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Study on Grasshoppers fauna of Khada District Karak Khyber Pakhtunkhwa, Pakistan

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Abstract

The present research was conducted to explore grasshopper fauna Khada from District Karak Khyber Pakhtunkhwa, Pakistan from January to December 2016. In the current investigation 5 sub-families of the Grasshoppers were identified up to the species level like Oedipodinae, Acridinae, Gomphocerinae, Cyrtacanthacridinae and Eyprepocnemidinae, 8 Genera and 8 species *Scintharistanotabilis*, *Sphingonotus rubescens*, *Aiolopus thalassinus*, *Acrotylushumbertianus*, *Acrida exaltata*, *Ochrlidia gracilis*, *Schistocerca gregaria* and *Heteracrisillustris* of Acrididae were recorded. Among the recorded 5 sub Families, Family Oedipodinae was found the richest one consisting 4 species of Grasshopper while other sub Families Acridinae, Gomphocerinae, Cyrtacanthacridinae and Eyprepocnemidinae comprising only one species each. Maximum collection of the grasshopper was carried out during hot season i.e. June and July. The present study revealed that this area is suitable for sub Family Oedipodinae compared to other families. This survey will be very useful for the future Entomologists in the field of Entomology.

Keywords: Karak, Khada, Fauna, Recorded, Survey, KP, Grasshoppers, exploring

1. Introduction

The Order Orthoptera incorporates among its individuals the short horned grasshoppers, beetles, crickets, katydids, since a long time ago horned grasshoppers and wetas^[1]. The Order is a great deal more typically and differently spoken to in low scopes where, to a great extent because of the famously stripping devastation caused by occasional beetle and grasshopper torment flare-ups^[1], it accept major financial significance in horticulture. As a gathering, grasshoppers are to some degree uncommon among herbivorous creepy crawlies in that most are polyphagous, bolstering specifically on plants from various irrelevant plant families, in view of their polyphagy, most grasshopper species are not anticipated that would encounter troublesome choice related with have decision^[2]. There are, nonetheless, some grasshopper species with limited host ranges and a modest number that are genuinely have particular^[2, 3]. Host particular grasshoppers additionally indicate contrasts being developed rates, life expectancy^[4]. Grasshoppers are essential parts of mild fields^[5]. The objective of the current study was to find out the study on Grasshoppers fauna of Khada District Karak Khyber Pakhtunkhwa, Pakistan

2. Materials and Methods

2.1 Study Area

Khada is situated in District Karak Khyber Pakhtunkhwa, Pakistan. This area is very beautiful. In this region education ratio is very high. Its also imported due to education point of view. Economic point of view this area is very imported. In this area agriculture is very common occupation. Over here, majority of area are under cultivation. Khada is basically moderate temperature zone. There is a verity of unknown invertebrates and vertebrate's fauna. For wildlife conservation, this area is very suitable.

2.2 Collection and Preservation

Study was conducted to explore grasshopper fauna Khada from District Karak Khyber Pakhtunkhwa, Pakistan from January to December 2016. The insects were collected by "Sweep Sampling Method", as per Gadagkar *et al.*^[6]. The net sweeps were carried to collect the insects. The net used in systematic sweeping were made of thick cotton cloth with a diameter of 30 cm at mouth and a beg length of 60 cm. Sampling was done at random and at

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an interval of 15 days. The collected Orthopteran insects were transferred into jars containing Ethyl Acetate soaked cotton. These jars were brought to the laboratory and the insects were stretched and pinned. The entomological pin number 1 to 20 was used according to the size of the specimen. These were oven dried at 60 °C for 72 hours to

preserve them and then set in to wooden boxes and labeled according to their systematic position. After the collection and preservation the specimens were identified up to species level by available literature, already existing specimens in the museum and keys [7].



Fig 1: Map of Khada District Karak Khyber Pakhtunkhwa Pakistan.

3. Results and Discussion

The present study was conducted at Khada Karak to explore Grasshoppers fauna existing in the study area. During the current study conducted at Khada Karak area revealed that sub family Oedipodinae was the largest one over all the recorded families i.e. Acridinae, Gomphocerinae, Cyrtacanthacridinae and Eyprepocnemidinae respectively. The Family Oedipodinae represented by 4 species like *Scintharistanotabilis*, *Sphingonotus rubescens*, *Aiolopus thalassinus* and *Acrotylushumbertianus* while the other sub families comprising one species each *Acrida exaltata*, *Ochrilidia gracilis*, *Schistocerca gregaria* and *Heteracris illustris* respectively. In the current study maximum collection of the Grasshoppers fauna was carried out at the hot months of the year like Jun and July. The sagebrush grasshopper, *Melanoplus bowditchi* Scudder, was depicted by Scudder in 1878 [8]. This grasshopper is a phytophilous animal types that is broadly appropriated in the fields of the western United States. Despite the fact that it happens in blended grass, shortgrass, abandon bush, and bunchgrass prairies, it encourages only on sagebrush species [9] and its conveyance was subject to sagebrush plants. Six host plants are recognized for *M. bowditchi* in Pfadt (1994) [10], with the essential hosts being silver sagebrush, Artemesiaca, and sand sagebrush, *A. filifolia*. The other four types of sagebrush, alongside silver sagebrush, are found in blended grass prairie and are supposedly devoured in minute amounts by *M. bowditchi* (Pfadt, 1994) [10]. While silver sagebrush is extensively conveyed crosswise over western North America, sand sagebrush, *Artemisia filifolia* Torrey, is normally connected with profound sand stores and fills in as the host plant for *M. bowditchi* in territories where silver sagebrush is restricted (Harvey, 1981) [11]. The subspecies, *Melanoplus bowditchi* Scudder was proposed after the portrayal of *Melanoplus bowditchi canus* [12]. In the present study conducted at Khada Karak results show that *Melanoplus bowditchi* Specie was not collected in the current study. This may be due to some variation in the climate of the

both study areas. Besides all these like the previous study majority of the grasshoppers fauna was collected from the grasslands during the field study. Hence habitat of the both area show sane abundance because the grasshoppers also prefer to the grassy area fields. So over here some similarities are shown in the both study area. The current observation shows that this region is appropriate for sub Family Oedipodinae compared to other families. This examination will be very helpful for the upcoming Entomologists in the field of Entomology. Khalid *et al* in 2017 conducted work on the diversity of Orthoptera (Acridids: grasshoppers) at Rehmat Abad District Karak Khyber Pakhtunkhwa, Pakistan. A total of 567 specimens of grasshoppers were collected in the current study. The recorded grasshoppers fauna belongs to One Class Insecta; One Order Orthoptera; Five sub Families Oedipodinae, Acridinae, Gomphocerinae, Cyrtacanthacridinae and Eyprepocnemidinae; Five Genera and Five Species respectively. The Sub Family Oedipodinae represented by two species *Scintharistanotabilis* and *Sphingonotus rubescens* while Sub families Acridinae, Gomphocerinae, Cyrtacanthacridinae and Eyprepocnemidinae comprising only one species each which were *Acrida exaltata*, *Ochrilidia gracilis*, *Schistocerca gregaria*, *Heteracris* and *illustris* respectively. From the current study it can be revealed that Acridids almost prefer to hot environment and Grassy ground [7]. Khalid *et al* conducted study on grasshopper fauna was explored from May 2016 to May 2017 from Meta Khel District Karak Khyber Pakhtunkhwa, Pakistan. During the current study a total of 622 specimens of Grasshoppers were recorded and identified up to the species level. In this research a total of 7 species of Grasshoppers were recorded which were *Scintharistanotabilis*, *Sphingonotus rubescens*, *Aiolopus thalassinus*, *Acrotylushumbertianus*, *Acrida exaltata*, *Ochrilidia gracilis* and *Schistocerca gregaria*. The Sub family Oedipodinae was found the largest one over all the recorded Sub families [13]. Khalid *et al* conducted study on Grasshopper of Ahmad abad and recorded five subfamilies of Grasshoppers (Insecta: Orthoptera; Acrididae) belonging to 9

species were collected from Ahmad Abad District Karak Khyber Pakhtunkhwa, Pakistan. Duration of the study period was one complete year, i.e. January, 2016 to December 2016. On the basis of number of species, Oedipodinae was the most dominant family with 5 species: *Scintharistanotabilis*, *Sphingonotus rubescens*, *Aiolopus thalassinus*,

Acrotylushumbertianus and *Oedaleus senegalensis* followed by, Acridinae, Gomphocerinae, Cyrtacanthacridinae and Eypreocnemidinae which comprising only one species each like *Acrida exaltata*, *Ochrilidia gracilis*, *Schistocerca gregaria* and *Heteracris illustris* respectively^[14].

Table 1: Grasshoppers fauna of Khada Karak Khyber Pakhtunkhwa, Pakistan.

S. No.	Class	Order	Families	Genus	Species
1	Insecta	Orthoptera	Oedipodinae	<i>Scintharista</i>	<i>notabilis</i>
2	Insecta	Orthoptera	Oedipodinae	<i>Sphingonotus</i>	<i>rubescens</i>
3	Insecta	Orthoptera	Oedipodinae	<i>Aiolopus</i>	<i>thalassinus</i>
4	Insecta	Orthoptera	Oedipodinae	<i>Acrotylus</i>	<i>humbertianus</i>
5	Insecta	Orthoptera	Acridinae	<i>Acrida</i>	<i>exaltata</i>
6	Insecta	Orthoptera	Gomphocerinae	<i>Ochrilidia</i>	<i>gracilis</i>
7	Insecta	Orthoptera	Cyrtacanthacridinae	<i>Schistocerca</i>	<i>gregaria</i>
8	Insecta	Orthoptera	Eypreocnemidinae	<i>Heteracris</i>	<i>illustris</i>
	Class 1	Orders 1	Sub Families 5	Genus 8	Species 8

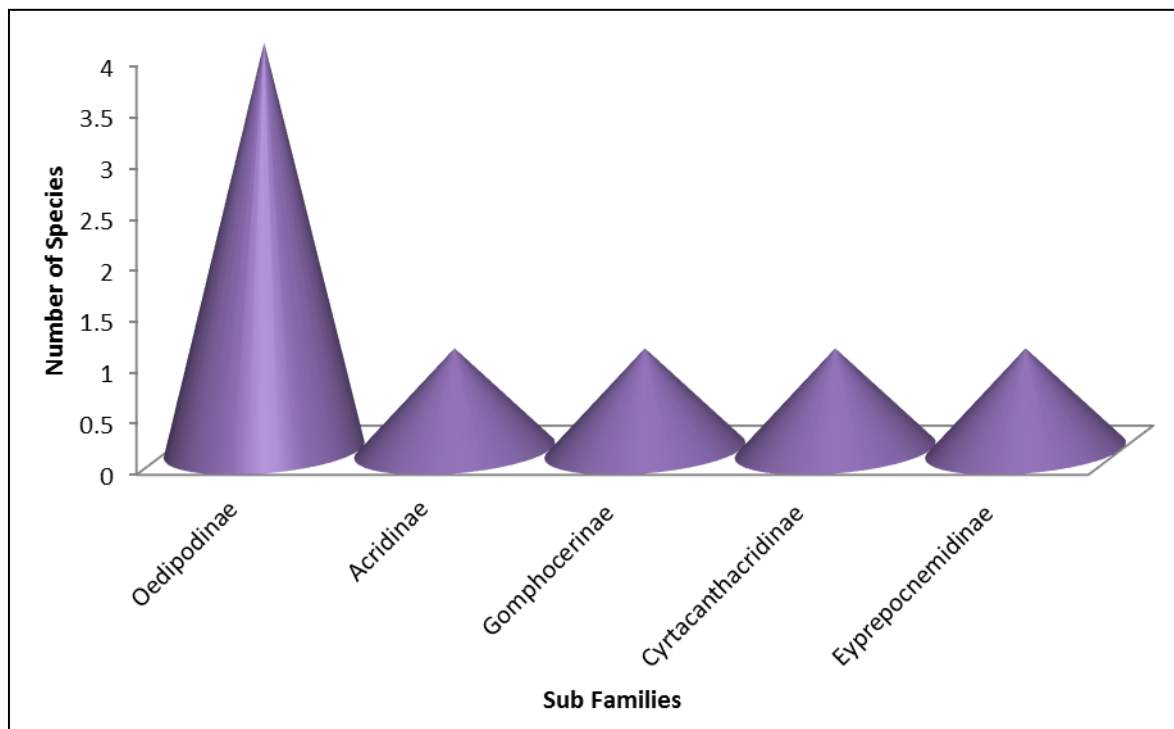


Fig 2: Families wise distribution of grasshoppers fauna at Khada Karak KP, Pakistan

4. Conclusion

From the present study, it can be concluded that Khada region of Karak is very appropriate for Acridids. Furthermore, this region is too much suitable for the family Oedipodinae because maximum species of Grasshoppers fauna belongs to this family. The remaining sub families like Acridinae, Gomphocerinae, Cyrtacanthacridinae and Eypreocnemidinae comprising the lowest number of species i.e. only one of each families respectively.

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