

AMPHIBIAN FAUNA OF WAYANAD, KERALA

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Abstract

A survey was conducted in Wayanad Wildlife Sanctuary, Kerala to document the amphibian fauna of the area and their microhabitat. Thirty species were recorded, of which 12 species are endemic to the Western Ghats. Toads and Ranids frequented the ground without much vegetative cover. Both specialists and generalists were identified based on the microhabitat use. Rhacophorids used the upper canopy. Other microhabitats used were decaying vegetation, leaf litter and boulders in the streams.

Keywords

Amphibians, Wayanad, microhabitat, Kerala, Western Ghats

Introduction

Studies on Indian amphibians date back to the pre-independence period. Most of the studies are limited to surveys and new descriptions. The fauna volumes published by Boulenger (1882; 1890) still remain as definitive record. The outstanding works of Ferguson (1904) in Travancore region and Myers (1942a, b) in Anamalai and Travancore hills are the earlier works on amphibians in Kerala. Later works in Ponmudi (Inger *et al.*, 1984a, b), Silent Valley (Pillai, 1986; Pillai & Pattabiraman, 1981a), Sabarigiri (Pillai & Pattabiraman, 1981b), Pooyamkutty (George, 1995), Aralam (Radhakrishnan, 1996a), Parambikulam (Radhakrishnan, 1996b), Periyar (Zacharias & Bhardwaj, 1995) and Kuttanad (George *et al.*, 1992) contributed to the knowledge on this group. Most of the systematic studies were by Pillai (1978; 1986) who described new species of amphibians from Wayanad and Silent Valley. Shaji and Easa (1999) have reviewed the works on amphibians in the state. This paper is on the amphibian fauna of Wayanad.

Study Area

Wayanad lies between 11°20' and 12°07' N latitude and between

75°28' and 76°36' E longitude (Fig. 1). It is a part of the contiguous stretch of forests including Bandipur Tiger Reserve and Rajiv Gandhi (Nagarahole) National Park of Karnataka and Mudumalai Wildlife Sanctuary of Tamil Nadu. The total extent is about 1200 km² of which 344 km² forms the Wayanad Wildlife Sanctuary. The northern part with an elevation of 700-1600m differs from the southwestern slope of uneven peaks ranging from 1000-2000m. The average annual rainfall is 2000mm. Vegetation types include wet evergreen forests confined to the northern part and deciduous forests along the state border. Natural forests are interspersed with bamboo thickets and plantations of teak and eucalyptus. The area is drained by a number of tributaries of Kabini River flowing to the east.

Methods

Random surveys were conducted in all the habitat types to document the amphibians. Calls during night time helped to locate and collect species like those of *Philautus* and *Ramanella*. Hand picking was employed for the collection of specimens and pitfall traps were tried occasionally in some places. Night observations were made wherever possible. The specimens were identified by referring to identification guides by Taylor (1968), Boulenger (1890), Daniel (1963a, b; 1975) and Daniel and Sekar (1989). The names are updated with the checklist by Das and Dutta (1998).

The study area was covered in three seasons *viz.* the summer (February-May), the rainy (June-August) and post rainy (September-January). Amphibian microhabitats were broadly classified into grass, water, leaf litter, shrub, canopy cover, bare ground without any vegetative cover, tree trunk, under boulder and under log.

Results and Discussion

A total of 30 species of amphibians consisting of three species of caecilians, four bufonids, five microhylids, 10 ranids and eight rhacophorids were recorded (Table 1). Of these, *Ansonia rubigina*, *Bufo parietalis*, *Ramanella montana*, *Micrixalus nudis*, *M. saxicola*, *Nyctibatrachus major*, *Rana curtipes*, *Philautus pulcherrimus*, *Rhacophorus malabaricus*, *R.*

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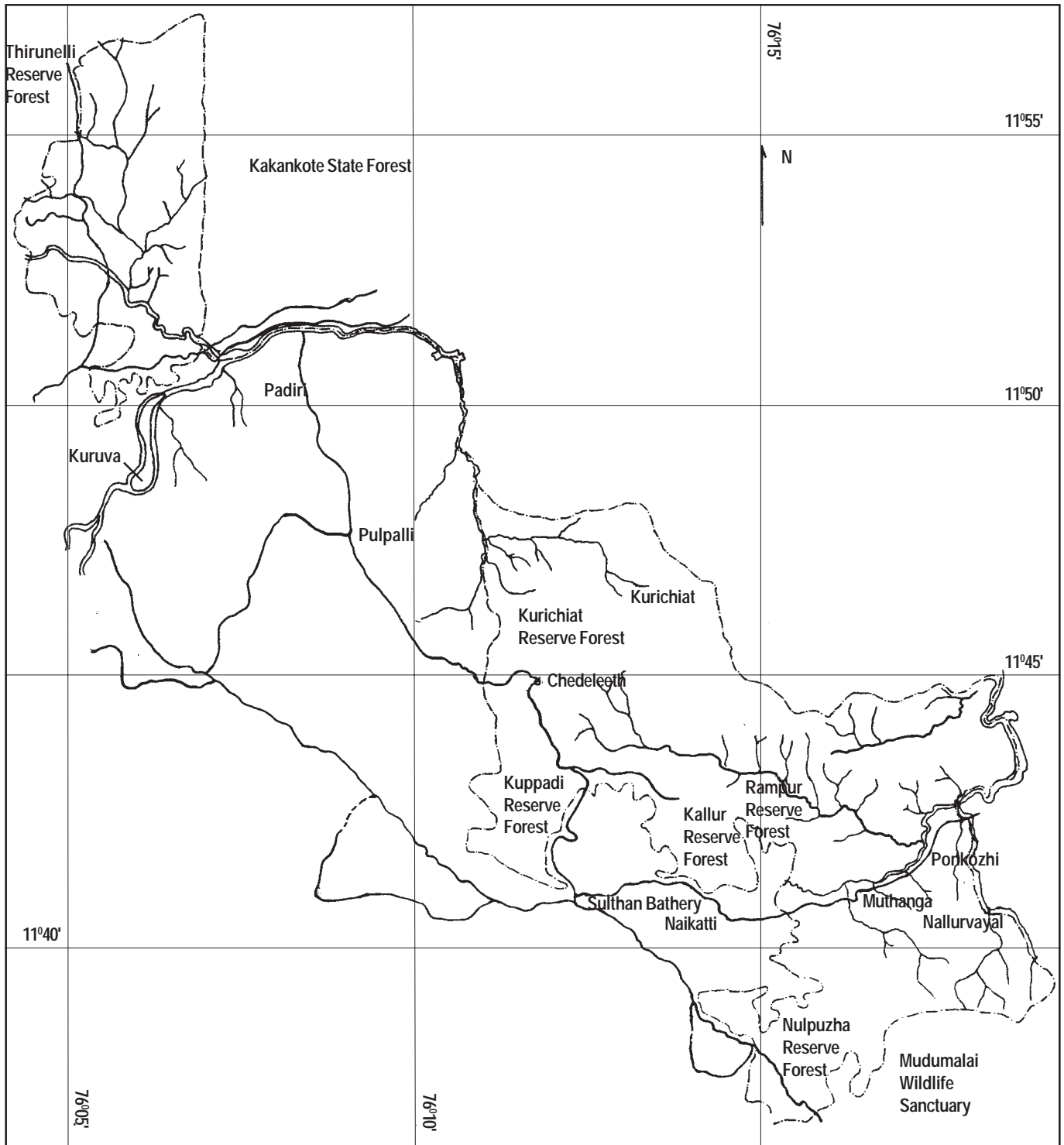


Figure 1. Map of Wayanad Wildlife Sanctuary

lateralis, *Uraeotyphlus narayani* and *U. menoni* are endemic to Western Ghats (Swengel, 1990; 1993).

Information on the distribution of caecilians is rather scant. Of the three species of caecilians recorded, *Ichthyophis beddomii* was widely distributed in the paddy fields in Wayanad. *Uraeotyphlus menoni* was originally described from Trichur (Annandale, 1913) and information regarding its distribution is lacking. This observation of the species in Wayanad extends its range further north.

Among the bufonids, *Ansonia rubigina* was described from Silent Valley (Pillai & Pattabiraman, 1981a). This species was collected from a small rivulet passing through Banasuramala. This is the second report of the species and shows its range of extension further north. However, the species was not abundant and only a few were observed in this region. *Bufo parietalis*, *B. melanostictus* and *B. microtympanum* were widely distributed and were found in abundance throughout the area.

Only five species of microhylids viz, *Microhyla ornata*, *M. rubra*, *Ramanella montana*, *R. triangularis* and *Kaloula taprobanica* were represented in the area. The first two species were abundant in the ploughed paddy fields in human habitations in Wayanad. *Ramanella montana* and *R. triangularis* were rare in all the locations. The former was collected from a termite mound during night and the latter from under humus. *Kaloula taprobanica*, a burrowing form was seen in temporary puddles near roadsides during night.

Hoplobatrachus tigerinus, *Rana curtipes* and *Limnonectes keralensis* were the most abundant ranids. These were observed mostly near streams and other water sources during night time. *L. keralensis* was previously considered endemic to Kerala but was later reported from Jalpaiguri District in West Bengal (Sarkar *et al.*, 1992). Recent reports from lower elevations of Tamil Nadu, Maharashtra, Goa and Gujarat (Deuti & Goswami, 1995) indicate its wider distribution. Similarly Pillai (1991) reported it from Andaman and Nicobar islands. But Daniels (1997a,b,c) commented that, these reports are doubtful and requires further confirmation. *Nyctibatrachus major*, a Western Ghat endemic was one of the abundant species observed frequently under submerged boulders in streams and rivulets throughout the area. *Micrixalus nudis* was described from Kurichiat in Wayanad (Pillai, 1978) and subsequently recorded from Silent Valley (Pillai, 1986), Nilambur (Easa, 1998) and Aralam (Abraham & Easa, 1999). The present observation indicates its wider distribution in the Western Ghats.

Rhacophorus malabaricus, the Malabar Gliding Frog, was fairly well distributed in the study area. Most of these were observed on bamboo stems or leaves. *R. lateralis* was described by Boulenger (1883) from Malabar based on a single specimen.

Table 1. Amphibian species recorded from Wayanad

Ichthyophidae	
<i>Ichthyophis beddomi</i> Peters, 1879	Beddome's Caecilian
Uraeotyphlidae	
<i>Uraeotyphlus menoni</i> Annandale, 1913	Menon's Caecilian
<i>Uraeotyphlus narayani</i> Seshachar, 1939	Narayan's Caecilian
Buфонidae	
<i>Ansonia rubigina</i> Pillai & Pattabiraman, 1981	Red Stream Toad
<i>Bufo melanostictus</i> Schneider, 1799	Common Asian Toad
<i>Bufo microtympanum</i> Boulenger, 1882	Small-eared Toad
<i>Bufo parietalis</i> Boulenger, 1882	Ridged Toad
Microhylidae	
<i>Kaloula taprobanica</i> Parker, 1934	Sri Lankan Bullfrog
<i>Microhyla ornata</i> (Duméril & Bibron, 1841)	Ornate Narrow-mouthed Frog
<i>Microhyla rubra</i> (Jerdon, 1854)	Red Narrow-mouthed Frog
<i>Ramanella montana</i> (Jerdon, 1854)	Jerdon's Ramanella
<i>Ramanella triangularis</i> (Günther, 1875)	Malabar Ramanella
Ranidae	
<i>Euphlyctis cyanophlyctis</i> (Schneider, 1799)	Indian Skipper Frog
<i>Euphlyctis hexadactylus</i> (Lesson, 1834)	Indian Green Frog
<i>Hoplobatrachus tigerinus</i> (Daudin, 1803)	Indian Bull Frog
<i>Indirana beddomii</i> (Günther, 1875)	Beddome's Frog
<i>Limnonectes keralensis</i> (Dubois, 1980)	Kerala Warty Frog
<i>Micrixalus nudis</i> Pillai, 1978	Naked Torrent Frog
<i>Micrixalus saxicolus</i> (Jerdon, 1853)	Small Torrent Frog
<i>Nyctibatrachus major</i> Boulenger, 1882	Large Wrinkled Frog
<i>Rana curtipes</i> Jerdon, 1853	Bicoloured Frog
<i>Rana temporalis</i> Günther, 1864	Bronzed Frog
Rhacophoridae	
<i>Philautus leucorhinus</i> (Lichtenstein & Martens, 1856)	White-nosed Bush Frog
<i>Philautus pulcherimus</i> (Ahl, 1927)	Beautiful Bush Frog
<i>Philautus variabilis</i> (Günther, 1868)	Variable Bush Frog
<i>Polypedates maculatus</i> (Gray, 1834)	Indian Tree Frog
<i>Polypedates pseudocruciger</i> Das & Ravichandran, 1998	False Hour-glass Tree Frog
<i>Rhacophorus lateralis</i> Boulenger, 1883	Small Tree Frog
<i>Rhacophorus malabaricus</i> Jerdon, 1870	Malabar Gliding Frog
<i>Rhacophorus pleurostictus</i> (Günther, 1864)	Zamorin Tree Frog

Later, it was reported from Periyar by Ravichandran and Pillai (1991). During the present study, several individuals were observed in moist deciduous forests in Muthanga near Sultan Bathery with the onset of monsoon. Most of them were in amplexus. *Rhacophorus pleurostictus*, a rare species was recorded only from Kuruva Island in Wayanad. *Polypedates maculatus* showed an affinity to human habitations. *Philautus leucorhinus* was widely distributed. *P. pulcherimus* was originally described as *P. pulcher* by Boulenger in 1882 from Malabar. Pillai (1986) reported it from Silent Valley. During the present study, several males were observed mostly under leaves

of Arecanut trees and *Glyricida maculata*.

Daniels and Ravichandran (1995) reported *Polypedates cruciger* from Kanyakumari District as a new record to India, which was later redescribed as a new species *P. pseudocruciger* (Das & Ravichandran, 1998). During the present study, one specimen was collected from the moist deciduous forest in Muthanga at an elevation of 720m. The species is identified as *P. pseudocruciger* by the characters described by Das and Ravichandran (1998).

Sightings

Microhabitats were analysed based on the frequency of sightings. *Rhacophorus malabaricus* was sighted always on trees less than two meter tall whereas *R. lateralis* was found on trees of more than three meter height. *Philautus* spp. frequented the bushes and were found rarely on the ground. All the bufonids sighted were on the ground (with or without much vegetative cover). There were only two sightings of *Ramanella montana*, one on the termite mound and the other on leaf litter. *Microhyla ornata* was found in the grasses as well as in water. The two sightings of *M. rubra* were from the ploughed paddy fields. *Micrixalus nudis* was always on dead and decayed vegetation nearer to water whereas *M. saxicola* were found adhering to boulders in fast flowing rivers.

Ansonia rubigina and *Kaloula taprobanica* were sighted very rarely. The former was sighted from a small rivulet with boulders as the major substratum. *K. taprobanica* was found on decaying vegetation with moderate canopy cover. The two sightings of *Ramanella triangularis* were in a tree hole and on decaying log. *Limnectes keralensis*, *Rana temporalis*, *Indirana beddomii* and *Rana curtipes* were often found in leaf litter. *Rana temporalis* was rarely sighted on bare ground but was abundant in leaf litter.

Reports of caecilians were always from marshes. But observations from Wayanad indicated that streams/rivulets with moderate flow rate were preferred by juveniles.

Observations in Wayanad conclude that ranids are generalists and occur in all microhabitats. *Rhacophorus* sp., *Philautus* sp., *Ramanella* sp. and *Micrixalus* sp. are specialists. Amphibian species richness in Wayanad can be attributed to the diversity in habitat types.

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