

## FAUNA OF PROTECTED AREAS - 19:

## HERPETOFAUNA OF NALLAMALAI HILLS WITH ELEVEN NEW RECORDS FROM THE REGION INCLUDING TEN NEW RECORDS FOR ANDHRA PRADESH

K. Thulsi Rao<sup>1</sup>, H.V. Ghate<sup>2</sup>, M. Sudhakar<sup>1</sup>, S.M. Maqsood Javed<sup>1</sup> and I. Siva Rama Krishna<sup>1</sup>

<sup>1</sup> Ecological Research & Monitoring Laboratories, Nallamalai Hill Ranges, Eastern Ghats, Project Tiger Circle, Srisaillam, Kurnool Dist., Andhra Pradesh 518102, India; <sup>2</sup> Department of Zoology, Modern College, Pune, Maharashtra 411005, India  
Email :<sup>1</sup>thulsirao@yahoo.co.ins

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## ABSTRACT

An inventory of herpetofauna of Nallamalai hills of Eastern Ghats in Andhra Pradesh, revealed that the region contains at least 18 species of amphibians belonging to 11 genera, distributed in 4 families and 48 species of reptiles belonging to 34 genera, distributed in 12 families, out of which eleven new records from the region including ten new records for the state.

## KEYWORDS

Eastern Ghats, habitat preference, herpetofauna, inventory, Nallamalai Hills

## ABBREVIATIONS

NSTR - Nagarjunasagar Srisaillam Tiger Reserve; GBM - Gundlabramheshwaram Wildlife Sanctuary; A.P. - Andhra Pradesh.

The present herpetofaunal studies were extensively carried out from November 2001 to September 2004 by us under 'All Taxa Biodiversity Inventory (ATBI)', to know the faunal diversity of three protected areas of Nallamalais - an offshoot of the Central Eastern Ghats of Andhra Pradesh. The herpetofauna of the Protected Areas of this region is poorly documented. Although, Sarkar *et al.* (1993), and Sanyal *et al.* (1993) have documented the known herpetofaunal resources of the state the information gaps with respect to the protected areas of Andhra Pradesh still exists (Srinivasulu, 2004). Now the present herpetofaunal studies give the precise information about their occurrence and habitat information for proper management and conservation of these species as part of management of the protected areas.

## STUDY AREA

The study area (Fig - 1) Nallamalais (14°26'-16°31'N & 78°30'-80°10'E) includes three protected areas of Andhra Pradesh, namely the Nagarjunasagar-Srisaillam Tiger Reserve (N-STR) (3,568km<sup>2</sup>), the Gundla Brahmeshwaram Wildlife Sanctuary (GBM) (1,194km<sup>2</sup>) and the Rollapadu Wildlife Sanctuary (9.37km<sup>2</sup>); covering five districts (Kurnool, Prakasam, Mahaboobnagar, Guntur & Nalgonda). Mostly, N-STR and GBM have hilly terrain with plateaus, ridges, gorges and deep valleys which support tropical dry mixed deciduous forests with an under growth of grass and bamboo, while the Rollapadu Wildlife Sanctuary is an open grassland habitat. The vegetation is typical southern tropical mixed dry deciduous and southern tropical semi moist deciduous forest types intermingled with scrub (Champion & Seth, 1968). The climate is generally hot and dry with maximum temperatures rising up to 45°C during May and drops down to 15°C in December. Average rainfall in

this region is between 900-1000mm and the average altitude is about 500m with highest peak reaches up to 917m (Durgam Konda) while the lowest is about 100m (River Krishna).

## MATERIAL AND METHODS

Faunal inventory surveys were conducted in different habitats like open dry scrub forest, mixed thorny dry deciduous forest, dry evergreen forest, grasslands, bamboo forest and riparian patches inside the three protected areas. Some species were hand collected; the snake stick was used for catching snakes. Some species were not collected and are to be treated on record as "sighting only". All the voucher specimens, except Indian Rock Python (*Python molurus*), Dog-faced Water Snake (*Cerberus rhynchops*) and Checkered Keel back (*Xenochrophis piscator*) were deposited (wet preserved) in Eco-Research and Monitoring Laboratories, Project Tiger, Srisaillam. For wet preservation the animals were poisoned with an overdose of chloroform and then properly dissected and preserved in 10% formalin solution for over 24 to 48 hours. After fixation the specimens were washed thoroughly in water and stored in 70% ethyl alcohol. Reptile species were identified with the help of *Fauna of British India* volumes by Smith (1935, 1943). Latest names of snakes are from Whitaker and Captain (2004). Amphibians were identified on the basis of keys and descriptions in Boulenger (1890), Daniel (1963, 1975), Dutta (1997), Daniels (1997), Dubois and Ohler (1999), and Chanda (2002). Wherever possible the latest nomenclature is adopted.

## RESULTS AND DISCUSSION

There is very little information about amphibian and reptilian fauna of the protected area network of Andhra Pradesh. Murthy (1968) recorded six species of amphibians from Nagarjuna valley of Andhra Pradesh which is now submerged under Nagarjunasagar Reservoir. Besides these, some scattered records by Boulenger (1890), Parker (1934), Pillai and Murthy (1982), Inger and Dutta (1986), Sekar (1991), Sarkar, *et al.* (1993), Dutta (1997), and Chanda (2002) are available. Sharma (1971) recorded 34 species of reptiles from Nagarjunasagar (a very small part of present N-STR) and besides some scattered records by Annandale (1906), Boulenger (1890), Daniel (1963, 1975, 2002), Murthy (1968, 1986), Sharma (1971), Sanyal *et al.* (1993) and Smith's works on the reptile fauna of India (1931, 1935, 1943). Only a few previous published records Sanyal *et al.* (1993) and Sarkar *et al.* (1993) on the herpetofauna of this region are available. Stray records of publications outside the Nallamalais reveal a total of 42 species of herpetofauna (Srinivasulu, 2004), which constitutes a small part of the region.

So far 18 species of amphibians belonging to 11 genera, distributed in four families and 48 species of reptiles belonging to 34 genera, distributed in 12 families have been recorded from the present study area. Out of this 11 new records from the region including 10 new records for the state are reported from this study. Since this is an inventory-based survey of herpetofauna, exhaustive references and synonymy of the various species is not attempted. Only names of the identified species, habitat preference, specimen codes and actual localities from where species were collected within the three protected areas are given (Tables 1 & 2) along with available photo plates (Images 1-59<sup>w</sup>). This is a preliminary report and detailed studies regarding other parameters like individual species ecology, threats and status will be presented after completion of the studies.

The habitats and micro habitats of the species, which are first record for the state, were recorded during the study. Amphibians like *Kaloula taprobanica*, *Uperodon globulosus* and *Tomopterna rolandae* were found to be nocturnal, present in a variety of terrestrial habitats, near water bodies and also seen near human settlements. But *Rana temporalis* was found in torrents, living in streams with rocky bottom and boulders in the dense forest, while *Polypedates leucomystax* was arboreal, found in dry deciduous scrub to dense forest. Reptiles like *Lygosoma guentheri*, *Mabuya beddomii*, *Sibynophis subpunctatus* and *Liopeltis calamaria* were ground dwelling, while *Ahaetulla nasutus isabellinus* was arboreal and found in various moist habitats in the dry deciduous scrub to dense forest.

This report indicates that the area is rich and must contain many more species of amphibians and reptiles. Occurrence of some frogs like Painted Kaloula (*Kaloula taprobanica*) and Balloon Frog (*Uperodon globulosus*) is also interesting, so also of the snakes like *Liopeltis* and Cantor's Black-headed Snake (*Sibynophis subpunctatus*) and skinks like *Lygosoma guentheri* and *Mabuya beddomii*. Names marked with a single asterisk (\*) denote new record from the Nallamalai region and two asterisks (\*\*) denote new record from the state.

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<sup>w</sup> See images of herpetofauna from N-STR online as web supplement at [www.zoosprint.org](http://www.zoosprint.org)

**Table 1. List of Amphibians recorded from Nallamalais, Eastern Ghats, Andhra Pradesh**

Family	Taxon	Common Name	Voucher Specimen Code	Habitat Preference	Locality Code
Bufonidae	<i>Bufo melanostictus</i> (Schneider)	Common Indian Toad	ERMA-1a	AH	In all localities
	<i>Bufo scaber</i> * (Schneider)	Ferguson's Toad	ERMA-5a	DF,BP	10
	<i>Bufo stomaticus</i> (Lutken)	Marbled Toad	ERMA-18a	GL	13
Microhylidae	<i>Kaloula taprobanica</i> ** (Parker)	Painted Kaloula	ERMA-4a	SF,DF	2, 3, 6, 7 & 8
	<i>Microhyla ornata</i> (Duméril & Bibron)	Ornate Microhylid	ERMA-8a	SF,GL	6,13
	<i>Microhyla rubra</i> (Jerdon)	Narrow Mouthed Frog	ERMA-6a	SF,OF	6, 10 & 15
	<i>Uperdon globulosus</i> ** (Günther)	Balloon Frog	ERMA-7a	SF,BP	6
	<i>Uperodon systoma</i> * (Schneider)	Marbled Balloon Frog	ERMA-2a	AH	2, 6 & 7
Ranidae	<i>Euphlyctis cyanophlyctis</i> (Schneider)	Skittering Frog	ERMA-3a	V, WB	2 & 6
	<i>Euphlyctis hexadactylus</i> (Lesson)	Indian Pond Frog	ERMA-10a	V, WB	2 & 6
	<i>Hoplobatrachus crassus</i> (Jerdon)	-	ERMA-13a	SF, V, WB	6
	<i>Hoplobatrachus tigerinus</i> (Daudin)	Indian Bull Frog	ERMA-15a	SF, V, WB	5,6 & 13
	<i>Fejervarya limnocharis</i> (Boie. in Weig.)	Indian Cricket Frog	ERMA-17a	GL,DF,RF	6, 13, 14 & 15
	<i>Rana temporalis</i> ** (Günther)	-	ERMA-14a	DF,V	15
	<i>Sphaeroteca breviceps</i> (Schneider)	Indian Burrowing Frog	ERMA-12a	AH	6 & 15
	<i>Tomopterna rolandae</i> ** (Dubois)	Indian Burrowing Frog	ERMA-16a	SF,WB	6
Rhacophoridae	<i>Polypedates leucomystax</i> ** (Gravenhorst)	East Asian Tree frog	ERMA-9a	SF,RF	6&15
	<i>Polypedates maculatus</i> (Gray)	Common Tree Frog	ERMA-11a	AH	In all localities

**Table 2. List of Reptiles recorded from Nallamalais, Eastern Ghats, Andhra Pradesh**

Family	Taxon	Common Name	Specimen Code	Habitat Preference	Locality Code
Testudinidae	<i>Geochelone elegans</i> * (Schoepff)	Indian Star Tortoise	ERM-5a	AH	4, 6, 8, 9, 15, 16
Gekkonidae	<i>Hemidactylus brooki</i> (Gray)	Brook's Gecko	ERM-2a	SF,DF,BP	2, 4, 6, 7, 10, 11, 13
	<i>Hemidactylus flaviviridis</i> Ruppell	Northern house Gecko	ERM-3a	AH	6
	<i>Hemidactylus frenatus</i> Schlegel	Asian House Gecko	ERM-30a	V,DF	6, 7
	<i>Hemidactylus giganteus</i> Stoliczka	Giant Rock Gecko	ERM-1a	SF	1, 6, 7
	<i>Hemidactylus leschenaultii</i> Duméril & Bibron	Bark Gecko	ERM-4a	SF,GL	2, 4, 6, 11, 13
	<i>Hemidactylus triedrus</i> (Daudin)	Termite Gecko	ERM-7a	SF,OF,GL	1, 4, 6, 13
	<i>Hemidactylus reticulatus</i> Beddome	Reticulate Gecko	ERM-17a	SF, GL,BP,RF	6, 13, 14
Agamidae	<i>Calotes versicolor</i> (Daudin)	Common Garden Lizard	ERM-12a	AH	In all localities
	<i>Calotes rouxii</i> * Duméril & Bibron	Roux's Forest Lizard	ERM-10a	SF,V	3, 5, 12
	<i>Psammophilus dorsalis</i> (Gray)	Peninsular Rock Agama	ERM-11a	V	5, 6
	<i>Sitana ponticeriana</i> Cuvier	Fan-throated lizard	ERM-9a	AH	In all localities
Chamaeleonidae	<i>Chamaeleo zeylanicus</i> Laurenti	Indian Chameleon	ERM-13a	SF,DF	5, 6, 7 & 8
Scincidae	<i>Lygosoma guentheri</i> ** (Peters)	-	ERM-43a	V	6
	<i>Mabuya beddomii</i> ** (Jerdon)	Beddome's South Indian Skink	ERM-21a	SF,V	1, 3
	<i>Mabuya carinata</i> (Schneider)	Common Skink	ERM-15a	DF,V	In all localities
	<i>Mabuya macularia</i> (Duméril & Bibron)	Bronze Grass Skink	ERM-16a	AH	2, 6, 8, 9, 10, 11, 12
Lacertidae	<i>Ophisops minor nictans</i> Arnold	Beddome's Cabrita lizard	ERM-8a	SF,OF,DF,RF	1, 6, 11, 15
	<i>Ophisops jerdoni</i> (Blyth)	Jerdon's Snake-eye	ERM-18a	SF,OF,DF,RF	6, 15, 16
Varanidae	<i>Varanus bengalensis</i> (Linnaeus)	Indian Monitor Lizard	ERM-26a	AH	In all localities
Typhlopidae	<i>Ramphotyphlops braminus</i> (Daudin)	Common Worm or Blind Snake	ERM-19a	SF,DF,RF	6, 12, 15
Boidae	<i>Gongylophis conica</i> (Schneider)	Russell's Earth Boa	ERM-14a	SF,OF,DF,GL	2, 4, 6, 7, 10, 11, 13
	<i>Eryx johnii</i> (Russell)	John's Earth Boa	ERM-22a	SF,DF	2, 4, 6
	<i>Python molurus</i> (S) (Linnaeus)	Indian Rock Python	-	SF	6
Elapidae	<i>Bungarus caeruleus</i> (Schneider)	Common Indian Krait	ERM-24a	SF,OF,GL	2, 6, 13
	<i>Naja naja</i> (Linnaeus)	Indian Cobra	ERM-33a	AH	In all localities
Colubridae	<i>Ahaetulla nasutus isabellinus</i> ** (Wall)	Common Brown Vine Snake	ERM-6a	V	3
	<i>Amphiesma stolata</i> * (Linnaeus)	Buffstriped Keelback	ERM-27a	V,GL	6, 13
	<i>Argyrogena fasciolatus</i> (Shaw)	Banded Racer	ERM-28a	SF,V	6, 12
	<i>Boiga trigonata</i> (Bechstein)	Indian Gamma	ERM-37a	SF,DF,V	6, 7
	<i>Boiga forsteni</i> * (Duméril, Bibron & Duméril)	Forsten's Cat Snake	ERM-20a	SF	9
	<i>Cerberus rhynchops</i> * (S) (Schneider)	Dog faced Water Snake	-	V	6
	<i>Coelognathus helena helena</i> (Daudin)	Trinket Snake	ERM-32a	SF,DF,GL	3, 6, 13

Family	Taxon	Common Name	Specimen Code	Habitat Preference	Locality Code
Viperidae	<i>Dendrelaphis tristis</i> (Daudin)	Common Indian Bronze back	ERM-25a	SF,DF,GL	2, 3, 6, 13
	<i>Enhydris enhydris</i> (S) (Schneider)	Common Smooth Water Snake	-	V,WB	2
	<i>Lycodon aulicus</i> (Linnaeus)	Common Wolf Snake	ERM-35a	SF	6
	<i>Lycodon striatus</i> * (Shaw)	Barred Wolf Snake	ERM-44a	SF,GL	6, 13
	<i>Lycodon travancoricus</i> * (Beddome)	Travancore Wolf Snake	ERM-38a	SF,GL	6 & 13
	<i>Liopeltis calamaria</i> ** (Gunther)	-	ERM-29a	SF	6
	<i>Macropisthodon plumbicolor</i> * (Cantor)	Green keel back	ERM-36a	SF,DF,V	2, 3 & 6
	<i>Oligodon arnensis</i> (Shaw)	Banded Kukri Snake	ERM-41a	V,DF,BP	6,11 & 13
	<i>Oligodon taeniolatus</i> (Jerdon)	Streaked Kukri Snake	ERM-42a	V,DF,BP	4, 6 & 11
	<i>Ptyas mucosa</i> (Linnaeus)	Indian Rat Snake	ERM-39a	AH	In all localities
	<i>Sibynophis subpunctatus</i> ** (Duméril & Bibron)	Cantor's Black-headed Snake	ERM-40a	V	6
	<i>Xenochrophis piscator</i> (S) (Lacepede)	Checkered Keel back	-	SF,V	6
	<i>Daboia russelii</i> (Shaw & Nodder)	Russel's Viper	ERM-34a	AH	5, 6, 8, 13 & 15
	<i>Echis carinatus</i> (Schneider)	Saw - Scaled Viper	ERM-23a	SF,GL	7, 8 & 13
	<i>Trimeresurus gramineus</i> * (Shaw)	Green Pit Viper	ERM-31a	SF,DF	6

New record from the Nallamalais \*: New record from the State \*\*: (S) - Sighted species

For locality code details of each species refer figure - 1.

SF - Scrub forest; OF - Open forest; GL- Grassland; DF - Dense forest; V - Riparian forest; WB - Water bodies; BP - Bamboo Patches; RF - Riparian Forest; AH - All habitats

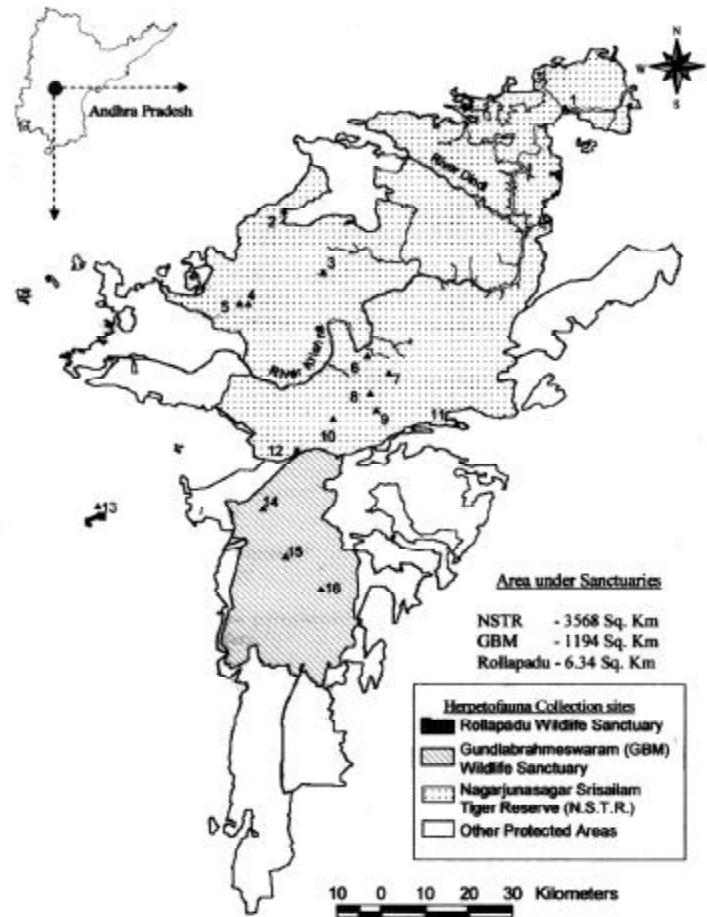


Figure 1. Map of Nallamalai Hills, Eastern Ghats, Andhra Pradesh showing collection sites of Herpetofauna in three Wildlife Sanctuaries.

- 1 - Vijayapru (16°58' N & 79°32'E); 2 - Mannanur (16°58' N & 78°74'E); 3 - Mallelatheertham (16°24' N & 78°82'E);
- 4 - Appapur (16°18' N & 78°67'E); 5 - Saileswaram/Rampur Penta (16°18' N & 78°65'E);
- 6 - Sundipenta/Sikharam (16°07' N & 78°91'E); 7 - Chinnarutla (16°04' N & 78°95'E); 8 - Pulicheruvu (15°99' N & 78°92'E);
- 9 - Thummalabailu (15°96' N & 78°93'E); 10 - Peddacheruvu (15°95' N & 78°84'E); 11 - Pedda Dornal (15°93' N & 79°09'E);
- 12 - Rollapenta (15°89' N & 78°77'E); 13 - Rollapadu WL Sanctuary (15°75' N & 78°36'E); 14 - Pangidi Vagu (15°76' N & 78°70'E);
- 15 - GBM Temple/Guest House (15°66' N & 78°74'E); 16 - Isukagundam (15°60' N & 78°81'E).

