

## **Study on Rodent Diversity in and around Marat Longri Wildlife Sanctuary, Karbi Anglong District of Assam, India**

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### **ABSTRACT**

Karbi Anglong is the largest among the 27 districts of Assam; situated in the central part of Assam, North East India is rich in biodiversity. Due to various type of topography there is a diversified climatic condition in this district that supports variety of agricultural crops; inhabit different ethnic groups of people. Rodents play major role in food chain between plants and carnivores as well as habitat specific that help in seed dispersal and also considered as pest. The present investigation was undertaken to study the rodent diversity of Marat Longri Wildlife sanctuary of Karbi Anglong District of Assam; conducted from October 2010 to January 2012 and reports 10 rodent species under six genera of two families from study area. The standardized sized of Sherman live traps were used for the trapping of the rodents other than arboreal whereas arboreal rodents were observed with the help of binocular.

**KEYWORDS:** Rodent diversity, Marat Longri Wildlife Sanctuary, Assam.

## INTRODUCTION

Rodents are important link in food chain between plants and the carnivorous predators hence it plays an important role in ecosystems. One of the important things is that rodent species always prefer a specific habitat throughout its life than using the complex environmental measures that define a particular habitat. Hence, certain rodent can be used as indicator monitoring the distribution as well as the density to indicate the health of biotic system (William and Lidickes, 1989).

The earliest consolidated accounts on Indian rodents are available from the works of Blyth (1863), Jerdon (1867), Sterndale (1884) and Blanford (1888,1891); which were further enhanced by the Mammalian Survey of India, Burma and Ceylon through the collections during first quarter of 20<sup>th</sup> century, organized by Bombay Natural History Society (BNHS). The study of these collections were being studied by various workers and published in Journal of BNHS, journal of Asiatic Society of Bengal, Annals and Magazine of Natural History, etc. Later some of these reports were summarized in the form of a key for identification and distribution by Wroughton (1918-1920). Based on the Mammal Survey Collection and some additional material present in British Museum of Natural History, the Fauna of India: Rodentia by J.R.Ellerman was published and this became available in the form of key for the identification of Indian rodents in 1961.

Out of 33 families of rodents found in the world, seven families namely Sciuridae, Dipodidae, Platacanthomyidae, Spalacidae, Cricetidae, Muridae and Hystricidae occur in India. Family Muridae is the largest family, is represented in India by 21 genera and 56 species followed by family Sciuridae having 13 genera and 27 species (Pradhan & Talmale, 2011). Some of the squirrel species occurring in north eastern states of India including Assam are *Belomys pearsonii*, *Petaurista petaurista*, *P. philippensis*, *P. caniceps*, *Hylopetes alboniger*, *Ratufa bicolor*, *Dremomys lokriah*, *D. pernyi*, *D. rufigenis*, *Callosciurus pygerythrus*, *C. erythraeus* and *Tamiops maccllellandi* (Choudhury, 1997).

Zoological Survey of India published faunal document including mammals from Meghalaya (Das *et al.*, 1995), Tripura (Bhattacharya and Ghosh, 2001), Manipur (Mandal *et al.*, 2005), Arunachal Pradesh (De *et al.*, 2006), Sikkim (Chattopadhyay *et al.*, 2006) Nagaland (Srivastava *et al.*, 2006) and Mizoram (Mandal *et al.*, 2005).

Total eight rodent species were recorded in Jorhat district of Assam during 2002-04. Muridae includes were *Bandicota bengalensis bengalensis* (Gray), *B. indica indica* (Bechstein), *Mus musculus castaneus* Waterhouse, *M. booduga* (Gray), *Rattus rattus* (Linnaeus), *R. sikkimensis* Hinton and *R. norvegicus* (Berkenhout) and the only squirrel species under Sciuridae was *Dremomys lokriah macmillani* (Thomas) as a result of survey in different habitats (Dutta and Sarma, 2007). Karbi Anglong is with different climates in different parts, covered by different types of forest that support diversified fauna. Perusal of literature shows no consolidated account published on rodents is known from Karbi Anglong. The present paper reports 10 rodent species under six genera of two families (Table 1).

## MATERIALS AND METHODS

### Study area:

The Karbi Anglong is the largest one amongst the 27 administrative districts in Assam is situated in the central part of Assam of North East India. The district is bounded by Golaghat district on the east, Meghalaya state and Marigaon district on the west, Nagaon and Golaghat districts on the north and Dima Hasao district and Nagaland state on the south (Fig.1 & 2).

The district with dense tropical forest covered hills and flat plains are situated between 25<sup>0</sup>33' N to 26<sup>0</sup>35' N Latitude and 92<sup>0</sup>10' E to 93<sup>0</sup>50' E Longitude.

The various topography in this zone experiences different climates in different parts. The temperature ranges from 6-12 °C and 23-32 °C in summer. The average rainfall is about 2,416 mm.

The forest area covered is about 4,922.019 sq. km with 14 State Reserve forests and 17 District Council Reserve forests in the district. Even though, the district is dotted with hills, a few of which can be categorized into Mountain. The Singhason is the highest Peak among them which is at about 1,360 meters above the sea level.

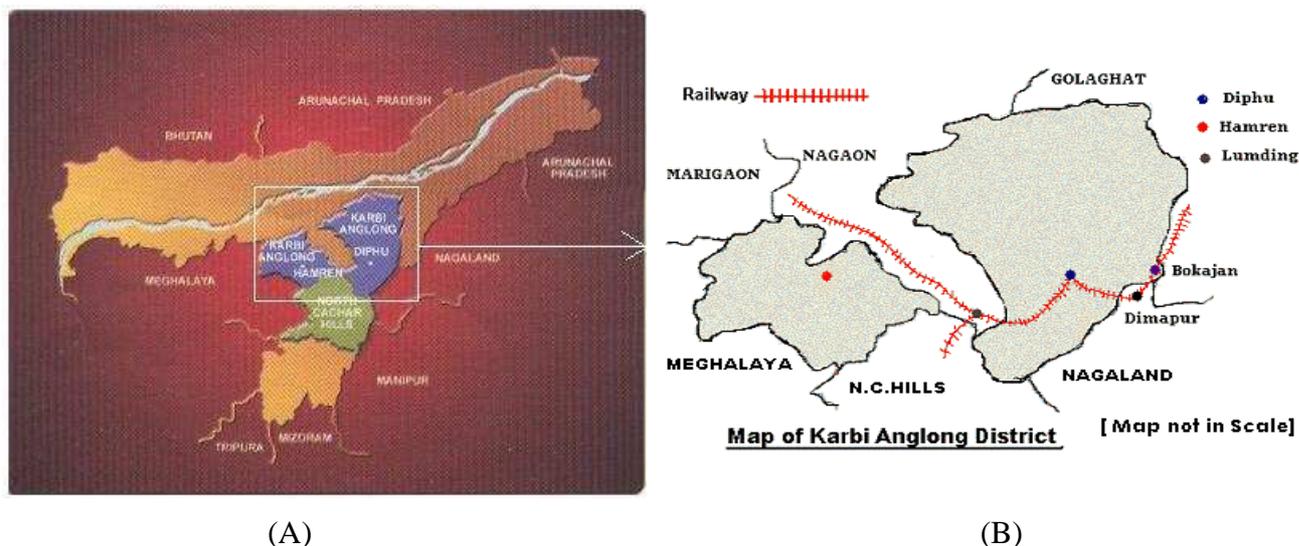


Fig. 1. (A-B) Map of Assam indicating Karbi Anglong district

The district is basically based on different types of agricultural crops cultivated, among which paddy is the main. Except for the valleys, the people follow the jhum system of cultivation. The population of the district is predominantly tribal. The major tribal ethnic groups of this district are Karbis, Bodos, Kukis, Dimasas, Hmars, Garos, Rengma Nagas, Tiwas, Man (Tai Speaking's). Besides, a large number of non-tribals also live together in this hill region.

Present study has been carried out in and around the Marat Longri Wildlife Sanctuary East Karbi Anglong district to identify rodent species which can also be told that the area is enchanting with its diversely rare flora and fauna has remained untouched and undiscovered.

Marat Longri Wildlife Sanctuary (Marat Longri WLS), with area of 451.87 sq. km is quite rich in floral and faunal composition, and comprises of 4 important Reserve Forests (RF) namely Miyungdisa District Council reserve Forest (D.C.R.F.), Disama RF, Kaki RF and Englongkiri D.C.R.F. The important wildlife species found inside proposed sanctuary include Asiatic Elephant, Royal Bengal Tiger, Binturong, Himalayan Black Bear, Barking Deer, Hoollock gibbon, etc. and a variety of avifauna.

This Marat Longri Wildlife Sanctuary is adjacent to Dhansiri Reserve Forests (one of the largest Reserve Forests in Asia) is also quite rich in floral and faunal composition.

Out of the 4 RF constituting Marat Longri Wildlife Sanctuary, Miyungdisa and Englongkiri are D.C.R.Fs. where local tribals have limited cultivation rights since constitution and notification of these D.C.R.Fs. during Seventies.

## Methods:

Field surveys were carried out in the fringe areas of Marat Longri WLS to trap rodents. The presence of Squirrels were ascertained by direct sightings, by hearing calls, as well as through finding preserved furs used by the tribal people as decorative material in villages and by interviewing local forest staff, villagers, and hunters showing them some visual aids like photos and drawings.

To trap rodent other than arboreal, Sherman Live traps were being used in different places mostly in the fringe and encroached area. Small sized balls were made by mixing variety of grains with home-made peanut butter; which were placed inside the traps as bait for the rodents. Traps were placed before dusk and checked after sun rising. After checking the traps in the morning it were left prepared properly putting baits as per need and left in the same places. Before dusk it were again checked and left over the night preparing by the same way. This practice was done for consecutive four nights. The arboreal species of rodents were observed with the help of binocular and noticed its diagnostic characters to come to the conclusion about its genus and species with the help of Menon (2003). The samples collected (Rats, Mouse and Bandicoots) from the study area were measured, weighed and preserved in 10% formaldehyde solution after determination of their reproductive status. Specimens were identified with the key provided by Ellerman (1961) and Agrawal (2000).

## RESULTS AND DISCUSSION

A few rodent species were observed with the help of binocular are, Hoary-bellied squirrel (*Callosciurus pygerythrus*), red-bellied squirrel (*Callosciurus erythraeus*), also called as Pallas's Squirrel, Orange-bellied Himalayan squirrel (*Dremomys lokriah*) and the Malayan giant squirrel (*Ratufa bicolor*). Among these hoary-bellied squirrel was the most common species overall, irrespective of the density of trees as well as canopy covered. This species recorded in the plantations done in fringe areas too; rest three species were most abundant in forest only. The abundance of the more arboreal Malayan giant squirrel and red-bellied squirrel preferred the areas covered by higher tree density forming canopy cover. These areas are characterized as non disturbed forests. The extent of arboreality, preference of diet and nesting play an important role in abundance of squirrel and vulnerable to disturbance or modification of habitat due to different activities (Datta and Goyal, 2008).

House mouse, *Mus musculus* was found both in and outside of houses, garden and fields in vegetable garden. *Mus booduga* is found commonly in the places of fruit plants near the residence. *Rattus rattus* was found in human residential premises and storage, also found damage storage on roof of residence. *Rattus rattus* were also found in upland area near agricultural fields that looks like heap of soil. *Bandicota bengalensis* and *Bandicota indica nemorivaga* were found the most abundant in rice as well as in sugar cane fields. It was also found on the bunds or terrace. *Rattus rattus tistae* was found near human resident full of sugar cane and wheat. *Bandicota bengalensis*, *Bandicota indica*, *Rattus rattus rufescens*, *Rattus rattus tistae*, *Mus musculus*, *Mus booduga* and *Callosciurus pygerythrus* are also considered as pest in Karbi Anglong by different tribes and so they use to kill them whenever they look.

Table- 1: Systematic list of rodent species occurs in Karbi Anglong district Assam:

Name of the species	Common Name	
<b>Order : Rodentia</b> Suborder : Sciuromorpha Family : Sciuridae		
Subfamily : Ratufinae	1. <i>Ratufa bicolor gigantea</i> (M'Clelland, 1839)	Black Giant Squirrel
Subfamily :Callosciurinae	2. <i>Callosciurus erythraeus</i> (Pallas, 1779)	Pallas's Squirrel
	3. <i>Callosciurus pygerythrus</i> (I. Geoffroy Saint Hilaire, 1833)	Irrawardy squirrel
	4. <i>Dremomys lokriah</i> (Hodgson,1836)	Orange bellied Himalayan squirrel
<b>Suborder : Myomorpha</b> Superfamily : Muroidea Family : Muridae		
Subfamily : Murinae	5. <i>Bandicota bengalensis</i> (Gray,1835)	Lesser bandicoot rat
	6. <i>Bandicota indica nemorivaga</i> (Hodgson,1836)	Greater Bandicoot Rat
	7. <i>Mus booduga</i> (Gray,1837)	Little Indian field mouse
	8. <i>Mus musculus castaneus</i> Waterhouse,1843	House mouse
	9. <i>Rattus rattus rufescens</i> (Gray, 1837)	Common House Rat
	10. <i>Rattus rattus tistae</i> Hinton,1918	Common House Rat

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