



Insect Diversity In Hutatma Park Area Kolhapur

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ABSTRACT:

Class Insecta is highly diversified class. About 75,000 species are reported from India. Members of class Insecta are arranged in 29 orders. Five orders of insects stand out in their levels of species richness that are Hymenoptera, Diptera, Lepidoptera, Hemiptera, Coleoptera and among these order, Lepidoptera is rich group observed in study area. The park is the place which has aesthetic value in human life. The ornamental plants of the park must be protected from insect pests. To know the insect diversity especially pest insect diversity and status of pollinating agent the above study is undertaken. (Total 35 species of insects observed belong to 8 orders were reported from study area). High rate of pollination is observed due to abundance of order Lepidoptera.

Keywords: Hutatma Park; Insect order; Lepidoptera; Species richness.

INTRODUCTION :

The word 'insecta' comes from Latin word 'insectum' meaning 'cut' into section. The class insecta is a highly diversified class from phylum arthropoda. Study of insect diversity is of almost important now a days. In class insecta there are about 1.5 million species representing nearly 90% of animal kingdom (Mani 1982). About 75,000 species are reported from India comprising nearly 10% of entire insects fauna (State of Art Report Zoology, 1991). The members of class Insecta arranged in 29 orders (Grimaldi and Engel 2005, Arillo and Engel 2006). Five orders of insects stand out in their levels of species richness : Hymenoptera, Diptera, Coleoptera, Lepidoptera and Hemiptera. Lepidoptera is one of rich group of insecta, it is about 1,46,000 species (Bakowski & Doku Marfo, 2009).

Insects & other invertebrates still receive less attention than vertebrates or plants. Many insects are undescribed. For insect diversity conservation we require scientific identification of species. Conservation of habitat is equally important in case of insects.

Many insects play important role in their ecosystem but some insects considered as agricultural pest. The insects originated on the Earth about 480 million years ago in the Ordovician period at about the same time terrestrial plants appeared. Global climate condition of earth changes several times during the history of Earth, along with it, diversity also changed. Most successful insect groups are Hymenoptera (Wasps, bees & ants), Lepidoptera (butterflies) as well as many types of Diptera (Flies) & Coleoptera (beetles). In an old estimate, Lefroy and Howlett (1909) in the monumental book "Indian insect life" reported 25,700 Indian species. Beeson (1961) estimated 40,000 and Menon (1965) 50,000 Indian species, of which

about half remain yet to be studied. In recent estimate Varshney (1997) has reported 589 families and 51,450 species of insect from India. (Modified after Jairajpuri (1991). After 1997, 619 families and 59,353 species of insects were reported from India.

STUDY AREA:

Kolhapur in Maharashtra is a historic city. The temperature of the region ranges between 10°C to 35°C. Summer in Kolhapur is relatively cooler but much more humid than neighbouring inland cities. The city receives abundant rainfall from June to September due to its proximity to Western Ghat.

There are 51 public gardens in Kolhapur. The corporation occupies garden area of 90 acre. Kolhapur Municipal Corporation is taking care of 1.1 Lakh trees currently in gardens. Conservation project for diversity is going on in 26 public gardens, some of them are Rankala garden, Chimasahab garden, Mahavir garden, Hutatma Park etc.

Hutatma Park

Hutatma Park is one of the biggest park in Kolhapur city with wide biodiversity. It was established in 1972 on name of all legends who sacrificed their lives in SANYUKT MAHARASHTRA CHALVAL. This park occupies total area of 8.5 acres (3,70,260 Sq.Ft.). This park is in the center of the city surrounded by human habitat. It is near to GKG college with huge area & natural habitat like grassland, tree trunks, floral region for different fauna. Park is with rich vegetation including plants species such as Rhoeo, Lilly, Caseabella, Delonix, Regia, Bottle Brush, Citrianus, Powder Puff etc. Conservation of habitat itself results in conservation of insect diversity. Latitude 16°41'34" N, Longitude 74°13'57" E

MATERIAL AND METHOD:

Photographs were taken with the help of NIKON COOLPIX P520 to identify insects accurately to generic & species level & to maintain visual record. The study was conducted at Hutatma garden, Subhash Road, Kolhapur. Duration of study was from August 2016 to December 2016 i.e. from late rainy season to winter season. Observations were made in park at morning and evening hours in the study period. Aerial insect observed using sweeping net. Quadrat method used for observation of slow moving insects (Quadrat : Sq. Size 1 x 1 Meter). The insects were identified with the help of available literature providing standard insect keys i.e. illustration, picture, guide, internet and literature etc.

Insects were identified by consulting respective literature. Coleopteran identified by consulting The biology of coleoptera, R.A.Crowson (2013), Hemiptera identified by consulting Thirumalai & Sharma (2002 a&b) & Estop & Hill (1976), Hymenoptera identified by consulting Arthropod collection & identification : field & laboratory – Timothy & Gibb, C.Y. Oesto (2006), Lepidoptera identified by consulting Butterflies of Indian region – M.A.Wynter – Blyth (1995), Odonata identified by consulting Fraser (1933,34,36), Lahiri (1987), Silsby (2001), Orthoptera identified by consulting Tandon SK, Hazara (1998) Faunal diversity of India, Diptera identified by consulting bugguide.net, Blattodea identified by consulting Chhotani O.B. (1997) The fauna of India, Isoptera (Termites) Vol.II,XX+800.

RESULTS:

The results are recorded in Table No. 1. Total 35 insects species were observed in the park during survey studies. The number of species observed are 10,8,6,4,2,2,2,1 from 8 orders Lepidoptera (10), Hemiptera (8), Coleoptera (6), Orthoptera (4), Hymenoptera (2), Odonata (2), Diptera (2) and Blattodea (1). Large number of insect species

were observed in late rainy season as compared to winter season. The more number of species observed from order Lepidoptera, Hemiptera and Coleoptera as compared to other orders studies in the park.

DISCUSSION :

Hutatma Park is rich in various habitats such as grassland, tree trunk, floral region, ant hill etc. Flora found in Hutatma Garden is Rhoeco, Lilly, Caseabella, Delonix, Regia, Bottle brush, Citrianus, Powder puff etc. Ladybird beetle, bugs, dragonflies, Termite, ants were found.

While working on this project and research, we observed there is rich floral region, as there is abundance of order Lepidoptera (Butterflies and Moth). As pollen grains and nectar is main food source of order Lepidoptera and flora in Hutatma Park provide it in a lot. Hence, majority of species of order Lepidoptera observed.

Near Hutatma park there is Jayanti Nullah which is habitat for harmful insect i.e. mosquitoes. Sewage running through Nullah is rich with mosquito. Hutatma Park is rich with both types of insects beneficial as well as harmful insects.

Nature is taking care of its majority biota in its own way but we should protect & conserve the insect species in various ecosystems. Conservation of habitat is equally important in case of insects. Study on role of insects in spreading disease, pest species, apiculture, sericulture can prove quite useful. Insects may be minute in size or enough big but not to be ignored the interaction with human environment.

Conclusion:

This study will be helpful in conservation of important plant species in Hutatma Park from insect pest. If pest control strategies will be followed by GARDEN CONSERVATION COMMITTEE of Kolhapur Municipal Corporation.

Table No. 1:

Sr. No.	Order	Species
1	Coleoptera	
	i. Family: Buprestidae	<i>Sternocera ruficornis</i> (saunders 1866)
	ii. Family: Cerambycidae	<i>Anoplophora glabripennis</i> (Motschulsky 1853)
	iii. Family: Scarabaeidae	<i>Phyllophaga sp</i> (Harris 1827)
	iv. Family: Chrysomelidae	<i>Aspidomorpha miliaris</i> (Fabricius 1775)
	v. Family: Coccinellidae	<i>Charidotella sp</i> (Fabricius 1781)
		<i>Illeis cincta</i> (Fabricius 1798)
2	Hemiptera	
	i. Family: Pentatomidae	<i>Nezara viridula</i> (Linn 1758)
		<i>Halymorpha halys</i> (Stal 1855)
		<i>Gonopsis coccinea</i> (Francis walker 1868)
	ii. Family: Tessartomidae	<i>Erthesina fullo</i> (Thunberg 1783)
	iii. Family: Alydidae	<i>Eysarcoris sp</i> (Hahn 1834)
	iv. Family: Coreidae	<i>Tessartoma papillosa</i> (Drury 1770)
		<i>Leptocoris sp</i> (Fabricius 1794)
		<i>Physomerus Grossipes</i> (Fabricius 1794)

3	Hymenoptera i. Family: Apidae	<i>Xylocopa aestuans</i> (Linn 1758) <i>Apis indica</i> (Fabricius 1798)
4	Lepidoptera i. Family: Nymphalidae ii. Family: Lycanidae iii. Family: Papilionidae iv. Family: Pieridae v. Family: Noctuidae vi. Family: Erebidae	<i>Ariadne merione</i> (Cramer 1777) <i>Euploea mulciber</i> (Cramer 1777) <i>Junonia lemonias</i> (Linn 1758) <i>Euploea core</i> (Cramer 1780) <i>Symphaedra nais</i> (Forster, 1771) <i>Azonus ubaldus</i> (Stoll 1782) <i>Papilio polymnestor</i> (Cramer 1775) <i>Catopsilia pomona</i> (Fab 1775) <i>Chrysodeixis chalcites</i> (Esper 1789) <i>Erebus macrops</i> (Linn 1768)
5	Odonata i. Family: Coenagrionidae ii. Family: Libellulidae	<i>Pseudagrion decorum</i> (Rambur 1842) <i>Crocothemis servillia</i> (Drury 1773)
6	Orthoptera i. Family: Acrididae ii. Family: Tettigoniidae	<i>Acrida exaltata</i> (Walker 1859) <i>Catantops pingus</i> (Walker, F., 1870) <i>Gastrimargus africanus</i> (Saussure 1888) <i>Phyllozelus sp</i> (Walker 1869)
7	Diptera i. Family: Sarcophagidae ii. Family: Culicidae	<i>Sarcophaga africa</i> (Wiedemann 1824) <i>Culex quinquefasciatus</i> (Say 1823)
8	Blattodea i. Family: Rhinotermitidae	<i>Captotermes gestroi</i> (Wasmann 1896)

PLATE I

Order coleoptera



Phyllophaga sp



Charidotella sp



Illies cincata



Sternocera ruficornis



Anoplophora glabripennis



Aspidomorpha miliaris

PLATE II

Order Hemiptera



Erthesina fullo



Eysarcoris sp



Physomerus grossipes



Halyomorpha halys



Nizara viridula



Tessarotoma papillosa



Gonopsis coccinea



Leptocoris sp

PLATE III

Order Lepidoptra



Papilio polymnestor



Junonia lemonias



Euploea mulciber



Symphoedra nais



Euploea core

PLATE IV



Chrysodeixis chalcites



Ariadne merione



Erebus macrops



Azanus ubaldus



Catopsilia pomona pomona

PLATE V

Order orthoptera



Acrida exaltata



Gastrimargus africanus



Catantops pingus



Phyllozelus sp

Order Diptera



Culex quinquefasciatus



Sarcophaga africa

Order Blattodea



Captotermes gastroi

PLATE VI**Order Hymenoptera***Apis indica**Xylocopa aestuans***Order Odonata***Pseudagrion decorum**Crocothemis servillia***REFERENCES:**

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