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A CHECKLIST OF ACRIDIDAE (ORTHOPTERA: ACRIDOIDEA) FROM HARYANA, INDIA

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ABSTRACT. A survey of Acridid fauna in totally different habitats in different regions of Haryana state was carried out during the period from 2009 to 2011. Thirty six species were captured belonging to twenty three genera and eight subfamilies. Oedipodinae (28%) was the most dominant subfamily. *Spathosternum prasiniferum prasiniferum* (Walker, 1871) was found to be most abundant.

Key words: Acrididae, Haryana, Grasshoppers, Locusts, India.

RESUMEN. Un estudio de la fauna de acrididos en diferentes hábitats y regiones del estado de Haryana se llevó a cabo durante el período comprendido entre 2009 y 2011. Treinta y seis especies fueron colectadas pertenecientes a veintitrés géneros y ocho subfamilias. Oedipodinae (28%) fue la subfamilia más dominante. *Spathosternum prasiniferum prasiniferum* (Walker, 1871) es la especie más abundante.

Palabras clave: Acrididae, Haryana, saltamontes, langostas, India.

INTRODUCTION

Acrididae is a family of grasshoppers including locusts in the superfamily Acridoidea which belongs to the order Orthoptera. Superfamily Acridoidea has shown maximum diversity and divided into eleven families of which Acrididae is widely distributed in India. Locusts and grasshoppers constitute an economically important group of orthopteran pests that infest a number of cultivated and non-cultivated crops. The distribution pattern of grasshoppers is changing rapidly due to the encroachment of grasslands and forests for agricultural and industrial purposes. Kirby (1914), Uvarov (1927), Henry (1940), Tandon & Shishodia (1969, 1976a, 1976b, 1976c, 1977), Bhowmik (1985), Shishodia & Mandal (1990), Usmani & Shafee (1990), Shrinivasan & Muralirangan (1992), Hazra *et al.* (1993), Shishodia (1997, 1999, 2000, 2008), Shishodia & Tandon (2000), Priya & Narendran (2003), Shishodia *et al.* (2003), Kulkarni & Shishodia (2004), Thakur *et al.* (2004), Ingrisich *et al.* (2004), Shishodia & Dey (2006, 2007), Saini & Mehta (2007), Chandra *et al.* (2007, 2010), Shishodia & Gupta (2009), Usmani *et al.* (2010), Senthilkumar (2010) and Kumar & Usmani (2012a, 2012b) have contributed to the taxonomy of Indian Acridids. There are only few sporadic reports or papers available on acridid fauna of Haryana. Shishodia *et al.* (2010) reported 30 species over 25 genera belonging to four families of order Orthoptera from this state. So, keeping in mind the importance of these pests in agriculture, an extensive and intensive survey was made to find out the distribution and diversity of these pests at different habitats in various localities in this area.

MATERIALS AND METHODS

Haryana (Fig. 1) is a part of Kuru region in North India, bordered by Punjab and Himachal Pradesh to the north, and by Rajasthan to the west and south. The river Yamuna defines its eastern border with Uttarakhand and Uttar Pradesh. Haryana is located between 27°39' to 30°35' N latitude and between 74°28' and 77°36' E longitude. The altitude of Haryana varies between 700 and 3600 ft (200 metres to 1200metres) above sea level. The total area of the state of Haryana is 44,212 square kilometres. An area of 1,553 km² is covered by forest.

The adult grasshoppers of both sexes were collected from various localities of Haryana during the period of 2009 to 2011 which served the basis for the present critical study. They were caught by hand, 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 vegetation. The specimens were first relaxed, stretched and later, they were pinned and labeled. Identification of species is based on both morphological and genital characters. The collected materials by the author during survey are deposited in the Zoological Museum of the Aligarh Muslim University, Aligarh, India.

RESULTS

The material collected from different area and various localities of Haryana state includes 430 specimens of acridids. This collection includes thirty six species belonging to twenty three genera and eight subfamilies (Table 1). *Spathosternum prasiniferum prasiniferum* (Walker,

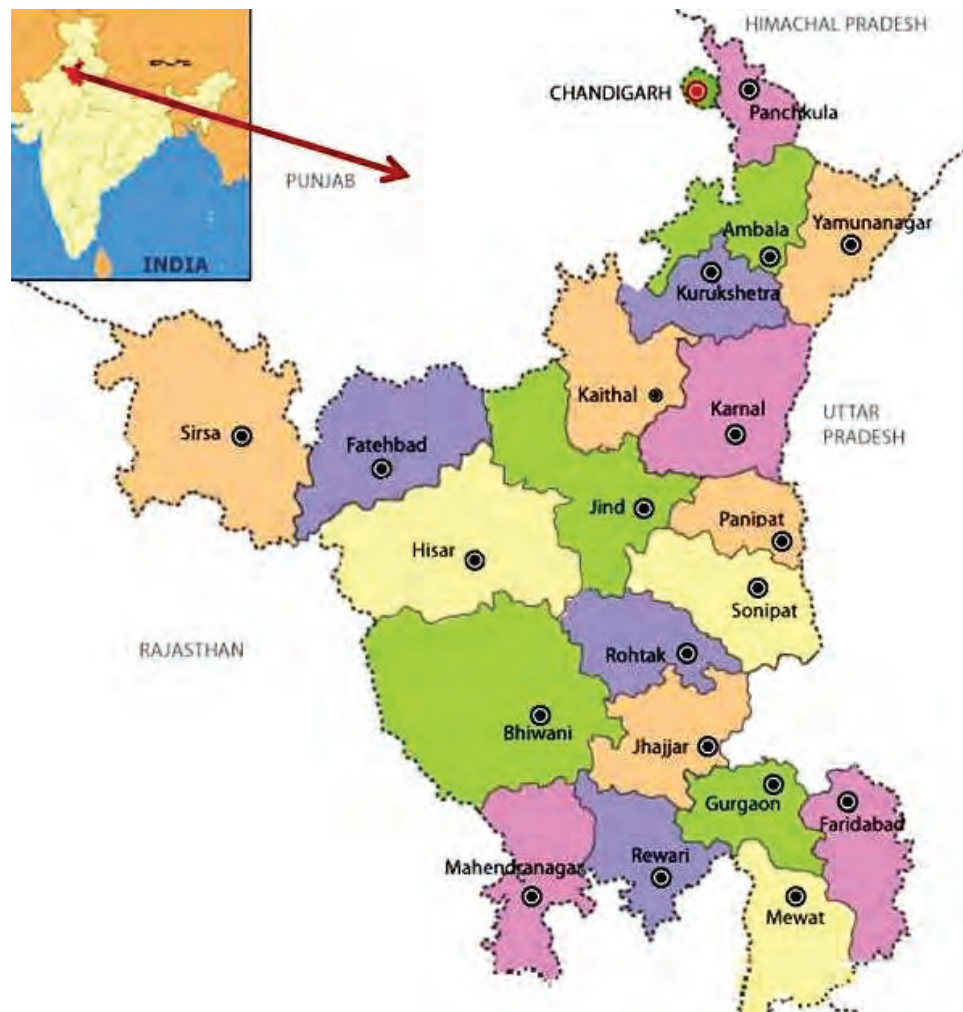


Figure 1. District map of Haryana, India.

1871) was collected in the maximum number. The members of subfamily Oedipodinae with 28% (Fig. 2) are the more diverse and abundant species. Some abundant species of Oedipodinae are *Trilophidia annulata* (Thunberg, 1815), *Aiolopus simulatrix simulatrix* (Walker, 1870) and *Aiolopus thalassinus thalassinus* (Fabricius, 1781). The following species *Oxya hyla hyla* (Serville, 1831), *Spathosternum prasiniferum prasiniferum* (Walker, 1871), *Hieroglyphus nigrореpletus* (Bolivar, 1912), *Hieroglyphus banian* (Fabricius, 1798), *Trilophidia annulata* (Thunberg, 1815), *Aiolopus simulatrix simulatrix* (Walker, 1870) and *Acrida exaltata* (Walker, 1859) are found in almost all habitats. Twenty six species and eleven genera are reported for the first time from this state.

DISCUSSION

Acridids popularly known as locusts and grasshoppers are major pests of various agricultural crops and grass-

lands. Their destructiveness is well known throughout the world. Locusts are the key pests of agricultural land of those countries which are bordered by the deserts. Shishodia *et al.* (2010) and Chandra *et al.* (2010) reported 15 species under 15 genera belonging to seven subfamilies of Acrididae from Haryana. A few species such as *Cyrtacanthacris tatarica tatarica* (Linnaeus, 1758), *Schistocerca gregaria* (Forsk., 1775), *Tylotropidius varicornis* (Walker, 1870), *Aulacobothrus socius* Bolivar, 1902 and *Tristria pulvinata* (Uvarov, 1921) reported by Shishodia *et al.* (2010) were not found during the sampling. Shishodia *et al.* (2010) found seven subfamilies with maximum number of species in subfamily Oedipodinae (31%), followed by subfamily Acridinae (15%), Eyprepocnemidinae (15%), Cyrtacanthacridinae (15%), Oxyinae (8%), Tropidopodinae (8%) and Gomphocerinae (8%). The present study also support the findings of Shishodia *et al.* (2010) with some changes as the species of subfamily Oedipodinae were reported in maximum percentage followed

Table 1. Species of family Acrididae found in Haryana with their localities.

Spp. No.	Subfamily	Species	Localities
1	OXYINAE	<i>Oxya fuscovittata</i> (Marschall, 1836)	Ambala, Punchkula
2		<i>Oxya hyla hyla</i> (Serville, 1831)*	Sirsa, Hisar, Ambala, Punchkula, Yamunanagar, Kurukshetra, Kaithal
3		<i>Oxya velox</i> (Fabricius, 1787)	Yamunanagar, Kurukshetra, Kaithal
4		<i>Oxya japonica japonica</i> (Thunberg, 1815)	Sirsa, Ambala, Yamunanagar, Kurukshetra
5	SPATHOSTERNINAE	<i>Spathosternum prasiniferum prasiniferum</i> (Walker, 1871)	Hisar, Ambala, Punchkula, Kurukshetra, Karnal
6	HEMIACRIDINAE	<i>Hieroglyphus nigroropletus</i> (Bolivar, 1912)	Hisar, Ambala, Punchkula, Yamunanagar, Kaithal, Karnal
7		<i>Hieroglyphus banian</i> (Fabricius, 1798)	Ambala, Punchkula, Yamunanagar, Kurukshetra, Kaithal
8	EYPREPOCNEMIDINAE	<i>Eyprepocnemis alacris alacris</i> (Serville, 1838)*	Hisar, Ambala, Punchkula, Kaithal, Karnal
9		<i>Heteracris nobilis</i> (Brancsik, 1893)*	Karnal
10		<i>Heteracris littoralis</i> (Rambur, 1838)	Hisar
11	CATANTOPINAE	<i>Xenocatantops karnyi</i> (Kirby, 1910)	Ambala
12		<i>Diabolocatantops innotabilis</i> (Walker, 1870)*	Ambala, Karnal
13		<i>Choroedocus illustris</i> (Walker, 1870)	Punchkula
14	OEDIPODINAE	<i>Oedaleus abruptus</i> (Thunberg, 1815)*	Ambala
15		<i>Trilophidia annulata</i> (Thunberg, 1815)	Fatehabad, Ambala, Punchkula, Kurukshetra, Kaithal, Karnal
16		<i>Trilophidia repleta</i> (Walker, 1870)	Hisar, Ambala, Punchkula
17		<i>Acrotylus humbertianus</i> (Saussure, 1884)*	Hisar, Fatehabad, Kurukshetra, Karnal
18		<i>Aiolopus simulatrix simulatrix</i> (Walker, 1870)	Hisar, Sirsa, Ambala, Punchkula, Kurukshetra, Kaithal
19		<i>Aiolopus thalassinus thalassinus</i> (Fabricius, 1781)	Hisar, Sirsa, Ambala, Punchkula
20		<i>Aiolopus thalassinus tumulus</i> (Fabricius, 1798)*	Hisar
21		<i>Ceracris nigricornis nigricornis</i> (Walker, 1870)*	Hisar, Sirsa, Fatehabad, Kaithal
22		<i>Gastrimargus africanus africanus</i> (Saussure, 1888)	Karnal
23		<i>Gastrimargus africanus sulphureus</i> Bey-Bienko, 1951	Ambala, Karnal
24	ACRIDINAE	<i>Acrida exaltata</i> (Walker, 1859)*	Sirsa, Fatehabad, Hisar, Ambala, Punchkula, Yamunanagar, Kurukshetra, Kaithal, Karnal
25		<i>Acrida gigantea</i> (Herbst, 1786)	Sirsa
26		<i>Duroniopsis bitaeniata</i> Bolivar, 1914	Punchkula
27		<i>Orthochtha indica</i> Uvarov, 1942	Punchkula, Karnal
28		<i>Orthochtha ramchandrae</i> Popov, 1981	Punchkula, Karnal
29		<i>Orthochtha schmidtii</i> Popov & Fishpool, 1992	Karnal
30		<i>Phlaeoba infumata</i> (Brunner von Wattenwyl, 1893)*	Punchkula
31		<i>Ochrilidia gracilis gracilis</i> (Krauss, 1902)	Hisar
32		<i>Stenohippus mundus</i> (Walker, 1871)	Sirsa
33		<i>Leva solute</i> Bolivar, 1914	Fatehabad
34	GOMPHOCERINAE	<i>Crucinotacris decisa</i> (Walker, 1871)	Karnal
35		<i>Aulacobothrus taeniatus</i> Bolivar, 1902	Ambala
36		<i>Aulacobothrus luteipes luteipes</i> (Walker, 1871)	Ambala, Kurukshetra

* Species reported by Shishodia et al. (2010).

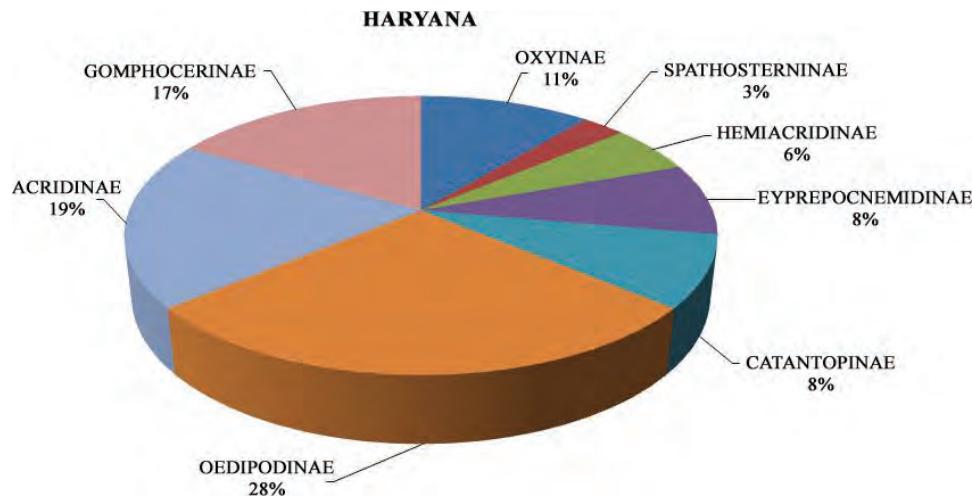


Figure 2. Percentage occurrence of different subfamilies of Acrididae in Haryana, India.

by the subfamily Acridinae. Shishodia *et al.* (2010) were unable to find members of subfamilies Spathosterninae, Hemiacridinae and Catantopinae. So, the present study is a distinct addition to the Acridid fauna of Haryana.

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