

A Checklist of Acrididae (Orthoptera: Acridoidea) of Uttar Pradesh, India

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ABSTRACT

A Checklist of Acrididae of Uttar Pradesh based on published information and specimens collected from different localities as well as identified specimens deposited in Department of Zoology Aligarh Muslim University, Aligarh was prepared. A total of 78 species/subspecies were recorded belonging to 49 genera and 12 subfamilies. The most dominant subfamily was found to be Oedipodinae. Species were arranged according to their respective subfamilies and their percentage of occurrence was also calculated subfamily wise.

Key words *Acridid, diversity, grasshoppers, pest, short-horned.*

Grasshoppers are insects which belong to suborder Caelifera that comes under the order Orthoptera. They have a long term relationship with humans as they have been the major pest in every type of vegetation. As locusts, when they swarm in millions destroy crops over a wide area. They can cause famine as they have devastating effects and they can even be serious pests when they are less in numbers. The Acrididae are the transcendent group of grasshoppers, containing about 6,701 valid species of the 8,132 species of the whole Superfamily Acridoidea (Cigliano et al., 2017). The members of the family Acrididae are marked by features like lower basal lobe of hind femur shorter than the upper one, three segmented tarsi, short antennae, short ovipositor, tympanum on first abdominal tergum, absence of fastigial furrow.

Kirby (1914) has done a remarkable taxonomic work on Acrididae in the book 'Fauna of British India' and he partitioned the family Acrididae into eight subfamilies. Tandon (1976) has given checklist of Indian Acridoidea. Bhowmik (1984), Tandon and Shishodia (1995), Hazra et al., (1993), Reshi et al., (2008), Sharma and Mandal (2008), Usmani et al., (2009, 2010, 2012 a, b & c, 2013), Usmani and Khan (2010), Nayeem and Usmani (2012a,b), Kumar and Usmani (2012, 2015) Akhtar et al., (2012, 2014), Sharma (2011), Rafi and Usmani (2013), Rafi et al., (2014) have contributed to the Indian Acrididae. In 2010, Shishodia et al. reported 39 species of Acrididae from Uttar Pradesh.

Uttar Pradesh covers 243,290 square kilometers which is equivalent to 7.33% of total India's area, and is the fourth biggest Indian state in terms of area. The state is adjoined by Rajasthan towards the west, Haryana, Himachal Pradesh and Delhi towards the northwest, Uttarakhand and Nepal towards the north, Bihar towards the east, Madhya Pradesh

towards the south, and touches Jharkhand and Chhattisgarh towards the southeast. It is the most crowded state in the Republic of India and being one of the major states of India is very rich in biodiversity and agriculture. Grasshoppers are polyphagous in their feeding habit and cause serious damage to agricultural crops. Keeping in mind, the economic importance of grasshoppers as pest in the state, a checklist of acridids found in Uttar Pradesh is compiled based on collected specimens and published literature.

Due to great significance of acridids as important agricultural pests, it is aimed to prepare a checklist of acridid fauna of Uttar Pradesh, India. This is the first attempt to provide an annotated checklist of the Acridid fauna of Uttar Pradesh India, which is mainly based on the identified specimens deposited in Department of Zoology, Aligarh Muslim University Aligarh and published information found during Literature Survey.

MATERIAL AND METHODS

Different localities of Uttar Pradesh (Fig. 1) were used as the sites for insect collection. Adult grasshoppers of both the sexes were collected. They were caught either by sweeping aerial net or directly by hands. Collected specimens were pinned for their morphological studies, later identified through their different morphological and genitalic characters and then they were labeled.

Extensive literature survey was done to add-on all possible species found in Uttar Pradesh. All published information was undertaken through various sources which served the basis for the present critical study. Classification and validation of species was followed by Cigliano *et al.* (2017).

RESULTS AND DISCUSSIONS

The present checklist includes 78 species/ subspecies belonging to 49 genera and 12 subfamilies of Acrididae from Uttar Pradesh, India. Number of genera and species in different subfamilies of Acrididae occurred in Uttar Pradesh is shown in Table 1. Subfamily-wise species representation is shown in Figure 2 which shows that the subfamily Oedipodinae is represented by maximum number of species (25%).

CHECKLIST OF ACRIDID FAUNA OF UTTAR PRADESH

Order ORTHOPTERA Olivier, 1789

Suborder CAELIFERA Ader, 1939

Superfamily ACRIDOIDEA Macleay, 1821

Family ACRIDIDAE Macleay, 1821

1. Subfamily ACRIDINAE Macleay, 1821

Table 1. Number of genera and species in different subfamilies of Acrididae occurred in Uttar Pradesh

SUBFAMILY	SPECIES	GENUS
ACRIDINAE	8	6
SPATHOSTERNINAE	1	1
CATANTOPINAE	11	8
CYRTACANTHACRIDINAE	4	4
EYPREPOCNEMIDINAE	8	4
TROPIDOPOLINAE	1	1
GOMPHOCERINAE	7	6
OXYINAE	8	2
HEMIACRIDINAE	8	2
CALLIPTAMINAE	2	2
COPTACRIDINAE	1	1
OEDIPODINAE	19	12
TOTAL	78	49

1. Genus *Orthochtha* Karsch, 1891

1) *Orthochtha indica* Uvarov, 1942

2. Genus *Paraphlaeoba* Bolivar, 1902

2) *Paraphlaeoba platyceps* Bolivar, 1902

3. Genus *Perella* Bolivar, 1914

3) *Perella insignis* Bolivar, 1914

Tribe Acridini MacLeay 1821

4. Genus *Acrida* Linnaeus, 1758

4) *Acrida exaltata* (Walker, 1859)

5) *Acrida gigantea* (Herbst, 1786)

Tribe Phlaeobini Brunner von Wattenwyl, 1893

5. Genus *Phlaeoba* Stål, 1860

6) *Phlaeoba infumata* Brunner von Wattenwyl, 1893

7) *Phlaeoba panteli* Bolivar, 1902

Tribe Truxalini Serville, 1838

6. Genus *Truxalis* Fabricius, 1775

8) *Truxalis nasuta* (Linnaeus, 1758)

2. Subfamily SPATHOSTERNINAE Rehn, 1957

Tribe Spathosternini Rehn, 1957

7. Genus *Spathosternum* Krauss, 1877

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

3. Subfamily CATANTOPINAE Brunner von Wattenwyl, 1893

8. Genus *Choroedocus* Bolivar, 1914

10) *Choroedocus illustris* (Walker, 1870)

11) *Choroedocus robustus* (Serville, 1838)

9. Genus *Eupreponotus* Uvarov, 1921

12) *Eupreponotus inflatus* Uvarov, 1921

10. Genus *Pelecinotus* Bolivar, 1902

13) *Pelecinotus intermedia* Bhowmik & Dutta, 1965

Tribe Catantopini Brunner von Wattenwyl 1893

11. Genus *Xenocatantops* Dirsh, 1953

14) *Xenocatantops humilis* (Serville, 1838)

15) *Xenocatantops karnyi* (Kirby, 1910)

12. Genus *Catantops* Schaum, 1853

16) *Catantops erubescens* (Walker, 1870)

13. Genus *Diabolocatantops* Jago, 1984

17) *Diabolocatantops innotabilis* (Walker, 1870)

18) *Diabolocatantops pinguis* (Stål, 1861)

14. Genus *Stenocatantops* Dirsh, 1953

19) *Stenocatantops splendens* (Thunberg, 1815)

Tribe Paraconophymatini Otte, 1995

15. Genus *Paraconophyma* Uvarov, 1921

20) *Paraconophyma polita* Uvarov, 1921

4. Subfamily CYRTACANTHACRIDINAE Kirby, 1910

Tribe Cyrtacanthacridini Kirby, 1910

16. Genus *Chondracris* Uvarov, 1923

21) *Chondracris rosea* (De Geer, 1773)

17. Genus *Cyrtacanthacris* Walker, 1870

22) *Cyrtacanthacris tatarica tatarica* (Linnaeus, 1758)

18. Genus *Patanga* Uvarov, 1923

23) *Patanga succincta* (Johansson, 1763)

19. Genus *Schistocerca* Stål, 1873

24) *Schistocerca gregaria gregaria* (Forskål, 1775)

5. Subfamily EYPREPOCNEMIDINAE Brunner von Wattenwyl, 1893

20. Genus *Cataloipus* Bolivar, 1890

25) *Cataloipus indicus* Uvarov, 1942

21. Genus *Tylotrypidius* Stål, 1873

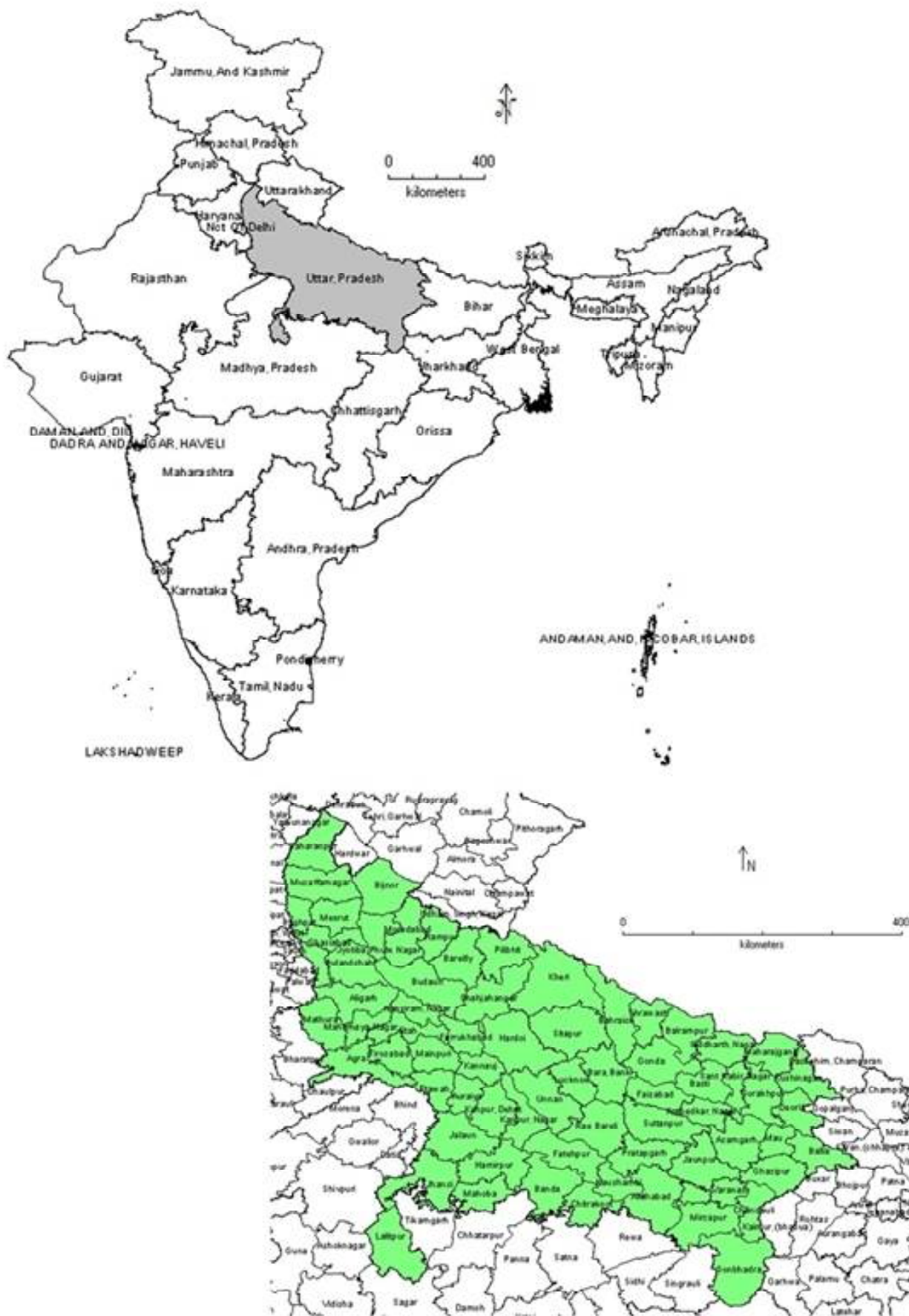


Fig. 1. District Map of Uttar Pradesh, India

26) *Tylotropidius varicornis* (Walker, 1870)

Tribe Eyprepocnemidini Brunner von Wattenwyl, 1893

22. Genus *Eyprepocnemis* Fieber, 1853

27) *Eyprepocnemis alacris alacris* (Serville, 1838)

28) *Eyprepocnemis bhadurii* Bhowmik, 1965

29) *Eyprepocnemis roseus* Uvarov, 1942

23. Genus *Heteracris* Walker, 1870

30) *Heteracris littoralis* (Rambur, 1838)

31) *Heteracris nobilis* (Uvarov, 1942)

32) *Heteracris pulchra* (Bolivar, 1902)

6. Subfamily TROPIDOPOLINAE Jacobson, 1905

Tribe Tristriini Mishchenko, 1945

24. Genus *Tristria* Stål, 1873

33) *Tristria pulvinata* (Uvarov, 1921)

7. Subfamily GOMPHOCERINAE Fieber, 1853

25. Genus *Mesopsis* Bolivar, 1906

34) *Mesopsis cylindricus* (Kirby, 1914)

35) *Mesopsis indicus* (Prasad, 1956)

Tribe Dociostaurini Mistshenko, 1974

26. Genus *Leva* Bolivar, 1909

36) *Leva indica* (Bolivar, 1902)

Tribe Arcypterini Bolivar, 1914

27. Genus *Aulacobothrus* Bolivar, 1902

37) *Aulacobothrus luteipes luteipes* (Walker, 1871)

28. Genus *Crucinotacris* Jago, 1996

38) *Crucinotacris decisa* (Walker, 1871)

Tribe Gomphocerini Fieber, 1853

29. Genus *Chorthippus* Fieber, 1852

39) *Chorthippus indus* Uvarov, 1942

Tribe Ochrilidiini Brunner von Wattenwyl, 1893

30. Genus *Ochrilidia* Stål, 1873

40) *Ochrilidia geniculata* (Bolivar, 1913)

8. Subfamily OXYINAE Brunner von Wattenwyl, 1893

Tribe Oxyini Brunner von Wattenwyl, 1893

31. Genus *Gesonula* Uvarov, 1940

41) *Gesonula punctifrons* (Stål, 1861)

32. Genus *Oxya* Serville, 1831

42) *Oxya chinensis* (Thunberg, 1815)

43) *Oxya fuscovittata* (Marschall, 1836)

44) *Oxya gorakhpurensis* Usmani & Shafee, 1985

45) *Oxya grandis* Willemse, 1925

46) *Oxya hyla* Serville, 1831

47) *Oxya japonica japonica* (Thunberg, 1815)

48) *Oxya velox* (Fabricius, 1787)

9. Subfamily HEMIACRIDINAE Dirsh, 1956

33. Genus *Clonacris* Uvarov, 1943

49) *Clonacris kirbyi* (Finot, 1903)

Tribe Hieroglyphini Bolivar, 1912

34. Genus *Hieroglyphus* Krauss, 1877

50) *Hieroglyphus annulicornis* (Shiraki, 1910)

51) *Hieroglyphus banian* (Fabricius, 1798)

52) *Hieroglyphus concolor* (Walker, 1870)

53) *Hieroglyphus indicus* Mason, 1973

54) *Hieroglyphus nigrorepletus* Bolivar, 1912

55) *Hieroglyphus oryzivorus* Carl, 1916

56) *Hieroglyphus acuticercus* Kumar & Usmani, 2015

10. Subfamily CALLIPTAMINAE Tinkham, 1940

35. Genus *Acorypha* Krauss, 1877

57) *Acorypha glaucopsis* (Walker, 1870)

36. Genus *Sphodromerus* Stål, 1873

58) *Sphodromerus undulatus undulatus* (Kirby, 1914)

11. Subfamily COPTACRIDINAE Brunner von Wattenwyl, 1893

37. Genus *Eucoptacra* Bolivar, 1902

59) *Eucoptacra praemorsa* (Stål, 1861)

12. Subfamily OEDIPODINAE Walker, 1871

38. Genus *Chloebora* Saussure, 1884

60) *Chloebora grossa* Saussure, 1884

61) *Chloebora marshalli* (Henry, 1933)

39. Genus *Ditopternis* Saussure, 1884

62) *Ditopternis venusta* (Walker, 1870)

Tribe Acrotlyini Johnston, 1956

40. Genus *Acrotylus* Fieber, 1853

63) *Acrotylus humbertianus* Saussure, 1884

Tribe Epacromiini Brunner von Wattenwyl, 1893

41. Genus *Aiolopus* Fieber, 1853

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

65) *Aiolopus thalassinus tamulus* (Fabricius, 1798)

66) *Aiolopus thalassinus thalassinus* (Fabricius, 1781)

Tribe Locustini Kirby, 1825

42. Genus *Gastrimargus* Saussure, 1884

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

68) *Gastrimargus marmoratus* (Thunberg, 1815)

43. Genus *Locusta* Linnaeus, 1758

69) *Locusta migratoria migratoria* (Linnaeus, 1758)

44. Genus *Oedaleus* Fieber, 1853

70) *Oedaleus abruptus* (Thunberg, 1815)

71) *Oedaleus senegalensis* (Krauss, 1877)

45. Genus *Pternoscirta* Saussure, 1884

72) *Pternoscirta cinctifemur* (Walker, 1859)

Tribe Epacromiini Brunner von Wattenwyl, 1893

46. Genus *Heteropternis* Stål, 1873

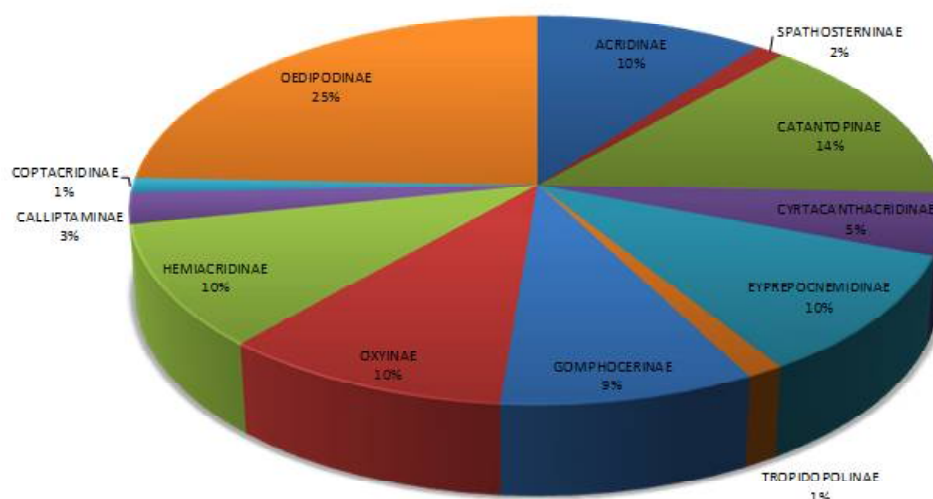


Fig. 2. Percentage occurrence of different subfamilies of Acrididae in Uttar Pradesh.

73) *Heteropternis respondens* (Walker, 1859)

Tribe Oedipodini Walker, F. 1871

47. Genus *Oedipoda* Latreille, 1829

74) *Oedipoda miniata* (Pallas, 1771)

Tribe Trilophidiini Shumakov, 1963

48. Genus *Trilophidia* Stål, 1873

75) *Trilophidia annulata* (Thunberg, 1815)

76) *Trilophidia repleta* (Walker, 1870)

Tribe Parapleurini Brunner von Wttenwyl, 1893

49. Genus *Ceracris* Walker, 1870

77) *Ceracris striata* Uvarov, 1925

78) *Ceracris nigricornis* Walker, 1870

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