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Taxonomic studies on Acrididae (Orthoptera: Acridoidea) from Punjab (India)

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Abstract
The present study is based on the specimens of Acrididae during the course of a survey (2009–2011) from various agricultural areas of different regions of Punjab. Nearly 1,230 specimens were collected from different localities and identified down to specific level. From this 54 species of Acrididae representing 27 genera and 9 subfamilies of Acrididae were identified. Wherever necessary, key to subfamilies, genera and species of family Acrididae were given.

Keywords: Taxonomy, Biodiversity, Acrididae, Orthoptera, Punjab.

1. Introduction
Grasshoppers and locusts belong to the family Acrididae under suborder Caelifera in the order Orthoptera. To distinguish it from bush crickets or katydids, it is sometimes referred to as short-horned grasshoppers. Species that change colour and behavior at high population densities are called locusts. They constitute an economically important group of Orthopterous pests that infest a number of cultivated and non-cultivated crops. They cause considerable damage to agricultural crops, pastures and forests and are well reputed for their destructiveness all over the world. Locusts and grasshoppers have invaded green crops from the earliest days to present time. Locusts are the main pests in countries bordering deserts. The devastations caused by migratory swarms of locusts in Africa are well known.
Punjab is a state in northwest India. It stretches from 29º32' to 32º32'N latitude and 73º55' to 76º50'E longitude, occupying a land of 50,362 sq. kms in the north-western part of India. Its average elevation is 300 m from the sea level. The Indian state borders the Pakistani province of Punjab to the west, Jammu and Kashmir to the north, Himachal Pradesh to the northeast, Haryana to the south and southeast and Rajasthan to the southwest. Most of the Punjab is an alluvial plain, bounded by mountains to the North. The southwest of the state is semi-arid, eventually merging into the Thar Desert. The Siwalik Hills extends along the northeastern part of the state at the foot of the Himalayas. Despite its dry conditions, it is a rich agricultural area due to the extensive irrigation made possible by the great river system traversing it. Punjab region's temperature ranges from -2° to 40 °C (MIN/MAX), but can reach 47 °C (117°F) in summer and can touch down to -5 °C in winter. Agriculture is the largest industry in Punjab. It is the largest single provider of wheat to India. Punjab is one of the smallest states of India representing 1.6 per cent of its geographical area and 2.6 per cent of its cropped area. Agriculture occupies the most prominent place in Punjab's economy. About 70 per cent of the people are engaged in agriculture. As against an all India average of 51 per cent, it has 85 per cent of its area under cultivation. The state on an average, account for 23% of Wheat, 14 % of cotton and 10% of rice production of the whole country. It is only the districts of Ropar and Hoshiarpur that the cultivated area is less than 60 per cent of the total. It is in these districts that considerable land is covered by Shivalik Hills and the beds of seasonal streams that cannot be brought under cultivation.
A notable taxonomical work on Acrididae was made by Kirby [5] in the series 'Fauna of British India'. Uvarov [38, 39, 40, 41] studied in detail Indian Acrididae. Other contributers to Indian Acrididae are Stal [21, 22, 23], Walker [42, 43], Saussure [15, 16] and Bolivar [2, 3]. In past few decades Bhowmik [1], Tandon [29, 30], Shishodia [17, 18, 19], Tandon and Shishodia [24, 25, 26, 27, 28], Usmani and Shafee [32, 33, 34], Kumar & Virktamath [11, 12], Murlirangan & Srinivasan [13], Hazra *et al.* [4], Priya & Narendran [14], Kulkarni & Shishodia [6, 7] and Usmani [35] have contributed works on

the taxonomy of this group. Recently Usmani *et al* [36], Usmani *et al* [37], Kumar and Usmani [8], Kumar and Usmani [10] studied the Indian Acrididae. While in context to Acridid fauna of Punjab, only few sporadic reports were published. Thakur *et al*. [31], Singh *et al*. [20] and Kumar and Usmani [9] worked on Acridid fauna of Punjab.

Visualizing the economic importance of these pests in agriculture, an extensive and intensive survey to study the speciation and distribution of the locusts and grasshoppers belonging to the family Acrididae was undertaken in Punjab, India. The present authors uphold the recent system of classifying Acrididae as suggested by the Orthoptera Species File online. In the present study 54 species representing 27 genera belonging to 9 subfamilies have been recorded from Punjab. The specimens were collected from different habitats and host plants which makes the material extremely valuable. Systematic study of the material collected from various habitats and localities was made to understand the diversity in the group.

2. Material and Methods

The present authors collected new material (1230 specimens) of adult grasshoppers of both sexes from various localities of Punjab which served the basis for the present critical study. A complete record was also maintained indicating the reference number, locality, data of collection and name of host plants etc.

2.1 Collection of adult grasshoppers

The authors surveyed various agricultural areas of Punjab during the period 2009-2011 for the collection of grasshoppers and locusts. They were caught by hands, by forceps, and by the ordinary aerial insect net. The net was used for catching insects individually or by sweeping on grasses, bushes and other vegetables. Attempts were made to collect the specimens from their host plants. They were captured on different dates in different months from various crops. Different parts of crops were examined. Attention was also given to fruits and vegetables. The collected specimens were killed in cyanide bottles.

2.2 Preparations for morphological studies

Dry mounts were also prepared for better understanding of certain characters like size, colour, texture etc. For this purpose, the specimens were first relaxed, stretched and later, they were pinned and labeled. Permanent collections of pinned specimens were kept in store boxes and cabinets for further studies on their morphological structures.

2.3 Preparations for genitalic studies

For a detailed study of the various components of genitalia, the permanent slides were prepared and examined under the microscope in order to make a detailed study of the genitalic structures. Drawings were initially made with the help of a camera lucida. Details were filled in by conventional microscope examination.

The material collected during survey has been deposited in the Zoological Museum of the Aligarh Muslim University, Aligarh, India.

3. Results and Discussion

Taxonomic Account

Family Acrididae Macleay, 1821

3.1 Key to Subfamilies of Acrididae, Macleay, 1821

1. Prosternal process usually absent, if present, body strongly elongate and antennae ensiform; hind tibia without external apical spine; epiphallus bridge shaped, bridge undivided; spermatheca with apical diverticulum short or rudimentary, pre-apical diverticulum sac like…..**7**
   - Prosternal process present; hind tibia with or without external apical spine; epiphallus disc or bridge shaped, bridge divided or undivided; spermatheca with apical and pre-apica diverticula tubular……..**2**
2. Lower knee lobe of hind femur never spined; valves of ovipositor never serrate or spined; hind tibia never flattened……..**3**
   - Lower knee lobe of hind femur spined; valves of ovipositor serrate or spined; hind tibia flattened……...**OXYINAE** BRUNNER, 1893
3. Radial area of tegmen without transverse stridulatory veinlets; valves of aedseagus flexure; arolium of variable size…….....**5**
   - Radial area of tegmen with a series of regular, parallel, thickened, transverse stridulatory veinlets; valves of aedeagus divided or connected by small or indistinct flexure; arolium large…….....**4**
4. Prosternal process transverse, lamellate, subquadrate or approximately so in outline; apical abdominal tergite with well indicate or subobsolete furcular lobes…….. ……..……..…**SPAT HOSTERNINAE** REHN, 1957
   - Prosternal process usually conical; apical abdominal tergite without furcular lobes……... ……**HEMIACRIDINAE** DIRSH, 1956
5. Mesosternal interspace open; hind femur with dorsal carina finely denticulate, sometimes smooth; external apical spine of hind tibia usually absent……...**6**
   - Mesosternal interspace closed; hind femur with dorsal carina smooth; external apical spine of hind tibia present…….**TROPIDOPOLINAE** JACOBSON, 1905
6. Pronotum with lateral carinae linear; male cercus strongly compressed, apex downcurved…… ……..**EYPREPOCNEMIDINAE** BRUNNER, 1893
   - Pronotum without lateral carinae, if present, never linear; male cercus variable, never strongly compressed, apex normal……**CATANTOPINAE** BRUNNER, 1893
7. Frons usually oblique; medial area of tegmen usually without intercalary vein, if present, never serrated in both sexes……...**8**
   - Frons usually vertical; medial area of tegmen with intercalary vein usually serrated…….. ……..……**OEDIPODINAE** WALKER, 1871
8. Stridulatory serration on inner side of hind femur usually absent, if present, body strongly elongated and its stridulatory file represented by closely set rigid tubercles and articulated bristles...**ACRIDINAE** MACLEAY, 1821
   - Stridulatory serration on inner side of hind femur present and its stridulatory file with articulated pegs……... ……**GOMPHOCERINAE** FIEBER, 1853

3.2 Subfamily Oxyinae Brunner Von Wattenwyl, 1893

Oxyae Brunner, 1893. *Ann. Mus. Civ. Stor. Nat. Genova.* 2-13(33): 1-230.

Type genus: ***Oxya*** Serville, 1831. *Ann. Sci. nat.* 22(86): 264, 286.

Diagnosis: Body small to medium sized. Antennae filiform. Head sub-conical; frons usually oblique. Fastigium of vertex short. Pronotum cylindrical or weakly flattened, median carina weak, linear or absent, lateral carinae absent; dorsum crossed by three sulci. Prosternal process present. Mesosternal interspace open and usually longer than wide; mesosternal lobes rounded. Tegmina and wings fully developed, reduced or absent; radial area of tegmina usually without series of regular, parallel transverse stridulatory veinlets. Tympanum present. Lower basal lobe of hind femur shorter than upper one, lower genicular lobe produced posteriorly into a spine. Hind tibia usually expanded in apical half or third, external apical spine usually present; arolium large. Apical abdominal tergite with or without well indicate or subobsolete furcular lobes. Apical abdominal sternites with tuft of short hairs. Male cercus usually conical. Epiphallus bridge divided medially, ancorae present or absent, lophi present. Aedeagus, basal and apical valves flexured, basal valve with gonopore process. Female ovipositor, valves serrated or spined. Spermatheca, pre-apical diverticulum tubular and longer than apical diverticulum.

Members of the subfamily Oxyinae form a natural assemblage which differs from the other subfamilies of Acrididae in the presence of a spine-like lower lobe of the hind knee, the more or less divided bridge of the epiphallus and the hairy distal sternites of the abdomen. These characters are found in other subfamilies also, but their combination defines the Oxyinae reasonably well.

Remarks: Priority for family-group names based on *Oxya* dates from Oxyae Brunner, 1893.

The subfamily represented by two genera from this region. A key for their separation is given below:

Key to Genera of Oxyinae Brunner, 1893

1. Redial area of tegmina without traces of transverse parallel stridulatory veinlets; hind tibiae with 9-11 spines on inner dorsal margin, spines situated uniformally……...***Oxya*** Serville, 1831
- Redial area of tegmin with transverse parallel stridulatory veinlets; hind tibiae with 8-9 spines on inner dorsal margin, spines not uniformally situated, penultimate spine placed far from apical spine, space between them significantly greater than any space between other spine……. ***Gesonula*** Uvarov, 1940

Genus *Oxya* Serville, 1831

The genus is represented by eight species from this region. A key for their separation is given below:

Key to species of *Oxya* Serville, 1831 based on males

1. Supra-anal plate with a tubercle on each side of a median apical process, making the plate appear weakly trilobite..**2**
- Supra-anal plate without lateral tubercles …….....**4**
2. Cercus laterally compressed, hardly narrowing towards apex, which is weakly bifurcated……. ……..……..***O. fuscovittata*** (Marschall, 1836)
- Cercus conical or if compressed then narrowing towards apex, which is obtuse or truncated……**3**
3. Inner tooth like pair of lophi of epiphallus usually well developed …….……***O. hyla hyla*** Serville, 1831
- Inner tooth like pair of lophi of epiphallus usually poorly developed …….……***O. hyla intricata*** (Stal, 1861)
4. Valvular plate of cingulum very long, upcurved, rolled almost into a cylinder, with an expended apex…… ……...……***O. velox*** (Fabricius, 1787)
- Valvular plate of cingulum either in the form of a curved plate or short and fleshy……...…..…**5**
5. Supra-anal plate, when flat, triangular or rounded triangular, apical part not extended posteriorly, but if so then basal folds clearly present…….....**6**
- Supra-anal plate, when flat, with the apical part lobe like and extended posteriorly, never with basal folds; Large species (over 30 mm); tegmina fully developed and extended beyond apices of hind femora; cercus with bifid apex, upper lobe rounded……. ……..…..***O. grandis grandis*** Willemse, 1925
6. Supra anal plate with well developed basilaterral folds……..…….……**7**
- Supra anal plate relatively flat, without basilaterral fold; Apical valves of penis slender; valvular plate of cingulum slender……***O. chinensis chinensis*** (Thunberg, 1815)
7. Cercus with truncate or subacute apex……. ……..…***O. japonica japonica*** (Thunberg, 1815)
- Cercus with bifid or strongly truncate apex……. ……...…***O. japonica vitticollis*** (Blanchard, 1853)

Key to species of *Oxya* Serville, 1831 based on females

1. Posterior ventral basivalvular sclerites of ovipositor without any well defined spines on its lower inner margin .....…….…**2**
- Posterior ventral basivalvular sclerites of ovipositor with one or two tooth like spines on its inner ventral margin .....……...**3**
2. Median pair of spines on posterior margin of subgenital plate set close together……. ……***O.grandis grandis*** Willemse, 1925
- Median pair of spines on posterior margin of subgenital plate set wider apart……...***O. velox*** (Fabricius, 1787)
3. Ventral surface of subgenital plate convex, flat or, at most, with a weak apical concavity……..……...**7**
- Ventral surface of subgenital plate with a broad median longitudinal groove running from posterior margin at least two middle of plate, with or without longitudinal ridge on each side……**4**
4. Ovipositor valves with long hook like dents; posterior ventral basivalvular sclerites with very small spinelets on its inner ventral margin……..**5**
- Ovipositor valves with short dents; posterior ventral basivalvular sclerites with a large spine on its inner ventral margin…….……...**6**
5. Ventral surface of subgenital plate with two longitudinal ridges extending forwards from posterior margin, these ridges often spined…….…...***O. hyla hyla*** Serville, 1831
- Ventral surface of subgenital plate without longitudinal ridges or with only slight traces of them apically and they are not at all spined……...***O. hyla intricata*** (Stal, 1861)
6. Lateral longitudinal ridges on ventral surface of subgenital plate without spines except at apices……... ……..…***O. japonica japonica*** (Thunberg, 1815)
- Lateral longitudinal ridges on ventral surface of subgenital plate bear spines along their length…….. ……***O. japonica vitticollis*** (Blanchard, 1853)
7. Posterior margin of female subgenital plate withs one or two spines medially…….. ……..……***O. chinensis chinensis*** (Thunberg, 1815)
- Posterior margin of female subgenital plate almost straight and smooth……..***O.fuscovittata*** (Marschall, 1836)

***Oxya fuscovittata* (Marschall, 1836)**
Gryllus fuscovittatus Marschall, 1836. *Ann. Naturhist. Mus. Wien.* 1(2): 211.
Oxya turanica Uvarov, 1912. *Trudy Russk. Entomol. Obshch*. 40(3): 28. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent.* 26(7): 289.
Oxya oryzivora Willemse, 1925. *Tijdschr. v. Entomologie.* 68: 25. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent.* 26(7): 289.
Oxya uvarovi Willemse, 1925. *Tijdschr. v. Entomologie.* 68: 11, 22. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent.* 26(7): 289.
Oxya fuscovittata (Marschall); Mishchenko, 1965. *Fauna of Russia Orthopt*. 148[125].

Materials examined: INDIA, Punjab, Gurdaspur, 5♂♂, 3♀♀, 06-IX-2009, on paddy; Hoshiarpur, 3♂♂, 08-IX-2009, on paddy; Jalandhar, 1♀, 13-IX-2009, on paddy; 3♀♀, 13-IX-2009, on paddy.

Measurements (length in mm):
Male: Body: 21.93; Pronotum: 4.55; Antenna: 9.21; Tegmina: 18.74; Hind Femur: 14.20.
Female: Body: 26.28; Pronotum: 6.09; Antenna: 8.43; Tegmina: 23.81; Hind Femur: 16.69.

Distribution: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Uttar Pradesh and West Bengal.

***Oxya hyla hyla* Serville, 1831**
Oxya hyla Serville, 1831. *Ann. Sci. nat.* 22(86): 28-65, 134-167, 262-292.
Heteracris viridivitta Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum.* 4: 605-801. Syn. By Bolivar, 1918. *Trab. Mus. Cienc. nat., Madrid (Ser. zool.)*. 34: 15.
Oxya acuminata Willemse, 1925. *Tijdschr. v. Entomologie.* 68: 42. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent*. 26(7): 282.
Oxya ebneri Willemse, 1925. *Tijdschr. v. Entomologie.* 68: 46. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent*. 26(7): 282.
Oxya multidentata Willemse, 1925. *Tijdschr. v. Entomologie.* 68: 44. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent*. 26(7): 282.
Oxya hyla hyla Serville; Nayeem and Usmani, 2012. *Munis Entomology & Zoology.* 7(1): 397.

Materials examined: INDIA, Punjab, Amritsar, 7♂♂, 5♀♀, 01-IX-2009, on paddy; 9♂♂, 9♀♀, 7 nymphs, 04-IX-2009, on paddy; Hoshiarpur, 14♂♂, 8♀♀, 08-IX-2009, on paddy; Nawanshahar, 1♂, 2♀♀, 09-IX-2009, on paddy; Kapurthala, 2♂♂, 4♀♀, 10-IX-2009, on paddy; Nawanshahar, 4♂♂, 10-IX-2009, on paddy; Jalandhar, 1♀, 12-IX-2009, on paddy; 3♂♂, 2♀♀, 13-IX-2009, on paddy; 1♂, 13-IX-2009, on grasses; Kapurthala, 9♂♂, 4♀♀, 14-IX-2009, on paddy; Mansa, 8♂♂, 6♀♀, 09.XI.2010, on jowar; Muktsar, 3♂♂, 14♀♀, 10.XI.2010, on jowar; Bhathinda, 9♂♂, 9♀♀, 11.XI.2010, on grasses; Moga, 8♂♂, 12♀♀, 13.XI.2010, on grasses; Rupnagar, 7♂♂, 7♀♀, 15.XI.2010, on grasses; Ludhiana, 1♂, 16.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 22.50; Pronotum: 4.42; Antenna: 8.09; Tegmina: 19.05; Hind Femur: 13.13.
Female: Body: 26.59; Pronotum: 5.16; Antenna: 7.96; Tegmina: 27.21; Hind Femur: 15.73.

Distribution: Andhra Pradesh, Arunachal Pradesh, Bihar, Assam, Himachal Pradesh, Jammu and Kashmir, Madhya Pradesh, Manipur, Meghalaya, Nagaland, Orissa, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttrakhand, Goa, Delhi, Chattisgarh, Kerala, Gujarat, Uttar Pradesh and West Bengal.

***Oxya hyla intricata* Stal, 1860**
Acridium* (*Oxya*) *intricatum Stal, 1860. *Kongliga Svenska fregatten Eugenies Resa omkring Jorden under befal af C.A. Virgin aren 1851-1853 (Zoologi)*, 2(1): 335.
Oxya insularis Willemse, C. 1925. *Tijdschr. v. Entomologie*, 68: 34. Syn. By Uvarov, 1926. *Bull. Ent. Res.* 17: 47.
Oxya siamensis Willemse, C. 1925. *Tijdschr. v. Entomologie*, 68: 11. Syn. By Willemse, C. 1955. *Publ. natuurhist. Genootsch*. Limburg, 8: 149.
Oxya universalis Willemse, C. 1925. *Tijdschr. v. Entomologie*, 68: 11. Syn. By Uvarov, 1926. *Bull. Ent. Res*. 17: 47.
Oxya moluccensis Ramme, 1941. *Mitt. Zool. Mus. Berlin*, 25: 214. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent.* 26(7): 287.
Oxya hyla intricata Stal; Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent*. 26(7): 287.

Materials examined: INDIA, Punjab, Amritsar, 1♂, 04-IX-2009, on paddy; Gurdaspur, 3♂♂, 1♀, 06-IX-2009, on paddy; Hoshiarpur, 3♀, 08-IX-2009, on paddy; Kapurthala, 2♀♀, 14-IX-2009, on paddy; Rupnagar, 4♂♂, 1♀♀, 15.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 23.02; Pronotum: 5.92; Antenna: 7.93; Tegmina: 21.81; Hind Femur: 16.62.
Female: Body: 26.5; Pronotum: 6.4; Antenna: 8.05; Tegmina: 23.02; Hind Femur: 17.6.

Distribution: Andhra Pradesh, Arunachal Pradesh, Himachal Pradesh, Manipur, Meghalaya, Nagaland, Tripura and Uttar Pradesh.

***Oxya velox* (Fabricius, 1787)**
Gryllus velox Fabricius, 1787. *Mantissa insectorum exhibens species nuper in Etruria collectas a Ptro Rossio.* 1: 239.
Oxya velox Fabricius; Brunner, 1861. *Verh. der Zoologisch-Botanischen Gesellsch. Wien.* 11: 223.
Heteracris apta Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum.* 4: 666. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent.* 26(7): 297.
Oxya velox Fabricius; Nayeem and Usmani, 2012. *Munis Entomology & Zoology.* 7(1): 397.

Materials examined: INDIA, Punjab, Amritsar, 1♂, 04-IX-2009, on paddy; Gurdaspur, 12♂♂, 1♀, 06-IX-2009, on paddy; Hoshiarpur, 1♀, 08-IX-2009, on paddy; Kapurthala, 3♀♀, 14-IX-2009, on paddy; Rupnagar, 2♂♂, 2♀♀, 15.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 26.22; Pronotum: 6.02; Antenna: 9.33; Tegmina: 27.81; Hind Femur: 17.62.
Female: Body: 27.47; Pronotum: 6.64; Antenna: 9.07; Tegmina: 28.02; Hind Femur: 18.48.

Distribution: Andhra Pradesh, Arunachal Pradesh, Bihar, Assam, Himachal Pradesh, Jammu and Kashmir, Madhya Pradesh, Manipur, Meghalaya, Nagaland, Orissa, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttrakhand, Uttar Pradesh and West Bengal.

***Oxya grandis grandis* Willemse, 1925**
Oxya grandis Willemse, 1925. *Tijdschr. v. Entomologie*, 68: 36.
Oxya grandis Willemse; Usmani & Shafee, 1985. *Oriental insect*. 19: 315.

Materials examined: INDIA, Punjab, Amritsar, 5♀♀, 04-IX-2009, on paddy; Gurdaspur, 13♀♀, 06-IX-2009, on paddy; Jalandhar, 2♀♀, 13-IX-2009, on paddy.

Measurements (length in mm):
Female: Body: 26.17; Pronotum: 6.46; Antenna: 9.30; Tegmina: 27.90; Hind Femur: 19.09.

Distribution: Assam, Punjab and Kerala.

***Oxya chinensis chinensis* (Thunberg, 1815)**
Gryllus chinensis Thunberg, 1815. *Mem. Acad. Imp. Sci. St. Peterburg*, 5: 253.
Gryllus lutescens Thunberg, 1815. *Mem. Acad. Imp. Sci. St. Peterburg*, 5: 253. Syn. By Willemse, C. 1955. *Publ. natuurhist. Genootsch.* Limburg, 8: 156.
Oxya lobata Stal, 1877. *Ofv. K. Vetensk. Akad. Forh*. 34(10): 53. Syn. By Willemse, C. 1955. *Publ. natuurhist. Genootsch.* Limburg, 8: 157.
Oxya chinensis (Thunberg, 1815) Willemse, C. 1930. *Tijdschr. v. Entomologie*, 73: 209.

Materials examined: INDIA, Punjab, Gurdaspur, 1♂, 1♀, 06-IX-2009, on paddy; Kapurthala, 1♀, 10.XI.2010, on jowar; Bhathinda, 2♂♂, 3♀♀, 11.XI.2010, on grasses; Rupnagar, 2♂♂, 5♀♀, 15.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 23.05; Pronotum: 3.66; Antenna: 7.33; Tegmina: 23.54; Hind Femur: 13.69.
Female: Body: 29.33; Pronotum: 3.87; Antenna: 6.10; Tegmina: 29.30; Hind Femur: 16.93.

Distribution: Meghalaya, Kerala and Punjab.

***Oxya japonica japonica* (Thunberg, 1824)**
Gryllus japonicus Thunberg, 1815, *Mem. Acad. Sci. St. Petersb.* 5: 253.
Acridium vittigera Blanchard, 1853. *Voyage au Pole Sud et dans l Oceanie sur les Corvettes l Astrolabe et la Zelee execute par ordre du roi pendant les annees* 1837-1838-1839-1840, 371. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent.* 26(7): 302.
Acridium sinense Walker, 1870. *Cat. Derm. Salt. Brit. Mus.* 628. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent.* 26(7): 302.
Heteracris straminea Walker, 1870. *Cat. Derm. Salt. Brit. Mus.* 666. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent.* 26(7): 302.
Heteracris simplex Walker. 1870, *Cat. Derm. Salt. Brit. Mus.* 669. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent.* 26(7): 302.
Oxya asinensis Willemse, 1925. *Tijdschr. Ent.* 68: 32. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent.* 26(7): 302.
Oxya rufostriata Willemse, 1925. *Tijdschr. Ent.* 68: 33. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent.* 26(7): 302.
Oxya sinensis Willemse, 1925. *Tijdschr. v. Entomologie.* 68: 13, 49. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent.* 26(7): 302.
Oxya japonica japonica (Thunberg); Nayeem & Usmani. 2012. *Munis Entomology & Zoology.* 7(1): 397.

Materials examined: INDIA, Punjab, Gurdaspur, 1♂, 1♀, 06-IX-2009, on paddy; Hoshiarpur, 1♂, 2♀♀, 07-IX-2009, on maize; Nawanshahar, 1♀, 10-IX-2009, on paddy; Kapurthala, 5♂♂, 3♀♀, 14-IX-2009, on paddy; Muktsar, 1♀, 10.XI.2010, on jowar; Bhathinda, 4♂♂, 4♀♀, 11.XI.2010, on grasses; Rupnagar, 3♂♂, 3♀♀, 15.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 25.05; Pronotum: 5.66; Antenna: 10.33; Tegmina: 26.54; Hind Femur: 16.69.
Female: Body: 32.33; Pronotum: 6.87; Antenna: 9.10; Tegmina: 32.30; Hind Femur: 19.93.

Distribution: Uttar Pradesh, Rajasthan, Tamil Nadu, Tripura, West Bengal, Gujarat, Bihar, Assam, Manipur, Karnataka, Kerala and Punjab.

***Oxya japonica vitticollis* (Blanchard, 1853)**
Acridium vitticollis Blanchard, E. 1853. In Hombron & Jacquinot [Ed.]. 1837-1838-1839-1840: 371.
Acridium vittigerum Blanchard, E. 1853. In Hombron & Jacquinot [Ed.]. 1837-1838-1839-1840: 371. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent*. 26(7): 307.
Heteracris gavisa Walker, F. 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum*, 4: 669. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent*. 26(7): 307.
Oxya gavisa aurantiaca Willemse, C. 1935. *Entomol. Ber*. 9(206): 179. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent*. 26(7): 307.
Oxya gavisa brachyptera Willemse, C. 1955. *Publ. natuurhist. Genootsch. Limburg*, 8: 156. Syn. By Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent*. 26(7): 307.
Oxya japonica vitticollis (Blanchard, 1853); Hollis, 1971. *Bull. Br. Mus. (Nat. Hist.) Ent*. 26(7): 307.

Materials examined: INDIA, Punjab, Hoshiarpur, 1♂, 2♀♀, 07-IX-2009, on maize; Kapurthala, 2♂♂, 3♀♀, 14-IX-2009, on paddy; Bhathinda, 1♂♂, 2♀♀, 11.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 24.05; Pronotum: 4.66; Antenna: 9.33; Tegmina: 25.54; Hind Femur: 15.69.
Female: Body: 31.33; Pronotum: 5.87; Antenna: 8.10; Tegmina: 31.30; Hind Femur: 18.93.

Distribution: Uttar Pradesh, Tamil Nadu, Tripura, Gujarat,

Bihar, Kerala and Punjab.

Genus *Gesonula* Uvarov, 1940

The genus is represented by single species from this region.

***Gesonula punctifrons* (Stal, 1861)**

Acridium (Oxya) punctifrons Stal, 1861. *Kongliga Svenska fregatten Eugenies Resa omkring jorden under befal af C.A. Virgin aren* 1851-1853 (Zoologi). 2(1): 336.

Heteracris tenuis Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum.* 4: 647, 668. Syn. By Bolivar, 1918. *Trab. Mus. Cienc. nat., Madrid (Ser. zool.).* 34: 14.

Gesonia punctifrons (Stal); Bolivar, 1902. *Ann. Soc. ent. Fr.* 70: 613.

Racilia okinawaensis Shiraki, 1910. *Acrididen Japans.* 58. Syn. By Willemse, 1955. *Publ. natuurhist. Genootsch. Limburg*. 8: 161.

Gesonula punctifrons (Stal); Mishchenko, 1965. *Fauna of Russia Orthopt*. 171[146].

Materials examined: INDIA, Punjab, Mansa, 1♂, 1♀, 09.XI.2010, on jowar.

Measurements (length in mm):

Male: Body: 18.80; pronotum: 4.14; antenna: 7.71; tegmina: 18.81; hind femur: 11.09.

Female: Body: 23.38; pronotum: 4.60; antenna: 7.53; tegmina: 22.70; hind femur: 12.70.

Distribution: Andman and Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chattisgarh, Delhi, Goa, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Nagaland, Orissa, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal.

3.3 Subfamily Spathosterninae Rehn, 1957

Spathosternini Rehn, 1957. *Grasshoppers and Locusts (Acridoidea) of Australia.* 3: 93.

Type genus: *Spathosternum* Krauss, 1877. *Anz. Akad. Wiss. Wien.* 14: 143.

Diagnosis: Body small to medium sized. Antenna filiform. Head sub-conical; frons usually oblique. Fastigium of vertex short. Pronotum flattened, median and lateral carinae well developed; dorsum crossed by three sulci. Prosternal process transverse, lamellate, subquadrate or approximately so in outline. Mesosternal interspace open, narrow and longer than wide; mesosternal lobes rounded. Tegmina and wings fully developed, reduced or absent; radial area of tegmina with series of regular, parallel transverse stridulatory veinlets. Tympanum present. Lower basal lobe of hind femur shorter than upper one. External apical spine of hind tibiae usually present; arolium large. Apical abdominal tergite with well indicate or subobsolete furcular lobes. Male cercus usually conical. Epiphallus bridge undivided medially; ancorae and lophi present. Aedeagus, basal and apical valves flexure. Female, external edge of ovipositor valves smooth. Spermatheca, pre-apical diverticulum longer than apical diverticulum. Stridulatory mechanism present (thickened veinlets in radial areas of elytron).

There are three features, the combination of which characterizes this subfamily. These are the presence of furcular lobes in male, stridulatory veinlets in radial area of tegmina and shape of prosternal process. None of these characters could be regarded as absolute, since they can be found separately in other subfamilies of Acrididae. However, their combination defines the Spathosterninae as a natural group.

Remarks: Priority for family-group names based on *Spathosternum* dates from Spathosternini Rehn, 1957. First used as Spathosterninae by Key, 1992.

The subfamily is represented by single genus and species from this region.

***Spathosternum prasiniferum prasiniferum* (Walker, 1871)**

Heteracris prasinifera Walker, 1871. *Cat. Derm. Salt. Br. Mus.* London. 65.

Caloptenus caliginosus Walker, 1871. *Cat. Derm. Salt. Br. Mus.* London. 69. Syn. By Bey-Bienko & Mishchenko, 1951. *Locusts and Grasshoppers of the U.S.S.R. and Adjacent Countries.* 1: 160[168].

Stenobothrus strigulatus Walker, 1871. *Cat. Derm. Salt. Br. Mus.* London. 82. Syn. By Bey-Bienko & Mishchenko, 1951. *Locusts and Grasshoppers of the U.S.S.R. and Adjacent Countries.* 1: 160[168].

Stenobothrus simplex Walker, 1871. *Cat. Derm. Salt. Br. Mus.* London. 82. Syn. By Bolivar, 1899. *Ann. Soc. Entom. Belgique*. 43: 589.

Stenobothrus rectuss Walker, 1871. *Cat. Derm. Salt. Br. Mus.* London. 83. Syn. By Bey-Bienko & Mishchenko, 1951. *Locusts and Grasshoppers of the U.S.S.R. and Adjacent Countries.* 1: 160[168].

Spathosternum prasiniferum (Walker); Nayeem and Usmani, 2012. *Munis Entomology & Zoology*. 7(1):398.

Material examined: INDIA, Punjab, Amritsar, 6♂♂, 5♀♀, 01-IX-2009, on paddy; 1♂, 2♀♀, 04-IX-2009, on paddy; Gurdaspur, 4♂♂, 4♀♀, 06-IX-2009, on grasses; 2♂♂, 2♀♀, 06-IX-2009, on paddy; Hoshiarpur, 1♂, 1♀, 07-IX-2009, on maize; 5♂♂, 1♀, 08-IX-2009, on grasses; Kapurthala, 2♂♂, 1♀, 10-IX-2009, on grasses; Jalandhar, 2♂♂, 4♀♀, 12-IX-2009, on paddy; 1♂, 1♀, 13-IX-2009, on grasses; Mansa, 1♀, 09.XI.2010, on grasses; 4♂♂, 3♀♀, 09.XI.2010, on jowar; Muktsar, 7♂♂, 5♀♀, 10.XI.2010, on grasses; Bhathinda, 3♂♂, 3♀♀, 11.XI.2010, on grasses; 3♀♀, 11.XI.2010, on grasses; Faridkot, 5♂♂, 4♀♀, 12.XI.2010, on grasses; Moga, 7♂♂, 4♀♀, 13.XI.2010, on grasses; Firozpur, 1♀, 14.XI.2010, on grasses; Rupnagar, 8♂♂, 10♀♀, 15.XI.2010, on grasses; Ludhiana, 10♂♂, 17♀♀, 16.XI.2010, on grasses.

Measurements (length in mm):

Male: Body: 16.16; Pronotum: 2.80; Antenna: 4.90; Tegmina: 13.78; Hind Femur: 7.87.

Female: Body: 18.18; Pronotum: 3.59; Antenna: 3.96; Tegmina: 14.76; Hind Femur: 9.44.

Distribution: Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Delhi, Rajasthan, Uttar Pradesh, Bihar, West Bengal, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, Karnataka, Kerala, Andhra Pradesh, Arunachal Pradesh and Goa.

3.4. Subfamily Hemiacridinae Dirsh, 1956

Hemiacridinae, Dirsh, 1956. *Trans. R. Entomol. Soc. London.* 108(7): 255.

Type genus: *Hemiacris* Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum*. 4: 605-801.

Diagnosis: Body of variable shape. Antenna filiform. Head prognathous, orthognathous or opisthognathous; frons usually oblique. Fastigium of vertex short. Pronotum cylindrical with weak median carina; lateral carina absent; dorsum crossed by three sulci. Prosternal process present. Mesosternal interspace open or closed. Elytra and wings fully developed, reduced or absent; radial area of elytron with series of regular, thickened, transverse, stridulatory veinlets. Tympanum present, in apterous forms absent. Lower basal lobe of hind femur shorter than upper one. External apical spine of hind tibia present or absent; arolium large. Male cercus of variable shape. Epiphallus bridge shaped, sometimes with divided bridge; ancorae and lophi present. Basal and apical valves of aedeagus disconnected, but sometimes there is a tendency to form flexure. Female, external edge of ovipositor valves smooth. Spermatheca, pre-apical diverticulum longer than apical diverticulum. Stridulatory mechanism present (thickened veinlets in radial areas of elytron).

The subfamily was established by Dirsh (1956) on the basis of divided valves of the aedeagus and the presence of a peculiar stridulatory mechanism. The first character is shared with Lithidiinae and also links them to some extent with Tropidopolinae, which have a tendency towards disappearance of the flexure. The peculiar stridulatory mechanism does not occur in other subfamilies of Acrididae.

Remarks: Priority for family-group names based on *Hemiacris* dates from Hemiacridinae Dirsh, 1956. First used as Hemiacridinae by Dirsh, 1956.

The subfamily is represented by single genus from this region.

Genus *Hieroglyphus* Krauss, 1877

The genus is represented by four species from this region. A key for their separation is given below:

Key to species of *Hieroglyphus* Krauss, 1877

1. Prosternal process conical with acute apex; male cercus apically obliquely truncated, bifurcated or bilobate; female subgenital plate ventrally without longitudinal carinae……**2**
- Prosternal process cylindrical with bilobate apex; male cercus simple; female subgenital plate ventrally with two longitudinal carinae……***H. perpolita*** (Uvarov, 1933)
2. Dorsum of pronotum without bands connecting all sulci; male cercus more or less bilobate or bifurcated…..……...**3**
- Dorsum of pronotum with two broad black parallel bands connecting all sulci; male cercus truncated and pointed……...***H. nigrorepletus*** Bolivar, 1912
3. Tegmina short, slightly reaching up to the middle of abdomen; male cercus as long as supra-anal plate, apex appendiculate or slightly bilobate…… ……..…***H. indicus*** Mason, 1973
- Tegmina long surpassing the apex of hind femur; male cercus longer than supra-anal plate, apex bifurcated; female subgenital plate simple, with one pointed lobe…….……***H. banian*** (Fabricius, 1798)

***Hieroglyphus perpolita* (Uvarov, 1933)**

Miramia perpolita Uvarov, 1933. *Trudy Zool. Inst., Akad. Nauk SSSR, Leningrad.* 1(3-4): 224

Hieroglyphus perpolita (Uvarov); Mason, 1973. *Bull. Br. Mus. (Nat. Hist.) Ent.* 28(7): 512.

Material examined: INDIA, Punjab, Bhathinda, 1♂, 1♀, 11.XI.2010, on grasses.

Measurements (length in mm):

Male: Body: 40.06; Pronotum: 7.89; Antenna: 15.91; Tegmina: 30.80; Hind Femur: 17.11.

Female: Body: 58.11; Pronotum: 11.78; Antenna: 18.10; Tegmina: 41.48; Hind Femur: 23.17.

Distribution: Punjab.

***Hieroglyphus nigrorepletus* Bolivar, 1912**

Hieroglyphus nigrorepletus Bolivar, 1912. *Trab. Mus. Cienc. Nat. madr*. 6: 56.

Hieroglyphus bettoni Kirby, 1914. *Acrididae,* 203. Syn. By Bolivar, 1918. *Trab. Mus. Cienc. nat., Madrid (Ser. zool.).* 34: 29.

Hieroglyphus vastator Carl, 1916. *Rev. Suisse Zool.,* Geneva. 24(6): 481. Syn. By Mason, 1973. *Bull. Br. Mus. (Nat. Hist.) Ent.* 28(7): 526.

Hieroglyphus nigrorepletus Bolivar; Nayeem and Usmani, 2012. *Munis Entomology & Zoology.* 7(1): 398.

Material examined: INDIA, Punjab, Hoshiarpur, 1♂, 07-IX-2009, on maize; 2♂♂, 2♀♀, 08-IX-2009, on paddy; Nawanshahar, 1♂, 1♀, 09-IX-2009, on paddy; Kapurthala, 1♂, 10-IX-2009, on grasses; 1♀, 10-IX-2009, on paddy; Nawanshahar, 1♀, 10-IX-2009, on paddy; Jalandhar, 10♂♂, 4♀♀, 12-IX-2009, on paddy; 10♂♂, 5♀♀, 12-IX-2009, on grasses; Mansa, 1♀, 09.XI.2010, on grasses.

Measurements (length in mm):

Male: Body: 34.03; Pronotum: 7.16; Antenna: 14.34; Tegmina: 28.85; Hind Femur: 15.94.

Female: Body: 43.33; Pronotum: 8.02; Antenna: 12.60; Tegmina: 15.21; Hind Femur: 18.87.

Distribution: Assam, Bihar, Jammu &Kashmir, Karnataka, Maharashtra, Madhya Pradesh, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

***Hieroglyphus indicus* Mason, 1973**

Hieroglyphus indicus Mason, 1973. *Bull. Br. Mus. (Nat. Hist.) Ent*. 28(7): 536.

Hieroglyphus indicus Mason; Kulkarni and Shishodia, 2005. *Conservation Area Series.* 24: 334.

Material examined: INDIA, Punjab, Bhathinda, 1♀, 11.XI.2010, on grasses.

Measurements (length in mm):

Female: Body: 57.86; Pronotum: 12.10; Antenna: 16.43; Tegmina: 22.98; Hind Femur: 25.79.

Distribution: Maharashtra and Punjab.

***Hieroglyphus banian* (Fabricius, 1798)**

Gryllus banian Fabricius, 1798. *Supplementum Entomologiae systematicae*. 194.

Acridum furcifer Serville, 1839. *Orthopteres.* 677. Syn. By Bolivar, 1918. *Trab. Mus. Cienc. nat., Madrid (Ser. zool.).* 34: 28.

Hieroglyphus banian elongata Uvarov, 1922. *Bull. Ent. Res.* 13(2): 238. Syn. By Mason, 1973. *Bull. Br. Mus. (Nat. Hist.) Ent*. 28(7): 540.

Hieroglyphus banian (Fabricius); Nayeem and Usmani, 2012. *Munis Entomology & Zoology.* 7(1): 398.

Material examined: INDIA, Punjab, Amritsar, 1♀, 01-IX-2009, on paddy; 13♂♂, 1♀, 04-IX-2009, on paddy; Gurdaspur, 2♂♂, 1♀, 1 nymph, 06-IX-2009, on paddy; Hoshiarpur, 9♂♂, 9♀♀, 08-IX-2009, on paddy; Nawanshahar, 6♂♂, 1♀, 09-IX-2009, on paddy; Kapurthala, 8♂♂, 4♀♀, 10-IX-2009, on paddy; Nawanshahar, 4♂♂, 10-IX-2009, on paddy; Jalandhar, 2♂♂, 1♀, 12-IX-2009, on paddy; 1♂, 12-IX-2009, on grasses; 3♂♂, 1♀, 1 nymph, 13-IX-2009, on paddy.

Measurements (length in mm):
Male: Body: 42.01; Pronotum: 7.59; Antenna: 20.39; Tegmina: 32.84; Hind Femur: 20.46.
Female: Body: 55.19; Pronotum: 8.90; Antenna: 17.76; Tegmina: 41.66; Hind Femur: 25.65.

Distribution: West Bengal, Andhra Pradesh, Sikkim, Himachal Pradesh, Bihar, Orissa, Rajasthan, Maharashtra, Tamil Nadu and Uttar Pradesh.

3.5. Subfamily Tropidopolinae Jacobson, 1905
Tropidopolini Jacobson, 1905. *Orthopteroid and Pseudoneuropteroid Insects of Russian Empire and adjacent countries*. 73, 306.
Type genus: ***Tropidopola*** Stal, 1873. *Revue critique des Orthopteres decrits par Linne, De Geer et Thunberg.* 1: 43, 86.

Diagnosis: Body cylindrical, elongated (sometimes strongly). Antenna filiform. Head from strongly elongated and acutely conical to subglobular; frons usually oblique. Fastigium of vertex short. Pronotum cylindrical to flattened; median and lateral carinae of pronotum present or absent; dorsum crossed by three sulci. Prostemal process beak-like or cylindrical or with widened, flat or concave apical surface. Mesosternal interspace closed. Elytra and wings fully developed or reduced. Tympanum present. Lower basal lobe of hind femur shorter than upper one. External apical spine of hind tibia present; arolium of medium size. Apical abdominal tergite without furcular lobes. Male cercus of variable shape. Epiphallus bridge-shaped, sometimes divided; ancorae and lophi present. Flexure between basal and apical valves of aedeagus has tendency to disappear. Female, external edge of ovipositor valves serrated. Spermatheca, pre-apical diverticulum longer than apical diverticulum. Stridulatory mechanism sometimes present (thickened veinlets in costal and subcostal areas of elytron).
There are four features, the combination of which characterizes this subfamily. These are the closed mesosternal interspace, the presence of an external apical spine on the hind tibia, a tendency towards losing the flexure between the basal and apical valves of the aedeagus, and the shape of the prosternal process. None of these characters could be regarded as absolute, since they can be found separately in other subfamilies of Acrididae. However, their combination defines the Tropidopolinae as a natural group.

Remarks: Priority for family-group names based on *Tropidopola* dates from Tropidopolini Jacobson, 1905. First used as Tropidopolinae by Dirsh, 1961.
The subfamily is represented by single genus and species from this region.

***Tropidopola longicornis longicornis* (Fieber, 1853)**
Opsomala longicornis Fieber, 1853. *Lotos.* 3: 98.
Opsomala syrica Walker, 1871. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum Supplement*: 51. Syn. By Mishchenko, 1965. *Fauna of Russia Orthopt*. 190[164].
Opomala cylindrica Giglio-Tos, 1893. *Boll. Musei Zool. Anat. Comp. R. Univ. Torino.* 8(164): 11. Syn. By Massa & Fontana, 1998. *Boll. Mus. civ. St. nat. Verona*. 22: 76.
Tropidopola nigerica indica Uvarov, 1937. *Ann. Mag. nat. Hist*. 10 (19): 519. Syn. By Mishchenko, 1965. *Fauna of Russia Orthopt*. 190[164].
Tropidopola longicornis (Fieber); Massa, 2009. *Jour. Orth. Res.* 18(1): 81.

Material examined: INDIA, Punjab, Kapurthala, 1♂, 1♀, 14-IX-2009, on grasses.

Measurements (length in mm):
Male: Body: 33.99; Pronotum: 5.13; Antenna: 8.76; Tegmina: 22.00; Hind Femur: 13.15.
Female: Body: 46.43; Pronotum: 7.10; Antenna: 10.11; Tegmina: 31.05; Hind Femur: 17.32.

Distribution: Bihar, Maharastra and Punjab

3.6. Subfamily Eyprepocnemidinae Brunner, 1893
Euprepocnemes Brunner, 1893. *Ann. Mus. Civ. Stor. Nat. Genov.* 2-13(33): 150.
Type genus: ***Eyprepocnemis*** Fieber, 1853. *Lotos.* 3: 98.

Diagnosis: Size small to large. Antenna filiform. Head sub-conical to sub-globular; frons usually oblique. Fastigium of vertex short and merging roundly with frontal ridge; inter-ocular distance wide. Pronotum usually flat with median and lateral carinae (lateral sometimes obliterated); dorsum crossed by three sulci. Prosternal process cylindrical or antero-posteriorly compressed. Mesosternal interspace open, mesosternal lobes rounded. Elytra and wings fully developed or reduced. Tympanum present. Lower basal lobe of hind femur shorter than upper one. External apical spine of hind tibia absent; arolium of medium size. Male cercus at apex flattened, widened or sub-acute and down curved. Epiphallus bridge-shaped, mostly with poorly sclerotized bridge; ancorae and lophi present. Basal and apical valves of aedeagus flexured. Female, external edge of ovipositor valves serrated. Spermatheca, pre-apical diverticulum longer than apical diverticulum. Stridulatory mechanism not found.
The subfamily Eyprepocnemidinae was established by Jakobson (Jakobson & Bianki, 1904), but was disregarded by later authors and considered as part of the subfamily Catantopinae and in 1952 Mishchenko treated it as a tribe of it. The subfamily is defined by the following combination of characters: a weakly sclerotized and rather wide bridge of the epiphallus, with curved and sometimes rather complicated ancorae; slender hind femur (with few exceptions); rounded and rather wide fastigium of the vertex; presence of lateral carinae on the pronotum (rarely obliterated); and apically compressed male cerci. These characters are not confined to the Eyprepocnemidinae, but their combination defines the Eyprepocnemidinae as a natural group.

Remarks: Priority for family-group names based on *Eyprepocnemis* dates from Euprepocnemes Brunner, 1893.

First used as Eyprepocnemidinae by Dirsh, 1961.
The subfamily is represented by two genera from this region. A key for their separation is given below:

Keys to Genera of Eyprepocnemidinae Brunner, 1893

1. Fastigium of vertex without median carinula; metazona as long as prozona……..***Eyprepocnemis*** Fieber, 1853
- Fastigium of vertex with median carinula; metazona shorter than prozona…….***Heteracris*** Walker, 1870

Genus *Eyprepocnemis* Fieber, 1853
The genus is represented by one species from this region.

***Eyprepocnemis alacris alacris* (Serville, 1838)**
Acridium alacre Serville, 1838. *Histoire naturelle des insectes. Orthopteres.* 682.
Acridium deponens Walker, 1859. *Ann. Mag. nat. Hist.* 3(4): 222. Syn. By Willemse, 1957. *Publ. natuurhist. Genootsch. Limburg*. 10: 241.
Heteracris rudis Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum.* 4: 662, 664. Syn. By Willemse, 1957. *Publ. natuurhist. Genootsch. Limburg*. 10: 241.
Caloptenus reductus Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum.* 4: 714. Syn. By Dirsh, 1958. *Proc. R. Ent. Soc. London*. (B) 27: 33-45.
Acridium scitulum Walker, 1871. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum Supplement*. 62. Syn. By Willemse, 1957. *Publ. natuurhist. Genootsch. Limburg*. 10: 241.
Euprepocnemis plorans intermedia Bolivar, 1902. *Ann. Soc. ent. Fr*. 70: 630. Syn. By Willemse, 1957. *Publ. natuurhist. Genootsch. Limburg*. 10: 241.
Eyprepocnemis alacris alacris (Serville); Nayeem and Usmani, 2012. *Munis Entomology & Zoology*. 7(1): 402.

Material examined: INDIA, Punjab, Gurdaspur, 1♂, 1 nymph, 06-IX-2009, on paddy; Rupnagar, 2♂♂, 1♀, 15.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 25.12; Pronotum: 4.81; Antenna: 9.38; Tegmina: 23.40; Hind Femur: 14.52.
Female: Body: 33.79; Pronotum: 6.19; Antenna: 10.52; Tegmina: 28.25; Hind Femur: 19.04.

Distribution: Tamil Nadu, Uttar Pradesh, Assam, Manipur, Meghalaya, Kerala, Andhra Pradesh, Punjab, Haryana, Rajasthan, Himachal Pradesh, Jammu & Kashmir, Arunachal Pradesh, Bihar, Chhattisgarh, Delhi, Goa, Karnataka, Madhya Pradesh, Orissa, Sikkim, Tripura, West Bengal and Maharashtra.

Genus *Heteracris* Walker, 1870
The genus is represented by three species from this region. A key for their separation is given below:

Key to species of *Heteracris* Walker, 1870

1. Tegmina with dark irregular or transverse patches ……..……...……**2**
- Tegmina without dark patches; prosternal process cylindrical……***H. nobilis*** (Brancsik, 1893)

2. Prosternal process antero-posteriorly compressed with slightly transverse apex…….***H. littoralis*** (Rambur, 1838)
- Prosternal process subcylindrical with obtuse apex……...***H. pulcher*** (Bolivar, 1902)

***Heteracris nobilis* (Brancsik, 1893)**
Euprepocnemis nobilis Brancsik, 1893. *Jahresh. Naturwiss. Ver. Trencsiner Comit.* 15-16: 195.
Heteracris nobilis (Brancsik); Dirsh, 1962. *Bull. Br. Mus. (Nat. Hist.) Ent.* 12(6): 275.

Material examined: INDIA, Punjab, Faridkot, 1♂, 1♀, 12.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 30.19; Pronotum: 6.15; Antenna: 11.30; Tegmina: 28.10; Hind Femur: 19.38.
Female: Body: 51.88; Pronotum: 8.86; Antenna: 15.93; Tegmina: 39.70; Hind Femur: 28.83.

Distribution: Punjab, Haryana and Himachal Pradesh.

***Heteracris littoralis* (Rambur, 1838)**
Gryllus littoralis Rambur, 1838. *Faune entomologique de l'Andalousie. Orthoptera 3(Orth. 2)*. 78.
Caloptenus similis Brunner, 1861. *Verh. der Zoologisch-Botanischen Gesellsch. Wien.* 11: 224. Syn. By Grunshaw, 1991. *Nat. Resour. Inst. Bull*. 38: 18.
Cyrtacanthacris notata Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum*. 3: 574. Syn. By Uvarov, 1939. Novit. zool. 41: 377.
Heteracris littoralis aethiopica Carl, 1916. *Revue Suisse de Zool*. 24(6): 493. Syn. By Grunshaw, 1991. *Nat. Resour. Inst. Bull*. 38: 18.
Thisoicetrus littoralis asiaticus Uvarov, 1933. *Trudy Zool. Inst., Akad. Nauk SSSR, Leningrad.* 1(3-4): 230. Syn. By Uvarov, 1939. *Novit. zool*. 41: 381.
Thisoicetrus bituberculatus Bey-Bienko, 1948. *Proc. R. Ent. Soc. London. (B)* 17(5-6): 72. Syn. By Grunshaw, 1991. *Nat. Resour. Inst. Bull*. 38: 18.
Heteracris littoralis (Rambur); Usmani, 2008. *Zootaxa,* 1946: 22.

Material examined: INDIA, Punjab, Jalandhar, 1♂, 12-IX-2009, on grasses; Kapurthala, 2♂♂, 1♀, 14-IX-2009, on grasses; Mansa, 3♂♂, 3♀♀, 09.XI.2010, on grasses; Bhathinda, 13♂♂, 7♀♀, 11.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 26.14; Pronotum: 4.59; Antenna: 10.99; Tegmina: 21.87; Hind Femur: 15.35.
Female: Body: 42.78; Pronotum: 7.07; Antenna: 13.76; Tegmina: 35.07; Hind Femur: 22.16.

Distribution: Bihar, Delhi, Rajasthan, Punjab, Haryana and Uttarakhand.

***Heteracris pulcher* (Bolivar, 1902)**
Euprepocnemis pulcher Bolivar, 1902. *Ann. Soc. ent. Fr.* 70: 630.
Heteracris pulcher (Bolivar); Dirsh, 1958. *Tijdschr. v. Entomologie.* 101: 54.

Material examined: INDIA, Punjab, Jalandhar, 3♂♂, 5♀♀,

12-IX-2009, on grasses.

Measurements (length in mm):
Male: Body: 22.19; Pronotum: 4.31; Antenna: 11.15; Tegmina: 20.58; Hind Femur: 14.21.
Female: Body: 42.54; Pronotum: 6.85; Antenna: 13.72; Tegmina: 35.22; Hind Femur: 21.86.

Distribution: Andhra Pradesh, Bihar, Delhi, Orissa, Tamil Nadu, Uttarakhand, Rajasthan and West Bengal.

3.7. Subfamily Catantopinae Brunner, 1893
Carsulae Brunner, 1893. *Ann. Mus. Civ. Stor. Nat. Genova*. 2-13(33): 137.
Type genus: ***Catantops*** Schaum, 1853. *Ubersicht der von ihm in Mossambique beobachteten Orthopteren nebst Beschreibung der neu entdeckten Gattungen und Arten durch Hrn. Dr. Hermann Schaum. Ber. Akad. Wiss. Berlin*. 779.

Diagnosis: Size from small to large. Antenna usually filiform. Head of variable shape; frons usually vertical. Fastigium of vertex usually short. Pronotum flattened or cylindrical; median carina of pronotum present or absent; lateral carinae only rarely present; dorsum usually crossed by three sulci. Prosternal process present. Mesosternal interspace open, mesostemal lobes rounded. Elytra and wings fully developed, reduced or absent; intercalary vein of medial area of elytron absent (rarely present). Tympanum normally present, rarely absent. Lower basal lobe of hind femur normally shorter than upper one. External apical spine of hind tibia present or absent. Male cercus usually conical. Epiphallus bridge-shaped, sometimes with divided bridge; ancorae mostly present; lophi of variable form, mostly present. Aedeagus, basal and apical valves of aedeagus flexured. Female, external edge of ovipositor valves smooth or serrated. Spermatheca, pre-apical diverticulum longer than apical diverticulum. Stridulatory mechanism not found.
The Catantopinae are closely related to Cyrtacanthacridinae and Acridinae, but may be separated from Cyrtacanthacridinae by the rounded mesosternal lobes; and from Acridinae by the presence of a prosternal process, the absence of an intercalary vein in the medial area of the elytron and the non-articulated ancorae of the epiphallus, although these three characters do occur in certain Acridinae. The subfamily urgently needs further study. It would be premature to attempt to subdivide it now, since there must be a large number of undescribed genera, particularly in the tropics. The large subfamily Catantopinae, even in its present reduced scope, still represents a highly heterogeneous assemblage. It was usual to put into the subfamily any genus which would not fit elsewhere. As a result, the subfamily not only contains the basic group Catantopini but has also been a dumping ground for everything which needs further investigation.

Remarks: Priority for family-group names based on *Catantops* dates from Catantopes Brunner, 1893.
The subfamily is represented by three genera from this region. A key for their separation is given below:

Key to Genera of Catantopinae Brunner, 1893
1. Lateral carina of pronotum absent ……**2**
- Lateral carina of pronotum present……. ……..*****Diabolocatantops*** Jago, 1984

2. Fastigium of vertex with incomplete or complete median carinula; frontal ridge broad and flat or convex; lateral carinae of pronotum excurved; metazona as long as prozona; apex of male abdomen inflated……. ……***Choroedocus*** Bolivar, 1914
- Fastigium of vertex without median carinula; frontal ridge narrow and sulcate; lateral carinae of pronotum parallel; metazona shorter than prozona; apex of male abdomen not inflated……***Eupreponotus*** Uvarov, 1921

Genus *Diabolocatantops* Jago, 1984
The genus is represented by single species from this region.

***Diabolocatantops pinguis* (Stal, 1861)**
Acridium pingue Stal, 1861. *Kongliga Svenska fregatten Eugenies Resa omkring jorden under befal af C.A. Virgin aren 1851-1853 (Zoologi)*. 2(1): 330.
Acridium delineolatum Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum*. 4: 631.
Diabolocantops pinguis (Stal); Jago, 1984. *Trans. Amer. Entomol. Soc*. 110(3): 370.
Diabolocantops pinguis (Stal); Nayeem and Usmani, 2012. *Munis Entomology & Zoology*. 7(1): 403.

Material examined: INDIA, Punjab, Mansa, 3♂♂, 1♀, 09.XI.2010, on grasses; Bhathinda, 3♂♂, 1♀, 11.XI.2010, on grasses; Faridkot, 3♂♂, 12.XI.2010, on grasses; Ludhiana, 1♂, 16.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 26.21; Pronotum: 5.74; Antenna: 8.92; Tegmina: 24.31; Hind Femur: 12.66.
Female: Body: 38.50; Pronotum: 7.02; Antenna: 9.08; Tegmina: 31.95; Hind Femur: 16.54.

Distribution: Sikkim, Kerala, Manipur, Tamil Nadu, Jammu & Kashmir, Punjab and Rajasthan.

Genus *Choroedocus* Bolivar, 1914
The genus is represented by two species from this region. A key for their separation is given below:

Key to species of *Choroedocus* Bolivar, 1914
1. Tegmina without dark spots; prosternal process short, slightly bent backwards, apex slightly transverse……***C. robustus*** (Serville, 1839)
- Tegmina with dark spots; prosternal process long, much bent backwards, apex obtuse..…***C.illustris*** (Walker,1870)

***Choroedocus robustus* (Serville, 1839)**
Acridium robustum Serville, 1838. *Histoire naturelle des insectes. Orthopteres*. 647.
Heteracris ducalis Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum*. 4: 663. Syn. By Kirby, 1910. *A Synonymic Catalogue of Orthoptera (Orthoptera Saltatoria, Locustidae vel Acridiidae)*. 3(2): 555.
Choroedocus robustus (Serville); Li, Hongchang, Kai-Ling Xia *& et al*. 2006. *Fauna Sinica, Insecta*. 43: 602.

Material examined: INDIA, Punjab, Bhathinda, 4♀♀, 11.XI.2010, on grasses; Faridkot, 1♀, 12.XI.2010, on grasses.

Measurements (length in mm):

Female: Body: 60.70; Pronotum: 9.98; Antenna: 17.61; Tegmina: 45.63; Hind Femur: 32.51.

Distribution: West Bengal, Assam, Arunachal Pradesh, Tamil Nadu, Punjab, Uttar Pradesh, Andhra Pradesh, Himachal Pradesh, Manipur, Meghalaya, Nagaland, Sikkim and Tripura.

***Choroedocus illustris* (Walker, 1870)**
Heteracris illustris Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum*. 4: 663.
Choroedocus illustris (Walker); Bhowmik & Halder, 1984. *Rec. Zool. Survey India*. 81(1-2): 182.
Choroedocus illustris (Walker); Gupta, 2008. *Bionotes*. 10(3): 89.

Material examined: INDIA, Punjab, Bhathinda, 1♂, 11.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 39.72; Pronotum: 6.83; Antenna: 14.95; Tegmina: 36.32; Hind Femur: 23.20.

Distribution: Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttarakhand and Punjab.

Genus *Eupreponotus* Uvarov, 1921
The genus is represented by single species from this region.
***Eupreponotus inflatus* Uvarov, 1921**
Eupreponotus inflatus Uvarov, 1921. *Ann. Mag. nat. Hist*. 9-7: 507.
Eupreponotus inflatus Uvarov; Bhowmik, 1986. *Zool. Surv. India, Tech. Monogr*. 14: 161.

Material examined: INDIA, Punjab, Rupnagar, 1♂, 15.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 18.37; Pronotum: 3.71; Antenna: 7.52; Tegmina: 13.20; Hind Femur: 11.37.
Distribution: Uttar Pradesh, Uttarkhand, Orissa, Punjab, Himachal Pradesh and West Bengal.

3.8. Subfamily Oedipodinae Walker, 1871
Oedipodidae Walker, 1871. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum Supplement*. 102.
Type genus: *Oedipoda* Latreille, 1829. *Regne animal*. 2(5): 188.

Diagnosis: Body medium to large, rather sturdy; integument rather rugulose; Antenna usually filiform. Head obtusely rounded; frons usually vertical or nearly so. Fastigium of vertex short. Pronotum with median carina usually well developed, sometimes high, lateral carina absent or weak or partly developed; dorsum usually crossed by posterior transverse sulcus. Prosternal process absent. Mesosternal interspace open. Tegmina and wings fully developed, reduced or absent; medial area of tegmen with intercalary vein, at least in male well developed, serrate forming the file of stridulatory mechanism; wings usually with a dark band. Tympanum present. Hind femur without stridulatory pegs on inner side, lower basal lobe shorter than upper one. External apical spine of hind tibiae usually absent; arolium small. Male cercus conical with rounded apex. Epiphallus, bridge undivided; ancorae well developed, lophi large. Aedeagus, basal and apical valve connected by flexure, basal valve with well developed gonopore process. Female, external edge of ovipositor valves smooth or serrated. Spermatheca, apical diverticulum small or rudimentary, pre-apical diverticulum sac-like.
There are three features, the combination of which characterizes this subfamily. These are the presence of serrated intercalary vein in tegmina, absence of prosternal process and vertical frons. None of these characters could be regarded as absolute, since they can be found separately
in other subfamilies of Acrididae. However, their combination defines the Oedipodinae as a natural group.

Remarks: Priority for family-group names based on *Oedipoda* dates from Oedipodidae Walker, 1871. First used as Oedipodinae by Krauss, 1890.
The subfamily Oedipodinae is represented by six genera from this region. A key for their separation is given below:

Keys to Genera of Oedipodinae Walker, 1871

1. Dorsum of pronotum without X-shaped pattern ……..…**2**
- Dorsum of pronotum with X-shaped pattern……. ……...…….***Oedaleus*** Fieber, 1853

2. Pronotum with median carina crossed by one transverse sulcus or not crossed at all…….**4**
- Pronotum with median carina crossed by two transverse sulci ……...**3**

3. Pronotum with median carina strongly raised in prozona forming two tooth like projections, sharp in metazona……..……***Trilophidia*** Stal, 1873
- Pronotum with median carina equally raised in prozona and metazona, not forming tooth like projection…….……...***Acrotylus*** Fieber, 1853

4. Pronotum with median carina well developed……...…**5**
- Pronotum with median carina weak…….. ……..***Aiolopus*** Fieber, 1853

5. Pronotum with lateral carina well developed…… ……..…***Ceracris*** Walker, 1870
- Pronotum with lateral carina weak or absent……....……..…***Gastrimargus*** Saussure, 1884

Genus *Oedaleus* Fieber, 1853
The genus is represented by two species from this region. A key for their separation is given below:

Key to species of *Oedaleus* Fieber, 1853

1. Hind wing fascia broadly interrupted; anterior termination of hind wing fascia flattened, reaching or just surpassing second anal vein……..……***O. abruptus*** (Thunberg, 1815)
- Hind wing fascia complete or narrowly interrupted at first anal vein……..……***O. senegalensis*** (Krauss, 1877)

***Oedaleus abruptus* (Thunberg, 1815)**
Gryllus abruptus Thunberg, 1815. *Mem. Acad. Imp. Sci. St. Peterburg*. 5: 233.
Oedaleus abruptus (Thunberg); Bolivar, 1902. *Ann. Soc. ent. Fr*. 70: 602.
Oedaleus abruptus (Thunberg); Nayeem and Usmani, 2012. *Munis Entomology & Zoology*. 7(1): 408.

Material examined: INDIA, Punjab, Gurdaspur, 3♂♂, 06-IX-2009, on grasses; Kapurthala, 1♀, 10-IX-2009, on grasses;

Mansa, 1♀, 09.XI.2010, on grasses; Bhathinda, 2♀♀, 11.XI.2010, on grasses; Firozpur, 4♀♀, 14.XI.2010, on grasses; Rupnagar, 2♀♀, 15.XI.2010, on grasses; Ludhiana, 1♂, 3♀♀, 16.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 15.21; Pronotum: 2.97; Antenna: 7.20; Tegmina: 15.40; Hind Femur: 8.52.
Female: Body: 23.61; Pronotum: 3.47; Antenna: 6.91; Tegmina: 18.00; Hind Femur: 10.73.

Distribution: Andhra Pradesh, Arunachal Pradesh, Bihar, Chhattisgarh, Delhi, Goa, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Pondicherry, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.

***Oedaleus senegalensis* (Krauss, 1877)**
Pachytylus senegalensis Krauss, 1877. *S.B. Akad. Wiss. Wien, Math.-Nat. Kl. (Abt. 1)*, 76(1): 56.
Ctypohippus arenivolans Butler, 1881. *Proc. zool. Soc. London*, 1881: 85. Syn. By Johnston, 1956. *Annotated catalogue of African grasshoppers*, 556.
Pachytylus mlokoziewiztcki Bolivar, 1884. *Ann. Soc. Entom. Belgique Comptes Rendues*, 28. Syn. By Uvarov, 1921. *Ann. Mag. nat. Hist.* 9-7: 487.
Oedaleus senegalensis (Krauss, 1877); Schulthess, 1898. *Ann. Mus. Civ. Stor. Nat. Genova*, 39: 188.

Material examined: INDIA, Punjab, Kapurthala, 1♀, 10-IX-2009, on grasses; Firozpur, 3♂, 4♀♀, 14.XI.2010, on grasses; Ludhiana, 1♂, 2♀♀, 16.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 15.23; Pronotum: 2.30; Antenna: 7.23; Tegmina: 15.43; Hind Femur: 8.55.
Female: Body: 23.64; Pronotum: 3.50; Antenna: 6.94; Tegmina: 18.03; Hind Femur: 10.76.

Distribution: Andhra Pradesh, Bihar, Delhi, Jammu & Kashmir, Madhya Pradesh, Punjab, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal.

Genus *Trilophidia* Stal, 1873
This genus is represented by two species from this region. A key for their separation is given below:

Key to species of *Trilophidia* Stal, 1873
1. Body of small size; inner side of hind femur with only one complete pale band; basal disc of wings hyaline; hind tibia with two narrow ochraceous rings……
……..……***T. annulata*** (Thunberg, 1815)
- Body of medium size; inner side of hind femur with two pale bands; basal disc of wings yellow; hind tibia with two broad ochraceous rings.....***T. repleta*** (Walker, 1870)

***Trilophidia annulata* (Thunberg, 1815)**
Gryllus annulatus Thunberg, 1815. *Mem. Acad. Imp. Sci. St. Peterburg*. 5: 234.
Gryllus bidens Thunberg, 1815. *Mem. Acad. Imp. Sci. St. Peterburg*. 5: 235. Syn. By Willemse, 1930. *Tijdschr. v. Entomologie*. 73: 57.
Acridium vulnerata Haan, 1842. *Verhandelingen over de natuurlijke geschiedenis der Nederlandsche overzeesche bezittingen 16 Zoologie*. 161. Syn. By Willemse, 1930. *Tijdschr. v. Entomologie*. 73: 55.
Epacromia turpis Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum*. 4: 775. Syn. By Willemse, 1930. *Tijdschr. v. Entomologie*. 73: 55.
Trilophidia annulata (Thunberg); Bolivar, 1902. *Ann. Soc. ent. Fr*. 70: 604.
Trilophidia annulata (Thunberg); Nayeem and Usmani, 2012. *Munis Entomology & Zoology*. 7(1): 406.

Material examined: INDIA, Punjab, Amritsar, 2♂♂, 1♀, 01-IX-2009, on paddy; Gurdaspur, 2♂♂, 06-IX-2009, on grasses; 1♂, 06-IX-2009, on paddy; Hoshiarpur, 2♂♂, 07-IX-2009, on maize; 1♂, 08-IX-2009, on paddy; Nawanshahar, 5♂♂, 09-IX-2009, on paddy; Kapurthala, 1♂, 10-IX-2009, on grasses; 1♂, 10-IX-2009, on paddy; Nawanshahar, 2♂♂, 1♀, 10-IX-2009, on paddy; Jalandhar, 1♂, 2♀♀, 13-IX-2009, on paddy; 2♂♂, 13-IX-2009, on grasses; Faridkot, 1♀, 12.XI.2010, on grasses; Rupnagar, 6♂♂, 4♀♀, 15.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 16.42; Pronotum: 3.37; Antenna: 6.47; Tegmina: 17.18; Hind Femur: 8.66.
Female: Body: 21.63; Pronotum: 3.79; Antenna: 6.05; Tegmina: 19.01; Hind Femur: 9.43.

Distribution: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh,Delhi, Himachal Pradesh, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Nagaland, Orissa, Rajasthan, Sikkim, Tripura, Uttarakhand, Goa, Tamil Nadu, Uttar Pradesh, Kerala and West Bengal.

***Trilophidia repleta* (Walker, 1870)**
Epacromia repleta Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum*. 4: 770.
Trilophidia antennata Krauss, 1877. *S.B. Akad. Wiss. Wien, Math.-Nat. Kl. (Abt. 1).* 76(1): 57. Syn. By Uvarov, 1925. *Trans. Entomol. Soc. London*. 3-4: 279.
Trilophidia repleta (Walker); Uvarov, 1925. *Trans. Entomol. Soc. London*. 3-4: 279.
Trilophidia repleta (Walker); Nayeem and Usmani, 2012. *Munis Entomology & Zoology*. 7(1): 406.

Material examined: INDIA, Punjab, Amritsar, 4♀♀, 1 nymph, 04-IX-2009, on paddy; Gurdaspur, 1♀, 06-IX-2009, on paddy; Hoshiarpur, 1♀, 07-IX-2009, on maize; Rupnagar, 1♀, 15.XI.2010, on grasses; Ludhiana, 1♀, 16.XI.2010, on grasses.

Measurements (length in mm):
Female: Body: 21.59; Pronotum: 3.88; Antenna: 5.81; Tegmina: 19.27; Hind Femur: 9.29.

Distribution: Punjab, Arunachal Pradesh, Jammu & Kashmir, Haryana and Rajasthan.

Genus *Acrotylus* Fieber, 1853
The genus is represented by two species from this region. A key for their separation is given below:

Key to species of *Acrotylus* Fieber, 1853

1. Tegmina with discoidal area hyaline beyond middle; wings with semilunar fascia on disc; lateral areas on posterior transverse sulcus of pronotum without callous spots; ovipositor valves with tips acute; legs with dense fine hairs…….……***A. humbertianus*** Saussure, 1884
- Tegmina with discoidal area bearing infuscated spots beyond middle; wings with broad lunate fascia on disc; lateral areas on posterior transverse sulcus of pronotum with callous spots; ovipositor valves with tips blunt; legs with sparse fine hairs…… ……..….***A.insubricus insubricus*** (Scopoli, 1786)

***Acrotylus humbertianus* Saussure, 1884**

Acrotylus humbertianus Saussure, 1884, *Mem. Soc. Phys. Geneve*. 28 (9): 189.

Acrotylus humbertianus (Saussure); Ingrisch, 1990. *Spixiana (Munich).* 13: 177.

Material examined: INDIA, Punjab, Kapurthala, 4♀♀, 10-IX-2009, on grasses; Mansa, 2♂♂, 1♀, 09.XI.2010, on grasses; Bhathinda, 3♂♂, 4♀♀, 11.XI.2010, on grasses; Faridkot, 2♀♀, 12.XI.2010, on grasses; Moga, 1♂, 13.XI.2010, on grasses; Firozpur, 2♂♂, 14.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 14.63; Pronotum: 2.45; Antenna: 5.86; Tegmina: 17.02; Hind Femur: 8.60.
Female: Body: 19.39; Pronotum: 2.82; Antenna: 5.90; Tegmina: 19.26; Hind Femur: 9.29.

Distribution: Andhra Pradesh, Bihar, Goa, Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh, Chhattisgarh, Delhi, Haryana, Himachal Pradesh, Madhya Pradesh, Punjab, Tripura and West Bengal.

***Acrotylus insubricus insubricus* (Scopoli, 1786)**

Gryllus insubricus Scopoli, 1786. *Delicidae forae et faunae insubricae pars-I*. 64.

Acrydium maculatum Olivier, 1791. *Encyclopedie Methodique*. 6: 224. Syn. By Johnston, 1956. *Annotated catalogue of African grasshoppers*. 536.

Gryllus fasciatus Fabricius, 1793. *Supplementum Entomologiae Systematicae*. 2: 58. Syn. By Johnston, 1956. *Annotated catalogue of African grasshoppers*. 536.

Oedipoda maderae Serville, 1838. *Histoire naturelle des insectes. Orthopteres*. 730. Syn. By Johnston, 1956. *Annotated catalogue of African grasshoppers*. 536.

Oedipoda variegata Walker, 1870. *Zoologist*. 2-5(28): 2301. Syn. By Johnston, 1956. *Annotated catalogue of African grasshoppers*. 536.

Acrotylus insubricus (Scopoli); Bolivar, 1876. *An. Soc. Espan. Hist. Nat*. 5: 362.

Acrotylus versicolor Burr, 1898. *Trans. Entomol. Soc. London*. 50. Syn. By Johnston, 1956. *Annotated catalogue of African grasshoppers*. 537.

Acrotylus insubricus biskrensis Maran, 1958. *Acta Entomol. Mus. Natl. Pragae*. 32: 171. Syn. By Baccetti and Capra, 1988. *Redia*. 71(2): 572.

Acrotylus insubricus insubricus (Scopoli); Nayeem and Usmani, 2012. *Munis Entomology & Zoology*. 7(1): 408.

Material examined: INDIA, Punjab, Hoshiarpur, 1♀, 07-IX-2009, on maize; Mansa, 4♂♂, 2♀♀, 09.XI.2010, on grasses; Bhathinda, 1♂, 2♀♀, 11.XI.2010, on grasses; Ludhiana, 1♂, 1♀, 16.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 14.04; Pronotum: 2.24; Antenna: 5.51; Tegmina: 15.77; Hind Femur: 8.30.
Female: Body: 21.96; Pronotum: 2.92; Antenna: 7.60; Tegmina: 21.90; Hind Femur: 10.08.

Distribution: Punjab, Rajasthan, Jammu & Kashmir, Himachal Pradesh, Orissa and West Bengal.

Genus *Aiolopus* Fieber, 1853

The genus is represented by three species from this region. A key for their separation is given below:

Key to Indian species of *Aiolopus* Fieber, 1853

1. Hind femora long and slender, narrower than width of tegmina; pronotum saddle shaped, distinctly narrowed and constricted in prozona.....**2**
- Hind femora short and stout, as wide as width of tegmina; pronotum weakly narrowed and moderately constricted in prozona.....***A. simulatrix simulatrix*** (Walker, 1870)
2. Frontal ridge of uniform width with nearly parallel margins; foveolae shorter; hind tibia coloured as in *tumulus* but with a dark ring before the middle and without the bluish median part…….. ……..***A. thalassinus thalassinus*** (Fabricius, 1781)
- Frontal ridge gradually tapered towards the fastigium; foveolae longer; hind tibia in the basal third with a straw-coloured band, in the median part usually bluish, the apicalpart reddish……. ……..……..***A. thalassinus tamulus***(Fabricius, 1798)

***Aiolopus simulatrix simulatrix* (Walker, 1870)**

Epacromia simulatrix Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum*. 4: 773.

Heteropternis savignyi Krauss, 1890. *Zoologische Jahrbucher. Abt. Syst. Geogr. und Biol. der Tiere.* 5(2): 262. Syn. By Hollis, 1968. *Bull. Br. Mus. (Nat. Hist.) Ent*. 22(7): 307, 340.

Epacromia affinis Bolivar, 1902. *Ann. Soc. ent. Fr.* 70: 600. Syn. By Uvarov, 1942. *Trans. Amer. Entomol. Soc.* 67: 337.

Aiolopus laticosta Bolivar, 1912. *Mem. Soc. entom. Belgique, Bruxelles*. 19: 73-99. Syn. By Dirsh, 1963. *Bull. Br. Mus. (Nat. Hist.) Ent*. 13: 264.

Aiolopus strepens deserticola Uvarov. 1922. *Jour. Bombay Nat. Hist. Soc*. 28(3): 726. Syn. By Hollis, 1968. *Bull. Br. Mus. (Nat. Hist.) Ent*. 22(7): 320.

Aiolopus simulatrix simulatrix (Walker); Hollis, 1968. *Bull. Br. Mus. (Nat. Hist.) Ent*. 22(7): 320.

Material examined: INDIA, Punjab, Amritsar, 1♂, 2♀♀, 01-IX-2009, on paddy; 2♂♂, 1♀, 04-IX-2009, on paddy; Gurdaspur, 2♀♀, 06-IX-2009, on grasses; 3♂♂, 8♀♀, 06-IX-2009, on paddy; Hoshiarpur, 2♂♂, 2♀♀, 07-IX-2009, on maize; 2♂♂, 1♀, 08-IX-2009, on grasses; Nawanshahar, 1♂, 1♀, 09-IX-2009, on paddy; Kapurthala, 2♂♂, 1♀, 10-IX-2009, on grasses; 1♂, 10-IX-2009, on paddy; Nawanshahar, 4♂♂, 10-IX-2009, on paddy; Jalandhar, 1♂, 12-IX-2009, on paddy; 2♂♂, 1♀, 13-IX-2009, on paddy; 7♂♂, 2♀♀, 13-IX-2009, on grasses; Kapurthala, 5♂♂, 5♀♀, 14-IX-2009, on

paddy; Muktsar, 1♂, 10.XI.2010, on grasses; Bhathinda, 5♀♀, 11.XI.2010, on grasses; Faridkot, 3♂♂, 1♀, 12.XI.2010, on grasses; Moga, 4♂♂, 1♀, 13.XI.2010, on grasses; Firozpur, 6♂♂, 2♀♀, 14.XI.2010, on grasses; Rupnagar, 1♀, 15.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 16.35; Pronotum: 3.12; Antenna: 5.90; Tegmina: 17.02; Hind Femur: 9.19.
Female: Body: 24.50; Pronotum: 4.35; Antenna: 7.13; Tegmina: 23.97; Hind Femur: 13.30.

Distribution: Andaman & Nikobar Islands, Bihar, Delhi, Jammu & Kashmir, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Punjab, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

***Aiolopus thalassinus thalassinus* (Fabricius, 1781)**
Gryllus thalassinus Fabricius, 1781. *Species Insectorum*. 1: 367.
Acridium grossum Costa, 1836. *Fauna del regno di Napoli. Ortotteri*. 25. Syn. By Johnston, 1956. *Annotated catalogue of African grasshoppers*. 507.
Acridium laetum Brulle, 1840. *In Webb, P.B. & Berthelot. Histoire naturelle des Iles Canaries*. 2(2): 77. Syn. By Kirby, 1910. *A Synonymic Catalogue of Orthoptera (Orthoptera Saltatoria, Locustidae vel Acridiidae)*. 3(2): 191.
Gryllus flavovirens Fischer, 1846. *Nouv. mem. Soc. Imp. natur. Moscou*. 8: 299. Syn. By Kirby, 1910. *A Synonymic Catalogue of Orthoptera (Orthoptera Saltatoria, Locustidae vel Acridiidae)*. 3(2): 191.
Epacromia angustifemur Ghiliani, 1869. *Ann. Soc. Entom. Belgique*, 12 C.R. 179. Syn. By Kirby, 1910. *A Synonymic Catalogue of Orthoptera (Orthoptera Saltatoria, Locustidae vel Acridiidae)*. 3(2): 191.
Epacromia rufipes Ivanov, 1888. *Proc. nat. hist soc. Kharkov Univ*. 21: 309-377. Syn. By Benediktov, 2000. *Vestnik Zoologii*. 34(3): 81.
Aiolopus thalassinus kivuensis Sjostedt, 1923. *Ark. Zool*. 15(6): 18. Syn. By Johnston, 1956. *Annotated catalogue of African grasshoppers*. 509.
Aiolopus acutus Uvarov, 1953. *Publ. Cult. Comp. Diamant. Angola*. 21: 111. Syn. By Hollis, 1968. Bull. Br. Mus. (Nat. Hist.) Ent. 22(7): 340.
Aiolopus thalassinus (Fabricius); Hollis, 1968. *Bull. Br. Mus. (Nat. Hist.) Ent.* 22(7): 340.
Aiolopus thalassinus thalassinus (Fabricius); Nayeem and Usmani, 2012. *Munis Entomology & Zoology*. 7(1): 407.

Material examined: INDIA, Punjab, Gurdaspur, 1♂, 2♀♀, 06-IX-2009, on grasses; Muktsar, 2♂♂, 10.XI.2010, on grasses; Bhathinda, 1♀, 11.XI.2010, on grasses; Faridkot, 2♂♂, 2♀♀,
12.XI.2010, on grasses; Moga, 2♂♂, 2♀♀, 13.XI.2010, on grasses; Firozpur, 1♂, 5♀♀, 14.XI.2010, on grasses; Ludhiana, 1♀, 16.XI.2010, on grasses.
Measurements (length in mm):
Male: Body: 18.45; Pronotum: 2.96; Antenna: 6.25; Tegmina: 18.35; Hind Femur: 9.72.
Female: Body: 22.83; Pronotum: 3.60; Antenna: 6.11; Tegmina: 20.28; Hind Femur: 11.00.

Distribution: Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir, Rajasthan, Haryana, Punjab, Uttar Pradesh and Uttarakhand.

***Aiolopus thalassinus tamulus* (Fabricius, 1798)**
Gryllus tamulus Fabricius, 1798. *Supplementum Entomologiae Systematicae Suppl*. 195.
Gomphocerus tricoloripes Burmeister, 1838. *Handbuch der Entomologie*. 2-2(I-VIII): 649. Syn. By Rehn, 1902. *Proc. Acad. Nat. Sci. Philad*. 54: 631.
Epacromia rufostriata Kirby, 1888. *Proc. zool. Soc. London*. 1888(4): 550. Syn. By Hollis, 1968. *Bull. Br. Mus. (Nat. Hist.) Ent.* 22(7): 314.
Aiolopus thalassinus tumulus (Fabricius); Hollis, 1968. *Bull. Br. Mus. (Nat. Hist.) Ent*. 22(7): 347.
Aiolopus thalassinus tumulus (Fabricius); Nayeem and Usmani, 2012. *Munis Entomology & Zoology*. 7(1): 407.

Material examined: INDIA, Punjab, Amritsar, 1♀, 01-IX-2009, on paddy; 3♂♂, 2♀♀, 04-IX-2009, on paddy; Gurdaspur, 1♂, 1♀, 06-IX-2009, on grasses; Kapurthala, 1♂, 10-IX-2009, on paddy; Jalandhar, 2♂♂, 1♀, 13-IX-2009, on paddy; 3♂♂, 1♀, 13-IX-2009, on grasses; Kapurthala, 3♂♂, 2♀♀, 14-IX-2009, on paddy; Bhathinda, 4♂♂, 11.XI.2010, on grasses; Moga, 1♀, 13.XI.2010, on grasses; Firozpur, 5♂♂, 2♀♀, 14.XI.2010, on grasses; Ludhiana, 1♂, 1♀, 16.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 14.82; Pronotum: 2.90; Antenna: 5.99; Tegmina: 17.20; Hind Femur: 9.34.
Female: Body: 21.32; Pronotum: 3.58; Antenna: 6.15; Tegmina: 19.09; Hind Femur: 10.71.

Distribution: Andaman and Nicobar Islands, Andhra Pradesh, Punjab, Rajasthan, Arunachal Pradesh, Bihar, Chattisgarh, Delhi, Haryana, Himachal Pradesh, Karnataka, Kerala and Madhya Pradesh.

Genus *Ceracris* Walker, 1870
The genus is represented by single species from this region.

***Ceracris nigricornis nigricornis* Walker, 1870**
Ceracris nigricornis Walker, 1870. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum*. 4: 791.
Geea conspicua, Caudell, 1921. *Proc. Entom. Soc. Washington*. 23(2): 30. Syn. By Willemse, 1951. *Publ. natuurhist. Genootsch. Limburg*. 4: 70.
Ceracris nigricornis nigricornis Walker; Ingrisch and Garai, 2001. *Esperiana*. 8: 763.

Material examined: INDIA, Punjab, Jalandhar, 12♂♂, 9♀♀, 12-IX-2009, on grasses.

Measurements (length in mm):
Male: Body: 17.43; Pronotum: 3.06; Antenna: 7.58; Tegmina: 16.04; Hind Femur: 11.76.
Female: Body: 31.14; Pronotum: 4.48; Antenna: 6.69; Tegmina: 21.78; Hind Femur: 13.84.

Distribution: Arunachal Pradesh, Himachal Pradesh, Sikkim, Assam, Bihar, Punjab, Haryana, Maharastra, Manipur, Meghalaya, Nagaland, Uttarakhand, Tamil Nadu, Tripura and West Bengal.

Genus *Gastrimargus* Saussure, 1884

The genus is represented by two subspecies from this region. A key for their separation is given below:

Key to subspecies of *Gastrimargus africanus* Saussure, 1884

1. Apical valve of aedeagus with obtuse apex; dorsal valve of ovipositor as long as lateral apodeme with acute apex……..…***G. africanus africanus*** (Saussure, 1888)
- Apical valve of aedeagus with acute apex; dorsal valve of ovipositor shorter than lateral apodeme with obtuse apex……...…***G. africanus sulphureus*** Bey-Bienko, 1951

***Gastrimargus africanus africanus* (Saussure, 1888)**

Oedaleus* (*Gastrimargus*) *marmoratus africana Saussure, 1888. *Mem. Soc. Phys. Hist. Nat. Geneve*. 30(1): 39.

Gastrimargus africanus orientalis Sjostedt, 1928. *K. Svenska VetensAkad. Handl*. 3-6(1): 11. Syn. By Ritchie, 1982. *Bull. Br. Mus. (Nat. Hist.) Ent.* 44(4): 248.

Gastrimargus africanus zebrata Sjostedt, 1928. *K. Svenska VetensAkad. Handl*. 3-6(1): 11. Syn. By Dirsh, 1966. *Publ. Cult. Comp. Diamant. Angola. Ser. 3,* Vol. 74: 426.

Gastrimargus africanus africanus (Saussure); Nayeem and Usmani, 2012. *Munis Entomology & Zoology*. 7(1): 409.

Material examined: INDIA, Punjab, Mansa, 4♂♂, 1♀, 09.XI.2010, on grasses.

Measurements (length in mm):

Male: Body: 24.68; Pronotum: 6.09; Antenna: 12.31; Tegmina: 28.13; Hind Femur: 17.28.

Female: Body: 35.24; Pronotum: 8.35; Antenna: 11.28; Tegmina: 34.77; Hind Femur: 21.39.

Distribution: Andra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Maharastra, Meghalaya, Nagaland, Orissa, Rajasthan, Sikkim, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal.

***Gastrimargus africanus sulphureus* Bey-Bienko, 1951**

Gastrimargus sulphureus Bey-Bienko, 1951. *Locusts and Grasshoppers of the U.S.S.R. and Adjacent Countries*, 2: 580.

Gastrimargus africanus sulphureus Bey-Bienko; Ritchie, 1982. *Bull. Br. Mus. (Nat. Hist.) Ent*. 44 (4): 250.

Material examined: INDIA, Punjab, Bhathinda, 1♂, 1♀, 11.XI.2010, on grasses.

Measurements (length in mm):

Male: Body: 26.46; Pronotum: 6.50; Antenna: 13.04; Tegmina: 29.01; Hind Femur: 16.74.

Female: Body: 42.92; Pronotum: 9.13; Antenna: 14.17; Tegmina: 41.86; Hind Femur: 23.18.

Distribution: Punjab, Haryana and Himachal Pradesh.

3.9. Subfamily Acridinae Macleay, 1821

Acridina MacLeay, 1821. *Horae Entomologicae*. 2.

Type genus: *Acrida* Linnaeus, 1758. *Systema Naturae per Regna tria naturae (10th ed.).* 1: 427.

Diagnosis: Size small to large. Antennae filiform or slightly depressed or ensiform. Head generally conical in shape; frons usually oblique. Fastigium of vertex short or long with variable shape. Pronotum flattened or cylindrical; median and lateral carinae of pronotum mostly present; dorsum usually crossed by posterior transverse sulcus. Prosternal process absent. Mesosternal interspace open, mesosternal lobes rounded. Elytra and wings fully developed, reduced or absent; intercalary vein of medial area of elytron mostly abesent if present, never serrated in both sexes. Stridulatory mechanism, consisting of variable serration of elytra or wings, often present. Tympanum normally present. Lower basal lobe of hind femur shorter than upper one, inner side with or without stridulatory file. External apical spine of hind tibiae usually absent; arolium usually large. Male cercus usually conical. Epiphallus bridge-shaped; ancorae mostly present, articulated with bridge; lophi mostly present. Basal and apical valves of aedeagus flexured. Female, external edge of ovipositor valves smooth. Spermatheca, pre-apical diverticulum longer than apical diverticulum.

Remarks: Priority for family-group names based on *Acrida* dates from Acridina MacLeay, 1821. First used as Acridinae by Krauss, 1890.

The subfamily is represented by four genera from this region. A key for their separation is given below:

Keys to Genera of Indian Acridinae Macleay, 1821

1. Head never elongate; hind femur never very long and slender……..……..**3**
- Head elongate; hind femur very long and slender… …....**2**
2. Inner side of hind femur without stridulatory files……..…….***Acrida*** Linnaeus, 1758
- Inner side of hind femur with stridulatory files..……***Truxalis*** Fabricius, 1775
3. Pronotum with lateral carinae diverging in metazona; antennae much longer than head and pronotum together ……***Orthochtha*** Karsch, 1891
- Pronotum with lateral carinae parallel in metazona; antennae as long as or slightly longer than head and pronotum together……. …….***Phlaeoba*** Stal, 1861

Genus *Acrida* Linnaeus, 1758

The genus is represented by two species from this region. A key for their separation is given below:

Key to species of *Acrida* Linnaeus, 1758

1. Body greenish; lateral carina of pronotum not edged within with black line; tegmina without distinct coloured arrangement; apical diverticulum of spermatheca with rounded apex……..……***A. exaltata*** (Walker, 1859)
- Body dry grass coloured; lateral carina of pronotum edged within with black line; tegmina very normally edged with pinkish brown; apical diverticulum of spermatheca with truncated apex……..…….***A. gigantea*** (Herbst, 1786)

***Acrida exaltata* (Walker, 1859)**

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

Tryxalis brevicolis Bolivar, 1893. *Feuille Jeunes Nat.* 23: 162. Syn. By Dirsh and Uvarov, 1953. *Tijdschr. v. Entomologie*. 96: 232.

Acrida lugubris Burr, 1902. *Trans. Ent. Soc. Lond.* 157. Syn. By Dirsh and Uvarov, 1953. *Tijdschr. v. Entomologie*. 96: 232.

Acrida exaltata (Walker); Kirby, 1910. *A Synonymic Catalogue of Orthoptera (Orthoptera Saltatoria, Locustidae vel Acridiidae).* 3(2): 94.

Acrida curta Uvarov, 1936. *Zool. J. Linn. Soc.* 39: 536. Syn. By Dirsh and Uvarov, 1953. *Tijdschr. v. Entomologie*. 96: 232.

Acrida lugubris astigmata Prasad, 1956. *Proc. nation. Acad.*

Sci. India. B-26 (1): 22. Syn. By Dirsh, 1961. *Eos*. 37: 398.
Acrida exaltata (Walker); Nayeem and Usmani, 2012. *Munis Entomology & Zoology.* 7(1): 404.

Material examined: INDIA, Punjab, Amritsar, 1♂, 1♀, 01-IX-2009, on paddy; 1♂, 2♀♀, 04-IX-2009, on paddy; Gurdaspur, 5♂♂, 4♀♀, 06-IX-2009, on grasses; 8♂♂, 1♀, 06-IX-2009, on paddy; Hoshiarpur, 4♂♂, 07-IX-2009, on maize; 2♂♂, 08-IX-2009, on paddy; 4♂♂, 1 nymph, 08-IX-2009, on grasses; Nawanshahar, 1♂, 09-IX-2009, on paddy; Kapurthala, 5♂♂, 1♀, 10-IX-2009, on grasses; Nawanshahar, 1♂, 10-IX-2009, on paddy; Jalandhar, 2♂♂, 1♀, 12-IX-2009, on paddy; 1♂, 1♀, 13-IX-2009, on paddy; 3♂♂, 13-IX-2009, on grasses; Mansa, 2♂♂, 09.XI.2010, on grasses; 3♂♂, 1♀, 09.XI.2010, on jowar; Muktsar, 3♂♂, 10.XI.2010, on grasses;
Bhathinda, 6♂♂, 11.XI.2010, on grasses; Faridkot, 1♂, 12.XI.2010, on grasses; Moga, 3♂♂, 1♀, 13.XI.2010, on grasses; Firozpur, 3♂♂, 14.XI.2010, on grasses; Rupnagar, 2♂♂, 15.XI.2010, on grasses; Ludhiana, 1♂, 1♀, 16.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 3; Pronotum: 5.10; Antenna: 12.81; Tegmina: 27.81; Hind Femur: 20.11.
Female: Body: 49.67; Pronotum: 7.72; Antenna: 11.59; Tegmina: 37.89; Hind Femur: 26.76.

Distribution: Sikkim, Jammu & Kashmir, Andhra Pradesh, Arunachal Pradesh, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, West Bengal, Assam and Uttar Pradesh.

***Acrida gigantea* (Herbst, 1786)**
Truxalis giganteus Herbst, 1786. *Herausgegeben von Johan Caspar Fuessly*. 7-8: 191.
Acrida gigantea (Herbst); Kirby, 1910. *A Synonymic Catalogue of Orthoptera (Orthoptera Saltatoria, Locustidae vel Acridiidae).* 3(2): 93.
Acrida gigantea (Herbst); Nayeem and Usmani, 2012. *Munis Entomology & Zoology.* 7(1): 404.

Material examined: INDIA, Punjab, Hoshiarpur, 1♂, 1♀, 08-IX-2009, on grasses; Mansa, 1♂, 3♀♀, 09.XI.2010, on grasses; Muktsar, 1♂, 10.XI.2010, on grasses; Bhathinda, 3♂♂, 2♀♀, 11.XI.2010, on grasses; Faridkot, 1♂, 1♀, 12.XI.2010, on grasses; Moga, 1♂, 2♀♀, 13.XI.2010, on grasses; Firozpur, 1♂, 1♀, 1 nymph, 14.XI.2010, on grasses; Rupnagar, 3♀♀, 15.XI.2010, on grasses; Ludhiana, 4♂♂, 16.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 30.39; Pronotum: 4.98; Antenna: 9.72; Tegmina: 25.39; Hind Femur: 17.80.
Female: Body: 46.54; Pronotum: 7.25; Antenna: 11.52; Tegmina: 36.37; Hind Femur: 25.27.

Distribution: Himachal Pradesh, Jammu & Kashmir, Punjab, Haryana, Rajasthan, Madhya Pradesh, Tamil Nadu and Uttarakhand.

Genus *Truxalis* Fabricius, 1775
The genus is represented by two species from this region. A key for their separation is given below:

Key to species of *Truxalis* Fabricius, 1775

1. Area discoidalis of tegmina green or brown with a row of blackish brown spots along the vena ulnaris anterior, this row often bordered by a lighter coloured stripe; posterior margin of subgenital plate with median lobe shorter than lateral lobes; epiphallus with lophi close to each other; wings in females pink or purplish basally……..***T. nasuta*** (Linnaeus, 1758)
- Area discoidalis of tegmina green without a row of blackish brown spots; posterior margin of subgenital plate with median lobe as long as lateral lobes; epiphallus with lophi distinctly separate; wings in females purplish blue basally..…….…….***T. eximia eximia*** Eichwald, 1830

***Truxalis nasuta* (Linnaeus, 1758)**
Gryllus* (*Acrida*) *nasutus Linnaeus, 1758. *Systema Naturae per Regna tria naturae (10th ed.).* 1: 427.
Truxalis annulatus Thunberg, 1815. *Mem. Acad. Imp. Sci. St. Peterburg,* 5: 267. Syn. By Harz, 1975. *Ser. Entomol*. 11: 434.
Truxalis bilineatus Thunberg, 1815. *Mem. Acad. Imp. Sci. St. Peterburg,* 5: 211-301. Syn. By Harz, 1975. *Ser. Entomol*. 11: 434.
Truxalis nebulosus Thunberg, 1815. *Mem. Acad. Imp. Sci. St. Peterburg,* 5: 267. Syn. By Harz, 1975. *Ser. Entomol*. 11: 434.
Truxalis miniata Klug, 1830. *Symbolae Physicae Zool. Plate,* 18. Syn. By Bey-Bienko and Mishchenko, 1951. *Locusts and Grasshoppers of the U.S.S.R. and Adjacent Countries*. 2: 23.
Truxalis obsoleta Klug, 1830. *Symbolae physicae African pl.* 16. Syn. By Dirsh, 1951. *Eos. Madr.* 206.
Truxalis scalaris Klug, 1830. *Symbolae physicae African pl.* 15. Syn. By Dirsh, 1951. *Eos. Madr.* 206.
Truxalis variabilis Klug, 1830. *Symbolae Physicae Zool. tab.* 17. Syn. By Dirsh, 1951. *Eos. Madr.* 206.
Acrida unguiculata Rambur, 1838. *Faune entomologique de l'Andalousie. Orthoptera.* 2: 72. Syn. By Dirsh, 1951. *Eos. Madr.* 206.
Truxalis isabellina Fischer, 1846. *Nouv. mem. Soc. Imp. natur. Moscou.* 8: 232. Syn. By Harz, 1975. *Ser. Entomol*. 11: 434.
Tryxalis klugii Fieber, 1853. *Lotos.* 3: 97. Syn. By Harz, 1975. *Ser. Entomol*. 11: 434.
Truxalis nasuta (Linnaeus); Massa, 2009. *Jour. Orth. Res.* 18(1): 87.

Material examined: INDIA, Punjab, Mansa, 1♂, 1♀, 09-XI-2010, on grasses.

Measurements (length in mm):
Male: Body: 35.55; Pronotum: 5.13; Antenna: 12.48; Tegmina: 29.56; Hind Femur: 21.69.
Female: Body: 47.11; Pronotum: 8.37; Antenna: 13.51; Tegmina: 40.27; Hind Femur: 28.04.

Distribution: Jammu & Kashmir, Uttar Pradesh, Punjab and Rajasthan.

***Truxalis eximia eximia* Eichwald, 1830**
Truxalis eximius Eichwald, 1830. *Zool. Spec.* 2: 239.
Truxalis eximia eximia Eichwald; Unal, 2006. *Priamus.* 3: 26.

Material examined: INDIA, Punjab, Kapurthala, 1♂, 1♀, 28-II-2011, on grasses.

Measurements (length in mm):
Male: Body: 38.98; Pronotum: 5.97; Antenna: 13.49; Tegmina: 32.85; Hind Femur: 24.13.
Female: Body: 68.05; Pronotum: 9.73; Antenna: 21.36; Tegmina: 51.29; Hind Femur: 40.95.

Distribution: Rajasthan, Punjab and Uttar Pradesh.

Genus *Orthochtha* Karsch, 1891
The genus is represented by three species from this region. A key for their separation is given below:

Key to species of *Orthochtha* Karsch, 1891
1. Posterior margin of pronotum obtusely rounded …..…...**2**
- Posterior margin of pronotum rounded…….. ……..….***O. indica*** Uvarov, 1942
2. Tegmina slightly reaching up to the apex of hind femur; apical valve of Aedeagus with acutely pointed apex……..***O. ramchandrae*** Popov, 1981
- Tegmina surpassing the apex of hind femur; apical valve of Aedeagus with obtuse apex…… ……..***O. schmidti*** Popov & Fishpool, 1992

***Orthochtha indica* Uvarov, 1942**
Orthochtha indica Uvarov, 1942. *Ann. Mag. nat. Hist.* 11-9: 587.
Orthochtha indica Uvarov; Nayeem and Usmani, 2012. *Munis Entomology & Zoology*. 7(1): 404.

Material examined: INDIA, Punjab, Kapurthala, 2♂♂, 4♀♀, 14-IX-2009, on grasses; Muktsar, 13♂♂, 7♀♀, 10.XI.2010, on grasses; Faridkot, 2♂♂, 1♀, 12.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 22.59; Pronotum: 4.42; Antenna: 13.12; Tegmina: 22.61; Hind Femur: 14.20.
Female: Body: 30.65; Pronotum: 5.47; Antenna: 11.82; Tegmina: 27.63; Hind Femur: 17.20.

Distribution: Delhi, Himachal Pradesh, Punjab, Haryana, Maharashtra, Madhya Pradesh, Uttar Pradesh and Meghalaya.

***Orthochtha ramchandrae* Popov, 1981**
Orthochtha ramchandrae Popov, 1981. *Plant Prot. Bull.* 33(3-4): 45.
Orthochtha ramchandrae Popov; Popov and Fishpool, 1992. *Nat. Resour. Inst. Bull.* 54: 101.

Material examined: INDIA, Punjab, Kapurthala, 2♂♂, 3♀♀, 14-IX-2009, on grasses; Muktsar, 3♂♂, 5♀♀, 10.XI.2010, on grasses; Faridkot, 1♂, 1♀, 12.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 19.15; Pronotum: 4.43; Antenna: 11.18; Tegmina: 16.50; Hind Femur: 12.82.
Female: Body: 28.76; Pronotum: 5.83; Antenna: 9.11; Tegmina: 23.02; Hind Femur: 15.70.

Distribution: Karnataka, Punjab, Haryana and Himachal Pradesh.

***Orthochtha schmidti* Popov & Fishpool, 1992**
Orthochtha schmidti Popov and Fishpool, 1992. *Nat. Resour. Inst. Bull*. 54: 106.

Material examined: INDIA, Punjab, Kapurthala, 1♂, 1♀, 14-IX-2009, on grasses; Faridkot, 1♂, 12.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 18.94; Pronotum: 3.59; Antenna: 12.27; Tegmina: 15.86; Hind Femur: 12.07.
Female: Body: 28.58; Pronotum: 4.97; Antenna: 11.26; Tegmina: 19.31; Hind Femur: 15.07.

Distribution: Maharashtra, Punjab, Haryana and Himachal Pradesh.

Genus *Phlaeoba* Stal, 1861
The genus is represented by three species from this region. A key for their separation is given below:

Key to species of *Phlaeoba* Stal, 1860
1. Lateral carina of pronotum distinct; apical valve of Aedeagus with pointed apex.....**2**
- Lateral carina of pronotum indistinct or coarsely indicated or absent; apical valve of Aedeagus with obtuse apex…… .....…***P. tenebrosa*** (Walker, 1871)
2. Tegmina broad, the costa not expanded near the base.....***P. infumata*** Brunner, 1893
- Tegmina narrow, the costa slightly expanded near the base, especially in the female…….. ……...***P. antennata antennata*** Brunner, 1893

***Phlaeoba tenebrosa* (Walker, 1871)**
Opomala tenebrosa Walker, 1871. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum Supplement*. 53.
Phlaeoba tenebrosa (Walker); Kirby, 1910. *A Synonymic Catalogue of Orthoptera (Orthoptera Saltatoria, Locustidae vel Acridiidae).* 3(2): 138.
Phlaeoba tenebrosa (Walker); Willemse, 1951. *Publ. natuurhist. Genootsch. Limburg*. 4: 80.

Material examined: INDIA, Punjab, Kapurthala, 1♂, 1♀, 10-III-2011, on grasses.

Measurements (length in mm):
Male: Body: 22.19; Pronotum: 4.28; Antenna: 9.15; Tegmina: 20.89; Hind Femur: 14.13.
Female: Body: 30.33; Pronotum: 5.74; Antenna: 9.41; Tegmina: 26.73; Hind Femur: 18.54.

Distribution: Jammu & Kashmir, Himachal Pradesh, Punjab and Rajasthan.

***Phlaeoba infumata* Brunner, 1893**
Phlaeoba infumata Brunner, 1893. *Ann. Mus. Civ. Stor. Nat. Genova.* 2-13(33): 124.
Phlaeoba infumata Brunner; Nayeem and Usmani, 2012. *Munis Entomology & Zoology.* 7(1): 405.

Material examined: INDIA, Punjab, Amritsar, 1♂, 01-IX-2009, on paddy; Gurdaspur, 4♂♂, 2♀♀, 06-IX-2009, on paddy; Hoshiarpur, 1♂, 4♀♀, 07-IX-2009, on maize; 2♂♂, 2♀♀, 08-IX-2009, on grasses; 1♀, 08-IX-2009, on paddy; Nawanshahar, 1♀, 09-IX-2009, on paddy; Jalandhar, 1♀, 12-IX-2009, on paddy; Rupnagar, 2♂♂, 15.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 22.08; Pronotum: 4.32; Antenna: 8.37; Tegmina: 19.98; Hind Femur: 14.29.
Female: Body: 31.92; Pronotum: 6.58; Antenna: 9.06; Tegmina: 27.55; Hind Femur: 19.06.

Distribution: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Haryana, Himachal Pradesh, Manipur, Tamil Nadu, Uttar Pradesh, Madhya Pradesh and West Bengal.

***Phlaeoba antennata antennata* Brunner, 1893**
Phlaeoba antennata Brunner, 1893. *Ann. Mus. Civ. Stor. Nat. Genova.* 2-13(33): 125.

Material examined: INDIA, Punjab, Kapurthala, 2♂♂, 1♀, 10-III-2011, on grasses.

Measurements (length in mm):
Male: Body: 20.33; Pronotum: 4.02; Antenna: 7.04; Tegmina: 18.82; Hind Femur: 12.52.
Female: Body: 36.02; Pronotum: 5.85; Antenna: 7.97; Tegmina: 28.36; Hind Femur: 18.80.

Distribution: Arunachal Pradesh, Assam, Himachal Pradesh, Kerala, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Rajasthan, Sikkim, Tripura and West Bengal.

3.10. Subfamily Gomphocerinae Fieber, 1853
Gomphoceri Fieber, 1853. *Lotos*. 3: 90-104.
Type genus: *Gomphocerus* Thunberg, 1815. *Mem. Acad. Imp. Sci. St. Peterburg*. 5: 221.

Diagnosis: Body small to medium size, usually moderately slender, laterally compressed. Antennae usually filiform. Head conical or obtusely rounded; frons usually oblique. Fastigium of vertex short or long. Pronotum with median and lateral carinae well developed; dorsum usually crossed by posterior transverse sulcus. Prosternal process usually absent, if present then antennae ensiform and body strongly elongate. Mesosternal interspace open. Tegmina and wings fully developed, reduced or absent; medial area of tegmen usually without intercalary vein. Tympanum present. Hind femur with stridulatory file represented by articulated pegs, lower basal lobe shorter than upper one. External apical spine of hind tibiae usually absent; arolium small. Male cercus weakly conical. Epiphallus, bridge undivided, ancorae and lophi present. Aedeagus, basal and apical valves connected by flexure, basal valve with gonopore process well developed. Female, external edge of ovipositor valves usually serrated. Spermatheca, apical diverticulum small or rudimentary, pre-apical diverticulum sac like.
The subfamily Gomphocerinae differs from other subfamilies of family Acrididae in the presence of a peculiar character i.e. stridulatory file consists of a series of peg hairs.

Remarks: Priority for family-group names based on *Gomphocerus* dates from Gomphoceri Fieber, 1853. First used as Gomphocerinae by Uvarov, 1966.
The subfamily Gomphocerinae is represented by seven genera from this region. A key for their separation is given below:

Keys to Genera of Gomphocerinae Fieber, 1853

1. Antennae filiform; prosternal process absent.……..……**3**
- Antennae ensiform or narrow ensiform; prosternal process present..……..…**2**

2. Head conical, shorter than pronotum; fastigium of vertex shorter than the maximum diameter of eye……...……..……*Ochrilidia* Stal, 1873
- Head elongate, longer than pronotum; fastigium of vertex as long as or longer than the maximum diameter of eye…….....…...***Dhimbana*** Henry, 1940

3. Fastigial foveolae visible from above; fastigium of vertex with median carinula……..**5**
- Fastigial foveolae not visible from above; fastigium of vertex without median carinula……....….**4**

4. Frontal ridge flat, without lateral carinulae…….
……...…….....***Stenohippus*** Uvarov, 1926
- Frontal ridge sulcate, with obtuse lateral carinulae…….
……..….***Leva*** Bolivar, 1909

5. Lateral carina of pronotum curved not parallel…….....**6**
- Lateral carina of pronotum parallel, slightly diverging in metazoan……***Chorthippus*** Fieber, 1852

6. Intercalary vein present in cubital area of tegmen, though sometimes only as traces…..***Aulacobothrus*** Bolivar, 1902
- Intercalary vein absent in cubital area of tegmen……...***Leionotacris*** Jago, 1996

Genus *Ochrilidia* Stal, 1873
The genus is represented by single species from this region.

***Ochrilidia gracilis gracilis* (Krauss, 1902)**
Platypterna gracilis Krauss, 1902. *Verh. der Zoologisch-Botanischen Gesellsch. Wien*. 52: 231, 236.
Platypterna acuta Bolivar, 1908. *Bull. Soc. entomol. Fr.* 244. Syn. By Jago, 1977. *Acrida*. 6(3):186.
Platypterna curvifrons Bolivar, 1908. *Bull. Soc. entomol. Fr.* 245. Syn. By Jago, 1977. *Acrida*. 6(3):186.
Platypterna aegyptia Uvarov, 1924. *Bull. Minist. Agric. Egypt Tech. & Sci. Serv.* 41: 18, 20, 21. Syn. By Jago, 1977. *Acrida*. 6(3):186.
Platypterna aethiopica Salfi, 1931. *Eos*. 7: 269. Syn. By Jago, 1977. *Acrida*. 6(3):186.
Platypterna affinis Salfi, 1931. *Eos*. 7: 326. Syn. By Jago, 1977. *Acrida*. 6(3):186.
Platypterna obtusa Salfi, 1931. *Eos*. 7: 268, 324. Syn. By Jago, 1977. *Acrida*. 6(3):186.
Platypterna uvarovi Salfi, 1931. *Eos*. 7: 342. Syn. By Jago, 1977. *Acrida*. 6(3):186.
Ochrilidia gracilis gracilis (Krauss); Massa, 2009. *Jour. Orth. Res.* 18(1): 86.

Material examined: INDIA, Punjab, Mansa, 3♂♂, 1♀, 09.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 20.46; Pronotum: 3.92; Antenna: 7.09; Tegmina: 19.60; Hind Femur: 10.01.
Female: Body: 30.71; Pronotum: 5.01; Antenna: 9.26; Tegmina: 25.62; Hind Femur: 14.36.

Distribution: Jammu and Kashmir, Himachal Pradesh, Rajasthan, Haryana and Punjab.

Genus *Dhimbana* Henry, 1940
The genus is represented by single species from this region.

***Dhimbana dawsoni* Henry, 1940**

Dhimbana dawsoni Henry, 1940. *Trans. R. Entomol. Soc. London*. 90(19): 497-540.

Material examined: INDIA, Punjab, Mansa, 1♂, 1♀, 09.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 21.56; Pronotum: 3.74; Antenna: 8.77; Tegmina: 20.33; Hind Femur: 9.54.
Female: Body: 32.20; Pronotum: 4.88; Antenna: 10.22; Tegmina: 23.27; Hind Femur: 11.90.

Distribution: Andhra Pradesh, Tamil Nadu and Punjab.

Genus *Stenohippus* Uvarov, 1926
The genus is represented by single species from this region.

***Stenohippus mundus* (Walker, 1871)**
Stenobothrus mundus Walker, 1871. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum Supplement*. 81.
Stenobothrus epacromoides Walker, 1871. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum Supplement*. 81. Sy. By Jago, 1996. *Jour. Orth. Res*. 5: 69-124.
Stenobothrus bonneti Bolivar, 1885. *Le Naturaliste*. 7: 116. Sy. By Jago, 1996. *Jour. Orth. Res*. 5: 69-124.
Stenobothrus epacromioides nigrovittata Krauss, 1892. *Zool. Anz.* 15: 166. Syn. By Sy. By Jago, 1996. *Jour. Orth. Res*. 5: 69-124.
Stenobothrus nigrovittatus Kirby, 1910. *A Synonymic Catalogue of Orthoptera (Orthoptera Saltatoria, Locustidae vel Acridiidae).* 3(2): 180. Syn. By Sy. By Jago, 1996. *Jour. Orth. Res*. 5: 69-124.
Leva bonneti orientalis Uvarov, 1933. *Ann. Mag. nat. Hist.* 10-11: 666. Syn. By Sy. By Jago, 1996. *Jour. Orth. Res*. 5: 69-124.
Stenohippus mundus (Walker); Nayeem and Usmani, 2012. *Munis Entomology & Zoology*. 7(1): 411.

Material examined: INDIA, Punjab, Bhathinda, 1♂, 1♀, 11.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 14.37; Pronotum: 2.41; Antenna: 5.10; Tegmina: 13.65; Hind Femur: 8.72.
Female: Body: 19.68; Pronotum: 3.10; Antenna: 5.94; Tegmina: 18.24; Hind Femur: 11.73.

Distribution: Maharashtra, Jammu & Kashmir, Haryana, Punjab and Rajasthan.

Genus *Leva* Bolivar, 1909
The genus is represented by single species from this region.

***Leva soluta* Bolivar, 1914**
Leva soluta Bolivar, 1914. *Trab. Mus. Cienc. nat., Madrid (Ser. zool.).* 20: 65.

Material examined: INDIA, Punjab, Kapurthala, 1♂, 1♀, 10-IX-2009, on grasses; Bhathinda, 1♂, 11.XI.2010, on grasses; Faridkot, 1♂, 1♀, 12.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 17.38; Pronotum: 3.53; Antenna: 8.52; Tegmina: 15.68; Hind Femur: 10.72.
Female: Body: 24.56; Pronotum: 3.96; Antenna: 8.21; Tegmina: 17.53; Hind Femur: 14.13.

Distribution: Punjab, Jammu & Kashmir, Haryana and Himachal Pradesh.

Genus *Chorthippus* Fieber, 1852
The genus is represented by single species from this region.

***Chorthippus indus* Uvarov, 1942**
Chorthippus indus Uvarov, 1942. *Eos*, 18: 98.
Chorthippus indus Uvarov; Singh, 2003. *Rec. Zool. Survey India*, 101(3-4): 147-157.

Material examined: INDIA, Punjab, Kapurthala, 1♂, 1♀, 10-IX-2009, on grasses.

Measurements (length in mm):
Male: Body: 17.4; Pronotum: 5.21; Antenna: 3.87; Tegmina: 13.12; Hind Femur: 9.87.
Female: Body: 19.8; Pronotum: 6.1; Antenna: 4.3; Tegmina: 14.7; Hind Femur: 11.3.

Distribution: Punjab, Jammu & Kashmir, Uttarakhand and Himachal Pradesh.

Genus *Aulacobothrus* Bolivar, 1902
The genus is represented by three species from this region. A key for their separation is given below:

Key to Species of *Aulacobothrus* Bolivar, 1902

1. Post tibiae with ventro-internal apical spur only slightly longer than dorso-internal; Tegmen with cubital field slightly or distinctly wider than medial field. Disc of pronotum with principal sulcus in or behind the middle……..……..**2**
- Post tibiae with ventro-internal apical spur much longer than dorso-internal; Tegmen with cubital field not wider than medial field; Disc of pronotum with principal sulcus beforethe middle……***A. socius*** Bolivar, 1902

2. Tegmina with cubital area much wider than the medial area; disc of pronotum with principal sulcus distinctly.…**3**
- Tegmina with cubital area slightly wider than the medial area; disc of pronotum with principal sulcus at or slightly behind the middle……..…….***A. taeniatus*** Bolivar, 1902

3. Tegmina surpassing the apex of hind femur……***A. luteipes luteipes*** (Walker, 1871)
- Tegmina reaching up to the middle of abdomen.....***A. luteipes infernus*** Bolivar, 1902

***Aulacobothrus socius* Bolivar, 1902**
Aulacobothrus socius Bolivar, 1902. *Ann. Soc. ent. Fr*. 70: 599.

Material examined: INDIA, Punjab, Firozpur, 1♂, 1♀, 14.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 14.47; Pronotum: 1.96; Antenna: 6.93; Tegmina: 10.77; Hind Femur: 8.83.
Female: Body: 21.02; Pronotum: 1.65; Antenna: 5.90;

Tegmina: 16.53; Hind Femur: 11.36.
Distribution: Andhra Pradesh, Arunachal Pradesh, Himachal Pradesh, Karnataka, Maharastra, Orissa, Tamil Nadu, Punjab and Haryana.

***Aulacobothrus taeniatus* Bolivar, 1902**
Aulacobothrus taeniatus Bolivar, 1902. *Ann. Soc. Ent. Fr., P*aris. 70: 600.
Scyllina physopoda Navas, 1904. *Bol. Soc. Arag. Cienc. Nat.* 3: 133. Syn. By Ingrisch, 1993. *Entomologica Scandinavica*. 24(3): 328.
Aulacobothrus taeniatus (Bolivar); Willemse, 1951. *Publ. natuurhist. Genootsch. Limburg*. 4: 62.

Material examined: INDIA, Punjab, Firozpur, 1♂, 1♀, 14.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 16.48; Pronotum: 2.97; Antenna: 8.94; Tegmina: 12.78; Hind Femur: 10.84.
Female: Body: 23.03; Pronotum: 4.66; Antenna: 7.91; Tegmina: 18.54; Hind Femur: 13.37.

Distribution: Tamil Nadu and West Bengal.

***Aulacobothrus luteipes luteipes* (Walker, 1871)**
Stenobothrus luteips Walker, 1871. *Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum Supplement,* 82.
Stauroderus bicolor Kirby, 1914. *Fauna of British India, including Ceylon and Burma. Orthoptera (Acrididae)*, 127. Syn. By Jago, 1971. *Proc. Acad. Nat. Sci. Philad*. 123: 242.
Aulacobothrus luteipes luteipes (Walker); Nayeem and Usmani, 2012. *Munis Entomology & Zoology*. 7(1): 411.

Material examined: INDIA, Punjab, Rupnagar, 1♂, 1♀, 15.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 16.34; Pronotum: 3.31; Antenna: 9.68; Tegmina: 12.65; Hind Femur: 9.67.
Female: Body: 26.37; Pronotum: 4.84; Antenna: 8.26; Tegmina: 19.44; Hind Femur: 13.96.

Distribution: Assam, Andhra Pradesh, Bihar, Chhattisgarh, Delhi, Himachal Pradesh, Jammu and Kashmir, Karnataka, Madhya Pradesh, Meghalaya, Maharastra, Orissa, Rajasthan, Sikkim, Tamil Nadu, Uttarakhand, West Bengal, Punjab and Haryana.

***Aulacobothrus luteipes infernus* Bolivar, 1902**
Aulacobothrus infernus Bolivar, 1902. *Ann. Soc. ent. Fr.* 70: 599.
Aulacobothrus luteipes infernus (Bolivar); Jago, 1996. *Jour. Orth. Res*. 5:69-124.

Material examined: INDIA, Punjab, Rupnagar, 1♂, 1♀, 15.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 16.43; Pronotum: 3.29; Antenna: 10.47; Tegmina: 10.63; Hind Femur: 10.15.
Female: Body: 26.55; Pronotum: 4.78; Antenna: 9.26; Tegmina: 14.90; Hind Femur: 15.38.

Distribution: Assam, Bihar, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Sikkim, Tamil Nadu, West Bengal and Punjab.

Genus *Leionotacris* Jago, 1996
The genus is represented by single species from this region.

***Leionotacris bolivari* (Uvarov, 1921)**
Aulacobothrus bolivari Uvarov, 1921. *Ann. Mag. nat. Hist.* 9-7: 483.
Pseudoarcyptera collinus Uvarov, 1929. *Revue Suisse de Zool*. 36: 543. Syn. By Ingrisch, 1993. *Entomologica Scandinavica*. 24(3): 335.
Leionotacris bolivari (Uvarov); Jago, 1996. *Jour. Orth. Res*. 5: 87.

Material examined: INDIA, Punjab, Mansa, 2♂♂, 3♀♀, 09.XI.2010, on grasses.

Measurements (length in mm):
Male: Body: 17.33; Pronotum: 3.28; Antenna: 5.83; Tegmina: 13.24; Hind Femur: 10.49.
Female: Body: 22.30; Pronotum: 3.59; Antenna: 5.59; Tegmina: 15.62; Hind Femur: 13.15.

Distribution: Andhra Pradesh, Bihar, Punjab, Madhya Pradesh and Tamil Nadu.

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