



## Diversity of Mantis (Insecta: Mantodea) in Sundarvan-A Nature Discovery Centre, Ahmedabad, Gujarat, India

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### Abstract:

The present study was conducted during the year 2021 with the objective to explore the diversity of the Mantis sp. at “Sundarvan-A Nature Discovery Centre, Ahmedabad (Gujarat, India)”. Present study documents the observation of different species of Mantis at the Study field; data was collected by handpicked method. From the data it is concluded that mainly 5 known species belonging to 5 genera and 4 families were found in the study field. All 5 species, *Creobroter apicalis* (Westwood, 1889), *Humbertiella ceylonica* (Saussure, 1869), *Detroplaty slobata* (Guerin, 1838), *Miomantis paykullii* (Stal, 1871), *Odontomantis planiceps* (Giglio, 1913) were found in the study field during the observation period.

**Key Words:** Species diversity, Mantids, Conservation, Insects

### Introduction:

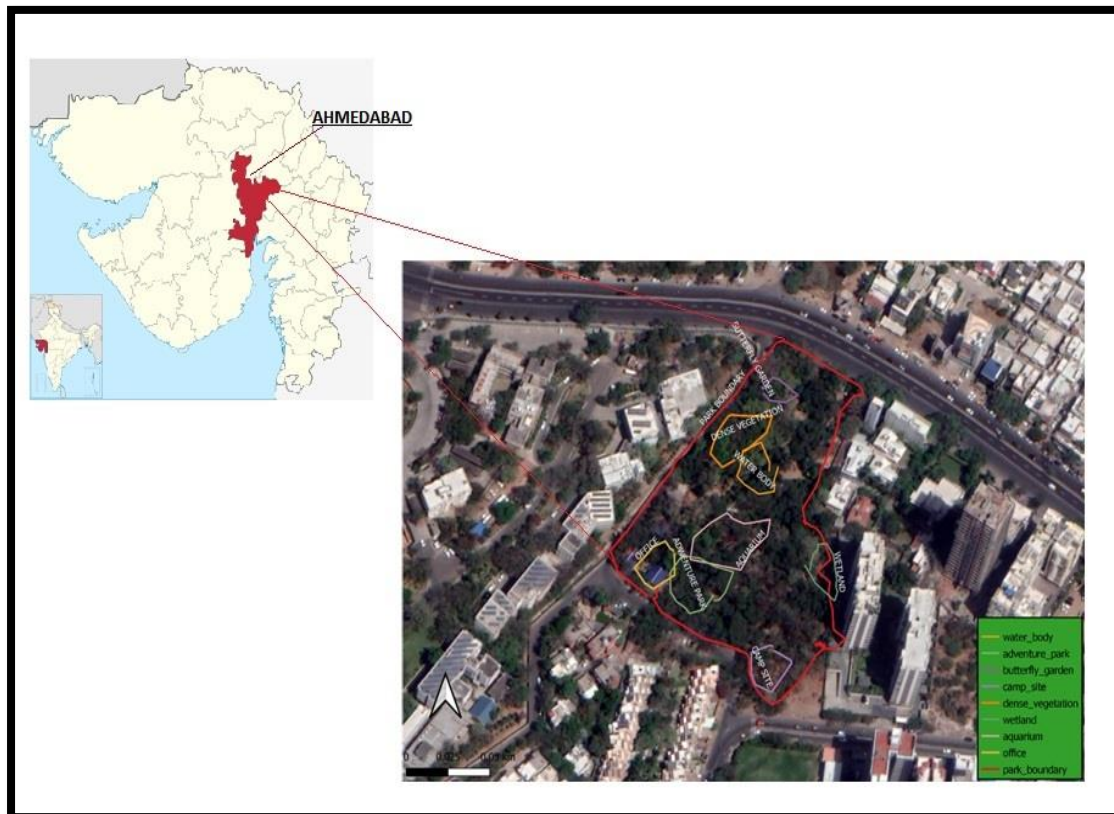
Insecta is the largest class of animal kingdom under the phylum Arthropoda. Insects can be described as primarily with six legs or appendages and usually a chitinous exoskeleton. Mantidae family is the largest family in Mantodea order of the class Insecta. Mantids are distributed worldwide in temperate and tropical habitats. Mantis falls under the Class: Insecta, Order: Mantodea, commonly known as Praying Mantis. There is significant place of mantids in the ecosystem as predators. These animals mainly feed on grasshoppers, moths, butterflies and flies, aphids and also they are well adapted in camouflage and mimicry (Sureshan PM, Sambath S., 2009). The commonly identified mantids are called “praying mantis”, it is because of unusual way of raising their two fore legs in a posture of prayer. These species can be found waiting tranquil for hours together for their prey and can rotate their head up to 180degree (Sureshan PM, Sambath S., 2009).

Mantids are diurnal and are attracted to lights at night (Dutta, W & Sur, D. 2012). These are weak flies and can be found sitting on herbs, shrubs and trees (Sathe, T. V. & Vaishali, P. J. 2014). There are around 2300 species of mantids under 434 genera all over the world (Patel, H. N., Shukla, A. & Prajapati, J. N. 2018). According to a study by Mukherjee *et al* (1995), in India there are moderately diverse fauna of mantis with 162 species under 68 genera of 6 families. In the recent years there is increased attention towards the taxonomic studies of the mantis fauna of India, due to which the description of some interesting new taxa from the country is also come up (Ghate and Ranade, 2002; Ghate and Mukherjee, 2004; Thulsi Rao *et*



*al.*, 2005; Sureshanet *al.*, 2004 a, b, 2006 a, b, c; Vyjayandi & Narendran, 2003, 2005; Vyjayandiet *al.* 2006, Vyjayandi, 2007). The objective of this study is to contribute to the knowledge of biodiversity of praying mantis in Sundarvan Park.

### Study area:



**Figure 1. Study Area (Enlarged- Sundarvan- A Nature Discovery Centre, Ahmedabad)**

The study was conducted at the **Sundarvan-A Nature Discovery Centre** set in the heart of Ahmedabad city, Gujarat, India. It is a mini zoo with dense vegetation in its premises, however it lies in the hustle of the busy city, Sundarvan is indeed an escape to the nature and peace. Different species of large trees, lush green area and mini cages with small birds and animals it is truly a blissful place to enjoy the moment of peace though it is open for visitors it still has a lot of space that remain undisturbed and where the wild diversity can be observed in its natural habitat including some reptiles, birds and insects. It is a unique facility of the Centre for Environment Education (CEE), Ahmedabad. This four-acre land was originally a mango orchard, converted into a nature discovery center on October 28, 1978. It is a green oasis of the city and has been categorized as a mini zoo, by the Central Zoo Authority (CZA), the apex governance body for Zoos of India.



**Methodology:**

The data collection was done in the year 2021 for few months, using handpicking method. Observations were followed by collection and photography from the areas of the study field where the observations were carried out. For their identification purpose photographs were taken with the help of mobile phone camera and Nikon D5200-18-140mm lens, for tracking precise location of each species the GPS device Garmin (Garmin e-trex 10) was used. For identification, the mantis specimens were sacrificed in killing jar and spread and pinned. The initial identification, of the praying mantis was done with the help of the standard book- “An introduction to rearing praying mantis” by Phil E. Bragg. 1997.

**Results:**

The observed Mantids in the study field are of order Mantodea is represented by 5 species belonging to 5 genera of 4 families. Species observed in the study area are illustrated in table 1 and described in table 2.








During the study, the distribution of the species was observed along with their GPS location (Figure 2). Table below, briefly explains the distribution of the Mantids species at the Sundarvan-A Nature Discovery Centre



**Figure 2. Sundarvan Park map locating GPS position of the observed mantids species in the study field (Source: Google Earth)**



**Table 1: Species of Mantids observed in the Study field**

<b>Family: Hymenopodidae</b>	
 <p><b>Species 1: <i>Creobroter apicalis</i></b></p>	 <p><b>Species 2: <i>Odontomantis planniceps</i></b></p>
<b>Family: Gonypetinae</b>	
	
<b>Species 3. <i>Humbertiella ceylonica</i> (Adult and Nymph)</b>	
<b>Family: Detropatyidae</b>	
	
<b>Species 4: <i>Detropaty slobate</i> (Nymph)</b>	
<b>Family: Miomantidae</b>	
	
<b>Species 5: <i>Miomantis paykullii</i> (Adult and Nymph)</b>	



**Table 2: Distribution of Mantid species with their GPS location and associated flora**

No.	Mantis Species	Common Name	Life Stage	Found on (flora/ place)	Location (Co-ordinate)
1	<i>Creobroter apicalis</i> (Westwood, 1889)	Indian Flower Mantis	Nymph	<i>Hibiscus rosasinensis</i> (Hibiscus plant)	N: 23°01'36.37" E: 072°31'15.58"
2	<i>Humbertiella ceylonica</i> (Saussure, 1869)	Bark Mantis	Nymph	<i>Leucaena leucocephala</i> (Subabul tree)	N: 23°01'33.15" E: 072°31'17.36"
			Adult	<i>Bartariacristata</i> (Philippine violet)	N: 23°01'34.81" E: 072°31'17.11"
3	<i>Detroplaty slobate</i> (Guerin, 1838)	Dead-Leaf Mantis	Nymph	Ground	N: 23°01'38.38" E: 072°31'17.36"
4	<i>Miomantis paykullii</i> (Stal, 1871)	Praying Mantis	Adult	<i>Pandanus odorifer</i> (kewda)	N: 23°01'34.81" E: 072°31'13.92"
			Nymph	<i>Thevetia peruviana</i> (pili Karen)	N: 23°01'35.01" E: 072°31'14.42"
5	<i>Odontomantis planiceps</i> (Giglio, 1913)	Ant-Mimic Mantis	Nymph	<i>Hibiscus rosesinensis</i> (Hibiscus plant)	N: 23°01'36.37" E: 072° 31'15.58"

### Discussion:

Existence of diverse species in the confined area of the vegetation surrounded by the city explains the richness of flora and fauna of the study area. It also indicates the quality of habitat of the Sundarvan for different fauna species as each are interrelated to other. To explain the distribution of each species the location coordinates were noted.



Each species was found in the widespread area of the study field. These all 5 species are found on the plants like *variegated hibiscus*, *Hibiscus rosasinensis*, *Pandanus odorifer*, *Leucaena leucocephala*, *Barlaria cristata* and, *Thevetia peruviana*. Abundance of such species in the middle of a big and busy city indicates environment of the place and it encourages one to conserve the habitat for the diverse fauna and flora.

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