

**ON A COLLECTION OF FROGS AND TOADS FROM  
PERIYAR WILDLIFE SANCTUARY**

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**INTRODUCTION**

Assessment of the faunal wealth of Conservation areas, particularly wildlife sanctuaries, is an essential prelude for proper management because in a complex ecosystem like this, there exist a multitude of interactions between the various components like the predators, prey, parasites, micro-organisms and the vegetation. With a view to study the various invertebrate and lower vertebrate fauna, survey and collections were undertaken in the Periyar Wildlife Sanctuary (Thekkady). The present paper is the outcome of these studies.

Faunistic surveys were carried out both in the accessible and remote areas within the Sanctuary from 9.2.1981 to 10.3.1981 in three relays led by Dr. Koshy Mathew, Dr. R. S. Pillai and Shri K. Ramachandra Rao. A total number of 329 examples of frogs and toads were collected which include a few tailed juveniles also.

The study has yielded 14 species of Amphibia falling under 3 families and 6 genera which, considering the short duration of surveys and period of the year, is fairly rich. Further surveys in the more remote localities and collections in other seasons of the year shall undoubtedly enhance the amphibian wealth of the sanctuary. Caecilians which are not represented in the present collection should also be available.

References which give descriptions of the species are indicated below each species.

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**LIST OF SPECIES**

Class AMPHIBIA

Order ANURA

Family BUFONIDAE

Genus (1) *Bufo* Laurenti

1. *Bufo melanostictus* Schneider

Family RHACOPHORIDAE

Genus (2) *Rhacophorus* Kuhl

2. *Rhacophorus lateralis* BoulengerGenus (3) *Philautus* Gistel3. *Philautus nasutus* (Günther)4. *Philautus beddomi* (Günther)5. *Philautus variabilis* (Günther)

Family RANIDAE

Genus (4) *Nyctibatrachus* Boulenger6. *Nyctibatrachus major* BoulengerGenus (5) *Micrixalus* Boulenger7. *Micrixalus fuscus* Boulenger8. *Micrixalus gadgili* Pillai & PattabiramanGenus (6) *Rana* Linnaeus9. *Rana cyanophlyctis* Schneider10. *Rana limnocharis* Boie11. *Rana keralensis* Dubois12. *Rana beddomii* (Günther)13. *Rana temporalis* (Günther)14. *Rana curtipes* Jerdon

## SYSTEMATIC ACCOUNT

1. *Bufo melanostictus* Schneider1890. *Bufo melanostictus*, Boulenger, Fauna Brit. India : 505.1963. *Bufo melanostictus*, Daniel, J. Bombay nat. Hist. Soc. : 435.

*Material* : (i) 4 exs. Periyar Wildlife Sanctuary, Coll. R. S. Pillai, 14.x.1975. (ii) 1 ex. East Cheriyakanam. Coll. Koshy Mathew, 17.ii.1981. (iii) 2 exs. East of boat landing. Coll. Koshy Mathew, 21.ii.1981.

The largest example measures 50.5 mm in head and body.

*Distribution* : Oriental region and Malaysia.

2. *Rhacophorus lateralis* Boulenger1890. *Rhacophorus lateralis* : Boulenger, Fauna Brit. India : 473.

*Material* : (i) 1 ex. Opposite to TNEB office. Coll. Koshy Mathew, 22.ii.1981.

A single example measuring 21.5 mm from vent to snout agrees well with the available description of the species. In the preserved state purplish above. Dorsum and head with dark spots.

*Distribution* : Malabar.

### 3. *Philautus nasutus* (Günther)

1882. *Ixalus nasutus*, Boulenger, Cat. Batr. Sal. Brit. Mus. : 100.

1957. *Philautus nasutus*, Kirtisinghe, Amph. Ceylon : 73.

**Material** : (i) 3 exs. Poonamavu, Coll. Koshy Mathew, 13.ii.1981. (ii) 1 ex. Cheriya kanam, Coll. Koshy Mathew, 15.ii.1981. (iii) 6 exs. Karadi Kavala, Coll. Koshy Mathew, 20.ii.1981. (iv) 4 exs. Mullayaru, Coll. Koshy Mathew, 23.ii.1981. (v) 2 exs. N.E. side of Eadapalayam I.B., coll. R.S. Pillai, 2.iii.1981. (vi) 4 exs. Thambiranthuruthu, Coll. R.S. Pillai, 3.iii.1981. (vii) 3 exs. 2 Km. West of Manakavala I.B., Coll. K.R. Rao, 7.iii.1981. (viii) 2 exs. Valiyathuruthu, Coll. K.R. Rao, 8.iii.1981.

25 examples are available from different localities. Largest examples measures about 23 mm and smallest 14 mm.

Light brownish in preserved state with a median vertebral line. Supra-tympanic fold prominent. Tibio-tarsal articulation reaches the eye.

**Distribution** : Sri Lanka and Southern India.

### 4. *Philautus beddomii* (Günther)

1882. *Ixalus beddomii*, Boulenger, Cat. Batr. Sal. Brit. Mus. : 101.

1890. *Ixalus beddomii*, Boulenger, Fauna Brit. India : 486.

**Material** : (i) 1 ex. East Cheriya kanam, Coll. Koshy Mathew, 17.ii.1981. (ii) 2 exs. Karadi Kavala, Coll. Koshy Mathew, 20.ii.1981. (iii) 1 ex. 3 Km. West of Eadapalayam I.B., Coll. Koshy Mathew, 21.ii.1981. (iv) 2 exs. Mullayaru, Coll. Koshy Mathew, 23.ii.1981.

The largest one in the six examples measures 20 mm from snout to vent. Snout rounded. Nostril nearer to snout than eye. Toes less than half-webbed.

**Distribution** : South Kerala and Anaimalai Hills.

### 5. *Philautus variabilis* (Günther)

1890. *Ixalus variabilis*, Boulenger, Fauna Brit.India : 487.

1984b. *Philautus variabilis*, Inger. *et al.* J. Bombay nat. Hist. Soc. : 555.

**Material** : (i) 1 ex. East Cheriyanam, Coll. Koshy Mathew, 17.ii.1981.

Only a single example measuring about 13 mm from tip of snout to vent is available which agrees well with published description of the species.

**Distribution** : Sri Lanka, Southern India.

### 6. *Nyctibatrachus major* Boulenger

1978. *Nyctibatrachus major*, Pillai, Bull. zool. Surv. India : 136.

**Material** : (i) 3 exs. Karadi Kavala, Coll. R.S. Pillai, 20.ii.1981. (ii) 1 ex. East of boat landing. 21.ii.1981.

The largest example measures 33.5 mm in total length.

*Distribution* Southern India.

#### 7. *Micrixalus fuscus* Boulenger

1882. *Ixalus fuscus*, Boulenger, Cat. Batr. Sal. Brit. Mus. : 96.

*Material* : (i) 1 ex. Karadi Kavala, Coll. Koshy Mathew, 20.ii.1981.

Total length from snout to vent 25 mm. Small minute tubercles present on flanks. Tibio-tarsal articulation reaching eyes. Sub-articular tubercles not prominent. Dorsally light brown in colour.

*Distribution* : Throughout India.

#### 8. *Micrixalus gadgili* Pillai & Pattabiraman

*Material* : (i) 1 ex. Anjuruli, Coll. Koshy Mathew, 13.ii.1981. (ii) 13 exs. Mullayaru, Coll. Koshy Mathew, 23.ii.1981.

All the examples agree well with the description of the species.

*Distribution* : Known hitherto only from the type locality viz. Sabarigiri Forest, Kerala.

#### 9. *Rana cyanophlyctis* Schneider

1920. *Rana cyanophlyctis*, Boulenger, Rec. Indian Mus: 12.

*Material* : (i) 1 ex. Kokkarakandam, Coll. Koshy Mathew, 12.ii.1981. (ii) 1 ex. Anjuruli, Coll. Koshy Mathew, 13.ii.1981 (iii) 1 ex. Anjuruli, Coll. Koshy Mathew, 14.ii.1981. (iv) 3 exs. Cheriya kanam, Coll. Koshy Mathew, 15.ii.1981.

Totally 6 examples examined, the largest being 40 mm from Anjuruli.

*Distribution* : Throughout India.

#### 10. *Rana limnocharis* Boie

1920. *Rana limnocharis*, Boulenger, Rec. Indian Mus : 28.

*Material* : (i) 2 exs. Nellikkampatii, Coll. Koshy Mathew, 11.ii.1981. (ii) 3 exs. Kokkara Kandam, Coll. Koshy Mathew, 12.ii.1981. (iii) 16 exs. Poonamavu, Coll. Koshy Mathew, 13.ii.1981. (iv) 3 exs. Cheriyanam, Coll. Koshy Mathew, 15.ii.1981. (v) 19 exs. Sethayana Odai, Coll. Koshy Mathew, 18.ii.1981. (vi) 5 exs. Mana Kavala, Coll. Koshy Mathew, 19.ii.1981. (vii) 3 exs. East to boat landing. Coll. Koshy Mathew, 21.ii.1981. (viii) 8 exs. Opposite to Periyar house, Coll. Koshy Mathew, 24.ii.1981. (ix) 11 exs. 1 1/2 Km. West of Edapalayam I.B., Coll. R.S. Pillai, 27.ii.1981. (x) 2 exs. 2 Km. south of Edapalayam I.B. coll. R.S. Pillai, 28.ii.1981. (xi) 6 exs. 2 Km. N.E. side of Edapalayam I.B. Coll. R.S. Pillai, 2.iii.1981. (xii) 11 exs. Thambiran thuruthu, Coll. R.S. Pillai, 3.iii.1981. (xiii) 2 exs. 1 Km South of Manakavala, Coll. K.R. Rao, 6.iii.1981. (xiv) 3 exs. 2 Km West of Manakavala, Coll. K.R. Rao, 7.iii.1981. (XV) 21 exs. Valiyathuruthu, Coll. K.R. Rao, 8.iii.1981.

As many as 115 examples are available from 15 different localities, the largest example being 43.5 mm. All the examples agree well with published descriptions.

*Distribution* : Eastern Asia from Pakistan to Japan.

### 11. *Rana keralensis* Dubois

1920. *Rana verrucosa*, Boulenger, Rec. Indian Mus. : 26.

1984. *Rana keralensis*, Inger *et al.* J. Bombay nat. Hist. Soc. : 426.

*Material* : (i) 3 exs. Nellikkampatti, Coll. Koshy Mathew, 11.ii.1981. (ii) 4 exs. East of boat landing, Coll. Koshy Mathew, 16.ii.1981. (iii) 5 exs. Karadi kavala, Coll. Koshy Mathew, 17.ii.1981. (iv) 5 exs. Karadi kavala, Coll. Koshy Mathew, 20.ii.1981. (v) 4 exs. East of boat landing, Coll. Koshy Mathew, 21.ii.1981. (vi) 8 exs. 2 km. N.E. side of Edapalayam IB. Coll. R.S. Pillai, 2.iii.1981. (vii) 1 ex. 1/2 Km. South of Edapalayam IB Coll. K.R. Rao, 4.iii.1981.

30 examples are available from different localities, the largest one measuring 52.5 mm from snout to vent.

*Distribution* : Hills of Malabar, Nilgiris and Travancore.

### 12. *Rana beddomii* (Günther)

1920. *Rana beddomi*, Boulenger, Rec. Indian Mus : 114.

*Material* : (i) 1 ex. Kokkara Kandam, coll. Koshy Mathew, 12.ii.1981. (ii) 4 exs. Poonamavu, Coll. Koshy Mathew, 13.ii.1981. (iii) 18 exs. Karadi Kavala. Coll. Koshy Mathew, 20.ii.1981. (iv) 1 ex. East of boat landing. Coll. Koshy Mathew, 21.ii.1981. (v) 10 exs. Mullayaru, Coll. Koshy Mathew, 23.ii.1981. (vi) 2 exs. N.E. side of Edapalayam IB, Coll. R.S. Pillai, 2.iii.1981.

36 examples from eight localities were collected, the largest measures 34.5 mm in total length.

Brown above with indistinct uniform darker spots.

*Distribution* : Forest of Southern India.

### 13. *Rana temporalis* (Günther)

1920. *Rana temporalis*, Eoulenger, Rec. Indian Mus. : 159.

*Material* : (i) 9 exs. Kokkara Kandam, Coll. Koshy Mathew, 12.ii.1981. (ii) 1 ex. Cheriya kanam, Coll. Koshy Mathew, 15.ii.1981. (iii) 3 ex. East of boat landing, Coll. Koshy Mathew, 16.ii.1981. (iv) 7 exs. East Cheriya kanam, Coll. Koshy Mathew, 17.ii.1981. (v) 1 ex. Karadi Kavala, Coll. Koshy Mathew, 20.ii.1981. (vi) 2 exs. East to boat landing, Coll. Koshy Mathew, 21.ii.1981. (vii) 3 exs. Mullayaru, Coll. Koshy Mathew, 23.ii.1981. (viii) 1 ex. 2 Km. West of Manakavala IB, Coll. K.R. Rao, 7.iii.1981.

The largest out of 27 exs. measures 46 mm from snout to vent.

*Distribution* : Malabar and Sri Lanka.

14. *Rana curtipes* Jerdon

1920. *Rana curtipes*, Boulenger, Rec. Indian Mus : 131.

*Material* : (i) 9 exs. East of boat landing. Coll. Koshy Mathew, 16.ii.1981. (ii) 1 ex. East Cheriya kanam, Coll. Koshy Mathew, 17.ii.1981. (iii) 7 exs. Sethayana Odai, Coll. Koshy Mathew, 18.ii.1981. (iv) 1 ex. Mullayaru, Coll. Koshy Mathew, 23.ii.1981. (v) 3 exs. 1 1/2 Km of Edapalayam IB. Coll. R.S. Pillai, 27.ii.1981. (vi) 5 exs. 2 Km. South of Edapalayam, Coll. R.S. Pillai, 28.ii.1981. (vii) 7 exs. 3 Km. west of Edapalayam IB Coll., R.S. Pillai, 1.iii.1981. (viii) 1 ex. Thambiranthuruthu, Coll. R.S. Pillai, 3.iii.1981. (ix) 2 exs. 1/2 Km. south of Edapalayam IB. Coll. R.S. Pillai, 4.iii.1981 (x) 12 exs. 1 Km south of Manakavala IB, Coll. K.R. Rao, 6.iii.1981. (xi) 4 exs. 2 Km. west of Manakavala IB. 7.iii.1981. (xii) 3 exs. Valiyathuruthu, Coll. K.R. Rao, 8.iii.1981.

Many out of the 55 examples with tiny tail are juveniles. The largest example in the collection measures 63 mm from snout to vent.

*Distribution* : Hills of Malabar from Canara to Travancore.

## REFERENCES

- Boulenger, G.A. 1882. *Catalogue of the Batrachia Salientia S. Ecaudata in the British Museum, London.* 459 p.
- Boulenger, G.A. 1890. *The Fauna of British India, including Ceylon and Burma. Reptilia and Batrachia;* London.
- Boulenger, G.A. 1920. A monograph of the South Asian; Papuan, Melanesian and Australian frogs of the genus *Rana*. *Rec. Indian Mus.*, 20 pp. 1-223.
- Daniel, J.C. 1963. Field guide to the amphibians of Western India. Part 1. *J. Bombay nat. Hist. Soc.*, 60 (2) pp. 415-438.
- Inger, R.F., et al. 1984a. A report on a collection of Amphibians and Reptiles from the Ponmudi, Kerala, south India. *J. Bombay nat. Hist. Soc.*, 81 (2) pp. 406-427.
- Inger, R.F., et al. 1984b. *Ibid* 81 (3) pp 551-570.
- Kirtisinghe, P. 1957. *The Amphibia of Ceylon*, Colombo. 112 p.
- Pillai, R.S. 1978. On *Nyctibatrachus major* Boul. (Ranidae) with a description of its tadpole. *Bull. zool. Surv. India*, 1 (2) pp. 135-140.
- Pillai, R.S. & Pattabiraman, R. 1990. Amphibians from Sabarigiri forest, Western Ghats, Kerala, including a new species of *Micrixalus*. *Rec. zool. Surv. India.*, 86(2) : 377-384.