Orthopteran (insect) diversity from Haveli and Maval Tahasil of the Pune District, Maharashtra, India

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ABSTRACT

In the present paper 20 species belonging to 5 superfamilies’, 5 families and 15 subfamilies and 20 genera are reported. The study was carried out between June 2011 to April 2012 in Haveli and Maval tahasil of Pune district, Maharashtra, India. The order Orthoptera is divided in to two suborder viz Caelifera and Ensifera. The suborder Caelifera includes short horned grasshopper, locust and grouse locust however, Ensifera includes longhorned grasshopper, katydids, cricket and mole cricket.

Key words:- Haveli, Maval, Biodiversity.

INTRODUCTION

The number of known species of Orthoptera from the world is about 20,000 out of this India support 1, 750 species (Tandon and Hazra, 1998) i.e about 10% are known from India. Most of the species are tropical but are also well represented in temperate areas. They are found from sea level to the high altitude in Himalaya (Bhownik & Rui, 1982; Mehta et al., 2002 and Shishodia et al., 2002).

The member of the order Orthoptera includes jumping insects like grasshoppers, katydids, grouse locust, tree cricket, cricket and mole cricket. Orthopteran insects functionally important being the dominant above grouped invertebrates in rangeland when by biomass (Scott et al., 1979; Risser et al., 1981). They are therefore forming the good study subject for research on prediction models from an ecological perspective grasshoppers are functionally the dominant herbivorus consume foliage and it is an important insect group in grassland ecosystem and playing an important role in supporting population dynamic theory (Odum et al., 1962 and Van Hook 1971).

In diversity study making investigation of species is of prime importance because assessment of biodiversity loss of prime importance because assessment of biodiversity loss is base on it and will help to formulate conservation strategies for their sustainable utilization.

MATERIAL AND METHODS

The selected tahasil Haveli and Maval of Pune district are situated at 19.0⁰ North latitude and 73.15⁰ East longitude. The area has contour interval 100 meter maximum height from the
mean sea level is 1200 meters and minimum height 300 meters above mean sea level. The major rivers flowing through the area are Indrayani, Mula, Mutha, Andhra, Kundali, Pavana and the major lakes are Pavana, Andhra, Khadkwasla, Pashan, Katraj, Shiravate Kalvan and Gibbs lake.

The total forest in Maval Tahsil is 205.099 sq. km. and the total forest in Haveli Tahsil in 112.91 sq. km. The major forest in the Maval Tahsil is in the region of Lonavala, Pavana lake, Gibbs lake and Major forest in Haveli tahasil in the region of Katraj, Sinhagad and surrounding region. The total forest in two tahasil in 318.01 sq. km. The study region is characterized by tropical semi evergreen forest, dry deciduous area & scrub region.

Sampling of grasshopper was done during June 2011 to April 2012 by using sweep net. Samples collections took place from 10am to 6pm. The individuals were identified in the laboratory using identification Keys (Kirby, 11914; Chopard, 1969).

RESULT AND DISCUSSION

In the present study, 20 species of Orthopteran insects belonging to 20 genera, 15 subfamilies and 5 families were reported. Among Orthoptera order short horned grasshopper belonging to family Acrideridae are dominant with 13 species, second dominant family is Tettigoniidae with 3 species. Third Gryllidae with 2 species while family Pygrogmorphidae and family Tetrigidae represented by 1 species each.
Grassland ecosystem supported 70% of the grasshoppers, 12 belonging to Acrididae and 2 belonging to Tettigonidae. Dry land ecosystem supported 20% of the grasshoppers 1 belonging to Acrididae, 1 with Pyrgomorphidae, 2 with Gryllidae. Dam ecosystem represented 5% i.e 1 species belonging to family Tettigidae and forest ecosystem represented by 5% i.e 1 species belonging to family Tettigoniidae.

In a study Senthilkumar et al., (2006) have recorded 25 species Orthoptera under 4 families from Gibbon wildlife sanctuary Assam. Shishodia and Gupta (2009) have recorded 165 species under 16 families in Himachal Pradesh. Pranjape (1994) have recorded 16 species of Tettigidae in Maharashtra.

In the present study 8 subfamilies of Acrididae have been recorded in diverse habitat. Grasses were found to be the most common habitats for grasshoppers.

SYSTEMATIC ACCOUNT

Order: Orthoptera
Superfamily: Acrididoidea
Family: Acrididae
Subfamily: Truxalinae
Truxalis indica Bolivar, 1902
Subfamily: Acridinae
Acrida exaltata Walker, 1859
Phlaeoba antennata Brunner
Subfamily: Oedipodinae
Gastimargus aethiopius africanus Saussure, 1888
Trilophidia annulata Thunberg, 1815
Aiolopus thalassinus tamulus Fabricius, 1798
Subfamily: Hemiacridinae
Hieroglyphus bargent Fabricius, 1798
Subfamily: Oxyinae
Oxya hyla hyla Serville, 1831
Subfamily: Cyrtacanthacridinae
Patanga succincta Johansson, 1763
Subfamily: Catantopinae
Catantops pinguis innotabilis Walker, 1870
Xenocatantops humilis humilis Serville, 1839
Stenocatantops splendens Thunberg, 1815
Subfamily: Euprepncemidinae
Tylotropidius varicornis Walker, 1870
Superfamily: Pyrgomorpoidea
Family: Pyrgomorphidae
Subfamily: Pyrgomorphinae
Chroctogonus trachypterus trachypterus Bianchard, 1836
Superfamily: Tetrigoidea
Family: Tettigidae
Subfamily: Secilininae
Eucrrespondix flavopictus, Bolivar, 1902
Suborder: Ensifera
Superfamily: Grylloidea
Family: Gryllidae
Subfamily: Gryllinae
Modicogryllus (Modicogryllus) confirmatus Walker, 1859
Teleogryllus occipitalis occipitalis Serville, 1838
Superfamily: Tettigonioidae
Family: Tettigoniidae
Subfamily: Phaneropterinae
Phaneroptera sp.
Subfamily: Mecopodinae
Mecopoda elongate Linnaeus, 1758
Subfamily: Conocephalinae
Conocephalus (Anisoptera) maculates Le Guillou, 1841

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