

INSECTA : ORTHOPTERA

By

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INTRODUCTION

(With 8 Figures)

Bolivar (1902 & 1918), Hancock (1912, 1913 & 1915), Kirby (1914), Hebard (1929), Uvarov (1929), Henry (1940), Singh & Kevan (1965), Chopard (1969), Tandon & Shishodia (1969 & 1972), Biswas *et al.* (1975), Tandon & Khera (1978), have dealt with the taxonomy on Indian grasshoppers and crickets (Orthoptera) but Fauna of Namdapha, Tirap district of Arunachal Pradesh has not been studied so far. Present paper deals with 36 species, out of which 9 species are new record for the area. Some of the species are identified upto the generic level only, either due to their nymphal stage, or damaged condition or lack of sufficient material. Distributional record of every species has been provided.

Present study will add to our knowledge of the fauna of Orthoptera recorded from Arunachal Pradesh. We feel that there may still be a number of species of Orthoptera occurring in Namdapha area which have not been collected and described as yet.

SYSTEMATIC ACCOUNT

Suborder : CAELIFERA

Superfamily : ACRIDOIDEA

Family : PYRGOMORPHIDAE

1. *Tagasta indica* Bolivar

1905. *Tagasta indica* Bolivar, *Bol. Soc. esp. Hist. nat.*, 5 : 112, 113.

Material examined : 1 ♂, Deban, 27 kms. east of Miao, 10.xii.1982 ; 2 ♂ ♂, Gibbon's land, 16 kms. east of Miao, 25.xii.1982.

Distribution : India ; Bhutan.

In India this species has also been studied from West Bengal, Assam, Manipur and Tripura.

Remarks : The present material agrees well with the description provided by Kirby (1914).

2. *Atractomorpha burri* Bolivar

1905. *Atractomorpha burri* Bolivar, *Bol. Soc. esp. Hist. nat.*, 5 : 197, 203.

1969. *Atractomorpha burri*, Kevan & Chen, *Zool. J. Linn. Soc.*, 48 : 158, 160, 193.

Material examined : 1 ♀, Hornbill, 11.iv.1981 ; 1 ♀, Gibbon's land, 10th milepost from Miao, 2.v.1981 ; 1 ♀, Miao, 21.xii.1982 ; 1 ♂, Gibbon's land, 20.xii.1982 ; 1 ♀, Gibbon's land, 16 kms. east of Miao, 26.xii.1982.

Distribution : South East Asia including east Nepal, Bhutan, Bangladesh, North East India, to Malaya, Indo-China and probably South East China ; Mergui Island.

In India this species has also been studied from Sikkim, Assam, Manipur and West Bengal.

Remarks : Body form broad, stout and rather short than the other species of the genus ; lateral pronotal lobe without a membranous area ; postocular tubercles distinct and regularly arranged ; posterior margin of pronotal disc angular ; external face of posterior femora convex and strongly keeled.

Family : ACRIDIDAE

3. *Acrida exaltata* (Walker)

1859. *Truxalis exaltata* Walker, *Ann. Mag. nat. Hist.*, (3) 4 : 222.

1914. *Acrida exaltata*, Kirby, *Fauna British India, Orthoptera, Acridiidae* : 99.

Material examined : 1 ♀, Miao, 4.xii.1982.

Distribution : South Asia.

In India this species is recorded from Uttar Pradesh, Arunachal Pradesh, Bihar, Rajasthan, Jammu and Kashmir, Kerala and Tamil Nadu. It is also studied from Himachal Pradesh, Punjab, West Bengal, Sikkim, Assam, Meghalaya, Madhya Pradesh, Gujarat, Orissa, Maharashtra, Andhra Pradesh, Manipur in India and from Bangladesh.

Remarks : A very common species found in and around cultivated fields, bare grounds, grassy lands etc., but never in thick forest.

4. *Phlaeoba infumata* Brunner

1893. *Phlaeoba infumata* Brunner, *Annali Mus. Civ. Stor. nat. Giacomo Doria*, 33 : 124.

1914. *Phlaeoba infumata*, Kirby, *Fauna British India, Orthoptera, Acridiidae*, : 103.

Material examined : 1 ♂, 1 ♀, Deban, 2.iv.1981 ; 1 ♂, Deban, 24 kms. from Miao, 7.iv.1981 ; 1 ♂, 1 ♀, Hornbill, 14.iv.1981 ; 1 ♂, Miao

(at light), 5.v.1911 ; 1 ♂, 1 ♀, Miao Reserve Forest, Miao, 1.xii.1982 ; 1 ♂, Deban, 27 kms. east of Miao, 8.xii.1982 ; 1 ♀, Gibbon's land, 21.xii.1982.

Distribution : India ; Burma.

In India it is recorded from Madhya Pradesh, Arunachal Pradesh, and West Bengal.

It is also studied in India from Himachal Pradesh, Haryana, Punjab, Uttar Pradesh, Orissa, Tripura, Meghalaya and Mizoram and also from Bangladesh.

Remarks : A very common species found generally in or around cultivated fields. Antennae of the species are unicoloured and the wings have smoky colouration at apex.

5. *Phlaeoba antennata* Brunner

1893. *Phlaeoba antennata* Brunner, *Annali Mus. Civ. Stor. nat. Giacomo Doria*, 33 : 125, pl. 5, fig. 49.

1914. *Phlaeoba antennata*, Kirby, *Fauna British India, Orthoptera, Acridiidae*, : 102.

Material examined : 1 ♂, 1 ♀, Miao Reserve Forest, Miao, 1.xii.1982.

Distribution : India (Assam, Arunachal Pradesh, Rajasthan) ; Bangladesh ; Burma ; Malaya Peninsula ; Andalus ; Kalimantan.

It has also been studied from Uttar Pradesh, West Bengal, Assam in India.

Remarks : This species generally occurs in or around thick forest. A broad yellow band runs from the vertex to the end of the elytra, at least in the male.

6. *Phlaeoba assama* Ramme

(Fig. 1)

1941. *Phlaeoba assama* Ramme, *Mitt. zool. Mus. Berl.*, 25 (1940) : 9.

Material examined : 1 ♀, Miao, 30.xi.1982, 3 ♀ ♀, Zero Camp, 30 kms. North East of Miao, 14.xii.1982.

Distribution : India (Assam).

Remarks : Recorded here for the first time from Arunachal Pradesh. This species closely resembles with *Phlaeoba sikkimensis* Ramme but differs by the fastigium which is longer than broad and acutely rounded in front, no other carina on the fastigium except the median carina, antennae more longer and flat at basal part, extension of elytra and wings upto the apex of posterior femora.

7. **Ceracris nigricornis** Walker

(Fig. 2)

1870. *Ceracris nigricornis* Walker, *Cat. Derm. Salt. British Museum nat. Hist. Part IV* : 791.

Material examined : 2 ♂♂, Miao Reserve Forest, Miao, 1.xii.1982.

Distribution : India (West Bengal, Arunachal Pradesh, Uttar Pradesh).

This has also been studied from Himachal Pradesh, Haryana, Sikkim, Meghalaya, Manipur and Tripura in India.

Remarks : Face and pronotum coarsely punctured ; posterior femora externally with a narrow, distinct blackish fascia just before the pre-apical pale ring ; elytra brown, with the anal field green, or brownish-green.

8. **Trilophidia annulata** (Thunberg)

1815. *Gryllus annulatus* Thunberg, *Mem. Acad. Sci. St-Petersb.*, 5 : 234.

1873. *Trilophidia annulata*, Stål, *Recensio Orthopterorum*, 1 : 131.

1914. *Trilophidia annulata*, Kirby, *Fauna British India, Orthoptera, Acridiidae* : 149.

Material examined : 2 ♂♂, 1 ♀, Deban, 27 kms east of Miao, 10 & 14.xii.1982 ; 2 ♂♂, 1 ♀, Gibbon's land, 16 kms. east of Miao, 17.xii.1982 ; 1 ♂, 1 ♀, Gibbon's land, 20.xii.1982 ; 1 ♂, 2 ♀♀, Gibbon's land, 16 kms. east of Miao, 26.xii.1982.

Distribution : Distributed in Oriental and Palaearctic Regions. In India, it is widely distributed throughout.

Remarks : Carina of pronotum deeply cut by two grooves and when viewed sideways, is strongly bilobed in front ; wings not yellow at the base.

9. **Sphingonotus indus** Saussure

(Fig. 3)

1884. *Sphingonotus indus* Saussure, *Mem. Soc. Geneve*, 28 (9) : 204.

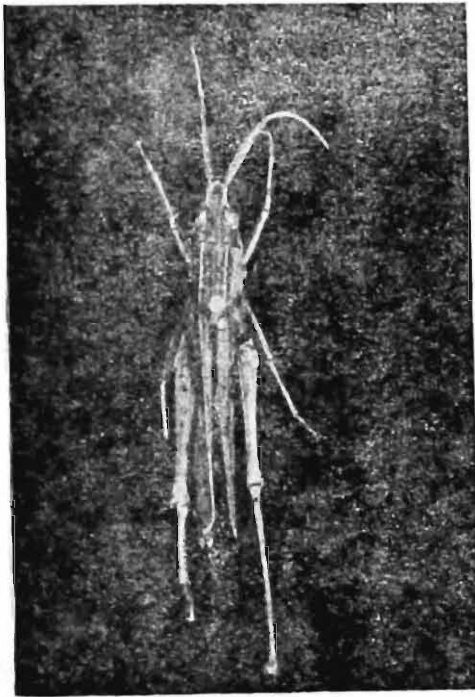
1914. *Sphingonotus indus*, Kirby, *Fauna British India, Orthoptera, Acridiidae* : 156.

Material examined : 1 ♂, 1 ♀, Deban, 27 kms. east of Miao, 13.xii.1982 ; 1 ♂, Zero Camp, 30 kms. north east of Miao, 14.xii.1982.

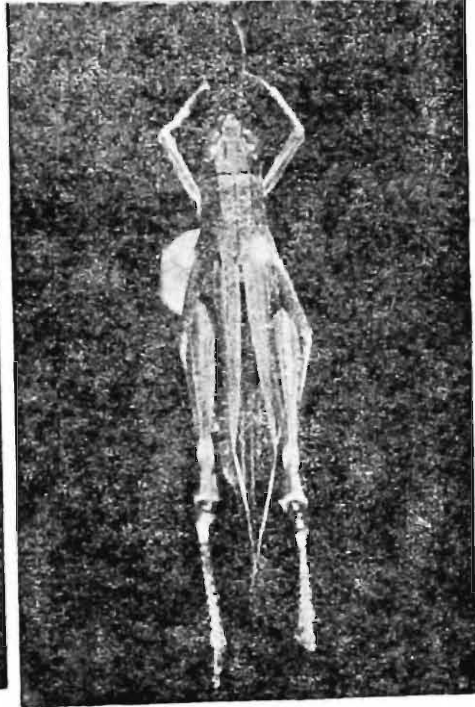
Distribution : India (Himalayan region).

The specimens of this species has also been studied from Jammu and Kashmir, Uttar Pradesh (Dehra Dun & Saharanpur distt.) in India.

Remarks : This species is very similar to *Sphingonotus longipennis* Saussure, but differs in having smaller size and the narrow dark brown band which extends from the costa to anal angle.



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Figs. 1-4. 1. *Phlaeoba assama* Ramme, Dorsal View.
2. *Ceracris nigricornis* Walker, dorsal view.
3. *Sphingonotus indus* Saussure, dorsal view.
4. *Scapteriscus* sp., dorsal view.

Family : HEMIACRIDIDAE

10. *Gesonula punctifrons* (Stål)

1860. *Acridium (Oxya) punctifrons* Stål. *Kongl. Svens. Fregatten Eugenies Res Omkring Jorden*, 3 : 336.
 1963. *Gesonula punctifrons*, Bei-Bienko & Mishchenko, *Locusts and Grasshoppers of the U.S.S.R. and adjacent countries*, Catantopinae, : 172.

Material examined : 1 ♀, Gibbon's land, 16 kms. east of Miao, 26.xii.1982.

Distribution : India (Assam, Kerala, Tamil Nadu, Goa, West Bengal, Arunachal Pradesh); Bangladesh; Sri Lanka; Burma; China; Japan; Taiwan; Tongking; Thailand; Malacca; Philippines; Kalimantan; Java.

It has also been studied from Maharashtra, Punjab, Assam, Manipur, Tripura, Meghalaya and Delhi in India.

Remarks : A very common species found near water tank, pond etc. It is reported as a pest of *Colocasia antiquorum* (Water Hyacinth).

Gesonula punctifrons resembles with the species of the genus *Oxya* Serville in appearance and colouration but the former differentiates from the latter by the shape of the fastigium which is acutely rounded in front.

11. *Spathosternum prasiniferum prasiniferum* (Walker)

1871. *Heteracris (?) prasinifera* Walker, *Cat. Derm. Salt. Brit. Mus.*, 5 suppl. : 65.
 1914. *Spathosternum prasiniferum*, Kirby, *Fauna British India, Orthoptera, Acridiidae* : 208.
 1963. *Spathosternum prasiniferum prasiniferum*, Bei-Bienko & Mishchenko, *Locusts and Grasshoppers of U.S.S.R. and adjacent countries*, Part I (Translated from Russian) : 160.

Material examined : 1 ♀, Gibbon's land, 6.iv.1981; 1 ♀, Miao, 4.xii.1982; 1 ♂, 1 ♀, Deban, 13.xii. 1982; 1 ♂, Gibbon's land, 16 kms. east of Miao, 21.xii.1982.

Distribution : India (widely distributed); Bangladesh; Sri Lanka; Burma; Thailand; Indo-China; China; and Viet-Nam.

Remarks : A very common grasshopper species found in and near the cultivated fields, grassyland and on the outside periphery of the thick forest. It can be easily identified by the shape of fastigium, peculiar marking on the lateral side of head and pronotum, specific dark brown spots on the elytra and spathulate type of prosternal tubercle.

Family : CATANTOPIDAE

12. *Eucoptacra praemorsa* (Stål)

1860. *Acridium* (*Catantops* ?) *praemorsum* Stål, *Eugenies Resa.*, *Orth.*, 330.
 1902. *Eucoptacra praemorsa*, Bolivar, *Annl. Soc. ent. Fr.*, 70 : 623.
 1914. *Eucoptacra praemorsa*, Kirby, *Fauna British India, Orth., Acridiidae.* : 240.

Material examined : 1 ♀, Deban, 24 kms. from Miao, 7.iv.1981 ; 2 ♂ ♂, 2 ♀ ♀, Hornbill, 13 & 14.iv.1981 ; 2 ♀ ♀, Deban North, 28.iv.1981 ; 1 ♂, Miao Reserve Forest Miao, 1.xii.1982 ; 2 ♂ ♂, 1 ♂, Miao, 2.xii.1982 ; 2 ♀ ♀, Deban, 27 kms. east of Miao, 8 & 10.xii.1982.

Distribution : India (Maharashtra, Tamil Nadu and S. Malabar) ; Burma ; China ; Taiwan.

Remarks : Size large ; elytra with a faint indication of a white callous stripe near the middle ; posterior femora without distinct black spot in or near the middle of superio-external area ; subgenital plate of female with the hind margin broadly rounded or triangularly expanded.

13. *Catantops pinguis innotabilis* (Walker)

1870. *Acridium innotabile* Walker, *Cat. Derm. Salt. Brit. Mus.*, 4 : 629.
 1925. *Catantops innotabilis*, Uvarov, *Mission Babault Inde, Acrididae—Paris* : 30.
 1953. *Catantops pinguis innotabilis*, Dirsh & Uvarov, *Tijdschr. Ent.*, 96 : 233.

Material examined : 1 ♀, Miao (at light), 5.v.1981.

Distribution : India (Assam, Kerala, Tamil Nadu, West Bengal, Arunachal Pradesh, Uttar Pradesh), S. Tibet ; Sri Lanka ; Burma ; Thailand ; Malaya ; Indo-China ; Yunnan ; Philippines ; Kalimantan ; Andalus ; Java ; and New Guinea.

This species has also been studied by one of the authors (M.S. Shishodia) from Himachal Pradesh, Manipur, Maharashtra and Karnataka in India.

Remarks : Lateral lobe of pronotum in the middle without or with very light coloured spot or stripe ; male cerci with widened slightly hammer-shaped apex and it is more curved with more broadened apex ; external surface of posterior femora on the lower margin of upper carina without the black median spots ; elytra exceeds the apex of posterior femora by more than the length of pronotum.

14. *Xenocatantops humilis humilis* (Serville)

1839. *Acridium humile* Serville, *Ins. Orth.*, : 662.
 1873. *Catantops humilis*, Stål, *Rec. Orth.*, 1 : 71.
 1953. *Xenocatantops humilis humilis*, Dirsh & Uvarov, *Tijdschr. Ent.*, 96 : 237.

Material examined : 1 ♂, Miao, 4.iv.1981 ; 1 ♂, Gibbon's land 6.iv.1981 ; 1 ♂, 1 ♀, Deban, Miao, 7.iv.1981 ; 1 ♂, 1 ♀, Zero Camp, 9.iv.1981 ; 4 ♂ ♂, 2 ♀ ♀, Hornbill, 11 & 13.iv.1981 ; 2 ♂ ♂, Hornbill, 14.iv.1981, 2 ♀ ♀, Hornbill Camp, 15 kms. North of Deban, 16.iv.1981 ; 1 ♀, Firm Base, 18.iv.1981 ; 1 ♀, Deban, 27.iv.1981 ; 1 ♀, Miao Reserve Forest, Miao, 1.xii.1982 ; 1 ♀, Miao, 2.xii.1982 ; 2 ♀ ♀, Deban, 27 kms. east of Miao, 10.xii.1982 ; 3 ♀ ♀, Gibbon's land, 16 kms. east of Miao, 25 & 26.xii.1982.

Distribution : India (Assam, Kerala, Tamil Nadu, West Bengal, Arunachal Pradesh, Uttar Pradesh) ; S. Tibet ; Sri Lanka ; Burma ; Thailand ; Malaya ; Indo-China ; Yunnan ; Philippines ; Kalimantan ; Andalus ; Java ; and New Guinea.

This species has also been studied by one of the authors (M.S. Shishodia) from Himachal Pradesh, Manipur, Maharashtra, Meghalaya and Mizoram in India and also from Bangladesh.

Remarks : Body large and slender than the other subspecies ; frons in profile straight, moderately sloping backwards ; pronotum slightly constricted in the middle and without any marks laterally ; prosternal tubercle conical ; male cercus simple, with rounded apex ; supra-anal plate simple, triangular ; external surface of posterior femora yellowish, with two dark brown fasciae, broadening towards the lower margin and fused with the dark brown lower margin of the femora ; posterior tibiae red.

15. *Chondracris rosea* (De Geer)

1773. *Acrydium roseum* De Geer, *Memoires pour servir a'l' histoire des insectes*, Stockholm, 3 : 488.

1923. *Chondracris rosea*, Uvarov, *Bull. ent. Res.*, 14 : 39.

Material examined : 1 ♂, Deban, 27 kms. east of Miao, 11.xii.1982.

Distribution : India (Arunachal Pradesh, Assam, Bihar, Madhya Pradesh, Manipur, Tripura, Uttar Pradesh, West Bengal, Sikkim, Kerala, and Tamil Nadu) ; Bhutan ; Bangladesh ; Thailand ; Indonesia ; Korea ; Japan ; Vietnam ; China ; Java ; Tainan ; Philippines ; Manchuria ; Hainan Islands.

Remarks : Large sized body ; pale-green colouration ; tectiform pronotum ; and rose coloured basal area of hind wing.

16. *Choroedocus robustus* (Serville)

1839. *Acridium robustum* Serville, *Ins. Orth.* : 647.

1921. *Choroedocus robustus*, Uvarov, *Trans. ent. Soc. Lond.*, 69 : 109.

Material examined : 1 ♀, Miao, 2.xii.1982.

Distribution : India (Assam, Arunachal Pradesh) ; Bangladesh.

This species has also been studied from West Bengal, Manipur and Meghalaya.

Remarks : Large and robust in size ; fastigium rounded in front ; antennae longer than head and pronotum ; a broad dark brown stripe runs medially from the anterior margin of head to the posterior margin of pronotum and another narrow but distinct yellow coloured stripe runs on either side of this dark brown stripe from the superior margin of eyes to the posterior margin of pronotum which extends nearly upto the middle of elytra and then run unitedly backwards ; posterior tibiae red.

17. *Apalacris varicornis* Walker

1870. *Apalacris varicornis* Walker, *Cat. Derm. Salt. Brit. Mus.*, 4 : 642.

1957. *Apalacris varicornis*, Willemsse, *Publties natuurh Genoot Limburg*, Reeks X : 453.

Material examined : 1 ♂, 27 kms. east of Miao, 14.xii. 1982.

Distribution : India (West Bengal, Assam) ; Bangladesh ; Burma ; China ; Yunnan ; Tonkin ; Annam ; Perak ; Malaya ; Andalus ; Anai-kloof ; Java ; Kalimantan and Japan.

This species has also been studied from Sikkim in India.

Remarks : The yellow spot on the lateral lobe of pronotum longer, nearly reaching the humeral angle ; antennae light yellow or dirty white at apex ; posterior femora yellow or yellowish brown, with oblique transverse black bands ; posterior tibiae red ; wings bluish and the apex infumated.

Superfamily : TRIDACTYLODEA

Family : TRIDACTYLIDAE

18. *Tridactylus* sp.

Material examined : 3 ♂ ♂, 2 ♀ ♀, Miao (at light), 5.v. 1981.

Distribution : Africa ; Australia ; Asia ; Europe ; and Southern Soviet Union.

Remarks : These specimens resemble in size and other characters with *Tridactylus thoracicus* Guerin but the colouration is dark brown. Being damaged specimens, the identification could not be done upto the specific level.

Superfamily : TETRIGOIDEA

Family : TETRIGIDAE

19. **Scelimena india** Hancock

(Fig. 5)

1907. *Scelimena india* Hancock, *Trans. R. ent. Soc. Lond.*, 219.

Material examined : 1 ♂, 1 ♀, Miao, 5.iv.1981 ; 8 ♂♂, 6 ♀♀, Hornbill, 16.iv.1981 ; 2 ♂♂, Gibbon's land, 3.v.1981 ; 1 ♀, Miao Reserve Forest, 1.xii.1982.

Distribution : India (Assam).

Remarks : This species is closely related with *Scelimena producta* (Serville) but can be easily separated from it by the stouter stature ; and presence of tubercles in the middle of the anterior margin of pronotum.

20. **Thoradonta nodulosa** (Stål)

1860. *Tetrix nodulosa* Stål, *Eugenies Resa Orth.*, : 346.

1970. *Thoradonta nodulosa*, Steinmann, *Acta zool. hung.*, 16 : 225.

Material examined : 1 ♀, Gibbon's land, 3.v.1981.

Distribution : India ; Sri Lanka ; Singapore ; Java ; Andalus ; Kalimantan ; and Hainan.

Remarks : *Thoradonta nodulosa* (Stål) is allied to *Thoradonta apiculata* Hancock, but it can be separated from the latter by the narrower vertex ; lesser extension of pronotum beyond the apex of posterior femora ; and presence of a series of nodules on the upper marginal and paginal areas of posterior femora.

21. **Loxilobus assamus** Hancock

1907. *Loxilobus assamus* Hancock, *Trans. R. ent. Soc. Lond.*, : 223.

Material examined : 1 ♂, Miao, 2.i.1983.

Distribution : India (Assam and West Bengal).

Remarks : *Loxilobus assamus* Hancock can be easily separated from all other regional species of the genus by the shorter and broader stature ; slightly narrow vertex ; granulose and tuberculose dorsum ; sinuated and interrupted median carina of pronotum ; extension of pronotal process upto the apices of posterior femora and pointed first and second pulvilli of first segment of posterior tarsi.

22. *Xistrella inermis* (Hancock)

1915. *Bolotettix inermis* Hancock, *Rec. Indian Mus.*, 11 : 77-78.

1939. *Xistrella inermis*, Günther, *Abh. Ber. Mus. Tierk. Völkerk. Dresden*, 20(A) zool. (N. F.) BD 1 : 151.

Material examined : 1 ♂, Gibbon's land, 3.v. 1981.

Distribution : India (West Bengal).

Remarks : This species is characterised by the shortness of body ; convexity of dorsum between the shoulders ; depression and compresso-elevation of the median carina between and behind the shoulders ; and presence of an oblique lateral line on either side of median carina.

23. *Hyboella dilatata* (De Haan)

1842. *Acridium (Tetrix) dilatatum* De Haan, *Temminck. Verhandl.*, Orth. : 167, 169, pl. 22, fig. 12.

1915. *Hyboella dilatata*, Hancock, *Rec. Indian Mus.*, 11 : 107.

Material examined : 1 ♀, Miao, 2.i, 1981, 1 ♀, Gibbon's land, 2.v. 1981.

Distribution : Burma ; Java. It is recorded here for the first time from India.

Remarks : *Hyboella dilatata* (De Haan) has very close resemblance with *H. tentata* Hancock, but in the former the posterior angles of lateral lobes of pronotum is less dilated, less directed outwards, more or less roundly truncate and oblique, and the anterio-superior margin of lobe not sharply pointed.

24. *Hyboella obesa* Hancock

1915. *Hyboella obesa* Hancock, *Rec. Indian Mus.*, 11 : 107-108.

Material examined : 2 ♂♂, Deban, 24 kms. from Miao, 7.iv.1981 ; 1 ♀, Near 34th. mile on M.B. Road, 23.iv.1981 ; 1 ♂, Deban, 27 kms. east of Miao, 10.xii.1982.

Distribution : India (West Bengal and Sikkim).

Remarks : *Hyboella obesa* Hancock has similarity with *Hyboella dilatata* (De Haan), in regard to the posterior angles of lateral lobes of pronotum which is dilated and roundly truncate behind, but differs from the latter by the wider and flat vertex which is superficially depressed on either side ; deeply depressed dorsum behind the shoulders and compresso-elevated median carina in front of shoulders.

SUBORDER : ENSIFERA

Superfamily : GRYLLOIDEA

Family : GRYLLOTALPIDAE

25. *Gryllotalpa africana* Beauvois

1805. *Gryllotalpa africana* Beauvois, *Ins. Afr. Amer.*, : 229, tab. 2c, fig. 6.

1869. *Gryllotalpa fossor* Scudder, *Mem. Peabody. Ac. Sc.*, 1 : 21 pl. 1. figs. 11, 28, 29.

1924. *Gryllotalpa africana*, Chopard, *Rec. Indian Mus.*, 26 : 181.

Material examined : 1 ♂, 10th mile post from Miao, 2.v.1981, 2 ♂ ♂, Miao, 5.v.1981 ; 2 ♂ ♂, Miao, 5.xii.1982.

Distribution : India (Jammu & Kashmir, Himachal Pradesh, Uttar Pradesh, Bihar, West Bengal, Meghalaya, Orissa, Tamil Nadu, Kerala, Karnataka and Arunachal Pradesh), Bhutan ; Pakistan ; Nepal ; Sri Lanka ; Burma ; Malaya ; S. Africa ; S. Espagne ; Madagascar ; Iran ; Australia.

It has also been collected in India from Rajasthan, Assam, Manipur, Maharashtra and Madhya Pradesh.

Remarks : *Gryllotalpa africana* Beauvois is a very common species in India.

26. *Scapteriscus* sp.

(Fig. 4)

Material examined : 1 ♂, Miao, 5.v.1981.

Distribution : India (Arunachal Pradesh) ; America.

Remarks : The present species resembles with *Scapteriscus siagensis* Tandon & Shishodia 1972. However, being a damaged specimen, the present material could not be identified upto the specific level.

Family : GRYLLIDAE

27. *Brachytrypes* sp.

Material examined : 1 ♂, (nymph), Miao (at light), 5.v.1981.

Distribution : Tropical Asia, Africa and Sicily.

Remarks : Being a nymph, the specimen could not be identified upto the specific level.

28. *Modicogryllus confirmatus* (Walker)

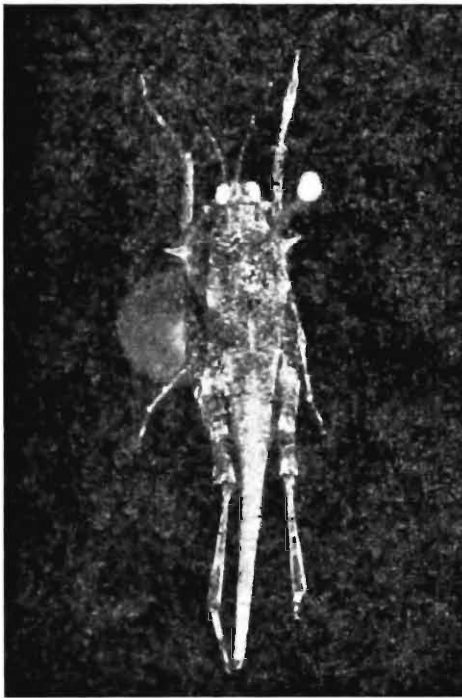
1859. *Acheta confirmata* Walker, *Ann. Mag. nat. Hist.*, (3) 4 : 221.

1964. *Modicogryllus confirmatus*, Randell, *Can. Ent.*, 96 : 1584.

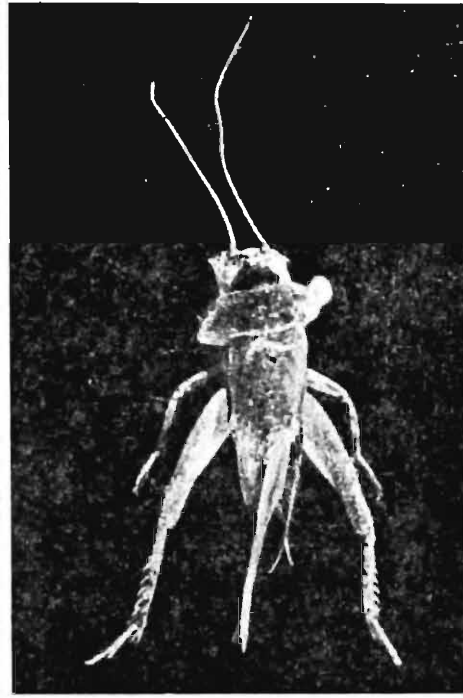
Material examined : 1 ♀, Gibbon's land, 10th mile post from Miao, 2.v.1981.

Distribution : Tropical Asia ; from Israel to Philippines.

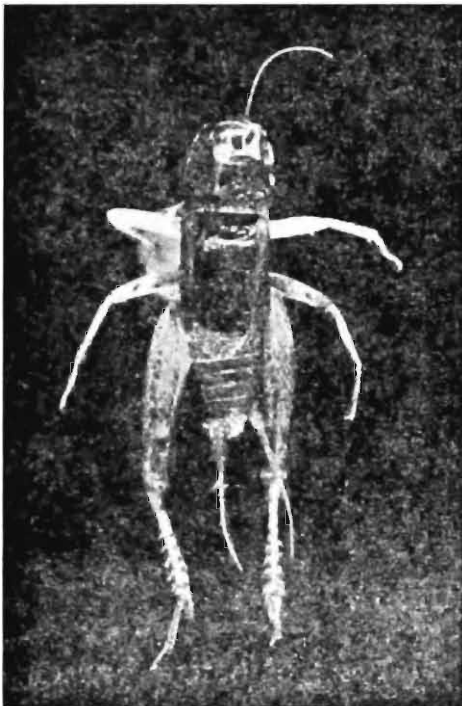
In India this species is recorded from Uttar Pradesh, Maharashtra, Bihar, West Bengal, Assam, Orissa, Karnataka, Tamil Nadu, Andaman



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Figs. 5-8. 5. *Scelimena india* Hancock, dorsal view.
6. *Modicogryllus* sp., dorsal view.
7. *Velarifictorus* sp., dorsal view.
8. *Scleropterus* sp., dorsal view.

Islands, Madhya Pradesh, Rajasthan, Meghalaya, Manipur and Himachal Pradesh.

Remarks : Small sized specimen with elongato-convex body ; head with a transverse yellow band between the ocelli and also adorned light yellow marks on the occiput ; veins of the lateral field of elytra distant and strongly curved.

29. *Modicogryllus* sp.

(Fig. 6)

Material examined : 1 ♂, Miao (at light), 5.v.1981.

Distribution : Tropical Asia ; from Israel to Phillippines.

Remarks : Size small ; head dark brown and adorned with five yellow marks ; face brown ; ocelli not connected with yellow band ; pronotum dark brown, transverse with anterior and posterior margins straight ; lateral lobes blackish in superior three fourth parts and yellowish in inferior one fourth parts except the marginal line which is dark brown ; abdomen dark brown ; legs light rufous, the posterior femora not darkened at apex ; anterior tibiae with a large, oval external tympanum ; posterior tibiae armed with 4 internal and 5 external spines ; elytra a little shorter than the abdomen, brownish in colour ; mirror slightly longer than its width and divided by a curved vein behind the middle ; 2 oblique veins present ; apical yield with 5 veins ; lateral field brown with 4 to 5 widely separated veins and the Sc. bearing one branch ; wings caudate.

This specimen closely resembles with *Midicogryllus blennus* (Saussure).

30. *Gryllodes* sp.

Material examined : 1 ♀, (nymph), Deban, 27 kms. east of Miao, 10.xii. 1982.

Distribution : Cosmopolitan in tropical regions.

Remarks : Being in a nymphal stage, the specimen could not be identified upto the specific level.

31. *Velarifictorus* sp.

(Fig. 7)

Material examined : 2 ♂♂, Gibbon's land, 10th mile post from Miao, 2.v. 1981.

Distribution : Tropical Africa and Asia ; Madagascar ; Japan.

Remarks : Size larger ; head dark brown above, adorned with 5 to 6 yellow lines on the occiput and a yellow band between the ocelli ; mandibles large ; disk of pronotum varied with brown and yellowish ; elytra shorter than the abdomen and somewhat little dark brown ; mirror as large as broad and divided by a curved vein before the middle ; 2 oblique veins present ; apical field small to large with 4 to 6 veins ; lateral field almost transparent with 5 veins which are placed distant from one another : Sc. bearing 2 branches ; wings caudate ; genitalia with superior bridge divided into three parts, the median short with rounded angles at apex, the other two are lateral and a little prolonged ; the inferior part of genitalia broad and flat upto the middle and narrow beyond the middle, the narrow part knob like at apex and directed outwardly.

32. *Loxoblemmus* sp.

Material examined : 1 ♂, Miao (at light), 5.v. 1981.

Distribution : Southern Asia ; Philippines ; Japan ; Queensland ; Madagascar ; and Tropical Africa.

Remarks : Size small ; head dark brown ; occiput adorned with short longitudinal yellow lines ; frontal rostrum with a transverse yellow band between the ocelli ; face flattened with a little concavity ; first joint of the antennae without any denticulation ; elytra extending upto the apex of abdomen ; mirror longer than its width and not divided ; 2 oblique veins ; apical field with 3 veins which are irregularly reticulated ; lateral field with 3 to 4 branches ; Sc. bearing one branch ; wings caudate.

This specimen is nearer to *Loxoblemmus detectus* (Serville).

33. *Pteronemobius taprobanensis* (Walker)

1869. *Trigonidium taprobanense* Walker, *Cat. Derm. Salt. Br. Mus.*, 1 : 102.

1925. *Pteronemobius taprobanensis*, Chopard, *Ann. Mag. nat. Hist.*, (9) 15 : 507.

Material examined : 1 ♂, Miao 4.xii. 1982.

Distribution : India (Assam, Bihar, West Bengal, Orissa, Tamil Nadu, Arunachal Pradesh, Karnataka, Maharashtra) ; Bangladesh ; Burma ; Sri Lanka ; Malaya ; Indo-China ; and Andalus.

This species has also been collected in India from Uttar Pradesh, Arunachal Pradesh, and Meghalaya.

Remarks : Present specimen agrees in characters with the species given by Chopard (1969).

34. *Pteronemobius csikii* (Bolivar)

1901. *Nemobius csikii* Bolivar, *Zichy zool. Ergebn.*, 2 : 243.

1925. *Pteronemobius csikii*, Chopard, *Ann. Mag. nat. Hist.*, (9) 15 : 5 & 7, fig. 1.

Material examined : 2 ♀ ♀, Deban, 24 kms. from Miao, 7.iv. 1981.

Distribution : India (Assam, Bihar, Arunachal Pradesh, Madhya Pradesh, Uttar Pradesh, Haryana, Rajasthan, Karnataka and Tamil Nadu) ; Bhutan ; Sri Lanka ; Burma ; China ; and Siberia.

It is also collected in India from West Bengal and Maharashtra.

Remarks : *Pteronemobius csikii* is very similar to *P. fascipes* (Walker), but it differs from the latter in having the 4th and 5th joints of maxillary palpi testaceous-brownish at apex.

Family : SCLEROPTERIDAE

35. *Sclecropterus* sp.

(Fig. 8)

Material examined : 1 ♂, Miao (at light), 5.v. 1981.

Distribution : South Asia and Japan.

Remarks : Being a female specimen it could not be identified upto the specific level, though it closely resembles with *Scleropterus punctatus* Brunner.

Family : ENEOPTERIDAE

36. *Madasumma* sp.

Material examined : 1 ♀, Deban, 13.xii. 1982.

Distribution : Madagascar ; S. Asia ; Philippine Islands ; and Australia.

Remarks : Being a female specimen, the identification could not be done upto the specific level.

Size smaller ; colouration light brown and less uniform ; elytra without conspicuous white spots.

SUMMARY

Present paper reports 36 species, including new records of Orthoptera from the Namdapha Wild Life Sanctuary of Tirap District, Arunachal Pradesh. Distributional and morphological data, helpful in identification, have also been provided.

ACKNOWLEDGEMENTS

We are grateful to Dr. B. K. Tikader, Director, Zoological Survey of India, for providing the laboratory facilities and to Dr. A. K. Ghosh, Deputy Director of the same organisation and Principal investigator of Namdapha Project for placing the valuable collections of Orthoptera at our disposal. Thanks are also due to Dr. R. K. Varshney, Superintending Zoologist, Entomology Division 'B' of this department for constant encouragement and help.

REFERENCES

- BISWAS, S., LAHIRI, A. R., VASANTH, M. and GHOSH, A. K. 1975. A preliminary study of the insect fauna of Meghalaya. *Proc. zool. Soc. Calcutta*, **28** : 23-26.
- BOLIVAR, I. 1902. Les Orthopterés de St. Joseph's College a Trichinopoly (Sud de l' Inde). 3 me partie. *Annls Soc. ent. Fr.*, **70** : 580-635, pl. 9.
- BOLIVAR, I. 1918. Contribucion al conocimiento de la fauna Indica Orthoptera (Locustidae vel Acrididae). *Revta R. Acad Cienc. exact. fis. nat. madr.*, **16** (1917) : 278-412.
- CHOPARD, L. 1969. *The Fauna of India and the adjacent countries, Orthoptera, Vol. 2 Grylloidea*. Zoological Survey of India, Calcutta, XVIII+421 pp.
- HANCOCK, J. L. 1912. Tetriginæ (Acridiinae) in the Agricultural Research Institute, Pusa, Bihar, with the description of new species. *Mem. Dep. Agric. India ent. Ser.*, **4** (No. 2) : 131-160.
- HANCOCK, J. L. 1913. Zoological results of the Abor expedition, Orthoptera. *Rec. Indian Mus.*, **8** : 311-316, pl. 15.
- HANCOCK, J. L. 1915. Indian Tetriginæ. *Rec. Indian Mus.*, **11** : 55-132, tab. 14.
- HEBARD, M. 1929. Acrydiinae (Orthoptera, Acrididae) of Southern India. *Revue. suisse Zool.*, **36** : 565-592, figs. 1-10.

- HENRY, G. M. 1940. New and little known South Indian Acrididae (Orthoptera). *Trans. R. ent. Soc. Lond.*, **90** : 497-540. figs. 1-18.
- KIRBY, W. F. 1914. *The Fauna of British India including Ceylon and Burma, Orthoptera (Acridiidae)*, IX+276 pp. London.
- SINGH, A. and KEVAN, D. K. McE. 1965. The genus *Orthacris* Bolivar, 1384, and its allies (Orthoptera : Acridoidea, Pyrgomorphidae). *Trans. R. ent. Soc. Lond.*, **117** (13) : 367-411, pls. 1-8, figs. 1-18.
- TANDON, S. K. and SHISHODIA, M. S. 1969. On a collection of Acridoidea (Orthoptera) from the Nagarjuna Sagar Dam area. *Oriental Ins.*, **3** (3) : 265-267.
- TANDON, S. K. and SHISHODIA, M. S. 1972. Notes on the collection of Grylloidea (Orthoptera) from NEFA, India. *Oriental Ins.*, **6**(3) : 281-292, figs. 1-2.
- TANDON, S. K. and KHERA, S. 1978. Ecology and distribution of grasshoppers (Orthoptera : Acridoidea) in Arunachal Pradesh, India, and the impact of human activities on their ecology and distribution. *Proceeding of the seminar on Impact Of Man On The Mountain Ecosystem In : Mem. School of Entom.*, No. 6, Agra : 73-91.
- UVAROV, B. P. 1929. Acrididen (Orthoptera) aus Sud- Indian. *Revue suisse Zool.*, **36** : 533-563.