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Exploring of Grasshoppers fauna at Toordand district Karak Khyber Pakhtunkhwa, Pakistan

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Abstract

The aim of the present study was to find out grasshopper fauna at Toordand from September 2016 to September 2017 District Karak KP, Pakistan. Five sub-families Oedipodinae, Acridinae, Gomphocerinae, Cyrtacanthacridinae and Eyprepocnemidinae, Seven (7) species of Grasshoppers belonging to five sub-families Oedipodinae, Acridinae, Gomphocerinae, Cyrtacanthacridinae and Eyprepocnemidinae, were identified during the current survey namely *Scintharistanotabilis*, *Sphingonotus rubescens*, *Aiolopus thalassinus*, *Acrotylushumbertianus*, *Acrida exaltata*, *Schistocerca gregaria* and *Heteracrisillustris* respectively. In this research Sub Family Oedipodinae was found the largest one over all the families which consisting four Species. Overall the recorded species of Grasshoppers were *Scintharistanotabilis*, *Sphingonotus rubescens*, *Aiolopus thalassinus*, *Acrotylushumbertianus*, *Acrida exaltata*, *Schistocerca gregaria* and *Heteracrisillustris* respectively. From the present study, it can be concluded that this area is suitable for Grasshopper fauna. The present study will provide a base line for the future Scientists.

Keywords: Karak, Toordand, Grasshoppers, Family, identification, recorded, Species

1. Introduction

Grasshoppers have a significant useful significance as essential customers, supplement recyclers ^[1] and prey for an extensive variety of taxa, for example, winged creatures ^[2]. Therefore, protection techniques of farmland feathered creature species incorporate particular agri-natural plans to upgrade grasshopper plenitudes in fields ^[3]. In this specific circumstance, sown edge strips have been exhibited to improve grasshopper plenitudes relying upon the sowing blend used to set up the edge strips ^[4-5]. Some lowlife Grasshoppers (Romaleidae) have been especially all around considered regard to their substance guards. These incorporate *T. eques* and *Rmaliaguttata*. Both species release a cautious emission from combined metathoracic spiracles. Whose viability relies on upon the measure of put away discharge (which is lost at each shed and must be restored at each stage). This sum is unequivocally subject to age, sex, eating routine, and release recurrence ^[6]. The objective of the study was to find out the Grasshoppers fauna at Toordand District Karak Khyber Pakhtunkhwa, Pakistan

2. Materials and Methods

2.1 Study Area

Toordand region is situated between Indus highway and Bannu road karak. This area comprising plane, hilly areas and thick forest. This region comprising variety of flora and fauna. The land of this area almost consisting stones. Various new wild fauna existing in this area which are still unexplored. In this area summer season is very hot due to stones and sandy soil. Literacy ratio of this area is also high. Doctor Muslim is one of the famous personalities of this region. Agriculture point of view this area is not too much productive.

2.2 Collection and Preservation

From September 2016 to September 2017 the insects were collected by "Sweep Sampling Method", as per Gadagkar *et al.* ^[7]. 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 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 Toordand Karak Khyber Pakhtunkhwa, Pakistan.

3. Results and Discussion

During the present study, seven species of grasshoppers were identified namely *Scintharistanotabilis*, *Sphingonotus rubescens*, *Aiolopus thalassinus*, *Acrotylushumbertianus*, *Acrida exaltata*, *Schistocerca gregaria* and *Heteracrisillustris* respectively. The dominant sub family was Oedipodinae which consisting 4 species of the grasshoppers. The remaining sub-families of the grasshoppers were Acridinae, Gomphocerinae, Cyrtacanthacridinae and Eypreocnemidinae which was represented by one species each.

The back to back overview of two conditions of India i.e. Bihar and Jharkhand depend on paddy and heartbeats cultivars of the territories amid 2009 and 2011. Bihar's economy is agrarian while in Jharkhand, farming is the backbone of tribal populace. Amid the overview it was watched that the paddy and heartbeats developed in the zone were exceptionally invaded with grasshoppers. Tests gathered were dealt with to yield 34 grasshopper species having a place with 25 genera, 2 families, 10 subfamilies and 19 tribes. Most extreme number of grasshoppers gathered has a place with subfamily Oedipodinae (9 species) trailed by Oxyinae (4 species), Acridinae (4 species), Gomphocerinae (3 species), Catantopinae (3 species), Cyrtacanthacridinae (3 species), Pyrgomorphinae (3 species), Tropidopolinae (2 species), Hemiacridinae (2 species) with slightest number if there should arise an occurrence of Spathosterninae (1 species) (Usamani et al., 2012) [8]. In the present research conducted at Toordand shows variation because in the present research 5 sub families were recorded while in the previous work 10 sub families were reported. Hence the both study results revealed that there was a great variation among the numbering of the both study sub families. Grasshopper abundance and species structure were examined at 42 destinations exhibited along an unsettling influence slope. Grasshopper thickness was most reduced and species differences were most astounding in vegetation sorts with bush cover. Yearly fields had the most noteworthy grasshopper densities and the least species differences and were commanded by generalist species with

wide eating routine breadths. Administration worries that emerge from the diverse qualities (nourishment propensities transitory inclination) of the prevailing grasshopper species related with the different plant groups were talked about. Administration of grasshopper populaces by living space control might be a suitable option procedure [9]. In the present study maximum collection of grasshoppers was carried out in the areas rich in vegetations. From the present survey, it can be reviled that this spot is fit for Acridids. 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 Districk 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*, *Ochridia gracilis*, *Schistocerca gregaria* and *Heteracrisillustris* respectively [10]. 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*, *Ochridia gracilis* and *Schistocerca gregaria*. The Sub family Oedipodinae was found the largest one over all the recorded Sub families [11]. 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 [12].

Table 1: Grasshoppers fauna at Toordand 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 | Cyrtacanthacridinae | <i>Schistocerca</i> | <i>gregaria</i> |
| 7 | Insecta | Orthoptera | Eyprepocnemidinae | <i>Heteracris</i> | <i>illustris</i> |
| | Class 1 | Orders 1 | Families 4 | Genus 7 | Species 7 |

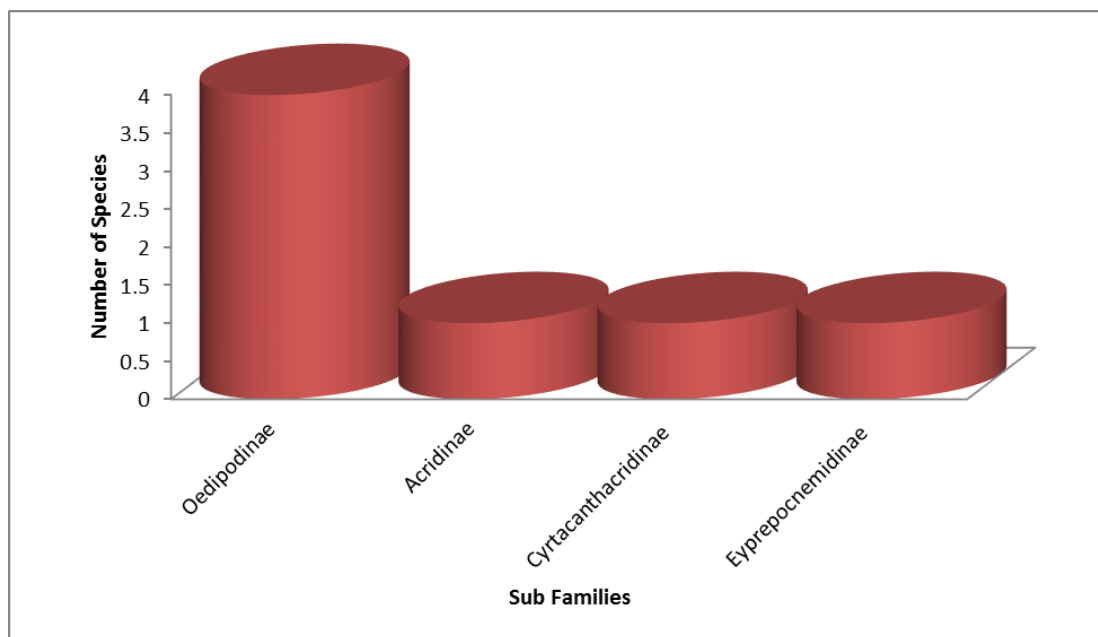


Fig 2: Familieswise distribution of Grasshoppers fauna at Toordand Karak KP, Pakistan.

4. Conclusion

From the obtained result it may be concluded that maximum collection of grasshoppers was carried out in the areas rich in vegetations. From the present survey, it can be revealed that this spot is fit for Acridids.

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