



# International Journal of Fauna and Biological Studies

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International  
Journal of  
Fauna And  
Biological  
Studies

ISSN 2347-2677

IJFBS 2016; 3(3): 42-44

Received: 13-02-2016

Accepted: 05-03-2016

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## Conservation status of *Varanus bengalensis* in Kokrajhar district of Assam, India

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### Abstract

The eco-biological behavior and the conservation status of the available species of the genus *Varanus* from the region of Assam has not been previously worked out. This paper comprises of a study carried out to access the biology and conservation status of *Varanus bengalensis* in Kokrajhar district of Assam. The study involved field surveys and investigation in the period February 2013 – June 2014. During the study direct visuals and indirect surveys was carried out across the five areas of Kokrajhar. The study revealed *V. bengalensis* to be quite prevalent in all of the five areas. A total number of 19 individuals were recorded during the period, of which 14 were adults and 05 juveniles. From the indirect surveys (questionnaire) among the local people, it can be concluded that there must have been steady decline in the *Varanid* population in the last decade. Hunting for meat and habitat encroachment have been observed as the primary threats leading to its extermination from the region. In order to protect and conserve the species from further destruction it is high time to develop essential conservation measures and policies.

**Keywords:** *Varanus bengalensis*, Kokrajhar, Assam, conservation status

### 1. Introduction

The north-eastern part of India owing to its favorable climatic conditions, rich vegetation and topography is a major biodiversity hotspot for herpetofauna. A good number of herpetological species have been recorded from northeast India. However, sufficient records on scientific study of *Varanid* population as well its distribution and conservation status in this region is lacking. Out of the 8 known species of *Varanus* in India, 3 are reported from Northeast India. *Varanus bengalensis* is a widely distributed *Varanid* species found across Pakistan, Iran, Afghanistan, Nepal, Bangladesh, India, Burma, China, Thailand. It is commonly called Bengal Monitor. It is categorized as Least Concern on the IUCN Red List (IUCN 2009). However, certain threats are adversely affecting the species. Bengal monitor is collected on a large scale for their meat and skins [2]. It is also hunted for its fat which is used for medicinal purposes. The adverse effect of heavy exploitation has led to extermination of these animals in parts of Sri Lanka, India and Bangladesh (Auffenberg 1986; Sarkar 1987). The *V. bengalensis* chooses a wide range of habitat from dry forest land, farmlands and riversides. In some agricultural areas this species has been found to be common [1]. This paper embodies our work to study the distribution of *V. bengalensis* in Kokrajhar district of Assam in order to provide information related to the threats and conservation status.

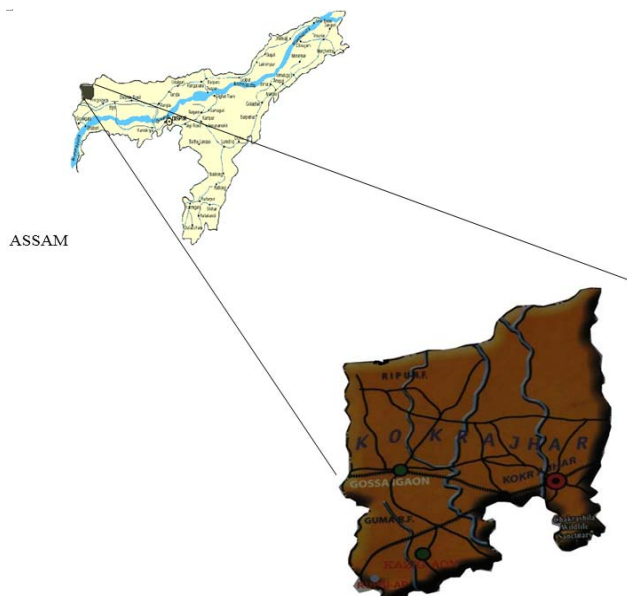
### 2. Study Site

The study was carried out in Kokrajhar district of Assam, India, located on the north bank of the river Brahmaputra. It has the Himalayan Kingdom of Bhutan bounded on the north. The two forest divisions that fall under Kokrajhar district are Haltugaon and Kachugaon. Parts of Aie Valley forest division of Bongaigaon district and the Chakrasila Wildlife Sanctuary also falls in Kokrajhar district. The climate of the area is sub-tropical with humidity and high rainfall. Summer begins from mid-February to October, where the maximum temperature may reach to 32 °C and winter occurs from November to mid-February where the temperature may fall to as low as 11 °C. Monsoon comes with heavy rainfall with a record average of 747 mm that may cause flooding. The monsoon concentrates in the months of June to September.

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The survey was carried out in four different areas of the district. They were Kachugaon, Ultapani, Diplai Beel (wetland), Pepsu area, and Jharbari. The areas were randomly selected and vigorous survey was carried out in the places where Bengal monitor was suspected to be sighted. Kachugaon consists of a block with mostly human settlements and fringe villages. Human encroached forest lands are the characteristic of the area. Ultapani comes under the Ripu Reserve Forest Range. It is covered with dense forests and thus home to a rich biodiversity. The vegetation, topography and ecological factors therein, make it favorable for diverse faunal population. The area has promising prospects in the study and documentation of faunal biodiversities. Diplai Beel is a wetland located towards the border of Dhubri district and belongs to Chakrachila Wildlife Sanctuary. Being a wetland it has a befitting environment for faunal diversity including herpetofaunal diversity. Pepsu is a tributary along the Bhutan border and comes under Ripu Forest Range. It has rich forest land and being on the border, it is a protected area that simultaneously makes it favorable for faunal populations. The last area of the study was the Jharbari area which comes under the Haltugaon Forest Range. In this area too, village dwellings

were located in the fringes of the forest land.

**3. Methods**

The period of the study was February 2013 – June 2014. During the study extensive survey was carried out in forest containing evergreen tropical trees, bamboos, grasslands and shrubs. The survey was also extended to the roadside vegetations, human settlements and agricultural lands. The methods of observation was the Visual Encounter Survey Method [2, 3, 9]. Surveys were mostly carried out at early mornings and afternoons. Study included random walks into the sites visually searching for any species. Active searches included turning rocks and old logs, peeling off dried barks of trees and excavating burrows and termite mounds. When a *Varanus bengalensis* was sighted the time of observation and habitat type were recorded. The SVL (Snout Vent Length) of the individuals and size class (juveniles ≤ 1 m total body length; adult > 1 m total body length) was also recorded. Household surveys were carried out in the area to record sightings by local people and to assess the conservation status of the species. Questionnaires were prepared and distributed among randomly selected individuals of local people and forest officials. A total of 80 such respondents were documented within the study area.

**4. Results and Discussion**

**4.1 Status and Distribution**

*Varanus bengalensis* was recorded from all the areas surveyed. The highest sighting was recorded in Pepsu Forest Range. Most of the recordings were made from forestland with dense and moist vegetation. The observations are recorded in Table 1. Ultapani comes under Ripu Reserve Forest Range and is covered with dense forests and can be assumed to provide a suitable and favourable habitat for *Varanid* population. But, the number of sightings made was less. This can be considered as a cause of excessive habitat encroachment of the forest area. Sightings were also recorded in and around the areas of Kachugaon and Jharbari. Mostly the recordings were made when regular hunters go in search of *Varanus* hunting in the forest for meat. Two such *V. bengalensis* rescues were made by us in Kachugaon, thereafter were released into the forest.

**Table 4.1:** Details of *Varanus bengalensis* sightings in Kokrajhar district in 2011

Sl. No	Area	GPS Location	Sightings (n)	Monitor Size		Habitat Type
				Adult	Juvenile	
1	Pepsu	2673.201 °N 09014.425 °E	6	4	2	Forestland
2	Kachugaon	26 33.441° N 090 12.198° E	4	4	0	Forestland
3	Ultapani	26 45.829 °N 090 17.129° E	5	3	2	Forestland, Village Area, Agriculture Farmlands
4	Diplai	2633.129° N 090 23.157° E	2	2	0	Wetland, Forestland, Village Area
5	Jharbari	26 17.889 °N 090 26.269° E	2	1	1	Forestland, Village Area
Total			19	14	5	

Multiple field surveys and interviews with local people were carried out to determine the current conservation status of *Varanus bengalensis* from Kokrajhar. From the study it can be made out that there is occurrence of steady decline in the *Varanid* population from Kokrajhar district. The species once

abundant in the region has faced a drastic decline in their number.

**4.2 Conservation Attitude**

From the questionnaire survey findings, carried out among 80

individuals belonging to different community groups, highest percentage of respondents (96.5%) affirmed the occurrence of *Varanus* from their locality. However, they also opined that the number has decreased in the present time and couple of years back, it occurred more commonly around the places. The local name of the species is called *Mophou*.

During the survey, the locals also informed that the species is highly hunted for meat as the meat is considered to be a delicacy and the fat of *Varanus* is popularly used in traditional medicine for different ailments like rheumatic pain.

## 5. Conclusion

From the study it can be ascertained that the species is present in the region. Their preferred habitat is mostly forest land. However, sightings are also made from agricultural fields and villages. But excessive human encroachment and hunting activities for meat have put negative impact on their survival. Thus, it is the dire need of the hour to work out effective conservation measures to prevent the species to be completely eradicated from the region.

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