Status of Orthoptera Fauna in Bageri and Its Catchment Areas, Himachal Pradesh, India

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Abstract

Orthopterans occupy habitats as different as meadows, woodland, coastal shores, wetlands, caves, arid land and underground burrows. Bageri lies in the sub-tropical belt of the Shiwalik hills, an ecologically delicate region with a rich assemblage of plants and animals. This survey recorded 55 orthopteran species in 48 genera, 11 families and four superfamilies. Acrididae was the dominant family with 26 species (47%) in eight subfamilies, followed by Gryllidae (10 species, 18%), Tetrigidae (5, 9%), Phaneropteridae (4, 7%), Pyrgomorphidae (3, 5%) and Trigonidiidae (2, 4%); Tridactylidae, Eneopteridae, Gryllotalpidae, Conocephalidae and Pseudophyllidae each contributed a single species (2%). Within Acrididae, Oedipodinae was richest (7 species), then Acridinae and Hemiacridinae (4 each), Gomphocerinae, Eyprepocnemidinae and Catantopinae (3 each), and Oxyinae and Truxalinae (1 each). Acrida exaltata, Gastrimargus africanus africanus, Spathosternum prasiniferum prasiniferum, Oxya hyla hyla, Atractomorpha crenulata and Chrotogonus (Chrotogonus) trachypterus trachypterus were the commonest acridoids, whereas Gelastorhinus laticornis, Scintharista blanchardiana, Choroedocus illustris, Hieroglyphus oryzivorus and Xenocatantops karnyi were the scarcest. The inventory offers a baseline for taxonomic work and for monitoring insect communities under crop management and climate change.

Keywords

Orthoptera, Acrididae, Gryllidae, Bageri, ecosystem

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Introduction

The Bageri region and its catchment in Himachal Pradesh harbours an orthopteran fauna that is both varied and scientifically valuable. The order covers grasshoppers (acridids), pygmy grasshoppers (tetrigids), pyrgomorphids, crickets (gryllids) and their relatives, which are distributed worldwide and are most conspicuous in open grassland, where they feed on foliage.

Habitat preference differs widely within the order. Many species are typical of meadows and woodland; some crickets live along seashores; marsh grasshoppers and bog bush-crickets occupy waterlogged ground; camel crickets are cave dwellers; locusts are characteristic of deserts and semi-arid land; and mole crickets burrow underground. A few, such as oak bush crickets, are tree-dwelling, while certain pygmy grasshoppers readily swim on or below the water surface.

Acridoids are an ancient lineage, and many are economically important because they damage crops and other vegetation. Body form and head and thorax shape are variable. The antennae are usually thread-like, occasionally sword-shaped; the tarsi usually have two or three segments, rarely four; and the hind femora are enlarged and well adapted to jumping. The wings may be fully developed, shortened or absent, with the forewings forming leathery tegmina and the hindwings folding like a fan. Male genitalia are complex, symmetrical and hidden at rest, except in Tetrigidae (Shishodia, 2000). Orthopterans possess strong mandibles and are mostly plant feeders. Their most characteristic traits are leaping with the powerful hind legs and producing sound that is received by specialised auditory organs.

Materials and Methods

Study area. The Bageri area extends from 31°112 45.183 N to 31°142 52.123 N and from 76°382 43.153 E to 76°422 37.123 E, at 300–650 m above sea level. It spans two districts. On the left bank, in Bilaspur district, surveyed localities included Mora, Gra, Karmala, Katlan, Ria, Kuthhar, Kanchimode, Khurani, Jangal Jajjar, Dadrana and Nalaian. On the right bank, in Solan district, localities included Sawarghatt, Kaneri, Baan, Baha, Behli, Dabheta Kangrait, Ponaili, Katthimb, Amb da Haar, Tikari, Khatiaal, Shampujan and Bageri. The region belongs to the sub-tropical zone of the Shiwalik hills, a fragile ecosystem with considerable plant and animal diversity. The left bank is currently disturbed by the four-laning of National Highway 21, which has brought landslides, soil erosion and pollution. The study was therefore undertaken to document the present status and diversity of orthopterans in this landscape.

Sampling and identification. Specimens were collected from the various habitat types in the area by hand picking, beating, sweeping, trapping, night trapping and aerial netting, and were killed in a killing bottle (Ghosh, 1990; Arora, 1990). To protect body

colour, specimens were taken out of the bottle within 30 minutes, then pinned, identified, preserved and labelled following Tandon (1990). Identification used regional keys, and identifications were authenticated by taxonomists at the Indian Agricultural Research Institute (New Delhi), the Forest Research Institute (Dehradun) and the Zoological Survey of India (Kolkata). Identified material was kept in insect cabinets with good-quality drawers; naphthalene powder was placed in the drawer grooves, and cotton balls soaked in a camphor–carbolic acid mixture (1:3) were set in each corner as protection against pests.





Fig. 1: J P Cement Plant Bageri **Fig 2:** Google earth image of study area Bageri of H.P.



Methodology

Results and Discussion

In total, 55 orthopteran species in 48 genera, 11 families and four superfamilies were recorded Acridoidea contributed the most species (29; 53%), followed by Grylloidea (14; 25%),

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while Tetrigoidea and Tettigonioidea had six species each (11% each). At family level, Acrididae was the richest with 26 species in 22 genera and eight subfamilies (47% of the fauna), followed by Gryllidae (10 species; 18%), Tetrigidae (5; 9%), Phaneropteridae (4; 7%), Pyrgomorphidae (3; 5%) and Trigonidiidae (2; 4%). Tridactylidae, Eneopteridae, Gryllotalpidae, Conocephalidae and Pseudophyllidae were each represented by one species (2% each)

Among the acridid subfamilies, Oedipodinae was the largest with seven species (27%), followed by Acridinae and Hemiacridinae with four species each (15% each). Gomphocerinae, Eyprepocnemidinae and Catantopinae each had three species (about 11.5% each), and Oxyinae and Truxalinae one species each (about 4% each)

Table 1. Systematic list of Orthoptera recorded from Bageri and its catchment areas, Himachal Pradesh

S. No.	Taxon
SUPERFAMILY: ACRIDOIDEA | FAMILY: ACRIDIDAE | SUBFAMILY: ACRIDINAE	
1	*Acrida exaltata* (Walker)
2	*Ceracris nigricornis nigricornis* (Walker)
3	*Gelastorhinus laticornis* (Serville)
4	*Phlaeoba panteli* Bolivar
SUBFAMILY: TRUXALINAE	
5	*Truxalis indica* (Bolivar)
SUBFAMILY: GOMPHOCERINAE	
6	*Chorthippus (Chorthippus) indus* Uvarov
7	*Dnopherula (Aulacobothrus) decisus* (Walker)
8	*Dnopherula (Aulacobothrus) luteipes* (Walker)
SUBFAMILY: OEDIPODINAE	
9	*Acrotylus humbertianus* Saussure
10	*Aiolopus thalassinus thalassinus* (Fabricius)
11	*Gastrimargus africanus africanus* (Saussure)
12	*Pseudosphingonotus savignyi* Saussure
13	*Scintharista blanchardiana* (Saussure)
14	*Oedaleus abruptus* (Thunberg)
15	*Trilophidia annulata* (Thunberg)
SUBFAMILY: HEMIACRIDINAE	
16	*Parahieroglyphus bilineatus* (Bolivar)
17	*Hieroglyphus concolor* (Walker)

18	*Hieroglyphus oryzivorus* Carl
19	*Spathosternum prasiniferum prasiniferum* (Walker)
SUBFAMILY: OXYINAE	
20	*Oxya hyla hyla* Serville
SUBFAMILY: EYPREPOCNEMIDINAE	
21	*Choroedocus illustris* (Walker)
22	*Choroedocus robustus* (Serville)
23	*Eyprepocnemis rosea* Uvarov
SUBFAMILY: CATANTOPINAE	
24	*Catantops innotabilis* (Walker)
25	*Xenocatantops humilis humilis* (Serville)
26	*Xenocatantops karnyi* (Kirby)
FAMILY: PYRGOMORPHIDAE	
27	*Aularches miliaris* (Linnaeus)
28	*Aularches punctatus* (Drury)
29	*Chrotogonus (Chrotogonus) trachypterus trachypterus* Blanchard
SUPERFAMILY: TETRIGOIDEA | FAMILY: TETRIGIDAE	
30	*Eucriotettix grandis* (Hancock)
31	*Euparatettix histricus* (Stål)
32	*Ergatettix guentheri* Steinmann
33	*Hedotettix costatus* Hancock
34	*Pseudoparatettix histricus* (Stål)
FAMILY: TRIDACTYLIDAE	
35	*Tridactylus thoracicus* Guérin
SUPERFAMILY: GRYLLOIDEA | FAMILY: GRYLLIDAE | SUBFAMILY: GRYLLINAE	
36	*Acheta domesticus* Linnaeus
37	*Gryllus bimaculatus* De Geer
38	*Loxoblemmus detectus* (Serville)
39	*Modicogryllus blennus* (Saussure)
40	*Plebeiogryllus guttiventris* (Walker)
41	*Teleogryllus mitratus* (Burmeister)
42	*Teleogryllus occipitalis* (Serville)
43	*Velarifictorus lambai* Bhowmik
SUBFAMILY: NEMOBIINAE	
44	*Pteronemobius pantelchopardorum* S. & V.
45	*Pteronemobius taprobanensis* (Walker)
FAMILY: TRIGONIDIIDAE	
46	*Anaxipha longipennis* (Serville)
47	*Trigonidium cicindeloides* Rambur
FAMILY: ENEOPTERIDAE	
48	*Euscyrtus hemelytrus* (Haan)
FAMILY: GRYLLOTALPIDAE	
49	*Gryllotalpa africana africana* Beauvois
SUPERFAMILY: TETTIGONIOIDEA | FAMILY: PHANEROPTERIDAE	
50	*Ducetia japonica* (Thunberg)
51	*Holochlora indica* Kirby
52	*Letana despecta* (Brunner)
53	*Letana linearis* Walker
FAMILY: CONOCEPHALIDAE	
54	*Euconocephalus pallidus* (Redtenbacher)
FAMILY: PSEUDOPHYLLIDAE	
55	*Sathrophyllia rugosa* (Linnaeus)

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Fig. 4 Species richness by superfamily

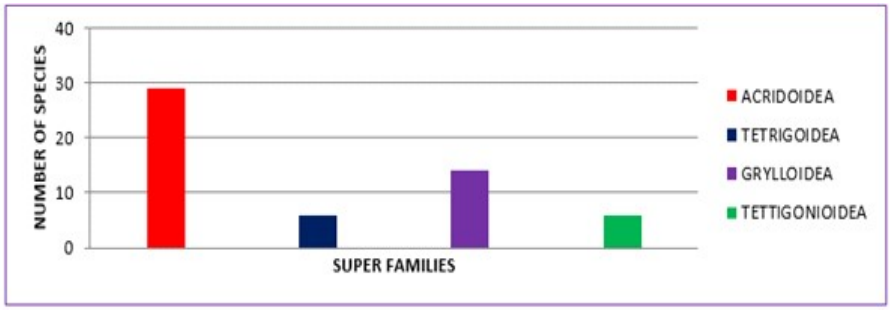
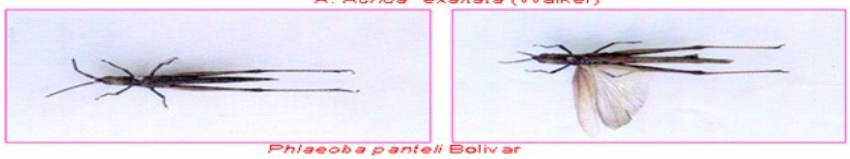


Plate 1: Acridids in Bageri and its catchment area of Himachal Pradesh



A. Acrida exaltata (Walker)



Phlaeoba panteli Bolivar

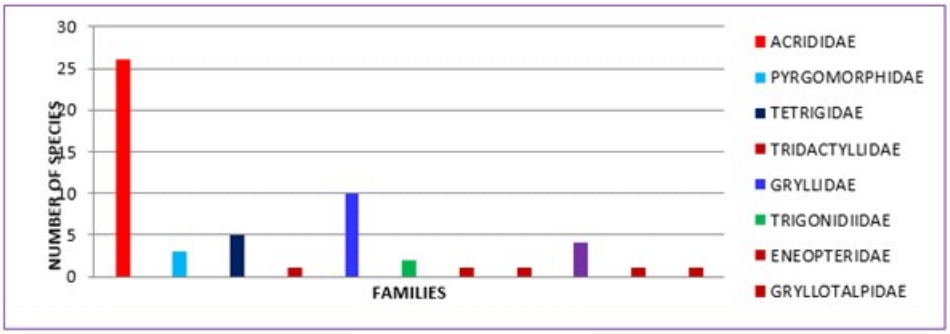


Fig. 5 Diversity of Orthopteran Fauna (Family wise in Bageri Its Catchment area H.P.)

Globally about 20,000 orthopteran species are known, of which roughly 1,750 (close to 9–10%) occur in India (Tandon & Hazra, 1998). Orthopterans of the Himalayan region have, however, been studied only patchily (Julka et al., 1982; Tandon et al., 1995; Shishodia et al., 2003; Saini & Mehta, 2007). Sharma and Mattu (2010) surveyed the Nalagarh valley, in the sub-tropical Shiwalik zone of Solan district, and reported 57 species

in 49 genera, 11 families and four superfamilies, a composition close to that found here. Sharma and Mattu (2011) listed 30 grasshopper species in 25 genera and two families from the Pallasi valley, classifying 15 as very common, 7 as common, 6 as uncommon and 2 as rare. Sharma (2012) recorded 25 acridoid species in 23 genera and two families from the Doon valley, 17 of them (68%) pests of crops, ornamentals and forest plantations.

Insects such as grasshoppers, butterflies and dragonflies are widely used as indicators of species richness in the tropics. Richness generally rises toward lower latitudes, so tropical areas hold more species per unit area than temperate ones, and temperate areas more than polar ones (Gentry, 1988). Diversity along altitude can peak at mid-elevations, a pattern reported from desert mountains in Arizona, where aridity limits richness at low elevations and cold limits it at high elevations (Brown, 1988).

In the present survey, *Acrida exaltata, Gastrimargus africanus africanus, Spathosternum prasiniferum prasiniferum, Oxya hyla hyla, Atractomorpha crenulata* and *Chrotogonus (Chrotogonus) trachypterus trachypterus* were the most abundant, while *Gelastorhinus laticornis, Scintharista blanchardiana, Choroedocus illustris, Hieroglyphus oryzivorus* and *Xenocatantops karnyi* were the least represented. A species' persistence in a habitat suggests that conditions there are favourable, which in turn depends on a varied plant cover. About 15 species, among them *A. exaltata, Oedaleus abruptus, S. prasiniferum, A. crenulata, C. trachypterus, Hedotettix costatus* and *Ducetia japonica*, were widely distributed across the study area (Plate 1).

Conclusion

Documenting orthopteran diversity provides a dependable reference database for taxonomy, for tracking ecosystem change, and for assessing the effects of agriculture and climate change. Systematic work aims to identify species, clarify how they are related, and give each recognised group a distinct name within a formal classification. Because orthopterans contribute to ecological balance, this study offers a first step toward documenting the fauna of Bageri and its catchment, and a platform for entomologists and others concerned with biodiversity conservation and sustainable ecosystems.

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References

1. Arora, G. S. (1990). Collection and preservation of animals: Lepidoptera. Zoological Survey of India, Pg. **131–138.**

2. Brown, J. H. (1988). Species diversity and analytical biogeography. Chapman & Hall.
3. Gentry, A. H. (1988). Changes in plant community diversity and floristic composition on environmental and geographical gradients. Annals of the Missouri Botanical Garden, 75, Pg. **1–34.**
4. Ghosh, K. (1990). Collection and preservation of animals. Zoological Survey of India, Pg. **71–80.**
5. Julka, J. M., Tandon, S. K., Halder, P., & Shishodia, M. S. (1982). Ecological observations on grasshoppers (Orthoptera: Acridoidea) at Solan, Himachal Pradesh. Oriental Insects, 16(1), Pg. **63–75.**
6. Kirby, W. F. (1914). The fauna of British India including Ceylon and Burma, Orthoptera (Acrididae) (Vol. 1). India Council.
7. Saini, K., & Mehta, H. S. (2007). An inventory of Orthoptera insects of Himachal Pradesh. Bionotes, 9(3), Pg. **76–78.**
8. Sharma, K. L. (2012). Diversity and bioecological studies on forest fauna of short horned grasshopper (Acridoidea: Orthoptera) with pest status in Doon Valley of Himachal Pradesh. Indian Journal of Ecology, 39(2), Pg. **295–297.**
9. Sharma, K. L., & Mattu, V. K. (2010). Diversity and bio-ecological assets of the Northwest Himalayas Orthopteran in Nalagarh Valley of Himachal Pradesh, India. National Symposium on "Perspectives and Challenges of Integrated Pest Management for Sustainable Agriculture", Dr. Y. S. Parmar University of Horticulture & Forestry, Nauni, Solan, 18(1/2), Pg. **9–18.**
10. Shishodia, M. S. (2000). Insecta: Orthoptera: Tetrigoidea. In State fauna series 7: Fauna of Tripura (Vol. 2, Pg. **231–246**). Zoological Survey of India.
11. Shishodia, M. S., Mehta, H. S., Mattu, V. K., & Thakur, S. K. (2003). Orthoptera (Insecta) Pong dam wetland, District Kangra (H.P.), India. Zoo's Print Journal, 18(3), Pg. **1047–1048.**
12. Tandon, S. K. (1990). Collection and preservation of animals: Orthoptera. Zoological Survey of India, Pg. **101–104.**
13. Tandon, S. K., & Hazra, A. K. (1998). Faunal diversity in India. ENVIS Centre, Zoological Survey of India, Pg. **183–188.**
14. Tandon, S. K., Shishodia, M. S., & Dey, A. (1995). Insecta: Orthoptera. In Fauna of Kanha Tiger Reserve (Vol. 7, Pg. **19–25**). Zoological Survey of India.