

Studies on Reptilian diversity and its endangered species of Buguda hill Forest in Eastern ghat, Odisha, India.

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Abstract: *Diversity of reptilian fauna and their various distribution patterns have been surveyed during the year 2010 in Buguda hill forest of Eastern ghat. The fauna comprises of two orders (i.e. Testudinata and Squamata), Ten families (i.e Trionychoidea Gekkonidae, Agamidae, Chameleoniae, Varanidae, Pythonidae, Boidae, Colubridae, Elapidae, Viperidae) and Fifteen species out of which Indian Python, King Cobra, Indian egg eating Snake, Tortoises, Indian pond Terrapin and Asian house Gecko are considered to be endangered.*

Key Words: *reptilian diversity, endangered animals, Buguda, Eastern ghat.*

I. Introduction:

The interactions between the organisms and environment are based on the flow of energy. This leads to the three important components of the ecosystem (Dash, 2001). They are: Trophic structure, biotic diversity and material cycle (Odum, 1977, Kormondy, 1976, Champion, 1968, Rao, 1986, Purvis and Hector, 2000). The communities have structures and properties not possessed by the populations within them-that are called emergent properties, which include trophic structure stability, guided structure and successional stages (Pearse, 1939). Species diversity is essential for the proper functioning of communities and for emergence of community level properties (Dash, 1995). Interpretation of food web is necessary to understand the effect of toxic compounds released into the environment and the effect of the introduction of species into a new area (Diwan, 1995). There is a threshold of diversity below which most ecosystems cannot function (O'Riordan, 1971, Detwyler, 1971, Moen, 1973, Duffey, 1974). The Buguda hill forest is situated in the district of Ganjam, Odisha, India. It occupies the northern slope of a big ridge of Eastern ghat with geographical coordinates: 19° 49' 0" North, 84° 48' 0" East longitude and 19° 817' latitude extending to 19240.95 ha. A large portion of this hill forest is covered by reserve forest where teak grows luxuriantly.

II. Objectives:

- Studied the fauna of the hill forest and put them in systematic and scientific taxonomical groups for academic as well as research purposes.
- Assessed the economically important animal species and established their Ecological conditions in terms of abiotic factors.

III. Materials And Methods:

The present study was undertaken for a period of one year during 2010. The data for this work was collected from the following sources:

- Information available in literatures and official documents on the forest ecosystem.
- Data collected during the course of discussions with research personnel and Tribals.
- Data collected through field observations of various spots.
- The wild animals have been noted from direct visual observations, (i.e. binocular) from footprints, pug marks, faecal materials (Saharia, 1982, Tiwari et al, 2002) Ecological conditions relating to certain abiotic factors have been assessed following the method suggested by Odum, 1977 and Dash, 2001.

IV. Methodology Of The Inventory:

Sampling Design

The basic sampling frame is the survey of India Toposheet at 1:50,000 scales. The area coverage was the areas shown on the Toposheets. Each toposheet was divided into 36 sub grids of 2.5×2.5. In each sub grid two sample plots of 0.1 ha were taken at random numbers and the second plot was marked on the map at equal distance from the sub grid centre in the opposite direction (Anon, 1982, ECUS, 2003)

Recording Of Data :

Plots were laid out in the field using compass and chain. Data were collected in various types of format developed by FSI. Data on fire incidences, grazing incidence and intensity of regeneration were collected in the plot, description from which covers an area of 2 ha around each plot centre.

Intensity of Regeneration:

Only the established regeneration of economically important species was considered. Established regeneration was one, which has attained the diameter between 2-10 cms at breast height (Dash et al, 2002). For this purpose, a square plot of 4m×4m i.e. 16 m² was laid on the ground around the plot in such a way that sides of this plot were parallel to main plot. The regeneration was recorded in this plot.

Fauna:

The variation in topography, climate (table-1) and vegetation has supported large variety of reptiles**. The most common reptiles among them are Terrapin, Python, King Cobra, Krait and Monitor lizard. There are 447 species of reptiles are found in India (Murthy, 1994) including the number of species listed in threatened categories. In Buguda hill forest, following reptiles* are endangered and threatened with extinction.

Reptiles**

Indian Pond terrapin***	<i>Trionyx gangeticus</i>
Northern House gecko	<i>Hemidactylus flaviviridis</i>
Common garden lizard	<i>Calotes versicolor</i>
Forest calotes	<i>Calotes rouxi</i>
Chameleon	<i>Chamaeleon zeylanicus</i>
Large Bengal monitor lizard	<i>Varanus bengalensis</i>
Indian Python*	<i>Python molurus</i>
Common Sand boa	<i>Eryx conicus</i>
Rat snake	<i>Ptyas mucosus</i>
Bronze back tree snake	<i>Dendrelaphis tristis</i>
Common Krait	<i>Bungarus caeruleus</i>
Banded Krait*	<i>Bungarus fasciatus</i>
Spectacled Cobra	<i>Naja naja naja</i>
King Cobra*	<i>Ophiophagus hannah</i>
Bamboo Pit viper	<i>Trimeresurus gramineus</i>

* indicate endangered

*** found only in buguda in the state of odisha-critically endangered.

Classification:

Indian Pond Terrapin	Kingdom	Animalia
Phylum	Chordata	
Class	Reptilia	
Order	Testudinata	Family
	Genus	Trionyx
Species	gangeticus	Trionychoidae
Northern house gecko	Kingdom	Animalia
Phylum	Chordate	Class
Order	Squamata	Reptilia
	Family	Geckonidae
Genus	Hemidactylus	
Species	flaviviridis	
Common garden lizard	Family	Agamidae
Genus	Calotes	
Species	versicolor	
Forest calotes	Family	Agamidae
Genus	Calotes	
Species	rouxi	
Chamaeleon	Family	Chamaeleonidae
Genus	Chamaeleon	
Species	zeylanicus	
Large Bengal monitor lizard	Family	Varanidae
Genus	Varanus	
Species	bengalensis	
Indian python	Family	Pythonidae
Genus	Python	

<i>Common sand boa</i>	<i>Species</i> <i>molurus</i>	<i>Family</i> <i>Boidae</i>
	<i>Genus</i> <i>Eryx</i>	
	<i>Species</i> <i>conicus</i>	
<i>Rat snake</i>	<i>Family</i> <i>Colubridae</i>	
	<i>Genus</i> <i>Ptyas</i>	
	<i>Species</i> <i>mucosus</i>	
<i>Bronze back tree snake</i>	<i>Family</i> <i>Colubridae</i>	
	<i>Genus</i> <i>Dendrelaphis</i>	
	<i>Species</i> <i>tristis</i>	
<i>Common krait</i>	<i>Family</i> <i>Elapidae</i>	
	<i>Genus</i> <i>Bungarus</i>	
	<i>Species</i> <i>caeruleus</i>	
<i>Banded krait</i>	<i>Family</i> <i>Elapidae</i>	
	<i>Genus</i> <i>Bungarus</i>	
	<i>Species</i> <i>fasciatus</i>	
<i>Spectacled cobra</i>	<i>Family</i> <i>Elapidae</i>	
	<i>Genus</i> <i>Naja</i>	
	<i>Species</i> <i>naja naja</i>	
<i>King cobra.</i>	<i>Family</i> <i>Elapidae</i>	
	<i>Genus</i> <i>Ophiophagus</i>	
	<i>Species</i> <i>hannah</i>	
<i>Bamboo pit viper</i>	<i>Family</i> <i>Viperidae</i>	
	<i>Genus</i> <i>Trimeresurus</i>	
	<i>Species</i> <i>gramineus</i>	

Table.1: Seasonal variations (mean) of certain physical parameters during the year 2009-10

Season	Mean temp.(°C)		Humidity, (%)	Rainfall,(mm)
	max	min		
Summer(mar, Apr, May)	35	26.28	75% throughout the year in coastal areas and less in the interior	Average Annual Rainfall, 1100-1300 mm with a total 65 number of rainy days.
Rain(jun, july, Aug, Sept)	32.2	26.9		
Autumn(Oct, Nov)	31-32	17-21		
Winter(Dec, Jan, Feb)	27.5	16.6		

Source: Director, Meteorological centre, Bhubaneswar, Odisha, India

Table.2.orderwise species distribution (reptilia)

Sl.no	Species	Total number of species
1	Testudinata	1
2	Squamata	14

orderwise species distribution

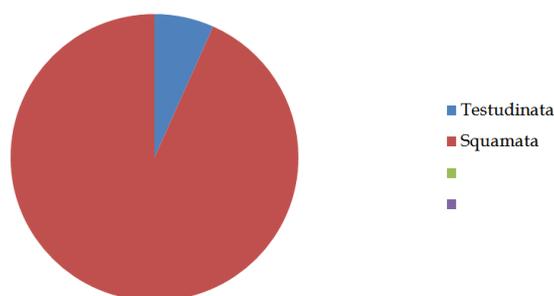
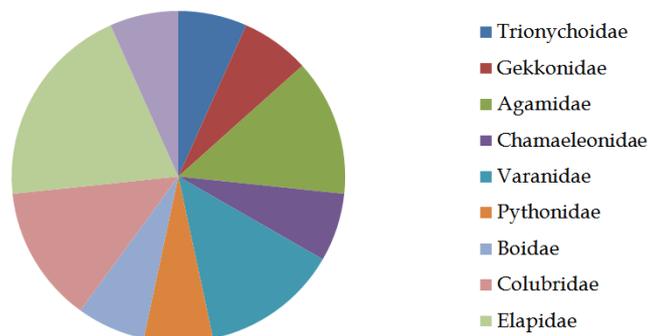


Table.3. Familywise species distribution (reptilia)

Sl.no	Family name	Total number of species
1	Trionychoidae	1
2	Gekkonidae	1
2	Agamidae	2
4	Chamaeleonidae	1
5	Varanidae	2
6	Pythonidae	1

7	Boidae	1
8	Colubridae	2
9	Elapidae	3
10	Viperidae	1

Family wise species distribution



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