



A checklist of acrididae (Orthoptera: Acridoidea) from West Bengal, India

Mustafijur Rahaman, Mohd. Kamil Usmani

Department of Zoology, Section of Entomology, Aligarh Muslim University, Aligarh, Uttar Pradesh, India

Abstract

A checklist of Acrididae, which is the most important family of orthopterous pests, has been provided from West Bengal, India. An extensive survey was carried out during the period of 2015 to 2017 from different districts of West Bengal. The collected specimens were sorted out into 84 species belongs to 58 genera and 12 subfamilies. Twelve species i.e. *Acrida gigantea* Herbst, *Orthotha indica* Uvarov, *Leionotacris bolivari* (Uvarov), *Aiolopus thalassinus thalassinus* (Fabricius), *Aiolopus simulatrix* (Walker), *Chloebora marshalli* (Henry), *Oxya japonica japonica* (Thunberg), *Oedipoda miniata miniata* (Pallas), *Tropidopola longicornis* Fieber, *Acorypha insignis* (Walker), *Diabolocantops pinguis* (Stal), *Xenocantops karnyi* (Kirby) are recorded for the first time from this state.

Keywords: checklist, new record, acrididae, orthoptera, West Bengal

1. Introduction

Grasshoppers and locusts are one of the most economically important insect species. Family Acrididae belongs to suborder Caelifera under superfamily Acridoidea. They are economically important because of their infestation on several number of cultivated and non-cultivated crops and causing damage all over the world (Usmani *et al.*, 2010). The main characteristic features of the members of this family are absence of fastigial furrow on head region; stridulatory mechanism present; prosternal process may or may not be present; tympanal organ present; lower basal lobe of the hind femur is mostly shorter than or as long as upper one; Brunner's organ is present (Dirsh, 1961). The distribution of this specific group of insects largely depends upon the type of vegetations predominant on grassland, agricultural fields and forests. Other ecological factors such as temperature, seasonal precipitation, soil type and several anthropological factors also affects the density and distribution of this fauna.

The major contribution on Indian Orthoptera (Caelifera) was published by Kirby (1914) [12] in "Fauna of British India", where 8 subfamilies, 124 genera and 329 species were mentioned. Initial studies on Indian Acrididae was done by Stal (1873) [1]. Walker (1870, 1871) [27], Saussure (1884, 1888) and Uvarov (1921, 1927, 1942) [25, 26] also studied the family Acrididae systematically. Other major contributors on taxonomy, biology and ecology of Acrididae fauna are Roonwal (1936, 1945, 1946, 1947, 1953, 1958, 1961, 1971, 1976, 1980), Bhowmik (1964, 1986), Tandon & Shishodhia (1969, 1976, 1989), Dirsh (1954, 1956) [8, 9], Bhowmik & Halder (1983, 1984, 1985), Shishodhia & Gupta (1985), Dwivedi and Chittoraj (1984), Tandon (1976, 1988, 1990) [20, 21], Usmani & Shafee (1983, 1990) [22], Mittal & Chandra (1984), Halder *et al.*, (1999), Shishodhia (2000, 2006), Dey & Hazra (2003), Hazra *et al.*, (2004), Shishodhia & Dey (2006, 2007). Usmani *et al.*, (2012) [13], Usmani and Nayeem (2012) [13], Nayeem and usmani (2012) [13], Akhtar *et al.*, (2012), Rafi

et al., (2013), Rafi and Usmani (2013) [22], Kumar *et al.*, (2013), Akhtar *et al.*, (2014), Kumar and Usmani (2014) [23], Rafi *et al.*, (2014) also contributed major works on taxonomy, ecology and biodiversity of grasshoppers in India.

In case of West Bengal, Acridid fauna is distributed in all ecosystems which include from snowy Himalayan range, plain agricultural lands and forests to semi-arid and coastal region of the lower Bengal. Few earlier publications from that region includes Walker (1870, 1871) [27], Stal (1860, 1873) [1], Saussure (1884, 1888), Navas (1904, 1905), Bolivar (1902, 1909, 1914, 1917), Uvarov (1927, 1942) [25, 26] and recent works by Tandon (1975), Bhowmik (1984) [2], Bhowmik & Halder (1983, 1984) [2, 3], Bhowmik (1986) [4], Dey & Hazra (2003).

2. Materials and Methods

The State of West Bengal is located in the eastern part of the country between 21°20' and 27°32' N latitude and 85°50' and 89°52' E longitude having a total area of 88,752 sq km which is 2.7% of the total area in the country. This state has two distinct natural landscapes which are the Northern Himalayan region and the Southern Alluvial plains. In the northern region of the state there are three main rivers, Teesta, Torsa, and Jaldhaka which are the branches of Bramhaputra's. The other two important rivers passing through the state are Ganga and Hooghly. The Ganga drains into the Bay of Bengal forming the famous delta of Indian Sundarbans.

On the basis of distribution of climate and soil, the agricultural feasibility of the state is harnessed from 6 distinct agro-climatic zones, and they are-

- **Hill region:** Covering the districts of Darjeeling and part of Jalpaiguri district.
- **Terai region:** Covering the districts of Jalpaigudi, Coochbehar and part of North Dinajpore.
- **Old Alluvial Zone:** Comprising of North Dinajpore, South Dinajpore, Malda and part of Murshidabad, Nadia,

Burdawan districts.

- **New Alluvial Zone:** Covering a part of Murshidabad, Nadia, North 24 Parganas, Hooghly, Burdawan and Kolkata.
- **Red and Laterite zone:** Covering the district of Birbhum, Bankura, Purulia, West Medinipur.
- **Saline Coastal region:** Covering East Medinipur, Hooghly, South 24 Parganas.

The climate of the State is tropical and humid except in the northern hilly region which is close to the Himalayas. The temperature in the mainland normally varies between 24°C to 40°C during summer and 7°C to 26°C during the winter. The average rainfall in the State is about 1750 mm with considerable variation among the districts ranging between 1234 mm in Birbhum to 4136 mm in Jalpaiguri.

The grasshopper samples of both sexes were collected during pre-monsoon, monsoon and post-monsoon seasons from several vegetation and ecosystems such as grasslands, forests, river banks, wet lands and agricultural fields. The samples were collected during the period of 2015, 2016 and 2017 from all the districts of West Bengal state. The field surveys were done at early morning and afternoon when the flight activity of the grasshoppers were least by using sweep net and hand picking methods. Light traps were also used to catch the samples during night period. The samples were then killed in a bottle by ethyl acetate and then preserved in 70% ethyl alcohol solution. Then the specimens were stretched and pinned for identification under stereozoom microscope by using the taxonomic keys.

3. Results and Discussion

The result of the current work represent 84 species and 58 genera belongs to 12 subfamilies of acridid fauna from the state of West Bengal, India as shown in table 1. The samples were collected from different host plants during pre-monsoon, monsoon and post-monsoon seasons. On the contrary the previous work on grasshopper species recorded from West Bengal state were 56 species belongs to 45 genera (Bhowmik, 1986)^[4]. Another record of 69 species under 49 genera were

also reported (Hazra *et al.* 1991). Current study shows twelve species i.e. *Acrida gigantea* Herbst, 1786), *Orthothesa indica* Uvarov, 1942^[25], *Leionotacris bolivari* (Uvarov, 1921)^[26], *Aiolopus thalassinus thalassinus* (Fabricius, 1781), *Aiolopus simulatrix* (Walker, 1870)^[27], *Chloebora marshalli* (Henry, 1933), *Oxya japonica japonica* (Thunberg, 1815), *Oedipoda miniata miniata* (Pallas, 1771), *Tropidopola longicornis* Fieber, 1853, *Acorypha insignis* (Walker, 1870)^[27], *Diaboloacanthops pinguis* (Stal, 1861)^[11], *Xenocatantops karnyi* (Kirby, 1910)^[12] are recorded for the first time from this state. Maximum number of species recorded from this state belongs to subfamily Oedipodinae (15 genera, 24 species), followed by subfamily Catantopinae (14 genera, 18 species), Gomphocerinae (7 genera, 10 species), Acridinae (4 genera, 7 species), Oxynae (2 genera, 6 species), Hemiacridinae (3 genera, 5 species), Cyrtacanthacridinae (3 genera, 4 species), Eyprepocnemidinae (3 genera, 3 species), Calliptaminae (2 genera, 2 species), Coptacridinae (2 genera, 2 species), Tropidopodinae (2 genera, 2 species) and Spathosterninae (1 genus, 1 species) [Fig. 2].

In India, the checklist of Orthoptera has 1033 species and subspecies which belongs to 398 genera and 21 families. Orthoptera is further divided into two suborders which is Caelifera (short-horned grasshoppers, locusts and grouse locusts) and Ensifera (long-horned grasshoppers, katydids, crickets and mole crickets). The suborder Caelifera includes 518 species belongs to 214 genera and 11 families. The suborder Ensifera includes 515 species belongs to 184 genera and 10 families (Chandra *et al.* 2010).

The checklist of Orthoptera of Madhya Pradesh and Chhattisgarh reported 139 species under 12 families, which also includes the information on district wise distribution and occurrence of species in protected areas (Chandra *et al.* 2007) Chandr^[7]. The checklist of Acrididae fauna of Himachal Pradesh reported 44 species of locusts and grasshoppers that were captured from different localities and habitats such as grasslands, crop fields, bushes. (Kumar & Usmani, 2012)^[13]. The acridid fauna of Jammu and Kashmir State of India is represented by 70 species, 44 genera and 12 subfamilies (Kumar *et al.* 2015).

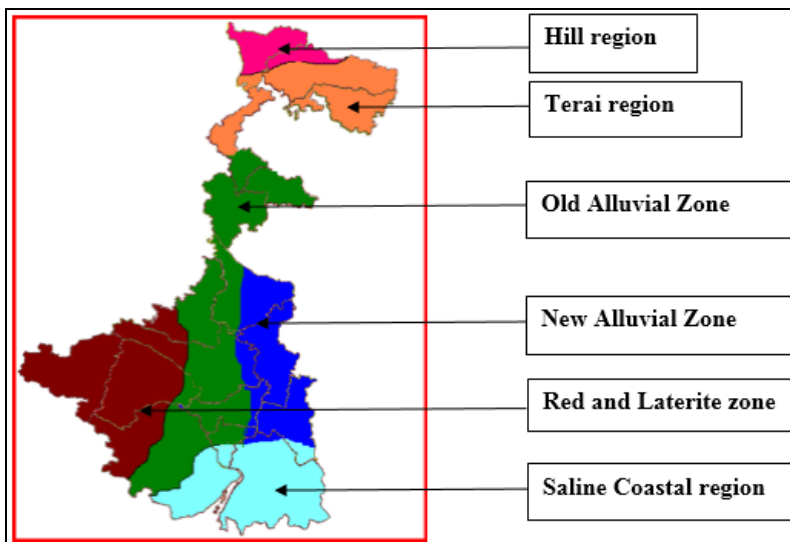


Fig 1: Agro-climatic regions of West Bengal

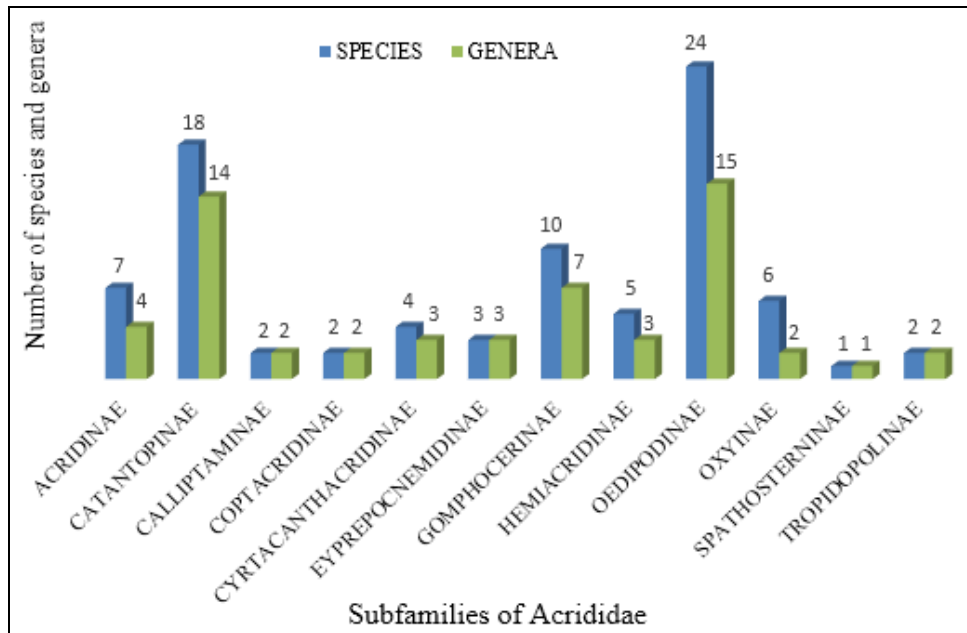


Fig 2: Showing the number of genera and species of family Acrididae from West Bengal

Table 1: Species of Acrididae recorded from West Bengal, India

S. No	Subfamily	Species	Distribution
1.	Arcadian	<i>Acrida exaltata</i> (Walker, 1859) [27]**	India: Delhi, Punjab, Gujarat, Haryana, Himachal Pradesh, Madhya Pradesh, Uttar Pradesh, Maharashtra, Goa, Arunachal Pradesh, Manipur, Assam, Bihar, Chhattisgarh, Jammu & Kashmir, Kerala, Karnataka, Orissa, Tamil Nadu, Tripura, Meghalaya, Uttarakhand, Rajasthan, Sikkim, Nagaland, Andaman & Nicobar Island and West Bengal.
2.		<i>Acrida gigantea</i> (Herbst, 1786)*	India: Uttarakhand, Tamil Nadu, Madhya Pradesh, Himachal Pradesh and West Bengal.
3.		<i>Phlaeoba antennata antennata</i> Brunner, 1893**	India: Assam, Arunachal Pradesh, Manipur, Meghalaya, Nagaland, Mizoram, Himachal Pradesh, Orissa, Tripura, Rajasthan, Kerala, Sikkim and West Bengal.
4.		<i>Phlaeoba infumata</i> Brunner, 1893**	India: Delhi, Punjab, Haryana, Himachal Pradesh, Madhya Pradesh, Uttar Pradesh, Goa, Andhra Pradesh, Arunachal Pradesh, Manipur, Assam, Bihar, Chhattisgarh, Orissa, Tamil Nadu, Tripura, Meghalaya, Rajasthan, Sikkim, Nagaland and West Bengal.
5.		<i>Phlaeoba panteli</i> Bolivar, 1902**	India: Andhra Pradesh, Arunachal Pradesh, Manipur, Bihar, Himachal Pradesh, Madhya Pradesh, Tripura, Meghalaya, Tamil Nadu, Uttarakhand and West Bengal.
6.		<i>Sikkimiana darjeelingensis</i> (Bolivar, 1914)***	India: Assam, Arunachal Pradesh, Manipur, Meghalaya, Nagaland, Mizoram, Himachal Pradesh, Uttarakhand, Sikkim and West Bengal.
7.		<i>Orthotha indica</i> Uvarov, 1942 [25]*	India: Delhi, Himachal Pradesh, Maharashtra, Madhya Pradesh, Meghalaya and West Bengal
8.	Catantopinae	<i>Apalacris varicornis</i> Walker, 1870 [27]***	India: Assam, Arunachal Pradesh, Manipur, Tripura, Sikkim, Nagaland and West Bengal.
9.		<i>Apalniacris jalpaigudi</i> Ingrisch et al., 2004***	India: West Bengal.
10.		<i>Catantops erubescens</i> (Walker, 1870) [27]**	India: Arunachal Pradesh and West Bengal.
11.		<i>Cingalia dubia</i> (Walker, 1870) [27]***	India: Manipur, Nagaland and West Bengal.
12.		<i>Circocephalus indica</i> Bhowmik & Halder, 1982 [2]***	India: Arunachal Pradesh, Assam, Manipur and West Bengal.
13.		<i>Choroedocus robustus</i> (Serville, 1838)**	India: Andhra Pradesh, Arunachal Pradesh, Assam, Himachal Pradesh, Manipur, Meghalaya, Nagaland, Sikkim, Tripura and West Bengal.
14.		<i>Choroedocus capensis</i> (Thunberg, 1815)***	India: Delhi, Himachal Pradesh, Tamil Nadu, Uttarakhand and West Bengal.
15.		<i>Diabolocatantops innotabilis</i> (Walker, 1870) [27]**	India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Orissa, Delhi, Goa, Haryana, Himachal Pradesh, Jammu & Kashmir, Manipur, Meghalaya, Nagaland, Madhya Pradesh, Maharashtra, Rajasthan, Sikkim, Tamil Nadu, Karnataka, Kerala, Lakshadweep Island, Uttar Pradesh, Uttarakhand and West Bengal.
16.		<i>Diabolocatantops pinguis</i> (Stal, 1861) [1]*	India: Kerala, Manipur, Sikkim, Tamil Nadu and West Bengal.
17.		<i>Eupreponotus inflatus</i> Uvarov, 1921 [25]**	India: Orissa, Uttarakhand, Uttar Pradesh and West Bengal.
18.		<i>Gerenia bengalensis</i> Bhowmik & Halder, 1984 [2]***	India: West Bengal.

19.		<i>Oxyrrhepes obtusa</i> (Haan, 1842)**	India: Arunachal Pradesh, Orissa, Himachal Pradesh, Manipur, Meghalaya, Nagaland, Karnataka, Kerala, Madhya Pradesh, Rajasthan, Sikkim, Tamil Nadu, Uttarakhand and West Bengal.
20.		<i>Pachyacris vinosa</i> (Walker, 1870) ^{[27]**}	India: Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Orissa, Goa, Himachal Pradesh, Manipur, Meghalaya, Nagaland, Karnataka, Madhya Pradesh, Maharashtra, Mizoram, Tripura, Uttarakhand and West Bengal.
21.		<i>Paraconophyma scabra</i> (Walker, 1870) ^{[27]***}	India: Bihar, Delhi, Himachal Pradesh, Jammu & Kashmir, Karnataka, Manipur, Rajasthan, Tamil Nadu, Uttarakhand and West Bengal.
22.		<i>Stenocatantops splendens</i> (Thunberg, 1815)**	India: Andaman & Nicobar Island, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Orissa, Manipur, Meghalaya, Nagaland, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal.
23.		<i>Xenocatantops humilis</i> (Serville, 1838)**	India: Andaman & Nicobar Island, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Orissa, Himachal Pradesh, Manipur, Meghalaya, Nagaland, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Mizoram, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.
24.		<i>Xenocatantops karnyi</i> (Kirby, 1910) ^{[12]*}	India: Arunachal Pradesh, Assam, Andhra Pradesh, Chhattisgarh, Delhi, Himachal Pradesh, Maharashtra, Orissa, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.
25.		<i>Xenocatantops brachycerus</i> (Willemse, 1932)***	India: Nagaland, Sikkim and West Bengal.
26.	Calliptaminae	<i>Acorypha insignis</i> (Walker, 1870) ^{[27]*}	India: Maharashtra and West Bengal.
27.		<i>Peripolus pedarius</i> (Stal, 1878) ^{[1]**}	India: Assam, Sikkim, Uttarakhand and West Bengal.
28.	Coptacridinae	<i>Epistaurus sinetyi</i> Bolivar, 1902**	India: Andhra Pradesh, Manipur, Orissa, Tamil Nadu, Tripura and West Bengal.
29.		<i>Eucoptacra praemorsa</i> (Stal, 1861) ^{[1]**}	India: Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Manipur, Orissa, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand and West Bengal.
30.	Cyrtacanthacridinae	<i>Chondracris rosea</i> (De Geer, 1773)**	India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Himachal Pradesh, Kerala, Madhya Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Orissa, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand and West Bengal.
31.		<i>Cyrtacanthacris tartarica tartarica</i> (Linnaeus, 1758)**	India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Manipur, Orissa, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand and West Bengal.
32.		<i>Patanga japonica</i> (Bolivar, 1898)**	India: Sikkim, Uttarakhand and West Bengal.
33.		<i>Patanga succincta</i> (Johansson, 1763)***	India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Himachal Pradesh, Jammu & Kashmir, Kerala, Lakshadweep Island, Maharashtra, Meghalaya, Manipur, Orissa, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand and West Bengal.
34.	Eyprepocnemidinae	<i>Eyprepocnemis alacris</i> (Serville, 1838)**	India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Manipur, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand and West Bengal.
35.		<i>Heteracris pulcher</i> (Bolivar, 1902)**	India: Andhra Pradesh, Bihar, Delhi, Orissa, Tamil Nadu, Uttarakhand and West Bengal.
36.		<i>Tylotropidius varicornis</i> (Walker, 1870) ^{[27]**}	India: Andhra Pradesh, Bihar, Chhattisgarh, Delhi, Goa, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Orissa, Rajasthan, Tamil Nadu, Tripura, Uttarakhand and West Bengal.
37.	Gomphocerinae	<i>Aulacobothrus luteipes luteipes</i> (Walker, 1871)**	India: Andaman & Nicobar Islands, Andhra Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Himachal Pradesh, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Sikkim, Tamil Nadu, Uttarakhand and West Bengal.
38.		<i>Aulacobothrus luteipes infernus</i> Bolivar, 1902***	India: Assam, Bihar, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Sikkim, Tamil Nadu and West Bengal.
39.		<i>Aulacobothrus taeniatus</i> Bolivar, 1902**	India: Tamil Nadu and West Bengal.
40.		<i>Aulacobothrus rubripes</i> (Navás, 1905)***	India: West Bengal
41.		<i>Crucinotacris decisa</i> (Walker, 1871)***	India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Delhi, Himachal Pradesh, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Orissa, Sikkim, Tamil Nadu, Tripura and West Bengal.
42.		<i>Dociostaurus apicalis</i> (Walker, 1871)***	India: Maharashtra, Uttarakhand and West Bengal.
43.		<i>Gelastorhinus laticornis</i> (Serville, 1839)***	India: Chhattisgarh, Himachal Pradesh, Madhya Pradesh, Maharashtra and West Bengal.
44.		<i>Leva indica</i> (Bolivar, 1902)**	India: Andhra Pradesh, Bihar, Chhattisgarh, Delhi, Karnataka, Madhya Pradesh, Orissa, Rajasthan, Tamil Nadu, Tripura and West Bengal.
45.		<i>Leionotacris bolivari</i> (Uvarov, 1921) ^{[25]*}	India: Andhra Pradesh, Bihar, Karnataka, Tamil Nadu and West Bengal.
46.		<i>Mesopsis cylindricus</i> (Kirby, 1914) ^{[12]***}	India: Andhra Pradesh, Arunachal Pradesh, Bihar, Himachal Pradesh, Madhya Pradesh, Orissa, Punjab, Sikkim and West Bengal.

47.	Hemiaceridinae	<i>Hieroglyphus banian</i> (Fabricius, 1798)**	India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal.
48.		<i>Hieroglyphus nigrorepletus</i> Bolivar, 1912**	India: Andhra Pradesh, Assam, Bihar, Delhi, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Uttarakhand, Uttar Pradesh and West Bengal.
49.		<i>Hieroglyphus oryzivorus</i> Carl, 1916**	India: Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Maharashtra, Orissa, Rajasthan and West Bengal.
50.		<i>Leptacris monteiroi</i> vittata (Fabricius, 1787)***	India: Andhra Pradesh, Manipur and West Bengal.
51.		<i>Parahieroglyphus bilineatus</i> (Saussure, 1912)***	India: Himachal Pradesh, Madhya Pradesh, Maharashtra, Uttarakhand and West Bengal.
52.	Oedipodinae	<i>Acrotylus insubricus infictus</i> (Walker, 1870) ^[27] ***	India: Himachal Pradesh, Orissa and West Bengal.
53.		<i>Acrotylus humbertianus</i> Saussure, 1884**	India: Andhra Pradesh, Bihar, Chhattisgarh, Delhi, Goa, Haryana, Himachal Pradesh, Lakshadweep Island, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Tripura Uttar Pradesh and West Bengal.
54.		<i>Aiolopus thalassinus tamulus</i> (Fabricius, 1798)**	India: Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Bihar, Chhattisgarh, Delhi, Haryana, Himachal Pradesh, Orissa, Punjab, Rajasthan, Manipur, Meghalaya, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.
55.		<i>Aiolopus thalassinus thalassinus</i> (Fabricius, 1781)*	India: Himachal Pradesh, North & West India and West Bengal.
56.		<i>Aiolopus simulatrix</i> (Walker, 1870) ^[27] *	India: Bihar, Rajasthan, Jharkhand, Uttar Pradesh and West Bengal.
57.		<i>Ceracris nigricornis nigricornis</i> Walker, 1870 ^[27] **	India: Arunachal Pradesh, Assam, Bihar, Haryana, Himachal Pradesh, Meghalaya, Maharashtra, Manipur, Nagaland, Sikkim, Uttarakhand, Tamil Nadu, Tripura and West Bengal.
58.		<i>Ceracris nigricornis laeta</i> (Bolivar, 1914)***	India: Arunachal Pradesh, Himachal Pradesh, Sikkim and West Bengal.
59.		<i>Chloebora marshalli</i> (Henry, 1933)*	India: Bihar, Orissa, Tamil Nadu and West Bengal.
60.		<i>Chloebora crassa</i> (Walker, 1870) ^[27] ***	India: Karnataka, Maharashtra, Tamil Nadu and West Bengal.
61.		<i>Chloebora grossa</i> (Saussure, 1884)**	India: Himachal Pradesh, Punjab, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal.
62.		<i>Chondronotulus bengalensis</i> (Saussure, 1888)***	India: Madhya Pradesh, Maharashtra and West Bengal.
63.		<i>Dittopternis venusta</i> (Walker, 1870) ^[27] **	India: Andhra Pradesh, Chhattisgarh, Karnataka, Madhya Pradesh, Manipur, Meghalaya, Orissa, Tamil Nadu, Tripura and West Bengal.
64.		<i>Gastrimargus africanus africanus</i> (Saussure, 1888)**	India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Himachal Pradesh, Jammu & Kashmir, Orissa, Rajasthan, Meghalaya, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Nagaland, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.
65.		<i>Gastrimargus marmoratus</i> (Thunberg, 1815)***	India: Andhra Pradesh, Assam, Bihar, Himachal Pradesh, Jharkhand, Meghalaya, Karnataka, Madhya Pradesh, Maharashtra, Nagaland, Sikkim, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal.
66.		<i>Heteropternis respondens respondens</i> (Walker, 1859)**	India: Andhra Pradesh, Arunachal Pradesh, Bihar, Himachal Pradesh, Karnataka, Meghalaya, Nagaland, Orissa, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.
67.		<i>Morphacris fasciata</i> (Thunberg, 1815)**	India: Bihar, Chhattisgarh, Gujarat, Kerala, Lakshadweep Island, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu and West Bengal.
68.		<i>Meristopteryx rotundata</i> (Walker, 1870) ^[27] ***	India: West Bengal.
69.		<i>Oedaleus abruptus</i> (Thunberg, 1815)**	India: Andhra Pradesh, Arunachal Pradesh, Bihar, Chhattisgarh, Delhi, Goa, Haryana, Himachal Pradesh, Jammu & Kashmir, Orissa, Manipur, Meghalaya, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Punjab, Pondicherry, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.
70.		<i>Oedaleus senegalensis</i> (Krauss, 1877)***	India: Andhra Pradesh, Bihar, Delhi, Jammu & Kashmir, Madhya Pradesh, Punjab, Rajasthan, Tamil Nadu, Uttarakhand and West Bengal.
71.		<i>Oedipoda miniata miniata</i> (Pallas, 1771)*	India: Jharkhand and West Bengal.
72.		<i>Pternoscirta bimaculata</i> (Thunberg, 1815)***	India: Andhra Pradesh, Bihar, Madhya Pradesh, Nagaland and West Bengal.
73.		<i>Pternoscirta cinctifemur</i> (Walker, 1859)***	India: Arunachal Pradesh, Assam, Goa, Kerala, Madhya Pradesh, Manipur, Meghalaya, Orissa, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.
74.		<i>Sphingonotus longipennis</i> Saussure, 1884**	India: Andhra Pradesh, Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Punjab, Rajasthan, Sikkim, Uttarakhand and West Bengal.
75.		<i>Trilophidia annulata</i> (Thunberg, 1815)**	India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Himachal Pradesh, Jammu & Kashmir, Orissa, Manipur, Meghalaya, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Nagaland, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.

76.	Oxyinae	<i>Gesonula punctifrons</i> (Stal, 1861) [1]**	India: Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Orissa, Punjab, Manipur, Meghalaya, Kerala, Madhya Pradesh, Maharashtra, Nagaland, Tamil Nadu, Uttar Pradesh and West Bengal.
77.		<i>Oxya velox</i> (Fabricius, 1787)**	India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Orissa, Manipur, Meghalaya, Madhya Pradesh, Maharashtra, Nagaland, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.
78.		<i>Oxya fuscovittata</i> (Marschall, 1836)**	India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Himachal Pradesh, Jammu & Kashmir, Orissa, Manipur, Meghalaya, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Nagaland, Rajasthan, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.
79.		<i>Oxya hyla</i> Serville, 1831**	India: Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Orissa, Punjab, Manipur, Meghalaya, Kerala, Karnataka, Madhya Pradesh, Maharashtra, Nagaland, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.
80.		<i>Oxya japonica japonica</i> (Thunberg, 1815)*	India: Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Bihar, Goa, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Tripura, Uttar Pradesh and West Bengal.
81.		<i>Oxya nitidula</i> (Walker, 1870) [27]***	India: Andhra Pradesh, Bihar, Chhattisgarh, Goa, Karnataka, Kerala, Madhya Pradesh, Manipur, Orissa, Punjab, Rajasthan, Tamil Nadu, Tripura and West Bengal.
82.	Spathosterninae	<i>Spathosternum prasiniferum prasiniferum</i> (Walker, 1871)**	India: Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Himachal Pradesh, Jammu & Kashmir, Orissa, Punjab, Rajasthan, Manipur, Meghalaya, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Mizoram, Nagaland, Punjab, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.
83.	Tropidopolinae	<i>Tristria pulvinata</i> (Uvarov, 1921) [25]**	India: Andhra Pradesh, Assam, Bihar, Delhi, Haryana, Karnataka, Kerala, Maharashtra, Meghalaya, Orissa, Punjab, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal.
84.		<i>Tropidopola longicornis</i> (Fieber, 1853)*	India: Bihar, Maharashtra and West Bengal.

Table captions: ***Species not collected by present authors but reported by previous workers; **Species collected by present authors as well as reported by other workers; *First time reported species from this state by present authors.

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