



Rec. zool. Surv. India : 109(Part-4) : 67-76, 2009

ACRIDOIDEA DIVERSITY OF PATNA BIRD SANCTUARY, UTTAR PRADESH, INDIA

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INTRODUCTION

Patna Bird Sanctuary is about 6 kms. from Jalesar tehsil of Etah district of Uttar Pradesh on the Jalesar-Sikandrarao road, was declared as full fledged sanctuary in 1990 having an area of 108 hectare. The sanctuary extends between 78° 45' 00'' east longitude and 27° 34' 60'' north latitude with an altitude of 168m msl. It is about 60 kms from Aligarh. The average year temperature varies from 47°C in peak summers to 4° C in winters. It is a typical rainfed wetland of the gangetic plains, being a natural, freshwater, shallow depression. The shallow parts of the sanctuary dry up during summer, leaving some puddles in the deeper zones. After the abundant Indian monsoon fills the lake to its brim, approx. 200 different species of birds can be sighted during this time of the year. Though on paper it's the smallest bird sanctuary in Uttar Pradesh covering a wetland area of a mere 1 sq. km., Patna vies with the best when it comes to its avifauna. Date palm *Phoenix silvestris* in the central part of the sanctuary is one of the most conspicuous features of this sanctuary. Aquatic vegetation consists of *Hydrilla verticillata*, *Ceratophyllum demersum*, *Vallisneria spiralis*, *Pontamogeton crispus*, and *Najas* sp., while surface vegetation consists of *Salvinia*, *Azolla* and *Eichhornia crassipes*. On the fringes of the wetlands, *Ipomea carnea* grows in excess and *Ipomea aquatica* is also spreading.

Short-horned grasshoppers are included in the Superfamily Acridoidea. They are moderate in size, but range from less than 10 mm to 65 mm. The form of body shape, head and thorax are diverse; antennae are filiform but sometimes ensiform; tarsi three segmented; hind femora long, slender and thick towards base and adapted for leaping. Wings are either fully developed or reduced or absent; forewings in the form of leathery tegmina; hind wings fan like; male external genitalia complex, symmetrical and concealed, when not in use, by the enlarged ninth abdominal sternum (Subgenital plate).

The most notable work on Indian grasshoppers was made by Kirby (1914). Later on Bolivar (1914, 18), Uvarov (1921, 1927, 1940, 1940a, 1942) have also studied the Orthoptera of Indian

subcontinent. Willemese (1955) has studied the Orthoptera of Indo-Malayan region. Later on Henry (1940), Dirsh (1954, 1958), Dirsh & Uvarov (1953), Banerjee and Kevan (1960), Hollis (1965, 1968, 1971, 1975), Mason (1973) and Ritchie (1981, 1982) have taxonomically treated several genera. Tandon (1975, 1976) and Tandon & Shishodia (1977) have studied Indian grasshoppers from different states. Shishodia & Hazra (1985, 1986) have studied the Acridoidea fauna of Silent Valley (Kerala), and Namdhapa (Arunachal) Pradesh. Bhowmik (1986) gave an account of the Acridoidea Fauna of West-Bengal, specially of North-Bengal. Further, Hazra *et. al.* (1993) have studied Acridoidea Fauna of West-Bengal.

The present paper deals with 18 species belonging to 2 families and 15 genera. All the species are reported from the sanctuary for the first time. Three species have been recorded from Uttar Pradesh for the first time. Classification followed here is according to Uvarov (1966).

ABBREVIATIONS USED

Coll.—Name of the Collector, ex (s)—Number of example (s).

SYSTEMATIC ACCOUNT

Order ORTHOPTERA

Superfamily ACRIDOIDEA

Family PYRGOMORPHIDAE

Genus 1. *Chrotogonus* Serville, 1839

1. *Chrotogonus (Chr.) trachypterus trachypterus* (Blanchard)

1836. *Ommexecha trachypterus* Blanchard, *Annl. Soc. ent. France*, 5 : 618.

1959. *Chrotogonus (Chr.) trachypterus trachypterus* : Kevan, *Publcoes cult. Co. Diam. Angola*, 43 : 147.

Material examined : 1 ex., 7.ix.05, Near Sanctuary Main Gate; 3 exs., 7.ix.05, Near Lake; 2 exs., 8.ix.05, Grassy Fields near Temple, Coll.: N Sharma & party.

Distribution : India : Uttar Pradesh, Andhra Pradesh, Bihar, Goa, Himachal Pradesh, Karnataka, Kerala, South east of Maharastra, Madhaya Pradesh, Orissa, Tamil Nadu, and West Bengal.

Elsewhere : Sri Lanaka, Bangladesh and Pakistan.

Remarks : In general, it is widely distributed in the northern part of India. It is found on dry conditions on bare ground habitat and is a pest of various types of crops.

Genus 2. *Atractomorpha* Saussure, 1861

2. *Atractomorpha crenulata* (Fabricius)

1793. *Truxalis crenulata* Fabricius, *Ent. Syst.*, 2 : 28.

1969. *Atractomorpha crenulata* : Kevan and Chen, *Zool. J. Linn. Soc.*, 48 : 187.

Material examined : 2 exs., 7.ix.05, Near Lake; 2 exs., 8.ix.05, Near Sanctuary Main Gate; 3 exs., 8.ix.05, Grassy Fields near Temple, Coll. : N. Sharma & party.

Distribution : India : Uttar Pradesh, Andaman & Nicobar, Andhra Pradesh, Bihar, Goa, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Lakshadweep Madhaya Pradesh, Orissa, Rajasthan, Tamil Nadu, West Bengal.

Elsewhere : Bangladesh, Malaya, Myanmar, Pakistan, Sri Lanka, N. Sumatra, Thailand and S. Vietnam.

Remarks : The species is very common in the sanctuary area.

Genus 3. **Poecilocerus** Serville 1831

3. **Poecilocerus pictus** Fabricius

1775. *Poecilocerus pictus* Fabricius, *Syst. Ent.*, p. 289.

1831. *Poecilocerus sonneeratii*, Serville, *Ann. Sci. Nat.* xxxii, 1831, p. 276.

Material examined : 1 ex., 8.ix.05, Grassy Fields near Temple, Coll. : N. Sharma & party.

Distribution : India : Uttar Pradesh, Tamil Nadu.

Elsewhere : Baluchistan, Pakistan.

Remarks : In the sanctuary, this species found to be rare and only one example could be collected from grassy fields.

Family ACRIDIDAE

Subfamily HEMIACRIDINAE

Genus 4. **Spathosternum** Krauss, 1877

4. **Spathosternum pr. prasiniferum** (Walker)

1871. *Heteracris* (?) *prasinifera* Walker, *Cat. Derm. Salt. Brit. Mus.*, 5 Suppl. : 65.

1936. *Spathosternum prasiniferum prasiniferum* : Tinkham, *Lingman. Sci. Journ. Canton*, 15 : 51.

Material examined : 3 exs., 7.ix.05, Grassy Fields near Lake; 3 exs., 7.ix.05, Near Sanctuary Main Gate; 4 exs., 8.ix.05, Near Lake; 3 exs., 8.ix.05, Grassy Fields near Temple, Coll. : N. Sharma & party.

Distribution : India : Uttar Pradesh, Andhra Pradesh, Arunachal Pradesh, Bihar, Goa, Himachal Pradesh, Jammu & Kashmir, Karnataka, Madhaya Pradesh, Kerala, Maharastra, Orissa, Rajasthan, Tamil Nadu.

Elsewhere : Myanmar, S.E. China, Thailand and Vietnam.

Remarks : The species occurs almost throughout India and is associated with the grassy habitats.

Genus 5. **Hieroglyphus** Krauss, 1877

5. **Hieroglyphus nigrorepletus** Bolivar

1912. *Hieroglyphus nigrorepletus* Bolivar, *Trab. Mus. Cienc. nat. Madr.*, 6 : 56.

1973. *Hieroglyphus nigrorepletus* : Mason, *Bull. Brit. Mus. nat. Hist. (Ent.)*, 28(7) : 526.

Material examined : 2 exs., 7.ix.05, Near bank of Lake; 3 exs., 8.ix.05, Grassy Fields near Temple, Coll. : N. Sharma & party.

Distribution : India : Uttar Pradesh, Assam, Bihar, Kashmir, Karnataka, Maharashtra, Orissa, Punjab, West Bengal.

Elsewhere : Bangladesh and Pakistan.

Remarks : The species varies greatly in body size and in form of tegmina-brachypterous forms being very frequent. Its degree of colouration also variable. It is a serious pest of paddy.

Subfamily OXYINAE

Genus 6. *Oxya* Serville, 1831

6. *Oxya fuscovittata* (Marschall)

1836. *Gryllus fuscovittatus* Marschall, *Annl. Wien. Mus. Naturg.*, **1** : 211.

1971. *Oxya fuscovittata* : Hollis, *Bull. Brit. Mus. nat. Hist. (Ent.)*, **26(7)** : 289.

Material examined : 3 exs., 7.ix.05, Grassy Fields near Entry Gate; 2 exs., 8.ix.05, Near Lake; 3 exs., 8.ix.05, Grassy Fields near Temple, Coll. : N. Sharma & party.

Distribution : India : Uttar Pradesh, Andhra Pradesh, Rajasthan, Madhya Pradesh, Jammu & Kashmir, Orissa and West Bengal.

Elsewhere : Afghanistan, Pakistan, USSR (South West).

Remarks : It is one of the most commonest species of the genus in India, but not so common as *velox* or *hyla*. In the sanctuary area, the species is associated to the paddy and grass adjoining the cultivated fields.

7. *Oxya hyla hyla* Serville

1831. *Oxya hyla* Serville, *Annl. Sci. nat. (zool.)*, **22** : 287.

1971. *Oxya hyla hyla* : Hollis, *Bull. Brit. Mus. nat. Hist. (Ent.)*, **26(7)** : 282.

Material examined : 3 exs., 7.ix.05, Grassy Fields near Temple; 1 exs., 8.ix.05, Near Main Sanctuary Gate; 2 exs., 8.ix.05, Grassy Fields near Lake, Coll. : N. Sharma & party.

Distribution : India : Uttar Pradesh, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Himachal Pradesh, Karnataka, Madhya Pradesh, Meghalaya, Orissa, Rajasthan, Tamil Nadu, Tripura, and West Bengal.

Elsewhere : South Africa, Afghanistan, Bangladesh, Madagascar, Nepal, Pakistan, Persia and Sri Lanka.

Remarks : It is a highly variable subspecies as regards its size and appearance. The length of tegmen, shape of male cercus and dentation on lateral ridges of subgenital plate are also variable.

Subfamily EYEPREPOCNEMIDINAE

Genus 7. *Choreodocus* Bolivar, 1914

8. *Choreodocus illustris* (Walker)

1870. *Heteracris illustris* Walker, *Cat. Derm., Salt. Brit. Mus.*, **4** : 622, 623.

1921. *Choreodocus illustris* : Uvarov, *Trans. R. ent. Soc. London*, **69**(1 & 2) : 109.

Material examined : 2 exs., 7.ix.05, Near Sanctuary Main Gate; 5 exs., 7.ix.05, Near Lake; 3 exs., Grassy Fields near Temple, 8.ix.05, Coll.: N Sharma.

Distribution : India : Uttar Pradesh, Uttarakhand, Himachal Pradesh and Tamil Nadu.

Remarks : This species was found very common in the sanctuary area.

9. *Choreodocus robustus* (Serville)

1839. *Acridium robustus* Serville, *Ins. Orth.*, 647.

1921. *Choreodocus robustus* : Uvarov, *Trans. ent. Soc. Lond.* (69) : 109.

Material examined : 3 exs., 7.ix.05, Near Lake; 2 exs., 8.ix.05, Near Sanctuary Main Gate; 3 exs., 8.ix.05, Grassy Fields Near Temple, Coll. : N. Sharma & party.

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

Elsewhere : Bangladesh.

Remarks : The species is unique in having non spotted tagmina, larger size and general green-yellowish appearance and particularly, reddish colouration of posterior tibiae and metatarsi.

Genus 8. *Heteracris*

10. *Heteracris littoralis* (Rambur)

1828. *Gryllus littoralis* Rambur, *Faune Entomol. Andal., Orthop.*, **2** : 78.

1958. *Heteracris littoralis* : Dirsh, *Tijdschr. Ent.*, **101** : 54.

Material examined : 1 exs., Grassy Fields Near Temple, 8.ix.05, Coll. : N. Sharma.

Distribution : India : Uttar Pradesh, Uttarakhand, Bihar, Rajasthan.

Elsewhere : Azerbaijan, S. Europe, Egypt, Greece, S. W. Asia.

Remarks : This species was found to be rare. Size medium; fastigium of vertex parabolic with obtuse apex and a little depressed; tegmina with numerous medium size dark brown patches; wings base clear; hind femur with 2-3 black, linear line on the dorso-external carina, with white yellow ring before the apex. This species is a new record from Uttar Pradesh.

Genus 9. *Eyprepocnemis*

11. *Eyprepocnemis alacris alacris* (Serville)

1839. *Acridium alacre* Serville, *Ins. Orth.* : 682.

1958. *Eyprepocnemis alacris alacris* : Dirsh, *Proc. R. ent.Soc. Lond.*, (**27**) B : 40.

Material examined : 1 exs., Near Lake, 7.ix.05; 1 exs., Grassy Fields near Temple, 8.ix.05, Coll. : N. Sharma & party.

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

Elsewhere : Pakistan, Sri Lanka and Myanmar.

Remarks : The species is unique in having a very pointed apex of male cercus which differentiates it from allied Indian species. This typical subspecies is the commonest in the genus and it is widely distributed in all habitats. It is available both in plains as well as in Hills. This species is a new record from Uttar Pradesh.

12. *Eyprepocnemis rosea* Uvarov, 1942

1942. *Eyprepocnemis rosesus* Uvarov, *Ann. Mag. nat. Hist.*, **9**(11) : 597.

1958. *Eyprepocnemis rosea* : Dirsh, *Proc. R. ent. Soc. London*, (8) **27**(3-4) : 42.

Material examined : 1 exs., Grassy Fields near Water Body, 1 exs., Grassy Fields near Temple, 8.ix.05, Coll. : N. Sharma & party.

Distribution : India : Uttar Pradesh, Arunachal Pradesh, Assam, Andhra Pradesh, Himachal Pradesh, and Meghalaya.

Remarks : Medium sized insects, wings at the base with pinkish tinge in colour; posterior tibiae with red in colour. This species is a new record from Uttar Pradesh.

Subfamily CATANTOPINAE

Genus 10. *Catantops* Schaum 1853

13. *Catantops pinguis innotabilis* (Walker)

1870. *Acridium innotabile* Walker, *Cat. Derm. Salt. Brit. Mus.*, **4** : 629.

1953. *Catantops pinguis innotabilis* : Dirsh and Uvarov, *Tijdsch. Ent.*, **96**(3) : 233.

Material examined : 2 exs., Near Sanctuary Main Gate, 7.ix.05; 1 exs., Near Lake, 2 exs., Grassy Fields near Temple, 8.ix.05, Coll. : N. Sharma & party.

Distribution : India : Uttar Pradesh, Arunachal Pradesh, Assam, Himachal Pradesh, Kerala, Orissa, Tamil Nadu.

Elsewhere : Myanmar, Java, Malaya, New Guinea, Philippines, Sri Lanka, Sumatra, Yunan and Thailand.

Remarks : This species is distinguishable by its parallel-sided frontal ridge and colouration in details specially of wings. It is one of the commonest species found in all habitats in India.

Subfamily ACRIDINAE

Genus 11. *Acrida* Linnaeus, 1758

14. *Acrida exaltata* (Walker)

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

1954. *Acrida exalta* : Dirsh, *Bull. Soc. Fouad Ent.*, **38** : 149.

Material examined : 2 exs., Near Lake, 7.ix.05; 1 exs., Near Sanctuary Main Gate, 3 exs., Grassy Fields near Temple, 8.ix.05, Coll. : N. Sharma & party.

Distribution : India (Throughout India).

Elsewhere : Afghanistan, Aden, Arabia, Bangladesh, S.E. Iran, Nepal, Pakistan, Sri Lanka, S.E. Tibet and Yemen.

Remarks : The species is one of the commonest grasshoppers of India and available both in open grasslands including agricultural fields as well as in moist, deep tropical woods.

Genus 12. ***Phlaeoba*** Stål, 1860

15. ***Phlaeoba infumata*** Brunner

1893. *Phlaeoba infumata* Brunner, *Annali Mus. civ. Stor. Nat. Giacomo Doria*, **33** : 124.

1914. *Phlaeoba infumata* : Kirby, *Fauna Brit. India, Orthopt. (Acridiidae)* : 103.

Material examined : 2 exs., Near Sanctuary Entry Gate, 2 exs., Near Lake, 7.ix.05; 1 ex., Near Lake, 2 exs., Grassy Fields near Temple, 8.ix.05, Coll. : N. Sharma & party.

Distribution : India (Widely distributed).

Elsewhere : S. China, Malacca, Myanmar, E. Nepal.

Remarks : The species is associated with crops of paddy, sorghum, maize, millets etc. and is generally found throughout the year in moist areas.

Genus 13. ***Ceracris*** Walker, 1870

16. ***Ceracris striata*** (Brunner)

1989. *Ceracris fasciata* Ingrisch, *Spixiana*, **11**(3) : 235.

Material examined : 2 exs., Near Lake, 7.ix.05; 1 ex., Near Sanctuary Main Gate, 2 exs., Near Lake, 3 exs., Grassy Fields near Temple, 8.ix.05, Coll. : N. Sharma & party.

Distribution : India : Uttar Pradesh, Uttarakhand, Tripura.

Elsewhere : S. China, Myanmar and Thailand.

Subfamily OEDIPODINAE

Genus 14. ***Aiolopus*** Fieber, 1853

17. ***Aiolopus thalassinus tamulus*** (Fabricius)

1798. *Gryllus tamulus* Fabricius, *Ent. Syst., Suppl.* : 195.

1968. *Aiolopus thalassinus tamulus* : Hollis, *Bull. Brit. Mus. nat. Hist. (Ent.)*, **22**(7) : 347.

Material examined : 2 exs., Grassy Fields Near Sanctuary Main Gate, 1 ex., Near Lake, 7.ix.05; 1 ex., Grassy Fields near Main Gate 2 exs., Grassy Fields near Temple, 8.ix.05, Coll. : N. Sharma & party.

Distribution : India : Uttar Pradesh, Andaman & Nicobar Islands, Bihar, Delhi, Himachal Pradesh, Karnataka, Madhya Pradesh, Rajasthan, Tamil Nadu, Uttarakhand, West Bengal.

Elsewhere : Australia, Bangladesh, Borneo, Celebes, China, Hainan, Hong Kong, Japan, Java, Malaya, Myanmar, New Guinea, Papua, Philippines, Singapore, Sri Lanka, Sumatra, Taiwan, Thailand and Timor.

Remarks : The subspecies is one of the serious pests of agricultural fields, specially of paddy fields. Hundreds of them are noticeable from the seedling stage to ripening stage of paddy. This species is recorded throughout Oriental region and extends upto Australia.

Genus 15. *Trilophidia* Stål, 1873

18. *Trilophidia annulata* (Thunberg)

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

1965. *Trilophidia annulata* : Hollis, *Trans. R. ent. Soc. London*, 117(8) : 251.

Material examined : 2 exs., Grassy Fields Near Sanctuary Main Gate, 3 exs., Grassy Fields near Temple, 7.ix.05; 2 exs., Near Lake, 2 exs., Grassy Fields near Main Gate, 8.ix.05, Coll. : N Sharma & party.

Distribution : India : Uttar Pradesh, Andhra Pradesh, Bihar, Goa, Himachal Pradesh, Karnataka, Madhya Pradesh, Orissa, Sikkim, Tamil Nadu, and West Bengal.

Elsewhere : Afghanistan, Bangladesh, Borneo, South China, Japan, Java, Korea, Malayasia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Sarawak, Singapore, Sri Lanka, Sumatra, Taiwan, Thailand, Vietnam.

Remarks : In India, the genus is represented by this species only. So its geographical isolation along with the colouration of inner surface of posterior femur and unique form of the lophi of epiphallus easily identify the species.

ACKNOWLEDGEMENTS

The author is grateful to Director, Zoological Survey of India, Kolkata and Incharge Division of Entomology B, Zoological Survey of India, Kolkata for providing facilities and encouragement.

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