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Monitoring of dragonfly fauna in Tehsil Takht-E-Nasrati district Karak KP, Pakistan

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Abstract

This paper communicates the exploring of the dragonfly fauna collected from Tehsil Takhti Nusrati District Karak Khyber Pakhtunkhwa, Pakistan. A survey was conducted over a period of one year. A total 733 specimens of dragonfly were collected from various sampling sites of Tehsil Takhti Nusrati. These sampling sites were Takhti Nusrati, Zarki Nasrati, Ganderi Khattak, Bogara and Khada respectively. The Specimens collected and identified belonged to 1 Order, 3 Families, 6 Genera and 7 Species. Family Libellulidae was the largest family consisting 5 Species while Family Aeshnidae, and Gomphidae comprising only one species each. From the Present study, it is concluded that Takht-e-Nusrati Tehsil have a diverse dragon fly fauna. Similar survey on large scales is recommended to fully evaluate the dragon fly fauna in the Warana region of District Karak.

Keywords: Dragon fly, exploring, family, Warana, region, Karak

1. Introduction

Takht-e-Nusrati is a famous Tehsil out of total three Tehsils of District Karak Khyber Pakhtunkhwa, Pakistan. Five sampling areas were selected which were Takhti Nusrati, Zarki Nasrati, Ganderi Khattak, Bogara and Khada. These areas are situated on the South West side of the Main Karak City as shown in the figure 1. Odonates have been a focal point of extensive research in several countries. Odonata is the order that has been intensively explored in the tropics. They have been reported from all continents except Antarctica and are typically concentrated in warmer, tropical habitats [1]. The number of Odonata species known from Pakistan (110) is a little low with respect to Bangladesh (114), Sri Lanka (116), Nepal (172) and India (499) [2] However, 5740 odonates were known worldwide and 1669 from Oriental region [3]. The impressive migration of odonates has been documented from centuries and there are a lot of observational records appearing in the media each year [4]. Some species of dragonflies appear synchronously in the tropics and subtropics and meander into the moderate zone [3]. Dragonflies move in the downwind direction at the onset of summer, whereas during late summer they move in the upwind direction, so their displacement direction varied among different altitudes [5].



Fig 1: Map of Tehsil Takht-e-Nusrati District Karak KP, Pakistan.

2. Materials and Methods

2.1 Collection and Preservation

The dragonflies were collected by using aerial nets, killed in the cyanide bottle, pinned and their body parts were set on appropriate setting boards. On drying, these were properly labeled and mounted in the collection boxes. Naphthalene balls were placed in the boxes to keep them safe from the pests.

2.2 Identification and Description

Specimens were identified up to the species level by running them through key Fraser's [6]. Valid names along with synonyms, distribution and ecological observations were given for species already recorded from Pakistan.

3. Results

In the current survey, dragon fly fauna was collected from the Tehsil Takht-e-Nusrati District Karak Khyber Pakhtunkhwa, Pakistan. During the present research, 733 specimens of dragon fly were collected, Preserved and identified by key. Five sampling stations were selected for the present survey. These selected sampling sites of Tehsil Takht-e-Nusrati were Takhti Nusrati, Zarki Nusrati, Ganderi Khattak, Bogara and Khada respectively shown in the Figure 1. The Specimens collected and identified belong to 1 Order, 3 Families, 6 genera and 7 Species respectively. Family Libellulidae was the largest family consisting 5 Species *Orthetrum sabina*, *Palpopleura sexmaculata*, *Pantala flavescens*, *Trithemis festiva* and *T. aurora* while Family Aeshnidae, and Gomphidae comprising only one species, each *Anax immaculifrons* and *Onychogomphus Strigatus* as Shown in the Table 1 respectively. Hence the present study revealed that this region is suitable for Dragon fly fauna.

Table 1: Identification of Dragonfly fauna in Tehsil Takht-e- Nusrati in District Karak, Pakhtunkhwa Pakistan

Order	Family	Genus	Species
Odonata	Libellulidae	<i>Orthetrum</i>	<i>sabina</i>
		<i>Palpopleura</i>	<i>sexmaculata</i>
		<i>Pantala</i>	<i>flavescens</i>
		<i>Trithemis</i>	<i>festiva</i>
		<i>Trithemis</i>	<i>aurora</i>
	Aeshnidae	<i>Anax</i>	<i>immaculifrons</i>
	Gomphidae	<i>Onychogomphus</i>	<i>bistrigatus</i>
Order 01	Families 03	Genus 06	Species 07

4. Discussion

During the present research conducted in Takht-e-Nusrati 7 species of dragonfly were recorded up to the species level and there proper systematic classification is given in the Table 1 described in detailed above. The identified 7 species belonged to 01 Order, 3 Families, 6 Genera and 7 Species. In these 7 dragonfly species Family Libellulidae was found the richest one over all the recorded families which comprised 6 species. From the literature study, it can be concluded that there was no previous record or data on dragonfly fauna in this region and whole District Karak as well.

A study conducted by Rathod *et al.* (2012) identified a total of 31 species of dragonfly belonging to 6 families, namely Libellulidae, Coenagrionidae, Gomphidae, Lestidae Aeshnidae and Platycnemididae [7]. In present survey 07 species and 3 families, namely Libellulidae, the Gomphidae and Aeshnidae were recorded which show great similarities. In the present study only 7 species were recorded which show quite a variation in these two study species point of view.

Another study conducted by Fulan *et al.* (2010) examined total of 17 dragonfly species (11 Zygoptera and ten Anisoptera) representing six families were recorded at 21 sites [8]. In the current study only species of dragonflies were identified which show that the result of the both studies are somewhat different on the basis of number of dragonfly fauna because the in the previous study conducted by Fulan *et al.* (2010) contain 17 species of dragonflies. So the dissimilarities results may be due to the climatic factors. Hence the current study revealed that Tehsil Takht-e-Nusrati habitat is suitable for the survival of dragonfly fauna. Previously, there was no data available on this region. This study was based to explore the preexisting fauna and the new one, but no new species were identified during the current study. In future, this data will be very useful as a record.

5. Conclusion

The present study concluded that Human activities badly affecting the dragonfly fauna. Rich fauna of dragonfly were recorded in those sampling sites where human activities and transport were fond less. If the necessary dragonfly fauna conservation steps are not taken to save their population, it will result in the endangering of the dragonfly fauna in Takht-e-Nusrati of District Karak KP, Pakistan.

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