

DIVERSITY AND DISTRIBUTION OF DRAGONFLIES IN DISTRICT DERA ISMAIL KHAN, KHYBER PAKHTUNKHWA, PAKISTAN

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ABSTRACT

The present study was to explore dragonfly fauna in the District Dera ismail khan Khyber Pakhtunkhwa Pakistan. Duration of this study is 9 months i.e. February 2021 to November 2021. A total of 915 specimens were collected from the sampling site, Paharpur, Daraban, Kulachi, Prova and main Dikhan city of the district Dikhan. The identified specimens belongs to order Odonata 2 families Libellulidae and Aeshnidae, 8 genera and 14 species respectively. Family Libellulidae was the largest family consisting 13 species *Palpopleura sexmaculata*, *pantala flavescense*, *Orthetrum chrysis*, *Orthetrum cancellatum cancellatum*, *Orthetrum Sabina*, *Orthetrum gluacum luzonicum*, *Bradinopyga germinata* and *trithemis festiva*. Family Aeshnidae comprising only one specie *Anax Immaculifrons* it can be concluded that this region have a diverse dragonfly fauna. Similarly survey on large scale is recommended to fully evaluate the dragonfly fauna of District Dera Ismail khan kpk Pakistan.

Keywords: Dragonfly, exploring, family, Area, Dera ismail khan, fauna.

INTRODUCTION

District Dera Ismail khan including Paharpur, Daraban, Kulachi, Prova and main city of Dera ismail khan located in the Khyber Pakhtunkhwa province, Pakistan. It is the 37th largest city of Pakistan and 5th largest city of Khyber Pakhtunkhwa province by population. Dera Ismail khan situated on the west bank of Indus River, at its junction with Gomal river. It is 300 km south of the capital Peshawar and 230 km northwest of the Multan Punjab. This area is surrounded by mountains from north including the sheikh badeen national park hills. This habitat is very beneficial for many animal and insects fauna. Dragonflies are important insects and the knowledge of fauna is significance for decision making about crops management and environmental protection (Rowe, 2003). Adult dragon fly taken as a food item in some countries like Africa, South America, and Indonesia where they specially used in soup (Boyd, 2005). The dragonflies also posses' medicinal properties in some countries for curing fever (Mitra, 2002). the beauty of this insect play a key role in modeling jewelry in dragonflies designs. Dragonfly also used for biological control against mosquito larvae. The aim of research work was to explore out the fauna of dragonflies in district D.I khan.

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Material and Methods:

Study area:

A detail survey was conducted to collect adult dragonflies of District Dera Ismail khan Khyber Pakhtunkhwa Pakistan, during summer season 2021. Adults dragonfly's specimens were collected randomly from all the tehsils of District Dera Ismail khan which covers the whole district. Main collection sites are Paharpur city, bagwani shumali, rangpoor, bilot, chashma, paniala, Prova city, Daraban city, Kulachi and the main district city Dikhan near Indus river.

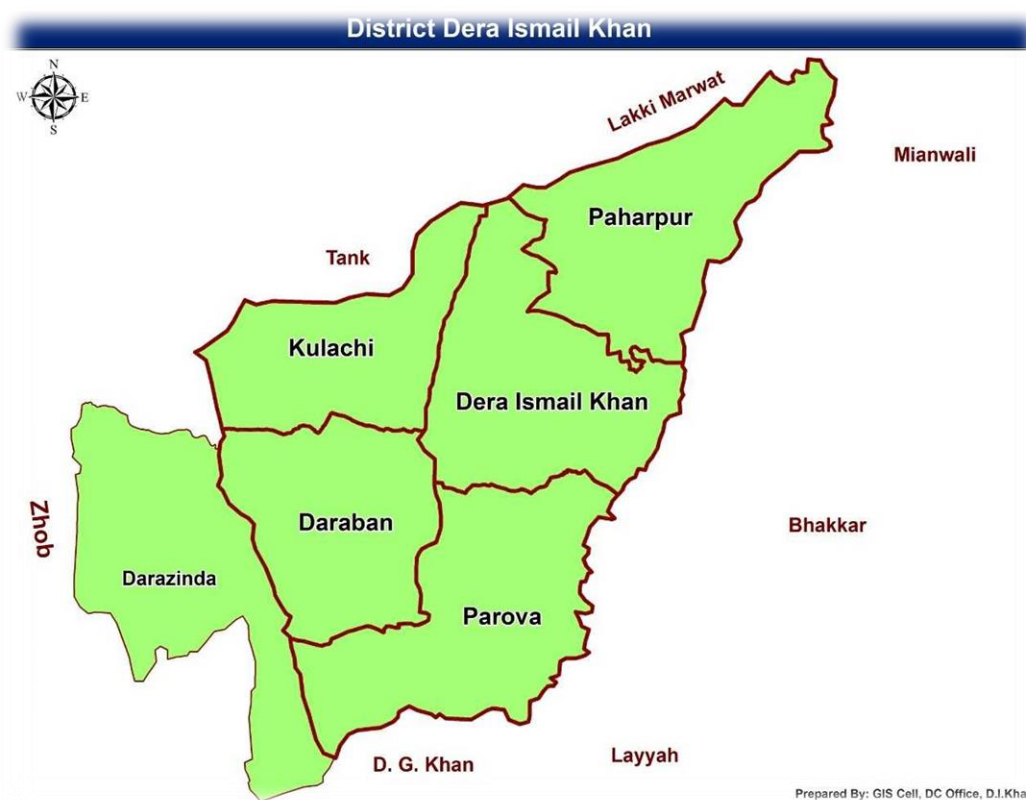


Fig1: Map of Dera Ismail khan

Collection and Preservation:

By using Ariel net collect the adult dragonflies from the district D.I Khan in sunny days from 08 am to 05 pm. The collected specimens were killed with the help of ethyl acetate and then placed on triangular paper envelope with their folding wings above the body. Information collection site, time, date and habitat was written in note book. Specimens pinned properly and set on setting boards and cover them in a container or mirror box by sprinkling the Naphthalene balls and coopex powder to protects from other insects and lizards.

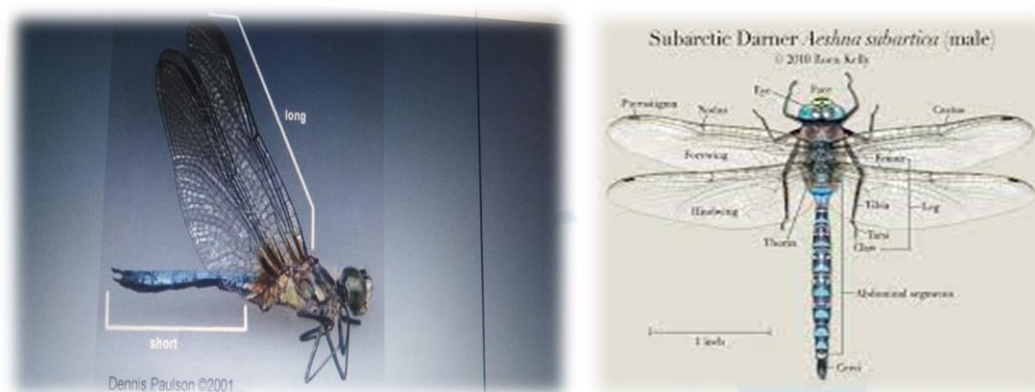
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Identification and Description:

The specimens were identified up to species level. The identification of specimens was carried out with the help of literature through Fraser (1936). Identified specimens were deposited in the Museum, Institute of biological sciences, Gomal University Dera Ismail khan for future references and research purposes.

Morphometry and Photography:

In the Measurement phase Whole body length, Fore and Hind wings were measured with the help of finely pointed divider and a common ruler scales. After identification and measurement the specimen were placed on white sheet of paper. The specimens were photographed. The photography was also done in natural habitats of insects. For the best outlook of the snaps Adobe application were executed to refine the image.



Data analysis

Morphometry of species were estimated by species richness, abundance and Month wise distribution were analyzed through graphical representation.

Results

Present studies were conducted on taxonomy and distribution of dragonflies in district D.I. KHAN A total of 915 species were collected and identified, yielding two family, 8 genera and 14 species. 10 areas were selected for sampling, which was Paharpur city, bagwani shumali, rangpoor, bilot, chashma, paniala, Prova city, Daraban city, Kulachi and the main district city Dikhan near Indus River.

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Table 1: Exploring of Dragonflies fauna in district Dikhan kpk ,Pakistan

Order	Genera	Species
Odonata	Acisoma	panorpoides panorpoides
	Anax	Immaculifrons
	Bradinopyga	Geminate
	Crocothemis	Nignifrons
	Orthetrum	Chrysis Cancellatum cancellatum Gluacum
	Palpopleura	Sexmaculata sexmaculata
	Pantala	Flavescense
	Trithemis	Kirbyi

Discussion

The present study was conducted on the diversity of dragon flies in district D.I. Khan The first attempt to explore the diversity of dragonflies fauna in district Dikhan during the present study two families 8 genera 14 species of dragon flies were identified 13 species identified in family Libellulidae and only one specie identified in family Aeshnidae. Collected species were crocothemis nigriferon, Palpopleura sexmaculata octomeculata, Orthetrum gluacum, Palpopleura sexmaculata sexmaculata, Acisoma panorpoides panorpoides, Orthetrum chrysis, cancellatum cancellatum, Orthetrum Sabina, Pantala flavescense, Trithemis festiva, Bradinopyga geminate, Orthetrum gluacum luzenicum , Trithemis kirbyi and Anax Immaculifrons, (Aeshnidae). The most abundant species found was Orthetrum chrysis moves 32 species were collected from different localities with in district D.I. Khan Diversity of dragonflies were reported from all over the world except Antarctic which compare with the present study the dragon flies are relatively small order of insects with extant species of 5680 with actual number that could be close to 700. (Kalkman, et al2008). Marina vilenical, et nl (2009) studied the distribution and abundance of dragonfly are indicative of habitat characteristics vegetal structure cloudiness and air temperature dragonflies prefer mosaic habitat diverse vegetation structure with average air temperature ranging from 26-28 and sunny weather at the same synonyms found in the subjected area where the current study was concluded. During the current study conducted in the District Dikhan clearly mentioned the differences from one another after comparison with other research results now from this result we can conclude that there are a lot of environmental changes occurs in Khyber

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Pakhtunkhwa province, this study open the door for more faunistic surveys covering the whole province and encourage taking steps towards their protection and survival for pest management.

Conclusion:

During this study it is concluded that human activities in dragonflies' natural habitat mountains and rivers sides areas disturb their population. The majority fauna found in those area where human activities less and having no transport system. The pests used by the farmers for insects killing should be avoid to protect dragonfly's fauna. If proper management steps will not taken for their conservation it will results in the endangering of the dragonflies fauna in district Dikhan of Pakistan Khyber Pakhtunkhwa, Pakistan.

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