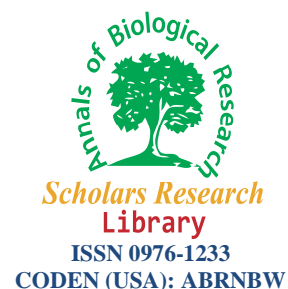




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Studies on the population density of *Corynodes peregrinus* in Guwahati City of Assam, India

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ABSTRACT

Calotropis gigantea, commonly known as milkweed or swallow-worth, was a common wasteland weed and belongs to family Asclepiadaceae. It is commonly known as the Milkweed or Ak (Hindi) or Akon (Assamese). Being native to India, it grows wild up to 900 m throughout the country on a variety of soils and in different climates, sometimes where nothing else grows. Traditionally it was used to treat common diseases such as fever, leaves and flowers are to treat many diseases and abnormalities in humans. The damage causing insect is *Corynodes peregrinus* 34.41%. It is also observed that the host plant infested by the insects in the young leaf (25%), fruits (18.75%), flowers (6.25%), mature leaf (12.5%), basal stem (12.5%), middle stem (12.5%), Apical shoot (6.25%) and tender leaf (6.25%). The population density is evaluated and it is found that the highest population density is done by of *Corynodes peregrinus* in the month of July in all the survey zones of Guwahati.

Keywords: Diversity, Population, *Corynodes peregrinus*, Guwahati, Assam.

INTRODUCTION

Insects are important for pollination, predation and parasitic activities. *Corynodes* play an important role in these fields. The infested insect of *Calotropis gigantea* plant caused serious damage to the host plant. *Corynodes peregrinus* observed diapauses as pupae in dry season beginning from October to April was recorded. Some species use dry conditions as a cue for diapauses entry and wet conditions as a cue for exit. These include several coastal butterfly species [1, 2] and a parasitic wasp that attacks Heliconia species [3]. There appears to be no obvious reason why the use of moisture to cue both entry and exit would not work in more unpredictable inland areas, but there are so far no data for such species. The strategy may however preclude invasion of cool temperature habitats where habitats favorability is not determined by the rainfall pattern.

MATERIALS AND METHODS

Study Area:

The area for the present study is the Guwahati city in Kamrup district, India. This area lies within the latitude 26°12'36.21"N-26°04'56.42"N and within the longitude 91°53'36.31"E-91°34'36.18"E with an average altitude of 55 MSL with a geographical area of 216.79 km² (Fig.1). Guwahati city is situated between the southern bank of the

Brahmaputra River and the foothills of the Shillong plateau, with LGB International Airport to the west, and the town of Narengi to the east. The city is gradually being expanded as North Guwahati to the northern bank of the Brahmaputra. The Guwahati Municipal Corporation, the city's local government, administers an area of 216 km², while the Guwahati Metropolitan Development Authority, the planning and development administers an area of 340 km² [4].

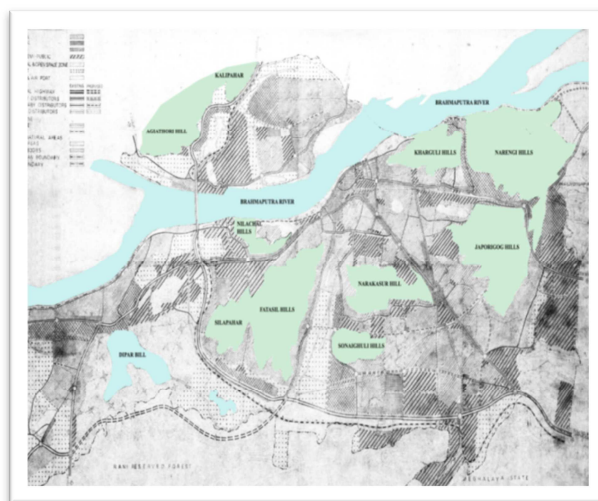


Fig. 1: Map showing forested area inside Guwahati City

Period of Survey:

The survey of the insects damaging medicinal plant *Calotropis gigantea* were carried out during the years 2007-2009, beginning from April 2007 to March 2009. Beginning from the extended monsoon period from the month of March to November the following months of the seasons had been covered during the survey period.

Pre-Monsoon	:	March to May
Monsoon	:	June to August
Post-Monsoon	:	September to November
Winter	:	December to February

Survey was conducted in all the seasons from morning 7am to 10am, during sunny days and upto 11 am during rainy days. In the afternoon 4pm to 6pm time period for survey was generally kept fixed but in winter season the time period were changed accordingly – morning 6am to 9am and evening 2pm to 4 pm for both sunny as well as cloudy days [5, 6, 7].

Insects which were found to infest and causing damage to *Calotropis gigantea* were repeatedly observed during the infestation season for consecutive years. After confirmation of infestation insects were collected and preserved for identification. The collection and identification of insects were done as per the methods of [8, 9, 10] and the instruction manual of Commonwealth Institute of Entomology, London.

RESULTS AND DISCUSSION

In seasonal observation the population density and abundance of *Corynodes peregrinus* shows highest density and abundance in monsoon period and lowest density and abundance found in Post Monsoon period in the year 2007, 2008 and 2009. During the period of study the density per plant of the male *Corynodes peregrinus* was found to be highest during the month of July (5.3375) as compared to April (4.875), May (3.0875), June (4.1875), August (4.45), September (4.325); during the month of October, November, December, January, February and March no *Corynodes peregrinus* were found on the *Calotropis* plants. Again this was found that male *Corynodes peregrinus* have highest density per plant during the month of July (4.725) as compared to April (1.0625), May (4.2), June (4.287), August (4.5875), September (1.525). There were no population during the months of October, November,

December, January, February and March. The overall density of the *Corynodes peregrines* per plant were found to be highest during July (5.03125) as compared to the density during the months of April (4.46875), May (3.64375), June (4.2375), August (5.01875), September (4.425); while no population were observed during the month of October, November, December, January, February and March.

From the seasonal observation it was found that the pre-monsoon period the population density of was highest than Monsoon period in the year 2007. In the year 2008 it was observed that in pre-monsoon period the male and female population were (5.625) and female were (4.131) and overall population indicates highest were found in pre-monsoon period. In this way in 2009, the male population were (6.325) and female were (4.525) and overall population were (5.425) in pre-monsoon period and the highest seasonal population observed.

From the above findings the pre-monsoon period was the most suitable for the insect *Corynodes peregrinus* for all the three observation carried out seasonally. In the six areas of Guwahati it was observed that AEC campus was the population rich area in the year 2009 and lowest population found in the area covered by NH-37. In 2007 it was found that the highest population of *Corynodes* found in the month of July (6.95) in the Mandakata area and lowest population was observed in the Gorchuck was (1.8) in the month of April. In the year 2008, the highest population was (5.25) NH-37 in the month of July and the lowest population was observed (1.9) in Gorchuk area in the month of April. In the year 2009, the highest population was observed in the month of July (6.85) in the AEC Campus and lowest population (1.8) in two month September and April in two different areas were NH-37 and Gorchuk.

The year wise observations were made for three years from 2007-2009. The population density of *Corynodes peregrinus* was similar for all the three years. The overall highest density was found similar in the month of July and no population have seen during the month of October, November, December, January, February and March every year 2007.

Table 1: Showing Seasonal density of *Corynodes peregrinus* 2007

All area	Pre-monsoon	Monsoon	Post-monsoon
Male	4.875	4.66	4.3875
Female	4.0625	4.4041	4.5362
Overall	4.46875	4.53205	4.46185

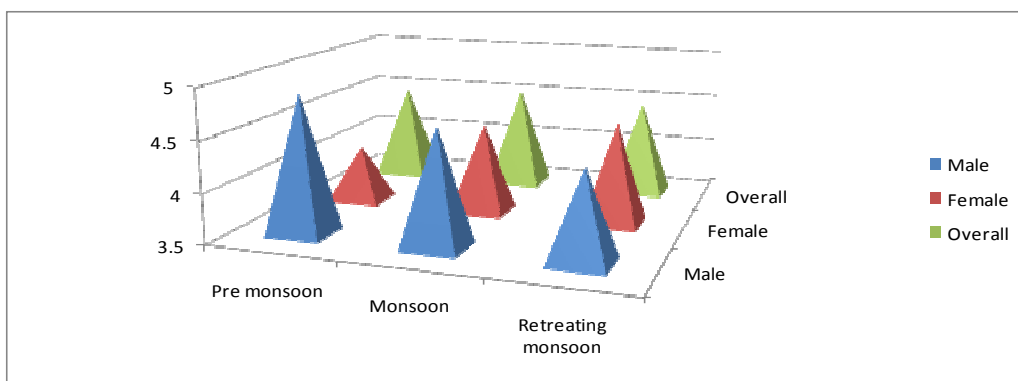


Figure 1: Showing seasonal Population density of *Corynodes peregrinus* in 2007

Table 2: Showing Seasonal Population density of *Corynodes peregrinus* 2008

All area	Pre-monsoon	Monsoon	Post monsoon
Male	4.625	4.3666	4.65625
Female	4.13125	4.0112	4.2625
Overall	4.378125	4.1889	4.459375

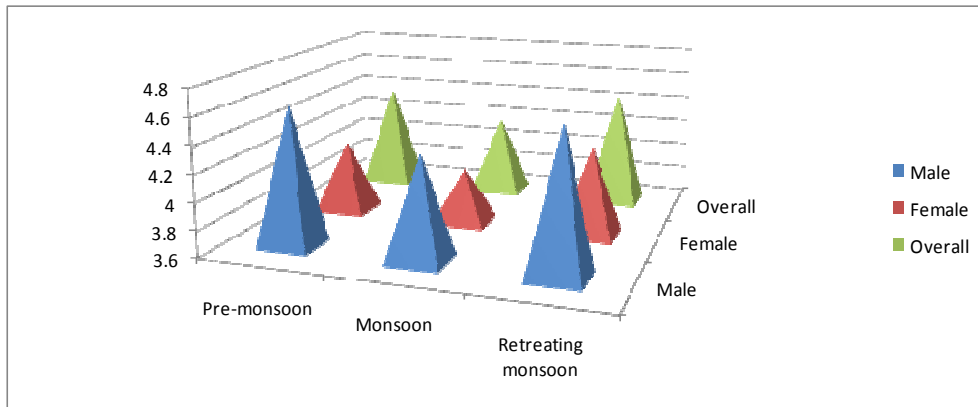


Figure 2: Showing seasonal distribution of *Corynoides peregrinus* in 2008

Table 3: Showing Seasonal distribution and abundance of *Corynoides peregrinus* 2009

All area	Pre-monsoon	Monsoon	Post monsoon
Male	4.325	5.09583	4.280
Female	4.525	4.2175	4.055
Overall	4.425	4.6566	4.1675

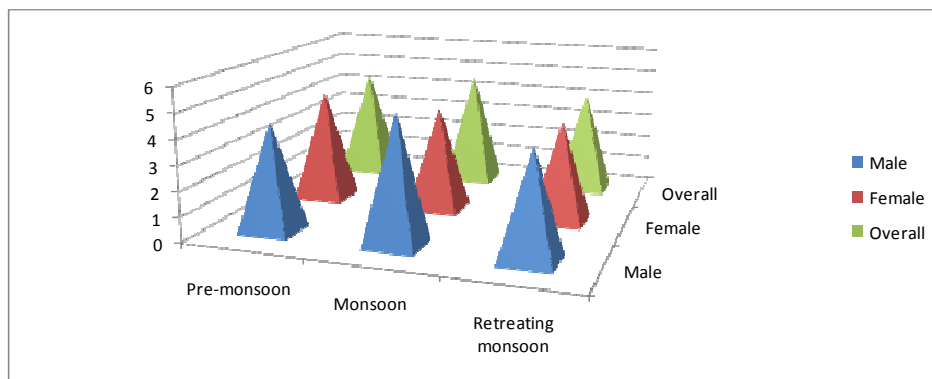


Figure 3: Showing seasonal population distribution of *Corynoides peregrinus* in 2009

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