

## ANURAN FAUNA OF RAJIV GANDHI NATIONAL PARK, NAGARAHOLE, CENTRAL WESTERN GHATS, KARNATAKA, INDIA.

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### INTRODUCTION

There are about 6780 species of amphibians in the World (Frost, 2011). Approximately 314 species are known to occur in India and about 154 from Western Ghats (Dinesh *et al.*, 2009; Biju, 2010). However the precise number of species is not known since new frogs are being added to the checklist. Amphibian number has slowly started declining largely due to the anthropogenic activities.

Habitat degradation and improper agricultural activities are the major threats to amphibians. However, survey on amphibian diversity is limited to certain parts of Western Ghats in Karnataka (Krishnamurthy and Hussain, 2000; Aravind *et al.*, 2004; Gururaja *et al.*, 2007; Kuromoto *et al.*, 2007; Biju and Bossuyt, 2009). Therefore, anuran species diversity analysis has been under taken for the first time in Rajiv Gandhi National Park, Nagarahole (12°15'37.69"E 76°17'34.4"N), one of the hot spots for wildlife in the Nilgiri Biosphere Reserve of Western Ghats in Karnataka State. The national park covers an area of 643.4 sq km with a core zone of 192 sq km. The terrain is undulating with an altitude ranging from 701 to 959 m asl. Monsoon is erratic, but it generally rains from June to September with an annual rainfall of about 1,440mm and temperature range is 14°C-33°C. The water sources in this park include the Lakshmantirtha river, Sarati Hole, Nagar Hole, Balle Halla, Kabini river, four perennial streams, 47 seasonal streams, four small perennial lakes, 41 artificial tanks, several swamps, Taraka dam and the Kabini reservoir. The predominant vegetation

in the Nagarhole National Park is of southern tropical mixed deciduous both moist and dry with small patches of semi evergreen and evergreen type (Lal Ranjit, 1994). Diversity, distribution pattern, habitat specificity, abundance and global threat status of the anurans recorded in the study area are discussed.

### MATERIALS AND METHODS

Anuran species diversity survey was under taken for the first time during January 2009 to December 2009. The survey team comprised of a group of 6-9 men including local people and forest department officials having thorough knowledge about the area. We surveyed in all important water bodies and perennial rivulets, streams and through patches of forest during day and early night hours.

The methodology adopted in the present study was in accordance with the standard methods like quadrat method and visual encounter survey (VES). Seasonal samplings were done randomly from different habitats by using handpicking and pit fall trap methods. Micro-habitats such as grass, water, leaf litter, shrubs, canopy cover, bare ground, tree trunk, under boulders, under logs were searched for specific habitat type to understand their ecological niche and distribution pattern. Morphometric details of the recorded anurans were gathered using digital caliper (Mitutoya, Japan) photographed, and identified using the keys given in Boulenger (1890) ; Dutta (1997), Radhakrishnan (1997), Das (2000) and Daniel (2005). The systematic classification is based on Frost

(2011). Taxonomic features, habitat preference, distribution pattern, abundance in the study area and threat status of the species studied are recorded.

## RESULTS AND DISCUSSION

Based on the systematic analysis a total of 26 species of anurans belonging to 14 genera 8 families have been recorded in the study area. They include 4 each in the genus *Raorchestes*, and *Fejervarya*, 3 species in the genus *Hylarana* and 2 each in *Nyctibatrachus*, *Rhacophorus*, *Microhyla*. and *Duttaphrynus*, 1 each in *Hoplobatrachus*, *Indirana*, *Euphlyctis*, *Micrixalus*, *Clinotarsus*, *Pseudophilautus* and *Polypedate*. The systematic account, taxonomic features, habitat preference and distribution pattern of the species studied are given bellow.

## SYSTEMATIC ACCOUNT

Order DORYLAIMIDA Pearse, 1942

Class AMPHIBIA Gray

Order ANURA Fischer von Waldheim

Family BUFONIDAE Gray

Genus : *Duttaphrynus* Frost, Grant, Faivovich, Bain, Haas, Haddad, de sa, Channing, Wilkinson Donnellan, Raxworthy, Campbell, Blotto, Moler, Drewes, Nussbaum, Lynch, Green and Wheeler

### 1. *Duttaphrynus melanostictus* (Schneider, 1799)

1799. *Bufo melanostictus* Schneider, *Hist. Amph., Nat.*, 216.

2001. *Bufo melanostictus melanostictus* - Khan, *Pakistan J. Zool.*, **33** : 297.

*Measurements* : SVL: 110.0 mm to 148.0 mm. (n=4, M-2, F-2).

*Habitat* : Found under logs of dry deciduous forest; Recorded months: February, April, May, July, August, October and December.

*Distribution in India* : Throughout India (Dutta, 1997).

*Out side India* : Recorded from South Asia (Frost, 2011) .

*Remarks* : Very common; Status: Least Concern (LC).

### 2. *Duttaphrynus microtypanum*

(Boulenger, 1882)

1882. *Bufo microtypanum* Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, Ed. **2** : 307.

*Measurements* : SVL: 50.0 mm to 80.0 mm. (n=5, M-3, F-2).

*Habitat* : Found under boulder of dry deciduous forest; Recorded months: January, March, June, August and October.

*Distribution in India* : Maharashtra, Kerala, Tamil Nadu (Dutta, 1997).

*Remarks* : Endemic to Western Ghats; Very rare; Status: Vulnerable (VU).

Family DICROGLOSSIDAE Anderson

Sub-family DICROGLOSSINAE Anderson

Genus *Euphlyctis* Fitzinger

### 3. *Euphlyctis cyanophlyctis* (Schneider, 1799)

1799. *Rana cyanophlyctis* Schneider, *Hist. Amph. Nat.*,: 137.

1997. *Euphlyctis cyanophlyctis seistanica* - Dutta, *Amph. India, Sri Lanka* : 115.

*Measurements* : SVL: 26.0 mm to 32.0 mm. (n=6, M-3, F-3).

*Habitat* : Found in slow moving stream of semi evergreen forest; Recorded months: April, June, August, September and December.

*Distribution in India* : Throughout India (Dutta, 1997).

*Out side India* : Iran, Pakistan, Nepal, Afghanistan, Sri Lanka, Malaysia and Vietnam (Frost, 2011).

*Remarks* : Very common south Asian species; Status: Least Concern (LC).

Genus *Fejervarya* Bolkay

### 4. *Fejervarya caperata* Kuramoto, Joshy, Kurabayashi and Sumida, 2007

2007. *Fejervarya caperata* Kuramoto, Joshy, Kurabayashi and Sumida, *Current Herpetology*, **26**(2) : 81-105.

*Measurements* : SVL: 28.0 mm to 34.0 mm. (n=4, M- 2, F- 2).

*Habitat* : Found in semi aquatic margins of semi evergreen forest; Recorded months: July, August, September, October and November.

*Distribution in India* : Mangalore and Kodagu (Kuramoto *et al.*, 2007).

*Remarks* : Endemic to Western Ghats; Common; Status: Not evaluated (NE).

5. *Fejervarya granosa* Kuramoto, Joshy, Kurabayashi and Sumida, 2007

2007. *Fejervarya granosa* Kuramoto, Joshy, Kurabayashi and Sumida, *Current Herpetology*, **26**(2) : 81-105.

*Measurements* : SVL: 27.0 mm to 32.0 mm (n=6, M-3, F-3).

*Habitat* : Found on the forest floor of semi evergreen forest; Recorded months: July, August, and September.

*Distribution in India* : Chickmagalur and Kodagu (Kuramoto *et al.*, 2007).

*Remarks* : Endemic to Western Ghats; Common; Status: Not evaluated (NE).

6. *Fejervarya kudremukhensis* Kuramoto, Joshy, Kurabayashi and Sumida, 2007

2007. *Fejervarya kudremukhensis* Kuramoto, Joshy, Kurabayashi and Sumida, *Current Herpetology*, **26**(2) : 81-105

*Measurements* : SVL: 40.0 mm to 50.0 mm (n=8, M-5, F-3).

*Habitat* : Found along the sides of streams of semi evergreen forest; Recorded months: June, July, August, September and December.

*Distribution in India* : Chickmagalur and Madikeri (Kuramoto *et al.*, 2007).

*Remarks* : Endemic to Western Ghats; Rare; Status: Not evaluated (NE).

7. *Fejervarya mudduraja* Kuramoto, Joshy, Kurabayashi and Sumida, 2007

2007. *Fejervarya mudduraja* Kuramoto, Joshy, Kurabayashi and Sumida, *Current Herpetology*, **26**(2) : 81-105

*Measurements* : SVL: 44.0 mm to 51.0 mm (n=8, M-5, F-3).

*Habitat* : Found along the sides of streams of semi evergreen forest; Recorded months: June, July, August, September, October and November.

*Distribution in India* : Chickmagalur and Kodagu (Kuramoto *et al.*, 2007).

*Remarks* : Endemic to Western Ghats; Very common; Status : Not evaluated (NE).

This species was placed earlier in the assemblage of *Fejervarya limnocharis* species complex. *F. caperata.*, *F. granosa.*, *F. kudremukhensis* and *F. mudduraja* are regarded as cryptic species that are difficult to identify by morphological traits alone (Kuramoto *et al.*, 2007).

Genus *Hoplobatrachus* Peters

8. *Hoplobatrachus tigerinus* (Daudin, 1802)

1802. *Rana tigerina* Daudin, (An. XI), *Hist. Nat. Rain. Gren. Crap.*, Quarto : 62

1992. *Hoplobatrachus tigerinus* Dubois, *Bull. Mens. Soc. Linn. Lyon*, **61**: 315.

*Measurements* : SVL: 65.0 mm to 108.0 mm (n=4, M-2, F-2).

*Habitat* : Found in ponds of semi evergreen forest; Recorded months: May, June, July, August, September, October and December.

*Distribution in India* : Throughout India (Dutta, 1997).

*Out side India* : Nepal, Bhutan, Pakistan and Sri Lanka (Frost, 2011).

*Remarks* : Very common; Status: Least Concern (LC).

Family Micrixalidae Dubois, Ohler and Biju  
Sub-family Micrixalinae Gunther

Genus *Micrixalus* Boulenger

9. *Micrixalus saxicola* (Jerdon, 1854)

1854. *Polypedates saxicola* Jerdon, "1853" *J. Asiat. Soc. Bengal*, **22** : 533.

1888. *Micrixalus saxicola* Boulenger, *Proc. Zool. Soc. London* : 205.

*Measurements* : SVL: 23.0 mm to 31.0 mm (n=4, M-2, F-2).

*Habitat* : Found on the fallen logs near stream of moist deciduous forest at 890 m asl ; Recorded months: August, September and November.

*Distribution in India* : Western Ghats of Kerala and Karnataka, South India at 400-1400 m asl (Dutta, 1997, Radhakrishnan, 1997; Krishnamurthy and Hussain, 2000; Chanda, 2002).

*Remarks* : Endemic to Western Ghats; Common;  
Status: Vulnerable (VU).

Family MICROHYLIDAE Gunther  
Sub-family MICROHYLINAE Gunther  
Genus *Microhyla* Tschudi

10. *Microhyla ornata* (Dumeril and Bibron, 1841)

1841. *Engystoma ornatum* Dumeril and Bibron, *Erp. Gen.*,  
8 : 745.

1927. *Microhyla (Diplopelma) ornata* Bourret, *Fauna  
Indochine, Vert.*, 3 : 263.

*Measurements* : SVL: 23.0 mm to 28.0 mm (n=8,  
M-5, F-3).

*Habitat* : Near the margins of small stream of  
moist deciduous forest; Recorded months: June,  
July, August and September.

*Distribution in India* : Throughout India including  
Andaman and Nicobar Islands (Dinesh *et al.*, 2009).

*Outside India* : Recorded in Japan, China,  
Pakistan, Nepal, Sri Lanka and Malaysia (Frost,  
2011).

*Remarks* : Very common; Status: Least Concern  
(LC).

11. *Microhyla rubra* (Jerdon, 1854)

1854. *Engystoma rubrum* Jerdon, "1853", *J. Asiat. Soc.  
Bengal*, 22 : 534.

1987. *Microhyla (Diplopelma) rubra* Dubois, *Alytes*, 6 : 4.

*Measurements* : SVL: 28.0 mm to 32.0 mm (n=4,  
M-3, F-1).

*Habitat* : Found in wet mud near small stream  
of semi evergreen forest; Recorded months: August,  
September and October.

*Distribution in India* : Goa, Karnataka, Tamil  
Nadu and (Dinesh *et al.*, 2009).

*Out side India* : Sri Lanka, (Frost, 2011).

*Remarks* : Rare; Status: Least Concern (LC).

Family NYCRIBATRACHIDAE Blommers-  
Schlosser  
Sub-family NYCTIBATRACHINAE Blommers-  
Schlosser  
Genus *Nyctibatrachus* Boulenger

12. *Nyctibatrachus aliciae* Inger, Shaffer, Koshy,  
and Bakde, 1984

1984. *Nyctibatrachus aliciae* Inger, Shaffer, Koshy and  
Bakde, *J. Bombay nat. Hist. Soc.* 81 : 414.

*Measurement* : SVL: 24.0 mm to 26.0 mm (n= 6,  
M -4, F-2).

*Habitat* : Found in slow moving small streams  
of semi evergreen forest: Recorded months; August,  
September and October.

*Distribution in India* : Tamil Nadu (Kalakad-  
Mundanthurai Tiger Reserve), Karnataka and  
Kerala (Ponmudi Hills, Athirimala, Wayanaad) in  
the Western Ghats Region of southwestern India,  
300-1000 m elevation (Dutta, 1997, Inger *et al.*, 1984;  
Krishnamurthy and Hussain, 2000; Chanda, 2002;  
Frost, 2011 ).

*Remarks* : Endemic to Western Ghats; Rare;  
Status: Endangered (EN).

13. *Nyctibatrachus major* Boulenger, 1882

1882. *Nyctibatrachus major* Boulenger, *Cat. Batr. Sal. Coll.  
Brit. Mus., Ed. 2* : 114.

*Measurement* : SVL: 42.0 mm to 44.0 mm (n=5,  
M-2, F-3).

*Habitat* : Found in slow moving streams of semi  
evergreen forest; Recorded months: July, August,  
September and October.

*Distribution in India* : Kerala and Tamil Nadu  
(Dutta, 1997; Pillai, 1978); Karnataka  
(Krishnamurthy and Hussain, 2000).

*Remarks* : Endemic to Western Ghats; Rare;  
Status: Vulnerable (VU).

Family RANIDAE Rafinesque  
Sub-family RANINAE Rafinesque  
Genus *Clinotarsus* Mivart

14. *Clinotarsus curtipes* (Jerdon, 1853)

1853. *Rana curtipes* Jerdon, *J. Asiat. Soc. Bengal*, 22 : 532.

2005. *Clinotarsus curtipes* Krishna and Krishna, *Herpetol.  
Rev.*, 36 : 21.

*Measurements* : SVL: 51.0 mm to 54.0 mm (n=8,  
M-3, F-5).

*Habitat* : Found below the leaf litter of the forest  
floor in dry deciduous forest; Recorded months:  
June, July, August, September and October.

*Distribution in India* : It has been recorded from  
many protected areas in Kerala, Karnataka, Tamil

Nadu, Maharashtra and Goa (Dutta, 1997; Biju, 2001).

*Remarks* : Endemic to Western Ghats; Very common; Status: Near Threatened (NT).

15. *Sylvirana aurantiaca* (Boulenger, 1904)

1904. *Rana aurantiaca* Boulenger, *J. Bombay nat. Hist. Soc.* **15** : 430.

2006. *Sylvirana aurantiaca* Frost, Grant, Faivovich, Bain, Haas, Haddad, de sa, Channing, Wilkinson, Donnellan, Raxworthy, Campbell, Blotto, Moler, Drewes, Nussbaum, Lynch, Green and Wheeler, *Bull. Am. Mus. Nat. Hist.*, **297**: 370.

*Measurements* : SVL: 35.0 mm to 45.0 mm. (n=5, M-3, F-2).

*Habitat* : Found in slow moving streams of semi evergreen forest; Recorded months: May, June, July and October.

*Distribution in India* : Maharashtra, Kerala , Karnataka and Tamil Nadu (Frost, 2011).

*Outside India* : Recorded in Sri Lanka (Frost, 2008).

*Remarks* : Endemic to Western Ghats ; Common ; Status: Vulnerable (VU).

16. *Hylarana malabarica* (Tschudi, 1838)

1838. *Rana malabarica* Tschudi, *Classif. Batr.* **40** : 80.

2007. *Hylarana malabarica* Che, Pang, Zhao, Wu, and Zhang, *Mol. phylogenet. Evol.*, **43** : 1-13, by implication.

*Measurements* : SVL: 65.0 mm to 78.0 mm (n=3, M-2, F-1).

*Habitat* : Found on the forest floor of dry deciduous forest; Recorded months: October and November.

*Distribution in India* : Maharashtra, Kerala, Goa, Madhya Pradesh and Orissa (Dutta, 1997; Biju, 2001), Karnataka (Krishnamurthy and Hussain, 2000).

*Remarks* : Endemic to India; Rare; Status: Least Concern (LC).

17. *Sylvirana temporalis* (Gunther, 1864)

1864. *Hylorana temporalis* Günther, *Rept. Brit. India* : **427**.

2006. *Sylvirana temporalis* Frost, Grant, Faivovich, Bain, Haas, Haddad, de Sa, Channing, Wilkinson, Donnellan, Raxworthy, Campbell, Blotto, Moler,

Drewes, Nussbaum, Lynch, Green, and Wheeler, *Bull. Am. Mus. Nat. Hist.*, **297**: 370.

*Measurements* : SVL: 61.0 mm to 78.0 mm. (n=8, M-5, F-3).

*Habitat* : Found along the streams of semi evergreen forest; Recorded months: July, August and September.

*Distribution in India* : Kerala, Maharashtra, Tamil Nadu and Karnataka (Dutta, 1997; Biju, 2001).

*Outside India* : recorded in Sri Lanka (Frost, 2011).

*Remarks* : Endemic to Western Ghats ; Common; Status: Near Threatened (NT).

Family RANIXALIDAE Dubois

Sub-family RANIXALINAE Dubois

Genus *Indirana* Laurent

18. *Indirana beddomii* (Gunther, 1876)

1876. *Polypedates beddomii* Günther, "1875", *Proc. Zool. Soc. London* : 571.

1987. *Indirana beddomii* Dubois, "1986", *Alytes*, **5** : 175-176.

1989. *Rana (Discodeles) beddomii* Daniel and Sekar, *J. Bombay Nat. Hist. Soc.*, **86** : 194.

*Measurements* : SVL: 18.5 mm to 24.0 mm (n=3, M-1, F-2).

*Habitat* : Found under rocks near small streams of semi evergreen forest; Recorded months: June, August and September.

*Distribution in India* : Maharashtra, Karnataka, Kerala and Tamil Nadu (Daniel, 1975; Dutta, 1997; Chanda, 2002; Krishnamurthy and Hussain, 2000). This species complex has been described over a wide distribution in the Western Ghats in India.

*Remarks* : Endemic to Western Ghats; Rare; Status: Least Concern (LC).

Family RHACOPHORIDAE Hoffman

Sub-family RHACOPHORINAE Hoffman

Genus *Raorchestes* Biju, Yogesh, Dubois, Dutta and Bossuyt

19. *Raorchestes charius* (Rao, 1937)

1937. *Philautus charius* Rao, *Proc. Indian Acad. Sci., Ser. B*, **6** : 405.

2001. *Philautus charius* Bossuyt and Dubois, *Zeylanica*, **6** : 48.

2010. *Raorchestes charius* Biju, Yogesh, Dubois, Dutta and Bossuyt, *Current Science*, **98** : 1119-1125.

*Measurements* : SVL: 27.0 mm to 29.0 mm. (n=5, M-2, F-3).

*Habitat* : Found on bushy plants of moist deciduous forest at 878 m asl. Recorded months: July, August and September.

*Distribution in India* : Found in Western Ghats of Karnataka. It was reported that this species is restricted to Chikmalagur at an elevation between 800 - 1,200 m asl, in Karnataka State, in the southern Western Ghats of India (Biju and Bossuyt, 2009).

*Remarks* : Endemic to Western Ghats; Rare; Status: Endangered (EN). This is the second record in the Western Ghats region.

#### 20. *Raorchestes glandulosus* (Jerdon, 1854)

1854. *Ixalis? glandulosa* Jerdon, "1853", *J. Asiat. Soc. Bengal*, **22** : 532.

2001. *Philautus glandulosus* Bossuyt and Dubois, *Zeylanica*, **6** : 15.

2010. *Raorchestes glandulosus* Biju, Yogesh, Dubois, Dutta and Bossuyt, *Current Science*, **98**: 1119-1125.

*Measurements* : SVL: 32.0 mm to 36.0 mm (n=6, M-4, F-2).

*Habitat* : Found on small forest tree of semi evergreen forest; Recorded months: July, August, October and November.

*Distribution in India* : It has been recorded in many protected areas including the Nilgiri Biosphere Reserve (which includes Silent Valley National Park and Wayanad Wildlife Sanctuary), Parambikulam Wildlife Sanctuary, Ponmudi Wildlife Sanctuary and Periyar Wildlife Sanctuary in Kerala, Kudremukh National Park in Karnataka, Indira Gandhi National Park and Kalakad Wildlife Sanctuary both in Tamil Nadu (Biju and Bossuyt, 2009).

*Remarks* : Endemic to Western Ghats; Common; Status: Vulnerable (VU).

#### 21. *Raorchestes luteolus* (Kuramoto and Joshy, 2003)

2003. *Philautus luteolus* Kuramoto and Joshy, *Curr. Herpetol.*, **22** : 52.

2010. *Raorchestes luteolus* Biju, Yogesh, Dubois, Dutta and Bossuyt, *Current Science*, **98** : 1119-1125.

*Measurements* : SVL: 25.0 mm to 28.0 mm. (n=8, M-5, F-3).

*Habitat* : Found on the *Cannaceae* and *Colocasia* plants of moist deciduous forest at 895 m asl.; Recorded months: July, August and September.

*Distribution in India* : Recorded previously in three known sites in the Western Ghats of the southern part of Karnataka State, India at an altitudinal range of 920 - 1,120m asl. (Kuramoto and Joshy, 2003).

*Remarks* : Endemic to Western Ghats; Common; Status: Data Deficient (DD). Biju and Bossuyt, (2009) reexamined the type series of *Philautus neelanethrus* and considered this as new synonym of *P. luteolus* and again the genus *Philautus* is named as *Raorchestes* (Biju et al., 2010).

#### 22. *Raorchestes tuberochumerus* (Kuramoto and Joshy, 2003)

2003. *Philautus tuberochumerus* Kuramoto and Joshy, *Curr. Herpetol.*, **22**: 55.

2010. *Raorchestes tuberochumerus* Biju, Yogesh, Dubois, Dutta and Bossuyt, *Current Science*, **98**: 1119-1125.

*Measurements* : SVL: 18.0 mm to 22.0 mm. (n=5, M-2, F-3).

*Habitat* : Found on herbaceous plants of moist deciduous forest; Recorded months: August, September and October.

*Distribution in India* : Recorded from Kodagu and Chikmagalur districts in Western Ghats parts of Karnataka ( Biju and Bossuyt, 2009).

*Remarks* : Endemic to Western Ghats; Rare; Status: Data Deficient (DD).

Genus *Pseudophilautus* Biju, Yogesh, Dubois, Dutta and Bossuyt

#### 23. *Pseudophilautus wynaadensis* (Jerdon, 1854)

1854. *Phyllomedusa? wynaadensis* Jerdon "1853", *J. Asiat. Soc. Bengal*, **22** : 533.

1870. *Ixalus wynaadensis* Jerdon, *Proc. Asiat. Soc. Bengal*, : 85.

2001. *Philautus (Philautus) wynaadensis* Bossuyt and Dubois, *Zeylanica*, **6** : 15.

2010. *Pseudophilautus wynaadensis* Biju, Yogesh, Dubois, Dutta and Bossuyt, *Current Science*, **98** : 1119-1125.

*Measurements* : SVL: 31.0 mm to 34.0 mm. (n=6, M-2, F-4).

*Habitat* : Found on bushy plants of moist deciduous forest; Month of collection: July, August, and September.

*Distribution in India* : Recorded in Western Ghats parts of Kerala (Biju and Bossuyt, 2009) This species is restricted to tropical forests in the vicinity of Coorg in Karnataka, Wayanad and Ponmudi Hills in Kerala, in the southern Western Ghats of India. It has been recorded at elevations of 900 to 1,200m asl.

*Remarks* : Endemic to Western Ghats; Rare; Status: Endangered (EN). This species was recently revalidated (Bossuyt and Dubois, 2001). It was previously considered to be a synonym of *Philautus variabilis*. Specimens recorded as *P. temporalis* and *P. leucorhinus* from the Western Ghats of India are now named as *Pseudophilautus wynaadensis* (Biju et. al., 2010).

#### Genus *Polypedates* Tschudi

##### 24. *Polypedates pseudocruciger* Das and Ravichandran, 1998

1998. *Polypedates pseudocruciger* Das and Ravichandran, "1997", *Hamadryad*, 22 : 89.

*Measurements* : SVL: 50.0 mm to 80.0 mm (n=2, M-2).

*Habitat* : Found on the tree of evergreen forest at 856 m asl. Recorded months: August and October.

*Distribution in India* : It has been reported from a number of protected areas in Western Ghats regions of Tamil Nadu, Karnataka and Kerala. It is recorded from elevations of 200 - 950m asl. (Biju, 2001; Frost, 2011). *Remarks*: Endemic to Western Ghats; Common; Status: Least Concern (LC).

#### Genus *Rhacophorus* Kuhl and Van Hasselt

##### 25. *Rhacophorus lateralis* Boulenger, 1883

1883. *Rhacophorus lateralis* Boulenger, *Ann. Mag. Nat. Hist., Ser. 5*, 12 : 162.

1931. *Rhacophorus (Rhacophorus) lateralis* Ahl, *Das Tierreich*, 55 : 165.

*Measurements* : SVL: 39.0 mm to 52.0 mm (n=4, M-3, F-1).

*Habitat* : Found on the trees of evergreen forest. Recorded months: August, September and October.

*Distribution in India* : Karnataka and Kerala (Das, 2000; Dinesh et al., 2009)

This species is restricted to two small areas of the southern Western Ghats of India in Kerala (Wayanad Wildlife Sanctuary and its surroundings) and Karnataka (Kodagu and its surroundings) at an elevation of approximately 800m asl. (Frost, 2011).

*Remarks* : Endemic to Western Ghats; Rare; Status: Endangered (EN).

##### 26. *Rhacophorus malabaricus* Jerdon, 1870

1870. *Rhacophorus malabaricus* Jerdon, *Proc. Asiat. Soc. Bengal*, 84.

1931. *Rhacophorus (Rhacophorus) malabaricus* Ahl, *Das Tierreich*, 55 : 159.

*Measurements* : SVL: 72.0 mm to 86.0 mm. (n=4, M-2, F-2).

*Habitat* : Found on the trees of ever green forest; Recorded months: September, October and November.

*Distribution in India* : Kerala, Karnataka, Tamil Nadu and Goa. It has been recorded from numerous protected areas including Indira Gandhi National Park in Tamil Nadu, Periyar Tiger Reserve, Wynaad Wildlife Sanctuary and Parambikulam Wildlife Sanctuary, all in Kerala, and Kudremukh National Park and Nagarhole Wildlife Sanctuary, both in Karnataka (Dutta, 1997; Krishnamurthy and Hussain, 2000).

*Remarks* : Endemic to Western Ghats; Rare; Status: Least concern (LC).

#### SUMMARY

It is for the first time a systematic anuran species diversity survey has been undertaken in Rajiv Gandhi National Park (Nagarahole), Central Western Ghats, Karnataka, India. As per the survey nearly 26 species of anurans belonging to 14 genera, 7 subfamilies and 8 families have been recorded. The list include, 2 species in the family Bufonidae, 6 species in the family, Dicroglossidae, 1 species of Micrixalidae, 2 species of Microhylidae, 2 species of Nyctibatrachidae, 4 species of Ranidae, 1 species of Ranixalidae and 8 species belonging to the family Rhacophoridae. Of these nearly 20 species are endemic to Western Ghats of India and Sri

Lanka. *Duttaphrynus melanostictus*, *Euphlyctis cyanophlyctis*, *Hoplobatrachus tigerinus*, *Microhyla ornata* and *Microhyla rubra* are reported earlier from other part of south and southeast Asia. The species *Hylarana malabarica* is endemic to Indian subcontinent and has been reported from many parts of India including Western Ghats. As per the IUCN threat status the species that are recorded in the study area belong to 4 endangered, 2 near threatened, 5 vulnerable, 2 data deficient and 9 least concerned species. The remaining 4 species restricted to Western Ghats, whose population

density, threat and conservation status are not evaluated. While conducting the survey it was possible to record out side the study area in the nearby semi evergreen, moist deciduous forests and coffee plantations anurans like *Euphlyctis hexadactylus*, *Ramanella triangularis*, *Raorchestes akroparallagi*, *Raorchestes chromasynchysi* and *Raorchestes ponmudi*. Hence, it is evident from this preliminary survey that there are many more cryptic species yet to be studied for their habitat preference, distribution pattern, abundance and conservation status.

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*Duttaphrynus melanostictus*



*Fejervarya granosa*



*Duttaphrynus microtynpanum*



*Fejervarya kudremukhensis*



*Euphlyctis cyanophlyctis*



*Fejervarya mudduraja*



*Fejervarya caperata*



*Hoplobatrachus tigerinus*





*Micrixalus saxicola*



*Nyctibatrachus major*



*Microyia ornata*



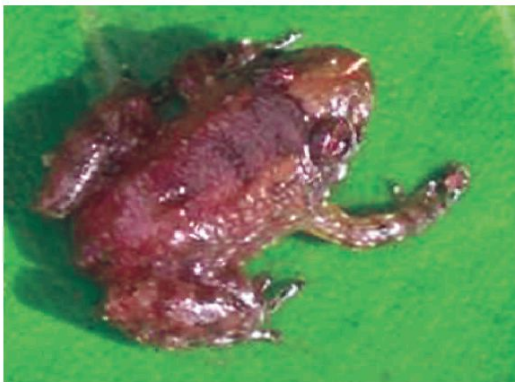
*Clinotarsus curtipes*



*Microyia rubra*



*Hylarana aurantiaca*



*Nyctibatrachus aliciae*



*Hylarana malabarica*



*Hylarana temporalis**Raorchestes luteolus**Indirana beddomii**Raorchestes tuberochumerus**Raorchestes charius**Pseudophilautus wynadensis**Raorchestes glandulosus**Polypedates pseudocruciger*



*Rhacophorus Lateralis*



*Rhacophorus malabarica*