel, depressed or sub-depressed species .......... Lispinus Erichson.

9(2). Anterior coxae separated; the prosternal process dilated behind at its apex .................. Leptochirus Germar

- Anterior coxae contiguous; the prosternal process concealed and not expanded behind .......... Borolinus Bernhauer

10(1). All the tarsi dilated and clothed with long hairs at the sides ........ Anthobium Stephens

- All the tarsi simple without long hairs at the sides ................................................................. 11

11(10). Last segment of the posterior tarsi much longer than the four preceding together. Mesosternum not keeled ................ Phloeonomus Heer.

- Last segment of the posterior tarsi only as long as or shorter than the four preceding together .......... Omalium Gravenhorst

12(3). Tarsi 3-segmented .................................................. 13

- Tarsi 5-segmented. Anterior and middle tibiae spinose ........ Coprophilus Latreille

13(12). Anterior and middle tibiae strongly spinose externally .................................................. 14

- Anterior and middle tibiae ciliate, at most with two small spines before the apex .......... 15

14(13) Cylindrical species with geniculate antennae ................................................................. Bledius Leach

Species not cylindrical, antennae normal ............. Oxytelus Gravenhorst

15 (13). Tibia with distinct longitudinal grooves; pronotum with lateral margin strongly explanate and hypomeron extremely deflexed ........ Oxytelopsis Fauvel

- Tibia without distinct longitudinal grooves; if grooves present, then poorly developed and pronotum not strongly explanate and hypomeron not extremely deflexed ........................................ Anotylus Thomson

Genus Apatetica Westwood


1. Apatetica sikkimi Fauvel


Distribution : India : Sikim.

Other Indian State : West Bengal.

Elsewhere : Nil.

Remark : In the present study this species is recorded for the first time from sikkim.

Genus Eupiestus Kraatz


2. Eupiestus sculpticollis Kraatz


Distribution : India : Sikkim.

Other Indian States : Tamil Nadu, Sikkim.

Elsewhere : Sri Lanka, Myanmar and Lombok.

Genus Holosus Motschulsky


Key to the species of the genus Holosus

1. Thorax not deeply impressed at the posterior angles. Facies of Olisthaerus .................... Olisthaeriformis Motschulsky

2 (1). Thorax not transversely impressed before the base ................................. 3

2 (2). Thorax not transversely impressed before the base ................................. 3
BISWAS: Insecta: Coleoptera: Staphylinidae

Thorax transversely impressed before the base ........................................... *brevipennis* Fauvel

3 (2). Penultimate segments of antennae fully as long as broad ............... *longipennis* Cameron.

Penultimate segments of antennae distinctly transverse ....................... *aberrans* Fauvel

3. *Holosus olisthaeriformis* Motschulsky


1930. *Holosus olisthaeriformis* : Cameron, Fauna British India, 1 : 47.


*Distribution*: India: Sikkim.

*Other Indian State*: Tripura

*Elsewhere*: Nil.

*Remark*: In the present study this species is recorded for the first time from Sikkim.

4. *Holosus brevipennis* Fauvel


1930. *Holosus brevipennis* : Cameron, Fauna British India, 1 : 50.


*Distribution*: India: Sikkim.

*Other Indian State*: Uttar Pradesh.

*Elsewhere*: Sumatra, Hong-Kong, Tonkin, Hue.

*Remark*: In the present study this species is recorded for the first time from Sikkim.

5. *Holosus longipennis* Cameron


*Distribution*: India: Sikkim.

*Other Indian State*: Tamil Nadu.

*Elsewhere*: Nil.

*Remark*: In the present study this species is recorded for the first time from India (Sikkim).

6. *Holosus aberrans* Fauvel


1930. *Holosus aberrans* : Cameron, Fauna British India, 1 : 51.


*Distribution*: India: Sikkim.

*Other Indian State*: Nil.

*Elsewhere*: Sri Lanka.

*Remark*: In the present study this species is recorded for the first time from India (Sikkim).

Genus *Lispinus* Erichson


**Key to the species of the genus *Lispinus***

1. Thorax without median impression before the base ........................................... *bhaumiki*, sp. nov.

   - Thorax with more or less distinct median impression ........................................... 2

2(1). Larger, 3.2 mm.; darker and more coarsely punctured species........... *coriaceus* Fauvel

   - Smaller, 2.2 mm., lighter and more finely punctured species.................. *iyeri* Bernhauer

7. *Lispinus bhaumiki*, sp. nov.

*General appearance* rather narrow, elongate, depressed, finely coriaceous; black, moderately shining. The apex of the abdomen reddish. antennae and legs reddish-brown.
Head on each side in front feebly impressed, rather finely and closely punctured. Antennae with the segments 3-6 distinctly longer than broad, segment 7-9 slightly longer than broad, segment 10 as long as broad. Thorax as long as broad, median slightly impressed. The sides slightly rounded in front, a little narrowed before rectangular posterior angles, in the middle with a very fine impressed line, adjacent to the posterior angle, with a deep and rather narrow sulcus, extending to the middle of the length, surface densely and strongly punctured including the sulcus also. Elytra distinctly longer than thorax, on each side of the anterior margin broadly impressed semicircularly, the puncturation as on the thorax. Abdomen elongate, the sides distinctly striate and punctured. Posterior margin of sternite 6 of male deeply and broadly emarginate, the apex rounded.

Measurements of holotype: Total length 6.50 mm.; width of head across the eyes 0.70 mm.; length of thorax 0.80 mm. and width of thorax 0.80 mm.; length of elytra 1.10 mm. and width of elytra 1.10 mm.


Discussion: The new species is closely related to Lissinus quadrinotatus Fauvel but can be easily separated from the latter species by its antennal segments 6-10 not transverse; thorax with slight median impression and the sulcus densely punctured; elytra longer than thorax; not vermiform, larger in size.

8. Lissinus iyerti Bernhauer

Distribution: India: Sikkim.

Other Indian State: Uttar Pradesh.

Elsewhere: Nil.

Remark: In the present study this species is recorded for the first time from Sikkim.

9. Lissinus coriaceus Fauvel


1930. Lissinus coriaceus : Cameron, Fauna British India, 1: 82.


Distribution: India: Sikkim.

Other Indian States: West Bengal and Meghalaya.

Elsewhere: Myanmar, Java and Borneo.

Remark: In the present study this speceies is recorded for the first time from Sikkim.

Genus Eleusis Castelnau


Key to the species of the genus Eleusis

1. Thorax on either side with two small teeth ................................................................. biswasi, sp. nov.
   - Thorax on either side with or without a single tooth ...............................................2

2 (1). Species in great part reddish or reddish testaceous ........................................... feae Fauvel
   - Species dark, the disc of the elytra often reddish or reddish testaceous ................. 3

3 (2). Sides of the thorax with a distinct tooth ............................................................. andrewesi Cameron
   - Sides of the thorax without or with-very obsolete tooth ........................................ 4

4 (3). Elytra yellow, the posterior margin rather narrowly and rather sharply black ........  
   ............................................................... humilis Erichson
- Elytra brownish-testaceous with greenish-reflexion, the base, suture and sides narrowly and posterior margin broadly infuscate .......... 

10. Eleusis andrewesi Cameron

1930. Eleusis andrewesi Cameron, Fauna British India, 1:79


Distribution: India: Sikkim.

Other Indian state: Tamil Nadu.

Elsewhere: nil.

Remark: In the present study this species is recorded for the first time from Sikkim.

11. Eleusis sikkimensis, sp. nov.

General appearance rather black, shining, parallel, elytra brownish - testaceous with greenish reflexion, the base, suture and sides narrowly and posterior margin broadly in fuscate. Antennae reddish-brown. Legs reddish-brown, the tarsi testaceous.

Head sub-quadrate orbicular, slightly transverse, as broad as thorax, superficially subinturn between the antennal tubercles and the truncated anterior margin, the temples slightly rounded, in the $\delta$ the temples about twice as long as the eye, juxta ocular sulcus rather deep and broad, not reaching the base, surface densely and coarsely punctured, ground-sculpture strigose only near the juxta-ocular and anterior margin, in the $\varphi$ the head is smaller and less quadrate than in the $\delta$, the eye is prominent and diameter of the eye is as long as the temples. Antennae rather short and stout, segments 4-5 longer than broad, segments 6-7 as long as broad, segments 8-10 transverse. Thorax transverse, conical, widest in front, the sides fully rounded for the anterior half, strongly contracted and scarcely rounded to the base, the disc flattened, in the middle with a fine shot sulcus, anterior margin on left side with single punctate impression and right with bipunctate impression, finely and densely punctured, on the middle devoid of any ground-sculpture. Elytra longer and broader than thorax, finely and densely punctured and with a setiferous puncture in the middle of the disc, ground-sculpture longitudinal strigose for the most part. Abdomen with the usual setiferous punctures and transverse strigose ground-sculpture.

Measurements of holotype: Total length 5.50 mm., width of head across the eyes 1.20 mm.; length of thorax 0.80 mm. and width of thorax 1.20 mm.; length of elytra 1.40 mm. and width of elytra 1.30 mm.


Distribution: India: Sikkim.

Discussion: The new species is closely related to Eleusis viridans Fauvel but can be easily separated from the latter species by its surface of head densely and coarsely puncture, ground-sculpture not for the most part, antennal segmental pattern different, thorax devoid of any dentate and anterior margin on the left side with single punctate impression, ground-sculpture different, tarsi-testaceous.

12. Eleusis biswasi, sp. nov.

General appearance rather shining, head and thorax pitchy, elytra reddish testaceous with a large yellow mark occupying the posterior region from near to the anterior margin to the posterior-external angle, abdomen pitchy. Antennae ferruginous red, the first two segments reddish testaceous. Legs pitchy, the tarsi testaceous.

Head transverse, subquadratate, the temples parallel, slightly longer than the diameter of the eyes, these rather large and prominent, surface densely and coarsely punctured. Antennae rather short and stout, segment 3 longer than segment 2, segments 4 to 10 as long as broad. Thorax transverse, as broad as head, cupuliform, lateral
side with one pair of tooth at posterior third and fully rounded for the anterior one fourth, strongly constricted and scarcely rounded to the base, in the middle before the base feebly impressed, surface densely and finely punctured. Elytra broader and about twice longer than thorax, densely and superficially punctured. Abdomen with usual setiferous punctures.

Measurements of the holotype: Total length 3.50 mm.; width of head across the eyes 0.85 mm.; length of thorax 0.50 mm. and width of thorax 0.85 mm.; length of elytra 1.15 mm; and width of elytra 1.40 mm.


Distribution: India: Sikkim.

Discussion: The new species is closely related to Eleusis nilgiriensis Cameron but can be easily separated from it by the colour pattern of elytra; antennal segments 1 and 2 and tarsi reddish-testaceous, head not longer than broad, Puncturation of head dense and coarse. Elytra is distinctly more than twice longer than thorax.

13. Eleusis feae Fauvel

1805. Eleusis feae Fauvel, Rev. d'Ent., 14: 188.
1930. Eleusis feae Cameron, Fauna British India, 1: 78.


Distribution: India: Sikkim.

Other Indian State: Nil.

Elsewhere: Myanmar and Java.

Remark: In the present study this species is recorded for the first time from India (Sikkim).

14. Eleusis humilis Erichson

**BISWAS**: Insecta: Coleoptera: Staphylinidae

**Distribution**: India: Sikkim.

**Other Indian States**: West Bengal, Nagaland and Arunachal Pradesh.

**Elsewhere**: Myanmar, Siam, Sumatra, Java, Lombok and Borneo.

**Genus Priochirus** Sharp


**Key to the subgenera**

1. Front margin of the head with a more or less distinct tooth in the middle

   - Front margin of the head without tooth in the middle

2(1). Head in front divided by a deep, narrow, median impression into two larger lobes, often themselves dentate

   - Head with a frontal empression which is at least as broad as long

**Key to the species of subgenus Triacanthochirus**

3 (1). Broader species, the median tooth cylindrical with rounded apex ...

   - Narrower species, the median tooth narrowed before the apex, which is pointed

**17. Priochirus (Triacanthochirus) apicalis** (Eppelsheim)

1895. **Leptochirus** apicalis Eppelsheim, W.E.Z., 14: 68.

1930. **Priochirus** (Triacanthochirus) apicalis: Cameron, Fauna British India, 1: 97.

**Material examined**: Not studied.

**Distribution**: India: Sikkim.

**Other Indian States**: Nil.

**Remark**: It was early recorded from Sikkim.

18. **Priochirus** (Triacanthochirus) bipunctatus (Fauvel)

1895. **Leptochirus** bipunctatus Fauvel, Rev.d'Ent., 14: 160.

1930. **Priochirus** (Triacanthochirus) bipunctatus: Cameron, Fauna British India, 1: 97-98.

**Material examined**: Not studied.

**Distribution**: India: Sikkim.

**Other Indian States**: Arunachal Pradesh, Assam, Meghalaya and West Bengal.

**Elsewhere**: Myanmar.

**Subgenus Plastus** Bernhauer

1903. **Plastus** Bernhauer, D.E.Z.: 142

19. **Priochirus** (Plastus) eucus (Cameron)

1930. **Priochirus** (plastus) eucus: Cameron, Fauna British India, 1: 114.

**Material examined**: Not Studied

**Distribution**: India: Sikkim.

**Other Indian state**: West Bengal.

**Elsewhere**: Nil.

**Remark**: It was early recorded from Sikkim.

**Key to the species of subgenus Cephalomerus**

4(2). Large species 16 to 23 mm

   - Smaller species 6 to 10.5 mm

5(4). Species in great part bright red

   - Species dark ferruginous red, the elytra black with the base narrowly reddish

**20. Priochirus (Cephalomerus) bifoveatus** (Eppelsheim)

1895. **Leptochirus** bifoveatus Eppelsheim, W.E.Z., 14: 69
21. Priochirus (Cephalomerus) rubiginosus

Cameron

1930. Priochirus (Cephalomerus) rubiginosus Cameron, Fauna British India, 1 : 105-106.

Material examined: Not studied.

Distribution: India: Sikkim.

Other Indian State: Nagaland, Meghalaya and West Bengal.

Elsewhere: Nil.

Remark: It was early recorded from Sikkim.

22. Priochirus (Cephalomerus) sanguinosus

(C. I. Motschulsky)


1930. Priochirus (Cephalomerus) sanguinosus Cameron, Fauna British India, 1 : 103.

Material examined: Not studied.

Distribution: India: Sikkim.

Other Indian State: West Bengal.

Elsewhere: Myanmar.

Remark: It was early recorded from Sikkim.

Genus Anthobium Stephens


Key to the species of the subgenus Eusphalerum

1. Smaller (2 mm.). Angles of the thorax all rounded ....................................... sikkimi Fauvel

- Larger (2 to 3 mm.). Angles of the thorax obtuse ........................................ indicum Champion.

23. Anthobium (Eusphalerum) indicum

Champion


1930. Anthobium (Eusphalerum) indicum Cameron, Fauna British India, 1 : 136.

Material examined: 1 ex., India: Sikkim, Gangtok, 1 ex., 7.iii.1979, S. K. Saha and party Coll.

Distribution: India: Sikkim.

Other Indian State:

Elsewhere: Nil.

Remarks: In Fauna (1930) Cameron mentioned locality data only Kurram valley: Parachinar. In the present study this species may be first time recorded from Sikkim.

24. Anthobium (Eusphalerum) sikkimi

Fauvel


1930. Anthobium (Eusphalerum) sikkimi Cameron, Fauna British India, 1 : 135.


Distribution: India: Sikkim.

Other Indian State: West Bengal.

Elsewhere: Nil.

Remarks: In the present study this species is recorded for the first time from Sikkim.

Genus Omalium Gravenhorst


25. Omalium cariosum

Cameron


1930. Omalium cariosum Cameron, Fauna British India, 1 : 140.

Distribution: India: Sikkim.

Other Indian State: Uttar Pradesh.

Elsewhere: Nil.

Remark: In the present study this species is recorded for the first time from Sikkim.

Genus Phloeonomus Heer

Key to the species of the subgenus Phloeostiba

1. Temples scarcely visible; thorax strongly transverse
   - Temples slightly longer than the half diameter of the eye; thorax as long as broad

2(1). Ground-sculpture of head, thorax and elytra are granulated; elytra more than twice as long as thorax
   - Ground-sculpture of head, thorax and elytra are more or less strong longitudinal striat; elytra one and half times longer than thorax

26. Phloeonomus (Phloeostiba) gangtokensis, sp. nov.

This species is closely related to Phloeonomus (Phloeostiba) pinicola Champion but can be easily separated from the latter species by its ground-sculpture of head, thorax and elytra are granulated, elytra more than twice as long as thorax, antennal segments 6-11, elytra and abdominal segments (visible) 5-7 reddish testaceous, antennal segments 1-5 and legs testaceous, head, thorax and abdominal segments 1-4 brown, thorax with only an impressed area along the middle from the posterior margin to 3/4 length of the thorax. Posterior margin of sternite 6 of male deeply and broadly emarginate, before the emargination with two small oblong keel.

Measurements of holotype: Total length 2.25 mm.; width of head across the eyes 0.45 mm.; length of thorax 0.30 mm. and width of thorax 0.55 mm.; length of elytra 0.70 mm. and width of elytra 0.70 mm.


Distribution: India: Sikkim.

27. Phloeonomus (Phloeostiba) basui, sp. nov.

General appearance rather elongate, narrow, depressed, moderately shining, reddish-testaceous. Antennal segments 1-5 testaceous, the rest reddish. Legs testaceous.

Head as broad as the thorax, subtriangular, the temples slightly longer than the half diameter of the eye; vertex flat, before each ocellus with a long, broad sulcus, between two sulcus there is another broad impressed line from base whose length is equal the length of the sulcus, the posterior angles obtuse, surface finely, densely punctures and with a more or less strong longitudinal striat ground-sculpture. Thorax as long as broad, the sides in front almost straight and converging backwards to a little behind the middle, from thence almost parallel to the posterior angles; anterior border on each side with a small fovea, in the middle with a very fine raised line from posterior margin to anterior margin, finely and moderately densely punctured and with a more or less fine longitudinal striate ground-sculpture. Elytra a little broader and about twice longer than thorax, less finely and closely punctured, ground-sculpture as like as the thorax. Abdomen coriaceous, nearly impunctate.
Measurements of holotype: Total length 1.80 mm.; width of head across the eyes 0.35 mm.; length of thorax 0.25 mm. and width of thorax 0.35 mm.; length of elytra 0.50 mm. and width of elytra 0.40 mm.


Distribution: India: Sikkim.

Discussion: This species is closely related to Phloeonomus (Phloeostiba) temporalis Cameron but can be easily separated from the latter species by the following characters: head not broader than thorax, temples longer than the half diameter of the eye, a broad impressed line between two sulcus, sulcus broad, surface strongly punctured, ground-sculpture not retiform. Thorax not broader, posterior angles not rounded. Elytra about twice as long as the thorax. Colouration different.

28. Phloeonomus (Phloeostiba) bhaumiki, sp. nov.

This species is closely related to Phloeonomus (phloeostiba) gangtokensis, sp. nov. but can be easily separated from the latter species by its ground sculpture of head, thorax and elytra are more or less strong longitudinal striate, thorax more or less as long as broad and anterior angles broadly rounded and posterior angles obtuse, elytra one and half times longer than thorax. Posterior margin of sternite 6 of male semicircularly emarginate.

This species is also closely related to Phloeonomus (Phloeostiba) basui, sp. nov but can be easily separated from its temples scarcely visible.

Measurements of holotype: Total length 2.55 mm.; width of head across the eyes 0.55 mm.; length of thorax 0.45 mm. and width of thorax 0.60 mm.; length of elytra 0.65 mm. and width of elytra 0.80 mm.


Distribution: India: Sikkim.

Genus Coprophilus Latreille


29. Coprophilus (Zonoptilus) subplagiatus Cameron


1930. Coprophilus (Zonoptilus) Subplagiatus Cameron, Fauna British India, 1 : 173.


Distribution: India: Sikkim.

Other Indian States: Nil

Elsewhere: Tibet.

Remark: In the present study this species is recorded for the first time from India (Sikkim).

Genus Oxytelopsis Fauvel


30. Oxytelopsis pseudopsina Fauvel


1930. Oxytelopsis pseudopsina: Cameron, Fauna British India, 1 : 206-207.


Distribution: India: Sikkim.

Other Indian States: West Bengal, Uttar Pradesh, Meghalaya and Tripura.
Elsewhere: Myanmar, Malay Peninsula, Sumatra, Java and Borneo.

Remark: In the present study this species is recorded for the first time from Sikkim.

Genus Oxytelus Gravenhorst


Key to the subgenera of the genus Oxytelus

1. Eyes with fine facets

................. Tanycraerus (hingstoni Cameron)

Eyes with coarse facets

Caccoporus 2

2 (1). Upper surface entirely micro-reticulate and consequently dull; larger species, length 5 mm.

........................................ bengalensis Erichson.

Upper surface at least moderately shining in part; the elytra and much of the pronotum lacking micro-reticulation, smaller species, length 2. 2 to 5 mm

3 (2). Head black; thorax pitchy to reddish brown; elytra brownish-yellow, darker around scutellum and suture, length 4 to 5 mm

................. varipennis Kraatz

Head and thorax ferruginous red; elytra testaceus, more or less broadly infuscate on the disc, length 3 mm

.................................... incisus Motschulsky

31. Oxytelus (Caccoporus) varipennis Kraatz


1930. Oxytelus (Caccoporus) varipennis : Cameron, Fauna British India, 1 : 234-35.


Distribution: India: Sikkim.

Other Indian States: Uttar Pradesh Tripura.

Elsewhere: Sri Lanka.

Remark: In the present study this species is recorded for the first time from Sikkim.

32. Oxytelus (Caccoporus) incisus Motschulsky


1858. Oxytelus ferrugineus kraatz, Arch. Naturgesch. 25 (1) : 173.

1930. Oxytelus (Caccoporus) ferrugineus : Cameron, Fauna British India, 1 : 235-236.


Distribution: India: Sikkim.

Other Indian States: Bihar, Andaman Is., Meghalaya and Tripura.

Elsewhere: Sri Lanka, Hawai, Japan, Seychelles, Aden, E. Africa and West Indies.

Remark: In the present study this species is recorded for the first time from Sikkim.

33. Oxytelus (Caccoporus) bengalensis Erichson


Distribution: India: Sikkim.

Other Indian States: Uttar Pradesh and Tripura.
Elsewhere: Sri Lanka, Malay Peninsula.

Remark: In Fauna (1930) Cameron mentioned in locality data only Bengal. In the present study this species is recorded for the first time from Sikkim.

Subgenus *Tanycraerus* Thomson


34. *Oxytelus* (Tanycraerus) hingstoni Cameron


Material examined: Not studied.

Distribution: India: Sikkim.

Other Indian State: Nil.

Elsewhere: Nil.

Remark: It was early recorded from Sikkim.

Genus *Anotylus* Thomson


Key to the species of the genus *Anotylus* Thomson

1. Protibia with abrupt constriction in outer third; anterior margin of clypeus with moderately deep median incision, so that on each side of the clypeus projects forward as a blunt horn

--- micans (Kraatz)

- Protibia with abrupt constriction in outer third, at most with sinuation; anterior margin of clypeus without horn

--- rufus (Kraatz)

35. *Anotylus micans* (Kraatz)


--- gracilicornis Kraatz

--- suravius Biswas & Sengupta

--- ranglicus Biswas & Sengupta


---Distribution: India: Sikkim.

---Other Indian States: Uttar Pradesh and Maharashtra.


---Remark: In the present study this species is recorded for the first time from Sikkim.

36. *Anotylus rufus* (kraatz)


---Distribution: India: Sikkim.

---Other Indian State: Nil.


---Remark: In the present study this species is recorded for the first time from Sikkim.

Genus *Bledius* Leach


Key to the Indian species of the subgenus *Pucerus*

1. First segment of antennae markedly long ...

--- First segment of antennae normal ............ 3

2(1). Elytra markedly longer than prothorax ....

--- Elytra slightly longer than prothorax ..... suravius Biswas & Sengupta

3(1). Mandibles tridentate 

---ranglicus Biswas & Sengupta
BISWAS: Insecta: Coleoptera: Staphylinidae

- Mandibles bidentate ...................................... 4

4 (3). Species small (3.50 mm.). front margin of clypeus with single simple tooth, antennal segment 7 slightly transverse, posterior margin of sternite 6 of male rather broadly emarginate, on each side of middle line forming a median lobe ..................... niloticus Erichson

- Species large (4.5 mm.). apex of median tooth of front of clypeus distinctly dentate, antennal segment 7 slightly longer than broad, median lobe of posterior margin of sternite 6 of male broad and its apex truncated ................... 4

4 (3) Clypeal tooth broad and apical dentation more prominent and distinctly bifurcated, elytra yellow, its sutural line and base narrowly reddish, abdominal segments 1-5 yellow and 6-7 reddish, posterior margin of sternite 7 of male straight with a median small and rather pointed lobe .......... bali Biswas & Sengupta

- Clypeal tooth narrow and small and its apical dentate slightly bifurcated, elytra yellowish, abdominal segments 1-7 brownish, posterior margin of sternite 7 of male broadly emarginate on each side of median lobe.......................... teestaius Biswas & Sengupta

37. Bledius (Pucerus) ranglicus Biswas & Sengupta


Distribution: India: Sikkim.

Other Indian State: Nil.

Elsewhere: Nil.

38. Bledius (Pucerus) teestaius Biswas & Sengupta


Distribution: India: Sikkim.

Other Indian State: Nil.

Elsewhere: Nil.

39. Bledius (Pucerus) bali Biswas & Sengupta


Distribution: India: Sikkim.

Other Indian State: Nil.

Elsewhere: Nil.

40. Bledius (Pucerus) suravius Biswas & Sengupta


Distribution: India: Sikkim.

Other Indian States: West Bengal and Tamil Nadu

Elsewhere: Nil.

41. Bledius (Pucerus) niloticus Erichson


Distribution: India: Sikkim.

Other Indian States: West Bengal, Bihar and Punjab.

Elsewhere: Nil.

42. Bledius (Pucerus) gracilicornis Kraatz


1930. Bledius (Pucerus) gracilicornis: Cameron, Fauna British India, 1 : 276-277.


Distribution: India: Sikkim.

Other Indian State: Tamil Nadu.

Elsewhere: Sri Lanka.

Remark: In the present study this species is recorded for the first time from Sikkim.

Genus Osorius Latreille


43. Osorius calvus Eppelsheim


Material examined: Not studied.

Distribution: India: Sikkim.

Other Indian State: Nil.

Elsewhere: Nil.

Subfamily STENINAE

Key to the genera of the subfamily STENINAE

1. Eyes very large, occupying the entire side of the head, temples wanting; seventh abdominal segment with a short spine or short bunch of hairs on each side .......................... Stenus Laterille

   - Eyes not occupying the entire side of the head, temples present; seventh abdominal segment with a tuft of long fine hairs on each side .......................... Dianous Samouelle

Genus Stenus Latreille

1796. Stenus Latreille, Prec. Car. gen. Ins., : 77

Key to the subgenera and species

1. Abdomen not, or very indistinctly, margined on 1st, 5th and 6th segments only ................

   - Abdomen completely and distinctly margined Mesostenus Rey (virgula Fauvel)

2(1). Elytra dark, with yellow or orange markings .................................................. 3

   - Elytra unicolorous .................................................. 5

3(2). Elytra each with a large round spot ........

   - Antennae reddish-testaceous, the club infuscate, femora testaceous .......................... ventricosus Fauvel

   - Elytra other wise marked .......................... 4

4(3). First three segments of antennae reddish testaceous, the rest infuscate; posterior femora infuscate .......................... rajpurianus Cameron

   - Antennae reddish-testaceous, the club infuscate, femora testaceous .......................... decanus Biswas

5(2). Base of the antennae black or pitchy ......

   - Base of the antennae testaceous or reddish testaceous ............................................. 6

6(5). Antennae short, the penultimate segments not or but little longer than broad ........

   - Antennae long and slender, the penultimate segments much longer than broad ............. 7

7(6). Head uniformly punctured all over ..........

   - Head with more or less distinct shining median space or line .................................... 8

8(7). Larger (6 to 7 mm). Apex of femora broadly infuscate ........................................ kurseonginus Bernhauer
BISWAS: Insecta: Coleoptera: Staphylinidae

- Smaller (5 to 6 mm). Legs entirely testaceous ................................................................. 9

9(8). Very narrow, slender species, the abdomen not very closely punctured .................... barbatus Neit.
- More robust, abdomen closely punctured .... ........................................................................ 10

10(9). More closely and finely punctured species ................................................................. millepunctus Fauvel
- Less closely and less finely punctured species ................................................................. sikkimensis, sp. nov.

44. Stenus (Hypostenus) birmanus Fauvel

1930. Stenus (Hypostenus) birmanus: Cameron, Fauna British India, 1: 363-364.


Distribution: India: Sikkim.

Other Indian States: Nil.

Elsewhere: Myanmar.

Remark: In the present study this species is recorded for the first time from India (Sikkim).

45. Stenus (Hypostenus) kurseonginus Bernhauer

1930. Stenus (Hypostenus) kurseonginus: Cameron, Fauna British India, 1: 362-363.


Distribution: India: Sikkim.

Other Indian States: West Bengal and Uttar Pradesh.

Elsewhere: Nil.

Remark: In the present study this species is recorded for the first time from Sikkim.

46. Stenus (Hypostenus) wasmanni Fauvel

1895. Stenus wasmanni Fauvel, Rev. d'Ent., 14: 214
1930. Stenus (Hypostenus) wasmanni: Cameron, Fauna British India, 1: 376-377.


Distribution: India: Sikkim.

Other Indian States: West Bengal, Himachal Pradesh, Uttar Pradesh and Nagaland.

Elsewhere: Myanmar.

Remark: In the present study this species is recorded for the first time from Sikkim.

47. Stenus (Hypostenus) rajpurianus Cameron

1930. Stenus (Hypostenus) rajpurianus Cameron, Fauna British India, 1: 353-354.


Distribution: India: Sikkim.

Other Indian States: Uttar Pradesh and Bihar.

Elsewhere: Nil.

Remark: In the present study this species is recorded for the first time from Sikkim.

48. Stenus (Hypostenus) barbatus Niet.

1902. Stenus arachnipes Bernhauer, D. E. Z., 42.
1930. Stenus (Hypostenus) barbatus: Cameron, Fauna British India, 1: 373-374.


Distribution: India: Sikkim.

Other Indian State: West Bengal.

Elsewhere: Sri Lanka

Remark: In the present study this species is recorded for the first time from Sikkim.
49. **Stenus (Hypostenus) ventricosus** Fauvel


*Distribution*: India : Sikkim.

*Other Indian State*: Nil.

*Elsewhere*: Nil.

*Remarks*: In the present study this species is recorded for the first time from Sikkim. In fauna (1930) Cameron mentioned locality Dugeli, Khandesh.

50. **Stenus (Hypostenus) decanus** Biswas


*Distribution*: India : Sikkim.

*Other Indian State*: Kerala.

*Elsewhere*: Nil.

*Remark*: In the present study this species is recorded for the first time from Sikkim.

51. **Stenus (Hypostenus) rufoplagiatus** (Champion)


*Distribution*: India : Sikkim.

*Other Indian State*: Uttar Pradesh.

*Elsewhere*: Nil.

*Remarks*: In the present study this species is recorded for the first time from Sikkim.

52. **Stenus (Hypostenus) millepunctatus** Fauvel


*Distribution*: India : Sikkim.

*Other Indian State*: Tamil Nadu.

*Elsewhere*: Nil

*Remark*: In the present study this species is recorded for the first time from Sikkim.

53. **Stenus (Hypostenus) sikkimensis**, sp. nov.

General appearance rather broad, elongate, red, shining. Antennae, palpi and legs pale testaceous.

Head a little broader than the base of the elytra, completely excavated, without median elevation, rather coarsely and closely puctured except the vertex impunctate. Antennae long and slender, all the segments distinctly longer than broad. Thorax narrow, cylindrical, longer than broad, scarcely widened at the middle, along the middle with a very fine impunctate line, the rest of the surface more closely and rather more coarsely punctured than the head. Elytra as long as broad and at the suture as long as the thorax, puncturation same as on the thorax. Abdomen cylindrical, all the segments more closely and coarsely punctured as on the head, segment 6 more finely and more sparingly. The whole insect covered with a short, white, decumbent pubescence. First segment of posterior tarsi longer than the four following together. Posterior margin of sternite 6 of male deeply, moderately narrowly, triangularly excised, the sides not bordered. Posterior margin of sternite 5 of male deeply and broadly circularly impressed, the impressed area glabrous and before the impressed area densely and finely punctured, the fundus more finely and thickly pubescent, the margin subcarinate. Posterior margin of sternite 4 of male slightly and narrowly impressed nearly
half of its length. Posterior margin of sternites 3 and 2 of male slightly impressed.

Measurements of holotype: Total length 4.25 mm; width of head across the eyes 0.90 mm; length of thorax 0.80 mm and width of thorax 0.65 mm.; length of elytra 1.00 mm and width of elytra 1.00 mm.

Holotype: India: Sikkim, Gangtok, 1704 m, 24. iv. 1976, A. R. Bhaumik and Party Coll.; Paratype 1ex., Collection data same as holotype (Specimens are deposited in the Zoological Survey of India, Kolkata).

Distribution: India: Sikkim.

Discussion: This species is closely related to Stenus (Hypostenus) andrewsi Fauvel but can be easily separated from the latter species by its colour being red, antennae pale yellow, puncturation of head less coarser and thorax distinctly coarser than that of head, punctuation of elytra as on the thorax. Posterior margin of sternite 5 of male impressed circularly and glabrous. Posterior margin of sternite 4 of male slightly and narrowly impressed nearly the half of its length.

54. Stenus (Mesostenus) virgula Fauvel
1930. Stenus (Mesostenus) virgula: Cameron, Fauna British India, 1 : 394-395.


Distribution: India: Sikkim.

Other Indian States: West Bengal and Uttar Pradesh.

Elsewhere: Myanmar.

Remark: In the present study this species is recorded for the first time from Sikkim.

Genus Dianous Samouelle
1819. Dianous Samouelle, Ent. Comp., 173.

55. Dianous obliquenotatus Champion.

Material examined: Not studied.

Distribution: India: Sikkim.

Other Indian State: Nil.

Elsewhere: Nil.

Remark: It was early recorded form Sikkim.

Subfamily EUAESTHETINAE

Genus Stenaesthetus Sharp

56. Stenaesthetus sunioides Sharp
1930. Stenaesthetus sunioides: Cameron. Fauna British India, 1 : 446.


Distribution: India: Sikkim.

Other Indian States: Uttar Pradesh, West Bengal, Tripura and Meghalaya.

Elsewhere: Sri Lanka and Sierra Leone.

Remark: In the present study this species is recorded for the first time from Sikkim.

Subfamily PAEDERINAE

Key to the tribes and genera of the Subfamily PAEDERINAE

1. 4th segment of the maxillary palpi large and more or less fusiform or securiform.....

.............. Pinophilini (Palaminus Erichson)
4th segment of the maxillary palpi small, subulate or papilose .................................. *Paederini*

2(1). Antennae strongly geniculate .................................. *Cryptobium* Mannerheim

- Antennae not geniculate ........................................... 3

3(2). Fourth tarsal segment bilobed .................................. 4

- Fourth tarsal segment simple ....................................... 7

4(3). Fourth segment of maxillary palpi short, broad, and wart like .................................. *Paederus* Fabricius

- Fourth segment of maxillary palpi very slender, subulate .................................................. 5

5(4). Labrum emarginate in the middle, the fundus with two small teeth. Head oblong .......................... *Astenus* Stephens

- Labrum produced in the middle .................................. 6

6(5). The produced part of the labrum with two long teeth .................................. *Dibelonetes* Sahlberg

- The produced part of the labrum with two short teeth .................................. *Stilicopsis* Sachse

7 (3). Neck very slender ........................................... 8

- Neck at least a fourth as broad as the base of the head .................................................. 9

8(7). Labrum 4-dentate; tongue corneous, trifid .................................. *Scopaeus* Erichson

- Labrum 2-dentate; tongue membranous, bilobed .................................. *Stilicus* Latreille

9(7). Eyes very large, temples scarcely indicated. Labrum feeblly emarginate in front, endentate .................................. *Lobochilus* Bernhauer

- Eyes normal, temples well-developed ........... 10

10(9). First segment of the posterior tarsi not longer than the second; thorax oblong .......................... *Lathrobium* Gravenhorst

- First segment of the posterior tarsi longer than the second; thorax transverse .................. 11

11(10). 5th tarsal segment inserted near the base of the 4th segment, and overlying it that the latter appears bilobed when seen from above .......................... *Acanthoglossa* Kraatz

- 5th tarsal segment normally inserted at the apex of 4th segment ........................................... 12

12(11). Labrum bidentate in the middle or at least trisinuate; prosternal epimera present, the stigma concealed. Eyes shorter than the temples .................................. *Medon* Stephens

- Labrum unidentate in the middle; prosternal epimera absent, the stigma exposed .................. 13

13(12). Prosternal process very short; abdomen not keeled at the middle of the sternite ......... *Lithocharis* Boised

- Prosternal process moderately long; abdomen distinctly keeled at the middle of the sternite .................................. *Charichirus* Sharp

Genus *Palaminus* Erichson


**Key to the species of the genus Palaminus**

1. Elytra $\frac{1}{2}$ times as long as thorax and narrower .................................. *andrewesi* Cameron

- Elytra twice as long as thorax and broader ................................................................. 2

2 (1). Larger (4 to 5 mm). Elytra more closely and coarsely punctured .................. *indicus* Kraatz

- Smaller (3 mm). Elytra less closely punctured .................................. *monticola* Cameron

57. *Palaminus monticola* Cameron


*Distribution*: India : Sikkim.

*Other Indian State*: West Bengal.

*Elsewhere*: Sri Lanka.

*Remark*: In the present study this species is recorded for the first time from Sikkim.
58. *Palaminus indicus* Kraatz


*Distribution*: India : Sikkim.

*Other Indian States*: Tamil Nadu, West Bengal.

*Elsewhere*: Nil.

*Remark*: In the present study this species is recorded for the first time from Sikkim.

59. *Palaminus andrewesi* Cameron


*Distribution*: India : Sikkim.

*Other Indian State*: Tamil Nadu.

*Elsewhere*: Nil.

*Remark*: In the present study this species is recorded for the first time from Sikkim.

60. *Paederus nigricornis* Bernhauer


*Distribution*: India : Sikkim.

*Other Indian States*: Himachal Pradesh, Uttar Pradesh, West Bengal.

*Elsewhere*: Nepal.

*Remark*: In the present study this species is recorded for the first time from Sikkim.

61. *Paederus fuscipes* Curtis


*Distribution*: India : Sikkim.

*Other Indian States*: Bihar, Karnataka, Madhya Pradesh, West Bengal, Meghalaya and Tripura.

*Elsewhere*: Sri Lanka and also rest of the World except America.

*Remark*: In the present study this species is recorded for the first time from Sikkim.

62. *Dibelonetes sikkimensis* Biswas & Sengupta


*Distribution* : India : Sikkim.

*Other Indian State* : West Bengal.

*Elsewhere* : Nil.

Genus *Astenus* Stephenson


**Key to the species of the genus Astenus**

1. Antennal segment 11 anout 4 times longer than segment 10 .......... *asitus* Biswas & Sengupta

   - Antennal segment 11 slightly longer than segment 10 .................................................... 2

2 (1). Species dark, entirely or in greater part black or brown ........... *bispinus* Motschulsky

   - Species entirely or in greater part reddish-testaceous .................................................... 3

3 (2). Elytra with the suture very narrowly blackish in front and then bulging in the middle .......... *sikkimensis*, sp. nov.

   - Elytra otherwise marked or concolorous .... 4

4 (3). Sides of the elytra with black setae either outstanding or decumbent .............................................. *gracilentus* Fauvel

   - Sides of the elytra without black setae ...... 5

5 (4). Larger (3.60 mm) and distinctly narrower, antennal segment 3 distinctly longer than segment 2, lateral margins of prothorax with 4 long black setae, abdominal segments 5-7 completely black ...................................... *jhopus* Biswas & Sengupta

   Smaller (3 mm) and slightly narrower, antennal segment 3 slightly longer than segment 2, lateral margins of prothorax with 5 long black setae, abdominal segment 7 only completely black. ........................................... *indicus* (Kraatz)

63. *Astenus bispinus* (Motschulsky)


1931. *Astenus bispinus* : Cameron, Fauna British India, 2 : 70.


*Distribution* : India : Sikkim.

*Other Indian State* : Tamil Nadu.

*Elsewhere* : Sri Lanka, Myanmar, Sumatra and Annam.

*Remark* : In the present study this species is recorded for the first time from Sikkim.

64. *Astenus gracilentus* Fauvel


*Distribution* : India : Sikkim.

*Other Indian States* : Meghalaya, Tamil Nadu, Uttar Pradesh, West Bengal and Tripura.

*Elsewhere* : Bangladesh and Singapore.

*Remark* : In the present study this species is recorded for the first time from Sikkim.

65. *Astenus sikkimensis*, sp. nov.

General appearance rather narrow, elongate, shining, reddish-testaceous, antennae, legs yellowish, body covered with dense gray pubescence mixed with some erect black setae.

Head longer than broad, vertex distinctly convex, postocular region rather straight and posterior angles briefly rounded, dorsal surface of head covered with reticulate umbilicate punctures. Eyes moderately large. Antennae slender, but
shorter than head and thorax combined. Thorax oval, longer than broad and narrower than head, anterior angles broadly rounded and slightly narrowed posteriorly, the lateral with two long black setae, sculpture on pronotum similar as on head. Elytra slightly longer and broader than thorax, covered with densely and coarsely setiferous punctures. Abdomen parallel sided, densely and finely punctured.

Holotype: $\sigma$, India: Sikkim, Jorethang, near the Jorethang Bridge, 20.xii.1994, D. N. Biswas Coll. (Material is deposited in the Zoological Survey of India, Kolkata).

Measurements of Holotype: Total length 3.60 mm; width of head across the eyes 0.80; length of thorax 0.65 mm and width of thorax 0.50 mm; length of elytra 0.70 mm and width of elytra 0.70 mm.

Distribution: India: Sikkim.

Discussion: This species is closely related to Astenus taprobanus Cameron but can be easily separated from the latter species by its elytra being slightly longer than thorax and the suture of the elytra very narrowly blackish in form and then bulging in the middle; the abdominal segment 5 (visible) black and its posterior margining narrowly yellowish; posterior margin of sternite 6 of male with deep narrow, acute triangular excision, the apex rounded; posterior margin of sternite 5 of male with broad shallow emargination closely set with long black pectination, in front of emargination with a narrow impression extending nearly the whole length of the segment and glabrous.

66. Astenus asitus Biswas & Sengupta


Material examined: Holotype: $\sigma$, India: Sikkim, Rangpo, 23.ii.1979, D. N. Biswas Coll., Paratypes, 2 $\sigma\sigma$, 1 E, collection date same as holotype.

Distribution: India: Sikkim.

Other Indian State: West Bengal.

Elsewhere: Nil.

67. Astenus jhopus Biswas & Sengupta


Material examined: Holotype: $\sigma$, India: Sikkim, Mansong, 33 km. from Rangpo, 24.ii.1979, D. N. Biswas coll., Paratypes: 15 exs., 1 $\sigma$, 2 EE, collection data same as holotype, 6 $\sigma$, 6 $\varphi$ $\varphi$, Sikkim, Singtam, 12 km. from Rangpo, 24.ii.1979, D. N. Biswas Coll., Ex. Beating the bush.

Distribution: India: Sikkim.

Other Indian State: Nil.

Elsewhere: Nil.

68. Astenus indicus (Kraatz)


Distribution: India: Sikkim.

Other Indian States: West Bengal, Uttar Pradesh and Maharashtra.

Elsewhere: Sri Lanka, Myanmar, widely distributed in the oriental Regional, also in the Mediterranean, Canaries, East and West Africa.

Genus Stilicopsis Sachse

Key to the species of the genus *Stilicopsis*

1. Elytra reddish-yellow, each with a triangular black spot at the lateral border extending obliquely towards the suture and with a common spot on the latter behind, black, often the apex of the lateral spot joins the suture ........................................... *trinotata* (Kraatz)
   - Elytra more shining, yellow with obscure brownish discal mark on each ......................

69. *Stilicopsis trinotata* (Kraatz)


*Distribution* : India : Sikkim.

*Other Indian States* : Tamil Nadu and Tripura.

*Elsewhere* : Sri Lanka.

*Remark* : In the present study this species is recorded for the first time from Sikkim.

70. *Stilicopsis pallida* Cameron

1931. *Stilicopsis Pallida* Cameron, Fauna British India, 2 : 98.


*Distribution* : India : Sikkim.

*Other Indian States* : Uttar Pradesh, West Bengal and Tripura.

*Elsewhere* : Nil.

*Remark* : In the present study this species is recorded for the first time from Sikkim.

Genus *Stilicus* Latreille


Key to species of the genus *Stilicus*

1. Elytra with larger and smaller punctures .... 2
   - Elytra uniformly punctures ......................... 3
2 (1). Larger (4.3 mm.). Elytra in great part dark .............................................. *rufescens* Sharp
   - Smaller (2.4 mm.). Elytra brownish-yellow ........................................ *parvus* Cameron
3 (1). Elytra unicolorous ................................

71. *Stilicus rufescens* Sharp


*Distribution* : India : Sikkim.

*Other Indian States* : Meghalaya, Tamil Nadu, Tripura and Uttar Pradesh.

*Elsewhere* : Sri Lanka, Myanmar, Japan, West and East Coasts of Africa.

*Remark* : In the present study this species is recorded for the first time from Sikkim.

72. *Stilicus ceylanensis* Kraatz

1859. *Stilicus ceylanensis* Kraatz, Arch. Naturgesch., 25(1) :

1931. *Stilicus ceylanensis* : Cameron, Fauna British India, 2 : 105-106.


*Distribution* : India : Sikkim.

*Other Indian States* : Tamil Nadu, Uttar Pradesh and Nagaland.

*Elsewhere* : Sri Lanka.

*Remark* : In the present study this species is recorded for the first time from Sikkim.
74. Stilicus gracilis Eppelsheim  
1931. Stilicus gracilis : Cameron, Fauna British India, 2 : 104-105.  


Distribution : India : Sikkim.  
Other Indian State : Himachal Pradesh.  
Elsewhere : Nil.  

Remark : In the present study this species is recorded for the first time from Sikkim.  

Genus Acanthoglossa Kraatz  

75. Acanthoglossa testaceipennis Kraatz  
1931. Acanthoglossa testaceipennis : Cameron, Fauna British India, 2 : 121-122.  


Distribution : India : Sikkim.  
Other Indian States : Tamil Nadu, Uttar Pradesh, Meghalaya, West Bengal and Tripura.  
Elsewhere : Nil.  

Remark : In the present study this species is recorded for the first time from Sikkim.  

Genus Medon Stephenson  

Key to the species of the genus Medon  
1. Sculpture of the thorax consisting of asperate punctures of granules ........................................ 2  
   - Sculpture of the thorax consisting of simple or umbilicate punctures ................................. 3  
2 (1). Thorax and elytra ferruginous red ........ .......................................................... rangpoensis, sp. nov.  
   - Thorax black or pitchy ...... birmanus Fauvel  
3 (1). Sides of thorax before the middle with distinct emergination .... planatus Bernhauer  
   - Sides of thorax straight .......................................................... breviusculus Kraatz  
76. Medon birmanus Fauvel  

Material examined : Not studied.  
Distribution : India : Sikkim.  
Other Indian State : Uttar Pradesh.  
Elsewhere : Myanmar.  

77. Medon breviusculus (Kraatz)  
1931. Medon breviusculus : Cameron, Fauna British India, 2 : 149.  

Material examined : 1ex., India : Sikkim, Chandmari Basti, Nathula, 1ex., 17.xii.1975, G. K. Srivastava Coll.  
Distribution : India : Sikkim.  
Other Indian State : Nil.  
Elsewhere : Sri Lanka.
Remark: In the present study this species is recorded for the first time from India (Sikkim).

78. Medon planatus Bernhauer
1931. Medon planatus : Cameron, Fauna British India, 2 : 142-143.


Distribution: India : Sikkim.

Other Indian States: Bihar, Nagaland and West Bengal.

Elsewhere: Philippines.

Remark: In the present study this species is recorded for the first time from Sikkim.

79. Medon rangpoensis, sp. nov.

General appearance rather robust, subconvex, head reddish brown, thorax, elytra and abdomen ferruginous-red. Antennae and legs reddish-yellow. Elytra and abdomen densely pubescent.

Head as broad as long, subquadrate, eyes moderately long, the temples parallel and as long as eyes, the posterior angles rather briefly rounded, base emarginate, the whole surface very closely covered with small granules, each with a minute puncture. Antennae rather short, segment 3 distinctly longer than segment 2, segments 4-8 longer than broad, gradually decreasing in length, segments 9 and 10 as long as broad. Thorax as long as broad, sides are parallel, scarcely narrowed behind, smooth shining median line only trace before the base, ground sculpture on pronotum similar as on head. Elytra distinctly longer and slightly broader than thorax, sculpture same as on thorax. Abdomen densely and finely punctured. Posterior margin of sternite 6 of male more deeply and broadly subtriangularly excision; posterior margin of sternite 5 of male broadly emarginate, the emargination furnished with rather long and slender pectinations.


Measurements of holotype: Total length 4.70 mm.; width of head across the eyes 0.80 mm.; length of thorax 0.80 mm. and width of thorax 0.85.; length of elytra 1.00 mm. and width of elytra 1.10 mm.

Distribution: India : Sikkim.

Discussion: This new species is closely related to Medon opacellus Fauvel and Medon rufoferrugineus Cameron but can be easily separated from opacellus by its antennal segments not transverse and posterior margin of sternites 6 and 5 of male are different and also separated from rufoferrugineus by its elytra distinctly longer than thorax and posterior margin of sternites 6 and 5 male are different.

Genus Lithocharis Boised

80. Lithocharis nigriceps Kraatz
1859. Lithocharis nigriceps Kraatz, Arch. Naturgesch., 25 (1) : 139.
1931. Lithocharis nigriceps : Cameron, Fauna British India, 2 : 159.

Material examined: 1 ex., India : Sikkim, Mamring, 2 km. from Rangpo, 1 ex., 20.xii.1980, D. N. Biswas Coll.

Distribution: India : Sikkim.

Other Indian States: Bihar, Himachal Pradesh, Uttar Pradesh, West Bengal and Tripura.

Elsewhere: Sri Lanka, Singapore, Sumatra, South China and Japan.

Remark: In the present study this species is recorded for the first time from Sikkim.
Genus **Lobochilus** Bernhauer


81. **Lobochilus nigerrimus** Kraatz


*Distribution*: India : Sikkim.

*Other Indian States*: Nil.

*Elsewhere*: Sri Lanka.

*Remark*: In the present study this species is recorded for the first time from Sikkim.

Genus **Charichirus** Sharp


82. **Charichirus chinensis** (Boh.)


*Distribution*: India : Sikkim.

*Other Indian States*: West Bengal and Tripura.

*Elsewhere*: Sri Lanka and Japan.

*Remark*: In the present study this species is recorded for the first time from Sikkim.

Genus **Scopaeus** Erichson


**Key to the species of the genus Scopaeus Erichson**

1. Head subquadrate, the posterior angles briefly rounded, sometimes a little widened behind..

   - Head suborbicular, the posterior angles broadly rounded, never widened behind ............ 5

2 (1). Fore-parts very shining; extremely sparingly punctured .............. *nitidulus* Motschulsky

   - Fore-parts less shining; much more closely punctured ........................................... 3

3 (2). Minute species (2 mm. or less).............. 4

   - Larger species .......... *germanus* Cameron.

4 (3). Head below deeply, not closely punctured; elytra longer ............... *puncticeps* Kraatz

   - Head below finely and closely punctured; elytra shorter ................. *micrus* Kraatz

5 (1). Elytra black, the posterior margin narrowly yellow ............ *gangtokensis*, sp. nov.

   - Elytra reddish-yellow; obscurely infuscate about the scutellum .......... *humilis* Cameron

83. **Scopaeus germanus** Cameron


*Distribution*: India : Sikkim.

*Other Indian States*: Uttar Pradesh and West Bengal.

*Elsewhere*: Nil.

*Remark*: In the present study this species is recorded for the first time from Sikkim.

84. **Scopaeus puncticeps** Kraatz


*Distribution*: India: Sikkim.

*Other Indian States*: Nil.

*Elsewhere*: Singapore and Malay Peninsula.

*Remark*: Cameron (1931) locality data mentioned only India. May be first time recorded from Sikkim.

85. *Scopaeus micrus* Kraatz


*Distribution*: India: Sikkim.

*Other Indian States*: Nil.

*Elsewhere*: Sri Lanka.

*Remark*: In the present study this species is recorded for the first time from India (Sikkim).

86. *Scopaeus humilis* Cameron


*Distribution*: India: Sikkim.

*Other Indian State*: Uttar Pradesh.

*Elsewhere*: Malay Peninsula.

*Remark*: In the present study this species is recorded for the first time from Sikkim.

87. *Scopaeus nitidulus* Motschulsky


*Distribution*: India: Sikkim.

*Other Indian States*: Nagaland and West Bengal.

*Elsewhere*: Sri Lanka, Malay Peninsula, Sumatra and Philippines.

*Remark*: In the present study this species is recorded for the first time from Sikkim.

88. *Scopaeus gangtokensis*, sp. nov.

General appearance rather short and elongate, shining, head, thorax and abdomen brown, elytra black, the posterior margin narrowly yellow. Antennae and legs reddish yellow.

Head suborbicular, slightly longer than broad, post-ocular region broadly rounded to the neck, dorsal surface of head very finely and closely punctured. Antennae elongate, all the segments slightly longer than broad. Thorax oval, before the base with short median keel and a little fovea on each side, along the middle with a very fine more shining line, the puncturation as on the head. Elytra little longer and broader than the thorax, less finely and closely punctured. Abdomen extremely finely and closely punctured.


*Measurements of Holotype*: Total length 3.40 mm.; width of head across the eyes 0.60 mm.; length of thorax 0.70 mm. and width of thorax 0.55 mm.; length of elytra 0.70 mm. and width of elytra 0.60 mm.

*Discussion*: This species is closely related to
the species *Scopaeus monticola* Cameron but can be easily separated from the latter species by its posterior margin of sternite 4 of male feebly impressed along the middle; sternites 2 and 3 of male with fine transverse impressed line near the posterior margin; head, thorax and abdomen brown in colour; elytra finely punctured; body covered with dense gray pubescence.

Genus *Lathrobium* Gravenhorst


**Key to the species of the genus *Lathrobium* Gravenhorst**

1. Smaller (7 mm.); fore-parts blue ...................... *Lathrobium semicaeruleum* Cameron
   - Larger (11 mm.); dark brown ...................... *Lathrobium brunneum* Cameron

89. *Lathrobium semicaeruleum* Cameron


*Material examined*: Not studied.

*Distribution*: India: Sikkim.

*Other Indian State*: Uttar Pradesh.

*Elsewhere*: Nil

*Remark*: It was early recorded from Sikkim.

90. *Lathrobium brunneum* Cameron


*Material examined*: Not studied.

*Distribution*: India: Sikkim.

*Other Indian States*: Nil.

*Elsewhere*: Nil

*Remark*: It was early recorded from Sikkim.

Genus *Cryptobium* Mannerheim


**Key to the species of *Cryptobium* Mannerheim**

1. Posterior third or more of the elytra sharply red ................... *Cryptobium sikkimense* Cameron
   - Elytra narrowly red behind, or more broadly but indeterminately reddish .................... *Cryptobium bernhaueri* var. *distinctum* Cameron

91. *Cryptobium sikkimense* Cameron


*Material examined*: Not studied.

*Distribution*: India: Sikkim.

*Other Indian State*: West Bengal.

*Elsewhere*: Nil

92. *Cryptobium bernhaueri* var. *distinctum* Cameron


*Material examined*: 1 ex., India: Sikkim, Jorethang, 1 ex., 20.xii.1994, D. N. Biswas Call.

*Distribution*: India: Sikkim.

*Other Indian State*: Uttar Pradesh.

*Elsewhere*: Nil

*Remark*: In the present study this species is recorded for the first time from Sikkim.

Subfamily: STAPHYLININAE

**Key to the tribes and genera of the subfamily STAPHYLININAE**

1. Prosternum with a transverse plate usually united to it by membrane; sometimes fused with it, but in that case the head is scarcely constricted behind, and the 3rd segment of the
labial palpi is dilated towards apex and truncate. Antennae at base less distant from each other than from the eye, mostly geniculate .......................................................... Xantholinini

– Posternum without such plate. Antennae at base to the eyes than to each other, rarely geniculate ................................................ 2

2 (1). Anterior angles of the pronotum not or scarcely extending beyond the anterior angles of the prothorax; pronotal epipleura moderately reflexed, more or less horizontal. Infra-orbital crest absent or rudimentary ..... 

................................................ Staphylinini 8

Anterior angles of the pronotum distinctly produced beyond the anterior angles of the prothorax; pronotal epipleura strongly well developed, at least behind .......... Quediini 15

3 (1). Suture of the elytra straight, not imbricate; antennae slightly geniculate ........................................... Othius Stephens

– Suture of the elytra more or less imbricate; antennae strongly geniculate .......................................................... 4

4 (3). Mandibles externally with a sulcus extending from the base nearly to the apex ...............5

– Mandibles at the base externally with a short sulcus or small fovea only ........................................................ Indoscitalinus Heller

5 (4). Frontal sulci very short, foveate .......... 6

Frontal sulci long, more or less parallel ...... 7

6 (5). 5th segment of the posterior tarsi as long as the four preceding together; lateral sulci distinct; anterior tarsi dilated ......................... 

................................................ Metolinus Cameron

– 5th Segment of the posterior tarsi much shorter than the four preceding together; lateral sulci feeble; anterior tarsi simple.......................................................... Mitomorphus Kraatz

7 (5). 5th Segment of the posterior tarsi as long as the four preceding together; posterior tibiae not spinose .......................................................... Pachycorynus Motschulsky

– 5th segment of the posterior tarsi shorter than the four preceding together; posterior tibiae spinose. Thorax with at least a dorsal row of punctures on each side..........................

................................................ Leptacinus Erichson

Key to the subtribes of the tribe

Staphylinini

8(2). Superior lateral line of thorax deflexed and united to the inferior lateral line before reaching the anterior angle................ Staphylinus 10

– Superior lateral line not deflexed, either not united with the inferior or meeting it under the anterior angle ........................................... 9

9(8). Pronotal epipleura crossed by an oblique line which unites the superior and inferior lateral lines .......... Craspedomeri (Craspedomerus Bernhauer)

– Pronotal epipleura without such line........ Xanthopygi (Creophilus Mannerheim)

10(8). Antennae strongly geniculate; facies of Tolmerinus ........ Paratolmerus Cameron

– Antennae not geniculate .................................. 11

11(10). 3rd segment of labial palpi securiform ........ Stapbylinus Linnius

– 3rd segment of labial palpi cylindrical or pointed .......................................................... 12

12(11). All the tibiae pubescent, without spines ................................................ Rhynchochilus Sharp

– At least the posterior tibiae spinose .......... 13

13(12). Tongue simple ..................................... 14

– Tongue emarginate or more or less bilobed ................ Stevensia Cameron

14(13). Superior lateral line of thorax strongly deflexed, the large anterior setiferous puncture distant from it........ Neobisnius Ganglb.

– Superior lateral line of thorax slightly deflexed, the large anterior setiferous puncture on near it .................... Philonthus Curtis.

15(2). Two or three setiferous punctures between anterior and posterior frontal punctures situated directly at median margin of eye. Dorsal rows of pronotum each with two punctures ......... 

................................................ Indoquedius Cameron
- No setiferous punctures between anterior and posterior frontal punctures. Dorsal rows of punctures on pronotum absent

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<th><strong>Genus Metolinus</strong> Cameron</th>
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93. *Metolinus leucocnemis* (Kraatz)


**Material examined**: Not examined.

**Distribution**: India: Sikkim.

**Other Indian States**: Tamil Nadu and Uttar Pradesh.

**Elsewhere**: Sri Lanka. Widely distributed in the Oriental region.

Genus *Leptacinus* Erichson


**Key to the species of the genus Leptacinus Erichson**

1. Larger (5.5 to 6.5 mm.) and more robust; the lateral sulci of the front long and extending backwards beyond the end of the median ... ................................. *parumpunctatus* (Gyll.)

2. Smaller (3.5 to 4 mm.) and narrower; lateral sulci of the front short and ill defined, the median long, distinct .......... *gracilis* Fauvel.

94. *Leptacinus gracilis* Fauvel


**Material examined**: 1ex., India: Sikkim, Rangpo, lex., 4.xii.1995, D. N. Biswas Coll.

**Distribution**: India: Sikkim.

Other Indian States: Tamil Nadu, Nagaland and Uttar Pradesh.

**Elsewhere**: Java.

**Remark**: In the present study this species is recorded for the first time from Sikkim.

95. *Leptacinus parumpunctatus* (Gyll.)

1827. *Staphylinus parumpunctatus* (Gyll.).


**Distribution**: India: Sikkim.

**Other Indian State**: Tripura.

**Elsewhere**: Nil

**Remark**: Cameron (1932) mentioned only widely distributed throughout India.

Genus *Pachycorynus* Motschulsky


96. *Pachycorynus dimidiatus* Motschulsky


**Distribution**: India: Sikkim.

**Other Indian States**: Tamil Nadu and Uttar Pradesh.

**Elsewhere**: Sri Lanka.
Remark: In the present study this species is recorded for the first time from Sikkim.

Genus *Mitomorphus* Kraatz


97. *Mitomorphus indicus* Kraatz


Distribution: India: Sikkim.

Other Indian States: Naga land.

Elsewhere: Nil.

Remark: In the present study this species is recorded for the first time from Sikkim.

Genus *Indoscitalinus* Heller


Key to the species of the genus *Indoscitalinus* Heller

1. Elytra red ....................... *rudis* (Eppelsheim)
   – Elytra in part testaceous or brownish testaceous
     .................................... *anachoreta* (Erichson)

98. *Indoscitalinus rudis* (Eppelsheim)


Material examined: Not studied.

Distribution: India: Sikkim.

Other Indian States: Uttar Pradesh.

Elsewhere: Myanmar.

99. *Indoscitalinus anachoreta* (Erichson)


Distribution: India: Sikkim.

Other Indian States: Nil.

Elsewhere: Sri Lanka, S. China, Nauritius, Reunion and Madagascar.

Remark: In the present study this species is recorded for the first time from Sikkim.

Genus *Othius* Stephenson


100. *Othius ruficornis* Cameron

1932. *Othius ruficornis* Cameron, *Fauna British India*, 3 : 44.

Material examined: Not studied.

Distribution: India: Sikkim.

Other Indian States: Nil.

Elsewhere: Nil.

Genus *Neobisnius* Ganglb.


101. *Neobisnius praelongus* (Gemm. et Har.)


*Distribution*: India: Sikkim.

*Other Indian States*: Bihar, Nagaland and Uttar Pradesh.

*Elsewhere*: Penang, Singapore, Java and the Philippines.

*Remark*: In the present study this species is recorded for the first time from Sikkim.

**Genus Philonthus** Curtis


**Key to the species of the genus philonthus** Curtis

1. Thorax with dorsal row of 2 punctures
   - Thorax with dorsal row of more than 2 punctures

2 (1). Thorax with dorsal row of 3 punctures
   - Thorax with dorsal row of more than 3 punctures

3 (2). Elytra of a beautiful metallic purple red
   - Elytra greenish-bronze or coppery

4 (2). Thorax with dorsal row of 4 punctures
   - Thorax with dorsal row of more than 4 punctures

5 (4). Thorax red or reddish-brown
   - Thorax black or metallic

6 (5). Penultimate segments of the antennae distinctly longer than broad
   - Penultimate segments of the antennae as long as broad or transverse

7 (6). Head and thorax with blue or greenishblue reflex
   - Head and thorax brassy or bronze

8 (4). Thorax with dorsal row of 5 punctures
   - Thorax with dorsal row of more than 5 punctures

9 (8). Elytra concours, black with metallic reflex
   - Elytra otherwise

10 (9). Abdomen with metallic reflex; antennae black
   - Abdomen without metallic reflex

11 (10). 1st segment of posterior tarsi longer than the last; abdomen more coarsely punctured at the base of the segments than elsewhere
   - 1st segment of posterior tarsi not longer than the last; abdomen more coarsely punctured at the base of the anterior segments

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102. *Philonthus industanus* Fauvel


*Material examined*: Not examined.

*Distribution*: India: Sikkim.

*Other Indian States*: Tamil Nadu, West Bengal.

*Elsewhere*: Nil.

103. *Philonthus azuripennis* Cameron.


*Material examined*: Not studied.
104. Philonthus distincticornis Cameron.

Distribution: India: Sikkim.

Other Indian States: Nil.

Elsewhere: Tibet.

105. Philonthus obsoletus Eppelsheim.

Distribution: India: Sikkim.

Other Indian States: Nil.

Elsewhere: Nil.

106. Philonthus subjectus Cameron.

Distribution: India: Sikkim.

Other Indian States: Nil.

Elsewhere: Tibet.

107. Philonthus nigricoxis Cameron.

Distribution: India: Sikkim.

Other Indian States: Nil.

Elsewhere: Tibet.

108. Philonthus rivularis Cameron.


1932. Philonthus rivularis Cameron, Fauna British India, 3: 138-139.

Material examined: Not studied.

Distribution: India: Sikkim.

Other Indian States: Uttar Pradesh and Himachal Pradesh.

Elsewhere: Nil.

109. Philonthus convalescens Eppelsheim.


Distribution: India: Sikkim.

Other Indian States: Himachal Pradesh and Uttar Pradesh.

Elsewhere: Nil.

Remark: In the present study this species is recorded for the first time from Sikkim.

110. Philonthus sikkimensis, sp. nov.

Head black, transversely subquadrate, narrower than the thorax, with the median interocular punctures widely separated and 4 large and 1 small punctures behind the eyes. Antennae with 1-3 segments reddish testaceous and rest of the segments testaceous, segments 2 and 3 longer than broad and equal, segments 4 and 5 as long as broad, segments 6-10 slightly transverse. Throax pitchy, as long as broad, convex, disc with a row of two punctures on either side, the sides with one puncture and near the anterior angles are two others. Scutellum closely and finely punctured. Elytra pitchy, as long as broad, broader than thorax, near the suture a yellow oval shaped marking entire the suture and the postero-external
angle also a yellow marking, surface rather finely and closely and few with a large punctures, with a fine, rather close, brownish pubescence. Abdomen parallel, entirely black, posterior margin of abdominal segments narrowly reddish, very finely and moderately closely punctured. Legs testaceous.

**Measurements of holotype**: Total length 7.2 mm; width of head across the eyes 1.5mm; length of thorax 1.25 mm and width of thorax 1.15 mm; length of elytra 1.6 mm and width of elytra 2.3 mm.


**Distribution**: India : Sikkim.

**Discussion**: This species is closely related to *Philonthus pubipennis* Cameron but can be easily separated from the latter species by its antennae testaceous, segments 2 and 3 equal, segments 4 and 5 as long as broad, segments 6-10 slightly transverse; sides of thorax with one puncture and near the anterior angles with two others; near the suture of elytra with a yellow oval shaped marking entire the suture and postero-external angles also yellow.

111. *Philonthus poephagus* Cameron.


**Distribution**: India : Sikkim.

**Other Indian States**: Nil.

**Elsewhere**: Tibet.

**Remark**: In the present study this species is recorded for the first time from India (Sikkim).

112. *Philonthus assamensis* Cameron.


**Distribution**: India : Sikkim.

**Other Indian States**: Meghalaya, Tripura and Manipur.

**Elsewhere**: Nil.

**Remark**: In the present study this species is recorded for the first time from Sikkim.


**Distribution**: India : Sikkim.

**Other Indian States**: Tamil Nadu, Meghalaya and Uttar Pradesh.

**Elsewhere**: Nil.

**Remark**: In the present study this species is recorded for the first time from Sikkim.

Genus *Stevensia* Cameron


114. *Stevensia longipennis* Cameron.


**Material examined**: Not studied.

**Distribution**: India : Sikkim.

**Other Indian States**: Nil.
Elsewhere: Nil.

Genus Paratolmerus Cameron


115. Paratolmerus pilosiventris Cameron

1932. Paratolmerus pilosiventris Cameron, Fauna British India, 3: 170.

Material examined: Not studied.

Distribution: India: Sikkim.

Other Indian State: Nil.

Elsewhere: Nil.

Genus Staphylinus Linneus


Key to the subgenera and species of the genus Staphylinus Linneus

1. Temples longer than the eyes ...........................................
   ................................. Goerius Steph. 2

   - Temples shorter than the eyes ....................................
     .......... Pseudocypus Muls. et Rey. [aereus (Cameron)]

2 (1). Abdomen with one or more large transverse tomentose golden patches ................................................. prainae (Eppelsheim)

   - Abdomen without such patches, at most with narrow triangular patches ............................................. olivaceus Cameron.

117. Staphylinus (Goerius) prainae
   (Eppelsheim)


Material examined: Not studied.

Distribution: India: Sikkim.

Other Indian States: West Bengal and Meghalaya.

Elsewhere: Nil.

117. Staphylinus (Goerius) olivaceus Cameron


1932. Staphylinus (Goerius) olivaceus Cameron, Fauna British India, 3: 202.

Material Examined: Not studied.

Distribution: India: Sikkim.

Other Indian State: Nil.

Elsewhere: Nil.

118. Staphylinus (Pseudocypus) aereus (Cameron)


1932. Staphylinus (Pseudocypus) aereus Cameron, Fauna British India, 3: 204-205.

Material examined: Not studied.

Distribution: India: Sikkim.

Other Indian State: Nil.

Elsewhere: Nil.

Genus Rhyncochilus Sharp


1895. Rhyncochilus Fauvel, Rev. d'Ent., 14: 120.

119. Rhyncochilus argenteus Fauvel


Distribution: India: Sikkim.

Other Indian State: Nil.

Elsewhere: Myanmar.

Remark: In the present study this species is recorded for the first time from India (Sikkim).
BISWAS: *Insecta*: *Coleoptera*: *Staphylinidae*

Genus *Craspedomerus* Bernhauer


**Key to the species of the genus *Craspedomerus* Bernhauer**

1. Antennae with the 8th to 10th segments yellow, the 11th blackish, fore-parts with distinct wavy ground-sculpture... *violaecippinis* Cameron.
   Antennae with the last five segments yellow; fore-parts without such ground-sculpture... *caeruleipennis* Cameron.

120. *Craspedomerus violaecippinis* Cameron


   Material examined: Not studied
   Distribution: India: Sikkim.
   Other Indian State: Nil.
   Elsewhere: Tibet.

121. *Craspedomerus caeruleipennis* Cameron

   Material examined: Not studied.
   Distribution: India: Sikkim.
   Other Indian State: Nil.
   Elsewhere: Nil.

Genus *Creophilus* Mannerheim


122. *Creophilus sikkimensis* Wendeler


   Material examined: Not studied.

   **Distribution**: India: Sikkim
   **Other Indian State**: Nil
   **Elsewhere**: Nil

Genus *Quedius* Stephens


**Key to the subgenera and species of the genus *Quedius* Stephens**

1. Eyes shorter or only slightly longer than the temples, the labrum bilobed ................
   ................. *Microsaurus (stevensi* Cameron)

   – Eyes much longer than the temples ........... 2

2 (1). Eyes large, occupying about three quarters of the side of the head ....................
   ................... *Sauridus (ripicola* Cameron)

   – Eyes very large and prominent, occupying nearly the whole side of the head ............
   ................. *Raphirus (himalayicus* Bernh.)

123. *Quedius (Microsaurus) stevensi* Cameron

1932. *Quedius (Microsaurus) stevensi* cameron, *Fauna British India*, 3: 288
   Material examined: Not studied.
   Distribution: India: Sikkim.
   Other Indian State: Nil
   Elsewhere: Nil

124. *Quedius (Sauridus) ripicola* Cameron


   Material examined: Not studied.
   Distribution: India: Sikkim.
   Other Indian States: West Bengal and Uttar Pradesh.
   Elsewhere: Nil
125. *Quedius (Raphirus) himalayicus* Bernhauer


1932. *Quedius (Raphirus) himalayicus* : Cameron, *Fauna British India*, 3 : 293

*Material examined* : Not studied.

*Distribution* : India : Sikkim.

*Other Indian States* : Uttar Pradesh and Nagaland.

*Elsewhere* : Nil

Genus *Indoquedius* (Cameron)


**Key to the species of the genus Indoquedius**

1. Lateral pronotal groove smooth and shiny, without any microsculpture. Anterior angles of pronotum impunctate; dorsal surface of head and pronotum without micropunctuation ...... 2.

   - Lateral pronotal groove with dense, almost granulose microsculpture. Anterior angles of pronotum finely punctate, dorsal surface of head and pronotum with micropunctuation ..........

     .................................................. *aberrans* Cameron

2 (1). Large lateral puncture of pronotum situated close to lateral pronotal groove, but distinctly not touching it .............. *sikkimensis* Cameron

   - Large lateral puncture of pronotum situated very close to lateral pronotal groove, distinctly touching it ............. *filicornis* (Eppelsheim)

126. *Indoquedius sikkimensis* (Cameron)


*Material examined* : Not studied.

*Distribution* : India : Sikkim.

*Other Indian State* : Arunachal Pradesh.

*Elsewhere* : Bhutan.

127. *Indoquedius aberrans* (Cameron)


*Material examined* : Not studied.

*Distribution* : India : Sikkim.

*Other Indian State* : Nil.

*Elsewhere* : Nil.

128. *Indoquedius filicornis* (Eppelsheim)


*Material examined* : Not studied.

*Distribution* : India : Sikkim.

*Other Indian State* : Uttar Pradesh.

*Elsewhere* : Nepal.

Subfamily : TACHYPORINAE

**Key to the tribes and genera of the subfamily TACHYPORINAE**

1. Tarsi 4-segmented ...........................................

   .......... *Symmixini* (symmixus Bernhauer).

   Tarsi 5-segmented ............................... Tachyporini 2

2 (1). Last segment of the maxillary palpi as long as or longer than the preceding .......... 3

   - Last segment of the maxillary palpi small and subulate .................................... 5

3 (2). Mesosternum keeled or tuberculate in the middle ............................................ 4
BISWAS: *Insecta: Coleoptera: Staphylinidae*

- Mesosternum not keeled; posternal epimera present ............... **Tachinus** Gravenhorst

4 (3). Prosternal epimera present; facies of **Tachinus** ............. **Tachinomorphus** Kraatz

- Prosternal epimera absent; short and usually small species .......... **Coproporus** Kraatz

5 (2). Abdomen finely and indistinctly bordered, the whole surface very finely and closely pubescent; anterior tibiae with comb of fine teeth externally ............... **Conosoma** Kraatz

- Abdomen broadly and distinctly bordered; the head and thorax at least glabrous; anterior tibiae without comb .................................................. **Tachyporus** Gravenhorst

Genus **Conosoma** Kraatz


129. **Conosoma hemisphaericum** Bernhauer

1915. **Conosoma hemisphaericum** Bernhauer, Col. Rundsch., 4 : 57.

1932. **Conosoma hemisphaericum**: Cameron, Fauna British India, 3 : 361.

*Material examined*: Not studied.

*Distribution*: India: Sikkim.

*Other Indian State*: Nil.

*Elsewhere*: Nil.

Genus **Tachinus** Gravenhorst


130. **Tachinus lugubris** Cameron


1932. **Tachinus lugubris** Cameron, Fauna British India, 3 : 391.


*Distribution*: India: Sikkim.

*Other Indian State*: West Bengal.

*Elsewhere*: Nil.

Remark: In the present study this species is recorded for the first time from Sikkim.

Genus **Tachyporus** Gravenhorst


**Key to the species of the genus Tachyporus** Gravenhorst

1. Species entirely or in greater part yellowish or reddish-testaceous ........................................ 2

- Species in greater part black ........................................... **flavopictus** Fauvel

2 (1). Each elytron with distinct oval blackish spot on the middle, convex, shining ............. **himalayicus** Bernhauer

- Each elytron with a large well defined triangular marking, extending from the middle of the base to the apex of the suture ........................................... **triangulum** Cameron

131. **Tachyporus flavopictus** Fauvel


1932. **Tachyporus flavopictus**: Cameron, Fauna British India, 10 (2) : 567.


*Distribution*: India: Sikkim.

*Other Indian States*: West Bengal and Uttar Pradesh.

*Elsewhere*: Myanmar.

Remark: In the present study this species is recorded for the first time from Sikkim.

132. **Tachyporus triangulum** Cameron


1932. **Tachyporus triangulum** Cameron, Fauna British India, 3 : 381.

*Material examined*: Not studied.

*Distribution*: India: Sikkim.

*Other Indian State*: Nil.
Elsewhere : Nil.

133. **Tachyporus himalayicus** Bernhauer


*Material examined* : Not studied.

*Distribution* : India : Sikkim.

*Other Indian States* : West Bengal and Uttar Pradesh.

*Elsewhere* : Nil.

Genus **Tachinomorphus** Kraatz


134. **Tachinomorphus fulvipes** (Erichson)


*Material examined* : Not studied.

*Distribution* : India : Sikkim.

*Other Indian State* : Uttar Pradesh

*Elsewhere* : Widely distributed in the Oriental Region.

Genus **Coproporus** Kraatz


*Distribution* : India : Sikkim.

*Other Indian State* : Uttar Pradesh.

*Elsewhere* : Sri Lanka and Singapore.

*Remark* : In the present study this species is recorded for the first time from Sikkim.

136. **Coproporus melanarius** (Erichson)


*Distribution* : India : Sikkim.

*Other Indian State* : Meghalaya and Bihar.

*Elsewhere* : Sri Lanka, Malaya Peninsula, Sumatra, Philippines and New Guinea.

*Remark* : In the present study this species is recorded for the first time from Sikkim.

Genus **Symmixus** Bernhauer


137. **Symmixus sikkimensis** Bernhauer


*Material examined* : Not studied.
**Genus Cordalia Jacobs**


138. *Cordalia vestita* (Boh.)


**Distribution**: India : Sikkim.

**Other Indian States**: Uttar Pradesh, Tripura and Assam.

**Elsewhere**: Myanmar, China, Malay Peninsula, Sumatra.

**Remark**: In the present study this species is recorded for the first time from Sikkim.

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**Genus Falagria Mannerheim**


**Key to the subgenera and species of the genus Falagria Mannerheim**

1. Scutellum deeply sulcate along the middle, the sides of the sulcus raised as strong keels; posterior angles of the thorax rounded, not prominent ..........................................................

- Scutellum with a fine median keel; posterior angles of the thorax acute, everted and prominent ..........................................................
  ...... *Stenagria Sharp* (*granulata* Cameron)

139. *Falagria (Stenagria) granulata* Cameron


**Distribution**: India : Sikkim.

**Other Indian State**: Tamil Nadu.

**Elsewhere**: Nil.

**Remark**: In the present study this species is recorded for the first time from Sikkim.

140. *Falagria (S. Str.) vicina* Cameron

1939. *Falagria (S.Str.) Vicina* Cameron, *Fauna British India*, 4 (1) : 244.


**Distribution**: India : Sikkim.

**Other Indian States**: Uttar Pradesh and Andaman Islands (Port Blair).

**Elsewhere**: Pulo Condore and Hong-kong.
Remark: In the present study this species is recorded for the first time from Sikkim.

Genus *Amaurodera* Fauvel


Key to the species of the genus *Amaurodera* Fauvel

1. Species in greater part dark ........................................
   ........................................ *opacicollis* (Eppelsheim)
   - Species in greater part reddish ........................................
     ........................................ *elegans* Cameron

141. *Amaurodera opacicollis* (Eppelsheim)


  Material examined : Not studied.
  Distribution : India : Sikkim.
  Other Indian State : Nil.
  Elsewhere : Nil.

142. *Amaurodera elegans* Cameron


  Distribution : India : Sikkim.
  Other Indian State : Uttar Pradesh.
  Elsewhere : Nil.
  Remark : In the present study this species is recorded for the first time from Sikkim.

SUMMARY

407 examples consisting of 143 species under 59 genera distributed in 7 subfamilies are represented in this paper, 85 species are newly recorded from Sikkim of which 9 species are first time recorded from India and 11 species are also recorded as new to Science. Key to the subfamilies, tribes, genera, species and distributional data of each species of the family Staphylinidae for Sikkim have also been provided.

ACKNOWLEDGEMENTS

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REFERENCES


INTRODUCTION

The erstwhile Himalayan Kingdom of Sikkim came into being as the twenty-second state of the Republic of India in 1975. It is a tiny state (covering an area of 7,096 sq. km., approximately within 27°3' - 28°20' N latitude and 88°0' 88°58' E longitude) in the eastern India, bounded by the Tibetan region of China on the north and on the east too close with Bhutan, by Nepal on the west and by the Darjiling district of West Bengal on the south (Map 1). The main chain of the Himalaya in Sikkim projects southwards and gradually decreases in height exhibiting the greatest elevation to 8,598 m in the north-west as the Kanchenjunga Peak, the third highest mountain in the world. The state is entirely mountainous, and full of gorges and valleys where innumerable streams spring up to form rivers like Tista, Lachen, Lachung, Chala, Rangit, etc., of which the Tista, a tributary of the Brahmaputra, is the main river flowing through the heart of the state. The lower slopes of the mountains and valleys are generally hot in summer but the higher reaches are always cold and snowy. The rainfall is heavy and occurs predominantly during the summer season. Heavy rains in Sikkim cause to grow dense luxuriant vegetation of a great diversity. In concurrence with the topographic characteristics Sikkim harbours an excellent assemblage of insect lives beside variegated plants under the influence of its climate.

Sikkim deserves to have faunal elements as good as in the Darjiling district of West Bengal because of like physiographical features and nearness but the Diptera fauna known in the state is inadequate due to lack of systematic exploration. It stands to reason that the lion's share of the Himalayan Kingdom remained inaccessible to the people who undertook to collect any sample of Nature in the early days of civilization when it was much easier in the neighbouring "Bengal Himalaya” Evidently, collecting began in the Kingdom much later than in “Bengal” and the role was taken not only by the British but also by the Danish, the French, the German and the Austrian Collectors. However, the earliest record of collecting dipterous insects from Sikkim is very obscure. Relevant records reveal that the first collection was made before 1849 either by Rev. J. Stainforth himself or by somebody else who might have contributed to the Rev. Stainforth’s Collection housed in the then British Museum (Natural History), London. The museum also holds Sir J. D. Hooker's Collection made between May and July, 1849. Indeed, the Sikkimese diptera collected and gathered during the last decades of the nineteenth century by Dr. F. Stoliczka (in 1871), H. Frühstorfer (? in 1887), F. C. Möller (?), Col. C. T. Bingham (in May, 1894), L. W. Hinxman (in June-July, 1895), A. V. Knyvett (?), W. E. Clarke (1895) and C.L.A. de Nicéville (before 1896) remain scatteredly deposited nearly throughout the European Museums like Zoologisk Museum, Copenhagen; Muséum d’ Histoire Naturelle, Genève; Muséum National d’ Histoire Naturelle, Paris; Zoologisch Museum, Amsterdam; Természettudományi Múzeum, Budapest; Naturhistorisches Museum, Vienna; Swedish Museum of Natural History, Stockholm; Museum Für NaturKunde der Humboldt-Universität zu Berlin, Berlin and Stettin Zoological Museum.
Map 1. Sikkim showing its location, districts and recorded places of occurrence of the dipterous species dealt with.
besides the Natural History Museum, London. However, a small fraction of these age-old materials in due course was taken over to the Indian Museum, Calcutta and thereafter to the Zoological Survey of India at Calcutta.


The story of describing the first species from Sikkim is relied upon the work by Walker (1849) who not only described a species of the Syrphidae from the Rev. J. Stainforth’s Collection (Datta, in press) but also recorded a few other species of Diptera from the state. Apparently, the next species described by him in 1854 was of the Tabanidae located in the Hooker’s Collection (vide Ricardo, 1911 a). Indeed, our knowledge on the Sikkimese fauna is greatly attributable to the credit of Walker (1849, 1854, 1858), Giles (1901), Kertész (1901, 1923), Brunetti (1907, 1908, 1910, 1911, 1913, 1915, 1920, 1923, 1925), de Meijere (1908), Ricardo (1911, 1921), Enderlein (1912, 1914, 1920, 1921, 1922, 1924, 1926, 1942), Bezzé (1913), Hendel (1914), Kröber (1915, 1916, 1940), Edwards (1916, 1921, 1932), Becker (1922), Szilády (1926), Schuermanns Stekhoven (1932), Munro (1938), Hering (1941), Alexander (1960-1974), Das Gupta (1963), Hackman (1965), Schmid (1970), Philip (1970), Stone and Philip (1974), Joseph and Sharma (1976), Datta (1978, 1991), Datta and Chakraborti (1986), Joseph and Parui (1987) and Hippa (1990). It is worthy of mention that most of the European workers made good use of the age-old collections deposited in different museums of their continent exhibiting an essential array of the Diptera fauna in Sikkim.

With a view to adding and to tending the faunal elements for furtherance of our knowledge, some collecting trips were organized recently by this institute in all 4 districts of Sikkim. The trips that brought the dipterous material for this study are tabulated below with reference to the district under survey, the personality leading the trip and the time of the survey.

**East Sikkim**

- V. C. Agarwal
- A. R. Lahiri
- B. N. Das
- L. K. Ghosh
- S. Chattopadhyay
- B. C. Das
- S. K. Saha

**East Sikkim**

- V. C. Agarwal  September, 1988
- A. R. Lahiri  April-May, 1992
- B. N. Das  September-October, 1993
- L. K. Ghosh  March, 1994
- S. Chattopadhyay  May, 1994
- B. C. Das  May-June, 1994
- S. K. Saha  September, 1994

**West Sikkim**

- L. K. Ghosh  March, 1994

**North Sikkim**

- S. Chattopadhyay  July, 1989
- A. R. Lahiri  April-May, 1992
- M. S. Shishodia  November, 1992
- T. K. Pal  September, 1993

**South Sikkim**

- M. S. Shishodia  November, 1992
- L. K. Ghosh  March, 1994
- B. C. Das  May-June, 1994
- P. H. Roy  June, 1997

This report embodies the material belonging to the following families: Bibionidae, Stratiomyidae, Tabanidae, Bombyliidae, Sciomyzidae, Sepsidae, Calliphoridae and Sarcophagidae. The families: Asilidae, Syrphidae, Muscidae and Tachinidae are, however, dealt with separately by different authors. The species recorded for the first time from Sikkim are marked with an asterisk.
MATERIALS AND METHODS

An overview of the general methods of collecting dipterous specimens from their habitats and of preserving them perfectly for taxonomic studies was set down by Datta, Parui and Mukherjee (1997). Subsequently, Datta (1998), and Datta and Parui (1998) reviewed the methods indispensable for capturing fly-groups (adults) treated in this paper.

MORPHOLOGY AND TERMINOLOGY

An account of morphology and terminology of Diptera in general was presented by Datta et al. (1997) in order to acquaint the reader with their taxonomic characteristics. However, the significant features used in the description and key to the various taxa of the families dealt with here can be had in Datta (op. cit.) and Datta and Parui (op. cit.).

LIST OF TAXA

Family BIBIONIDAE
Subfamily BIBIONINAE

1. *Bibio fuscitibia* Brunetti
2. *B. hortulanoides* Brunetti
3. *B. tenebrosus* Coquillet

Subfamily Pleciinae
4. *Penthetria japonica* Wiedemann

Family STRATIOMYIDAE
Subfamily SARGINAE

5. *Ptecticus aurifer* (Walker)
6. *P. australis* Schiner

 '**7. Sargus metallinus** F.

Subfamily CLITELLARIINAE

8. *Epanastasis fumipennis* Kertész

Subfamily PACHYGASTERINAE


10. *Stratiosphecomyia variegata* Brunetti

Subfamily HERMETIINAE

*11. Hermetia illucens* (Linnaeus)

Family TABANIDAE
Subfamily PANGONIINAE

12. *Philoliche longirostris* (Hardwicke)

Subfamily CHRYSOPSINAE

13. *Chrysops dispar* (F.)

Subfamily TABANINAE

Tribe Tabanini

14. *Atylotus agrestis* (Wiedemann)
15. *Tabanus (Tabanus) acallus* Szilády
17. *T. (T.) explicatus* Walker
18. *T. (T.) flavicornis subflavicornis* Philip
19. *T. (T.) flaviscutellus* Philip
20. *T. (T.) fuscomaculatus* Ricardo
22. *T. (T.) monotaeniatus* (Bigot)
23. *T. (T.) orientis* Walker
25. *T. (T.) pullomaculatus* Philip

**26. T. (T.) rubidus** Wiedemann
27. *T. (T.) scutellus* Philip
28. *T. (T.) striatus* Fabricius

Tribe Haematopotini

**29. Haematopota annandalei** Ricardo
30. *H. sikkimensis* Stone & Philip

Tribe Diachlorini

31. *Cydistomyia aberrans* Philip

Family BOMBYLIIDAE
Subfamily BOMBYLIINAE

32. *Systoechus socius* (Walker)
<table>
<thead>
<tr>
<th>No.</th>
<th>Species Name</th>
<th>Authors</th>
<th>Family</th>
<th>Subfamily</th>
<th>Tribe</th>
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<tr>
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<td><em>Bombylisoma resplendens</em> (Brunetti)</td>
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<td>34</td>
<td><em>Anthrax distigma</em> Wiedemann</td>
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<td><em>Ligyra chrysolampis</em> (Jaennicke)</td>
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<td><em>L. oenomaus</em> (Rondani)</td>
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<td><em>L. tantalus</em> (F.)</td>
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<td>38</td>
<td><em>Sepedon plumella</em> Wiedemann</td>
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<td>39</td>
<td><em>Decachaetophora aeneipes</em> (de Meijere)</td>
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<td>40</td>
<td><em>Dicranosepsis bicolor</em> (Wiedemann)</td>
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<td>41</td>
<td><em>Sepsis himalayensis</em> Brunetti</td>
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<td>42</td>
<td><em>S. indica</em> Wiedemann</td>
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<td><em>S. neocynipsea</em> Melander &amp; Spuler</td>
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<td><em>S. rufla</em> Macquart</td>
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<td>45</td>
<td><em>Calliphora (Calliphora) vicina</em> Robineau-Desvoidy</td>
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<td>46</td>
<td><em>C. (C.) vomitoria</em> (L.)</td>
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<td>47</td>
<td><em>Lucilia porphyrina</em> (Walker)</td>
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<td>48</td>
<td><em>Melinda scutellata</em> (Senior-White)</td>
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<td>49</td>
<td><em>Chrysomya megacephala</em> (F.)</td>
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<td>50</td>
<td><em>Idiella eudielloides</em> Senior-White</td>
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<td>51</td>
<td><em>I. tripartita</em> (Bigot)</td>
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<td>52</td>
<td><em>Idiellopsis xanthogaster</em> (Wiedemann)</td>
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<td>53</td>
<td><em>Metallea notata</em> van der Wulp</td>
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<td>54</td>
<td><em>Bercaea cruentata</em> (Meigen)</td>
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<td>55</td>
<td><em>Boettcherisca peregrina</em> (Rob.-Desv.)</td>
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<td>56</td>
<td><em>Parasarcophaga</em> (Curraeana) <em>kalimpongensis</em> Nandi</td>
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<td>57</td>
<td><em>P. (Parasarcophaga) albiceps</em> (Meigen)</td>
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<td>58</td>
<td><em>P. (P.) macroauriculata</em> (Ho)</td>
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<td>59</td>
<td><em>P. (P.) misera</em> (Walker)</td>
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<td>60</td>
<td><em>P. (P.) sericea</em> (Walker)</td>
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<td>61</td>
<td><em>Robineauella coei</em> Rohdendorf</td>
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<td>62</td>
<td><em>Rosellea khasiensis</em> (Senior-White)</td>
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<tr>
<td>63</td>
<td><em>Seniorwhitea reciproca</em> (Walker)</td>
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**Key to the Families**

1. Adult antennae with more than 5 segments (8-16), closely apposed but never fused into a solid structure.......................... BIBIONIDAE
   - Adult antennae either with fewer than 5 segments (generally 3), or with segments of flagellum fused into a solid structure, usually surmounted by a style or an arista. ............ 2
2. Adult head without a frontal lunule or a ptilinum ............................................................ 3
   - Adult head with a distinct frontal lunule and ptilinum. .............................................................. 7
3. Wings with a spurious vein between veins R and M; antennal arista usually dorsal ...................... SYRPHIDAE *
   - Wings without any spurious vein; antennal arista, if present, invariably terminal .......... 4
4. Arolium pad-like, nearly or quite as large as two pulvilli. ...................................................... 5
   - Arolium replaced at least by a rudimentary hair-like empodium. ........................................... 6
5. Wings with costa ending at or near wing tip; squamae small; tibiae without spurs .................. STRATIOMYIDAE

* Families with an asterisk are treated separately by various authors.
- Wings with costa continuing well past wing tip, often around posterior margin; mid-tibiae invariably with spurs .... TABANIDAE

6. Flies with dense hairs or scales; vertex between eyes a little depressed; proboscis usually long but not adapted for piercing .............................................. BOMBYLIIDAE

- Flies with long bristles; vertex markedly excavated between eyes; proboscis stout and adapted for piercing. .......... ASILIDAE*

7. Antennal segment 2 above without a distinct external groove; theca not developed at the base of proboscis; squamae small or vestigial. ........................................ 8

- Antennal segment 2 above with a distinct external groove; theca developed at the base of proboscis; squamae well-developed. .... 9

8. Oral vibrissae present; antennal segment 2 much smaller than 3; tibiae without pre-apical bristles. .................................................. SEPSIDAE

- Oral vibrissae absent; antennal segment 2 often massive, as large as 3; tibiae with pre-apical bristles. .................... SCIOMYZIDAE

9. Pteropleural and hypopleural bristles present ........................................ 10

- Pteropleural bristles absent; hypopleura at most with weak, scattered hairs only but never with strong bristles below spiracle .................................................. MUSCIDAE *

10. Post-scutellum noticeably developed; sternites more or less hidden by overlapping tergites ........................................ TACHINIDAE *

- Post-scutellum not conspicuously developed; at least basal sternite exposed .......... 11

11. Flies with metallic blue or green body; antennal arista usually feathered to tip; thorax nearly always with 2 notopleural bristles ........ CALLIPHORIDAE

- Flies with dull black or striped grey and black body; antennal arista pubescent or feathered usually not much beyond middle; thorax almost invariably with 3 or 4 notopleural bristles. .... SARCOPHAGIDAE

SYSTEMATIC ACCOUNT

Family BIBIONIDAE


A total of 4 species under 2 genera of 2 subfamilies are hitherto known in Sikkim vis-à-vis 38 species and 1 subspecies under 4 genera of 2 subfamilies in India.

Key to the Subfamilies

1. Wing with unbranched radial sector; fore tibia with a pair of strong apical spurs or with a ring of apical spines and a set of 4 transverse spines just beyond mid-length ........................................ BIBIONINAE

- Wing with forked radial sector; fore tibia without spurs or spines ........ PLECIINAE.

Subfamily BIBIONINAE

Genus Bibio Geoffroy


Type-species : Tipula hortulana L.

Diagnosis : Wing with simple radial sector, basal section being equal to or longer than radio-median cross-vein; fore tibia with strong apical spurs.

Key to the Species

1. Wing with cross-vein r-m sub-equal to basal portion of radial sector; hind tibia reddish yellow fuscitibia Brunetti

- With with cross-vein r-m about a half or one-third as long as basal portion of radial sector; all tibiae black ........................................ 2

2. Thorax black except 3 brown, broad rugose areas extending longitudinally down mesonotum in both sexes; wing with r-m cross-vein nearly equal in length to vein M1+2 beyond cross-vein; abdominal tergum 9 in males with a deep V-shaped cleft beyond half of segment......... tenebrosus Coquillett
- Thorax entirely black except yellow humeral ridges in males but mesonotum and abdomen yellow to rufous in females; wing with vein M142 beyond cross-vein r-m nearly thrice as long as cross-vein; abdominal tergum 9 in males with a U-shaped cleft less than half as long as segment. .................... hortulanoides Brunetti

* 1. Bibio fuscitibia Brunetti


Distribution : Sikkim (North), and Arunachal Pradesh, Uttar Pradesh and West Bengal; Nepal.

2. Bibio hortulanoides Brunetti

Material examined : 1 δ♂ North Sikkim, Singhik, 1570 m, 10.viii. 1959, Coll.; A.G.K. Menon; 1 δ♂, Sikkim (no other data), Coll. A.G.K. Menon.

Distribution : Sikkim (North), and Himachal Pradesh and West Bengal.

3. Bibio tenebrosus Coquillett

Material examined : 2 ♀♀, North Sikkim, Singhik, 1570 m, 10.viii. 1959, Coll.; A.G.K. Menon.

Distribution : Sikkim (North), and Arunachal Pradesh, Assam, Himachal Pradesh, Uttar Pradesh and West Bengal; Bangladesh, China, Myanmar and Nepal; Japan.

Subfamily PLECIINAE
Genus Penthetria Meigen


Diagnosis : Wing with vein R2+3 elongate and horizontal in position, nearly parallel to vein R45; forking of both veins very close to cross-vein r-m; clasper of male genitalia large and lateral in position.

4. Penthetria japonica Wiedemann

1830. Penthetria japonica Wiedemann, Aussereurop. zwief. Insekt., 2 : 618.


Diagnosis : Antenna 12-segmented, last segment (probably made up of 2 segments fused) nearly twice as long as wide; face with a distinct pit in middle beneath antenna; mesonotum anteriorly velvety black but posteriorly orange to rufous; wing with vein M4 joined directly to cross-vein r-m and vein R2+3 originating just beyond r-m cross-vein; hind tibiae and tarsi slightly swollen in males but rather slender in females; male abdominal sternite 9 with a deep U-shaped cleft posteriorly; claspers short and broad, twice as long as wide, curved inward and ending in a short point.

Distribution : Sikkim (East, North and South), and Arunachal Pradesh, Assam, Himachal Pradesh, Meghalaya, Tripura, Uttar Pradesh and West Bengal; China, Myanmar, Nepal and Taiwan; Japan and Siberia.

Family STRATIOMYIDAE


A total of 7 species under 6 genera of 4 subfamilies are hitherto known in Sikkim vis-à-vis
73 species under 34 genera of 6 subfamilies in India.

**Key to the Subfamilies**

1. Wing-vein M with only 2 endings
   - Wing-vein M with 3 endings 2

2. Anterior cross-vein (r-m) joining prefurca to discal cell
   - Anterior cross-vein (r-m) joining R to discal cell 3

3. Vein M₄ originating from discal cell; antennal flagellum usually with 6 flagellomeres
   - Vein M₄ forming a part of discal cell; antennal flagellum comprising 8 flagellomeres

**Subfamily SARGINAE**

**Key to the Genera**

1. Antennal segment 2 with a thumb-like expansion over segment 3, latter being short, broad and without annulations
   - Antennal segment 2 not thumb-like, segment 3 not broad and with 4 annulations

**Genus Ptecticus Loew**


*Type-species:* *Sargas aurifer* Fabricius.

**Key to the Species**

1. Abdominal segments 1-4 orange, with or without darker transverse spots or bands, all usually similarly marked; remainder of abdomen black; hind tibiae brown on apical half; hind tarsi blackish brown
   - Abdominal segments 1-4 orange, normally with a transverse deep blue or violet band just behind anterior margin; segment 5 mainly blue-black except anterior margin; hind tibiae all black; hind tarsi almost entirely white

5. *Ptecticus aurifer* (Walker)


*Distribution:* Sikkim (East), and Arunachal Pradesh, Assam, Meghalaya, Uttar Pradesh and West Bengal; China, E Malaysia, Kalimantan, Malay and Taiwan.

6. *Ptecticus australis* Schiner


*Distribution:* Sikkim (East), and Assam, Bihar, Karnataka, Madhya Pradesh, Meghalaya, Nicobar Is., Punjab, Tamil Nadu and West Bengal; China, Philippines, Sri Lanka, Taiwan and Thailand; Japan.

**Genus Sargas Fabricius**


*Type-species:* *Musca cupraria* Linnaeus.

*7. Sargas metallinus* Fabricius


*Material examined:* 1♀, South Sikkim, Damthag, 500 m, 18 iii. 1994., Coll.; L.K. Ghosh.

*Diagnosis:* Thoracic dorsum and scutellum shining green or bluish green, with dense fine whitish pubescence in females; abdomen shining violet or blue, with short white pubescence, a little longer laterally in females; legs pale yellow with white pubescence in females.

*Distribution:* Sikkim (South), and Andaman Is., Arunachal Pradesh, Bihar, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Meghalaya, Orissa, Uttar Pradesh and West Bengal; China,
DATTA & PARUI: Insecta: Diptera

Indonesia, Malaysia, Myanmar, Nepal and Sri Lanka; Australian region.

Subfamily CLITELLARIINAE

Genus Epanastasis Kertész


Diagnosis: Antennal flagellum and 2-segmented slender apical style sub-equal in length; scutellum with 2 strong straight spines; wing with vein R₄, discal cell with 2 oblique veins in middle; abdomen oval, broader than thorax.

8. Epanastasis fumipennis Kertész


Diagnosis: Frons shining black, with dark brown hairs; presence of 2 triangular green spots laterally above antennae; antenna dark brown, style at base and at apex brown; scutellum black, with a row of green spots at margin, spines black; mesonotum bluish black, with 2 indistinct lines; leg excepting yellowish metatarsus of middle and hind pair, black; abdomen excepting bluish segment 5, bluish black.

Distribution: Sikkim (East).

Subfamily PACHYGASTERINAE

Key to the genera

1. Antenna branched; scutellum with 4 spines; abdomen somewhat broad and rounded, and not longer than thorax ........................................... Ptilocera Wiedemann
   - Antenna filiform and unbranched; scutellum unspined; abdomen elongate, linear and much longer than thorax ........................................... Stratiopsechomyia Brunetti

Genus Ptilocera Wiedemann


Diagnosis: Frons on upper half and vertex rather sparsely punctate and haired; thorax usually with 4 stripes of coloured scales; abdominal Segment 5 with 2 broad hair bands.

Distribution: Sikkim (East); Java, Philippines, Sulawesi and Sumatera.

Genus Stratiopsechomyia Brunetti


10. Stratiopsechomyia variegata Brunetti


Diagnosis: Antennal scape twice as long as pedicel, flagellum with 4 flagellomeres; thorax black with some lemon yellow marks; fore femur yellowish, hind one brownish yellow; wing pale grey basally, darker apically.

Distribution: Sikkim (East), and Meghalaya and West Bengal.

Subfamily HERMETIINAE

Genus Hermetia Latreille


Type-species: Musca illucens (Linnaeus)

Diagnosis: Antenna longer than head; scape long, rod-like, 4-5 times as long as pedicel; flagellum ending in a flattened flagellomere; scutellum devoid of spines; all but vein M₄ among wing-veins M evanescent apically; abdomen slender, considerably longer than thorax.

*11. Hermetia illucens (Linnaeus)


Material examined: 2♀♀ East Sikkim, Tadong, 1500m, 15.iii. 1994, Coll.: L.K. Ghosh.
Diagnosis: A large, black species with bare eyes having uniformly small facets; face black, with a median white stripe anteriorly; antennal flagellum 8-segmented, with a sensory field ventrally on flagellomeres 4-6; scutum shining black, with humeral calli; post-alar calli and posterior margin of scutellum brown; wing dark brown, M₄ touching discal cell; leg black except white basal half of hind tibia and tarsus; abdomen black, with a pair of translucent white oblong spots on posterior margin of tergum 1 and 2; cerci long, 2-segmented; sub-genital plate long and pointed distally.

Distribution: Sikkim (East), and Tamil Nadu; Malaysia, Philippines, Sri Lanka and Sumatera; nearly cosmopolitan.

Family TABANIDAE


A total of 19 species and 1 subspecies under 6 genera of 3 subfamilies are hitherto known in Sikkim vis-à-vis 197 species and 4 subspecies under 12 genera belonging to 3 subfamilies in India.

Key to the subfamilies

1. Proboscis greatly elongate, longer than head and thorax together or more; antennal style with more than 5 annulations Pangoniinae
Proboscis nearly as long as head; antennal style with fewer than 5 annulations Chrysopsinae

2. Vertex with well-developed ocelli; hind tibia with 2 apical spurs Chrysopsinae
Vertex with rudimentary or no ocelli; hind tibia without apical spurs Tabaninae

Subfamily PANGONIINAE

Genus Philolische Wiedemann


Diagnosis: Eye bare; ocelli absent; antennal style with 8 annulations; wing longer than body, posterior cell 1 very narrowly open at margin, vein R₄ with long appendix, anal cell closed; hind tibia with spurs.

12. Philolische longirostris (Hardwicke)


Material examined: 1♀, East Sikkim, Tadong, 1500m, 15.iii. 1994, Coll.; L.K. Ghosh.

Diagnosis: Face black, with greyish tomentum; proboscis nearly 3 times as long as body; antennal segment 3 quite black; mesonotum brownish, with pale brown hairs, laterally giving impression of 2 indistinct stripes; leg entirely yellow, tarsomeres 1 and 2 of fore leg in both sexes prolonged and wider in a peculiar form; abdominal tergites brownish medially but reddish laterally with spots at least up to 3.

Distribution: Sikkim (East), and Arunachal Pradesh, Assam, Himachal Pradesh, Kerala, Meghalaya, Uttar Pradesh and West Bengal, China, Nepal; Tibet.

Subfamily CHRYSOPSINAE

Genus Chrysops Meigen

Type-species: Tabanus caecutiens Linnaeus.

Diagnosis: Small slender and greatly patterned flies, with colourfully maculate eyes in life; slender antenna, much longer than width of head; face highly developed; wing with cross-bands.

13. Chrysops dispar (Fabricius)


Diagnosis: Wing with posterior cell 5 having a large hyaline area up to hind margin; tibia never swollen; abdomen extensively yellowish, with a distinct inverted black V-marking on tergum 2 or often extending to 3 or even to 4.

Distribution: Sikkim (East), and Arunachal Pradesh, Assam, Bihar, Karnataka, Kerala, Meghalaya, Orissa, Tripura and West Bengal; Bangladesh, China, Jawa, Kalimantan, Laos,
Malaysia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Sumatera, Taiwan, Thailand and Vietnam.

Subfamily TABANINAE

Key to the tribes

1. Frons in females much longer than broad; antenna short, flagellum usually with broad basal plate and 4 annuli; wing hyaline or smoky entirely or locally .......................................................... 2
2. Frons in females broader than long; antenna long and slender, flagellum with slender base and 3 annuli; wing patterned with pale marks .............................................................. Haematopotini

- Frons markedly higher than wide, usually with gradual broadening towards vertex; vertex rarely with a rudimentary tubercle but always without traces of ocelli; frontal callus usually longitudinal, when present; wing with basicosta having strong setae as dense as adjoining costa ........................................................... Tabanini
- Frons moderately higher than wide, often parallel-sided or broadened towards base but rarely towards vertex; vertex having a well-developed tubercle with ocelli; frontal callus usually without upward extension; wing with basicosta free from strong setae or at most having 3-4 hairs only .................... Diachlorini

Tribe Tabanini

Key to the genera

1. Frons with 2 distinct spot-like denuded callosities or none in females; in males, head relatively larger than thorax, strongly rounded and posteriorly hollowed ........................................... 2
2. Thorax yellowish, with golden hairs; abdomen predominantly reddish dorsally; femur orange and tibia pale straw yellow; body hairs

Genus Atylotus Osten Sacken

Type-species: Tabanus bicolor Wiedemann.

14. Atylotus agrestis (Wiedemann)


Material examined: 1♀, East Sikkim, Rangpo, 300 m, 22.iii. 1994, Coll.; L.K. Ghosh.

Diagnosis: Spot-like callosities distinct on female frons; antenna yellowish; leg also yellowish; abdomen yellowish with median and lateral greyish stripes uniting apically.

Distribution: Sikkim (East), and Bihar, Orissa, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal; China, Pakistan and Sri Lanka; Ethiopian and Palaearctic regions.

Genus Tabanus Linnaeus


Subgenus Tabanus Linnaeus

Diagnosis: Head hemispherical; vertex smoothly flat or slightly concave; postocular rim present; banding on eyes often present; frons usually much narrow; antennal scape nearly as long as its width, hairy.

Key to the species

1. Subcallus bare and shining; femur and tibia contrastingly of dark and light colour ........................................... 2
2. Subcallus covered with tomentum; femur and tibia never with such dark and light colour combination .......................................................... 4

- Subcallus covered with tomentum; femur and tibia never with such dark and light colour combination .......................................................... 4

2. Thorax yellowish, with golden hairs; abdomen predominantly reddish dorsally; femur orange and tibia pale straw yellow; body hairs
predominantly golden ....................................................... flaviscutellus Philip

- Thorax brownish to blackish, with inconspicuous yellow and black hairs; abdomen reddish brown basally, darkening on last 3-4 segments; femur blackish and tibia pale yellow; body hairs predominantly blackish ........................................ 3

3. Subcallus brownish; abdominal incisures of tergites 3 and 4 with bright yellow hairs widened medially as triangles reaching half across these tergites .................................. scutellus Philip

- Subcallus red; abdominal incisures narrowly pale with a few yellow hairs and not widened on tergites 3 and 4 .................................................. flavicornis subflavicornis Philip.

- Subcallus brownish; abdominal incisures of tergites 3 and 4 with bright yellow hairs widened medially as triangles reaching half across these tergites ..................................... flaviscutellus Philip

4. Frons with indefinite or no callus ........................................ acallus Szilády

- Frons with clearly defined callus ........................................ 5

5. Abdomen with distinct bands or apical incisures but never with stripes ....... 6

- Abdomen either with distinct median stripe (and occasionally also with lateral stripes) or with spots only or both ........................................ 8

6. Brownish species, with long and narrow frontal callus, and pale greyish basal band on scutellum; wing yellowish on basal half and brownish on apical half, having posterior cell 1 very narrowly open at margin; abdomen blackish brown, having narrow white tomentose bands .......... albofasciatus Ricardo

- Species with different combination of characters ........................................ 7

7. Reddish yellow species, with 3-banded eyes; nearly clear wings and abdomen reddish yellow up to segment 3, having incisures of yellow tomentum .................................... orientis Walker

- Blackish species, with wings tinged anteriorly and blackish abdomen entirely having narrow reddish incisures ........ expilicus Walker

8. Very large species (20-23 mm.), with a conspicuously enlarged dorso-basal tooth on antennal plate; abdomen dorsally without stripes but with large median spots at least on tergites 2 and 3 along with incisures .................. 9

- Smaller species (10-19 mm.), with small antennal tooth; abdomen dorsally with a median stripe (occasionally with lateral stripes also) besides spots or incisures .................. 11

9. Abdomen brownish, with a series of elongate black median spots on tergites 2-5; venter black brown .......... parafuscomaculatus Sch. Stk.

- Abdomen reddish, blackish apically in stark contrast with preceding tergites; black median spots never extended to tergite 5, occasionally not even to 4; venter coloured otherwise ....

10. Abdominal spot larger on tergite 2 and smaller on tergite 3, and so on tergite 4, if at all visible; sternites 1-4 at least partly yellow ................ fuscomaculatus Ricardo

- Abdominal tergites 2-4 with small spots; venter usually brownish, with dark red incisures up to sternite 4 .... pullomaculatus Philip

11. Mesonotum with distinct lateral stripes over entire scutum and scutellum; abdomen with a grey median stripe on tergites 3-6 and two lateral stripes on tergites 1-2 only ................ jucundus Walker

- Mesonotum with indistinct lateral stripes never continuous on scutellum; abdomen patterned otherwise ........................................... 12

12. Abdomen with a median stripe of white tomentum and hairs on tergites 1-5; lateral stripes or spots of any kind absent ........ monotaeniatus (Bigot)

- Abdomen with a median and two lateral tomentose and / or haired equilateral stripes or truncated confluent median triangles and / or lateral spots ........................................... 13

13. Median pale tomentose stripe present on tergites 1-6, sometimes as a series of confluent triangles; lateral pale spots present on tergites 2-5 diagonally ........ rubidus Wiedemann

- Median strongly white tomentose and white-haired stripe present from base of tergite 3 to
somewhere on tergite 6; lateral white tomentose and white-haired stripe present from tergite 1 to somewhere on tergite 4.

15. Tabanus (Tabanus) acallus Szilády


**Distribution**: Sikkim (East), and West Bengal.

16. Tabanus (Tabanus) albofasciatus Ricardo


**Distribution**: Sikkim (East), and Meghalaya.

17. Tabanus (Tabanus) explicatus Walker


**Distribution**: Sikkim (East), and Meghalaya and Tamil Nadu.

18. Tabanus (Tabanus) flavicornis subflavicornis Philip


**Distribution**: Sikkim (North).

19. Tabanus (Tabanus) flaviscutellus Philip


**Distribution**: Sikkim (East); Kalimantan and Vietnam.

**Remarks**: This record is as per Philip (1970 : 449) who himself has, however, observed departure of certain characters of the only specimen from those of the type specimen deposited in the Bishop Museum. According to Burton (1978 : 151), the distributional pattern of the species is questionable.

20. Tabanus (Tabanus) fuscomaculatus Ricardo


**Distribution**: Sikkim (East), and Arunachal Pradesh; Myanmar.

21. Tabanus (Tabanus) jucundus Walker


**Distribution**: Sikkim (East), and Arunachal Pradesh, Assam, Maharashtra and Uttar Pradesh; China, Pakistan, Philippines and Sri Lanka.

22. Tabanus (Tabanus) monotaeniatus (Bigot)


**Distribution**: Sikkim (East), and Arunachal Pradesh, Assam, Meghalaya and West Bengal; China and Myanmar.

23. Tabanus (Tabanus) orientis Walker


**Distribution**: Sikkim (East); Nepal and Pakistan.

**Remarks**: The range of distribution for this species is restricted to Nepal upon resurrection of *T. fulvimedius* Walker (*vide* Stone, 1975) by Burton (1978). Subsequent records of this species from Pakistan and India (Sikkim) are, however, added to it after Burger (1984) and Datta (1991) respectively.

24. Tabanus (Tabanus) parafuscomaculatus Sch. Stekh.


**Distribution**: Sikkim (East).

25. Tabanus (Tabanus) pullomaculatus Philip


**Distribution**: Sikkim (West and South), and Arunachal Pradesh and Manipur.


*Distribution*: Sikkim (East and South), Arunachal Pradesh, Assam, Bihar, Delhi, Haryana, Jammu & Kashmir, Kerala, Maharashtra, Meghalaya, Orissa, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal; Bangladesh, Cambodia, China, Jawa, Laos, Malay, Myanmar, Nepal, Nias Is., Pakistan, Singapore, Sri Lanka, Sumatera, Thailand and Vietnam.


*Distribution*: Sikkim (East, North and South)


*Distribution*: Sikkim (East, North and South), and Arunachal Pradesh, Assam, Bihar, Delhi, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Punjab, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal; Bangladesh, Bhutan, Cambodia, China, Laos, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand and Vietnam.

Tribe *Haematopotini*


*Type-species*: *Tabanus pluvialis* Linnaeus.

*Diagnosis*: Generally small and slender flies of blackish grey colour; eyes with several undulating bands in life; frons with a velvety black spot on either side just above frontal callus and often a midfrontal spot above these; wing usually dark, with a pattern of pale spots; mid tibia and often hind tibia also usually with pale rings.

**Key to the species**

1. Frontal callus nearly four times as wide as high, with virtually straight upper and lower margins; antennal scape black, much thicker and larger than flagellum; sub-apical band of wing not reaching hind margin in cell R₄ ;

2. Frontal callus crown-shaped, more than twice as wide as high, with virtually straight lower margin but upper margin having a median projection and gradually retreated sides; antennal scape yellowish brown, thinner and shorter than flagellum, sub-apical band of wing reaching vein R₃ ;


*Distribution*: Sikkim (East), and Arunachal Pradesh, Maharashtra, Meghalaya and West Bengal; China and Myanmar.


*Distribution*: Sikkim (North).

Tribe *Diachlorini*


*Type-species*: *Cydistomyia doddi* Taylor (= *albithorax* Ricardo).

*Diagnosis*: Slender flies with bare and
unbanded eyes, males with enlarged upper facets; frons tomentose and slightly converging; callosity usually well-developed; subcallus tomentose; with vein R₄ as a rule lacking appendix; legs generally light in colour.

31. Cydistomyia aberrans Philip


Diagnosis: A brownish-yellow species with a prominent ocelligerous tubercle, annulus as long as or even longer than rest of antenna, yellowish appendages, unusually long hyaline wings and transversely banded abdomen.

Distribution: Sikkim (North).

Family BOMBYLIIDAE

Contributions on the fauna of Sikkim: Brunetti 1920; Bowden 1975.

A total of 6 species under 4 genera of 2 subfamilies are hitherto known in Sikkim vis-à-vis 86 species under 22 genera of 8 subfamilies in India.

Key to the subfamilies*

1. Eye-margin simple or very rarely with a deep sinusity posteriorly, but never indented; eyes as a rule without bisecting line or if divided, in males only; antennae usually approximate at base, with or without apical style; wing-vein R₂₊₃ arising before level of cross-vein r-m at an acute angle ....................... BOMBYLIINAE

- Eye-margin with distinct indentation posteriorly; eyes with a more or less distinct bisecting line in both sexes; antennae wide apart at base, with apical style; wing vein R₂₊₃ arising opposite to cross-vein r-m or nearly so, and always at right angle ........................................... ANTHRACINAE

*The subfamily Systropodinae characterized by slender and pedunculate abdomen is excluded after Rohdendorf (1964), Hall and Evenhuis (1980), and Evenhuis (1982).

Subfamily BOMBYLIINAE

Key to the genera

1. Wing with 2 subequal basal cells due to cross-vein r-m being near base of discal cell; cell R₄ closed .............. Systoechus Loew

- Wing with basal radial cell distinctly longer than basal medial cell due to cross-vein r-m being towards middle of discal cell; cell R₄ open ..................... Bombylisoma Rondani

Genus Systoechus Loew


32. Systoechus socius (Walker)


Diagnosis: Head posteriorly with very dense long, pale to bright yellow bristle-like scales; eye-margin below with whitish scales; antenna black, scape with long dark brown bristles; scutellum entirely covered with dense long, whitish to deep yellow scales turning reddish brown posteriorly, with a row of yellow spines; wing brownish; leg practically black; abdomen black, densely covered with bristle-like scales similar to those of thorax; abdominal segments each from 3 onwards with a row of black spines posteriorly.

Distribution: Sikkim (South), and Himachal Pradesh, Karnataka, Kashmir, Tamil Nadu, Uttar Pradesh and West Bengal; Nepal, Pakistan and Sri Lanka.

Genus Bombylisoma Rondani


33. Bombylisoma resplendens (Brunetti)


Diagnosis: Head posteriorly with a thick fringe of long soft yellowish grey hairs and a single row
of long black hairs on the extreme ocular orbit in males, whereas in females numerous small brilliant emerald-green and rose-pink scales present amidst moderately thick fringe of pale yellow hairs; antenna black, very long, segment 1 (scape) much longer than 2 (pedicel), but 3 (flagellum) longest of all, flat and parallel-sided and with a minute white style apically; thorax and scutellum dorsally and laterally with a number of bright green scales and a few rose-pink scales amidst light grey hairs; wing rather dark grey; leg black except brownish yellow tibia and tarsomere 1; abdomen black, with similarly coloured scales as on thorax.

Distribution: Sikkim (East), and Assam, Himachal Pradesh and Uttar Pradesh; Myanmar, Nepal and Sri Lanka.

Subfamily ANTHRACINAE

Key to the tribes

1. Antennal style with a brush of setae apically; metapleuron bare; squama with a hairy fringe. ................................. Anthracini
   - Antennal style destitute of hairs apically; metapleuron hairy; squama with a scaly fringe ...................................... Exoprosopini

Tribe Anthracini

Genus Anthrax Scopoli

1763. Anthrax Scopoli, Ent. Carniolica : 358. Type-species : Musca morio Linnaeus, misidentification, = anthrax (Schrank).

Diagnosis: Body scales usually decumbent, often silvery or shining black, ground colour dark brown to black; antenna usually with sub-spherical pedicel, being loosely attached to scape and flagellum, latter comprising 2 flagellomeres not aberrantly enlarged as bulb at base; anal cell often open in wing margin; spur vein usually present at bases of veins R_{2+3} and R_{4}; female genitalia with distinct ejection apparatus; vaginal apodeme L-shaped.

34. Anthrax distigma Wiedemann


Diagnosis: Wing nearly clear, with dark brown baso-costal oblique band limited to cross-vein r-m and bases of discal and posterior cell 4 (Cu_{1}); a distinct round brown spot on fork of vein R_{2+3} reaching up to R_{4+5} and a smaller indistinct spot on posterior cell 2 (M_{1}) present; anal cell open at margin.

Distribution: Sikkim (South), and Arunachal Pradesh, Bihar, Karnataka, Kerala, Meghalaya, Tamil Nadu, Uttar Pradesh and West Bengal; Bangladesh, Jawa, Myanmar, Philippines, Sri Lanka, Sulawesi and Sumatera.

Tribe Exoprosopini

Genus Ligyra Newman


Diagnosis: Antennal flagellum with terminal style bearing a minute appendage; wing with 4 submarginal cells and an inter-radial cross-vein between veins R_{2+3} and R_{4}; tarsal claw with a short, blunt basal tooth.

Key to the species

1. Wing entirely dark brown, with a violet tinge; antenna partly reddish brown or black ........ 2
   - Wing with apical part and a considerable portion of posterior half entirely or practically clear; antenna entirely black ................................
   .................................................. oenomaus (Rondani)

2. Abdominal segments 6 and 7 each with a basal spot of silvery white scales on each side of mid-line; a median stripe of long, fine hairs on venter bright yellow; antennal scape reddish brown ...................... chrysolampis (Jaennicke)
   - Abdominal segments 6 and 7 each with silvery white spots nearly attaining side-margins; a median stripe of white scaly hairs on venter; antenna entirely black ................. tantalus (F.)
35. *Ligyra chrysolampis* (Jaennicke)


**Distribution**: Sikkim (East and South), and Tamil Nadu and Uttar Prades; Bhutan, Cambodia, Hainan Is., Jawa, Kalimantan, Malaysia, Sulawesi and Sumatera.

36. *Ligyra oenomaus* (Rondani)


**Distribution**: Sikkim (East), and Arunachal Pradesh, Assam and West Bengal; Kalimantan, Malaysia and Philippines.

*37. Ligyra tantalus* (Fabricius)


**Material examined**: 1♂, Rangpo, 300 m, East Sikkim 3.x. 1993. Coll.; B.N. Das.

**Distribution**: Sikkim (East), and Arunachal Pradesh, Assam and West Bengal; Kalimantan, Malaysia and Philippines.

**Remarks**: The species appears to be widespread and is believed to exist throughout India (*cf.* Bowden, 1975).

**Family SCIOMYZIDAE**

The family was heretofore unknown from Sikkim. However, a single species occurring widely not only in the Orient but also in the Australian region, is known from the state vis-à-vis 10 species under 4 genera of the subfamily Sciomyzinae in India.

**Subfamily SCIOMYZINAE**

**Diagnosis**: Wing with bare vein R5; veins R4,5 and M1,2 parallel or only slightly converging apically; anal cell without triangular extension ventro-apically; mid and hind tibiae without median setae.

Tribe *Tetanocerini*

**Diagnosis**: Propleuron without strong seta above base of coxa but often with fine hairs.

**Genus Sepedon** Latreille


**Type-species**: *Syrphus sphegeus* Fab.

**Diagnosis**: Slender flies with a median longitudinal depression in lieu of mid-frontal stripe; anterior orbital and ocellar setae absent; antennal segment 2 nearly rod-shaped; thorax without humeral, presutural, 1 postalar, 1 or both dorsocentrals, prescutellar acrostichal and 1 pair of scutellar setae; prothorax haired and all parts of pleura with short hairs; subalar setae absent; hind coxa short-haired at inner posterior margin; cerci in male genitalia usually long and exposed.

*38. Sepedon plumbella* Wiedemann


**Material examined**: 7♂♂, 2♀♀ South Sikkim, Melli Bazar forest area, 270 m, 13.vi. 1997. Coll.; P.H. Roy.

**Diagnosis**: Antennal scape reddish yellow, remainder nearly or quite black; wing with clear basal half and dark apical half or so; hind femur usually reddish on apical half.

**Distribution**: Sikkim (South), and Bihar, Himachal Pradesh, Tripura and West Bengal; China, Jawa and other parts of the Oriental region; Australia, New Caledonia, New Guinea and Solomon Islands.

**Family SEPSIDAE**


A total of 6 species under 3 genera of 1 subfamily are hitherto known in Sikkim vis-à-vis 21 species under 8 genera of 2 subfamilies in India.
Subfamily SEPSINAE

Diagnosis: Medium or small in size, with reddish to black body and at least mesopleuron glossy; inner vertical bristles present; mid-femur normal and not bent at middle.

Key to the genera

1. Humeral bristles absent ..................................

   - Humeral bristles present ...................................... 2

2. Abdomen of both sexes without distinct macrochaetae; wing without a dark spot in vein R_{2+3} apically; hypopygial process bifurcate apically. .......................... Decachaeetophora Duda

   - Abdomen in males and often in females also, with distinct macrochaetae; wing with or without a dark spot on vein R_{2+3} apically; hypopygial process never bifurcate apically. .......................................................... Sepsis Fallén

Genus Decachaeetophora Duda


39. Decachaeetophora aeneipes (de Meijere)


   Material examined: 3♂♂ 3♀, East Sikkim, Tumin, 1800 m, 28.ix. 1988, Coll.; V.C. Agarwal; 1♂, East Sikkim, 7th Mile, 8 Km off Gangtok, 1600 m, 6.v. 1994, Coll.; S. Chattopadhyay.

   Diagnosis: A blackish fly, with duplicate vibrissae; supra-alar and outer vertical bristles present; fore femur in males with complicated setae and fore tibia with ventral emargination beset with a scraper-like tooth in mid-line; abdomen normal and not constricted between segments 2 and 3.

   Distribution: Sikkim (East), and Assam, Himachal Pradesh, Meghalaya, Punjab, Tripura, Uttar Pradesh and West Bengal; China, Nepal, Pakistan, Sri Lanka and Taiwan; Japan and Nearctic region.

Genus Dicranosepsis Duda


40. Dicranosepsis bicolor (Wiedemann)


   Diagnosis: Sternopleuron shining antero-ventrally; fore femur without a postero-ventral seta sub-basally, hind tibia without a distinct osmometerium and metatarsus without antero-ventral setae in males.

   Distribution: Sikkim (East), and Andhra Pradesh, Arunachal Pradesh, Assam, Maharashtra, Meghalaya, Punjab, Tripura, Uttar Pradesh and West Bengal; other parts of the Oriental region; Japan and Australian region.

Genus Sepsis Fallén


Key to the species

1. Wing with a dark spot on vein R_{2+3} apically .......................................................... 2

   - Wing without a dark spot on vein R_{2+3} apically .......................................................... 3

2. Wing-spot shaped angular; male fore femur much enlarged, ventrally with 2 emarginations, large proximal one bearing 3 strong long spines and small distal one bearing 4 or 5 short spines .................................................. Himalayensis Brunetti

   - Wing spot shaped round; male fore femur not enlarged, with a single ventral emargination beset with 3 short spines .................................................. neocynipsea Melander & Spuler
3. Thorax entirely reddish yellow, with a broad black dorsal stripe; male fore femur enlarged, with 2 ventral emarginations, large proximal one bearing 3 strong spines and distal one bearing 2 or 3 weak spines ........................................ 

........................................... indica Wiedemann

Thorax entirely black, without dorso-median stripe but apparently with reddish lateral stripes; male fore femur with a single ventral emargination beset with 3 short spines ........ .

.................................................. rufa Macquart

41. Sepsis himalayensis Brunetti


Distribution : Sikkim (East), and Arunachal Pradesh, Meghalaya and West Bengal; Myanmar, Nepal and Pakistan.

42. Sepsis indica Wiedemann

1824. Sepsis indica Wiedemann, Analecta Ent. : 57.


Distribution : Sikkim (East), and Assam, Bihar, Karnataka, Kerala, Maharashtra, Orissa, Tamil Nadu and West Bengal; Bangladesh, China, Jawa, Kalimantan, Lesser Sunda Is., Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Sulawesi, Sumatera, Taiwan and Vietnam; Australian and Palaearctic (Japan, Russia and South Korea) regions.

*43. Sepsis neocynipsea Melander and Spuler


Material examined : 3♂♂♀, South Sikkim, Jorthang, 300 m, 5.vi. 1994, Coll.; B.C. Das.

Distribution : Sikkim (South); Holarctic region and Nepal.

Remarks : The species is expected to occur elsewhere (at least the northern summit) in India.

44. Sepsis rufa Macquart


Material examined : 2♂♂♂, East Sikkim, Ranipool, 1400 m, 22.v. 1994, Coll.; B. C. Das.

Distribution : Sikkim (East), and Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Meghalaya, Orissa, Tripura, Uttar Pradesh and West Bengal; Myanmar and Nepal.

Family CALLIPHORIDAE

Contributions on the fauna of Sikkim : Senior-White, Aubertin and Smart, 1940; James, 1977.

A total of 9 species under 7 genera of 3 subfamilies are hitherto known in Sikkim vis-à-vis 97 species and 1 subspecies under 26 genera of 4 subfamilies in India.

Key to the subfamilies

1. Base of stem vein of wing bare dorsally ..... 

........................................... CALLIPHORINAE

– Base of stem vein of wing with long fine setulae dorsally........................................ 2

2. Thoracic squama bare dorsally; subcostal sclerite with fine pubescence ..................

................................................... RHINIINAE

– Thoracic squama haired dorsally; subcostal sclerite setulose.......... CHRYSMONYINAE

Subfamily CALLIPHORINAE

Key to the genera

1. Thoracic squama bare .................................... 2

Thoracic squama at least partially haired .....  Calliphora Rob.-Desv.

2. Antennal arista entirely plumose; parafacialia on upper half bare .......... Lucilia Rob.-Desv.

– Antennal arista plumose up to one-third of its length; parafacialia on upper half pilose ..... 

............................................. Melinda Rob.-Desv.
Genus *Calliphora* Rob.-Desv.


**Subgenus Calliphora s. str.**

*Diagnosis*: Body bluish black; presutural intralar bristles present; lower squama entirely with hair on upper surface.

**Key to the species**

1. Buccae yellow or orange excepting dark posterior part, predominantly with black hair; male eyes close together; basicosta of wing yellow .................................................. *vicina* Rob.-Desv.
   - Buccae entirely black, predominantly with reddish hair on ventral and posterior parts; male eyes very narrowly separated; basicosta of wing black ............................... *vomitoria* (L.)

45. *Calliphora* (*Calliphora*) *vicina* Rob.-Desv.


*Diagnosis*: Antenna reaching upper margin of epistome, segment 3 more than 4 times as long as broad; postsutural acrostical bristles lying in front of corresponding dorso-central bristles; upper and lower squamae infuscated; basicosta of wing blackish; leg dark brown, with 1 antero-dorsal bristle in either sex; abdominal tergite 3 lacking long and thick bristles at hind margin.

**Distribution**: Sikkim (East), and Arunachal Pradesh, Assam, Jammu & Kashmir, Himachal Pradesh and West Bengal; China, Malay, Nepal, Philippines, Sri Lanka and Thailand.

Genus *Melinda* Robineau-Desvoidy


48. *Melinda scutellata* (Senior-White)


*Diagnosis*: Parafacialia with numerous fine setulae on upper third; scutellum dark basally, reddish towards apex; leg orange-yellow excepting dark brown tarsus, hind tibia with 5 very long bristles among piles; abdomen blackish-grey, with patches of silvery tomentum.

**Distribution**: Sikkim (East), and West Bengal; Malay, Myanmar and Nepal.

Subfamily CHRYSMOMYINAE

Genus *Chrysomya* Robineau-Desvoidy


*Diagnosis*: Generally medium-sized flies of

47. *Lucilia porphyrina* (Walker)


*Material examined*: 1♀, East Sikkim, Singtam, 750 m, 30. ix. 1993, Coll. B. N. Das.

*Diagnosis*: Antenna reaching upper margin of epistome, segment 3 more than 4 times as long as broad; postsutural acrostical bristles lying in front of corresponding dorso-central bristles; upper and lower squamae infuscated; basicosta of wing blackish; leg dark brown, with 1 antero-dorsal bristle in either sex; abdominal tergite 3 lacking long and thick bristles at hind margin.

**Distribution**: Sikkim (East), and Jammu & Kashmir, Himachal Pradesh, Uttar Pradesh and West Bengal; Holarctic region.

Genus *Lucilia* Dobineau-Desvoidy


**Distribution**: Sikkim (East), and Himachal Pradesh, Uttar Pradesh and West Bengal; China, Nepal and Pakistan; Australian, Nearctic and Neotropical regions.

46. *Calliphora* (*Calliphora*) *vomitoria* (L.)


**Distribution**: Sikkim (East), and Jammu & Kashmir, Himachal Pradesh, Uttar Pradesh and West Bengal; Holarctic region.

Genus *Lucilia* Dobineau-Desvoidy


*State Fauna Series 9, Fauna of Sikkim*
metallic green, blue or purple colour; eyes large and bare, usually holoptic and with upper facets enlarged in males but dichoptic and with small uniform facets in females; presutural acrostichal bristle absent; propleuron and prosternum hairy; supra-squamosal ridge usually with anterior parasquamosal tuft; subcostal sclerite hairy; tergum 5 with fine erect bristles on disc.

49. Chrysomya megacephala (Fabricius)


Material examined: 1♂, 1♀, South Sikkim, Namchi, 1250 m, 10.xi. 1992, Coll.; M.S. Shishodia.

Diagnosis: Eyes in males with markedly enlarged facets on upper 2/3, lower 1/3 with small facets; parafacialia and genae yellowish orange, both covered with yellowish-white hairs; antennal segment 3 entirely orange; mesonotum with 2 short, narrow longitudinal black stripes anteriorly and a small black triangle on humeral callus; abdomen greenish blue with purple reflection; male hypopygium slightly projecting; superior clasper much reduced and lightly chitinized.

Distribution: Sikkim (South), and also other states in India and other parts of the Oriental region; North China and Japan of the Palaearctic region; Australasian region; Malagasy sub-region of the Ethiopian region.

Subfamily RHINIINAE

Key to the Genera

1. Antennal arista microscopically pubescent; wing cell R₃ well open ................................................. Metallea van der Wulp.
   - Antennal arista pectinated, i.e., ciliate on upper side only; wing cell R₃ closed or narrowly open. ......................................................... 2

2. Facial carina rather narrow; male frontalia broadly persistent throughout; wing cell R₃ closed or narrowly open ........................................ Iridelela Brauer & Bergenstamm
   - Facial carina well-developed, widely isolating antennae; male frontalia completely obliterated; wing cell R₃ short-petiolate ........ Idiellopsis Townsend

Genus Iridelela Brauer & Bergenstamm


Key to the species

1. Antenna and palpus black; pleuron with long whitish yellow hair, arising from black dots; femur black, with greenish reflection but tibia yellow, with black apex ................................................. euidielloides s.-w.
   - Antenna and palpus brown; pleuron with stripe of thick golden pile; femur and tibia entirely brownish yellow ................... tripartita (Bigot)

50. Iridelela euidielloides Senior-White


Distribution: Sikkim (East), and Kerala, Meghalaya, Orissa and West Bengal; Indonesia (Jawa, Timor), Malaysia (Malay), Philippines (Palawan), Sri Lanka, Taiwan and Thailand.

51. Iridelela tripartita (Bigot)

1874. Idia tripartita Bigot, Annls Soc. ent. Fr., (5) 4 236.

Material examined: 1♀, South Sikkim, Namchi, 550 m, 19.iii. 1994, Coll.; L.K. Ghosh.

Distribution: Sikkim (East and South), and West Bengal; China, Myanmar, Nepal and Philippines (Palawan, Tawi Tawi).

Genus Idiellopsis Townsend


Type-species: Idiellopsis similis Townsend = Idia xanthogaster (Wiedemann).

52. Idiellopsis xanthogaster (Wiedemann)

1917. Idiellopsis similis Townsend, Rec. Indian Mus.,
13 : 190.

Diagnosis: Frons with a black stripe, parafrontalia white, with black spots; mesonotum and scutellum entirely dark green; pleuron with profuse golden hair; wing yellow, with slight apical infuscation; abdomen reddish orange, with a black median stripe and darkened segments 3 and 4 posteriorly in males.

Distribution: Sikkim (East), and Assam, Bihar, Madhya Pradesh and Uttar Pradesh; Jawa and Malay; Australia and Maluku.

Genus Metallea van der Wulp
Type-species: Metallea notata van der Wulp.

53. Metallea notata van der Wulp
1880. Metallea notata van der Wulp, Tijdschr. Ent.,
23 : 175.

Diagnosis: Generally metallic green species; antennal arista pubescent; all femora black; abdominal segments 1 and 2 yellowish, 3 with greenish band posteriorly and remainder with greenish patches laterally.

Distribution: Sikkim (East), and Andaman Is., Assam, Bihar, Meghalaya, Orissa, Tamil Nadu, Uttar Pradesh and West Bengal; China, Indonesia (Jawa), Malaysia (Malay) and Sri Lanka.

Family SARCOPHAGIDAE

Contributions on the fauna of Sikkim: Senior-White, Aubertin and Smart, 1940; Nandi and Ray, 1982.

A total of 10 species under 6 genera of the subfamily Sarcophaginae are hitherto known in Sikkim vis-à-vis 101 species under 32 genera of 3 subfamilies in India.

Subfamily SARCOPHAGINAE

Diagnosis: Antennal arista pubescent to plumose on basal two-thirds; notopleurals invariably 3 or 4; stem-vein of wing setulose on posterior upper side of its basal section.

Key to the Genera

1. Acrostichal bristles absent...........................................2
   Acrostichal bristles present ........................................3

2. Paraphallus long, apically bifurcated and without any lateral process ..............................................................Robineauella End.
   – Paraphallus short, blunt and with a short lateral process ... Bercaea Rob.-Desv.

3. Propleuron bare.................................................................4
   – Propleuron haired ..........................................................5

4. Sternite 4 with profusely thick and long hair; apical plate of paraphallus rounded and entirely membranous .......... Seniorwhitea Rohdendorf
   – Sternite 4 sparsely haired; apical plate of paraphallus shaped otherwise and partially sclerotized, but never becoming gradually pointed, even if long and slender .................. Parasarcophora Johnston & Tieg

5. Sternite 5 with a prominent conical protuberance in middle part; hind tibia of male fringed .................................Rosellea Rohdendorf
   – Sternite 5 without protuberance in middle part; hind tibia of male devoid of fringe ............................... Boettcherisca Rohdendorf

Genus Bercaea Robineau-Desvoidy
2 : 549. Type-species: Musca haemorrhoidalis Fallen.

54. Bercaea cruentata (Meigen)

237 (pre-occupied).


Diagnosis: Antenna and palpus black; propleuron bare; posterior dorsocentral 6, anterior 4 weak; wing costal segment iii and v equal; mid femur with comb but no basal fringe; hind tibia double-fringed; abdominal segment 2 without marginal bristles; genital tergites orange.
DATTA & PARUI: Insecta: Diptera

Distribution: Sikkim (East, West, North, South), and Arunachal Pradesh, Bihar, Himachal Pradesh, Manipur, Meghalaya, Mizoram, Uttar Pradesh and West Bengal; Nepal and Thailand; Africa, Americas, Europe, Hawaii, Korea and Seychelles.

Genus Boettcherisca Rohdendorf


55. Boettcherisca peregrina (Rob.-Desv.)


Material examined: 2♂♂, North Sikkim, Mangan, 1200 m, 2.iv. 1994, Coll.; P.H. Roy.

Diagnosis: Frons in males half width of an eye; lateral vertical absent; costal segment iii longer than v; hind femur with postero-ventral macrochaetal row, mid tibia bare, hind tibia with apical fringe; spines on apical part of inner forceps not extending to dorsal side.

Distribution: Widely distributed in India including Sikkim (North, West); Hainan Is., Indonesia, Malaysia, Myanmar, Nepal, South China, Sri Lanka, Taiwan and Thailand; Australia, Fiji, Gilbert Is., Hawaii, Japan, Korea, Mariana Is., New Britain, New Guinea, Ogasawa, Samoa, Seychelles and Society Is.

Genus Parasarcophaga Johnston & Tiegs


Key to the subgenera

1. Lateral plate of paraphallus in form of narrow stout process extending forward ..................
   .............................................. Currannea Rohdendorf
   Lateral plate of paraphallus in form of an unpaired pedunculate process .......................
   .......... Parasarcophaga Johnston & Tiegs

Subgenus Currannea Rohdendorf


56. Parasarcophaga (Currannea) kalimpongensis Nandi


Diagnosis: Thorax with 5+5 dorsocentral bristles, posterior 2 well-developed; hind tibia without tuft of hair; apical plate of paraphallus with 1 median and 3 lateral apical processes; lateral plate of paraphallus short, chitinous and bifurcate; styli of glans devoid of serrations; ventralia nearly membranous, with a hook-like process.

Distribution: Sikkim (North), and West Bengal.

Subgenus Parasarcophaga Johnston & Tiegs


Key to the species

1. Posterior dorsocentrals 5-6. Inner forceps swollen at two-thirds its length, with a few spines on it; apex of paraphallus long, curved. with 2 knobs at basal part on outer surface ...................................................... macroauriculata (Ho)
   – Posterior dorsocentrals only 4.................. 2

2. Acrostichal 1:1; apical process of paraphallus well-curved .................................................. 3
   – Only posterior acrostichal distinct; apical process of paraphallus slightly curved ..............
     ................................................................ sericea (Walker)

3. Sternite 5 with uniformly wide arms; mid femur with comb and sparse basal fringe; segment iii of costa longer than v .............................................. misera (Walker)
   – Sternite 5 without uniformly wide arms; mid femur with comb and long basal fringe; segment
iii of costa twice as v ..........................
............................................ albiceps (Mg.)

57. Parasarcophaga (Parasarcophaga) albiceps (Meigen)


Distribution : Sikkim (East, West, North, South), and also common in other parts of India; China, Kalimantan, Malaysia, Nepal, Philippines, Ryukyu Islands, Taiwan and Thailand; Bismarck Archipelago, Europe, Hawaii, Israel, Japan, Korea, New Britain, New Guinea, Solomon Island and Turkey.

58. Parasarcophaga (Parasarcophaga) macroauriculata (Ho)


Distribution : Sikkim (East, West, North), and Manipur, Meghalaya, Nagaland, Uttar Pradesh and West Bengal.

59. Parasarcophaga (Parasarcophaga) misera (Walker)


Distribution : Sikkim (East, West), and widely occurring in other parts of India; Bangladesh, China, Malaysia, Hainan Is., Jawa, Kalimantan, Myanmar, Nepal, Philippines, Ryukyu Islands, Sri Lanka, Sulawesi, Sumatera, Taiwan and Thailand; Afghanistan, Korea and Japan; widespread in the Pacific Islands to New Guinea and Australia.

60. Parasarcophaga (Parasarcophaga) sericea (Walker)


Material examined : 1♂, South Sikkim, Damthang, 500 m, 18.iii. 1994. Coll.; L.K. Ghosh.

Distribution : Sikkim (South, West), and other parts of India; Bangladesh, China, Hainan Is., Indonesia, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Taiwan and Thailand; Australia, Caroline Is., Korea, Mariana Is., Marshall Is., New Guinea, Society Is. and the erstwhile U.S.S.R.

Genus Robineauella Enderlein


61. Robineauella coei Rohdendorf


Diagnosis : Apical plate of paraphallus strongly sclerotized, apically bifurcate; lateral plate short, apically pointed; styli of glans somewhat short; genital tergites devoid of marginal bristles.

Distribution : Sikkim (East, North), and Arunachal Pradesh, Manipur and West Bengal.

Genus Rosellea Rohdendorf


62. Rosellea khasiensis (Senior-White)


Diagnosis : Frons more than half of eye width; antennal segment 3 brownish; presutural acrostichal absent, notopleural 3, disc and lateral margin of scutellum each with 1 pair of bristles; costal segment iii longer than v; fore femur with 2 rows of bristles postero-dorsally and hind femur with 2 rows of bristles antero-dorsally; apical plate of
paraphallus curved downward and its lateral plate curved upward.

**Distribution**: Sikkim (East, North), and Assam, Kashmir, Manipur and Meghalaya; China, Nepal and Thailand.

**Genus Seniorwhitea** Rohdendorf


63. *Seniorwhitea reciproca* (Walker)


**Material examined**: 2♂♂, South Sikkim, Namchi, 550 m, 19.iii. 1994, Coll. L.K. Ghosh.

**Diagnosis**: Head with weak lateral vertical bristle or none; antenna black, segment 3 more than thrice as long as 2; abdominal tergite 2 only with marginal bristles; mid femur with strong comb and basal fringe; hind femur well-fringed; mid and hind tibiae fringed.

**Distribution**: Sikkim (West, South), and nearly everywhere in India; China, Hainan Island, Laos, Malay, Myanmar, Nepal, Singapore, Sri Lanka, Taiwan and Thailand; Hawaii.

**Zoogeographical Remarks**

Sikkim comprises four districts: North, South, East and West, of which the north occupies more than the half of the area with the greatest elevations as well as the marvellous landscape that the state holds and shares with the Darjiling district of West Bengal, the only neighbouring state in India. Because of rather well-known Diptera fauna in West Bengal and the like physiography of the adjoining Darjiling terrain, the fauna is discussed in the light of that in West Bengal (*vide* Datta, Parui and Mukherjee, 1997). The pattern of distribution exhibited by the species (as per serial no.) is simultaneously accentuated by the diagrams 1-9 appended here as visual aids.

The Bibionidae are known to occur in Sikkim by 4 species, of which *Bibio fuscitibia* is now recorded from the state, conforming to the Himalayan bias as shown by 3 other species (Diag. 2). So far, *B. hortulanoides* remains unknown from outside India but the other 3 species are known at least from Nepal (Diag. 6). Indeed, *B. tenebrosus* and *Penthetria japonica* are the two well-known Oriental species that extend their range of distribution northward as far as Japan and even Siberia (in case of the latter species) in the Palaearctic region (Diags. 2 & 6).

The Stratiomyidae are represented by 7 species, of which *Epanastasis junipennis* is known from Sikkim only (Diag. 1), and *Sargas metallinus* and *Hermetia illucens*, the lone species of the Hermetiinae here, are now recorded from the state despite their wide occurrence almost throughout the Orient (Diag. 6). The former species is, however, widely known in India but the latter, though nearly cosmopolitan around the globe between 45°N and 40°S, is poorly known in this country (Diag. 2). The other 2 species along *metallinus*, namely, *Ptecticus aurifer* and *P. australis* of the Sarginae here, are known from the Himalaya, certainly colonizing elsewhere in India and abroad (Diags. 2 & 6). Of the two pachygasterines, *Stratiosphecomyia variegata* is limited to the east and the north-east of India, whereas *Ptilocera amethystina* is known only from Sikkim in India and far beyond at the eastern and the southern fringes of the Oriental region. The latter species is, therefore, likely to occur not only in the eastern part of India but also everywhere in those countries regarded as the probable pathway of dispersal (Datta and Parui, *op. cit.*).

The Tabanidae in Sikkim are not only significant in quality but also in quantity, outnumbering many other kinds of Diptera. Altogether 19 species and 1 subspecies are known under 6 genera belonging to 3 subfamilies and *Tabanus* overwhelmingly surpass the remaining genera: *Philoliche*, *Chrysops*, *Atylotus*, *Haematopota* and *Cydistomyia* taken together in magnitude. The
dominant genus *Tabanus* comprises 13 species and 1 subspecies (70% of the fauna) and *Haematopota* 2 species, whereas a single species pertains to each of the rest. *Philoliche longirostris* certainly indicates the Himalayan bias, extending its range of distribution westward to Nepal and northward to China and Tibet (Palaearctic region) (Diag. 6). However, its existence in the central, western and southern India as far as Karnataka and Tamil Nadu is unknown. Likewise, it is not shown beyond Assam and Meghalaya in the eastend of this country (Diag. 2). *Chrysops dispar*, a widespread Oriental species, is supposed to occur not only throughout India (presently unknown in the northern, central and western states) but also everywhere in the Orient as far as the Weber’s Line (*vide* Datta, 1998) (Diags. 2 & 6). The distributional pattern exhibited by *Atylotus agrestis* makes us admit that the seat of origin of the species is somewhere in the Palaearctic region and in course of time it has radiated southward both in the Ethiopian and Oriental regions (*vide* Burger, 1981). Indeed, its occurrence in most of the territories (excepting certain parts of India, China, Pakistan and Sri Lanka) is still unknown because it has not established itself well in the entire region. The only species of *Cydistomyia*, viz., *aberrans* and one of *Haematopota*, viz., *sikkimensis* are not known elsewhere (Diag. 1) but *H. annandalei*, a newly recorded species, most likely occur everywhere in India despite its disjunct records in several states (Diga. 3). The latter species is also known from China northward and Myanmar southward, forming a confluent landmass for easy dispersal (Diag. 7). Of the *Tabanus* species, *scutellus* and *parafuscomaculatus*, and *flavicornis subflavicornis* are unknown elsewhere (Diag. 1) but *orientis* extends its range of distribution furthermore to Nepal and Pakistan westward (Diag. 7), giving a clear indication of its existence at least in the northern fringe of India along the Himalayan belt and *flaviscutellus* with a long bound over to Vietnam and Kalimantan (Indonesia) leaving no records of occurrence in the intervening territories (Diag. 6). Although *acallis*, *albofasciatus* and *pullamaculatus* are limited to the east and/or north-east of India (Diag. 3), * explicatus* exhibits also in Tamil Nadu (South India) (Diag. 3). Among the remaining 5 species, * fuscomaculatus* is known from Myanmar and *monotaeniatius* also from China besides certain states in the north-east India (Diags. 3 & 7), whereas *jucundus* is known from parts of the western and northern India along with the north-east, and outside from China northward, Sri Lanka southward, the Philippines eastward and Pakistan westward, all close to one another giving thoroughfare for easy migration (Diags. 3 & 7). Indeed, both *rubidus* (recorded now) and *striatus* unlike others as cited above, are the only 2 species that are widespread in the Oriental region (*vide* Datta, *op. cit.*) (Diags. 3 & 7). Curiously, none of these tabanids has encroached anywhere beyond the Orient.

The bombyliid fauna in Sikkim is known to contain 6 species, of which 3 species belong to *Ligyra*. Although none of them is well-known in India, they definitely exist everywhere in the Oriental region despite their apparent absence from certain territories used as thoroughfares for migration (Diags. 3, 4 & 7). Indeed, *tantalus*, a species now recorded from the state, extends its range of distribution to Japan (Palaearctic region) via China and to New Guinea (Australian region) either of two ways or both via Indonesia or the Philippines (Diag. 8). Of the remaining 3 species under 3 different genera, *Anthrax distigma* is more well-known not only in India but also in certain other parts of the Orient (*vide* Datta and Parui, *op. cit.*) than the other two that seem to occur at least in all adjoining countries even though unrecorded in Bangladesh, Bhutan and China along with Myanmar in case of *Systoechus socius* and those countries with Pakistan in case of *Bombylisoma resplendens* (Diags. 3 & 7).

The family Sciomyzidae is registered in Sikkim by a single species, *Sepedon plumbeola* that is widespread in the Orient (excepting India) and the Australian region as well (Diags. 4 & 8) (*vide* Datta and Parui, 1999).
Of the six species of the Sepsidae, 4 are Sepsis. *S. neocynipsea*, a Holarctic species, is now recorded from Sikkim alongside Nepal but is unknown from any other states of this country (Diags. 1 & 8). Indeed, *S. indica* is much more widely displayed than the other two, viz., *himalayensis* and *rufa* (vide Datta and Parui, 1998; 1999) in that the species is known almost in all parts of India and the rest of the Orient. Besides, the northern limit of distribution of the species is marked off to Russia, S Korea and Japan (Palaearctic region) and the southern limit to New Guinea (Australian region) (Diags. 4 & 8). *Diceranosepsis bicolor* also exhibits its existence both in the Palaearctic and Australian regions (Diags. 4 & 8) but *Decachaeotopha aeneipes* does it far and far away in the Nearctic region in lieu of the nearer Australian region (vide Datta and Parui, op. cit.) (Diags. 4 & 8).

Although all the three subfamilies of the family Calliphoridae are known to occur in Sikkim, these are impoverished in species against its conducive topography, climate and host-animal assemblage. The Calliphorinae comprise 4 species and all these species show excellent Himalayan bias (Diag. 4) and, therefore, their occurrence in the central, western and southern parts of this country leans on doubt. Of the two species of *Calliphora, vomitoria* is essentially a species of the Holarctic region (Diag. 8), whereas *vicina* has colonized well not only in the Australian region but also in the New World (Diag. 8). According to Zumpt (1965), this was probably a Holarctic species in original that subsequently found its way to several places of the Oriental, Australian, Nearctic and Neotropical regions by means of human traffic. Obviously, the species is still unknown in the far-off countries or territories of the Orient because it might have not been introduced so far by any means. *Melinda scutellata* is at present very poorly known in India but is expected to encounter at least in the Himalayan states and others in the eastern India (Diag. 4). The species extends its range outside the country westward to Nepal and southward to Malay through Myanmar and Thailand (unrecorded), the normal pathway of migration (Diag. 8). *Lucilia porphyrina*, a newly recorded species is, however, known almost in all the Himalayan states with a mere settlement in Assam eastward (Diag. 4) in India, and exhibits migratory radiation northward to China and southward to Malay, certainly via Myanmar (unrecorded) and Thailand. The species might have intruded in the Philippines from China and/or Taiwan (unrecorded) but its way to Sri Lanka remains beyond speculation (Diag. 8). The extremely widespread species of the Chrysomyinae, viz., *Chrysomya megacephala* is a well-known economic species occurring through a vast stretch of territories under the Oriental, Palaearctic, Australian and Ethiopian regions (Datta and Parui, 1998, 1999) (Diags. 5 & 9). The Rhiniinae are known by 4 species under 3 genera, of which two are *Idiella* and one each in *Idiellopsis* and *Metallea*. The *Idiella* species are widely distributed but confined to the Oriental region only despite their deficient representation in India (Diag. 5). Although *euidielloides* has its north-south distributional range from Taiwan to Timor (extreme south of Indonesia) (vide Datta and Parui, 1998), *tripartita* is limited to its distribution in Nepal on the west, China on the north, Myanmar on the south and the Philippines precisely on the south-east (Diag. 9). The latter species in all likelihood dispersed towards the Philippines from China. Likewise, *Metallea notata* does not extend its range of distribution beyond the Orient (cf. Datta and Parui, op. cit.), but *Idiellopsis xanthogaster* does it crossing over the Weber’s line to the Australian region (Diag. 9). However, our knowledge on its existence in the east-end of this country as well as in Myanmar, Thailand and, North and East Indonesia, and probable means for getting into Australia interlinking Malay and Jawa (only records) is lacking.

The Sikkimese Sarcophagidae are represented by 10 species under 6 genera and nearly all of them occur in West Bengal. Of the five *Parasarcophaga* species, *kalimp Gonzensis* is known only from West Bengal alongside Sikkim, and *macrauriculata* extends its range westward
to Uttar Pradesh and eastward to Meghalaya, Nagaland and Manipur (vide Datta and parui, op. cit.) (Diag. 5), eventually showing its existence at least in Myanmar in the long run. The other 3 species, viz., albiceps, misera and sericea occur probably not only throughout India but also in the entire Oriental region, and some or other parts of the Palaearctic and Australian regions (vide Datta and parui, 1998; 1999) (Diags. 5 & 9). Indeed, albiceps extends its range of distribution still far beyond to the Hawaiian Islands. However, Bercaea cruentata unlike Boettcherisca peregrina is not that much known in the Orient, despite both of their occurrence far and wide either in the Palaearctic, Ethiopian, Nearctic and Neotropical regions (e. g. cruentata) or in the Palaearctic, Ethiopian and Australian regions, (e. g. peregrina), with an encroachment in the Hawaiian Islands by both the species (vide Datta and Parui, op. cit.) (Diags. 5 & 9). Although Seniorwhitea reciproca is known well in India as well as some other parts of the Orient and also in the Hawaiian Islands (Diags. 5 & 9) but with disjunct records in the intervening territories (Datta and Parui, op. cit.), Rosellea khasiensis and Robineauella coei are only from the north-east of India (Diag. 5). The former species, however, exhibits its range up to China on the north, Nepal on the west and Thailand on the east via Myanmar (unrecorded) regarded as the most probable pathway of dispersal (Datta and Parui, 1998).

To conclude, it may be re-called that Sikkim exhibits 62 species and 1 subspecies under the families : Bibionidae, Stratiomyidae, Tabanidae, Bombyliidae, Sciomyzidae, Sepsidae, Calliphoridae and Sarcophagidae. Out of 14 species and 1 subspecies that are confined to India, 5 species and the subspecies are not known elsewhere in the country, and 3 species only from Sikkim in India, extend their range of distribution to certain other parts of the Orient where other 22 species are spread over, but there are 23 species more that intrude across the Orient. Curiously, one of them is known nowhere else in India and another known only in this country but nowhere else in the Orient.

SUMMARY

The paper introduces the early history of collecting and describing Diptera from Sikkim and concludes with the zoogeographical comments on the Sikkimese fauna of 62 species and 1 subspecies under 35 genera belonging to 8 families of Diptera : Bibionidae, Stratiomyidae, Tabanidae, Bombyliidae, Sciomyzidae, Sepsidae, Calliphoridae and Sarcophagidae, of which the family Sciomyzidae with a single species plus 9 other species are recorded for the first time from the state.

ACKNOWLEDGEMENTS

We express our thanks to Dr. J. R. B. Alfred, Director and Dr. S. K. Mitra, Scientist-SF of the Entomology Division, Zoological Survey of India, Calcutta, for their kind co-operation in working out the material from the state at our disposal. Thanks are also due to Messrs. Anil Kumar Bhattacharya and Haradhan Das of this institute for their help in finalizing the MS of the paper.

We especially owe to Prof. Dr. Rudolf Rozkošný of the Purkyně University, Czech Republic, for kindly providing us with an old pertinent literature of the Stratiomyidae, without which we might have been in trouble.
Diag. 1: Recorded districts of occurrence of the dipterous species (as per serial number) in Sikkim (in black shade).
Diagram 2: Distribution of the dipterous species (as per serial number) in other parts of India (in black shade).
Diagram 3: Distribution of the digenous species (as per serial number) in other parts of India (in black shade).

Species Nos.

- Arunachal Pradesh
- Assam
- Meghalaya
- Nagaland
- Manipur
- Mizoram
- Tripura
- West Bengal
- Bihar
- Orissa
- Madhya Pradesh
- Uttar Pradesh
- Delhi
- Himachal Pradesh
- Jammu & Kashmir
- Punjab
- Haryana
- Rajasthan
- Gujarat
- Maharashtra
- Goa
- Karnataka
- Andhra Pradesh
- Kerala & Lakshadweep
- Tamil Nadu
- Andaman & Nicobar Is.
Diag. 4: Distribution of the diperous species (as per serial number) in other parts of India (in black shade).

Species Nos.

- Arunachal Pradesh
- Assam
- Meghalaya
- Nagaland
- Manipur
- Mizoram
- Tripura
- West Bengal
- Bihar
- Orissa
- Madhya Pradesh
- Uttar Pradesh
- Delhi
- Himachal Pradesh
- Jammu & Kashmir
- Punjab
- Haryana
- Rajasthan
- Gujarat
- Maharashtra
- Goa
- Karnataka
- Andhra Pradesh
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Species Nos•

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Diag. 6: Distribution of the dipterous species (as per serial number) in and around the Oriental region (excluding India).
**Diag. 7**: Distribution of the dipterous species (as per serial number) in and around the Oriental region (excluding India).

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- **KNOWN in and around THE ORIENTAL REGION excepting India**
Diag. 8: Distribution of the dipterous species (as per serial number) in and around the Oriental region (excepting India).
Diag. 9: Distribution of the dipterous species (as per serial number) in and around the Oriental region (excepting India).
REFERENCES


DATTA & PARUI: *Insecta: Diptera*

Siruna Seva, 3 : 1-32.


APPENDIX: Diptera fauna known from Sikkim (up to 1998)

<table>
<thead>
<tr>
<th>SUBORDER/Family</th>
<th>Subfamily</th>
<th>Genus (Nos.)</th>
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INSECTA : DIPTERA : ASILIDAE

P. PARUI
Zoological Survey of India, M-Block, New Alipore, Kolkata- 700 053

INTRODUCTION

Sikkim contained mountain ranges, rivers and streams, and deep forests and bushes with wet atmosphere (c.f. Datta and Parui, 2002). These situations favours the population of robberflies. The asilid fauna of the state comprises a total of 28 species spread over 15 genera, of which only three species namely Merodontina sikkimensis Enderlein (1914), Promachus binghamensis Ricardo (1921) and Astochia pseudoguptai Joseph and Parui (1987) were described from Sikkim and Philonicus albiceps Meigen (1849) recorded here from Sikkim, is the first record of the species from India. However, it appears that many more species can be discovered from the state if intensive surveys are undertaken in future.

Recently several trips were undertaken by various tour parties of Zoological Survey of India, Calcutta (Datta and Parui 2002). The following are some of them who collected asilids for study. V. C. Agarwal (September 1988), B. N. Das and P. Pami (October 1993), P. H. Roy (April, 1994) and B. C. Das (June, 1994). The present report includes also the specimens present in the old collections of the Survey. The species marked with asterisk are recorded for the first time from the state.

MATERIAL AND METHOD

Adult robberflies are caught by the butterfly net. For further details the reader may be referred to "The fauna of India and adjacent countries, Diptera, Asilidae Part I. by Joseph and Parui, (1998)."

MORPHOLOGY AND TERMINOLOGY

For details of it the reader may be referred to "The Fauna of India and adjacent countries, Diptera, Asilidae Part I (1998)."

SYSTEMATIC ACCOUNT

Key to the subfamilies

1. Palpus one segmented ......................... 2
   - Palpus two segmented ...................... 3

2. Elongate and very slenderflies; marginal cell open; alula absent; first flagellomere short, ovoid with a long bristle-like style ..................
   .................. LEPTOGASTERINAE
   - Slender or robust species; marginal cell closed; first flagellomere long and slender with microsegment bearing short, bristle-like style ASILINAE

3. Marginal cell open; first flagellomere spindle-shaped with apical microsegment; fourth posterior cell generally open or closed at the margin; females usually with circlet of spines on acanthophorites ...... DASYPOGONINAE
   - Marginal cell closed; first flagellomere rod-like or clavate with apical pit; fourth posterior cell generally closed and stalked ................
   .................. LAPHRIINAE

The species of the subfamily Leptogasterinae is not so far recorded from Sikkim state.

Subfamily LAPHRIINAE

Tribe Laphriini

Marginal cell closed, vein M, curved, not
Explanation of Map: EAST DISTRICT: † Astochia philus, ☞ A. pseudoguptai, ☹ A. ranipoolensis, ☞ Machimus nigiriensis, ☞ Microstylum albolimpatum, ☞ M. imbutum, ☞ M. trimelas, ☞ Ommatius indicus, ☞ Philodicus femoralis, ☞ Philonicus albiceps, ☞ Promachus leoninus, ☞ Trichomachimus orientalis, WEST DISTRICT: ☞ Cophinopoda chinensis SOUTH DISTRICT: † Astochia Philus ☞ Astachia gapae, ☞ Machimus rufipes, ☞ Philodicus femoralis, ☞ Promachus leoninus
parallel with outer margin of discal cell, and far from being in line with it except in Orthogonis.

Genus Laphria Meigen

1803. Laphria Meigen, Magazin Insektdie, 2: 270. Type-species: Asilus gibbosus Linnaeus.

Diagnosis: Hairy flies, facial gibbosity well produced; abdomen metallic; anterior branch of third vein strongly arched, sigmoid and ending above wing apex.

1. Laphria luteopilosa Joseph and Parui


Material examined: 2♀, Sikkim, Coll. Knyvett, no other data.

Diagnosis: Mystax golden yellow; antenna black; scutum and scutellum covered with golden yellow pile; metapleuron with black bristle; coxae and trochanter black; femur black with yellowish-brown apex; tibia yellowish-brown; wing uniformly brown; tergites 1–6 black pilose, remaining tergites black and golden-yellow pilose.

Distribution: Sikkim and Assam.

Subfamily DASYPOGONINAE

Tribe Saropogonini

Marginal cell open; prosternum isolated and surrounded by membrane; females with ninth tergite divided into two spinebearing plates (acanthophorites).

Key to the genera

1. Front tibia with a short protuberance and a spine at apex; metanotal slopes micro-pubescent only; abdomen elongate, club-shaped
Pegasimallus Loew

(1-species only)

Front tibia without protuberance or spine at apex; metanotal slopes with bristles or stiff piles; abdomen long, slender ...................... Microstylum Macquart (4-species only)

Genus Microstylum Macquart


Key to the species

1. Fore femur uniformly dark-brown to black ............................................ 2

– Fore femur yellowish; wing with coppery purple lustre. ..................imbutum (Walker)

2. Wing dark brown with coppery purple lustre; mesonotum with two pairs of stripes .......................... trimelas (Walker)

– Wing without eridescens .................................. 3

3. Wing uniformly brownish-yellow ......................................................... strigatum Enderlein

– Wing blackish-grey ....................................................... albolimbatum Wulp

*2. Microstylum albolimbatum van der Wulp

1898. Microstylum albolimbatum Wulp. Tijdschr. ent. 41: 118.


Distribution: Sikkim (East), Meghalaya and West Bengal.

*3. Microstylum imbutum (Walker)


Distribution: Sikkim (East) and “East India”

4. Microstylum strigatum Enderlein


Material examined: Reported from literature.

Distribution: Sikkim and West Bengal.

5. Microstylum trimelas (Walker)


Distribution: Sikkim (East) and “East India”

Genus Pegesimallus Loew


6. Pegesimallus volcatus (Walker)


Material examined: Reported from literature.

Diagnosis: Frons with two yellow bristles along with some yellow setae; antennal segment yellowish-brown to dull brown; scutum brownish yellow with yellow lateral margins; wing pale yellow tinged; legs reddish brown; abdomen dark red brown and pale orange brown basally.

Distribution: Sikkim, Andhra Pradesh, Assam, Karnataka, Kerala, Uttar Pradesh and West Bengal; Myanmar, Pakistan, Sulawesi, Taiwan.

Subfamily ASILINAE

Key to the tribes

1. Antennal style plumose .................. Ommatini
   – Antennal style bare .................... Asilini

Tribe Ommatini

Key to the genera

1. Attenuate third antennal segment nearly 3-times the basal two segments together; hind femur with a teeth-like projection near base ....................... Merodontina Enderlein (1 species only)
   – Third antennal segment very short, usually much shorter than basal two segments together ......................................... 2

2. Arista plumose in one row, a tuft of stiff hairs medial to the haltere and below the metanotal callosity; epandrium bears a long, sigmoid apically hooked process ................................................. Cophinopoda Hull (1 species only)
   – Arista plumose in one or two rows, no such tuft of hairs present; epandrium well developed, curved and apposed apically ................. Ommatius Wiedemann (1 species only)

Genus Cophinopoda Hull


7. Cophinopodachinensis (Fabricius)

1794. Asilus chinensis Fabricius, Ent. Syst., 4: 383


Diagnosis: Mystax pale-yellow; scape and pedicel yellowish-brown, first flagellomere blackish; thorax black with golden yellow tomentum; femur black, tibia orange yellow except hind tibia with dark brown apex; wing almost wholly infuscated; abdomen golden-yellow with tegum 2 basally black, tergites 3-4 medi ally black; male genitalia yellowish-brown with pale yellow setae.

Distribution: Sikkim, Andhra Pradesh, Assam, Bihar, Kerala, Orissa, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal; China, Japan, Korea; Sri Lanka, Sumatera.

Genus Merodontina Enderlein


8. Merodontina sikkimensis Enderlein


Material examined: Reported from literature.

Diagnosis: Head black, grey tomentose; mystax white with a few black bristles; antenna black, first flagellomere longer than pedicel; scutum with two indistinct mediolongitudinal stripes, laterally with two black spots; scutellar border with four black bristles; fore and mid femora
dorsally and anteriorly dark, rest pale yellow, hind femur wholly dark brown; wing basally hyaline, distally infuscated; hind border of tergites 2 and 3 pale yellow, rest of abdomen dark brown, secondary excrescence of aedeagus tridentate.

*Distribution*: Sikkim and Uttar Pradesh.

Genus *Ommatius* Wiedemann


*9. Ommatius indicus* Joseph and Parui


*Diagnosis*: Head black with golden-yellow to grey tomentum, mystax golden-yellow to grey; scutum with two faint mediolongitudinal stripes extending the entire length; leg pale-yellow, hind femur dorsally and tibia almost wholly brownish; wing infuscated, but base hyaline; abdomen black except apex of tergites 2–5 yellowish brown; male genitalia black with black pile and bristles, proctiger with pale yellow pile.

*Distribution*: Sikkim, Andhra Pradesh, Karnataka, Kerala and Tamil Nadu.

Tribe *Asilini*

*Key to the genera*

1. Wing with three submarginal cells .......... 2
   - Wing with two submarginal cells .......... 3

2. Radial fork longer than second posterior cell; antennae closed together; apex of marginal cells bulbous; in female apical terga with numerous short spines, the apical pair longer and stouter .......... *Philodicus* Loew (2 species only)
   - Radial fork shorter than second posterior cell; antennae wide apart; apex of marginal cells not bulbous; in female apical terga without spine .......... *Promachus* Loew (1 species only)

3. Basitarsi of all legs well developed, at least equal to the length of following two segments .................................................. 4
   - Basitarsi not so developed .......................... 5

4. Male genitalia pedunculata, epandrium long, arched upwards and hypandrium arched downwards forming a distinct gap; basitarsus of foreleg highly swollen .................... *Astochia* Becker (4 species only)
   - Male genitalia not so pedunculate; epandrium not long, broad at base and with a deep lateral constriction; basitarsus of foreleg not so swollen .... *Neoitamus* Osten Sacken (1 species only)

5. Epandrium elongate and slender, curved apically inward with a spur; ovipositor with two upturned spines ................................. *Philonicus* Loew (1 species only)
   - No enclosed space between epandrium ovipositor without upturned spines ............

6. Disc of scutellum and abdominal tergites from 2–5 matted with stiff pile; antennal style quite short and stout ...................... *Trichomachimus* Engel (4 species only)
   - Scutellum and abdomen not densely pilose ........................................ 7

7. Facial tubercle highly developed extending almost up to antenna; aedeagus three pronged; eighth sternum round at apex .................. *Machimus* Loew (3 species only)
   - Facial tebercle less developed; aedeagus without prongs ........................................ 8

8. Each sternite with 2-pairs of subpostmarginal stout bristles; first posterior cell narrowed by the swelling of the second posterior cell; epandrium notched at apex .......................... *Neomochtherus* Osten Sacken (1 species only)
   - Each sternite with long bristly pile; second submarginal cell narrowed by the expansion of the first posterior cell; epandrium with processes ........................................
   - *Orophotus* Becker (1 species only)
Genus *Astochia* Becker

**Key to the species**

1. Fore femur wholly black ........................................... 2
   - Fore femur reddish-yellow with dorsal black stripe; scutum wholly bright reddish yellow tomentose; abdominal tergites 1–2 with reddish yellow pile. ........................................... *phi/us* (Walker)

2. Hind femur golden-yellow with black apical region ............................................................. 3
   - Hind femur uniformly dark brown; disc of scutellum with predominant white pile and a few black ones; male genitalia with mixed black and white pile .............................................
   - Fore femur with white bristly pile ventrally on basal half; male genitalia with pale yellow pile on epandrium. ........................................... *ranipooolensis* n. sp.

3. Fore femur with black and pale yellow bristles ventrally on basal half; male genitalia with wholly black pile and bristles ...................... .................................................................
   - Fore femur with white bristly pile ventrally on basal half; male genitalia with pale yellow pile on epandrium. ........................................... *gopae* n. sp.

10. *Astochia gopae* n. sp. (Fig. 1)

A medium-sized black species with yellow and black legs; hyaline wing and densely black pilose epandrium of male genitalia. Male length 16 mm; wing 10 mm.

*Head* broader than thorax, black, densely silver white tomentose; mystax pale yellow, frontoorbital pile pale-yellow; ocellarium white pilose; postocular bristles weak, pale yellow; postcranium and postgena white pilose. Antenna black, scape and pedicel with concolourous bristles, scape one and half times of pedicel; first flagellomere shorter than the combined length of scape and pedicel, style much longer than penultimate segment. Palpi and proboscis black with pale yellow pile.

*Thorax* black, greyish-white tomentose, pronotum covered with long pale yellow pile; scutum with a mediolongitudinal black stripe divided by a narrow pale stripe and three black lateral spots on each side; chaetotaxy- notopleurals 2, supraalar 1, postalar 1; bristles and vestiture black; scutellum dense grey tomentose with pale yellow pile on disc, border bare of bristle; pleura heavily greyish-yellow tomentose; propleuron with sparse pale yellow pile, sternopleuron with a few pale yellow pile dorsally, pleurotergite with pale yellow pile. Halteres brownish-yellow with knob darker.

Wing lightly infuscated.

*Leg* black and golden yellow; coxa black, greyish-yellow tomentose with pale yellow pile and bristles; trochanter black; fore and mid femora black with brownish-yellow base, hind femur golden-yellow with about apical third black, fore femur with black and pale yellow bristles ventrally up to basal half, mid femur with a few pale yellow bristles at base, hind femur entirely with pale yellow bristles ventrally, fore and mid tibiae golden yellow except black apex, hind tibia black ventrally and golden-yellow dorsally up to middle, rest black; tarsi more or less black.

*Abdomen* black with brownish-yellow tomentose spots dorsally and whitish spots laterally on hind borders, tergum I laterally with long pale-yellow bristles at posterior corner, sternum 2 bears long pale yellow pile. Genitalia black with black piles and bristles.


*Discussion*: As regards male genitalia it resembles *Astochia femorata* Joseph and Parui (in press) but differs from it by the wholly white.
mystax; yellow hind femur with black apex, absence of stout bristles on mid femur and in the details of male genitalia. The species is named after my wife Smt. Gopa Parui, who helps me in various ways.

11. *Astochia ranipoolensis* n. sp. (Fig. 2)

A medium-sized black species with black and yellow leg, hyaline wing and yellow pilose epandrium of male genitalia. Male length 17 mm., wing length 9 mm.

*Thorax* black, greyish-white tomentose; pronotum white pilose; scutum with a medio-longitudinal black stripe extending its whole length and with three lateral black spots on either side; chaetotaxy : notopleurals 2, supraalar 1, postalar 1; vestiture black except white pile on posterior one-fourth; scutellum greyish-white tomentose with sparse white pile on disc, border bare of bristles. Haltere brownish-yellow.

*Leg* black and golden yellow, coxa and trochanter black, greyish-white tomentose with white pile and bristles; fore and mid femora black, hind femur golden-yellow with black apical region, fore femur bare of bristles, only bristly pile on basal half ventrally, mid femur with one row of anterolateral, anteroventral and posteroverentral bristles ventrally, hind femur with only a row of anterodorsal bristles; tibiae golden yellow with black apex, the black colour extends up to half of its length in hind tibia; tarsi black.

*Wing* hyaline

*Abdomen* black with grey tomentum, tergum I with lateral pale yellow pile and bristles, other terga with lateral pale-yellow pile, in addition tergum 5 with a few pale yellow spinous bristles laterally. Genitalia (Fig. 2) black with pale yellow pile on epandrium.


Discussion : The species resembles *Astochia gapae* n. sp. but can be readily distinguished by the proportionately smaller in length of the first flagellomere, wholly black fore and mid femora and the structural details of male genitalia.

12. *Astochia philus* (Walker)


Material examined : 1 ♂, East Sikkim : Ranipool, 1 ex, tip of abdomen lost, South Sikkim, Tadong, 5.x. 1993, Coll. B. N. Das.

Distribution : Sikkim (East & South). Assam, Tripura and West Bengal; Bangladesh, Bhutan, Myanmar, Nepal.
13. Astochia pseudoguptai Joseph and Parui


Distribution: Sikkim (East), Gujarat and Rajasthan.

Genus Machimus Loew


Key to the species

1. Eighth sternite produced and ends in two-teeth bearing white piles; all tibiae reddish with dark apex ......................... rufipes Ricardo
   - Eighth sternite not produced ......................... 2

2. Epandrium with a dorsal projection; mystax black with pale-yellow bristles in the middle nilgiriensis Joseph and Parui
   - Epandrium without dorsal projection; mystax pale yellow with some black bristles above ........................................ ricardoi (Bromley)

* 14. Machimus nilgiriensis Joseph and Parui


Distribution: Sikkim (East) and Tamil Nadu.

15. Machimus ricardoi (Bromley)


Material examined: Recorded from literature.

Distribution: Sikkim, Himachal Pradesh, Meghalaya, Uttar Pradesh and West Bengal.

* 16. Machimus rufipes Ricardo

State Fauna Series 9, Fauna of Sikkim


Distribution: Sikkim (South), Punjab, Uttar Pradesh and West Bengal.

Genus Neoitamus Osten Sacken


17. Neoitamus grandis Ricardo

Material examined: Reported from literature.

Diagnosis: Mystax yellowish-white; scutellar disc yellow pilose; fore femur reddish-yellow with a broad black stripe; hind femur uniformly reddish or black; basal five abdominal segments yellow.

Distribution: Sikkim and Uttar Pradesh; Nepal.

Genus Neomochtherus Osten Sacken


18. Neomochtherus gnavis (van der Wulp)

Material examined: Reported from literature.

Diagnosis: Mystax yellow; antenna yellowish-brown; thorax black, grey tomentose, humeri with pale pile; scutellum black; leg yellow, hind femur and tibia with a black area at apex; wing infuscated at apex which extends up to fifth posterior cell; abdomen black with lateral pale yellow pile and bristles; male genitalia black, epandrium bifurcate with upper arm small and truncate.

Distribution: Sikkim, Assam, Arunachal Pradesh, Meghalaya, Uttar Pradesh; Kalimantan, East Malaysia, Sulawesi, Jawa, Thailand, Sri Lanka.
Genus *Orophotus* Becker


19. *Orophotus montanus* (Ricardo)


*Material examined:* Reported from literature.

*Diagnosis:* Mystax white; antenna yellow and brown; leg reddish-yellow, knees darker; wing clear, apex and posterior border infuscated; abdomen blackish-brown with yellow pile, epandrium bifid and the two teeth widely separated, hypandrium small, eighth sternite fringed with yellow pile.

*Distribution:* Sikkim, Meghalaya and West Bengal.

Genus *Philodieus* Loew


*Key to the species*

1. Leg black and red; mystax yellow and black ................................................... *javanus* (Wiedemann)
   – Leg black, mystax white .......................................................... *femoralis* Ricardo

*20. Philodicus femoralis* Ricardo


*Distribution:* This is a moderately distributed Palaearctic species. It is the first record of the genus from India.

Genus *Promachus* Loew


*Key to the species*

1. Leg wholly black; male genitalia without white pile tuft; eighth sternite with a tuft of black pile................................. *binghamensis* Ricardo
23. Promachus binghamensis Ricardo


Material examined: Reported from literature.

Distribution: Sikkim and West Bengal.

* 24. Promachus leoninus Loew


Distribution: Sikkim (East and South), Arunachal Pradesh, Tamil Nadu and West Bengal.

Genus Trichomachimus Engel


Key to the species

1. Tibiae dull red with black patches; whole of abdomen covered with pale yellow pile .................................................. excelsus (Ricardo)
   – Tibiae entirely black ........................................ 2

2. Abdominal tergites 2–4 with dense, curved white pile; mystax white in the middle surrounded by black ones .............................................................. rubisitosus Oldroyd
   – All abdominal tergites with reddish-yellow pile ............................................................ 3

3. Disc of scutellum with long yellow pile; male genitalia with pale yellow pile .............................................................. pubescens (Ricardo)
   – Disc of scutellum with long, black pile; male genitalia with black and yellow pile ................. orientalis (Ricardo)

25. Trichomachimus excelsus Ricardo


Material examined: Reported from literature.

Distribution: Sikkim; Tibet.

* 26. Trichomachimus orientalis (Ricardo)


Distribution: Sikkim (East), Assam, Delhi, Kashmir, Meghalaya, Orissa, Uttar Pradesh and West Bengal.

27. Trichomachimus pubescens (Ricardo)


Material examined: Reported from literature.

Distribution: Sikkim, Arunachal Pradesh, Meghalaya, Uttar Pradesh and West Bengal.

28. Trichomachimus rubisitosus Oldroyd


Material examined: Reported from literature.

Distribution: Sikkim; Tibet.

SUMMARY

It is the first detailed report of Asilidae from Sikkim. A total of 28 species are reported of which 11 species are recorded for the first time from the state, and Astochia gopae and A. ranipooolensis are new to science. 12 species are exclusively known from the northern part of India and the remaining are common to some other states. Trichomachimus excelsus and T. rubisitosus consequently recorded from Sikkim after being described from Tibet and till today they are endemic to Sikkim in India.
Key to subfamilies, tribes and genera are provided; in case where more than single species are present under a genus, key to the species is included. In case of single genus and species diagnostic characters are provided.

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REFERENCES


INSECTA : DIPTERA : SYRPHIDAE

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INTRODUCTION

The state of Sikkim (Map 1), captive on the Himalaya, is bounded on the north by the Tibetan region of China on the east by Bhutan, on the west by Nepal and on the south by the Darjiling district of West Bengal, lying in the eastern India. The state is progressively elevated from its southernmost slope at 75m to its north-western summit at 8598m exhibiting a splendid assemblage of evergreen and flowering plants along with several hundred different kinds of orchids that entertain various florophilic insects like flower flies. Indeed, the Syrphidae find their ideal abode in Sikkim because of its most favourable physiography (cf. Datta and Parui, 2002) that calls for richness of the fauna. An account of their habits and habitats introduced in the ‘Fauna of Meghalaya’ by Datta 1998 may be re-called for comprehensive knowledge.

The syrphid fauna in Sikkim is fairly known and has significant semblance with that of the Darjiling district in West Bengal for the cause of its like physiographical features and nearness (cf. Datta and Chakraborti, 1986). Never-the-less, those who undertook to collect any sample of Nature from the so-called Himalayan kingdom in the early days of civilization, often did not attempt to do so from the neighbouring ‘Bengal Himalaya’ or vice versa, possibly due to political reasons. The history says that the collecting began in the kingdom much later than in ‘Bengal’ yet the Danish, the French, the German and the Austrian collectors apart from the British paid visits to collect insects from there. The earliest record of collecting these flies from Sikkim is very obscure but it was certainly before 1849 when Walker described a species, viz., Eristalis andraemon (now a junior synonym of Phytomia (Phytomia) zonata (F.) from the Rev. J. Stainforth’s Collection housed in the then British Museum (Natural History), London. However, it is true to the fact that the European collectors, such as, Dr. F. Stoličzka (in 1871), H. Frühstorfer (?), F. C. Möller (?), Col. C. T. Bingham (in May, 1894), L. W. Hinxman (in June-July, 1895), A. V. Knyvet (?), C. L. A. de Nicéville (before 1896) and W. E. Clarke (in 1895) took part in collecting these flies from Sikkim during the last decades of the nineteenth century. Subsequent to the close of the century, C. Lynch (in September, 1909) of the Indian Museum, Calcutta, collected a few specimens from the state. The National Collection held now by the Zoological Survey of India, Calcutta, was also significantly enriched with the Sikkimese syrphids by the following collectors since then : A. G. K. Menon (in 1959), B. K. Tikader (in 1959), S. Ali (in 1962), G. Ramakrishnan (in 1966), H. S. Sharma (in 1973), G. K. Srivastava (in 1975), T. D. Soota (in 1977), M. S. Shishodia (in 1979) and B. C. Das (in 1980) of this institute.

In fact, after a lapse of half a century, Kertész (1901) described two species from Sikkim followed by Walker (1849). Thereafter, de Meijere (1908) described another two species. It was Brunetti who (1907, 1908, 1915 and 1923) not only described eleven species but also recorded a large number of species from Sikkim. Joseph and Sharma (1976), and Datta and Chakraborti (1986) are referred to as the contributions towards the enrichment of our knowledge on distributional records.
Recently, some collecting trips (vide Datta and Parui, op. cit.) were organized by this institute in all 4 districts of Sikkim for the purpose of addition and revaluation of the faunal components in aid of our comprehensive knowledge. Those trips that brought the syrphid material for this study were led by the following personalities: S. Chattopadhyaya (July, 1989 & May, 1994), A.R. Lahiri (April-May, 1992), M. S. Shishodia (November, 1992), L.K. Ghosh (March, 1994), P.H. Roy (April, 1994) and B.C. Das (May-June, 1994). By the way, the earlier rich collection held by our institute is taken into consideration only for reexamination and comparison.

The species marked with an asterisk and the species with the genus with double asterisks are recorded for the first time from Sikkim. However, as a result of these studies until December, 1995, 60 species under 34 genera are hitherto known from the state vis-à-vis 264 species and 5 subspecies under 62 genera belonging to 2 subfamilies in India.

MATERIALS AND METHODS

The methods described by Datta (1998) were employed here for collecting, killing and preserving adult syrphid flies and, therefore, it is needless to dilate upon the subject.

MORPHOLOGY AND TERMINOLOGY

While dealing with the syrphid fauna of Meghalaya, Datta (1998) presented an account of morphology and terminology of nearly all the genus-groups that occur in Sikkim. I, therefore, like to review here the essential features of certain additional genera in the light of the description made by Brunetti (1923), Hull (1949), Vockeroth (1969) and Thompson (1972).

Head: The configuration of the head consequent mainly upon the shape and size of eyes often bears importance as the triangular head in Pseudovolucella unlike the globose head in Spheginobaccha and several others in profile. As a rule, males have holoptic eyes nearly in all syrphines, and Triglyphus, Cheilosia, Pseudovolucella, Catacores, etc. but certain species of Graptomyza, Mallota, Eristalinus, Criorhina, etc. have narrowly to moderately dichoptic eyes. However, an intermediate condition is evident in these genera like Sericomyia in which eyes touch for a very short distance only. Eyes are bare in Pseudovolucella, Sericomyia, Sphiximorpha, Catacores, etc. and are haired in Eriozona, Triglyphus, etc. but Syrphus, Cheilosia, Graptomyza, etc. have either of these conditions in certain species. The frons shows more inflation and broadening in Sceava, Volucella, Phytomia, etc. than the condition found in Catacores with a little protuberance only. This is further marked with crescentic creases in Graptomyza, and several species of Volucella and Cheilosia. The face is usually flat (e.g. Triglyphus, etc.) or produced a trifle forward (e.g. a few Cheilosia) and downward (e.g. some Cheilosia, Pseudovolucella, Sericomyia, Sphiximorpha, etc.), often with a tubercle of some degree of prominence (e.g. Eriozona, Syrphus, Catacores, etc.). The face is either predominantly yellow (e.g. Eriozona, Syrphus, Cheilosia, Triglyphus, Catacores, etc.) or ornamented by a dark median stripe (e.g. Pseudovolucella, Sphiximorpha, etc.), and may either be bare (e.g. Pseudovolucella, Sericomyia, Sphiximorpha, etc.) or pollinose with sparse pubescence (e.g. Syrphus, Triglyphus, Cheilosia, etc.) or prominently pilose (e.g. Eriozona, Catacores, etc.). The antenna is much longer in Sphiximorpha like Monoceromyia than in Pseudovolucella, Sericomyia, Catacores, etc., and is placed on a well-developed antennal prominence. The segment 3 is normally oval or oblong with rounded tip bearing a basal or subbasal arista in all genera cited above excepting Monoceromyia and Sphiximorpha that have very narrow elongate-oval third segment with the pointed tip holding a terminal style. The arista in Pseudovolucella and Sericomyia is remarkably plumose but in a few species of Syrphus and Cheilosia, it is only sparsely pilose, if not otherwise bare as in Eriozona, Triglyphus,
**Catacores** and **Milesia**.

Thorax: The thorax owns great importance because of its certain areas with different hairs of taxonomic value. In addition, the colour pattern often stands significant in some groups. The pronotum or humerus is usually bare in the Syrphinae unlike the Milesinae. The pronotal colouration in the milesine species is variable and hence it is unimportant. The propleuron is usually pilose excepting *Triglyphus*, *Monoceromyia* and *Sphiximorpha* among the Milesinae. Although the pubescence on the mesonotum does not have much significance, its texture as well as ornamentation is often useful. The mesonotal stripes (as in *Syrphus*, *Eriozona*, *Eristalinus*, *Milesia*, etc.) or otherwise various colours (as in *Triglyphus*, *Catacores*, *Sericomyia*, *Sphiximorpha*, etc.) with dull, sub-shining or shining texture are accountable. The scutellum is generally concolourous with the mesonotum and may not be differential as in some species of the Cerioidini. The posterior margin of the scutellum may be provided with a distinct subscutellar fringe (e.g. *Triglyphus*, *Cheilosia*, *Rhingia*, *Pseudovolucella*, *Sericomyia*, etc.) or such a ventral fringe is lacking as in *Syrphus*, *Sphiximorpha*, *Eristalinus*, etc. Moreover, in the *Milesia* species, the scutellum has an apical emarginate rim above the fringe. The mesopleuron in respect of its piles is a very useful taxonomic structure. The convex posterior portion of the mesopleuron is invariably haired but its anterior flat portion is usually bare. Indeed, the latter is microscopically pubescent in *Syrphus*, *Eriozona*, *Betasyrphus*, etc. and distinctly haired in *Epiyrphus*, *Baccha*, *Volucella*, *Graptomyza*, etc. To the contrary, the pteropleuron is always pilose anteriorly but often bare posteriorly. The sternopleural hair-patches have some generic value in the sypirhines in contrast to the milesines with such patches. The barrette (upper convex edge of meropleuron) with or without piles is very important in the milesines. Whereas it is pilose in *Triglyphus*, *Volucella*, *Phytomia*, *Eristalis*, etc., bare in *Cheilosia*, *Rhingia*, *Graptomyza*, *Milesia*, etc. The remainder of the hypopleuron (sensu Vockeroth) is generally bare or with a few hairs only anywhere below or in front of the metathoracic spiracle in the Syrphini. Indeed, a patch of long hairs in front of the spiracle is evident in some milesines like *Graptomyza*, *Volucella*, *Phytomia* and a few *Rhingia*. The most important part of the metathorax is, however, its sternum (i.e. metasternum) lying between mid- and hind coxae. It is almost unanimously used for generic segregation based on the presence or absence of its distinct piles. *Syrphus* have the metasternum bare but *Eriozona* have only a few hairs anteriorly. In the most milesine genera, it is pilose with exceptions like *Triglyphus*, etc.

The wing in the Cerioidini is exceptionally narrow and elongate, and pointed at apex. The wing membrane, characteristic of certain genera, is almost entirely trichose in *Eriozona* and some milesines unlike *Syrphus* and *Eristalis*. The infuscation on the wing, if present, usually remains restricted to the anterior margin extending posteriorly up to the subcostal areas. This clouding occasionally appears useful in diagnosis (cf. Cerioidini and others). The fact that the costa and the third vein (R₄₊₅) in the Milesinae end usually behind the apex of the wing, is an absolute departure from that in *Rhingia*. The third vein is straight or nearly so in *Syrphus*, *Eriozona*, etc. but forms a shallow to deep loop in the first posterior cell (R₃) in the Sericomyni. Cerioidini and Eristalini. The marginal cell (R₁) may either be open as the sub-marginal cell (R₃) in *Syrphus*, *Triglyphus*, *Graptomyza*, *Cheilosini*, *Sericomyini*, etc. or closed and petiolate in *Volucella*, *Phytomia*, *Milesia*, etc. Likewise, the first posterior cell (apical cell) may also be closed and petiolate as in the above genera. The apical cross-vein may either be straight and perpendicular or oblique with acute or obtuse angles. The anterior cross-vein (r-m) on the discal cell is located behind (e.g. *Syrphus*, *Eriozona*, *Triglyphus*, *Cheilosia*, etc.) or at or beyond the middle of the discal cell (e.g. *Sericomyini*, *Cerioidini*, *Eristalini*, etc.). This cross-vein may be straight as in the former groups or oblique as in *Volucella*, *Milesia*, etc. The apical cell or the discal cell or both may have a spur at...
its posterior angle, i.e. the anterior or the posterior cross-vein is continuous (cf. Eristalis and Milesia). The anal cell (1A) with the petiole usually forms an acute angle in most genera unlike Milesia. The spurious vein may be indistinct as in Triglyphus, Sericomymia, etc. The radial sector may be with (e.g. Volucellini) or without (e.g. Triglyphus, etc.) bristles. The squamal hair-fringe at times has some diagnostic value (e.g. Syrphus, etc.) as much as the trichose condition of the alula.

The leg, especially the hind leg with certain features provide good taxonomic characters. The postero-median apical angle of the hind coxa bears a tuft of hairs in Syrphus, etc. but this pilosity does not have any significance in the milesines. The extent of thickness of the hind femur (such as, greatly swollen and arcuate, especially in Pseudovolucella males) sometimes offers help in diagnosis. The femur may be armed with (e.g. Catacores, Eristalinus, Phytomia, etc.) or without (e.g. Triglyphus, Cheilosini, Sericomymini, etc.) a basal patch of setulae. Moreover, the hind femur may have (e.g. Ceriodini, Eristalinus, Milesia, etc.) or not (e.g. Triglyphus, Cheilosini, Sericomymini, etc.) apical ventral spines. It may be re-called that the Eristalini have basal setal patches on all other femora and that Milesia have an apical ventral spur in addition to spines on the femur. The presence or absence of an apical ventral spur on any femur, trochanter or tibia, especially in males may be characteristic to any species.

Abdomen: The abdomen, based on the shape as well as its ornamentation in the form of transverse bands, spots or stripes, is distinguishable in several genera and species, especially in the Syrphinae. It is normally of 5 or 6 distinct segments excepting the case of Triglyphus that is said to have 4 visible segments only. However, the tergites in the most Syrphinae including Syrphus and Eriozona, and Rhingia exhibit weak to strong emargination that is lacking nearly in all Milesinae.

The male terminalia deserve vast importance for help in identifying a species. The main features of the terminalia have already been reviewed (vide Datta, op. cit.). Therefore, only the essential characters pertaining to the genera treated here, need to be noted. The surstyli in shape and size exhibit tremendous variations among different genera and species but they usually afford intergeneric as well as interspecific distinction. Each surstylus is typically erect and somewhat compressed bilaterally, showing convex outer surface with long, sparse hairs at least up to its middle and concave inner surface with short, abundant and stiff hairs towards its apical end. This is the kind of surstylus found in Syrphus, Chrysotoxum, etc. Indeed, it is too remarkably variable among the Milesinae to describe vividly. Likewise, the tergite 9 to which the surstylus and cerci remain attached, is of different shape and size, and claims some importance in diagnosis. The cerci are normally simple appendages but in Eristalinus, Eristalis, etc. they are nearly as prominent as the surstylus. The sternite 9 carries significance in respect of its shape, its emargination, its texture as well as presence or absence of the lingula. The superior lobes like surstylus undergo endless modifications. They appear to be highly developed in Paragus, Cheilosia, Rhingia, etc. However, these lobes are occasionally provided with serrations and these serrations take the form of a structure called ctenidium as in Cheilosia, Rhingia, etc. Besides these superior lobes, Paragus, Cheilosia, etc. have two horn-like inferior lobes at the apicolateral corner of the sternite 9. It may be re-called that the Cheilosini and a few genera of the Milesini have highly specialized two-segmented aedeagus as in the most Syrphini. The aedeagal base is variously modified into different structural forms that provide valuable characters in diagnosing a genus or even a species. It is with the depressed anterior end that is usually much broader than the posterior end in Syrphus unlike Eriozona, but both of them antero-ventrally have a pair of teeth-like (in Syrphus) or spine-like (in Eriozona) processes at apex. In the milesines, it is usually pyriform or fusiform in contrast to cylindrical form in the syrphines. Likewise, the
aedeagal apodeme varies in configuration in different genera. It may be short cylindrical (e.g. Baccha, etc.) or long compressed (e.g. Milesia, etc.) or expanded medially (e.g. Sericomyia, etc.) or expanded apically (e.g. Paragus, Platycheirus, etc.) or sword-shaped (e.g. Melanostoma, etc.) or tongue-shaped (e.g. Chrysotoxum, Eristalis, etc.). While the distal portion of the aedeagus in Syrphus is subtriangular and flattened postero-dorsally, and subcarinate antero-ventrally, with its flared apex bearing many minute spicules anteriorly, it is subcylindrical, with expanded apex bearing abundant spicules anteriorly in Eriozona. The distal portion of the aedeagus is said to be lacking in Cheilosia, etc. and is not demarcated in other milesines despite the apico-dorsal lobe of the aedeagus being regarded as valuable as it in diagnosis.

**LIST OF TAXA**

Subfamily SYRPHINAE

Tribe Syrphini

1. Allograpta javana (Wiedemann)
2. Asarkina (Asarkina) ericetorum (Fabricius)
3. Betasyrphus serarius (Wiedemann)
4. Dideoides ovatus Brunetti
5. Dideopsis aegrotus (Fabricius)
6. Episyrphus balteatus (De Geer)
7. Eriozona analis Kertész
8. Ischiodon scutellaris (Fabricius)
9. Meliscaeva cinctella (Zetterstedt)
10. Metasyrphus (Metasyrphus) confrrater (Wiedemann)
11. Scaeva selenitica (Meigen)
12. Sphaerophoria indiana Bigot
13. S. viridaenea Brunetti
14. Syrphus torvus' Osten Sacken
15. S. vitripennis Meigen

Tribe Bacchini

16. Baccha (Allobaccha) amphithoe Walker
17. B. (A.) triangulifera Austen
18. B. (Baccha) maculata Walker

Tribe Melanostomatini

19. Melanostoma orientale (Wiedemann)
20. M. univittata (Wiedemann)
21. Platycheirus himalayensis Brunetti

**22. Chrysotoxum quadrifasciatum Brunetti**

Tribe Paraginii

23. Paragus (Paragus) serratus (Fabricius)
24. P. (Pandasyophthalmus) rufiventris Brunetti
25. P. (P.) tibialis (Fallén)

Subfamily MILESINAE

Tribe Pipizini

26. Triglyphus cyaneus (Brunetti)

Tribe Cheilosini

27. Cheilosia nigroaenea Brunetti
28. Rhingia laticincta Brunetti

Tribe Volucellini

29. Graptomyza nigripes Brunetti
30. G. sexnotata Brunetti
31. Volucella lividiventris Brunetti
32. V. ruficauda Brunetti
33. V. trifasciata Wiedemann

Tribe Spheginobacchini

34. Spheginobaccha macropoda (Bigot)

Tribe Sericomyini

35. Pseudovolucella kingstoni Coe
36. Sericomyia himalayensis Brunetti

Tribe Cerioidini

37. Monoceromyia fenestrata (Brunetti)
38. *M. himalayensis* (de Meijere)  
39. *M. obscura* (Brunetti)  
40. *M. trinotata* (de Meijere)  
41. *Sphiximorpha fruhstorferi* (de Meijere)  
42. *S. triangulifera* (Brunetti)

**Tribe Eristalini**  
**43. Catacores cyaneus** (Brunetti)

44. *Eristalinus (Eristalinus) arvorum* (Fabricius)  
45. *E. (E.) obscuritarsis* (de Meijere)  
46. *E. (Eristalodes) paria* (Bigot)  
*47. E. (E.) taeniops* (Wiedemann)  
48. *Eristalis (Eristalis) tenax* (Linnaeus)  
*49. E. (Eoseristalis) arbustorum* (Linnaeus)  
50. *E. (E.) cerealis* Fabricius  
51. *E. (E.) himalayensis* Brunetti  
52. *E. (E.) intricarioides* Brunetti  
53. *Mallota orientalis* (Wiedemann)  
54. *Phytomia (Phytomia) chrysopyga* (Wiedemann)  
55. *P. (P.) zonata* (Fabricius)  
56. *P. (Dolichomerus) crassa* (Fabricius)

**Tribe Milesini**  
57. *Milesia balteata* Kertész  
58. *M. ferruginosa* Brunetti  
59. *M. illustris* Hippa  
60. *M. variegata* Brunetti

**SYSTEMATIC ACCOUNT**  
**Family SYRPHIDAE**  

**Key to the subfamilies**

1. Pronotum bare (excepting a few long hairs occasionally in *Baccha*); abdomen in males with 5 pregenital segments..... SYRPHINAE  
   - Pronotum pilose; abdomen in males with 4 pregenital segments.................. MILESINAE

**Subfamily SYRPHINAE**

**Key to the tribes**  
(Modified after Vockeroth, 1969)

1. Tergite 1 well-developed and distinctly extended well beyond scutellum; scutellum at its posterior margin inconspicuously or strongly denticulate; abdomen robust and usually oval.... Paragini
   - Tergite 1 small and practically covered by scutellum (excepting some Bacchini with petiolate abdomen); scutellum posteriorly smooth and not denticulate; abdomen usually slender..........................................................2

2. Antenna porrect, elongate and occasionally longer than head; abdomen very strongly convex dorsally .................. Chrysotoxini
   - Antenna drooping and usually short; abdomen scarcely convex ............................................ 3

3. Abdomen distinctly petiolate; anterior flat portion of mesopleuron at its postero-dorsal corner with a few distinct, erect and coarse hairs; metasternum bare; face usually flat and with very weak tubercle .............. Bacchini
   - Abdomen usually equilateral or oval; mesopleural hairing, if present, different or disposed otherwise; metasternum bare or haired; face neither distinctly produced nor narrowed below but usually with well-developed tubercle ................................................ 4

4. Face and scutellum entirely black; anterior flat portion of mesopleuron with only microscopic pubescence; aedeagus undivided, strongly swollen basally and slender tube-like apically ........................................ Melanostomatini
   - Face and scutellum usually yellow or yellowish brown; mesopleural hairing variable; aedeagus nearly always 2-segmented, with complex associated structures....................... Syrphini
Tribe Syrphini

Key to the genera

(Modified after Vockeroth, 1969)

1. Mesopleuron at its anterior flat portion with long, fine, erect or sub-erect hairs, at least postero-dorsally ............................................. 2
   - Mesopleuron at its anterior flat portion with only microscopic pubescence or pollinose ............................................. 3

2. Metasternum haired; male terminalia with broad and somewhat flat surstylus, superior lobe with a short stout tooth apically ........... .............................. Episyris Matsumura & Adachi
   - Metasternum bare; male terminalia with slender and somewhat curved surstylus, superior lobe with a small obscure tooth apically Meliscaeva Frey

3. Wing with distinct transverse brown band at mid-length extending from costa at least across posterior cross-vein ............................................. 4
   - Wing without transverse dark band, unmarked except for stigmal darkening or rarely with costal darkening longitudinally and dark spot antero-apically ............................................. 5

4. Flies sparsely haired; eye bare; wing band broad, wing membrane partially trichose; abdomen with broad transverse yellow bands; male terminalia with short superior lobe (less than distal portion of aedeagus) without a lateral process apically ............................................. .............................. Dideopsis Matsumura
   - Flies pilose; eye densely haired; wing band narrow, wing membrane entirely trichose; abdomen bright red or reddish yellow apically, with blackish tergites 1–3; male terminalia with long and slender superior lobe with a lateral process bearing a stout spine .............................. ............................................. Eriozona Schiner

5. Metasternum haired ............................................. 6
   - Metasternum bare ............................................. 10

6. Face produced rather strongly forward and oral opening more than 3–4 times as long as broad; hair-tuft present in front of and just below ventral end of metathoracic spiracle (on mesokatepimeron) and a second tuft on lower end of spiracle postero-ventrally (on metaepimeron) .............................. Asarkina Macquart
   - Face usual or moderately produced forward and oval opening usually below 3 times as long as broad; hypopleuron bare below metathoracic spiracle and in front of its lower end ........... 7

7. Eye densely haired; hind coxa with tuft of hairs at postero-median apical angle ............................................. .............................. Dideoideus Brunetti
   - Eye entirely or predominantly bare or with short sparse hairs; hind coxa without tuft of hairs at postero-median apical angle ............................................. 8

8. Abdomen strongly margined from middle of tergite 2 to end of tergite 5; male terminalia small but never inconspicuous, retracted under apex of abdomen ............................................. .............................. Metasyrphus Matsumura
   - Abdomen unmarginned; male terminalia shaped otherwise ............................................. 9

9. Sub-scutellar fringe complete and moderately dense; male terminalia inconspicuous; cerci set in a deep U-shaped notch of tergite 9; tergite 9 much narrower than pre-abdomen ............................................. .............................. Allograpta Osten Sacken
   - Sub-scutellar fringe absent or nearly so on at least median third and sparse laterally; male terminalia greatly enlarged, globose; cerci almost always entirely surrounded by tergite 9; tergite 9 as broad as pre-abdomen .............................. Spaerophoria Lep. & Serv.

10. Eye with long dense hairs, at least as much as anterior half ............................................. 11
   - Eye bare or with very short hairs (as in some Syrphus) ............................................. 12

11. Wing membrane almost densely and uniformly trichose at least beyond level of end of spurious vein; male eye without distinctly demarked area of larger facets above ............................................. .............................. Betasyrphus Matsumura
Wing membrane with very sparse microtrichia scattered over entire surface; male eye with distinctly demarked area of larger facets above ........................................... Scaeva Fabricius

12. Antennal segment 3 twice as long as broad, subacute apically; sternopleuron at its upper margin with distinct yellow spot; wing with vein R_{4+5} ending well before wing-apex; lower lobe of squama with only microscopic pile; hind trochanter in males with spine-like process ventrally ........................................... Ischiodon Sack

Antennal segment 3 short, oval and broadly rounded apically; sternopleuron without any yellow spot at its upper margin; wing with vein R_{4+5} ending at wing-apex; lower lobe of squama with abundant coarse, long, erect yellow hairs above; hind trochanter unarmed ........................................... Syrphus Fabricius

Genus Allograpta Osten Sacken


Type-species : Scaeva obliqua Say.

1. Allograpta javana (Wiedemann)

1824. Syrphus javanus Wiedemann, Analecta Ent. : 34.

Diagnosis : Eye bare; face with black median stripe in females, sometimes brown in males; antenna orange, segment 3 as broad as long; mesonotum shining black, with sharply defined bright yellow lateral margin at least presuturally; scutellum black-haired; hind femur more or less blackish on apical third, hind tibia black or blackish brown on basal and apical third, rest of legs yellow; aedeagal base in male terminalia strongly sclerotized cylinder with round apex, posteriorly beset with small spicules.

Distribution : Sikkim (North), Andhra Pradesh, Arunachal Pradesh, Assam, Delhi, Karnatakma, Manipur, Meghalaya, Tamil Nadu, Tripura and West Bengal; China, E Malaysia, Jawa, Kalimantan, Malay, Philippines, Sumatera, Sri Lanka, Taiwan and Thailand; Australia, Fiji, Guadalcanal, Hawaii, Japan, Korea and New Guinea (Map 2 and Diags. 1 & 2).

Genus Asarkina Macquart

1842. Asarkina Macquart, Dipt. exot., 2 (2) : 77 (137). Type-species : Scaeva rostrata Wiedemann.

Subgenus Asarkina Macquart

Diagnosis : Mesonotum with dense anterior collar of long erect hairs, a semi-circular shining blackish brown spot on upper side of small antennal prominence; male frons at vertex about onethird of head rather rapidly widening to double that width at level of antenna; surstylus broad basally, only slightly narrowed to subtruncate apex.

Distribution : Sikkim (East and North), Arunachal Pradesh, Assam, Jammu & Kashmir, Meghalaya, Tamil Nadu, Tripura and West Bengal, and other parts of the Oriental region; Africa, Australia, Fiji, Maluku, New Guinea and Samoa (Map 3 and Diags. 1 & 2).

Genus Betasyrphus Matsumura


Type-species : Syrphus serarius Wiedemann.

3. Betasyrphus serarius (Wiedemann)


Diagnosis : Eye densely haired; face orange with blackish tinge; antenna black, base of antennal segment 3 dull orange; mesonotum shining black, yellow-haired anteriorly and black-haired posteriorly at wing-base along lateral margin; scutellum dull yellow with yellow hairs basally and rest black; lower lobe of squama with few erect, fine, white hairs above; greyish-pollinose abdominal markings;
aedeagus in male terminalia tubular, not produced apically and not with setulae.

**Distribution**: Sikkim (East and North), Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Karnataka, Meghalaya, Uttar Pradesh and West Bengal, and other parts of the SE Asia; Australia, Japan, Korea and New Guinea (Map 4 and Diags. 1 & 2).

**Genus Dideoides** Brunetti


4. **Dideoides ovatus** Brunetti


**Material examined**: 1 †, Gangtok, 1548 m, East Sikkim, 21. v. 1994, Coll. B. C. Das.

**Diagnosis**: Eye densely haired; mesonotum dull black; wing with nearly straight vein R_{4+5}; scutellar disc with black hairs; abdomen black, tergite 2 with a pair of transversely placed elongate orange spots and 3 with a broad orange band across centre, tergite 9 of male terminalia strongly produced antero-ventrally.

**Distribution**: Sikkim (East), Meghalaya and West Bengal; Laos (Map 5 and Diags. 1 & 2).

**Genus Dideopsis** Matsumura


**5. Dideopsis aegrotus** (Fabricius)


**Diagnosis**: Eye bare; face orange with orange hairs; base of antenna with a black dot above; mesonotum black, with a narrow median and 2 lateral greyish stripes; posterior margin of wing with a series of sclerotized dots; abdomen linear, orange, tergites 3 and 4 mostly yellow with narrow sub-basal and broad apical black bands; surstylus in male terminalia, straight, not more than twice as long as broad; superior lobe stout, with ventrolaterally directed tooth apically; distal portion of aedeagus not expanded apically.

**Distribution**: Sikkim (East, West, North and South), Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Manipur, Meghalaya, Orissa, Tamil Nadu, Tripura and West Bengal; China, Malay and other parts of the Oriental region; Australia, Bonin Islands.
and Palaearctic region (Map 7 and Diags. 1 & 2).

Genus *Eriozona* Schiner


Type-species: *Syrphus oestriformis* Meigen (= *Scaeva* syrphoides Fallén).

7. *Eriozona analis* Kertész


*Diagnosis*: Antennal segment 3 more than twice as long as deep; wing with a distinct brown band across middle from costa to about base of discal cell; abdominal segments 3 and 4 orange; segments 1 and 2 with black hairs excepting corners.

*Distribution*: Sikkim (East); Nepal (Diags. 1 & 2).

Genus *Ischiodon* Sack

1913 *Ischiodon* Sack, Ent. Mitt., 2: 5.

Type-species: *Ischiodon trochanterica* Sack (= *Scaeva* scutellaris Fabricius).

**8. *Ischiodon scutellaris* (Fabricius)


*Material examined*: 1 ♀, Dharmsin, 650 m, West Sikkim, 18. i. 1994, Coll. L. K. Ghosh.

*Diagnosis*: Wing with vein $R_{4+5}$ upcurved apically and ending well before wing-apex; hind femur with a sub-apical black ring; surstylus in male terminalia elongate, broadened beyond base, dorsally curved and serrate, ventrally straight and smooth; aedeagal base very large and strongly sclerotized.

*Distribution*: Sikkim (West), Andhra Pradesh, Assam, Delhi, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Manipur, Meghalaya, Orissa, Punjab, Rajasthan, Tamil Nadu, Tripura and West Bengal; Jawa, Philippines, Taiwan and other parts of the SE Asia; Australia, Hawaii, Japan and Micronesia (Map 8 and Diags. 1 & 2).

Genus *Meliscaeva* Frey


Type-species: *Scaeva cinctella* Zetterstedt.

9. *Meliscaeva cinctella* (Zetterstedt)


*Diagnosis*: Eye bare; frons in males shining chrome yellow with a dark spot above antennae, in females frons above shining black; mesopleuron at its anterior flat portion extensively haired; posterior margin of wing with a series of sclerotized dots; abdomen slender and parallel-sided; tergites 2–4 each with a pair of yellow spots; distal portion of aedeagus in male terminalia almost tubular in shape.

*Distribution*: Sikkim (North), Himachal Pradesh, Meghalaya and West Bengal; Nepal, Sri Lanka and Taiwan; Palaearctic region (Map 9 and Diags. 1 & 2).

Genus *Melasyrphus* Matsumura


Type-species: *Scaeva corollae* F.

Subgenus *Melasyrphus* Matsumura *

**10. *Melasyrphus (Melasyrphus) confrater* (Wiedemann)

1830. *Syrphus confrater* Wiedemann, Aussereurop. zweifl. Insekt., 2: 120.

*Material examined*: 1 ♀, Damthang, 500 m, South Sikkim, 18. iii. 1994, Coll. L.K. Ghosh.

*Diagnosis*: Eye bare; scutellum with black

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*The occurrence of *M. nitens* (Zetterstedt) recorded by Joseph and Sharma (1976) is dubious.*
DATTA : Insecta : Diptera : Syrphidae

hairs; abdomen with 3 entire bands lying across middle of segments, nearer anteriorly; surstylus in male terminalia short and broad, and produced postero-ventrally.

Distribution: Sikkim (South), Arunachal Pradesh, Assam, Bihar, Delhi, Himachal Pradesh, Jammu & Kashmir, Karnataka, Meghalaya, Punjab, Uttar Pradesh and West Bengal; China and other parts of the Oriental region; Japan and New Guinea (Map 10 and Diags. 1 & 2).

Genus Scaeva Fabricius


Type-species: Musca pyrastri Linnaeus.

** 11. Scaeva selenitica (Meigen)


Material examined: 1 ♀ Yumthang, 2975 m, North Sikkim, 18. iv. 1992, Coll. A.R. Lahiri.

Diagnosis: Eye densely haired, sparser posteriorly; antenna black except yellowish segment I and base of 3; mesonotum shining black, with dense yellowish brown hairs; wing clear; leg predominantly bright yellow; hind tibia with a dark brown ring; abdomen black, tergites 2–4 each with a pair of bright yellow spots being lunulate on 3–4.

Distribution: Sikkim (North), Delhi, Himachal Pradesh, Meghalaya and Uttar Pradesh; Cambodia, China, Laos and Vietnam; Europe (Map 11 and Diags. 1 & 2).

Genus Sphaerophoria Lep. & Serv.


Type-species: Musca scripta L.

Key to the species

1. Face entirely yellow and unstriped; thoracic dorsal nearly always with 2 more or less distinct greyish median stripes at least anteriorly; tegrum 9 in male terminalia sclerotized between cerci and its posterior margin indiana Bigot
  - Face yellowish with a distinct black median stripe; thoracic dorsal blackish, without sign of greyish median stripes; tegrum 9 in male terminalia membranous between cerci and its posterior margin .......... viridaenea Brunetti

12. Sphaerophoria indiana Bigot


Distribution: Sikkim (East and North), Arunachal Pradesh, Bihar, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Meghalaya, Tripura, Uttar Pradesh and West Bengal; China and ? Sri Lanka; Korea and eastern part of the erstwhile U.S.S.R. (Map 12 and Diags. 1 & 2).

13. Sphaerophoria viridaenea Brunetti


Distribution: Sikkim (East and North), Himachal Pradesh and West Bengal (Map 13 and Diag. 1).

Genus Syrphus Fabricius


Type-species: Musca ribessi L.

Key to the species

1. Eye with short dense hairs; antenna blackish brown, segment 3 reddish ventrally; distal...
portion of aedeagus in male terminalia with cone-like apex ................... \textit{torvus} Ost. Sack.

- Eye with sparse hairs; antenna orange, a little darker dorsally; distal portion of aedeagus in male terminalia with sharply slender apex .... ............................. \textit{vitripennis} Meigen

14. \textit{Syrphus torvus} Osten Sacken


\textit{Material examined}: 1 $\sigma$, Lachen, 2700 m, North Sikkim, 24. iv. 1992, Coll. A. R. Lahiri.

\textit{Distribution}: Sikkim (North), and Himachal Pradesh; Nepal, Taiwan and Thailand; Holarctic (Map 14 and Diags. 1 & 3).

15. \textit{Syrphus vitripennis} Meigen


\textit{Distribution}: Sikkim (West); Taiwan; Europe (Diags. 1 & 3).

\begin{ afl� \textbf{Tribe Bacchi}\n
\textbf{Genus Baccha} Fabricius

1805. \textit{Baccha} Fabricius, \textit{Syst. Antlial.}: 199.

\textit{Type-species}: \textit{Syrphus elongatus} Fabricius.

\textit{Diagnosis}: Flies with head broader than thorax and more than hemispherical, hollowed behind; eye practically bare; frons slightly prominent; antenna short, with bare dorsal arista; wing with rudimentary or almost no alula, squama inconspicuous; leg long and thin, hind femur much longer than others and slender; abdomen very much longer than thorax, segments 2 and 3 very long and narrow, succeeding segments widening gradually before apex.

\begin{ afl� \textbf{Key to the subgenera}

1. Humerus with a row of hairs behind or almost half haired...................... \textit{Allobaccha} Curran

- Humerus entirely bare ...... \textit{Baccha} Fabricius

\begin{ afl� \textbf{Subgenus Allobaccha} Curran

1928. \textit{Allobaccha} Curran, \textit{J. fed. Malay St. Mus.}, 14: 251

\textit{Type-species}: \textit{Baccha rubella} van der Wulp.

\begin{ afl� \textbf{Key to the species}

1. Thorax with 2 elongate spots, 1 from humerus to suture and 1 on mesopleuron, and 1 round spot on sternopleuron on either side; abdomen mainly yellow, with black bands across segments 3 and 4 .......... \textit{amphithoe} Walker

- Thorax with similar kinds of spots; abdomen mainly reddish brown, with a large yellow spot at or towards end of segment 3 ...................

\textit{...................... \textit{triangulifera} Austen

16. \textit{Baccha (Allobaccha)} amphithoe Walker


\textit{Material examined}: 1 $\sigma$, Rangpo, 300 m, East Sikkim, 22.iii. 1994, Coll. L.K. Ghosh; 1 $\sigma$, Ranipool, 1400 m, East Sikkim, 26.v. 1994, Coll. B. C. Das.

\textit{Distribution}: Sikkim (East), Assam, Meghalaya, Tripura and West Bengal; Sri Lanka and Taiwan south to Flores Islands (Indonesia) (Map 15 and Diags. 1 & 3).

17. \textit{Baccha (Allobaccha)} triangulifera Austen


\textit{Distribution}: Sikkim (East), Karnataka and West Bengal; Myanmar, Nepal and Sri Lanka (Map 16 and Diags. 1 & 3).

\begin{ afl� \textbf{Subgenus Baccha} Fabricius

\begin{ afl� \textbf{* 18. Baccha (Baccha) maculata} Walker

DATTA: *Insecta* : *Diptera* : *Syrphidae*

**Material examined**: 1 ♂, Singtam, 750 m, East Sikkim, 23.iii. 1994, Coll. L.K. Ghosh.

**Diagnosis**: Antenna bright yellow; antennal process shining black in males, bluish black in females; humerus and a short longitudinal stripe on mesopleura in front of wing-base cupreous in males, yellowish in females; leg predominantly yellowish, hind femur with a sub-apical brownish ring and hind tibia with an indistinct dark median band; abdomen mainly shining brown, sometimes with pale spots.

**Distribution**: Sikkim (East), Himachal Pradesh, Meghalaya, Uttar Pradesh and West Bengal; Jawa, Kalimantan, Malaysia, Nepal, Philippines, Sumatera and Taiwan; Japan and Korea (Map 17 and Diags. 1 & 3).

**Tribe Melanostomatini**

**Key to the genera**

1. Males devoid of dilated fore tarsi; surstylus usually not bifid; superior lobe usually triangular *Melanostoma* Schiner

   - Males with dilated fore tarsi; surstylus bifid; superior lobe sickle-shaped

   .................. ........ .......... ........ ........ ........ ........ ........

   Platycheirus Lep. & Serv.

**Genus Melanostoma Schiner**


Type-species: *Musca mellina* L.

**Key to the species**

1. Face with 2 distinct small bumps

   ........................................... orientale (Wiedemann)

   - Face nearly flat forming a single angle only on lower end

   ........................................... univittata (Wiedemann)

19. *Melanostoma orientale* (Wiedemann)


**Distribution**: Sikkim (East, West, North and South), Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Karnataka, Meghalaya, Punjab, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal; Bhutan, Nepal, Pakistan, Sri Lanka and other parts of the Oriental region; Palaeartic region (Map 18 and Diags. 1 & 3).

* 20. *Melanostoma univittata* (Wiedemann)


**Material examined**: 1 ♂, Ranipool 1400 m, East Sikkim, 22. v. 1994, Coll. B. C. Das.

**Distribution**: Sikkim (East), Assam, Bihar, Karnataka, Kerala, Meghalaya, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal; E Malaysia, Myanmar, Nepal, Sri Lanka, Sumatera and other parts of the SE Asia; Australia and Palaeartic regions (Map 19 and Diags. 1 & 3).

**Genus Platycheirus Lepeletier & Serville**


Type-species: *Syrphus scutatus* Meigen.

21. *Platycheirus himalayensis* Brunetti


**Diagnosis**: In males, antenna entirely black; face very conspicuously produced to a distance equal to, or more than greatest width of eye in profile; mesonotum black with greenish tinge; fore femur broadly, hind femur narrowly, basal half of fore tibia and first 3 segments of mid tarsus orange; fore tarsus with first 2 segments remarkably dilated, segment 1 three times as wide as apex of tibia and both 1 and 2 at least three times as wide as 3 narrow remaining segments; abdominal spots bright yellow.

**Distribution**: Sikkim (North), and Uttar Pradesh; Nepal (Map 20 and Diags. 1 & 3).
Tribe *Chrysotoxini*

Genus *Chrysotoxum* Meigen

Type-species: *Musca bicincta* L.

*Diagnosis*: Rather large flies with semi-circular head as broad as thorax; eye haired; frons and face prominent; long antennae placed inbetween produced frons and face, arista sub-basal, bare; mesonotum finely punctate, with a pair of faint greyish stripes anteriorly in addition to yellowish lateral lines; leg predominantly yellowish; wing yellowish anteriorly; abdomen mainly ovate, finely punctate and usually with a pair of curved yellow spots on tergites 2–5.

**22. *Chrysotoxum quadrifasciatum* Brunetti**


*Diagnosis*: Eye with long whitish hairs; face brownish orange, with a wide black median stripe and an indistinct spot towards cheek; abdominal tergites 2 and 3 each with a pair of arcuate spots on or just behind anterior margin; tergites 3 and 4 with narrowly brown posterior margin; tergite 5 with a large orange spot centrally.

*Distribution*: Sikkim (East), Meghalaya and West Bengal; Laos (Map 21 and Diags. 1 & 3).

Subgenus *Paragus* Latreille

Genus *Paragus* Latreille

Type-species: *Syrphus bicolor* F.

*Diagnosis*: Head slightly flattened and broader than thorax; eye pilose; face produced to a large central bump; antennal arista bare; thorax quadrate and arched; mesonotum striped; wing with veins M₁+₂ and M₃ + Cu₁ undulating apically and cross-vein r–m distinctly before middle of discal cell; abdomen as wide as thorax, nearly equilateral; aedeagus in male terminalia undivided, simple and tubular medially with a complex lateral lobe at base on either side.

**Key to the subgenera**

1. Eye with bicolourous pile, with alternating vittae of pale and dark hairs; spurious vein shorter, not extending beyond discal (r–m) cross-vein
   *Paragus* Latreille
   – Eye with unicolourous pile; spurious vein long, extending beyond discal (r–m) cross-vein
      *Pandasyophthalmus* Stuckenberg

Subgenus *Paragus* Latreille

23. *Paragus (Paragus) serratus* (Fabricius)


*Diagnosis*: Eye with 3 longitudinal vittae of white hairs; scutellum conspicuously serrate on posterior margin; abdominal colouration variable and mainly yellow with brown markings on tergites, punctate.

*Distribution*: Sikkim (East), Assam, Bihar, Delhi, Goa, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Punjab, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal; Jakarta, Java, E Malaysia, Nepal, Pakistan and Sri Lanka; Africa and Papua (Map 22 and Diags. 1 & 3).

Subgenus *Pandasyophthalmus* Stuckenberg


Type-species: *Paragus longiventris* Loew.

**Key to the species**

1. Abdomen entirely shining black, male terminalia with short and broad surstylus, even broader apically; superior lobe short, slightly longer than surstylus
   ……………. *tibialis* (Fallén)
   – Abdomen bluish black anteriorly and bright reddish brown posteriorly; male terminalia with
long and slender surstylus gradually tapering apically; superior lobe robust, even longer than tergite 9 and surstylus together ........................................... **rufiventris** Brunetti

24. *Paragus* (*Pandasyophthalmus*) **rufiventris** Brunetti


**Distribution**: Sikkim (East), Assam, Bihar, Jammu & Kashmir, Tripura, Uttar Pradesh and West Bengal; Bhutan, Nepal, Pakistan and Sri Lanka (Map 23 and Diags. 1 & 3).

* 25. *Paragus (Pandasyophthalmus) tibialis* (Fallén)


**Material examined**: 1 ♂, 1 ♀ Singtam, 750 m, East Sikkim, 23. iii. 1994, Coll. L.K. Ghosh.

**Distribution**: Sikkim (East), Assam, Bihar, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Meghalaya, Punjab, Tripura, Uttar Pradesh and West Bengal; Nepal and other parts of the Oriental region; Palaearctic region (Map 24 and Diags. 1 & 3).

Subfamily MILESINAE

**Key to the tribes**

(Modified after Thompson, 1972)

1. Hind femur with well-developed anterior basal patch of setulae; anterior portion of mesopleuron bare........................................... **Eristalini**

- Hind femur without basal patch of setulae; anterior portion of mesopleuron pilose, if with basal patch of setulae on hind femur .......... 2

2. Wing usually with perpendicular anterior cross-vein (r-m) before middle of discal cell, neither greatly slanted nor extended to outer third of cell; if located at mid-point of cell, then either thorax with bristles or fore and mid femur with ventral spines or hind femur with basal patch of setulae ............................................. 3

- Wing always with slanted anterior cross-vein, usually beyond middle of discal cell, often greatly slanted and extended to outer third or more of cell; if located at mid-point of cell, then either thorax without bristles, or fore and mid femur without ventral spines, or hind femur without basal patch of setulae ................. 6

3. Oral margin evenly rounded, not notched apically; eye and face pilose; facial grooves reduced to pits; subscutellar fringe present; hind femur unarmed ........................................ Pipizini

- Oral margin notched anteriorly; eye and face bare or pilose; facial grooves elongate; subscutellar fringe absent or present; hind femur with or without ventral spines .......... 4

4. Eye rarely pilose, and face bare; propleuron greatly swollen and produced dorso-ventrally, with a vertical row of long stiff hairs; subscutellar fringe absent; hind femur with ventral spines ................................ Spheginobacchini

- Eye and face pilose (except some cheilosines); propleuron neither greatly swollen nor produced and without a row of hairs; subscutellar fringe absent or present; hind femur without ventral spines ........................................ 5

5. Arista plumose; subscutellar fringe absent: wing with apical cross-vein (apex of M₁₂) either strongly recessive or straight; presence of a distinct patch of hairs in front of metathoracic spiracle ............... Volucellini

- Arista bare or with microscopic pubescence; subscutellar fringe present; wing with apical cross-vein usually not recessive or straight, if recessive or straight, then metathoracic spiracle without hair-patch at its front ...... Cheilosini
6. Antenna long, at least as long as face; segment 3 tapering to a point, always with a terminal style.......................... Cerioidini
- Antenna short, always shorter than face; segment 3 orbicular or elongate, with an arista .................................................. 7

7. Arista distinctly pilose ............... Sericomyini
- Arista bare ........................................... Milesini

Tribe Pipizini

Genus Triglyphus Loew

1840. Triglyphus Loew, Isis (Oken's) 1840 : 512.
Type-species : Triglyphus primus Loew.

Diagnosis : Face short, virtually straight, retreating, and non-tuberculate; eye densely haired; antennal segment 3 elongate, arista bare, nearly basal in position; wing with anterior cross-vein (r-m) very near base of discal cell; apical cross-vein (apex of M₁+₂) long and slightly angular at its middle, as apical cell sized nearly twice as wide as discal cell distally; posterior cross-vein (apex of M₁+Cu₁) quite straight; spurious vein indistinct; abdomen visibly of 4 segments only.

26. Triglyphus cyaneus (Brunetti)


Diagnosis : Frons and face brilliantly shining violet-black, with sparse white hairs; vertex with some erect brown hairs; vertical triangle demarcated by an impressed line; antenna brownish yellow, segment 3 paler below; mesonotum and scutellum shining black, with short sparse white hairs; abdomen black, with very narrow segment 1, subequal 2, 3, and 4.

Distribution : Sikkim (East), and West Bengal (Map 25 and Diags. 1).

Tribe Cheilosini

Key to the genera

1. Face produced strongly forward to a porrect snout; costa and third vein (R₄₊₅) ending well beyond wing-apex ............... Rhingia Scopoli
- Face without a snout; costa and third vein (R₄₊₅) ending at or before wing-apex ............ Cheilosia Meigen

Genus Cheilosia Meigen


Type-species : Eristalis scutellatus Fallén.

27. Cheilosia nigroaenea Brunetti


Diagnosis : Eye with yellowish grey hairs; face with distinct, round, black-haired central knob; antenna brownish grey, arista bare; mesonotum and scutellum shining black, with brownish yellow hairs; wing very pale grey; abdomen black, with plumbeous tinge, hairs entirely yellowish grey.

Distribution : Sikkim (North), and Himachal Pradesh; Nepal (Map 26 and Diags. 1 & 4).

Genus Rhingia Scopoli


Type-species : Conops rostrata L.

** 28. Rhingia laticincta Brunetti


Material examined : 1 ?, Ranipool, 1500 m, East Sikkim, 22. v. 1994, Coll. B.C. Das.

Diagnosis : Eyes quite contiguous as far as vertex; mesonotum with 4 blackish longitudinal stripes, inner ones close together anteriorly but wide apart posteriorly; scutellum unicolourous with a row of stiff black hairs on posterior margin above a fringe of soft pale yellow hairs on it; femur in females nearly all pale brown and a blackish ring on hind tibia less distinct than in males; abdominal tergites 2, 3 and 4 each with a black band posteriorly in addition to a vertical long black spot dorsally over each tergite forming a stripe.

Distribution : Sikkim (East), Himachal
Pradesh, Punjab, Uttar Pradesh and West Bengal (Map 27 and Diag. 1).

**Tribe Volucellini**

**Key to the genera**

1. Wing without spurious vein between R and M; marginal cell \((R_1)\) open; apex of vein \(M_{1+2}\) strongly divergent from wing-margin ............

...............................

**Graptomyza** Wiedemann

- Wing with spurious vein between R and M; marginal cell \((R_1)\) closed; vein \(M_{1+2}\) strongly recurrent at tip ................

**Volucella** Geoffroy

**Genus Graptomyza** Wiedemann


Type-species: *Graptomyza longirostris* Wied.

**Key to the species**

1. Abdominal tergite 2 with a large median transverse spot, and tergites 3 and 4 each with a pair of large spots very closely apposed together ............ *nigripes* Brunetti

- Abdominal tergites 2, 3 and 4 each with a pair of large but well-separated spots

.................................

**sexnotata** Brunetti

**29. Graptomyza nigripes** Brunetti


*Distribution*: Sikkim (East), Arunachal Pradesh, Assam, Himachal Pradesh, Meghalaya and West Bengal; Malay (Map 28 and Diags. 1 & 4).

**30. Graptomyza sexnotata** Brunetti


*Distribution*: Sikkim (East), and Meghalaya (Map 29 and Diag. 1).

**Genus Volucella** Geoffroy


Type-species: *Musca pellucens* L.

**Key to the species**

1. Bare flies, without tufts of long hairs on any part of body; abdomen with 2 narrow pale bands dorsally on segments 2–3 and 3–4.....

.................................

**trifasciata** Wiedemann

- Flies of dense and long hairs on certain parts of body; abdomen dorsally black, without any cross-bands .................................................... 2

2. Dorsum of abdomen with yellowish red hairs posteriorly on segment 3 and entirely on segments 4 and 5; venter entirely black with black hairs ....................

**ruficauda** Brunetti

- Dorsum of abdomen with greyish hairs; venter with segments 2 and 3 livid ..........................

.................................

**lividiventris** Brunetti

**31. Volucella lividiventris** Brunetti


*Distribution*: Sikkim (East); Tibet (Diag. 1 & 4).

**32. Volucella ruficauda** Brunetti


*Distribution*: Sikkim (East) (Diag. 1).

**33. Volucella trifasciata** Wiedemann


*Distribution*: Sikkim (East), and Meghalaya; Cambodia, China, Jawa, Kalimantan, Malaysia, Myanmar, Philippines, Sulawesi, Taiwan, Thailand and Vietnam (Map 30 and Diags 1 & 4).

**Tribe Spheginobacchini**

**Genus Spheginobaccha** de Meijere


Type-species: *Spheginia macropoda* Bigot.

*Diagnosis*: Eye pilose or bare; face with weak tubercle; occiput produced on upper half. with a
deep crease on upper two-thirds; antennal arista bare; scutellum without a rim and hair-fringe; mesopleuron at its anterior portion bare; metathoracic spiracle without hair-patch; metasternum pilose; wing with vein R_{4+5} straight, apical cross-vein directed outward, a distinct spur on vein M'+2 and marginal cell open at margin; hind femur with ventral spines.

34. *Spheginobaccha macropoda* (Bigot)


*Diagnosis*: Eye pilose; anterior ocellus not sunken into a cleft and divided, wing with basal cell 2 microtrichose on apical third; abdominal pattern always with more extensive dark areas except 2 pairs of yellow lateral spots on tergites 2 and 3 and 1 pair of silvery spots on 4; sternite 9 in male terminalia pilose on dorso-lateral surface posteriorly; superior lobe apically like a hook.

*Distribution*: Sikkim (East), Meghalaya and West Bengal; Anambas Is., China, Hainan Is., Jawa, Kalimantan, Laos, Malaysia, Myanmar, Thailand and Vietnam (Map 31 and Diags. 1 & 4).

**Tribe Sericomyini**

**Key to the genera**

1. Head much shortened, with flattish and deep face descending well below eyes; hind femur greatly thickened (remarkable in males) and arcuate; hind tibia greatly shortened ............. 

   
   ................................

   
   Pseudovolucella Shiraki

   Head comparatively enlarged, with a moderately descending face but not deep conically; hind femur normally slender and straight; hind tibia not noticeably shortened ................

   ................................

   Sericomyia Meigen

**Genus Pseudovolucella Shiraki**


Type-species: *Pseudovolucella mimica* Shiraki.

35. *Pseudovolucella hingstoni* Coe


*Diagnosis*: Frons in males very short, with a narrow central greyish line, but in females with a broad yellow band; face flattish, with a bare central prominence; antennal segment 3 dark brown, arista nearly twice its length, fringed with fine close-set black hairs; coxae and femora black, latter broadly pale at tip; fore tibia dark except at base; fore tarsi entirely dark; hind femur in males slightly convex above and with a projection just beyond middle in addition to one on apical third; abdominal tergites 2, 3 and 4 each with a reddish orange narrow arcuate band.

*Distribution*: Sikkim (East); Nepal (Diags. 1 & 4).

**Genus Sericomyia Meigen**


Type-species: *Musca lappona* L.

36. *Sericomyia himalayensis* Brunetti


*Diagnosis*: Face nearly non-tuberculate; frons and lower part of head bright yellow, with a few yellow hairs below eyes; antenna small and entirely black; abdominal tergites 2, 3 and 4 each with a black band, interrupted in middle, on hind margin.

*Distribution*: Sikkim (East) (Diag. 1).

**Tribe Cerioidini**

**Key to the genera**

1. Antenna placed on an elongate peduncle; wing with vein R_{4+5} strongly curved in cell R_{5} .... 

   ................................

   Monoceronymia Shannon

   Antennal peduncle practically absent, showing only antennal prominence on frons; wing with vein R_{4+5} weakly curved in cell R_{5} ................

   ................................ Sphiximorpha Rondani
Genus *Monoceromyia* Shannon


Type-species: *Ceria tricolor* Loew.

**Key to the species**

1. Abdominal segment 2 short and distinctly contracted at base or about middle (1/3 as wide as greatest width of abdomen); segment 3 always longer than 2.

   - Abdominal segment 2 very long and slender (less than 1/4 of greatest width of abdomen); segment 3 always shorter than 2.

2. Thorax with 2 longitudinal yellow post-sutural stripes near side-margins and 1 on pleura from wing-base downwards in addition to a yellow spot on upper part of sternopleura on either side.

   - Thorax without any stripes or spots and almost entirely black.

3. Thorax with 2 longitudinal yellow post-sutural stripes and a median spot in front of hind margin.

   - Body black and without any pale marks excepting slight brownish or yellowish tinge on humeri and hind margins of abdominal segments.

*Monoceromyia fenestrata* (Brunetti)


*Distribution*: Sikkim (South) (Diag. 1).

*Monoceromyia himalayensis* (de Meijere)


*Distribution*: Sikkim (South) (Diag. 1).

*Monoceromyia obscura* (Brunetti)


*Distribution*: Sikkim (North and South), and Assam; Nepal (Map 32 and Diags. 1 & 4).

**40. Monoceromyia trinotata** (de Meijere)


*Material examined*: 1 q. Jorthang. 300 m, South Sikkim. 5. vi. 1974, Coll. B.C. Das.

*Distribution*: Sikkim (South), Assam, Maharashtra and West Bengal; Cambodia, Laos, Malay, Myanmar and Vietnam (Map 33 and Diags. 1 & 4).

Genus *Sphiximorpha* Rondani


Type-species: *Ceria subsessilis* Illiger.

**Key to the species**

1. Humerus black; scutellum without yellow margin; abdominal tergite 2 with yellow hind margin, remaining tergites entirely black.

   - Humerus yellow; scutellum with distinct yellow margin; abdominal tergites 2, 3 and 4 with yellow hind margins.

*Monoceromyia trinotata* (de Meijere)

37. *Monoceromyia fenestrata* (Brunetti)

*Distribution*: Sikkim (East) (Diag. 1).

*Monoceromyia triangulifera* (Brunetti)


*Distribution*: Sikkim (South), Assam and West Bengal; Myanmar (Map 34 and Diags. 1 & 4).

**Tribe Eristalini**

**Key to the genera**

1. Wing with marginal cell (R₁) open.

   - Wing with marginal cell (R₁) closed.

2. Brilliantly metallic species with slightly flattened hind femur.

   - Cattacores Hull
- Non-metallic but densely haired species with greatly swollen and arcuate hind femur........... \textit{Mallota} Meigen

3. Eye bare; wing with normal submarginal cell (R$_3$) due to normal length of anterior cross-vein (r-m); metathoracic spiracular pile-patch present .......... \textit{Phytomia} Guérin-Méneville

- Eye at least partially pilose; if bare, then submarginal cell narrowed basally due to longer anterior cross-vein; metathoracic spiracular pile-patch usually absent ............... 4

4. Antennal arista practically bare; if with microscopic pubescence at base, then abdominal tergites with transversely located spots ....................... \textit{Eristalinus} Rondani

- Antennal arista plumose at least on basal half; if bare, then eye invariably with 2 distinct bands of dense, dark-coloured piles ................... \textit{Eristalis} Latreille

Genus \textit{Catacories} Hull


Type-species : \textit{Axona cyanea} Brunetti.

** 43. \textit{Catacories cyaneus} (Brunetti)


\textit{Material examined} : 1 ♀, Namchi, 550 m, South Sikkim, 19.iii. 1994, Coll. L.K. Ghosh.

\textit{Diagnosis} : A violet-blue species with head, thorax and abdomen approximated; antennal segment 3 rounded, with arista beset with a few hairs only at base; wing with marginal cell very narrowly open; anterior cross-vein just beyond mid-point of discal cell; anal vein running nearly to wing-margin; hind femur without spines or bristles; hind tibia barely curved and slightly thickened in middle.

\textit{Distribution} : Sikkim (South), Arunachal Pradesh, Meghalaya and West Bengal (Map 35 and Diag. 1).

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Genus \textit{Eristalinus} Rondani


Type-species : \textit{Musca sepulchralis} L.

\textbf{Key to the subgenera}

1. Eye with brown or black spots or with dark irregular markings; metathoracic spiracle at its front without any patch of hairs ............... \textit{Eristalinus} Rondani

- Eye with distinct stripes; metathoracic spiracle at its front with a distinct patch of hairs...... \textit{Eristalodes} Mik

Subgenus \textit{Eristalinus} Rondani


Type-species : \textit{Eristalis taeniops} Wiedemann.

\textbf{Key to the species}

1. Femur normally orange or brownish orange; tarsi of similar colour, at most a little darker apically ............... \textit{arvorum} (Fabricius)

- Femur black, at most narrowly pale apically; tarsi of similar colour, at most pale basally .. \textit{obscuritarsis} (de Meijere)

44. \textit{Eristalinus (Eristalinus) arvorum} (Fabricius)


\textit{Distribution} : Sikkim (North), Arunachal Pradesh, Jammu & Kashmir, Meghalaya, Orissa, Tripura and West Bengal; China and other parts of the SE Asia; Australia, Hawaii, Japan and Micronesia (Map 36 and Diags. 1 & 4).

45. \textit{Eristalinus (Eristalinus) obscuritarsis} (de Meijere)


\textit{Distribution} : Sikkim (East), Gujarat, Karnataka, Kashmir, Kerala, Maharashtra, Orissa and West Bengal; Bangladesh, Jawa, Malay and Singapore (Map 37 and Diags. 1 & 4).
DATTA: Insecta: Diptera: Syrphidae

Subgenus *Eristalodes* Mik

Type-species: *Eristalis taeniops* Wiedemann.

**Key to the species**

1. Thorax yellowish with 4 distinct black stripes; abdominal segment 3 mainly or entirely black .................................................. *paria* (Bigot)
   - Thorax dull yellowish grey, with 4 but indistinct black stripes; abdominal segment 3 predominantly bright yellow .................................................. *taeniops* (Wiedemann)

46. *Eristalinus* (*Eristalodes*) *paria* (Bigot)


**Distribution**: Sikkim (East), Himachal Pradesh, Jammu & Kashmir, Karnataka, Meghalaya, Tamil Nadu, Uttar Pradesh and West Bengal; Jawa, Laos, Malay, Nepal, Sri Lanka and Taiwan; Japan and Maluku (Map 38 and Diags. 1 & 4).

* 47. *Eristalinus* (*Eristalodes*) *taeniops* (Wiedemann)


**Material examined**: 1 ♀, Damthang, 500 m, South Sikkim, 18.iii. 1994, ColI. L.K. Ghosh.

**Distribution**: Sikkim (East and North); nearly cosmopolitan (Map 40 and Diags. 1 & 5).

**Genus Eristalis** Latreille

Type-species: *Musca tenax* L.

**Key to the subgenera**

1. Meropleuron at its upper edge (barrette) pilose; antennal arista bare .................................................. *Eristalis* Latreille
   - Meropleuron entirely bare; antennal arista usually plumose on basal half .................................................. *Eoseristalis* Kanervo

48. *Eristalis* (*Eristalis*) *tenax* (L.)


**Diagnosis**: Eye brown-haired, with 2 longitudinal bands of dense hairs; antenna usually brownish black, arista bare; mesonotum shining brownish black; scutellum brownish yellow; subscutellar fringe absent; abdominal colouration bright reddish yellow to black.

**Distribution**: Sikkim (East and North); nearly cosmopolitan (Map 40 and Diags. 1 & 5).

**Subgenus Eoseristalis** Kanervo

Type-species: *Eristalis cerealis* F.

**Key to the species**

1. Wing with a large brown suffusion filling about middle third of anterior half .................................................. *himalayensis* Brunetti
   - Wing nearly clear excepting suffused stigma and at most, costal area but never extensive as above .................................................. 2
2. Considerably pubescent species; abdominal segment 1 entirely and 2 basally, with long yellowish hairs, and rest of abdomen with reddish hairs ................... *intricarioides* Brunetti

- Comparatively bare species; abdomen entirely with short yellowish hairs ...................... 3

3. Mesonotum without any transverse stripe; abdominal tergite 3 with a black spot filling half of anterior margin, tergite 4 shining black like 5 ................................... *arbustorum* (L.)

- Mesonotum with a transverse stripe of greyish pubescence along suture; abdominal tergite 3 in males with a triangular or oblong spot on anterior margin, reaching laterally, in females spots smaller and narrower but always on anterior margin .................... *cerealis* Fabricius

* 49. *Eristalis (Eoseristalis) arbustorum* (L.)


*Distribution*: Sikkim (East, North and South), Jammu & Kashmir, Meghalaya and West Bengal; China, Myanmar and Nepal (Map 41 and Diags. 1 & 5).

50. *Eristalis (Eoseristalis) cerealis* Fabricius


*Distribution*: Sikkim (East and North), Assam, Himachal Pradesh, Jammu & Kashmir, Meghalaya and West Bengal; China, Myanmar and other parts of the Oriental region; Japan, Korea and Sakhalin (Map 42 and Diags. 1 & 5).

51. *Eristalis (Eoseristalis) himalayensis* Brunetti


*Distribution*: Sikkim (East). Himachal Pradesh, Kashmir, Uttar Pradesh and West Bengal; China, Myanmar and Nepal (Map 43 and Diags. 1 & 5).

52. *Eristalis (Eoseristalis) intricarioides* Brunetti


*Distribution*: Sikkim (East); Nepal (Diags. 1 & 5).

Genus *Mallota* Meigen


*Type-species*: *Syrphus fuciformis* Fabricius.

53. *Mallota orientalis* (Wiedemann)


*Diagnosis*: Eye densely pilose at least anteriorly; antennal arista bare; wing greyish; abdomen black, tergite 2 with a large triangular spot of yellowish hairs on either side; tergites 3 and 4 each with a broad band of dense yellow hairs anteriorly.

*Distribution*: Sikkim (East), Meghalaya and West Bengal; Jawa, Laos, Malay and Taiwan (Map 44 and Diags. 1 & 5).
Genus **Phytomia** Guérin-Méneville


Type-species: *Eristalis chrysopygus* Wiedemann.

**Key to the subgenera**

1. Hind femur with a conspicuous sub-apical tooth on front side; scutellum with apical rim ................. *Dolichomerus* Macquart
   - Hind femur unarmed; scutellum without apical rim ................ *Phytomia* Guérin-Méneville

Subgenus **Phytomia** Guérin-Méneville

**Key to the species**

1. Wing at its basal half diagonally all black; subscutellar fringe absent .................................... *chrysopyga* (Wied.)
   - Wing yellowish grey, with dark brown suffusion anteriorly, extending to apex of basal cell 1 and base of submarginal cell (*R* 1); sub-scutellar fringe present ............................ *zonata* (F.)

54. **Phytomia (Phytomia) chrysopyga** (Wied.)


*Distribution*: Sikkim (East), Assam and Meghalaya; Java, Laos, Malay, Myanmar, Sumatra and Thailand (Map 45 and Diags. 1 & 5).

55. **Phytomia (Phytomia) zonata** (Fabricius)


*Material examined*: 1♂, Namchi, 550 m, South Sikkim, 19.iii. 1994, Coll. L.K. Ghosh.

*Diagnosis*: Frons and face together nearly parallel-sided; antenna black, arista orange; wing clear at base except an oblique line from stigma across outer side of basal cell 2 and thence middle of anal cell to alula; femora bright reddish brown, blackish apically; hind pair with a fringe of coarse hairs on apical half of front side; abdomen shining black, tergites 2, 3 and 4 each with a deep impression of a large circle, touching anterior margin.

*Distribution*: Sikkim (East and South), Andhra Pradesh, Assam, Bihar, Goa, Karnataka, Kerala, Meghalaya, Tamil Nadu, Uttar Pradesh and West Bengal; Laos, Malay, Nepal, Sri Lanka, Sulawesi and Thailand (Map 47 and Diags. 1 & 5).

**Tribe Milesini**

Genus **Milesia** Latreille


Type-species: *Syrphus crabroniformis* Fabricius.

*Diagnosis*: Eye bare, narrowly holoptic in males; antenna short, about half as long as face; segment 3 quadrate with slightly rounded apex; face strongly concave, facial stripes indistinct, pilose; meso-anepisternum pilose on upper half anteriorly; metasternum greatly developed, pilose; wing with marginal cell petiolate and apical cell petiolate, both petioles markedly long; anterior cross-vein at outer fourth or more of discal cell
greatly oblique; apical and posterior cross-vein continuous, without spurs at their bases; hind femur slightly swollen, with a small ventral spur apically; abdomen elongate and equilateral.

Key to the species

1. Abdominal tergites with only pale transverse bands .............................................................. 2
   - Abdominal tergites with distinct pairs of spots as well as transverse bands ..................... 3

2. Legs predominantly blackish; abdominal tergite 2 with very wide band along anterior margin, reaching middle or beyond ............................................................ balteata Kertész
   - Legs predominantly yellow or orange, with bright yellow femora, only blackish basal half of hind pair; abdominal tergite 2 with very narrow band anteriorly, never filling even 1/4 of tergite ................. ferruginosa Brunetti

3. Surstylus in male terminalia gradually narrowed to apex; superior lobe not produced apico-dorsally ................................................................. variegata Brunetti
   - Surstylus in male terminalia abruptly narrowed to apex forming a right angle on inner side; superior lobe produced apico-dorsally .............. illustris Hippa

57. Milesia balteata Kertész


Distribution : Sikkim (South), Assam, Meghalaya and West Bengal; Laos (Map 48 and Diags. 1 & 5).

58. Milesia ferruginosa Brunetti


Distribution : Sikkim (East and South), Assam, Meghalaya, Uttar Pradesh and West Bengal; China, Laos, Myanmar, Nepal and Thailand (Map 49 and Diags. 1 & 5).

59. Milesia illustris Hippa


Distribution : Sikkim (South), Assam, Meghalaya and West Bengal; Laos (Map 50 and Diags. 1 & 5).

60. Milesia variegata Brunetti


Distribution : Sikkim (South), Assam, Meghalaya and West Bengal; Laos, Myanmar and Thailand (Map 51 and Diags. 1 & 5).

ZOOGEOGRAPHICAL COMMENTS

Sikkim, comprising four districts : North, South, East and West (Map 1), is entirely mountainous. The mountains rise to various elevations (highest being Kanchenjunga at 8598 m) and create areas like valleys, foothills and high peaks with differential weather conditions growing variegated vegetation that the rich ascent of the Syrphidae depends upon. Indeed, as many as 60 species under 34 genera make up the Sikkimese fauna that accounts for over 20% of the species India holds (cf. Brunetti, 1923; Knutson, Thompson and Vockeroth, 1975; Joseph and Sharma, 1976; Datta and Chakraborti, 1986, and Hippa, 1990). It may be re-called that the only state in India as a close neighbour is West Bengal that (especially the district of Darjiling with like physiography) is to have the most identical elements and, therefore, the fauna is discussed in the light of the content in West Bengal (vide Appendix). By the way, the Meghalayan fauna (Datta, 1998) and the Tripuri fauna (Datta, Parui and Mukherjee, in press) are taken into account to touch up the distributional pattern of certain species.

The dominant genus in the state appears to be Eristalis Latreille comprising 5 species, i.e., over 8% of the fauna, followed by Monoceromyia Shannon, Eristalinus Rondani and Milesia
Latreille each with 4 species. The genera *Baccha* Fabricius, *Paragus* Latreille, *Volucella* Geoffroy and *Phytomia* Guérin-Méneville are represented by 3 species each and 2 pertain to each of *Sphaerophoria* Lep. & Serv., *Syrphus* Fabricius, *Melanostoma* Schiner, *Graptonzyza* Wiedemann and *Sphiximorpha* Rondani, whereas each of the remaining 21 genera contains a single species. However, *Eristalis*, *Eristalinus*, *Monoceromyia* and *Milesia* can be considered practically equiponderant concerning the species-richness.

The Sikkimese fauna contains 5 species, namely, *Volucella ruficauda* Brunetti, *Sericomyia himalayensis* Brunetti, *Monoceromyia fenestrata* (Brunetti), *M. himalayensis* (de Meijere) and *Sphiximorpha fruhstorferi* (de Meijere) which are neither known elsewhere in India nor abroad (Diag. 1). The 5 other species are also known but confined to this country with extended range of distribution. Thus, the sole representative of the Pipizini, viz., *Triglyphus cyaneus* (Brunetti) extends to the nearest state West Bengal (Map 25) and one of 2 *Graptonzyza*, viz., *sexnotata* Brunetti to Meghalaya only (Map 29). The only *Catacoeres* species: *cyaneus* (Brunetti) has been known from both the above states in addition to Arunachal Pradesh (Map 35) in the eastern India. However, *Sphaerophoria viridaenea* Brunetti (Map 13) and the only *Rhingia*, viz., *laticincta* Brunetti (Map 27) extend their range of distribution not only to West Bengal but also to the northern India (e.g. Himachal Pradesh), and to Punjab and Uttar Pradesh too in case of the latter, with the possibility of being discovered at least from the intervening states.

However, the remaining other species are known to spread over other parts of the Orient or even beyond it over the Palaearctic, Australian and Ethiopian or other regions in certain instances. The probable route of dispersal to and fro in these regions has already been indicated by Datta (op. cit.). There are 5 species that are still known from Sikkim only in India, and abroad. Of them, the shortest range so far exhibited, are by *Eriozona analis* Kertész (Diags. 1 & 2), *Pseudovolucella hingstoni* Coe (Diags. 1 & 4) and *Eristalis intricarioides* Brunetti (Diags. 1 & 5) that cross over only to Nepal westward, and *Volucella lividiventris* Brunetti (Diags. 1 & 4) only to Tibet northward. But *Syrphus vitripennis* Meigen is known to occur as far east as in Taiwan in the Orient and as far north-west as in the continent of Europe in the Palaearctic region despite disjunct record in the vast stretch of intervening territories (Diags. 1 & 3).

The tribe Syrphini is represented in Sikkim by 15 species, of which 7, viz., *Allograpta javana* (Wiedemann), *Asarkina ericetorum* (Fabricius), *Betasyrphus serarius* (Wiedemann), *Dideopsis aegrotus* (Fabricius), *Episyrophus balteatus* (De Geer), *Ischiodon scutellaris* (Fabricius) and *Metasyrphus confrater* (Wiedemann) are extremely widespread, almost throughout the Orient with an encroachment in the neighbouring regions or beyond the limit in certain instances (Datta, op. cit.). However, *Dideoides ovatus* Brunetti (Map 5 & Diag. 2), *Meliscaeva cinctella* (Zetterstedt) (Map 9 & Diag. 2) and *Scaeva selenitica* (Meigen) (Map 11 & Diag. 2) are mostly unknown not only from India but also from the Orient (Datta, op. cit.). Whereas *Sphaerophoria indiana* Bigot (Map 12) is widely known (cf. Datta, op. cit.), *S. viridaenea* Brunetti implies its Himalayan affinity only (as stated above). Finally, Sikkim is known to have 2 species of the genus *Syrphus* Fabricius, viz., *torvus* Osten Sacken and *vitripennis* Meigen (latter as stated above), that West Bengal does not have hitherto registered even from the Himalayan areas where the Syrphidae abound due to their Himalayan bias (vide Appendix). *S. torvus* does occur in the Himalayan belt in India (Map 14), extending its range further northward to the Holarctic region across Nepal and China mainland, eastward to Taiwan and southward to Thailand with disjunct records of its occurrence all along (Diag. 3).

The Bacchini comprise 3 species, viz., *amphithoe* Walker, *triangulifera* Austen and *maculata* Walker, that occur also in West Bengal (vide Appendix), but only the first and the last are known from Meghalaya (cf. Datta, op. cit.). *B. triangulifera* is, however, known not only from
West Bengal but also from Karnataka in India (Map 16) and extends its range westward to Nepal, southward to Sri Lanka and eastward to Myanmar without continuous distribution across the northeast India or Bhutan or China (Diag. 3).

The Melanostomatini are also known by 3 species, of which Melanostoma orientale (Wiedemann) and M. univittata (Wiedemann) are widespread not only in India but also in the Orient or even beyond it (cf. Datta, op. cit.), but Platycheirus himalayensis has shown restriction to the Himalaya (Sikkim and Uttar Pradesh in India, and Nepal) (Map 20 & Diag. 3). Likewise, the 3 species of the Paragini certainly have the Himalayan bias despite their occurrence in other areas too (cf. Datta, Parui and Mukherjee, in press). The sole representative of the Chrysotoxini is Chrysotoxum quadrifasciatum Brunetti, that is known to occur in West Bengal and Meghalaya in India as well as in Laos exhibiting no continuity across Myanmar or Thailand, the most probable pathway of radiation (Datta, op. cit.).

The Milesine tribes: Pipizini (as already stated above) and Spheginobacchini (cf. Datta, op. cit.) each is represented by a solitary species. The Cheilosini include 2 genera, viz., Cheilosia Meigen and Rhingia Scopoli with 1 species each, colonizing mainly the Himalayan belt. Although R. laticincta Brunetti is unknown from outside India (as already stated above), C. nigroaenea Brunetti is known to occur in Nepal (Diag. 4).

The Volucellini comprise 5 species under 2 genera, viz., Graptomyza Wiedemann and Volucella Geoffroy in Sikkim. Both the species of the former genus and only one, viz., trifasciata Wiedemann of 3 species of the latter genus do occur in Meghalaya (Datta, op. cit.), but the other 2 species are, however, unknown from any other states in India (as stated above). C. nigroaenea Brunetti is known to occur in Nepal (Diag. 4).

The tribe Cerioidini with 6 species under 2 genera in Sikkim in respect of 5 species under 3 genera in West Bengal (vide Appendix) can be considered rather rich. Whereas Sphiximorpha fruhstorferi (de Meijere) so far remains confined to Sikkim only, S. triangulifera (Brunetti) is known not only from adjoining West Bengal but also from neighbouring Assam, extending its range of distribution as far as in Myanmar either across the eastern fringe of India or China or both (unrecorded) (Map 34 & Diag. 4). Of the 4 species of Monoceromyia Shannon, fenestrata (Brunetti) and himalayensis (de Meijere) are known only from Sikkim (Diag. 1), and obscura (Brunetti) from Assam too in India and adjoining Nepal (Map 32 & Diag. 4). But trinotata (de Meijere) is known to colonize a vast stretch of territories till the peninsular Malay of the Orient across Myanmar and Thailand (latter unrecorded) (Diag. 4) despite our deficient knowledge on its occurrence in India (Map 33).

The Eristalini are represented by 14 species under 5 genera, viz., Catacores Hull, Eristalinus Rondani, Eristalis Latreille, Mallota Meigen and Phytoma Guérin-Méneville, and all but Eristalis intricarioides Brunetti (as stated above) and Phytomia chrysopyga (Wiedemann) are known from West Bengal (vide Appendix). The latter species has, however, been reported from Meghalaya where 2 other species under the genus, viz., zonata (F.) and crassa (F.) also do occur (cf. Datta, op. cit.). The only Sikkimese species that are unknown from Meghalaya, are Eristalinus obscuritarsis (de Meijere), Eristalis himalayensis Brunetti and E. intricarioides Brunetti (cf. Datta, op. cit.). However, obscuritarsis (de Meijere) somewhat like laetus (Wiedemann) is known from certain areas of the northern, southern, eastern and western India (Map 37), and exhibits its range of distribution outside the country southward up to the far Jawa through Bangladesh and the Malay Peninsula, with disjunct record of its occurrence in the intervening territories (Diag. 4). Indeed, with the Himalayan bias Eristalis himalayensis Brunetti is distributed all along the northern edge of India (Map 43).
crossing over to Nepal on the west and China on the north but still advances southward up to Myanmar showing discontinuous distribution across Assam Hills and Bangladesh (Diag. 5).

The genus *Milesia* Latreille, the sole representative of the Milesini in Sikkim, comprises 4 species only, all of which exist not only in West Bengal (*vide Appendix*) but also in Meghalaya (cf. Datta, *op. cit.*) together with certain other species of the genus. By the way, these species are unknown from outside the Orient.

To conclude, Sikkim harbours 60 species under 34 genera, of which 5 species are hitherto known only from the state, and 10 species, inclusive of these 5, are confined to India. Of the remaining 50 species, 25 spread over other parts of the Orient only and 25 extend their range of distribution beyond the region.

**SUMMARY**

The treatise accounts for 60 species under 34 genera, of which 7 genera each with a lone species, and 5 species under 5 known genera are recorded for the first time from Sikkim. The species are systematically keyed and characterized, and are discussed, if and when necessary, in the light of their zoogeographical distribution.

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**APPENDIX**

Syrphid fauna known from West Bengal (Revised up to 1995)

Subfamily SYRPHINAE

**Tribe Syrphini**

* 1. *Allograpta javana* (Wiedemann)  
2. *Asarkina (Asarkina) ericetorum* (Fabricius)  
* 3. *A. (A.) porcina porcina* (Coquillett)  
4. *Betasyrphus serarius* (Wiedemann)  
* 5. *Citrogramma citrinum* (Brunetti)  
6. *Dasysyrphus brunettii* (Hervé-Bazin)  
7. *D. orsua* (Walker)  
8. *Dideoides ovatus* Brunetti  
9. *Dideopsis aegrotus* (Fabricius)  
10. *Epistrophe (Epistrophella) horishana* (Matsumura)  
11. *Episyrrhus balteatus* (De Geer)  
* 12. *Ischiodon scutellaris* (Fabricius)  
13. *Meliscaeva cinctella* (Zetterstedt)  
14. *M. darjeelingensis* Datta & Chakraborti  
15. *Metasyrphus (Metasyrphus) confrater* (Wiedemann)  
16. *M. (M.) corollae* (Fabricius)  
* 17. *Sphaerophoria bengalensis* Macquart  
18. *S. indiana* Bigot  
19. *S. viridaenea* Brunetti

**Tribe Bacchini**

* 20. *Baccha (Allobaccha) amphithoe* Walker  
21. *B. (A.) apicalis* Loew  
22. *B. (A.) triangulifera* Austen  
23. *B. (Baccha) maculata* Walker

**Tribe Melanostomatini**

24. *Melanostoma orientale* (Wiedemann)  
25. *M. univittata* (Wiedemann)  
26. *Platycheirus albimanus* (Fabricius)

Only the species marked (*) are unknown from the Darjiling district of the state.
Tribe Chrysotoxini

*27. Chrysotoxum baphyrus Walker
28. C. quadrifasciatum Brunetti
29. C. violaceum Brunetti

Tribe Paragini

*30. Paragus (Paragus) auritus Stuckenberg
31. P. (P.) serratus (Fabricius)
*32. P. (P.) yerburiensis Stuckenberg
*33. P. (Pandasyophthalmus) atratus de Meijere
34. P. (P.) ruftventris Brunetti
35. P. (P.) tibialis (Fallén)

Subfamily MILESINAE

Tribe Pipizini

36. Triglyphus cyaneus (Brunetti)

Tribe Cheilosini

37. Cheilosia hirticincta Brunetti
38. Rhingia angusticincta Brunetti
39. R. binotata Brunetti
40. R. cincta de Meijere
41. R. laticincta Brunetti
42. R. laticincta fasciata Brunetti

Tribe Volucellini

*43. Graptomyza nigripes Brunetti
44. G. tintovittata Brunetti
45. Volucella basalis Brunetti
46. V. ursina de Meijere

Tribe Chrysogasterini

47. Sphegina (Sphegina) asciiformis Brunetti
48. S. (Astosphegina) bispinosa Brunetti
49. S. (A.) javana de Meijere

Tribe Spheginobacchini

50. Spheginobaccha macropoda (Bigot)

Tribe Eumerini

51. Azpeytia bifascia Brunetti
*52. Eumerus aeneithorax Brunetti
53. E. halictoides Brunetti
54. E. pulcherrimus Brunetti
55. E. rufoscutellatus Brunetti
*56. Merodon tuberculatus (Brunetti)
57. M. varicolor Walker

Tribe Cerioidini

58. Ceriana ornatifrons (Brunetti)
*59. Monoceromyia eumenioides (Saunders)
60. M. javana (Wiedemann)
61. M. trinotata (de Meijere)
62. Sphiximorpha triangulifera (Brunetti)

Tribe Eristalini

63. Catacores cyaneus (Brunetti)
64. Eristalinns (Eristalinus) arvorum (Fabricius)
65. E. (E.) laetus (Wiedemann)
*66. E. (E.) obliquus (Wiedemann)
*67. E. (E.) obscuritarsis de Meijere
*68. E. (E.) polychromatus (Brunetti)
69. E. (E.) quinquestriatus (Fabricius)
70. E. (Eristalodes) paria (Bigot)
*71. E. (E.) taeniops (Wiedemann)
*72. E. (Merodonoides) multifarius (Walker)
73. Eristalis (Eristalis) tenax (Linnaeus)
*74. E. (Eoseristalis) arbustorum (Linnaeus)
75. E. (E.) cerealis Fabricius
76. E. (E.) himalayensis Brunetti
77. Mallota curvigaster (Macquart)
78. M. orientalis (Wiedemann)
79. M. rufipes Brunetti
*80. Mesembrius bengalensis (Wiedemann)
81. M. quadrivittatus (Wiedemann)
82. Phytomia (Phytomia) argyrocephala (Macquart)
83. P. (P.) errans (Fabricius)
84. P. (P.) zonata (Fabricius)
85. P. (Dolichomerus) crassa (Fabricius)
*86. Pseuderistalis nigra (Wiedemann)

Tribe Milesini

87. Lycastris albipes Walker
88. L. austeni Brunetti
89. L. flavohirta Brunetti
90. Milesia balteata Kertész
91. M. brunneonigra Hippa
92. M. ferruginosa Brunetti
93. M. illustris Hippa
94. M. semifulva de Meijere
95. M. sexmaculata Brunetti
96. M. variegata Brunetti
*97. Syritta indica (Wiedemann)
98. S. orientalis Macquart
*99. S. pipiens (Linnaeus)
100. Xylota annulata Brunetti
101. X. cupreiventris Brunetti
102. X. nursei Brunetti

(A total of 100 species and 2 subspecies under 43 genera of 2 subfamilies in the Syrphidae)

REFERENCES


Map 1. Sikkim showing its location, districts and recorded places of occurrence of the Syrphidae dealt with
Maps 13-17: Distribution of (13) *Sphaerophoria viridaenea*, (14) *Syrphus torvus*, (16) *Baccha amphithoe*, (17) *Baccha triangulifera* and (18) *Baccha maculata* in India (in black shade).
Maps 30-34. : Distribution of (33) Volucella trifasciata, (34) Sphegina macropoda, (39) Monoceromyia obscura, (40) Monoceromyia trinitata and (42) Sphiximorpha triangulifera in India (in black shade).
Maps 47-51: Distribution of (56) Phytomia crassa, (57) Milesia balteata, (58) Milesia ferruginosa, (59) Milesia illustris and (60) Milesia variegata in India (in black shade)
Diag. 1: Recorded districts of occurrence of the species (as per serial number) in Sikkim (in black shade)
Diag. 2: Distribution of species (as per serial number) of Allograpta, Asarkina, Betasyrphus, Dideoides, Dideopsis, Episyrphus, Erizossa, Ischiodon, Meliscaeva, Metasyrphus, Scaeva and Sphaerophoria in and around the Oriental region excepting India.
Diag. 3: Distribution of species (as per serial number) of Syrphus, Baccha, Melanostoma, Platychirus, Chrysotoxum and Paragus in and around the Oriental region excepting India.
Diag. 4.: Distribution of species (as per serial number) of *Cheilosia*, *Graptoomyza*, *Volucella*, *Spheginobaccha*, *Pseudovolucella*, *Monoceromyia*, *Sphiximorpha* and *Eristalinus* in and around the Oriental region excepting India.
Diagram 5: Distribution of species (as per serial number) of Erichtho. Mallotus, Phrynomy in and around the Oriental region excluding India.
INTRODUCTION

Occurrence of five tachinid species in Sikkim state of the Indian union was reported by Crosskey (1976) without information about their actual places of occurrence in the state.

The present study is based on tachinid material available in the collection of the Zoological Survey of India, Calcutta. These include old Indian museum collection procured by L. de Nieceville, A. V. Knyvett, unknown museum collector and F. H. Gravely (May, 1916) and those procured in course of ten faunistic survey undertaken by the department under the leadership of Dr. A.N.T. Joseph (April, 1978; October, 1978), Dr. V.C. Agarwal (September, 1986; October, 1988), Dr. A.R. Lahiri (April, 1992), Shri S. K. Saha (April, 1992), Dr. M.S. Shishodia (October-November, 1992), Dr. T.K. Pal (October, 1993) Dr. L.K. Ghosh (March, 1994) and Shri P. H. Roy (April, 1994)

MATERIAL AND METHOD

Adult tachinid flies were collected, set, pinned and processed by methods prescribed by Datta, and Mukherjee (1997).

Lahiri (in press) in “Tachinid (Diptera) fauna of Tripura” provided a general account of tachinid flies, a summary of principal contribution on tachinid fauna of the world at large and that of India together with a brief account of general morphology of these insects.

CLASSIFIED LIST OF TACHINID SPECIES KNOWN FROM SIKKIM

<table>
<thead>
<tr>
<th>Subfamily</th>
<th>Proseninae</th>
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<tbody>
<tr>
<td>1. Estheria (Parestheria) intermedia sp. nov.</td>
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<tr>
<td>2. E. (P.) magna Baranov.</td>
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<tr>
<th>Subfamily</th>
<th>Phasiinae</th>
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<tbody>
<tr>
<td>3. Hermya beelzebul (Wiedemann)</td>
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<td>4. Lophosia felderi (Brauer and Bergenstamm)</td>
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<tr>
<th>Subfamily</th>
<th>Tachininae</th>
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<tr>
<td>5. Mikia tapens (Walker)</td>
<td></td>
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<tr>
<td>6. Servilia sobria Walker</td>
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<td>7. S. subcinerea Walker</td>
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<tr>
<th>Tribe</th>
<th>Linnaemyini</th>
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<td>8. Linnaemya picta Meigen.</td>
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<tr>
<th>Tribe</th>
<th>Ernestiini</th>
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<tr>
<td>9. Eurithia indica sp. nov.</td>
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<tr>
<td>10. Gymnocheta prophyrophora Zimin.</td>
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<tr>
<td>11. Janthinomyia felderi (Brauer and Bergenstamm)</td>
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<th>Subfamily</th>
<th>Goniinae</th>
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<tr>
<td>12. Carcelia sumatrana Townsend</td>
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</table>

* (Species marked with * are recorded for the first time from the state)
Tribe Sturmiini

*13. Blepharella lateralis Mc Quart.
*15. B. jacobsoni Townsed.
*16. B. zebina (Walker).

SYSTEMATIC ACCOUNT

Family TACHINIDAE

Key to the subfamilies

1. Prosternum setose .......................................................... .......................... GONIINAE (Major part)
   - Prosternum bare ......................................................... 2

2. Facial ridge strongly setose on their whole height ........................................... GONIINAE (part, only genus Blepharella Macquart)
   - Facial ridge bare but for a few hairs around vibrissae ........................................ 3

3. Presutural intra-alar setae absent; 0-2 post intra-alar setae ................................... PHASIINAE
   - Presutural intra-alar setae present; 2 or 3 post intra-alar setae ................................. 4

4. Genal depth as great as the third antennal segment or more; arista pubescent or plumose; antennal axis at or below the level of eye-middle; usually three scutellars ........................................ ............................. PROSENINAE (Dexiinae)
   - Such combination of characters not present simultaneously ................................... TACHININAE.

Subfamily PROSENINAE (DEXIINAE)

Genus Estheria Robineau-Desvoidy


Diagnostic characters: Head with a facial carina that is narrow between antennae but widening towards ventral end and then contracting again to epistome; palpi longer than third antennal segment and not clubbed at apex; interfrontal area obliterated in male and frons at its narrowest not more than twice as wide as anterior ocellus. Pteropleural seta distinct; pleural region of thorax with blackish hairs; three or more prst dc; strong acrostitchal and pre-alar setae present. 2nd costal sector bare ventrally, more than half as long as the 1st sector and longer than m-cu; bend of M closer to wing margin than m-cu; R4+5 and M ending as usual based to wing apex; cell R3 open. T1+2 excavated to hind margin. Large, at least 8 mm in length.

Distribution: Palaearctic, Oriental.

Subgenus Paraestheria Stein


Diagnostic characters: Parafacial naked; haustellum smaller than head height and 2-8 times as long as thick. Margin of lower calypter entirely covered with hairs longer than those of upper calypter and the diameter of haltars head.

Distribution: Palaearctic; Oriental.

Key to the species

1. Labella shorter (0.12-0.22 times of haustellum length). Front claw longer (1.7-2.25 of last tarsal segment) ............ intermedia sp. nov.
   - Labella longer (0.50-0.55 times of haustellum length). Front claw shorter (1.15-1.25 of last tarsal segment) ................ magnana Baranov.

1. Estheria (Parestheria) intermedia sp. nov.

Description: Male: Frons 0.90-0.17 times as broad as an eye, in its middle 0.83-0.14 times as broad as adjacent parafrons; number of frontal setae 10-14; inner vertical setae 0.15-0.26 as long as head height; height of face (over vibrissae) 0.46-0.70 times the length of frons; median ridge strong, little convex and in profile visible up to vibrissae; antenna as long as 0.47-0.83 of facial height; 3rd segment 1.1-1.6 times as long as the 2nd and 1.3-2.0 times as long as broad; breadth...
of arista with hairs 1.0-2.3 times of that of the 3rd antennal segment; longest hare on arista 2.2-5.7 times of its stout base; parafacial naked, from antennal base downwards enlarging 1.3-1.8 times and is 1.3-3.2 times as broad as the 3rd antennal segment; facial border below 2/5th of its height with 10-17 hairs; epistome slightly raised; difference of height between epistome with vibrissae amount to 0.18-0.65; horizontal distance of vibrissae from one another 0.41-0.69 of facial height about it; gena in profile as high as 0.33-0.52 of the vertical diameter of eye; ventral length of head 1.0-1.7 of head height; width of occiput 0.14-0.34 of head height; palp as long as 0.23-0.42 of head height; haustellum without labella as long as 0.39-0.73 of head height and is 4.6-7.0 times as long as thick; labella as long as 0.12-0.22 of haustellum. Mesonotum with 2+3(2) acr, 3+3(4) de and 1+3(2) ia; prealar setae 0.15-0.18 of the strong supraalar; 3-5 humeral setae, the 3 strong stand in triangle; the rest being borne on the anterior arm of the same; barrette with scanty hairs; scutellar total 4, but the subapical variably developed, being subequal to or about half the length of apicals or even absent; apical crossing, 0.87-1.40 of the lateral. Wing : costal spine insignificantly small; 3rd costal sector (CS₃) 1.7-2.2 times as long as CS₂ and 2.1-3.1 times as long as CS₄; R₉ open; distance of M-bending from nearest wing margin 0.34-0.46 of M₁, 0.62-1.0 times as big as its distance from m-cu and 0.62-0.88 of CS₄; m-cu from r-m 1.7-2.1 times as far as the distance of m-cu to M-bending; last section of Cu₁ 0.44-0.78 times as long as m-cu. Legs : midtibia with 0-1 ad, O pd, 0-2 av and 1 pv; hindtibia with 1-2 ad, 0-4 pd, 1-3 av and 0-1pv; front claw 1.7-2.5 times as long as last tarsal segment. 2nd abdominal segment excavated without marginal setae; only segments III and IV with middorsal setae while segment V entirely beast with large setae. Head blackish gray, but shining white when viewed from certain angle; interfrons and ocellar triangle dark brown, proboscis blackish brown; thorax blackish marked with a pair of ashywhite complete sublateral stripe that covers entire humeral callus in front and vestige of another pair of similarly coloured stripes in between the former pair but restricted only to humeral region; scutellum on dorsum variably shiny white while abdomen also variably marked with similar or shiny yellow stripes, sublateral proximally, but turning lateral apically; thorax and abdomen of more mature specimens almost entirely appear shiny white; legs blackish brown with flexor surfaces of tibiae paler; squamae pale yellowish, veins yellow but costa blackish along anterior margin; epaulette and basicosta blackish. Body tyre blackish gray.

**Body length :** 10.0 13.0 mm.

**Material studied :** Extera limital : Holotype ♂: West Bengal : Darjeeling (Rangiroom), 2. x. 1978, coll. A.N.T. Joseph (Regd. No. 8366/H6); Paratypes: 11 ♀♂ : 3 exs, same data as the Holotype (Regd. No. 8367-8369/H6); 1 ex. 30. ix. 1978 (Regd. No. 8374/H6) and 4 exs, 3. x. 1978 (Regd. No. 8370-8373/H6); other date as for the Holotype; 1 ex, Darjeeling (Lava), 9. x. 1978, coll. A. N. T. Joseph (Regd. No. 8375/H6); 2 exs, Sikkim; 1 ex, Ramtek, 21. ix. 1978, coll. A.N.T. Joseph (Regd. No. 8376/H6); 1 ex. Rabangla, 8. x. 1988, coll. V. C. Agarwal (Regd. No. 8377/H6)

**Comparison :** The present species comes close to *Estheria (Parestheria) magna* Baranov and *E. (P) flavipennis* Herting. It differs from the former in the shape proboscis [narrower and more elongated haustellum, both in relation to width of haustellum (4.6-7.0 vs 3.8-4.5 times) and head height (0.39-0.73 vs 0.32-0.35 times)] and much shorter labela (0.12-0.22 vs 0.50-0.55 times of haustellum length), situation of m-cu (being closer to M-bending than m-cu) and in having longer front claw (1.7-2.5 vs 1.15-1.25 of last tarsal segment). It differs from *E. (P) flavipennis* in having shorter labela (0.12-0.22 vs 0.32-0.40 times of haustellum length), blackish brown (vs brownish yellow or yellowish brown) probocis, epaulette and basicosta, blackish (vs yellowish) gray body tyre and nature of the abdominal markings.

**Distribution :** India : Sikkim (east) and West Bengal.
2. **Estheria (Parestheria) magna** Baranov


**Remark**: Originally described from Japan, the species was reported from Sikkim by Crosskey (1960).

**Distribution**: India : Sikkim, Assam. Outside India : Japan, Nepal, Thailand.

Subfamily **PHASIINAE**

Tribe **Cylindromyiini**

**Diagnostic characters**: Head with broad frons and procinate orbital setae in either sex; facial carina not developed. Pre-alar and second supra-alar setae usually present; 3 dc and 1 or 2 ia; 2 or 3 pairs of scutellar marginals; wings not marked with black bands; lower calypter evenly rounded on hind margin; bend of vein M sharply and strongly curved; femora without ventral spine combs; hind coxae widely separated from abdominal base. Abdomen nearly elongated, subcylindrical; abdominal sternites 2-4 concealed or partially exposed.

**Key to the genera**

1. Vibrissae weak or hair-like. Abdominal tergites T3, T4 and T5 with a pair of erect, median discal setae each ...............................................
   - Hermya Robineau-Desvoidy
   - Vibrissae very strong. Abdominal tergites without median discal erect setae ..................
     - Lophosia Meigen.

Genus **Hermya** Robineau-Desvoidy


Genus **Lophosia** Meigen

1824. *Lophosia* Meigen, **Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten,** 5 : 216.

**Distribution**: 'Bengal' China, India, Indonesia, Laos, Malaysia, Philippines, Taiwan.

4. **Lophosia felder**i Brauer & Bergenstamm


Material examined: 2 exs, no other data, coll. A. V. Knyvett.

Diagnostic characters: Large in size. Black, face and frons shiny silvery white and basolateral spots of similar colour on abdominal segments T₁ and T₃ extending nearly half way to apex and narrowly confluent ventrally. One prcl orbital setae. Two humerals, three sternopleurals forming a triangle, O+O acr, 2+3 dc, 1 post ia, and 3 scutellar marginal setae; a tuft of hairs on metapleuron immediately above the base of hind coxae. Squammae creamy yellow adorned with fine hairs; cell 5 open. Abdominal tergites with fine black coating but without large discal or marginal setae.

Length: body: 16.00-18.00 mm; wing: 14.00-16.00 mm.

Distribution: India: Sikkim.

Subfamily TACHININAE

Key to the genera

1. Hind caxae with fine soft hairs on posterodorsal surface ............................................ Tachinini
   - Hind caxae bare on posterodorsal surface ................................................................. 2

2. Palpi fully developed and longer than third antennal segment. 3 or 4 post dc; M₂ appendix present or absent. Usually with metallic, blue, green or violet colouring............... Ernestiini
   - Palpi vestigeal or absent. 3 post dc; M₂ appendix present. No metallic colouring ...... ........................................ Linnaemyini

Tribe Tachinini

Key to the genera

1. Scutellum with semierect bunch of discal, subapical setae. T₁₋₂ with bunch of marginal setae on either side of mid-dorsum ............................................. Mikia Kowarz
   - Scutellum with semierect bunch of discal, subapical setae. T₁₋₂ with bunch of marginal setae on either side of mid-dorsum..............

Genus Mikia Kowarz


Distribution: Bangladesh, Bhutan, Canada, China, India, Indonesia, Japan, Malaysia, Myanmar, Taiwan, Thailand, Vietnam.

5. *Mikia tapens* Walker


Material examined: 1 ex, no other data, coll. L de Niceville; 1 ex, Rangat valley (alt. 700'-800'), 21.v. 1916, coll. F.H. Gravely; 1 ex, no other date, coll. E. T. Atkinson.

Diagnostic characters: Massive in built. Ferruginous; face, frons, genae and vertex suffused with varying amount of yellow; thorax on dorsum and venter, legs, but for basal segments, an indistinct mid-dorsal stripe and venter of abdomen black; abdomen on dorsum shiny and may be suffused with red; wings marked by a semi opaque yellowish triangular area extending from base and gradually narrowing along costal border to a point half way to apex. Proboscis shorter than head height; antennae with second segment the longest; frons very broad; orbital setae : pr, cl, 3. re. cl. 1; ocellar setae pr. cl.; beneath head covered with tuft of yellowish hairs. Thorax and abdomen covered with fine black hairs. Humeral setae 4-8 arranged in two rows; posthumeral callus with 2 strong setae; scutellar marginals total 5; the apicals corossing and shorter than the subapicals; subapical row of scutellar almost as large as the apicals; 3 sternopleural setae; M₂ appendix very short and stumpy, but
continued into a dark fold; a few setulae confined to basal node of R_{4+5}; cell 5 open. T_{4} with 3/4 large spines on either side; T_{5} with many such large spines; sternites on each abdominal segment furnished with a crown of 7-8 large, erect spines.

**Length:** body 17.50-19.00 mm; wing: 15.50-18.00 mm.

**Distribution:** Sikkim (west and south), West Bengal. Outside India: Bangladesh, Bhutan, China, Malaysia, Nepal Vietnam, southern U.S.S.R.

**Genus Servillia** Robineau-Desvoidy


**Distribution:** Afghanistan, China, India, Indonesia, Malaysia, Myanmar U.S.S.R., Vietnam.

**Key to the species**

1. Abdomen subovate, marked with black rings on yellow background; pollinosity on terminal segments thin and marked with some black hairs ........................................... *sobria* Walker

- Abdomen ovate marked with mid-dorsal black stripes on yellow background; pollisosity on terminal segments thick and composed only of yellow hairs ...................... *subcinerea* Walker

6. *Servillia sobria* Walker


**Material examined:** 1 ex, Gangtok, 20. iv. 1978, coll. A.N.T. Joseph.

**Distribution:** India: Sikkim (east), Assam, Himachal Pradesh, Kashmir and Tripura. Outside India: China, Indonesia, Malaysia, Myanmar and Pakistan.

7. *Servillia subcinerea* Walker


**Material examined:** 1 ex, no other data, coll. A. V. Knivyett; 1 ex, no other data, coll. L. de Nieceville.

**Distribution:** India: Sikkim. Outside India: Nepal.

**Tribe Linnaemyini**

**Genus Linnaemya** Robineau Desvoidy


**Diagnostic characters:** Eyes hairy; palpi vestigeal and if present, much shorter than third antennal segment. Hisd coxae entirely bare on posterodorsal surface; 3 post dc; setulae on R_{4+5} confined to basal node or extending half way to r-m; bend of vein M usually with an M_{3} appendix.

**Distribution:** Palaearctic, Oriental, Philippines.

8. *Linnaemya picta* Meigen


**Material examined:** 1 ex, Chungthang, coll. T.K. Pal, 1. x. 1993.

**Diagnostic characters:** Size medium. Blackish, face and genae pale, ferruginous; thorax and abdomen with pruinose white patches; scutellum yellowish. Proboscis shorter than head height; palpi very small and much smaller than third antennal segment, clubbed; antennae with third segment the longest; arista simple; reclinate
orbital setae undifferentiated. Humeral setae 5; posthumeral callus with 3 large setae; scutellar marginals total 6, the apical crossing and shorter than subapicals; 3 sternopleural setae; scutellar pollinostity largely yellowish. Setulae at the basal node of R$_{4+5}$ continued along the vein both dorsally and ventrally for about one third to r-m; cell 5 open; bend of vein M with a well developed M$_2$ appendix. T$_3$, T$_4$ and T$_5$ each burnished with two pairs of sublateral (median and apical) relatively long setae; T$_4$ and T$_5$ also provided with additional such setae. Apex of cercus in the form of swollen recurved knob.

Length: 13.00 mm (body), 10.00 mm (wing).

**Distribution**: India: Sikkim (North) and West Bengal. Outside India: Europe, Japan and U.S.S.R.

**Tribe Ernestiini**

**Key to the genera**

1. Non metallic forms, blackish in colour ..................
   Euiritia Robineau-Desvoidy
   - Metallic green, blue or blue-violet forms, often with coppery red tinges .................. 2

2. 1 posthumeral seta; bend of vein M without an M$_2$ appendix ..................................................
   Janthinomyia Brauer & Begenstamm
   - 2 posthumeral setae; bend of vein M with a well developed M$_2$ appendix ..................
   Gymnocheta Robineau-Desvoidy.

**Genus Euiritia** Robineau Desvoidy


**Distribution**: Palaearctic, Oriental.

9. Euiritia indica** sp. nov.
   (Figs. 1-5)

Description: Male: Eyes, antennae, palpi and proboscis blackish brown as also are legs, thorax and abdomen; rest of head shiny whitish, thorax and basal half of T$_3$ very thinly pruinosed white. Palpi not widened, nearly twice as long as third antennal segment; haustellum is nearly thrice as long as labella; third antennal segment is less than parafacial in width and is longer than the second; epistome markedly raised and vibrissae situated far above epistomal margin; eyes hairy and about one and half times as wide as frons in dorsal view; about 12 frontal setae; orbitals absent; outer vertical setae very prominent and a row of prominent black post orbital setae; face and frons naked, genae and palpi hairy; longer, close hairs beneath head. 3+3 acr, 3+3 dorso and 1+3 ia; 1 posthumeral; 4 large and a few small humeral setae, of which main 3 are arranged in a triangle; prealar setae similar to 1st post ia but much smaller than the supraalars; sternopleurals 3, set in a triangle; scutellar total 4; apicals crossing; laterals much stronger and nearly twice as long as apicals; few strong and may fine scutellar discs; prosternum bare; hind coxae bare on posterior surface; mid tibia with 1 V seta; claws strong, subequal to last tarsal segment. Wings: epaulette black, basicosta yellowish, costa black; cell 5 open; no M$_2$ appendix. Cu$_2$ appendix extending nearly to wing margin; apical part of wing as in Fig. 5; squamae creamy white with fine hairs along hind margin. T$_{1+2}$ excavated. excavation reaching apical margin of the segment; T$_{1+2}$ with 3 pairs of discals, T$_1$ with 1 pair of discals and a row of marginal setae; apical segments with increased number of discal and marginal setae. Genitalia as in Figs. 1 and 2.5th abdominal sternite (Fig. 3) deeply notched, black and furnished with a bunch of hairs.

Length : body : 14.00 mm

Female: Thorax and abdomen darker, blackish. 2 prcl and 1 recl orbital setae. T$_1$ and T$_4$ with variably developed faint sublateral spot at base.

Length : body : 10.5 14.0 mm

**Material examined**: Holotype $\sigma$, Sikkim, no other data, coll. Niceville (Regd. No. 8362/H6); Paratype $\sigma$, same data as the Holotype (Regd. No. 8363/H6); Allotype $\varphi$, Sikkim, no other data,
Map of Sikkim showing collection localities
Figs. 1-5: *Eurithia irdica* sp. nov., male; Figs. 1 and 2 genitalia, in dorsal and lateral view respectively; Fig. 3, fifth abdominal sternite; Fig. 4, head in lateral view; Fig. 5, apex of wing.
coll. A. V. Knyvett (Regd. No. 8364/H6); Paratype ♀, extra limital, Darjeeling (West Bengal), 27. ix. 1978, coll. A. N. T. Joseph (Regd No. 8365/H6).

Comparison: This species differs from other species of the genus in the nature of male genitalia; specially the unique shape of cercus and surstylus and also in that of 5th abdominal sternite. Combination of characters, e.g., parafacial wider than third antennal segment, creamy white squamae without black hairs and pollinose abdomen will also help in distinguishing this species from other allied species.

Distribution: India: Sikkim and West Bengal.

Genus Gymnocheta Robineau-Desvoidy


Distribution: Palaearctic, Oriental.

10. Gymnocheta prophyrophora Zimin


Diagnostic characters: Size medium. Metallic green, abdomen coppery; face and parafacial silvery white; genae, frons, vertex and behind head paler metallic green. Eyes hairy; proboscis shorter than head height; palpi clubbed, longer than third antennal segment; antenna with third segment the longest; arista simple; ocellar setae not prominent. Humeral setae 4-5; 2 posthumeral setae; scutellar marginals total 4; 2 sternopleurals; 4 post dc. Excavation of T1+2 barely reaching the hind margin; T3 and T4 with large, posteriorly directed spines on mid dorsum and along posterior margin. Bend of vein M without M2 appendix; cell 5 open; setulae on R4+5 confined to basal node.

Length: body: 12.00 15.00 mm; wing: 11.00-11.50 mm.

Distribution: India: Sikkim (North and East) Uttar Pradesh and West Bengal. Outside India: China and Taiwan.

Genus Janthinomyia Brauer & Bergenstamm


Distribution: China, North India, Taiwan.

11. Janthinomyia felderi Brauer & Bergenstamm


Diagnostic characters: Size medium. Metallic blue, palely so on genae, frons, vertex and behind head; face and frons silvery white. Eyes hairy; proboscis shorter than head height; palpi clubbed, longer than third antennal segment; antenna with third segment the longest; ocellar setae strong; proc1inate. Humeral setae 3, arranged in a triangle; scutellar marginals total 5, of which the apicals are crossing and shorter than subapicals; 1 posthumeral seta; 3 sternopleurals; 4 post dc. Excavation of T1+2 barely reaching the hind margin; T3 and T4 with large, posteriorly directed spines on mid dorsum and along posterior margin. Bend of vein M without M2 appendix; cell 5 open; setulae on R4+5 confined to basal node.

Length: body: 12.00 15.00 mm; wing: 11.00-11.50 mm.

Distribution: India: Sikkim (North and East) Uttar Pradesh and West Bengal. Outside India: China and Taiwan.

Subfamily GONIINAE

Key to the tribes

1. Eyes very large in profile; gena narrow, its
width equal to or even short of the width of the third antennal segment .......... Carcellini

- Eyes only moderately large in profile; gena moderately wide, its width greater than the width of the third antennal segment. ............ Sturmiini.

Tribe Carcellini

Genus Carcelia Robineau-Desvoidy


Diagnostic characters: Eyes hairy. 3 or 4 post dc; scutellum with apical setae horizontal or directed upwards; scutellar discal pre-apical setae present; 2 or 3 sternopleural setae; hind coxae bare or even hairy on posterodorsal surface.

Distribution: Australia, China, India, Indonesia, Malaysia, Myanmar, Sri Lanka, Taiwan, Tanzania, Thailand.

Subgenus Carcelia Robineau-Desvoidy

Diagnostic characters: Humeral callus with the 3 main setae usually standing in a line, the middle one sometimes placed slightly forwards; scutellum with lateral setae weaker than basal setae; apical scutellar setae horizontal or directed upwards; subapical scutellar setae widely spaced, distance between their base subequal to that between a subapical seta and its corresponding basal seta; hind coxae with 1 or more fine setulae on the posterodorsal surface; mid tibia usually with one submedian anterodorsal seta, rarely with a second one further basad. Intermediate abdominal segments without discal setae.

Distribution: Australia, India, Indonesia, Malaysia, Myanmar, Sri Lanka, Taiwan, Thailand.

11. Carcelia carcelia sumatrana Townsend


Diagnostic characters: Size medium. Blackish grey, yellowish on face, interferons, scutellum, tibiae and abdomen, latter marked by a broad, mid-dorsal black stripe somewhat obscure on T4, but on T3 covering the segment almost entirely. Eyes very broad and densely hairy; genae narrow, barely subequal to third antennal segment; proboscis shorter than height of head; palpi clubbed, shorter than third antennal segment; parafrontals not approximated. 3 humeral setae disposed in a curve; 4 post dc; pre-apical setae strong and longer than first post dc; scutellar total 4 or 5, the apical crossing, directed a little upwards, shorter than subparallel subapicals; 3 sternopleural setae. Cell 5 open; bend of vein M without M2 appendix; setulae on R4+5 confined to basal node. Abdomen rather short, suboval, furnished with small and irregularly disposed large setae; T1+2 excavated at hind margin.

Length: body: 10.00 mm; wing 9.00 mm.


Tribe Sturmiini

Key to the genera

1. Facial ridge setose on most of its height. Prosternum bare .......... Blepharella Macquart

- Facial ridge bare but for a few setulae near vibrissae. Prosternum setulose .................

........................................ Blepharipa Rondani

Genus Blepharella Macquart


Distribution: Australia, China, India, Indonesia, Malaysia, New Guinea, Sri Lanka, Solomons, Taiwan and Vietnam.
12. **Blepharella lateralis** Macquart


*Diagnostic characters*: Size medium. Blackish; scutellum, ferruginous; face, frons, fine basal rings on T₁ and T₄ and basal half of T₅ pruinose. Proboscis shorter than head height; palpi subequal to third antennal segment; antenna with third segment the longest; eyes large; genal depth greater than width of the third antennal segment; facial ridge setose on most of its height; ocellar setae undifferentiated; 2 reclinate orbital setae. 4 humeral setae, of which main 3 situated almost in a line, the fourth one placed a little forward; 4 *post dc*; 3 sternopleural setae; preapical setae strong and longer than first *post dc*; sternum bare; scutellar total 5, the apical short, stumpy; subapical much longer, subparallel and quite close to each other, their distance shorter than the distance between one subapical and its corresponding basal setae; no scutellar discal setae; mid-tibiae with a series of anterodorsal setae of which 3 or 4 longer than the rest. Cell 5 open; bend of vein M without appendix; setulae on R₅, confined to basal node. T₁₋₃ excavated at hind margin; abdomen mostly covered with fine setae, but on T₅ the setae are large and closely set.

*Length*: body : 12.00 mm; wing : 9.00 mm.

*Distribution*: India: Sikkim (North), Andhra Pradesh, Assam, Kerala, Karnataka, Pondicherry, Tamil Nadu and Uttar Pradesh. Outside India: Australia, China, Indonesia, Malaysia, Solomons, Sri Lanka, Taiwan and Vietnam.

**Genus Blepharipa** Rondani


*Distribution*: Palaearctic, Oriental, Molucca, New Guinea, Philippines.

**Key to the species**

1. Size large, abdomen 18.00 mm or more in length
   - Size small or medium, abdomen 16.50 mm or less in length ................................................. 2

2. Proboscis short, about one third the head height ............................... *jacobsoni* Townsend
   - Proboscis relatively large and more than half the head height ...................... *zebina* Walker

13. **Blepharipa fusiformis** (Walker)


14. **Blepharipa jacobsoni** Townsend


*Material examined*: 1ex, Rongpo, 6.ix. 1909, coll Museum collector.

*Distribution*: India: Sikkim (East). Outside India: China, Japan and Indonesia (Sumatra).

15. **Blepharipa zebina** (Walker)


*Distribution*: India: Sikkim (North), Assam, Bihar, Kerala, Punjab Tamil Nadu and Uttar Pradesh.
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SUMMARY

Two new species, viz., Estheria (Parestheria) intermedia and Eurithia indica are described from the Sikkim state of the Indian union and another nine species, viz., Hermia beelzebul (Wiedemann), Lophosia felder (Brauer and Bergenstamm), Servilia sobria Walker, S. subcinerea Walker, Linnaemyia picta Meigen, Carcelia sumatrana Townsend, Blepharella latealis Mc. Quart., Blpharipa jacobsoni Townsend and B. zebina (Walker) are recorded for the first time from the area. A comprehensive list of all the 15 tachinid species know from the state is provided in the text together with collection data for the species studied, keys for identification of various taxa and their outline distribution.

REFERENCES


LAHIRI, A. R. 2000. Diptera : Taxinidae In Fauna of Tripura, State Fauna Ser. 7 Zoological Survey of India, Calcutta:
INTRODUCTION

The family Muscidae is one of the most diversified and economically important group of the Calyptrate Diptera belonging to the suborder Cyclorrhapha. Adult Muscidae are generally small to medium sized flies and seldom exhibit any striking developments of colour or form (Pont, 1972). Adults may be predaceous (subfamilies Coenosiinae and Limnophorinae), saprophagous (subfamily Muscinae), pollenophagous (most of the subfamilies) or haematophagous (subfamily Stomoxyinae). Females are typically oviparous, few are also larviparous. Larvae have varied habits being saprophagous, parasitic and phytophagous.

Muscid fauna from Sikkim has not been known in detail. Emden (1965) recorded 8 species in the “Fauna of India and the adjacent countries” Pont (1981) reported 20 species in ‘A catalogue of Diptera of the Oriental region’ and his subsequent publication.

However, the present paper is based on the collections of the scientists of the Zoological Survey of India, Calcutta as well as the previously available information. The collections were made by A.K. Hazra (1992), A.R. Lahiri (1992), M. Sil (1992), R.S. Mridha (1992), S.R. Banerjee (1992), S.K. Saha (1993), B.C. Das (1994) and B. Mitra (1998).

The present paper reports twenty two species belonging to 11 genera under 6 subfamilies, of which two species under two genera reported for the first time from this state. The taxonomical keys of subfamilies, genera, etc. have been followed after Vockeroth (1972), Shinonaga and Singh (1994).

GENERAL MORPHOLOGY

Morphological characters of taxonomic importance are dealt in detail in the ‘Fauna of Tripura’ by B. Mitra (in press).

SYSTEMATIC LIST

Subfamily MUSCINAE

1. Musca (Byomya) sorbens Wiedemann
2. Musca (Eumusca) hervei Villeneuve
3. Musca (Musca) domestica Linnaeus
4. Musca (Viviparomusca) bezzi Patton and Cragg
5. Musca (Viviparomusca) convexifrons Thomson
6. Orthellia claripennis Malloch
7. Orthellia gavisa (Walker)
8. Orthellia indica (Robineau-Desvoidy)
9. Orthellia timorensis (Robineau-Desvoidy)
10. Orthellia viridis (Wiedemann)
11. Muscina pascuorum (Meigen)

Subfamily PHAONIIINAE

12. Atherigona (Atherigona) alpha Pont
13. Atherigona (Atherigona) revversura Villeneuve
14. Dichetomyia bibax Wiedemann
15. Dichetomyia quadrata (Wiedemann)
16. Gymnodia lasiopa Emden
Map Showing the different collection localities in the state of Sikkim
MITRA: *Insecta: Diptera: Muscidae*

Subfamily MYDAEINAE

17. *Myospila bina* (Wiedemann)

Subfamily LIMNOPHORINAE

18. *Lispe orientalis* Wiedemann
19. *Lispe sericipalpis* Stein

Subfamily COENOSIINAE

20. *Coenosia humilis* Meigen
21. *Orchisia costata* (Meigen)

Subfamily STOMOXYINAE

22. *Stomoxys calcitrans* (Linnaeus)

**MATERIAL AND METHOD**

Material and method of collections are also dealt in Fauna of Tripura by B. Mitra (in press).

**SYSTEMATIC ACCOUNT**

**Key to the subfamilies**

1. Proboscis elongate, strongly sclerotized, adapted for piercing, tapering from a broad base to a slender apex and with atrophied labella; pteropleuron haired; vein $M_{1+2}$ gradually curved forward apically from about middle of last section .................................................. STOMOXYINAE

= Proboscis moderately weakly sclerotized, not distinctly tapering to apex and with well developed and often fleshy labella; pteropleuron haired or bare; vein $M_{1+2}$ variable, often straight or sharply curved forward near middle of last section ................................................................. 2

2. Pteropleuron at least with a few fine hairs.. .................................................. 3

= Pteropleuron bare .................................................. 6

3. Pteropleuron with strong hairs along upper margin below base of wing, often with distinct hairs on lower half also; parafacial bare ...... .................................................. 4

= Pteropleuron with only a row or tuft of a few fine rather short hairs on posterior part of lower half above posterior sternopleural bristle; parafacial usually with fine short hairs throughout its length .... LIMNOPHORINAE

4. Vein $M_{1+2}$ with apical portion curved strongly forward at about middle length; body colour grey to black and often metallic .................. .................................................. MUSCINAE

= Vein $M_{1+2}$ straight or curved only slightly forward; body non-metallic in colour ......... 5

5. Pteropleuron with hairs confined to upper margin below wing base; prosternum bare; hind spiracle without strong black setae in marginal fringe ........................................................................... MYDAEINAE

= Pteropleuron with hairs on lower as well as on upper half, prosternum haired; hind spiracle with few to many strong black setae in marginal fringe ........................................................................... PHAONIINAE (Dichaetomyia)

6. Hind tibia with 2 posterodorsal bristles at about $1/3$rd and $2/3$rd tibial length; lower stigmatic bristle directed downward; at least 1 presutural and 3 postsutural dorsocentral bristles distinct; much longer and stronger than mesonotal hairs; arista often long plumose ............................................. .................................................. COENOSIINAE

= Hind tibia with a single posterodorsal at about $2/3$rd tibial length, lower stigmatic bristle not directed downward; at most last 2 postsutural dorsocentral distinct, other scarcely separable from rather setulose mesonotal hairs; arista bare or nearly so .......................................................... PHAONIINAE (Atherigona, Gymnodiia)

Subfamily MUSCINAE

**Key to the genera**

1. Suprasquamal ridge with black setulose hairs on posterior part; bend of vein $M_{1+2}$ angular or in a gentle curve ............................................. Orthellia Robineau-Desvoidy

= Suprasquamal ridge bare, bend of vein $M_{1+2}$ subangular .................................................. 2
2. Mid tibia with pv setae; vein M_{1+2} sharply bending anteriorly. \textit{Musca} Linnaeus

- Mid tibia without pv setae; hypopleuron setulose just above coxa and vein M_{1+2} broadly rounded. \textit{Muscina} Robineau-Desvoidy

Genus \textit{Musca} Linnaeus


Type-species: \textit{domestica} Linnaeus

Key to the subgenera

1. Propleural depression hairy ...................... \textit{Musca} Linnaeus

- Propleural depression bare .......................... 2

2. Suprasquamal ridge bare .......................... \textit{Byomya} Robineau-Desvoidy

- Suprasquamal ridge setulose ..............................

3. Suprasquamal ridge setulose only anteriorly .......................... \textit{Eumusca} Townsend

- Suprasquamal ridge setulose only posteriorly \textit{Viviparomusca} Townsend

Subgenus \textit{Byomya} Robineau-Desvoidy


Type-species: \textit{violacea} Robineau-Desvoidy

1. \textit{Musca (Byoma) sorbens} Wiedemann


Diagnosis: Thorax shining black, with a broad glossy black vitta on either side, more or less bifurcated anteriorly, especially in females; 1 acr, 2+4–6 dc, anterior post dc often small in males, if more than 4.

Distribution: Sikkim (North, South) Arunachal Pradesh, Andhra Pradesh, Assam, Bihar, Goa, Tamil Nadu, Uttar Pradesh, West Bengal; China, Christmas Island, Cocos Island, Flores Island, Jawa, Lombok, Malay, Maldives Islands, Myanmar, Nepal, Pakistan, Penel Endeh, Philippines, Ryukyu Islands, Simeulue Island, Sumatera, Sumbawa, Sri Lanka, Taiwan, Talud Islands, Thailand; Ethiopian; Hawaii, Micronesia, South Palaeartic

Remarks: This is the first report from this state.

Subgenus \textit{Eumusca} Townsend


Type-species: \textit{corvina} Fabricius

2. \textit{Musca (Eumusca) hervei} Villeneuve


Diagnosis: Fuscous-black; thorax with four conspicuous rather broad vittae, 1 acr, 2+4 strong dc, pleural setae normal; anterior end of suprasquamal ridge with some erect black setulae.

Distribution: Sikkim, Assam, Himachal Pradesh, Punjab, West Bengal; China, Myanmar, Nepal, Sri Lanka, Vietnam; Japan, Ogasawara Gunto (Bonin Islands), Caroline Islands.

Subgenus \textit{Musca} Linnaeus


Type-species: \textit{Musca domestica} Linnaeus

3. \textit{Musca (Musca) domestica} Linnaeus


**MITRA : Insecta : Diptera : Muscidae**


**Diagnosis**: Four black vittae on thorax, inner pair terminating towards posterior end, propleural depression with fine setulose hair; suprasquamal ridge without black setulae, all post dc strong; mid tibia without av and ad setae.

**Distribution**: Sikkim (South, West and East), Andaman Islands, Andhra Pradesh, Assam, Bihar, Goa, Himachal Pradesh, Karnataka, Kashmir, Maharashtra, Punjab, Tripura; Cosmopolitan.

Subgenus *Viviparomusca* Townsend


Type-species: *bezzi* Patton and Cragg.

**Key to the species**

1. Eyes distinctly hairy .............................................
   - Eyes with sparse minute hairs ................................
     *convexifrons* Thomson

2. Prsc acr absent or indistinct, post ia almost always absent; body less robust; wing hairs spread over a large part, especially more or less whole anterior length ........................................
   - Prsc acr distinct, post ia almost always present; body stout; on the wing hairs restricted to a smaller part of apex of discal cell ..........................
     *gavisa* (Walker)

3. Thorax with a pair of strong prst acr and 3 pairs of post dc; M_{1+2} with deep behind bend, wing entirely hairs; antennae black to fuscus, parafrontalia shining blue green, interfrrontalia narrower than parafrontalia ..........................
   - Discal cell wholly hairy, M_{1+2} usually without a deep behind bend; mesonotum either conspicuously dusted in front or with only 3 post dc, anterior two subequal; mid tibia without an ad seta........................................
     *timorensis* (Robineau-Desvoidy)

4. Discal cell wholly hairy, M_{1+2} usually without a deep behind bend; mesonotum either conspicuously dusted in front or with only 3 post dc, anterior two subequal; mid tibia without an ad seta........................................
   - Discal cell with a bare strip, M_{1+2} with a distinct deep behind bend; mesonotum not markedly dusted in front and with more than 3 post dc,
anterior 2-4 inconspicuous ..........................................
........................................... indica (Robineau-Desvoidy)

6. **Orthellia claripennis** Malloch


*Distribution*: Sikkim (East), Arunachal Pradesh, Assam, Bihar, Karnataka, Kerala, Tamil Nadu, West Bengal, Jawa, Lombok, Malaya, Nepal, Philippines, Sumatera, Sumbawa.

7. **Orthellia gavisa** (Walker)


*Distribution*: Sikkim (South), Assam, Himachal Pradesh, Kashmir, Punjab, Uttar Pradesh, West Bengal; Jawa, Nepal, Pakistan, Simeule Island, Sumatera, Tamaon Island.

8. **Orthellia indica** (Robineau Desvoidy)


*Distribution*: Sikkim (North and South), Andaman Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Madhya Pradesh, Maharashtra, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal; Jawa, Laos, Malay, Myanmar, Philippines, Ryukyu Islands, Sumatera, Sumbawa and Thailand.

Remarks: This is the first report from the state of Sikkim.

9. **Orthellia timorensis** (Robineau-Devvoidy)


*Distribution*: Sikkim (North, South, West), Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Kerala, Tamil Nadu, Orissa, Uttar Pradesh, West Bengal; Bangladesh, China, Dammar Islands, Flores Island, Jawa, Malaya, Myanmar, Nepal, Philippines, Ryukyu Islands, Simeule Island, Sulawesi, Sumatera, Taiwan, Thailand, Vietnam, Japan, Papuan Subregion.

10. **Orthellia viridis** (Wiedemann)


*Distribution*: Sikkim (North and East), Himachal Pradesh, Kashmir, Punjab, Uttar Pradesh, West Bengal; China, Nepal, Pakistan, Tibet, Hawaii, Holarctic.

11. **Muscina pascuorum** (Meigen)


Diagnosis: Fuscous-black with apical part of scutellum and in males lateral parts of abdomen dull rufous translucent, thorox with 3 + 2 acr, 2-3 + 4 dc, 2 ia. 3 humerals.
MITRA: *Insecta: Diptera: Muscidae*

**Distribution**: Sikkim (West), Assam, West Bengal; Pakistan, Holarctic.

**Subfamily** PHAONIINAE

**Key to the genera**

1. Metathoracic spiracles with strong bristles on anterior margin .......... *Dichaetomyia* Malloch
   - Metathoracic spiracles without strong bristles

2. Hind tibia with a single postero-dorsal bristle at about 2/3 tibial length, at most last 2 post sutural dorsocentral distinct. ............ .................. *Atherigona* Rondani
   - Hind tibia without postero dorsal bristle, 2 post dc ............ *Gymnodia* Robineau-Desvoidy

**Genus Atherigona** Rondani


Type-species: *Anthomyia varia* Meigen.

**Subgenus Atherigona** Rondani

1. Fore tibia yellow only on basal quarter to fifth; fore femur darkened on apical half; tergite 5 always unmarked; hypopygial prominence with two lateral arms situated on a small knob arising from tergite, and not so broadly separated; trifoliate process with stalk of uniform width; shoulders well-developed; median piece rather sinuous or angled at apical quarter in lateral view .................
   - Ventral surface of scutellum without fine pale golden hairs (sometimes lower part of lateral surface with a few black hairs); 4 post .........
   - Ventral surface of scutellum with fine golden hairs, scutellum setulose laterally; 3 post ........

14. *Dichaetomyia bibax* (Wiedemann)


**Distribution**: Sikkim (North), Assam, Himachal Pradesh, Uttar Pradesh, West Bengal; China, Jawa, Malaya, Myanmar, Philippines, Ryukyu Island, Sabah, Sumatera, Taiwan, Japan.

15. *Dichaetomyia quadrata* (Wiedemann)


**Distribution**: Sikkim (North), Assam, Tamil Nadu; China, Flores Island, Jawa, Lombok.
Malaya, Myanmar, Philippines, Ryukyu Islands, Sarawak, Simeulue Island, Sri Lanka, Sumatera, Taiwan, Melanesia.

Genus Gymnodia Rohineau-Desvoidy


Type-species: partensis Rohineau-Desvoidy.

16. Gymnodia lasiopa Emeden


Diagnosis: Fuscous black with brown dust; in males long and erect prst acr, prsc indistinct or small, 2 + 4 strong dc.

Distribution: Sikkim, Himachal Pradesh, Punjab, Myanmar.

C. Subfamily MYDAEINAE

Genus Myospila Rondani


Type-species: Musca meditabunda Fabricius.

17. Myospila bina (Wiedemann)


Diagnosis: Black with rather dense grey, in places somewhat greenish or bluish-grey dust and pale testaceous antennae; thorax with the four vittae slightly more distinct; wings with apical part at more strongly upcurved.

Distribution: Sikkim (South), Bihar, Himachal Pradesh, Tamil Nadu, West Bengal; Bangladesh, China, Java, Malay, Myanmar, Philippines, Sri Lanka, Sumatera, Taiwan, Timor.

D. Subfamily LIMNOPHORINAE

Genus Lispe Latreille


Type-species: Musca tentaculata (De Geer)

Key to the species

1. Body non-metallic, greyish brown to grey pollinose, third antennal segment black or dark brown, ventral surface of fore femur without strong bristles; medium-sized species .............. sericipalpis Stein

- Body non-metallic, greyish brown to grey pollinose, third antennal segment black; palpi yellow or orange at least apices, hind metatarsus normal; body yellowish grey or ashy grey, cell R3 not narrow apically .................. orientalis Wiedemann

18. Lispe orientalis Wiedemann


Distribution: Sikkim (North, South & East), Assam, Bihar, Himachal Pradesh, Madhya Pradesh, Uttar Pradesh, West Bengal; China, Flores Island, Malaya, Myanmar, Pakistan, Sri Lanka, Sumatera, Taiwan, Japan.

19. Lispe sericipalpis Stein


Distribution: Sikkim, Himachal Pradesh, Uttar Pradesh, West Bengal; Bali, Taiwan, Java, Lombok, Myanmar, Nepal, Sri Lanka, Sumatera.
E. Subfamily COENOSINAE

Key to the genera

1. Head with 1 pair of reclinate frontal bristles (ori); hind tibia usually with 1 ad (sometimes absent) ........................................ Coenosia Meigen
   - Head with 2 pairs of reclinate frontal bristles; hind tibia with 2 ad seta ........................................... Orchisia Rondani

Genus Coenosia Meigen

Type-species: Musca tigrilla Fabricius

20. Coenosia humilis Meigen


Distribution: Sikkim, Tamil Nadu, Himachal Pradesh, Uttar Pradesh, West Bengal; Flores Island, Jawa, Lombok, Nepal, Sri Lanka, Sumbawa; Ethiopian; Palaearctic.

Genus Orchisia Rondani

Type-species: Sapromyza costata Meigen

21. Orchisia costata (Meigen)


Distribution: Sikkim, Assam; China, Flores Island, Nepal, Pakistan, Philippines, Sri Lanka, Taiwan; Australasian; Ethiopian; Palaearctic.

Subfamily STOMOXYINAE

Genus Stomoxys Geoffroy

Type-species: calcitrans (Linnaeus)

22. Stomoxys calcitrans (Linnaeus)


Diagnosis: Propleural depression and hypopleuron embossed with erect setulose hairs, apex of proboscis slender; stpl 0 + 1; arista pectinate dorsally.

Distribution: Sikkim (East, West and South), Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Kerala, Maharashtra, Orissa, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal; Bali, Bangladesh, China, Jawa, Malaya, Myanmar, Nepal, Pakistan, Philippines, Simeulue Island, Sri Lanka, Sulawesi, Sumatera, Sumbawa, Taiwan, Thailand, Vietnam; Cosmopolitan.

DISCUSSION

The distribution pattern of 22 species of the Muscidae so far known in the state of Sikkim shows that all the species are predominantly Oriental in distribution. Of them, 6 species (27%) are restricted to the Oriental region, whereas the remaining 16 species (73%) extend beyond the limit of this region.

The Sikkimese Muscidae are known to have 11 genera. Of these genera Orthellia (5 species) and Musca (5 species) have shared the major bulk of the fauna, whereas Atherigona (2 species), Dichactomyia (2 species), Lipse (2 species), Coenosia (1 species), Gymnadia (1 species), Orchisia (1 species), Muscina (1 species).
Stomoxys (1 species) and Myospila (1 species) have registered below one half only.

However, the species restricted only to the Oriental region are Orthellia claripennis Malloch, O. indica (Robineau-Desvoidy), Dichaetomyia quadrata (Wiedemann), Myospila bina (Wiedemann), Lispe sericipalpis Stein and Gymnodia lasiopa Emden. Of the two species of Orthellia, claripennis is distributed throughout Malay, Sumatera, Jawa as far as Philippines. And indica extends towards Myanmar, Laos, Thailand and Sumatera in the south, and Philippines in the east. Among the other 4 species of this region, Dichaetomyia quadrata and Myospila bina are distributed in all three subregions: Indian subregions, Indo-Chinese and Indo-Malayan whereas Lispe sericipalpis is distributed in Sri Lanka and Myanmar in the Indian subregion in addition to the Indo-Malayan subregion. Gymnodia lasiopa is extends its range out side India upto Myanmar.

The other 3 species of the genus Orthellia, gavisa (Walker) and timorensis (Robineau-Desvoidy) have advanced towards the Palaearctic region. and viridis (Wiedemann) furthermore to the Holarctic region.

The only other five member group of the genus Musca, found in Sikkim is certainly distributed throughout the Oriental and the Palaearctic regions except Musca (Byomya) sorbens that extends its range towards the Ethiopian region and Micronesia as well as Hawaii and Musca (Musca) domestica is distributed throughout the globe, like Stomoxys calcitrans, the lone species of the Stomoxysinae.

However, Lispe orientalis, Dichaetomyia bibax and Atherigona (Atherigona) reversura are restricted to their distribution within the Oriental and the Palaearctic regions. To be precise, Atherigona (Atherigona) reversura shows its distribution only in the Indian and Indo-Malayan subregions, whereas the other two species do it in all three subregions.

The other species of the genus Atherigona, Atherigona (Atherigona) alpha extends its range only up to Myanmar of the Oriental region with a long bound over the rest of the region to the Australian region.

Both the species of the subfamily Coenosinae, Orchisia costata and Coenosia humilis are distributed also in the Oriental, the Palaearctic and the Ethiopian regions on either side, but the former extends its range furthermore the Australian region, whereas Orchisia costata is distributed only in the Indian and Indo-Malayan subregions. Coenosia humilis Meigen distributed only in the Indian and Indo-Chinese subregions of the Oriental region. Finally, Muscina pascuorum seems to be originated in the Holarctic regions, extending its range southward in the Himalayan belt.

From the above analysis of the numerical strength of species in the Sikkim, it appears majority of the species have their strong affinities to that of Indo-Malayan subregion (17 spp.) rather than Indo-Chinese subregion (14 spp) within the Oriental region and outside the Oriental region, the Palaearctic region (14 spp) claims much more than the Australian (4 spp) and the Ethiopian (5 spp) regions.

But this zoogeographical analysis, however remains tentative due to poor collection of Muscid fauna from the state. So, it may need still a thorough and intensive exploration for a fuller knowledge on the speices diversity of the family Muscidae.

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