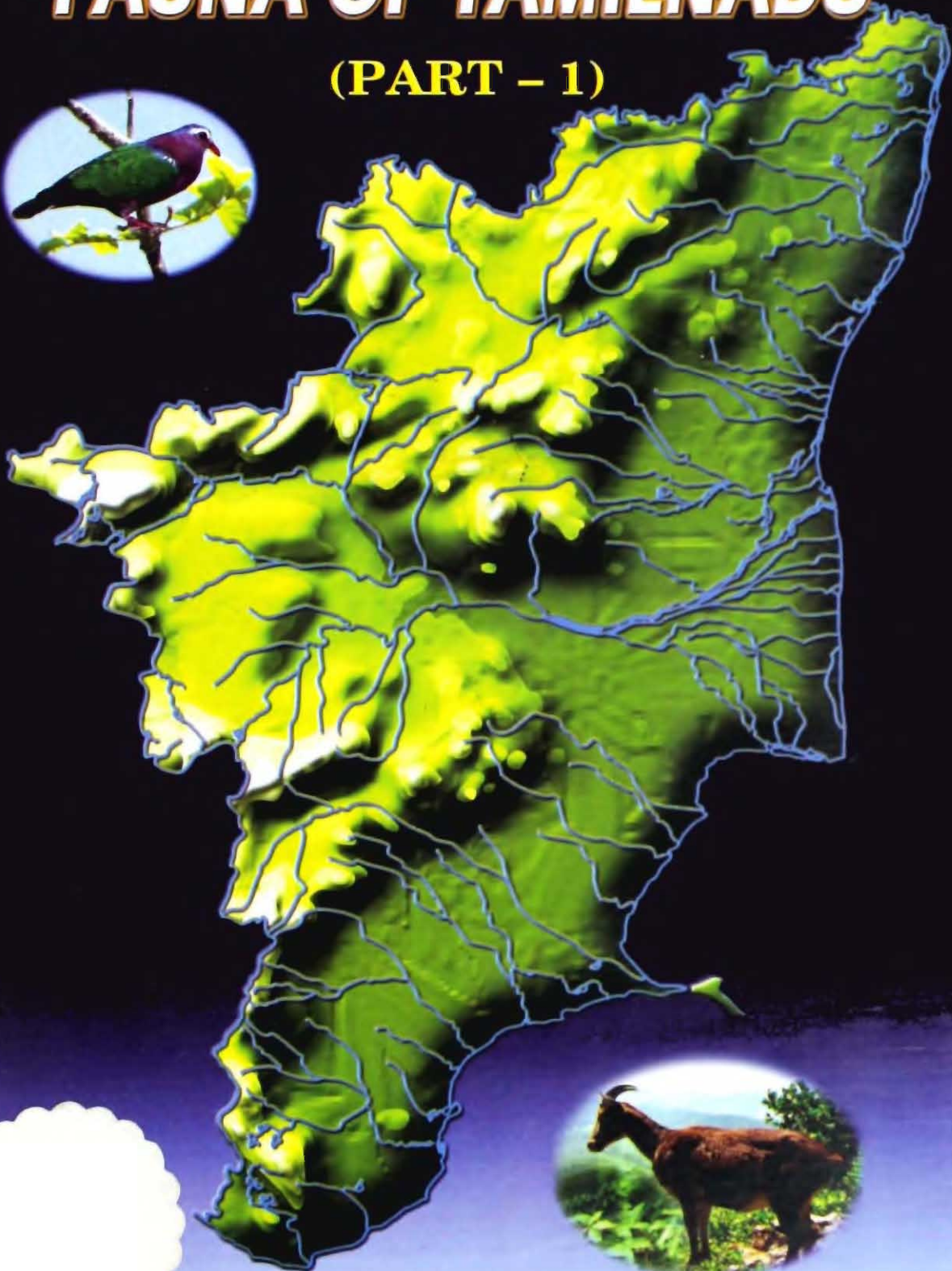


STATE FAUNA SERIES, 17

FAUNA OF TAMILNADU

(PART - 1)



ZOOLOGICAL SURVEY OF INDIA

State Fauna Series, 17

FAUNA OF TAMIL NADU

(PART-1)

Edited by
The Director, Zoological Survey of India, Kolkata



Zoological Survey of India
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All the contributors worked relentlessly to update the information to provide a working data base.

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FAUNA OF TAMIL NADU

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OVERVIEW

G. THIRUMALAI and S. KRISHNAN

Southern Regional Station, Zoological Survey of India, Chennai 600 028

The state of Tamilnadu spanning an area of 1,30,058 Km² lying on the south eastern segment of Peninsular India divided into 30 administrative districts constitutes about 4% of land area of India. Lying between 8°04'-13°34' N and 76°14'- 80°21' E, Tamilnadu shares its borders with the states Andhra Pradesh and Karnataka on North West, Kerala on West, Indian Ocean on South and Bay of Bengal on the east (Map 1).

Physiographically segmented into 3 regions namely, Eastern Coastal Region, Western Hilly Region and the plains, Tamilnadu has a variety of habitats supporting a wide variety of fauna and flora. Biogeographically Tamilnadu falls in Biome 10 & 11, the latter forming the major chunk. Tamilnadu's water grid is composed of 10 major rivers, Palar, Cheyyar, Ponnaiyar, Kauvery, Moyar, Bhavani, Amaravathi, Vaigai, Chittar and Tamrabarani besides 36 minor rivers, 33 reservoirs and a number of small water bodies of different classifications. In Tamilnadu all the rivers flow towards east.

Tamilnadu accounts for 7% of population, 4% of land area and 3% of water resources, 15% of coastal length of India. The total forest area of Tamilnadu is estimated at 22,877 Sq. Kms. which is approximately 2.95% of forest areas of India. The vegetation of Tamilnadu forests are southern tropical semi-evergreen, southern tropical wet evergreen, southern tropical moist deciduous, dry deciduous, dry evergreen, broad leaved hill forests, littoral, swamp and montane wet temperate types.

The important hill ranges in Tamilnadu are Cardamom Hills, Palani Hills and Anamalais of

the Western Ghats and Javadi, Shevroy, Kalrayan, Kollimalai & Pachamalai Hills of Eastern Ghats (Map 2). Among the endangered mammals occurring in Tamilnadu are Slender Loris, Lion-tailed Macaque, Indian Pangolin, Jackal, Indian Fox, Indian Wild dog, Sloth Bear, Striped Hyena, Jungle Cat, Leopard, Tiger, Mouse Deer, Gaur, Black Buck, Nilgiri Tahr, Grizzled Giant Squirrel and Dugong.

There are 5 national parks (Mudumalai, Indira Gandhi, Mukurthi, Guindy, Gulf of Mannar), 20 wildlife and Bird sanctuaries (Mudumalai, Indira Gandhi, Mundanthurai, Kalakkadu, Srivilliputhur, Point Calimere, Vallanadu, Kanyakumari, Vedanthangal, Karikili, Pulicat, Vettangudi, Kanjirakulam, Chitrangudi, Udyamarthandapuram, Vaduvor, Koonthankulam – Kadankulam, Karaivetti, Vellode, Melaselvannur & Kilaselvanur sanctuaries). Point Calimere Wildlife and Bird Sanctuary is a Ramsar Site. There are about 448 sacred groves which act as biodiversity conservation sites and repositories maintained by local communities on religious faith.

PROTECTED AREAS

Nearly 2.5% of the geographic area of Tamilnadu is declared as protected (3,305 sq. Kms.). The 8 Wildlife Sanctuaries extend to 2,82,685.57 ha, 12 bird sanctuaries to 17,074.59 ha, 5 national parks to 30,784.23 ha, not to mention 1 tiger reserve, 3 elephant reserves and 3 Biosphere reserves.

Among the Wildlife of Tamilnadu, 9 species of reptiles, 42 species of birds and 22 species of

mammals are in Schedule I, 13 species of mammals in Schedule II, 5 species of mammals in Schedule III; 23 species of Amphibians, 109 species of reptiles, 367 species of birds, and 5 species of mammals in Schedule IV and 1 species of bird and 13 species of mammals in Schedule V.

BIODIVERSITY IN SANGAM LITERATURE

According to ancient Tamil literature physiographic apportioning of land had been in 5 segments depending upon edaphic conditions, water resources and forest wealth as 1. Kurinji or mountainous regions, 2. Mullai or Forest region 3. Neidhal or Coastal region 4. Marudham or cultivable fertile land and 5. Palai or Arid zone with spill areas from one to another. Moreover Tamils had recorded in Sangam literature the 'Phenotype-environment interactions' amongst human beings, plants, animals and seasonal variations as primary parameters or *Mudharporul*. *Tholkaapiar* classified biodiversity into 6 classes viz., unisensed (grass, tree), disensed (snails), trisensed (ants & termites), tetrasensed (crabs, dragonflies), pentasensed (Birds & Mammals excluding humans) and hexasensed (humans). *Pathupaattu*, a part of Sangam literature contains descriptions of nature, more specifically *Aatrupadai* giving lengthy explanations of natural beauty, fertility, natural resources of territories,

sacred trees, flowers and animals of liking to Lord Muruga or Karthikeya.

RAINFALL

Normal rainfall during southwest and northeast monsoons are between 320 mm and 470 mm which is much lower than national level of 1250 mm.

FAUNA

Tamilnadu has very rich faunal resources due to the three biogeographic zones viz., Western Ghats, Deccan plains, Eastern Ghats and coastal zone. From the evolution point of view Southern Western Ghats is biogeographically important (Hora, 1953). We do not have a reliable database to the number of organisms occurring in the State. Nonetheless, one can presume that Tamilnadu is providing asylum to atleast 6 to 8 % of the Indian fauna. As is usual, for Tamilnadu too, we have more information on the vertebrate fauna than the invertebrates. Even amongst the vertebrates, precise information is lacking for amphibians and reptiles. In this compendium we have tried to bring together all piece meal information available from various sources about some groups of invertebrates, leaving the microscopic protozoans and allied groups. Authentic information has been provided by the contributors on 2405 species of invertebrates and 1051 species of vertebrates totalling to 3,456 species (Table 1).

Table 1. Faunal Inventory

Groups Studied	Number of Species			% of occurrence	Remarks
	Tamilnadu	India	World		
INVERTEBRATES					
Rotifera : Freshwater	158	330	1,948	48	
Annelida : Hirudinea	20	62	676	32	6 species first report from Tamilnadu
Crustacea : Freshwater Cladocera	78	190	620	41	
Crustacea : Freshwater Ostracoda	33	208	2,000	16	

Table 1. Contd.

Groups Studied	Number of Species			% of occurrence	Remarks
	Tamilnadu	India	World		
Crustacea : Decapoda : Freshwater Prawns	24	98	655	24	
Crustacea : Decapoda : Gecarcinucidae	12	91	1,476	13	
Insecta : Thysanura	5	33	370	15	
Insecta : Ephemeroptera	18	106	3046	17	
Insecta : Odonata	135	499	5680	27	
Insecta : Plecoptera	12	113	3497	11	
Insecta: Orthoptera	201	1000	17,250	20	
Insecta : Embioptera	7	33	200	21	
Insecta : Dictyoptera : Blattodea	47	156	4000	30	
Insecta : Mantodea	35	162	2,310	13	
Insecta : Hemiptera : Aquatic and semiaquatic	102	284	3,946	36	
Insecta : Homoptera : Membracidae	90	233	3,200	39	2 species endemic to Nilgris
Insecta : Coleoptera : Scarabaeidae	298	1200	25,000	25	
Insecta : Coleoptera Cerambycidae	181	1680	38,600	11	One species each new report to Western Ghats & Eastern Ghats of Tamilnadu
Insecta : Mecoptera	7	23	500	30	
Insecta : Siphonaptera	6	52	2,000	12	
Insecta : Diptera : Psychodidae	23	100	2,000	23	
Insecta : Diptera : Culicidae	93	350	3,300	27	
Insecta : Diptera : Ceratopogonidae	27	63	1,000	43	
Insecta : Diptera : Cecidomyiidae	48	387	5,451	12	
Insecta : Diptera : Tabanidae	49	240	3,000	20	
Insecta : Diptera : Tipuloidea	177	1473	15,176	12	
Insecta : Diptera : Tephritidae	46	243	4,352	19	

Table 1. *Contd.*

Groups Studied	Number of Species			% of occurrence	Remarks
	Tamilnadu	India	World		
Insecta : Lepidoptera : Rhopalocera	318	1501	17,500	21	35 species endemic to Western Ghats
Insecta : Trichoptera	63	994	12627	6	
Chilopoda : Scolopendromorpha	29	102	600	28	9 species endemic to Tamilnadu
Arachnidae : Scorpionida	25	99	1,500	25	5 species first report from Tamilnadu
Mollusca : Gatropoda : Freshwater	32	193	3,972	16	2 species first report from Tamilnadu
Bryozoa : Ectoprocta : Freshwater	6	25	88	24	
VERTEBRATES					
Pisces : Freshwater	160	852	12,740	19	13 endemic to Tamilnadu
Amphibia	77	240	5828	32	56 species endemic to Western Ghats
Reptilia	187	460	5,817	41	103 endemic to Eastern Ghats and Western Ghats of Tamilnadu.
Aves	493	1232	9,028	40	21 species endemic to Western Ghats; 14 sp. VU; 18 sp. NT; 2 sp. CR ; 2 sp. EN
Mammalia	134	397	4,629	34	13 endemic to Western Ghats 1 species endemic to Tamilnadu; 23 sp. Schedule-I; 4 sp. CR; 8 sp. EN; 14 sp. VU; 35 sp. NT; 66 sp. LC; 8 sp. DD.
Total	3,456	15,504	2,10,406		

CR – Critically Endangered; **DD** – Data Deficient; **EN** – Endangered; **LC** – Least Concern; **NT** – Near Threatened; **VU** – Vulnerable.

SOURCE :

Anonymous. 2008. Freshwater Animal Diversity Assessment *Hydrobiologia* **595**(1) : 1-637 pp. Springer Science + Business Media B.V. Springer Netherlands, ISBN 0018-8158 Guest editors : E. V. Balian, C. Lévêque, H. Segers & K. Martens.

Ramakrishna and Alfred, J.R.B. 2007. Faunal Resources in India : 1-427 pp. Published by The Director, Zoological Survey of India, Kolkata, ISBN 81-8171-131-9

Conforming to the universal rule, insects form the major constituents of the invertebrate fauna (1961 species), more than half of the reported. Information on endemism of insects also is very limited and we presume that more endemics may exist in restricted habitats of the Western Ghats. Though Tamilnadu does not have perennial rivers, as a riparian state, it derives the benefit of River Kaveri. The work of Jayaram (2000) throws abundant light on flora and fauna of the river including its rivulets in the delta region.

The present work does not include marine fauna excepting the marine mammals.

INVERTEBRATES

Among the freshwater invertebrates, rotifers or 'Wheel Animalcules' dominate the scene with 48% of Indian fauna, closely followed by cladocera or 'Water fleas'. Within the insect groups the dipterans species ceratopogonidae or 'biting or blood sucking midges' account for 43% of Indian occurrence followed closely by the homopteran membracids or 'Tree hoppers' and hemipteran aquatic & semiaquatic bugs. There are 29 species of centipedes in Tamilnadu of which 9

are endemic. Similar is the distribution of leech and scorpion fauna too. Tamilnadu is colourful due to the presence of 318 species of butterflies. Yet another point worth noting is the presence of 93 species of mosquitos.

VERTEBRATES

There is no agreement amongst the ichthyologists on the number of fresh water fish species of Tamilnadu. However, precise information is available on 160 species though more are known from lentic and lotic freshwaters. The Nilgiri Biosphere Reserve appears to have the richest fish resource, atleast 116 species belonging to 46 genera accommodated in 20 families of which 11 species are endemic (Anonymous, 2005). Endemism in amphibians and reptiles appears to be high because of the presence of Western Ghats in the State. It is for the first time we give information on 493 species of avian fauna from the State. Nearly one third of the Indian mammals are reported in Tamilnadu with the interesting feature that one species is a very narrow endemic [Large Rock Rat, *Cremnomys elvira* (Ellerman) found in Kurambapatti, Salem].

REFERENCES

- Anonymous, 2005. State of Environment Report Tamil Nadu-2005. Department of Environment, Government of Tamil Nadu 129 pp
- Hora, S. L. 1953. The Satpura Hypothesis. *Sci. Progress*, **41** : 245-255.
- Jayaram. K. C. 2000. Kaveri Riverine System : An Environmental Study. The Madras Science Foundation. Chennai, 253 pp.

ROTIFERA

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INTRODUCTION

Edmondson and Hutchinson (1934) reported 8 species of rotifers belonging to 5 genera including *Keratella quadrata* from Nilgiris and this forms the first report of rotifers from Tamilnadu. Subsequently a few studies were made by Hauer (1937), Ahlstrom (1940), Brehm (1951), Chacko (1951) and Donner (1953). The decade between 1961-1970 registered more work on taxonomy of rotifers from Tamilnadu. Pasha (1961) reported the occurrence of 6 Lecanid rotifers from freshwater tanks and the Cooum river of Madras. Hutchinson (1964) resurrected *Filinia pejleri* (Hutchinson) from the figure reported earlier by Edmondson and Hutchinson (1934). Michael (1966) described a colonial rotifer, *Conochilus madurai*, while Wycliffe and Michael (1968) dealt with a new species, *Pseudoembata acutipoda*, an epizoic bdelloid from the gill chambers of *Caridina* sp. In addition Rajendran (1971) described *Conochilus arboreus*, a new species from Madurai. Michael (1973) provided an important contribution by reporting 12 species of rotifers belonging to 4 genera and 4 families, along with the key to the genera, a treatise for Tamilnadu rotifer workers.

Sampath *et al.* (1974) inventoried 45 species of rotifers under 32 genera from the Tamilnadu part of river Cauvery and studied their role as biological indicators. Kannan and Govindasamy (1991) reported 40 species of brackish water rotifers from Portonovo, Tamilnadu.

Sampathkumar (1991) reported the distribution of 7 species of *Brachionus* rotifers from the fish ponds and later he (1992) reported 8 species of rotifers belonging to 7 genera and 7 families from the fish ponds of Tuticorin. Patil (2000) dealt with 7 species of rotifers under 5 genera and 4 families from the Tamilnadu part of Nilgiri Biosphere Reserve. Daisy (2001) during her work on the taxonomy and resting egg morphology of freshwater rotifers documented 93 species belonging to 16 families under 41 genera from Tirunelveli and Sivakumar and Altaff (2001) inventoried 26 species under 13 genera from Dharmapuri district. Francis *et al.* (2003) reported the rotifer diversity of fish ponds manured with livestock wastes by recording 33 species belonging to 12 genera under 7 families. Besides, there are many studies on plankton ecology (Prabavathy and Sreenivasan, 1977; Raghunathan, 1985, 1990; Mary Bai, 1993; Shahul Hameed *et al.*, 1995). Koteswari and Ramanibai, (2003) during their investigation on the effect of tannery effluent on the colonization rate of plankters reported 14 species of rotifer belonging to 11 genera. Sugumaran *et al.* (2004) gave brief taxonomic characters for 76 species of rotifers belonging to 54 genera and 24 family of mostly freshwater, 3 estuarine and 1 marine inhabitant. Sureshkumar and Sivakumar (2004) provided key to the common rotifers. Rajan and Azariah (2004) reported the species of Rotifera from three water supply reservoirs of Chennai. Lekha and Munuswamy (2006) studied the cryopreservation

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of a freshwater rotifer *Brachionus calyciflorus* Pallas. A detailed inventory of the diversity of Rotifers of Tamilnadu is provided by Raghunathan and Sureshkumar (2006). Zooplankton investigations from a paddyfield ecosystem in Tamilnadu were carried out by Raghunathan and Valarmathi (2006). The present list, based on the publications, revealed 158 species of freshwater rotifers belonging to 49 genera and 23 families, which is 49% of the Indian rotifer fauna (325 species).

CHECK LIST

Phylum ROTIFERA
Subclass EUROTATORIA, Bartos
Superorder MONOGONONTA,
Wesenberg-Lund
Order PLOIMIDA Delage
Family BRACHIONIDAE
Wesenberg-Lund

1. *Anuraeopsis fissa* (Gosse)
2. *Brachionus angularis* (Gosse)
3. *Brachionus angularis angularis* Gosse
4. *Brachionus angularis bidens* Plate
5. *Brachionus angularis v. chelonis* Ahlstrom
6. *Brachionus bidentatus* Anderson
7. *Brachionus budapestinensis* (Daday)
8. *Brachionus calyciflorus* Pallas
9. *Brachionus calyciflorus f. ampiceros* Ehrenberg
10. *Brachionus calyciflorus f. borgerti* Apstein
11. *Brachionus calyciflorus f. dorcas* (Gosse)
12. *Brachionus calyciflorus v. annuaeriformes* Brehm
13. *Brachionus caudatus* Barrois & Daday
14. *Brachionus caudatus apsteini* (Fadeev)
15. *Brachionus caudatus personatus* (Ahlstrom)
16. *Brachionus caudatus v. aculeatus* Hauer
17. *Brachionus diversicornis* (Daday)
18. *Brachionus donneri* Brehm
19. *Brachionus falcatus* Zacharias

20. *Brachionus falcatus v. lyratus* Lemmerman
21. *Brachionus forficula* Wierzejski
22. *Brachionus forficula forficula* Wierzejski
23. *Brachionus havanensis* Rousselet
24. *Brachionus leydigi* (Cohn)
25. *Brachionus patulus* (O. F. Muller)
26. *Brachionus patulus patulus* (O. F. Muller)
27. *Brachionus plicatilis* Muller
28. *Brachionus quadridentatus* Hermann
29. *Brachionus quadridentatus v. rhenanus* Lauterborn
30. *Brachionus quadridentatus f. cluniorbicularis* (Skorikov)
31. *Brachionus quadridentatus v. brevispinus* (Ehrenberg)
32. *Brachionus rubens* Ehrenberg
33. *Brachionus urceolaris* O. F. Muller
34. *Brachionus urceolaris v. urwaensis* Sudzuki
35. *Keralella cochlearis* Gosse
36. *Keralella edmondsoni* Nayar
37. *Keralella procurva* (Thorpe)
38. *Keralella quadrata* (O. F. Muller)
39. *Keralella ticinensis* (Carlin)
40. *Keralella tropica* (Apstein)
41. *Keralella valga* (Ehrenberg)
42. *Notholca scaphula* (O. F. Muller)
43. *Platyas patulus* (O. F. Muller)
44. *Platyas quadricornis* Ehrenberg
45. *Wolga spinifera* (Skorikov)
46. *Lophocharis* sp.

Family EPIPHANIDAE

47. *Epiphanes clavulata* (Ehrenberg)
48. *Epiphanes macroura* (Barrais and Daday)
49. *Epiphanes senta* (Muller)
50. *Epiphanes brachionus spinosus* (Rousselet)

Family MYTILINIDAE

51. *Mytilina ventralis* Ehrenberg
52. *Mytilina shape*

Family EUCHLANIDAE Bartos

53. *Diplois deviesene* Gosse
54. *Dipleuchlanis propatula* Gosse
55. *Euchlanis alata* Voronkov
56. *Euchlanis dilatata* Ehrenberg
57. *Euchlanis oropha* Gosse
58. *Tripleuchlanis plicata* (Levander)
59. *Euchlanis* sp.
60. *Pseudoeuchlanis* sp.
61. *Dipleuchlanis* sp.
62. *Tripleuchlanis* sp.

Family TRICHOTRIDAE Bartos

63. *Trichotria tetractis* Ehrenberg
64. *Macrochaetus* sp.

Family COLURELLIDAE Bartos

65. *Colurella adriatica* (Ehrenberg)
66. *Colurella bicuspidata* (Ehrenberg)
67. *Colurella obstusa* (Gosse)
68. *Lepadella (Lepadella) acuminata* (Ehrenberg)
69. *Lepadella (Lepadella) minuta* (Montet)
70. *Lepadella (Lepadella) rhomboides* (Gosse)
71. *Lepadella (Lepadella) triptera* Ehrenberg
72. *Lepadella cristata* (Rousset)
73. *Lepadella ovalis* (O. F. Muller)
74. *Lepadella patella* (O. F. Muller)
75. *Squatinella* sp.

Family LECANIDAE Bartos

76. *Lecane brauhmi* (Koste)
77. *Lecane depressa* (Bryce)
78. *Lecane elasma* (Harring & Myers)
79. *Lecane (Lecane) crepida* Harring
80. *Lecane (Lecane) curvicornis curvicornis* (Murray)
81. *Lecane (Lecane) flexilis* (Gosse)
82. *Lecane (Lecane) harnemanni* (Ehrenberg)
83. *Lecane (Lecane) inopinata* (Harring & Myers)
84. *Lecane (Lecane) leontine* (Turner)

85. *Lecane (Lecane) luna* (O. F. Muller)
86. *Lecane (Lecane) luna luna* (Muller)
87. *Lecane (Lecane) obtusa* (Murray)
88. *Lecane (Lecane) ohioensis* (Voigt)
89. *Lecane (Lecane) papuana* (Murray)
90. *Lecane (Lecane) simonneae* Segers
91. *Lecane (Lecane) sola* Hauer+
92. *Lecane (Lecane) unguolata* (Gosse)
93. *Lecane (Monostyla) bulla* (Gosse)
94. *Lecane (Monostyla) bulla f. diabolica* Hauer
95. *Lecane (Monostyla) closterocerca* (Schmarda)
96. *Lecane (Monostyla) conspicua* Hauer
97. *Lecane (Monostyla) decipiens* (Murray)
98. *Lecane (Monostyla) hamata* (Stokes)
99. *Lecane (Monostyla) lunaris crenata* (Harris)
100. *Lecane (Monostyla) quadridentata* (Ehrenberg)
101. *Lecane (Monostyla) stenroosi* (Meissner)
102. *Lecane (Monostyla) thalera* (Harring & Myers)
103. *Lecane (Monostyla) unguitata* (Fadeev)
104. *Cathypna amban*

Family PROALIDAE

105. *Wulfertia ornata* Donner

Family NOTOMMATIDAE Remane

106. *Cephalodella auriculata* (Muller)
107. *Cephalodelta gibba* Ehrenberg
108. *Eosphora anthadis* (Marring & Myers)
109. *Eosphora najas* Ehrenberg
110. *Itura aurita* (Ehrenberg)

Family DICRANOPHORIDAE

111. *Encentrum felis* (O. F. Muller)
112. *Wierzajskiella racinae* (Wierzejski)

Family TRICHOCERCIDAE Remane

113. *Trichocerca flagellata* Hauer
114. *Trichocerca porcellus* Gosse
115. *Trichocerca (Diurella) rutneri* Donner
116. *Trichocerca (Diurella) similis* (Wierzejski)

117. *Trichocerca* (*Trichocerca*) *rattus* (Muller)
 118. *Trichocerca* (*Trichocerca*) *tortuosa* (Myers)
 119. *Trichocerca* (*Trichocerca*) *tropis* Hauer+
 120. *Mastigocera* sp.

Family GASTROPODIDAE Remane

121. *Gastropus hyptopus* (Ehrenberg)

Family ASPLANCHNIDAE

122. *Asplanchna brighlwelli* Gosse
 123. *Asplanchna herricki* de Guerne
 124. *Asplanchna intermedia* Hudson
 125. *Asplanchna priodonta* (Gosse)
 126. *Asplanchna bhimavaramensis* Dhanapathi

Family SYNCHAETIDAE Remane

127. *Harringia rousselet* de Beauchamp
 128. *Pleosoma lenticulare* (Herrick)
 129. *Polyarthra multiappendiculata* (Arora)
 130. *Synchaeta pectinata* Ehrenberg
 131. *Polyarthra vulgaris* (Carlin)
 132. *Pleosoma* sp.
 133. *Polyarthra* sp.
 134. *Polyarthra* sp. (apterous form)

Order GNESIOTROCHA De
Beauchamp

Suborder FLOSCULARIACEA
Remane

Family CONOCHILIDAE Bartos

135. *Conochilus arboreus* Rajendran+
 136. *Conochilus madurai* Michael+
 137. *Conochilus* sp.
 138. *Conochiloides* sp

Family HEXARTHRIIDAE Bartos

139. *Hexarthra intermedia* (Wizniowski)
 140. *Hexarthra mira* (Hudson)

Family TESTUDINELLIDAE Bartos

141. *Testudinella parva* (Ternetz)
 142. *Testudinella patina* (Hermann)

Family FILINIDAE Bartos

143. *Filinia longiseta* (Ehrenberg)

144. *Filinia opoliensis* (Zacharias)
 145. *Filinia pejleri* (Hutchinson)
 146. *Filinia terminalis* (Plate)

Family FLOSCULARIDAE

147. *Lacinularia* sp.

Family COLLOTHECIDAE

148. *Collothea ornata* (Ehrenberg)
 149. *Cupelopagis vorax* (Leidy)

Family TROCHOSPHERIDAE

150. *Horaella brehmi* (Donner)

Subclass BDELLOIDEA

Order BDELLOIDA

Family HABROTRACHIDAE

151. *Habrotracha* sp.

Family PHILODINIDAE

152. *Macrotrachela quadricornifera* (Milne)
 153. *Philodina citrina* (Ehrenberg)
 154. *Philodina roseola* (Ehrenberg)
 155. *Pseudoembata acutipoda* Wycliffe & Michael+
 156. *Rotaria citrinus* Weber
 157. *Rotaria rotatoria* (Pallas)
 158. *Rotifer tridentatus*

DISCUSSION

Family Brachionidae is represented with maximum number of species (46) followed by Lecanidae (29), Colurellidae (11), Euchlanidae (10) and Trichocercidae (8). The following species of rotifers namely *Brachionus angularis*, *Brachionus calyciflorus*, *B. caudatus* and *quadridentatus* are widely distributed. *B. leydigi* is very much restricted in occurrence. *Brachionus* is more abundant in tropical areas (Green 1972). Among the species reported in Tamilnadu the following species are also reported from estuarine areas namely *B. angularis*; *B. bidentatus*; *B. calyciflorus*; *B. calyciflorus annuaeriformes*; *B. caudatus*; *B. falcatus*; *B. plicatilis*; *B. quadridentatus*; *B. rubens*; and *B. urceolaris* (Kannan and Govindasamy, 1991). Most of the

species reported in the genus *Brachionus* are Tiruchi, Thirunelveli and Portonova areas. Further bioindicators. The current information is mainly studies from other parts of Tamilnadu are very based on the studies available from Madurai, essential.

REFERENCES

- Ahlstrom, E. H., 1943. A revision of the Rotarian genus *Keratella* with descriptions of three new species and five new varieties. *Bull. Am. Mus. Nat. Hist.*, **80** : 411-457.
- Brehm, V., 1951. Ein neuer *Brachionus* aus Indien (*Bracionus donneri*). *Zool. Anz.*, **146** : 54-55.
- Chacko, P. I. S., 1952. Development of fisheries of the Kodaikanal Lake, Madurai district. *Ind. Com. Journal*, Madras, **8**(4) : 372-374.
- Donner, J., 1953. *Trichocerca* (*Diurella*) *ruttneri* nov. spec. ein *Rodentien* aus. *Insulinde, Indien und dem Neusieldler sec. Osterr. Zool. Z.* **4** : 19-22.
- Edmonson, W. T. and Hutchinson, G. E., 1934. Report on Rotaria. 9. Yale North Indian Expedition. *Mem. Conn. Acad. Arts sci.*, **10** : 153-186.
- Hauer, J., 1937. Neue Rotatarien aus Indien. III. *Zool. Anz.*, **120** : 17-19.
- Hutchinson, G. E., 1964. On *Filinia terminalis* and *F. pejeri* n. sp. (Rotataria : Testudinellidae). *Postilla*, **81** : 1-8.
- Francis, T., N. Ramanathan, S. Athithan, P. Rosalind Daisy Rani and P. Padmavathy, 2003. Rotifer diversity of fishponds with livestock waste. *Indian J. Fish.*, **50**(2) : 203-209.
- Green, J. 1972. Latitudinal variation in associations of planktonic Rotifera. *J. Zool. Lincol.*, **167** : 31-39.
- Kannan, L. and Govindasamy, 1991. Rotifers of Portonovo (Brackish water). *Center for Adv. Study Marine Biol.*, Portonovo 4 Publication, 49 pp.
- Lekha, K. S., and Munuswamy. 2006. Studies on the Cryopresevation of a freshwater rotifer, *Brachionus calyciflorus* Pallas. *Rotifera XI. Mexico* : 11-18.
- Mary Bai, M., 1993. Ecological studies on the River Cooum with special reference to pollution. *Rec. zool. Surv. India*, **93**(3-4) : 393-416.
- Michael, R. G., 1966. A new rotifer *Conochilus madurai* from and a static water pool in Madurai. *Zool. Anz.*, **177** : 439-441.
- Michael, R. G., 1973. A guide to the study of freshwater organisms. 2. Rotataria. *J. Madurai Univ. Suppl.*, **1** : 23-36.
- Pasha, S. M. K., 1961. On a collection of freshwater rotifers from Madras. *J. Zool. Soc. India*, **13** : 52-55.
- Patil, S. G., 2000. Rotifers. In : Editor-Director, 2001. *Fauna of Nilgiri Biosphere Reserve, Fauna of Conservation Area Series*, **11** : 1-330 (published-Director, ZSI, Kilkata) : 25-30.
- Prabavathy and Sreenivasan, 1977. Ecology of warm freshwater zooplankton of Tamilnadu. *Proc. Symp. Warm water zooplankton, Nat. Inst. Oceanogr.*, Goa : 319-330.
- Raghunathan, M. B., 1985. Studies on freshwater cladocerans of Tamilnadu. 3. High altitude waters. *Proc. Nat. Symp. Pure and Appl. Limnology. Bull. Bot. Soc. Sagar.* : 60-63.

- Raghunathan, M.B., 1990. Seasonal studies on freshwater Cladocera of Chinglepet tank, Tamilnadu. *Rec. zool. Surv. India*, **86**(2) : 253-259
- Raghunathan, M.B. and Sureshkumar, R. 2006. Diversity of Rotifers of Tamilnadu. *Rec. zool. Surv. India*. **106**(2) : 67-78.
- Raghunathan, M.B. and Valarmathi, K. 2006. Zooplankton investigations from a paddyfield in Tamilnadu. *Rec. zool. Surv. India*, **107**(1) : 55-62
- Rajan, S and Azariah, J. 2004. Seasonal changes of Planktons in the three water supply reservoirs of Madras drinking water supply, Tamilnadu-A public Health approach. *Indian Hydrobiology*, **7**(1&2) : 205-215.
- Rajendran, M., 1971. On a new species of *Conochilus* from Madurai. *Proc. Ind. Acad. Sci.*, **73** : 8-14.
- Sampath, V., Sreenivasan, A. and Ananthanarayanan, R. 1974. Rotifers as Biological indicators of water quality in Cauvery River. *Proc. Symp. Environ. Biol.*, : 441-452.
- Sampathkumar, 1991. Taxonomic composition and distribution of *Brachionus* (Rotatoria : Monogononta) populations in ponds. *J. Bom. Nat. Hist. Soc.*, **88**(1) : 67-72.
- Sampathkumar, 1992. On the taxonomy of rotifers in fishponds. *J. Bomb. nat. Hist. Soc.*, **89**(2) : 204-209.
- Shahul Hameed, P., Y Humayun Sherief and Amanullah, 1995. Study of zooplankton in Kaveri river system (Tiruchirapalli, India) with reference to water quality assessment. In : K. H. Timotius and F. Goltenboth (Eds.), Tropical Limnology, III. Satya Wacana Christian University, Salatiga, Indonesia : 111-119.
- Sharma, B. K., 1983. The Indian species of the genus *Brachionus* (Eurotatoria : Monogononta : Brachionidae). *Hydrobiologia*, **104** : 31-39.
- Sivakumar, K. and K. Altaff, 2001. Diversity of freshwater rotifers of Dharmapuri district, Tamilnadu. *Convergence*, **3**(1-4) : 25-30.
- Wallace, R. T. and Snell, T. W. 1991. Rotifera. In : Ecology and Classification North American Freshwater Invertebrates. (J. H. Thorp and A. P. Covich, Eds). : 187-248. Academic Press San Diego.
- Wycliffe, M. J. and R. G. Michael, 1968. *Pseudoembata acutipoda* gen. et. sp. nov. an epizoic rotifer. *Curr. Sci.*, **37** : 106-108.

ANNELIDA : HIRUDINEA

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INTRODUCTION

The Freshwater Animal Diversity Assessment (Sket and Trontelj, 2008) documents the occurrence of 676 species of freshwater, terrestrial and marine leeches in the world and India is reported to have 62 species (Harding and Moore, 1927; De Silva, 1963; Chelladurai, 1934; Kaburaki, 1921; Blanchard, 1896, 94; Oka, 1917; Savigny, 1920; Sanjeeva Raj and Gladstone, 1981; Soos, 1965; Soota and Ghosh, 1977; Julka and Chandra, 1980; Raut and Nandi, 1980; Chandra, 1983, 91; Ghosh, 1998; Ghosh and Mandal, 2005; Mandal, 1996, 2002, 2004a,b,c&d, 2005, 2006 Bandyopadhyay and Mandal, 2005, 2006). In this work, occurrence of 20 species in Tamilnadu is documented. Six are new records for the state.

SYSTEMATIC ACCOUNT

Phylum ANNELIDA

Class HIRUDINEA

Order RHYNCHOBDELLAE

Family PISCICOLIDAE

Genus *Zeylanicobdella* De Silva, 1963

1. *Zeylanicobdella arugamensis* De Silva, 1963

Family GLOSSIPHONIDAE

Genus *Glossiphona* Johnson, 1816

2. **Glossiphona heteroclita* (Linnaeus, 1761)
3. *Glossiphona weberi* Blanchard, 1897

Genus *Hemiclepsis* Vejdovsky, 1883

4. **Hemiclepsis marginata asitica* Moore, 1924
5. *Hemiclepsis viridis* Chelladurai, 1934

Genus *Paraclepsis* Harding, 1924

6. **Paraclepsis vulnifera* Harding, 1924

Family ERPOBDELLIDAE

Genus *Foraminobdella* Kaburaki, 1921

7. *Foraminobdella heptamarata* Kaburaki, 1921

Genus *Nematobdella* Kaburaki, 1921

8. **Nematobdella indica* Kaburaki, 1921

Family HIRUDIDAE

Genus *Denobdella* Moore, 1927

9. *Denobdella notata* Moore, 1927

Genus *Hirudo* Linnaeus, 1758

10. *Hirudo birmanica* (Blanchard, 1894)

Genus *Myxobdella* Oka, 1917

11. *Myxobdella annandalei* Oka, 1917

Genus *Poecilobdella* Blanchard, 1893

12. *Poecilobdella granulosa* (Savigny, 1820)
13. *Poecilobdella viridis* Moore, 1927

Family HAEMADIPSIDAE

Genus *Haemadipsa* Tennent, 1869

14. *Haemadipsa dussumieri* Blanchard, 1917
15. *Haemadipsa kodaiensis* Bandyopadhyay and Mandal, 2006
16. *Haemadipsa montana* Moore, 1927
17. *Haemadipsa moorei* Sanjeeva Raj and Gladstone, 1981
18. **Haemadipsa sylvestris* Blanchard, 1894
19. *Haemadipsa zeylanica agilis* Moore, 1927
20. **Haemadipsa zeylanica cochiniensis* Moore, 1917

*Recorded for the first time from Tamilnadu

REFERENCES

- Bandyopadhyay, P.K. and Mandal C.K. 2005. On the occurrence of five leeches, *Barbronia weberi*, *Glossiphonia annandalei*, *Glossiphonia heteroclita*, *Glossiphonia reticulata* and *Placobdella undulata* in West Bengal. *Rec. zool. Surv. India*, **105**(3&4) : 93-101.
- Bandyopadhyay, P.K. and Mandal C.K. 2006. Studies on a new species of Leech of the genus *Haemadipsa* (Hirudinea : Haemadipsidae) from the Kodair forest of Tamil Nadu, India. *Rec. zool. Surv. India*, **106**(1) : 33-37.
- Blanchard, R. 1894. Viggio di Leonardo Fea in Birmanica e regioni vicine-LVII. Hirudinees. *Ann. Mus. Civico di storia Naturelle, Genova*, **14**(2) : 113-118.
- Blanchard, R. 1896. Description des quelques Hirudinees Asiatiques. *Mem. Soc. Zool. De France*, **9** : 316-330, 7 text figs.
- Blanchard, R. 1917. Monographie des Hemadipsines (Sangsues terrestres). *Bull. De la soc. Pathologie Exotique*, **10** : 640-675, pl. vii, 16 text-figs.
- Boris Sket and Peter Trontelj. 2008. Global diversity of leeches (Hirudinea) in freshwater. *Hydrobiologia*, **595** : 129-137.
- Chandra, M. 1983. A check-list of leeches. *Rec. zool. Surv. India*, **80**(3&4) : 256-290.
- Chandra, M. 1991. Leeches of India : A Handbook. Ed : The Director *Zool. Surv. India*, Kolkata) : 1-117 & 8 plates.
- Chelladurai, J. E. 1934. On a new Indian leech *Hemiclepsis viridis* sp. nov. *Rec. Indian. Mus.*, **36** : 345-352.
- De Silva, P. H. D. H. 1963. *Zeylanicobdella arugamensis* gen. nov. and sp. nov. from Arugam Kalapu, Eastern Province, Ceylon. *Spolia zeylan.*, **30**(1) : 35-38.
- Ghosh, G.C. 1998. Leeches. In : *Fauna of West Bengal, State Fauna Series*, **3**(Part-10) : 227-249.
- Ghosh, G.C. and Mandal, C.K. 2005. Annelida : Hirudinea : Leeches (Coastal Districts). *Fauna of Andhra Pradesh, State Fauna Series*, **5**(5) : 339-355. (Published by the Director *Zool. Surv. India*, Kolkata)
- Harding, W. A. and Moore, J. P. 1927. *The fauna of British India, Hirudinea*. Taylor & Francis, London. 1-302, 9 Plates & 1 Map.
- Julka, J. M. and Chandra, M. 1980. On n small collection of leeches collected during the Daphabum and Subansiri expeditions, Arunachal Pradesh. *Bombay nat. Hist. Soc.*, **77** : 160-161.
- Kaburaki, T. 1921. On some leeches from the Chilka Lake. *Mem. Indian Mus.*, **5**(9) : 661.
- Mandal, C. K. 1996. On the occurrence of two leeches *Hemiclepsis marginata asiatica* and *Plocobdella fulva* in West Bengal, *Sci. Cult.*, **62**(5-6).
- Mandal, C. K. 2002. On the occurrence and breeding season of leech *Placobdella emydae* in West Bengal, *Sci. cult.*, **66**(7-8) : 267-278.
- Mandal, C. K. 2004a. Checklist of the Hirudinea (Leeches) of India, *Rec. zool. Surv. India*, **102**(1-2) : 41-46.
- Mandal, C. K. 2004b. *Placobdella harasundarai* Hirudinea : Glossiphonidae a new species of leech from West Bengal, India. *Rec. zool. Surv. India.*, **103**(1-2) : 99-102.

- Mandal, C. K. 2004c. *Paraclepsis gardensi* (Hirudinea : Glossiphonidae) a new species of leech from West Bengal, India. *Rec. zool. Surv. India.*, **103**(1-2) : 111-114
- Mandal, C. K. 2004d. Endemic leech fauna of India. *Rec. zool. Surv. India.*, **103**(1-2) : 103-110.
- Mandal, C. K. 2005. Annelida : Hirudinea(Non Coastal Districts). *Fauna of of Andhra Pradesh, State Fauna Series*, **5**(5) : 319-338. (Published by the Director Zool. Surv. India, Kolkata.)
- Mandal, C. K. 2006. Leeches. *Fauna of Arunachal Pradesh, State Fauna Series*, **13**(2) : 47-48. (Published by the Director Zool. Surv. India, Kolkata.)
- Raut, S. K. and Nandi, N. C. 1980. Observations on the predatory behaviour of a freshwater leech *Glossiphonia weberi* (Blanchard) (Annelida : Glossiphonidae). *Bull. zool. Surv. India*, **2** : 223-224.
- Sanjeeva Raj and Gladstone, 1981. *Haemadipsa morei*. *Rec. zool. Surv. India*, **79**(1-2) : 1-18.
- Savigny, J. C. 1920. (1922). *Système des annélides*, Paris.
- Sket, B and Trontelj, P. 2008. Global diversity of leeches (Hirudinea) in freshwater. *Hydrobiologia*, **595** : 129-137.
- Soos, A. 1965. Identification Key to the Leech (Hirudinoidea) Genera of the World, with a catalogue of the species. III-IV. *Acta. Zool. Hung.*, **11**(3-4) : 415-464.
- Soota, T. D. & Ghosh, G. C. 1979. On some Indian Leeches. *Newsl. zool. Surv. India*, **3**(6) : 359-360.

CRUSTACEA : CLADOCERA (FRESHWATER)

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INTRODUCTION

Rajagopal (1962) initiated cladoceran investigations of Tamilnadu with recordings from Madras coastal waters. Seasonal events in a natural population of *Daphnia carinata* were studied by Sumithra Vijayaraghavan (1970). Navaneethakrishnan and Michael (1971) investigated the egg production and relative growth in *Daphnia carinata*. Murugan and Sivaramakrishnan (1973) studied the biology of *Simocephalus acutirostratus*. Further Michael (1973) made a detailed analysis of the cladocerans of Madurai area. Murugan (1975a, 1975b) made biological studies of *Moina micrura* and *Ceriodaphnia cornuta*. Murugan and Sivaramakrishnan (1976) carried out laboratory studies on *Scapholeberis kingi*. Murugan and Venkataraman (1977) studied the developmental aspects of *Daphnia carinata*. Murugan and Ramaseshan (1978) studied *Scapholeberis kingi* and production of ephippia. Santharam (1978) studied the biology of *Daphnia carinata*. Venkataraman and Job (1980) made further studies on the effect of temperature on the growth of *Daphnia carinata*. Raghunathan (1983) reported the planktonic Cladocera of Tamilnadu. Venkataraman (1983) worked out the taxonomy and ecology of Cladocera of southern Tamilnadu. Venkataraman and Krishnaswamy (1984a, b) reported the occurrence of *Leydigia ciliata* and *Daphnia projecta* from Tamilnadu. Venkataraman and Krishnaswamy (1985) further studied the cultural aspects of *Diaphanosoma senegal*.

Raghunathan (1985) studied cladocerans from high altitude waters of Tamilnadu. The same author investigated the Cladocerans of certain urban water bodies in 1986. Venkataraman and Krishnaswamy (1986) made studies pertaining to predation of *Anisops bouveri* on *Daphnia cephalata*. Manimegalai *et al.* (1986) studied the helmet development in *Daphnia cephalata*. Hudec (1987) described a new species, *Moina oryzae* from Tamilnadu. Michael and Sharma (1988) have completed the Fauna of India volume on Cladocera. Murugan and Moorthy (1988) made biological studies of *Daphnia cephalata*. Later Raghunathan (1989) reviewed the work on Indian Cladocera. Raghunathan (1990; 1991; 1992; 1995) conducted ecological studies on the cladoceran fauna of different ponds in Tamilnadu. Raghunathan and Revathy (1999a, b, c) made studies on the cladoceran species associations, reproduction and on the natural population of a village pond. Suresh kumar *et al.* (1999) recorded a chydorid cladoceran, *Pleuroxus aduncus* Jurine and its developmental stages from Tamilnadu. Venkataraman (1999) reported the Cladocera of southern Tamilnadu. Sureshkumar (2000) carried out a detailed analysis of Cladocera of Tamilnadu and their possible utilization in aquaculture and Sivakumar *et al.* (2001) made a study on the Cladocera of Dharmapuri district. Raghunathan and Sureshkumar (2002) provided a checklist and bibliography of Tamilnadu Cladocera. Further a checklist of Indian Cladocera was also provided by Raghunathan and Sureshkumar (2003). Detailed

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information on freshwater zooplankton of India was provided by Raghunathan (2003). Diversity of freshwater Branchiopod Crustacea of Tamilnadu was provided by Raghunathan and Sureshkumar (2004). Species diversity studies of freshwater fauna from Tamilnadu were carried out by Raghunathan (2006). Zooplankton investigations from a paddyfield in Tamilnadu were carried out by Raghunathan and Valarmathi (2007)

SYSTEMATIC LIST

Family SIDIDAE

1. *Pseudosida bidentata* Herrick
2. *Pseudosida szalay* Daday
3. *Sida crystallina* (O. F. Muller)
4. *Latanopsis australis* Sars
5. *Diaphanosoma excisum* Sars
6. *Diaphanosoma sarsi* Richard
7. *Diaphanosoma senegal* Gauthier
8. *Diaphanosoma brachyurum* (Lieven)

Family DAPHNIIDAE

9. *Ceriodaphnia cornuta* Sars
10. *Ceriodaphnia quadrangula* (O.F. Muller)
11. *Ceriodaphnia laticaudata* P. E. Muller
12. *Ceriodaphnia pulchella* Sars
13. *Daphnia carinata* King
14. *Daphnia cephalata* (King)
15. *Daphnia lumholtzi* Sars
16. *Daphnia longicephala* Hebert
17. *Daphnia similis* Claus
18. *Daphnia projecta* Hebert
19. *Scapholeberis kingi* Sars
20. *Simocephalus vetulus* (O.F. Muller)
21. *Simocephalus vetuloides* Sars
22. *Simocephalus exspinosus* (Koch)
23. *Simocephalus latirostris* Stingelin
24. *Simocephalus acutirostratus* (King)
25. *Simocephalus serrulatus* (Koch)

Family MOINIDAE

26. *Moina micrura* Kurz

27. *Moina macrocopa* (Straus)
28. *Moina brachiata* (Jurine)
29. *Moina weismanni* Ishikawa
30. *Moina oryzae* Hudec
31. *Moinodaphnia macleayi* (King)

Family BOSMINIDAE

32. *Bosmina longirostris* (O.F. Muller)
33. *Bosminopsis deitersi* Richard

Family MACROTHRICIDAE

34. *Macrothrix spinosa* King
35. *Macrothrix laticornis* (Jurine)
36. *Guernella raphalis* Richard
37. *Grimaldina brazzai* (Richard)

Family ILYOCRYPTIDAE

38. *Ilyocryptes spinifer* Herrick

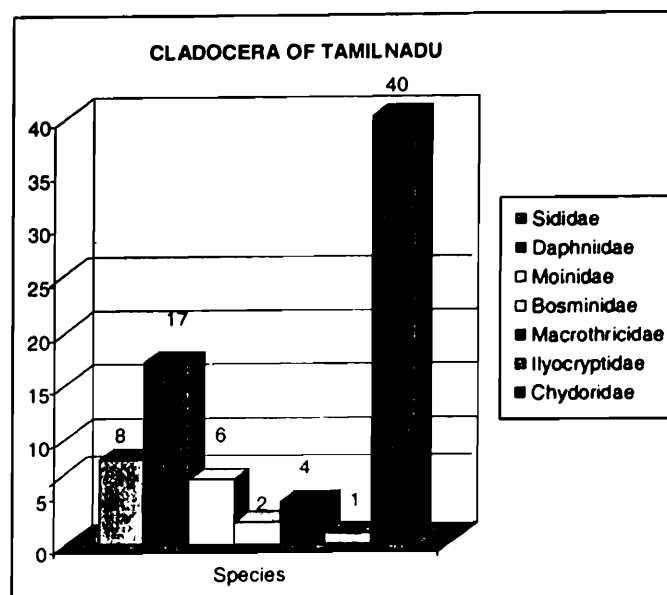
Family CHYDORIDAE

39. *Pleuroxus aduncus* (Jurine)
40. *Alonella nana* (Baird)
41. *Chydorus sphaericus* (O.F. Muller)
42. *Chydorus parvus* (Daday)
43. *Chydorus cf. herrmanni*
44. *Chydorus kallipygos* Brehm
45. *Chydorus barroisi* Richard
46. *Chydorus ventricosus* Daday
47. *Chydorus reticulatus* Daday
48. *Chydorus eurynotus* Sars
49. *Chydorus robustus* Stingelin
50. *Chydorus brehmi* Biswas
51. *Dunhevedia crassa crassa* King
52. *Dunhevedia serrata* Daday
53. *Dadaya macrops* (Daday)
54. *Pseudochydorus globosus* (Baird)
55. *Alona quadrangularis* (O.F. Muller)
56. *Alona rectangula rectangula* Sars
57. *Alona davidi davidi* Richard
58. *Alona davidi punctata* (Daday)
59. *Alona costata* Sars
60. *Alona monocantha tridentata* (Stingelin)
61. *Alona pulchella* King

62. *Alona guttata* Sars
63. *Alona cf. karelica* Stenroos
64. *Alona sarsinorum* Stingelin
65. *Alona cannellata* Brehm
66. *Alona pseudonodonta anodonta* Daday
67. *Graptoleberis testudinaria* (Fischer)
68. *Leydigia acanthocercoides* (Fischer)
69. *Leydigia australis ceylonica* (Daday)
70. *Leydigia ciliata* (Gauthier)
71. *Biapertura karua* (King)
72. *Biapertura verrucosa* (Sars)
73. *Oxyurella singalensis* (Daday)
74. *Kurzia longirostris* (Daday)
75. *Euryalona orientalis* (Daday)
76. *Indialona globulosa* (Daday)
77. *Notalona globulosa* (Daday)
78. *Ephemeroporus barroisi* Richard

DISCUSSION

For the first time a comprehensive and consolidated list of Cladocera of Tamilnadu is presented. 78 species of cladocerans are recorded from Tamilnadu with major representation from family Chydoridae (40) and Daphniidae (17).



Compared with other states, in India, this group has been fairly well studied in Tamilnadu.

Studies have also been conducted to mass culture of cladocerans for ascertaining their suitability as alternative live food in aquaculture. In this connection studies were made pertaining to *Moina micrura*., *Ceriodaphnia cornuta*, *Daphnia carinata*, *Simocephalus vetulus*, *Daphnia cephalata*, *Daphnia lumholtzi* and *Macrothrix spinosa* for culture purposes. In natural situation, monoculture like stages (swarming) have also been observed earlier by Raghunathan (1983, 1992).

REFERENCES

- Hudec, Igor. 1987. *Moina oryzae* n.sp. (Cladocera : Moinidae) from Tamilnadu (South India) *Hydrobiologia*. **145** : 147-150.
- Manimeghalai, S., Venkatraman, K. and Krishnaswamy, S. 1986. Helmet development in *Daphnia cephalata* King under laboratory conditions. *Curr. Sci.*, **55** : 930-931.
- Michael, R.G. 1973. Cladocera. A guide to the study of freshwater organisms. *J. Madurai Univ. Suppl.*, **1** : 71-85.
- Michael, R.G. and Sharma. B.K. 1988. Indian Cladocera. *Fauna of India. Zoological Survey of India*.
- Murugan, N. and Sivaramakrishnan, K. G. 1973. The biology of *Simocephalus acutirostratus* King (Cladocera : Daphniidae). Laboratory studies of life span, instar duration, egg production, growth and stages in embryonic development. *Freshwat. Biol.*, **3** : 77-83.
- Murugan, N. and Sivaramakrishnan, K.G. 1976. Laboratory studies on the longevity, instar duration, growth, reproduction and embryonic development in *Scapholeberis kingi* Sars 1903. *Cladocera. Hydrobiologia*, **50** : 75-80.

- Murugan, N. 1975. Egg production, development and growth in *Moina micrura* Kurz 1874 (Cladocera : Moinidae). *Freshwat. Biol.*, **5** : 245-250.
- Murugan, N. 1975. The biology of *Ceriodaphnia cornuta* Sars. *J. Inland Fish. Soc. India*, **7** : 80-87.
- Murugan, N and Ramaseshan, S. 1978. Observations on the production of resting eggs (ephippia) in the epineustic Cladoceran *Scapholeberis kingi* Sars (1903) (Cladocera : Daphniidae).
- Murugan, N. and Venkataraman, K. 1977. Study of the in vitro development of parthenogenetic egg of *Daphnia carinata* King (Cladocera : Daphniidae). *Hydrobiologia*, **52** : 129-134.
- Navaneethakrishnan, H. and Michael, R. G. 1971. Egg production and growth in *Daphnia carinata* King. *Proc. Indian Acad. Sci. (Anim. Sci.)*, **73** : 117-123.
- Raghunathan, M. B. 1983. Studies on some planktonic Cladocera of Tamilnadu. *Ph.D. Thesis*. Madras University.
- Raghunathan, M. B. 1985. Studies on freshwater Cladocera of Tamilnadu. 3. High altitude waters. *Proc. Nat. Symp. Pure and Appl. Limnology. Bull. Bot. Soc. Sagar.*, 60-63.
- Raghunathan, M. B. 1986. Cladocera (Crustacea) of certain urban water bodies. All India Seminar on water quality around urban ecosystems and management, *Chindwara. Proc.*, : 5-8.
- Raghunathan, M. B. 1989. Indian Cladocera (Crustacea). *Indian Review of Life Sciences*, **9** : 137-152.
- Raghunathan, M. B. 1990 Seasonal studies on freshwater Cladocera of Chingleput tank, Tamilnadu. *Rec. zool. Sur. India*, **86**(2) : 253-259.
- Raghunathan, M. B. 1991. Cladoceran investigations in a pond with macrophytes and algal blooms. *Rec. zool. Surv. India*, **88**(1) : 81-85.
- Raghunathan, M. B. 1992. Events in a natural population of *Daphnia lumholtzi* Sars (Crustacea : Cladocera). *Rec. zool. Surv. India*, **91**(2) : 185-188.
- Raghunathan, M.B. 1995. Studies on certain tank ecosystems in Tamilnadu India. Tropical Limnology. Vol. II. Ed. K.H. Tjotius and F. Goltenboth. *Satyawacana University Press. Salatiga. Indonesia*.
- Raghunathan, M.B. and Revathi, K. 1999a. Planktonic Cladocera (Crustacea) and species associations. Freshwater Ecosystem of India. Ed. K. Vijayakumar. *Daya Publishing house*, New Delhi. pp. 167-172.
- Raghunathan, M.B. and Revathi, K. 1999b. Some aspects of reproduction in Cladocera (Crustacea). *J. Exp. Zool. India*. **2**(1) : 81-83.
- Raghunathan, M.B. and Revathi, K. 1999c. Limnological studies of a village pond in Tamilnadu. Freshwater Ecosystem of India. Ed. K. Vijayakumar. *Daya Publishing House*. New Delhi : 160-166.
- Raghunathan, M.B. and Sureshkumar, R. 2002. Cladocera (Crustacea) of Tamilnadu-Checklist and bibliography. *Zoos Print Journal*, **17**(12) : 959-961.
- Raghunathan, M.B. and Sureshkumar, R. 2003. Checklist of Indian Cladocera (Crustacea). *Zoos Print Journal*, **18**(8) : 1180-1182.
- Raghunathan, M.B. 2003. Freshwater zooplankton of India. pp. 239-240 (In Natural Aquatic systems of India Ed. K. Venkatraman) NBSAP, India.
- Raghunathan, M.B. and Sureshkumar, R. 2004. Diversity of freshwater Branchiopod Crustacea of Tamilnadu. *Indian Hydrobiology*, **7**(1&2) : 21-27.

- Raghunathan, M.B. 2006. Species diversity of certain freshwater fauna from Tamilnadu. *Proceedings of the National Conference on Wetland Biodiversity, Thrissur* : 20-21
- Raghunathan, M.B. and Valarmathi. K. 2007. Zooplankton investigations from a paddyfield in Tamilnadu. *Rec. zool. Surv. India*, **107**(1) : 55-62.
- Revathi, K. and Raghunathan, M.B. 1999. Studies on a natural population of Cladocera (Crustacea) in Kovur tank near Chennai. *Geobios New Reports*, **18** : 17-21.
- Revathi, K. and Raghunathan, M.B. 1999. Studies on Cladocera (Crustacea) from Tamilnadu state India. *J. Exp. Zool. India*, **2**(2) : 149-152.
- Santharam, K. R. 1978. Biology of *Daphnia carinata* King. *Ph.D. Thesis. Madurai Kamaraj University*.
- Sivakumar, K., Sujatha, P. and Altaff. K. 2001. Studies on the freshwater copepods and Cladocera of Dharmapuri district, Tamilnadu. *J. Aqua. Biol.*, **16**(1&2) : 5-10.
- Suresh Kumar, R., 2000. Studies on freshwater cladocerans for use as live feed in Aquaculture. *Ph.D. Thesis, Madras University*, 148 pp.
- Suresh Kumar, R., Altaff, K., Raghunathan, M. B., 1999. New record of a chydorid cladoceran, *Pleuroxus aduncus* Jurine (1820) from Chennai, south India with the description of the developmental stages. *J. Aqua. Biol.*, **14**(1&2) : 7-10.
- Venkataraman, K. 1983. Taxonomy and ecology of Cladocera of southern Tamilnadu. *Ph.D. Tesis. Madurai kamaraj University, Madurai*.
- Venkataraman, K. 1999. Freshwater Cladocera (Crustacea) of southern Tamilnadu. *J. Bombay nat. Hist. Soc.*, **96** (2) : 268-280.
- Venkataraman, K. and Job, S.V. 1980. Effect of temperature on the development, growth and egg production in *Daphnia carinata* King (Cladocera : Daphniidae). *Hydrobiologia*, **68** : 217-224.
- Venkataraman, K. and Krishnaswamy, S. 1984a. On the occurrence of *Daphnia projecta* Herbert 1977 (Cladocera : Daphniidae) and description of male from southern Tamilnadu. *Curr. Sci.*, **53** : 591-592.
- Venkataraman, K. and Krishnaswamy, S. 1984b. On the occurrence of *Leydigia ciliata* Gauthier (Cladocera : Chydoridae) from south India. *Curr. Sci.*, **53** : 1097-1098.
- Venkataraman, K. and Krishnaswamy, S. 1985. Laboratory culture of *Diaphanosoma senegal* Gauthier (Crustacea : Cladocera) from south India. *Proc. Indian Acad. Sci. (Anim. Sci.)* **94** : 87-91.
- Venkataraman, K. and Krishnaswamy, S. 1986. *Anisops bouveri* predation and advantages of cephalic expansion in *Daphnia cephalata* King and the impact of predation on *Daphnia similis* Claus under laboratory conditions. *Proc. Indian Acad. Sci. (Anim. Sci.)*, **95** : 509-513.
- Vijayaraghavan Sumithra. 1970. Seasonal events in a natural population of *Daphnia carinata* King *Proc. Indian Acad. Sci. (Anim. Sci.)*, **94** : 87-91.

CRUSTACEA : OSTRACODA (FRESHWATER)

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INTRODUCTION

The work on the freshwater Ostracod fauna of Tamilnadu was initiated by Victor and Michael (1975) in which 9 new species were described. Michael and Victor (1975) redescribed two unknown Ostracods from Tamilnadu. The detailed account on the freshwater Ostracods of India brought out by Victor and Fernando (1979) reported about 33 species from Tamilnadu. Balamurugan *et al.* (1999) during their studies on Zooplankton of River Cauvery have reported few species of Ostracods. Venkatraman (1999) reported three species of Ostracoda from Tamilnadu. Gulam Mohideen (2006) has reported few Ostracods from River Cauvery near Tiruchirappalli. Malini (2006) during her studies on Madurandhagam lake has reported 7 species of Ostracods.

CHECKLIST OF OSTRACODA

Subclass OSTRACODA

Order POPOCOPIDA

Suborder PODOCOPA

Superfamily CYPRIDACEA

1. Family CYPRIDIDAE

Subfamily CYPRIDINAE

I Genus *Cypris*

1. *Cypris subglobosa* Sonerby, 1840
2. *Cypris dravidensis* (Victor and Michael, 1975)
3. *Cypris protubera* (Victor and Fernando)

II Genus *Eucypris*

4. *Eucypris bispinosa* (Victor and Michael, 1975)

III Genus *Strandesia*

5. *Strandesia elongata* Hartmann, 1964
6. *Strandesia indica* Hartmann, 1964
7. *Strandesia purpurascens* (Brady, 1886)
8. *Strandesia flavescens* Klie, 1932
9. *Strandesia labiata* Hartmann, 1964
10. *Strandesia parva* Hartmann, 1964
11. *Strandesia rotunda* Hartmann, 1964

IV Genus *Cyprinotus*

12. *Cyprinotus nudus* Victor and Michael, 1975

V Genus *Hemicypris*

13. *Hemicypris anomala* (Klie, 1938)
14. *Hemicypris pyxidata* (Moniez, 1892)
15. *Hemicypris falcatus* Victor and Fernando, 1976

VI Genus *Candonocypris*

16. *Candonocypris dentatus* Victor and Michael, 1975* Endemic

VII Genus *Cypretta*

17. *Cypretta alagarkoilensis* Victor and Michael, 1978

18. *Cypretta fontnalis* Hartmann, 1965

VIII Genus *Stenocypris*

19. *Stenocypris major* (Baird, 1859)
20. *Stenocypris derupta* Vavra, 1906

IX Genus *Chrissia*

21. *Chrissia halyi* (Ferguson, 1969)
 22. *Chrissia humilis* (Klie, 1932) ssp. *Indica*

X Genus *Cypridopsis*

23. *Cypridopsis dispar* Hartmann, 1964
 24. *Cypridopsis dubia* Sars, 1903
 25. *Cypridopsis angularis* (Victor and Michael, 1975)
 26. *Cypridopsis maduraiensis* Victor and Michael, 1975

XI Genus *Pseudocyprretta*

27. *Pseudocyprretta maculata* Klie, 1932

2. Family CYCLOCYPRIDIDAE

XII Genus *Physocyprria*

28. *Physocyprria furfuracea* (Brady, 1886)
 29. *Physocyprria minutus* Victor And Michael, 1975

3. Family : NOTODROMADIDAE

XIII Genus *Centrocypris*

30. *Centrocypris mathaii* (Arora, 1931)
 31. *Centrocypris horrida* Vavra, 1895

XIV Genus *Indiacypris*

32. *Indiacypris dispar* Hartmann

4. Family ILYOCYPRIDAE

XV Genus *Ilyocypris*

33. *Ilyocypris nagamalaiensis* Victor and Michael, 1975

DISCUSSION

Thirty three species belonging to 16 genera and 4 families are reported from Tamilnadu. Even today the studies undertaken by Victor and Fernando (1979) forms the fundamental work on the Ostracods. Major studies in Tamilnadu were undertaken only from Madurai district. Hence further investigations from various parts of Tamilnadu are very essential to know the diversity of this group.

REFERENCES

- Balamurugan, S., Gulam Mohideen, B. M. and Subramaniam, P. 1999. Biodiversity of Zooplankton in Cauvery River at Tiruchirappalli, Tamilnadu. *J. Aqua Biol.*, **14**(1&2) : 21-25.
- Gulam Mohideen, B. M. 2006. Studies on Zooplankton Diversity in River Cauvery stretch at Tiruchirappalli and reproductive biology of a Cyclopoid Copepod *Eucyclops serrulatus* (Fischer). Ph. D. Thesis Bharathidasan University : 1-121.
- Malini, E. 2006. Hydrobiological studies of Madurandhagam lake Tamilnadu, India. Ph. D. Thesis Madras University.
- Michael, R. G. and Victor, R. 1975. Redescription of two little known Indian freshwater Ostracods *Oncocypris pastulosa* Gurney 1916 and *Cypris arora* 1931. *J. Nat. Hist.*, **9** : 509-512.
- Venkataraman, K. 1999. Three species of freshwater Ostracoda (Crustacea) from Tamilnadu. *Rec. zool. Surv. India*, **97**(3) : 91-96.
- Victor, R. and Fernando, C. H. 1979. The freshwater Ostracods (Crustacea : Ostracoda) of India. *Rec. zool. Surv. India*, **74**(2) : 147-241.
- Victor, R. and Michael, R.G. 1975. Nine new species of freshwater Ostracoda from Madurai area in southern India. *J. Nat. Hist.*, **9** : 361-376.

CRUSTACEA : DECAPODA : CARIDEA

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INTRODUCTION

Freshwater caridean shrimps accounts for approximately a quarter of all described Caridea, numerically dominated by Atyidae and Palaemonidae (Grave *et al.*, 2008). The genus *Caridina* of the family Atyidae and the genus *Macrobrachium* of the family Palaemonidae are the two most speciose genera well distributed in Tamilnadu. Perusal of literature and our personal observation reveal the occurrence of nearly 29 species of freshwater prawns belonging to the above 2 genera and 2 families in Tamilnadu.

Henderson (1893) recorded the occurrence of Atyid prawns of the genus *Caridina* for the first time in India from Chennai, which he named as *Caridina wyckii*, presently known as *Cardina bengalensis* (de Man) (Richard and Chandran, 1994). From southern India Henderson and Matthai (1910) reported the distribution of 9 species of *Macrobrachium* including three new species namely *M. sulcatus* from Cochin, *M. nobilii* from Walajabad, Chingleput district and *M. dubius* from Walajabad, Saidapet and other localities in Chingleput district. Other species reported are *M. rosenbergii* (De Man) (= *Palaemon carcinus* (Fabricius)), *M. malcolmsonii* (H. Milne Edwards), *M. idae* (Heller), *M. scabriculum* (Heller), *M. dolichodactylus* (Hilgendorf) and *M. lamarrei* (H. M. Edwards), of which except *M. idae* (Heller) and *M. sulcatus* the remaining seven species are reported from Tamilnadu also. From River Cauvery, Jayaram *et al.* (1972) have recorded *Caridina nilotica* Roux, *M. malcolmsonii* (H. Milne Edwards), and *Macrobrachium*

rosenbergii (de Man). While studying the prawns of Madurai area, Wycliffe (1973) recorded *Caridina bengalensis* de Man. For the first time Richard and Chandran (1994) studied the freshwater prawns of the family Atyidae from Chennai (=Madras) and reported the occurrence four species of *Caridina* namely *C. gracilirostris* de Man, *C. gracilipes* de Man, *C. kunnathurensis* and *C. jalihali* Mariappan and Richard (= *C. gurneyi* Jalihal Shenoy and Sankolli) of which *C. kunnathurensis* was new to science. Delphin Ebenezer and Jasmine Richard (1999) reported *Caridina typus* H. Milne Edwards for the first time in Indian mainland from Kanyakumari District. Mariappan *et al.*, (2002) while examining the diversity and utilization of freshwater prawns in River Cauvery of Tamilnadu reported seven species of *Macrobrachium* namely *M. malcolmsonii* (H. Milne Edwards), *M. rude* (Heller), *M. lamarrei* (H. Milne Edwards), *M. aemulum* (Nobili), *M. scabriculum* (Heller), and *M. australe* (Guerim-Manville). Jayaram *et al.*, (2000) during their environmental study recorded *Caridina bengalensis* de Man, *M. malcolmsonii* (H. Milne Edwards), *M. idae* (Heller), *M. aemulum* (Nobili) from Tamilnadu part of River Cauvery. Valarmathi and Raghunathan (2006a) reported *M. josephi* from Tamilnadu. Valarmathi and Raghunathan (2006b) made detailed investigations on the diversity of freshwater prawns of southern India. Mariappan and Richard (2006) during their investigation on the freshwater prawns from Kanchipuram and Thiruvallur district of Tamilnadu reported 6 species of *Caridina* viz., *C. gracilirostris* de Man, *C. gracilipes* de Man, *C.*

bengalensis de Man, *C. williamsoni* Jalihal *et al.*, *C. kunnathurensis* Richard and Chandran, *C. gurneyi* Jalihal *et al.*, and three *Macrobrachium* species i.e *M. lamarrei lamarrei* (H. Milne Edwards), *M. canarae* Tiwari, *M. scabriculum* (Heller) along with a new species *Caridina jalahali*. Studies on the prawn and shrimp diversity in Singaperumalkoil paddy field near Chennai were carried out by Raghunathan and Valarmathi (2007). During the study 10 species of freshwater prawns were reported of which *Macrobrachium peguense* (Tiwari) and *Macrobrachium unikarnatacae* Jalihal *et al.*, are new records for Tamilnadu.

SYSTEMATIC LIST

Order DECAPODA Latreille, 1803

Suborder PLEOCYMATA Burkernroad, 1963

Infraorder CARIDEA Dana, 1852

Superfamily ATYOIDEA De Man, 1849

Family ATYIDAE De Haan, 1849

1. *Caridina bengalensis* de Man, 1908
2. *Caridina fernandoi* Arudprakasam and Costa, 1962
3. *Caridina gracilipes* de Man, 1892
4. *Caridina gracilirostris* de Man, 1892
5. *Caridina gurneyi* Jalihal, Shenoy and Sankolli, 1984
6. *Caridina jalahali* Mariappan and Richard, 2006
7. *Caridina kunnathurensis* Richard and Chandran, 1994
8. *Caridina typus* H. Milne Edwards, 1837
9. *Caridina williamsonii* Jalihal Shenoy and Sankolli, 1984

Superfamily PALAEMONOIDEA Rafinesque, 1815

Family PALAEMONIDAE Rafinesque, 1815

Subfamily PALAEMONINAE Rafinesque, 1815

1. *Macrobrachium aemulum* (Nobili, 1906)
2. *Macrobrachium australe* (Guerin- Manaville, 1838)
3. *Macrobrachium canarae* (Tiwari, 1958)
4. *Macrobrachium dayanum* (Henderson, 1893)
5. *Macrobrachium equidens* (Dana, 1852)
6. *Macrobrachium indicum* (Jayachandran *et al.* 1986)
7. *Macrobrachium josephi* (Jayachandran 2001)
8. *Macrobrachium lamarrei lamarrei* (H. Milne Edward, 1952)
9. *Macrobrachium malcolmsonii malcolmsonii* (H. Milne Edward, 1837)
10. *Macrobrachium nobilii* (Henderson and Matthai, 1910)
11. *Macrobrachium peguense* (Tiwari, 1952)
12. *Macrobrachium rosenbergii* (de Man, 1879)
13. *Macrobrachium rude* (Heller, 1862)
14. *Macrobrachium scabriculum* (Heller, 1862)
15. *Macrobrachium unikarnatacae* Jalihal Shenoy and Sankolli, 1988

DISCUSSION

Out of the 57 species of *Macrobrachium* and 22 species of *Caridina* so far reported from India, 15 species of *Macrobrachium* and 9 species of *Caridina* are known to occur in Tamilnadu. Further surveys are needed for the better understanding of distribution patterns.

REFERENCES

- Ebenezer, D and Richard, J. 1999. *Caridina typus* H. Milne Edwards, 1837 from the Indian mainland—A report. *J. Bomb. nat. Hist. Soc.* **96**(3) : 427-432.
- Grave, S. De., Cai, Y and Anker, A. 2008. Global diversity of shrimps (Crustacea : Decapoda : Caridea) in freshwater. *Hydrobiologia*, **595** : 287-293.

- Henderson, J.R., and Matthai, G., 1910. On certain species of *Palaemon* from South India. *Records of Indian Museum*, **5** : 277-305.
- Jayaram, K. C., Venkateswarlu, T. and Raghunathan, M.B. 1982. A survey of the Cauvery River system with a major account of its fish farm. *Rec. zool. Surv. India, Occ. Paper No.*, **36** : 1-115.
- Mariappan, N., Jasmine, R. and Ramalingam, K. 1997. Distribution of *Caridina gracilipes* in the Cooum River Course (Madras) and sewage pH bioassay on its survival a note *Uttarpradesh Journal of Zoology*, **17**(2) : 119-122.
- Mariappan, N and Richard, J. 2006. Studies on freshwater prawns of family Atyidae and Palaemonidae from Kancipuram and Thiruvallur districts, Tamilnadu, India. including one new species of the genus *Caridina* H. Milne Edwards, 1837. *Rec. zool. Surv. India Occ. Paper No.*, **243** : 1-80.
- Mariappan, P and Balasundaram, C. 1999. Mass mortality of *Macrobrachium* Juveniles in River Cauvery South India. *Zoo's Print Journal*, **1-14**(1-10) : 130-131.
- Mariappan P., Balamurugan, P. and Balasundaram, C 2002. Diversity and utilization of freshwater prawns *Macrobrachium* in River Cauvery in Tamilnadu *Zoo's Print Journal*, **17**(10) : 919-920.
- Raghunathan, M. B. and Valarmathi, K. 2005. Checklist of freshwater prawns Crustacea, Decapoda. Natantia) in Tamilnadu. *Indian Hydrobiology*, **8**(1) : 35-39.
- Raghunathan, M. B. and Valarmathi, K. 2007. Freshwater prawn and shrimp (Crustacea : Decapoda) diversity in Singaperumalkoil paddyfield near Chennai. *Rec. zool. Surv. India*, **107**(2) : 93-101.
- Richard, J. and Chandran, M.R.1994. A Systematic Report on the freshwater prawns of atyid genus *Caridina* H. Milne Edwards 1837. from Madras (T. N. India). *Journal of the Bombay Natural History Society*, **91**(2) : 241-259.
- Valarmathi, K. and Raghunathan, M. B.2006a. A note on the first report of *Macrobrachium josephi* Jayachandran, 2002 out of the type locality. *Rec. zool. Surv. India*, **106**(1) : 39-42.
- Valarmathi, K. and Raghunathan, M.B. 2006b. Studies on the taxonomy and diversity of freshwater prawns (Decapoda : Caridea) from southern India. *Proceedings of the National Conference on Wetland Biodiversity*, Thrissur : 22-25
- Wycliffe, J. 1973. Decapoda, In:R.G. Michael (ed) a guide to the study of freshwater organisms *J. Madurai Uni. Suppl.*, : 152-162.
- Wycliffe, J. 1972. Oxygen consumption of two freshwater prawns. Ph.D Thesis. Madurai Kamaraj University.

CRUSTACEA : DECAPODA : GECARCINUCIDAE

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INTRODUCTION

The fresh water crabs (Brachyura) belong to the order Decapoda. These crabs spend their entire lives in fresh water without return to the estuary or sea and form an important constituent of the fresh water ecosystem. Among the true fresh water crabs, the land crabs in general (Genus *Oziotelphusa* in particular) are considered a serious pest of paddy crop in south India. The crab fishery is also one of the most important aspect of fishery biology and gaining considerable attention now-a-days (Dutta, 1983). Whether the fresh water crabs are poor or suitable zoogeographical indicators (Bánárescu, 1990) is still controversial.

The present study is to inventorise the fresh water crabs of Tamilnadu, as this group is poorly known from the state. The pioneering work on carcinological fauna of Tamilnadu was by Wood-Mason (1871). Since then, only limited information provided by Rathbun (1904-1906) and Alcock (1909) are available. Alcock (1910) are published for the first time a monumental monograph on the collection of fresh water crabs from Indian Museum comprising 15 species, 2 genera from the peninsular province through western ghat to south Travancore as against 91 species, 3 genera from Indian region under the family Potamonidae. Subsequently, Bott (1970) in his revisionary work retained the same number of species from south India as described by Alcock (1910). However, Bott (1970) synonymised various species and elevated many subgenera to generic level. In a recent communication on a revision of the genus *Oziotelphusa* Müller Bahir & Yeo (2005) added one more species

Oziotelphusa aurantia (Herbst) from low land fresh water swamps from Tamilnadu. Further work on fresh water crabs is by Srivastava (2005).

CHECKLIST OF FRESH WATER CRABS

Order DECAPODA Latreille 1802

Infra order BRACHYURA Latreille 1802

Family GECARCINUCIDAE Rathbun
1904

Genus *Barytelphusa* Alcock 1909

1. *Barytelphusa* (*Barytelphusa*) *cunicularis* (Westwood 1836)
2. *Barytelphusa* (*Barytelphusa*) *guerini* (H. Milne-Edwards 1853)

Genus *Travancoriana* Bott 1969

3. *Travancoriana schirnerae* Bott 1969
4. *Travancoriana carli* (Roux 1931)
5. *Travancoriana malabarica* (Henderson 1912)

Genus *Gubernatoriana* Bott 1970

6. *Gubernatoriana nilgiriensis* (Roux 1931)
7. *Gubernatoriana escheri* (Roux 1931)
8. *Gubernatoriana pusilla* (Roux 1931)

Family PARATHELPHUSIDAE Colosi 1920

Genus *Spiralothelphusa* Bott 1968

9. *Spiralothelphusa hydrodroma* (Herbst 1794)

Genus *Oziotelphusa* Müller 1887

10. *Oziotelphusa senex senex* (Fabricius 1798)
11. *O. aurantia* (Herbst 1799)

Genus *Ceylonthelphusa* Bott 1969

12. *Ceylonthelphusa austrina* (Alcock 1909)

DISCUSSION

Based on the present knowledge of fresh water crabs from Tamilnadu 12 species under 6 genera in two families (Gecarcinucidae, 8 species and 3 genera, and Parathelphusidae, 4 species and 3 genera) are recognized. Among these

Travancoriana carli (Roux), *Travancoriana malabarica* (Henderson), *Gubernatoriana nilgiriensis* (Roux), *Gubernatoriana escheri* (Roux) and *Gubernatoriana pusilla* (Roux) and *Oziotelphusa aurantia* (Herbst) are recorded for the first time from Tamilnadu. These species are endemic to southern India.

REFERENCES

- Alcock, A. 1909. Diagnosis of new species and varieties of fresh water crabs. *Rec. Ind. Mus.*, **3** : 243-252, 375-381.
- Alcock, A. 1910. Brachyura 1. Fasc. II. The Indian Fresh water Crabs-Potamonidae. *Cat. Ind. Decap. Crust. Ind. Mus.*, **1**(2) : 1-135, pls. 1-14.
- Bahir, M.M. & Darren C.J. Yeo. 2005. A revision of the genus *Oziotelphusa* Müller, 1887 (Crustacea : Decapoda : Parathelphusidae), with description of eight new species. *The Raffles Bulletin of Zoology*, Supplement No. **12** : 77-120.
- Bănărescu, P. 1990. Zoogeography of fresh waters, 1. General distribution and dispersal of freshwater animals : 1-115. (AULA Verlag Wiesbaden).
- Bott, R. 1970. Die Siibwasserkrabben Von Europa, Asien, Australien und ihre stammesgeschichte (Crustacea : Decapoda). *Abh. Senckenb. naturf. Ges.*, Frankfurt, **526** : 1-338, pls. 1-58.
- Dutta, N. K. 1989. Studies on the systematics and distribution of crabs in Assam. *J. Bombay nat. Hist. Soc.*, **80** : 539-548.
- Rathbun, M. J. 1904. Les crabs d'eau douce. *Nouv. Arch. Mus. Hist. Nat.*, Paris, (4)**6** : 225-312, pls. 9-18.
- Rathbun, M. J. 1905. Les crabs d'eau douce. *Nouv. Arch. Mus. Hist. Nat.*, Paris, (4)**7** : 159-323, pls. 13-22.
- Rathbun, M.J. 1906. Les crabs d'eau douce. *Nouv. Arch. Mus. Hist. Nat.*, Paris, (4)**8** : 33-122, pls. 13-22.
- Srivastava, O.P. 2005. Freshwater crabs (Potamonids) in the collection of the Southern Regional Station, Zoological Survey of India, Chennai. *Rec. zool. Surv. India*, **104**(Part 1-2) : 115-122, pls 2.
- Wood-Mason, J. 1871. Contribution to the Indian Carcinology. Part-I on Indian and Malayan Telphusidae. *J. Asiat. Soc. Bengal*, **40**(2) : 189-207, 449-454, pls. 11-14, 27.

INSECTA : THYSANURA

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INTRODUCTION

The order Thysanura contains the insects commonly known as 'Silverfish' or 'Bristle tail'. They are small to medium sized, soft bodied, scaled, primitive, apterous and nocturnal insects. They are readily recognized by very long multi-segmented antennae, two anal cerci and a single median telson. They may be blind or eyed. Their body is heavily clothed with scales giving them a mottled black, brown, silvery or golden appearance. They inhabit forest floors, under bark of trees, under rocks and ant and termite nests. Many species have adapted to human dwellings and domestic environment and prove to be nuisance to stored household goods especially paper.

The order is represented by about 370 species in the world and by 33 species in India through the work of Sukumar and Livingstone (1992, 1993) and Hazra and Mandal (2007). Thysanuran fauna of Tamilnadu is known by following five genera and five species under three families.

Order THYSANURA

Suborder ZYGENTOMA

Family LEPISMATIDAE

1. *Acrotelsa collaris* Fab.

Distribution : Coimbatore, Palghat Gap

2. *Xenolepisma subnigrina* (Silvestri, 1938)

Distribution : Coimbatore

3. *Lepisma devadasii* Sukumar & Livingstone, 1993

Distribution : Coimbatore, Palghat Gap

Family NICOLETIIDAE

4. *Lepidospora ceylonica* Silvestri, 1911

Distribution : Nilgiri Hills (Ootacamund)

Family ATELURIDAE

5. *Thermobia domestica* (Packard, 1873)

Distribution : Tamilnadu

REFERENCES

- Hazra, A.K. and Mandal, G.P. 2007. Pictorial Handbook on Indian Thysanura, 43 pp Zoological Survey of India, Kolkata.
- Sukumar, S. and Livingstone, David 1992. Biology of *Acrotelsa collaris* Fab. a soil lepidomatid of Palghat Gap, India (Thysanura : Lepismatidae). *Journal of Soil Biology and Ecology*, 12(2) : 100-107.
- Sukumar, S. and Livingstone, David. 1993. A new species of *Lepisma* Linne from the Palghat Gap, South India (Thysanura : Lepismatidae). *Journal of Entomological Research*, 17(3) : 189-194.

INSECTA : EPHEMEROPTERA

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INTRODUCTION

Adult mayflies are slender and uniform in appearance but the group is very diverse in morphology in the nymphal stages. Adults have triangular wings held vertically over the body and can not be folded flat. There are 2 or 3 long thread-like caudal filaments at the end of the abdomen in both sexes. The lateral pair is cerci; the middle one when present is called the terminal filament. Adults are unable to feed with their nonfunctional mouthparts. Males have a pair of clasper – like forceps at the end of the abdomen. Males often congregate in dense swarms during mating flights and mating lasts for a few seconds. Females land on the water surface after mating to release eggs and die while still in the water. Most species develop in fresh water, a few may occur in brackish water of estuaries. World wide 2200 species occur where as from India 106 species are known, Varshney (1998). A perusal of literature reveals that 18 species of 11 genera under 4 families are reported from Tamilnadu State.

Order EPHEMEROPTERA

Family BAETIDAE

1. *Baetis geminatus* Muller-Liebenan & Hubbard
South India, Tamilnadu

— Family EPHEMERIDAE

2. *Eatonigenia trirama* McCafferty
Bhawani River, Tamilnadu

3. *Ephemera (Ephemera) diffusa* Chopra
Bhavani River, Coimbatore, Tamilnadu
4. *Ephemera (Ephemera) supposita* Eaton
Palni Hills, Tamilnadu
5. *Ephemera (Aethephemera) nadinae*
McCafferty & Edmunds
Kodaikanal Grade, Tamilnadu
6. *Ephemera distincta* Hubbard
Anamalai Hills, Cinchona, Tamilnadu
7. *Ephemera nathani* Hubbard
Anamalai Hills, Cinchona, Tamilnadu

Family LEPTOPHLEBIIDAE

8. *Indialis badia* Peters & Edmunds
Tamraparni River, Papanasam, Tamilnadu
9. *Nathanella indica* Demoulin
Kodaikanal, Palni Hills, Tamilnadu
10. *Notophlebia hyalina* Peters & Edmunds
Kunjankhuzi, Madras State, (FAMU)
11. *Notophlebia jobi* Sivaramakrishnan & Peters
Tamilnadu

Subfamily ATELOPHLEBIINAE

12. *Edmundsula lotica* Sivaramakrishnan
Mainfalls stream, Courtallam, Tamilnadu
13. *Thraululus gopalani* Grant & Sivaramakrishnan
Kottumthalam, Tamilnadu

- | | |
|---|---|
| 14. <i>Thraulius mudumalaiensis</i> Soman | Family HEPTAGENIIDAE |
| Nilgiris, Mudumalai, Tamilnadu | |
| 15. <i>Petersula nathani</i> Sivaramakrishnan & Hubbard | 17. <i>Thalerosphyrus flowersi</i> Venkataraman & Sivaramakrishnan |
| Tamilnadu | South India |
| 16. <i>Petersula courtallensis</i> Sivaramakrishnan | 18. <i>Cinygmina kumbakkaraiensis</i> Venkataraman & Sivaramakrishnan |
| Tamilnadu | Tamilnadu |

REFERENCES

- Grant, P. M. and Sivaramakrishnan, K. G. 1985. A new species of *Thraulius* (Ephemeroptera : Leptophlebiidae : Atalophlebiinae) from South India. *Florida Entomologist*, **68**(3) : 424-432.
- Hubbard, M. D. 1982. Two new species of *Ephemera* from South India (Ephemeroptera : Ephemeridae). *Pacific Insects*, **24**(2) : 192-195.
- Hubbard, M.D. and Peters, W. L. 1978. A Catalogue of the Ephemeroptera of the Indian Subregion. *Oriental Insects Suppl. No.*, **9** : 1-43.
- Sivaramakrishnan, K. G. 1984. A new genus and species of Leptophlebiidae : Atalophlebiinae from Southern India. *International J. Entomology*, **26**(3) : 194-203.
- Sivaramakrishnan, K.G. and Hubbard, M.D. 1984. A new species of *Petersula* from South India (Ephemeroptera : Leptophlebiidae). *International J. Entomology*, **26**(3) : 204-205.
- Sivaramakrishnan, K.G. and Peters, W.L. 1984. Description of a new species of *Notophlebia* from India and reassignment of the ascribed nymph of *Natahnella* (Ephemeroptera : Leptophlebiidae). *Aquatic Insects*, **6**(2) : 115-121.
- Sivaramakrishnan, K. G. 1985. Description of the female imago and eggs of *Indialis badia* Peters & Edmunds (Ephemeroptera : Leptophlebiidae). *Oriental Insects*, **18** : 95-98.
- Sivaramakrishnan, K. G. Sridhar, S. and Rajarajan, P. A. 1991. Effect of temperature on hatching of parthenogenetic eggs of *Baetis geminatus* Muller-Liebenan & Hubbard, 1985 from South India (Ephemeroptera : Baetidae). *Opuscula-Zoologica-Fluminensia*, **69** : 1-8.
- Soman, A, K, A. 1991. A new species of *Thraulius* (Ephemeroptera : Leptophlebiidae : Atalophlebiinae) from Nilgiris, South India. *J. Bombay nat. Hist. Soc.*, **88**(1) : 99-102.
- Varshney, R.K. 1998. *Insecta*, pp. 146-157. In : Alfred *et al.* : *Faunal Diversity in India*, 495 pp. Published-ENVIS Centre, Zoological Survey of India, Kolkata
- Venkataraman, K. and Sivaramakrishnan, K. G. 1987. A new species of *Thalerosphyrus* from South India (Ephemeroptera : Heptageniidae). *Current Science*, **56**(21) : 1126-1129.
- Venkataraman, K. and Sivaramakrishnan, K. G. 1989. A new species of *Cinygmina* (Ephemeroptera : Heptageniidae) from South India and reevaluation of generic traits of *Cinygmina* Kimmins, 1937. *Hexapoda (Insecta- Indica)*, **1**(1-2) : 117-121.

INSECTA : ODONATA

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INTRODUCTION

Odonata is an ancient order of Insecta that appeared during the Upper Carboniferous era, about 300 million years back. There are fossil records of dragonflies much before the advent of dinosaurs. Some of the fossil Dragonflies have wingspans of 60 cm. Modern odonates are smaller, but have changed structurally very little since ancient times. They are among the most beautiful and amazing insects flying today.

The odonates are one of the most common insects found near the waterbodies viz. lakes, ponds, streams, rivers, tanks, marshes, temporary ponds, pools as well as brackish water. They form an important component of aquatic ecosystem and play a major role in its general ecology.

The adults and larvae of odonata are one of the good indicators of a healthy aquatic ecosystem. When they are absent from a waterbody, it usually means that the habitat is polluted and contaminated. Both nymphs and adults are predators and form an important component in the food web of aquatic ecosystem. Adult odonates feed on mosquitoes, butterflies, moths, midges and other small odonates, while nymphal food includes bloodworms, water fleas, tadpoles and larvae of mosquitoes or other aquatic insects. The larger dragonfly larvae may even catch and eat small fish. The predators of adult dragonflies and damselflies are birds (kingfishers, herons, terns etc.), robberflies, spiders and large dragonflies (Subramanian 2002). In the nymphal stage, their predators are fish, frogs, toads, and other aquatic

invertebrates such as water scorpions, diving beetles etc.

Odonates are natural biocontrol agents destroying certain vectors like mosquitoes and other pests. Their food includes some of the rice pests also (Gunathilagaraj *et al.* 1999 and Kandibane *et al.* 2003 and 2005); hence they are economically important to man.

The insect order Odonata is divided into three suborders viz. Zygoptera (damselflies), Anisozygoptera and Anisoptera (dragonflies). There are 499 species and subspecies of Odonata known from India (Prasad and Varshney, 1995). Fraser (1931, 1933, 1934 and 1936) provided taxonomic descriptions of 536 species and subspecies of Odonata, which included 96 species (of Zygoptera and Anisoptera) from Tamilnadu (mostly from Nilgiri and Anamalai areas). Subsequent studies (Arunkumar, 1989; Muhamed Jafer Palot and Soniya, 2000; Prasad and Kulkarni, 2001; Asiathambi and Manickavasagam, 2002 and Emiliyamma and Radhakrishnan, 20003) further added 39 more species of Odonata to the Tamilnadu fauna and as a result, 135 species are presently known to occur in Tamilnadu, a systematic list of which is provided below.

CHECK LIST

- | | |
|-------------|-----------------|
| Order | ODONATA |
| Suborder | ZYGOPTERA |
| Superfamily | COENAGRIONIDEA |
| Family | COENAGRIONIDAE |
| Subfamily | PSEUDAGRIONINAE |
1. *Ceriagrion cerinorubellum* (Brauer)

2. *Ceriagrion coromandelianum* (Fabricius)
3. *Ceriagrion olivaceum* Laidlaw
4. *Ceriagrion rubiae* Laidlaw
5. *Pseudagrion decorum* (Rambur)
6. *Pseudagrion indicum* Fraser*
7. *Pseudagrion malabaricum* Fraser
8. *Pseudagrion microcephalum* (Rambur)
9. *Pseudagrion rubriceps rubriceps* (Selys)
Subfamily COENAGRIONINAE
10. *Cercion calamorum dyeri* (Fraser)
Subfamily ISCHNURINAE
11. *Aciagrion hisopa hisopa* (Selys)
12. *Aciagrion occidentale* Laidlaw
13. *Enallagama parvum* Selys
14. *Ischnura aurora aurora* (Brauer)
15. *Ischnura senegalensis* (Rambur)
Subfamily AGRIOCNEMIDINAE
16. *Agriocnemis femina* (Brauer)
17. *Agriocnemis pieris* Laidlaw
18. *Agriocnemis pygmaea* (Rambur)
19. *Agriocnemis splendidissima* Laidlaw
20. *Argiocnemis rubescens rubeola* (Selys)
Subfamily ARGIINAE
21. *Onychargia atrocyana* Selys
Family PLATYCNEMIDIDAE
Subfamily PLATYCNEMIDINAE
22. *Copera marginipes* (Rambur)
23. *Copera vittata deccanensis* Laidlaw
Family PLATYSTICTIDAE
Subfamily PLATYSTICTINAE
24. *Platysticta maculata deccanensis* Laidlaw*
25. *Protosticta davenporti* Fraser
26. *Protosticta graveleyi* Laidlaw*
27. *Protosticta hearseyi* Fraser*
28. *Protosticta rufostigma* Kimmins*+
29. *Protosticta sanguinostigma* Fraser*
Family PROTONEURIDAE
Subfamily CACONEURINAE
30. *Caconeura gomphoides* (Rambur)
31. *Caconeura ramburi* (Fraser)*
32. *Caconeura ramburi* T-coerulea (Fraser)+
33. *Esme cyaneovittata* Fraser*
34. *Esme mudiensis* Fraser*
35. *Phylloneura westermanni* (Selys)*
Subfamily DISPARONEURINAE
36. *Prodasineura verticalis annandalei* (Fraser)
Superfamily LESTOIDEA
Family LESTIDAE
Subfamily LESTINAE
37. *Lestes elatus* Hagen
38. *Lestes praemorsus praemorsus* (Selys)
39. *Lestes viridulus* (Rambur)
Subfamily SYMPECMATINAE
40. *Indolestes davenporti* (Fraser)*
Superfamily CALOPTERYGOIDEA
Family CALOPTERYGIDAE
Subfamily CALOPTERYGINAE
41. *Neurobasis chinensis chinensis* (Linnaeus)
42. *Vestalis apicalis apicalis* Selys
43. *Vestalis apicalis submontana* Fraser
44. *Vestalis gracilis gracilis* (Rambur)
45. *Vestalis gracilis montana* Fraser
Family CHLOROCYPHIDAE
46. *Libellago lineata indica* (Fraser)
47. *Rhinocypha (Heliocypha) bisignata* (Selys)
Family EUPHAEIDAE
48. *Dysphaea ethela* Fraser*
49. *Euphaea cardinalis* (Fraser)*
50. *Euphaea dispar* (Rambur)*
51. *Euphaea fraseri* (Laidlaw)
Suborder ANISOPTERA
Superfamily AESHNOIDEA
Family GOMPHIDAE
Subfamily GOMPHINAE
52. *Asiagomphus nilgircus* (Laidlaw)*
53. *Burmagomphus pyramidalis pyramidalis* Laidlaw
54. *Burmagomphus laidlawi* Fraser*

55. *Cyoclogomphus heterostylus* Selys
56. *Heliogomphus kalarensis* Fraser*+
57. *Heliogomphus promelas* (Selys)*
58. *Macrogomphus wynaadicus* Fraser*
59. *Merogomphus longistigma longistigma* (Fraser)*

Subfamily ONYCHOGOMPHINAE

60. *Acrogomphus fraseri* Laidlaw*
61. *Megalogomphus superbus* Fraser*
62. *Onychogomphus nilgiriensis annaimallaicus* Fraser+
63. *Onychogomphus nilgiriensis nilgiriensis* (Fraser)*
64. *Onychogomphus striatus* Fraser*
65. *Paragomphus lineatus* (Selys)

Subfamily GOMPHIDINAE

66. *Gomphidia kodaguensis* Fraser*

Subfamily LINDENIINAE

67. *Ictinogomphus rapax* (Rambur)

Family AESHNIDAE

Subfamily AESHNINAE

68. *Anaciaeschna donaldi* Fraser*
69. *Anaciaeschna jaspidea* (Burmeister)
70. *Anaciaeschna martini* (Laidlaw)*
71. *Anax guttatus* (Burmeister)
72. *Anax immaculifrons* Rambur
73. *Anax parthenope parthenope* (Selys)
74. *Gynacantha dravida* Lieftinck
75. *Gynacantha bayadera* Selys
76. *Hemianax ephippiger* (Burmeister)

Superfamily CORDULEGASTEROIDEA

Family CORDULEGASTERIDAE

Subfamily CHLOROGOMPHINAE

77. *Chlorogomphus campioni* (Fraser)*
78. *Chlorogomphus xanthoptera* (Fraser)*

Superfamily LIBELLULOIDEA

Family CORDULIIDAE

Subfamily CORDULIINAE

79. *Hemicordulia asiatica* Selys

Subfamily IDIONYCHINAE

80. *Idionyx corona burliyarensis* (Fraser)*
81. *Idionyx nadganiensis* Fraser*
82. *Idionyx nilgiriensis* (Fraser)*+
83. *Idionyx saffronata* Fraser*
84. *Idionyx travancorensis* Fraser*

Subfamily MACROMIINAE

85. *Epophthalmia frontalis binocellata* (Fraser)
86. *Epophthalmia vittata vittata* Burmeister
87. *Macromia annaimallaiensis* Fraser*
88. *Macromia cingulata* Rambur
89. *Macromia ellisoni* Fraser*
90. *Macromia flavocolorata* Fraser
91. *Macromia ida* Fraser*
92. *Macromia indica* Fraser*

Family LIBELLULIDAE

Subfamily TETRATHEMISTINAE

93. *Hylaeothemis fruhstorferi* (Karsch)
94. *Tetrathemis platyptera* Selys

Subfamily BRACHYDIPLACTINAE

95. *Brachydiplax sobrina* (Rambur)

Subfamily LIBELLULINAE

96. *Cratilla lineata* (Brauer)
 97. *Epithemis mariae* Laidlaw*
 98. *Lathrecista asiatica asiatica* (Fabricius)
 99. *Orthetrum chrysis* (Selys)
 100. *Orthetrum glaucum* (Brauer)
 101. *Orthetrum luzonicum* (Brauer)
 102. *Orthetrum pruinosum neglectum* (Rambur)
 103. *Orthetrum sabina sabina* (Drury)
 104. *Orthetrum taeniolatum* (Schneider)
 105. *Orthetrum triangulare triangulare* (Selys)
 106. *Potamarcha congener* (Rambur)
- Subfamily SYMPETRINAE
107. *Acisoma panorpoides panorpoides* Rambur
 108. *Brachythemis contaminata* (Fabricius)
 109. *Bradinopyga geminata* (Rambur)
 110. *Crocothemis servilia servilia* (Drury)
 111. *Diplacodes nebulosa* (Fabricius)

112. *Diplacodes trivialis* (Rambur)
 113. *Indothemis carnatica* (Fabricius)
 114. *Neurothemis fulvia* (Drury)
 115. *Neurothemis intermedia intermedia* (Rambur)
 116. *Neurothemis intermedia atlanta* Ris
 117. *Neurothemis tullia tullia* (Drury)
 118. *Rhodothemis rufa* (Rambur)
 119. *Sympetrum fonscolombi* (Selys)

Subfamily TRITHEMISTINAE

120. *Trithemis aurora* (Burmeister)
 121. *Trithemis festiva* (Rambur)
 122. *Trithemis kirbyi kirbyi* Selys
 123. *Trithemis pallidinervis* (Kirby)

Subfamily ONYCHOTHEMISTINAE

124. *Onychothemis testacea ceylanica* Ris

Subfamily PALPOPLEURINAE

125. *Palpopleura sexmaculata sexmaculata* (Fabricius)

Subfamily TRAMEINAE

126. *Rhyothemis variegata variegata* (Linnaeus)
 127. *Pantala flavescens* (Fabricius)
 128. *Tramea basilaris burmeisteri* Kirby
 129. *Tramea limbata similata* (Rambur)
 130. *Tramea virginia* (Rambur)
 131. *Tholymis tillarga* (Fabricius)

132. *Zyxomma petiolatum* Rambur

Subfamily UROTHEMISTINAE

133. *Macrodiplax cora* (Brauer)
 134. *Urothemis signata signata* (Rambur)

Subfamily ZYGONYCHINAE

135. *Zygonyx malabaricus* Fraser

*species endemic to Western Ghats

+, *+ species endemic to Tamilnadu

DISCUSSION

The checklist deals with 135 species of Odonata representing two suborders, 13 families and 73 genera. The Zygopteran fauna comprises of 24 genera and 51 species including 14 species endemic to Western Ghats and the Anisopteran fauna comprises of 49 genera and 84 species, with 25 species endemic to Western Ghats (Subramanian, 2006). The families Gomphidae, Corduliidae, Platystictidae and Protoneuridae contain species that exhibit high endemism.

The Indian Odonata comprises of 499 species of which 200 are endemic to India (Mitra, 2002). There are five species, *Heliogomphus kalarensis* Fraser, *Idionyx nilgiriensis* (Fraser), *Onychogomphus nilgiriensis annaimallaicus* Fraser, *Protosticta rufostigma* Kimmins and *Caconeura ramburi T-coerulea* (Fraser) that are found exclusively in Tamilnadu.

REFERENCES

- Arunkumar, 1989. Odonata of Vedanthangal Waterbird Sanctuary, Tamilnadu with notes on their field ecology. *J. Bombay nat. Hist. Soc.*, **87** : 320–323.
- Asiathambi, M and S. Manickavasagam, 2002. Odonata of Annamalai University, Annamalainagar, Tamilnadu, India. *Zoos' Print*, **17**(2) : 704–706.
- Emiliyamma, K.G. and C.Radhakrishnan, 2003. *Fauna of Protected Areas-4 : Odonata (Insecta) of Indira Gandhi Wildlife sanctuary and National Park, Tamilnadu*. *Zoos' Print*, **18**(11) : 1264–1266.
- Fraser, F.C. 1931. Additions to the survey of the Odonata (Dragonfly) fauna of Western India, with descriptions of nine new species. *Rec. Indian Mus.*, **33** : 443–474.
- Fraser, F.C. 1933. The Fauna of British India, including Ceylon and Burma. Odonata, vol. 1. pp. XIII + 428. Taylor & Francis Ltd., London : 1–423.

- Fraser, F.C. 1934. The Fauna of British India, including Ceylon and Burma. Odonata, vol. 2. pp. XIII + 398. Taylor & Francis Ltd., London : 1-398.
- Fraser, F.C. 1936. The Fauna of British India, including Ceylon and Burma. Odonata, vol. 3. p. XII + 461. Taylor & Francis Ltd., London.
- Gunathilagaraj, K., R.P. Soundararajan, N. Chitra and M. Swamiappan, 1999. Odonata in the rice fields of Coimbatore. *Zoos' Print*, **14**(6) : 43–44.
- Kandibane, M, N.R. Mahadevan and K. Gunathilagaraj, 2003. Odonata in irrigated rice ecosystem of Madurai, Tamilnadu. *Zoos' Print*, **18**(7) : 1155–1156.
- Kandibane, M, S. Raguraman and N. Ganapathy, 2005. Relative abundance and diversity of Odonata in an irrigated rice field of Madurai, Tamilnadu. *Zoos' Print*, **20**(11) : 2051–2052.
- Mitra, T.R, 2002. Endemic Odonata of India, *Rec. zool. Surv. India*, **100**(3-4) : 189–199.
- Muhammed Jafer Palot and V.P. Soniya, 2000. Odonata from Courtallam, Tamilnadu, Southern India. *Zoos' Print*, **15**(7) : 301–303.
- Prasad, M. and Varshney, R.K. 1995. A checklist of the Odonata of India including data on larval Studies. *Oriental Ins.* **29** : 385–428.
- Prasad M and P.P. Kulkarni, 2000. Insecta : Odonata. In : *Fauna of Nilgiri Biosphere Reserve, Conservation Area Series*, **11** : 73-83.
- Subramanian K.A. 2002. Nature Watch When Dragons Fly. *Resonance*, Oct. 2002 : 69–78.
- Subramanian K.A. 2006. Endemic Odonates of the Western Ghats : Habitat Distribution and Conservation, in : *Biology of Odonata* (Ed. Tyagi, B.K.), Scientific Publishers, New Delhi.

INSECTA : PLECOPTERA

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INTRODUCTION

Plecoptera or Stoneflies as they are commonly known and mostly found in high altitude hill streams of cold temperate regions. The nymphs of these insects are seen on stony surfaces and adults on bushes and tree trunks near the streams. The adults are weak fliers and diurnal in nature with some exceptions. Adults feed on algae, lichen and foliage, many of them may not take any meal in their life time as their life span is very short. The occurrence of brachypterous or wingless forms is common during winter months.

Probably due to scant availability of these insects not much work has been done in India. About 2100 species under 180 genera spread over 15 families are recorded from the world, of which, 113 species of 20 genera under 7 families are known from India (Das, 1998). The Tamilnadu fauna of stoneflies is known by 12 species of three genera under two families. They are as follows :

Order PLECOPTERA

Family NEMOURIDAE Newman,
1853

Subfamily AMPHINEMURINAE
Baumann, 1975

1. *Amphinemura nubila* Kimmins

1950. *Amphinemura nubila*: Kimmins, Mitt. Schweiz. Ent. Ges., 3(12): 191-192.

Distribution : TAMILNADU : Coonoor, Coimbatore dist., Muthikolam.

Family PERLIDAE McLachlan, 1886

2. *Neoperla nitida* Kimmins

1950. *Neoperla nitida*: Kimmins, Ann. Mag. Nat. Hist., 3(12) : 184-185.

1975. *Neoperla nitida*: Jewett, Oriental Ins., 9(2) : 131-132.

1981. *Neoperla nitida* : Zewick, Oriental Ins., 15 (2): 118-119.

Distribution: TAMILNADU: Tinnevely district, Narakaidu, Perumalmalai, Nagercoil, Kunjan Khuji, Kottaguddi

3. *Neoperla obscura* Zwick

1981. *Neoperla obscura*, Oriental Insects, 15(2) : 124-125.

Distribution: TAMILNADU, Nilgiri Hills

4. *Neoperla ochracea* Zwick

1981. *Neoperla ochracea* Zwick, Oriental Ins. 15(2) 121-123.

Distribution: TAMILNADU, Anamalai Hills, Chinchona; NE Munnar; Nilgiri Hills, Cherangode; Kanjan Khuji, Kalikasam; Sathuparai, Periyar River; Kottagudi River

5. *Neoperla primitiva* Geliskes

1952. *Neoperla primitiva* Geliskes, Arch. Hydrobiol. (Suppl.), 21 : 292-294.

1968. *Neoperla primitiva*: Kawai, Oriental Insects, 2(2) 119-120.

Distribution : TAMILNADU : Cauvery river, Kaveri Cross, 3 miles south of Muttur.

6. *Neoperla venosa* Kimmins

1950. *Neoperla venosa* Kimmins, *Ann. Mag. Nat. Hist.*, **3** (12) : 183-184.

1981. *Neoperla venosa*: Zwick, *Oriental Ins.* **15** (2): 116.

Distribution : TAMILNADU : Kodaikanal, Pulayachi River.

7. *Phanoperla cornuta* Zwick

1982. *Phanoperla cornuta* Zwick, *Systematic Entomology*, **7**(1) : 99.

Distribution : TAMILNADU; Chennai, Annamalai Hills.

8. *Phanoperla maindroni* (Navas)

1926. *Neoperla maindroni* Navas, *Broteria. Ser. Zool.*, **23** : 109-110.

1926. *Neoperla maindroni* Navas, *Broteria. Ser. Zool.*, **23** : 109-110.

1980. *Phanoperla maindroni*, Zwick, *Systematic Entomology*, **7** : 98

Distribution : TAMILNADU: Nilgiri, Coonoor.

9. *Phanoperla parva* Zwick

1982. *Phanoperla parva* Zwick, *Systematic Entomology*, **7**(i) : 101.

Distribution: TAMILNADU : Nagercoil.

10. *Phanoperla peniculus* Kawai

1968. *Phanoperla peniculus* Kawai, *Oriental Insects*, **2**(2) : 115-117.

1975. *Phanoperla peniculus*: Jewett, *Oriental Insects*, **9**(2) : 128-129.

Distribution : TAMILNADU : Cauvery River, Hokekanal Fall near Dharampuri.

11. *Phanoperla sertispina* Jewett

1975. *Phanoperla sertispina* Jewett, *Oriental Insects*, **9**(2) : 129-130.

1983. *Phanoperla sertispina*: Stark, *Aquatic Insects*, **5**(2) : 99-114.

Distribution : TAMILNADU : Anamalai Hills.

12. *Phanoperla testacea* (Hagen)

1858. *Perla testacea* Hagen, *K-K. Zool.-Bot. Gesell. Wien.*, **8**: 475.

1923. *Neoperla testacea*: Klapalek, *Coll. Zool. Selys.*, **4** : 163.

1975. *Phanoperla testacea*: Jewett, *Oriental Insects*, **9**(2) : 130.

Distribution : TAMILNADU : Anaimalai Hills.

REFERENCES

- Baumann, R. W. 1975. Revision of the Stonefly Family Nemouridae (Plecoptera) : A study of the world fauna at the generic level. *Smith. son. Contr. Zool. No.*, **211** : 1-74.
- Das, B. C. 1998. Plecoptera, pp180-182. In : *Faunal Diversity in India*, Ed. Alfred *et al.*, Zoological Survey of India, Kolkata, 495 pp.
- Jewett, S. G. 1975. Some Stoneflies from Bangladesh, India and Southeast Asia. *Oriental Insects*, **8**(2) : 127-134.
- Kawai, T. 1968. Stonflies (Plecoptera) from Thailand and India with description of one new genus and two new species. *Oriental Ins.*, **2**(2) : 107-139.
- Kimmins, B. E. 1946. New species of Himalayan Plecoptera. *Ann. Mag. nat. Hist.*, **13**(11) : 721-740.
- Kimmins, B. E. 1950. Some new species of Asiatic Plecoptera. *Ann. Mag. nat. Hist.*, **3**(12) : 177-192.
- Needham, J. G. 1909. Perlidae. In Notes on the Neuroptera in the collection of the Indian Museum. *Rec. Indian Mus.*, **3** : 186-190.
- Stark, B. P. 1989. Oriental Peltoperlinae (Plecoptera) : a generic review and description of a new genus and seven new species. *Entomologica Scandinavica*, **19**(4) : 503-525.

- Stark, B. P. & Sivec, I. 1991. Descriptions of Oriental Perlini (Plecoptera : Perlidae). *Aquatic Insects*, **13**(3) : 151-160.
- Zwick, P. & Sivec, I. 1980. Beitrage Zur Kenntuis der Plecoptera des Himalaya. *Entomol. Basilliensa*, **5** : 59-138.
- Zwick, P. 1981. The south Indian species of *Neoperla* (Plecoptera : Perlidae). *Oriental Insects*, **15**(2) : 113-126.
- Zwick, P. 1982. A revision of the Oriental stonefly genus *Phanoperla* (Plecoptera : Perlidae). *Systematic Entomology*, **7**(1) : 87-126.

INSECTA : ORTHOPTERA

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INTRODUCTION

Study of orthopterans (Grouse locusts, Ground hoppers or pigmy grasshoppers, short horned grasshoppers, bushhoppers, crickets, long horned grasshoppers) is of primary importance since it is directly related to agricultural fields and forest plantations. Since, the grasshoppers, locusts and crickets are pests on crops, any study on these orthopterans will have utility value. The impact of locust swarms across the continents has drawn attention of public and government for over five decades.

The Indian Orthopteran information base contains valuable inputs from Annandale, (1906); Kirby, (1914) ; Bolivar (1900, 1902, 1914, 1917, 1918) ; Gunther, 1938 ; Uvarov (1921, 1923, 1925, 1929, 1940, 1941, 1943); Willemse (1955); Barman (1993, 1995, 2000, 2003); Bhowmik, 1991; Chopard, 1969 ; Hazra *et al.*, 1993, 1995; Rentz, 1979 ; Mondal, 2007; Roonwal (1958); Dirsh (1954, 1958) ; Dirsh & Uvarov (1953); Banerjee & Kevan (1960) ; Singh & Kevan (1965); Hollis (1965, 1968, 1971 and 1975); Mason (1973); Ritchie (1981, 1982); Hebard, 1929; Henry, 1937 & 1940 ; Kesavaram, 1986; Tandon (1975, 1978); Tandon & Shishodia (1969, 1976, 1989); Vasanth, (1991); Shishodia & Kulkarni, (2001, 2002); Shishodia & Vasanth (2001); Prabakar & Radhakrishnan (2004, 2005).

CHECKLIST

Order ORTHOPTERA

Suborder CAELIFERA

Superfamily TETRIGOIDEA

Family TETRIGIDAE

Subfamily SCOLIMENINAE

Genus *Euscelimena* Gunther, 1938

1. *Euscelimena harpago* (Serville, 1839)

Subfamily TETRIGINAE

Genus *Acridium* Fabricius, 1775

2. *Acridium bipunctatum* (Linnaeus, 1758)

Genus *Criotettix* Bolivar, 1887

3. *Criotettix exsertus*, (Bolivar, 1902)

4. *Criotettix indicus*, Bolivar, 1902

5. *Criotettix oculatus*, Bolivar, 1898

Genus *Deltonotus* Hancock, 1904

6. *Deltonotus gibbiceps* (Bolivar, 1902)

Genus *Ergatettix* Kirby, 1914

7. *Ergatettix dorsifer* (Walker, 1871)

Genus *Eucriotettix* Hebard, 1929

8. *Eucriotettix flavopictus* (Bolivar, 1902)

Genus *Hedotettix* Bolivar, 1887

9. *Hedotettix gracilis* (De Haan, 1842)

Genus *Paratettix* Bolivar, 1887

10. *Paratettix cingalensis* (Walker, 1871)

11. *Paratettix hirsutus*, Brunner, 1893

12. *Paratettix indicus*, Bolivar, 1887
13. *Paratettix scaber*, Thunberg, 1815
14. *Paratettix variabilis*, Bolivar, 1887
Genus *Systolederus* Bolivar, 1887
15. *Systolederus greeni*, Bolivar, 1892
Genus *Thoradonta* Hancock, 1908
16. *Thoradonta apiculata*, Hancock, 1915
Subfamily METRODORINAE
Genus *Mazarredia* Bolivar, 1887
17. *Mazarredia cristulata*, Bolivar, 1902
Superfamily ACRIDOIDEA
Family ACRIDIDAE
Subfamily GOMPHOCERINAE
Genus *Aulacobothrus* Bolivar, 1902
18. *Aulacobothrus strictus*, Bolivar, 1902
19. *Aulacobothrus infernus*, Bolivar, 1902
Genus *Bababuddin* Bolivar, 1918
20. *Bababuddin bizonata*, Bolivar, 1917
Genus *Dnopherula* Karsch, 1896
Subgenus *Aulacobothrus* Bolivar, 1902
21. *Dnopherula (Aulacobothrus) luteipes* (Walker, 1871)
22. *Dnopherula (Aulacobothrus) socius* (Bolivar, 1902)
Genus *Leva* Bolivar, 1909
23. *Leva cruciata*, Bolivar, 1914
24. *Leva indica* (Bolivar, 1902)
Genus *Ochridia* Stal, 1873
25. *Ochridia longiceps*, Bolivar, 1902
Genus *Phonogaster* Henry, 1940
26. *Phonogaster cariniventris*, Henry, 1940
Subfamily TRUXALINAE
Genus *Truxalis* Fabricius, 1775
Subgenus *Acridella* Bolivar, 1893
27. *Truxalis (Acridella) indica*, (Bolivar, 1902)
Subfamily EUMASTACINAE
Genus *Mastacides* Burr, 1899
28. *Mastacides pterolepis*, Burr, 1889
29. *Mastacides pupaeformis*, Burr, 1899
30. *Mastacides vaginalis*, Sauss. 1903
Subfamily ACRIDINAE
Genus *Acrida* Linnaeus, 1758
31. *Acrida exaltata* (Walker, 1859)
32. *Acrida lugubris*, Burr, 1902
Genus *Aeolopus* Kirby, 1910
33. *Aeolopus affinis*, Bolivar, 1902
Genus *Aiolopus* Fieber, 1853
34. *Aiolopus thalassinus tamulus* (Fabricius, 1798)
Genus *Ceracris* Walker, 1870
35. *Ceracris nigricornis* (Walker, 1870)
Genus *Dociostaurus* Fieber, 1853
36. *Dociostaurus decius*, Walker, 1871
Genus *Gonista* Bolivar, 1898
37. *Gonista sagitta* (Uvarov, 1912)
Genus *Gymnbothrus* Bolivar, 1889
38. *Gymnbothrus indicus*, Bolivar, 1902
Genus *Madurea* Bolivar, 1902
39. *Madurea cephalotes*, Bolivar, 1902
Genus *Paraphlaeoba* Bolivar, 1902
40. *Paraphlaeoba carinata*, Bolivar, 1902
41. *Paraphlaeoba platyceps*, Bolivar, 1902
Genus *Phlaeoba* Stal, 1860
42. *Phlaeoba infumata*, Brunner, 1893
43. *Phlaeoba panteli*, Brunner, 1902
44. *Phlaeoba angustidorsis*, Bolivar, 1892
Genus *Phlaeobida* Bolivar, 1902
45. *Phlaeobida angustipennis*, (Bolivar, 1902)
Genus *Stauroderus* Bolivar, 1897
46. *Stauroderus bicolor* (Charpentier, 1825)
Genus *Zygophlaeoba* Bolivar, 1902
47. *Zygophlaeoba sinuaticollis*, Bolivar, 1902
48. *Zygophlaeoba truncaticollis*, Bolivar, 1902
Subfamily OEDIPODINAE
Genus *Acrotylus* Fieber, 1853
49. *Acrotylus humbertianus* (Saussure, 1884)
Genus *Ditopternis* Saussure, 1884
50. *Ditopternis venusta* (Walker, 1870)
51. *Ditopternis zebrata*, Saussure, 1884

- Genus *Gastrimargus* Saussure, 1884
52. *Gastrimargus africanus africanus* (Saussure, 1888)
53. *Gastrimargus marmoratus* (Thunberg, 1815)
- Genus *Heteropternis* Stal, 1873
54. *Heteropternis respondens* (Walker, 1859)
- Genus *Lerina* Bolivar, 1902
55. *Lerina oedipodioides*, Bolivar, 1902
- Genus *Morphacris* Walker, 1870
56. *Morphacris fasciata sulcata* (Thunberg, 1884)
- Genus *Oedaleus* Fieber, 1853
57. *Oedaleus abruptus* (Thunberg, 1815)
58. *Oedaleus nigrofasciatus* (Saussure, 1773)
59. *Oedaleus senegalsensis* (Krauss, 1877)
- Genus *Pternoscirta* Saussure, 1884
60. *Pternoscirta bimaculata* (Thunberg, 1815)
61. *Pternoscirta caliginiosa* (De Haan, 1842)
62. *Pternoscirta cinctifemur* (Walker, 1859)
- Genus *Sphingonotus* Fieber, 1852
63. *Sphingonotus longipennis*, Saussure, 1884
- Genus *Trilophidia* Stal, 1873
64. *Trilophidia annulata* (Thunberg, 1815)
65. *Trilophidia turpis* (Walker, 1817)
- Family PYRGOMORPHIDAE
- Subfamily PYRGOMORPHINAE
- Genus *Anarchita* Bolivar, 1904
66. *Anarchita aptera*, Bolivar, 1902
- Genus *Atractomorpha* Saussure, 1862
67. *Atractomorpha crenulata crenulata* (Fabricius, 1793)
- Genus *Aularchas* Stal, 1873
68. *Aularchas miliaris* (Linnaeus, 1758)
69. *Aularches scabiosae*, Fabricius, 1793
- Genus *Chrotogonus* Serville, 1839
70. *Chrotogonus saussurei*, Bolivar, 1904
71. *Chrotogonus brachypterus*, Bolivar, 1904
72. *Chrotogonus (Chrotogonus) oxypterus*, Blanchard, 1836
73. *Chrotogonus (Chrotogonus) trachypterus trachypterus* (Blanchard, 1836)
- Genus *Colemania* Bolivar, 1910
74. *Colemania sphenarioides*, Bolivar, 1910
- Genus *Neorthacris* Kevan & Singh, 1964
75. *Neorthacris acuticeps acuticeps* (Bolivar, 1902)
- Genus *Orthacris* Bolivar, 1884
76. *Orthacris maindroni*, Bolivar, 1905
77. *Orthacris ruficornis*, Bolivar, 1902
78. *Orthacris elegans*, Bolivar, 1902
79. *Orthacris simulans*, Bolivar, 1902
- Genus *Poecillocerus* (Fabricius) 1775
80. *Poecillocerus pictus* (Fabricius, 1775)
- Genus *Pyrgomorpha* Serville, 1839
81. *Pyrgomorpha bispinosa*, Walker, 1870
- Genus *Zarytes* Bolivar, 1904
82. *Zarytes squalina*, Bolivar, 1884
- Subfamily HEMIACRIDINAE
- Genus *Clonacris* Uvarov, 1943
83. *Clonacris kirbyi* (Finot, 1903)
- Genus *Gesonula* Uvarov, 1940
84. *Gesonula punctifrons*, Stal, 1860
- Genus *Hieroglyphus* Kraus, 1877
85. *Hieroglyphus banian* (Fabricius, 1778)
86. *Hieroglyphus nigrorepletus*, (Bolivar, 1912)
- Genus *Leptacris* Walker, 1870
87. *Leptacris filiformis*, Walker, 1870
- Genus *Spathosternum* Krauss, 1877
88. *Spathosternum prasiniferum prasiniferum* (Walker, 1871)
- Subfamily OXYINAE
- Genus *Chitaura* Uvarov, 1929
89. *Chitaura indica*, Uvarov, 1929
- Genus *Oxya* Serville, 1831
90. *Oxya fuscovittata* (Marschall, 1836)
91. *Oxya hyla hyla*, Serville, 1831
92. *Oxya nitidula* (Walker, 1971)
93. *Oxya velox* (Fabricius, 1787)

Subfamily COPTACRIDINAE

Genus *Coptacra* Stal, 1873

- 94.
- Coptacra ensifera*
- , Bolivar, 1902

Genus *Coptacrella* Bolivar, 1902

- 95.
- Coptacrella martini*
- , Bolivar, 1902

Genus *Eucoptacra* Bolivar, 1902

- 96.
- Eucoptacra praemorsa*
- (Stal, 1860)

Subfamily TROPIDOPOLINAE

Genus *Calamippa* Henry, 1940Subgenus *Xenippa* Bolivar, 1902

- 97.
- Calamippa (Xenippa) prasina*
- (Bolivar, 1902)

Genus *Epistaurus* Bolivar, 1889

- 98.
- Epistaurus sinetyi*
- , Bolivar, 1902

Genus *Oxyrrhepes* Stal, 1873

- 99.
- Oxyrrhepes obtusa*
- (De Haan, 1842)

Genus *Tristria* Stal, 1873

- 100.
- Tristria pulvinata*
- (Uvarov, 1921)

Subfamily CALLIPTAMINAE

Genus *Brachy xenia* Kirby, 1914

- 101.
- Brachy xenia scutifera*
- , Walker, 1870

Subfamily CATANTOPINAE

Genus *Bibracte* Stal, 1878

- 102.
- Bibracte rugulosa*
- , Bolivar, 1902

Genus *Bibractoides* Kirby, 1914

- 103.
- Bibractoides punctaria*
- , Walker, 1870

Genus *Caloptenopsis* Bolivar, 1889

- 104.
- Caloptenopsis glaucopis*
- , Walker, 1870

- 105.
- Caloptenopsis liturifer*
- , Walker, 1870

Genus *Catantops* Schaum, 1853

- 106.
- Catantops acuticercus*
- , Bolivar, 1902

- 107.
- Catantops angustulus*
- , Bolivar, 1902

- 108.
- Catantops indicus*
- , Bolivar, 1902

- 109.
- Catantops interruptus*
- , Bolivar, 1902

- 110.
- Catantops pinguis innotabilis*
- (Walker, 1953)

Genus *Castetria* Bolivar, 1902

- 111.
- Castetria dispar*
- , Bolivar, 1902

Genus *Gelastorrhinus* Brunner, 1839

- 112.
- Gelastorrhinus semipictus*
- , Walker, 1870

Genus *Orthacanthacris* Karsch, 1896

- 113.
- Orthacanthacris japonica*
- (Bolivar, 1898)

- 114.
- Orthacanthacris violascens*
- , Walker, 1817

Genus *Palniacris* Henry, 1940

- 115.
- Palniacris maculatus*
- , Henry, 1940

Genus *Paraconophyma* Uvarov, 1921

- 116.
- Paraconophyma scabra*
- (Walker, 1870)

- 117.
- Paraeuprepocnemis pictipes*
- , Bolivar, 1902

Genus *Pelecinotus* Bolivar, 1902

- 118.
- Pelecinotus brachypterus*
- , Bolivar, 1902

- 119.
- Pelecinotus cristagalli*
- , Bolivar, 1902

Genus *Pirithoicus* Dirsh & Uvarov, 1953

- 120.
- Pirithoicus ophthalmicus*
- (Karny, 1907)

Genus *Stenocatantops* Dirsh & Uvarov, 1953

- 121.
- Stenocatantops splendens*
- (Thunberg, 1815)

Genus *Stenocrobylus* Gerstaecker, 1869

- 122.
- Stenocrobylus femoratus*
- , Bolivar, 1902

Genus *Wacata* Kirby, 1914

- 123.
- Wacata ceylonica*
- , Kirby, 1914

Genus *Xenocatantops* Dirsh & Uvarov, 1953

- 124.
- Xenocatantops humilis humilis*
- (Serville, 1839)

- 125.
- Xenocatantops karnyi*
- (Kirby, 1910)

Subfamily EYPREPOCNEMIDINAE

Genus *Choroedocus* Bolivar, 1914

- 126.
- Choroedocus capensis*
- , (Stal, 1815)

Genus *Eyprepocnemis* Fieber, 1853

- 127.
- Eyprepocnemis alacris alacris*
- (Serville, 1839)

- 128.
- Eyprepocnemis rosea*
- , Uvarov, 1942

Genus *Heteracris* Walker, 1870

- 129.
- Heteracris pulchra*
- (Bolivar, 1902)

Genus *Tylotropidius* Stal, 1873

- 130.
- Tylotropidius varicornis*
- (Walker, 1870)

Subfamily CYRTACANTHACRIDINAE

Genus *Anacridium* Uvarov, 1923

- 131.
- Anacridium flavescens*
- (Fabricius, 1793)

Genus *Chondracris* Uvarov, 1923

- 132.
- Chondracris rosea*
- (De Geer, 1773)

- Genus *Cyrtacanthacris* Walker, 1870
 133. *Cyrtacanthacris ranacea*, Stal, 1813
 134. *Cyrtacanthacris tatarica* (Linnaeus, 1758)
 Genus *Pachyacris* Uvarov, 1923
 135. *Pachyacris vinosa* (Walker, 1870)
 Genus *Patanga* Uvarov, 1923
 136. *Patanga succincta* (Johansson, 1763)
 Suborder ENSIFERA
 Superfamily GRYLLOIDEA
 Family GRYLLOTALPIDAE
 Genus *Gryllotalpa* Latreille, 1802
 137. *Gryllotalpa africana*, Beauvois, 1805
 Family GRYLLIDAE
 Subfamily GRYLLINAE
 Genus *Brachytrypes* Serville, 1839
 138. *Brachytrypes portentosus* (Lichtenstein, 1796)
 Genus *Callogryllus* Sjostedt, 1909
 139. *Callogryllus gravelyi*, Chopard, 1928
 Genus *Coiblemmus* Chopard, 1936
 140. *Coiblemmus compactus*, Chopard, 1928
 Genus *Cophogryllus* Saussure, 1877
 141. *Cophogryllus brevipes*, Chopard, 1933
 142. *Cophogryllus martini*, (Bolivar, 1900)
 Genus *Gryllodes* Saussure, 1874
 143. *Gryllodes sigillatus* (Walker, 1869)
 Genus *Gryllopsis* Chopard, 1928
 144. *Gryllopsis femorata*, Chopard, 1935
 145. *Gryllopsis histrio* (Saussure, 1877)
 146. *Gryllopsis maculithorax*, Chopard, 1969
 147. *Gryllopsis virgulata* (Bolivar, 1900)
 Genus *Gryllus* Linne, 1758
 148. *Gryllus bimaculatus*, De Geer, 1773
 149. *Gryllus brunneri*, Saussure, 1877
 150. *Gryllus ehsani*, Chopard, 1969
 151. *Gryllus flavovittatus*, Chopard, 1969
 Genus *Gymnogryllus* Saussure, 1877
 152. *Gymnogryllus humeralis* (Walker, 1871)
 Genus *Landreva* Walker, 1869
 153. *Landreva hemiptera* (Bolivar, 1900)
 Genus *Loxoblemmus* Saussure, 1871
 154. *Loxoblemmus cavifrons*, Chopard, 1928
 155. *Loxoblemmus equestris*, Saussure, 1877
 Genus *Modicogryllus* Chopard, 1961
 156. *Modicogryllus confirmatus*, (Walker, 1859)
 Genus *Plebeiogryllus* Chopard, 1964
 157. *Plebeiogryllus guttiventris* (Walker, 1871)
 Genus *Scapsipedoides* Chopard, 1936
 158. *Scapsipedoides macrocephalus*, Chopard, 1936
 Genus *Scapsipedus* Saussure, 1877
 159. *Scapsipedus fallax*, Chopard, 1969
 160. *Scapsipedus maindroni*, Chopard, 1969
 Genus *Teleogryllus* Chopard, 1961
 161. *Teleogryllus mitratus* (Burmeister, 1838)
 Genus *Velarifictorus* Randell, 1964
 162. *Velarifictorus asperses* (Walker, 1869)
 Family MOGOPLISTIDAE
 Genus *Derectaotus* Chopard, 1936
 163. *Derectaotus maindroni* (Chopard, 1928)
 Genus *Ornebius* Guerin, 1844
 164. *Ornebius guerini* (Bolivar, 1900)
 Family SCLEROPTERIDAE
 Subfamily SCLEROPTERINAE
 Genus *Acanthoplistus* Saussure, 1877
 165. *Acanthoplistus birmanus*, Saussure, 1877
 Subfamily NEMOBIINAE
 Genus *Paranemobius* Saussure, 1877
 166. *Paranemobius pictus*, Saussure, 1877
 Genus *Pteronemobius* Jacobson & Bianchi, 1905
 167. *Pteronemobius bicolor* (Saussure, 1877)
 168. *Pteronemobius concolor* (Walker, 1871)
 169. *Pteronemobius csikii* (Bolivar, 1901)
 170. *Pteronemobius fascipes* (Walker, 1869)
 171. *Pteronemobius indicus* (Walker, 1869)
 172. *Pteronemobius pantelchopardorum*, (Shishodia & Varshney, 1969)
 173. *Pteronemobius taprobanensis* (Walker, 1869)

Family OECANTHIDAE

Genus *Oecanthus* Serville, 1831174. *Oecanthus henryi*, Chopard, 1936175. *Oecanthus indicus* (Saussure, 1878)

Family TRIGONIDIIDAE

Genus *Amusurgus* Brunner, 1853176. *Amusurgus lateralis*, Chopard, 1969177. *Amusurgus unicolor* (Chopard, 1925)Genus *Anaxipha* Saussure, 1874178. *Anaxipha nigrithorax*, Chopard, 1928Genus *Homoeoxipha* Saussure, 1874179. *Homoeoxipha lycoides* (Walker, 1896)Genus *Trigonidium* Rambur, 1839180. *Trigonidium cicindeloides*, Rambur, 1839181. *Trigonidium humbertianum* (Saussure, 1878)

Family PHALANGOPSIDAE

Subfamily PHALANGOPSINAE

Genus *Arachnomimus* Saussure, 1878182. *Arachnomimus annulicornis*, Chopard, 1936Genus *Aspidogryllus* Chopard, 1933183. *Aspidogryllus singularis*, Chopard, 1933

Family ENEOPTERIDAE

Subfamily PODOSCIRTINAE

Genus *Euscyrthus* Guérin, 1844184. *Euscyrthus concinnus* (Haan, 1842)185. *Euscyrthus hemelytrus* (Haan, 1842)Genus *Itara* Walker, 1869186. *Itara microcephala* (Haan, 1842)Genus *Madasumma* Walker, 1869187. *Madasumma saussureana*, Chopard, 1969Genus *Mnesibulus* Stal, 1877188. *Mnesibulus andrewesi*, Chopard, 1928

Suborder ENSIFERA

Superfamily TETTIGONOIDEA

Family TETTIGONIDAE

Subfamily PHENEROPTERINAE

Genus *Ducetia* Stal, 1874189. *Ducetia japonica* (Thunberg, 1815)Genus *Elimaea* Stal, 1874*Elimaea* Stal, 1874. Recens. Orth. ii: 11, 27.190. *Elimaea (Orthelimaea) securigera*, Brunner, 1891Genus *Holochlora* Stal, 1873191. *Holochlora indica*, Kirby, 1914Genus *Pelerinus* Bolívar, 1906192. *Pelerinus alienus* (Brunner, 1878)Genus *Phaneroptera* Serville, 1831193. *Phaneroptera gracilis* Burmeister, 1831194. *Phaneroptera myllocerca*, Ragge, 1956

Subfamily PSEUDOPHYLLINAE

Genus *Sathrophyllia* Stal, 1874195. *Sathrophyllia femorata* (Fabricius, 1787)196. *Sathrophyllia rugosa* (Linnaeus, 1758)

Subfamily LISTROSCELINAE

Genus *Euhexacentrus* (Stal, 1877)*Euhexacentrus* (Stal), 1877, Ofv. K. Ventensk. Akad. Forth. No. 10, p.46.197. *Euhexacentrus annulicornis* (Stal, 1877)

Subfamily MECOPODINAE

Genus *Mecopoda* Serville, 1831*Mecopoda* Serville, 1831, Ann. Sci. Nat., 22 : 154.198. *Mecopoda elongata* (Linnaeus, 1758)

Subfamily COPIPHORINAE

Genus *Euconocephalus* Karny, 1907*Euconocephalus* Karny, 1907, Aleh. Zool. bot. Ges. Wien. 4(3) : 39:199. *Euconocephalus incertus* (Walker, 1869)200. *Euconocephalus pallidus* (Redtenbacher, 1891)

Subfamily CONOCEPHALINAE

Genus *Conocephalus* Thunberg, 1815*Conocephalus* Thunberg, 1815, Mem. Acad. St. Petersberg 5 : 214.201. *Conocephalus (Xiphidion) maculatus* (Le Gouillou, 1841)

SUMMARY

In this work information is provided on the occurrence of 201 species of the order Orthoptera under two suborders, four subfamilies, 35 families out of the known 17,250 species distributed globally India has 825 species. Tamilnadu has 201 species i.e. 20% of the Indian orthopterans.

REFERENCES

- Annandale, A. 1906. Notes on the fauna of a desert track in Southern India, Part II, Insects and Arachnida. *Mem. Asiat. Soc. Beng.*, **1** : 203-219.
- Banerjee, S. K. & Kevan, D. K. Mce. 1960. A Preliminary revision of the genus *Atractomorpha* Saussure, 1862 (Orthoptera : Acridoidea : Pyrgomorphidae). *Treubia*, **25** : 165-189.
- Barman, R. S. 1993. Insecta : Orthoptera : Tettigoniidae; in : *Fauna of West Bengal, State Fauna Series*, **3**(Part 4) : 355-367.
- Barman, R. S. 1995. Insecta : Orthoptera : Tettigoniidae; in : *Fauna of Meghalaya, State Fauna Series*, **4**(Part 3) : 279-290.
- Barman, R. S. 2000. Insecta : Orthoptera : Tettigoniidae; in : *Fauna of Tripura, State Fauna Series*, **7**(Part 2) : 263-267.
- Barman, R. S. 2003. Insecta : Orthoptera : Tettigoniidae; in : *Fauna of Sikkim, State Fauna Series*, **9**(Part 2) : 193-201.
- Bhowmik, H. K. 1991. Insecta : Orthoptera : Acrididae; in : *Fauna of Orissa, State Fauna Series*, **1**(Part 3) : 177-189.
- Boilvar, I. 1902. Les Orthoperes de St. Joseph's college a Trichinopoly (Sud de l' Inde). 3 me partie. *Annls. Soc. Ent. Fr.*, **70** : 580-635.
- Boilvar, I. 1905. Notas sobre los Pirgomorphidos. *Bol. Soc. Espn. Hist. nat.*, **5** : 105-115.
- Boilvar, I. 1918. Contribution al conocimiento de la fauna Indica Orthoptera (Locustidae vel Acrididae). *Revta. R. Acad. Cienc. Exact. Fis. Nat. Madr.*, **16**(1917) : 278-89, 374-412.
- Chopard, L. 1969. *The Fauna of India and adjacent countries*, Orthoptera Vol. 2. Grylloidea.
- Dirsh, V.M. 1954. Revision of the species of the genus *Acrida* Linne (Orthoptera, Acrididae) *Bull. Soc. Fouad. Entom. Cairo*, **38** : 107-160.
- Dirsh, V.M. 1956. A preliminary revision of the genus *Catantops* Schaum and review of the group Catantopini (Orthoptera, Acrididae). *Plcoes cult Co. Diam. Angola*, **28** : 11-150.
- Dirsh, V.M.. 1958. Revision of the genus *Eyprepocnemis* Fieber, 1853 (Orthoptera : Acridoidea). *Proc. R. Ent. Soc. Lond.*, (B) **27** : 33-45.
- Dirsh, V. M. & Uvarov, B. P. 1953. Preliminary diagnosis of new genera and new synonymy in Acrididae. *Tijdschr. Ent.*, Amsterdam, **96** : 231-237.
- Gunther, K. 1938a. Zwei neue Dornschrecken (Orth. Acrididae, Acrydiinae) aus Hinterindien. *Ent. Rdch.*, **55** : 465-468.
- Gunther, K. 1938b. Revision der Acrydiinae I Sections Tripetalocerae, Discotettigiae, Lophotettigiae, Cleostratae, Bufonidae, Cladonotae, Scelimeniae Verae. *Mitt. Zool. Mus. Berl.*, **23** : 299-437.
- Hazra, A. K., Tandon, S. K., Shishodia, M. S., Mondal, S. K. and Dey, A. 1995. Insecta : Orthoptera : Acridoidea; in : *Fauna of Meghalaya, State Fauna Series*, **4**(Part 3) : 209-277.
- Hazra, A. K., Tandon, S. K., Shishodia, M. S., Mondal, S. K. and Dey, A. 1993. Insecta : Orthoptera : Acridoidea; in : *Fauna of West Bengal, State Fauna Series*, **3**(Part 4) : 287-354.
- Hebard, M. 1929. Acridiinae (Orthoptera, Acrididae) of Southern India. *Reveu siisse Zool.*, **36** : 565-592, figs. 1-10.

- Henry, G.M. 1937. A new genus and species of Acridian from Southern India and Ceylon (Orthoptera). *Trans. R. ent. Soc. Lond.*, (B)6 : 197-200, figs.1-7.
- Henry, G.M. 1940. New and little known South Indian Acrididae (Orthoptera). *Trans. R. ent. Soc. Lond.*, 90 : 497-540, figs. 1-18.
- Hollis, D. 1965. A revision of the genus *Trilophidia* Stal (Orthoptera : Acridoidea). *Trans. R. Ent. Soc. Lond.*, 117(B) : 245-262.
- Hollis, D. 1968. A revision of the genus *Aiolopus* Fieber (Orthoptera : Acridoidea). *Bull. Br. Mus. Nat. Hist. (Ent.)*, 22(7) : 309-355.
- Hollis, D. 1971. A preliminary revision of the genus *Oxya* Audinet-Serville (Orthoptera : Acridoidea). *Bull. Br. Mus. Nat. Hist. (Ent.)*, 26(7) : 269-343.
- Hollis, D. 1975. A review of the Subfamily Oxyinae (Orthoptera : Acridoidea). *Bull. Br. Mus. Nat. Hist. (Ent.)*, 31(6) : 189-234.
- Kesavaram, G. 1986. Grasshoppers in the collection of the Government Museum, Madras. *Bulletin of the Madras Government Museum; New series-Natural History Section*, IX (2), pp. 1-53, figs.118.
- Kevan, D.K. McE. 1969. A preliminary revision of the Asiatic Chlorizeinini (Orthoptera : Acridoidea : Pyrgomorphidae). *Trans. Amer. Ent. Soc.*, 94 : 355-378.
- Kulkarni, P. P. and Shishodia, M. S. 1989. Insecta : Orthoptera ; in : *Fauna of Pench National Park, Conservation Area Series*, 20 : 207-225.
- Kirby, W. F. 1914. *The Fauna of Brit. India including Ceylon and Burma*, Orthoptera Vol. I (Acrididae).
- Mason, J. B.1973. A revision of the genus *Hieroglyphus* Krauss, *Parahieroglyphus* Carl and *Hieroglyphoves* Uvarov (Orthoptera : Acridoidea). *Bull. Br. Mus. Nat. Hist. (Ent.)*, 28(7) : 509-560.
- Mondal, S. K., Dey, A. and Hazra, A. K. 2007. *Pictorial Handbook on Indian short-horned Grasshopper pests (Acrididae : Orthoptera)*.
- Prabakar, D. And Radhakrishnan, C. 2004. First record of *Madasumma soror* Chopard, 1969 (Gryllidae : Orthoptera : Insecta) from Kakkayam Reserve forest, Kozhikode district, Kerala, India. *Rec. zool. Surv. India*, 103(Part1-2) : 185-186.
- Prabakar, D. And Radhakrishnan, C. 2005. Additions to the Grasshopper (Orthoptera: Insecta) fauna of Kerala, South India, *Rec. zool. Surv. India*, 105(Part 1-2) : 161-164.
- Rentz, D.C.F.1979. Comments on the Classification of the Orthoptera Family Tettigoniidae, with a key to sub families and description of two New Subfamilies. *Aust. J. Zool.* 27 : 991-1013.
- Ritchie, J. M. 1981. A taxonomic revision of the genus *Oedaleus* Fieber(Orthoptera : Acridoidea). *Bull. Br. Mus. Nat. Hist. (Ent.)*, 42(3) : 83-183.
- Roonwal, M. L. 1961. *Bibliographia Acrididiorum*. A bibliography of the Orthopterous insects of the family Acrididae (comprising the short – horned grasshoppers and locusts) from the earliest times to the end of 1954 (with some additions for 1955-57). *Rec. Indian Mus.*, Calcutta, 56 : 1-611.
- Shishodia, M. S., Anita Dey and Tandon, S. K. 2003. Insecta : Orthoptera : Acridoidea and Eumastocoidea; in : *Fauna of Sikkim, State Fauna Series*, 9(Part 2) : 165-192.

- Shishodia, M. S. And Hazra, A. K. 1986. Orthoptera : in : *Fauna Silent Valley, Kerala, Rec. zool. Surv. India*, **84**(1-4) : 191-228.
- Shishodia, M. S. 2000. Insecta : Orthoptera : Grylloidea and Trydactyloidea ; in : *Fauna of Tripura, State Fauna Series*, **7**(Part 2) : 247-262.
- Shishodia, M. S. 2000. Insecta : Orthoptera : Tetrigoidea; in : *Fauna of Tripura, State Fauna Series*, **7**(Part 2) : 231-246.
- Shishodia, M. S. and Tandon, S. K. 2000. Insecta : Orthoptera : Acridoidea and Eumastocoidea; in : *Fauna of Tripura, State Fauna Series*, **7**(Part 2) : 197-230.
- Shishodia, M. S. 2004. Insecta : Orthoptera. in : *Fauna of Desert National Park, Conservation Area Series*, **19** : 59-65.
- Shishodia, M. S., Anita Dey. 2006. Insecta : Orthoptera : Acrididae and Pyrgomorphidae; in : *Fauna of Nagaland, State Fauna Series*, **12** : 95-110.
- Shishodia, M. S. 2006. Insecta : Orthoptera : Tettigoniidae; *Fauna of Nagaland, State Fauna Series*, **12** : 89-93.
- Shishodia, M. S. 1993. Insecta : Orthoptera : Tetrigoidea; in : *Fauna of West Bengal, State Fauna Series*, **3**(Part 4) : 179-226.
- Shishodia, M. S. 1995. Insecta : Orthoptera : Tetrigoidea; in : *Fauna of Meghalaya, State Fauna Series*, **4**(Part 3) : 165-208.
- Shishodia, M. S. And Barman, R. S. 2004. Insecta : Orthoptera : Tettigoniidae ; in : *Fauna of Manipur, State Fauna Series*, **10** : 139-145.
- Shishodia, M. S. And Tandon, S. K. 2004. Insecta : Orthoptera : Acridoidea ; in : *Fauna of Manipur, State Fauna Series*, **10** : 111-137.
- Shishodia, M. S. And Tandon, S. K. 1993. Insecta : Orthoptera : Grylloidea ; in : *Fauna of West Bengal, State Fauna Series*, **3**(Part 4) : 227-285.
- Singh, A. And Kevan, D.K. Mck. 1965. The genus *Orthacris* Bolivar, 1884 and its allies (Orthoptera Pyrgomorphidae). *Trans. R. ent. Soc. Lond.*, **117**(13) : 367-411, pls. 1-8, figs. 1-18.
- Tandon, S. K. And Shishodia, M. S. 1989. Insecta : Orthoptera : Acridoidea ; in : *Fauna of Orissa State, Fauna Series*, **1** : 93-145.
- Uvarov, B. P. 1921. Records and descriptions of Indian Acrididae. *Ann. Mag. Nat. Hist.*, (9)**7** : 480-509.
- Uvarov, B. P. 1921. Notes on the Orthoptera in the British Museum. I. The group Euprepocnemi. *Trans. Ent. Soc. Lond.*, : 106-144.
- Uvarov, B. P. 1923. Notes on Locusts of economic importance with some data on the periodicity of locust invasion. *Bull. Ent. Res.*, **14** : 31-39.
- Uvarov, B. P. 1923. A revision of the Old World Cyrtacanthacridinae (Orthoptera, Acrididae). Part III Genera *Valanga* to *Patanga*, *Ann. Mag. Nat. Hist.*, (9)**12** : 345-367.
- Uvarov, B. P. 1925. A revision of the genus *Ceracris* Walker (Orthoptera, Acrididae). *Ent. Mut. Berl.*, **14** : 11-17.

- Uvarov, B. P. 1933. Studies in the Iranian Orthoptera. II. Some new or less known Acrididae. *Trudy zool. Inst. Leningr.*, 1 : 187-233.
- Vasanth, M. 1991. Studies on crickets (Orthoptera : Gryllidae) from Kerala, India. *Rec. zool. Surv. India*, 88(1) : 123-133.
- Willemse, C. 1953. On a collection of Orthoptera from the Sumba islands (Indonesia). Wessens, Ergehn, der sumba Exped. Des Museums fur Volker. *Junde and des naturh. Museums in Basel.*, : 89-104.
- Willemse, F. 1968. Revision of the genera *Stenocatantops* and *Xenocatantops* (Orthoptera : Acrididae : Catantopinae). *Mon. Ned. Ent. Ver.*, 4 : 77.

INSECTA : EMBIOPTERA

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INTRODUCTION

The order Embioptera includes primitive insects commonly known as web-spinners or embiids. Medium sized (5 to 25 mm) insects with elongate and dorso-ventrally flattened body. Their mouth parts are chewing type, antennae filiform and metatarsus of forelegs swollen containing glands and spinnerets. The winged members have two pairs of elongate, membranous similar wings. The wings remain folded over the back at rest. Males are generally winged and females are apterous. They have a unique ability to spin the silk threads with their feet. These webs serve for the protection against predacious insects, for regulating the humidity and for laying the eggs. Reproduction takes place by both sexual as well as parthenogenetic methods. Females exhibit parental care as they remain near the eggs and young ones. These insects inhabit the humid places like under stones, leaves, bark and other objects. They usually shun light. Their food material is of vegetable origin. Some species of the genus *Oligotoma* live in association with spiders, ants and termites. These insects play an important role in the formation of the humus and improvement of the soil quality.

These insects are global in distribution, but discontinuous. About two hundred species under eight families are known throughout the world and thirty three species belonging to two families viz. Embiidae and Oligotomidae are known from India, in various ecosystems (Mitra, 1998).

The work on Indian Embioptera is very limited may be due to poor speciation in the order. The South Indian fauna was studied in the past by Ananthakrishnan and Ananthasubramanian (1956), Ananthasubramanian and Ananthakrishnan (1960), Bradoo (1971) and Ross (1943, 1950). The Tamilnadu fauna of embiids is represented by 7 species of 3 genera under two families, as under.

Order EMBIOPTERA

Family EMBIIDAE

1. *Metembia ferox* Davis, 1939

Distribution : Tamilnadu: Coimbatore

2. *Pseudembia flava* (Ross, 1943)

Distribution : Tamilnadu : Nedungadu, Tanjore

Family OLIGOTOMIDAE

3. *Oligotoma ceylonica variegata* Mukherji, 1930

Distribution : Tamilnadu

4. *Oligotoma humbertiana* (Saussure, 1896)

Distribution : Tamilnadu: Coimbatore; Pamben; Chelma, Nallamalai hills, Karnul dist.

5. *Oligotoma saundersii* (Westwood, 1837)

Distribution : Tamilnadu

6. *Oligotoma falcis* Ross, 1943

Distribution : Tamilnadu: Nedungadu, Tanjore, Palkoda hills.

7. *Oligotoma minuscula* Enderlein, 1912

Distribution : Tamilnadu: Chennai

REFERENCES

- Ananthakrishnan, T.N. and Ananthasubramanian, K. S. 1956. Some Embioptera from South India. *Indian J. Ent.* **17** : 105-168.
- Ananthasubramanian, K.S and Ananthakrishnan, T.N. 1960. Biology of *Oligotoma minuscula* Enderlein (Oligotomidae, Embioptera). *Bull. Ent.*, **1** : 18-21.
- Bradoo, B.L.1971. Two new species of Embioptera with records of others from South India. *Oriental Ins.*, **5**(2) : 263-267.
- Kapur, A.P. and Kripalani, M.B.1957. Studies in Indian Embioptera, Part 1. The Oligotomidae of India. *Trans. R. Ent. Soc. London*, **109** : 111-134.
- Mitra, T.R. 1998. Embioptera pp 204-207. In : *Faunal Diversity in India*, Ed. Alfred *et al.* Zoological Survey of India, Kolkata, 495 pp.
- Ross, E.S. 1943. Two new species of Embioptera and the lectotype of *Oligotoma borneensis* Hagen, *Psyche*, **50** : 100-108, 13 figs.
- Ross, E.S. 1950. The Embiidae of India (Embioptera). *Wasmann J. Biol.*, **8**(20) : 133-153.

INSECTA : DICTYOPTERA : BLATTODEA

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INTRODUCTION

Cockroaches, otherwise called terrestrial blattids distributed in tropical and subtropical areas of the world are the best known insects. Virtually domesticated over the millennium, they co existed with the human civilization despite dislike shown by the humans. Cockroaches are swift runners and poor fliers. Their tropical in Indo-Malayan distribution is well documented though many of them occur in temperate region also (David and Ananthakrishnan, 2004). They are vectors and pests too. The domestic cockroaches of the state include the genera *Blatta*, *Periplaneta*, *Supella* and *Blattella* while others reported here occur outdoors.

Knowledge on Cockroach fauna of India is due to the contributions made by Bolivar (1897), Kirby (1904), Shelford (1906 & 1910), Hanitsch (1915), Princis (1967 & 1971) and Roth (1979a & b; 1998 & 1999).

The primary aim of this report is to list the occurrence of 47 species of cockroaches belonging to 32 genera accommodated under 5 families. Approximately 4000 species of cockroaches are known globally, belonging to 445 genera under 6 families, while in India, information is available on 156 species cockroaches belonging to 57 genera under 5 families. (Mukherjee 1993; Mandal 1995 & 2007 and Mandal *et. al.*, 2000)

Superorder DICTYOPTERA

Order BLATTODEA

Family BLABERIDAE

Subfamily EPILAMPRINAE

Genus *Calolampra* Saussure, 1893

1. *Calolampra irrorata* (Fabricius, 1775)
2. *Calolampra characterosa* (Walker, 1868)

Genus *Stictolampra* Hanitsch, 1930

3. *Stictolampra plicata* (Navas, 1904)

Genus *Phlebonotus* Saussure, 1862

4. *Phlebonotus pallens* (Serville, 1831)

Genus *Opisthoplatia* Brunner von Wattenwyl, 1865

5. *Opisthoplatia orientalis* (Burmeister, 1838)

Genus *Thorax* Saussure, 1862

6. *Thorax porcellana* Saussure, 1862

Genus *Princisola* Gurney & Roth, 1976

7. *Princisola pulchra* (Shelford, 1910)

Genus *Rhabdoblatta* Kirby, 1903

8. *Rhabdoblatta lineaticollis* (Bolivar, 1897)

Subfamily PANESTHIINAE

Genus *Penesthia* Serville, 1831

9. *Penesthia birmanica* Brunner von Wattenwyl, 1893
10. *Penesthia monstrosa* Wood- Mason, 1876
11. *Penesthia paramonstrosa* Roth, 1979
12. *Penesthia quinquedentata* Kirby, 1904

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13. *Penesthia morsus* (Butler, 1882)
14. *Penesthia plagiata* Walker, 1859
Genus *Miopanesthia* Saussure, 1895
15. *Miopanesthia discoidalis* Saussure, 1895
Genus *Salganea* Stål, 1877
16. *Salganea indica* Princis, 1953
17. *Salganea kodaikanalensis* Roth, 1979
18. *Salganea erythronota* Bolivar, 1897
19. *Salganea cavagnaroi* Roth, 1979
Genus *Microdina* Kirby, 1903
20. *Microdina forceps* (Saussure, 1869)
Subfamily PYCNOSCELINAE
Genus *Pycnoscelus* Scudder, 1862
21. *Pycnoscelus tenebriger* (Walker, 1868)
Genus *Pycnoscelus* Linnaeus, 1758
22. *Pycnoscelus surinamensis* (Linnaeus 1758)
Subfamily DIPLOPTERINAE
Genus *Diploptera* Saussure, 1864
23. *Diploptera punctata* (Eschscholtz, 1822)
Subfamily PERISPHAERINAE
Genus *Pseudoglomeris* Brunner von Wattenwyl, 1893
24. *Pseudoglomeris glomeris* (Saussure, 1863)
Genus *Trichoblatta* Saussure & Zehntner, 1895
25. *Trichoblatta sericea* (Saussure, 1863)
Genus *Stilpnoblatta* Saussure & Zehntner, 1895
26. *Stilpnoblatta opaca* (Walker, 1868)
Family BLATTIDAE
Subfamily BLATTINAE
Genus *Periplaneta* Burmeister, 1838
27. *Periplaneta australasiae* (Fabricius)
28. *Periplaneta americana* (Linnaeus)
Genus *Blatta* Linnaeus
29. *Blatta orientalis* Linnaeus
Genus *Neostylopyga* Shelford, 1911
30. *Neostylopyga rhambifolia* (Stoll), 1813
Genus *Hebardina* Bei-Bienko, 1938
31. *Hebardina concinna* (Haan, 1842)

Family BLATTELLIDAE

Subfamily Blattellinae

Genus *Blattella* Caudell, 1903

32. *Blattella humbertiana* (Saussure, 1863)
33. *Blattella biligata* (Walker, 1868)
34. *Blattella germanica* (Linnaeus, 1767)
35. *Blattella padmanabhani* Roth, 1995

Genus *Symplocodes* Hebard, 1929

36. *Symplocodes impar* Bei-Bienko, 1969

Genus *Jacobsonina* Hebard, 1929

37. *Jacobsonina platysoma* (Walker, 1868)

Genus *Malaccina* (Boliver)

38. *Malaccina pallidula* (Boliver, 1897)

Genus *Hemithyrsochera* Saussure, 1893

39. *Hemithyrsochera palliata* (Fabricius, 1798)

Genus *Neoloboptera* Princis, 1953

40. *Neoloboptera chakrabortyi* Roth, 1995

Subfamily PSEUDOPHYLLODROMIINAE

Genus *Supella* Shelford, 1911

41. *Supella* (*Supella*) *longipalpa* (Fabricius, 1798)

Genus *Chorisoneura* Brunner, 1865

42. *Chorisoneura biligata* (Serville)

Genus *Balta* Tepper, 1893

43. *Balta acutiventris* (Chopard, 1924)

Genus *Allacta* Saussure & Zehntner, 1895

44. *Allacta crassivenosa* Bolivar, 1897

Family POLYPHAGIDAE

Subfamily POLYPHAGINAE

Genus *Therea* Billberg, 1820

45. *Therea nuptialis* (Gerstaecker, 1861)
46. *Therea petiveriana* (Linnaeus, 1758)

Family NOCTICOLIDAE

Genus *Pholeosilpha* Chopard, 1958

47. *Pholeosilpha induta* (Boliver, 1897)

DISCUSSION

When compared to the species diversity of the world, India has 3.8% of the cockroach taxa and

Tamilnadu has 30% of the Indian cockroaches. In this work, report is made on 20 species from Western Ghats, 2 species from the Eastern Ghats and 6 species from both Western and Eastern Ghats. The family Blaberidae is represented by 26 species followed by family Blattellidae with 18 species. Both the species, *Stictolampra plicata* (Navas) and *Trichoblatta sericea* (Saussure) reported to occur only in India are found in Tamilnadu.

REFERENCES

- Bolivar, B.P. 1897. Les Orthopteres de St-Joseph's College, *Ann. Soc. Ent. France*, **66** : 287-303.
- David, B.V. and T. N. Ananthakrishnan, 2004. General and Applied Entomology, Tata McGraw-Hill Publications, Second edition, 317-321.
- Hanitsch, R. 1915. Malayan Blattidae. *J. Straits. Br. R. Asiat. Soc.*, **69** : 1.
- Kirby. W.F. 1904. A synonymic catalogus of Orthoptera. *Brit. Mus. Nat. Hist.*, **1** : 1-501.
- Mandal, S.K. 1995. Insecta : Blattariae, *Fauna of Meghalaya, State fauna series*, **4(3)** : 353-384.
- Mandal, S.K., M.S. Shishodia and K.L. Bhatta. 2000. Insecta : Dictyoptera : Blattariae, *Fauna of Tripura, State Fauna Series*, **7(2)** : 285-294.
- Mandal, S.K. 2007. Insecta : Blattaria (Dictyoptera), *Fauna of Andhra Pradesh, State Fauna Series*, **5(3)** : 235-247.
- Mukherjee, K.P. 1993. Insecta : Dictyoptera : Blattaria, *Fauna of West Bengal, State Fauna Series*, **3(4)** : 461-473.
- Princis, K 1969. In Beier(Ed.) Blattariae : Suborder Epilamproidea. Epilampridae. *Orthopterorum Catalogus*, **(11)** : 327-672.
- Princis, K 1971. In Beier(Ed.) Blattariae : Suborder Blattoidea. *Orthopterorum Catalogus*, **(13)** : 711-1038.
- Roth, L.M. 1979a. A Taxonomic revision of the Penesthinae of the world. The genera *Salganea* Stål, *Microdina* Serville (dictyoptera : Blattaria : Blaberidae) *Aust. J. Zool. Suppl. Ser. No.*, **69** : 1-201.
- Roth, L.M. 1979b. A Taxonomic revision of the Penesthinae of the world. The genera *Panesthia* Serville and *Miopenesthia* (Dictyoptera : Blatteria : Blaberidae). *Aust. J. Zool. Suppl. Ser. No.*, **74** : 1-276.
- Roth, L.M. 1998. The Cockroach genus *Pycnoselus* Scudder, with a description of *Pycnoselus femapterus*, Sp. nov. (Blattaria : Blaberidae : Pycnoscelinae) *Oriental Insects*, **32** : 93-130.
- Roth, L.M. 1999. Descriptions of New Taxa, redescription, and records of Cockroaches, mostly from Malaysia and Indonesia. (Dictyoptera : Blatteria) *Oriental Insects*, **33** : 109-185.
- Shelford, R. 1906. Studies of the Blattidae. *Trans. Ent. Soc. London*. **II** : 231-279.
- Shelford, R. 1910. Blattinae. *Gen. Ins.*, **109** : 1-27.
- Web site : [http ://Blattodea.SpeciesFile.org](http://Blattodea.SpeciesFile.org).

INSECTA : MANTODEA

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INTRODUCTION

The insects commonly known as 'Praying Mantids' are peculiar in respect of their body structure, prey capture, camouflage and reproductive behaviour. General body color of the mantids varies from green to pale brown. These predators and play an important role in biological control of harmful insects and occur in all habitats from plains to hills. They are weak fliers and seen mostly in bushes, herbs and shrubs. Due to phototrophic nature, they are attracted to sources of light.

World wide about 2310 species of 432 genera are known, of which, 162 species of 68 genera occur in India, Mukherjee et al (1995) and Hazra and Mukherjee (1998). A perusal of Mukherjee et al (1995) reveals that so far 35 species of 28 genera under 4 families are recorded from Tamilnadu State.

Order MANTODEA

Family AMORPHOSCELIDIDAE

1. *Amorphoscelis annulicornis* Stal

Distribution : Tamilnadu : Tiruchirapally, Courtallam

Family HYMENOPODIDAE

Subfamily ACROMANTINAE

Tribe Acromantini Beier

2. *Acromantis insularis* Giglio-Tos

Distribution : Tamilnadu : Coonoor

3. *Ephestiasula amoena* (Bolivar)

Distribution : Tamilnadu

4. *Euantissa pulchra* (Fabricius)

Distribution : Tamilnadu : Chennai

5. *Hestiasula castetsi* (Bolivar)

Distribution : Tamilnadu : Palni hills

6. *Hestiasula kastneri* Beier

Distribution : Tamilnadu

Family MANTIDAE

Subfamily TARACHODINAE

7. *Didymocorypha lanceolata* (Fabricius)

Distribution : Tamilnadu : Coimbatore, Coonoor

8. *Oxyophthalma engaea* (Wood-Mason)

Distribution : Tamilnadu : Nilgiri Hills

9. *Oxyophthalma gracilis* Saussure

Distribution : Tamilnadu

Subfamily LITURGUSINAE

10. *Humbertiella ceylonica* Saussure

Distribution : Tamilnadu

11. *Humbertiella indica* Saussure

Distribution : Tamilnadu : Nilgiri Hills, Masanagudi

Subfamily CALIRIDINAE

12. *Leptomantis indica* Giglio-Tos

Distribution : Tamilnadu : Coimbatore, Varalear

Subfamily OXYOTHESPINAE

13. *Heterochaetula fissispinis* Wood-Mason

Distribution : Tamilnadu : Pitchavaram Island

Subfamily THESPINAE

14. *Thespis dissimilis* Westwood

Distribution : Tamilnadu : Chennai

Tribe Parathespiini

15. *Parathespis humbertiana* Saussure

Distribution : Tamilnadu : Chengalputty

Subfamily IRIDOPTERYGINAE

Tribe Iridopterygini

16. *Hapalopeza nilgirica* Wood-Mason

Distribution : Tamilnadu : Nilgiri

17. *Nanomantis lactea* Mukherjee

Distribution : Tamilnadu : Coonoor, Nilgiri Hills

Tribe Tropidomantini

18. *Eomantis guttatipennis* (Stal)

Distribution : Tamilnadu

Subfamily AMELINAE

19. *Amantis bolivarii* Giglio-Tos

Distribution : Tamilnadu : Top Slip

20. *Amantis saussurei* (Bolivar)

Distribution : Tamilnadu : Chennai, Silent Valley : Valigaparathidu Camp Site; Top Slip

21. *Cimantis fuliginosa* Werner

Distribution : Tamilnadu : Annamalai Hills

22. *Elmantis trincomaliae* (Saussure)

Distribution : Tamilnadu

23. *Eumantis assamica* Giglio-Tos

Distribution : Tamilnadu : Tirunaveli : Courtallum

24. *Gonypeta punctata* (De Haan)

Distribution : Tamilnadu

Subfamily MANTINAE

Tribe Miomantini

25. *Deiphobe infuscata* (Saussure)

Distribution : Tamilnadu : Coonoor

26. *Pararivetina fraseri* Beier

Distribution : Tamilnadu

Tribe Mantini

27. *Hierodula (Hierodula) doveri* Chopard

Distribution : Tamilnadu : Tirunaveli : Courtallum, Shola Forest

28. *Hierodula (Hierodula) membranacea* (Burmeister)

Distribution : Tamilnadu

29. *Hierodula (Rhombodera) tectiformis* Saussure

Distribution : Tamilnadu : Chaeapalam

30. *Hierodula (Rhombodera) woodmasoni* Werner

Distribution : Tamilnadu

31. *Oxymantis punctillata* Werner

Distribution : Tamilnadu

32. *Statilia nemoralis* (Saussure)

Distribution : Tamilnadu : Top Slip

Subfamily TOXODERINAE

Tribe Toxoderini

33. *Loxomantis indica* Giglio-Tos

Distribution : Tamilnadu

Subfamily PHOTININAE

Tribe Photinini

34. *Beesoniella pallida* Werner

Distribution : Tamilnadu

Family EMPUSIDAE

Subfamily EMPUSINAE

35. *Gongylus gongylodes* (Linnaeus)

Distribution : Tamilnadu : Chennai, Luz Park

REFERENCES

- Hazra, A.K. and Mukherjee, T.K. 1998. Mantodea, pp. 210-214. In : *Faunal Diversity in India*, pp 495, Editors, Alfred, *et al.*, Zoological Survey of India, Kolkata.
- Mukherjee, T.K., Hazra, A.K. and Ghosh, A.K. 1995. The Mantid fauna of India (*Insecta : Mantodea*). *Oriental Insects*, **29** : 185-358.

INSECTA : HEMIPTERA : NEPOMORPHA AND GERROMORPHA

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INTRODUCTION

Aquatic and semi-aquatic bugs play a vital role in the food web of fresh water ecosystems. They are indicators of environmental conditions and constitute an integral part of almost all-freshwater communities (Hynes, 1984; Patrick & Palavage, 1994; Ramakrishna, 2000). Since they inhabit diverse habitats and have poor dispersal ability, they also serve as Zoogeographical indicators (Jordon, 1951; Hungerford & Matsuda, 1958). Their role as biocontrol agents of mosquitoes needs hardly any emphasis. Some of the aquatic bugs are keystone predators, their abundance supporting the sustenance of other animal communities in an aquatic habitat (Murdoch, *et al*, 1984). Though, aquatic insects constitute less than 3% of the global faunal diversity (Cheng, 1976), they represent 95% of all macro-invertebrate species in fresh water habitats (Ward, 1992).

Out of 3000 species of Indian freshwater insects (Alfred and Nandi, 2001), the aquatic and semi-aquatic bugs constitute 9.5%. The aquatic and semi-aquatic hemipteran fauna of India is represented by 79 genera and 284 species accommodated in 15 families as against 302 genera and 3946 species in 19 recognized families globally (Thirumalai, 1999, 2002 & 2007). Aquatic and semi-aquatic bugs of Tamilnadu belonging to the infraorders Gerromorpha and Nepomorpha had received only rather cursory attention, limited to taxonomic preliminaries including recording of species from different parts of the state (Distant

1903, 1906, 1910). However, in the recent past, the work of Thirumalai (1989, 1994a&b, 1997, 1999, 2002 & 2007; Ravishankar & Venkatesan (1988); Thirumalai & Dam, (1996); Thirumalai & Krishnan, (2000) has thrown more light on the fauna from the state. The present checklist, based on the study carried out during a span two decades in Tamilnadu by the author, deals with 102 species belonging to 46 genera accommodated in 15 families, revealing the rich diversity of aquatic and semi-aquatic bugs occurring in the state

CHECKLIST LIST

INFRA ORDER NEPOMORPHA

Superfamily NEPOIDEA Latreille, 1802

Family NEPIDAE Latreille, 1802

Subfamily NEPINAE Latreille, 1802

Tribe Nepini Latreille, 1802

Genus *Laccotrephes* Stål, 1866

Subgenus *Laccotrephes* Stål, 1866

1. *Laccotrephes griseus* (Güerin-Ménéville, 1844)

2. *Laccotrephes grossus* (Fabricius, 1787)

3. *Laccotrephes ruber* (Linnaeus, 1764)

Subfamily RANATRINAE Douglas & Scott, 1865

Tribe Ranatrini Douglas & Scott, 1865

Genus *Cercotmetus* Amyot & Serville, 1843

4. *Cercotmetus fumosus* Distant, 1906

- Genus *Ranatra* Fabricius, 1790
 Subgenus *Ranatra* Fabricius, 1790
5. *Ranatra elongata* Fabricius, 1790
 6. *Ranatra filiformis* Fabricius, 1790
 7. *Ranatra varipes atropa* Montandon, 1903
 8. *Ranatra varipes varipes* Stål, 1861
- Family BELOSTOMATIDAE Leach, 1815
 Subfamily BELOSTOMATINAE Leach, 1815
- Genus *Diplonychus* Laporte, 1833
9. *Diplonychus annulatus* (Fabricius, 1781)
 10. *Diplonychus rusticus* (Fabricius, 1781)
- Subfamily *Lethocerinae* Lauck & Menke, 1961
- Genus *Lethocerus* Mayr, 1853
 Subgenus *Lethocerus* Mayr, 1853
11. *Lethocerus indicus* (Lepeletier & Serville, 1825)
- Superfamily OCHTEROIDEA Kirkaldy, 1906
 Family GELASTOCORIDAE Kirkaldy, 1897
 Subfamily NERTHRINAE Kirkaldy, 1906
- Genus *Nerthra* Say, 1832
12. *Nerthra indica* (Atkinson, 1888)
- Family OCHTERIDAE Kirkaldy, 1906
- Genus *Ochterus* Latreille, 1807
 Subgenus *Ochterus* Latreille, 1807
13. *Ochterus marginatus marginatus* (Latreille, 1804)
- Superfamily CORIXOIDEA Leach, 1815
 Family CORIXIDAE Leach, 1815
 Subfamily CORIXINAE Leach, 1815
 Tribe *Agraptocorixini* Hungerford, 1948
- Genus *Agraptocorixa* Kirkaldy, 1898
14. *Agraptocorixa hyalinipennis hyalinipennis* (Fabricius, 1803)
- Genus *Sigara* Fabricius, 1775
 Subgenus *Tropocorixa* Hutchinson, 1940
15. *Sigara graveleyi* (Hutchinson, 1940)
 16. *Sigara horana* (Hutchinson, 1940)
 17. *Sigara indica* (Hutchinson, 1940)
 18. *Sigara nilgirica* (Hutchinson, 1940)
 19. *Sigara pruthiana* (Hutchinson, 1940)
- *Subfamily MICRONECTINAE Jaczewski, 1924
- Genus *Micronecta* Kirkaldy, 1897
 Subgenus *Basilonecta* Hutchinson, 1940
20. *Micronecta scutellaris scutellaris* (Stål, 1858)
 21. *Micronecta siva* (Kirkaldy, 1897)
- *Raised to the family level by Nieser (2002).
- Subgenus *Dichaetonecta* Hutchinson, 1940
22. *Micronecta albifrons* (Motschulsky, 1863)
 23. *Micronecta desertana desertana* Distant, 1920
 24. *Micronecta eucosmeta* Hutchinson, 1940
 25. *Micronecta janssoni* Thirumalai, 1989
 26. *Micronecta flavens* Wróblewski, 1960
 27. *Micronecta prashadana* Hutchinson, 1940
 28. *Micronecta* sp
- Subgenus *Indonectella* Hutchinson, 1940
29. *Micronecta grisea* (Fieber, 1844)
- Subgenus *Micronecta* Kirkaldy, 1897
30. *Micronecta daedala* Distant, 1910
- Subgenus *Sigmonecta* Wróblewski, 1962
31. *Micronecta quadristrigata* Breddin, 1905
- Superfamily NAUCOROIDEA Leach, 1815
 Family APHELOCHEIRIDAE Fieber, 1851
- Genus *Aphelocheirus* Westwood, 1833
 Subgenus *Aphelocheirus* Westwood, 1833
32. *Aphelocheirus nathani* La Rivers, 1971
- Family NAUCORIDAE Leach, 1815
 Subfamily LACCOCORINAE Stål, 1876
- Genus *Diaphorocoris* Montandon, 1897
33. *Diaphorocoris dubreuili* Montandon, 1908
- Subfamily LACCOCORINAE Stål, 1876
- Genus *Helecoris* Stål, 1876
34. *Helecoris bergrothi* Montandon, 1897
 35. *Helecoris breviceps* Montandon, 1897
 36. *Helecoris majusculus* Montandon, 1908
 37. *Helecoris rotundatus* Montandon, 1908

- Subfamily NAUCORINAE Leach, 1815
 Tribe **Naucorini** Leach, 1815
 Genus *Nanonaucoris* Zettel, 2001
 38. *Nanonaucoris boukali* Zettel, 2001
 Superfamily NOTONECTOIDAE Latreille, 1802
 Family NOTONECTIDAE Latreille, 1802
 Subfamily ANISOPINAE Hutchinson, 1929
 Tribe **Anisopini** Hutchinson, 1929
 Genus *Anisops* Spinola, 1837
 39. *Anisops barbatus* Brooks, 1951
 40. *Anisops bouvieri* Kirkaldy, 1904
 41. *Anisops breddini* Kirkaldy, 1901
 42. *Anisops campbelli* Brooks, 1951
 43. *Anisops cavifrons* Brooks, 1951
 44. *Anisops exiguus* Horvath, 1919
 45. *Anisops extendofrons* Brooks, 1951
 46. *Anisops nigrolineatus* Lundblad, 1933
 47. *Anisops niveus* (Fabricius, 1775)
 48. *Anisops paranigrolineatus* Brooks, 1951
 49. *Anisops sardeus sardeus* Herrich-Shaffer, 1850
 50. *Anisops stali* Kirkaldy, 1904
 51. *Anisops waltairensis* Brooks, 1951
 Subfamily NOTONECTINAE Latreille, 1802
 Tribe **Notonectini** Latreille, 1802
 Genus *Enithares* Spinola, 1837
 52. *Enithares ciliata* (Fabricius, 1798)
 53. *Enithares fusca* Brooks, 1948
 54. *Enithares hungerfordi* Brooks, 1948
 55. *Enithares triangularis* (Guerin-Meneville, 1844)
 Tribe **Nychini** Hungerford, 1934
 Genus *Nychia* Stål, 1860
 56. *Nychia sappho* Kirkaldy, 1901
 Superfamily PLEOIDEA Fieber, 1851
 Family PLEIDAE Fieber, 1851
 Genus *Paraplea* Esaki & China, 1928
 57. *Praplea frontalis* (Fieber, 1844)
 Family HELOTREPHIDAE Esaki & China, 1927
 Subfamily HELOTREPHINAE Esaki & China, 1927
 Subfamily FISCHEROTREPHINAE Zettel, 1994
 Genus *Fischerotrephes* Zettel, 1994
 58. *Fischerotrephes indicus* Zettel, 1997
 Subfamily IDIOCORINAE Esaki & China, 1927
 Genus *Indotrephes* Zettel, 1997
 59. *Indotrephes latus* Papàèek & Zettel, 2001
 INFRAORDER GERROMORPHA
 Superfamily GERROIDEA Reuter, 1910
 Family GERRIDAE Leach, 1815
 Subfamily CYLINDROSTETHINAE Matsuda, 1960
 Genus *Cylindrostethus* Mayr, 1865
 60. *Cylindrostethus products* Spinola, 1940
 Subfamily EOTRECHINAE Matsuda, 1960
 Division HALOBATIFORMES Andersen, 1982
 Genus *Amemboa* Esaki, 1925
 Subgenus *Amemboa* Esaki, 1925
 61. *Amemboa (Amemboa) kumari* (Distant), 1910
 Genus *Onychotrechus* Kirkaldy, 1903
 62. *Onychotrechus rhexenor* Kirkaldy, 1903
 Subfamily GERRINAE Bianchi, 1896
 Tribe **Gerrini** Andersen, 1975
 Genus *Aquarius* Schellenberg, 1800
 63. *Aquarius adelaidis* (Dohrn) 1860
 Genus *Neogerris* Matsumura, 1913
 64. *Neogerris parvula* (Stål) 1859
 Genus *Limnogonus* Stål, 1868
 Subgenus *Limnogonus* Stål, 1868
 65. *Limnogonus (Limnogonus) fossarum fossarum* (Fabricius), 1775
 66. *Limnogonus (Limnogonus) nitidus* (Mayr) 1865
 Genus *Limnometra* Mayr, 1865
 67. *Limnometra anadyomene* (Kirkaldy) 1901
 68. *Limnometra fluviorum* (Fabricius) 1798

- Subfamily HALOBATINAE Bianchi, 1896
 Tribe **Halobatini** Matsuda, 1960
 Genus *Asclepios* Distant, 1915
69. *Asclepios annandalei* Distant 1915
 Genus *Halobates* Buchanan-White, 1883
70. *Halobates flaviventris* Eschscholtz, 1822
 71. *Halobatus micans* Eschscholtz, 1822
 Tribe **Metrocorini** Matsuda, 1960
 Genus *Metrocoris* Mayr, 1865
72. *Metrocoris communis* (Distant) 1910
 73. *Metrocoris communoides* Chen & Nieser, 1993
 74. *Metrocoris indicus* Chen & Niser, 1993
 75. *Metrocoris valemmentus* Chen & Nieser 1993
 Genus *Ventidius* Distant, 1910
 Subgenus *Ventidius* Distant, 1910
76. *Ventidius (Ventidius) aquariws* Distant 1910.
 Subfamily PTILOMERINAE Bianchi, 1896
 Genus *Ptilomera* Amyot & Serville, 1843
 Subgenus *Ptilomera* Amyot & Serville, 1843
77. *Ptilomera (Ptilomera) agroides* Schmidt 1926
 Genus *Stridulobates* Zettel & Thirumalai, 2000
 78. *Stridulobates anderseni* Zettel & Thirumalai, 2001
 Genus *Rheumatogonus* Kirkaldy, 1909
79. *Rheumatogonus custodiendus* (Distant, 1910)
 Subfamily RHAGADATARSINAE Lundblad, 1934
 Genus *Rhagadatarsus* Breddin, 1905
 Subgenus *Rhagadatarsus* Breddin, 1905
80. *Rhagadotarsus (Rhagadotarsus) kraepelini* Breddin 1905
 Subfamily TREPOBATINAE Polhemus & Polhemus, 1993
 Tribe **Trepobatini** Polhemus & Polhemus, 1993
 Genus *Naboandelus* Distant, 1910
81. *Naboandelus signatus* Distant 1910
- Family VELIIDAE Amyot & Serville, 1843
 Division MICROVELIIFORMES Andersen, 1982
 Tribe **Microveliini** Stys, 1976
 Subfamily MICROVELIINAE China & Usinger, 1949
 Genus *Microvelia* Westwood, 1834
 Subgenus *Microvelia* Westwood, 1834
82. *Microvelia (Microvelia) annandalei* Distant 1909
 83. *Microvelia (Microvelia) diluta* Distant, 1909
 84. *Microvelia (Microvelia) javadiensis* Thirumalai, 1989
 85. *Microvelia (Microvelia) santala* Hafiz & Ribeiro 1939
 Subgenus *Picaultia* Scott, 2002
86. *Microvelia (Picaultia) douglasi* Scott
 Division VELIIFORMES Andersen, 1982
 Subfamily HALOVELIINAE Esaki, 1930
 Genus *Strongylovelia* Esaki, 1924
Strongylovelia formosa ? Esaki, 1924
 Genus *Xenobates* Esaki, 1927
87. *Xenobates* sp*. Andersen & Foster, 1992
 Subfamily PERITTOPINAE China & Usinger, 1949
 Genus *Perittopus* Fieber, 1861
88. *Perittopus campbelli* Lundblad 1934
 89. *Perittopus horvathi* Lundblad 1934
 Subfamily RHAGOVELIINAE China & Usinger, 1949
 Genus *Rhagovelias* Mayr, 1865
 Subgenus *Neorhagovelias* Matsuda, 1956
90. *Rhagovelias (Neorhagovelias) nilgiriensis* Thirumalai 1994
 Subgenus *Rhagovelias* Mayr, 1865
91. *Rhagovelias (Rhagovelias) ceylanica* Lundblad 1933
 92. *Rhagovelias (Rhagovelias) tibialis* Lundblad 1936
 Genus *Tetraripis* Lundblad, 1936
93. *Tetraripis asymmetricus* Polhemus & Karunaratne, 1979

Superfamily HEBROIDEA Amyot & Serville, 1843	Superfamily HYDROMETROIDEA Billberg, 1820
Family HEBRIDAE Amyot & Serville, 1843	Family HYDROMETRIDAE Billberg, 1820
Subfamily HEBRINAE Amyot & Serville, 1843	Subfamily HYDROMETRINAE Esaki, 1927
Genus <i>Neotimasius</i> Andersen, 1981	Genus <i>Hydrometra</i> Latreille, 1796
94. <i>Neotimasius orientalis</i> Andersen, 1981	100. <i>Hydrometra bifurcata</i> ? Hungerford and Evans, 1934
Genus <i>Timasius</i> Distat, 1909	101. <i>Hydrometra butleri</i> Hungerford and Evans, 1934
95. <i>Timasius spinifer</i> Andersen, 1981	102. <i>Hydrometra greeni</i> Kirkaldy 1898
96. <i>Timasius splendens</i> Distant 1909	
Superfamily MESOVELIOIDEA Douglas & Scott, 1867	
Family MESOVELIIDAE Douglas & Scott, 1867	
Subfamily MESOVELIINAE Douglas & Scott, 1867	
Genus <i>Mesovelgia</i> Mulsant & Rey, 1852	
97. <i>Mesovelgia horvathi</i> Lundblad 1934	
98. <i>Mesovelgia indica</i> Horvath 1915	
99. <i>Mesoveli vittigera</i> Horvath 1895	

DISCUSSION

The present study records 5 families of Gerromorpha and 10 families of Nepomorpha so far known to occur in Tamil Nadu. Out of 153 species of Nepomorpha hitherto known from India, the highest number, 59 species accommodated in 20 genera under 10 families, occur in Tamilnadu. Diversity of the species in Tamil Nadu represents 36.3% and 2.6% of the group known from India and the world respectively.

Table 1. Families, habitats, species of Gerromorpha & Nepomorpha associated with water

Family	Habitat	World	India	Tamilnadu
Infraorder Gerromorpha				
Gerridae	→ (water striders)–surface of fresh & brackish waters (sea).	696	79	22
Hebridae	→ (velvet water bugs)–marshes & wet riparian mosses	192	15	3
Hydrometridae	→ (water measurers)–surface of calm waters	125	3	3
Mesoveliidae	→ (water treaders)–vegetated banks of ponds & lakes	46	3	3
Veliidae	→ (riffle bugs)–surface of ponds & streams, also brackish	876	31	13
Infraorder Nepomorpha				
Aphelocheiridae	→ (benthic bottom bugs)–lentic & lotic	63	5	1
Belostomatidae	→ (giant water bugs)–ponds, on vegetation	143	6	3
Corixidae	→ (water boatmen)–fresh & brackish lentic waters	552	48	18

Table 1. *Contd.*

Family	Habitat	World	India	Tamilnadu
Gelastocoridae	→ (toad bugs)—shorelines, in mud & plant debris	103	4	1
Helotrephidae	→ (beetle back-swimmers)—ponds & lakes, on vegetation	171	13	2
Naucoridae	→ (creeping water bugs)—lentic & lotic, stones & vegetation	325	17	6
Nepidae	→ (water scorpions)—ponds, on vegetation	230	24	8
Notonectidae	→ (back-swimmers)—ponds and lakes	347	31	18
Ochteridae	→ (shore bugs)—stream margins, pond vegetation	36	1	1
Pleidae	→ (pygmy back-swimmers)—ponds & lakes, on vegetation.	36	4	1

REFERENCES

- Alfred, J. R. B. & N. C. Nandhi, 2001. Wetlands : Freshwater Ecosystems of India, *ENVIS, ZSI* : 165-193.
- Cheng, L., 1976. Insects in marine environments. In : Cheng, L., (ed), *Marine Insects*. North Holland/American Elsevier, Amsterdam, Pp.1-4.
- Distant, W.L. 1903a. The fauna of British India including Ceylon and Burma. Rhynchota, **2** : 167-191.
- Distant, W.L. 1906. The fauna of British India including Ceylon and Burma. Rhynchota, **3** : 13-51.
- Distant, W.L. 1910 b. The Fauna of British India including Ceylon and Burma. Appendix, **5** : 137-166 & 310-353.
- Hungerford, H.B and R. Matsuda. 1958. Some interesting aspects of the world distribution and classification of aquatic and semi-aquatic Hemiptera. *Proc. 10 th International Cong. Ent.*, **1**(1956) : 337-348.
- Hynes, H.B.N. (1984). Aquatic insects and mankind In : The Ecology of Aquatic insects. Ed. V.H. Resh and D.M. Rosenberg Praeger, New York, p. 625.
- Jordon, K.H.C. 1951. Zoogeographische Betrachtungen über die ostliche sachsen dargestellten deutschen Neuf unter von Heteropteren. *Zool. Anz.*, **147** : 79-84.
- Murdoch, W.W., Scott, M.A. and Ebsworth, P. 1984. Effects of the general predator Notonectidae (Hemiptera) upon a fresh water community. *J. anim. Ecol.*, **53** : 791-808.
- Nieser, N. 2002. Guide to Aquatic Heteroptera of Singapore and Peninsular Malaysia. IV. Corixoidea. *Raffles Bull. Zoology*, **50**(1) : 263-274.
- Patrick, R. and D.M. Palavage. 1994. The value of species as indicators of water quality. *Proc. Acad. Nat. Sci. Philadelphia*, **145** : 55-92.

- Ramakrishna. 2000. Limnological investigation and distribution of micro and macro invertebrates and vertebrates of Fox Sagar lake, Hyderabad. *Rec. zool. Surv. India*, **98**(1) : 169-196..
- Ravisankar, S. and Venkatesan, P. 1988. Redescription of two Oriental species of genus *Laccotrephes* Stål (Heteroptera : Nepidae) with a key to South Indian species. *Entomon*, **13**(3 & 4) : 227-234.
- Thirumalai, G. 1989. Aquatic and semi aquatic Hemiptera (Insecta) from Javadi Hills, Tamilnadu. *Misc. Occ. Pap. Rec. zool. Surv. India*, **118** : 1-63.
- Thirumalai, G. 1994a. Aquatic and semi Aquatic Hemiptera (Insecta) of Tamilnadu. I. Dharmapuri and Pudukkottai Districts. *Misc. Occ. Pap. Rec. zool. Surv. India*, **165** : 1-45.
- Thirumalai, G. 1994 b. On the genus *Rhagovelia* Mayr from India with a new record and description of a new species (Rhagoveliinae : Veliidae : Heteroptera). *Rec. zool. Surv. India*, **94**(2-4) : 381-394.
- Thirumalai, G. 1997. The Genus *Nerthra* (Say) from India with a description of a new species from Arunachal Pradesh, North Eastern India. *Rec. zool. Surv. India*, **96**(1-4) : 189-193.
- Thirumalai, G. 1999. Aquatic and semi-aquatic Heteroptera of India. *Indian Association Association of Aquatic Biologists (IAAB) Publication* No, **7** : 1-74 pp.
- Thirumalai, G. 2002. A checklist of Gerromorpha (Hemiptera) from India. *Rec. Zool. Surv. India*, **100** (1-2) : 55-97.
- Thirumalai, G. 2007. A Synoptic List of Nepomorpha (Hemiptera : Heteroptera) from India. *Rec. zool. Surv. India, Occ. Paper No*, **273** : 1-85.
- Thirumalai, G. and D.Dam 1996. A new record of the Genus *Tetraripis* Lundblad (Rhagoveliinae : Veliidae : Heteroptera) from India with a key to the know species. *Hexapoda*, **8**(2) : 67-69.
- Thirumalai, G. and Raghunathan, M.B. 1988. Population fluctuations of three families of aquatic Heteroptera in a perennial pond. *Rec. zool. Surv. India*, **85**(3) : 381-389.
- Thirumalai, G and S. Krishnan. 2000. Diversity of Gerromorpha (Heteroptera : Hemiptera : Insecta) in the Western Ghats States of India. *Rec. zool. Surv. India*, **98**(4) :59-77.
- Ward, J.V., 1992. *Aquatic Insect Ecology*, Biology and Habitat. John Wiley & Sons, Inc. New York, 438 pp.

INSECTA : HOMOPTERA : MEMBRACIDAE

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INTRODUCTION

The family Membracidae is the group of sap sucking insects of tree hoppers, consisting of approximately 3200 species accommodated in 9 subfamilies globally with highest species diversity in the tropics (Wallace & Dietz, 2004). These bugs are characterized by expanded pronotum often with spines, horns, bulbs, keels etc. The size varies from 5-15 mm. They are distributed predominantly in tropical, temperate regions of North and South America, Australia, Africa, Asia and rarely in Europe. In India, these bugs are not destructive to the extent of assuming the pest status. Feeding and oviposition are the two sources of injury due to membracids. Gregarious membracids are often related to their mutualism with hymenoptera, especially with ants. These bugs are exhibiting a remarkable degree of host specificity. In Southern India, plants belonging to the families Cucurbitaceae, Oleaceae, Asclepiadaceae, Apocyanaceae, Meliaceae and Labitae are avoided by membracids (Ananthasubramanian, 1996). It is also interesting to note that membracids are not recorded on monocotyledons in the plains of South India. The earlier work on Indian Membracids received a cursory attention limited to taxonomic preliminaries by recording of species from various parts of the country (Distant 1908 & 1916; Funkhouser 1922, 1929a&b, 1936). However, the contributions of Ananthasubramanian (1978, 1980a&b, 1982, 1984 & 1996), Ananthasubramanian and Ananthakrishnan (1975a

&b), Thirumalai (1986), and Ananthasubramanian and Ghosh (1989a&b) Thirumalai and Ananthasubramanian (1981 & 1985) are noteworthy to the taxonomy and bio ecological studies of Indian Membracids. Out of 233 species accommodated under 42 genera in 3 subfamilies so far known from India, 90 species in 15 genera under 2 subfamilies are listed in this checklist.

CHECKLIST LIST

Suborder AUCHENORRHYNCHA

Infra Order CICADOMORPHA

Superfamily MEMBRACOIDEA

Family MEMBRACIDAE Harris, 1841

Subfamily OXYRHACHINAE Haupt, 1929

Tribe Oxyrhachini Haupt 1929

Genus *Oxyrhachis* Germar, 1835

1. *Oxyrhachis brevicornutus* Ananthasubramanian & Ananthakrishnan, 1975
2. *Oxyrhachis krusadiensis* Ananthasubramanian & Ananthakrishnan, 1975
3. *Oxyrhachis minusculus* Ananthasubramanian & Ananthakrishnan, 1975
4. *Oxyrhachis palus* (Buckton), 1905
5. *Oxyrhachis rufescens* Walker, 1851
6. *Oxyrhachis taranda* (Fabricius), 1798
7. *Oxyrhachis tuberculus* Walker, 1858
8. *Oxyrhachis uncatus* Melichar, 1903

Subfamily Centrotinae Amyot and Serville, 1843

Tribe **Tricentrini** Ahmad and Yasmeen, 1974

Genus **Tricentrus** Stal

9. *Tricentrus aiyuri* Funkhouser, 1933
10. *Tricentrus albomaculatus* Distant, 1908
11. *Tricentrus assamensis* Distant, 1908
12. *Tricentrus congestus* (Walker), 1858
13. *Tricentrus decornis* Ananthasubramanian & Ananthakrishnan, 1975
14. *Tricentrus indicus* Funkhouser, 1942
15. *Tricentrus pilosus* Ananthasubramanian & Ananthakrishnan, 1975
16. *Tricentrus projectus* Distant, 1908
17. *Tricentrus repandus* Distant, 1916
18. *Tricentrus spathodei* Ananthasubramanian, 1982
19. *Tricentrus subangulatus* Distant, 1908
20. *Tricentrus transversus* (Distant), 1908

Tribe **Leptocentrini** Distant 1908

Genus **Telingana** Distant, 1908

21. *Telingana balteata* Distant, 1916
22. *Telingana campbelli* Distant, 1916
23. *Telingana consobrina* Distant, 1916
24. *Telingana curvispina* (Stal), 1869
25. *Telingana flavipes* (Kirby), 1891
26. *Telingana imitator* (Kirby), 1863
27. *Telingana nigroalata* Ananthasubramanian & Ananthakrishnan, 1975
28. *Telingana orlanda* Distant, 1916
29. *Telingana pulniensis* Ananthasubramanian, 1980
30. *Telingana subsimilis* (Walker), 1859

Genus **Lanceonotus** Capener, 1968

31. *Lanceonotus indicus* Ananthasubramanian, 1980

Genus **Leptocentrus** Stal, 1866

32. *Leptocentrus albonatus* Distant, 1916
33. *Leptocentrus bajulans* Distant, 1916
34. *Leptocentrus bauhiniae* Ananthasubramanian & Ananthakrishnan, 1975

35. *Leptocentrus leucaspis* (Walker), 1851

36. *Leptocentrus majesticus* Ananthasubramanian, 1980

37. *Leptocentrus mangifera* Ananthasubramanian & Ananthakrishnan, 1975

38. *Leptocentrus moringae* Ananthasubramanian & Ananthakrishnan, 1975

39. *Leptocentrus nigra* Ananthasubramanian & Ananthakrishnan, 1975

40. *Leptocentrus rhizophagus*
Ananthasubramanian & Ananthakrishnan, 1975

41. *Leptocentrus scutellatus* Distant, 1916

42. *Leptocentrus substitutus* (Walker), 1851

43. *Leptocentrus taurus* (Fabricius), 1775

44. *Leptocentrus ustus* Buckton, 1903

45. *Leptocentrus varicornis* Ananthasubramanian & Ananthakrishnan, 1975

Genus **Imporcitor** Distant, 1916

46. *Imporcitor typicus* Distant

Genus **Convector** Distant, 1916

47. *Convector cavendus* Distant, 1916

Genus **Otinotus** Buckton, 1903

48. *Otinotus albomaculatus* Distant, 1916

49. *Otinotus ammon* Buckton, 1903

50. *Otinotus aureus* Ananthasubramanian, 1980

51. *Otinotus badius* Distant, 1916

52. *Otinotus campbelli* Distant, 1916

53. *Otinotus indicatus* (Melichar), 1903

54. *Otinotus mimicus* Distant, 1916

55. *Otinotus obliquus* Ananthasubramanian & Ananthakrishnan, 1975

56. *Otinotus oneratus* (Walker), 1858

Genus **Centotypus** Stal, 1866

57. *Centotypus assamensis* (Fairmaire), 1846

58. *Centotypus ortus* Distant, 1908

59. *Centotypus pulniensis* Ananthasubramanian, 1996

60. *Centotypus securis* Buckton, 1903

Tribe **Centrotini** Goding, 1892Genus **Anchon** Buckton, 190361. *Anchon pilosum* (Walker), 185162. *Anchon ulniforme* Buckton, 1903Tribe **Gargarini** Distant, 1908Genus **Gargara** Amyot and Serville, 184363. *Gargara albitarsis* Ananthasubramanian & Ananthakrishnan, 197564. *Gargara caelata* Distant, 191665. *Gargara extrema* Distant, 191666. *Gargara hraswa* Walker, 187067. *Gargara madrasensis* Ananthasubramanian & Ananthakrishnan, 197568. *Gargara mixta* (Buckton), 190369. *Gargara penangi* Funkhouser, 191870. *Gargara pulchripennis* Stål, 187071. *Gargara pulniensis* Ananthasubramanian, 198072. *Gargara rustica* Ananthasubramanian & Ananthakrishnan, 197573. *Gargara varicolor* StålTribe **Coccosterphini** Distant, 1908Genus **Eucoccosterphus** Ananthasubramanian and Ghosh, 198774. *Eucoccosterphus paludatus* (Distant), 191675. *Eucoccosterphus tuberculatus* (de Motschulsky), 1859Genus **Coccosterphus** Stål, 186976. *Coccosterphus luteus* Funkhouser, 193377. *Coccosterphus minutus* (Fabricius), 1798Genus **Parayasa** Distant, 191678. *Parayasa affinis* Distant, 191679. *Parayasa affixa* Distant, 191680. *Parayasa atricapilla* Distant, 191681. *Parayasa dissimilis* Distant, 191682. *Parayasa elegantula* Distant, 191683. *Parayasa fasciata* Ananthasubramanian, 198184. *Parayasa maculosa* Distant, 191685. *Parayasa modesta* Distant, 191686. *Parayasa nilgiriensis* Distant, 191687. *Parayasa pilosa* Ananthasubramanian, 198188. *Parayasa rustica* Distant, 191689. *Parayasa typica* Distant, 1916Genus **Insitor** Distant, 191690. *Insitor exemplificatus* Distant, 1916.**DISCUSSION**

Indian membracids, hitherto known from Tamilnadu contribute 7.3% and 38.6% of global and Indian occurrence respectively. It is interesting that more than 40% of the species so far known from Tamilnadu are occurring in Western Ghats including the two species namely *Imporcitor typicus* Distant and *Convictor cavendus* Distant, which are endemic to Nilgiris. Moreover out of 90 species of membracids so far reported from Tamilnadu, two species namely *Centrotypus ortus* Distant, and *Parayasa pilosa* Ananthasubramanian, are known from Eastern Ghats, while *Centrotypus securis* Buckton and *Parayasa affixa* Distant are occurring both in Eastern and Western Ghats.

Table 1. List of genera and number of mebracid species known from India, Tamilnadu, Western Ghats and Eastern Ghats

Genera	India	Tamilnadu	Western Ghats	Eastern Ghats
<i>Oxyrhachis</i> Germar	20	8		
<i>Tricentrus</i> Stål	48	12	3	
<i>Telingana</i> Distant	16	10	9	
<i>Lanceonotus</i> Capener	4	1	1	
<i>Leptocentrus</i> Stål	27	14	2	
<i>Imporcitor</i> Distant	1	1	1	
<i>Convictor</i> Distant	1	1	1	
<i>Otinotus</i> Buckton	14	9	6	
<i>Centotypus</i> Stål	8	4	3	2
<i>Anchon</i> Buckton	4	2	-	
<i>Gargara</i> Amyot and Serville	31	11	2	
<i>Eucocosterphus</i> Ananthasubramanian & Ghosh	3	2		
<i>Cocosterphus</i> Stål	5	2		
<i>Parayasa</i> Distant	15	12	10	2
<i>Insitor</i> Distant	1	1		
TOTAL	233	90	38	4

REFERENCES

- Ananthasubramanian, K.S. 1978. Taxonomic notes on a new species of *Gargara* Amyot and Serville. (Membracidae : Homoptera) and its immature stages. *Entomon*, **3**(2) : 291-294.
- Ananthasubramanian, K.S. 1980a. Descriptions of a new genus and some new species of Membracidae (Homoptera) in the collections of the Zoological Survey of India. *Rec. zool. Surv. India. Misc. Pub. Occ. Pap.*, **16** : 1-69.
- Ananthasubramanian, K.S. 1980b. Taxonomic studies on Indian Membracidae (Insecta : Homoptera). *Entomon*, **5**(2) : 113-128.
- Ananthasubramanian, K.S. 1982. Taxonomic notes on a new species of *Tricentrus* Stål. (Membracidae : Homoptera). *Entomon*, **9**(3) : 475-479.
- Ananthasubramanian, K.S. 1984. Taxonomic notes on a new species of *Anchon ulniforme* Buckton. (Homoptera : Membracidae) *Entomon*, **9**(3) : 225-229.
- Ananthasubramanian, K.S. 1996. (Homoptera : Membracidae) Fauna of India, Published, by the Zoological Survey of India, Kolkata, 534 pp.
- Ananthasubramanian, K.S. & T.N. Ananthakrishnan. 1975a. Taxonomic, biological and ecological studies of some Indian membracids (Insecta : Homoptera) part I. *Rec. zool. Surv. India*, **68** : 161-272.

- Ananthasubramanian, K.S. & T.N. Ananthakrishnan. 1975b. Taxonomic, biological and ecological studies of some Indian membracids (Insecta : Homoptera) part II. *Rec. zool. Surv. India*, **68** : 305-340.
- Ananthasubramanian, K.S. & L.K. Ghosh. 1987a. Description of a new species of *Cocosterphus* Stål with reversionary notes on the genus (Homoptera : Membracidae). *Entomon*, **12**(4) : 339-343.
- Ananthasubramanian, K.S. & L.K. Ghosh. 1987b. Redescription of *Parayasa elegantula* Distant with notes on its biology and immature stages (Homoptera). *Bull. zool. Surv. India*, **8**(1-3) : 159-163.
- Distant, W.L. 1908. The fauna of British India including Ceylon and Burma. Rhynchota-Homoptera. **4** : 1-78.
- Distant, W. L. 1916. The fauna of British India including Ceylon and Burma. Rhynchota-Appendix. **6** : 146-182.
- Funkhouser, W. D. 1922. New records and species of Membracidae from India. *Rec. Indian Mus.*, **24** : 323-329.
- Funkhouser, W.D. 1929 a. Bornean Membracidae. *J. Fed. Malay. St. Mus.*, **14** : 469-478.
- Funkhouser, W.D. 1929 b. New Archipelagic Membracidae. *Philipp. J. Sci.*, **40** : 111-131.
- Funkhouser, W.D. 1936. Five new Indian Membracidae. *Ann. Ent. Soc., Amer.*, **29** : 245-250.
- Thirumalai, G. 1986. Further studies on the membracids from Silent Valley, Kerala. (Insecta : Homoptera) *Rec. zool. Surv. India*, **84**(1-4) : 97-105.
- Thirumalai, G. and K. S. Ananthasubramanian. 1981. Taxonomic studies on the membracids collected from Silent Valley, Kerala. *Bull. Zool. Surv. India*, **4**(1) : 27-32.
- Thirumalai, G. and K.S. Ananthasubramanian. 1985. Taxonomic studies on the Membracidae of Southern India. (Homoptera : Insecta)-I *Entomon*, **10**(3) : 223-233.

INSECTA : COLEOPTERA : SCARABAEIDAE

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INTRODUCTION

The Scarabaeidae is one of the largest family of order Coleoptera and around 1200 species are known from India (Pal, 2004). These beetles are characterized by the presence of lamellate antennae. They include dung beetles, scavengers and chafers, of which scavenger and dung beetles are beneficial to the mankind, whereas the chafers and white grub beetles are the pest of agriculture and forestry. Linnaeus (1758) brought all the known Scarabaeid beetles under a single Genus '*Scarabaeus*'. Later on various workers felt the necessity to segregate this large assemblage and several genera were erected.

The knowledge on Indian Scarabaeidae is mainly based on the valuable contributions of Arrow (1910, 1917, 1919, 1931, 1945, 1946). However, many other workers like Brenske (1897, 1898), Sharp (1903), Moser (1909, 1913, 1915, 1918, 1920), Dalla Torre (1912-13), Petrovitz (1962), Balthasar (1963 a & b, 1964) and Miksic (1976, 1977), Frey (1971 a & b, 1972), Machatschke (1972, 1974), Kuijten (1978, 1981, 1983), Krikken (1980), Ratcliffe (1980), Khan and Ghai (1982), Biswas and Chatterjee (1985), Balachandran (1991), Sabatinelli (1994), Scheuren (1995), Ramaraju and Mohansundaram (1997), Chandra (1999), Chinniah and Mohansundaram (1999) have also contributed on Scarabaeid beetles of India, wherein the distribution of these beetles in Tamilnadu state is recorded.

This paper presents the comprehensive account on Scarabaeid beetles of Tamilnadu along with

their known distribution in the state. Altogether, 298 species / subspecies of Scarabaeid beetles belonging to 86 genera and 9 subfamilies are on listed. The classification is mainly followed after *Sensu* Arrow (1910, 1917, and 1931), Balthasar (1963a, 1963b, 1964) and Kuitjen (1978, 1983) and subsequent modifications in the families are also followed.

S. N.	Subfamilies	Number of genera	Number of species
A	HYBOSORINAE	3	6
B	APHODIINAE	7	20
C	SCARABAEINAE	19	92
D	SERICIINAE	6	13
E	MELONTHINAE	8	26
F	RUTELINAE	16	80
G	CETONIINAE	20	51
H	VALGINAE	1	2
I	DYNASTINAE	6	8
	Total	86	298

A. Subfamily HYBOSORINAE

I. Genus *Hybosorus* Macleay, 1819

1. *Hybosorus orientalis* Westwood, 1845 : Chennai, Coimbatore, Coromandel, Kodaikanal, Madurai, Nilgiri Hills

II. Genus *Phaeochroops* Candeze, 1876

2. *Phaeochroops indicus* Kuijten, 1981 : Annamalai Hills, Coimbatore, Nilgiri Hills
3. *Phaeochroops longisetosus* Kuijten, 1981 : Coimbatore

III. Genus *Phaeochrous* Castelnau, 1840

4. *Phaeochrous diversipes* Pic, 1928 : Tamilnadu
5. *Phaeochrous madrassicus* Kuijten, 1978 : Kodaikanal
6. *Phaeochrous elevatus* Kuijten, 1978 : Coromandel

B. Subfamily **APHODIINAE**IV. Genus *Aphodius* Illiger, 1798

7. *Aphodius* (*Aganocrossus*) *amoenus* Boheman, 1857 : Chennai
8. *Aphodius* (*Blackburneus*) *minutissimus* A. Schmidt, 1908 : Nilgiri Hills
9. *Aphodius* (*Erytodes*) *confirmatus* A. Schmidt, 1857 : Chennai
10. *Aphodius* (*Loboparius*) *nathani* Johnson, 1978 : Annamalai Hills
11. *Aphodius* (*Mesontoplatys*) *mungo* Balthasar, 1946 : Chennai
12. *Aphodius* (*Phalacronothus*) *aviculus* Balthasar, 1946 : Chennai
13. *Aphodius* (*Pharaphodius*) *dindigalensis* Balthasar, 1951 : Dindigal
14. *Aphodius* (*Pharaphodius*) *indicus* Petrovitz, 1958 : Coimbatore
15. *Aphodius* (*Trichonotulus*) *castersi* Paulian, 1936 : Tiruchirapalli
16. *Aphodius* (*Trichonotulus*) *coimbatorensis* Balthasar, 1973 : Coimbatore

V. Genus *Chaetopisthes* Westwood, 1847

17. *Chaetopisthes* (*Chaetopisthes*) *oberthueri* Tangeldar and Krikken, 1982 : Ramnad
18. *Chaetopisthes* (*Neochaetopisthes*) *angustipes* Tangeldar and Krikken, 1982 : Nilgiri Hills
19. *Chaetopisthes* (*Neochaetopisthes*) *meridionalis* Tangeldar and Krikken, 1982 : Kodaikanal

VI. Genus *Oxyomus* Dejean, 1833

20. *Oxyomus cameratus* A. Schmidt, 1908 : Nilgiri Hills
21. *Oxyomus simillimus* A. Schmidt, 1908 : Nilgiri Hills

VII. Genus *Platytomus* Mulsant, 1842

22. *Platytomus indicus* Balthasar, 1941 : Chennai
23. *Platytomus nathani* Pittino and Mariani, 1986 : Coimbatore

VIII. Genus *Rhyparus* Westwood, 1843

24. *Rhyparus nilgirensis* Arrow, 1909 : Nilgiri Hills

IX. Genus *Rhyssenus* Mulsant, 1842

25. *Rhyssenus loebli* Petrovitz, 1975 : Udemelpet

X. Genus *Trichiorhyssenus* Clouet, 1901

26. *Trichiorhyssenus expansicornis* Benard, 1930 : Kodaikanal

C. Subfamily **SCARABAEINAE**XI. Genus *Anoctus* Sharp, 1875

27. *Anoctus myrmecophilus* (Arrow, 1907) : Nilgiri Hills

XII. Genus *Caccobius* Thomson, 1863

28. *Caccobius aterrimus* (Fabricius, 1798) : Chennai, Nilgiri Hills
29. *Caccobius gallinus* Arrow, 1907 : Nilgiri Hills

30. *Caccobius indicus* Harold, 1867 : Nilgiri Hills

31. *Caccobius meridionalis* Boucomont, 1914 : Annamalai Hills, Nilgiri Hills

XIII. Genus *Catharsius* Hope, 1837

32. *Catharsius capusinus* (Fabricius, 1781) : Madurai

33. *Catharsius pithecius* (Fabricius, 1775) : Coimbatore

34. *Catharsius sagax* (Quens, 1806) : Trichonapally

XIV. Genus *Chironitis* Lansberg, 1875

35. *Chironitis indicus* Lansberg, 1875 : Coimbatore, Madurai

XV. Genus *Copris* Geoffroy, 1762

36. *Copris cribratus* Gillet, 1927 : Annamalai Hills

37. *Copris davisoni* Wat. 1891 : Nilgiri Hills

38. *Copris indicus* Gillet, 1910 : Chennai

39. *Copris repertus* Walker, 1858 : Annamalai Hills
40. *Copris signatus* Walker, 1858 : Coimbatore
XVI. Genus *Delopleurus* Er., 1848
41. *Delopleurus parvus* (Sharp, 1875) : Tamilnadu
XVII. Genus *Disphysema* Harold, 1873
42. *Disphysema candezei* Harold, 1873 : Coimbatore
XVIII. Genus *Drepanocerus* Kirby, 1828
43. *Drepanocerus setosus* (Wied., 1823) : Chennai
XIX. Genus *Gymnopleurus* Illiger, 1803
44. *Gymnopleurus aethiops* Sharp, 1875 : Chennai, Nilgiri Hills
45. *Gymnopleurus cyaneus* (Fabricius, 1798) : Annamalai Hills
46. *Gymnopleurus dejeani* Castelnau, 1840 : Tamilnadu
47. *Gymnopleurus gemmatus* Harold, 1871 : Chennai
48. *Gymnopleurus parvus* (Macleay, 1821) : Chennai
49. *Gymnopleurus sinuatus* (Olivier, 1789) : Chennai, Kodaikanal, Madurai, Nilgiri Hills
50. *Gymnopleurus spilotos* (Macleay, 1821) : Annamalai Hills, Madurai
51. *Gymnopleurus sumptuosus* Castelnau, 1840 : Tamilnadu
XX. Genus *Heliocopris* Burmeister, 1846
52. *Heliocopris gigas* (Linnaeus, 1764) : Chennai
XXI. Genus *Liatongus* Reitter, 1893
53. *Liatongus indicus* Arrow, 1908 : Annamalai Hills, Nilgiri Hills
54. *Liatongus rhadamistus* (Fabricius, 1775) : Coimbatore
XXII. Genus *Oniticellus* Serville, 1825
55. *Oniticellus cinctus* (Fabricius, 1781) : Chennai, Kodaikanal
56. *Oniticellus pallipes* (Fabricius, 1781) : Chennai
57. *Oniticellus spinipes* Roth, 1851 : Chennai
XXIII. Genus *Onitis* Fabricius, 1798
58. *Onitis falcatus* (Wulf. 1786) : Coimbatore
59. *Onitis philemon* Fabricius, 1801 : Coimbatore
60. *Onitis singhalensis* Lansberg, 1875 : Nilgiri Hills
61. *Onitis siva* Gillet, 1911 : Nilgiri Hills
62. *Onitis virens* Lansberg, 1875 : Annamalai Hills, Nilgiri Hills
XXIV. Genus *Onthophagus* Latreille, 1802
63. *Onthophagus ampicoma* Boucomont, 1914 : Nilgiri Hills
64. *Onthophagus amphinasus* Arrow, 1931 : Nilgiri Hills
65. *Onthophagus andrewesi* Arrow, 1931 : Annamalai Hills, Nilgiri Hills
66. *Onthophagus bengalensis* Harold, 1886 : Nilgiri Hills
67. *Onthophagus bifasciatus* (Fabricius, 1781) : Nilgiri Hills
68. *Onthophagus bisectus* Arrow, 1931 : Nilgiri Hills
69. *Onthophagus bonanus* (Fabricius, 1775) : Trichonapalli,
70. *Onthophagus brevicollis* Arrow, 1907 : Nilgiri Hills
71. *Onthophagus bronzeus* Arrow, 1907 : Chennai, Nilgiri Hills
72. *Onthophagus castetsi* Lansberg, 1887 : Kodaikanal, Palni Hills
73. *Onthophagus catta* (Fabricius, 1787) : Madurai, Trichonapalli
74. *Onthophagus cavia* Boucomont, 1914 : Nilgiri Hills
75. *Onthophagus centricornis* (Fabricius, 1798) : Nilgiri Hills
76. *Onthophagus cervus* (Fabricius, 1798) : Coimbatore
77. *Onthophagus discedens* Sharp, 1875 : Nilgiri Hills
78. *Onthophagus duporti* Boucomont 1914 : Nilgiri Hills

79. *Onthophagus ensifer* Boucomont, 1914 : Nilgiri Hills
80. *Onthophagus ephippioderus* Arrow, 1907 : Nilgiri Hills
81. *Onthophagus fasciatus* Boucomont, 1914 : Annamalai, Nilgiri Hills
82. *Onthophagus favrei* Boucomont, 1914 : Nilgiri Hills, Coimbatore
83. *Onthophagus fuscopunctatus* (Fabricius, 1798) : Chennai , Madurai
84. *Onthophagus gemma* Sharp, 1875 : Chennai
85. *Onthophagus griseosetotus* Arrow, 1931 : Chennai, Nilgiri Hills
86. *Onthophagus hystrix* Boucomont, 1914 : Chennai
87. *Onthophagus igneus* Vigors, 1825 : Annamalai Hills
88. *Onthophagus imperator* Castelnau, 1840 : Nilgiri Hills
89. *Onthophagus kchatriya* Boucomont, 1914 : Annamalai Hills, Chennai, Nilgiri Hills
90. *Onthophagus lilliputanus* Lansberg, 1883 : Chennai, Coimbatore
91. *Onthophagus ludio* Boucomont, 1914 : Chennai, Nilgiri Hills
92. *Onthophagus madoqua* Arrow, 1931 : Nilgiri Hills
93. *Onthophagus mauritii* Boucomont, 1919(1920) : Nilgiri Hills
94. *Onthophagus negligens* Walker, 1858 : Madurai, Nilgiri Hills
95. *Onthophagus nilgirensis* Gillet, 1922 : Nilgiri Hills
96. *Onthophagus pactolus* (Fabricius, 1787) : Coimbatore
97. *Onthophagus pardalis* (Fabricius, 1798) : Nilgiri Hills
98. *Onthophagus parvulus* (Fabricius, 1798) : Chennai
99. *Onthophagus rana* Arrow, 1931 : Kodaikanal
100. *Onthophagus socialis* Arrow, 1931 : Nilgiri Hills
101. *Onthophagus spinifex* (Fabricius, 1781) : Madurai, Nilgiri Hills
102. *Onthophagus tarandus* (Fabricius, 1792) : Nilgiri Hills
103. *Onthophagus tragus* (Fabricius, 1792) : Chennai
104. *Onthophagus transquadridentatus* Scheuern, 1995 : Chennai
105. *Onthophagus truncaticornis* (Schall., 1783) : Nilgiri Hills
106. *Onthophagus unifasciatus* (Schall., 1783) : Nilgiri Hills, Trichonapalli
107. *Onthophagus urellus* var. *nilgirinus* Arrow, 1931 : Nilgiri Hills
108. *Onthophagus vividus* Arrow, 1907 : Nilgiri Hills
- XXV. Genus *Phacosoma* Boucomont, 1914
109. *Phacosoma laetum* Arrow, 1931 : Nilgiri Hills
110. *Phacosoma triste* Arrow, 1931 : Nilgiri Hills
- XXVI. Genus *Ponerotrogus* Silv., 1924
111. *Ponerotrogus annandalei* Silv., 1924 : Coimbatore
- XXVII. Genus *Pycnopanelus* Arrow, 1917
112. *Pycnopanelus rotundus* Arrow, 1917 : Chennai
- XXVIII. Genus *Scarabaeus* Linnaeus, 1758
113. *Scarabaeus erichsoni* (Harold, 1867) : Chennai, Kodaikanal
114. *Scarabaeus sanctus* (Fabricius, 1798) : Nilgiri Hills,
- XXIX. Genus *Sisyphus* Latr. 1807
115. *Sisyphus araneolus* Arrow, 1927 : Nilgiri Hills
116. *Sisyphus hirtus* Wied., 1823 : Nilgiri Hills
117. *Sisyphus longipes* (Olivier, 1789) : Chennai, Nilgiri Hills, Utakamand
118. *Sisyphus mendicus* Arrow, 1931 : Annamalai Hills, Chennai
- D. Subfamily SERICIINAE
- XXX. Genus *Anomioserica* Arrow, 1946
119. *Anomioserica flavipes* Arrow, 1946 : Nilgiri Hills

XXXI. Genus *Autoserica* Brenske, 1897

120. *Autoserica atratula* (Brenske, 1898) : Nilgiri Hills
 121. *Autoserica calicutensis* Frey 1972 : Annamalai Hills
 122. *Autoserica nilgirina* Frey 1972 : Nilgiri Hills
 123. *Autoserica placida* Frey 1972 : Nilgiri Hills
 124. *Autoserica pygmaea* Frey 1972 : Nilgiri Hills
 125. *Autoserica utacamanda* Brenske, 1898 : Nilgiri Hills

XXXII. Genus *Hemiserica* Brenske, 1894

126. *Hemiserica armipes* Arrow, 1945 : Coimbatore
 127. *Hemiserica bilobata* Arrow, 1945 : Nilgiri Hills

XXXIII. Genus *Microserica* Brenske, 1894

128. *Microserica stellata* Arrow, 1946 : Kodaikanal

XXXIV. Genus *Pachyderoserica* Moser, 1920

129. *Pachyderoserica crassicollis* Moser, 1920 : Madurai

XXXV. Genus *Serica* M'Leay, 1819

130. *Serica nilgirensis* Sharp, 1903 : Nilgiri Hills
 131. *Serica gracilipes* Moser 1915 : Madurai

E. Subfamily MELONTHINAE

XXXVI. Genus *Anomalochela* Moser 1913

132. *Anomalochela curvidens* Moser 1913 : Madurai

XXXVII. Genus *Apogonia* Kirby, 1818

133. *Apogonia ferruginea* (Fabricius 1781) : Coromandel
 134. *Apogonia hopei* Ritsema 1897 : Chennai
 135. *Apogonia rauca* (Fabricius 1781) : Coromandel

XXXVIII. Genus *Brahmina* Blanchard, 1850

136. *Brahmina hirsuta* Moser, 1918 : Trichonapally
 137. *Brahmina macrophylla* Moser, 1913 : Madurai
 138. *Brahmina mysoreensis* Frey, 1971 : Nilgiri Hills

IXL. Genus *Cyphochilus* Waterhouse, 1867

139. *Cyphochilus waterhousei* Brenske, 1903 : Trichonapally

XL. Genus *Holotrichia* Hope, 1837

140. *Holotrichia conferta* Sharp, 1903 : Nilgiri Hills
 141. *Holotrichia coromandeliana* Blanchard : Coromandel
 142. *Holotrichia consanguinea* Blanchard, 1850 : Chennai
 143. *Holotrichia dubiosa* Frey, 1971 : Madurai
 144. *Holotrichia madurensis* Moser, 1909 : Madurai
 145. *Holotrichia mucida* Gyll & Schonh, 1817 : Chennai
 146. *Holotrichia nilgiria* Arrow, 1944 : Nilgiri Hills
 147. *Holotrichia nigrescens* Moser, : Madurai
 148. *Holotrichia notaticollis*, Moser, 1913 : Nilgiri Hills
 149. *Holotrichia pagana* Burmeister, 1855 : Chennai
 150. *Holotrichia repetita* Sharp, 1903 : Nilgiri Hills
 151. *Holotrichia rustica* Burmeister, 1856 : Chennai
 152. *Holotrichia serrata* (Fabricius, 1787) : Coimbatore
 153. *Holotrichia serraticollis* Moser, : Coimbatore
 XLI. Genus *Microtrichia* Brenske, 1900
 154. *Microtrichia densicollis* Moser, 1913 : Nilgiri Hills
 155. *Microtrichia nilgiria* Moser, 1913 : Nilgiri Hills
 XLII. Genus *Rhizotrogus* Berthold, 1827
 156. *Rhizotrogus gravis* Arrow, 1919 : Nilgiri Hills
 XLIII. Genus *Schizonycha* Blanchard, 1845
 157. *Schizonycha ruficollis* (Fabricius 1781) : Coromandel

F. Subfamily RUTELINAE

XLIV. Genus *Adoretus* Castelnau 1840

158. *Adoretus bicaudatus* Arrow, 1914 : Chennai
159. *Adoretus bicolor* Brenske, 1893 : Chennai, Coimbatore
160. *Adoretus bimarginatus* Ohaus, 1914 : Chennai
161. *Adoretus boops* (Wiedemann, 1821) : Chennai
162. *Adoretus caliginosus* Burmeister, 1844 : Chennai, Nilgiri Hills
163. *Adoretus chinchonae* Frey, 1971 : Annamalai Hills
164. *Adoretus reythrocephalus* Fabricius, 1781 : Chennai
165. *Adoretus incurvatus* Ohaus, 1914 : Chennai
166. *Adoretus lasiopygus* Burmeister, 1855 : Chennai, Coimbatore
167. *Adoretus latirostris* Ohaus, 1914 : Chennai, Nilgiri Hills
168. *Adoretus nathani* Frey, 1971 : Coimbatore, Nilgiri Hills
169. *Adoretus nephriticus* (Ohaus, 1914) : Chennai, Nilgiri Hills
170. *Adoretus ovalis* Blanchard, 1851(1850) : Chennai, Nilgiri Hills, Ootakamand
171. *Adoretus renardi* Brenske, 1893 : Chennai, Coimbatore
172. *Adoretus sorex* Arrow, 1931 : Chennai, Coimbatore
173. *Adoretus versutus* Harold, 1869 : Coimbatore

XLV. Genus *Anomala* Samouelle, 1819

174. *Anomala bengalensis* Blanchard, 1851 : Coimbatore
175. *Anomala blanchardi* Blanchard, 1851 : Chennai
176. *Anomala chinchonae* Frey, 1971 : Annamalai Hills
177. *Anomala communis* Arrow, 1855 : Chennai, Nilgiri Hills, Ootakamand
178. *Anomala conjuga* (Arrow, 1917) : Chennai, Nilgiri Hills

179. *Anomala dalbergiae* Arrow, 1917 : Chennai, Nilambur
180. *Anomala dimidiata* Hope, 1831 : Chennai, Madurai, Shembaganur
181. *Anomala dorsalis* Fabricius, 1775 : Chennai, Madurai
182. *Anomala dussumieri* Blanchard, 1851 : Chennai
183. *Anomala elata* (Fabricius, 1792) : Chennai, Mandapam,
184. *Anomala fulvohirta* Arrow, 1915 : Chennai, Shembaganur
185. *Anomala grandis* (Hope, 1839) : Chennai
186. *Anomala luridicollis* Arrow, 1917 : Chennai
187. *Anomala madrasica* Arrow, 1917 : Chennai
188. *Anomala mus* Arrow, 1911 : Nilgiri Hills
189. *Anomala nathani* Frey, 1971 : Nilgiri Hills
190. *Anomala nigroscripta*, Arrow : Annamalai Hills
191. *Anomala nilgirensis*, Arrow, 1917 Chennai, Nilgiri Hills
192. *Anomala olivieri* Sharp, 1903 : Chennai, Ootakamand
193. *Anomala pellucida* Arrow, 1911 : Chennai, Madurai
194. *Anomala polymorpha* (Arrow) : Chennai, Nilgiri Hills
195. *Anomala semiaenea* Arrow, 1917 : Chennai, Nilgiri Hills
196. *Anomala seminitens* Arrow, 1931 : Chennai
197. *Anomala singularis* Arrow, 1917 : Chennai
198. *Anomala varicolor* (Gyll. 1817) : Palni Hills
199. *Anomala vittilatera* Arrow, 1917 : Chennai

XLVI. Genus *Anoplanomala* Arrow, 1917

200. *Anoplanomala carneola* (Arrow, 1911) : Chennai, Nilgiris Hills
201. *Anoplanomala globulosa* (Sharp, 1903) : Chennai, Nilgiris Hills, Ootakamand, Madurai,

XLVII. Genus *Callistethus* Blanchard, 1851(1850)

202. *Callistethus agnellus* (Arrow, 1911) :

Chennai, Nilgiris Hills, Shembagaur,
Trichonapalli

203. *Callistethus armatus* (Arrow, 1911) :
Chennai, Coimbatore, Nigiri Hills
204. *Callistethus degeneratus* (Arrow, 1911) :
Chennai, Madurai, Shembaganur
205. *Callistethus ebenus* (Burmeister, 1855) :
Nilgiri Hills
206. *Callistethus gemmulus* (Arrow, 1911) :
Chennai, Kodaikanal, Shembaganur,
Ootakamand,
207. *Callistethus madurae* (Arrow, 1911) :
Chennai, Madurai, Shembaganur
208. *Callistethus oculicollis* (Arrow, 1911) :
Chennai, Kodaikanal, Shembaganur,
209. *Callistethus reginus* (Newman, 1838) :
Chennai, Nilgiri Hills
210. *Callistethus rugilaterus* (Arrow, 1911) :
Chennai, Nilgiri Hills
211. *Callistethus strigatus* (Laporte, 1840) :
Annamalai Hills, Chennai, Nilgiri Hills

XLVIII. Genus *Macropopillia* Ohaus, 1905

212. *Macropopillia arrowi* Ohaus, 1905 : Chennai,
Kodaikanal, Ootakamand, Palani Hills,
Trichonapalli

IXL. Genus *Heterophthalmus* Blanchard, 1851

213. *Heterophthalmus ocularis* Blanchard, 1851
: Chennai

L. Genus *Micranomala* Arrow, 1911

214. *Micranomala indica* Arrow, 1911 :
Coimbatore

LI. Genus *Mimela* Kirby, 1825

215. *Mimela ignicollis* (Blanchard, 1851) :
Chennai, Kodaikanal, Ootakamand
216. *Mimela marginalis* Arrow, 1908 : Chennai
217. *Mimela xanthorrhina* Hope, 1837 : Chennai,
Annamalai Hills, Nilgiri Hills

LII. Genus *Oxyadoretus* Arrow, 1917

218. *Oxyadoretus laetus* Arrow, 1917 : Chennai

LIII. Genus *Parastasia* Westw. 1841

219. *Parastasia basalis* Candez, 1869 : Chennai

LIV. Genus *Popillia* Serville 1825

220. *Popillia chlorion* Newman, 1838 : Nilgiri
Hills, Ootakamand
221. *Popillia clara* Arrow, 1913 : Nilgiri Hills
222. *Popillia complanata* Newman, 1838 : Nilgiri
Hills
223. *Popillia eximia* Arrow, 1913 : Nilgiri Hills
224. *Popillia girardi* Sabatinelli, 1994 : Chennai
225. *Popillia laevis* Burmeister, 1855 : Chennai
226. *Popillia lucida* Newman, 1838 : Nilgiri Hills
227. *Popillia madrasicola* Machatschke, 1913 :
Chennai
228. *Popillia pulchripes* Arrow, 1913 : Nilgiri
Hills
229. *Popillia schizonycha* Arrow, 1913 : Nilgiri
Hills

LV. Genus *Prodoretus* Brenske, 1893

230. *Prodoretus malabariensis* Ohaus, 1912 :
Chennai

LVI. Genus *Rhinyptia* Burmeister, 1844

231. *Rhinyptia indica* Burmeister, 1844 : Chennai
232. *Rhinyptia meridionalis* Arrow, 1911 :
Chennai
233. *Rhinyptia rufoclypeata* Machatschke, 1971
: Madurai

LVII. Genus *Scaphorrhinadoretus* Ohaus, 1912

234. *Scaphorrhinadoretus bimacularus* Ohaus,
1912 : Chennai, Madurai, Trichonapalli.

LVIII. Genus *Singhala* Blanchard, 1850

235. *Singhala polymorpha* Arrow, 1911 :
Chennai, Nilgiri Hills
236. *Singhala robusta* (Ohaus, 1917) : Chennai

LIX. Genus *Pachyrrhinadoretus* Ohaus, 1912

237. *Pachyrrhinadoretus rugipennis* Ohaus, 1912
: Madurai

G. Subfamily CETONIINAE

LX. Genus *Agestrata* Eschscholtz, 1829

238. *Agestrata orichalcea* ssp. *nigrita* (Fabricius,
1775) : Chennai

LXI. Genus *Anatona* Burmeister, 1842

239. *Anatona alboguttata* Burmeister, 1842 :
Chennai

240. *Anatona stillata* (Newmann, 1838) : Chennai
LXII. Genus *Anthracophora* Burmeister, 1842
241. *Anthracophora crucifera* Olivier, 1789 : Chennai, Coimbatore
LXIII. Genus *Bacchusia* Miksic, 1976
242. *Bacchusia eximia* (Arrow, 1941) : South India
LXIV. Genus *Chiloloba* Burmeister, 1842
243. *Chiloloba acuta* (Wiedemann, 1823) : Chennai
LXV. Genus *Coenochilus* Schaum, 1841
244. *Coenochilus leveillei* Nonfried 1892 : Chennai
245. *Coenochilus taprobanicus* Westw. 1874 : Chennai, Madurai
246. *Coenochilus trabecula* Schaum, 1844 : Nilgiri Hills
LXVI. Genus *Clinteria* Burmeister, 1842
247. *Clinteria caliginosa* Janson, 1889 : Kodaikanal, Madurai, Trichonapally
248. *Clinteria coerulea* (Herbst, 1783) : Coimbatore
249. *Clinteria imperialis* ssp. *cincta* Schoch, 1895 : Chennai
250. *Clinteria imperialis* ssp. *mercurensis* Miksic, 1977 : Annamalai Hills
251. *Clinteria imperialis* ssp. *mercurensis* Miksic, 1977 : Annamalai Hills
252. *Clinteria imperialis* ssp. *truncata* Arrow, 1907 : Nilgiri Hills
253. *Clinteria imperialis* ssp. *valida* Lansberge, 1887 : Chennai Kodaikanal, Madurai, Ramnad, Trichonapally
254. *Clinteria klugi* ssp. *madurensis* Miksic, 1977 : Madurai
255. *Clinteria klugi* ssp. *decora* Janson, 1881 : Chennai
LXVII. Genus *Cyphonocephalus* Westwood, 1842
256. *Cyphonocephalus olivaceus* (Dupont, 1835) : Chennai, Nilgiri Hills
LXVIII. Genus *Diceros* Gory-Percheron, 1833
257. *Diceros (Coryphocera) cuvera* Newmann, 1837 : Chennai
258. *Diceros (Coryphocera) bimaculus* (Wiedemann, 1823) : Coimbatore
LXIX. Genus *Gametis* Burmeister, 1842
259. *Gametis andrewesi*, Janson, 1901 : Chennai, Madurai, Nilgiri Hills, Shembaganur
260. *Gametis versicolor* (Fabricius, 1775) : Chennai
LXX. Genus *Gnorimidia* Lansberge 1887
261. *Gnorimidia toyae* Lansberge 1887 : Kodaikanal, Madurai,
LXXI. Genus *Heterorrhina* Westw. 1842
262. *Heterorrhina elegans* (Fabricius, 1781) : Chennai, Coimbatore, Madurai, Nilgiri Hills
263. *Heterorrhina gracilis* Arrow, 1910 : Nilgiri Hills
264. *Heterorrhina micans* Guérin, 1840 : Annamalai Hills, Chennai, Madurai
265. *Heterorrhina obesa* Janson, 1884 : Annamalai Hills, Chennai, Madurai, Nilgiri Hills
266. *Heterorrhina planata* Arrow 1910 : Annamalai Hills, Chennai, Nilgiri Hills
LXXII. Genus *Ixorida* Thomson, 1880
267. *Ixorida albonotata* (Blanchard, 1842) : Nilgiri Hills
LXXIII. Genus *Mycteristes* Castelnau, 1840
268. *Mycteristes (Hemicephalocosmus) auritus* Arrow, 1910 : Chennai, Nilgiri Hills
LXXIV. Genus *Narycius* Dupont, 1835
269. *Narycius opalus* Dupont, 1835 : Nilgiri Hills
LXXV. Genus *Pogonopus* Arrow, 1910
270. *Pogonopus pusillus* Arrow, 1910 : Chennai, Coimbatore
LXXVI. Genus *Protaetia* Burmeister, 1842
271. *Protaetia (Indoprotaetia) alboguttata* Vigors, 1826 : Chennai
272. *Protaetia (Indoprotaetia) wiebesi* Miksic, 1966 : Chennai, Madurai,
273. *Protaetia (Protosia) cupripes* (Wiedemann, 1821) : Chennai, Nilgiri Hills
274. *Protaetia (Protosia) kulzeri* Schein, 1957 : Nilgiri Hills

275. *Protaetia (Protosia) peregrina* (Herbst, 1790) : Chennai, Nilgiri Hills
276. *Protaetia (Protosia) squamipennis* Burmeister, 1842 : Chennai
277. *Protaetia (Protosiomima) aurichalcea* (Fabricius, 1775) : Chennai
278. *Protaetia (Pseudaplata) cinerea* Kraatz, 1898 : Chennai, Coimbatore
- LXXVII. Genus *Pseudoixorida* Miksic, 1976
279. *Pseudoixorida rotundicollis* (Arrow, 1941) : Coimbatore
- LXXVIII. Genus *Taeniodera* Burmeister, 1842
280. *Taeniodera bufo* (Arrow, 1910) : Annamali Hills, Chennai, Nilgiri Hills
281. *Taeniodera coorgica* (Arrow 1941) : Chennai
282. *Taeniodera crucicollis* Lansberge, 1887 : Annamali Hills, Chennai, Kodaikanal,
283. *Taeniodera flavomaculata* (Gory-Percheron, 1833) : Nilgiri Hills
284. *Taeniodera ochraceipes* (Warterhouse, 1888) : Madurai
285. *Taeniodera oberthuri* Lansberge, 1887 : Madurai,
286. *Taeniodera sannio* Janson, 1883 : Annamali Hills, Chennai
287. *Taeniodera waterhousei* Arrow, 1910 : Annamali Hills, Madurai
- LXXIX. Genus *Trigonophorus* Hope, 1831
288. *Trigonophorus delesserti* (Guerin, 1839) : Annamali Hills, Madurai, Patni Hills,
- H. Subfamily VALGINAE
- LXXX. Genus *Oreoderus* Burmeister, 1842
289. *Oreoderus argilaceus* (Hope, 1842) : Nilgiri Hills
290. *Oreoderus gravis* Arrow, 1910 : Nilgiri Hills
- I. Subfamily DYNASTINAE
- LXXXI. Genus *Alissonotum* Arrow, 1908
291. *Alissonotum piceum* (Fabricius, 1775) : Chennai
- LXXXII. Genus *Dipelicus* Hope, 1845
292. *Dipelicus hircus* (Fabricius, 1775) : Chennai
- LXXXIII. Genus *Eophileurus* Arrow, 1908
293. *Eophileurus decatenatus* Arrow, 1910 : Madurai
294. *Eophileurus nilgirensis* Arrow, 1908 : Madurai, Nilgiri Hills
295. *Eophileurus platypterus* (Wied. 1823) : Chennai
- LXXXIV. Genus *Oryctes* Illiger, 1798
296. *Oryctes rhinoceros* (Linnaeus, 1758) : Chennai, Kanyakumari
- LXXXV. Genus *Phyllognathus* Eschsch., 1830
297. *Phyllognathus dionysius* (Fabricius, 1792) : Chennai, Coimbatore, Madurai
- LXXXVI. Genus *Xylotrupes* Hope, 1837
298. *Xylotrupes gideon* (Linnaeus, 1767) : Chennai

SUMMARY

The paper presents the checklist of Scarabaeid beetles (Coleoptera) of Tamilnadu along with their known distribution only from the state, which includes 298 species / subspecies of belonging to 86 genera representing 9 subfamilies.

REFERENCES

- Arrow, G. J. 1910. *The fauna of British India including Ceylon and Burma*, Col. Lamell. I (Cetoniinae and Dynastinae), Taylor & Francis, London, 322 pp.
- Arrow, G. J. 1917. *The fauna of British India including Ceylon and Burma*. Col. Lamell. (Rutelinae, Desmonychinae and Euchiirinae), Taylor & Francis, London, 387pp.
- Arrow, G. J. 1919. Systematic notes on a few Melolonthine Coleoptera. *Ann. Mag. nat. Hist.*, 9(4) : 21-28.

- Arrow, G. J. 1931. *The fauna of British India including Ceylon and Burma*. Col. Lamell. **III**, (Coprinae). Taylor & Francis, London, 428pp.
- Arrow, G. J. 1945. On the Melolonthine beetles of the genus *Hemiserica* including a few new species. *Ann. Mag. nat. Hist.*, **11**(12) : 117-121.
- Arrow, G. J. 1946. Notes on *Aserica* and some related genera of Melonithine beetles with descriptions of new species and two new genera. *Ann. Mag. nat. Hist.*, **11**(13) : 264-283.
- Balachandran, S. 1991. Insectivory by three striped palm squirrel *Funambulus palmarum*, *J. Bombay nat. Hist. Society*, **87**(3) : 447-448.
- Balthasar, V. 1963 a. *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen region*. Prague, Verl. Tschechosl. Akad. Wissensch, **I**, 391pp., 137figs., 24pls.
- Balthasar, V. 1963 b. *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen region*. Prague, Verl. Tschechosl. Akad. Wissensch, **II**, 627pp., 226 figs., 16 pls.
- Balthasar, V. 1964. *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen region*. Prague, Verl. Tschechosl. Akad. Wissensch, **III**, 652pp., 224 figs.
- Biswas, S. and Chatterjee, S. K. 1985. Insecta : Coleoptera : Scarabaeidae : Coprinae, *Rec. zool. Surv. India*, **82** : 147-177.
- Brenske, K. 1897. Die *Serica*-Arten der Erde. Pars. I, *Berl. Ent. Z.*, **42** : 345-438.
- Brenske, K. 1898. Die *Serica*-Arten der Erde. Pars. II, *Berl. Ent. Z.*, **43** : 205-404.
- Chandra, K. 1999. Annotated checklist of Aphodiinae (Scarabaeidae : Coleoptera) from India. *Rec. zool. Surv. India*. **97**(2) : 87-108.
- Chinniah, C. and Mohanasundaram, M. 1995. Four new species of *Histiostoma* associated with insects in Tamilnadu. *Entomon.*, **20**(2) : 73-78.
- Chinniah, C. and Mohanasundaram, M. 1999. Mites phonetic on melolonthid and scarabaeid beetles from India. *Pest Management and Economic Zoology*, **6**(2) : 105-110.
- Dalla Torre, K.W. 1912-13. Coleopteran Catalogue (W. Junk), Scarabaeidae, Melolonthinae, Pars 45, 47, 49, 50.
- Frey, G. 1971a. New Rutelidae and Melolonthidae from India and Indo-China (Coleoptera). *Ent. Arb. Mus. Frey*, **XXII**, 109-133.
- Frey, G. 1971 b. Bestimmungstabelle der indischen und ceylonesischen Arten der Gattung *Holotrichia* Hope (Col. Melolonth.), *Ent. Arb. Mus. Frey*, **XXII** : 206-225.
- Frey, G. 1972. New Sericines from India and Indo-China, as well as illustrations of the parameres of known species. (Col. Melolonth.), *Ent. Arb. Mus. Frey*, **XXIII** : 186-216.
- Khan, K. M. and Ghai, S. 1982. Taxonomic status of the genus *Holotrichia* Hope (Melolonthini : Melolonthinae : Scarabaeidae) with description of five new species from India along with two poorly described species and a key to species, *Bull. Ent.*, **23** : 28-45.
- Krikken, J. 1980. Bolboceratinae Scarabas of the oriental genus *Bolbohamatum*, new genus (Col. Geotrupinae). *Tydschr. Entomol.*, **123**(1) : 1-38.
- Kuijten, P. J. 1978. Revision of the Genus *Phaeochrous* Castelnau (Coleoptera : Scarabaeidae : Hybosorinae). *Zool. Verh. Leiden*, **165** : 1-40.

- Kuijten, P. J. 1981. Revision of the Genus *Phaeochroops* Candez (Coleoptera : Scarabaeidae : Hybosorinae). *Zool. Verh. Leiden*, **183** : 1-76. 4 pls.
- Kuijten, P. J. 1983. Revision of the Genus *Hybosorus* Macleay (Coleoptera : Scarabaeidae : Hybosorinae). *Zool. Verh. Leiden*, **203** : 1-49.
- Machatschke, J.W. 1972. *Coleopterorum Catalogus, Supplemeta* (W. Junk), Scarabaeoidea, Melolonthinae, Rutelinae. Pars. 66, Fasc., **I** : 1-361.
- Machatschke, J.W. 1974. *Coleopterorum Catalogus, Supplemeta* (W. Junk), Scarabaeoidea, Melolonthinae, Rutelinae. Pars. 66, Fasc., **II** : 362-429.
- Moser, J. 1909. Neue Arten der Melolonthiden Gattungen *Holotrichia* und *Brahmina*. *Ann. Soc. Ent. Belg.*, **53** : 469.
- Moser, J. 1913. Neue indische Melonhiden (Coleoptera). *Deutsch, ent. Zeitschr*, **57** : 49-70.
- Moser, J. 1915. Weitere neue *Serica*-Arten. *Stettin. ent. Ztg.*, **76** : 144-202.
- Moser, J. 1918. Beitrag zur Kenntnis der Melolonthiden *Stettin. ent. Ztg.*, **79** : 297-349.
- Moser, J. 1920. Beitrag zur Kenntnis der Melolonthiden (Coleoptera). *Stettin. ent. Ztg.*, **81** : 3-28.
- Pal, T. K. 2004. Diversity of Indian Beetle Fauna (Coleoptera) : State of our knowledge and an estimation (Advancement in Insect Biodiversity, Edited by Rajiv K. Gupta) : 145-167.
- Petrovitz, R. 1962. Neue and Interessante Scarabaeidae aus dem Vorderen Orient, I. *Reichenbachia*, **1** (28) : 235-267.
- Ramaraju, K. and Mohanasundaram, M. 1997. Two new deuteronymphs of *Poecilochirus* species (Parasitidae) from Tamilnadu (India). *J. Entomological Research*, **21**(3) : 273-281.
- Ratcliffe, B.C. 1980. Take a beetle to launch today or the natural history of Scarabaeid beetles. *Museum Notes no. 66, in University of Nebraska news*, **59** : 1-4.
- Sabatenelli, G. 1994. Note tassonomiche su specie orientali del genere *Popillia* con descrizione di otto nuove specie (Coleoptera, Scarabaeioidea, Rutelidae), *Fragmenta Entomologica*, **25**(2) : 325-350.
- Scheuren, J. 1995. Taxonomie, sexual dimorphismus und Neubeschreibungen orientalischer *Onthophagus*-arten unter besonderer Berucksichtigung des Subgenus *Colobonthophagus*
- Sharp, D. 1903. Lamellicorn Coleoptera from Nilgiri Hills. *Ann. Mag. nat. Hist.*, **7**(11) : 467-472.

INSECTA : COLEOPTERA : CERAMBYCIDAE

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INTRODUCTION

The Family name Cerambycidae originated from the Greek word 'Cerambyx' meaning 'a horned beetle' (Essig, 1982). They are commonly known as Long-horned or Longicorn beetles. They belong to the superfamily Chrysomeloidea that are serious pests of forest trees, timbers, crops and logs.

While the global diversity of cerambycids is about 38,600 species under 4430 genera (Lawrence 1982, Holzschuh 1999, 2003), the Indian subcontinent provides asylum to approximately 1680 species accommodated in 370 genera placed under the 5 subfamilies, Prioninae, Disteniinae, Lepturinae, Cerambycinae and Lamiinae of which the last one is the most speciose. Major contributions to the Indian cerambycid taxonomy are due to Gahan (1890, 1901, 1906), Breuning (1936, 1938, 1940, 1942, 1949a & b, 1964, 1967, 1968, 1974, 1979a,b&c), Gilmour (1965), Basak and Biswas (1985, 1993), Mukhopadhyay and Halder (2000, 2003), Raychoudhuri and Sumana Saha (2000) and Holzschuh (1990, 1999, 2003). Information available until date in Southern India about cerambycids is limited to 346 species under 153 genera.

Fabricius (1792) carried out the study of Cerambycidae of Tamilnadu for the first time by describing *Apomecyna histrio* and *Niphona fuscatrix* from Tharangambadi, Nagapattinam district. In 1798 he studied *Prionomma atratum* (Gmelin) from the same locality. Gahan (1890-1906) reported 89 species, including 36 new

species. Breuning (1936-1979) reported 27 species as new to Science.

In this paper, 181 species constituting 10.8% of Indian occurrence, under 103 genera and 5 subfamilies are listed. The Western Ghats exhibits the highest degree of endemism with 84 species and 5 species are common to both Eastern and Western Ghats.

SYSTEMATIC ACCOUNT

Order COLEOPTERA

Suborder POLYPHAGA

Superfamily CHRYSOMELOIDEA

Family CERAMBYCIDAE Latreille, 1802

I. Subfamily PRIONINAE Latreille, 1802

Tribe Prionini Gahan, 1906

Genus *Dorysthenes* Vigours, 1826

1. **Dorysthenes montanus* (Guerin, 1840)

2. *Dorysthenes rostratus* (Fabricius, 1792)

Genus *Lophosternus* Guérin, 1844

3. *Lophosternus hugeli* (Redtenbacher, 1848)

Genus *Prionomma* White, 1853

4. *Prionomma atratum* (Gmelin, 1789)

Genus *Logaeus* C.O. Waterhouse, 1881

5. *Logaeus subopacus* C.O. Waterhouse, 1881

Genus *Priotyrrannus* Thomson, 1857

6. **Priotyrrannus mordax* (White, 1853)

Tribe Acanthophorini Lacordaire, 1869

Genus *Acanthophorus* Serville, 1832

7. *Acanthophorus serraticornis* (Olivier, 1795)

Tribe **Macrotomini** Thomson, 1860Genus **Anomophysis** Queintin & Villiers, 1981

8. *Anomophysis confusa* Queintin & Villiers, 1981

Genus **Rhaphipodus** Serville, 1832

- √9. *Rhaphipodus subopacus* Gahan, 1890

Genus **Macrotoma** Serville, 1832

10. *Macrotoma spinosa* (Fabricius, 1787)

Genus **Zooblax** Thomson, 1877

11. *Zooblax elateroides* Thomson, 1877

12. **Zooblax aeneipennis* (C.O. Waterhouse, 1881)

Tribe **Megopidini** Lameere, 1912Genus **Megopis** Serville, 1832

13. **Megopis cingalence* White, 1853
14. **Megopis nigropunctatus* (Aurivillius, 1897)

Tribe **Monodesmini** Lacordaire, 1869Genus **Anoema** Gahan, 1890

15. **Anoema andrewesi* Gahan, 1906

II. Subfamily **LEPTURINAE** LATRIELLE, 1802Tribe **Lepturini** Latrielle, 1804Genus **Apiocephalus** Gahan, 1898

16. *Apiocephalus licheneus* Gahan, 1906

III. Subfamily **DISTENIINAE** J. THOMSON, 1860Tribe **Disteniini** J. Thomson, 1860Genus **Distenia** Serville, 1825

- √17. *Distenia dravidiana* Gahan, 1906

IV. Subfamily **CERAMBYCINAE** Latrielle, 1802Tribe **Oemini** Pascoe, 1869Genus **Tetraommatus** Perroud, 1855

18. *Tetraommatus bimaculatus* Gahan, 1906

Genus **Xystrocera** Serville, 1834

- √19. *Xystrocera globosa* (Olivier, 1795)

Genus **Oplatocera** White, 1853

20. **Oplatocera halli* Lepesme, 1956

Tribe **Hesperophanini** Mulsant, 1869Genus **Zoodes** Pascoe, 1867

21. **Zoodes nilgiriensis* Gahan, 1906

22. **Zoodes quadridentatus* Gahan, 1906

Tribe **Cerambycini** Latrielle, 1804Genus **Plocaederus** Thomson, 1861

23. *Plocaederus obesus* Gahan, 1890

24. *Plocaederus ferrugineus* (Linnaeus, 1766)

25. **Plocaederus humeralis* (White, 1853)

Genus **Neocerambyx** Thomson, 1861

26. *Neocerambyx paris* (Wiedman, 1821)

Genus **Aeolesthes** Gahan, 1890

27. *Aeolesthes holosericea* (Fabricius, 1787)

Genus **Diorthus** Gahan, 1891

28. *Diorthus simplex* (White, 1853)

Genus **Margites** Gahan, 1891

29. *Margites modicus* Gahan, 1906

Genus **Dymasius** Thomson, 1864

30. **Dymasius gilvago* Holzchuh, 1999

31. **Dymasius minor* Gahan, 1906

Genus **Microdymasius** Pic, 1946

32. **Microdymasius honestus* Holzchuh, 1999

Genus **Sebasmia** Pascoe, 1859

33. **Sebasmia nigra* Gahan, 1906

Genus **Xoanodera** Pascoe, 1857

34. **Xoanodera amoena* Pascoe, 1885

Tribe **Callidiopsini** Lacordaire, 1869Genus **Gelonaetha** Thomson, 1878

35. *Gelonaetha hirta* (Fairmaire, 1850)

Genus **Ceresium** Newmann, 1842

36. *Ceresium simplex* (Gyllenhal, 1817)

37. **Ceresium angustulum* Gahan, 1906

38. *Ceresium nilgiriense* Gahan, 1906

Tribe **Obriini** Mulsant, 1839Genus **Obrium** Serville, 1834

39. *Obrium unicolor* Gardner, 1936

Tribe **Molorchini** Mulsant, 1863Genus **Epania** Pascoe, 1857

40. *Epania alveolaris* Chatterjee and Misra, 1969

Genus **Leptepania** Heller, 1924

41. **Leptepania indica* Gardner, 1936

- Genus *Merionoeda* Pascoe, 1858
42. **Merionoeda evidens* Holzchuh, 2003
43. *Merionoeda vulpecula* Holzchuh, 2003
44. **Merionoeda andrewesi* Gahan, 1906
- Genus *Kunbir* Lameere, 1890
45. *Kunbir salemensis* Gardner, 1939
- Tribe **Callichromini** Blanchard, 1845
- Genus *Pachyteria* Serville, 1833
46. *Pachyteria calumniata* Ritsema, 1890
47. *Pachyteria fasciata* (Fabricius, 1775)
- Genus *Chloridolum* Thomson, 1864
48. *Chloridolum alcmene* Thomson, 1865
- Genus *Chelidonium* Thomson, 1864
49. *Chelidonium argentatum* (Dalman, 1817)
50. *Chelidonium cinctum* (Guerin & Meneville, 1844)
- Genus *Polyzonus* Castelnau, 1840
51. *Polyzonus* Var. *megaspilus* Gahan, 1906
52. *Polyzonus prasinus* (White, 1853)
- Tribe **Pyrestini** Lacordaire, 1869
- Genus *Pachylocerus* Hope, 1834
53. *Pachylocerus corallinus* Hope, 1834
- Tribe **Thranini** Gahan, 1906
- Genus *Thranius* Pascoe, 1859
54. **Thranius gibbosus* Pascoe, 1859
- Tribe **Clytini** Mulsant, 1839
- Genus *Xylotrechus* Chevrolat, 1860
55. *Xylotrechus subscutellatus* Chevrolat, 1863
56. *Xylotrechus quadripes* Chevrolat, 1863
57. *Xylotrechus hampsoni* Gahan, 1890
- Genus *Perissus* Chevrolat, 1863
58. **Perissus nilgiriensis* Gahan, 1906
59. **Perissus aper* (Chevrolat, 1863)
- Genus *Chlorophorus* Chevrolat, 1863
60. **Chlorophorus agnatus* (Chevrolat, 1863)
61. *Chlorophorus jucundus* (Perroud, 1855)
62. *Chlorophorus distinguendus* (Perroud, 1855)
63. **Chlorophorus alboscuteatus* (Chevrolat, 1863)
64. *Chlorophorus 14-maculatus* (Chevrolat, 1863)
65. *Chlorophorus parens* (Allard, 1894)
66. **Chlorophorus congruus* Holzchuh, 2003
67. **Chlorophorus kejvali* Holzchuh, 2003
- Genus *Rhaphuma* Pascoe, 1858
68. **Rhaphuma rhea* Gahan, 1906
69. **Rhaphuma quinquenotata* Chevrolat, 1863
70. **Rhaphuma trimaculata* Chevrolat, 1863
71. *Rhaphuma salemensis* Gardner, 1940
72. **Rhaphuma suturalis* Gahan, 1906
73. **Rhaphuma trinalba* Gahan, 1906
74. **Rhaphuma elegantula* Gahan, 1906
75. *Rhaphuma suthra* Gardner, 1940
- Genus *Clytocera* Gahan, 1906
76. *Clytocera chionospila* Gahan, 1906
- Genus *Demonax* Thomson, 1861
77. *Demonax balyi* (Pascoe, 1859)
78. **Demonax decens* Gahan, 1906
79. *Demonax decorus* Gahan, 1906
80. **Demonax dimedius* (Chevrolat, 1863)
81. **Demonax albomaculatus* (Allard, 1894)
82. **Demonax divisus* Chevrolat, 1863
83. **Demonax maculicollis* Gahan, 1906
- †84. **Demonax persimilis* Chevrolat, 1863
85. *Demonax salemensis* Gardner, 1940
- Genus *Psilomerus* Chevrolat, 1863
86. **Psilomerus angustus* Chevrolat, 1863
87. **Psilomerus bimaculatus* Gahan, 1906
88. **Psilomerus hampsoni* Gahan, 1906
- Genus *Oligoenoplus* Chevrolat, 1863
89. **Oligoenoplus ventralis* Chevrolat, 1863
90. **Oligoenoplus murinus* (Allard, 1894)
- Tribe **Tillomorphini**, Lacordaire, 1869
- Genus *Epipedocera* Chevrolat, 1863
91. *Epipedocera affinis* Chevrolat, 1863
- Tribe **Cleomenini** Lacordaire, 1869
- Genus *Cleomenes* Thomson, 1864
92. *Cleomenes laetabilis* Holzchuh, 2003

- Genus *Cleomenella* Fisher, 1940
93. *Cleomenella singhi* Gardner, 1940
- Genus *Dere* White, 1855
94. *Dere posticata* Gardner, 1939
- Genus *Kurarua* Servillie, 1834
95. **Kurarua flavidula* Holzchuh, 1999
- Tribe **Rhopalophorini** Blanchard, 1845
- Genus *Camelocerambyx* Pic, 1922
96. **Camelocerambyx stigmaticus* Holzchuh, 2003
- Tribe **Achrysonini** Lacordaire, 1869
- Genus *Neachryson* Fisher
97. *Neachryson orientale* Fisher, 1940.
- V. Subfamily LAMIINAE LATRIELLE, 1825
- Tribe **Monochamini** Thomson, 1864
- Genus *Monochammus* Guérin-Meneville, 1826
98. **Monochammus shembaganurensis* Breuning, 1979
- Genus *Macrochenus* Guérin, 1843
99. *Macrochenus tigrinus* Olivier, 1792.
- Genus *Myagrus* Pascoe, 1878
100. *Myagrus hynesi* Pascoe, 1878
- Genus *Pharsalia* Thomson, 1864
101. **Pharsalia gibbifer* (Guérin, 1844)
- Tribe **Agniini** Thomson, 1860
- Genus *Acalolepta* Pascoe, 1858
102. *Acalolepta griseoplagiatoidea* Breuning, 1968
- Genus *Blepephaeus* Pascoe, 1866
103. **Blepephaeus shembaganurensis* Breuning, 1979
- Genus *Celosterna* Blanchard, 1845
104. *Celosterna spinator* (Fabricius, 1798)
105. *Celosterna scabrator* (Fabricius, 1781)
106. **Celosterna Renei* (Pascoe, 1888)
- Tribe **Acanthocynini** Lacordaire, 1970
- Genus *Exocentrus* Mulsant, 1839
107. *Exocentrus beelsoni* Fisher, 1933
108. *Exocentrus flamingiae* Fisher, 1932
109. *Exocentrus pubescence* Fisher, 1940
- ✓110. *Exocentrus santali* Fisher, 1933
- ✓111. *Exocentrus vittatus* Fisher, 1940
- Tribe **Batocerini**-Lacordaire, 1869
- Genus *Apriona* Chevrolat, 1852
112. *Apriona cinerea* Chevrolat, 1852
- Genus *Batocera* Castelnau, 1840
113. *Batocera rubus* (Linnaeus, 1758)
114. *Batocera rufomaculata* (De Geer, 1775)
- Tribe **Dorcaschematini** Thomson, 1860
- Genus *Olenecamptus* Chevrolat, 1835
115. *Olenecamptus anogeissi* Gardner, 1930
116. *Olenecamptus bilobus* (Fabricius, 1801)
- Tribe **Mesosini** Thomson, 1860
- Genus *Cacia* Newmann, 1842
117. *Cacia (Ipocregyes) terminaliae* Fisher, 1933
- Genus *Falsomesosella* Pic, 1925
118. **Falsomesosella nilghirica* Breuning, 1936
- Genus *Coptops* Serville, 1835
119. *Coptops aedificator* (Fabricius, 1792)
120. **Coptops quadrimaculata* Gahan, 1890
- Tribe **Rhodopini** Lacordaire, 1872
- Genus *Sophronica* Blanchard, 1845
121. **Sophronica nigriceps* Breuning, 1940
- Genus *Eupogoninoides* Fisher, 1930
122. *Eupogoninoides brunneus* Gardner, 1940
- Genus *Pseudoterinaea* Breuning, 1940
123. **Pseudoterinaea indica* Breuning, 1940
- Genus *Rhodopis* Thomson, 1857
124. **Rhodopis nilghirica* Breuning, 1939
125. **Rhodopis piperata* Gahan, 1890
- Tribe **Xylorhizini**-Lacordaire, 1872
- Genus *Xylorhiza* Castelnau, 1840
126. *Xylorhiza adusta* (Wiedmann, 1819)
- Tribe **Homonoeni** Thomson, 1864
- Genus *Grynex* Pascoe, 1888
127. **Grynex lineatus* Pascoe, 1888
- Genus *Paragrynex* Breuning, 1940
128. **Paragrynex ochreosparsus* Breuning, 1940.

- Tribe **Apomecynini**—Lacordaire, 1872
 Genus **Apomecyna** Latrielle, 1829
129. *Apomecyna histrio* (Fabricius, 1792)
 130. *Apomecyna perotteti* Fabricius, ?
 131. *Apomecyna saltator* (Fabricius, 1787)
 Genus **Atimura** Pascoe, 1863
 132. **Atimura nighirica* Breuning, 1940
 Genus **Ropica** Pascoe, 1858
 133. *Ropica signata* Pic, 1932
 Genus **Sybra** Pascoe, 1865
 134. *Sybra praeusta* (Pascoe, 1859)
 135. *Sybra densepunctata* Breuning, 1940
 Genus **Eunidia** Erichson, 1843
 136. *Eunidia bicolor* Gardner, 1936
 137. *Eunidia lateralis* Gahan, 1893
 138. *Eunidia simplex* Gahan, 1890
 Tribe **Agapanthini** Mulsant, 1839
 Genus **Cleptometopus** Thomson, 1864
 139. **Cleptometopus lobatus* Breuning, 1940
 Genus **Hyllisia** Pascoe, 1864
 140. **Hyllisia shembaganurensis* Breuning, 1982
 Genus **Mimohippopsis** Breuning, 1940
 141. **Mimohippopsis inequalis* Breuning, 1940
 Genus **Parahyllisia** Breuning, 1942
 142. *Parahyllisia indica* Breuning, 1974.
 Genus **Pothyne** Thomson, 1864
 143. *Pothyne subdistincta* Breuning, 1949
 144. *Pothyne multivittipennis* Breuning, 1949
 Genus **Pseudocalamobius** Kraatz, 1879
 145. **Pseudocalamobius lobatus* Breuning, 1940
 146. **Pseudocalamobius bispinosus* Breuning, 1940
 147. **Pseudocalamobius seriemaclatus* Breuning, 1940
 Genus **Pseudohyllisia** Breuning, 1942
 148. *Pseudohyllisia madurensis* Breuning, 1942
 Tribe **Niphonini** Pascoe, 1834
 Genus **Niphona** Mulsant, 1839
 149. *Niphona fuscatrix* (Fabricius, 1792)
150. **Niphona subobscura* Breuning, 1968
 Genus **Sthenias** Castelnau, 1840
 151. *Sthenias grisator* (Fabricius, 1787)
 152. *Sthenias albicollis* Gahan, 1890
 153. *Sthenias maculiceps* Gahan, 1890
 154. *Sthenias madurae* Boppe, 1914
 Genus **Mispila** Pascoe, 1864
 155. **Mispila obscura* Gahan, 1890
 Genus **Egesina** Pascoe, 1864
 156. *Egesina strandi* Breuning, 1940
 Genus **Pterolophia** Newmann, 1842
 157. **Pterolophia (Hylobrotus) parobscuroides* Breuning 1974
 158. **Pterolophia bella* Breuning, 1940
 159. **Pterolophia nilghirica* Breuning, 1938
 160. *Pterolophia basispinosa* Breuning, 1938
 Genus **Dystacia** Pascoe, 1864
 161. **Dystacia cristata* Fisher, 1933
 Tribe **Astathini** Thomson, 1864
 Genus **Astathes** Newmann, 1842
 162. *Astathes bimaculata* Gahan, 1901
 Genus **Cleonaria** Thomson, 1864
 163. **Cleonaria bicolor* Thomson, 1864
 Tribe **Glenini** Lacordaire, 1872
 Genus **Glenea** Newmann, 1842
 164. *Glenea pulchella* Thomson, 1860
 165. *Glenea multiguttata* Guerin & Meneville, 1843
 166. **Glenea punctata* Gahan, 1889
 167. **Glenea (Stirolene) quadrinotata* (Guerin, 1843)
 Tribe **Phytoecini** Lacordaire, 1872
 Genus **Nupserha** Thomson, 1860
 168. **Nupserha madurensis* Pic, 1965
 169. **Nupserha madurensis* Pic. m. *flaviventris* Breuning, 1949
 170. **Nupserha neilgherryae* Gilmour, 1965
 171. **Nupserha nilgiriensis* Gilmour, 1965
 Genus **Obereopsis** Chevrolat, 1855
 172. *Obereopsis coimbatorensis* Breuning, 1974

173. **Obereopsis nilghirica* Breuning, 1957
 174. *Obereopsis coimbatorensis* Breuning, 1957
 175. **Obereopsis nilghiriensis* Breuning, 1957
 176. **Obereopsis shembaganurensis* Breuning, 1957

Genus *Stibara* Hope, 1840

177. *Stibara suturalis* Gahan, 1890
 178. *Stibara nigricornis* Fabricius, 1781

Tribe Saperdini Mulsant, 1839

Genus *Serixia* Pascoe, 1856

179. **Serixia nilghirica* Breuning, 1963
 Tribe Morimopsini Lacordaire, 1869

Genus *Centrura* Guérin-Meneville, 1843

180. **Centrura affinis* Breuning, 1940

Tribe Lamiini Latrielle, 1825

Genus *Morimus* Serville, 1835

181. **Morimus inequalis* Waterhouse, 1881

* Annamalai, Pulanay Hills, Nilgiris (83 spp);
 √ Eastern Ghats & Western Ghats (5 spp); † First
 report to Tamilnadu

DISCUSSION

The faunistic constituents inventoried in the present paper are based on the information recorded in scientific literature and those identified in the holdings of Zoological Survey of India, Southern Regional Station, Chennai. The present paper deals with 181 species under 104 genera and 5 Subfamilies, of which 31 species have been identified from the collections of Southern Regional Station. This includes two new report to Tamilnadu viz. *Demonax maculicollis* Gahan from Annamalai Hills, Western Ghats and *Dorysthenes rostratus* (Fabricius) from Eastern Ghats.

REFERENCES

- Basak, P.K. and Biswas, S. 1985. Insecta : Coleoptera : Cerambycidae, *Rec. zool. Surv. India*, **82**(1-4) : 215-219.
- Basak, P.K. and Biswas, S. 1993. Insecta : Coleoptera : Cerambycidae. *Zool. Surv. India, Fauna of Orissa, State Fauna Series*, **1**(Part 4) : 185-195.
- Breuning, S. 1936. Novae Species Cerambycidarum V, *Festscher. 60. Geburtst. Embrik. Strand. Riga*. **I** : 274-325.
- Breuning, S. 1938. Novae Species Cerambycidarum VI, *Festscher. 60. Geburtst. Embrik. Strand. Riga*. **IV** : 180-392.
- Breuning, S. 1940. Novae species Cerambycidarum IX, *Folia Zoologica et. Hydrobiologica*, Riga **X**, No. 1 : 115- 243.
- Breuning, S. 1942. Novae species cerambycidarum II, *Folia. Zool. Hydro.*, **11**(20) : 113-175.
- Breuning, S. 1949a. Descriptions de Nouveaux lamières de l' Inde (Coleoptera : Lamiinae), *Ind. For. Rec. Ent (N.S)*, **7**(8) : 255-265.
- Breuning, S. 1949b. Notes systematics sur les Lamières (Coleoptera, Cerambycidae), *Bull. Ins. R. Sci. Nat. Belg.* **25**(38) : 1-15.
- Breuning, S. 1964. Revision der Apomecynini der Asiatischen und australischen Region (Coleoptera, Cerambycidae), *Ent. Arb. Ber. Mus. Tierk. Dresden*, **30** : 1-528, 12 figs.
- Breuning, S. 1968. Neue Lamiiden aus den Beständen der Zoologischen Staatssammlung in München. (Coleoptera, Cerambycidae), *Opusc. Zool. Münch.*, **103** : 1-2.
- Breuning, S. 1974 a. Quelques nouvelles especes de Lamiinae du Museum d' Histoire naturelle de Geneva, (Coleoptera, Cerambycidae), *Revue Suisse Zool.*, **81**(2) : 371-375.

- Breuning, S. 1974 b. Neu Arten und Gattungen von Lamiinen (Coleoptera, Cerambycidae), *Mitteilungen Zool. Mus. Berl.*, **50**(1) : 149-165
- Breuning, S. 1974c. Descriptions de nouvelles especes de Lamiinae de la collection (Coleoptera, Cerambycidae), *Mitteilungen Schweiz. ent. Ges.*, **46**(3-4) : 295-296.
- Breuning, S. 1979. Nouveaux coleopteres Cerambycidae Lamiinae des collections du Museum de Paris, *Revue fr. Ent. (N.S.)*, **1**(2) : 99-100
- Fabricius, J. C. 1792. Entomologia Systematica emendata et aucta, secundum classes, ordines, genera, species, adjectis, Synonymies, locis, observationibus, descriptionibus, Vol. **I**(20) : 256-291
- Fabricius, J. C. 1798. Entomologia Systematica emendata et aucta, secundum classes, ordines, genera, species, adjectis, Synonymies, locis, observationibus, descriptionibus, Suppl., : 141-145.
- Gahan, C. J. 1890. Descriptions of new species of Longicornia from India and Ceylon, *Annales and Magazines of Natural History*, Series 6, Vol. **V** : 49-66.
- Gahan, C. J. 1901. Revision of *Astathes* Newmann and allied genera of Longicorn Coleoptera, *Transactions of Entomological Society*, London : 37-74.
- Gahan, C.J. 1906. The Fauna of British India including Ceylon and Burma, Coleoptera, Cerambycidae, Vol. **I** : XVIII + 329 (Taylor and Francis Ltd. London)
- Gilmour, E.F. 1965. New Indian forms of *Nupserha* Thomson (Coleoptera : Cerambycidae, Lamiinae), *Ent.Abh. Mus.Tiererk. Dresden*, **31** : 459-482, 4pls.
- Holzchuh, C. 1999. Descriptions of 71 new longhorn beetles from Asia, mostly from China, Laos, Thailand and India, *F.B.V.A. Berichte*, **110** : 1- 64.
- Holzchuh, C. 2003. Beschreibung von 72 neuen Bockkafern aus Asien, vorwiegend aus China, Indien, Laos and Thailand (Coleoptera, Cerambycidae), *Entomologica Basilensia*, Vol. **25** : 147-241.
- Lawrence, J. F. 1982. Synopsis and Classification of living organisms, Coleoptera Vol. **2** : 482-533. (Mc.Graw-Hill Book Company, New York, St.Louis etc.)
- Mukhopadhyay, P. and Halder, S.K. 2003. Insecta : Coleoptera : Cerambycidae. *Zool. Surv. India, Fauna of Sikkim, State Fauna Series*, **9**(Part 3) : 181-199.
- Raychoudhuri, D and Saha, S. 2000. Longicorn beetles (Cerambycidae : Cerambycinae, Prioninae) of Buxa Tiger Reserve, Jalpaiguri, West Bengal. *J. Bombay nat. Hist. Soc.*, **97**(1) : 74-91

INSECTA : MECOPTERA

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INTRODUCTION

The scorpion flies are recognized by upturning of terminal abdominal segments like scorpions in males. They have beak like prolongation of head and often maculated wings. The winged forms are active fliers. The adults are omnivorous and feed on nectar, pollen, petals, fruits, mosses and small insects. They are also known as hanging flies, because some species of *Bittacus*, hang from the vegetation with their front legs and catch small insects they prey on by their hind legs.

These insects are relatively scanty both qualitatively and quantitatively. World wide the order is represented by about 500 species belonging to nine families (Penny and Byers, 1979), of which, 23 species belonging to 2 genera under two families viz., Bittacidae and Panorpidae are known from India (Chandra, 2004). Out of 23 species, the following 7 species are recorded from Tamilnadu.

Order MECOPTERA

Family BITTACIDAE

1. *Bittacus henryi* Kimmins 1928

Tamilnadu (Coimbatore)

Family PANORPIDAE

2. *Neopanorpa appendiculata* (Westwood) 1846
= *Panorpa appendiculata* Westwood 1846

Tamilnadu (Chennai, Nilgiri Hills)

3. *Neopanorpa denticulata* Rust and Byers 1976

Tamilnadu (Nilgiri Hills)

4. *Neopanorpa echinata* Rust and Byers 1976

Tamilnadu (Nilgiri Hills)

5. *Neopanorpa hirsuta* (Crampton) 1931

Tamilnadu (Nilgiri Hills)

6. *Neopanorpa indica* Rust and Byers 1976

Tamilnadu (Nilgiri Hills)

7. *Neopanorpa salai* Navas 1929

Tamilnadu (Coimbatore)

REFERENCES

- Chandra, Kailash. 2004. Check-list of Mecoptera from India. *Rec. zool. Surv. India*, **102**(Pt 1-2) : 73-76.
- Penny, N. D. and Byers, G.W. 1979. A check-list of the Mecoptera of the World. *Acta Amazonica*, **9**(2) : 365-388.

INSECTA : SIPHONAPTERA

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INTRODUCTION

Adult fleas are bloodsucking ectoparasites of mammals and to a lesser extent, birds. The larvae undergo a holometabolous type of development and generally are not found on the host animal. They ordinarily utilize organic debris as food. Adults range in length from 1-10 mm but most are less than 5 mm. The body is laterally compressed giving a distinct flattened appearance. Wings are absent; antennae are short, 3-segmented usually fit into grooves on the head. The piercing and sucking mouthparts are enclosed within a beak. Long powerful legs enable some fleas to jump 200 times their body's length. Most fleas require blood to reproduce and majority of the species infest mammals like rabbits, rats, mice, squirrels and other rodents. Birds, bats, pigs, dogs, cats and humans are also hosts. Many species of the fleas transmit diseases to their hosts thus important from health point of view. Worldwide more than 2000 species exist and 52 species are known from India (Varshney, 1998). A perusal of Zoological records reveals that the following six species of four genera under four families are reported from the State.

Order SIPHONAPTERA

Superfamily Hystrichopsylloidea

Family Pygiopsyllidae

1. *Stivalius ahalae* (Rothschild)

Distribution : Peermade, Coonoor, Ootacamund and Siddapur

2. *Stivalius aporus* Jordan & Rothschild

Distribution : Peermade, Nilgiris, Kodaikanal

Family CERATOPHYLLIDAE

3. *Nosopsyllus arcotus* (Jordan & Roths.)

Distribution : Chennai

4. *Nosopsyllus nilgiriensis* (Jordan & Rothschild)

Distribution : Ootacamund, Peermade, Coonoor

Family ISCHNOPSYLLIDAE

Subfamily ISCHNOPSYLLINAE

5. *Lagaropsylla putilla* Jordan & Rothschild

Distribution : Chennai

Family PULICIDAE

Subfamily PULICINAE

6. *Echidnophaga gallinacea* (Westwood)

Distribution : Tamilnadu

REFERENCE

- Varshney, R. K. 1998. *Insecta*, pp. 146-157. In Alfred *et al.* : *Faunal Diversity in India*, 495 pp. Published-ENVIS Centre, Zoological Survey of India, Kolkata.

INSECTA : DIPTERA : PSYCHODIAE

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INTRODUCTION

The family Psychodidae includes moth flies and sand flies, some of which are archaic Diptera distributed in tropical and sub tropical countries. Aquatic habits of moth flies are vulnerable to ecological changes; hence some species are indicator species while sand flies are moisture-loving found in the microhabitats such as mud holes and rock crevices. The Genus *Phlebotomus* contains vectors of human leishmanises. Indian moth fly and sand fly fauna were special interest to Dr Nelson Annandale, the founder Director of Zoological Survey of India and he laid the strong foundation for the taxonomy of Indian Psychodidae (Ilango, 2004b). Because of their cryptic biology and behavior, our knowledge on Indian psychodids is only partial with less than 100 known species. However the taxonomy of Phlebotomine sand fly fauna and the Genus *Neotelmatoecopus* (Psychodinae) from Tamilnadu is sufficiently known (Ilango *et al.* 1994; Ilango, 1994. 2004a, 2006).

A CHECKLIST

Family PSYCHODIDAE

Subfamily PSYCHODINAE (Moth flies)

1. *Telmatoscopus longichaetus* (Brunetti)
2. *Neotelmatoecopus ctenophorus* Ilango
3. *Brunettia travancorica* Annandale

4. *Philosepedon decora* (Brunetti)
5. *Philosepedon distans* (Brunetti)
6. *Trichopsychoda hirtipennis* (Brunetti)
7. *Psychoda acanthostyla* Tokunaga
8. *Psychoda alabangensis* del Rosario
9. *Psychoda alternata* Say
10. *Psychoda pathenogenetica* Tonnoir
11. *Epacretron apicalis* Brunetti
12. *Epacretron impunctata* Brunetti
- Subfamily PHLEBOTOMINAE (Sand flies)
13. *Grassomyia indica* (Theodor)
14. *Phlebotomus (Anaphlebotomus) colabaensis* Young & Chalam
15. *Phlebotomus (Euphlebotomus) argetipes* Annandale & Brunetti
16. *Phlebotomus (Phlebotomus) papatasi* Scopoli
17. *Sergentomyia (Parrotomyia) babu* Annandale
18. *Sergentomyia (Parrotomyia) insularis* Theodor
19. *Sergentomyia (Parrotomyia) yercaudensis* Ilango
20. *Sergentomyia (Sergentomyia) punjabensis* Sinton
21. *Sergentomyia (Sintonius) clydei* Sinton
22. *Sergentomyia bailyi* (nicni Group) (Sinton)
23. *Sergentomyia shettyi* (nicni Group) Ilango

REFERENCES

- Ilango, K. 1994. *Neotelmatoecopus ctenophorus*, a new species from India (Diptera : Psychodidae). *Aquatic insects*, 16 : 141-145.

- Ilango, K. 2004a. A review of the *Sergentomyia babu* species complex (Diptera : Psychodidae : Phlebotominae) with description of new species from India ; *Oriental Insects*, **38** : 77-83.
- Ilango, K. 2004b. The legacy of Dr. Nelson Annandale and his contribution to the taxonomy of Phlebotomine sandfly species (Diptera : Psychodidae : Phlebotominae) transmitting leishmaniasis. *Records of the Zoological Survey of India*, **103** : 115-121.
- Ilango, K., Dhanda V., Srinivasan R., Sadanand A.V. and Lane, R.P. 1994. Phlebotomine sandflies (Diptera : Psychodidae) of Tamilnadu and Pondicherry, Southern India, in relation to visceral leishmaniasis. *Annals of Tropical Medicine & Parasitology*, **88** : 413-431.

INSECTA : DIPTERA : CULICIDAE

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INTRODUCTION

Many species of mosquito are important vectors of serious tropical diseases like as malaria, dengue, Japanese Encephalitis (JE), filariasis and are thus causing mortality, morbidity and economic losses in India. The mosquito fauna of India needs revision after the monumental publication Christophers (1933) and Barraud (1934). The number of mosquito species known in India by 1934 was 289 with 43 anophelines, 240 culicines and 6 toxorhynchitines. With the 43 species of anophelines, 10 species regarded by Christophers as varieties and yet another 5 species reinstated from the synonymies by the South East Asia Mosquito Research Project were added subsequently amounting to 58 taxa. Given the vast geographical features and availability of more number of samples from different parts of India the anopheline fauna is expected increase by 2 or 3 times. For example, what Christophers (1933) considered *An. leucophyrus* as one species is now treated as one of the largest groups with 22 species in the Subgenus *Cellia*, many of them are malaria vectors in the Oriental Region. A similar taxonomic problem is encountered with the species complex of *An. hyrcanus* and *An. minimus*.

Family CULICIDAE

Subfamily ANOPHELINAE

Genus *Anopheles* Meigen

Subgenus *Anopheles* Meigen

1. *Anopheles aitkeni* James
2. *Anopheles culiciformes* Cogill

3. *Anopheles gigas* Giles

4. *Anopheles nilagiricus* Christophers

5. *Anopheles interruptus* Puri

6. *Anopheles barbirostris* Van der Wulp

7. *Anopheles nigerrimus* Giles

Subgenus *Cellia* Theobald

8. *Anopheles jeyporiensis* James

9. *Anopheles varuna* Iyengar

10. *Anopheles culicifacies* Giles

11. *Anopheles fluviatilis* James

12. *Anopheles minimus* Theobald

13. *Anopheles karwari* James

14. *Anopheles moghulensis* Christophers

15. *Anopheles stephensi* Liston

16. *Anopheles annularis* Van der Wulp

17. *Anopheles pallidus* Theobald

18. *Anopheles jamesii* Theobald

19. *Anopheles splendidus* Koidzumi

20. *Anopheles dravidicus* Christophers

21. *Anopheles elegans* (James)

22. *Anopheles tessellatus* Theobald

23. *Anopheles vagus* Dönitz

24. *Anopheles subpictus* Grassi

25. *Anopheles sundaicus* Rodenwaldt

Subfamily CULICINAE

Tribe Aedeomyiini

Genus *Aedeomyia* Theobald

26. *Aedeomyia venustipes* (Skuse)

Tribe **Aedini**Genus **Aedes** MeigenSubgenus **Aedimorphus** Theobald

- 27. *Aedes jamesi* (Edwards)
- 28. *Aedes pallidostriatus* (Theobald)
- 29. *Aedes pipersalatus* (Giles)
- 30. *Aedes stenoetrus* (Theobald)
- 31. *Aedes syntheticus* Barraud
- 32. *Aedes vexans* (Meigen)

Genus **Armigeres** TheobaldSubgenus **Armigeres** Theobald

- 33. *Armigeres obturbans* (Walker)

Subgenus **Leicesteria** Theobald

- 34. *Armigeres annulitarsis* Leicester
- 35. *Armigeres flavus* (Leicester)
- 36. *Armigeres magnus* (Theobald)

Genus **Christophersomyia** Barraud

- 37. *Christophersomyia thomsoni* (Theobald)

Genus **Diceromyia** Theobald

- 38. *Diceromyia micropterus* (Giles)
- 39. *Diceromyia agastyai* (Tewari and Hiriyan)

Genus **Fredwardsius** Reinert

- 40. *Fredwardsius vittatus* (Bigot)

Genus **Mucidus** Theobald

- 41. *Mucidus scatophagoides* Theobald

Genus **Neomelaniconion** Newstead

- 42. *Neomelaniconion lineatopennis* (Ludlow)
- 43. *Neomelaniconion oreophilus* (Edwards)
- 44. *Neomelaniconion psedotaeniatum* (Giles)

Genus **Ochlerotatus** Lynch ArribalzagaSubgenus **Brucesharrisonius** Reinert

- 45. *Ochlerotatus greeni* (Theobald)

Subgenus **Finlaya** Theobald

- 46. *Ochlerotatus inquinatus* Edwards
- 47. *Ochlerotatus macdougalli* Edwards

Genus **Rhinoskusea** Edwards

- 48. *Rhinoskusea portonovensis* Tewari and Hiriyan

Genus **Stegomyia** Theobald

- 49. *Stegomyia aegypti* (Linnaeus)
- 50. *Stegomyia albopictus* (Skuse)
- 51. *Stegomyia subsimilis* Barraud

Genus **Verrallina** TheobaldSubgenus **Neomacleaya** Theobald

- 52. *Verrallina agrestis* Barraud
- 53. *Verrallina indicus* (Theobald)
- 54. *Verrallina pseudomediofasciatus* (Theobald)

Tribe **Culicini**Genus **Culex** LinnaeusSubgenus **Lutzia** Theobald

- 55. *Culex fuscatus* Wiedemann
- 56. *Culex raptor* Edwards
- 57. *Culex vorax* Edwards
- 58. *Culex halifaxi* Theobald

Subgenus **Mochthogenes** Edwards

- 59. *Culex iphis* Barraud
- 60. *Culex khazani* Edwards
- 61. *Culex malayi* (Leicester)

Subgenus **Lophoceratomyia** Theobald

- 62. *Culex minutissimus* (Theobald)
- 63. *Culex flavicornis* Barraud
- 64. *Culex raghavanii* Rahman, Choudhury and Kalra

Subgenus **Culiciomyia** Theobald

- 65. *Culex pallidothorax* Theobald

Subgenus **Culex** Linnaeus

- 66. *Culex epidesmus* (Theobald)
- 67. *Culex bitaeniorhynchus* Giles
- 68. *Culex cornutus* Edwards
- 69. *Culex sitiens* Wiedemann
- 70. *Culex vishnui* Theobald
- 71. *Culex barraudi* Edwards
- 72. *Culex tritaeniorhynchus* Giles
- 73. *Culex whitmorei* (Giles)
- 74. *Culex gelidus* Theobald
- 75. *Culex mimeticus* Noe
- 76. *Culex mimulus* Edwards

77. *Culex nilgircus* Edwards

78. *Culex vagans* Wiedemann

79. *Culex quinquefasciatus* Say

80. *Culex fuscocephalus* Theobald

81. *Culex mimuloides* Barraud

82. *Culex fuscifurcatus* Barraud

Tribe **Culisetini**

Genus **Culiseta** Felt

83. *Culiseta indica* (Edwards)

Tribe **Ficalbiini**

Genus **Ficalbia** Theobald

84. *Ficalbia chamberlaini* (Ludlow)

Genus **Mansonia** Blanchard

Subgenus **Coquillettidia** Dyar

85. *Mansonia crassipes* (van der Wulp)

Subgenus **Mansonoides** Theobald

86. *Mansonia annulifera* (Theobald)

87. *Mansonia indiana* Edwards

88. *Mansonia uniformis* (Theobald)

Tribe **Sabethini**

Genus **Tripteroides** Giles

89. *Tripteroides aranoides* (Theobald)

90. *Tripteroides affinis* (Edwards)

Tribe **Uranotaeniini**

Genus **Uranotaenia** Lynch Arrbalzaga

91. *Uranotaenia stricklandi* Barraud

Subfamily **TOXORHYNCHITINAE**

Genus **Toxorhynchites** Theobald

92. *Toxorhynchites minimus* Theobald

93. *Toxorhynchites splendens* (Wiedemann)

REFERENCE

- Ilango, K. 2005. Wetland Mosquito Fauna of Tamilnadu. *Records of the Zoological Survey of India, Occasional Paper*, **241** : 1-50.

INSECTA : DIPTERA : CERATOPOGONIDAE

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INTRODUCTION

Members of the genus *Culicoides*, popularly known as biting or blood sucking midges are tiny flies with black or brown-coloured wings. Some species are proven or suspected vectors of a number of animal diseases and human parasites. More than 1000 species of *Culicoides* are known from the world. Taxonomic studies of Indian species of *Culicoides* are limited to 63 species recorded in India (Dasgupta 2000). The proven vectors of the bluetongue virus (BTV) disease are *Culicoides brevitarsis* Kieffer and *C. imicola* Kieffer in tropical Old World and *C. variipennis* (Coquillett) in the New World. *C. brevitarsis* is distributed widely in Australia, India to Indonesia, New Guinea, Philippines, Taiwan, Ryuku Islands, Sri Lanka whereas *C. imicola* occurs in Africa, the near and Middle East, India, Sri Lanka, Lao, Thailand and Vietnam. It is possible that one of these or both species of *Culicoides* could have involved in the transmission of BTV in Tamilnadu. Thus, taxonomic studies on status, geographical distribution and genetic variation of *Culicoides* sp. in India are urgently needed to understand vector competence [ie., vector susceptibility to virus infection, transmission ability] and vector transmission and control (Ilango, 2006).

A CHECKLIST OF *CULICOIDES*

Family CERATOPOGONIDAE

Subfamily CERATPOGININAE

1. *Culicoides anophelis* Edwards

2. *Culicoides macfie* Causey
3. *Culicoides palpifier* Sen and Das Gupta
4. *Culicoides flaviscutatus* Wirth and Hubert
5. *Culicoides raripalpis* Smith
6. *Culicoides indianus* Macfie
7. *Culicoides innaxious* Sen and Das Gupta
8. *Culicoides peregrinus* Kieffer
9. *Culicoides recurvus* Delfinado
10. *Culicoides actoni* Smith
11. *Culicoides brevitarsis* Kieffer
12. *Culicoides dumdumi* Sen and Das Gupta
13. *Culicoides fulvus* Sen and Das Gupta
14. *Culicoides imicola* Kieffer
15. *Culicoides orientalis* Macfie
16. *Culicoides dryadeus* Wirth and Hubert
17. *Culicoides clavipalpis* Mukerji
18. *Culicoides distinctus* Sen and Das Gupta
19. *Culicoides huffi* Causey
20. *Culicoides similis* Carter, Ingram and Macfie
21. *Culicoides oxistoma* Kieffer
22. *Culicoides shortii* Smith and Swaminath
23. *Culicoides majorinus* Chu
24. *Culicoides spinulosus* Chu
25. *Culicoides arakawae* (Arakawa)
26. *Culicoides circumscriptus* Kieffer
27. *Culicoides kamrupi* Sen and Das Gupta

REFERENECEES

- Dasgupta, S. K. 2000. Taxonomy and speciation of Culicoides Flies- The vectors of animal diseases. Pp 39-43. Proceedings of 4th National Training Programme on 'Acarines and Insects of Veterinary Importance" held in 2000, Bangalore.
- Ilango, K. 2006. Bluetongue virus outbreak in Tamilnadu, Southern India : Need to study the Indian biting midge vectors, *Culicoides* Latreille (Diptera : Ceratopogonidae). *Current Science*, **90** : 163-167.

INSECTA : DIPTERA : CECIDOMYIIDAE

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INTRODUCTION

The name gall midge comes from the ability of the larvae to produce galls or abnormal growths on various organs of plants and the family name *Cecidomyiidae* is derived from the Latin word *Cecidium* meaning 'gall'. The family *Cecidomyiidae* best known as plant gall makers, is one of the largest families of order Diptera not only from the point of view of regional fauna but also from the standpoint of global distribution (Skuhrava, Skuhravy and Brewer, 1984).

Presently, the family consists of four subfamilies viz. *Catotrichinae*, (not reported from India) *Lestremiinae*, *Porricondylinae* and *Cecidomyiinae*. The species belonging to second and third subfamilies are mycophagous, saprophagous, phytosaprophagous and xylophagous in nature. The subfamily *Cecidomyiinae* includes phytophagous (gall forming or non-gall forming and inquilines), zoophagous or predatory species. Several phytophagous gall midges cause considerable damage to economically important agricultural / horticultural crops and have gained the status of serious pests.

The number of species of all *Cecidomyiidae* in the world at large and India in particular is still unknown and inestimable. Of the 5451 species and 598 genera of living and fossil gall midges known from the world (Gagné 2004), Indian diversity accounts for 387 described species

belonging to 132 genera under three subfamilies, which is approximately 7.10% of world diversity.

The following systematic checklist enumerates 48 species of 21 genera under three subfamilies so far known from the state which is 11.95 % of Indian diversity. The type localities of 46 species listed are from the state. Interestingly, the first gall midge described from India by Schiner in 1868 is from Tamilnadu (*Lasioptera bryoniae*). The studies on gall midges from the state of Tamilnadu are depicted mostly in the works of Mani (1934, 1935, 1936 & 1986).

A CHECKLIST

Order DIPTERA

Suborder NEMATOCERA

Family CECIDOMYIIDAE

Subfamily LESTREMIINAE

Tribe Lestremiini

Genus *Lestremia* Macquart

1. **Lestremia ceylonica* Kieffer, 1912

Genus *Neolestremia* Mani

2. **Neolestremia boerhaaviae* Mani, 1934

Subfamily PORRICONDYLINAE

Tribe Asynaptini

Genus *Camptomyia* Kieffer

3. **Camptomyia hibisci* Felt, 1926
4. **Camptomyia morindae* Felt, 1926
5. **Camptomyia ricini* Felt, 1921

Subfamily CECIDOMYIINAE

Supertribe LASIOPTERIDI

Tribe Dasineurini

Genus *Gephyraululus* Rübsaamen

6. **Gephyraululus mangiferae* (Felt,) 1927
(*Dasineura*)

Supertribe Lasiopteridi

Tribe Lasiopterini

Genus *Lasioptera* Meigen

7. **Lasioptera bryoniae* Schiner, 1868
8. **Lasioptera cephalandrae* (Mani), 1934
9. **Lasioptera crataevae* (Mani), 1934
10. **Lasioptera eriochloa* Felt, 1926
11. **Lasioptera fluitans* Felt, 1917
12. **Lasioptera loyolai* Mani, 1986

Supertribe CECIDOMYIIDI

Tribe Asphondyliini

Subtribe Asphondyliina

Genus *Asphondylia* Loew

13. **Asphondylia anotisae* Mani, 1986
14. **Asphondylia ipomoeae* Felt, 1926
15. **Asphondylia lantanae* Felt, 1920
16. **Asphondylia morindae* Mani, 1934
17. **Asphondylia pongamiae* Felt, 1921
18. **Asphondylia riveae* Mani, 1934
19. **Asphondylia sesami* Felt, 1916
20. **Asphondylia tectonae* Mani, 1974
21. **Asphondylia utriculae* Mani, 1934

Subtribe SCHIZOMYIINA

Genus *Schizomyia* Kieffer

22. * *Schizomyia acaciae* Mani, 1934
23. **Schizomyia cheriani* Mani, 1936
24. **Schizomyia cissusaeflorae* Mani, 1986
25. **Schizomyia clerodendri* Mani, 1986
26. **Schizomyia cocculi* Mani, 1954

Tribe Cecidomyiini

Genus *Contarinia* Rondani

27. **Contarinia caudata* Felt, 1920
28. **Contarinia moringae* (Mani), 1936

29. *Contarinia maculipennis* Felt, 1933

30. **Contarinia ramachandri* Mani, 1953

Genus *Stenodiplosis* Reuter

31. *Stenodiplosis sorghicola* (Coquillett), 1899

Tribe Mycodiplosini

Genus *Coquillettomyia* Felt

32. **Coquillettomyia fungivora* (Nayar), 1949
(*Octodiplosis*)

Genus *Mycodiplosis* Rübsaamen

33. **Mycodiplosis coimbatorensis* Agarwal, 1956
34. **Mycodiplosis indica* Felt, 1920

Tribe Hormomyiini

Genus *Plantella* Westwood

35. **Plantella subaptera* (Felt), 1926
(*Hormomyia*)

Genera unplaced to tribe (Gagné, 2004)

Genus *Diadiplosis* Felt

36. **Diadiplosis hirticornis* Felt, 1915

Genus *Geromyia* Coutin and Harris

37. **Geromyia penniseti* (Felt), 1920

Genus *Odinadiplosis* Mani

38. **Odinadiplosis odinae* Mani, 1935

Genus *Orseolia* Kieffer and Massalongo

39. **Orseolia apludae* (Felt), 1920
40. **Orseolia cornea* (Felt), 1917
41. **Orseolia fluvialis* (Felt), 1917
42. **Orseolia lourdasamyi* (Mani), 1986
43. **Orseolia similis* Gagne, 1973

Genus *Pruthidiplosis* Mani

44. **Pruthidiplosis mimusopsicola* Mani, 1934

Genus *Mikiola* Kieffer

45. **Mikiola bassiaeflorae* Mani, 1986

Genus *Cecidomyiella* Del Guercio

46. **Cecidomyiella crataevae* Mani, 1934

Genus *Myricomyia* Rondani

47. **Myricomyia pongamiae* Mani, 1934

Genus *Microdiplosis* Tavares

48. **Microdiplosis pongamiae* Mani, 1934

* Type locality Tamilnadu

REFERENCES

- Gagné, R.J. 2004. A Catalog of the Cecidomyiidae (Diptera) of the World *Memoirs of the Entomological Society of Washington* No. **25** : 1-408.
- Mani, M. S. 1934. Studies on Indian Itonididae (Cecidomyiidae : Diptera) *Rec. Indian Mus.*, **36** : 371-452.
- Mani, M.S. 1935. Studies on Indian Itonididae (Cecidomyiidae : Diptera) *Rec. Indian Mus.*, **37** : 425-454.
- Mani, M.S. 1936. Studies on Indian Itonididae (Cecidomyiidae : Diptera) *Rec. Indian Mus.*, **38** : 193-197.
- Mani, M.S. 1986. Some new gall midges (Diptera : Cecidomyiidae) from India *Entomotaxonomia*, **8**(1-2) : 13-23.
- Skuhrava, M. Skuhravy, V. and Brewer, J.W. 1984. Biology of Gall midges. In. *Biology of Gall Insects* ed. T.N. Ananthakrishnan, Oxford & IBH Publishing Co. India : 169-222.

INSECTA : DIPTERA : TABANIDAE

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INTRODUCTION

Tabanid flies are an important group of Brachycera Diptera. Adults of both sexes feed on nectar, pollen and honey dew or plant sugars but females, of some species of *Tabanus*, *Chrysops* and *Haematopota* suck vertebrate blood thus causing disease like 'surra' (Trypanosomiasis) among cattle and wild animals. Of the 240 species known from India, 49 species are recorded from Tamilnadu (Vijay Veer, 2004).

A CHECKLIST

Genus *Atylotus* Osten-Sacken

1. *Atylotus agrestis* (Wiedemann)

Genus *Chrysops* Meigen

2. *Chrysops dispar* Fabricius
3. *Chrysops dubiens* Philip
4. *Chrysops indianus* Ricardo
5. *Chrysops pellucidus* Fabricius
6. *Chrysops terminalis* Walker

Genus *Cydistomyia* Taylor

7. *Cydistomyia Indiana* Philip
8. *Cydistomyia (Tabanotelum) primitive* Meckerras
9. *Cydistomyia (Tabanotelum) secunda* Meckerras

Genus *Gastroxides* Saunders

10. *Gastroxides ater* Saunders
11. *Gastroxides ornatus* (Bigot)

Genus *Gressittia* Philip & Mackerras

12. *Gressittia apicalis* Philip & Mackerras

Genus *Haematopota* Meigen

13. *Haematopota alyta* Stone & Philip
14. *Haematopota biguttata* Stone & Philip
15. *Haematopota brevis* Ricardo
16. *Haematopota cana* Walker
17. *Haematopota chvalai* Stone & Philip
18. *Haematopota contracta* Stone & Philip
19. *Haematopota echma* Stone & Philip
20. *Haematopota flavipuncta* Stone & Philip
21. *Haematopota hindostani* Ricardo
22. *Haematopota javana* Wiedemann
23. *Haematopota latifascia* Ricardo
24. *Haematopota longipennis* Stone & Philip
25. *Haematopota malabarica* Stone & Philip
26. *Haematopota marceli* Stone & Philip
27. *Haematopota montana* Ricardo
28. *Haematopota nathani* Stone & Philip
29. *Haematopota oporina* Stone & Philip
30. *Haematopota pattoni* Stone & Philip
31. *Haematopota roralis* Fabricius
32. *Haematopota singarensis* Stone & Philip
33. *Haematopota striata* Stone & Philip

Genus *Tabanus* Linnaeus

34. *Tabanus anderssoni* Philip
35. *Tabanus auristriatus* Ricardo
36. *Tabanus biannularis* Philip
37. *Tabanus caerulescens* Macquart
38. *Tabanus destructus* Szilady
39. *Tabanus discrepans* Ricardo

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|---|--|
| 40. <i>Tabanus diversifrons</i> Ricardo | 45. <i>Tabanus indifferens</i> Szilady |
| 41. <i>Tabanus dorsilinea</i> Wiedemann | 46. <i>Tabanus leucocnematus</i> (Bigot) |
| 42. <i>Tabanus explicatus</i> Walker | 47. <i>Tabanus noctuinus</i> Schuurmans Stekhoven |
| 43. <i>Tabanus frondosus</i> Szilady | 48. <i>Tabanus orchroceras</i> Schuurmans Stekhoven |
| 44. <i>Tabanus gertrudae</i> Philip | 49. <i>Tabanus parahybridus</i> Schuurmans Stekhoven |

REFERENCE

- Vijay Veer, 2004. Tabanidae flies (Diptera) from the Indian sub-region. *Annals of Forestry*, **12** : 301-447.

INSECTA : DIPTERA : TIPULOIDEA

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INTRODUCTION

Tipulids, often called crane flies in their adult stage, are the largest group of true flies. Crane flies serve an important roles in the ecosystem. Adult and larval crane flies are food sources for birds, fish, frogs, lizards, spiders and other insects; their larvae are detritus feeders that break down organic matter in various habitats such as streams and forest floors thereby enriching the soil, renewing and modifying the microhabitat for other invertebrate species. Some crane flies require special habitat conditions, and their presence or absence can be used as an indicator of environmental quality. Fishermen use larvae of some large crane flies as bait. Several species of crane flies are important agricultural pests; their larvae feed on seedlings of field crops and if abundant can be destructive to lawns, rangelands, rice fields, and golf courses.

The Tipulids constitute one of the archaic dipteran taxa with 15,176 species in 300 genera and 4 families known from the world. Oriental region contains 3454 species of which India alone represents 1473 named species. Oosterbrok (2007) provided the catalogue of the world crane fly fauna with current nomenclature changes. Of the 1473 species of crane flies known from India, 177 species representing 45 genera and 4 families are found in Tamilnadu.

A CHECKLIST

Family TIPULIDAE

Subfamily TIPULINAE

1. *Angarotipula frommeri* (Alexander, 1966)

2. *Holorusia bitruncata* (Alexander, 1950)
3. *Holorusia dravidica* (Edwards, 1932)
4. *Holorusia impictipleura* (Alexander, 1957)
5. *Holorusia inclyta* (Alexander, 1949)
6. *Holorusia lineaticeps* (Edwards, 1932)
7. *Holorusia molybros* (Alexander, 1957)
8. *Holorusia nudicaudata* (Edwards, 1932)
9. *Holorusia siva* (Alexander, 1950)
10. *Holorusia striaticeps* (Alexander, 1957)
11. *Holorusia sufflava* (Alexander, 1957)
12. *Indotipula brachycantha* (Alexander, 1949)
13. *Indotipula dilatistyla* (Alexander, 1949)
14. *Indotipula melacantha* (Alexander, 1961)
15. *Indotipula palnica* (Edwards, 1932)
16. *Indotipula tetrados* (Alexander, 1970)
17. *Nephrotoma bellula* Alexander, 1969
18. *Nephrotoma dodabettiae* Alexander, 1951
19. *Nephrotoma globata* Alexander, 1951
20. *Nephrotoma kodaikanalensis* Alexander, 1951
21. *Nephrotoma megascapha* Alexander, 1951
22. *Nephrotoma pleurinotata* (Brunetti, 1912)
23. *Nephrotoma quadrilata* Alexander, 1951
24. *Nephrotoma rajah* Alexander, 1951
25. *Nephrotoma semicineta* Alexander, 1951
26. *Nephrotoma toda* Alexander, 1951
27. *Tipula (Platytipula) hampsoni* Edwards, 1927
28. *Tipula (Ramatipula) flavithorax* Brunetti, 1918

29. *Tipula (Schummelia) dravidiana* Alexander, 1961
30. *Tipulodina brunettiella* (Alexander, 1923)
31. *Tipulodina susainathani* (Alexander, 1968)
32. *Tipulodina xanthippe* (Alexander, 1951)

Family TIPULIDAE

Subfamily DOLICHOPEZINAE

33. *Dolichopeza (Mitopeza) kanagaraji* Alexander, 1952
34. *Dolichopeza (Mitopeza) trichochora* Alexander, 1974
35. *Dolichopeza (Nesopeza) compressior* Alexander, 1952
36. *Dolichopeza (Nesopeza) infuscata* Brunetti, 1912
37. *Dolichopeza (Nesopeza) laetipes* Alexander, 1952
38. *Dolichopeza (Nesopeza) parvicornis* (Alexander, 1927)
39. *Dolichopeza (Nesopeza) praesul* Alexander, 1962
40. *Dolichopeza (Nesopeza) seticristata* Alexander, 1969
41. *Dolichopeza (Nesopeza) setilobata* Alexander, 1968

Family TIPULIDAE

Subfamily CTENOPHORINAE

42. *Pselliophora laeta trilineata* Brunetti, 1911

Family LIMONIIDAE

Subfamily LIMONIINAE

43. *Antocha (Antocha) brevifurca* Alexander, 1974
44. *Antocha (Antocha) madrasensis* Alexander, 1970
45. *Antocha (Antocha) platystylis* Alexander, 1974
46. *Antocha (Antocha) postnotalis* Alexander, 1974
47. *Antocha (Antocha) stenophallus* Alexander, 1974
48. *Antocha (Antocha) studiosa* Alexander, 1951

49. *Dicranomyia (Dicranomyia) dravidiana* (Alexander, 1951)
50. *Dicranomyia (Dicranomyia) flavocincta* (Brunetti, 1918)
51. *Dicranomyia (Dicranomyia) vamana* (Alexander, 1952)
52. *Dicranomyia (Dicranomyia) ventralis* (Schummel, 1829)
53. *Dicranomyia (Dicranomyia) whiteae* (Alexander, 1941)
54. *Dicranomyia (Euglochina) dravidica* (Alexander, 1951)
55. *Dicranomyia (Nealexandriaria) nigroephippiata* (Alexander, 1952)
56. *Elephantomyia (Elephantomyodes) affluens* Alexander, 1949
57. *Elephantomyia (Elephantomyodes) nana* Alexander, 1951
58. *Elephantomyia (Elephantomyodes) nigropedata* Alexander, 1956
59. *Geranomyia deccanica* (Alexander, 1968)
60. *Geranomyia fimbriarum* (Alexander, 1949)
61. *Geranomyia malabarensis* (Alexander, 1952)
62. *Geranomyia nigronotata* Brunetti, 1918
63. *Helius (Helius) anamalaiensis* Alexander, 1967
64. *Lechria argyrospila* Alexander, 1957
65. *Lechria fuscomarginata* Alexander, 1956
66. *Lechria interstitialis* Alexander, 1953
67. *Lechria longicellula* Alexander, 1950
68. *Libnotes (Libnotes) greeni* Edwards, 1928
69. *Libnotes (Libnotes) laetinita* (Alexander, 1963)
70. *Libnotes (Libnotes) perplexa* (Alexander, 1951)
71. *Libnotes (Libnotes) thyestes* (Alexander, 1950)
72. *Limonia submurcida* Alexander, 1968
73. *Limonia (Uncertain) shushna* Alexander, 1952

74. *Limonia (Uncertain) tigriventris* Alexander, 1968
 75. *Prothelium nilgircus* Alexander, 1960
 76. *Rhipidia (Rhipidia) monophora* (Alexander, 1952)
 77. *Thaumastoptera (Thaumastoptera) nilgiriensis* Alexander, 1951
 78. *Toxorhina (Toxorhina) brevira* Alexander, 1953
 79. *Toxorhina (Toxorhina) scita* Alexander, 1962
 80. *Toxorhina (Toxorhina) sparsiseta* Alexander, 1962
 81. *Trentepohlia (Anchimongoma) simplex* (Brunetti, 1918)
 82. *Trentepohlia (Mongoma) alboposticata* Alexander, 1960
 83. *Trentepohlia (Trentepohlia) bellipennis* Alexander, 1955
 84. *Trentepohlia (Trentepohlia) trentepohlii* (Wiedemann, 1828)
 85. *Trichoneura (Xipholimnobia) madrasensis* (Alexander, 1970)
 86. *Trichoneura (Xipholimnobia) umbripennis* Alexander, 1949
- Family LIMONIIDAE
- Subfamily CHIONEINAE
87. *Atarba (Atarbodes) trimelania* Alexander, 1963
 88. *Baeoura angustisterna* Alexander, 1966
 89. *Baeoura irula* Alexander, 1966
 90. *Baeoura nilgiriensis* (Alexander, 1951)
 91. *Cheilotrichia (Empeda) accomoda* (Alexander, 1951)
 92. *Cheilotrichia (Empeda) simplicior* (Alexander, 1951)
 93. *Clydonodorus nilgircus* Alexander, 1953
 94. *Conosia irrorata irrorata* (Wiedemann, 1828)
 95. *Ellipteroides (Protophomyia) nilgiriensis* (Alexander, 1950)
 96. *Erioptera (Erioptera) orientalis* Brunetti, 1912
 97. *Erioptera (Teloneura) nebulifera* Alexander, 1953
 98. *Gnophomyia neofraterna* Alexander, 1950
 99. *Gonomyia (Gonomyia) hyperacuta* Alexander, 1956
 100. *Gonomyia (Gonomyia) matsya* Alexander, 1955
 101. *Gonomyia (Gonomyia) subaperta* Alexander, 1957
 102. *Gonomyia (Leiponeura) ambiens* Alexander, 1950
 103. *Gonomyia (Leiponeura) dissimilis* Alexander, 1961
 104. *Gonomyia (Leiponeura) nilgiriensis* Alexander, 1964
 105. *Gonomyia (Leiponeura) ornatipes* (Brunetti, 1912)
 106. *Gonomyia (Leiponeura) tetrastyla* Alexander, 1950
 107. *Gymnastes (Gymnastes) violaceus nilgircus* Alexander, 1967
 108. *Gymnastes (Paragymnastes) imitator* Alexander, 1951
 109. *Idiocera (Idiocera) absona* (Alexander, 1956)
 110. *Idiocera (Idiocera) megastigma* (Alexander, 1970)
 111. *Idiocera (Idiocera) metatarsata metatarsata* (de Meijere, 1911)
 112. *Idiocera (Idiocera) recens* (Alexander, 1950)
 113. *Molophilus (Molophilus) dravidianus* Alexander, 1969
 114. *Molophilus (Molophilus) flavotibialis* Alexander, 1969
 115. *Molophilus (Molophilus) lancifer* Alexander, 1953
 116. *Molophilus (Molophilus) latus* Alexander, 1950
 117. *Molophilus (Molophilus) macrothrix* Alexander, 1969

118. *Molophilus (Molophilus) nilgircus* Edwards, 1927
 119. *Molophilus (Molophilus) peculiaris* Alexander, 1973
 120. *Molophilus (Molophilus) perattenuatus* Alexander, 1969
 121. *Molophilus (Molophilus) sublancifer* Alexander, 1973
 122. *Rhabdomastix (Rhabdomastix) nilgirica* Alexander, 1949
 123. *Riedelomyia chionopus* Alexander, 1949
 124. *Styringomyia flava* Brunetti, 1911
 125. *Styringomyia kala* Alexander, 1955
 126. *Styringomyia monochaeta* Alexander, 1970
 127. *Styringomyia pentachaeta* Alexander, 1970
 128. *Styringomyia thetis* Alexander, 1949
 129. *Styringomyia vritra* Alexander, 1955
 130. *Teucholabis (Teucholabis) gudalurensis* Alexander, 1950
 131. *Teucholabis (Teucholabis) pruthiana* Alexander, 1942
 132. *Teucholabis (Teucholabis) susainathani* Alexander, 1950
- Family LIMONIIDAE
- Subfamily LIMNOPHILINAE
133. *Eloeophila dravidiana* (Alexander, 1971)
 134. *Epiphragma (Epiphragma) adoxum* Alexander, 1953
 135. *Eupilaria guttulifera* Alexander, 1949
 136. *Eupilaria incana* Alexander, 1949
 137. *Eupilaria suavis* Alexander, 1949
 138. *Hexatoma (Eriocera) anamalaiana* Alexander, 1949
 139. *Hexatoma (Eriocera) arcuaria* Alexander, 1974
 140. *Hexatoma (Eriocera) arcuata* Alexander, 1951
 141. *Hexatoma (Eriocera) artifex* Alexander, 1961
 142. *Hexatoma (Eriocera) atroantica* Alexander, 1957
 143. *Hexatoma (Eriocera) atrodorsalis* (Alexander, 1927)
 144. *Hexatoma (Eriocera) dharma* Alexander, 1955
 145. *Hexatoma (Eriocera) flavicosta* (Edwards, 1921)
 146. *Hexatoma (Eriocera) glomerosa* Alexander, 1960
 147. *Hexatoma (Eriocera) indra* Alexander, 1955
 148. *Hexatoma (Eriocera) nigroantica* Alexander, 1957
 149. *Hexatoma (Eriocera) nigrocoxata* Alexander, 1957
 150. *Hexatoma (Eriocera) paenulatoides* Alexander, 1949
 151. *Hexatoma (Eriocera) perelongata* Alexander, 1969
 152. *Hexatoma (Eriocera) phaeton* Alexander, 1961
 153. *Hexatoma (Eriocera) politovortex* Alexander, 1950
 154. *Hexatoma (Eriocera) purpurata* Alexander, 1949
 155. *Hexatoma (Eriocera) quadriaurantia* Alexander, 1950
 156. *Hexatoma (Eriocera) rama* Alexander, 1955
 157. *Hexatoma (Eriocera) susainathani* Alexander, 1949
 158. *Hexatoma (Eriocera) tacita* Alexander, 1951
 159. *Hexatoma (Eriocera) tenuis* (Brunetti, 1912)
 160. *Hexatoma (Eriocera) testacea* (Brunetti, 1912)
 161. *Hexatoma (Eriocera) triangularis* (Brunetti, 1912)
 162. *Hexatoma (Eriocera) tripunctipennis* (Brunetti, 1918)
 163. *Hexatoma (Eriocera) uniflava* Alexander, 1969
 164. *Hexatoma (Eriocera) vamana* Alexander, 1961
 165. *Hexatoma (Eriocera) vulpes* Alexander, 1961

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| 166. <i>Hexatoma</i> (<i>Eriocera</i>) <i>walayarensis</i>
Alexander, 1951 | 172. <i>Pseudolimnophila</i> (<i>Pseudolimnophila</i>)
<i>costofimbriata</i> Alexander, 1927 |
| 167. <i>Hexatoma</i> (<i>Hexatoma</i>) <i>madrasensis</i>
Alexander, 1961 | 173. <i>Pseudolimnophila</i> (<i>Pseudolimnophila</i>)
<i>dravidica</i> Alexander, 1974 |
| 168. <i>Limnophila</i> (<i>Indolimnophila</i>) <i>dravidica</i>
Alexander, 1971 | 174. <i>Pseudolimnophila</i> (<i>Pseudolimnophila</i>)
<i>multipunctata</i> (Brunetti, 1912) |
| 169. <i>Paradelphomyia</i> (<i>Oxyrhiza</i>) <i>krisna</i>
Alexander, 1957 | 175. <i>Pseudolimnophila</i> (<i>Pseudolimnophila</i>)
<i>productivena</i> Alexander, 1951 |
| 170. <i>Paradelphomyia</i> (<i>Oxyrhiza</i>) <i>mitra</i>
Alexander, 1953 | 176. <i>Pseudolimnophila</i> (<i>Pseudolimnophila</i>)
<i>rhanteria</i> Alexander, 1927 |
| 171. <i>Polymera</i> (<i>Polymera</i>) <i>furiosa</i> Alexander,
1950 | 177. <i>Pseudolimnophila</i> (<i>Pseudolimnophila</i>)
<i>subhonestata</i> Alexander, 1974 |

REFERENCE

Ilango, K. 2008. A check list of crane flies (Diptera : Tipuloidea) of Tamilnadu. *Zoos' Print* (in press).

INSECTA : DIPTERA : TEPHRITIDAE

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INTRODUCTION

Fruit flies are considered one of the most economically important groups of insect pests worldwide. The authoritative work on fruit fly behavior, phylogeny and higher classification was extensively dealt by Aluja and Norrbom (2000). Agarwal and Sueyoshi (2005) provided up-dated catalogue of Indian fruit flies with 243 species in 79 genera arranged in 4 subfamilies and 18 tribes and recorded their current synonyms and distributional ranges. Tamilnadu contains 47 species in 20 genera.

A CHECKLIST

Family TEPHRITIDAE

Subfamily DACINAE

Tribe **Dacini**

I. Genus **Bactrocera** Macquart

1. *Bactrocera affinis* (Hardy)
2. *Bactrocera caryae* (Kapoor)
3. *Bactrocera correcta* (Bezzi)
4. *Bactrocera digressa* Radhakrishnan
5. *Bactrocera dorsalis* (Hendel)
6. *Bactrocera latifrons* (Hendel)
7. *Bactrocera nigrofemoralis* White Tsuruta
8. *Bactrocera versicolor* (Bezzi)
9. *Bactrocera vishnu* Drew & Hancock
10. *Bactrocera zonata* (Saunders)
11. *Bactrocera yercaudiae* Drew
12. *Bactrocera diversa* (Coquillett)

13. *Bactrocera trilineata* (Hardy)

14. *Bactrocera garciniae* Bezzi

15. *Bactrocera binoyi* Drew

16. *Bactrocera watersi* (Hardy)

17. *Bactrocera cucurbitae* (Coquillett)

18. *Bactrocera gavis* (Munro)

19. *Bactrocera tau* (Walker)

20. *Bactrocera zahadi* Mahmood

II. Genus **Dacus** Fabricius

21. *Dacus crabroniformis* (Bezzi)

22. *Dacus ramanii* Drew & Hancock

23. *Dacus sphaeroidalis* (Bezzi)

24. *Dacus ciliatus* Loew

25. *Dacus persicus* Hendel

III. Genus **Dietheria** Hardy

26. *Dietheria fasciata* Hardy

IV. Genus **Phaeospilodes** Hering

27. *Phaeospilodes bambusae* Hering

V. Genus **Xanthorrachis** Bezzi

28. *Xanthorrachis annandalei* Bezzi

Subfamily PHYTALMIINAE

Tribe **Acanthonevrini**

VI. Genus **Acanthonevra** Macquart

29. *Acanthonevra hemileina* Hering

30. *Acanthonevra imparata* Hering

31. *Acanthonevra inermis* Hering

VII. Genus **Diarrhagma** Bezzi

32. *Diarrhagma modestum* (Fabricius)

Subfamily TRYPETINAE

Tribe **Adramini**VIII. Genus *Adrama* Walker33. *Adrama austeni* HendelIX. Genus *Euphranta* Loew34. *Euphranta macularis* (Wiedemann)Tribe **Carpomyini**X. Genus *Carpomya* Costa35. *Carpomya vesuviana* Costa

Subfamily Tephritinae

Tribe **Cecidocharini**XI. Genus *Procecidochares* Hendel36. *Procecidochares utilis* StoneTribe **Dithrycini**XII. Genus *Platensina* Enderlein37. *Platensina acrostacta* (Wiedemann)38. *Platensina tetrica* HeringTribe **Schistopterini**XIII. Genus *Perirhithrum* Bezzi39. *Perirhithrum longiseta* (Hering)Tribe **Tephrellini**XIV. Genus *Metasphenisca* Hendel40. *Metasphenisca bifaria* MunroXV. Genus *Tephraziura* Hering41. *Tephraziura basimacula* (Bezzi)Tribe **Tephritini**XVI. Genus *Campiglossa* Rondani42. *Campiglossa gemma* (Hering)XVII. Genus *Dioxyna* Frey43. *Dioxyna sororcula* (Wiedemann)XVIII. Genus *Sphenella* Robine-Desvoidy44. *Sphenella sinensis* SchinerXIX. Genus *Acanthiophilus* Becker45. *Acanthiophilus lugubris* HeringXX. Genus *Trupanea* Schrank46. *Trupanea asteria* (Schiner)47. *Trupanea proavita* Hering

REFERENECES

- Agarwal, M. L. and Sueyoshi, M. 2005. Catalogue of Indian fruit flies (Diptera : Tephritidae). *Oriental Insects*, **39** : 525-552.
- Aluja, M. and Norrbom, A. L. 2000. Fruit flies (Tephritidae) : Phylogeny and Evolution of Behavior. CRC Press, Washington, D.C. : 1-944.
- Radhakrishnan, C. 1993. New record of *Dietheria fasciata* Hardy (Tephritidae : Diptera : Insecta) from India and its biogeographical affinities *Hexapoda*, **5** : 67-69.

INSECTA : LEPIDOPTERA : RHOPALOCERA

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INTRODUCTION

Butterflies are among the most fascinating and perhaps the most noticeable and colourful insects. A recent estimate (Gaonkar, 1996) of the number of butterfly species in India is 1501. Of these, 332 species are so far reported from the Western Ghats (Kunte, 2006).

A state-wise analysis of the distribution of butterflies of the Peninsular India suggests that three southern states contain the majority of the species including endemics, Kerala state leading with 321 species. The second area of maximum diversity is found in Tamilnadu (318 species). The diversity of species decreases further from Karnataka (317 species) to Goa (252 species), Maharashtra (209 species). Gujarat, is least with 183 species. This pattern is clearly indicative of the type of vegetation prevailing along the tracts of states from Kerala to Gujarat and the anthropogenic disturbances that has taken place in the recent past.

Historically, in the post- Linnaean era, majority of the species of butterflies described from the Peninsular India came from the Nilgiri and adjoining areas of the Tamilnadu. Carl von Linnaeus' *Systema Naturae* contained many Indian species and many more were described by Fabricius and Cramer subsequently. Soon after, the Nilgiri Mountains were visited by professional and amateur explorers and naturalists. The first among them was an Austrian nobleman and naturalist, Baron von Hugel in the late 1830s. The first significant butterfly collection from the region

was done by Sir George Hampson (1888), listing about 260 species butterflies from the Nilgiris and adjoining areas of the Western Ghats.

A little earlier (1878) in Travancore, the famous planter- naturalist H.S. Ferguson started collecting butterflies from Ponmudi and Ashambu hills. He continued collection for about two years and published his findings in the *Journal of the Bombay Natural History Society* (JBNHS) of 1891 and reported 220 species from the southern tip of Western Ghats. The Nilgiri Mountain was thoroughly explored by many workers (Watson, 1890; Hannyngton, 1916; Florence, 1926; Yates, 1935 & 1946) more than a century ago. They listed around 250 butterfly species from the Nilgiri and adjoining mountains.

Wynter-Blyth (1944-46) studied butterflies of Nilgiris in detail. Later he published an illustrative field guide to the butterflies of Indian region in 1957. He dealt with 290 species from south India, including many from Tamilnadu. Based on the collections of Madras Government Museum, Sathyamurthy (1966) prepared a pictorial catalogue on the butterflies of the Museum that contained information on several species from Tamilnadu. Then again 40 years elapsed before an extensive documentation of Nilgiri butterflies was carried out by D. Torben Larsen, an authority on Oriental butterflies. He listed 299 species from Nilgiris and adjoining hills. Recent studies on the butterfly fauna of the region are species checklists based on field surveys (Ramu, 1989; Khatri, 1986; Karthikeyan, 1991, 1992; Mathew, 1994; Nalini and Boris, 1996; Radhakrishnan and

Lakshminarayana, 2001; Bhaskaran and Soalippan, 2002; Chithra and Mahendran, 2003; Arun, 2003; Ambrose and Raj, 2005; Easwaran and Pramod, 2005 and Rufus and Sabarinathan, 2007).

The most important work from the entire Indian Peninsular region was made by Harish Gaonkar (1996) of Copenhagen Zoological Museum, Denmark. He listed 329 species of butterflies. However, the most recent compilation pertaining to peninsular Indian butterflies was done by Krishnamegh Kunte (2006). He listed 332 species including 3 new records of butterflies from the area, such as Spot Puffin (*Appias lalage*), One-spot Grass Yellow (*Eurema andersonii*) and the Palmking (*Amathusia phidippus*), adding them to the existing list. The most significant addition to the butterfly fauna of the region was the recent discovery of Nilgiri Grass Yellow (*Eurema*

nilgiriensis) from the Nilgiri mountains (Yata, 1991).

A perusal of literature reveals that most of the studies on butterflies in Peninsular India were focussed on the hills of Nilgiris, Anamalais and Palnis. The state of Tamilnadu supports most of the butterfly fauna of Peninsular India, south of the Himalaya, and virtually all species found in the south of the Satpuras. Altogether 318 species of butterflies under 168 genera belong to 5 families are so far known from the state of Tamilnadu. Of these, 35 species are endemic to the Western Ghats (Table-1). The family Lycaenidae dominates with 97 species followed by Nymphalidae (93), Hesperidae (77), Pieridae (32) and Papilionidae (19). Nomenclature followed in this account is after Gaonkar (1996) and the English Common Names, after Wynter- Blyth (1957).

Table 1 : Endemic butterflies of the Western Ghats reported from Tamil Nadu

Sl. No.	Scientific Name	Common Name
1	<i>Troides minos</i>	Southern Birdwing
2	<i>Pachliopta pandiyana</i>	Malabar Rose
3	<i>Papilio liomedon</i>	Malabar Banded Swallowtail
4	<i>Papilio dravidarum</i>	Malabar Raven
5	<i>Papilio buddha</i>	Buddha Peacock
6	<i>Eurema nilgiriensis</i>	Nilgiri Grass Yellow
7	<i>Colias nilgiriensis</i>	Nilgiri Clouded Yellow
8	<i>Appias wardii</i>	Lesser Albatross
9	<i>Mycalesis igilia</i>	Small Long-Brand Bushbrown
10	<i>Mycalesis orcha</i>	Pale- Brand Bushbrown
11	<i>Mycalesis oculus</i>	Red Disc Bushbrown
12	<i>Mycaleis adolphe</i>	Red Eye Bushbrown
13	<i>Mycalesis davisoni</i>	Palni Bushbrown
14	<i>Zipoetis saitii</i>	Tamil Cat's Eye
15	<i>Ypthima chenui</i>	Nilgiri Fourring
16	<i>Ypthima ypthimoides</i>	Palni Fourring
17	<i>Parantica nilgiriensis</i>	Nilgiri Tiger
18	<i>Idea malabarica</i>	Malabar Tree Nymph
19	<i>Tarucus indica</i>	Indian Pierrot
20	<i>Celatoxia albidisca</i>	White disc Hedge Blue

Table 1 : *Contd.*

Sl. No.	Scientific Name	Common Name
21	<i>Arhopala alea</i>	Indian Oakblue
22	<i>Spindasis abnormis</i>	Abnormal Silverline
23	<i>Curetis siva</i>	Shiva Sunbeam
24	<i>Sarangesa purendra</i>	Spotted Small Flat
25	<i>Aeromachus pygmaeus</i>	Pygmy Scrub Hopper
26	<i>Sovia hyrtacus</i>	Bicolour Ace
27	<i>Thoressa honorei</i>	Madras Ace
28	<i>Thoressa astigmata</i>	Unbranded Ace
29	<i>Thoressa sitala</i>	Sitala Ace
30	<i>Thoressa evershedii</i>	Evershed's Ace
31	<i>Arnetta vindhiana</i>	Vindhyan Bob
32	<i>Quedara basiflava</i>	Yellow Base Tree Flitter
33	<i>Oriens concinna</i>	Tamil Dartlet
34	<i>Caltoris canaraica</i>	Canara Swift
35	<i>Arnetta mercara</i>	Coorg Forest Hopper

SYSTEMATIC LIST

Family PAPILIONIDAE

Subfamily Papilioninae

1. Spot Swordtail, *Pathysa nomius* (Esper)
2. Fivebar Swordtail, *Pathysa antiphates* (Cramer)
3. Common Jay, *Graphium doson* (C. & R. Felder)
4. Tailed Jay, *Graphium agamemnon* (Linnaeus)
5. Common Bluebottle, *Graphium sarpedon* (Linnaeus)
6. Common Rose, *Pachliopta aristolochiae* (Fabricius)
7. Crimson Rose, *Pachliopta hector* (Linnaeus)
8. Malabar Rose, *Pachliopta pandiyana* (Moore)
9. Southern Birdwing, *Troides minos* (Cramer)
10. Common Mime, *Chilasa clytia* Linnaeus
11. Malabar Banded Swallowtail, *Papilio liomedon* (Moore)

12. Blue Mormon, *Papilio polymnestor* (Cramer)
13. Red Helen, *Papilio helenus* (Linnaeus)
14. Common Mormon, *Papilio polytes* (Linnaeus)
15. Malabar Raven, *Papilio dravidarum* (Wood-Mason)
16. Lime Butterfly, *Papilio demoleus* (Linnaeus)
17. Common Banded Peacock, *Papilio crino* (Fabricius)
18. Malabar Banded Peacock, *Papilio buddha* (Westwood)
19. Paris Peacock, *Papilio paris* (Linnaeus)

Family PIERIDAE

Subfamily PIERINAE

20. Indian Cabbage White, *Pieris canidia* Linnaeus
21. Pioneer (Caper White), *Anaphaeis aurota* Fabricius
22. Common Gull, *Cepora nerissa* Fabricius
23. Lesser Gull, *Cepora nadina* Lucas

24. White Orange Tip, *Ixias marianne* Cramer
25. Yellow Orange Tip, *Ixias pyrene* Linnaeus
26. Common Jezebel, *Delias eucharis* Drury
27. Painted Sawtooth, *Prioneris sita* C. Felder
28. Spot Puffin, *Appias lalage* (Doubleday)
29. Plain Puffin, *Appias indra* Moore
30. Striped Albatross, *Appias libythea* Fabricius
31. Chocolate Albatross, *Appias lyncida* Cramer
32. Common Albatross, *Appias albina* Felder
33. Lesser Albatross, *Appias wardii* (Moore)
34. Psyche, *Leptosia nina* Fabricius
35. Great Orange-Tip, *Hebomoia glaucippe* Linnaeus
36. Small Salmon Arab, *Colotis amata* Fabricius
37. Large Salmon Arab, *Colotis fausta* (Olivier)
38. Small Orange-Tip, *Colotis etrida* Boisduval
39. Plain Orange-Tip, *Colotis eucharis* Fabricius
40. Crimson-Tip, *Colotis danae* (Fabricius)
41. Dark Wanderer, *Pareronia ceylanica* (C. & R. Felder)
42. Common Wanderer, *Pareronia valeria* (Cramer)

Subfamily COLIADINAE

43. Common Emigrant, *Catopsilia pomona* Fabricius
44. Mottled Emigrant, *Catopsilia pyranthe* Latreille
45. Small Grass Yellow, *Eurema brigitta* Cramer
46. Spotless Grass Yellow, *Eurema laeta* Boisduval
47. One-Spot Grass Yellow, *Eurema andersonii* Moore
48. Common Grass Yellow, *Eurema hecabe* Linnaeus
49. Three-Spot Grass Yellow, *Eurema blanda* Boisduval
50. Nilgiri Grass Yellow, *Eurema nilgiriensis* Yata
51. Nilgiri Clouded Yellow, *Colias nilgiriensis* Felder & Felder

Family NYMPHALIDAE

Subfamily LIBYTHEINAE

52. Common Beak *Libythea lepita* (Moore)
53. Club Beak *Libythea myrrha*, (Godart)

Subfamily DANAINAE

54. Glassy Tiger, *Parantica aglea* (Stoll)
55. Nilgiri Tiger, *Parantica nilgiriensis* (Moore)
56. Dark Blue Tiger, *Tirumala septentrionis* (Butler)
57. Blue Tiger, *Tirumala limniace* Cramer
58. Plain Tiger, *Danaus chrysippus* Linnaeus
59. Common Or Striped Tiger, *Danaus genutia* Cramer
60. Common Indian Crow, *Euploea core* (Cramer)
61. Double-Branded Crow, *Euploea sylvester* (Fabricius)
62. Blue King Crow, *Euploea klugii* Moore
63. Malabar Tree Nymph, *Idea malabarica* Moore

Subfamily CHARAXINAE

64. Tawny Rajah *Charaxes bernardus* (Fabricius)
65. Black Rajah *Charaxes solon* (Fabricius)
66. Blue Nawab *Polyura schreiberi* (Godart)
67. Common Nawab *Polyura athamas* (Drury)
68. Anomalous Common Nawab *Polyura agraria* Swinhoe

Subfamily MORPHINAE

69. Southern Duffer *Discophora lepida* (Moore)

Subfamily SATYRINAE

69. 71. Whitebar Bushbrown *Mycalesis anaxias* Hewitson
70. Small Longbrand Bushbrown *Mycalesis igilia* Fruhstorfer
71. Long-Brand Bushbrown *Mycalesis visala* Moore
72. Palebrand Bushbrown *Mycalesis khasia* Evans
73. Redeye Bushbrown *Mycalesis adolpheii* (Guerin-Ménéville)

74. Palni Bushbrown *Mycalesis davisoni*
75. Red-Disc Bushbrown *Mycalesis oculus* Marshall
76. Gladeye Bushbrown, *Mycalesis patnia* Moore
77. Tamil Bushbrown *Mycalesis subdita* Moore
78. Common Bushbrown *Mycalesis perseus* (Fabricius)
79. Dark Branded Bushbrown *Mycalesis mineus* (Linnaeus)
80. Common Treebrown *Lethe rohria* (Fabricius)
81. Tamil Treebrown *Lethe drypetis* (Hewitson)
82. Bamboo Treebrown *Lethe europa* (Fabricius)
83. Common Threering *Ypthima asterope* Moore
84. Jewel Fourring *Ypthima avanta* Moore
85. Common Fivering *Ypthima baldus* (Fabricius)
86. White Fourring *Ypthima ceylonica* Hewitson
87. Nilgiri Fourring *Ypthima chenui* (Guerin-Méneville)
88. Common Fourring *Ypthima huebneri* Kirby
89. Baby Fivering *Ypthima philomela* (Linnaeus)
90. Palni Fourring *Ypthima ypthimoides* Moore
91. Tamil Catseye *Zipoetis saitis* Hewitson
92. Nigger *Orsotriaena medus* (Fabricius)
93. Common Evening Brown *Melanitis leda* (Linnaeus)
94. Dark Evening Brown *Melanitis phedima* (Cramer)
95. Great Evening Brown *Melanitis zitenius* (Herbst)
96. Common Palmfly *Elymnias hypermnestra* (Linnaeus)

Subfamily HELICONIINAE

97. Cruiser *Vindula erota* Fabricius
98. Tamil Yeoman *Cirrochroa thais* (Fabricius)
99. Rustic *Cupha erymanthis* (Drury)

100. Small Leopard *Phalanta alcippe* Stoll
101. Leopard *Phalanta phalantha* Drury
102. Indian Fritillary *Argynnis hyperbius* Linnaeus
103. Tamil Lacewing *Cethosia nietneri* Felder & Felder

Subfamily ACRAEINAE

104. Tawny Coster *Acraea terpsicore* (Linnaeus)

Subfamily LIMENITIDINAE

105. Commander *Limenitis procris* (Cramer)
106. Common Sergeant *Athyma perius* (Linnaeus)
107. Blackvein Sergeant *Athyma ranga* Moore
108. Staff Sergeant, *Athyma selenophora* (Kollar)
109. Colour Sergeant, *Athyma nefte* (Cramer)
110. Common Lascar, *Pantoporia hordonia* (Stoll)
111. Extra Lascar, *Pantoporia sandaka* (Butler)
112. Common Sailer, *Neptis hylas* Linnaeus
113. Shortbanded Sailer, *Neptis columella* Moore
114. Chestnut-Streaked Sailer, *Neptis jumbah* Moore
115. Yellowback Sailer, *Neptis viraja* Evans
116. Sullied Sailer, *Neptis soma* Eliot
117. Clear Sailer, *Neptis nata* Moore
118. Southern Sullied Sailer, *Neptis clinia* Moore
119. Clipper, *Parthenos sylvia* (Cramer)
120. Common Baron, *Euthalia aconthea* (Cramer)
121. Gaudy Baron, *Euthalia lubentina* (Cramer)
122. Baronet, *Euthalia nais* (Forster)
123. Blue Baron, *Euthalia telchinia* (Menetries)
124. Grey Count, *Tanaecia lepidea* (Butler)
125. Redspot Duke, *Dophla evelina* (Stoll)

Subfamily CYRESTINAE

126. Common Map *Cyrestis thyodamas* Boisduval

Subfamily BIBLIDINAE

127. Angled Castor *Ariadne ariadne* Linnaeus
128. Common Castor *Ariadne merione* (Cramer)
129. Joker *Byblia ilithyia* (Drury)

Subfamily APATURINAE

130. Black Prince *Rohana parisatis* (Westwood)
 131. Painted Courtesan *Euripus consimilis* (Westwood)

Subfamily NYMPHALINAE

132. Indian Red Admiral, *Vanessa indica* (Herbst)
 133. Painted Lady, *Vanessa cardui* (Linnaeus)
 134. Blue Admiral, *Kaniska canace* (Linnaeus)
 135. Grey Pansy, *Junonia atlites* (Linnaeus)
 136. Peacock Pansy, *Junonia (Precis) almana* (Linnaeus)
 137. Yellow Pansy, *Junonia (Precis) hierta* (Fabricius)
 138. Chocolate Pansy, *Junonia (Precis) iphita* (Cramer)
 139. Lemon Pansy, *Junonia (Precis) lemonias* (Linnaeus)
 140. Blue Pansy, *Junonia orithya* (Linnaeus)
 141. Great Eggfly, *Hypolimnias bolina* (Linnaeus)
 142. Danaid Eggfly, *Hypolimnias misippus* (Linnaeus)
 143. South Indian Blue Oakleaf, *Kallima horsfieldi* Kollar
 144. Autumnleaf, *Doleschallia bisaltide malabarica* (Cramer)

Family LYCAENIDAE

145. Plum Judy, *Abisara echerius* (Moore)
 146. Apefly *Spalgis epus* (Westwood)
 147. Red Pierrot *Talicauda nyseus* Guerin
 148. Common Pierrot *Castalius rosimon* Fabricius
 149. Dark Pierrot *Castalius ananda* de Niceville
 150. Angled Pierrot *Caleta caleta* Hewitson
 151. Banded Blue Pierrot *Discolampa ethion* Westwood
 152. Spotted Pierrot *Tarucus callinara* Butler
 153. Striped Pierrot *Tarucus nara* Kollar
 154. Indian Pierrot *Tarucus indica* Evans
 155. Zebra Blue *Syntarucus plinius* (Fabricius)
 156. Bright Babul Blue *Azanus ubaldus* Cramer

157. Dull Babul Blue *Azanus uranus* Butler
 158. African Babul Blue *Azanus jesous* Guerin-Meneville
 159. Quaker *Neopithecops zalmora* Butler
 160. Malayan *Megisba malaya* (Horsfield)
 161. Plain Hedge Blue *Celastrina lavendularis* (Moore)
 162. Common Hedge Blue *Acytolepis puspa* (Horsfield)
 163. Hampson's Hedge Blue *Acytolepis lilacea* (Hampson)
 164. White Hedge Blue *Akasinula akasa* (Horsfield)
 165. Whitedisc Hedge Blue *Cyaniris albidisca* Moore
 166. Singhalese Hedge Blue *Polyommatus singalensis* Moore
 167. Lime Blue *Chilades laius* (Cramer)
 168. Indian Cupid *Chilades parrhasius* (Fabricius)
 169. Small Cupid *Chilades contracta* (Butler 1880)
 170. Dark Grass Blue *Zizeeria lysimon* (Hubner)
 171. Lesser Grass Blue *Zizeeria otis* (Fabricius)
 172. Pale Grass Blue *Pseudozizeeria maha* (Kollar)
 173. Tiny Grass Blue *Zizula gaika* (Trimen)
 174. Grass Jewel *Freyeria trochylus* (Freyer)
 175. Gram Blue *Euchrysops cnejus* (Fabricius)
 176. Plains Cupid *Edales pandava* (Horsfield)
 177. Ciliate Blue *Anthene emolus* (Godart, 1823)
 178. Pointed Ciliate Blue *Anthene lycaenina* (C. Felder)
 179. Forget-me-not *Catachrysops strabo* (Fabricius)
 180. Silver Forget-me-not *Catachrysops panoramus* (C. Felder)
 181. Peablue *Lampides boeticus* (Linnaeus)
 182. Dark Cerulean *Jamides bochus* Stoll
 183. Common Cerulean *Jamides celeno* (Cramer)
 184. Metallic Cerulean *Jamides alecto* (Felder)

185. Large Four-line Blue *Nacaduba pactolus* (Felder)
186. Pale Four-line Blue *Nacaduba hermus* (Felder)
187. Pointed Lineblue *Nacaduba helicon* Felder
188. Transparent Six-line Blue *Nacaduba kurava* (Moore)
189. Opaque Six-line Blue *Nacaduba beroe* (Felder & Felder)
190. Rounded Six-line Blue *Nacaduba berenice* (Herrich-Schäffer)
191. Dark Ceylon Six-line Blue *Nacaduba calauria* (C. Felder)
192. Common Lineblue *Prosotas nora* (Felder)
193. Tailless Lineblue *Prosotas dubiosa* (Semper)
194. White-tipped Lineblue *Prosotas noreia* (Felder)
195. Dingy Lineblue *Petrelea dana* (De Niceville)
196. Indian Sunbeam *Curetis thetis* (Drury)
197. Shiva's Sunbeam *Curetis siva* Evans
198. Toothed Sunbeam *Curetis dentata* Moore
199. Silverstreak Blue *Iraota timoleon* Stoll
200. Leaf Blue *Horsfieldia anita* Moore
201. Many-tailed Oak-Blue *Thaduka multicaudata* Moore
202. Large Oakblue *Arhopala amantes* (Hewitson)
203. Aberrant Bushblue *Arhopala abseus* (Hewitson)
204. Dark Broken-Band Oakblue *Arhopala atrax* (Hewitson)
205. Centaur Oakblue *Nilasera centaurus* (Fabricius)
206. Rosy Oakblue *Panchala alea* (Hewitson)
207. Tamil Oakblue *Narathura bazaloides* (Hewitson)
208. Common Acacia Blue *Surendra quercetorum* (Moore)
209. Silver Streaked Acacia Blue *Zinaspa todara* (Moore)
210. Yamfly *Loxura atymnus* (Cramer)
211. Common Silverline *Spindasis vulcanus* (Fabricius)
212. Long-banded Silverline *Spindasis lohita* (Horsfield)
213. Plumbeous Silverline *Aphnaeus schistacea* Moore
214. Abnormal Silverline *Aphnaeus abnormis* Moore
215. Common Shot Silverline *Aphnaeus ictis* Hewitson
216. Scarce Shot Silverline *Aphnaeus elima* Moore
217. Redspot *Zesius chrysomallus* Hubner
218. White Royal *Pratapa deva* (Moore)
219. Silver Royal *Ancema blanka* (De Niceville)
220. Broadtail Royal *Creon cleobis* (Godart)
221. Plains Blue Royal *Tajuria jehana* Moore
222. Peacock Royal *Tajuria cippus* (Fabricius)
223. Spotted Royal *Tajuria maculata* Hewitson
224. Branded Royal *Ops melastigma* (De Niceville)
225. Banded Royal *Charana jalindra* Moore
226. Common Imperial *Cheritra freja* (Fabricius)
227. Monkeypuzzle *Rathinda amor* (Fabricius)
228. Common Onyx *Horaga onyx* (Moore)
229. Brown Onyx *Horaga viola* Moore)
230. Common Tinsel *Catapaecilma elegans* Druce
231. Orchid Tit *Chliaria othona* (Hewitson)
232. Nilgiri Tit *Chliaria nilgirtica* (Moore)
233. Fluffy Tit *Zeltus etolus* (Fabricius)
234. Cornelian *Deudorix epijarbas* (Moore)
235. Common Guava Blue *Virachola isocrates* (Fabricius)
236. Large Guava Blue *Virachola perse* (Hewitson)
237. Indigo Flash *Rapala varuna* (Hewitson)
238. Slate Flash *Rapala schistacea* (Moore)
239. Common Red Flash *Rapala iarbus* (Fabricius)
240. Malabar Flash *Vadebra lankana* (Moore)

241. Plane Bindahara *phocides* (Fabricius)
Family HESPERIIDAE
Subfamily COELIADINAE
242. 243. Brown Awl *Badamia exclamationis* (Fabricius)
243. 244. Pale Green Awlet *Bibasis gomata* (Moore)
244. 245. Orange-striped Awl/Orange Awlet *Bibasis jaina* (Moore)
245. 246. Orangetail Awl/Pale Green Awlet *Bibasis sena* (Moore)
246. 247. Indian Awlking, *Choaspes benjaminii* (Guerin-Meneville)
247. 248. Common Awl *Hasora badra* (Moore)
248. 249. Common Banded Awl *Hasora chromus* (Cramer)
249. 250. White Banded Awl *Hasora taminatus* (Huber)
Subfamily HESPERIINAE
250. Dingy Scrub-Hopper *Aeromachus dubius* (Elwes & Edwards)
251. Pygmy Grass/Scrub-Hopper *Aeromachus pygmaeus* (Fabricius)
252. Bush Hopper *Ampittia dioscorides* (Fabricius)
253. Coorg Forest Hopper *Arnetta mercara* (Evans)
254. Vindhyan Bob *Arnetta vindhiana* (Moore)
255. Paintbrush Swift *Baoris farri* (Moore)
256. Hedge/Hampson's Hedge-Hopper *Baracus vittatus* (Felder)
257. Beavan's Swift *Pseudoborbo bevani* (Moore)
258. Rice Swift *Borbo cinnara* (Wallace)
259. Kanara Swift *Caltoris canaraica* (Moore)
260. Blank Swift *Caltoris kumara* (Moore)
261. Philippine Swift *Caltoris philippina* (Herrich-Schaffer)
262. Wax Dart *Cupitha purreea* (Moore)
263. Giant Redeye *Gangara thyrsis* (Fabricius)
264. Indian/Ceylon Ace *Halpe homolea* (Hewitson,)
265. Moore's Ace *Halpe porus* (Mabille)
266. Chestnut Bob *Iambrix salsala* (Moore)
267. Common Redeye *Matapa aria* (Moore)
268. Restricted Demon *Notocrypta curvifascia* (Felder & Felder)
269. Common Banded Demon *Notocrypta paralysos* (Wood-Mason & de Niceville)
270. African Straight/Straight Swift *Parnara naso* (Fabricius)
271. Continental Swift *Parnara ganga* (Evans)
272. Dark Branded Swift *Pelopidas agna* (Moore)
273. Conjoined Swift *Pelopidas conjuncta* (Herrich-Schaffer)
274. Dark Small-Branded Swift *Pelopidas mathias* (Fabricius)
275. Large Branded Swift *Pelopidas subochracea* (Moore)
276. Contiguous Swift *Polytremis lubricans* (Herrich-Schäffer)
277. Confucian/Chinese Dart *Potanthus confucius* (Felder & Felder)
278. Pallied Dart *Potanthus pallida* (Evans)
279. Palni Dart *Potanthus palnia* (Evans)
280. Pava Dart *Potanthus pava* (Fruhstorfer)
281. Pseudomaesa/Common Dart *Potanthus pseudomaesa* (Moore)
282. Coon *Psolos fuligo* (Mabille)
283. Yellow-Base/Golden Tree Flitter *Quedara basiflava* (De Niceville)
284. Bicolour Ace *Sovia hyrtacus* (De Niceville)
285. Indian Palm Bob, *Suastus gremius* (Fabricius)
286. Small Palm Bob, *Suastus minuta* (Moore)
287. Tamil Grass Dart *Taractrocera ceramas* (Hewitson)
288. Common Grass Dart *Taractrocera maevius* (Fabricius)
289. Dark Palm Dart *Telicota ancilla* (Herrich-Schaffer)
290. Pale Palm Dart *Telicota colon* (Fabricius)
291. Plain Palm Dart *Cephrenes chrysozona* (Plotz)

292. Southern Spotted Ace or Unbranded Ace *Thoressa astigmata* (Swinhoe)
 293. Evershed's Ace *Thoressa evershedii* (Evans)
 294. Madras Ace *Thoressa honorei* (De Niceville)
 295. Tamil Ace or Sitala Ace *Thoressa sitala* (De Niceville)
 296. Grass Demon, *Udaspes folus* (Cramer)
 297. Tree Flitter *Hyarotis adrastus* (Stoll)
 298. Brush Flitter *Hyarotis microstrictum* (Wood-Mason & de Niceville)
 299. Tamil Dartlet *Oriens concinna* (Elwes & Edwards)
 300. Common Dartlet *Oriens goloides* (Moore)
 301. Golden Angle *Caprona ransonnetti* (Felder)
 302. Spotted Angle *Caprona agama* (Moore)
 303. Spotted Angle *Caprona alida* (De Niceville)
 304. Malabar Spotted Flat *Celaenorrhinus ambareesa* (Moore)
 305. Common Spotted Flat *Celaenorrhinus leucocera* (Kollar)
 306. Tamil Spotted Flat *Celaenorrhinus ruficornis* (Mabille)
 307. Tricolour Flat *Cogia indrani* (Moore)
 308. Fulvous Pied Flat *Coladenia dan* (Fabricius)
 309. Common Yellowbreasted Flat *Daimio bhagava* (Moore)
 310. African Mallow/Marbled Skipper, *Gomalia elma* (Trimen)
 311. Chestnut/Banded Angle *Odontoptilum angulata* (Felder)
 312. Common Small Flat *Sarangesa dasahara* (Moore)
 313. Spotted Small Flat *Sarangesa purendra* (Moore)
 314. Indian Grizzled/Indian Skipper *Spialia galba* (Fabricius)
 315. Immaculate/Large/Suffused Snow Flat *Tagiades gana* (Moore)
 316. Common/Ceylon Snow Flat *Tagiades jepetus* (Stoll)
 317. Water Snow Flat *Tagiades litigiosa* (Moschler)
 318. Angled Flat/Black Angle *Tapena twaitesi* (Moore)

REFERENCES

- Ambrose, D.P. and D. Senthil Raj. 2005. Fauna of Protected Areas, 25 : Butterflies of Kalakkad Mundanthurai Tiger Reserve, Tamilnadu. *Zoos' Print Journal*, November 2005, **11** : 2100-2107.
- Arun, P.R. 2003. Butterflies of Siruvani forests of Western Ghats, with notes on their seasonality *Zoos' Print Journal*, January 2003, **1** : 1003-1006
- Bhaskaran, S and Soaliappan. 2002. Butterflies of Madurai City, Tamilnadu. *Zoos' Print Journal*, October 2002, **10** : 913-914.
- Best, A.E.G. 1954. Notes on the butterflies from Nagalapuram Hills, Eastern Ghats. *J. Bombay nat. Hist. Soc.*, Vol., **52** : 365-373.
- Best, A.E.G. 1954. Additions and alterations to the list of butterflies of Nagalapuram Hills published in Vol. 52 no. 2&3. August-Dec.1954. *J. Bombay nat. Hist. Soc.*, Vol., **74** : 189-190.
- Chitra, A. and N.S. Mahendran. 2003. A preliminary list of butterflies of Ramanathauram district, Tamilnadu. *Zoos' Print Journal*, March 2003, **3** : 1090.
- Easwaran, R. and P. Pramod. 2005. Structure of butterfly community of Anaikatty hills, Western Ghats. *Zoos' Print Journal*, July 2005, **7** : 1939-1942.
- Evans, W.H. 1910. The butterflies of Palni Hills. *J. Bombay nat. Hist. Soc.*, Vol. **20** : 380-391.

- Ferguson, H.S. 1891. A list of the butterflies of Travancore. *J. Bombay nat. Hist. Soc.*, Vol., **6** : 438-448.
- Florence, J. 1926. The occurrence of the butterfly *Appias indra* var. *aristoxenus* in the Nilgiris. *J. Bombay nat. Hist. Soc.*, Vol., **31** : 529.
- Gaonkar, H. 1996. *Butterflies of the Western Ghats*, including Sri Lanka. A biodiversity assessment of a threatened mountain system. A report submitted to the Centre for Ecological Sciences Bangalore.
- Hampson, G.F. 1888. The butterflies of the Nilgiri district, south India. *Journal of the Asiatic Society of Bengal*, **47** : 346-368.
- Karthikeyan, S. 1991. Butterflies of Amrithi Reserve Forest. *Blackbuck*, Madras, **7**(3+4) : 75-76.
- Karthikeyan, S. 1992. Butterflies of Shevaroy's. *Blackbuck*, Madras, **8**(3) : 89-93.
- Karthikeyan, S. 1992. Butterflies of the Kolli Hills. *Blackbuck*, Madras, **10**(1) : 21-24.
- Khatri, T.C. 1986. On some phonological and geographical variations in butterflies from Eastern Ghats. In : Eastern Ghats Insect survey Project, Eastern Ghats Insects, Part-II : 1-17. Zoological Survey of India, Madras.
- Khatri, T.C. 1986. Some additional notes on butterflies of Javadi Hills. In : *Eastern Ghats Insect survey Project, Eastern Ghats Insects*, Part-I : 39-43. Zoological Survey of India, Madras.
- Khatri, T.C. 1986. On a collection of butterflies from the Kolli Hills. In : *Eastern Ghats Insect survey Project, Eastern Ghats Insects*, Part-I : 44-60. Zoological Survey of India, Madras.
- Kunte, K. 2006. Krishnamegh Kunte's Website. [http://www.bioutexas.edu/grad/krushnamegh/moorings/natural history. htn](http://www.bioutexas.edu/grad/krushnamegh/moorings/natural%20history.htm).
- Larsen T B 1987. The butterflies of the Nilgiri mountains of southern India (Lepidoptera : Rhopalocera) *J. Bombay nat. Hist. Soc.*, **84**(1) : 26-54, **84**(2) : 291-316, **84**(3) : 560-584.
- Larsen T B 1988. The butterflies of the Nilgiri mountains of southern India (Lepidoptera : Rhopalocera) *J. Bombay nat. Hist. Soc.*, **85**(1) : 26-43.
- Mathew, K.M. 1994. Classified Checklist of Butterflies (Lepidoptera : Rhopalocera). Appendix-I. In Mathew, K.M. (Ed.). *Handbook of the Anglade Institute of Natural History*, Shembaganur, The Rapinat Herbarium, Tiruchirapalli.
- Radhakrishnan, C. and K.V. Lakshminarayana. 2001. Insecta : Lepidoptera : Rhopalocera. In : *Fauna of Conservation Series 11 : Fauna of Nilgiri Biosphere Reserve* : 143-158. Published by director, Zoological Survey of India, Kolkata.
- Ramu, G. 1989. checklist of butterflies of Lower Doorg- Nellithurai forest, Western Ghats. *Indian Journal of Forestry*. **12**(3) : 238-240.
- Rufus, K.C. and S.P. Sabarinathan. 2007. A checklist of butterflies of Thengumarahada in the Nilgiris, southern India. *Zoos' Print Journal*, August 2007, **8** : 2837-2838.
- Sathyamurthy, S.T. 1966. Descriptive catalogue of the butterflies in the collection of the Madras Museum. *Bulletin of the Madras Government Museum, New Series, Natural History*, **8**(1) : 1-255, with 31 plates.
- Ugarte, E & Rodricks, L. 1960. Butterflies of the Palani Hills : a complimentary list. *J. Bombay nat. Hist. Soc.*, **57** : 270-277.

- Watson. E.Y 1890. A preliminary list of butterflies of Madras. *Journal of the Asiatic Society of Bengal*, **49** : 265-269.
- Watson, E.Y 1890. A Preliminary list of butterflies of Mysore. *J. Bombay nat. Hist. Soc.*, **5**(1) : 28-37.
- Wynter-Blyth, M.A. 1944. the butterflies of the Nilgiris. *J. Bombay nat. Hist. Soc.*, **44** : 536-549.
- Wynter-Blyth, M.A. 1944. Some interesting butterflyes.. *J. Bombay nat. Hist. Soc.*, **44** : 601-602.
- Wynter-Blyth, M.A. 1944Addenda and corrigenda to Nilgiri Butterflies. *J. Bombay nat. Hist. Soc.*, **45** : 613-616.
- Wynter-Blyth, M.A. Additions to "The butterflies of Nilgiris" published in Vol. 44, no.4 and Vol. 45 no.1. *J. Bombay nat. Hist. Soc.*, **46** : 736
- Wynter-Blyth, M.A. 1957. *Butterflies of the Indian region*. Bombay Natural History Society, Mumbai. 523pp.
- Yata, O. 1990. A new *Eurema* species from south India (Lepidoptera, Pieridae). *Esakia. Special Issue* No. **1** : 161-165.
- Yates, J.A. 1935. Butterflies of the Nilgiri district. *J. Bombay nat. Hist. Soc.*, **38** : 330-340.
- Yates, J.A. 1946. The butterflies of the Nilgiri-a supplementary note. *J. Bombay nat. Hist. Soc.*, **46** : 197-198.

INSECTA : TRICHOPTERA

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INTRODUCTION

Trichopterans are small to moderate sized moth-like insects commonly called 'caddisflies'. Their eruciform larvae popularly referred as 'caddis worms' are capable of constructing silky cases to live in. Adults bear setaceous antennae, densely hairy membranous wings with a very few cross veins and are kept roof-like over the back at rest. Forewings are elongate and hindwings broader with folded anal area. Wings with very few crossveins.

World wide 7000 species of Trichoptera are known (Ghosh, 1998). Indian fauna is represented by 994 species, where as Tamilnadu has 63 species of 21 genera under 12 families constituting 6.3 % of Indian diversity, Saini et al. (2001). Major contribution on Tamilnadu fauna is by Schmid (1970, 1972, 1982, 1987, 1991, 1992, 1994 and 1997).

Order TRICHOPTERA

Suborder ANNULIPALPIA

Family RHYACOPHILIDAE

1. *Rhyacophila dikkaravasini* Schmid 1970
Tamilnadu
2. *Rhyacophila dorje* Schmid 1970
Tamilnadu
3. *Rhyacophila jayadurga* Schmid 1970
Tamilnadu
4. *Rhyacophila khamakhya* Schmid 1970
Tamilnadu
5. *Rhyacophila lhopa* Schmid 1970
Tamilnadu

6. *Rhyacophila lobsang* Schmid 1970
Tamilnadu

7. *Rhyacophila naviculata* Morton 1900
Tamilnadu

Family HYDROBIOSIDAE

8. *Apsilochorema dakchinam* Schmid 1970
Tamilnadu

Family PHILOPOTAMIDAE

9. *Doloclanes acteon* Schmid 1991
Chennai, Tamilnadu

10. *Doloclanes alcmeon* Schmid 1991
Chennai, Tamilnadu

11. *Doloclanes anactorion* Schmid 1991
Chennai, Tamilnadu

12. *Gunungiella saptavinchi* Schmid 1968
Tamilnadu

13. *Gunungiella tridachi* Schmid 1968
Tamilnadu

Family XIPHOCENTRONIDAE

14. *Melanotrichia pachupati* Schmid 1982
Tamilnadu, Kerala, Karnataka

15. *Melanotrichia singularis* Ulmer 1906
S. India, Tamilnadu, Kerala, Karnataka

16. *Abaria achwatirtha* Schmid 1982
Tamilnadu, Kerala, Karnataka

17. *Abaria dusyanta* Schmid 1982
Tamilnadu, Kerala

18. *Abaria margaritifera* Schmid 1958
Uttar Pradesh, Sikkim, West Bengal,
Manipur, Arunachal Pradesh, Meghalaya,
Tamilnadu, Mizoram

Family PSYCHOMYIIDAE

19. *Psychomyia curriei* Schmid 1997
Chennai, Tamilnadu
20. *Psychomyia ivanovi* Schmid 1997
Chennai, Tamilnadu
21. *Psychomyia moretti* Schmid 1997
Chennai, Tamilnadu
22. *Psychomyia nogradiae* Schmid 1997
Chennai, Tamilnadu
23. *Psychomyia reshi* Schmid 1997
Chennai, Tamilnadu
24. *Psychomyia sykorai* Schmid 1997
Chennai, Tamilnadu
25. *Psychomyia tomaszewskii* Schmid 1997
Chennai, Tamilnadu
26. *Tinodes analoka* Schmid 1972
Tamilnadu
27. *Tinodes vadichayudha* Schmid 1972
Tamilnadu

Family HYDROPSYCHIDAE

28. *Polymorphanisus nigricornis* Walker 1852
North India [Assam] (Betten 1909)
Tamilnadu (Martynov 1935)

Family ECNOMIDAE

29. *Ecnomus fletcheri* Mosely 1932
Tamilnadu

Family GOERIDAE

30. *Goera paropadecha* Schmid 1991
Chennai, Tamilnadu

Suborder INTEGRIPALPIA

Family LEPIDOSTOMATIDAE

31. *Goerodes palnius* Mosely 1949
Tamilnadu
32. *Kodala lanca* Mosely 1949
Tamilnadu

Family MOLANNIDAE

33. *Molanna paramoesta* Wiggins 1968
Madhya Pradesh, Manipur, Meghalaya,
Kerala, Tamilnadu, Karnataka

Family LEPTOCERIDAE

34. *Adicella bifasciata* Kimmins 1963
Tamilnadu

35. *Adicella clelia* Schmid 1994
Chennai, Tamilnadu
36. *Adicella clotho* Schmid 1994
Chennai, Tamilnadu
37. *Adicella danae* Schmid 1994
Chennai, Tamilnadu
38. *Tagalopsyche fletcheri* Kimmins 1963
Tamilnadu
39. *Leptocerus posticus* (Banks 1911)
Maharashtra, [Bengal]
Orissa (as *Setodes inlensis* Mart.)
Kerala, Andhra Pradesh, Tamilnadu,
Karnataka (Schmid 1987)
40. *Leptocerus samchita* Schmid 1987
Kerala, Karnataka, Tamilnadu
41. *Setodes acchidra* Schmid 1987
Karnataka, Tamilnadu
42. *Setodes akilbicha* Schmid 1987
Tamilnadu
43. *Setodes akunchita* Schmid 1987
Tamilnadu, Kerala
44. *Setodes asadjarama* Schmid 1987
Tamilnadu
45. *Setodes atymanjula* Schmid 1987
Tamilnadu
46. *Setodes chubhamyu* Schmid 1987
Tamilnadu, Kerala
47. *Setodes dantavarna* Schmid 1987
Maharashtra, Kerala, Tamilnadu, Karnataka
48. *Setodes madhuvarna* Schmid 1987
Kerala, Karnataka, Tamilnadu,
49. *Setodes parisamchuddha* Schmid 1987
Maharashtra, Karnataka, Tamilnadu
50. *Setodes prabhatajalaja* Schmid 1987
Tamilnadu
51. *Setodes pratachandradynti* Schmid 1987
Tamilnadu
52. *Setodes samphulla* Schmid 1987
Tamilnadu
53. *Setodes samprabhinna* Schmid 1987
Tamilnadu

54. *Setodes uttamavarna* Schmid 1987
Kerala, Tamilnadu
55. *Setodes vichitrita* Schmid 1987
Tamilnadu
56. *Setodes vratachakora* Schmid 1987
Kerala, Tamilnadu, Karnataka
57. *Trichosetodes karapatradhara* Schmid 1987
Karnataka, Tamilnadu, Maharashtra
58. *Oecetis nerviciliata* (Schmid 1958)
Tamilnadu (Kimmins 1963)
- Family HELICOPSYCHIDAE
59. *Helicopsyche chionadoce* Schmid 1993
Chennai, Tamilnadu
60. *Helicopsyche eurycrene* Schmid 1993
Chennai, Tamilnadu
61. *Helicopsyche maculata* Schmid 1993
Chennai, Tamilnadu
62. *Helicopsyche martynovi* Mosely 1939
Tamilnadu
63. *Helicopsyche philodoce* Schmid 1993
Chennai, Tamilnadu

REFERENCES

- Ghosh, S. K. 1998. Trichoptera : pp. 320-323. In : *Faunal Diversity in India*, Ed. Alfred *et al.*, Zoological Survey of India, Kolkata, 495 pp.
- Higler, L. W. G. 1992. A check-list of the Trichoptera recorded from India and a larval key to the families. *Oriental Insects*, **26** : 67-106.
- Saini, M.S., Kaur, M. and Bajwa, P.K. 2001. An updated check-list of the Indian Trichoptera along with an illustrated key to its families. *Rec. zool. Surv. India*, **99**(1-4) : 201-256.
- Schmid, F. 1970. Le genre *Rhyacophila* et la famille des Rhyacophilidae (Trichoptera). *Mem. Soc. Ent. Canada*, **66** : 1-230.
- Schmid, F. 1972. Sur quelques nouvelles *Psychomyiines* tropicales (Trichoptera : Psychomyiidae). *Naturaliste Candien*, **99** : 143-172.
- Schmid, F. 1982. La Famille des Xiphocentronides (Trichoptera : Annulipalpia). *Mem. Soc. Ent., Canada*, **121** : 1-127.
- Schmid, F. 1987. Considerations diverses sur quelques genres leptocerins. *Bull. Inst. R. Sci. nat. Belgique (Ent)*. **57**(Supplement) : 1-147, 29 pl.
- Schmid, F. 1991. Les *Goerides* en Inde (Trichoptera : Integripalpia). *Revue d'Hydrobiologie Tropicale*. **24**(4) : 305-326.
- Schmid F. 1992. Les brachycentrides en Inde (Trichoptera : Integripalpia). *Contributions to Zoology*. **62**(2) : 99-109.
- Schmid, F. 1994. Quelques *Adicella* indiennes (Trichoptera : Leptoceridae). *Faberies*, **19**(4) : 85-127.
- Schmid, F. 1997. Le genre *Psychomyia* en Inde (Trichoptera : Psychomyiidae). *Faberies*, **22**(1-2) : 1-56.

SCORPIONIDA

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INTRODUCTION

Scorpions are the one of the oldest known terrestrial Metazoans, occurring in Silurian fossils. They have changed little in basic external morphology over geological times. They comprise a diverse and highly successful Order of Arachnids. They are the most abundant and diverse in arid environment of lower temperate altitudes. Generally nocturnal in nature and resides on littoral rocks, rock slides, burrows in soil, rock crevices, and cracks, under barks of trees, surface debris, cattle dung. Some scorpions are adapted for cave existence. Venom of only a few species are lethal to man.

Order Scorpions under Class Arachnida is composed of 9 living families of which five are represented in the Indian subcontinent. It is estimated (Stahnke, 1974) that there are about 1500 described living species under 112 recognized genera (Williams, 1987). Pocock (1900) compiled all pervious works of Indian scorpions. Tikader (1973) published a list of scorpions of Deccan Peninsula. Couzijn (1981) made significant contribution to Indian Scorpions by revising the Genus *Heterometrus* of the family Scorpionodae. Tikader and Bastawade (1983), Bastawade (1986 a, b, 1992) Tulsi Rao *et al.* (2005), made significant contributions to our knowledge of Taxonomy of Scorpionida.

SYSTEMATIC LIST

Order SCORPIONIDA

Family BUTHIDAE

Subfamily BUTHINAE

1. *Mesobuthus hendersoni* (Pocock)

2. *Mesobuthus tamulus tamulus* (Fabricius)

3. *Lychas (Alterotrichus) hendersoni* Pocock

4. *Lychas (Endotrichus) tricarinatus* Simon

5. *Lychas (Endotrichus) scaber* Pocock

6. *Lychas (Endotrichus) albimanus* Henderson

7. *Charmus indicus* Hirst

8. *Stenochirus politus* Pocock

Subfamily CENTRURINAE

9. *Isometrus (Reddyanus) vittatus* Pocock

10. *Isometrus (Reddyanus) brachycentrus*
(Pocock)

11. *Isometrus (Reddyanus) thrustoni* Pocock

12. *Isometrus (Closotrichus) sankeriensis* Tikader
and Bastawade

Family ISCHNURIDAE

13. *Liocheles laeviceps laeviceps* (Pocock)

14. *Liocheles punctulatus* Pocock

Family SCORPIONIDAE

Subfamily SCORPIONINAE

15. *Heterometrus (Srilankametrus) gravimanus*
(Pocock)

16. *Heterometrus (Gigantometrus) swammerdami*
Simon

17. *Heterometrus (Gigantometrus) flavimanus*
Pocock

18. *Heterometrus (Chersonesometrus)*
granulomanus Couzijn

19. *Heterometrus (Chersonesometrus) tristis*
(Henderson)

20. *Heterometrus (Chersonesometrus) barberi* Pocock
21. *Heterometrus (Chersonesometrus) collinus* (Pocock)
22. *Heterometrus (Chersonesometrus) madraspatensis* (Pocock)
23. *Heterometrus (Chersonesometrus) pelekomanus* Couzijn
24. *Heterometrus (Chersonesometrus) phipsoni* (Pocock)
25. *Heterometrus (Heterometrus) malapuramensis* Tikader and Bastwade

DISCUSSION

Earlier reports on the Scorpion fauna of Tamilnadu listed 20 species. Recent surveys conducted by Southern regional Station, Zoological Survey of India, Chennai, in the different districts and Wild life Reserve of Tamilnadu revealed the presence of another 5 species. 25 species are known to occur in Tamilnadu, of which 7 species are endemic to the state. Viz, *H. (C.) madraspatensis* (Pocock), *H. (C.) collinus* (Pocock), *H. (C.) barberi* (Pocock), *H. (G) flavimanus* (Pocock), *Liocheles punctatus* (Pocock), *I. laviceps laviceps* Pocock, *Lychas (A.) hendersoni* (Pocock).

The following 5 species were recorded for the first time from Tamilnadu: *H. (H.) malapuramensis*, known to occur in Mallapuram, Kozikode, Kerala, has been collected from Anamalai, Indra Gandhi W.L.S., Nilgiri Dist. and Coimbatore Dist. *Isometrus. (Cl.) sankeriensis*, described from Silent valley Kerala, and Sankeri, Karnataka; was also found at Anamalai, Kanyakumari Dist. and Nilgiri Dists. *Isometrus*

(*R.*) *brachycentrus*, originally collected from Mangalore has been collected from Anamalai, and Pondicherry and also from Coonoor, Tamilnadu. *Lychas (E.) albimanus* which was originally described from Cochin, was collected from Anamalai and Nilgiri dist. *Stenochirus politus*, originally described from Kanara, Karnataka, collected from Anamalai.

Extension of range of distribution of the following 5 species were discussed. *Lychas (E.) hendersoni* though originally described from Yercaud, the present collection are from Anamalai R.F. *Mesobuthus tamulus tamulus*, the original distribution of the species is Nasik, Dhule, Nanded, Bhir, Aurangabad, Bombay, Poona, Ahmadnagar, Sholapur, Satara, Sangli and Kholapur, Maharashtra; Hyderabad, Andhra Pradesh; In Tamilnadu so far only from Bhavani Town, recently this species has been collected from Chennai, Nilgiri, S.Arcot Dists.

Mesobuthus hendersoni original distribution of this species was, Cuddappah, Andhra Pradesh; Yercaud, Trichy, Tanjavur, Chennai, in addition to these localities, this species has been collected from Chengalput, S. Arcot, districts too. *Heterometrus (Gigantometrus) swammerdami* known distribution of this species was Satara, Nagpur, Maharashtra; Raipur, Madhya Pradesh; Dhera Dun, Uttara Pradesh; Dharwar Karnataka; Chennai, Ramnad, Tanjavur, Tamilnadu; Burdwan, Midanpur, West Bengal. And Sri Lanka. Also collected from Tirunelveli. Pudukottai Districts of Tamilnadu and also from Anamalai Reserve Forest. *Heterometrus (Gigantometrus) flavimanus* known distribution of this species is Coimbatore, but it was collected from, Dharmapuri District.

REFERENCES

- Bastawade, D.B. 1986a. New species of scorpion of the Genus *Lychas* (Buthidae : Scorpionida) from Nasik district, Maharashtra, India. *J. Bombay nat. Hist. Soc.*, **83**(3) : 634-637.
- Bastawade, D.B. 1986b. The first record of the family Ishnuridae (Scorpionida : Arachnida) from Nasik district, Maharashtra With description of a new species of a Genus *Iomachus* Pocock. *Entomon*, **12**(2) : 101-114.

- Bastawade, D.B. 1992. A first record of the Genus *Scorpiops* Peters (Scorpiopsidae (= Vaejovidae) : Scorpionida) from Madhya Pradesh, India with description of a new species *Scorpiops (Scorpiops) pachmarhicus*. *J. Bombay nat. Hist. Soc.*, **89**(1) : 99-103.
- Bastawade, D. B., Sureshan, P.M. and C. Radhakrishnan. 2004. An illustrated key to the identification of scorpions (Scorpionida : Arachnida) of Kerala and notes on some interesting new records. *Rec. zool. Surv. India* : **103**(1-2) : 43-58.
- Pocock, R. I. 1900. Fauna of British India. Arachnida. London, 1-279.
- Thulasi Rao, K., Bastawade, D. B., Maqsood Javed, S.M., and I. Siva Ramakrishna. 2005. Arachnid fauna of Nallamalai Region, Eastern Ghats, Andhra Pradesh, India. *Rec. zool. Surv. India, Occ. Paper No.*, **239** : 1-42.
- Tikader, D.B. and D.B. Bastawade. 1983. Fauna of India. Scorpions. III. Calcutta. i-xiii & 1-671.

CHILOPODA : SCOLOPENDROMORPHA

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INTRODUCTION

The present communication deals with the Scolopendrid centipedes of Tamilnadu State situated in Deccan Plateau of India. The study is a compilation based on the records by Attems (1930), Jangi and Dass (1984) and Khanna (2001 and 2003, unpublished) that includes 29 species of the family belonging to seven genera viz. *Scolopendra* (seven species), *Cormocephalus* (one species), *Asanada* (one species), *Otostigmus* (seven species), *Ethmostigmus* (three species), *Digitipes* (four species) and *Rhysida* (six species).

Deccan Plateau, as such, is very rich in Scolopendrid diversity as evidenced by the check listing from Kerala (Sureshan *et al.*, 2003, 2006), Maharashtra and Western Ghats (Yadav, 1995) Madhya Pradesh (Ahmed, 1983 and Khanna 2006), Orissa (Sureshan *et al.*, 2006), Nilgiri Biosphere (Yadav, 2001).

Scolopendrid centipedes are known globally by over 600 species of which 102 species are known from India that makes 17% of the Global fauna. quite amazingly, 46 Indian species (45%)

are representing Deccan Plateau (Jangi and Dass, 1984), of these Tamilnadu alone accounts for the major chunk i.e. 29 species (28.5% of the Indian fauna and 63% of the Deccan species). The majority of the species documented is mainly Indian, the predominant percentages of which are endemic to Deccan Plateau. Amazingly, 17 out of these 29 species have their type localities in "Madras" Tamilnadu (Table. 1).

Scolopendra clypeata and *Scolopendra dorsalis* though endemic to Tamilnadu are having uncertain identity, while occurrence of *Otostigmus ceylonicus* and *Rhysida ceylonica* know from Sri Lanka ca not be taken as surprise. Nine, out of twenty-nine species, are endemic to the Tamilnadu and that makes an interesting study. Khanna (2005) discussed the trends of distribution in Indian species of Scolopendrid centipedes especially in reference to the occurrence of Deccan species in Northeast and Western Himalayan corroborating with the distribution pattern according to Gondwana Hypothesis.

Table. 1 : Pattern of Zoogeographical Distribution of Scolopendrid centipedes occurring in Tamilnadu

Sl. No.	Name of the Species	Type Locality	Zoogeographical Pattern
1.	<i>Scolopendra morsitans</i>	India	Circumtropical
2.	<i>Scolopendra subspinipes subspinipes</i>	Not designated	Tropical and sub tropical lands with exception of Mediterranean region.
3	<i>Scolopendra subspinipes dehaani</i>	Indonesia : Java	Indo-Malayan /Indo-Chinese

Table. 1 Contd.

Sl. No.	Name of the Species	Type Locality	Zoogeographical Pattern
4.	<i>Scolopendra hardwickei</i>	India	Indo-Malayan
5.	<i>Scolopendra amazonica</i>	Amazona (Bra Amazona (Brazil))	Neotropical, EN Neotropical, Ethiopian, Australian
6	<i>Scolopendra clypeata</i>	Tarangampadi (Tranquebar)Tamilnadu	Indian, Endemic to Tamilnadu
7	<i>Scolopendra dorsalis</i>	Tarangampadi (Tranquebar)Tamilnadu	Indian, Endemic to Tamilnadu
8	<i>Cormocephalus pygmaeus</i>	Madras (Tamilnadu)	Indian, Endemic
9.	<i>Asanada socotrana</i>	Yemen, Socotra	Ethiopian
10.	<i>Otostigmus ceylonicus</i>	Paradeniya, Sri Lanka	Oriental
11.	<i>Otostigmus morsitans</i>	Madras (Tamilnadu)	Indian
12.	<i>Otostigmus nudus</i>	Madras (Tamilnadu)	Indian
13.	<i>Otostigmus ruficeps</i>	Madras (Tamilnadu).	Oriental
14.	<i>Otostigmus rugulosus</i>	Madras (Tamilnadu)	Oriental
15.	<i>Otostigmus simplex</i>	Madras (Tamilnadu)	Indian, Endemic to Tamilnadu
16.	<i>Otostigmus splendens,</i>	Madras (Tamilnadu)	Indo-Malayan extending toi Australia.
17.	<i>Ethmostigmus coonooranus</i>	Coonoor, Tamilnadu	Indian, Endemic to Tamilnadu
18	<i>Ethmostigmus platycephalus spinosus</i>	Not Known	Oriental
20.	<i>Digitipes barnabasi</i>	Ahmednagar (Maharashtra)	Indian, Endemic to Tamilnadu
21.	<i>Digitizes chhotani</i>	Suranganer Reserve Forest, Tamilnadu	Indian, Endemic to Tamilnadu
22.	<i>Digitipes coonoorensis</i>	Coonoor, Nilgiri (Tamilnadu)	Indian, Endemic to Tamilnadu
23.	<i>Digitipes pruthi</i>	Nagalaur, Shevaroy Hills, Salem (Tamilnadu)	Indian, Endemic to Tamilnadu
24.	<i>Rhysida lithobioides lithobioides</i>	China?	Indo-Chinese
25.	<i>Rhysida lithobioides paucidens,</i>	Pondicherry	Oriental
26.	<i>Rhysida neocrassispna</i>	Coimbatore, Tamilnadu	Indian, Endemic to Tamilnadu
27.	<i>Rhysida ceylonica</i>	Paradeniya (Sri Lanka)	Oriental, Deccan
28.	<i>Rhysida nuda nuda</i>	Paramata, New South Wales, Australia	Neotropical, Oriental and Australian
29.	<i>Rhysida longipes simplicior</i>	Coonoor (Tamilnadu)	Indian

CHECKLIST

Class CHILOPODA

Order SCOLOPENDROMORPHA

Subfamily SCOLOPENDRINAE

Tribe Scolopendrini

Genus *Scolopendra* Linnaeus, 1758

1. *Scolopendra morsitans* Linnaeus, 1758
2. *Scolopendra subspinipes subspinipes* Leach, 1815
3. *Scolopendra subspinipes dehaani* Brandt, 1840

4. *Scolopendra hardwickei* Newport, 1844
5. *Scolopendra amazonica* (Bucherl), 1946

6. *Scolopendra clypeata* Fabricius, 1781
7. *Scolopendra dorsalis* Fabricius, 1781

Genus *Cormocephalus* Newport, 1844

8. *Cormocephalus pygmaeus* Pocock, 1892

Tribe Asanadini

Genus *Asanada* Meinert, 1886

9. *Asanada socotrana* Pocock, 1899

Subfamily OTOSTIGMINAE

Tribe Otostigmini

Genus *Otostigmus* Porath, 1876

10. *Otostigmus ceylonicus* Haase, 1887
11. *Otostigmus morsitans* Pocock, 1890
12. *Otostigmus nudus* Pocock, 1890
13. *Otostigmus ruficeps* Pocock, 1890
14. *Otostigmus rugulosus* Porath, 1876

15. *Otostigmus simplex* Chamberlin, 1913

16. *Otostigmus splendens*, Pocock, 1890

Genus *Ethmostigmus* Pocock, 1898

17. *Ethmostigmus coonooranus* Chamberlin, 1920

18. *Ethmostigmus platycephalus spinosus* (Newport), 1845

19. *Ethmostigmus tristis* (Meinert), 1886

Genus *Digitipes* Attems, 1930

20. *Digitipes barnabasi* Jangi and Dass, 1984

21. *Digitipes chhotanii* Jangi and Dass, 1984

22. *Digitipes coonoorensis* Jangi and Dass, 1984

23. *Digitipes pruthii* Jangi and Dass, 1984

Genus *Rhysida* Wood, 1862

24. *Rhysida lithobioides lithobioides* (Newport), 1845

25. *Rhysida lithobioides paucidens*, Pocock, 1897

26. *Rhysida neocrassispina* Jangi and Dass, 1984

27. *Rhysida ceylonica* Gravelly, 1912

28. *Rhysida nuda nuda* (Newport) 1845

29. *Rhysida longipes simplicior* Chamberlin, 1920

DISCUSSION

The present communication deals with the check listing of 29 species of the Scolopendrid centipedes known from the state of Tamilnadu. The majority of the species check-listed are not only endemic to Deccan Plateau, but also they have 'Madras' as their type locality.

REFERENCES

- Ahmed, S. 1983. On the new records of centipedes (Scolopendromorpha : Scolopendridae) from Madhya Pradesh, India. *Bull. zool. Surv. India*, 5(1) : 11-13.
- Attems, C. 1930. Die Scolopendromorpha, *Das Tierr.*, 54(2) : 1-308.
- Jangi, B. S. and Dass, C.M.S. 1984. Scolopendridae of Deccan. *J. Scient. Indl. Res.*, 43(2) : 27-54.
- Khanna, Vinod, 2001. A check-list of the Indian species of the centipedes (Chilopoda : Scolopendromorpha). *Annals of Forestry*, 9(2) : 199-219.
- Khanna, V. 2005. Trends in the distribution of centipedes (Chilopoda : Scolopendromorpha : Scolopendridae and Cryptopidae) known from India. *Annals of Forestry*, 13(1) : 130-140.

- Khanna, V. 2006. A checklist of centipedes (Chilopoda : Scolopendromorpha) from Central India. *Zoos' Print Journal*, **21**(2) : 2168.
- Sureshan, P.M. Dash S. and Samantha, T. 2006. On a collection of scolopendrid centipedes (Chilopoda : Scolopendromorpha) from Orissa with notes on some new distributional records. *Rec. Zool. Surv. India*, **106**(3) : 27-34.
- Sureshan, P. M.; Khanna, V.; Radhakrishnan, C.2006. Additional distributional records of scolopendrid centipedes (Chilopoda : Scolopendromorpha) from Kerala. *Zoos' Print Journal*, **21**(6) : 2285-2291.
- Sureshan, P. M.; Yadav, B. E.; Radhakrishnan, C. 2004 An illustrated key to the identification of centipedes (Chilopoda : Scolopendromorpha) of Kerala. *Zoos' Print Journal*, **19**(3) : 1401-1407.
- Yadav, B. E. 1995. Scolopendridae (Chilopoda) of Western Ghat with some first records from the State of Maharastra, India. *Rec. zool. Surv. India*, **93**(3-4) : 321-328.
- Yadav, B. E.. 1995. A report on some species of the genera *Digitipes* and *Ethmostigmus* (Chilopoda : Scolopendromorpha : Scolopendridae, Otostigminae) from Maharashtra. *Rec. zool. Surv. India*, **93**(3-4) : 313-315.
- Yadav, B. E. 2001 Centipedes (Chilopoda : Scolopendridae). In : Director, Zoological Survey of India [Ed.]. *Fauna of Nilgiri Biosphere Reserve*. Zoological Survey of India, Kolkata, 39-44.

MOLLUSCA : GASTROPODA (FRESH WATER)

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INTRODUCTION

Ramanan (1900) was the first to take interest in south Indian Mollusca and recorded non-marine Mollusca of Madras and its vicinity. Hornell (1918, 1921) made a study on the molluscs of south India including Madras presidency. Seshayya (1928, 1929a,b; 1932, 1934, 1935, 1936, 1940, 1949) made extensive studies on the biology of certain gastropods from Tamilnadu. Anantharaman (1955) made studies on the biological control of aquatic snails. Jacob (1958, 1959a, 1959b) made cytological studies of *Paludomus* sp. Peter (1955, 1955b, 1955c, 1956) made detailed studies on the cercarial fauna of Madras. Satyamurthy (1960) gave details of 122 species of gastropods in his major study on the land and freshwater Mollusca in the collection of Madras government Museum. Natarajan (1968 a, b) made cytological studies on few gastropods. Govindan and Natarajan (1972) and Govindan (1974) studied the Neritidae from Peninsular India. Mathavan (1973) studied the incidence of cercariae in snails of freshwater tanks in Madras. Jayaram *et al.* (1982) listed the gastropods from the Cauvery river system. During the MAB project on the ecology, distribution and documentation of freshwater gastropoda of Tamilnadu and their cercarial fauna by Prof. Anantharaman *et al* (1988) recorded 16 freshwater gastropods. Veerappan (1989) in his study recorded 18 freshwater gastropods. Subbarao (1989) provided detailed account on the freshwater gastropods of India. Currently the river Cauvery study by the Madras Science Foundation (2000) revealed the presence of 17 species of gastropods

from Tamilnadu region. Ramakrishna and Dey (2007) documented freshwater Mollusca of India.

A TAXONOMIC LIST

Family NERITIDAE

1. *Neritina (Neritina) pulligera* Linnaeus
2. *Neritina (Vittina) perottetiana* (Recluz)
3. *Neritina (Neripteron) auriculata* Lamarck
4. *Neritina (Dostia) violaceae* (Gmelin)
5. *Clithon (Clithon) reticularis* (Sowerby)
6. *Septaria lineata* (Lamarck)

Family VIVIPARIDAE

7. *Bellamya bengalensis* (Lamarck)
8. *Bellamya dissimilis* (Mueller)
9. *Bellamya micron* (Annandale)

Family PILIDAE

10. *Pila globosa* (Swainson)
11. *Pila virens* (Lamarck)

Family HYDROBIIDAE

12. *Iravadia annandalei* Preston
13. *Iravadia ennurensis* Preston

Family BITYNIIDAE

14. *Gabbia stenothyroides* (Dohrn)
15. *Mysorella costigera* (Kuester)

Family STENOTHYRIDAE

16. *Stenothyra blanfordiana* Nevill

Family THIARIDAE

17. *Thiara (Thiara) scabra* (Muller)
18. *Thiara (Tarebia) granifera* (Lamarck)

19. *Thiara (Tarebia) lineata* (Gray)
20. *Thiara (Stenomelania) torulosa* (Bruguiera)
21. *Thiara (Melanoides) tuberculata* (Muller)
22. *Paludomus (Paludomus) inflatus* Brot
23. *Paludomus (Paludomus) annandalei* Preston
24. *Paludomus (Paludomus) rotunda* Blanford
25. *Paludomus (Paludomus) tanschauricus* (Gmelin)

Family LYMNAEIDAE

26. *Lymnaea (Pseudosuccinea) acuminata* Lamarck
27. *Lymnaea (Pseudosuccinea) luteola f. typica* Lamarck
- 27^a. *Lymnaea (Pseudosuccinea) luteola f. impura* Troschel

Family ANCYLIDAE

28. *Ferrissia tenuis* (Bourguignat)

Family PLANORBIDAE

29. *Indoplanorbis exustus* (Deshayes)
30. *Segmentina (Polypylis) trochoidea* (Benson)

31. *Gyraulus convexiusculus* (Hutton)
32. *Gyraulus labiatus* (Benson)

DISCUSSION

A total of 32 species of freshwater gastropods belonging to 16 genera and 10 families are reported from Tamilnadu. Among the species nine species have shown extension upto brackish waters and six species reported from higher altitudes. Further three species were reported from running waters and the remaining thirteen species reported from lentic waters. Also one species namely *Bellamya bengalensis* was reported as a pest. From the widely distributed species *Indoplanorbis exustus*, large number of cercariae were reported. During the present study two more species namely *Pila globosa* and *Bellamya micron* are reported. *Pila globosa* (Swainson) which is supposed to be a North Indian species (Subbarao, 1999) is also available along with *Pila virens*. *Bellamya micron* which was reported earlier in Manipur is recorded from Tirunelveli District Tamilnadu.

REFERENCES

- Anantharaman, M. 1955. Biological control of aquatic snails. *Indian J. Vet. Sci. Anim. Husb.*, **25**(1) : 65-67.
- Govindan, K. 1974. Studies in Neritidae (Neritacea : Prosobranchia) from peninsular India. Ph.D. Thesis, Annamalai University.
- Govindan, K. and Natarajan, R. 1972. Studies on the Neritidae (Neritacea : Prosobranchia) from peninsular India. *Proc. Indian nat. Sci. Academy*, **38**(B) (3&4) : 225-239.
- Hornell, J. 1921. Common Molluscs of south India. *Madras Fisheries Bulletin*, XIV.
- Jacob, J. 1958. Cytological studies of Melaniidae (Mollusca) with special to parthenogenesis and polyploids. II. A study of Meiosis in the rare males of polyploid race of *Melanoides tuberculatus* and *Melanoides lineatus*. *Trans Roy. Soc. Edinb.*, **63**(2) : 433-444.
- Jacob, J. 1959a. Cytological studies of Melaniidae with special reference to parthenogenesis and polyploidy. Annamalai University Annamalai Nagar, viii+186 pp, 69 pl. Diocesan press. Madras.
- Jacob, J. 1959b. Sex chromosomes in melaniid snails, *Paludomus tanschaurica* (Gmelin) (Prosobranchia : Gastropoda). *J. Zool. Soc. India*, **11**(1) : 17-25.
- Jayaram, K.C., Venkateswarlu, T. and Raghunathan, M.B. 1982. A survey of the Cauvery river system with a major account of its fish fauna. *Rec. zool. Surv. India. Occ. Pap.*, **36**.
- Kaveri riverine System : An environmental study. Published for the Madras Science Foundation. Chennai. 2000 : 257.

- Mathavan, S. 1973. Incidence of cercariae in snails of freshwater tanks in Madras. *Biologisches Zentralblatt*, **92**(1) : 67-73.
- Natarajan, R. 1960. Further cytological studies in pulmonate (Mollusca : Gastropoda). *J. zool. Soc. India*. **12**(1) : 69-79.
- Natarajan, R. 1968a. Cytological studies on Indian Molluscs : a karyotype study of three species of *Paludomus* (Certhiacea : Mesogastropoda). *Malc. Rev.*, **2**(2) : 134.
- Natarajan, R. 1968b. Cytological studies of Indian Molluscs (Archaeogastropoda : Neritidae). *Malacologia*, **9** : 279-281.
- Peter, C. T. 1955a. Studies on the cercarial fauna in Madras. I. The Eurocercous cercariae. *Indian J. Vet. Sci. Anim. Husb.*, **25** : 121-127.
- Peter, C.T. 1955b. Studies on the cercarial fauna in Madras, II. A new species of Echninostome cercaria. *Ibid.* **25**(3) : 219-224.
- Peter, C.T. 1955c. Studies on the cercarial fauna in Madras. III. A new species of Xiphidiocercaria. *Ibid.* **25** : 335-339.
- Peter, C.T. 1956. Studies on the cercarial fauna in Madras. IV. The Amphistoma and Gymnocephalous group of cercariae. *Ibid.* **26** : 27-30.
- Pillai, R.S. 1988. *Ecology, distribution and documentation of freshwater gastropods of Tamilnadu and their Ceracrial fauna* (MAB project).
- Punithavelu, V. R. 2006. Studies on The Freshwater Gastropods (Mollusca) From Southern India. Ph. D. Thesis. Madras University.
- Raghunathan, M. B. and Punithavelu, V. R. 2004. Species Diversity of Freshwater Gastropoda (Mollusca) in Tamilnadu. *Indian Hydrobiology*, **7**(1&2) : 121-124.
- Ramakrishna and Dey, Anirudha (2007). Hand book on Indian Freshwater Molluscs. *Zool. Surv. Ind a.* 399pp.
- Ramanan, V.V. 1990. Non marine Mollusca of Madras and its vicinity.
- Satyamurthi, S. Thomas, 1960. The land and freshwater Mollusca in te collection of the Madras Gov. Museum. Bulletin, Madras Government Museum. N.H. VI, No. 4. PP. 174.
- Seshaiya, R.V. 1928. On the breeding habits and fecundity of the snail *Lymnaea luteola* (Lamarck) form typical. *J. Bombay nat. Hist. Soc.*, **32**(122) : 154-158.
- Seshaiya, R.V. 1929a. The stomach of *Paludomus tanschaurica* (Gmelin) Rec. Indian Mus., **31** : 7-12.
- Seshaiya, R.V. 1934. Anatomy of *Paludomus tanschaurica* Gmelin. *Ibid.* **36** : 185-212.
- Seshaiya, R.V. 1936. Notes on the comparative anatomy of some Indian Melaniidae with special reference to *Melania* (Radina) *crenulata* (Deshayes). *J. Annamali Univ.*, **5**(2) : 167-183.
- Seshaiya, R.V. 1929b. The style sacs of some freshwater gastropods. *Ibid.* **32** : 101-106.
- Seshaiya, R.V. 1932. The style sacs of some more gastropods. *Ibid.* **34**(2) : 171-175.
- Seshaiya, R.V. 1935. Anatomy of *Melania* (Radina) *crenulata* (Deshayes) var. *tirouri*. *Proc. Indian Sci. Congr. Calcutta*, **22** : 314.

- Seshaiya, R.V. 1940. A free larval stage in the life history of a fluviatile gastropod. *Curr. Sci.*, **9**(7) : 331-332.
- Seshaiya, R.V. 1949. A remarkable abnormality in the development fo *Viviparus dissimilis* (Mueller) : *Curr. Sci.*, **10**(12), **18**(3) : 84-85.
- Veerappan, N. 1989. Studies on some aspects of biology and ecology of freshwater gastropods of medical and veterinary importance from Tamilnadu and Pondicherry and their cercarial fauna. Ph.D. Thesis. Madras University.

BRYOZOA : ECTOPROCTA (FRESHWATER)

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INTRODUCTION

The freshwater bryozoans have a relatively simple body organization, belong to smaller coelomate groups and comprise of five families. They occur in aquatic and semi-aquatic ecosystems, both lentic and lotic. They are colonial in existence and belong to the class Phylactolaemata. Out of the 8,000 species living in the world, 88 species occur in freshwater (Massard and Geimer, 2008). It is evident from the work of Annandale (1911), Roonwal (1969), Rao (1972, 1976 & 1991); Rao & Bushnell (1979); Rao & Ghosh (1962); Rao & Kulshrestha (1962); Rao *et al.*, (1978 & 1985); Srivastava (1981); Srivastava & Rao (1985); Agarwal & Rao (1981); Chaubey & Rao (1985) and Samanta (1998, 1999a,b,c&d, 2007) that 25 species occur in India and in this work the presence of 6 species is documented.

SYSTEMATIC ACCOUNT

Class GYMNOLAEMATA

Order CTENOSTOMATA

Family HISLOPIIDAE

Genus *Hislopia* Carter

1. *Hislopia lacustris* Carter

Class PHYLACTOLAEMATA

Family PLUMATELLIDAE

Genus *Plumatella* Lamarck

2. *Plumatella diffusa* Leidy
3. *Plumatella fruticosa* Allman
4. *Plumatella javanica* Kraepelin

Genus *Hyalinella* Jullien

5. *Hyalinella punctata* (Hancock)

Genus *Stolella* (Annandale)

6. *Stolella indica* Annandale

SUMMARY

This faunal inventory presents information on the distribution of 6 species of freshwater Bryozoa from five districts (Coimbatore, Cuddalore, Nagapattinam, Tirunelveli and Thoothukodi) of Tamilnadu.

REFERENCES

- Annandale, N. 1911. Freshwater sponges, Hydroides and Polyzoa. *The Fauna British India*. 161-238, 240, 245-247. London (Toylor and Francis).
- Agarwal, V and Rao, K. S. 1981. Studies on the body wall of some Phylactolaematous Ectoprocta 1, *Plumatella casmiana* Oka. *Bioresearch*, 5(1) : 41-46.
- Chaubey, U and Rao, K. S. 1985. A report on the abnormalities in *Hislopia* (Ectoprocta : Gymnolaemata) material from Central India. *J. Hydrobiol.*, 1(2) : 101-104.

- Harmer, S. F. 1896. *Cambridge Natural History*, **2**. Polyzoa, chap. 18.
- Massard, J. A and Geimer, G. 2008. Global diversity of bryozoans (Bryozoa or Ectoprocta) in freshwater. *Hydrobiologia*, **595** : 93-99.
- Rao, K. S. 1972. Studies on freshwater Bryozoa III. The Bryozoa of the Narmada system. *Proc. Second. Inter. Conf. Bryozoa*, IBA. Durham, 1971.
- Rao, K. S. 1976. Studies on freshwater Bryozoa IV. The Bryozoa of Rajasthan, India. *Rec. zool. Surv. India*, **69** : 329-345.
- Rao, K. S. 1991. Freshwater Bryozoa. *Animal Resources of India* : 543-547.
- Rao, K. S. and Bushnell, J. H. 1979. New structures in binding designs of freshwater Ectoprocta dormant bodies. (Statoblasts). *Acta. Zool. (Stock)* **60** : 123-127.
- Rao, K. S. and Ghosh, H. N. 1962. On the extension of geographical distribution of *Hislopia lacustris* subsp. *moniliformis* Annandale (Ectoprocta : Gymnolaemata) along with a note its morphological peculiarities. *J. Univ. Saugor*, **2B** : 47-49.
- Rao, K. S. and Kulshrestha, K. S. 1962. Studies on freshwater bryozoa. I. The Bryozoa of the Vindhyan region. *J. Univ. Saugor*, **2B** : 50-64.
- Rao, K. S., Diwan, A. P. and Srivastava, P. 1978. Structure and Environmental relations of Sclerotized structures in Freshwater Bryozoa. III. Observations on *Plumatella casmiana* (Ectoprocta : Phylactolaemata). *J. Anim. Morphol. physiol.*, **25**(1&2) : 8-15.
- Rao, K. S. Agarwal, V., Diwan, A. P. and Srivastava, P. 1985. Studies on freshwater Bryozoa V. Observations on Central Indian materials Bryozoa : Ordovician to recent.
- Roonwal, M. L. 1969. Fauna of Rajasthan, India. Part I. General introduction with a list of collection localities and a bibliography of Rajasthan Zoology. *Rec. zool. Surv. India*, **61**(3&4) : 291-376.
- Samanta, T. K. 1998. Freshwater Bryozoa of West Bengal. In : *Fauna of West Bengal, State Fauna Series*, **3**(Part 10) : 445-461.
- Samanta, T. K. 1999a. Freshwater Bryozoa of Meghalaya. In : *Fauna of Meghalaya, State Fauna Series*, **4** (Part 9) : 577-587.
- Samanta, T. K. 1999b. Freshwater Bryozoa of Tripura In : *Fauna of Tripura, State Fauna Series*, **7**(Part 4) : 317-321.
- Samanta, T. K. 1999c. Freshwater Bryozoa of Sikkim. In : *Fauna of Sikkim, State Fauna Series*, **9**(Part 5) : 121-127.
- Samanta, T. K. 1999d. Freshwater Bryozoa of Andhra Pradesh. In : *Fauna of Andhra Pradesh, State Fauna Series*, **5**(Part 5) : 559-572.
- Samanta, T. K. 2007. On some freshwater Bryozoa present in the unnamed collection of Zoological Survey of India from Uttar Pradesh. *Rec. zool. Surv. India*, **107**(1) : 101-107.
- Srivastava, P. 1981. *Swarupella* Gen. Novo (Ectoprocta : Phylactolaemata) from India. *Bioresearch*, **5**(1) : 53-55.
- Srivastava, P. and Rao, K. S. 1985. Ecology of *Plumatella emarginata* (Ectoprocta : Phylactolaemata) in the surface waters of Madhya Pradesh with a note on its occurrence in the protected water works of Bhopal (India). *Environmental pollutions* (Series A) **39** : 123-130.

PISCES (FRESHWATER)

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INTRODUCTION

Tamilnadu is rich in the extent and variety of its inland water sources. This includes about 0.81 million hectares of inland water spreads, comprising river systems, major reservoirs, irrigation tanks and village ponds, besides upland waters and large stretches of estuaries and backwaters. The major hydrological systems are the Cauvery, the Periyar fed Vaigai and the reservoirs in Coimbatore district adjoining Kerala state which also get the benefit of the South-west monsoon. There are about 28 major irrigation and hydel reservoirs with a water spread of 48,960 ha. There are more than 3000 major and 30,000 minor irrigation tanks. The individual areas of inland water spreads are as follows : major reservoirs (48,960 ha) minor irrigation tanks either perennial containing water for more than eight months in the year (97,690 ha.) or major and minor tanks which are seasonal (1,27,430 ha), ponds (30,000 ha.) and estuaries and backwaters (46,750 ha.).

Beginning with Day (1875-1878) work on the Fishes of Tamilnadu are by Jerdon (1849), Raj (1916), Venkateswarlu *et al* (1975), Raghunathan (1978), Indra (1991, 1992, 1993, 1994), Rema Devi and Ilango (1993), Menon (1996), Rema Devi and Ravichandran ((1996), Rema Devi, Indra, Raghunathan and Mary Bai (1999), Rema devi and Raghunathan (1999 a and 1999b), Rema devi (2000), Rema devi and Indra (2000) Rema Devi, Indra and Raghunathan (2000), Rema Devi (In Press)

Studies on the fishes of Conservation areas and hills are by Silas, (1951), John Singh and Vickram, (1987), Yazdani, Rema Devi, Raghunathan, and Singh, (2001), Rema Devi, (1992 a, 1992 b), Cherian *et al.* (2000); Rema Devi, Indra, Raghunathan and Ravichandran, (2005), Rema Devi, Indra and Raghunathan (2007)

Studies on specific ecosystems include those on Vedanthangal bird sanctuary by Venkateswarlu and Ilango (1990); a paddy field ecosystem by Raghunathan *et al.* (in press); sacred groves in Kanchipuram District (Raghunathan, Rema Devi and Indra, 2005).

The major studies on the River systems of Tamilnadu are by Rajan (1955) Jayaram *et al.*, (1982), Silas (1953), Rema Devi *et al.*, (1997), Indra and Mary Bai (1999).

New descriptions from Tamilnadu are as follows *Horallabiosa joshuai* and *Puntius arulius tambraparenei* by Silas (1953); *Puntius sharmai* (Menon and Rema Devi, 1992 a), *Puntius mudumalaiensis* (Menon and Rema Devi, 1992 b), *Garra kalakadensis* (Rema Devi (1992c), *Horallabiosa palaniensis* (Rema Devi and Menon (1994), *Heteropnesutes longipectoralis* (Rema Devi and Raghunathan, 1999). Detailed taxonomic studies include those on *Garra hughi* Silas from Anamalai Hills (Rema Devi and Indra, 1999), on *Mesonoemacheilus herrei* Nalbant endemic to Anamalais (Rema Devi and Indra, 2002). An account of the food spectrum of the freshwater fishes of Tamilnadu have been detailed in Raghunathan *et al.* (2003).

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From the literature available, it can be observed that 160 species are known from the inland water bodies of Tamilnadu, including three gobioid species recorded from the fresh waters of South Arcot District and 10 exotics. The systematic list of the species is provided below. The species belong to 27 families and 12 orders. Identification and Classification follow Day (1875-78); Talwar and Jhingran 991); Menon (1999) and Jayaram (1999, 2006). The systematic list includes the first and the most recent taxonomic reference followed by the distribution. All the specimens collected from the various districts of Tamilnadu have been registered and incorporated in the collections of the Southern Regional Station, Chennai.

A SYSTEMATIC LIST

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|---|---|
| <p>Superclass GNATHOSTOMATA</p> <p>Class ACTINOPTERYGII</p> <p>Subclass NEOPTERYGII</p> <p>Division TELEOSTEI</p> <p>Subdivision OSTEOGLOSSOMORPHA</p> <p>Order OSTEOGLOSSIFORMES</p> <p>Suborder NOTOPTEROIDEI</p> <p>Family NOTOPTERIDAE</p> <p>1. <i>Notopterus notopterus</i> (Pallas)</p> <p>Subdivision ELOPOMORPHA</p> <p>Order ELOPIFORMES</p> <p>Family MEGALOPIDAE</p> <p>2. <i>Megalops cyprinoides</i> (Broussonet)</p> <p>Order ANGUILLIFORMES</p> <p>Suborder ANGUILLOIDEI</p> <p>Family ANGUILLIDAE</p> <p>3. <i>Anguilla bengalensis bengalensis</i> (Gray & Hardwicke)</p> <p>4. <i>Anguilla bicolor bicolor</i> McClelland</p> <p>Subdivision CLUPEIOMORPHA</p> <p>Order CLUPEIFORMES</p> <p>Family CLUPEIDAE</p> <p>Subfamily PELLONULINAE</p> <p>5. <i>Dayella malabarica</i> (Day)</p> | <p>Subdivision EUTELEOSTEI</p> <p>Superorder OSTARIOPHYSI</p> <p>Order CYPRINIFORMES</p> <p>Family CYPRINIDAE</p> <p>Subfamily LEUCISCINAE</p> <p>Tribe Chondrostomini</p> <p>6. <i>Hypophthalmichthys molitrix</i> (Valenciennes)</p> <p>Subfamily DANIONINAE</p> <p>Tribe Oxygasterini</p> <p>7. <i>Salmophasia acinaces</i> (Valenciennes)</p> <p>8. <i>Salmophasia clupeoides</i> (Bloch)</p> <p>9. <i>Salmophasia novacula</i> (Valenciennes)</p> <p>10. <i>Salmophasia untrachi</i> (Day)</p> <p>11. <i>Barilius bendelisis</i> (Hamilton)</p> <p>12. <i>Barilius gatensis</i> (Valenciennes)</p> <p>Tribe Danionini</p> <p>13. <i>Chela cachius</i> (Hamilton)</p> <p>14. <i>Chela fasciata</i> Silas</p> <p>15. <i>Chela laubuca</i> (Hamilton)</p> <p>16. <i>Esonus danricus</i> (Hamilton)</p> <p>17. <i>Esonus thermoicos</i> (Valenciennes)</p> <p>18. <i>Danio aequipinnatus</i> (McClelland)</p> <p>19. <i>Danio malabaricus</i> (Jerdon)</p> <p>20. <i>Danio neilgherriensis</i> (Day)</p> <p>21. <i>Brachydanio rerio</i> (Hamilton)</p> <p>22. <i>Horadandia atukorali</i> Deraniyagala</p> <p>23. <i>Rasbora daniconius</i> (Hamilton)</p> <p>24. <i>Rasbora caverii</i> (Jerdon)</p> <p>25. <i>Amblypharyngodon melettinus</i> (Valenciennes)</p> <p>26. <i>Amblypharyngodon microlepis</i> (Bleeker)</p> <p>Subfamily CYPRININAE</p> <p>Tribe Cyprinini</p> <p>Subtribe Cyprini</p> <p>27. <i>Ctenopharyngodon idellus</i> (Valenciennes)</p> <p>28. <i>Cyprinus carpio communis</i> Linnaeus</p> <p>29. <i>Cyprinus carpio specularis</i> Lacepede</p> <p>Subtribe Tores</p> <p>30. <i>Tor khudree</i> (Sykes)</p> |
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31. *Tor mussullah* (Sykes)

32. *Tor malabaricus* (Jerdon)

33. *Neolissochilus wynaadensis* (Day)

Tribe **Systomini**

Subtribe **Osteobramae**

34. *Osteobrama cotio peninsularis* Silas

35. *Osteobrama neilli* (Day)

Subtribe **Systomi**

36. *Barbodes carnaticus* (Jerdon)

37. *Barbodes sarana subnasutus* (Valenciennes)

38. *Puntius afasciatus* Jayaram

39. *Puntius amphibius* (Valenciennes)

40. *Puntius arenatus* (Day)

41. *Puntius arulius arulius* (Jerdon)

42. *Puntius arulius tambraparni* Silas

43. *Puntius bimaculatus* (Bleeker)

44. *Puntius cauveriensis* (Hora)

45. *Puntius chola* (Hamilton)

46. *Puntius conchoni* (Hamilton)

47. *Puntius dorsalis* (Jerdon)

48. *Puntius fasciatus fasciatus* (Jerdon)

49. *Puntius filamentosus* (Valenciennes)

50. *Puntius gelius* (Hamilton)

51. *Puntius melanostigma* (Day)

52. *Puntius mudumalaiensis* Menon and Rema Devi

53. *Puntius parrah* (Day)

54. *Puntius punctatus* (Day)

55. *Puntius sharmai* Menon and Rema Devi

56. *Puntius sophore* (Hamilton)

57. *Puntius ticto* (Hamilton)

58. *Puntius vittatus* Day

59. *Hypselobarbus curmuca* (Hamilton)

60. *Hypselobarbus dobsoni* (Day)

61. *Hypselobarbus dubius* (Day)

62. *Hypselobarbus jerdoni* (Day)

63. *Hypselobarbus kurali* Menon and Rema Devi

Tribe **Semiplotini**

64. *Osteocheilichthys nashii* (Day)

65. *Kantaka brevidorsalis* (Day)

Tribe **Labeonini**

66. *Cirrhinus cirrhosus* (Bloch)

67. *Cirrhinus macrops* Steindachner

68. *Cirrhinus mrigala* (Hamilton)

69. *Cirrhinus reba* (Hamilton)

70. *Catla catla* (Hamilton)

71. *Labeo ariza* (Hamilton)

72. *Labeo bata* (Hamilton)

73. *Labeo boga* (Hamilton)

74. *Labeo boggut* (Sykes)

75. *Labeo calbasu* (Hamilton)

76. *Labeo dero* (Hamilton)

77. *Labeo fimbriatus* (Hamilton)

78. *Labeo kontius* (Jerdon)

79. *Labeo pangusia* (Hamilton)

80. *Labeo rohita* (Hamilton)

81. *Horallabiosa joshuai* Silas

82. *Horallabiosa palaniensis* Rema Devi and Menon

Subfamily **GARRINAE**

83. *Garra gotyla stenorhynchus* (Jerdon)

84. *Garra hughi* Silas

85. *Garra kalakadensis* Rema Devi

86. *Garra maclellandi* (Jerdon)

87. *Garra mullya* (Sykes)

Family **BALITORIDAE**

Subfamily **BALITORINAE**

88. *Bhavana australis* (Jerdon)

Subfamily **NEMACHEILINAE**

89. *Nemacheilus monilis* Hora

90. *Schistura denisoni denisoni* (Day)

91. *Schistura nilgiriensis* (Menon)

92. *Schistura semiarmatus* (Day)

93. *Mesonemacheilus herrei* Nalbant & Banarescu

94. *Mesonemacheilus pulchellus* (Day)

95. *Mesonemacheilus triangularis tambaraparniensis* (Menon)
Family COBITIDAE
Subfamily COBITINAE
96. *Enobarbichthys maculatus* (Day)
97. *Lepidocephalus thermalis* (Valenciennes)
Order SILURIFORMES
Family BAGRIDAE
98. *Sperata aor* (Hamilton)
99. *Sperata seenghala* (Sykes)
100. *Mystus bleekeri* (Day)
101. *Mystus cavasius* (Hamilton)
102. *Mystus gulio* (Hamilton)
103. *Mystus keletius* (Valenciennes)
104. *Mystus malabaricus* (Jerdon)
105. *Mystus montanus* (Jerdon)
106. *Mystus oculatus* (Valenciennes)
107. *Mystus vittatus* (Bloch)
108. *Hemibagrus punctatus* (Jerdon)
109. *Neotropius atherinoides* (Bloch)
Family SILURIDAE
110. *Pterocryptis wynaadensis* (Day)
111. *Ompok bimaculatus* (Bloch)
112. *Ompok malabaricus* (Valenciennes)
113. *Wallago attu* (Bloch and Schneider)
Family SCHILBEIDAE
Subfamily SCHILBEINAE
114. *Silonia childreni* (Sykes)
Family PANGASIIDAE
115. *Pangasius pangasius* (Hamilton)
Superfamily SISOIDEA
Family SISOIDEA
Subfamily GLYPTOSTERNINAE
116. *Glyptothorax anamalaiensis* Silas
117. *Glyptothorax annandalei* Hora
118. *Glyptothorax housei* Herre
119. *Glyptothorax madraspatanam* (Day)
Family CLARIIDAE
120. *Clarias batrachus* (Linnaeus)
121. *Clarias dussumieri dussumieri* (Valenciennes)
122. *Clarias gariepinus* (Burchell)
Family HETEROPNEUSTIDAE
123. *Heteropneustes fossilis* (Bloch)
124. *Heteropneustes longipectoralis* Rema Devi & Raghunathan
Family LORICARIIDAE
125. *Pterygoplichthys* sp.
126. *Pseudacanthicus* sp.
Order SALMONIFORMES
Family SALMONIDAE
127. *Oncorhynchus nerka* (Walbaum)
128. *Salmo gairdnerii gairdnerii* (Richardson)
Series MUGILIOMORPHA
Order MUGILIFORMES
Family MUGILIDAE
129. *Rhinomugil corsula* (Hamilton)
130. *Sicamugil cascasia* (Hamilton)
Series ATHERINOMORPHA
Order BELONIFORMES
Suborder ADRIANICHTHYOIDEI
Family ADRIANICHTHYIDAE
Subfamily ORYZIINAE
131. *Oryzias carnaticus* (Jerdon)
Suborder BELONOIDEI
Family BELONIDAE
132. *Xenentodon cancila* (Hamilton)
Order CYPRINODONTIFORMES
Family APLOCHEILIDAE
Subfamily APLOCHEILINAE
133. *Aplocheilus blocki* (Hamilton)
134. *Aplocheilus lineatus* (Valenciennes)
135. *Aplocheilus parvus* (Raj)
Family POECILIDAE
Subfamily POECILINAE
136. *Gambusia affinis* (Baird and Girard)
137. *Poecilia (Lebistes) reticulata* Peters

Suborder MASTACEMBELOIDEI

Family MASTACEMBELIDAE

Subfamily MASTECEMBELINAE

138. *Macrognathus aral* (Bloch and Schneider)

139. *Macrognathus pancalus* Hamilton

140. *Mastacembelus armatus* (Lacepede)

141. *Mastacembelus guentheri* Day

Order PERCIFORMES

Suborder PERCOIDEI

Family CHANDIDAE

142. *Chanda nama* Hamilton

143. *Parambassis ranga* (Hamilton)

144. *Pristolepis marginatus* Jerdon

Suborder LABROIDEI

Family CICHLIDAE

145. *Etilapia maculatus* (Bloch)

146. *Oreochromis mossambica* (Peters)

147. *Oreochromis niloticus niloticus* (Linnaeus)

Suborder GOBIOIDEI

Family GOBIIDAE

148. *Acentrogobius globiceps* (Hora)

149. *Awaous grammepomus* (Bleeker)

150. *Chiramenu fluviatilis* Rao

151. *Glossogobius giuris* (Hamilton)

152. *Redigobius javanicus* (Bleeker)

Suborder ANABANTOIDEI

Family ANABANTIDAE

153. *Anabas testudineus* (Bloch)

Family BELONTIDAE

Subfamily MACROPODINAE

154. *Pseudosphromenus cupanus* (Valenciennes)

Subfamily TRICHOGASTERINAE

155. *Colisa fasciatus* (Schneider)

156. *Colisa lalia* (Hamilton)

Suborder CHANNOIDEI

Family CHANNIDAE

157. *Channa marulius* (Hamilton)

158. *Channa orientalis* Bloch and Schneider

159. *Channa punctatus* (Bloch)

160. *Channa striatus* (Bloch)

DISCUSSION

The Ichthyofauna of Tamilnadu comprises 160 species belonging to 12 orders and 27 families. Of the 12 orders represented, about three fourths are comprised by the Cypriniformes and Siluriformes. The Cyprinoids include 92 species (57.5%) and the Siluroids 29 species (18.1%). Among the Cyprinids the most speciose is the *Puntius* followed by *Labeo* and *Nemacheilus* and among the Siluroids the Genus *Mystus* is the most speciose. The inland water bodies of Tamilnadu include twelve exotics and twelve salt water dispersants. Except the hill stream fishes viz, *Garra*, *Nemacheilus*, *Horalabiosa*, *Barilius*, *Danio* and *Glyptothorax* species, all other species are widely distributed throughout Tamilnadu.

ENDEMISM

Thirteen species are endemic to Tamilnadu viz. *Danio neilgherriensis* (Day), *Puntius afasciatus* Jayaram, *P. arenatus* (Day), *P. arulius tambraparaniei* Silas, *P. mudumalaiensis* Menon and Rema Devi, *P. sharmai* Menon and Rema Devi, *Horalabiosa palaniensis* Rema Devi and Menon, *Garra kalakadensis* Rema Devi, *Enobarbichthys maculatus* (Day), *Nemacheilus monilis* Hora, *N. triangularis tambraparniensis* Menon, *Schistura nilgiriensis* Menon and *Heteropneustes longipectoralis* Rema Devi and Raghunathan. Most of the species listed above are hill stream fishes, one from Kalakad Hills, one from Palani Hills, one from Anamalai hills, four from Nilgiri Hills, two from the upper reaches of the Tambraparni river system, one from Kanyakumari District and three from the plains of Madras of which one species *Enobarbichthys maculatus* is considered to be extinct. Some species which are endemic to the Anamalai hills viz. *Mesonemacheilus herrei* is also found in the Kerala part of the hill ranges. The endemic fauna constitute 8.5% of the total fish fauna of Tamilnadu. Endemism with regard to fish fauna is more in the hilly regions than in the plains. The fauna evolved and adapted is unique to this region

and we owe our rich endemism to this ecosystem and these regions need greater protection from deforestation and other anthropogenic effects.

EXTENSION OF RANGE OF DISTRIBUTION

Those not cited earlier in the District Faunal reports by the authors are detailed here : A rare loach *Noemacheilus monilis* earlier known only from Central Western Ghats in the Nilgiri Hills has been recently discovered in the Anamalai Hills (Indra *et al.* 1998.) *Horadandia atukorali* Deraniyagala considered endemic to Ceylon and which was later discovered from the Western Coastal regions of India has been described from the inland water bodies of Pondicherry and from the outskirts of Chennai (Rema Devi, 1996) and three gobiid fishes, *Acentrogobius globiceps* Hora described from the Chilka Lake and *Chiramenus fluvialis* Visweswara Rao Known only from the Godavary estuary and *Redigobius* (= *Stigmatogobius*) *javanicus* (Bleeker) another estuarine species were all encountered in the inland waters of South Arcot District (Rema Devi, Indra and Mary Bai, 1996). *Puntius gelius* (Ham.) originally described from Bengal and known to occur upto Orissa and *Puntius arenatus* Day earlier known only from its type locality has been discovered from Paravanur River near Cuddalore, S. Arcot District by the second author. *Labeo dero* (Ham.) and *Labeo pangusia* (Ham.) earlier known only to occur in North Indian Rivers have also been found in several water bodies of Tamilnadu, especially the Tambraparni and Cauvery River systems, probably introduced through aquaculture process. *Mystus bleekeri* known to be confined to Northern India the southern most limit being the Mahanadi River was recently discovered from the freshwaters of Chengalpat Dist. (Rema Devi *et al.* 2001).

CONSERVATION OF FISH DIVERSITY

A striking observation made during the collection of freshwater fish fauna is the wide occurrence of the exotic cichlid *Oreochromis mossambica* and recently another exotic species *Oreochromis niloticus* in the wild from North Arcot District. Of the 15,000 and odd specimens collected and studied from the different districts of Tamilnadu, 11.8% is constituted by *O. mossambica* invariably from all collection localities ranging from reservoirs and rivers in hill ranges to the plains. Unplanned introduction of this species and carps into the water systems will be detrimental to the native fauna as observed in the case of the indigenous cichlid *Etroplus maculatus* which is absent from most of its earlier known areas of distribution. Likewise several other species of Indian carps and small *Puntius* species have now a very narrow range of distribution. Another shocking recent observation is the presence of the exotic African catfish *Clarias gariepinus* in the freshwater tank (Kapaleeswar Temple tank) of Chennai where it was found in great numbers posing a threat to its own existence due to rapid growth and multiplication. It was further observed that no other fish species was found in the tank. This is a sample of things to come. But from what is known the species is greatly preferred by fish farmers as it is very hardy and grows to a very large size. The threat to our indigenous fauna is becoming proportionately larger. It is suggested that strict measures should be followed to curtail such spread for short term gain. The other threat to fish diversity is habitat loss, as rivers are dammed or diverted and wetlands are cleared for agriculture and aquaculture. Recently other introduced aquarium species like scaled catfishes have also been observed in the wild.

REFERENCES

- Day, F. 1875-78. *The fishes of India being a natural history of the fishes known to inhabit the seas and freshwaters of India, Burma and Ceylon*. Text and atlas in 4 parts. London, xx + 77 pp., 195 pls.

- Hamilton, F. 1822. *An account of the fishes found in the river Ganges and its branches*. Edinburg and London, viii + 405, 39 pls.
- Indra, T.J. 1991. Report on the Ichthyofauna of Anna and Madurai districts, Tamil Nadu. *Rec. zool. Surv. India*, **89**(1-4) : 233-243.
- Indra, T.J. 1992. Report on the Ichthyofauna of Kanyakumari district, Tamil Nadu. *Rec. zool. Surv. India*, **92**(1-4) : 177-193.
- Indra, T.J. 1993. Report on the Ichthyofauna from the mopping surveys of Kamarajar and Pasumpon Ramalingam Districts. *Rec. zool. Surv. India*, **90**(1-4) : 61-68.
- Indra, T.J. 1994. On a collection of fishes from Tanjavur and Trichy districts, Tamilnadu. *Rec. zool. Surv. India*, **94**(2-4) : 403-433.
- Indra, T.J. Note on the extension of range of distribution of *Puntius arenatus* Day. *Rec. zool. Surv. India*,
- Indra T.J. and Mary Bai M. 1999. A note on a small collection of fishes from Pennaiyar river, Tamilnadu. *Rec. zool. Surv. India* : **97**(3) : 231-233.
- Indra, T.J., Rema Devi, K. and Raghunathan, M.B. 1998. A new record of a rare loach *Noemacheilus monilis* from Anamalai Hills, Western Ghats, Tamilnadu. *J. Bombay nat. Hist. Soc.*, **95**(3) : 521-522.
- Jayaram, K.C. 1999. *The Freshwater Fishes of the Indian Region*. Narendra Publishing House, Delhi. 551 pp., Pls. XVIII.
- Jayaram, K.C. 2006. *Catfishes of India*. Narendra Publishing House, Delhi, 383 pp., Pls.XI.
- Jayaram, K.C., Venkateswrlu, T. and Raghunathan, M.B. 1982. A survey of the Cauvery River system with a major account of its fish fauna. *Rec.zool. Surv. India, Misc. Publ. Occ. Pap. No. 36*, 115 pp., pls. I-XII.
- Jerdon, T.C. 1849. On the freshwater fishes of southern India. *Madras J. Lit. Sci.*, **15** : 302-346.
- Johnsingh, A.J.T. and Vickram, D. 1987. Fishes of Mundanthurai Wildlife Sanctuary, Tamilnadu. *J. Bombay nat. Hist. Soc.*, **84**(3) : 526-533.
- Menon, A.G.K. 1966. On a collection of fish from the Coromandel coast of India including Pondicherry and Karaikkal areas. *Rec. Indian Mus.*, **59**(4) : 369-404.
- Menon, A.G.K. 1999. Check List -Freshwater Fishes of India. *Rec. zool. Surv. India, Occ. Paper No. 175* : i-xxix,1-366 pp. (Published – Director, ZSI).
- Menon, A.G.K. and Rema Devi, K. 1992. *Puntius sharmai*, a new cyprinid fish from Madras. *J. Bombay nat. Hist. Soc.*, **89**(3) : 353-354, fig. 1.
- Menon, A.G.K. and Rema Devi, K. 1992 a. *Puntius mudumalaiensis*, a new syprinid fish from Mudumalai, Tamilnadu. *J. Bombay nat. Hist. Soc.*, **89**(2) : 229-231, fig. 1,
- Raghunathan, M. B. 1978. Studies on seasonal tanks in Tamilnadu. I. Chembarambakkam tank. *The Indian Journal of Zootomy*, **19**(2) : 81-85.
- Raghunathan, M. B., Rema Devi, K. and Indra, T.J. 2003. Food spectrum of the freshwater Fishes of Tamilnadu. *Indian Hydrobiology*, **6**(1& 2) : 115-125.

- Raghunathan, M. B., Rema Devi, K. and Indra, T.J. 2005. Studies on the Ichthyofauna of Sacred Groves in Kanchipuram District, Tamilnadu. *Rec. zool. Surv. India*, **104**(1-2) : 59-69.
- Raghunathan, M. B., Rema Devi, K. and Indra, T.J. Ichthyofauna of a paddy field ecosystem. *Rec. zool. Surv. India* (in Press)
- Rajan, S. 1955. Notes on a collection of fish from the headwaters of the Bhavani river, South India. *J. Bombay nat. Hist. Soc.*, **53**(1) : 44-48.
- Raj, Sundara, B. 1916. Notes on the freshwater fish of Madras. *Rec. Indian Mus.*, **12**(6) : 249-294.
- Rema Devi, K. 1992. *Garra kalakadensis*, a new cyprinid fish from Kalakad Wildlife Sanctuary, Tirunelveli District, Tamilnadu. *Rec. Indian Mus.*, **91**(2) : 239-245. Pl. 1& 2, Table 1.
- Rema Devi, K. 1992 a. On a small collection of fish from Javadi Hills, North Arcot district, Tamilnadu. *Rec. zool. Surv. India*, **91**(3-4) : 353-360. Map 1.
- Rema Devi, K. 1992 b. Fishes of Kalakad Wildlife Sanctuary, Tirunelveli District, Tamilnadu, India with a redescription of *Horallabiosa joshuai* Silas. *Rec. Indian Mus.*, **92**(1-4) : 193-209. Tables 1 & 2, Pl. 1., Map 1.
- Rema Devi, K. 1996. Extension of range of distribution of *Horadandia atukorali* Deraniyagala (Pisces : Cyprinidae : Rasborinae) to Pondichery and Tamilnadu. *J. Bombay nat. Hist. Soc.*, **93** (2) : 303-304.
- Rema Devi, K. 2000. The fresh and brackishwater fishes of Kancheepuram and Thiruvallur districts. Pp. 42-65.
- Rema Devi, K. Ichthyofauna of the inland water bodies of Pondicherry, Karaikal, Yanam and Mahe. MS. 67 pp. *Rec. zool. Surv. India* (In press).
- Rema Devi, K. and Ilango, K. 1993. On a collection of fish from Pudukkottai district, Tamilnadu. *Rec. zool. Surv. India.*, **93**(1-2) : 241-251.
- Rema Devi, K. and Indra, T.J. 1999. Some observations on *Garra hughi* Silas from Anamalai Hills, Western Ghats, Tamilnadu, India. *Rec. zool. Surv. India.*, **97**(4) : 53-59.
- Rema Devi, K. and Indra, T.J. 2002. A note on *Mesonoemacheilus herrei* Nalbant and Banareseu (Cypriniformes : Balitoridae : Noemacheilinae). *J. Bombay nat. Hist. Soc.*, **99**(2) : 333-337.
- Rema Devi, K. and Indra, T.J. 2000. Freshwater Ichthyofaunal resources of Tamil Nadu. pp.77-97. In. *Endemic Fish Diversity of Western Ghats*. Edited by A.G. Ponniah and A. Gopalakrishnan, National Bureau of Fish Genetic Resources, Lucknow, pp. i-xv + 347 pp.
- Rema Devi, K., Indra, T.J. and Mary Bai, M. 1996. Extension of range of distribution of three gobiid fishes to South Arcot district on the East Tamilnadu coast of India. *Rec. zool. Surv. India.*, **95**(3-4) : 161-164.
- Rema Devi, K., Indra, T.J. and Raghunathan, M.B. 2000. An overview of the fish Biodiversity of India with special reference to those of Tamilnadu. *Proc. Biodiversity*, 1997. Kunthavai Nachiar Govt. Arts College for Women, Thanjavur : 77-81.
- Rema Devi, K., Indra, T.J. and Raghunathan, M.B. 2001. Range extension of *Mystus bleekeri* (Day) to the freshwaters of Tamilnadu and notes on its congeners in Tamilnadu and Sri Lanka. *J. Bombay nat. Hist. Soc.*, **98**(2) : 296-298.

- Rema Devi, K., Indra, T.J. and Raghunathan, M.B. 2007. Ichthyofauna of Indira Gandhi Wildlife Sanctuary. *Rec. zool. Surv. India, Misc. Publ. Occ. Pap. No.*, pp., pls. I-XVI.
- Rema Devi, K., Indra, T.J., Raghunathan, M.B. and Mary Bai, M. 1999. On a collection of fish fauna from Chennai, Chengleput and Thiruvallur Districts of Tamilnadu. *Rec. zool. Surv. India*, **97**(4) : 151-166.
- Rema Devi, K., Indra, T.J., Raghunathan, M.B., Mary Bai, M. and Ravichandran, M.S. 1997. Ichthyofauna of Tambraparni River system, Tamilnadu. *Zoos' Print*, Vol. **12**(7) : 1-2, Map.1.
- Rema Devi, K. and Menon, A.G.K. 1994. *Horallabiosa palaniensis*, a new Cyprinid fish from Palani Hills, Western Ghats, South India. *J. Bombay nat. Hist. Soc.*, **91**(1) : 110-111, pl.1 & 2.
- Rema Devi, K. and Raghunathan, M.B. 1999. The Ichthyofauna of Dharmapuri District, Tamilnadu. *Rec. zool. Surv. India*, **97**(1) : 145-162.
- Rema Devi, K. and Raghunathan, M.B. 1999. Report on the Ichthyofauna of North Arcot district, Tamilnadu. *Rec. zool. Surv. India*, **97**(1) : 163-177.
- Rema Devi, K. and Raghunathan, M.B. 1999. *Heteropneustes longipectoralis* (Siluriformes : Heteropneustidae) a new species from the Anamalai Hills in the Eastern Ghats. *Rec. zool. Surv. India*, **97**(3) : 109-115.
- Rema Devi, K. and Ravichandran, M.S. 1996. Occurrence of *Cirrhimuraena playfairii* (Gunther) (Anguilliformes : Ophichthidae) from the Yanam waters of the Coromandel Coast of India. *J. Mar. Biol. Ass. India*, **38**(1-2) : 166-168.
- Silas, E.G. 1951. On a collection of fish from the Anamalai and Nelliampathi hill ranges (Western Ghats) with notes on its zoogeographical significance. *J. Bombay nat. Hist. Soc.*, **49**(4) : 670-681.
- Silas, E.G. 1953. New fishes of the Western Ghats with notes on *Puntius arulius* (Jerdon). *Rec. Indian Mus.*, **51** : 27-38. Pl.1.
- Talwar, P.K. and Jhingran, A.G. 1991. *Inland Fishes of India and Adjacent Countries*. Vol. 1 & 2. 1158.
- Venkateswarlu, T. and Ilango, K. 1990. Vedanthangal bird sanctuary, Tamilnadu. *Matsya*, **15** & **16** : 149-154.
- Venkateswarlu, T., Ramarao, K.V. and Murthy, T.S.N. 1975. A list of fishes, amphibians and reptiles of Madras and its vicinity. *The Indian Journal of Zootomy*, **16**(2) : 149-169.
- Venkateswarlu, T., Venkateswararao, D. and Ilango, K. 1989-90. On a collection of fishes from Vedanthangal bird sanctuary, Tamilnadu. *Matsya*, **15** & **16** : 149-154.
- Yazdani, G.M., Rema Devi, K., Raghunathan, M.B. and Singh, D.F. 2001. Pisces. *Fauna of Nilgiri Biosphere Reserve. Fauna of Conservation Area Series*, **11** : 207-224. (Published-Director, Zool. Surv. India, Kolkata).

AMPHIBIA

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INTRODUCTION

Tamilnadu is endowed with a rich biodiversity with major natural habitat types like forest, mountains, rivers, wetlands, mangroves and beaches. The state is having a geographical area of approximately 1, 30,058 sq.km, which constitutes about 4% of the country's total area. Tamilnadu shares the Western Ghats with the states of Kerala, Karnataka, Goa, Maharashtra and Gujarat and as well the Eastern Ghats with the States of Andhra Pradesh and Orissa. Habitat destruction, overexploitation, pollution, and species introductions are the major causes of biodiversity loss in Tamilnadu. Other factors include fires, which adversely affect regeneration of plants in some cases, and such other natural calamities as droughts, diseases, cyclones and floods. There is a general loss of endemic species with increasing intensity of fragmentation of rainforests in Tamilnadu, which is also true for other areas in southern Western Ghats.

In 2001 Daniels provided a comprehensive list of amphibians representing Tamilnadu comprising 63 species. Chanda (2002) in his handbook on Indian Amphibians, listed only 52 species, and latter no checklist has been made based on the updated information.

With the advent of more and more expeditions and monitory works, many more new species have been reported from this region. As many generic and familial changes have happened in the recent past, the amphibian systematics is in a flux now-a-days.

In this context, an attempt is made to provide a nomenclatural list of all the valid amphibian species representing Tamilnadu, India, primarily based on the classification of Frost (2007). English names, distribution in India and beyond are discussed. A total of 77 species of species of amphibians are known to occur in Tamilnadu, belonging to 11 families and 25 genera as per the current checklist. One may refer to Dutta (1997), Chanda (2002), Frost *et al.*, (2006) and Frost (2007) for additional information.

Class AMPHIBIA Gray

Order ANURA Fischer von Waldheim

Family BUFONIDAE Gray

Genus *Duttaphrynus*, Frost, Grant, Faivovich, Bain, Haas, Hddad, Desa, 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.
- 1802. *Bufo chlorogaster* Daudin, (An. XI), *Hist. Nat. Rain. Gren. Crap., Quarto* : 49.
- 1802. *Rana dubia* Shaw, *Gen. Zool.*, 3(1) : 157.
- 1802. *Bufo scaber* Daudin, (An. XI), *Hist. Nat. Rain. Gren. Crap., Quarto* : 94.
- 1802. *Bufo bengalensis* Daudin, (An. XI), *Hist. Nat. Rain. Gren. Crap., Quarto* : 96.
- 1802. *Bufo flaviventris* Daudin, (An. XI), *Hist. Nat. Rain. Gren. Crap., Quarto* : 74, pl. 74.
- 1802. *Rana melanosticta* Shaw, *Gen. Zool.*, 3(1) : 174.

1833. *Bufo carinatus* Gray, Ill. Indian Zool. : pl. 83.
 1833. *Bufo dubia*—Gray, Ill. Indian Zool. : viii, 83.
 1834. *Bufo isos* Lesson, In Bélanger (ed.), Voy. Indes-Orientales N. Eur. Caucase Georgie Perse, Zool. : 333.
 1858. *Bufo gymnauchen* Bleeker, Natuurkd. Tijdschr. Nederl. Indie, 16 : 46.
 1861. *Docidophryne isos*—Fitzinger, "1860", Sitzungsber. Akad. Wiss. Wien, Phys. Math. Naturwiss. Kl., 42 : 415.
 1861. *Docidophryne spinipes* Fitzinger, "1860" Sitzungsber. Akad. Wiss. Wien, Phys. Math. Naturwiss. Kl., 42 : 415.
 1862. *Phrynoidis melanostictus* Cope, Proc. Acad. Nat. Sci. Philadelphia, 14 : 358.
 1867. *Bufo spinipes* Steindachner, Reise Osterreichischen Fregatte Novara, Zool. : 42.
 1903. *Bufo longecristatus* Werner, Zool. Anz., 26 : 252.
 1937. *Bufo tienhoensis* Bourret, Annexe Bull. Gen. Instr. Publique, Hanoi, 1937 : 6, 11.
 1942. *Docidophryne melanostictus* Bourret, Batr. Indochine : 173.
 1980. *Bufo camortensis* Mansukhani and Sarkar, Bull. Zool. Surv. India, 3 : 97.
 1990. *Ansonia kamblei* Ravichandran and Pillai, Rec. Zool. Surv. India, 86 : 506.
 2001. *Bufo melanostictus melanostictus* Khan, Pakistan J. Zool., 33 : 297.

Known English names : Doubtful Toad, Black-lipped Toad, Keeled-nosed Toad, Indian Toad, Common Indian Toad, Asian Common Toad, Asian Toad, Black-spined Toad, Asian Toad, Green belly Toad, Maharashtra Stream Toad, South Asian Garden Toad, Asian Common Toad, Common Indian Toad, Black-spined Toad, Black-lipped Toad, Common Asian Toad, Southeast Asian Broad-skulled Toad, Black-spectacled Toad, Reticulated Toad, Wrinkled-skin Toad, Hazara Toad, Southeast Asian Toad, House Toad, Asiatic Toad, Greenbelly Toad, Maharashtra Stream Toad, Wrinkled-skin Toad, Hazara Toad, Southeast Asian Toad, Common Sunda Toad and Asian Eyebrow-ridge Toad.

Distribution in India : All over India (Dutta, 1997).

Elsewhere : Throughout southern Asia (Frost, 2007).

2. *Duttaphrynus microtympanum* (Boulenger, 1882)

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

Known English names : Southern Hill Toad and Small-eared Toad.

Distribution in India : Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

Genus *Pedostibes* Gunther

3. *Pedostibes tuberculosus* Gunther, 1875

1876. *Pedostibes tuberculosus* Gunther, "1875" Proc. Zool. Soc. London, 1875 : 576.
 1882. *Nectophryne tuberculosa* Boulenger, Cat. Batr. Sal. Coll. Brit. Mus., Ed. 2 : 280.

English name : Malabar Tree Toad and Warty Asian Tree Toad.

Type locality : "Malabar" South India.

Distribution in India : Tamilnadu (Biju, 2001); Kerala (Pillai, 1986; Inger *et al.*, 1984; Karnataka (Gururaja and Ramachandra, 2006); Goa (Das and Whitaker, 1998); Maharashtra (Dahanukar *et al.*, 2004).

Note : Endemic to Western Ghats region.

Genus *Bufo* Laurenti

4. *Bufo beddomii* Gunther, 1876

1876. *Bufo beddomii* Gunther, "1875" Proc. Zool. Soc. London, 1875 : 569.
 1878. *Bufo travancoricus* Beddome, "1877" Proc. Zool. Soc. London, 1877 : 685.

Known English name : Beddome's Toad.

Distribution in India : Maharashtra, Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

5. *Bufo hololius* Gunther, 1876

1876. *Bufo hololius* Gunther, "1875", *Proc. Zool. Soc. London*, 1875 : 569.

Known English names : Malabar Toad and Gunther's Toad.

Distribution in India : Karnataka, Kerala and Tamilnadu (Dutta, 1997 and Biju, 2001)

Note : Endemic to peninsular India.

6. *Bufo parietalis* Boulenger, 1882

1882. *Bufo parietalis* Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, Ed. 2 : 312.

Known English names : Indian Toad, Ridged Toad and Timber Forest Toad.

Distribution in India : Karnataka, Kerala, Tamilnadu and Andra Pradesh (Dutta, 1997).

Note : Endemic to peninsular India.

7. *Bufo scaber* Schneider, 1799

1799. *Bufo scaber* Schneider, *Hist. Amph. Nat.* : 222.

1892. *Bufo fergusonii* Boulenger, *J. Bombay Nat. Hist. Soc.*, 7 : 317.

Known English names : Ferguson's Toad and Boulenger's Burrowing Toad.

Distribution in India : Orissa, Karnataka, Kerala and Tamilnadu (Biju, 2001).

Elsewhere : Sri Lanka (Dutta, 1997).

Note : Endemic to Peninsular India and Sri Lanka.

Family DICROGLOSSIDAE Anderson

Subfamily DICROGLOSSINAE Anderson

Genus *Euphlyctis* Fitzinger

8. *Euphlyctis cyanophlyctis* (Schneider, 1799)

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

1801. *Bufo cyanophlyctis*—Latreille *In Sonnini de Manoncourt and Latreille*, (An. X), *Hist. Nat. Rept.*, 2 : 132.

1802. *Rana cyanophlyctis*—Shaw, *Gen. Zool.*, 3(1) : 111.

1802. *Bufo cyanophlyctis*—Daudin, (An. XI), *Hist. Nat. Rain. Gren. Crap.*, Quarto : 103.

1803. *Bufo cyanophlyctis*—Daudin, (An. XI), *Hist. Nat. Gen. Part. Rept.*, 8 : 209.

1833. *Rana bengalensis* Gray, *Ill. Indian Zool.*

1841. *Rana leschenaultii* Dumeril and Bibron, *Erp. Gen.*, 8 : 342.

1853. *Rana benghalensis*—Kelaart, *Prodr. Faunae Zeylan.*, 1, 1 : 192.

1860. *Dicroglossus adolfi* Gunther, *Proc. Zool. Soc. London*, 1860 : 158.

1861. *Euphlyctis leschenaultii*—Fitzinger, "1860" *Sitzungsber. Akad. Wiss. Wien, Phys. Math. Naturwiss. Kl.*, 42 : 414.

1882. *Rana cyanophlyctis*—Mason, *Burma*, Ed. 3 : 290.

1899. *Rana cyanophlyctis* var. *seistanica* Nikolskii, *Ann. Mus. Zool. Acad. Imp. Sci. St. Petersburg*, 4 : 406.

1920. *Rana (Rana) cyanophlyctis*—Boulenger, *Rec. Indian Mus.*, 20 : 6.

1938. *Dicroglossus cyanophlyctis*—Deckert, *Sitzungsber. Ges. Naturforsch. Freunde Berlin*, 1938 : 138.

1941. *Rana cyanophlyctis cyanophlyctis*—Parker, *Exped. SW Arabia 1937-1938*, 1, 1 : 5.

1950. *Rana (Rana) cyanophlyctis*—Guibe, "1948" *Cat. Types Amph. Mus. Natl. Hist. Nat.* : 37.

1958. *Rana cyanophlyctis variety fulvus* — De Silva, *Spolia Zeylan.*, 28 : 158.

1958. *Rana cyanophlyctis variety flavens* — De Silva, *Spolia Zeylan.*, 28 : 158.

1974. *Rana (Dicroglossus) cyanophlyctis cyanophlyctis* — Dubois, *Bull. Mus. Natl. Hist. Nat. Paris, Ser. 3, Zool.*, 213 : 376.

1981. *Rana (Euphlyctis) cyanophlyctis*—Dubois, *Monit. Zool. Ital., N.S., Suppl.*, 15 : 240.

1985. *Euphlyctis cyanophlyctis*—Poynton and Broadley, *Ann. Natal Mus.*, 27 : 124.

1987. *Occidozyga (Euphlyctis) cyanophlyctis*—Dubois, "1986", *Alytes*, 5 : 59.

1992. *Euphlyctis cyanophlyctis*—Dubois, *Bull. Mens. Soc. Linn. Lyon*, 61 : 315.

1997. *Euphlyctis cyanophlyctis cyanophlyctis*—Khan, *Pakistan J. Zool.*, 29 : 108.

1997. *Euphlyctis cyanophlyctis microspinulata* Khan, *Pakistan J. Zool.*, 29 : 108.

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

Known English names : Studded Frog, Small Spotted Frog, Skittering Frog, Skettering Frog, Skipping Frog, Cyan Five-fingered Frog, Indian Skipping Frog, Skipper Frog, Seistan Skittering Frog, Spiny Skittering Frog, Water Skipping Frog, Green Stream Frog and Green Wart Frog.

Distribution in India : Throughout India (Dutta, 1997)

Elsewhere : Iran, Pakistan, Nepal, Afghanistan, Sri Lanka, Malaysia, and Vietnam (Frost, 2007).

9. *Euphlyctis hexadactylus* (Lesson, 1834)

1834. *Rana hexadactyla* Lesson, In Belanger (ed.), *Voy. Indes-Orientales N. Eur. Caucase Georgie Perse*, Zool. : 331.
1841. *Dactylethra bengalensis* Dumeril and Bibron, *Erp. Gen.*, 8 : 339.
1841. *Rana cutipora* Dumeril and Bibron, *Erp. Gen.*, 8 : 338.
1841. *Rana saparoua* Dumeril and Bibron, *Erp. Gen.*, 8 : 338.
1855. *Rana robusta* Blyth, "1854" *J. Asiat. Soc. Bengal*, 23 : 298.
1861. *Phrynoderma cutiporum*—Fitzinger, "1860" *Sitzungsber. Akad. Wiss. Wien, Phys. Math. Naturwiss. Kl.*, 42 : 414.
1920. *Rana (Rana) hexadactyla*—Boulenger, *Rec. Indian Mus.*, 20 : 5.
1974. *Rana (Dicoglossus) hexadactyla*—Dubois, *Bull. Mus. Natl. Hist. Nat. Paris, Ser. 3, Zool.*, 213 : 341-411.
1981. *Rana (Euphlyctis) hexadactyla*—Dubois, *Monit. Zool. Ital., N.S., Suppl.*, 15 : 240.
1985. *Euphlyctis hexadactyla*—Poynton and Broadley, *Ann. Natal Mus.*, 27 : 124.
1987. *Occidozyga (Euphlyctis) hexadactyla*—Dubois, "1986" *Alytes*, 5 : 59.
1992. *Euphlyctis hexadactylus*—Dubois, *Bull. Mens. Soc. Linn. Lyon*, 61 : 315.

Known English names : Indian Five-fingered Frog, Six-toed Frog, Indian Pond Frog, Indian Bullfrog, Indian Green Frog and Green Pond Frog.

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

Elsewhere : Bangladesh, Pakistan and Sri Lanka (Frost, 2007).

Genus *Fejervarya* Bolkey

10. *Fejervarya brevipalmata* (Peters, 1871)

1871. *Rana brevipalmata* Peters, *Monatsber. Preuss. Akad. Wiss. Berlin*, 1871 : 646.
1920. *Rana (Rana) brevipalmata* — Boulenger, *Rec. Indian Mus.*, 20 : 6.
1928. *Rana limnocharis parvipalmata* — Roux, *Rev. Suisse Zool.*, 38 : 460.
1938. *Dicoglossus brevipalmatus* — Deckert, *Sitzungsber. Ges. Naturforsch. Freunde Berlin*, 1938 : 138.
1981. *Rana (Euphlyctis) limnocharis brevipalmata*—Dubois, *Monit. Zool. Ital., N.S., Suppl.*, 15 : 239.
1985. *Euphlyctis limnocharis brevipalmata* — Poynton and Broadley, *Ann. Natal Mus.*, 27 : 124.
1987. *Limnonectes (Fejervarya) brevipalmatus* — Dubois, "1986" *Alytes*, 5 : 61.
1996. *Limnonectes brevipalmatus* — Dutta and Singh, *Zoo's Print*, 11 : 15.
1998. *Fejervarya brevipalmata* — Iskandar, *Amph. Java Bali* : 71.

Known English names : Pegu Wart Frog, Short-webbed Frog and Peters' Frog

Distribution in India : Kerala and Tamilnadu (Biju, 2001).

Note : Endemic to Western Ghats region.

11. *Fejervarya keralensis* (Dubois, 1980)

1876. *Rana verrucosa* Gunther, "1875" *Proc. Zool. Soc. London*, 1875 : 567.
1920. *Rana (Rana) verrucosa*—Boulenger, *Rec. Indian Mus.*, 20 : 6.
1938. *Dicoglossus verrucosus*—Deckert, *Sitzungsber. Ges. Naturforsch. Freunde Berlin*, 1938 : 138.
1981. *Rana (Euphlyctis) keralensis* Dubois, "1980" *Bull. Mus. Natl. Hist. Nat. Paris, Ser. 4(A)*, 2 : 928.
1984. *Rana (Fejervarya) keralensis*—Dubois, *Alytes*, 3 : 148.
1985. *Euphlyctis keralensis*—Poynton and Broadley, *Ann. Natal Mus.*, 27 : 124.
1987. *Limnonectes (Fejervarya) keralensis*—Dubois, "1986", *Alytes*, 5 : 61.
1998. *Fejervarya keralensis*—Iskandar, *Amph. Java Bali* : 71.

Known English names : Kerala Wart Frog, Kerala Warty Frog, Warty Frog, and Dubois' Hill Frog

Distribution in India : Goa, Karnataka, Kerala Tamilnadu (Biju, 2001) and Orissa.

Elsewhere : Nepal (Frost, 2007).

12. *Fejervarya limnocharis* (Gravenhorst, 1829)

1829. *Rana limnocharis* Gravenhorst, *Delic. Mus. Zool. Vratislav.*, **1** : 42.

1834. *Rana limnocharis* Wiegmann, *Nova Acta Phys. Med. Acad. Caesar Leopold Carol., Halle*, **17** : 225.

1854. *Rana agricola* Jerdon, "1853", *J. Asiat. Soc. Bengal*, **22** : 532.

1872. *Rana lymnocharis*—Stoliczka, *Proc. Asiat. Soc. Bengal*, 1872 : 102.

1915. *Rana (Fejervarya) limnocharis*—Bolkay, *Anat. Anz.*, **48** : 178.

1917. *Rana wasl* Annandale, *Mem. Asiat. Soc. Bengal*, **6** : 131.

1920. *Rana (Rana) limnocharis*—Boulenger, *Rec. Indian Mus.*, **20** : 6.

1930. *Rana limnocharis limnocharis*—Mertens, *Abh. Senckenb. Naturforsch. Ges.*, **42** : 214.

1938. *Dicroglossus limnocharis*—Deckert, *Sitzungsber. Ges. Naturforsch. Freunde Berlin*, 1938 : 138.

1963. *Rana (Rana) limnocharis*—Nakamura and Ueno, *Japan. Rept. Amph. Color* : 49.

1974. *Rana (Dicroglossus) limnocharis limnocharis*—Dubois, *Bull. Mus. Natl. Hist. Nat. Paris, Ser. 3, Zool.*, **213** : 341-411.

1980. *Rana (Euphlyctis) limnocharis*—Dubois, "1978" *C. R. Séances Soc. Biogeogr.*, **55** : 178.

1981. *Rana (Euphlyctis) limnocharis*—Dubois, *Monit. Zool. Ital., N.S., Suppl.*, **15** : 239.

1984. *Rana (Fejervarya) limnocharis*—Dubois, *Alytes*, **3** : 148.

1985. *Euphlyctis limnocharis*—Poynton and Broadley, *Ann. Natal Mus.*, **27** : 124.

1987. *Limnonectes (Fejervarya) limnocharis*—Dubois, "1986" *Alytes*, **5** : 61.

1998. *Fejervarya limnocharis*—Iskandar, *Amph. Java Bali* : 71.

2002. *Fejervarya wasl*—Fei, Ye, Jiang, and Xie, *Herpetol. Sinica*, **9** : 92.

Known English names : Indian Cricket Frog,

Boie's Wart Frog, Grass Frog, Field Frog, Indian Rice Frog, Rice Frog, Paddy Frog, Cricket Frog, Terrestrial Frog, White-lined Frog, Rice Field Frog, and Marsh Frog.

Distribution in India : Throughout India (Biju, 2001).

Elsewhere : China, Nepal, Pakistan, Sri Lanka, Japan and Philippines (Frost, 2007).

13. *Fejervarya murthii* (Pillai, 1979)

1979. *Rana murthii* Pillai, *Bull. Zool. Surv. India*, **2** : 39

1987. *Limnonectes (Fejervarya) murthii*—Dubois, "1986" *Alytes*, **5** : 61.

1998. *Fejervarya murthii*—Iskandar, *Amph. Java Bali* : 71.

Known English names : Ghats Wart Frog and Murthy's Frog.

Distribution in India : Tamilnadu (type locality) (Biju, 2001).

Note : Endemic to Western Ghats region.

14. *Fejervarya nilagirica* (Jerdon, 1853)

1854. *Rana nilagirica* Jerdon, "1853", *J. Asiat. Soc. Bengal*, **22** : 522-534.

1917. *Rana limnocharis nilagirica*—Annandale, *Mem. Asiat. Soc. Bengal*, **6** : 134.

1984. *Rana (Fejervarya) nilagirica*—Dubois, *Alytes*, **3** : 149.

1985. *Euphlyctis limnocharis nilagirica*—Poynton and Broadley, *Ann. Natal Mus.*, **27** : 124.

1987. *Limnonectes (Fejervarya) nilagirica*—Dubois, "1986" *Alytes*, **5** : 61.

1998. *Fejervarya nilagirica*—Iskandar, *Amph. Java Bali* : 71.

Known English names : Nilgiris Wart Frog and Nilgiri Frog

Distribution in India : Kerala and Tamilnadu (Biju, 2001).

Note : Endemic to Western Ghats region.

15. *Fejervarya rufescens* (Jerdon, 1853)

1854. *Pyxicephalus rufescens* Jerdon, "1853", *J. Asiat. Soc. Bengal*, **22** : 534.

1882. *Rana rufescens*—Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, Ed. 2 : 29.
1920. *Rana (Tomopterna) rufescens*—Boulenger, *Rec. Indian Mus.*, 20 : 102.
1984. *Rana (Fejervarya) rufescens*—Dubois, *Alytes*, 3 : 149.
1987. *Limnonectes (Fejervarya) rufescens*—Dubois, "1986", *Alytes*, 5 : 61.
1998. *Tomopterna rufescens*—Das and Dutta, *Hamadryad*, 23 : 66.
1998. *Fejervarya rufescens*—Iskandar, *Amph. Java Bali* : 71.

English names : Malabar Wart Frog and Reddish Burrowing Frog.

Distribution in India : Maharashtra, Karnataka and Kerala (Biju, 2001).

Note : Daniels (2001) has included in his checklist for Tamilnadu and this species is endemic to Western Ghats region.

Genus *Hoplobatrachus* Peters

16. *Hoplobatrachus crassus* (Jerdon, 1854)

1854. *Rana crassa* Jerdon, "1853", *J. Asiat. Soc. Bengal*, 22 : 531.
1863. *Hoplobatrachus ceylanicus* Peters, *Monatsber. Preuss. Akad. Wiss. Berlin*, 1863 : 445-470.
1872. *Rana (Hoplobatrachus) ceylanicus*—Günther, *Ann. Mag. Nat. Hist.*, Ser. 4, 9 : 85.
1892. *Rana tigrina* var. *ceylanica*—Boettger, *Ber. Offenbach. Ver. Naturkd.*, 1892 : 94.
1918. *Rana tigrina* var. *crassa*—Boulenger, *Rec. Indian Mus.*, 15 : 51-58.
1918. *Rana crassa*—Annandale, *Rec. Indian Mus.*, 15 : 61.
1942. *Rana tigrina crassa*—Bourret, *Batr. Indochine* : 241.
1974. *Rana (Dicroglossus) crassa*—Dubois, *Bull. Mus. Natl. Hist. Nat. Paris*, Ser. 3, Zool., 213 : 378-380.
1987. *Limnonectes (Hoplobatrachus) crassus*—Dubois, "1986" *Alytes*, 5 : 60.
1992. *Hoplobatrachus crassus*—Dubois, *Bull. Mens. Soc. Linn. Lyon*, 61 : 315.

Known English names : Carnatic Peters Frog, Jerdon's Bull Frog, and Jerdon's Bullfrog

Distribution in India : West Bengal, Assam,

Uttar Pradesh, Madhya Pradesh, Orissa, Andhra Pradesh, Karnataka, Kerala and Tamilnadu (Dutta, 1997).

Elsewhere : Nepal, Bangladesh and Sri Lanka (Frost, 2007).

17. *Hoplobatrachus tigerinus* (Daudin, 1802)

1758. *Rana typhonia* Linnaeus, *Syst. Nat.*, Ed. 10, 1 : 211.
1799. *Bufo typhoni*—Schneider, *Hist. Amph. Nat.* : 207.
1802. *Rana tigerina* Daudin, (An. XI), *Hist. Nat. Rain. Gren. Crap., Quarto* : 62.
1820. *Rana tigrina*—Merrem, *Tent. Syst. Amph.* : 174.
1829. *Rana picta* Gravenhorst, *Delic. Mus. Zool. Vratistav.*, 1 : 39.
1838. *Osilophus typhoni*—Tschudi, *Classif. Batr.* : 52 : 89.
1841. *Cystignathus typhoni*—Dumeril and Bibron, *Erp. Gen.*, 8 : 402.
1843. *Leptodactylus typhoni*—Fitzinger, *Syst. Rept.* : 31.
1853. *Rana malabarica* Kelaart, *Prodr. Faunae Zeylan.*, 1, 1 : 191.
1870. *Rana gracilis* var. *pulla* Stoliczka, *J. Asiat. Soc. Bengal*, 39 : 139.
1871. *Otilophus typhoni*—Peters, *Monatsber. Preuss. Akad. Wiss. Berlin*, 1871 : 403.
1875. *Oxyrhynchus typhoni*—Jimenez de la Espada, *Vert. Viaje Pacif. Verif. 1862-1865* : 178.
1875. *Oxyrhynchus typhoni*—Jimenez de la Espada, *Vert. Viaje Pacif. Verif. 1862-1865* : 178.
1882. *Leptodactylus typhoni*—Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, Ed. 2 : 246.
1912. *Rana tigerina*—Barbour, *Mem. Mus. Comp. Zool.*, 44 : 63.
1915. *Rana (Fejervarya) tigrina*—Bolkay, *Anat. Anz.*, 48 : 175.
1920. *Rana (Rana) tigrina*—Boulenger, *Rec. Indian Mus.*, 20 : 6.
1933. *Bufo typhoni typhoni*—Leavitt, *Copeia*, 1933 : 8.
1938. *Dicroglossus tigrinus*—Deckert, *Sitzungsber. Ges. Naturforsch. Freunde Berlin*, 1938 : 138.
1940. *Rana tigrina tigrina*—Smith, *Rec. Indian Mus.*, 42 : 465-486.
1953. *Bufo* (= *Otylophus*) *typhoni*—Cei, *Arch. Zool. Ital. Torino*, 38 : 511.

1969. *Rana tigerina tigerina*—Mertens, *Stuttgart. Beit. Naturkd.*, 197 : 17.
1974. *Rana (Dicroglossus) tigerina tigerina*—Dubois, *Bull. Mus. Natl. Hist. Nat. Paris, Ser. 3, Zool.*, 213 : 341-411.
1981. *Rana (Euphlyctis) tigerina*—Dubois, *Monit. Zool. Ital., N.S., Suppl.*, 15 : 239.
1985. *Euphlyctis tigerina*—Poynton and Broadley, *Ann. Natal Mus.*, 27 : 124.
1987. *Limnonectes (Hoplobatrachus) tigerinus*—Dubois, "1986", *Alytes*, 5 : 59.
1991. *Tigrina tigrina*—Fei, Ye, and Huang, "1990". *Key to Chinese Amph* : 144.
1992. *Hoplobatrachus tigerinus*—Dubois, *Bull. Mens. Soc. Linn. Lyon*, 61 : 315.
1938. *Tomopterna breviceps*—Deckert, *Sitzungsber. Ges. Naturforsch. Freunde Berlin*, 1938 : 142.
1956. *Rana swani* Myers and Leviton *In Leviton, Myers, and Swan, Occas. Pap. Nat. Hist. Mus. Stanford Univ.*, 1 : 7.
1976. *Tomopterna swani*—Dubois, *Cah. Nepal., Doc.*, 6 : 12.
1981. *Rana (Tomopterna) swani*—Dubois, *Monit. Zool. Ital., N.S., Suppl.*, 15 : 233.
1983. *Rana (Tomopterna) breviceps breviceps*—Dubois, *Alytes*, 2 : 166.
1987. *Tomopterna (Sphaerotheca) breviceps*—Dubois, "1986", *Alytes*, 5 : 57.
1987. *Tomopterna (Sphaerotheca) swani*—Dubois, "1986" *Alytes*, 5 : 57.
1998. *Tomopterna maskeyi* Schleich and Anders. *In Schleich and Kästle, Contr. Herpetol. S. Asia Nepal India*, 4 : 57.
1999. *Sphaerotheca breviceps*—Dubois, *J. South Asian Nat. Hist.*, 4 : 8.
2000. *Sphaerotheca pluvialis*—Marmayou, Dubois, Ohler, Pasquet, and Tillier, *C. R. Acad. Sci., Ser. 3, Paris*, 323 : 293.
2000. *Sphaerotheca swani*—Vences, Glaw, Kosuch, Das, and Veith, Lourenco and Goodman (eds.), *Diversite et Endemisme a Madagascar* : 232.
2000. *Sphaerotheca maskeyi*—Vences, Glaw, Kosuch, Das, and Veith, Lourenco and Goodman (eds.), *Diversite et Endemisme a Madagascar* : 232.

Known English name : Turkey Frog, Malabar Bull Frog, Golden Frog, Bull Frog, Indian Bull Frog, Tiger Frog, Tiger Peters Frog, and Indian Bullfrog.

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

Elsewhere : Nepal, Bhutan, Pakistan, and Sri Lanka (Frost, 2007).

Genus *Sphaerotheca* Gunther

18. *Sphaerotheca breviceps* (Schneider, 1799)

1799. *Rana breviceps* Schneider, *Hist. Amph. Nat.* : 140.
1829. *Rana variegata* Gravenhorst, *Delic. Mus. Zool. Vratislav.*, 1 : 33.
1838. *Systoma breviceps*—Tschudi, *Classif. Batr.* : 86.
1854. *Pyxicephalus fodiens* Jerdon, "1853", *J. Asiat. Soc. Bengal*, 22 : 534.
1854. *Pyxicephalus pluvialis* Jerdon, "1853", *J. Asiat. Soc. Bengal*, 22 : 534.
1859. *Sphaerotheca strigata* Günther, "1858", *Cat. Batr. Sal. Coll. Brit. Mus.* : 20.
1860. *Pyxicephalus (Tomopterna) fodiens*—Peters, *Monatsber. Preuss. Akad. Wiss. Berlin*, 1860 : 186.
1860. *Tomopterna strigata*—Gunther, *Proc. Zool. Soc. London*, 1860 : 165.
1864. *Pyxicephalus breviceps*—Gunther, *Rept. Brit. India* : 411.
1920. *Rana (Tomopterna) breviceps*—Boulenger, *Rec. Indian Mus.*, 20 : 102.

Known English names : Indian Burrowing Frog, Burrowing Frog, Punjab Bullfrog, Short-headed Burrowing Frog, Clumsy-looking Burrowing Frog, Burrowing Frog, Olive Frog, Dharan Bullfrog, Maskey's Burrowing Frog and Chitwan Frog.

Distribution in India : Punjab, Orissa, West Bengal, Rajasthan, Tamilnadu, Kerala, Maharashtra and Karnataka (Dutta, 1997 and Biju, 2001).

Elsewhere : Pakistan, Nepal, Myanmar and Sri Lanka (Frost, 2007).

19. *Sphaerotheca dobsoni* (Boulenger, 1882)

1882. *Rana dobsoni* Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus., Ed. 2* : 32.
1920. *Rana (Tomopterna) dobsoni*—Boulenger, *Rec. Indian Mus.*, 20 : 101-102.
1938. *Tomopterna dobsoni*—Deckert, *Sitzungsber. Ges. Naturforsch. Freunde Berlin*, 1938 : 139.

2000. *Sphaerotheca dobsoni* — Dubois and Ohler, *Alytes*, **18** : 35.

Known English names : Mangalore Bullfrog and Dobson's Burrowing Frog.

Distribution in India : Orissa, Andhra Pradesh, Karnataka, and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

20. *Sphaerotheca rolandae* (Dubois, 1983)

1983. *Rana* (*Tomopterna*) *breviceps rolandae* Dubois, *Alytes*, **2** : 166.
1987. *Tomopterna* (*Sphaerotheca*) *rolandae*—Dubois, "1986" *Alytes*, **5** : 57.
1999. *Sphaerotheca rolandae*—Dubois, *J. South Asian Nat. Hist.*, **4** : 8.

English names : Sri Lanka Bullfrog, Roland's Burrowing Frog and Rolanda's Burrowing Frog

Distribution in India : Kerala, Madhya Pradesh, Orissa and West Bengal (Dutta, 1997 and Biju, 2001) and Tamilnadu (Johnsingh, 2001).

Elsewhere : Sri Lanka (Frost, 2007).

Note : Endemic to peninsular India and Sri Lanka.

Family MICRIXALIDAE Dubois, Ohler and Biju

Genus *Micrixalus* Boulenger

21. *Micrixalus fuscus* (Boulenger, 1882)

1882. *Ixalus fuscus* Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, **Ed. 2** : 96.
1888. *Micrixalus fuscus*—Boulenger, *Proc. Zool. Soc. London*, **1888** : 205.
1942. *Micrixalus herrei* Myers, *Proc. Biol. Soc. Washington*, **55** : 71.
1946. *Staurois fuscus*—Forcart, *Verh. Naturforsch. Ges. Basel*, **57** : 130.

Known English names : Brown Tropical Frog and Dusky Torrent Frog.

Distribution in India : Karnataka, Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

22. *Micrixalus phyllophilus* (Jerdon, 1853)

1854. *Limnodytes?* *phyllophila* Jerdon, "1853" *J. Asiat. Soc. Bengal*, **22** : 532.
1869. *Ixalus opisthorhodus* Gunther, "1868" *Proc. Zool. Soc. London*, **1868** : 484.
1888. *Micrixalus opithorhodus*—Boulenger, *Proc. Zool. Soc. London*, **1888** : 205.
1987. *Micrixalus phyllophilus* — Dubois, "1986" *Alytes*, **5** : 50.

Known English names : Nilgiri Tropical Frog, Pink-thighed Torrent Frog and Black-banded Frog.

Distribution in India : Karnataka, Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

23. *Micrixalus saxicola* (Jerdon, 1853)

1854. *Polypedates saxicola* Jerdon, "1853" *J. Asiat. Soc. Bengal*, **22** : 533.
1882. *Ixalus saxicola*—Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, **Ed. 2** : 97.
1888. *Micrixalus saxicola*—Boulenger, *Proc. Zool. Soc. London*, **1888** : 205.

English names : Malabar Tropical Frog, Small Torrent Frog and Jerdon's Olive-brown Frog

Distribution in India : Karnataka and Kerala (Dutta, 1997)

Note : Daniels (2001) has included in his checklist for Tamilnadu and this species is endemic to Western Ghats region.

24. *Micrixalus silvaticus* (Boulenger, 1882)

1882. *Ixalus silvaticus* Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, **Ed. 2** : 469.
1888. *Micrixalus silvaticus*—Boulenger, *Proc. Zool. Soc. London*, **1888** : 205.
1946. *Staurois silvaticus*—Forcart, *Verh. Naturforsch. Ges. Basel*, **57** : 130.

Known English names : Southern Tropical Frog, Forest Torrent Frog and Boulenger's Malabar Frog

Distribution in India : Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

25. *Micrixalus thampii* Pillai, 1981

1981. *Micrixalus thampii* Pillai, *Bull. Zool. Surv. India*, **3** : 153.

English name : Silent Valley Tropical Frog, Thampi's Torrent Frog and Thampi's Tropical Frog

Distribution in India : Kerala (Dutta, 1997).

Note : Daniels (2001) has included in his checklist for Tamilnadu and this species is endemic to Western Ghats region.

Family MICROHYLIDAE Gunther**Subfamily MELANOBATRACHINAE Beddome****Genus *Melanobatrachus* Beddome****26. *Melanobatrachus indicus* Beddome, 1878**

1878. *Melanobatrachus indicus* Beddome, *Proc. Zool. Soc. London*, 1878 : 722.

Known English names : Kerala Hills Frog, Black Microhylid and Malabar Black Narrow-mouthed Frog

Distribution in India : Tamilnadu and Kerala (Biju, 2001).

Note : Endemic to Western Ghats region.

Subfamily MICROHYLINAE Gunther**Genus *Kaloula* Gray****27. *Kaloula taprobanica* Parker, 1934**

1934. *Kaloula pulchra taprobanica* Parker, *Monogr. Frogs Fam. Microhylidae* : 86.

1996. *Kaloula taprobanica*—Dutta and Manamendra-Arachchi, *Amph. Fauna Sri Lanka* : 30.

Known English names : Sri Lankan Bullfrog and Sri Lankan *Kaloula*.

Distribution in India : West Bengal, Meghalaya, Assam, Bihar, Madhya Pradesh, Orissa, Karnataka and Tamilnadu (Dutta, 1997).

Elsewhere : Nepal and Sri Lanka (Frost, 2007).

Genus *Microhyla* Tschudi**28. *Microhyla ornata* (Dumeril and Bibron, 1841)**

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

1843. *Siphneus ornatum* — Fitzinger, *Syst. Rept.* : 33

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

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

1859. *Diploelma ornatum* — Gunther, "1858" *Cat. Batr. Sal. Coll. Brit. Mus.* : 50.

1870. *Diploelma carnaticum* — Stoliczka, *J. Asiat. Soc. Bengal*, **39** : 154.

1882. *Microhyla (Engystoma) carnatica* — Mason, *Burma*, *Ed. 3* : 292.

1882. *Microhyla ornata* — Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, *Ed. 2* : 165.

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

Known English names : Ant Frog, Malaysian Bullfrog, Ornate Narrow-mouthed Frog, Ornate Narrow mouth Frog, Ornate Rice Frog, Ornate Pigmy Frog, Ornamented Pygmy Frog, Ornata Microhylid Frog and Black-throated Frog.

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

Elsewhere : Japan, China, Pakistan, Nepal, Sri Lanka and Malaysia (Frost, 2007).

29. *Microhyla rubra* (Jerdon, 1854)

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

1864. *Copea fulva* Steindachner, *Verh. Zool. Bot. Ges. Wien*, **14** : 286.

1882. *Microhyla rubra* — Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, *Ed. 2* : 164.

1987. *Microhyla (Diploelma) rubra* — Dubois, *Alvex*, **6** : 4.

Known English names : Guangdong Rice Frog, Red Narrow-mouthed Frog and Densely Spotted Microhylid Frog

Distribution in India : Goa, Karnataka, Tamilnadu and West Bengal (Dutta, 1997).

Elsewhere : Sri Lanka (Frost, 2007).

Note : Endemic to India and Sri Lanka.

Genus *Ramanella* Rao and Ramanna

30. *Ramanella anamalaiensis* Rao, 1937

1937. *Ramanella anamalaiensis* Rao, *Proc. Indian Acad. Sci., Ser. B*, 6 : 420.

Known English names : Anamalai Dot Frog, Anamalai Ramanella and Reddish-brown Microhylid Frog.

Distribution in India : Tamilnadu (type locality) (Dutta, 1997).

Note : Endemic to Western Ghats region.

31. *Ramanella montana* (Jerdon, 1854)

1854. *Hylaedactylus montanus* Jerdon, "1853", *J. Asiat. Soc. Bengal*, 22 : 533.
1934. *Ramanella montana* — Parker, *Monogr. Frogs Fam. Microhylidae* : 91.

Known English names : Mountain Dot Frog, Jerdon's Ramanella and Malabar Hill Frog.

Distribution in India : Gujarat, Maharashtra, Karnataka, Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

32. *Ramanella triangularis* (Gunther, 1876)

1876. *Callula triangularis* Gunther, "1875" *Proc. Zool. Soc. London*, 1875 : 576.
1918. *Kaloula triangularis*—Rao, *Rec. Indian Mus.*, 15 : 44.
1934. *Ramanella triangularis*—Parker, *Monogr. Frogs Fam. Microhylidae* : 94.
1937. *Ramanella triangularis rufeventris* Rao, *Proc. Indian Acad. Sci., Ser. B*, 6 : 418.

Known English names : Malabar Dot Frog, Malabar Ramanella and Triangular Spotted Frog.

Distribution in India : Karnataka, Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

33. *Ramanella variegata* (Stoliczka, 1872)

1854. *Hylaedactylus carnaticus* Jerdon, "1853", *J. Asiat. Soc. Bengal*, 22 : 533.
1872. *Callula variegata* Stoliczka, *Proc. Asiat. Soc. Bengal*, 1872 : 111.

1876. *Callula olivacea* Günther, "1875", *Proc. Zool. Soc. London*, 1875 : 576.

1918. *Kaloula variegata*—Rao, *Rec. Indian Mus.*, 15 : 43.

1925. *Ramanella symbioitica* Rao and Ramanna, *Proc. Zool. Soc. London*, 1925 : 1445.

Known English names : Eluru Dot Frog, Variegated Ramanella and Termite Nest Frog.

Distribution in India : Madhya Pradesh, West Bengal, Orissa, Tamilnadu, Karnataka and Kerala (Dutta, 1997).

Elsewhere : Sri Lanka (Frost, 2007).

Note : Endemic to India and Sri Lanka.

Genus *Uperodon* Dumeril and Bibron

34. *Uperodon systoma* (Schneider, 1799)

1799. *Rana systoma* Schneider, *Hist. Amph. Nat.* : 144.
1820. *Bombinator systoma*—Merrem, *Tent. Syst. Amph.* : 178.
1829. *Engystoma marmoratum* Cuvier, *Regne Animal.*, Ed. 2, 2 : 112.
1829. *Bufo (Engystoma) marmoratus* Cuvier, *Regne Animal.*, Ed. 2, 2 : 111.
1829. *Bufo (Breviceps) marmoratus* Cuvier, *Regne Animal.*, Ed. 2, 2 : 112.
1838. *Systoma leschenaultii* Tschudi, *Classif. Batr.* : 49, 86.
1838. *Engystoma marmoratum*—Gurrien-Meneville, *Icon. Regne Animal*, 3 : 17, pl. 27, fig. 3.
1838. *Rana (Breviceps) marmoratum*—Guerin-Meneville, *Icon. Regne Animal*, 3 : 17.
1841. *Uperodon marmoratum*—Dumeril and Bibron, *Erp. Gen.*, 8 : 749.
1854. *Hyperodon marmoratum*—Jerdon, "1853" *J. Asiat. Soc. Bengal*, 22 : 533.
1864. *Cacopus systoma*—Günther, *Rept. Brit. India* : 415.
1867. *Systoma marmoratum*—Steindachner, *Reise Osterreichischen Fregatte Novara, Zool.* : 36.
1868. *Pachybatrachus Petersii* Keferstein, *Arch. Naturgesch.*, 34 : 274.
1931. *Uperodon systoma*—Parker, *Arch. Zool. Ital. Torino*, 16 : 1243.
2002. *Uperodon systomus* Anders, In *Schleich and Käßtle (eds.), Amph.Rept. Nepal* : 199.

Known English names : Indistinct Frog, Globular Frog and Marbled Balloon Frog

Distribution in India : Himachal Pradesh, Uttar Pradesh, West Bengal, Orissa, Andhra Pradesh, Tamilnadu, Kerala, and Karnataka (Dutta, 1997).

Elsewhere : Sri Lanka, Pakistan and Nepal (Frost, 2007).

Family NYCRIBATRACHIDAE Blommers-Schlosser

Genus *Nyctibatrachus* Boulenger

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

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

English names : Alicia's Night Frog, Grandison's Wrinkled Frog and Cream Spotted Frog.

Distribution in India : Kerala, Karnataka (Dutta, 1997) and Tamilnadu (Johnsingh, 2001; Biju, 2001 and Das and Kunte, 2005).

Note : Endemic to Western Ghats region.

36. *Nyctibatrachus beddomii* (Boulenger, 1882)

1882. *Nannobatrachus beddomii* Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, *Ed. 2* : 470.

1942. *Nannobatrachus anamallaiensis* Myers, *Proc. Biol. Soc. Washington*, **55** : 49.

1987. *Nyctibatrachus beddomii*—Dubois, 1986", *Alytes*, **5** : 68.

Known English names : Beddome's Night Frog, Pigmy Wrinkled Frog and Tirunvelveli's Hill Frog.

Distribution in India : Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

37. *Nyctibatrachus deccanensis* Dubois, 1984

1876. *Rana pygmaea* Gunther, 1875, *Proc. Zool. Soc. London*, 1875 : 568.

1882. *Nyctibatrachus pygmaeus*—Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, *Ed. 2* : 113.

1984. *Nyctibatrachus deccanensis* Dubois, *Alytes*, **3** : 161.

Known English names : Anamallai Night Frog and Deccan Wrinkled Frog.

Distribution in India : Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

38. *Nyctibatrachus major* Boulenger, 1882

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

1910. *Rana travancorica* Annandale, *Rec. Indian Mus.*, **5** : 191.

Known English names : Malabar Night Frog, Large Wrinkled Frog, and Boulenger's Narrow-eyed Frog.

Distribution in India : Karnataka, Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

39. *Nyctibatrachus minor* Inger, Shaffer, Koshy and Bakde, 1984

1984. *Nyctibatrachus minor* Inger, Shaffer, Koshy, and Bakde, *J. Bombay Nat. Hist. Soc.*, **81** : 418.

English names : Kerala Night Frog and Small Wrinkled Frog.

Distribution in India : Kerala (Dutta, 1997) and Tamilnadu (Das and Kunte, 2005)

Note : Endemic to Western Ghats region.

40. *Nyctibatrachus vasanthi* Ravichandran, 1997

1997. *Nyctibatrachus vasanthi* Ravichandran, *Hamadryad*, **22** : 9.

Known English name : Kalakad Wrinkled Frog.

Distribution in India : Tamilnadu (type locality).

Note : Endemic to Western Ghats region.

Family RANIDAE Rafinesque

Genus *Clinotarsus* Mivart

41. *Clinotarsus curtipes* (Jerdon, 1853)

1854. *Rana curtipes* Jerdon, "1853" *J. Asiat. Soc. Bengal*, **22** : 532.

1868. *Pachybatrachus robustus* Mivart, *Proc. Zool. Soc. London*, 1868 : 557.
1869. *Clinotarsus robustus*—Mivart, *Proc. Zool. Soc. London*, 1869 : 280.
1870. *Hylorana curtipes*—Jerdon, *Proc. Asiat. Soc. Bengal*, 1870 : 83.
1882. *Rana curtipes*—Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, Ed. 2 : 61.
1920. *Rana (Hylorana) curtipes*—Boulenger, *Rec. Indian Mus.*, 20 : 131-133.
1987. *Rana (Hylarana) curtipes*—Dubois, "1986" *Alytes*, 5 : 42.
1992. *Rana (Clinotarsus) curtipes*—Dubois, *Bull. Mens. Soc. Linn. Lyon*, 61 : 328.
2005. *Clinotarsus curtipes*—Krishna and Krishna, *Herpetol. Rev.*, 36 : 21.

English names : Bicoloured Frog and Malabar Frog.

Distribution in India : Karnataka and Kerala (Dutta, 1997 and Biju, 2001) and Tamilnadu (Johnsingh, 2001 and Biju, 2001).

Note : Endemic to Western Ghats region.

Genus *Hydrophylax* Fitzinger

42. *Hydrophylax malabaricus* (Tschudi, 1838)

1838. *Rana malabarica* Tschudi, *Classif. Batr.* : 40, 80.
1859. *Hylarana malabarica*—Günther, "1858" *Cat. Batr. Sal. Coll. Brit. Mus.* : 131.
1861. *Hydrophylax malabaricus*—Fitzinger, "1860" *Wiss. Wien, Phys. Math. Naturwiss. Kl.*, 42 : 414.
1864. *Hylorana malabarica*—Günther, *Rept. Brit. India* : 426.
1882. *Rana malabarica*—Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, Ed. 2 : 60.
1920. *Rana (Rana) malabarica*—Boulenger, *Rec. Indian Mus.*, 20 : 9.
1992. *Rana (Hydrophylax) malabarica*—Dubois, *Bull. Mens. Soc. Linn. Lyon*, 61 : 325.
2006. *Hydrophylax malabaricus*—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 : 368.

Known English names : Fungoid Frog and Malabar Hills Frog.

Distribution in India : Western Ghats, Assam and Meghalaya (Dutta, 1997).

Note : Endemic to India.

Genus *Sylvirana* Dubois

43. *Sylvirana aurantiaca* (Boulenger, 1904)

1904. *Rana aurantiaca* Boulenger, *J. Bombay Nat. Hist. Soc.*, 15 : 430.
1920. *Rana (Hylorana) aurantiaca* — Boulenger, *Rec. Indian Mus.*, 20 : 127-130.
1922. *Rana (Hylorana) bhagmandlensis* Rao, *J. Nat. Hist. Soc. Bombay*, 28 : 441.
1987. *Rana (Hylarana) aurantiaca*—Dubois, "1986" *Alytes*, 5 : 42.
1987. *Rana (Hylarana) bhagmandlensis*—Dubois, "1986" *Alytes*, 5 : 42.
1992. *Rana (Sylvirana) aurantiaca*—Dubois, *Bull. Mens. Soc. Linn. Lyon*, 61 : 326.
1992. *Rana (Sylvirana) bhagmandlensis*—Dubois, *Bull. Mens. Soc. Linn. Lyon*, 61 : 326.
2005. *Hylarana aurantiaca*—Chen, Murphy, Lathrop, Ngo, Orlov, Ho, and Somorjai, *Herpetol. J.*, 15 : 237.
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.

Known English names : Trivandrum Frog and Golden Frog

Distribution in India : Kerala and Karnataka (Biju, 2001).

Elsewhere : Sri Lanka (Frost, 2007).

Note : Endemic to Western Ghats and Sri Lanka.

44. *Sylvirana temporalis* (Gunther, 1864)

1854. *Rana flavescens* Jerdon, "1853", *J. Asiat. Soc. Bengal*, 22 : 531.
1864. *Hylorana temporalis* Gunther, *Rept. Brit. India* : 427.
1870. *Hylorana flavescens*—Jerdon, *Proc. Asiat. Soc. Bengal*, 1870 : 83.
1882. *Rana temporalis*—Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, Ed. 2 : 63.

1920. *Rana (Hylorana) temporalis*—Boulenger, *Rec. Indian Mus.*, **20** : 127-130.
1922. *Rana (Hylorana) gracilis montanus* Rao, *J. Nat. Hist. Soc. Bombay*, **28** : 439.
1937. *Rana (Hylorana) intermedius* Rao, *Proc. Indian Acad. Sci., Ser. B*, **6** : 394.
1987. *Rana (Hylarana) temporalis*—Dubois, 1986, *Alytes*, **5** : 42.
1992. *Rana (Sylvirana) temporalis*—Dubois, *Bull. Mens. Soc. Linn. Lyon*, **61** : 326.
2005. *Hylarana temporalis*—Chen, Murphy, Lathrop, Ngo, Orlov, Ho, and Somorjai, *Herpetol. J.*, **15** : 237.
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.

Known English names : Bronzed Frog, Kerala Frog, Rao's Brown-coloured Frog, Bronx Frog

Distribution in India : Kerala, Maharashtra, Tamilnadu and Karnataka (Dutta, 1997 and Biju, 2001).

Elsewhere : Sri Lanka (Frost, 2007).

Note : Endemic to Western Ghats and Sri Lanka.

Family RANIXALIDAE Dubois

Genus *Indirana* Laurent

45. *Indirana beddomii* (Gunther, 1875)

1876. *Polypedates beddomii* Gunther, "1875", *Proc. Zool. Soc. London*, 1875 : 571.
1882. *Rana beddomii*—Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus., Ed. 2* : 55.
1918. *Rana (Discodeles) beddomi*—Boulenger, *Ann. Mag. Nat. Hist., Ser. 9*, **1** : 238.
1986. *Indirana beddomii*—Laurent, *In Grassé and Delsol (eds.), Traite de Zool.*, **14** : 761.
1987. *Ranixalus beddomii*—Dubois, "1986", *Alytes*, **5** : 69.
1987. *Indirana beddomii*—Dubois, "1986", *Alytes*, **5** : 175-176.
1989. *Rana (Discodeles) beddomii*—Daniel and Sekar, *J. Bombay Nat. Hist. Soc.*, **86** : 194.

Known English names : Beddome's Indian Frog and Beddome's Frog.

Distribution in India : Maharashtra, Karnataka, Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

46. *Indirana brachytarsus* (Gunther, 1875)

1876. *Polypedates brachytarsus* Günther, "1875", *Proc. Zool. Soc. London*, 1875 : 572.
1984. *Rana brachytarsus*—Inger, Shaffer, Koshy, and Bakde, *J. Bombay Nat. Hist. Soc.*, **81** : 423.
1987. *Ranixalus brachytarsus*—Dubois, "1986", *Alytes*, **5** : 69.
1987. *Indirana brachytarsus*—Dubois, "1986" *Alytes*, **5** : 175-176.

Known English names : Anamallais Indian Frog, Leaf-hopper Frog and Short-legged Frog

Distribution in India : Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

47. *Indirana diplosticta* (Gunther, 1876)

1876. *Ixalus diplostictus* Gunther, "1875", *Proc. Zool. Soc. London*, 1875 : 574.
1882. *Rana diplosticta*—Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus., Ed. 2* : 55.
1920. *Rana (Discodeles) diplosticta*—Boulenger, *Rec. Indian Mus.*, **20** : 101-102.
1986. *Indirana diplosticta*—Laurent, *In Grassé and Delsol (eds.), Traite de Zool.*, **14** : 761.
1987. *Ranixalus diplostictus*—Dubois, "1986", *Alytes*, **5** : 69.
1987. *Indirana diplosticta*—Dubois, "1986", *Alytes*, **5** : 175-176.

Known English names : Malabar Indian Frog, Rufous Leaf-hopper Frog and Gunther's Frog.

Distribution in India : Kerala and Tamilnadu (Biju, 2001).

Note : Endemic to Western Ghats region.

48. *Indirana leithii* (Boulenger, 1888)

1888. *Rana leithii* Boulenger, *Ann. Mag. Nat. Hist., Ser. 6*, **2** : 506.
1918. *Rana (Discodeles) leithii*—Boulenger, *Ann. Mag. Nat. Hist., Ser. 9*, **1** : 238.
1986. *Indirana leithii*—Laurent, In Grassé and Delsol (eds.), *Traite de Zool.*, **14** : 761.
1987. *Ranixalus leithii*—Dubois, "1986" *Alytes*, **5** : 69.
1987. *Indirana leithii*—Dubois, "1986", *Alytes*, **5** : 175-176.
1989. *Rana (Discodeles) leithii*—Daniel and Sekar, *J. Bombay Nat. Hist. Soc.*, **86** : 194.

Known English names : Matheran Indian Frog, Leith's Frog, and Boulenger's Brown Frog

Distribution in India : Gujarat, Maharashtra, Karnataka, Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

49. *Indirana leptodactyla* (Boulenger, 1882)

1876. *Polypedates brevipalmatus* Günther, "1875" *Proc. Zool. Soc. London*, 1875 : 572.
1882. *Rana leptodactyla* Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus., Ed. 2* : 57.
1920. *Rana (Discodeles) leptodactyla*—Boulenger, *Rec. Indian Mus.*, **20** : 98.
1986. *Indirana leptodactyla*—Laurent, In Grassé and Delsol (eds.), *Traite de Zool.*, **14** : 761.
1987. *Ranixalus leptodactylus*—Dubois, "1986", *Alytes*, **5** : 69.
1987. *Indirana leptodactyla*—Dubois, "1986", *Alytes*, **5** : 175-176.
1989. *Rana (Discodeles) leptodactyla*—Daniel and Sekar, *J. Bombay Nat. Hist. Soc.*, **86** : 194.

Known English names : Boulenger's Indian Frog, Long-toed Frog and Thin-limbed Frog.

Distribution in India : Karnataka, Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

50. *Indirana phrynoderma* (Boulenger, 1882)

1882. *Rana phrynoderma* Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus., Ed. 2* : 462.
1920. *Rana (Discodeles) phrynoderma*—Boulenger, *Rec. Indian Mus.*, **20** : 121.
1986. *Indirana phrynoderma*—Laurent, In Grassé and Delsol (eds.), *Traite de Zool.*, **14** : 761.
1987. *Ranixalus phrynoderma*—Dubois, "1986", *Alytes*, **5** : 69.
1987. *Indirana phrynoderma*—Dubois, "1986", *Alytes*, **5** : 175-176.
1989. *Rana (Discodeles) phrynoderma* — Daniel and Sekar, *J. Bombay Nat. Hist. Soc.*, **86** : 194.

English names : Kerala Indian Frog and Toad-skinned Frog.

Distribution in India : Kerala (Dutta, 1997) and Tamilnadu (Biju, 2001)

Note : Endemic to Western Ghats region.

51. *Indirana semipalmata* (Boulenger, 1882)

1882. *Rana semipalmata* Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus., Ed. 2* : 56.
1918. *Rana (Discodeles) semipalmata* — Boulenger, *Ann. Mag. Nat. Hist., Ser. 9*, **1** : 238.
1927. *Rana semifulmata*—Noble, *Ann. New York Acad. Sci.*, **30** : 107.
1986. *Indirana semipalmata*—Laurent, In Grassé and Delsol (eds.), *Traite de Zool.*, **14** : 761.
1987. *Ranixalus semipalmatus*—Dubois, "1986", *Alytes*, **5** : 69.
1987. *Indirana semipalmata*—Dubois, "1986", *Alytes*, **5** : 175-176.
1989. *Rana (Discodeles) semipalmata*—Daniel and Sekar, *J. Bombay Nat. Hist. Soc.*, **86** : 194.

English names : South Indian Frog and Small-handed Frog.

Distribution in India : Kerala (Dutta, 1997).

Note : Daniels (2001) has included in his checklist for Tamilnadu and this species is endemic to Western Ghats region.

Family RHACOPHORIDAE Hoffman

Subfamily RHACOPHORINAE Hoffman

Genus *Philautus* Giestel52. *Philautus chalazodes* (Gunther, 1876)

1876. *Ixalus chalazodes* Gunther, "1875", *Proc. Zool. Soc. London*, 1875 : 574.
1931. *Rhacophorus (Philautus) chalazodes*—Ahl, *Das Tierreich*, 55 : 87.
1974. *Philautus chalazodes*—Gorham, *Checklist World Amph.* : 166.
2001. *Philautus (Philautus) chalazodes*—Bossuyt and Dubois, *Zeylanica*, 6 : 26.

Known English names : Chalazodes Bubble-nest Frog, White-spotted Bush Frog and Gunther's Bush Frog.

Distribution in India : Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

53. *Philautus charius* Rao, 1937

1937. *Philautus charius* Rao, *Proc. Indian Acad. Sci., Ser. B*, 6 : 405.
2001. *Philautus (Philautus) charius* — Bossuyt and Dubois, *Zeylanica*, 6 : 48.

English names : Karnataka Bubble-nest Frog, Seshachar's Bush Frog and Chari's Bush Frog.

Distribution in India : Karnataka and Kerala (Dutta, 1997)

Note : Daniels (2001) has included in his checklist for Tamilnadu and this species is endemic to Western Ghats region.

54. *Philautus duboisi* Biju and Bossuyt, 2006

2006. *Philautus duboisi* Biju and Bossuyt, *Amphibia-Reptilia*, 27 : 5.

Known English name : Kodaikanal Bush Frog

Distribution in India : Tamilnadu (type locality).

Note : Endemic to Western Ghats region.

55. *Philautus femoralis* (Gunther, 1864)

1864. *Ixalus femoralis* Gunther, *Rept. Brit. India* : 434.
1872. *Ixalus pulchellus* Gunther, *Ann. Mag. Nat. Hist., Ser. 4*, 9 : 88.
1876. *Ixalus Fergusonii* Gunther, *Ann. Mag. Nat. Hist., Ser. 4*, 17 : 379.
1931. *Rhacophorus (Philautus) femoralis*—Ahl, *Das Tierreich*, 55 : 53, 78.
1985. *Philautus femoralis* — Inger In Frost, *Amph. Species World* : 553.
1985. *Philautus pulchellus*—Inger, Shaffer, Koshy, and Bakde, "1984", *J. Bombay Nat. Hist. Soc.*, 81 : 553.
1985. *Philautus fergusonii* — Inger, Shaffer, Koshy, and Bakde, "1984", *J. Bombay Nat. Hist. Soc.*, 81 : 553.
2001. *Philautus (Philautus) femoralis*—Bossuyt and Dubois, *Zeylanica*, 6 : 21.

Known English names : Southwestern Bubble-nest Frog, Plain Green Bush Frog and Green Bush Frog.

Distribution in India : Kerala (Dutta, 1997)

Elsewhere : Sri Lanka (Frost, 2007).

Note : Endemic to Western Ghats and Sri Lanka.

56. *Philautus glandulosus* (Jerdon, 1854)

1854. *Ixalis ? glandulosa* Jerdon, "1853", *J. Asiat. Soc. Bengal*, 22 : 532.
1870. *Ixalus glandulosa* — Jerdon, *Proc. Asiat. Soc. Bengal*, 1870 : 85.
1876. *Ixalus glandulosus* — Gunther, "1875", *Proc. Zool. Soc. London*, 1875 : 573.
1882. *Ixalus pulcher* Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, Ed. 2 : 469.
1927. *Rhacophorus noblei* Ahl, *Sitzungsber. Ges. Naturforsch. Freunde Berlin*, 1926 : 40.
1927. *Rhacophorus pulcherrimus* Ahl, *Sitzungsber. Ges. Naturforsch. Freunde Berlin*, 1926 : 41.
1928. *Philautus glandulosus*—Roux, *Rev. Suisse Zool.*, 38 : 465.
1931. *Rhacophorus (Philautus) glandulosus*—Ahl, *Das Tierreich*, 55 : 71.
1931. *Rhacophorus (Philautus) noblei*—Ahl, *Das Tierreich*, 55 : 55, 100.
1931. *Rhacophorus (Philautus) pulcherrimus*—Ahl, *Das Tierreich*, 55 : 55, 101.

1937. *Philautus pulcher*—Rao, *Proc. Indian Acad. Sci., Ser. B*, **6** : 423.
1974. *Philautus noblei*—Gorham, *Checklist World Amph.* : 167.
1974. *Philautus pulcherrimus*—Gorham, *Checklist World Amph.* : 167.
2001. *Philautus (Philautus) glandulosus*—Bossuyt and Dubois, *Zeylanica*, **6** : 15.

Known English names : Noble's Bubble-nest Frog, Noble's Bush Frog, Southern Bubble-nest Frog, Rough-skinned Bush Frog, Manantoddy Bubble-nest Frog, Beautiful Bush Frog, Glandular Bush Frog and Beautiful Bush Frog.

Distribution in India : Maharastra, Karnataka, Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

57. *Philautus signatus* (Boulenger, 1882)

1882. *Ixalus signatus* Boulenger, *Cat. Batr. Sal. Coll. Brit. Mus.*, Ed. **2** : 106.
1931. *Rhacophorus (Philautus) signatus*—Ahl, *Das Tierreich*, **55** : 77.
1974. *Philautus signatus*—Gorham, *Checklist World Amph.* : 166.
2001. *Philautus (Philautus) signatus*—Bossuyt and Dubois, *Zeylanica*, **6** : 30.

Known English names : Boulenger's Bubble-nest Frog, Quartet Bush Frog and Cross-backed Bush Frog.

Distribution in India : Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

58. *Philautus temporalis* (Gunther, 1864)

1864. *Ixalus temporalis* Gunther, *Rept. Brit. India* : 434.
1887. *Ixalus leucorhinus* var. *temporalis*—Müller, *Verh. Naturforsch. Ges. Basel*, **8** : 256.
1931. *Rhacophorus (Philautus) temporalis*—Ahl, *Das Tierreich*, **55** : 55, 97.
1943. *Pseudophilautus temporalis*—Laurent, *Bull. Mus. R. Hist. Nat. Belg.*, **19** : 2.
1985. *Philautus temporalis*—Inger In Frost, *Amph. Species World* : 439.

Known English names : Gunther's Bubble-nest Frog.

Distribution in India : Kerala (Inger *et al.*, 1984 and Dutta, 1997).

Elsewhere : Sri Lanka (Dutta, 1997 and Frost, 2007).

Note : Daniels (2001) has included in his checklist for Tamilnadu, but Frost (2007) has restricted its distribution to Sri Lanka itself.

59. *Philautus tinniens* (Jerdon, 1853)

1854. *Phyllomedusa ? tinniens* Jerdon, "1853", *J. Asiat. Soc. Bengal*, **22** : 533.
1870. *Ixalus tinniens*—Jerdon, *Proc. Asiat. Soc. Bengal*, 1870 : 85.
1871. *Ixalus punctatus* Anderson, *J. Asiat. Soc. Bengal*, **40** : 27.
1876. *Ixalus montanus* Günther, "1875" *Proc. Zool. Soc. London*, 1875 : 574.
1890. *Philautus punctatus* — Boulenger, *Fauna Brit. India, Rept. Batr.* : 104.
1937. *Philautus melanensis* Rao, *Proc. Indian Acad. Sci., Ser. B*, **6** : 411.
2001. *Philautus (Philautus) tinniens*—Bossuyt and Dubois, *Zeylanica*, **6** : 15.

Known English names : Rao's Bubble-nest Frog, Black Bush Frog and Spotted Bush Frog.

Distribution in India : Karnataka and Tamilnadu (Bossuyt and Dubois, 2001 and Biju, 2001).

Note : Endemic to Western Ghats region.

60. *Philautus travancoricus* (Boulenger, 1891)

1891. *Ixalus travancoricus* Boulenger, *Ann. Mag. Nat. Hist., Ser. 6*, **8** : 291.
1931. *Rhacophorus (Philautus) travancoricus*—Ahl, *Das Tierreich*, **55** : 54, 79.
1974. *Philautus travancoricus*—Gorham, *Checklist World Amph.* : 167.
2001. *Philautus (Philautus) travancoricus*—Bossuyt and Dubois, *Zeylanica*, **6** : 33.

Known English names : Travancore Bubble-nest Frog, Travancore Bush Frog and Travancore Tree Frog.

Distribution in India : Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

61. *Philautus variabilis* (Gunther, 1858)

1858. *Ixalus variabilis* Günther, Arch. Naturgesch., **24** : 324.
 1928. *Philautus variabilis*—Roux, Rev. Suisse Zool., **38** : 464.
 1931. *Rhacophorus (Philautus) variabilis*—Ahl, Das Tierreich, **55** : 98.
 2001. *Philautus (Philautus) variabilis*—Bossuyt and Dubois, Zeylanica, **6** : 18.

Known English names : Variable Bubble-nest Frog and Variable Bush Frog.

Distribution in India : Andhra Pradesh and Kerala (Dutta, 1997).

Elsewhere : Sri Lanka (Dutta, 1997 and Frost, 2007).

Note : Daniels (2001) has included in his checklist for Tamilnadu, but Frost (2007) has restricted its distribution to Sri Lanka itself.

Genus *Polypedates* Tschudi

62. *Polypedates maculatus* (Gray, 1833)

1833. *Hyla maculata* Gray, Ill. Indian Zool. : pl. 82.
 1838. *Bürgeria maculata* Tschudi, Classif. Batr. : **34**, 75.
 1838. *Hyla Reynoudi* Tschudi, Classif. Batr. : **34**, 75.
 1859. *Polypedates maculatus*—Gunther, "1858", Cat. Batr. Sal. Coll. Brit. Mus. : 78.
 1882. *Rhacophorus maculatus*—Boulenger, Cat. Batr. Sal. Coll. Brit. Mus., Ed. **2** : 83.
 1901. *Rhacophorus acanthostomus* Werner, Zool. Anz., **24** : 98.
 1912. *Rhacophorus maculatus himalayensis* Annandale, Rec. Indian Mus., **8** : 14.
 1927. *Rhacophorus (Polypedates) maculatus*—Bourret, Fauna Indochine, Vert., **3** : 264.
 1931. *Rhacophorus (Rhacophorus) acanthostomus*—Ahl, Das Tierreich, **55** : 120.
 1931. *Rhacophorus (Rhacophorus) maculatus*—Ahl, Das Tierreich, **55** : 133.

1931. *Rhacophorus (Rhacophorus) acanthostomus*—Ahl, Das Tierreich, **55** : 137.

1931. *Rhacophorus (Rhacophorus) leucomystax himalayensis*—Ahl, Das Tierreich, **55** : 137.

1936. *Rhacophorus leucomystax maculatus*—Wolf, Bull. Raffles Mus., **12** : 181.

1987. *Rhacophorus (Rhacophorus) maculatus himalayensis*—Dubois, "1986", Alytes, **5** : 84-85.

Known English names : Spotted Tree Frog, Common Indian Tree-frog, Common Tree Frog, Spotted Whipping Frog, Indian Tree Frog, Chunam Frog, Common Indian Tree Frog and Himalayan Tree Frog.

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

Elsewhere : Bangladesh and Sri Lanka (Frost, 2007).

63. *Polypedates pseudocruciger* Das and Ravichandran, 1998

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

Known English name : False Hour-glass Tree Frog.

Distribution in India : Tamilnadu and Karnataka (Biju, 2001).

Note : Endemic to Western Ghats region.

Genus *Rhacophorus* Kuhl and Van Hasselt

64. *Rhacophorus calcadensis* Ahl, 1927

1882. *Rhacophorus beddomii* Boulenger, Cat. Batr. Sal. Coll. Brit. Mus., Ed. **2** : 469.
 1927. *Rhacophorus calcadensis* Ahl, Sitzungsber. Ges. Naturforsch. Freunde Berlin, 1926 : 46.
 1931. *Rhacophorus (Rhacophorus) calcadensis*—Ahl, Das Tierreich, **55** : 167.

Known English names : Langbian Flying Frog and Kalakkad Tree Frog

Distribution in India : Kerala and Tamilnadu (Dutta, 1997).

Note : Endemic to Western Ghats region.

65. *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.

English names : Small Tree Frog and Boulenger's Tree Frog.

Distribution in India : Karnataka and Kerala (Das, 2000).

Note : Daniels (2001) has included this species in his checklist for Tamilnadu and is endemic to Western Ghats region.

66. *Rhacophorus malabaricus* Jerdon, 1870

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

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

Known English names : Malabar Flying Frog, Malabar Gliding Frog and Flying Frog.

Distribution in India : Kerala, Karnataka and Goa (Dutta, 1997) and Tamilnadu (Das and Dutta, 2007).

Note : Daniels (2001) has included this species in his checklist for Tamilnadu and is endemic to Western Ghats region.

67. *Rhacophorus pseudomalabaricus*

Vasudevan and Dutta, 2000

2000. *Rhacophorus pseudomalabaricus* Vasudevan and Dutta, Hamadryad, 25 : 23.

Known English name : False Malabar Gliding Frog.

Distribution in India : Known from type locality only.

Note : Endemic to Western Ghats region.

68. *Rhacophorus variabilis* (Jerdon, 1853)

1854. *Polypedates variabilis* Jerdon, "1853", J. Asiat. Soc. Bengal, 22 : 532.

1864. *Polypedates pleurostictus* Gunther, Rept. Brit. India : 430.

1882. *Rhacophorus pleurostictus*—Boulenger, Cat. Batr. Sal. Coll. Brit. Mus., Ed. 2 : 79.

1927. *Rhacophorus parkeri* Ahl, Sitzungsber. Ges. Naturforsch. Freunde Berlin, 1926 : 38.

1931. *Rhacophorus (Rhacophorus) pleurostictus*—Ahl, Das Tierreich, 55 : 123.

1931. *Rhacophorus (Philautus) parkeri*—Ahl, Das Tierreich, 55 : 81.

1936. *Rhacophorus (Rhacophorus) buergeri pleurostictus* — Wolf, Bull. Raffles Mus., 12 : 173.

1985. *Philautus parkeri*—Inger In Frost, Amph. Species World : 531.

1987. *Philautus (Kirtixalus) pleurostictus*—Dubois, "1986" Alytes, 5 : 73.

2001. *Rhacophorus (Rhacophorus) variabilis*—Bossuyt and Dubois, Zeylanica, 6 : 14.

Known English name : Parker's Bubble-nest Frog, Parker's Bush Frog, Indian Bubble-nest Frog, Zamorin Tree Frog, Green Frog of the Neelgherries and Green Tree Frog.

Distribution in India : Nilgiris, Tamilnadu (Biju, 2001).

Note : Endemic to Western Ghats region.

Family SOOGLOSSIDAE Noble

Genus *Nasikabatrachus* Biju And Bossuyt

69. *Nasikabatrachus sahyadrensis* Biju and Bossuyt, 2003,

2003. *Nasikabatrachus sahyadrensis* Biju and Bossuyt, Nature, 425 : 711.

English name : Pig Nose Frog.

Distribution in India : Kerala and Tamilnadu (Dutta et al., 2004)

Note : Endemic to Western Ghats region.

Order GYMNOPIHONA Muller**Family CAECILIIDAE Rafinesque****Genus *Gegeneophis* Peters****70. *Gegeneophis carnosus* (Beddome, 1870)**

1870. *Epicrium carnosum* Beddome, Madras Month. J. Med. Sci., 2 : 176.

1870. *Gegenes carnosus*—Günther, "1875", *Proc. Zool. Soc. London*, 1875 : 577.

1880. *Gegeneophis carnosus* — Peters, "1879", *Monatsber. Preuss. Akad. Wiss. Berlin*, 1879 : 932.

1882. *Gegeneophis carnosus*—Boulenger, *Cat. Batr. Grad. Batr. Apoda Coll. Brit. Mus.*, Ed. 2 : 101.

Known English names : Periah Peak Caecilian and Blind Caecilian.

Distribution in India : Karnataka and Kerala (Pillai and Ravichandran, 2005).

Note : Daniels (2001) has included this species in his checklist for Tamilnadu and is endemic to Western Ghats region.

71. *Gegeneophis ramaswamii* Taylor, 1964

1964. *Gegeneophis ramaswamii* Taylor, *Senckenb. Biol.*, 45 : 227.

English names : Tenmalai Caecilian and Ramaswami's Caecilian.

Distribution in India : Kerala (Pillai and Ravichandran, 2005) and Tamilnadu (Oommen *et al.*, 2000).

Note : Endemic to Western Ghats region.

Family ICTHYOPHIDAE Taylor

Genus *Ichthyophis* Fitzinger

72. *Ichthyophis beddomei* Peters 1879

1880. *Ichthyophis beddomei* Peters, "1879" *Monatsber. Preuss. Akad. Wiss. Berlin*, 1879 : 932.

Known English names : Nilgherries Caecilian and Beddome's Caecilian.

Distribution in India : Karnataka, Kerala and Tamilnadu (Pillai and Ravichandran, 2005).

Note : Endemic to Western Ghats region.

73. *Ichthyophis bombayensis* Taylor, 1960

1960. *Ichthyophis bombayensis* Taylor, *Univ. Kansas Sci. Bull.*, 40 : 67.

1960. *Ichthyophis malabarensis* Taylor, *Univ. Kansas Sci. Bull.*, 40 : 80.

1960. *Ichthyophis peninsularis* Taylor, *Univ. Kansas Sci. Bull.*, 40 : 61.

1960. *Ichthyophis subterrestris* Taylor, *Univ. Kansas Sci. Bull.*, 40 : 65.

Known English names : Bombay Caecilian, Maharashtra Caecilian, Travancore Caecilian, Malabar Caecilian, Peninsular Caecilian, Kerala Caecilian and Cochin Caecilian.

Distribution in India : Gujarat, Maharashtra, Karnataka, Kerala and Tamilnadu (Pillai and Ravichandran, 2005).

Note : Endemic to Western Ghats region, refer Gower *et al.*, 2007 for genetic homogeneity in un-striped *Ichthyophis* along Western Ghats.

74. *Ichthyophis longicephalus* Pillai, 1986

1986. *Ichthyophis longicephalus* Pillai, *Rec. Zool. Surv. India*, 84 : 231.

Known English name : Long-headed Caecilian.

Distribution in India : Kerala and Tamilnadu (Pillai and Ravichandran, 2005).

Note : Endemic to Western Ghats region.

75. *Ichthyophis tricolor* Annandale, 1909

1909. *Ichthyophis glutinosus tricolor* Annandale, *Rec. Indian Mus.*, 3 : 286.

1968. *Ichthyophis tricolor*—Taylor, *Caecilians of the World* : 148.

Known English names : Maddatorai Caecilian and Three-colored Caecilian.

Distribution in India : Kerala (Dutta, 1997), Tamilnadu (Pillai and Ravichandran, 2005).

Note : Endemic to Western Ghats region.

Genus *Uraeotyphlus* Peters

76. *Uraeotyphlus malabaricus* (Beddome, 1870)

1870. *Cecilia malabarica* Beddome, *Madras Month. J. Med. Sci.*, 2 : 175.

1880. *Uraeotyphlus malabaricus*—Peters, "1879" *Monatsber. Preuss. Akad. Wiss. Berlin*, 1879 : 933.

Known English name : Malabar Caecilian

Distribution in India : Kerala and Tamilnadu (Pillai and Ravichandran, 2005).

Note : Endemic to Western Ghats region.

77. *Uraeotyphlus oxyurus* (Dumeril and Bibron, 1841)

Known English names : Red Caecilian and Sharp-nosed Caecilian.

1841. *Caecilia oxyura* Dumeril and Bibron, *Erp. Gen.*, 8 : 280.

Distribution in India : Kerala and Tamilnadu (Pillai and Ravichandran, 2005).

1880. *Uraeotyphlus oxyurus* — Peters, "1879", *Monatsber. Preuss. Akad. Wiss. Berlin*, 1879 : 933.

Note : Endemic to Western Ghats region.

REFERENCES

- Biju, S. D. 2001. *A synopsis to the frog fauna of the Western Ghats, India*. Occasional Publication of the Indian Society for Conservation Biology (ISCB), Tropical Botanic Garden and Research Institute, Thiruvananthapuram, India. 24p.
- Bossuyt, F and A, Dubois. 2001. A review of the frog Genus *Philautus* Gistel, 1848 (Amphibia, Anura, Ranidae, Rhacophorinae). *Zeylanica*, 6 : 1-12.
- Chanda, S. K. 2002. *Handbook Indian Amphibians*. Zoological Survey of India, Kolkata, India. 335pp.
- Dahanukar, N., A.D. Padhye, G.P. Salelkar and H.V. Ghate. 2004. Aktueller Beleg fur die Malabar-Baumkrote, *Pedostibes tuberculosus* Gunther, 1876, in Indien. *Sauria, Berlin*, 26(3) : 17-20.
- Daniels, R.J.R. 2001. Amphibians and reptiles of the Tamilnadu Eastern Ghats and Western Ghats. *Cobra*, Vol. 43 : 1-8.
- Das, I. 2000. Nomenclatural history and rediscovery of *Rhacophorus lateralis* Boulenger, 1883 (Amphibia : Rhacophoridae). *Current Herpetology*, 19(1) : 35-40.
- Das, I and R, Whitaker. 1998. *Pedostibes tuberculosus* (Malabar tree toad) at Cotegao wildlife Sanctuary, Goa. *Herpetological Review*, 29(3) : 173.
- Das, I. and S.K. Dutta. 2006. New Species of Polypedates (Anura : Rhacophoridae) from the Western Ghats, Southwest India. *Journal of Herpetology*, Vol. 40(2) : 214-220.
- Dutta, S. K. 1997. *Amphibians of India and Sri Lanka (checklist and bibliography)*. Odyssey Publishing House, Bhubaneswar, India. 342 pp.
- Frost, D.R. 2007. *Amphibian Species of the World : an Online Reference*. Version 5.0 (1 February, 2007). Electronic Database accessible at <http://research.amnh.org/herpetology/amphibia/index.php>. American Museum of Natural History, New York, USA.
- Frost, D.R., T. Grant, J. Faivovich, R.H. Bain, A. Haas, C.F.B. Hddad, R.O. Desa, A. Channing, M. Wilkinson, S.C. Donnellan, C.J. Raxworthy, J.A. Campbell, B.L. Blotto, P. Moler, R.C. Drewes, R.A. Nussbaum, J.D. Lynch, D.M. Green, and W.C. Wheeler. 2006. – The amphibian tree of life. *Bulletin of the American Museum of Natural History*, 297 : 370 pp.
- Gower, D.J., M. Dharne, G. Bhatta, V. Giri, R. Vyas, V. Govindappa, O.V. Oommen, J. Remarkable genetic homogeneity in unstripped, longtailed *Ichthyophis* George, Y Shouche and M. Wilkinson. 2007. along 1500 km of the Western Ghats, India. *Journal of Zoology*, doi 10.1111/j. 1469-7998.2006.00266.x

- Gururaja, K.V. and T.V. Ramachandra. 2006(a). *Pedostibes tuberculosus*, advertisement call and distribution. *Herpetological Review* **37**(1) : 75-76.
- Inger, R.F., H.B. Shaffer, M. Koshy and R. Bakde. 1984. A report on a collection of amphibians and reptiles from Ponmudi, Kerala, South India. *J. Bombay nat. Hist. Soc.*, **81**(2) : 406-427.
- Johnsingh, A. J. T. 2001. The Kalakad–Mundanthurai Tiger Reserve : A global heritage of biological diversity. *Current Science*. Vol. **80**(3) : 378-388.
- Oommen. V.O., G.J. Measey, D.J. Gower and M. Wilkinson. 2000. Distribution and abundance of the caecilian *Gegeneophis ramaswamii* (Amphibia : Gymnophiona) in southern Kerala. *Current Science*. Vol. **79**(9) : 1386-1389.
- Pillai, R.S. 1986. Amphibian fauna of Silent valley, Kerala, S. India. *Rec. zool. Sur. India*, **84**(1-4) : 229-242.

REPTILIA

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INTRODUCTION

In continuation of the publication of the series of Fauna Volumes of the Indian States undertaken by the Zoological Survey of India, this paper presents an account of the species, genera and families of the reptiles found in the plains, hills (including the segments of Western Ghats and Eastern Ghats located in Tamilnadu) and the coastal waters of Tamilnadu. Altogether 187 species of reptiles are recorded so far from Tamilnadu of which nearly 103 species are endemic to the state (Tables I III)

Although the faunal volumes on the reptiles by Malcolm Smith (1931, 1935, 1943) continue to be the standard source of reference, various specialists of the Zoological Survey of India and other research organizations namely, Daniel 1983, Rajenderan (1985), Tikader and Sharma (1985,1992), Murthy (1985,1990,1990a), Daniels and Daniels (1992), Daniels and Ishwar (1994), Das (1997), Bhupathy and Kannan (1997), Molur and Walker (1998), Daniel (2001), Ishwar *et al.*, (2001), Sharma (2002 2003), Kalaiarasan (2003), Whitaker and Ashok Captain (2004) and Mukherjee *et al.*, (2005) have contributed greatly to our knowledge of the reptiles of Tamilnadu.

Table I. Systematic Index

S. No.	Family	Species	Common Name	Status	Threat Category
1	Crocodylia	<i>Crocodilus palustris</i> Lesson 1834	Mugger (or) Marsh crocodile		EN
2	Chelonidae	<i>Caretta caretta</i> (Linnaeus, 1758)	Loggerhead sea turtle		EN
3		<i>Chelonia mydas</i> (Linnaeus, 1758)	Green sea turtle		EN
4		<i>Eretmochelys imbricata</i> (Linnaeus, 1757)	Hawksbill sea turtle		LR
5		<i>Lepidochelys olivacea</i> (Eschscholtz, 1829)	Olive ridley sea turtle		EN
6	Dermochelyidae	<i>Dermochelys coriacea</i> (Vandelli, 1761)	Leatherback sea turtle		VU
7	Bataguridae	<i>Heosemys sylvatica</i> (Henderson, 1912)	Kawalai forest turtle	E	VU
8		<i>Melanochelys trijuga</i> (Schweigger, 1814)	Indian snail eating turtle	E	LR

Table I. Contd

S. No.	Family	Species	Common Name	Status	Threat Category
9		<i>Melanochelys trijuga thermalis</i> (Lesson, 1830)	Sri-Lanka black turtle		EN
10	Testudinidae	<i>Geochelone elegans</i> (Schoepff, 1792)	Indian star tortoise		VU
11		<i>Geochelone travancorica</i> (Boulenger, 1907)	Travancore tortoise	E	LR
12	Trionychidae	<i>Lissemys punctata granosa</i> (Schoepff, 1792)	Indian flapshell turtle		LR
13		<i>Pelochelys bibroni</i> (Owen, 1853)	Asian giant softshell turtle		LR
14		<i>Trionyx leithii</i> Gray, 1872	Peninsular soft shelled turtle	E	VU
15	Gekkonidae	<i>Calodactylodes aureus</i> Beddome, 1872	Golden gecko	E	EN
16		<i>Cnemaspis anaikattiensis</i> Mukherjee, 2005	Anaikatty day gecko	E	
17		<i>Cnemaspis beddomei</i> (Theobald, 1876)	Beddome's dwarf-gecko	E	VU
18		<i>Cnemaspis gracilis</i> (Beddome, 1870)	South Indian forest gecko	E	LR
19		<i>Cnemaspis indica</i> (Gray, 1846)	Nilgiri dwarf-gecko	E	VU
20		<i>Cnemaspis jerdoni</i> (Theobald, 1868)	Jerdon's dwarf-gecko	E	VU
21		<i>Cnemaspis kandiana</i> (Kelaart, 1852)	Kandy dwarf gecko		LR
22		<i>Cnemaspis littoralis</i> (Jerdon, 1853)	Arboreal dwarf-gecko	E	LR
23		<i>Cnemaspis mysoriensis</i> (Jerdon, 1868)	Mysore dwarf-gecko	E	DD
24		<i>Cnemaspis ornatus</i> (Beddome, 1870)	Ornate dwarf-gecko	E	VU
25		<i>Cnemaspis sisparensis</i> (Thobald, 1876)	Sispar dwarf-gecko	E	EN
26		<i>Geckoella collegalis</i> (Beddome, 1870)	Collegal rock-gecko		DD
27		<i>Geckoella nebulosus</i> (Beddome, 1870)	Clouded rock gecko	E	VU
28		<i>Hemidactylus anamallensis</i> (Gunther, 1875)	Anaimalai dravid gecko	E	LR
29		<i>Hemidactylus maculatus</i> (Dum. & Bibr., 1836)	Giant spotted gecko		LR

Table I. Contd

S. No.	Family	Species	Common Name	Status	Threat Category
30		<i>Hemidactylus subtriadrus</i> Jerdon, 1853	Blotched gecko	E	EN
31		<i>Hemidactylus triedrus</i> (Daudin, 1802)	Termite hill gecko		LR
32		<i>Hemidactylus brooki</i> Gray, 1845	Spotted Indian house gecko		LR
33		<i>Hemidactylus frenatus</i> Schlegel in : Dum. & Bibr., 1836	Southern house gecko		LR
34		<i>Hemidactylus leschenaulti</i> Dum. & Bibr., 1836	Bark gecko		LR
35		<i>Hemidactylus reticulatus</i> Beddome, 1870	Reticulate gecko	E	LR
36		<i>Hemidactylus scabriceps</i> (Annandale, 1906)	Ramnad scaled gecko		VU
37		<i>Hemidactylus giganteus</i> Stoliczka, 1871	Giant tree gecko		VU
38		<i>Hemiphyllodactylus aurantiacus</i> Beddome, 1871	Southern forest ground gecko	E	LR
39		<i>Teratolepis fasciata</i> (Blyth, 1853)	Banded scaled broad tailed gecko		DD
40	Agamidae	<i>Calotes andamanensis</i> Boulenger, 1891	Crestless green calotes	E	VU
41		<i>Calotes calotes</i> (Linnaeus, 1758)	Green calotes		LR
42		<i>Calotes ellioti</i> Gunther, 1864	South Indian hill calotes	E	LR
43		<i>Calotes grandisquamis</i> Gunther, 1875	Large scaled green lizard	E	LR
44		<i>Calotes nemoricola</i> Jerdon, 1853	Nilgiri green calotes	E	VU
45		<i>Calotes rouxi</i> Dum. & Bibr., 1837	Forest bloodsucker	E	LR
46		<i>Calotes versicolor</i> (Daudin, 1802)	Indian garden lizard		LR
47		<i>Draco dussumieri</i> Dum. & Bibr., 1837	South Indian flying lizard	E	LR
48		<i>Otocryptis beddomii</i> Boulenger, 1885	Brown ground lizard	E	VU
49		<i>Psammophilus blanfordianus</i> (Stoliczka, 1871)	Dwarf rock lizard	E	NoE
50		<i>Psammophilus dorsalis</i> (Gray in : Griffith & Pidgeon, 1834)	South Indian rock lizard	E	LR
51		<i>Salea anamallayana</i> (Beddome, 1878)	Dark brown bush lizard	E	EN

Table I. Contd

S. No.	Family	Species	Common Name	Status	Threat Category
52		<i>Salea horsfieldi</i> Gray, 1845	Green bush lizard*	E	EN
53		<i>Sitana ponticeriana</i> Cuvier, 1844	Fan-throated lizard		LR
54	Chamaeleonidae	<i>Chamaeleon zeylanicus</i> Laurenti, 1768	Indian chamaeleon		VU
55	Scincidae	<i>Dasia subcaeruleum</i> (Boulenger, 1891)	Southern arboreal skink	E	DD
56		<i>Mabuya beddomii</i> (Jerdon, 1870)	Beddome's skink		LR
57		<i>Mabuya bibroni</i> (Gray, 1838)	Sand skink		LR
58		<i>Mabuya carinata</i> (Schneider, 1801)	Common skink		LR
59		<i>Mabuya gansi</i> Das, 1991	Gans' grass skink	E	VU
60		<i>Mabuya macularius</i> (Blyth, 1853)	Bronzy grass skink		LR
61		<i>Mabuya trivittata</i> (Hardwicke & Gray, 1827)	Three lined skink	E	LR
62		<i>Riopa pruthi</i> Sharma, 1978	Pruthi's dotted skink	E	vu
63		<i>Riopa punctata</i> Gmelin, 1766	Common garden skink		LR
64		<i>Risstella travancoricus</i> (Beddome, 1871)	Travancore cat skink	E	VU
65		<i>Ristella beddomii</i> Boulenger, 1887	Beddome's cat skink	E	VU
66		<i>Ristella guentheri</i> Boulenger, 1887	Gunther's cat skink	E	VU
67		<i>Ristella rurkii</i> (Gray, 1839)	Rurk's cat skink	E	VU
68		<i>Scincella beddomei</i> (Boulenger, 1857)	Beddome's ground skink	E	DD
69		<i>Scincella bilineatum</i> (Gray, 1846)	Nilgiri ground skink	E	DD
70		<i>Scincella laterimaculatum</i> Boulenger, 1887	Block-striped ground skink	E	DD
71		<i>Scincella palnicum</i> Boettger, 1892	Palnis ground skink	E	NoE
72		<i>Scincella travancoricum</i> (Beddome, 1870)	Travancore ground skink	E	VU
73		<i>Sphenomorphous dussumieri</i> Dum. Bibr, 1839	Common Indian forest skink		VU
74	Lacertidae	<i>Ophisops jerdoni</i> Blyth, 1853	Punjab snake-eyed lacertid		DD
75		<i>Ophisops leschenaulti</i> (Milne-Edwards, 1829)	Pensnsular golden cabrita	E	LR
76		<i>Ophisops beddomei</i> (Jerdon, 1870)	Beddome's snake-eyed lacertid	E	LR

Table I. Contd

S. No.	Family	Species	Common Name	Status	Threat Category
77	Varanidae	<i>Varanus bengalensis</i> (Daudin, 1802)	Common Indian monitor		VU
78	Typhlopidae	<i>Rhamphotyphlops braminus</i> (Daudin, 1803)	Brahminy worm snake		LR
79		<i>Rhinotyphlops acutus</i> (Dum. & Bibr., 1844)	Beaked worm snake		LR
80		<i>Typhlops porrectus</i> Stoliczka, 1871	Slender worm snake		LR
81		<i>Typhlops thurstoni</i> Boettger, 1890	Thurston's worm snake	E	DD
82		<i>Typhlops tindalli</i> Smith, 1903	Tindall's worm snake	E	DD
83		<i>Typhlops beddomei</i> Boulenger, 1890	Beddome's worm snake	E	VU
84	Uropeltidae	<i>Brachyophidium rhodogaster</i> Wall, 1921	Wall's shieldtail	E	EN
85		<i>Melanophidium punctatum</i> Beddome, 1871	Pied-bellied shieldtail	E	DD
86		<i>Platyplecturus madurensis</i> Beddome, 1877	Madurai shieldtail	E	EN
87		<i>Platyplecturus trilineatus</i> Beddome, 1867	Three lined shieldtail	E	VU
88		<i>Plecturus guentheri</i> (Beddome, 1861)	Purple shieldtail	E	VU
89		<i>Plecturus perroteti</i> Dumeril, 1851	Perrotet's shieldtail	E	LR
90		<i>Rhinophis fergusonianus</i> Boulenger, 1896	Cardamom Shieldtail	E	DD
91		<i>Rhinophis sanguineus</i> Beddome, 1863	Red bellied shieldtail	E	DD
92		<i>Rhinophis travancoricus</i> Boulenger, 1892	Travancore shieldtail	E	DD
93		<i>Teretrurus sanguineus</i> (Beddome, 1867)	Western shieldtail	E	DD
94		<i>Uropeltis arcticeps</i> (Gunther, 1875)	Tirunelveli shieldtail	E	LR
95		<i>Uropeltis beddomii</i> (Gunther, 1862)	Beddome's shieldtail	E	DD
96		<i>Uropeltis broughami</i> (Beddome, 1878)	Sirumalai shieldtail	E	DD
97		<i>Uropeltis ceylanica</i> Cuvier, 1829	Kerala shieldtail	E	LR

Table I. Contd

S. No.	Family	Species	Common Name	Status	Threat Category
98		<i>Uropeltis dindigalensis</i> (Beddome, 1877)	Dindugul shieldtail	E	DD
99		<i>Uropeltis ellioti</i> (Gray, 1858)	Elliot's shieldtail	E	LR
100		<i>Uropeltis liura</i> (Gunther, 1875)	Ashambu shieldtail	E	EN
101		<i>Uropeltis macrorhynchus</i> (Beddome, 1877)	Anamalai shieldtail	E	DD
102		<i>Uropeltis maculata</i> (Beddome, 1878)	Red sided shieldtail	E	EN
103		<i>Uropeltis myhendrae</i> (Beddome, 1886)	Barred shieldtail	E	DD
104		<i>Uropeltis nitida</i> (Beddome, 1878)	Cochin shieldtail	E	DD
105		<i>Uropeltis ocellata</i> (Beddome, 1863)	Nilgiri shieldtail	E	LR
106		<i>Uropeltis petersi</i> (Beddome, 1978)	Peter's shieldtail	E	DD
107		<i>Uropeltis phipsonii</i> (Moson, 1888)	Phipson's shieldtail	E	LR
108		<i>Uropeltis pulneyensis</i> (Beddome, 1863)	Palni shieldtail	E	EN
109		<i>Uropeltis rubrolineata</i> (Beddome, 1867)	Red-lined shieldtail	E	LR
110		<i>Uropeltis rubromaculatus</i> (Beddome, 1867)	Red-spotted shieldtail	E	LR
111		<i>Uropeltis smithi</i> Gans, 1966	Violet shieldtail	E	DD
112		<i>Uropeltis woodnasoni</i> (Theobald, 1876)	Black- bellied shieldtail	E	EN
113	Boidae	<i>Eryx johnii</i> (Russell, 1801)	Red sand boa		LR
114		<i>Gongylophis concius</i> (Schneider, 1801)	Common sand boa		LR
115		<i>Python molurus</i> (Linnaeus, 1758)	Indian python		LR
116	Acrochordidae	<i>Chersydrus granulatus</i> (Schneider, 1799)	File snake		LR
117	Colubridae	<i>Ahaetulla dispar</i> (Gunther, 1864)	Gunter's vine snake	E	LR
118		<i>Ahaetulla nasuta</i> (Lacepede, 1789)	Common vine snake		LR
119		<i>Ahaetulla perroteti</i> (Dum., Bibr. & Dum., 1854)	Bronze headed vine snake	E	EN
120		<i>Ahaetulla pulverulenta</i> (Dum., Bibr. & Dum., 1854)	Brown vine snake		LR
121		<i>Amphiesma beddomei</i> (Gunther, 1864)	Beddome's keelback	E	LR

Table I. Contd

S. No.	Family	Species	Common Name	Status	Threat Category
122		<i>Amphiesma monticola</i> (Jerdon, 1853)	Green keelback	E	VU
123		<i>Amphiesma stolatum</i> (Linnaeus, 1758)	Stripped keelback		LR
124		<i>Argyrogena fasciolata</i> (Shaw, 1802)	Banded racer		LR
125		<i>Atretium schistosum</i> (Daudin, 1803)	Olivaceous keelback		LR
126		<i>Boiga beddomei</i> (Wall, 1909)	Beddome's cat snake		DD
127		<i>Boiga ceylonensis</i> (Gunther, 1858)	Ceylon cat snake		NoE
128		<i>Boiga dightoni</i> (Boulenger, 1894)	Travancore cat snake	E	EN
129		<i>Boiga forsteni</i> (Dum., Bibr. & Dum., 1854)	Forsten's cat snake		LR
130		<i>Boiga trigonata</i> (Bechstein, 1803)	Common cat snake		LR
131		<i>Cerberus rynchops</i> (Schneider, 1799)	Dog faced water snake		LR
132		<i>Chrysopelea ornata</i> (Shaw, 1802)	Ornate flying snake		LR
133		<i>Coelognathus helena</i> (Daudin, 1803)	Trinket snake		LR
134		<i>Coelognathus helena monticollais</i> (Schulz, 1992).	Montane trinket snake	E	LR
135		<i>Dendrelaphis bifrenalis</i> (Boulenger, 1890)	Travancore bronze back		EN
136		<i>Dendrelaphis caudolineolatus</i> (Gunther, 1869)	Travancore olive snake		EN
137		<i>Dendrelaphis grandoculis</i> (Boulenger, 1890)	Large-eyed bronzeback tree snake	E	VU
138		<i>Dendrelaphis pictus</i> (Gmelin, 1789)	Painted bronze back	E	NE
139		<i>Dendrelaphis tristis</i> (Daudin, 1803)	Common bronze back tree snake		LR
140		<i>Dryocalamus gracilis</i> (Gunther, 1864)	Slender bridal snake		DD
141		<i>Dryocalamus nympha</i> (Daudin, 1803)	Bridal snake		VU
142		<i>Enhydris dussumierii</i> (Dum. Bibr. & Dum., 1854)	Dussumieri's smooth scaled snake	E	LR
142		<i>Enhydris sieboldii</i> (Schlegel, 1837)	Siebold's smooth scaled water snake		LR

Table I. Contd

S. No.	Family	Species	Common Name	Status	Threat Category
143		<i>Liopeltis calmaria</i> (Gunther, 1858)	Lesser stripe-necked snake		LR
144		<i>Lycodon aulicus</i> (Linnaeus, 1758)	Common wolf snake		DD
145		<i>Lycodon flavomaculatus</i> Wall, 1907	Yellow spotted wolf snake	E	VU
146		<i>Lycodon striatus</i> (Shaw, 1802)	Barred wolf snake		LR
147		<i>Lycodon travancoricus</i> Beddome Shaw, 1802	Travancore wolf snake	E	LR
148		<i>Macropisthodon plumbicolor</i> (Cantor, 1839)	Green keelback		VU
149		<i>Oligodon affinis</i> (Gunther, 1862)	Western kukri snake	E	LR
150		<i>Oligodon arnensis</i> (Shaw, 1802)	Common kukri snake		LR
151		<i>Oligodon brevicaudus</i> (Gunther, 1862)	Striped kukri snake	E	LR
152		<i>Oligodon nikhili</i> (Whitaker & Dattatri 1982)	Nikhil's kukri snake	E	CR
153		<i>Oligodon taeniolatus</i> (Jerdon, 1853)	Russell's kukri snake		LR
154		<i>Oligodon travancoricus</i> (Beddome, 1877)	Travancore kukri snake	E	EN
155		<i>Oligodon venustus</i> (Jerdon, 1853)	Black-spotted kukri snake	E	LR
156		<i>Pythas mucosus</i> (Linnaeus, 1758)	Indian rat snake		LR
157		<i>Sibnyophis subpunctatus</i> (Dum., Bibr. & Dum.)	Dumeril's black-headed snake		EN
158		<i>Xenochrophis piscator</i> (Schneider, 1799)	Checkered keelback		LR
159		<i>Xylophis perroteti</i> (Dum., Bibr. & Dum., 1854)	Striped narrow-headed snake	E	EN
160		<i>Xylophis stenorhynchus</i> (Gunther, 1875)	Gunther's narrow-headed snake	E	EN
161	Elapidae	<i>Bungarus caeruleus</i> (Schneider, 1801)	Common krait		LR
162		<i>Calliophis melanurus</i> (Shaw, 1802)	Slender coral snake		LR
163		<i>Calliophis beddomei</i> Smith, 1943	Beddome's coral snake	E	VU
164		<i>Calliophis nigrescens</i> (Gunther, 1862)	Striped coral snake	E	LR
165		<i>Calliophis bibroni</i> (Jen, 1858)	Bibron's coral snake		LR
166		<i>Naja naja</i> (Linnaeus, 1758)	Spectacled cobra		LR

Table I. Contd

S. No.	Family	Species	Common Name	Status	Threat Category
167		<i>Ophiophagus hannah</i> (Cantor, 1836)	King cobra		LR
168	Hydrophidae	<i>Enhydrina schistosus</i> (Daudin, 1803)	Hook-nosed sea snake		DD
169		<i>Hydrophis caeruleus</i> (Shaw, 1802)	Many-toothed sea snake		DD
170		<i>Hydrophis cyanocinctus</i> Daudin, 1803	Annulated sea snake		DD
171		<i>Hydrophis fasciatus</i> (Schneider, 1799)	Banded sea snake		NoE
172		<i>Hydrophis gracilis</i> (Shaw, 1802)	Small headed sea snake		DD
173		<i>Hydrophis obscurus</i> Daudin, 1803	Estuarine sea snake		NoE
174		<i>Hydrophis ornatus</i> Gray, 1842	Ornate sea snake		NoE
175		<i>Hydrophis spiralis</i> Shaw, 1802	Yellow sea snake		DD
176		<i>Kerilia jerdoni</i> Gray, 1849	Jerdon's sea snake		DD
177		<i>Lapemis curtus</i> (Shaw, 1802)	Short sea snake		NoE
178		<i>Pelamis platurus</i> (Linnaeus, 1766)	Black and yellow sea snake		NoE
179		<i>Praescutata viperina</i> (Schmidt, 1852)	Viperine sea snake		NoE
180	Viperidae	<i>Dabioa russelli</i> (Shaw & Nodder, 1797)	Russell's viper		LR
181		<i>Echis carinatus</i> (Schneider, 1801)	Saw-scaled viper		LR
182		<i>Hypnale hypnale</i> (Merrem, 1820)	Hump-nosed pit viper		LR
183		<i>Trimeresurus macrolepis</i> Beddome, 1862	Large-scaled pit viper	E	LR
184		<i>Trimeresurus malabaricus</i> (Jerdon, 1854)	Malabar pit viper	E	LR
185		<i>Trimeresurus strigatus</i> Gray, 1842	Horse-shoe pit viper	E	LR
186		<i>Trimeresurus gramineus</i> (Shaw, 1802)	Bamboo pit viper	E	LR
187		<i>Trimeresurus huttoni</i> (Smith, 1949)	Hutton's pit viper	E	LR

E – Endemic : CR – Critical, EN – Endangered, VU – Vulnerable, LR – Lower Risk, NoE – Not Evaluated, DD – Data Deficient

Table II. Synopsis Of The Reptilian Taxa And Reptilian Diversity

Class	No. of Species in World	No. of Species in India	No. of Species in Tamilnadu	Percentage of species in Tamilnadu
Order : Crocodilia	22	3	1	33
Testudines	242	35	13	37.14
Squamata Suborder Sauria (Lacertilia)	2808	178	63	35.39
Suborder Ophidia (Serpentes)	2744	244	110	45.01
Rhyncocephlia	1			
Total	5817	460	187	40.86

Table III. Composition of The Endemic Reptiles of Tamil Nadu

Class	No. of species in TN	No. of Endemic species in TN	Percentage of Endemic species in TN
Order : Crocodilia	1		
Testudines	13	4	30.76
Squamata Suborder Sauria (Lacertilia)	63	41	65.07
Suborder Ophidia (Serpentes)	110	58	52.72
Total	187	103	55.08

SUMMARY

An updated systematic index to the reptiles of Tamilnadu is presented showing the percentage of endemism of each group arranged in three

tables. Of the 187 species of reptiles found in Tamilnadu, it is found that the snakes dominate accounting for 110 species, followed by 63 species of lizards, 13 species of turtles and tortoises and 1 species of crocodile.

REFERENCES

- Daniel, J.C. 1983. The book of Indian Reptiles. 141pp. Published by the Bombay Natural History Society Hornbill House, Shahid Bhagat Road, Mumbai.
- Daniels, R.J.R. 2001. Amphibians and reptiles of the Tamilnadu Eastern and Western Ghats. *Cobra*, 43 : 1-8.

- Daniels A.E.D and Daniels ,R. J.R 1992. An account of the herpetofauna in Western Ghats of Kanyakumari District of Tamilnadu. *Cobra*, **10** : 3-7.
- Daniels, R.J.R and N.M. Ishwar 1994.Rarity and the herpetofauna of the southern Eastern Ghats, India. *Cobra*, **16** : 2-14.
- Das, I. 1997. Checklist of the reptiles of India, with English common names, *Hamadryad*, **22**(1) : 32-45.
- Ishwar, N. M., Ravi Chellam and Ajith Kumar. 2001. Distribution of forests floor reptiles in the rain forests of Kalakad-Mundanthurai Tiger Reserve, South India. *Curr. Sci.*, **80**(3) : 413-418.
- Kalaarasan. V. 2003. Reptiles of Mudumalai Wildlife Sanctuary, Tamilnadu. *Cobra*, **54** : 20-22.
- Molur,S and Walker (eds) 1998. Report of the Workshop "Conservation Assessment and Management Plan for reptiles of India" (BCCP-Endangered Species Project), Zoo Outreach Organization, Conservation Breeding Specialist Group, Coimbatore, India, 175 pp.
- Mukherjee D., Bhupathy S and Nixon A.M.A. 2005. A new species of day Gecko (Squamata, Gekkonidae, *Cnemaspis*) from the Anaikattai Hills, Western Ghats, Tamilnadu, India. *Curr. Sci.*, **89**(8) : 1326-1328.
- Murthy, T.S.N. 1985. A field guide to the lizards of Western Ghats. *Rec. zool. Surv. India, Misc. Occ. Paper*, **72** : 51pp.
- Murthy, T.S.N. 1990. Illustrated field guide to the snakes of the Western Ghats, India. *Rec. zool. Surv. India Misc. Occ. Paper*, **114** : 76pp.
- Murthy, T.S.N. 1990a. A field book of the lizards of India. *Rec. zool. Surv. India, Misc. Occ. Paper*, **115** : 116 pp.
- Rajenderan. M.V. 1985 Studies in Uropeltid snakes. A Ph.D thesis submitted to Madurai Kamaraj University, Madurai.
- Smith, M.A. 1931. The fauna of British India including Ceylon and Burma. Reptilia and Amphibia-Loricata, Testudines, **I** : 185pp. Taylor and Francis, London.
- Smith, M. A. 1935. The fauna of British India including Ceylon and Burma. Reptilia and Amphibia-Sauria, **II** : 440pp. Taylor and Francis, London
- Smith, M. A. 1943. The fauna of British India including Ceylon and Burma. Reptilia and Amphibia-Serpentes, **III** : 583pp. Taylor and Francis, London.
- Sharma, R.C.1998, *Fauna of India-Reptilia (Testudines and Crocodilia)*. Vol. **I** : XVI +196 pp. (Published by the Director, Zoological Survey of India, Kolkata).
- Sharma, R.C. 2002 *The fauna of India and the adjacent countries. Reptilia (Sauria)*. Volume **II** : 430 pp (Published by the Director, Zoological Survey of India, Kolkata).
- Sharma, R.C. 2003. *Handbook- Indian Snakes* : 292pp. (Published by the Director, Zoological Survey of India, Kolkata).

- Tikader, B.K. and R.C. Sharma 1985. Hand book of Indian Testudines, 156pp. (Published by the Director, Zoological Survey of India, Kolkata).
- Tikader, B.K. and R.C. Sharma 1992. Hand book of Indian Lizards, 250pp. (Published by the Director, Zoological Survey of India, Kolkata).
- Whitaker R and Ashok Captain, 2004. The Field Guide to Snakes of India, 481pp. Published by Draco Books, Chengalpattu, Tamilnadu, India.

AVES

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INTRODUCTION

The avifaunal spectrum of Tamilnadu is quite wide, netting elements from 74 families accommodated in 254 genera and distributed in 493 species. There is no thumb rule on the number of families as far as India is concerned, never the less, it varies from 48 families (Islam & Rahmani, 2004) to 75 families (Manakadan & Pittie, 2002) and 1300 species to 1400 species. From the biodiversity point of view there is agreement that the Indian subcontinent can boast of the presence of 13% of world avifauna. There is little doubt that India has been the recipient of avian elements from the Palaearctic, Ethiopian, Indo-Chinese and (Indo)-Malayan subregions, the dominant being the Indo-Chinese group. At the same time, India has been a center for dispersal too (Islam & Rahmani, 2004). Ali and Ripley (1987) consider that the majority of our birds are primarily adapted to life in jungles or heavy forests and the stable climate had been ideal for evolution of a wide array of species of birds. It is quite reasonable to expect more endemic elements from the Indo-Chinese segment, 109 species or 62% with equal number (30 species) from both Palaearctic and Ethiopian subregions. One can understand that in the peninsular part of India distinctive groups of families occur, thanks to the mega diversity spot the Western Ghats. Due to extensive taxonomic research inputs during the last two centuries, it may not be possible for a worker to report a new species in the near future, and the work of Ramussen and Anderton (2005) reports mostly subspecies elevated to species level (Islam & Rahmani, 2004).

Narrowing down our work to Tamilnadu, where more than 450 species are expected to dwell, the singular point to be reckoned with, as Islam & Rahmani (2004) observe, is the non-availability of an annotated checklist. The added importance is the presence of 25 protected areas (5 National Parks and 20 Sanctuaries) and one of the protected areas Point Calimere Wildlife and Bird Sanctuary is a Ramsar site. Very dense, moderately dense and open forest areas totaling to a 22643 Km² forest cover accounts for 17.41% of geographic area of Tamilnadu (Wild Biodiversity of Tamilnadu, Forest Department). Islam & Rahmani (2004) have estimated the occurrence of birds in Tamilnadu around 450 species. BirdLife International (2001) lists 15 species as Vulnerable in Tamilnadu (out of 57 species of India). A number of workers, including Blanford (1867), Fairbank (1877), Whistler and Kinnear (1931-37), Nichols (1937, 1943-45), Williams (1937), Barnes (1938 - 1939), Biddulph (1938), Koelz (1948), Phythian-Adams (1948), Ali (1969), Kahn (1980), Selvakumar *et al.*, (1981), Sugathan (1983 & 1985), Ali and Ripley (1987), Ahimaz (1990), Daniels (1992), Kannan (1992 & 1998), Karthikeyan and Athreya (1993), Thomas and Balan (1993), Balachandran (1995), Karthikeyan (1995), Chandrasekar (1996), Gokula and Vijayan (1996), Santharam (1996 & 1999), Grimmet *et al.*, (1999), Manakadan & Pittie (2002), Balasubramanian and Vijayan (2004), Kannan (2004), Grimmet & Inskipp (2005), Murugavel *et al.*, (2005) and Thirumalai & Krishnan (2005) have

contributed to ornithological infobase of Tamilnadu. This work is the out come of the records of observation by the survey tour parties of the Southern Regional Station for over two

decades collated with information extracted from literature available in the Tamilnadu Forest Department. We report here the occurrence of 493 species of avifaunal constituents.

List of birds of Tamilnadu

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
1.	Podicipedidae	Little Grebe	● <i>Tachybaptus ruficollis</i>			S-IV
2.	Hydrobatidae	Wilson's Storm- Petrel	■ <i>Oceanites oceanicus</i>			S-IV
3.	Hydrobatidae	Swinhoe's Storm-Petrel	▲ <i>Oceanodroma monorhis</i>			S-IV
4.	Phaethontidae	Yellow-billed Tropicbird	▲ <i>Phaethon lepturus</i>			S-IV
5.	Pelecanidae	Spot-billed Pelican	# <i>Pelecanus philippensis</i>		VU	S-IV
6.	Phalacrocoracidae	Indian Shag	# <i>Phalacrocorax fuscicollis</i>			S-IV
7.	Phalacrocoracidae	Great Cormorant	# <i>Phalacrocorax carbo</i>			S-IV
8.	Phalacrocoracidae	Little Cormorant	● <i>Phalacrocorax niger</i>			S-IV
9.	Anhingidae	Darter	# <i>Anhinga melanogaster</i>		NT	S-IV
10.	Ardeidae	Grey Heron	▼ <i>Ardea cinerea</i>			S-IV
11.	Ardeidae	Purple Heron	# <i>Ardea purpurea</i>			S-IV
12.	Ardeidae	Little Green Heron	# <i>Butorides striatus</i>			S-IV
13.	Ardeidae	Indian Pond Heron	● <i>Ardeola grayii</i>			S-IV
14.	Ardeidae	Cattle Egret	● <i>Bubulcus ibis</i>			S-IV
15.	Ardeidae	Large Egret	● <i>Casmerodius albus</i>			S-IV
16.	Ardeidae	Median Egret	● <i>Mesophoyx intermedia</i>			S-IV
17.	Ardeidae	Little Egret	● <i>Egretta garzetta</i>			S-IV
18.	Ardeidae	Western Reef Egret	▲ <i>Egretta gularis</i>			S-IV
19.	Ardeidae	Black-crowned Night Heron	● <i>Nycticorax nycticorax</i>			S-IV
20.	Ardeidae	Malayan Night- Heron	▲ <i>Gorsachius melanolophus</i>			S-IV
21.	Ardeidae	Chestnut Bittern	# <i>Ixobrychus cinnamomeus</i>			S-IV
22.	Ardeidae	Yellow Bittern	# <i>Ixobrychus sinensis</i>			S-IV
23.	Ardeidae	Black Bittern	# <i>Dupetor flavicollis</i>			S-IV
24.	Ardeidae	Great Bittern	■ <i>Botaurus stellaris</i>			S-IV
25.	Ciconiidae	Painted Stork	# <i>Mycteria leucocephala</i>		NT	S-IV
26.	Ciconiidae	Asian Openbill Stork	# <i>Anastomus oscitans</i>			S-IV
27.	Ciconiidae	White-necked Stork	# <i>Ciconia episcopus</i>			S-IV
28.	Ciconiidae	European White Stork	■ <i>Ciconia ciconia</i>			S-IV
29.	Ciconiidae	Black Stork	▲ <i>Ciconia nigra</i>			S-IV
30.	Ciconiidae	Black-necked Stork	# <i>Ephippiorhynchus asiaticus</i>		NT	S-IV
31.	Ciconiidae	Lesser Adjutant Stork	▲ <i>Leptoptilos javanicus</i>		VU	S-IV
32.	Ciconiidae	Greater Adjutant-Stork	■ <i>Leptoptilos dubius</i>			S-IV
33.	Threskiornithidae	Glossy Ibis	■ <i>Plegadis falcinellus</i>			S-IV

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
34.	Threskiornithidae	Oriental White Ibis	# <i>Threskiornis melanocephalus</i>		NT	S-IV
35.	Threskiornithidae	Black Ibis	# <i>Pseudibis papillosa</i>			S-IV
36.	Threskiornithidae	Eurasian Spoonbill	# <i>Platalea leucorodia</i>			S-I
37.	Phoenicopteridae	Greater Flamingo	■ <i>Phoenicopeterus ruber</i>			S-IV
38.	Phoenicopteridae	Lesser Flamingo	■ <i>Phoenicopeterus minor</i>		NT	S-IV
39.	Anatidae	Lesser Whistling-Duck	# <i>Dendrocygna javanica</i>			S-IV
40.	Anatidae	Large Whistling-Duck	# <i>Dendrocygna bicolor</i>			S-I
41.	Anatidae	Bar-headed Goose	■ <i>Anser indicus</i>			S-IV
42.	Anatidae	Brahminy Shelduck	■ <i>Tadorna ferruginea</i>			S-IV
43.	Anatidae	Comb Duck	# <i>Sarkidiornis melanotos</i>			S-IV
44.	Anatidae	Northern Pintail	■ <i>Anas acuta</i>			S-IV
45.	Anatidae	Common Teal	■ <i>Anas crecca</i>			S-IV
46.	Anatidae	Spot-billed Duck	# <i>Anas poecilorhyncha</i>			S-IV
47.	Anatidae	Mallard	■ <i>Anas platyrhynchos</i>			S-IV
48.	Anatidae	Gadwall	▲ <i>Anas strepera</i>			S-IV
49.	Anatidae	Eurasian Wigeon	■ <i>Anas penelope</i>			S-IV
50.	Anatidae	Garganey	▼ <i>Anas querquedula</i>			S-IV
51.	Anatidae	Northern Shoveller	■ <i>Anas clypeata</i>			S-IV
52.	Anatidae	Red-Crested Pochard	■ <i>Rhodonessa rufina</i>			S-IV
53.	Anatidae	Ferruginous Pochard	▲ <i>Aythya nyroca</i>		NT	S-IV
54.	Anatidae	Common Pochard	■ <i>Aythya ferina</i>			S-IV
55.	Anatidae	Tufted Pochard	■ <i>Aythya fuligula</i>			S-IV
56.	Anatidae	Cotton Teal	# <i>Nettapus coromandelianus</i>		S-IV	
57.	Accipitridae	Black-shouldered Kite	# <i>Elanus caeruleus</i>			S-I
58.	Accipitridae	Jerdon's Baza	# <i>Aviceda jerdoni</i>			S-I
59.	Accipitridae	Black Baza	■ <i>Aviceda leuphotes</i>			S-I
60.	Accipitridae	Oriental Honey-Buzzard	# <i>Pernis ptilorhynchus</i>			S-I
61.	Accipitridae	Black Kite	● <i>Milvus migrans</i>			S-I
62.	Accipitridae	Brahminy Kite	● <i>Haliastur indus</i>			S-I
63.	Accipitridae	White-bellied Sea-Eagle	# <i>Haliaeetus leucogaster</i>			S-I
64.	Accipitridae	White-tailed Sea-Eagle	■ <i>Haliaeetus albicilla</i>		NT	S-IV
65.	Accipitridae	Shikra	◆ <i>Accipiter badius</i>			S-I
66.	Accipitridae	Crested Goshawk	# <i>Accipiter trivirgatus</i>			S-I
67.	Accipitridae	Eurasian Sparrow-hawk	■ <i>Accipiter nisus</i>			S-I
68.	Accipitridae	Besra Sparrow-hawk	# <i>Accipiter virgatus</i>			S-I
69.	Accipitridae	Long-legged Buzzard	▲ <i>Buteo rufinus</i>			S-I
70.	Accipitridae	Common Buzzard	■ <i>Buteo buteo</i>			S-I
71.	Accipitridae	White-eyed Buzzard	# <i>Butastur teesa</i>			S-I
72.	Accipitridae	Mountain Hawk-Eagle	# <i>Spizaetus nipalensis</i>			S-I

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
73.	Accipitridae	Changeable Hawk-Eagle	# <i>Spizaetus cirrhatus</i>			S-I
74.	Accipitridae	Bonelli's Eagle	# <i>Hieraaetus fasciatus</i>			S-I
75.	Accipitridae	Booted Eagle	■ <i>Hieraaetus pennatus</i>			S-I
76.	Accipitridae	Rufous-bellied Eagle	# <i>Hieraaetus kienerii</i>			S-I
77.	Accipitridae	Greater Spotted Eagle	■ <i>Aquila clanga</i>		VU	S-I
78.	Accipitridae	Tawny Eagle	# <i>Aquila rapax</i>			S-I
79.	Accipitridae	Steppe Eagle	▲ <i>Aquila nipalensis</i>			S-I
80.	Accipitridae	Black Eagle	# <i>Ictinaetus malayensis</i>			S-I
81.	Accipitridae	Greater Grey-headed Fish Eagle	# <i>Ichthyophaga ichthyaetus</i>		NT	S-I
82.	Accipitridae	Red-headed Vulture	# <i>Sarcogyps calvus</i>		NT	S-IV
83.	Accipitridae	Long-billed Vulture	# <i>Gyps indicus</i>		CR	S-IV
84.	Accipitridae	Indian White-backed Vulture	# <i>Gyps bengalensis</i>		CR	S-IV
85.	Accipitridae	Eurasian Griffon	▲ <i>Gyps fulvus</i>			S-IV
86.	Accipitridae	Egyptian Vulture	◆ <i>Neophron percnopterus</i>			S-IV
87.	Accipitridae	Pallid Harrier	■ <i>Circus macrourus</i>		NT	S-I
88.	Accipitridae	Montagu's Harrier	■ <i>Circus pygargus</i>			S-I
89.	Accipitridae	Pied Harrier	■ <i>Circus melanoleucos</i>			S-I
90.	Accipitridae	Western Marsh Harrier	◆ <i>Circus aeruginosus</i>			S-I
91.	Accipitridae	Short-toed Snake Eagle	# <i>Circaetus gallicus</i>			S-I
92.	Accipitridae	Crested Serpent Eagle	# <i>Spilornis cheela</i>			S-I
93.	Pandionidae	Osprey	■ <i>Pandion haliaetus</i>			S-I
94.	Falconidae	Peregrine Falcon	# <i>Falco peregrinus</i>			S-I
95.	Falconidae	Red-headed Falcon	■ <i>Falco chicquera</i>			S-I
96.	Falconidae	Common Kestrel	◆ <i>Falco tinnunculus</i>			S-IV
97.	Falconidae	Lesser Kestrel	▲ <i>Falco naumanni</i>		VU	S-IV
98.	Falconidae	Amur Falcon	▲ <i>Falco amurensis</i>			S-IV
99.	Falconidae	Eurasian Hobby	■ <i>Falco subbuteo</i>			S-IV
100.	Falconidae	Laggar	# <i>Falco jugger</i>			S-IV
101.	Phasianidae	Common Quail	▼ <i>Coturnix coturnix</i>			S-IV
102.	Phasianidae	Rain Quail	# <i>Coturnix coromandelica</i>			S-IV
103.	Phasianidae	Blue-breasted Quail	# <i>Coturnix chinensis</i>			S-IV
104.	Phasianidae	Grey Francolin	# <i>Francolinus pondicerianus</i>		S-IV	
105.	Phasianidae	Jungle Bush-Quail	# <i>Perdica asitica</i>			S-IV
106.	Phasianidae	Rock Bush-Quail	# <i>Perdica argoondah</i>			S-IV
107.	Phasianidae	Painted Bush-Quail	# <i>Perdica erythrorhyncha</i>			S-IV
108.	Phasianidae	Red Spurfowl	# <i>Galloperdix spadicea</i>			S-IV
109.	Phasianidae	Painted Spurfowl	● <i>Galloperdix lunulata</i>			S-IV
110.	Phasianidae	Grey Junglefowl	◆ <i>Gallus sonneratii</i>			S-IV
111.	Phasianidae	Indian Peafowl	# <i>Pavo cristatus</i>			S-IV

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
112.	Turnicidae	Yellow-legged Buttonquail	# <i>Turnix tanki</i>			S-IV
113.	Turnicidae	Small Buttonquail	# <i>Turnix sylvatica</i>			S-IV
114.	Turnicidae	Common Buttonquail	# <i>Turnix suscitator</i>			S-IV
115.	Gruidae	Demoiselle Crane	▲ <i>Grus virgo</i>			S-IV
116.	Rallidae	Blue-breasted Rail	# <i>Gallirallus striatus</i>			S-IV
117.	Rallidae	Slaty-legged Crake	# <i>Rallina eurizonoides</i>			S-IV
118.	Rallidae	Ruddy-breasted Crake	# <i>Porzana fusca</i>			S-IV
119.	Rallidae	Water Rail	▲ <i>Rallus aquaticus</i>			S-IV
120.	Rallidae	White-breasted Waterhen	# <i>Amaurornis akool</i>			S-IV
121.	Rallidae	White-breasted Waterhen	# <i>Amaurornis phoenicurus</i>			S-IV
122.	Rallidae	Watercock	# <i>Gallicrex cinerea</i>			S-IV
123.	Rallidae	Common Moorhen	# <i>Gallinula chloropus</i>			S-IV
124.	Rallidae	Purple Moorhen	# <i>Porphyrio porphyrio</i>			S-IV
125.	Rallidae	Common Coot	# <i>Fulica atra</i>			S-IV
126.	Otididae	Great Indian Bustard	# <i>Ardeotis nigriceps</i>			S-IV
127.	Jacanidae	Pheasant-tailed Jacana	# <i>Hydrophasianus chirurgus</i>		S-IV	
128.	Jacanidae	Bronze-winged Jacana	# <i>Metopidius indicus</i>			S-IV
129.	Rostratulidae	Greater Painted-Snipe	# <i>Rostratula benghalensis</i>			S-IV
130.	Haematopodidae	Eurasian Oystercatcher	■ <i>Haematopus ostralegus</i>			S-IV
131.	Charadriidae	Pacific Golden-Plover	◆ <i>Pluvialis fulva</i>			S-IV
132.	Charadriidae	Grey Plover	■ <i>Pluvialis squatarola</i>			S-IV
133.	Charadriidae	Greater Sand Plover	■ <i>Charadrius leschenaultii</i>			S-IV
134.	Charadriidae	Common Ringed Plover	■ <i>Charadrius hiaticula</i>			S-IV
135.	Charadriidae	Little Ringed Plover	# <i>Charadrius dubius</i>			S-IV
136.	Charadriidae	Kentish Plover	■ <i>Charadrius alexandrinus</i>			S-IV
137.	Charadriidae	Lesser Sand Plover	■ <i>Charadrius mongolus</i>			S-IV
138.	Charadriidae	Red-wattled Lapwing	● <i>Vanellus indicus</i>			S-IV
139.	Charadriidae	Yellow-wattled Lapwing	● <i>Vanellus malabaricus</i>			S-IV
140.	Scolopacidae	Whimbrel	■ <i>Numenius phaeopus</i>			S-IV
141.	Scolopacidae	Eurasian Curlew	■ <i>Numenius arquata</i>			S-IV
142.	Scolopacidae	Black-tailed Godwit	■ <i>Limosa limosa</i>			S-IV
143.	Scolopacidae	Bar-tailed Godwit	■ <i>Limosa lapponica</i>			S-IV
144.	Scolopacidae	Spotted Redshank	■ <i>Tringa erythropus</i>			S-IV
145.	Scolopacidae	Common Redshank	■ <i>Tringa totanus</i>			S-IV
146.	Scolopacidae	Marsh Sandpiper	■ <i>Tringa stagnatilis</i>			S-IV
147.	Scolopacidae	Spotted Greenshank	# <i>Tringa guttifer</i>		EN	S-IV
148.	Scolopacidae	Common Greenshank	■ <i>Tringa nebularia</i>			S-IV
149.	Scolopacidae	Green Sandpiper	■ <i>Tringa ochropus</i>			S-IV
150.	Scolopacidae	Wood Sandpiper	▼ <i>Tringa glareola</i>			S-IV
151.	Scolopacidae	Terek Sandpiper	■ <i>Xenus cinereus</i>			S-IV

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
152.	Scolopacidae	Common Sandpiper	▼ <i>Actitis hypoleucos</i>			S-IV
153.	Scolopacidae	Ruddy Turnstone	■ <i>Arenaria interpres</i>			S-IV
154.	Scolopacidae	Asian Dowitcher	■ <i>Limnodromus semipalmatus</i>		NT	S-IV
155.	Scolopacidae	Pintail Snipe	▼ <i>Gallinago stenura</i>			S-IV
156.	Scolopacidae	Swinhoe's Snipe	■ <i>Gallinago megala</i>			S-IV
157.	Scolopacidae	Common Snipe	■ <i>Gallinago gallinago</i>			S-IV
158.	Scolopacidae	Wood Snipe	■ <i>Gallinago nemoricola</i>			S-IV
159.	Scolopacidae	Jack Snipe	■ <i>Lymnocyptes minimus</i>			S-IV
160.	Scolopacidae	Eurasian Woodcock	■ <i>Scolopax rusticola</i>			S-IV
161.	Scolopacidae	Red Knot	■ <i>Calidris canutus</i>			S-IV
162.	Scolopacidae	Great Knot	■ <i>Calidris tenuirostris</i>			S-IV
163.	Scolopacidae	Sanderling	■ <i>Calidris alba</i>			S-IV
164.	Scolopacidae	Little Stint	▼ <i>Calidris minuta</i>			S-IV
165.	Scolopacidae	Temminck's Stint	▼ <i>Calidris temminckii</i>			S-IV
166.	Scolopacidae	Long-toed Stint	■ <i>Calidris subminuta</i>			S-IV
167.	Scolopacidae	Dunlin	■ <i>Calidris alpina</i>			S-IV
168.	Scolopacidae	Curlew Sandpiper	■ <i>Calidris ferruginea</i>			S-IV
169.	Scolopacidae	Spoonbill Sandpiper	■ <i>Calidris pygmeus</i>		VU	S-IV
170.	Scolopacidae	Rufous-necked Stint	■ <i>Calidris ruficollis</i>			S-IV
171.	Scolopacidae	Broad-billed Sandpiper	■ <i>Limicola falcinellus</i>			S-IV
172.	Scolopacidae	Ruff	■ <i>Philomachus pugnax</i>			S-IV
173.	Recurvirostridae	Black-winged Stilt	# <i>Himantopus himantopus</i>			S-IV
174.	Recurvirostridae	Pied Avocet	■ <i>Recurvirostra avosetta</i>			S-IV
175.	Phalaropidae	Red-necked Phalarope	■ <i>Phalaropus lobatus</i>			S-IV
176.	Dromadidae	Crab-Plover	▲ <i>Dromas ardeola</i>			S-IV
177.	Burhinidae	Stone-Curlew	# <i>Burhinus oedicnemus</i>			S-IV
178.	Burhinidae	Great Stone-Plover	# <i>Esacus recurvirostris</i>			S-IV
179.	Glareolidae	Indian Courser	# <i>Cursorius coromandelicus</i>		S-IV	
180.	Glareolidae	Oriental Pratincole	■ <i>Glareola maldivarum</i>			S-IV
181.	Glareolidae	Small Pratincole	# <i>Glareola lactea</i>			S-IV
182.	Stercorariidae	Brown skua	▲ <i>Catharacta antarctica</i>			S-IV
183.	Laridae	Heuglin's Gull	■ <i>Larus heuglini</i>			S-IV
184.	Laridae	Yellow-legged Gull	■ <i>Larus cachinnans</i>			S-IV
185.	Laridae	Pallas's Gull	■ <i>Larus ichthyaetus</i>			S-IV
186.	Laridae	Brown-headed Gull	■ <i>Larus brunnicephalus</i>			S-IV
187.	Laridae	Black-headed Gull	■ <i>Larus ridibundus</i>			S-IV
188.	Laridae	Slender-billed Gull	▲ <i>Larus genei</i>			S-IV
189.	Laridae	Whiskered Tern	■ <i>Chlidonias hybridus</i>			S-IV
190.	Laridae	White-winged Black Tern	■ <i>Chlidonias leucopterus</i>			S-IV
191.	Laridae	Black Tern	▲ <i>Chlidonias niger</i>			S-IV

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
192.	Laridae	Brown Noddy	▲ <i>Anous stolidus</i>			S-IV
193.	Laridae	Gullbilled Tern	■ <i>Gelochelidon nilotica</i>			S-IV
194.	Laridae	Caspian Tern	■ <i>Sterna caspia</i>			S-IV
195.	Laridae	Common Tern	■ <i>Sterna hirundo</i>			S-IV
196.	Laridae	Roseate Tern	* <i>Sterna dougallii</i>			S-IV
197.	Laridae	Black-bellied Tern	# <i>Sterna acuticauda</i>		NT	S-IV
198.	Laridae	Bridled Tern	▲ <i>Sterna anaethetus</i>			S-IV
199.	Laridae	Little Tern	■ <i>Sterna albifrons</i>			S-IV
200.	Laridae	Large Crested Tern	# <i>Sterna bergii</i>			S-IV
201.	Laridae	Lesser Crested Tern	■ <i>Sterna bengalensis</i>			S-IV
202.	Laridae	Sooty Tern	▲ <i>Sterna fuscata</i>			S-IV
203.	Laridae	Sandwich Tern	■ <i>Sterna sandvicensis</i>			S-IV
204.	Laridae	River Tern	■ <i>Sterna aurantia</i>			S-IV
205.	Laridae	Saunders's Tern	# <i>Sterna saundersi</i>			S-IV
206.	Laridae	White-cheeked Tern	▲ <i>Sterna repressa</i>			S-IV
207.	Rynchopidae	Indian Skimmer	# <i>Rynchops albicollis</i>			S-IV
208.	Pteroclididae	Chestnut-bellied Sandgrouse	# <i>Pterocles exustus</i>			S-IV
209.	Pteroclididae	Painted Sandgrouse	# <i>Pterocles indicus</i>			S-IV
210.	Columbidae	Pompador Green-Pigeon	● <i>Treron pompadora</i>			S-IV
211.	Columbidae	Orange-breasted Green-Pigeon	# <i>Treron bicincta</i>			S-IV
212.	Columbidae	Yellow-legged Green-Pigeon	# <i>Treron phoenicoptera</i>			S-IV
213.	Columbidae	Green Imperial-Pigeon	# <i>Ducula aenea</i>			S-IV
214.	Columbidae	Mountain Imperial-Pigeon	# <i>Ducula badia</i>			S-IV
215.	Columbidae	Blue Rock Pigeon	# <i>Columba livia</i>			S-IV
216.	Columbidae	Nilgiri Wood-Pigeon	◆ <i>Columba elphinstonii</i>	E	VU	S-IV
217.	Columbidae	Oriental Turtle-Dove	■ <i>Streptopelia orientalis</i>			S-IV
218.	Columbidae	Red Collared-Dove	● <i>Streptopelia tranquebarica</i>			S-IV
219.	Columbidae	Eurasian Collared-Dove	● <i>Streptopelia decaocto</i>			S-IV
220.	Columbidae	Spotted Dove	● <i>Streptopelia chinensis</i>			S-IV
221.	Columbidae	Little Brown Dove	● <i>Streptopelia senegalensis</i>			S-IV
222.	Columbidae	Emerald Dove	# <i>Chalcophaps indica</i>			S-IV
223.	Psittacidae	Alexandrine Parakeet	# <i>Psittacula eupatria</i>			S-IV
224.	Psittacidae	Rose-ringed Parakeet	● <i>Psittacula krameri</i>			S-IV
225.	Psittacidae	Plum-headed Parakeet	● <i>Psittacula cyanocephala</i>			S-IV
226.	Psittacidae	Blue-winged Parakeet	# <i>Psittacula columboides</i>	E		S-IV
227.	Psittacidae	Indian Hanging-Parrot	◆ <i>Loriculus vernalis</i>			S-IV
228.	Cuculidae	Red-winged Crested Cuckoo	■ <i>Clamator coromandus</i>			S-IV
229.	Cuculidae	Pied Crested Cuckoo	* <i>Clamator jacobinus</i>			S-IV
230.	Cuculidae	Large Hawk-Cuckoo	■ <i>Hierococcyx sparveroides</i>			S-IV

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
231.	Cuculidae	Brainfever Bird	● <i>Hierococcyx varius</i>			S-IV
232.	Cuculidae	Indian Cuckoo	▲ <i>Cuculus micropterus</i>			S-IV
233.	Cuculidae	Common Cuckoo	■ <i>Cuculus canorus</i>			S-IV
234.	Cuculidae	Lesser Cuckoo	■ <i>Cuculus poliocephalus</i>			S-IV
235.	Cuculidae	Banded Bay Cuckoo	# <i>Cacomantis sonneratii</i>			S-IV
236.	Cuculidae	Indian Plaintive Cuckoo	# <i>Cacomantis passerinus</i>			S-IV
237.	Cuculidae	Drongo Cuckoo	# <i>Surniculus lugubris</i>			S-IV
238.	Cuculidae	Asian Koel	◆ <i>Eudynamys scolopacea</i>			S-IV
239.	Cuculidae	Small Green-billed Malkoha	● <i>Phaenicophaeus viridirostris</i>			S-IV
240.	Cuculidae	Sirkeer Malkoha	# <i>Phaenicophaeus leschanaulti</i>			S-IV
241.	Cuculidae	Greater Coucal	● <i>Centropus sinensis</i>			S-IV
242.	Cuculidae	Lesser Coucal	▲ <i>Centropus bengalensis</i>			S-IV
243.	Tytonidae	Barn Owl	# <i>Tyto alba</i>			S-IV
244.	Tytonidae	Grass Owl	# <i>Tyto capensis</i>			S-IV
245.	Tytonidae	Oriental Bay-Owl	# <i>Phodilus badius</i>			S-IV
246.	Strigidae	Oriental scops	# <i>Otus sunia</i>			S-IV
247.	Strigidae	Collared Scops-Owl	◆ <i>Otus bakkamoena</i>			S-IV
248.	Strigidae	Eurasian Eagle-Owl	◆ <i>Bubo bubo</i>			S-IV
249.	Strigidae	Forest Eagle-Owl	# <i>Bubo nipalensis</i>			S-IV
250.	Strigidae	Dusky Eagle-Owl	# <i>Bubo coromandus</i>			S-IV
251.	Strigidae	Brown Fish-Owl	# <i>Ketupa zeylonensis</i>			S-IV
252.	Strigidae	Jungle Owlet	# <i>Glaucidium radiatum</i>			S-IV
253.	Strigidae	Brown Hawk-Owl	# <i>Ninox scutulata</i>			S-IV
254.	Strigidae	Spotted Owlet	● <i>Athene brama</i>			S-IV
255.	Strigidae	Mottled Wood-Owl	# <i>Strix ocellata</i>			S-IV
256.	Strigidae	Brown Wood-Owl	# <i>Strix leptogrammica</i>			S-IV
257.	Strigidae	Long-eared Owl	▲ <i>Asio otus</i>			S-IV
258.	Strigidae	Short-eared Owl	■ <i>Asio flammeus</i>			S-IV
259.	Podargidae	Ceylon Frogmouth	# <i>Batrachostomus moniliger</i>		S-I	
260.	Caprimulgidae	Great-eared Nightjar	# <i>Eurostopodus macrotis</i>			S-IV
261.	Caprimulgidae	Indian Jungle Nightjar	◆ <i>Caprimulgus indicus</i>			S-IV
262.	Caprimulgidae	European Nightjar	▲ <i>Caprimulgus europaeus</i>			S-VI
263.	Caprimulgidae	Jerdon's Nightjar	# <i>Caprimulgus atripennis</i>			S-IV
264.	Caprimulgidae	Common Indian Nightjar	# <i>Caprimulgus asiaticus</i>			S-VI
265.	Caprimulgidae	Franklin's Nightjar	● <i>Caprimulgus affinis</i>			S-VI
266.	Apodidae	Indian Edible-nest Swiftlet	◆ <i>Collocalia unicolor</i>			S-IV
267.	Apodidae	Brown-backed Needletail-Swift	# <i>Hirundapus giganteus</i>			S-IV

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
268.	Apodidae	White-rumped Needletail-Swift	▲ <i>Zoonavena sylvatica</i>			S-IV
269.	Apodidae	Alpine Swift	# <i>Tachymarptis melba</i>			S-IV
270.	Apodidae	Pacific Swift	▲ <i>Apus pacificus</i>			S-IV
271.	Apodidae	House Swift	# <i>Apus affinis</i>			S-IV
272.	Apodidae	Asian Palm-Swift	◆ <i>Cypsiurus balasiensis</i>			S-IV
273.	Hemiprocidae	Crested Tree Swift	# <i>Hemiprocne coronata</i>			S-IV
274.	Trogonidae	Malabar Trogon	# <i>Harpactes fasciatus</i>			S-IV
275.	Alcedinidae	Lesser Pied Kingfisher	● <i>Ceryle rudis</i>			S-IV
276.	Alcedinidae	Small Blue Kingfisher	◆ <i>Alcedo atthis</i>			S-IV
277.	Alcedinidae	Blue-eared Kingfisher	# <i>Alcedo meninting</i>			S-IV
278.	Alcedinidae	Oriental Dwarf Kingfisher	# <i>Ceyx erithacus</i>			S-IV
279.	Alcedinidae	Stork-billed Kingfisher	# <i>Halcyon capensis</i>			S-IV
280.	Alcedinidae	White-breasted Kingfisher	● <i>Halcyon smyrnensis</i>			S-IV
281.	Alcedinidae	Black-capped Kingfisher	# <i>Halcyon pileata</i>			S-IV
282.	Meropidae	Blue-bearded Bea-eater	# <i>Nyctornis athertoni</i>			S-IV
283.	Meropidae	Chestnut-headed Bee-eater	# <i>Merops leschenaulti</i>			S-IV
284.	Meropidae	European Bee-eater	▲ <i>Merops apiaster</i>			S-IV
285.	Meropidae	Blue-tailed Bee-eater	◆ <i>Merops philippinus</i>			S-IV
286.	Meropidae	Small Bee-eater	● <i>Merops orientalis</i>			S-IV
287.	Coraciidae	Indian Roller	● <i>Coracias benghalensis</i>			S-IV
288.	Coraciidae	Oriental Broad-billed Roller	# <i>Eurystomus orientalis</i>			S-IV
289.	Upupidae	Common Hoopoe	● <i>Upupa epops</i>			S-IV
290.	Bucerotidae	Malabar Grey Hornbill	# <i>Ocyrceros griseus</i>	E		S-I
291.	Bucerotidae	Indian Grey Hornbill	# <i>Ocyrceros birostris</i>			S-I
292.	Bucerotidae	Malabar Pied Hornbill	# <i>Anthraceroceros coronatus</i>		NT	S-I
293.	Bucerotidae	Great Pied Hornbill	# <i>Buceros bicornis</i>		NT	S-I
294.	Capitonidae	Brown-headed Barbet	# <i>Megalaima zeylanica</i>			S-IV
295.	Capitonidae	White-cheeked Barbet	● <i>Megalaima viridis</i>			S-IV
296.	Capitonidae	Crimson-throated Barbet	# <i>Megalaima rubricapilla</i>			S-IV
297.	Capitonidae	Coppersmith Barbet	● <i>Megalaima haemacephala</i>			S-IV
298.	Picidae	Eurasian Wryneck	▲ <i>Jynx torquilla</i>			S-IV
299.	Picidae	Speckled Piculet	# <i>Picumnus innominatus</i>			S-IV
300.	Picidae	Rufous Woodpecker	# <i>Celeus brachyurus</i>			S-IV
301.	Picidae	Little Scaly-beilled Green Woodpecker	# <i>Picus xanthopygaeus</i>			S-IV
302.	Picidae	Small Yellow-naped Woodpecker	# <i>Picus chlorolophus</i>			S-IV
303.	Picidae	Himalayan Golden-backed Woodpecker	# <i>Dinopium shorii</i>			S-IV

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
304.	Picidae	Lesser Golden-backed Woodpecker	# <i>Dinopium benghalense</i>			S-IV
305.	Picidae	Common Golden-backed Woodpecker	# <i>Dinopium javanense</i>			S-IV
306.	Picidae	Great Black Woodpecker	# <i>Dryocopus javensis</i>			S-IV
307.	Picidae	Yellow-fronted Pied Woodpecker	# <i>Dendrocopos mahrattensis</i>		S-IV	
308.	Picidae	Brown-capped Pygmy Woodpecker	# <i>Dendrocopos nanus</i>			S-IV
309.	Picidae	Heart-spotted Woodpecker	# <i>Hemicircus canente</i>			S-IV
310.	Picidae	Black-shouldered Woodpecker	# <i>Chrysocolaptes festivus</i>			S-IV
311.	Picidae	Greater Golden-backed Woodpecker	◆ <i>Chrysocolaptes lucidus</i>			S-IV
312.	Pittidae	Indian pitta	■ <i>Pitta brachyura</i>			S-IV
313.	Alaudidae	Singing Bush-Lark	▲ <i>Mirafr cantillans</i>			S-IV
314.	Alaudidae	Red-winged Bush-Lark	# <i>Mirafr erythroptera</i>			S-IV
315.	Alaudidae	Jerdon's Bush-Lark	● <i>Mirafr affinis</i>			S-IV
316.	Alaudidae	Ashy-crowned Sparrow-Lark	● <i>Eremopterix grisca</i>			S-IV
317.	Alaudidae	Rufous-tailed Finch-Lark	■ <i>Ammomanes phoenicurus</i>			S-IV
318.	Alaudidae	Greater Short-toed Lark	■ <i>Calandrella brachydactyla</i>			S-IV
319.	Alaudidae	Sykes's Crested Lark	# <i>Galerida deva</i>			S-IV
320.	Alaudidae	Malabar Crested Lark	# <i>Galerida malabarica</i>			S-IV
321.	Alaudidae	Eastern Skylark	# <i>Alauda gulgula</i>			S-IV
322.	Hirundinidae	Sand Martin	▲ <i>Riparia riparia</i>			S-IV
323.	Hirundinidae	Eurasian Crag Martin	■ <i>Hirundo rupestris</i>			S-IV
324.	Hirundinidae	Dusky Crag Martin	# <i>Hirundo concolor</i>			S-IV
325.	Hirundinidae	Common Swallow	◆ <i>Hirundo rustica</i>			S-IV
326.	Hirundinidae	House Swallow	◆ <i>Hirundo tahitica</i>			S-IV
327.	Hirundinidae	Wire-tailed Swallow	■ <i>Hirundo smithii</i>			S-IV
328.	Hirundinidae	Streak-throated Swallow	▲ <i>Hirundo fluvicola</i>			S-IV
329.	Hirundinidae	Red-rumped Swallow	◆ <i>Hirundo daurica</i>			S-IV
330.	Hirundinidae	Northern House-Martin	■ <i>Delichon urbica</i>			S-IV
331.	Motacillidae	Blyth's Pipit	■ <i>Anthus godlewskii</i>			S-IV
332.	Motacillidae	Eurasian Tree Pipit	■ <i>Anthus trivialis</i>			S-IV
333.	Motacillidae	Oriental Tree Pipit	◆ <i>Anthus hodgsoni</i>			S-IV
334.	Motacillidae	Richard's Pipit	■ <i>Anthus richardi</i>			S-IV
335.	Motacillidae	Paddyfield Pipit	● <i>Anthus rufulus</i>			S-IV
336.	Motacillidae	Tawny Pipit	▲ <i>Anthus campestris</i>			S-IV
337.	Motacillidae	Brown Rock Pipit	# <i>Anthus similis</i>			S-IV
338.	Motacillidae	Nilgiri Pipit	# <i>Anthus nilghiriensis</i>	E	NT	S-IV

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
339.	Motacillidae	Forest Wagtail	■ <i>Dendronanthus indicus</i>			S-IV
340.	Motacillidae	Yellow Wagtail	◆ <i>Motacilla flava</i>			S-IV
341.	Motacillidae	Citrine Wagtail	■ <i>Motacilla citreola</i>			S-IV
342.	Motacillidae	Grey Wagtail	◆ <i>Motacilla cinerea</i>			S-IV
343.	Motacillidae	White Wagtail	■ <i>Motacilla alba</i>			S-IV
344.	Motacillidae	Large Pied Wagtail	● <i>Motacilla maderaspatensis</i>			S-IV
345.	Campephagidae	Pied Flycatcher-Shrike	◆ <i>Hemipus picatus</i>			S-IV
346.	Campephagidae	Large Woodshrike	# <i>Tephrodornis gularis</i>			S-IV
347.	Campephagidae	Common Woodshrike	● <i>Tephrodornis pondicerianus</i>			S-IV
348.	Campephagidae	Large Cuckoo-Shrike	# <i>Coracina macei</i>			S-IV
349.	Campephagidae	Black-winged Cuckoo-Shrike	▲ <i>Coracina melaschistos</i>			S-IV
350.	Campephagidae	Black-headed Cuckoo-Shrike	# <i>Coracina melanoptera</i>			S-IV
351.	Campephagidae	Ashy Minivet	■ <i>Pericrocotus divaricatus</i>			S-IV
352.	Campephagidae	White-bellied Minivet	▲ <i>Pericrocotus erythropygius</i>			S-IV
353.	Campephagidae	Scarlet Minivet	◆ <i>Pericrocotus flammeus</i>			S-IV
354.	Campephagidae	Small Minivet	● <i>Pericrocotus cinnamomeus</i>			S-IV
355.	Pycnonotidae	Grey-headed Bulbul	# <i>Pycnonotus priocephalus</i>	E		S-IV
356.	Pycnonotidae	Black-crested Bulbul	# <i>Pycnonotus melanicterus</i>			S-IV
357.	Pycnonotidae	Red-whiskered Bulbul	● <i>Pycnonotus jocosus</i>			S-IV
358.	Pycnonotidae	Red-vented Bulbul	● <i>Pycnonotus cafer</i>			S-IV
359.	Pycnonotidae	White-browed Bulbul	● <i>Pycnonotus luteolus</i>			S-IV
360.	Pycnonotidae	Yellow-throated Bulbul	# <i>Pycnonotus xantholaemus</i>	E	VU	S-IV
361.	Pycnonotidae	Yellow-browed Bulbul	# <i>Iole indica</i>			S-IV
362.	Pycnonotidae	Black Bulbul	◆ <i>Hypsipetes leucocephalus</i>			S-IV
363.	Irenidae	Common Iora	● <i>Aegithina tiphia</i>			S-IV
364.	Irenidae	Gold fronted Chloropsis	◆ <i>Chloropsis aurifrons</i>			S-IV
365.	Irenidae	Jerdon's Chloropsis	# <i>Chloropsis cochinchinensis</i>		S-IV	
366.	Irenidae	Asian Fairy Bluebird	◆ <i>Irena puella</i>			S-IV
367.	Laniidae	Rufous-backed Shrike	◆ <i>Lanius schach</i>			S-IV
368.	Laniidae	Southern Grey Shrike	# <i>Lanius meridionalis</i>			S-IV
369.	Laniidae	Great Grey Shrike	▲ <i>Lanius excubitor</i>			S-IV
370.	Laniidae	Bay backed Shrike	● <i>Lanius vittatus</i>			S-IV
371.	Laniidae	Brown Shrike	◆ <i>Lanius cristatus</i>			S-IV
372.	Muscicapidae	White bellied Shortwing	◆ <i>Brachypteryx major</i>	E	VU	S-IV
373.	Muscicapidae	Indian Blue Robin	◆ <i>Luscinia brunnea</i>			S-IV
374.	Muscicapidae	Oriental Magpie Robin	● <i>Copsychus saularis</i>			S-IV
375.	Muscicapidae	White rumped Shama	# <i>Copsychus malabaricus</i>			S-IV

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
376.	Muscicapidae	Black Redstart	■ <i>Phoenicurus ochruros</i>			S-IV
377.	Muscicapidae	Pied Bushchat	◆ <i>Saxicola caprata</i>			S-IV
378.	Muscicapidae	Common Stonechat	■ <i>Saxicola torquata</i>			S-IV
379.	Muscicapidae	Desert Wheatear	▲ <i>Oenanthe deserti</i>			S-IV
380.	Muscicapidae	Indian Robin	● <i>Saxicoloides fulicata</i>			S-IV
381.	Muscicapidae	Blue -headed Rock Thrush	◆ <i>Monticola cinclorhynchus</i>		S-IV	
382.	Muscicapidae	Blue Rock-Thrush	◆ <i>Monticola solitarius</i>			S-IV
383.	Muscicapidae	Malabar Whistling Thrush	◆ <i>Myiophonus horsfieldii</i>			S-IV
384.	Muscicapidae	Pied Thrush	○ <i>Zoothera wardii</i>			S-IV
385.	Muscicapidae	Orange headed Thrush	◆ <i>Zoothera citrina</i>			S-IV
386.	Muscicapidae	Scaly Thrush	# <i>Zoothera dauma</i>			S-IV
387.	Muscicapidae	Eurasian Blackbird	◆ <i>Turdus merula</i>			S-IV
388.	Muscicapidae	Spotted Babbler	◆ <i>Pellorneum ruficeps</i>			S-IV
389.	Muscicapidae	Rufous-bellied Babbler	# <i>Dumetia hypertythra</i>			S-IV
390.	Muscicapidae	Black headed Babbler	◆ <i>Rhopocichla atriceps</i>			S-IV
391.	Muscicapidae	Yellow eyed Babbler	# <i>Chrysomma sinense</i>			S-IV
392.	Muscicapidae	Common Babbler	● <i>Turdoides caudatus</i>			S-IV
393.	Muscicapidae	Large Grey Babbler	# <i>Turdoides malcolmi</i>			S-IV
394.	Muscicapidae	Indian Rufous Babbler	# <i>Turdoides subrufus</i>	E		S-IV
395.	Muscicapidae	Jungle Babbler	● <i>Turdoides striatus</i>			S-IV
396.	Muscicapidae	White headed Babbler	● <i>Turdoides affinis</i>			S-IV
397.	Muscicapidae	Wynaad Laughingthrush	# <i>Garrulax delesserti</i>	E		S-IV
398.	Muscicapidae	Nilgiri Laughingthrush	◆ <i>Garrulax cachinnans</i>	E	EN	S-IV
399.	Muscicapidae	Grey breasted Laughingthrush	◆ <i>Garrulax jerdoni</i>	E	NT	S-IV
400.	Muscicapidae	Indian Scimitar-Babbler	◆ <i>Pomatorhinus horsfieldii</i>			S-IV
401.	Muscicapidae	Quaker Tit babbler	◆ <i>Alcippe poioicephala</i>			S-IV
402.	Muscicapidae	Streaked Fantail-Warbler	# <i>Cisticola juncidis</i>			S-IV
403.	Muscicapidae	Franklin's Prinia	# <i>Prinia hodgsonii</i>			S-IV
404.	Muscicapidae	Plain Prinia	● <i>Prinia inornata</i>			S-IV
405.	Muscicapidae	Ashy Prinia	● <i>Prinia socialis</i>			S-IV
406.	Muscicapidae	Jungle Prinia	◆ <i>Prinia sylvatica</i>			S-IV
407.	Muscicapidae	Common Tailor Bird	● <i>Orthotomus sutorius</i>			S-IV
408.	Muscicapidae	Broad-tailed Grass-Warbler	# <i>Shoenicola platyura</i>	E	VU	S-IV
409.	Muscicapidae	Pale Grasshopper-Warbler	▲ <i>Locustella naevia</i>			S-IV
410.	Muscicapidae	Thick billed Warbler	■ <i>Acrocephalus aedon</i>			S-IV
411.	Muscicapidae	Indian Great Reed-Warbler	■ <i>Acrocephalus stentoreus</i>			S-IV
412.	Muscicapidae	Blyth's Reed-Warbler	◆ <i>Acrocephalus dumetorum</i>			S-IV
413.	Muscicapidae	Paddyfield Warbler	■ <i>Acrocephalus agricola</i>			S-IV

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
414.	Muscicapidae	Booted Warbler	◆ <i>Hippolais caligata</i>			S-IV
415.	Muscicapidae	Orphean Warbler	■ <i>Sylvia hortensis</i>			S-IV
416.	Muscicapidae	Common Lesser Whitethroat	■ <i>Sylvia curruca</i>			S-IV
417.	Muscicapidae	Olivaceous Leaf-Warbler	▲ <i>Phylloscopus griseolus</i>			S-IV
418.	Muscicapidae	Hume's Warbler	▲ <i>Phylloscopus humei</i>			S-IV
419.	Muscicapidae	Tytler's Leaf-Warbler	▲ <i>Phylloscopus tytleri</i>			S-IV
420.	Muscicapidae	Tickell's Warbler	◆ <i>Phylloscopus affinis</i>			S-IV
421.	Muscicapidae	Common Chiffchaff	▲ <i>Phylloscopus collybita</i>			S-IV
422.	Muscicapidae	Large-billed Leaf-Warbler	■ <i>Phylloscopus magnirostris</i>			S-IV
423.	Muscicapidae	Greenish Leaf-Warbler	▼ <i>Phylloscopus trochiloides</i>			S-IV
424.	Muscicapidae	Western Crowned Warbler	■ <i>Phylloscopus occipitalis</i>			S-IV
425.	Muscicapidae	Blyth's Leaf-Warbler	▲ <i>Phylloscopus reguloides</i>			S-IV
426.	Muscicapidae	Asian Brown Flycatcher	■ <i>Muscicapa dauurica</i>			S-IV
427.	Muscicapidae	Brown-breasted Flycatcher	▲ <i>Muscicapa muttui</i>			S-IV
428.	Muscicapidae	Rusty-tailed Flycatcher	▲ <i>Muscicapa ruficauda</i>			S-IV
429.	Muscicapidae	Red-throated Flycatcher	■ <i>Ficedula parva</i>			S-IV
430.	Muscicapidae	Kashmir Flycatcher	■ <i>Ficedula subrubra</i>		VU	S-IV
431.	Muscicapidae	Black and Orange Flycatcher	◆ <i>Ficedula nigrorufa</i>	E	NT	S-IV
432.	Muscicapidae	Little Pied Flycatcher	▲ <i>Ficedula westermanni</i>			S-IV
433.	Muscicapidae	White-bellied Blue-Flycatcher	# <i>Cyornis pallipes</i>	E		S-IV
434.	Muscicapidae	Blue-throated Flycatcher	■ <i>Cyornis rubeculoides</i>			S-IV
435.	Muscicapidae	Tickell's Blue-Flycatcher	# <i>Cyornis tickelliae</i>			S-IV
436.	Muscicapidae	Verditer Flycatcher	■ <i>Eumyias thalassina</i>			S-IV
437.	Muscicapidae	Nilgiri Flycatcher	◆ <i>Eumyias albicaudata</i>	E	NT	S-IV
438.	Muscicapidae	Grey-headed Flycatcher	◆ <i>Culicicapa ceylonensis</i>			S-IV
439.	Muscicapidae	Black-naped Monarch-Flycatcher	# <i>Hypothymis azurea</i>			S-IV
440.	Muscicapidae	Asian Paradise-Flycatcher	● <i>Terpsiphone paradisi</i>			S-IV
441.	Muscicapidae	White-browed Fantail-Flycatcher	# <i>Rhipidura aureola</i>			S-IV
442.	Muscicapidae	White-throated Fantail-Flycatcher	◆ <i>Rhipidura albicollis</i>			S-IV
443.	Syviidae	Bristled Grass-Warbler	# <i>Chaetornis striatus</i>			S-IV
444.	Paridae	Great Tit	◆ <i>Parus major</i>			S-IV
445.	Paridae	Pied Tit	# <i>Parus nuchalis</i>		VU	S-IV
446.	Paridae	Black-lored Yellow Tit	# <i>Parus xanthogenys</i>			S-IV
447.	Sittidae	Chestnut-bellied Nuthatch	# <i>Sitta castanea</i>			S-IV
448.	Sittidae	Velvet-fronted Nuthatch	◆ <i>Sitta frontalis</i>			S-IV

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
449.	Dicaeidae	Thick-billed Flowerpecker	# <i>Dicaeum agile</i>			S-IV
450.	Dicaeidae	Tickell's Flowerpecker	◆ <i>Dicaeum erythrorhynchos</i>			S-IV
451.	Dicaeidae	Plain Flowerpecker	◆ <i>Dicaeum concolor</i>			S-IV
452.	Nectariniidae	Purple-rumped Sunbird	● <i>Nectarinia zeylonica</i>			S-IV
453.	Nectariniidae	Small Sunbird	◆ <i>Nectarinia minima</i>	E		S-IV
454.	Nectariniidae	Loten's Sunbird	◆ <i>Nectarinia lotenia</i>			S-IV
455.	Nectariniidae	Purple Sunbird	● <i>Nectarinia asiatica</i>			S-IV
456.	Nectariniidae	Crimson Sunbird	# <i>Aethopyga siparaja</i>			S-IV
457.	Nectariniidae	Little Spiderhunter	# <i>Arachnothera longirosta</i>			S-IV
458.	Zosteropidae	Oriental White-eye	● <i>Zosterops palpebrosus</i>			S-IV
459.	Emberizidae	Red-headed Bunting	▲ <i>Emberiza bruniceps</i>			S-IV
460.	Fringillidae	Common Rosefinch	◆ <i>Carpodacus erythrinus</i>			S-IV
461.	Estrildidae	Red Munia	◆ <i>Amandava amandava</i>			S-IV
462.	Estrildidae	White-throated Munia	● <i>Lonchura malabarica</i>			S-IV
463.	Estrildidae	White-rumped Munia	● <i>Lonchura striata</i>			S-IV
464.	Estrildidae	Black-throated Munia	◆ <i>Lonchura kelaarti</i>			S-IV
465.	Estrildidae	Spotted Munia	● <i>Lonchura punctulata</i>			S-IV
466.	Estrildidae	Black-headed Munia	# <i>Lonchura malacca</i>			S-IV
467.	Passeridae	House Sparrow	● <i>Passer domesticus</i>			S-IV
468.	Passeridae	Yellow-throated Sparrow	# <i>Petronia xanthocollis</i>			S-IV
469.	Passeridae	Baya Weaver	● <i>Ploceus philippinus</i>			S-IV
470.	Passeridae	Streaked Weaver	# <i>Ploceus manyar</i>			S-IV
471.	Sturnidae	Grey-headed Starling	▼ <i>Sturnus malabaricus</i>			S-IV
472.	Sturnidae	Common Starling	▲ <i>Sturnus vulgaris</i>			S-IV
473.	Sturnidae	Asian Pied Starling	# <i>Sturnus contra</i>			S-IV
474.	Sturnidae	Brahminy Starling	◆ <i>Sturnus pagodarum</i>			S-IV
475.	Sturnidae	Rosy Starling	■ <i>Sturnus roseus</i>			S-IV
476.	Sturnidae	Common Myna	● <i>Acridotheres tristis</i>			S-IV
477.	Sturnidae	Jungle Myna	◆ <i>Acridotheres fuscus</i>			S-IV
478.	Sturnidae	Bank Myna	▲ <i>Acridotheres ginginianus</i>			S-IV
479.	Sturnidae	Southern Hill Myna	◆ <i>Gracula indica</i>			S-IV
480.	Oriolidae	Eurasian Golden Oriole	■ <i>Oriolus oriolus</i>			S-IV
481.	Oriolidae	Black-naped Oriole	▲ <i>Oriolus chinensis</i>			S-IV
482.	Oriolidae	Black-headed Oriole	● <i>Oriolus xanthornus</i>			S-IV
483.	Dicruridae	Black Drongo	● <i>Dicrurus macrocercus</i>			S-IV
484.	Dicruridae	Ashy Drongo	■ <i>Dicrurus leucophaeus</i>			S-IV
485.	Dicruridae	White-bellied Drongo	# <i>Dicrurus caerulescens</i>			S-IV
486.	Dicruridae	Bronzed Drongo	◆ <i>Dicrurus aeneus</i>			S-IV
487.	Dicruridae	Spangled Drongo	# <i>Dicrurus hottentottus</i>			S-IV

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
488.	Dicruridae	Greater Racket-tailed Drongo	♦ <i>Dicrurus paradiseus</i>			S-IV
489.	Artamidae	Ashy Woodswallow	♦ <i>Artamus fuscus</i>			S-IV
490.	Corvidae	Indian Treepie	● <i>Dendrocitta vagabunda</i>			S-IV
491.	Corvidae	White-bellied Treepie	♦ <i>Dendrocitta leucogastra</i>	E		S-IV
492.	Corvidae	House Crow	● <i>Corvus splendens</i>			S-V
493.	Corvidae	Jungle Crow	● <i>Corvus macrorhynchos</i>			S-IV

● – Common resident; ■ – not common passage migrant; ▲ – Vagrant; # – not common resident; ▼ – Common winter visitor; ♦ – not common winter visitor; ♦ – locally common resident; ♦ – locally common winter visitor; ○ – not common winter visitor or passage migrant; * – not common summer visitor.

E – Species endemic to Westernghats or Eastern Ghats, occurring in Tamilnadu; CR – Critical; EN – endangered; VU – Vulnerable; NT – Near Threatened; S-I – Shedule I; S-IV – Shedule IV, S-V – Schedule V, wildlife (Protection) Act 1972.

Birds of doubtful occurrence

S. No.	Family	Common Name	Scientific Name	Endemic status	Threat status	Legal status
1.	Accipitridae	Hen Harrier	<i>Circus cyaneus</i>			S-I
2.	Falconidae	Oriental Hobby	<i>Falco severus</i>			S-IV
3.	Sturnidae	White-headed Starling	<i>Sturnus erythropygius</i>			S-IV
4.	Charadriidae	European Golden Plover	<i>Pluvialis apricaria</i>			S-IV
5.	Rallidae	Baillon's Crake	<i>Porzana pusilla</i>			S-IV

DISCUSSION

Information available on these 493 species indicates that 14 species are vulnerable, 18 are nearly threatened, 2 are critical (*Gyps bengalensis* & *Gyps indicus*) and 2 are endangered (*Garrulax cachinensis* & *Tringa guttifer*). The threat to critically endangered birds of prey appears to be serious in the wake of reports of bioaccumulation of some pharmaceutical preparations. Out of the 21 known endemics of the Western Ghats, 17 are known in Tamilnadu and 16 species have been recorded in the Nilgiri Biosphere reserve alone. The family Muscicapidae leads the list with 71 species, followed by Accipitridae (36 species) Scolopacidae (33 species) and Laridae (24 species), thus accounting for nearly one third of occurrence in 4 families. The data indicate not only speciose nature of certain families but also

a healthy distribution trend with 43 species in the eagle & falcon group, 16 species in the owl and owlet group, 14 species of woodpeckers, 14 species of wagtails 10 species of shrikes & minivets, 8 species of bulbuls, 9 species of mynas & starlings, 6 species of sunbirds, 9 species of swallows & martins, 6 species of munias, 8 species of skylarks, 7 species of kingfishers, 5 species of bee-eaters, 7 species of swifts, 13 species of doves & pigeons, 5 species of parrots & parakeets, 15 species of cuckoos in addition to the largest composition of warblers, babblers, thrushes and flycatchers. Habitat loss and anthropogenic threats have a telling effect on the distribution of birds too in Tamilnadu. As emphasized by Islam & Rahmani (2004), and extensive survey effort is needed for heritage sites, sacred groves and sites which have been receiving protection from villagers for over a century.

REFERENCES

- Ahimaz, P. 1990. Birds of Madras an observation and guide book. C. P. R, Environmental Education Centre, Madras, 1-30pp.
- Ali, S. 1969. *Birds of Kerala*. Oxford University Press, New Delhi.
- Ali, S., and Ripley, S. D. 1987. *Compact Handbook of the Birds of India and Pakistan* (Second Edition). Oxford University Press, Delhi
- Ali, S. and Whistler, H. 1942-1943. The birds of Mysore. *J. Bombay Nat. Hist. Soc.*, **43** : 130-147, 318-341, 573-595, **44** : 9-26; 206-220.
- Balachandran, S. 1995. Shore birds of the Marine National Park in the Gulf of Manna, Tamilnadu. *J. Bombay Nat. Hist. Soc.*, **92** : 303-311.
- Balasubramanian, P. and Vijayan, L. 2004. Conservation Strategies and Action Plan for the Avifauna of Tamilnadu. Ed : Annamalai, R. In : Tamilnadu Biodiversity Strategy and Action Plan Chordate Diversity. Pp. 79-99. (Published by Tamilnadu Forest Department Government of Tamilnadu, Chennai.)
- Barnes, A. M. 1938-1939. Bird observed in and near Tambaram, Chingleput district south India. *J. Bombay Nat. Hist. Soc.*, **40** : 467-476, 744-747.
- Biddulph, C. H. 1938. The birds of Rameswaram Island. *J. Bombay Nat. Hist. Soc.*, **40** : 238-256
- BirdLife International, 2001. *Threatened birds of Asia : the BirdLife International Red Data Book*, Cambridge, U. K : BirdLife International.
- Blanford, W. T. 1867. On a new species of Callene from the Pulney Hills in Southern India. *Proc Zool. Soc. London*, 1867 : 832-834.
- Chandrasekar, S. 1996. A new record for Vedanthangal. *Blackbuck*, **12** : 27-28.
- Daniels, R. J. R. 1992. The Nilgiri Biosphere Reserve and its role in conserving India's biodiversity *Current Science*, **64** : 706-708.
- Fairbank, R. J. 1877. A list of birds collected and observed in Palani hills. *Stray Feathers*, **5** : 387-410.
- Gokula, V. and Vijayan, L. 1996. Birds of Mudumalai Wildlife Sanctuary, India. *Forktail*, **12** : 107-116.
- Grimmet, R and Inskipp, T. 2005. *Birds of Southern India. Helm Field Guides*, Christopher Helm, A & C Black, Publishers Ltd., London : 1-240 pp.
- Grimmet, R., Inskipp, C. and Inskipp, T. 1999. *Pocket Guide to the Birds of the Indian Subcontinent*. Oxford University. Press. New Delhi : 1-384 pp.
- Islam, M. Z. and Rahmani, A. R. 2004. *Important Bird Areas in India : Priority sites for conservation*. Indian Bird Conservation Network : Bombay Natural History Society and BirdLife International (UK) : xviii+1133.
- Kannan, R. 1992. Yellowthroated Bulbul in Anaimalai Hills. *Newsletter for Birdwatchers*, **32**(7-8) : 19.
- Kannan, R. 1998. Avifauna of the Anaimalai Hills (western Ghats) of Southern India. *J Bombay Nat. Hist. Soc.*, **95** : 193-214.

- Kannan, V. 2004. Survey of BA sites in Andhra Pradesh, Karnataka and Tamilnadu to collect baseline information on data deficient sites. Final report. Bombay Natural History Society, Pp. 45.
- Karthikeyan, S. 1995. Note on the occurrence of the Yellowthroated Bulbul *Pycnonotus xantholaemus* (Jerdon) at Shervaroys, Tamilnadu. *J. Bombay nat. Hist. Soc.*, **92** : 266-267.
- Karthikeyan, S. and Athreya, V. R. 1993. Kashmir Redbreasted Flycatcher *Muscicapa subruba* Haster and Steinbacher at Ooty. *J. Bombay nat. Hist. Soc.*, **89** : 376-377.
- Kahn, M. A. R. 1980. A comparative account of the avifauna of the Sholas and the neighbouring plantations in the Nilgiris. *J. Bombay nat. Hist. Soc.*, **75** (Supplement) : 1023-1035.
- Koelz, W. 1948. Notes on a collection of birds from Madras Presidency. *J. Bombay Nat. Hist. Soc.* **47** : 128-142.
- Manakadan, R. & Pittie, A. 2002. Standardised Common and Scientific names of the birds of the Indian Subcontinent *Buceros* ENVIS Newsletter : Asian ecology and Indian wetlands **6**(1) : Bombay Natural History Society, Mumbai.
- Murugavel, T. Jayasankar, S. and Muraalidharan, P. K. 2005. Birds of the Adyar Estate. in CD-Rom. The Publishing House, Theosophical Society, Adyar, Chennai.
- Nichols, E. G. 1937. The Kodaikanal birds and how to name them. *J. Bombay nat. Hist. Soc.*, **39** : 812-830.
- Nichols, E. G. 1943-45. Occurrence of birds in Madura district. *J. Bombay nat. Hist. Soc.*, **44** : 387-407, 574-584; **45** : 122-132.
- Phythian-Adams, E. G. 1948. Snipe on the Nilgiris/Snipe in south India. *J. Bombay nat. Hist. Soc.*, **86** : 247-248.
- Ramussen, P. C. and Anderton, J. C. 2005. *Birds of South Asia. The Ripley Guide*. Smithsonian Institution and Lynx Edicions, Washington D. C. and Barcelona.
- Santharam, V. 1996. A note on the endemic Broad-tailed Grass Warbler. *J. Bombay nat. Hist. Soc.*, **93** : 587.
- Santharam, V. 1999. Records of Greater Spotted Eagle *Aquila clanga* from southern India. *J. Bombay nat. Hist. Soc.*, **96** : 470.
- Selvakumar, R., Sukumar, R., Narayanaswamy, V., and Baskaran, S.T. 1981. A checklist of Birds of Guindy Deer Park. *Newsletter for Birdwatchers*, **21**(8) : 3-6.
- Sugathan, R. 1983. Some interesting aspects of the avifauna of the Point Calimere Sanctuary, Tanjavur District, Tamilnadu. *J. Bombay Nat. Hist. Soc.*, **79** : 567-575.
- Sugathan, R. 1985. Observations on Spoon-billed Sandpiper (*Eurynorynchus pugmeus*) in its wintering ground at Point Calimere, Thanjavur District, Tamilnadu. *J. Bombay Nat. Hist. Soc.*, **82** : 407-508.
- Thomas, J., and Balan, M. 1993. Birds of Annamalai Hills. Pp. 149-150 in A. Vergese, S. Sridhar, and A. K. Chakravarthy (eds) *Bird Conservation, Strategies for the Nineties and Beyond*. Ornithological Society of India, Bangalore.

- Thirumalai, G. and Krishnan, S. 2005. *Pictorial Handbook-Birds of Chennai* : 1-196. (Published by the Director, Zool. Surv. India, Kolkata).
- Whistler, H., and Kinnear, N. B. 1931-37. The Vernay Scientific Survey of the Eastern Ghats (Ornithological Section). *J. Bombay Nat. Hist. Soc.* **35** : 505-524; 737-760; **36** : 67-93, 334-352, 561-590, 832-844; **37** : 96-105, 281-297, 515-528, 751-763; **38** : 26-40, 232-240, 418-437, 672-698; **39** : 246-263, 447-463.
- Williams, J. 1937. Game birds in the Anaimalai hills and the south Coimbatore district. *J. Bombay nat. Hist. Soc.*, **39** : 732-740.

MAMMALIA

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INTRODUCTION

Major contributions pertaining to the mammalian fauna of Tamilnadu have been made by Wroughton, 1912-1920, Ellerman and Morrison-Scott, 1951; Prater 1980; Antony, 1982; Ghosh, 1984; Bates *et. al.* 1994, Pradhan and Kurup, 2001, Pradhan, 2002, Corbet and Hill, 1992; Agrawal *et. al.*, 1992; Roberts, 1997; Wilson and Reeder, 1993; CAMP Reports 1998, 2002, 2003 and 2005, Kumaran, 2000, Pradhan and Kurup, 2001, Alfred *et. al.* 2002, 2006. This work is to update our knowledge on the distribution mammals of this state.

Placement of taxa is followed as prescribed by Wilson and Reeder (1993) and Alfred *et al.* (2002) due to wide acceptance. Conservation status is as per IUCN/CAMP Report (2005).

SYSTEMATIC LIST

(*Asterics indicate Indian endemic species)

Class MAMMALIA

Order SCANDENTIA

Family TUPAIIDAE

Subfamily TUPAIINAE

- *1. Madras Tree Shrew : *Anathana ellioti ellioti*
(Waterhouse)

Order ERINACEOMORPHA

Family ERINACEIDAE

- *2. South Indian or Madras Hedgehog :
Hemiechinus nudiventris (Horsfield)

Order SORICOMORPHA

Family SORICIDAE

Subfamily CROCIDURINAE

3. Kelaart's Long-clawed Shrew : *Feroculus feroculus* Kelaart
4. Common House Shrew : *Suncus murinus murinus* (Lin.)
5. Ceylon/ Montane Shrew : *Suncus montanus* (Kelaart)
*6. Day's Shrew : *Suncus dayi* Dobson
7. Anderson's Shrew : *Suncus stoliczkanus* Anderson
8. Savi's Pigmy Shrew : *Suncus etruscus* (Savi)

Order CHIROPTERA

Suborder MEGACHIROPTERA

Family PTEROPODIDAE

Subfamily PTEROPODINAE

9. Rousettes or Indian fulvus fruit bat :
Rousettus l. leschenaulti (Desmarest)
10. Indian flying fox : *Pteropus giganteus giganteus* (Brunnich)
11. Short-nosed fruit bat : *Cynopterus sphinx sphinx* (Vahl)
12. Lesser Dog-faced fruit bat : *Cynopterus brachyotis ceylonensis* (Gray)
*13. Salim Ali's Fruit Bat : *Latidens salimalii* Thonglongya
Family RHINOPOMATIDAE
14. Lesser Mouse-tailed Bat : *Rhinopoma hardwickei* Gray

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Suborder MICROCHIROPTERA

Family EMBALLONURIDAE

15. Pouch-bearing tomb bat : *Saccolaimus saccolaimus* (Temminck)
16. Long winged tomb bat : *Taphozous l. longimanus* Hardwicke
17. Black-bearded tomb bat : *Taphozous m. melanopogon* Temminck
18. Naked-rumped Tomb Bat : *Taphozous nudiventris* Cretzschmar

Family MEGADERMATIDAE

19. Lesser False vampie bat : *Megaderma spasma horsfieldii* Blyth
20. Greater False vampie bat : *Megaderma (Lyroderma) l. lyra* Geoffroy

Family RHINOLOPHIDAE

Subfamily RHINOLOPHINAE

21. Intermediate Horse-shoe Bat : *Rhinolophus affinis* Horsfield
22. Blyth's Horse-shoe bat : *Rhinolophus lepidus lepidus* (Blyth)
23. Woolly Horse-shoe Bat : *Rhinolophus luctus* Temminck
24. Rufous Horse-shoe bat : *Rhinolophus rouxii rouxii* Temminck

Subfamily HIPPOSIDERINAE

25. Dusky Leaf-nosed Bat : *Hipposideros ater* Templton
26. Fulvus leaf-nosed bat : *Hipposideros fulvus fulvus* Gray
27. Kelaart's leaf-nosed bat : *Hipposideros lankadiva indus* (Andersen)
28. Anderson's Leaf-nosed Bat : *Hipposideros pomona* K. Andersen
29. Schneider's leaf-nosed bat : *Hipposideros speoris speoris* (Schneider)

Family VESPERTILIONIDAE

Subfamily KERIVOULINAE

30. Painted Bat : *Kerivoula picta picta* (Pallas)
- Subfamily VESPERTILIONINAE
31. Tickell's Bat : *Hesperoptenus tickelli* (Blyth)

32. Horsfield's Bat : *Myotis horsfieldii* Temminck

33. Chocolate Pipistrelle : *Pipistrellus affinis* (Dobson)

34. Kelaart's Pipistrelle : *Pipistrellus ceylonicus indicus* (Dobson)

35. Indian Pipistrelle : *Pipistrellus coromandra coromandra* (Gray)

36. Indian Pipistrelle : *Pipistrellus d. dormeri* (Dobson)

37. Indian Pigmy Pipistrelle : *Pipistrellus tenuis mimus* Wroughton

38. Asiatic greater yellow house bat : *Scotophilus heathii heathii* (Horsfield)

39. Asiatic lesser yellow house bat : *Scotophilus kuhlii kuhlii* Leach

Subfamily MURININAE

40. Hariy-winged Bat : *Harpiocephalus harpia* (Temminck)

41. Round-eared Tube-nosed Bat : *Murina cyclotis* Dobson

Family MINIOPTERINAE

42. Nicobar Long-fingered Bat : *Miniopterus pusillus* (Dobson)

43. Long-winged Bat or Schreiber's Bat : *Miniopterus schreibersi fuliginosus* (Hodgson)

Family MOLOSSIDAE

44. Wrinkle-lipped Free-tailed Bat : *Chaerephon plicata* (Buchanan)

45. Egyptian Free-tailed bat : *Tadarida aegyptiaca thomasi* Wroughton

Order PRIMATES

Family LORIDAE

46. Slender Loris : *Loris tardigradus* (Linnaeus)

Family CERCOPITHECIDAE

Subfamily CERCOPITHECINAE

- *47. Bonnet Macaque : *Macaca radiata* (Geoffroy)

- *48. Lion-tailed Macaque : *Macaca silenus* (Linnaeus)

Subfamily COLOBINAE

49. Hanuman Langur : *Semnopithecus entellus* (Dufresne)
 *50. Nilgiri Langur : *Trachypithecus johnii* (Fischer)

Order CARNIVORA

Family CANIDAE

51. Indian Jackal : *Canis aureus* Linn.
 52. Indian Wild Dog : *Cuon alpinus* (Pallas)
 53. Bengal Fox : *Vulpes bengalensis* (Shaw)

Family FELIDAE

Subfamily FELINAE

54. Jungle Cat : *Felis chaus* Guldenstaedt
 55. Leopard Cat : *Prionailurus bengalensis* (Kerr)
 56. Rusty Spotted Cat : *Prionailurus rubiginosus* (Geoffroy)
 57. Fishing Cat : *Prionailurus viverrinus* (Bennett)

Subfamily PANTHERINAE

58. Leopard/Panther : *Panthera pardus fusca* (Meyer)
 59. Striped Tiger : *Panthera tigris tigris* (Linn.)

Family HERPESTIDAE

Subfamily HERPESTINAE

60. Indian Gray Mongoose : *Herpestes edwardsii edwardsii* (Geoffroy)
 61. Ruddy Mongoose : *Herpestes smithii smithii* Gray
 62. Brown Mongoose : *Herpestes brachyurus* Gray

Family HYAENIDAE

Subfamily HYAENINAE

63. Striped Hyaena : *Hyaena hyaena hyaena* (Linn.)

Family MUSTELIDAE

Subfamily LUTRINAE

64. Small-clawed Otter : *Ambolynx cinereus* (Illiger)
 65. Common Otter : *Lutra lutra nair* Cuvier
 66. Smooth-Coated Indian Otter : *Lutragale perspicillata* (Geoffroy)

Subfamily MUSTELINAE

- *67. South Indian Yellow-throated Marten or Nilgiri Marten : *Martes gwatkinsi* Horsfield

Subfamily MELLIVORINAE

68. Ratel, Honey Badger : *Mellivora capensis* (Schreber)

Family URSIDAE

Subfamily URSINAE

69. Sloth Bear : *Melursus ursinus* (Shaw)

Family VIVERRIDAE

Subfamily PARADOXURINAE

70. Palm Civet or Toddy Cat : *Paradoxurus h. hermaphroditus* (Pallas)
 *71. Jerdon's Palm Civet : *Paradoxurus jerdoni* Blanford

Subfamily VIVERRINAE

- *72. Malabar Civet : *Viverra civettina* Blyth
 73. Small Indian Civet : *Viverricula indica indica* (Desmarest)

Order CETACEA

Suborder MYSTICETI

Family BALAENOPTRIDAE

74. Finner or Little Pinked Whale : *Balaenoptera acutorostrata* (Lacepede)
 75. Sei Whale : *Balaenoptera borealis* (Lesson)
 76. Bryde's Whale or Lesser Rorgul : *Balaenoptera edeni* Anderson
 77. Blue Whale or Lesser Rorgul : *Balaenoptera musculus* (Linnaeus)
 78. Fin Whale or Common Rorgul : *Balaenoptera physalus* (Linnaeus)
 79. Hump-backed Whale : *Megaptera novaeangliae* (Borowski)

Suborder ODONTOCETI

Family DELPHINIDAE

80. Common Dolphin : *Delphinus delphis* (Linnaeus) Waterhouse
 81. Grey or Risso's Dolphin : *Grampus griseus* (Cuvier)
 82. Killer Whale : *Orcinus orca* (Linnaeus)
 83. Melon-headed Whale : *Peponocephala electra* Gray

84. False Killer Whale : *Pseudorca crassidens* (Owen)
85. Bridled or Pan tropical Spotted Dolphin : *Stenella attenuata* (Gray)
86. Bottle -nosed Dolphin : *Tursiops truncatus* (Montagu)
- Family PHOCOENIDAE
87. Back Finless Porpoise : *Neophocaena phocaenoides* (Cuvier)
- Family PHYSETERIDAE
88. Pygmy Sperm Whale : *Kogia breviceps* (Blainville)
89. Sperm Whale : *Physeter macrocephalus* Linnaeus
- Order SIRENIA
- Family DUGONGIDAE
90. Dugong : *Dugong dugon* (Mueller)
- Order PROBOSCIDEA
- Family ELEPHANTIDAE
91. Indian Elephant : *Elephas maximus* (Linn.)
- Order ARTIODACTYLA
- Family SUIDAE
- Subfamily SUINAE
92. Indian Wild Boar : *Sus scrofa* (Linn.)
- Family TRAGULIDAE
93. Indian Mouse Deer or Chevrotain : *Moschiola meminna* (Erxleben)
- Family CERVIDAE
- Subfamily CERVINAE
94. Indian Spotted Deer or Chital : *Axis axis* (Erxleben)
95. Sambar : *Cervus unicolor* Kerr
- Subfamily MONTIACINAE
96. Barking Deer : *Muntiacus muntjak* (Zimmerman)
- Family BOVIDAE
- Subfamily ANTILOPINAE
97. Black Buck or Indian Antelope : *Antelope cervicapra* (Linnaeus)
- Subfamily BOVINAE
98. Gaur : *Bos gaurus* Smith
99. Blue Bull or Nilgai : *Boselaphus tragocamelus* (Pallas)
100. Chousinga, Four Horned Antelope : *Tetracerus quadricornis* (Blainville)
- Subfamily CAPRINAE
- *101. Nilgiri Tahr : *Hemitragus hylocrius* (Ogilby)
- Order PHOLIDOTA
- Family MANIDAE
102. Indian Pangolin : *Manis crassicaudata* Gray
- Order RODENTIA
- Suborder SCIUROGNATHI
- Family SCIURIDAE
- Subfamily SCIURINAE
103. Indian Three striped palm squirrel : *Funambulus palmarum* (Wroughton)
104. Dusky-striped Squirrel : *Funambulus sublineatus* (Waterhouse)
- *105. Three striped jungle squirrel : *Funambulus tristriatus* (Waterhouse)
106. Indian Five striped northern palm squirrel : *Funambulus pennanti* (Wroughton)
- *107. Indian Giant or Malabar Squirrel : *Ratufa indica* (Erxleben)
- *108. Grizzled Indian Squirrel : *Ratufa macroura dandolena* Thomas and Wroughton
- Subfamily PETAURISTINAE
109. Common Giant Flying Squirrel : *Petaurista philippensis* (Elliot)
- *110. Small Travancore Flying Squirrel : *Petinomys fuscocapillus* (Jerdon)
- Family MURIDAE
- Subfamily PLATOCANTHOMINAE
- *111. Malabar Dormouse : *Platacanthomys lasiurus* Blyth
- Subfamily GERBILLINAE
112. Indian Gerbil or Antelope Rat : *Tatera indica* (Hardwicke)
- Subfamily MURINAE
113. Long tailed tree Mouse : *Vandeleuria oleracea* (Bennett)

114. Blanford Rat : *Cremnomys blanfordi*
(Thomas)
115. Cutch Rock Rat : *Cremnomys cutchius*
Wroughton
- *116. Large Rock Rat : *Cremnomys elvira*
(Ellerman)
117. Indian Bush Rat : *Golunda ellioti ellioti* Gray
118. Metad Rat : *Millardia meltada* (Gray)
119. House Rat or Roof Rat : *Rattus rattus*
rufescens (Gray)
120. White Bellied Rat : *Rattus rattus wroughtoni*
(Hinton)
121. Common Black or European House Rat :
Rattus rattus rattus (Linnaeus)
122. Norvey Rat : *Rattus norvegicus* (Berkenhout)
123. Common House Mouse : *Mus musculus*
castaneus Waterhouse
124. Little Indian Field Mouse : *Mus booduga*
booduga (Gray)
125. Cook's Mouse or Ryley's Spiny Mouse :
Mus cookii nagarum (Thomas)
- *126. Bonhoete's Mouse : *Mus famulus* Bonhote
127. Wroughton's Small Spiny Mouse : *Mus*
phillipsi Wroughton
- *128. Spiny Furred Mouse : *Mus platythrix* Bennet
129. Elliot's Spiny Mouse : *Mus saxicola* Elliot
130. Lesser Bandicoot Rat : *Bandicota*
bengalensis bengalensis (Gray)
131. Large Bandicoot Rat : *Bandicota indica*
malabarica (Shaw)
132. Large Bandicoot Rat : *Bandicota indica*
indica (Bechstein)

Suborder HYSTRICOGNATHI

Family HYSTRICIDAE

133. Indian Crested Porcupine : *Hystrix indica*
Kerr

Order LAGOMORPHA

Family LEPORIDAE

134. Indian Black-naped Hare : *Lepus nigricollis*
nigricollis Cuvier

SPECIES-WISE SYSTEMATIC ACCOUNT

Class MAMMALIA

Order SCANDENTIA

Family TUPAIIDAE

Subfamily TUPAIINAE

Genus *Anathana**1. *Anathana ellioti ellioti* (Waterhouse)

1850. *Tupaia ellioti* Waterhouse. *Proceedings zool. soc. Lond.*, : 106-108.

Common Name : Madras Tree-shrew.

Distribution : Tamilnadu; Peninsular India; subspecies endemic.

Habitat & Habit : Scrub jungle, dry, moist deciduous forest; Terrestrial, arboreal diurnal and omnivorous.

Conservation Status : Near threatened.

Order ERINACEOMORPHA

Family ERINACEIDAE

Genus *Hemiechinus**2. *Hemiechinus nudiventris* (Horsfield)

1851. *Erinaceus nudiventris* Horsfield, *Cat. Mamm. Mus. E. India Co.*, P. 136.

Common Name : South Indian or Madras Hedgehog

Distribution : Southern Peninsular India including Tamilnadu.

Habitat & Habit : Scrub jungle, dry deciduous forests. Terrestrial, semifossorial, nocturnal.

Conservation Status : Endemic species. Near threatened.

Order SORICOMORPHA

Family SORICIDAE

Subfamily CROCIDURINAE

Genus *Feroculus*3. *Feroculus feroculus* Kelaart

1850. *Sorex feroculus* Kelaart, *J. Ceylon Branch Asiat. Soc.*, 2(5) : 211.

Common Name : Kelaart's Long-clawed Shrew

Distribution : Tamilnadu in India and Sri Lanka.

Habitat & Habit : Subtropical and tropical montane forests at the ca 2000m. Prefers leaf litter near montane swamps and marshes. Terrestrial, semi-fossorial and nocturnal.

Conservation Status : Endangered.

Genus *Suncus*

4. *Suncus murinus murinus* (Lin.)

1766. *Sorex murinus* Linnaeus, *Systema naturae*, 12th ed : 74.

Common Name : House shrew.

Distribution : Throughout India.

Habitat & Habit : Near human dwellings, crop fields and forests. Terrestrial, fossorial.

Status : Lower risk least concern.

5. *Suncus montanus* (Kelaart)

1850. *Sorex montanus* Kelaart, *J. Ceylon Br. Asiat. Soc.*, 2 : 211.

Common Name : Ceylon/ Montane Shrew

Distribution : Tamilnadu in India and Sri Lanka.

Habitat & Habit : Terrestrial montane semi-evergreen forests, montane rain forest patches, swampy marshes etc at higher altitude of 1500m+. Crepuscular and semi-fossorial in nature.

Status : Endangered.

Remarks : The species needs thorough taxonomic revisionary studies.

*6. *Suncus dayi* (Dobson)

1888. *Crocidura dayi* Dobson, *Ann. Mag. Nat. Hist.*, (ser. 6), 1 : 428.

Common Name : Day's Shrew

Distribution : Tamilnadu and Kerala in India. Endemic.

Habitat & Habit : Tropical montane grassland at high altitudes, (1500-2500m). Terrestrial, Nocturnal, active from dusk.

Status : Endangered.

Remarks : Endemic species. Further work on distribution required.

7. *Suncus stoliczkanus* Anderson

1877. *Crocidura (Pachyura) stoliczkana* Anderson, *J. Asiat. Soc. Bengal*, 46 : 270.

Common Name : Anderson's Shrew.

Distribution : Tamilnadu; Throughout India.

Habitat & Habit : Plains, high altitudes, grassy embankments, near water courses, paddy fields, riverine areas, open forest interspersed with scrub jungles. Nocturnal and semi-fossorial

Conservation Status : Least Concern

8. *Suncus etruscus* (Savi)

1822. *Sorex etruscus* Savi, *Nuovo Giorn. de Letterati, Pisa*, 1 : 60.

Common Name : Savi's Pygmy Shrew, Pygmy White-toothed Shrew.

Distribution : Tamilnadu; Throughout India.

Habitat : Plains; high altitudes; cultivated fields, forests and moist soil along the riverbanks. Nocturnal, Semi-fossorial.

Conservation Status : Least Concern.

Remarks : One of the smaller species of all the terrestrial mammals.

Order CHIROPTERA

Suborder MEGACHIROPTERA

Family PTEROPODIDAE

Subfamily PTEROPODINAE

Genus *Rousettus*

9. *Rousettus leschenaulti leschenaulti* (Desmarest)

1820. *Pteropus leschenaulti* (Desmarest) *Encyl. Meth. Mammal*, 11 : 110.

Common Name : Rousettes or Indian fulvus fruit bat.

Distribution : Tamilnadu; Peninsular India

Habitat : Caves and man-made constructions; Terrestrial, arboreal, forming gregarious noisy roosts, Colonies can be recognized from those of insectivorous bats by the large brilliant eyes;

Conservation Status : Least Concern.

Genus *Pteropus*

10. *Pteropus giganteus giganteus* (Brunnich)

1782. *Vespertilio gigantea* Brunnich, *Dyrenes Historie*, 1 : 45.

Common Name : Indian flying fox.

Habitat & Habit : Fruit bearing trees; arboreal; capable of long distance flights for food; roosting in hundreds.

Distribution : Throughout India.

Conservation Status : Least Concern.

Remarks : The species is involved in domestic illegal trade.

Genus *Cynopterus*

11. *Cynopterus sphinx sphinx* (Vahl)

1797. *Vespertilio sphinx* (Vahl) *Skr. Nat. Selsk* Copenhagen, 4(1) : 123.

Common Name : Short-nosed Fruit Bat;

Habitat & Habit : Fruit bearing trees close to forests. Terrestrial and arboreal species preferring to live in small colonies.

Distribution : Tamilnadu ; Throuhout India.

Conservation Status : Least Concern.

12. *Cynopterus brachyotis ceylonensis* (Gray)

1871. *Cynopterus marginatus* var. *ceylonensis* Gray, 1871 : *Catalogue of monkeys, lemurs and fruit-eating bats in the collection of the British Museum*, London, British Museum : viii : 122.

Common Name : Lesser dog-faced fruit bat.

Habitat : Same as that of *Cynopterus sphinx sphinx* (Vahl), both the species share a common roost (Pradhan and Kulkarni 1997).

Distribution : Tamilnadu; Western Ghats and Sri Lanka.

Status : Least Concern (For *Cynopterus brachyotis*).

*13. *Latidens salimalii* Thonglongya

1972. *Latidens salimalii* Thonglongya

Common Name : Salim Ali's Fruit Bat.

Habitat : High wavy mountains in Tamilnadu and Kerala. The species was found in the broad leaved mountane forest, interspersed with coffee bunches at an altitude of about 1500 ft. (460 m). It is a cave dwelling, frugivorous and a colonial species.

Distribution : Western Ghats in Tamilnadu and Kerala. Endemic.

Status : Endangered

Suborder MICROCHIROPTERA

Family RHINOPOMATIDAE

Genus *Rhinopoma*

14. *Rhinopoma hardwickei hardwickei* Gray

1831 *Rhinopoma hardwickei* Gray *Zool. Misc.* 37.

Common Name : Lesser rat-tailed bat.

Habitat & Habatat : Caves, old ruins tunnels, buildings etc., colonial species.

Distribution : Tamilnadu, Drier zones of India.

Conservation Status : Near Threatened

Family EMBALLONURIDAE

Genus *Saccolaimus*

15. *Saccolaimus saccolaimus* (Temminck)

1838. *T. saccolaimus* Temminck, *Tijdschrift Natuurl. of Gesch. Physiol.*, 5 : 3-4, 1 pl.

Common Name : Pouch-bearing Tomb Bat.

Habitat : Information available about habit and habitat, is scanty, reported to inhabit the caves, ruins of tunnels, mine, temples etc.

Distribution : Tamilnadu, Throughout India.

Conservation Status : Least Concern (For *Taphozous saccolaimus*). ?

Genus *Taphozous*16. *Taphozous longimanus longimanus*
Hardwicke

1825. *Taphozous longimanus* Hardwicke. *Trans Lin. Soc. Lond.*, **14** : 525.

Common Name : Long-winged tomb bat.

Habitat : A colonial species inhabiting old ruins, caves, tree holes etc.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Least Concern;

17. *Taphozous melanopogon melanopogon*
Temminck

1841a. *Taphozous melanopogon* Temminck, *Monographies demammalogie* tome 2. Leiden & Paris, 392 pp. Pl. xxvi-lxx.

Common Name : Black bearded tomb bat.

Habitat : A colonial species inhabiting the caves, old mines, tunnels, temples etc.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Least Concern.

18. *Taphozous nudiventris* Cretzschmar

1830. *Taphozous nudiventris* Cretzschmar, In Ruppell, *Atlas Reise Nordl. Afr., Zool., Säugeth.*, p. 70.

Common Name : Naked-rumped Tomb bat.

Habitat : Dry savanna, grassland, shrubland, sub-tropical or tropical drier lowland areas and natural as well as man made structures such as caves etc.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Least Concern.

Family MEGADERMATIDAE

Genus MEGADERMA

19. *Megaderma spasma horsfieldi* Blyth

1863. *Megaderma horsfieldi* Blyth *Cat. Mammal. Mus. Asiat. Soc. Bengal*, p. 23 (India)

Common Name : Lesser False Vampire bat.

Habitat : Old ruins, houses, temples wells etc. Colonial.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Least Concern.

20. *Megaderma (Lyroderma) lyra lyra* Geoffroy

1810. *Megaderma lyra* E. Geoffroy. *Ann. Mag. Hist. Nat. Paris*, **15** : 190.

Common Name : Greater false vampire bat.

Habitat : Similar to *Megaderma spasma*.

Distribution : Tamilnadu; Throughout India including.

Conservation Status : Least Concern;

Family RHINOLOPHIDAE

Subfamily RHINOLOPHINAE

Genus *Rhinolophus*21. *Rhinolophus affinis* Horsfield

1823. *Rhinolophus affinis* Horsfield, *Zool. Res. Java*, **6**, Pl. figs. a, b.

Common Name : Intermediate Horseshoe Bat.

Habitat : Old ruins, buildings, caves, delapidated man-made structures, the trunks of old trees.

Distribution : Tamilnadu; India.

Conservation Status : Least Concern.

22. *Rhinolophus lepidus lepidus* Blyth

1844. *Rhinolophus lepidus* Blyth, *J. Asiat. Soc. Bengal*, **13** : 486.

Common Name : Blyth's horse-shoe bat.

Habitat : Large caves in forested areas, rocky outcrops, semi-evergreen forests; solitary to colonial life.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Least Concern.

23. *Rhinolophus luctus* Temminck

1835. *Rhinolophus luctus* Temminck, *Monogr. Mamm.*, **2** : 24

Common Name : Woolly Horse-shoe Bat.

Habitat : Forested areas, hanging isolated in a

secluded corners, cave or old building, deserted wells; solitary to colonial life.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Near Threatened (For *R. beddomi*).

Remarks : Corbet and Hill (1992) synonymized *Rhinolophus beddomei* under *R. luctus*. Bates and Harrison (1997) recognized it as a distinct species. Thulsi Rao *et al.* (2004) reported *R. beddomei* as a separate species from Eastern Ghats. However, Ellerman and Morrison-Scot (1951), Koopman in Wilson and Reeder (1993) and Alfred *et al.* (2002) kept *Rhinolophus beddomei* as a separate subspecies of *Rhinolophus luctus*.

24. *Rhinolophus rouxi rouxi* Temminck

1834. *Rhinolophus rouxi* Temminck, *Monogr. Mammal*, 2 : 306.

Common Name : Rufous horse-shoe bat.

Habitat : Large caves, rocky outcrops in semi-evergreen forests; It can lead a solitary to colonial life.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Near Threatened;

Subfamily HIPPOSIDERINAE

Genus *Hipposideros*

25. *Hipposideros ater* Templton

1848. *Hipposideros ater* Templeton, *J. Asiat. Soc. Bengal*, 17 (1) : 252.

Common Name : Dusky Leaf-nosed bat.

Habitat : Deep wells, dark hollows in walls, caves and favours highly humid atmosphere.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Least Concern.

26. *Hipposideros fulvus fulvus* Gray

1838. *Hipposideros fulvus* Gray, *Mag. Zool. Bot.*, 2 : 492.

Common Name : Fulvous Leaf-nosed bat.

Habitat & Habit : Ruins of caves, temples, buildings in and near forested areas. Colonial.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Least Concern.

27. *Hipposideros lankadiva indus* (Andersen)

1918. *Hipposideros indus* Andersen, *Annals. Mag. Nat. Hist.*, 2 : 382

Common Name : English : Kelaart's Leaf-nosed bat.

Habitat & Habit : Old buildings, caves and tunnels, dilapidated buildings, temples etc.; diurnal.

Distribution : Tamilnadu; Peninsular India.

28. *Hipposideros pomona* K. Andersen

1918. *Hipposideros pomona* Andersen, *Ann. Mag. Nat. Hist.*, ser. 9(2) : 380, 381.

Common Name : English : Andersen's Leaf-nosed Bat.

Distribution : Tamilnadu; India.

Habitat : Natural, narrow and posteriorly slanting caves; mountainous zones of Western Ghats (Korad, 2005).

Conservation Status : Least Concern.

Remarks : Corbet and Hill (1992), Bates and Harrison (1997) Das (2003) recognized *Hipposideros pomona pomona* from Southern India.

29. *Hipposideros speoris speoris* (Schneider)

1800. *Vespertilia speoris* Schneider, In Schreber, J.C.D. *Die sangethiere in Abbildungen nach der Natur Frlangen* Supplement : 1112 pp. with 347 pls.

Common Name : Schneider's leaf-nosed bat.

Habitat : Same as *Hipposideros fulvus*;

Distribution : Tamilnadu; Throughout the Peninsular India.

Conservation Status : Least Concern.

Remarks : The species is also known to share the roost with *H. fulvus* and *Megaderma lyra* (Bates and Harrison, 1997).

Family VESPERTILIONIDAE

Subfamily KERIVOULINAE

Genus *Kerivoula*30. *Kerivoula picta picta* (Pallas)1842. *Vespertilio picta* Pallas, *Spicil. Zool.*, 3 : 7.*Common Name* : Painted bat.*Habitat & Habit* : Plantations near human habitations; solitary, sometimes in small groups.*Distribution* : Tamilnadu; Throughout India.*Conservation Status* : Least Concern

Subfamily VESPERTILIONINAE

Genus *Hesperoptenus*31. *Hesperoptenus tickelli* (Blyth)1851a. *Nycticejus tickelli* Blyth, *J. Asiat. Soc. Bengal*, 20 : 157.*Common Name* : Tickell's Bat.*Habitat & Habit* : Essentially a sub-montane species, migrate to plains seasonally; single or in small parties; concealing in the foliage, a known high flying bat species.*Distribution* : Tamilnadu; Throughout India.*Conservation Status* : Least Concern.Genus *Myotis*32. *Myotis horsfieldii* (Temminck)1839. *Vespertilio horsfieldii* Temminck, *Monogr. Mamm.* 2 : 226.*Common Name* : Tickell's Bat.*Habitat & Habit* : Similar to *H. tickelli*.*Distribution* : Tamilnadu; Throughout India.*Conservation Status* : Least Concern.Genus *Pipistrellus*33. *Pipistrellus affinis* (Dobson)1871. *Vesperugo (Pipistrellus) affinis* Dobson, *Proc. Asiat. Soc. Bengal*, : 213.*Common Name* : Chocolate Pipistrelle*Habit and Habitat* : Diurnal roost includes crevices, roofs or behind the wooden shelter in old stony buildings; Adult male and female live in the same colony.*Distribution* : Tamilnadu; Throughout India.*Conservation Status* : Near Threatened.34. *Pipistrellus ceylonicus indicus* (Dobson)1878. *Vesperugo indicus* Dobson. *Cat. Chiroptera Br. Mus.*, : 222.*Common Name* : Kelaart's Pipsitrelle.*Habitat* : Colonial, living in crevices in wood, building, old ruins, bridges etc. Eclectic species individual to 200; do not hang but cling to the surface.*Distribution* : Widely distributed throughout India.*Conservation Status* : Least Concern.35. *Pipistrellus coromandra coromandra* (Gray)1838 *Scotophilus coromandra* Gray, *Mag. Zool. Bot.*, 2 : 498.*Common Name* : Indian Pipistrelle.*Habitat* : Colonial in habit living in crevices of buildings, ruins and bark of trees.*Distribution* : Widely distributed in Peninsular India.*Conservation Status* : Least Concern.36. *Pipistrellus dormeri* (Dobson)1875 *Scotozous dormeri* Dobson, *Proc. Zool. Soc. Lond.*, 1875 : 373.*Common Name* : Dormer's Bat.*Habitat* : Gregarious; Colonial; colony size ranging from 2 to 24. Generally found in the close vicinity or in the midst of human... *Habitations*. Roost sites include holes and crevices of buildings, ruins and bark of large trees.*Distribution* : Widely distributed in Peninsular India.*Conservation Status* : Least Concern.

37. *Pipistrellus tenuis mimus* Wroughton

1899. *Pipistrellus mimus* Wroughton *J. Bombay nat. Hist. Soc.*, 12 : 722.

Common Name : Indian Pygmy Pipistrelle.

Habitat : Crevices of buildings and rocks; solitary and colonial.

Distribution : Widely distributed throughout India.

Conservation Status : Least Concern.

Genus *Scotophilus***38. *Scotophilus heathii heathii* (Horsfield)**

1831 *Scotophilus heathii*, Horsfield, *Proc. Zool. Soc.*, Lond., 113.

Common Name : Asiatic greater yellow house bat.

Habitat & Habit : Old buildings, ruins and trees; Colonial in habit. Agrawal *et al.* (1992) reported the roosting of this species along with *Megaderma lyra lyra*. Colonial.

Distribution : Widely distributed in India including Tamilnadu.

Conservation Status : Least Concern.

39. *Scotophilus kuhlii kuhlii* Leach

1822. *Scotophilus kuhlii* Leach. *Trans. Linn. Soc. Lond.*, 13 : 723.

Common Name : Asiatic lesser yellow house bat.

Habitat & Habit : Crevices of old buildings and ruins, solitary and or colonial arboreal.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Least Concern.

Subfamily MURININAE**Genus *Harpiocephalus*****40. *Harpiocephalus harpia* (Temminck)**

1840. *Vespertilio harpia* Temminck, *Monogr. Mamm.*, 2 : 219.

Common Name : Hairy winged bat.

Habitat : Scanty information available on the habit and habitat of this species.

Distribution : Southern peninsular India.

Conservation Status : Data Deficient.

Genus *Murina***41. *Murina cyclotis* Dobson**

1872. Dobson *Proc. Asiat. Soc. Bengal* : 210.

Common Name : Round-eared Tube-nosed Bat.

Habitat : a cave dwelling at elevations as low as 250 m in the foothills to 1,500 m in the montane forests; terrestrial in the tropical and temperate forests of southeast Asia.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Least concern.

Subfamily MINIOPTERINAE**Genus *Miniopterus*****42. *Miniopterus pusillus* (Dobson)**

1876. *Miniopterus pusillus* Dobson, *Monogr. Asiatic Chiroptera*, p. 162.

Common Name : Nicobar Long-fingered Bat.

Habitat : Cave dwelling in the forested areas at higher elevations.

Distribution : Tamilnadu, Karnataka and Nicobar Islands in India.

Conservation Status : Least concern.

43. *Miniopterus schreibersi fuliginosus* (Hodgson)

1835. *Vespertilio fuliginosa* Hodgson *J. Asiat. Soc. Beng.*, 4. : 700.

Common Name : English : Schreiber's Long-fingered bat.

Habit & Habitat : Occur in hilly and forested country; caves, caverns and crevices in rocks. Colony consists of thousands individuals.

Distribution : Tamilnadu; Throughout India. (Corbet and Hill, 1992).

Conservation Status : Least Concern (National).

Family MOLOSSIDAE

Genus *Chaerephon*44. *Chaerephon plicata plicata* (Buchanan, 1800)

1800. *Vespertilio plicatus* Buchanan, *Trans. Linn. Soc. London*, 5 : 261.

Common Name : Wrinkle-lipped Free-tailed Bat.

Habit & Habitat : Caves and deserted stone building during day time; Colony size varies between 200 to 500 individuals; The bats select warmer parts of the *Habitats* for its diurnal roost.

Distribution : Tamilnadu; India.

Conservation Status : Least Concern.

Genus *TADARIDA*45. *Tadarida aegyptiaca thomasi* Wroughton

1919. *Tadarida thomasi* Wroughton *J. Bombay nat. Hist. Soc.*, 26 : 732.

Common Name : Egyptian Free-tailed bat.

Habitat & Habit : The crevices/cracks in caves, cliff faces, rocks, boulders, walls and deserted stone buildings etc.; colonial with size of the colonies varying between single individual to more than thousand individuals.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Least Concern.

Order PRIMATES

Family LORIDAE

Genus *Loris*46. *Loris tardigradus* (Linnaeus)

1758. *Lemur tardigradus* Linnaeus, *Syst. Nat.*, 10th ed., 1 : 29.

Common Name : Slender Loris.

Habitat : Tropical forest, swampy coastal forest and crop land near forest; lives alone or with mate.

Distribution : Tamilnadu, Parts of Andhra Pradesh, Karnataka and Kerala.

Conservation Status : Near Threatened.

Remarks : The species needs taxonomic revisionary studies at subspecies level. The species is involved in domestic as well as international trade for Medicinal and experimental purposes.

Family CERCOPITHECIDAE

Subfamily CERCOPITHECINAE

Genus *Macaca**47. *Macaca radiata* (Geoffroy)

1812. *Cercocebus radiatus*, Geoffroy, E. *Tableau des quadrumanes Annales Mus. Hist. nat., Paris* : 15 : 157-198.

Common Name : Bonnet macaque.

Habitat : Forested, urban, semi urban, rural etc., areas; semi-arboreal living in troops.

Distribution : Peninsular India upto 21°N; endemic.

Conservation Status : Least Concern.

Remarks : Traded in domestic as well as international markets.

*48. *Macaca silenus* (Linnaeus)

1758. *Simia silenus* Linnaeus, *Syst. Nat.*, 10th ed., 1 : 26.

Common Name : Lion-tailed Macaque.

Habitat : Dense evergreen or semi evergreen rain forests of high trees in secluded areas. Its occurrence in tea and cardamom plantations interspersed with thick forests has also been reported. gregarious; lives in group of 4-30 individuals. Diurnal in behavior.

Distribution : Western Ghats between the latitudes 8°25'N and 15°N in the Indian states of Karnataka, Tamilnadu and Kerala.

Conservation Status : Western Ghat/Indian endemic species. Endangered.

Remarks : The species is involved in domestic as well as international trade.

Subfamily COLOBINE

Genus *Semnopithecus*49. *Semnopithecus entellus* (Dufresne)

1707. *Simia entellus* Dufresne, *Bull. Soc. Philom., Paris* : 1 (7) : 49.

Common Name : Hanuman langur.

Distribution : Tamilnadu; Throughout India.

Habitat & Habit : Forested, urban, semi-urban and rural areas near human habitations; Arboreal and colonial.

Conservation Status : Least Concern.

Remarks : The species is involved in domestic as well as international trade. Worshipped by Hindus. Napier (1985) reviewed the taxonomy of the species under Subfamily *Colobinae* and separated previously known *Presbytis entellus* as *Semnopithecus entellus* on the basis Head and Body and Tail length and colour of neonatal coat. Revisionary taxonomic studies of *Semnopithecus entellus* subspecies carried out by Brandon-Jones *et. al.* (2002) needs further taxonomic confirmation due to number of overlapping characters and geographical distribution.

Genus *Trachypithecus*

*50. *Trachypithecus johnii* (Fischer)

1829. *Cercopithecus johnii* Fischer, *Synopsis Mamm.* P. 25.

Common Name : Nilgiri Langur.

Distribution : Southern Western Ghats in India. Western Ghats/Indian endemic species.

Habitat & Habit : Tropical rain forest, Moist evergreen / Moist deciduous forest and plantations. Nilgiri Langur is truly arboreal in nature and live in troops. But the preferred niche at higher elevations is evergreen forests.

Conservation Status : Vulnerable.

Remarks : The species is involved in domestic trade for meat and traditional medicines

Order CARNIVORA

Family CANIDAE

Genus *Canis*

51. *Canis aureus* Linnaeus

1758. *Canis aureus* Linnaeus, *Systema naturae* vol. 1, 10th edition : 40.

Common Name : Indian Jackal.

Habitat : Terrestrial in habit living in all types of forests close to urban and semi-urban environs.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Lower risk-least concern.

Remarks : Hunted for domestic & international trade for medicinal preparations.

Genus *Cuon*

52. *Cuon alpinus* (Pallas)

1811. *Canis alpinus* Pallas, *zoogr. Ross. Asiat.* 1, : 34.

Common Name : Indian Wild Dog, Dhole.

Habitat & Habit : Terrestrial animal in dense forests interspersed with open land, prey species and water. Found at an altitude of around 12000 Ft; social animals; live and hunt in packs. They prey upon animals like sheep, sambar, wild boar, gaur, buffalo etc.

Distribution : Tamilnadu, whole of India.

Conservation Status : Lower risk- near threatened.

Genus *Vulpes*

53. *Vulpes bengalensis* (Shaw)

1800. *Canis bengalensis* Shaw, *Genl. Zool.*, 1 2 300

Common Name : Bengal Fox.

Habitat : Terrestrial, sometimes fossorial living in upper country, open fields etc., adjacent to the human settlements.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Lower risk-near threatened.

Remarks : Hunted for domestic & international trade.

Family FELIDAE

Subfamily FELINAE

Genus *Felis*

54. *Felis chaus* Guldenstaedt

1776. *Felis chaus* Guldenstaedt, *Novi Comment Acad Sci Impetropol.* 20 : 483-500 pls. 14, 15

Common Name : Jungle Cat.

Habitat & Habit : Terrestrial, nocturnal, inhabiting drier and open parts of the country, keeping more to grassland, scrub, dry deciduous and evergreen forests, reedy banks of rivers and marshes.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Lower risk-near threatened.

Remarks : The population is under threat due to illicit wildlife trade in domestic & International markets (Pradhan, 1997).

Genus *Prionailurus*

55. *Prionailurus bengalensis* (Kerr)

1792. *Felis bengalensis* Kerr, *Anim. Kingd.*, : 151.

Common Name : Leopard Cat.

Habitat : Terrestrial, semi-arboreal and nocturnal in habit. Live in thick dry/moist deciduous and evergreen forests, grasslands, scrubs etc; prey upon small animals and birds.

Distribution : Tamilnadu; Throughout India.

Conservation Status : Lower risk-Near threatened.

Remarks : Leopard cat is killed for fur and body parts by domestic traders. Some tribal populations kill them for preparation of trophies.

56. *Prionailurus rubiginosus rubiginosus* (Geoffroy)

1831 *Prionailurus rubiginosa* Geoffroy, *Belanger, Voy. Ind. Orient. Zool.* 140.

Common Name : Rusty spotted cat.

Habitat & Habit : Terrestrial and to some extent arboreal, nocturnal, frequenting grassland, scrub, dry and open forests and plantations.

Distribution : Tamilnadu; Peninsular India.

Conservation Status : Lower risk-Near threatened

57. *Prionailurus viverrinus* (Bennett)

1833. *Felis viverrinus* Bennett, *Proc. Zool. Soc. London* : 68.

Common Name : Fishing Cat.

Habitat : Dense forest covers near water bodies. The fishing cat inhabits forests at 1500 m as well as swamps at foothills of the mountains. It is also known to occur along the west coast from coastal Maharashtra to Kanyakumari in Tamilnadu. Thus it is confined obviously to reverine swampy tidal creek and marshy areas. Wherever the cat stays, it needs dense cover for shelter. It is terrestrial and semi-aquatic in habit and nocturnal in behaviour.

Distribution : Southern, Western and Northern India.

Conservation Status : Vulnerable.

Subfamily PANTHERINAE

Genus *Panthera*

58. *Panthera pardus fusca* (Meyer)

1794. *Felis fusca* Meyer, *Zool. Ann.* : 1 : 394.

Common Name : Panther/Leopard.

Habitat : Terrestrial, nocturnal, semi-arboreal, inhabiting forests, scrub jungles, open country etc. They are able to thrive almost anywhere. A resident species not restricted to forests and heavy covers like tiger. Being bold in nature this predator species comes more frequently in contact with man than the tiger.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Vulnerable

Remarks : Largest number of leopard skins in the cat skin trade is involved in the illegal trade. The populations are under threat due to illicit wildlife trade of its fur and body parts in domestic and international markets (Pradhan, 1997).

59. *Panthera tigris tigris* (Linn.)

1758. *Felis tigris* Linnaeus, *Syst. Nat.* : 10th Ed. : 41.

Common Name : Royal Bengal Tiger/Tiger.

Habitat : Largely terrestrial and nocturnal in habit and, hence, seldom seen; It can live in a

variety of *Habitats* like the hills, plains, thick dry/ moist deciduous and evergreen forests, grasslands, scrubs, mangroves swamps etc. Comparatively tiger is a shy animal in behavior.

Distribution : Throughout India except North-Western region.

Conservation Status : Endangered

Remarks : Large number of tiger skins in the cat skin trade is involved in the illegal trade. Tiger is also killed for fur and body parts trade in domestic as well as international market for various reasons. These beautiful cats are also trapped live for commercial trade (Pradhan, 1997).

Family HERPESTIDAE

Genus *Herestes*

60. *Herpestes edwardsii edwardsii* (Geoffroy)

1818 *Ichneumon edwardsii* Geoffroy, E., *Description de l'Egypte Description des mammiferes*, 2, Paris : 139.

Common Name : Indian grey mongoose.

Habitat : Terrestrial, diurnal/nocturnal, fossorial, living in open scrubs, cultivation, rocky patches, forest edges, near human habitations etc;

Distribution : Throughout India including Tamilnadu.

Conservation Status : Lower risk-least concern.

Remarks : The mongoose can easily be tamed. Threat to its population due to hunting for medicine, trophies and food and also for local illegal trade for body parts for making articles like brushes etc. cannot be ruled out (Pradhan, 1997).

61. *Herpestes smithii smithii* Gray

1837 a. *Herpestes smithii*, Gray J.E., *Magazine nat. Hist.*, 1 : 578.

Common Name : Ruddy Mongoose.

Habitat : Terrestrial diurnal/nocturnal, fossorial preferring to live in dry and moist forests of Central and Southern India.

Distribution : Peninsular India including Tamilnadu.

Conservation Status : Lower risk-least concern.

Remarks : Threat to the populations of ruddy mongoose due to hunting for medicine, trophies and food and also for local illegal trade for body parts for making articles like brushes etc. cannot be ruled out (Pradhan, 1997).

62. *Herpestes brachyurus* Gray

1837. *Herpestes brachyurus*, Gray J.E., *Proc. Zool. Soc. Lond.*, 1837 : 88.

Common Name : Brown Mongoose.

Habitat : Terrestrial diurnal/nocturnal, fossorial preferring to live in lowland primary rain forests and secondary forests as well as plantations and in gardens of Southern India. Usually found near rivers.

Distribution : Western Ghats in southern India including Tamilnadu.

Conservation Status : Lower risk-least concern.

Family HYAENIDAE

Subfamily HYAENINAE

Genus *Hyaena*

63. *Hyaena hyaena* (Lin.)

1758. *Canis hyaena* Linnaeus, *Syst. Nat.*, 10th ed; 1 : 40.

Common Name : Striped hyaena.

Habitat : Terrestrial, nocturnal, rare in forested areas but found in open countries, scrub lands and semi urban areas, found also in thorny semi arid regions. Prefer to live in low hilly areas and ravines which offer convenient holes and caves for shelter, mainly scavenger in habit but can also hunt preys of its size like sheep, goat, dog etc. Hyenas are also known to dig open graves in search of food.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Lower risk-near threatened.

Remarks : The population is under threat due to faiths in wrong beliefs and also due to illegal

wildlife trade of its fur in domestic as well as international markets (Pradhan, 1997).

Family MUSTELIDAE

Subfamily LUTRINAE

Genus *Ambolynx*

64. *Ambolynx cinereus* (Illiger)

1815. *Ambolynx cinereus* Illiger, *Ueberblick der Wissenschaften aus den Jahren* (Cited in Harris C.J., 1968 Weinfield and Nicolson, London, UK)

Common Name : Small-clawed or Clawless Otter.

Habitat : These otters dwell in swampy mangroves, freshwater wetlands and close to streams. They are occurring in from coastal wetlands to mountain streams (Hussain, 1999). They spend more time on land than in water. They dig their own dens near river side. Though they are excellent swimmers, they keep themselves to shallows and riverbanks only. They are very intelligent, social and playful creatures and live in groups of upto 18 individuals. They are diurnal in behaviour. Depending upon the availability of food they undertake local migrations. Small clawed otter tracks are very distinctive and lack claw impressions.

Distribution : Isolated and patchy distribution in India including Tamilnadu. In southern India they have been reported from higher altitudes.

Conservation Status : Lower Risk-Near Threatened

Remarks : The species is involved in local, domestic and international trade. Hunted for use of body parts in traditional medicinal treatments (Alfred *et. al.* 2006).

Genus *Lutra*

65. *Lutra lutra nair* Cuvier

1823b. *Lutra nair* Cuvier, F., *Loutre, Lutra. Dictionnaire des sciences natruelle, ...* Strasbourg & Paris. 27 : 237-250.

Common Name : Common Otter.

Habitat : Common otters live in a wide variety of aquatic *Habitats* including high and low land

lakes, rivers, streams, man made water bodies, marshes and coastal areas. Their movements on the ground are clumsy. However they are excellent divers and swimmers. They take shelter on land in the burrows. Their nursery or halt is always near the banks. Sometimes burrow opening is below water level. They may also excavate roots of the tree near banks. They undertake long distance migration during unfavourable seasons.

Distribution : Isolated and patchy

Distribution of the species in India including Tamilnadu. In southern India they have been reported from higher altitudes.

Conservation Status : Vulnerable.

Remarks : Southern population of common otter has been recognized as *Lutra lutra nair*, Cuvier. The species is involved in local, domestic and international trade. Hunted for use of body parts in traditional medicinal treatments (Alfred *et. al.* 2006).

Genus *Lutragale*

66. *Lutragale perspicillata* (Geoffroy)

1826. *Lutra perspicillata* L. Geoffroy, *Dict. class Hist. Nat.*, 7 : 519.

Common Name : Smooth coated Indian otter.

Habitat : Aquatic, preferring to live in and near reservoirs, large rivers, tanks at lower altitudes.

External Distribution : Throughout peninsular India; including Eastern and North-Eastern regions.

Conservation Status : Not Evaluated ;Data Deficient

Remarks : Not much information on its latest **Distribution**, locations, populations etc. is available.

Subfamily MUSTELINAE

Genus *Martes*

*67. *Martes gwatkinsi* Horsfield

1851. *Martes gwatkinsii* Horsfield, *Cat. Mamm. Mus. E. India Co.*, p. 90.

Common Name : South Indian Yellow-throated Marten or Nilgiri Marten.

Habitat : Riverine dense forest dwelling species. Though it can move on the ground, it is more comfortable on the trees. It can travel longer distances on tree canopies, if undisturbed, in dense and evergreen forests (Hussain, 1999). It is mostly diurnal in habit.

Distribution : Western Ghats endemic species of India, specially at higher altitudes in southern Western Ghats.

Conservation Status : Vulnerable.

Remarks : Individuals of this species in some areas raid boxes in farms and feed on Honey. Hence, such animals are treated as pests in these areas (Hussain, 1999). Factual confirmation, verification and remedies are essential in such cases.

Subfamily MELLIVORINAE

Genus *Mellivora*

68. *Mellivora capensis* (Schreber)

1776. *Viverra capensis* Schreber, *Saugeth*, pl. 125.

Common Name : Ratel or Honey Badger.

Habitat : Terrestrial, fossorial and nocturnal preferring to live in desert as well in dry and moist deciduous forests, but avoiding regions of heavy rainfalls. Big claws are used essentially for digging in the ground. Though ratels are omnivorous, they are essentially flesh eaters.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Lower risk-Near threatened.

Remarks : Weasels, Badgers and Otters differ so much from each other in appearance that it is difficult to believe that there is any relationship between them. However certain similarities in skull and molar structures show resemblance and common affinity between them.

Family URSIDAE

Subfamily URSINAE

Genus *Ursus*

69. *Ursus ursinus* (Shaw)

1791 *Bradypus ursinus* Shaw, *Nat. Misc.*, 2 (unpaged), pls. 58-59.

Common Name : Sloth bear.

Habitat : Terrestrial and arboreal preferring to live in forests, grasslands etc.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Vulnerable

Remarks : For generic taxonomic Status see Remarks of Corbet and Hill (1992) under Family Ursidae. Illegal wildlife trade of the body parts like gall bladder, claws etc. (Pradhan, 1997) is a recent and serious threat in addition to the threat due to loss of habitat and fragmentary populations.

Family VIVERRIDAE

Subfamily PARADOXURINAE

Genus *Paradoxurus*

70. *Paradoxurus h. hermaphroditus* (Pallas)

1777. *Viverra hermaphrodita* Pallas, *In* Schreber, *Die Saugethiere*, 3 : 426.

Common Name : Common Palm civet or Toddy cat.

Habitat : Terrestrial, more arboreal and nocturnal. Prefers to live in all types of forests and also close to human dwellings. They live much on trees lying curled up by day among the branches. But many have adapted themselves to a life in human settlements, even in the heart of the crowded cities, selecting a roof, an outhouse, or even drain as a place of hiding. They take shelter in holes, tree holes, under rocks, under bushes or in tall grasses etc. They can readily adapt to the changed conditions.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Lower risk-Least concern.

Remarks : The civets can easily be tamed. Some are kept under domestication for the regular extraction of the secretion from the scent glands. The species is involved in illegal Wildlife trade due to belief in superstitions(Pradhan, 1997). All the civet species are under threat of illegal trade for this reason. Hence they should be brought under CITES appendices also.

***71. *Paradoxurus jerdoni* Blanford**

1885. *Paradoxurus jerdoni* Blanford, *Proc. zool. Soc. Lond.*, : 613.

Common Name : Jerdon's Palm Civet Brown Palm Civet.

Habitat : The brown palm civet is found in evergreen, semi-evergreen and deciduous forests near tea and coffee estates at higher elevations. More common at high altitudes. It is basically arboreal and strictly nocturnal in habit. It is mainly frugivorous animal.

Distribution : Western Ghats/Indian endemic species. Southern Western Ghats including Tamilnadu.

Conservation Status : Vulnerable.

Remarks : The civets can easily be tamed. Some are kept under domestication for the regular extraction of the secretion from the scent glands. The species is involved in illegal Wildlife trade due to belief in superstitions(Pradhan, 1997). All the civet species are under threat of illegal trade for this reason.

Subfamily VIVERRINAE

Genus *Viverra*

***72. *Viverra civettina* Blyth**

1862. *Viverra civettina* Blyth, *Jour. Asiat. Soc. Bengal*, 31 : 332.

Common Name : Malabar Civet.

Habitat : Malabar civet is terrestrial and mainly nocturnal preferring to live in lowland forests and

cashew plantations with undergrowth along the foothills of Western Ghats. The typical **Habitat** can be classified as lowland swamps and riparian forests in the coastal plains provinces of Western Ghats. The Malabar civet retreats to the forests and/ or cashew plantations during day time. Almost nothing is known about its ecology , biology, feeding and other habits.

Distribution : Southern Western Ghats/Indian endemic species. From Honnavar in Karnataka to Kanyakumari in Tamilnadu.

Conservation Status : Critically Endangered.

Genus *Viverricula*

73. *Viverricula indica indica* (Desmarest)

1817. *Viverra indica* Desmarest, *Nouv. Dict. Hist. Nat.*, Paris, 7 : 170.

Common Name : Small Indian civet.

Habitat : Terrestrial, semi-arboreal and nocturnal. Prefers to live in all types of forests and also close to human dwellings. They take shelter in holes, tree holes, under rocks, under bushes or in tall grasses etc. Some may find refuge in drains and outhouses. They prefer to hunt in night.

Distribution : Throughout India Including Tamilnadu.

Conservation Status : Lower risk-Near threatened

Remarks : The civets can easily be tamed. Some are kept under domestication for the regular extraction of the secretion from the scent glands.

Order CETACEA

Suborde MYSTICETI

Family BALAENOPTRIDAE

Genus *Balaenoptera*

74. *Balaenoptera acutorostrata* (Lacepede)

1804. *Balaenoptera acutorostrata* Lacepede, *Hist. Nat. Cetacees.* : 134.

Common Name : Finner or Little Pinked or Minke Whale.

Habitat : The Minke Whale prefers to live in deep waters, migrates for more than 900 km distance towards equator in winter season. Deep water oceanic form. **Habitat** structure appears to be stable. Feeds on pelagic crustaceans, small fish etc. Lives singly or in pairs, but congregates in several hundreds within areas with abundant food.

Distribution : World wide, found in temperate and polar waters. Gulf of Mannar in Indian waters. Report of carcasses washed off shore on West and South-East coast of India.

Conservation Status : Lower Risk-Near Threatened

75. *Balaenoptera borealis* (Lesson)

1828. *Balaenoptera borealia* Lesson, *Hist. Nat. Gen. Part. Mamm. Oiseaux*, 1 : 342.

Common Name : Sei Whale.

Habitat : Marine form. Ocean, prefers to live in deep water but also found along coast. Sei whale is basically pelagic form living in small groups of 2-5 or even more individuals. Larger groups are seen in feeding zones.

Distribution : World wide. Found in temperate as well as in sub-tropical oceanic waters. They undertake annual migration from lower altitudes (wintering zone) to higher altitude zone (feeding zone). They are found primarily south of latitude 30' in winter and 40' in summer and autumn.

Conservation Status : Lower Risk-Near Threatened

76. *Balaenoptera edeni* Anderson

1879. *Balaenoptera edeni* Anderson, *Anat. Zool. Res. Yunnan* : 551, pl. 44.

Common Name : Bryde's Whale or Lesser Rorgul.

Habitat : Bryde's whale is a purely marine form, preferring to live along mostly off shore and sometimes in shore, both, waters.

Distribution : Bryde's Whale has a circum-equatorial distribution in tropical and warm waters.

In Indian waters found along Arabian sea, Bay of Bengal shores and also in Indian ocean.

Conservation Status : Lower Risk-Near Threatened,

77. *Balaenoptera musculus* (Linnaeus)

1758. *Balaena musculus* Linnaeus, *Syst. Nat.*, 10th ed., 1 : 76.

Common Name : Blue Whale or Lesser Rorgul.

Habitat : Blue whale prefers to live in cold water and open sea. It is involved in seasonal inter continental migration. Lives singly or in pairs, seldom seen in large schools. Feeds mainly on euphausiids (Krills), amphipods, copepods and cephalopods.

Distribution : Worldwide. From polar to tropical waters. Living in polar waters during summer, migrating towards equator in winter. One population has spread and separated from the one in Southern hemisphere and lives in North Indian ocean waters at all the times of the year. This population has been named as Pygmy Blue Whales. They have been reported from Mangalore, Cochin, Tuticorin, Calicut, Surat, Okha and number of other places along the Indian coast. Records mostly from carcasses washed towards shore.

Conservation Status : Critically Endangered.

78. *Balaenoptera physalus* (Linnaeus)

1758. *Balaena physalus*, Linnaeus, *Syst. Nat.*, 10th ed. 1 : 75.

Common Name : Fin Whale or Common Rorgul.

Habitat : Oceanic and pelagic inhabitant. Also involved in seasonal long distance migrations. Lives in a group of 3-10 or even 20 individuals. Feeds mainly on krills, squids and copepods. Its main predator is killer whale.

Distribution : Circumtropical (Indian Ocean and Pacific Ocean).

Conservation Status : Lower risk-near threatened.

Remark : Survival of the species in the region is threatened due to heavy hunting for international commercial trade, pollution, accidental death due to trapping in gill nets, collisions with motor boats, fishing vessels etc.

Genus *Megaptera*

79. *Megaptera novaeangliae* (Borowski)

1781. *Balaena novaengliae* Borowski, *Gemein Naturgesch. Their.*, 2(1) : 21.

Common Name : Hump-backed Whale.

Habitat : The... *Habitat* of humpback whales consists of polar to tropical waters, including the waters of the Artic, Atlantic, Pacific and Indian Oceans. In Indian waters it has been reported from Gulf of Mannar. During migration, they are found in coastal and deep oceanic waters. Humpbacks are divided into several populations. These are for the most part isolated, but with a little interchange in some cases. There are two stocks in the north Atlantic Ocean and two in the north Pacific. There are also seven isolated stocks in the southern hemisphere.

Distribution : Artic, Atlantic, Pacific and Indian Oceans.

Conservation Status : Vulnerable.

Suborder ODONTOCETI

Family DELPHINIDAE

Genus *Delphinus*

80. *Delphinus delphis* Linn.

1758. *Delphinus delphis* Linnacus, C. *Systema naturae* Vol. 1, 10th Ed. pp. 77.

Common Name : Common Dolphin.

Habitat : Dolphins are aquatic in nature and seen in schools in coastal waters, one of the fastest marine animal attaining the speed upto 30 knots.

Distribution : Circumtropical, Indian, Pacific and Atlantic Oceans.

Conservation Status : Lower risk-Near threatened.

Remarks : Dolphin is known from very ancient times and has figured in myths and legends of early Mediterranean civilization. Now it is being kept in dolphinarium all over the world.

Genus *Grampus*

81. *Grampus griseus* (Cuvier)

1812. *Delphinus griseus* G. Cuvier, *Ann. Mus. H. N. Paris*, 19 : 14, pl. 1, fig.1.

Common Name : Grey or Risso's Dolphin.

Habitat : It is found worldwide in temperate and tropical waters, usually in deep waters rather than close to land. Their preferred environment is just off the continental shelf on steep banks with water depths varying from 400-1000m).

Distribution : Worldwide including Indian, Pacific and Atlantic Oceans.

Conservation Status : Lower risk-Near threatened.

Genus *Orcinus*

82. *Orcinus orca* (Linnaeus)

1758. *Delphinus orca* Linnaeus, *Syst. Nat.*, 10th ed., 1 : 77.

Common Name : Killer Whale.

Habitat : Killer whale inhabits all oceans of the world but is most numerous in the Arctic, the Antarctic and areas in nutrient-rich cold water. In addition to cold water areas, killer whale has been seen in warm waters as well. Such sightings are infrequent, but they do demonstrate the its ability to venture into tropical waters. Even more surprising, it has been seen in fresh water rivers around the world. Although killer whale can be found in both the open ocean and coastal waters, they primarily inhabit the continental shelf in waters less than 200 m deep.

Distribution : Worldwide including Indian, Pacific and Atlantic Oceans.

Conservation Status : Lower risk-Near threatened

Remarks : Killer whale is not a whale but belongs to the dolphin family.

Genus *Peponocephala*83. *Peponocephala electra* Gray

1846. *Lagenorhynchus electra* Gray, Zool. Voy. H.M.S. "Erebus" and "Terror", 1 : 35.

Common Name : Melon-headed Whale.

Habitat : Basically prefers to live in warm temperate tropical seas. Pelagic marine form, found generally near equatorial waters. However it may also be seen close to the shore. Melon headed dolphins feed on squids and small fishes.

Distribution : Worldwide including Indian, Pacific and Atlantic Oceans. Indian waters : Indian ocean, Chennai and Vishakhapatnam coasts.

Conservation Status : Lower risk-Near threatened.

Genus *Pseudorca*84. *Pseudorca crassidens* (Owen)

1846. *Phocaena crassidens* Owen, Hist. Brit. Foss. Mamm. Birds, p. 516, fig., 213.

Common Name : False Killer Whale.

Habitat : False killer whale is mainly a deep water oceanic form preferring to feed primarily on cephalopods and large fishes. They play, ride on the waves and leap above the surface. Oceanic deep water forms, but they may approach coast line near deep waters.

Distribution : World wide, in tropical and temperate oceans including Indian Ocean. Recorded from Kozikode, Thiruvananthpuram (Trivandrum), Gulf of Cambay and Cape Comorin,

Conservation Status : Lower risk-Near threatened.

Genus *Stenella*85. *Stenella attenuata* (Gray)

1846. *Steno attenuatus* Gray, Zool. Voy. H.M.S. "Erebus" and "Terror", 1 : 44.

Common Name : Bridled or Pan tropical Spotted Dolphin.

Habitat : Marine, living in offshore and coastal

waters, both. Feeds mainly on fishes, cephalopods and crab larvae. Lives in group size of few to several thousand individuals.

Distribution : World wide, in tropical and subtropical waters in India.

Conservation Status : Not Listed.

Genus *Tursiops*86. *Tursiops truncatus* (Montagu)

1821. *Delphinus truncatus* Montagu, Mem. Warnerian Nat. Hist. Soc., 3 : 75, pl. 3.

Common Name : Bottle -nosed Dolphin.

Habitat : Oceanic form. Species is known to inhabit offshore and inshore temperate as well as tropical waters. The inshore range extends to river mouths, bays, lagoons, estuaries and 0-5-20m deep shallow marine regions. Bottle-nosed Dolphin lives in a group size of 2-18. However inshore schools of 200 and offshore schools of 500 have also been recorded

Distribution : Worldwide.

Conservation Status : Lower Risk-Near Threatened

Family PHOCOENIDAE

Genus *Neophocaena*87. *Neophocaena phocaenoides* (Cuvier)

1829. *Delphinus phocaenoides*, Cuvier, G., *Le regne animale* 2nd ed. Paris, xxxviii, pp. 584.

Common Name : Black finless porpoise.

Habitat : The finless porpoise is aquatic preferably marine as well as estuarine, both, in habit. Prefers to live in coastal, river mouth, and estuarine waters. It has been reported to reach lower reaches upto 65 kms. from the mouth of Indus river in Pakistan and over 1000 kms. from the mouth of Yangtze river in China.

Distribution : Circumtropical (Indian Ocean and Pacific Ocean).

Conservation Status : Lower risk-near threatened

Family PHYSETERIDAE

Genus *Kogia*88. *Kogia breviceps* (Blainville)

1838. *Physter breviceps* Blainville, Ann. Franc. Etr. Anat. Phys., 2 : 337.

Common Name : Pygmy Sperm Whale.

Habitat : Inhabitants of deep oceanic waters. Marine and Oceanic form preferring to live in open and deep waters. Occasionally seen quite close to inshore waters also. They are specialist bottom feeders preying on squids and crustaceans. Sluggish and slow swimmers resting on surface for long periods. Group size consists of 1 to 5 or even ten individuals (Robert 1997).

Distribution : Throughout the tropical and warm temperate oceans of the world. From the Indian coast, stranding of Pigmy Sperm Whales has been reported from Chennai, Vishakhapatnam and Waltair on east coast.

Conservation Status : Lower risk-near threatened.

Genus *Physeter*89. *Physeter macrocephalus* Linnaeus

1758. *Physeter macrocephalus* Linnaeus, Syst. Nat., 10th ed., 1 : 76.

Common Name : Sperm Whale.

Habitat : Deep water oceanic forms. Usually not found in areas with less than 180 m depth. They can dive as deep as 2800 meters and be under water for more than an hour. Further they can remain on surface and blow nearly 50 times for an hour before next deep dive. Sperm Whale may be found solitary or in groups.

Distribution : World wide. Sperm Whale females and young males are confined between 45°N and 45°S latitudes, while mature males travel upto Arctic and Antarctic oceans. Reported from east and west coasts of India.

Conservation Status : Lower risk-near threatened.

Order SIRENIA

Family DUGONGIDAE

Genus *Dugong*90. *Dugong dugon* (Mueller)

1776. *Trichecus dugon* Mueller, P.L.S., Des Ritters c. von. Linne Vollstandiges Natursystem, Supplement Nurnberg.

Common Name : Dugong or sea cow.

Habitat : *Dugong* is restricted to coastal, shallow and marine *Habitat* feeding mainly upon sea-grasses of the families *Potamogetonaceae* and *Hydrocharitaceae*. Sea cows are totally aquatic herbivores.

Distribution : Coastal waters of Asia, Africa and Australia.

Conservation Status : Critically Endangered

Remarks : Sea cow populations along Indian coastline are reported to be under threat due to decline in area of occupancy, extent of occurrence and also due to hunting for its flesh, hide, fat, bones and tusks.

Order PROBOSCIDEA

Family ELEPHANTIDAE

Genus *Elephas*91. *Elephas maximus indicus* Cuvier

1997. *Elephas indicus* Cuvier, Tabl. Elem. Hist. Nat., : 148 (India).

Common Name : Indian Elephant.

Habitat : Terrestrial, preferring to live in tropical dry and moist deciduous forests including savannah grasslands. Can undertake long distance migration in search of food, shelter and water. Possesses excellent sense of smell and memory. Extremely adaptable. Very social and lives in herds of varying sizes.

Distribution : Southern Western Ghats and Eastern Ghats in Tamilnadu and parts of Central, northern, eastern and north-eastern India.

Conservation Status : Vulnerable.

Remarks : Elephants are involved in large scale

illegal trade at domestic as well as international level, mostly for ivory and other body parts (Pradhan, 1997).

Order ARTIODACTYLA

Family SUIDAE

Genus *Sus*

92. *Sus scrofa* Linn.

1758. *Sus scrofa* Linnaeus, *Systema naturae* Vol. 1, 10th Ed. Holmia : 824.

Common Name : Wild Boar.

Habitat : Terrestrial, wild boar lives in grassy or scanty bushy jungle, forest, most commonly seen in high crops also.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Lower risk-least concern.

Remarks : Wild Boar causes extensive damage to the standing crops.

Family TRAGULIDAE

Genus *Moschiola*

93. *Moschiola meminna* Erxleben

1777. *Moschus meminna* Erxleben, J.C.P., *Mammalia Lipsia* : *Xlviii* : 322.

Common Name : Indian chevrotain or Mouse Deer.

Habitat : Terrestrial, small sized shy creature preferring to live in any type of dense forest.

Distribution : Peninsular India including Tamilnadu.

Conservation Status : Lower risk-near threatened

Family CERVIDAE

Subfamily CERVINAE

Genus *Axis*

94. *Axis axis* (Erxleben)

1777. *Cervus axis* Erxleben., *Syst. Regn. Anim.*, : 312.

Common Name : Chital, Spotted Deer.

Habitat : Terrestrial, diurnal, prefers to stay in grassy forest glades and shaded streams, generally seen in herds of 10–30 with one or two stags.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Lower risk-least concern.

Remarks : Spotted deers are involved in large scale illegal trade, hunting and poaching at domestic as well as international level, mostly for skin and other body parts and also for antlers for making trophies, (Pradhan, 1997).

Genus *Cervus*

95. *Cervus unicolor* Kerr

1792. *Cervus axis unicolor* Kerr *The animal kingdom Class Mammalia, London* : Murrey 400 pp.

Common Name : Sambar.

Habitat : Terrestrial, preferring to live in thickly wooded forests, diurnal in habit.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Lower risk-least concern.

Remarks : same as those mentioned in *Axis axis*.

Subfamily MUNTIACINAE

Genus *Muntiacus*

96. *Muntiacus muntjack* (Zimmerman)

1780. *Cervus muntjack* Zimmerman, *Geogr. Gesch. Mensch. Vierf. Thiere*, 2 : 131.

Common Name : Indian muntjak, Barking deer, Rib-faced deer.

Habitat : Terrestrial, any thickly wooded forest including moist mixed deciduous forests, diurnal in habit.

Distribution : Almost throughout the country excluding Jammu and Kashmir.

Conservation Status : Lower risk-least concern.

Remarks : Wilson and Reeder (1993) have

reported number of subfamilies under the Family *Cervidae* on the basis of the revisionary work carried out by Whitehead (1972) and Groves and Grab (1987), Genus *Muntiacus* has been included in subfamily *Muntiacinae*. Barking deers are also involved in illegal trade, hunting and poaching at domestic level, mostly for skin and other body parts such as meat and also for antlers for making trophies, (Pradhan, 1997).

Family BOVIDAE

Subfamily ANTILOPINAE

Genus *Antelope*

97. *Antelope cervicapra* (Linnaeus)

1758. *Capra cervicapra* Linnaeus, *Syst. Nat.* 10th ed. I : 69.

Common Name : English : Blackbuck or Indian Antelope.

Habitat : Largely terrestrial, gregarious and social animal preferring to live in open plains covered with scrub or cultivations. They may enter open forests which contain vast expanses of grass. It is a diurnal and silent animal found in a herd of 20-30 individuals.

Distribution : Throughout the drier parts of peninsular India except in North-East India.

Status : Lower risk- Least concern.

Remarks : Blackbuck is hunted for its meat for food and skin and body parts for various purposes including making trophies (Pradhan, 1997). Threats to the survival of the species are also due to habitat destructions, human interference and domestic commercial trade.

Family BOVIDAE

Subfamily BOVINAE

Genus *Bos*

98. *Bos gaurus* Smith

1827. *Bos gaurus* H. Smith, *Griffith's Cuvier Anim. Kingd.*, 4. : pl. Opposite p. 399.

Common Name : Indian Gaur.

Habitat : A typical thickly wooded hills are the favourite haunts of Gaur in India. Largely terrestrial preferring to live in all types of forests and jungles. They can go even beyond the altitude of 6000 Ft. They are fairly diurnal in habit. They are seen generally in herds. They keep to more or less thick jungle and come out to graze in open or outskirts of the forest. Gaur is by nature shy and timid animal.

Distribution : Thick forests of Peninsular India including Tamilnadu.

Conservation Status : Vulnerable.

Remarks : Peter Grubb in Wilson and Reeder (1993) has included *Bos gaurus* in *Bos frontalis*. However *Bos gaurus* has been retained here based on the comments given in Corbet and Hill (1992). Gaur is hunted for its meat for food and body parts for various purposes including making trophies (Pradhan, 1997).

Genus *Boselaphus*

99. *Boselaphus tragocamelus* (Pallas)

1766. *Antelope tragocamelus* Pallas, *Misc. Zool.*, : 5.

Common Name : Blue Bull, Nilgai.

Habitat : Largely terrestrial animal preferring to live in dry deciduous and thorn forest. However they avoid dense forests and move around in hills sparsely dotted with trees, or on undulating or level plains covered with grass and patches of scrub. They freely enter in crop fields and are source of damage to the standing crops. Though Blue Bulls are social in habit, they do not regularly congregate in large herds. Nilgai can survive without water for long periods.

Distribution : Peninsular India including Tamilnadu.

Conservation Status : Lower risk-Least concern.

Remarks : Nilgai is hunted for its meat for food and body parts for various purposes including making trophies. Threats to the survival of the species are also due to habitat destructions, human interference and domestic as well as international

commercial trade (Pradhan, 1997).

Genus *Tetracerus*

100. *Tetracerus quadricornis* (Blainville)

1816. *Cerophorus (Cervicapra) quadricornis* Blainville, *Bulletin Sci. Soc. philmon.*, Paris : 73–82.

Common Name : Four-horned antelope, chousingha.

Habitat : Terrestrial, well wooded and watered undulating terrain with dry deciduous forests, also found in transition zone between scrub and the forests, diurnal in habit; **Distribution** : Throughout India excluding northeast region.

Conservation Status : Lower risk-near threatened.

Remarks : Wilson and Reeder (1993) have divided family Bovidae into number of subfamilies without giving any keys. According to them *Tetracerus* falls under subfamily Bovinae.

Subfamily CAPRINAE

Genus *Hemitragus*

*101. *Hemitragus hylocrius* (Ogilby)

1838. *Kemas hylocrius* Ogilby, *Proc. Zool. Soc. London*, 1837 : 81 (1838)

Common Name : Nilgiri Tahr.

Habitat : Nilgiri Tahr is restricted currently to hilly tracts of southern parts of Western Ghats. Open terrain, cliff and grass covered hills which lie above the forest level (sholas or montane forest) at high altitudes in Southern Western Ghats. Occasionally these mountain goats graze in the grassy uplands in herds of 5-6 or even bigger herds of 60-150 animals. They are seen foraging intermittently from dawn to late evening amongst the rock precipices. They are adapted to movements on the steep slabs and cliffs. Tahr generally avoids Shola forest but forages along their periphery.

Distribution : Southern Western Ghats. Western Ghats/Indian endemic species.

Conservation Status : Endangered.

Order PHOLIDOTA

Family MANIDAE

Genus *Manis*

102. *Manis crassicaudata* Gray

1827. *Manis crassicaudata* Gray, in Griffith's *Cuvier Animal. Kingd.*, 5 : 282.

Common Name : Indian Pangolin.

Habitat : Variety of habitats on plains and grasslands. They may also live in barren and wasteland near human settlements. Pangolins are terrestrial, nocturnal and fussorial in behaviour. During day time pangolins are curled up like a ball in burrows with many sealed outlets. Burrow is usually made under rocks and boulders. They are also excellent climbers using "caterpillar motion" The tail provides auxiliary support. They are highly specialized in feeding habit. They feed mainly on eggs, young ones and adults of termites and ants by digging upon their nest and sending the thin sticky tongue into ant galleries.

Distribution : Peninsular India including Tamilnadu (Chakraborty *et. al.*, 2002).

Conservation Status : Lower risk-Near threatened.

Remarks : Recent Status survey study of *Manis crassicaudata* was carried out by Chakraborty *et. al* (2002). The species is known to be hunted for domestic trade of body parts for medicinal and other usage (Pradhan, 1997).

Order RODENTIA

Suborder SCIUROGNATHI

Family SCIURIDAE

Subfamily SCIURINAE

Genus *Funambulus*

103. *Funambulus palmarum* (Wroughton)

1766. *Sciurus palmarum* Linnaeus, *Syst. Nat.*, 12th ed. 1 : 86.

Common Name : Indian Three striped palm squirrel.

Habitat : Arboreal, diurnal, preferring to lead commensal life close to forests.

Distribution : Endemic species of the peninsular India including Tamilnadu.

Conservation Status : Lower risk-least concern.

***104. *Funambulus sublineatus* (Waterhouse)**

1838d. *Sciurus sublineatus* Waterhouse, *Proceedings Zool. Soc. Lond.*, 4 : 19.

Common Name : Dusky striped squirrel.

Habitat : Arboreal, diurnal living in hilly damp gullies in dense forests;

Distribution : Endemic sub-species from South Western India including Tamilnadu.

Conservation Status : Vulnerable

***105. *Funambulus tristriatus* Waterhouse**

1837. *Funambulus tristriatus* Waterhouse, *Mag. Nat. Hist. (Charlesworth's)*, 1 : 499.

Common Name : Jungle striped squirrel.

Habitat : Arboreal and diurnal preferring to live in semi-dense forests close to human Habitations. Though mostly arboreal, they come quite often on the ground. They are in habit of constructing nests in tree holes. They are basically shy in nature. **Distribution** : Western Ghats/ Indian Endemic species.

Conservation Status : Near Threatened.

Remarks : Corbet and Hill (1992) have retained Subfamily *Funambulinae* without any comments on key characters. However Subfamily *Sciurinae* is retained here following the comments of Hoffman Robert S., Anderson C. G., Thorington, R. W. And Heaney, L. R. in Wilson and Reeder (1993). Indian striped squirrel species are hunted for meat for food and skin and body parts for various purposes including making trophies (Pradhan, 1997).

106. *Funambulus pennanti* Wroughton

1905. *Funambulus pennanti* Wroughton, *J. Bombay N. H. Soc.*, 16 : 411.

Common Name : Indian five striped northern palm squirrel.

Habitat : Arboreal and diurnal preferring to live close to the human habitations. The five striped squirrel is more commensal species than the three striped ones. Five striped squirrel is more common in North India. Though arboreal, they come more frequently on the ground. They are in habit of constructing nests in tree holes.

Distribution : North, North-East and Central India and also in Western Ghats. Spread farther beyond its distributional range through transportation by human agencies.

Conservation Status : Least concern.

Remarks : Indian squirrel is hunted for its meat for food and skin and body parts for various purposes including making small trophies and some other articles like brushes etc. (Pradhan, 1997).

Genus *Ratufa*

***107. *Ratufa indica* (Erxleben)**

1777. *Sciurus indica* Erxleben, *Syst. Regn. Anim.*, 1 : 420.

Common Name : Indian Giant squirrel.

Habitat : Giant squirrels live only in thick forests of different types and, hence, is considered as indicator species. It is an arboreal and diurnal species. They keep to the canopies and seldom come on the ground. They move from tree top to tree top taking amazing leaps with limbs outspread, covering as much as twenty feet in a single flight. They are in habit of constructing number of nests on the tree tops. Despite its brilliant colouration they are sooner heard than seen.

Distribution : Thick forested areas of Western Ghats and Central India. Indian endemic species.

Conservation Status : Vulnerable.

Remarks : Indian giant squirrel is hunted for its meat for food and skin and body parts for various purposes including making trophies.

***108. *Ratufa macroura dandolena* Thomas and Wroughton**

1915. *Ratufa macroura dandolena* Thomas & Wroughton, *J. Bombay nat. Hist. Soc.*, 24(1) : 36.

Common Name : Grizzled Indian Squirrel.

Habitat : All Giant squirrels live only in thick forests of different types and, hence, is considered as indicator species. The grizzled giant squirrel is a terrestrial, diurnal and arboreal in habit. It makes nests on tree tops in deciduous to semi evergreen riverine forests. It prefers boulder strewn hills covered by dense mixed forests. It keeps to the canopies and seldom come on the ground. They move from tree top to tree top taking amazing leaps with limbs outspread, covering as much as twenty feet in a single flight. Despite its brilliant colouration they are sooner heard than seen.

Distribution : Thick forested areas of Southern Western Ghats. Western Ghats/Indian endemic subspecies.

Conservation Status : Vulnerable.

Remarks : Indian giant squirrel is hunted for its meat for food and skin and body parts for various purposes including making trophies.

Subfamily PETAURISTINAE

Genus *Petaurista*

109. *Petaurista philippensis* (Elliot)

1839. *Pteromys philippensis* Elliot, *Madras J. Litt. Sci.*, 10 : 217.

Common Name : Common giant flying squirrel.

Habitat : Totally arboreal and nocturnal in habit preferring to live in tropical and temperate forests on plains to those on high altitudes. Contrary to the common name, the flying squirrel does not fly but glides from treetop to treetop in the air. When the animal leaps into the air the outspread limbs expands the gliding membrane between the limbs to the fullest extent. Supported by the membrane the squirrel glides smoothly and swiftly downwards.

Distribution : Peninsular India south of Himalaya;

Conservation Status : Near threatened.

Remarks : *Petaurista philippensis* was earlier considered to be a subspecies of *Petaurista*

petaurista. However *Petaurista philippensis* has been considered as a valid species by Corbet and Hill (1992) and upheld by Hoffman *et al* in Wilson and Reeder (1993). The flying squirrel is hunted for its meat for food.

Genus *Petinomys*

*110. *Petinomys fuscocapillus fuscocapillus* (Jerdon)

1847. *Sciuropterus fuscocapillus* Jerdon, *J. Asiat. Soc. Bengal*, 16 : 867.

Common Name : Small Travancore flying squirrel.

Habitat : Tropical and moist deciduous forest, evergreen-semi evergreen forests and plantations like coconut, arcanut and coca plantations. It is nocturnal in habit keeping itself in a tree hole in forest during day time.

Distribution : The nominate subspecies occurs in Southern parts of Western Ghats in India including Tamilnadu. Hence, it is an Western Ghats/Indian endemic subspecies.

Conservation Status : Near threatened.

Remarks : IUCN endangered category is strongly recommended for *Petinomys fuscocapillus fuscocapillus*, Indian subspecies, on the basis of restricted distribution, extreme fragmentation, and limited number of localities.

Family MURIDAE

Subfamily PLATOCANTHOMINAE

Genus *Platacanthomys*

*111. *Platacanthomys lasiurus* Blyth

1859. *Platacanthomys lasiurus* Blyth, *J. Asiat. Soc. Bengal*, 28 : 289.

Common Name : Malabar Spiny Dormouse.

Habitat : Tropical, subtropical, moist deciduous forests and plantations like pepper etc. It is nocturnal in habit keeping itself in a tree hole in forest during day time. It inhabits rocky hills and forested valleys at 600-211 meters. Lives mainly in cavities of tree trunks and branches of trees

and rock clefts. Constructs nests of leaves and mosses.

Distribution : The species occurs in Southern parts of Western Ghats in India including Tamilnadu (Meena *et. al.* 2005, Muddappa *et. al.* 2001). Hence, it is an Western Ghats/Indian endemic species.

Conservation Status : Vulnerable.

Subfamily GERBILLINAE

Genus *Tatera*

112. *Tatera indica* (Hardwicke)

1807. *Dipus indicus* Hardwicke, *Trans Linn. Soc. Lond.*, 8 : 279.

Common Name : Indian Gerbil/Antelope Rat.

Habitat : Terrestrial, fossorial and nocturnal rodent species found throughout India. The species is basically a field rat and generally lives in cultivated plains, gardens, orchards pastureland, crop fields, waste lands and forests. Amongst the Indian gerbils, this species appears to be the most adapted ecologically. It makes complex burrows with number of openings covering large areas for the purpose of living, hoarding the food stuff, reproduction and family care.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Least concern.

Remarks : The gerbil rats from this region have been included in the subspecies *Tatera indica cauveri*. The gerbil rat is considered to be an agricultural pest or, rather, 'enemy' pest of highest order, since it causes damage on large scale not only to the stored food grains in the field but also to the standing crops. The species is a prolific breeder. The species is also known to be a natural vector for number of diseases including the dreaded disease like plague.

Subfamily MURINAE

Genus *Vandeleuria*

113. *Vandeleuria oleracea* (Bennett)

1832. *Mus oleracea* Bennett, *Proc. Zool. Soc. Lond.*, 1832 : 121.

Common Name : Indian Long-tailed Tree Mouse.

Habitat : Terrestrial, arboreal and nocturnal in habit. Trees and shrubs in forest are its natural haunt. Females build globular large nests just a few feet above the ground in the tree hollows, bamboo thickets, and thatched roofs of village houses, Baya nests or even in the empty junction boxes fixed on the electric poles. The species is a basically an outdoor species.

Distribution : Throughout peninsular India including Tamilnadu.

Conservation Status : Least concern.

Genus *Cremnomys*

114. *Cremnomys blanfordi* (Thomas)

1881. *Mus blanfordi* Thomas, *Ann. Mag. nat. Hist.*, (5), 7 : 24.

Common Name : Blanford's Rat.

Habitat : Terrestrial, fossorial and nocturnal in habit preferring to live in all types of forests including dry deciduous forest, jungle etc. They live among rocks and boulders and even in the burrows made in soft soils. They live in pairs or in small colonies. The species is essentially an outdoor species.

External Distribution : Throughout peninsular India including Tamilnadu.

Conservation Status : Least Concern.

Remarks : These rats can also live in open scrub jungles and/or on bare hillsides. In forest it can change its habit from fossorial to arboreal. It makes untidy and large nests in a hole, crevices or in trees.

115. *Cremnomys cutchicus* Wroughton

1912. *Cremnomys cutchicus* Wroughton, *J. Bombay nat. Hist. Soc.*, 21 : 340.

Common Name : Cutch Rock Rat.

Habitat : Terrestrial, fossorial and nocturnal in habit preferring to live in all types of dry, arid and semi-arid habitats. They live among rocks and

boulders and even in the burrows made in soft soils. The species is essentially an outdoor species.

External Distribution : India including drier parts of Tamilnadu. Indian endemic species.

Conservation Status : Least Concern.

Remarks : Very scanty information is available about this species.

***116. *Cremnomys elvira* (Ellerman)**

1946. *Rattus (Cremnomys) elvira* Ellerman, *Ann. Mag. Nat. Hist.*, (Ser. 2), 13 : 207.

Common Name : Large Rock Rat.

Habitat : Its natural *Habitat* is subtropical or tropical dry shrubland.

Distribution : The known population of *Cremnomys elvira* is restricted to one location covering an area of less than 11 km² in Tamilnadu (Kurumbapatti, Salem Dist.). Tamilnadu/Indian endemic species.

Conservation Status : Critically Endangered.

Remarks : Very scanty information is available about this species.

Genus *Golunda*

117. *Golunda ellioti* Gray

1837. *Golunda ellioti* Gray, *Charlesworth's Mag. nat. Hist.*, 1 : 586.

Common Name : Indian Bush Rat.

Habitat : Terrestrial. It is essentially a rat of jungle and forest, but may venture in adjoining cultivated fields, a favourable *Habitat* for this rat is bush and scrub jungle, many prefer to live in woven nests built in bushes. It builds a densely woven nest of stalks, grass and fibres in bushes. The species is essentially an outdoor species.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Least concern.

Remarks : The species is a prolific breeder and considered to be an agricultural pest species since it causes damage to the plantations. Earlier

it was causing extensive damage to the coffee plantation in Sri Lanka.

Genus *Millardia*

118. *Millardia meltada* (Gray)

1837. *Golunda meltada* Gray, *Mag. Nat. Hist.*, 1 : 586.

Common Name : Soft-furred Metad.

Habitat : Terrestrial, fossorial and nocturnal in habit preferring to live near cultivations. However they may also be found in the heavy shrubs surrounded by forest, or living among rocks and in the tumbled down walls of the deserted houses. The species is essentially an outdoor species.

Distribution : Throughout peninsular India including Tamilnadu.

Conservation Status : Least concern.

Remarks : Earlier Ellerman (1961) considered *Millardia* as a Subgenus of *Rattus*. However latter revisionary taxonomic studies confirmed its generic *Status*. Corbet and Hill (1992) and Alfred *et. al.* (2002) accepted same view. The species is a prolific breeder and considered to be an agricultural pest species since it causes damage to the standing crops.

Genus *Rattus*

119. *Rattus rattus rufescens* (Gray)

1837. *Mus. rufescens* Gray, *Ann. Mag. nat. Hist.*, 1 : 35.

Common Name : House Rat, Roof Rat.

Habitat : Terrestrial, and a most common commensal form, found in houses, godowns, shops, residential complexes, also in scrubby and secondary forests. *Distribution* : Throughout India including Tamilnadu.

Conservation Status : Least concern.

Remark : A pest species causing extensive damages to the household as well as public properties. The species is also a carrier of vectors for number of diseases. Taxonomically Tiwari *et al.* (1971), proposed to allot this population a specific *Status* on the basis of morphological studies.

120. *Rattus rattus wroughtoni* Hinton

1919. *Rattus rattus wroughtoni* Hinton, *J. Bombay N.H. Soc.*, 26 : 384.

Common Name : White-bellied House Rat.

Habitat : Mostly arboreal. Very rarely comes on the ground. Generally seen in coconut and other plantations. Terrestrial and nocturnal in habit.

Distribution : Coastal areas of Western Ghats in India.

Conservation Status : Not Evaluated

Remarks : The subspecies is a prolific breeder. Musser and Carleton in Wilson and Reeder (1993) opine that the subspecies should be attributed to *Rattus tanezumi* (Temminck) based on chromosomal and certain biochemical parameters. However, It has been observed that even these parameters are unstable. The chromosomal number is also variable in *Rattus rattus* subspecies (Raman and Sharma, 1977). Hence, *Status quo* has been proposed by Molur *et. al.* (2005) and Corbet and Hill (1992). Similar view has been accepted here. A pest species causing extensive damages to the coconut plantations in the Western Ghats.

121. *Rattus rattus rattus* (Linnaeus, 1758)

1758. *Mus rattus* Linnaeus, *Syst. Nat.*, 10th ed., 1 : 61. (Type locality : Uppsala, Uppsala County, Sweden).

Common Name : Black rat, Common European Black House Rat,

Habitat : Commensal; European subspecies found in port cities due to accidental transportation by human agencies.

Distribution : Port cities in India such as Chennai etc.

Conservation Status : Least Concern.

Remarks : *Rattus rattus rattus* (Linnaeus) is an introduced subspecies. It has gained a footing in the new home and is trying to establish itself in Mumbai City (Pradhan and Hemkar, 1986).

122. *Rattus norvegicus* (Berkenhout)

1769. *Mus. norvegicus* Berkenhout, *Outlines N.H. Gt. Britain and Ireland*, 1 : 5.

Common Name : Norvey Rat, Drain Rat, Brown Rat.

Habitat : Terrestrial and fossorial, an introduced species from temperate lands, has now established itself in number of sea-port cities of Asia. In India it is a commensal rodent species competing with common house rat (*R. r. rufescens*) and field rat (*B. bengalensis*) particularly in metropolis. In metropolitan cities like Mumbai, Kolkata and Chennai this rat has been collected from drains and sewers (Hence the name Drain Rat).

Distribution : Port cities and towns interior accessible by navigations in India.

Conservation Status : Not Evaluated

Remarks : A pest species causing extensive damage to the household as well as public properties. The species is also a carrier of vectors for number of diseases.

Genus *Mus*123. *Mus musculus castaneus* Waterhouse

1843. *Mus castaneus* Waterhouse, *Ann. Mag. nat. Hist.*, 12 : 134.

Common Name : Common House Mouse.

Habitat : Terrestrial, fossorial and found in all habitats since it is a commensal species. A common house mouse causing extensive damage to the properties. The species is considered to be the indoor species and rarely seen outdoor.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Least concern.

Remarks : The species is a prolific breeder and considered to be a pest species since it causes damage to the food grains stored in godowns. It is also responsible to cause extensive damage to the public as well as private properties and articles of merchandise due to its habit of gnawing by its ever-growing chisel-shaped incisors.

124. *Mus booduga booduga* (Gray)

1837. *Leggada booduga* Gray, *Charlesworth's Mag. Nat. Hist.*, 1 : 586.

Common Name : Little Indian Field Mouse.

Habitat : Terrestrial, fossorial and nocturnal in habit and generally found in agricultural crop field areas. Inhabits burrows in the field or on the edges of the cultivations. A common field mouse causing extensive damage to the crops. The species is an outdoor species.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Least concern.

Remarks : Marshall (1977), Corbet and Hill (1992) and Agrawal *et al.* (1992) separated *Mus booduga*, *Mus terricolor* and *Mus dunni* on the basis of variations in the underparts colour and also in the chromosomal studies conducted by Sen & Sharma (1983) and Aswathanarayana & Manjunatha (1981a). However recently Agrawal (2000) has pointed out number of anomalies in the taxonomy of *booduga* complex. He rightly concluded that till the confusions were removed, *Mus dunni*, *Mus terricolor* and *Mus booduga* should be treated as synonyms of *Mus booduga* as was done earlier by Ellerman (1961) due to lack of proper demarcation between the populations under study. The species is a prolific breeder and considered to be a pest species since it causes damage to the crops. It is also responsible to cause extensive damage to the public as well as private properties due to its habit of gnawing by its ever-growing chisel-shaped incisors.

125. *Mus cookii nagarum* (Thomas, 1921)

1921. *Leggada nagarum* Thomas, *J. Bombay nat. Hist. Soc.*, 27 : 597.

Common Name : Cook's Mouse or Ryley's Spiny Mouse.

Habit and Habitat : Inhabits grassy areas in conifer and broad leaf forests, in mountain region; also found near cultivated fields (Corbet and Hill, 1992, Agrawal, 2000).

Distribution : Arunachal Pradesh, Assam, Meghalaya, Manipur, Nagaland, West Bengal,

Karnataka, Kerala and Tamilnadu (Agrawal, 2000). Indian endemic subspecies (Agrawal, 2000)

Conservation Status : Least concern.

Remarks : Ellerman-Morrison-Scot (1951), Ellerman (1961) listed *Leggada nagarum* Thomas and *Leggada palnica* Thomas, as subspecies of *Mus cervicolor* Hodgson. They treated *Mus cookii* Ryley, 1914, as the subspecies of *Mus famulus* Bonhote, 1898. Later, Marshall (1977) shifted them under *Mus cookii* Ryley. However, due to overlapping of key characters Agrawal (2000) recognized only two subspecies namely *Mus cookii cookii* and *Mus cookii nagarum*. *Mus palnica* was synonymised in *Mus cookii nagarum*.

*126. *Mus famulus* Bonhote

1898. *Mus famulus* Bonhote, *J. Bombay nat. Hist. Soc.*, 12 : 99.

Common Name : Bonhote's Mouse.

Habit and Habitat : Bonhote's mouse is a terrestrial murid which is fossorial in habit and nocturnal in behaviour. It may come out during day time as well. Appears to be out door mouse. Generally found on hill slopes and gorges covered with grassland, shola, montane and isolated evergreen forest patches. It may also live among rocks and decaying logs. It occurs at higher altitude in Western Ghats and can sustain extreme climatic and wet conditions.

Distribution : High altitude species found in Nilgiri, Palni, Annamalai Hills in South India. Indian Endemic species

Conservation Status : Endangered.

Remarks : Agrawal (2000) synonymised Subgenus *Coelomys* in Genus *Mus* and treated *M. famulus* as an independent species.

127. *Mus phillipsi* Wroughton

1912. *Mus phillipsi* Wroughton, *J. Bombay nat. Hist. Soc.*, 21 : 772.

Common Name : Wroughton's Small Spiny Mouse.

Habitat : Terrestrial, fossorial and nocturnal in habit and generally found in rocky ..**Habitat.** In Aravalli (Abu Hills) it is common in regions with *Euphorbia neriifolia* shrubs (Prakash *et al.*, 1995).

Distribution : India excluding North-East India.

Conservation Status : Least Concern

Remarks : Ellerman and Morrison-Scot (1951) and Ellerman (1961) treated this taxa as a subspecies of *Mus cervicolor*. However, Marshall (1977), restored it to the specific level on the basis of spiny fur, white venter and well developed supraorbital ridges on the skull.

***128. *Mus platythrix* Bennet**

1832. *Mus platythrix* Bennett, *Proc. Zool. Soc. Lond.*, : 121.

Common Name : Indian Brown Spiny Furred Mouse,

Habitat : Nocturnal and fossorial in habit. Found mainly in uncultivated hilly country.

Distribution : India including Tamilnadu. Indian endemic species.

Conservation Status : Least Concern.

Remarks : Ellerman and Morrison-Scot (1951) and Ellerman (1961) mentioned six subspecies of *Mus platythrix*. However, Marshall (1977) rearranged *Mus platythrix* complex and divided it in three species which includes *Mus platythrix*.

129. *Mus saxicola* Elliot

1839. *Mus saxicola* Elliot, *Madras J. Litt. Sci.*, 10 : 215.

Common Name : Elliot's Spiny Mouse.

Habitat : Nocturnal and fossorial in habit, lives in sandy, rocky or gravelly habitat.

Distribution : Peninsular India including Tamilnadu.

Conservation Status : Least Concern.

Genus *Bandicota*

130. *Bandicota bengalensis bengalensis* (Gray)

1831. *Arvicola bengalensis* Gray Ill. *Indian zool.* 2 : pl. 21.

Common Name : Lesser bandicoot rat.

Habitat : Terrestrial, fossorial and nocturnal rodent species found throughout India. The species is basically a field rat and generally lives in cultivated plains, gardens, pasture land, crop fields waste lands, and forests. However, sometimes in cities like Mumbai, Kolkata and Chennai, it enters in the houses also. Its presence is always made known by a pile of fresh soil resembling mole hill, hence it name 'Mole Rat' It has a habit of erecting pile of hairs and grunting when excited. It makes complex burrows with number of openings covering large areas.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Least concern.

Remarks : *B. bengalensis* is considered to be an agricultural pest No. 1, since it causes damage on large scale not only to the food grains stored in godowns but also to the standing crops. Its habit of making complex burrow systems for not only living but also for hoarding the food stuff makes it a nuisance for the human life. It is responsible to cause extensive damage to the public as well as private properties and articles of merchandise due to these habits. The species is a prolific breeder. The species is also known to be a vector for number of diseases, including rat bite fever, plague, leptospirosis etc.

131. *Bandicota indica malabarica* (Shaw)

1800. *Mus malabarica* Shaw, G, *General Zoology*, Vol. II part I, Mammalia, London, pp : 54.

Common Name : Large bandicoot rat.

Habitat : Terrestrial, fossorial, known to invade cultivated fields, gardens, forest fringes, swampy areas etc; However, specimens were collected from areas close to human habitations also.

Distribution : Western Ghats in India.

Conservation Status : Least Concern.

Remarks : Though Agrawal (1972, 2000), Corbet and Hill (1992) and Alfred *et. al.* (2002)

synonymised *malabarica* population in *B. indica indica*, in light of detailed morphological and biochemical studies (Pradhan *et. al.* 1989, 1993 and 2005) *B. indica malabarica* has been retained here as a separate subspecies. The subspecies is reported to be causing extensive damages to public and private properties. It is also known to be a vector for some diseases.

132. *Bandicota indica indica* (Bechstein)

1800. *Mus. indicus* Bechstein, J.M. Thomas Pennant's *allgemeine uebersicht der vierfussiger Thiere* as quoted in Corbet and Hill (1993).

Common Name : Larger bandicoot rat.

Habitat : Terrestrial and fossorial, known to invade cultivated fields, swampy areas and also forest fringes, godowns, open and closed drainage systems in urban areas.

Distribution : Throughout the peninsular India including Tamilnadu.

Conservation Status : Least Concern.

Remarks : The species is considered to be an agricultural pest causing extensive damage to the standing crops, food grain godowns, public, and private properties etc. The species is a prolific breeder and is also known to be a vector for number of diseases. TaxonomicRemarks same as previous subspecies.

Suborder HYSTRICOGNATHI

Family HYSTRICIDAE

Genus *Hystrix*

133. *Hystrix indica* Kerr

1792. *Hystrix cristata* var *indica* Kerr, *Anim. Kingd.*, : 213.

Common Name : Indian crested porcupine.

Habitat : Terrestrial, fossorial and nocturnal rodent species found throughout India. The species is an out door species and generally lives in large pits and /or burrows dug in the cultivated plains, gardens, orchards pasture land, crop fields , waste lands and forests. This species appears to be the most ecologically adapted species.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Least concern.

Remarks : *Hystrix indica* is considered to be an agricultural pest or, rather, 'enemy' pest of highest order, since it causes damage on large scale to the standing crops. Its gnawing habit to keep the ever-growing incisors in shape makes it a nuisance for the human life. It has a curious habit of gnawing bones, horns and antlers (Agrawal, 2000). The species is a prolific breeder. Agrawal (2000) concludes that there are no subspecies of *Hystrix indica* in India.

Order LAGOMORPHA

Family LEPORIDAE

Genus *Lepus*

134. *Lepus nigricollis nigricollis* Cuvier

1823b. *Lepus nigricollis* Cuvier, F. *Dictionnaire des sciences naturelles*, Strasbourg & Paris, 26 : 299-316

Common Name : Indian black-naped hare or Indian Hare.

Habitat : Terrestrial, fossorial and nocturnal species. The species is an out door species and generally lives in all types of *Habitats* except at very high altitudes. Where the *Habitat* is suitable for living, hares are numerous. This species appears to be the most adapted ecologically.

Distribution : Throughout India including Tamilnadu.

Conservation Status : Least concern.

Remarks : *Lepus nigricollis* is considered to be causing damage to the agricultural fields, orchards etc. The species is a prolific breeder.

RESULTS

In Table 1, details pertaining to 134 mammal species/subspecies in 84 genera belonging to 33 families grouped under thirteen mammalian orders is presented.

Table 1 : Mammalian Diversity in Tamilnadu State

Sr. No.	Orders	Families	Genera	Species/ Subspecies
1.	Scandentia	1	1	1
2.	Erinaceomorpha	1	1	1
3.	Soricomorpha	1	2	6
4.	Chiroptera	6	20	37
5.	Primates	2	4	5
6.	Carnivora	7	17	23
7.	Cetacea	4	12	16
8.	Sirenia	1	1	1
9.	Proboscidea	1	1	1
10.	Artiodactyla	4	10	10
11.	Pholidata	1	1	1
12.	Rodentia	3	13	31
13.	Lagomorpha	1	1	1
Total	Thirteen Orders	33	84	134

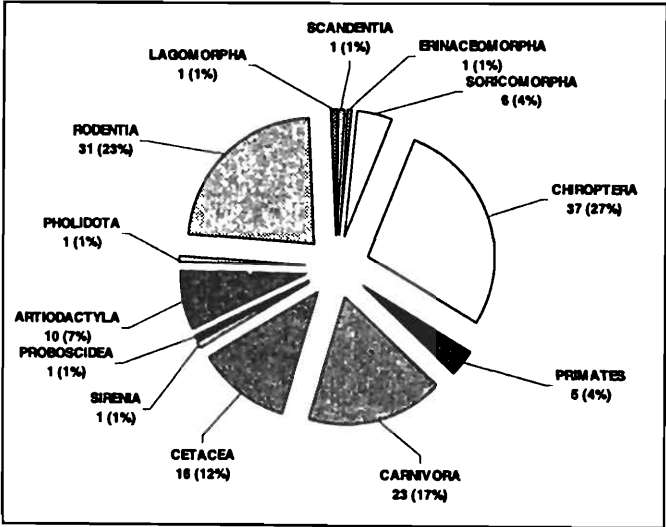


Fig. 1 : Mammal species / species from Tamil Nadu state (Total spp/subspp : 134)

Fig. 2 shows order-wise representation of mammalian species. Speciose nature of *Chiroptera*, *Carnivora*, *Cetacea* and *Rodentia* followed by *Artiodactyla* is presented in Fig. 1. It will also be seen that about 57% of species belong to six small mammal orders (77 spp/subspp. (Fig. 3).

It can be noticed that each of the mammalian order is represented by at least one species/subspecies. Worth mentioning are Madras Tree shrew (*Anathana ellioti ellioti*), Kelaart's Long-

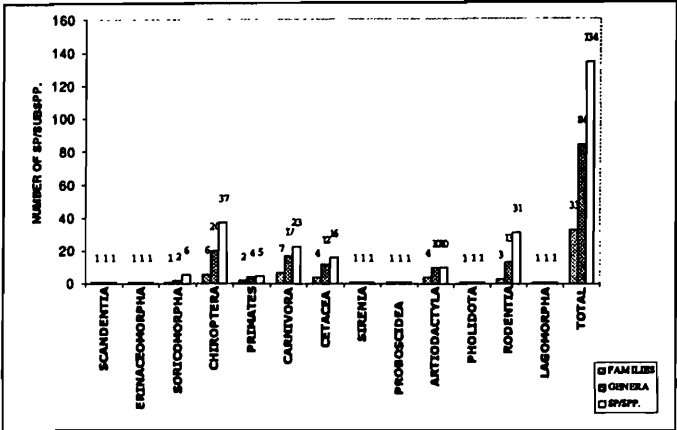


Fig. 2 : Orderwise Mammalian diversity in Tamil Nadu

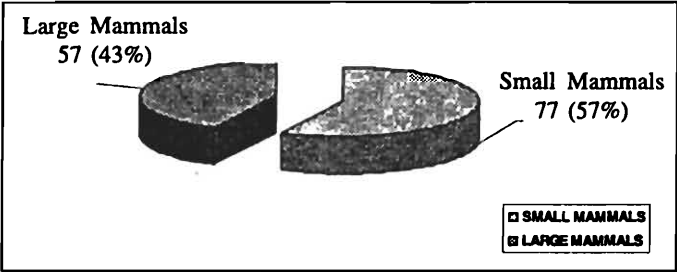


Fig. 3 : Small/Large Mammal sp./subspp. in Tamil Nadu

clawed shrew (*Feroculus feroculus*), Day's shrew (*Suncus dayi*), Montane shrew (*Suncus montanus*), Salim Ali's Fruit Bat (*Latidens salimalii*), Lion-tailed macaque (*Macaca silenus*), Nilgiri Marten (*Martes gwatkinsi*), Malabar civet (*Viverra civettina*), Sperm Whale (*Physeter macrocephalus*), Dugong (*Dugong dugon*), Nilgiri Tahr (*Hemitragus hylocrius*), Grizzled Indian Giant squirrel (*Ratufa macroura dandolena*), Small Travancore Flying Squirrel (*Petinomys fuscocapillus*), Large Rock rat (*Cremnomys Elvira*), Bonhote's mouse (*Mus famulus*) etc.

There are 19 endemics in Tamilnadu state. Out od this, thirteen are western Ghats endemics and 1 Tamilnadu state endemic (*Cremnomys elvira*).

Order SCANDENTIA

1. Madras Tree Shrew : *Anathana ellioti ellioti* (Waterhouse)
2. South Indian or Madras Hedgehog : *Hemiechinus nudiventris* (Horsfield)
- *3. Day's Shrew : *Suncus dayi* Dobson
- *4. Salim Ali's Fruit Bat : *Latidens salimalii* Thonglongya

- 5. Bonnet Macaque : *Macaca radiata* (Geoffroy)
 - *6. Lion-tailed Macaque : *Macaca silenus* (Linnaeus)
 - *7. Nilgiri Langur : *Trachypithecus johnii* (Fischer)
 - *8. South Indian Yellow-throated Marten or Nilgiri Marten : *Martes gwatkinsi* Horsfield
 - *9. Jerdon's Palm Civet : *Paradoxurus jerdoni* Blanford
 - *10. Malabar Civet : *Viverra civettina* Blyth
 - *11. Nilgiri Tahr : *Hemitragus hylocrius* (Ogilby)
 - *12. Three striped jungle squirrel : *Funambulus tristriatus* (Waterhouse)
 - 13. Indian Giant Squirrel : *Ratufa indica* (Erxleben)
 - *14. Grizzled Indian Squirrel : *Ratufa macroura dandolena* Thomas and Wroughton
 - *15. Small Travancore Flying Squirrel : *Petinomys fuscocapillus* (Jerdon)
 - *16. Malabar Dormouse : *Platacanthomyslasiurus* Blyth
 - #17. Large Rock Rat : *Cremnomys elvira* (Ellerman)
 - *18. Bonhoete's Mouse : *Mus famulus* Bonhote
 - 19. Spiny Furred Mouse : *Mus platythrix* Bennet
- (1-19 : Indian Endemics; * : Western Ghats Endemics; # : Tamilnadu Endemic)

The Rock Rat, *Cremnomys elvira*, has been reported from a single locality in Tamilnadu.

Conservation Status of the mammalian species under Indian Wildlife (Protection) Act 1972 (As amended upto 2002) was also studied. It was found that 88 out of 134 (66%) mammalian species/subspecies have been listed in all the five schedules of the Act (Fig. 4). Of these 134, 55 species/subspecies (41%) are under higher conservation Status of Indian Wildlife (Protection) Act (Schedule I and II).

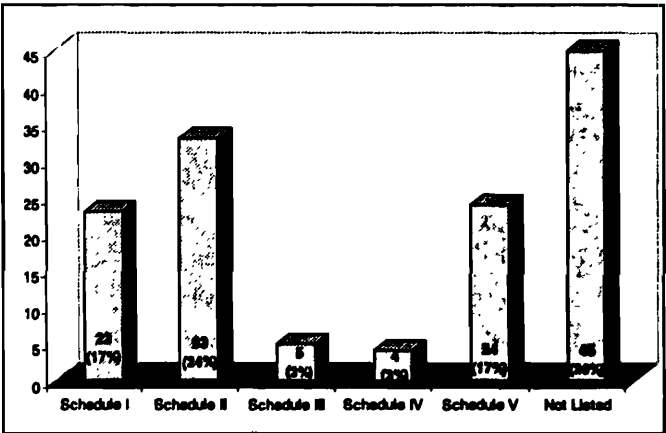


Fig. 4 : Tamil Nadu mammals under various schedules of Indian Wildlife (Protection) Act (1972 as amended up to 2002)

Fig 5 summarizes various IUCN categories of threats assigned to the mammalian species/subspecies as per different CAMP Reports for Mammalia (1998), Chiroptera (2002), Primates (2003) and Small Non-Volant mammals (2005). According to these reports, there are four species under critically Endangered category, eight in Endangered and fourteen in Vulnerable categories, while there are at least 66 species listed under Least Concern category. These belong mostly to *Rodentia* and *Chiroptera* orders. Lastly there are

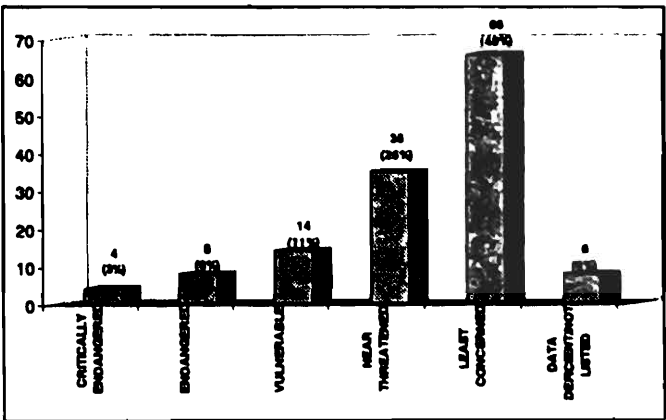


Fig. 5 : Tamil Nadu mammals under various IUCN categories

substantial number of species (Eight : One Data Deficient, four Not Listed and three Not Evaluated) which have not been assessed in the CAMP Workshops because of their unstable taxonomic placement or for some other reason such as introduced species etc. They include species like *Lutragale perspicilata* (Taxonomic uncertainty), *Bandicota indica malabarica*

(Taxonomic uncertainty), *Rattus rattus wroughtoni* (Taxonomic uncertainty) and *Rattus norvegicus* (Introduced species).

It was also found that 48 out of 134 (36%) mammalian species/subspecies have been listed in all the three CITES Appendices. Of these, 37 species/subspecies (28%) have been kept under Appendix I & II.

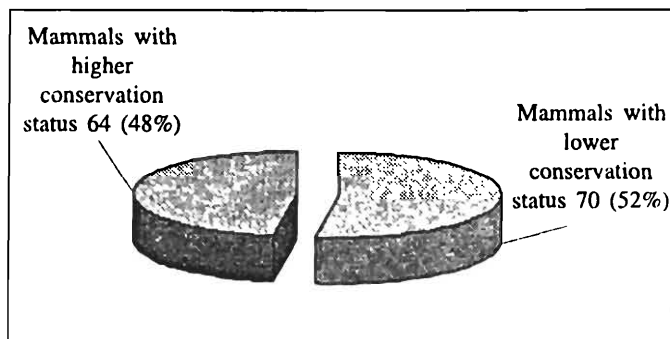


Fig. 6 : Tamil Nadu State mammals with conservations status

Lastly it has been observed that 64 (48%) out of 134 species/subspecies fall under some or other category of Higher Conservation Status of various Acts. (Indian Wildlife (Protection) Act Schedule I and II; CITES Appendix I & II and IUCN Threatened Categories from Critically Endangered to Vulnerable) (Fig. 6).

DISCUSSION

1. Tamilnadu State which presents a variety of ecosystems spread over the entire state can boast of an excellent mammalian species diversity, quantitatively as well as qualitatively. 134 species/subspecies of 84 genera belonging to 33 families grouped in thirteen mammalian orders.

2. Endemic representation of the mammalian species in the state is equally remarkable representing nineteen Indian endemics which include thirteen Western Ghats endemics and one Tamilnadu State endemic (*Cremnomys elvira*) reported from a single locality.
3. Some of the most interesting mammalian species other than *Panthera tigris tigris*, *Panthera pardus fusca* and *Elephas maximus* which can attract attention are *Anathana ellioti ellioti*, *Feroculus feroculus*, *Suncus dayi*, *Suncus montanus*, *Latidens salimalii*, *Macaca silenus*, *Lutragale perspicillata*, *Martes gwatkinsi*, *Viverra civettina*, *Physeter macrocephalus*, *Dugong dugon*, *Bos gaurus*, *Hemitragus hylocrius*, *Ratufa macroura dandolena*, *Petinomys fuscocapillus*, *Cremnomys elvira*, Bonhote's mouse (*Mus famulus*) etc. The Western Ghats endemics with highest Conservation Status like Salim Ali's Fruit Bat, Nilgiri Marten, Nilgiri Tahr, Lion-Tailed Macaque, Grizzled Giant Squirrel and Travancore Flying Squirrel are such species which deserve conservation measures for protection.
4. Almost half the number of total mammalian species/subspecies (64 : 48%) with higher Conservation Status of Schedule I and Schedule II of Indian Wildlife (Protection) Act, 1972 (2002), CITES Appendix I & II and IUCN categories from Endangered to Vulnerable have been recorded.
5. Thus, State of Tamilnadu which is a part of the terminal portion of Indian Peninsula can be considered as rich mammalian area.

REFERENCES

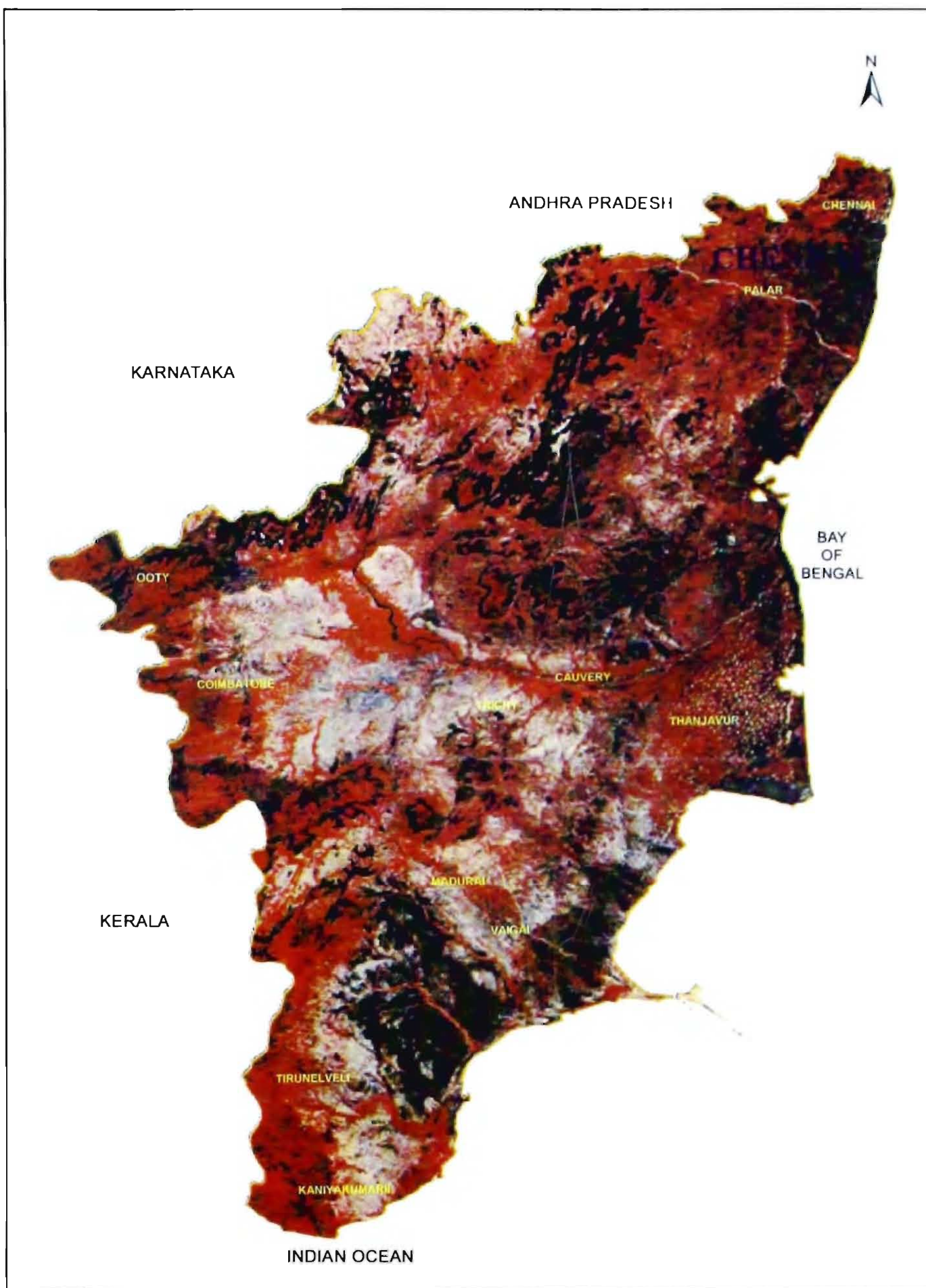
- Agrawal, V.C. 1973. Notes on a collection of Mammals from Goa. *Rec. zool. Surv. India*, **67**(1-4) : 261-280.
- Agrawal, V. C.; Das, P.K., Chakraborty, S., Ghose, R.K., Mandal, A. K., Chkaraborty, T. K. Poddar, A.K., Lal, J.P., Bhattacharyya, T. P. and Ghosh, M. K. 1992. Mammalia. In : *Fauna of West Bengal, State Fauna Series*, **3**(Part 1) : Ed. & Publ. By Director, Zoological Survey of India, Calcutta : 27-100.

- Agrawal V.C. and Alfred J.R.B. 1999. *Handbook on Whales, Dolphins and Dugongs*, 150pp. Publisher : Director, Zoological Survey of India, Kolkata.
- Agrawal, V. C. 2000. Taxonomic studies on Indian *Muridae* and *Hystriidae* (*Mammalia : Rodentia*) *Rec. zool. Surv. India, Occasional Paper No.*, **180** : 1-180.
- Alfred, J.R.B., Sinha, N. K. and Chakraborty, S. 2002. *Checklist of Mammals of India, Rec. zool. Surv. India, Occ. Paper No. 199* : 1-289. (Published by the Director, Zool. Surv. India, Kolkata).
- Alfred, J.R.B., Ramakrishna and Pradhan, M. S. 2006b. *Validation of Threatened mammals of India* : 1-568 (Published : Director, Zool. Surv. India, Kolkata).
- Anonymous, 2003. *The Wildlife (Protection) Act, 1972 (As amended upto 2002)* Natraj Publishers, Dehra Dun, In Technical Association With WWF, Traffic India : 138 pp.
- Antony, F.C. 1982. *Gazetteers of India : Union Territory of Pondicherry. Vol. I* : pp. 78-86 Publ : Administration of the Union Territory of Pondicherry.
- Aswathanarayana, N. V. and Manjunatha, K. R. 1981. Studies on the chromosomes of the Genus *Tatera*. *Mammal. Chrom. Newsl.*, **22** : 55-56.
- Bates, Paul J. J., Harrison D. L. and Muni M. 1994. The Bats of Western India. Part 2 : *Journal Bombay nat. Hist. Soc.* **91** (2) : 224-240.
- Bates, Paul J. J. and Harrison, David L. 1997. *Bats of the Indian Subcontinent*. Harrison Zoological Museum Publication : Sevenoaks, Kent, 258pp.
- Brandon-Jones, D., Eudey, A. A., Geissmann T., Melnick, D. J., Morales, J. C., Shekelle, M. and Stewart, C. B. 2002. *A taxonomy of the Asian Primates*. A working document from the CAMP Workshop "Primate Taxonomy for the New Millennium"
- Chakraborty, S; Ramkrishna and Chakraborty, R 2002 Pangolins (*Mammalia : Pholidata*) of India *Newsletter of Zoological Survey of India*, **9**(1&2) : 5-9
- Chakraborty, S., Srinivasulu, C., Srinivasulu, B., Pradhan, M. S. and Nameer, P.O. 2004. Checklist of Insectivores (*Mammalia : Insectivora*) of South Asia. *Zoos' Print Journal*, **19**(2) : 1361 – 1371.
- Corbet, G. B. and Hill, J. E. 1992. *The mammals of the Indomalayan Region : A systematic review*. Oxford U.K. (Natural History Museum Publications and Oxford University Press) : 488 pp.
- Das, P. K. 2003. Studies on some Indian Chiroptera from West Bengal. *Rec. zool.Surv. India, Occ. Paper No. 217* : 164pp.
- Ellerman, J. R.1961. Fauna of British India : Mammalia Vol. III Parts I & II 884 + lii pp. Publ. : Manager of Publication, Govt. Of India, New Delhi
- Ellerman, J. R. and Morrison-Scott, T.C.S. 1951. *Checklist of Palaearctic and Indian Mammals*. British Museum (Natural History) London. 810pp.
- Ghosh, A. K. 1994. The Red Data Book on Indian Animals : Part 1 : Vertebrata, Publ. By Director, Zoological Survey of India, Calcutta : 1-534.
- Hussain S. A. 1999 Mustelids, Viverrids and Herpestids of India : Species Profile and Conservation Status IN *ENVIS Bulletin : Wildlife and Protected areas : Mustelids, Viverrids and Herpestids of India*, **2**(2) : 1-38 Publisher : Wildlife Institute of India Dehra Dun.

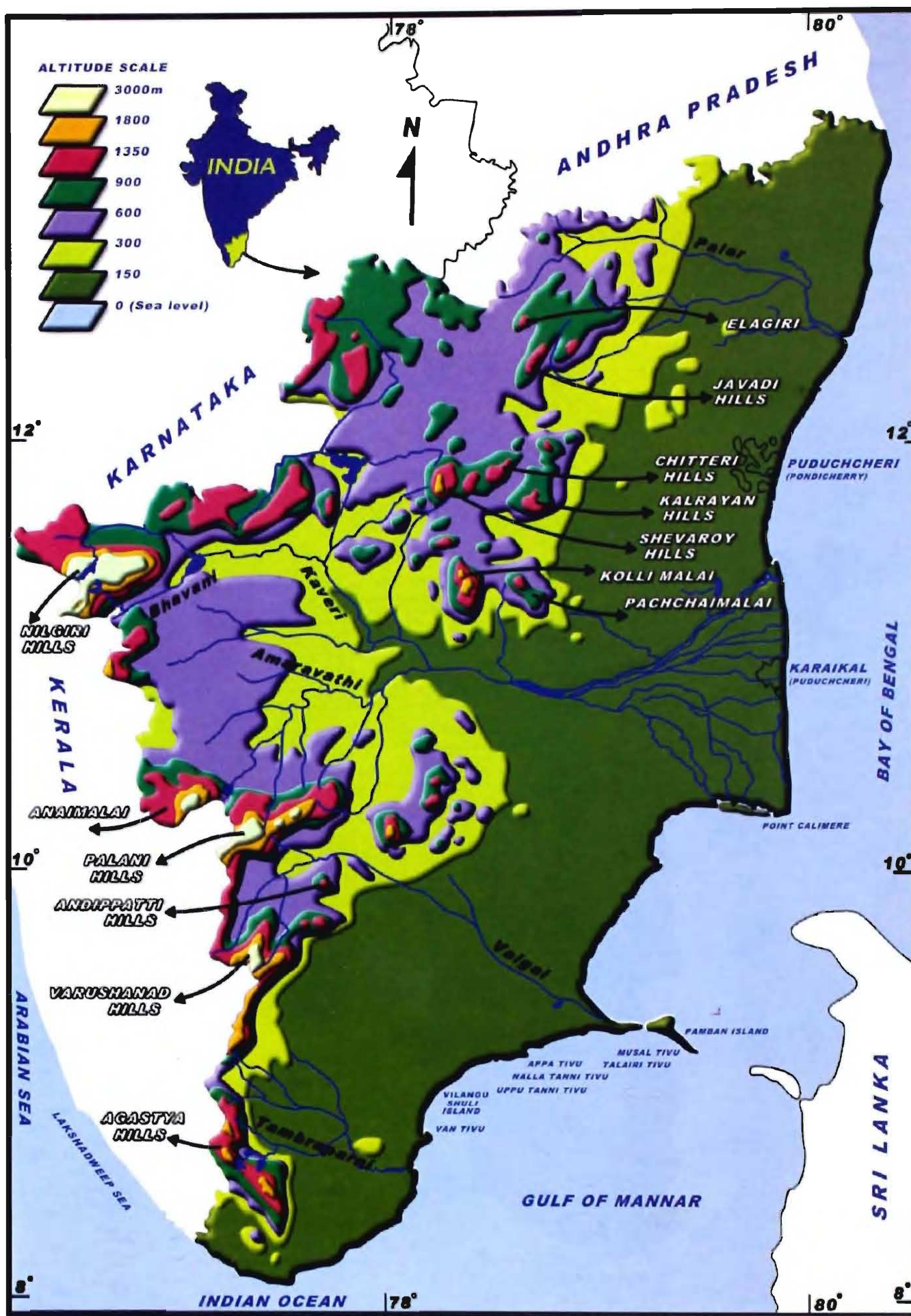
- Jathar, G. A., Talmale, S. S., Pradhan, M. S. and Rahmani, A. R. 2005. Mammalian prey species of the Forest owl *Heteroglaux blewitti* Hume. *J. Bombay nat. Hist. Soc.*, **102**(2) : 230–231.
- Korad, V. S. 2005. *Assessment of Bat fauna in the Central Western Ghats of Maharashtra (2002-2005)*. Report submitted to : Govt. of India, Min. of Environment and Forests, 75pp.
- Kumaran S. 2000 A Catalogue of Indian Marine Mammal Records *Blackbuck*, **16**(2&3) : 23-74.
- Marshall, J. T. (Jr.). 1977. A synopsis of Asian species of *Mus* (Rodentia : Muridae) *Bull. Amer. Mus. Nat. Hist.*, **158** : 173-200.
- Meena, V., Kartik Shankar and Raman Sukumar 2005. Small mammal communities of tropical forest *Habitats* in Mudumalai Wildlife Sanctuary, Southern India. *Mammalia*, **69**(3-4) : 349-358.
- Menon, V. 2003. *A Field Guide to Indian Mammals*. Publ : Dorling, Kindersley, New Delhi. pp 200.
- Molur, S.; Nameer, P. O. and Walker, S. 1998 *Report of the Workshop " Conservation Assessment and Management Plan for Mammals of India" (BCPP- Endangered Species Project)* 176pp. Publisher : Zoo Outreach Organization, Conservation, Breeding Specialist Group, India, Coimbatore, India.
- Molur, S., Marimuthu, G., Srinivasulu, C., Mistry, S., Hutson, A. M., Bates, P. J. J., Walker, S., Priya, K. P. and Priya, A. R. B. (Eds.) 2002. *Status of South Asian Chiroptera : Conservation Assessment and Management Plan (C.A.M.P.) Workshop Report*. Zoo Outreach Organization, CBSG South Asia and WILD, Coimbatore, India, 320pp.
- Molur, S., Brandon-Jones, D., Dittus, W., Eudey, A., Kumar, A., Singh, M., Feeroz, M.M., Chalise, M., Priya, P. and Walker, S. 2003. *Status of South Asian Primates : Conservation Assessment and Management Plan (C.A.M.P.) Workshop Report*, 2003. Zoo Outreach Organisation/CBSG-South Asia, Coimbatore, India.
- Molur, S., Srinivasulu, C., Srinivasulu, B., Walker, S., Nameer, P. O. and Ravikumar, L. 2005. *Status of South Asian Non-Volant Small Mammals : Conservation Assessment and Management Plan (C.A. M. P.) Workshop Report*. Zoo Outreach Organization, CBSG South Asia, Coimbatore, India, 618pp.
- Moore, J. C. and Tate, G. H. H. 1965. A study of the diurnal squirrels, Sciuridae, of the Indian and Indochinese Sub regions. *Fieldiana Zool.*, **48** : 1-351.
- Mudappa, D., A. Kumar, R. Chellam. 2001. Abundance and *Habitat* selection of the Malabar spiny dormouse in the rainforests of the southern Western Ghats, India. *Current Science*, **80**(3) : 424-427.
- Napier, P. H. 1985. *Catalogue of Primates in the British Museum (Natural History)* Parts 2 & 3. London : British Museum (Nat. Hist.) 203, 111pp. *In* Corbet, G. B. & Hill, J. E. 1992. *The mammals of the Indomalayan Region : A systematic review*. Oxford U.K. (Natural History Museum Publications and Oxford University Press).
- Prater, S. H. 1980. *The Book of Indian Animals* Bombay Natural History Society and Oxford University Press, Mumbai. 324 pp.
- Pradhan, M. S., Mandal, A. K. and Agrawal, V. C. 1989. Proposal of an additional species in the Genus *Bandicota* Gray (Order : Rodentia; Fam : Muridae) from India. *Mammalia*, **53**(3) : 369–376.

- Pradhan, M. S. and Hemkar, R. P. 1986. Present *Status* of the European commensal black rat, *Rattus rattus rattus* (Lin.) in Bombay. *J. Bombay nat. Hist. Soc.*, **83**(2) : 422-423.
- Pradhan, M. S. and Kulkarni, P. P. 1997. Observations on the extended distribution of *Cynopterus brachyotis ceylonensis* Gray in Western India with comments on its *Status*. *Mammalia*, **61**(1) : 116-118.
- Pradhan, M.S., Sharma, R.M. & Shankar, K. (1997) First record of Kelaart's long-clawed shrew, *Feroculus feroculus* (Kelaart) from peninsular India. *Mammalia*, **61** : 448-450.
- Pradhan, M. S. 1997 Illicit trade in Wildlife species, products and derivatives in Maharashtra State *Rec. zool. Surv. India*, **96**(1-4) : 195-210.
- Pradhan, M.S., Mondal, Ajoy Kumar, Bhagwat, A.M. & Agrawal, V.C., 1993. Taxonomic studies of Indian bandicoot rats (Rodentia : Muridae : Murinae) with description of a new species. *Rec. zool. Surv. India*, **93**(1-2) : 175-200.
- Pradhan, M.S. and Kurup, G.U. 2001. Mammalia *IN Fauna of Nilgiri Biosphere Reserve. Fauna of conservation Area Series 11*. Publ : Director, Zoological Survey of India, Kolkata : 311-330.
- Pradhan, M.S. 2002. Mammalia. In : *Fauna of Eravikulam National Park. Fauna of conservation Area Series, 13* : 79-97. Publ : Director, Zoological Survey of India, Kolkata.
- Pradhan, M. S., Mondal, A. K. and Bhagwat, A. M. 2005. On taxonomic *Status* of *Bandicota lordi* (Wroughton) and *Bandicota maxima* (Pradhan *et al.*) : Subfamily : Murinae; Family : Muridae : Order : Rodentia). *Rec. zool. Surv. India*, **104**(1-2) : 85-90.
- Prakash, I. Saravanan, A. and Singh, P. 1995. Ecology and taxonomy of the field mice in the Aravalli ranges. *J. Bombay nat. Hist. Soc.*, **92**(3) : 372-377.
- Raman, R. and Sharma, T. 1977. Karyotype evolution and speciation in Genus *Rattus*. *J. Sci. Indust. Res.*, **36**(8) : 385-404.
- Roberts, T. J. 1997. *The Mammals of Pakistan* Oxford University Press, Oxford. 525 pp.
- Roonwal, M. L. and Mohnot, S. M. 1977. *Primates of South Asia* : 1-421. Publisher : Harvard University Press, U.K.
- Sen, S. and Sharma, T. 1983. Role of constitutive hetero-chromatin in evolutionary divergence in *Mus musculus*, *Mus booduga* and *Mus dunni*. *Evolution, Lawrence*, **37** : 628-636.
- Srinivasulu, C. and Pradhan, M. S. 2003. Checklist of Murids (Mammalia : Rodentia : Muridae) of South Asia. *Zoos' Print Journal*, **18**(12) : 1286-1310.
- Srinivasulu, C., Chakraborty, S. and Pradhan, M. S. 2004. Checklist of Scurids (Mammalia : Rodentia : Sciuridae) of South Asia: *Zoos' Print Journal*, **19**(2) : 1351-1360.
- Srinivasulu C., Jordon M. J. R. 2004 Checklist of dipodids, myoxids and hystricids (Mammalia : rodentia : dipodidae, myoxidae and hystricidae) of South Asia. *Zoos Print JI* : **19**(2) : 1346-50.
- Srinivasulu C., Srinivasulu B., Chakraborty S., Pradhan M. S., Nameer P. O. 2004. Checklist of lagomorphs (Mammalia : Lagomorpha) of South Asia. *Zoos Print JI* **19**(2) : 1375-80.
- Thulsi Rao, K., Srinivasulu, C., Prudhvi Raj, R., Javed, S. M. M. and Siva Ramakrishna. 2004. Second record of *Rhinolophus beddomei* in Eastern Ghats, India. *Zoos' Print Journal*, **19**(4) : 1446 + 1446¹(web suppl.).

- Tiwari, K. K., Ghose, R. K. and Chakraborty, S. 1971. Notes on a collection of small mammals from Western Ghats, with *Remarks* on the *Status* of *Rattus rufescens* (Gray) and *Bandicota indica malabarica* (Shaw). *J. Bombay nat. Hist. Soc.*, **68**(2) : 378-384.
- Wilson, Don E. and Reeder, DeeAnn M. 1993. *Mammal species of the world. A taxonomic and geographic reference*. 2nd ed. Washington and London (Smithsonian Institution Press in association with the American Society of Mammalogists). 1207 pp.
- Wroughton, R. C. 1912-1920. Bombay Natural History Society's Mammal Survey of India, Burma and Ceylon. *J. Bombay nat. Hist. Soc.*, **21**(2) : 392-410; **21**(3) : 768-773; **21**(3) : 820-825; **24**(2) : 311-316; **24**(4) : 644-649; **25**(4) : 547-598; **26**(1) : 19-58; **26** (2) : 338-379; **26**(3) : 731-733; **26**(3) : 776-802; **26**(4) : 955-967.



Map 1 : Satellite Image of Tamil Nadu



Map 2 : Physical Map of Tamil Nadu

Some Crustaceans of Tamil Nadu



Travancoriana schirnerae Bott



Barytelphusa cunicularis (West Wood)



Ozietelphusa senex senex (Fabricius)



Barytelphusa guerini (H. Milne-Edwards)



Spiralothelphusa hydrodroma (Herbst)



Ceylonthelphusa austrina (Alcock)



Caridina williamsoni Jalihal, Shenoy & Sankolli



Caridina kunnathurensis Richard & Chandran

Some Dragonflies of Tamil Nadu



Pseudagrion rubriceps



Ceriagrion coromandelianum



Rhinocypha bisignata



Vestalis gracilis



Euphaea dispar



Pseudagrion microcephalum



Zygonyx malabaricus



Palpopleura sexmaculata



Trithemis aurora



Acisoma panorpoides



Trithemis pallidinervis



Brachydiplax sobrina



Brachythemis contaminata



Rhyothemis variegata

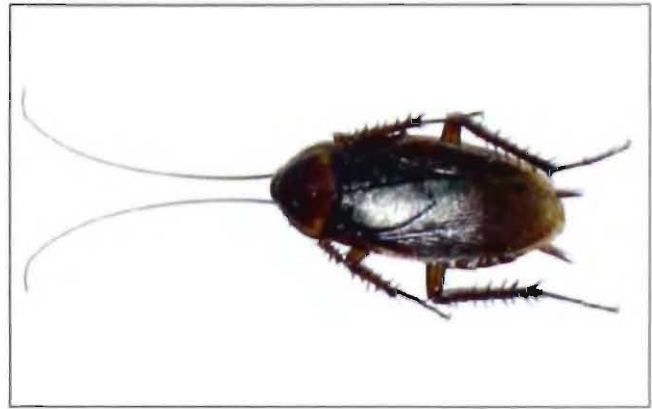


Tetrathemis platyptera

Some Cockroaches of Tamil Nadu



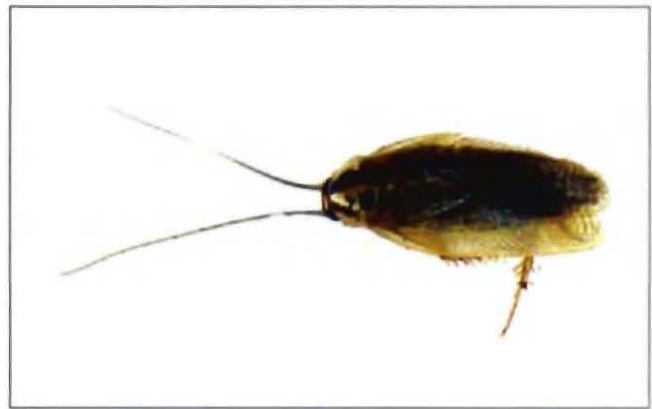
Pycnoscelus surinamensis (Linnaeus)



Periplaneta americana (Linnaeus)



Blatta orientalis Linnaeus



Blattella germanica (Linnaeus)



Therea petiveriana (Linnaeus)



Periplaneta australasiae (Fabricius)



Neostylopyga rhambifolia (Stoll)

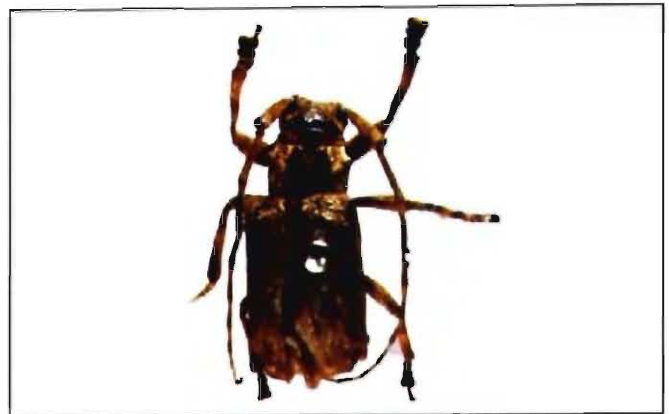


Blattella humbertiana (Saussure)

Some Cerambycids of Tamil Nadu



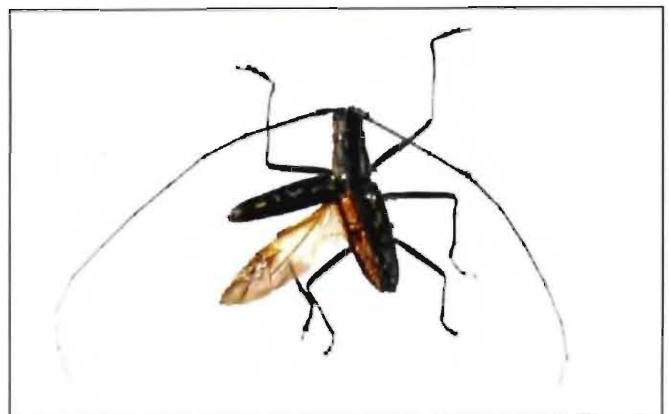
Olenecamptus bilobus (Fabricius)



Coptops aedificator (Fabricius)



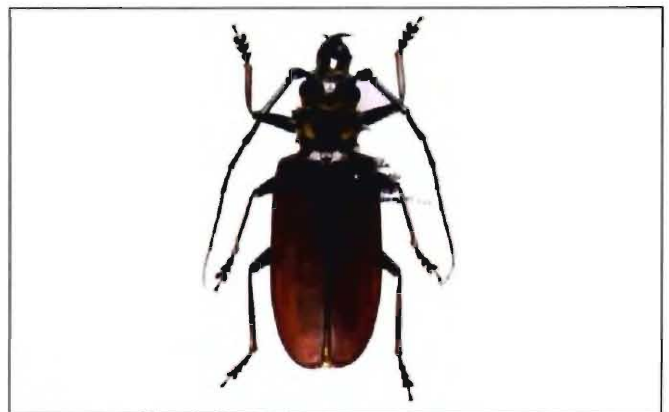
Glenea multiguttata Guerin & Menevillie



Macrochenus tigrinus Olivier



Plocaderus ferrugineus (Linnaeus)



Acanthophorus serraticornis (Olivier)

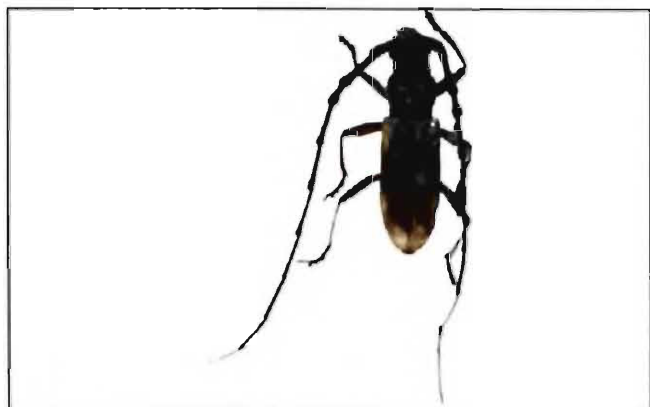


Chlorophorus distinguendus (Perroud)

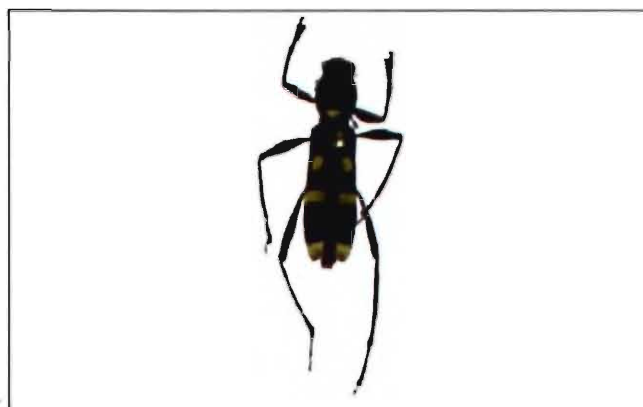


Doryshenes rostratus (Fabricius)

Some Cerambycids of Tamil Nadu



Diorthus simplex (White)



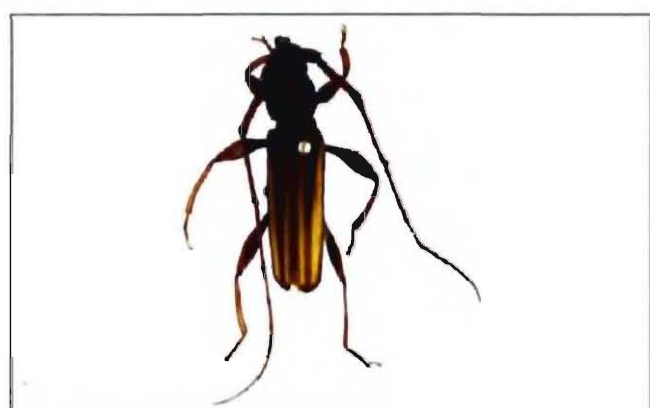
Demonax maculicollis Gahan



Niphona fuscatrix (Fabricius)



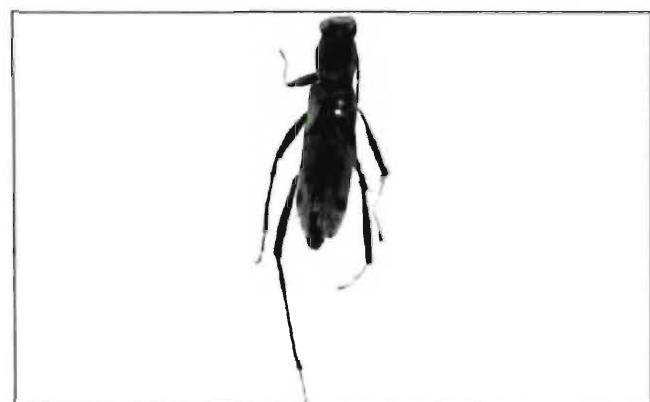
Celosterna scabrator (Fabricius)



Xystrocera globosa (Olivier)



Sthenias grisator (Fabricius)



Demonax dimedius (Chevrolat)

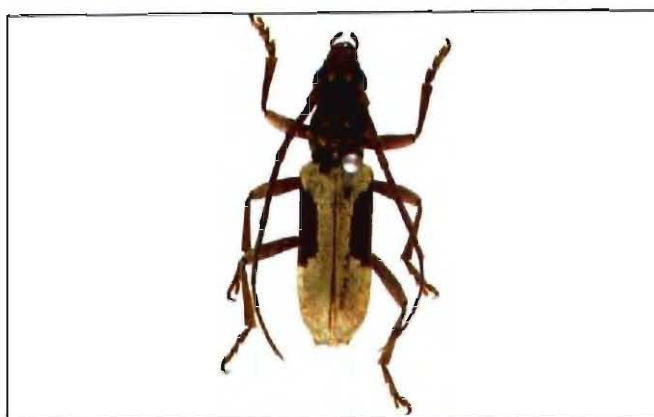


Demonax decorus Gahan

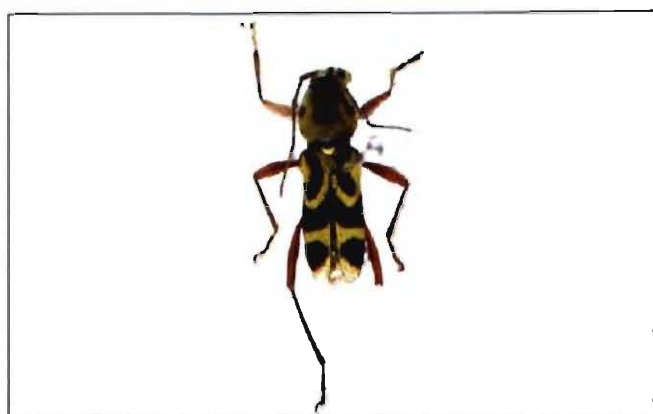
Some Cerambycids of Tamil Nadu



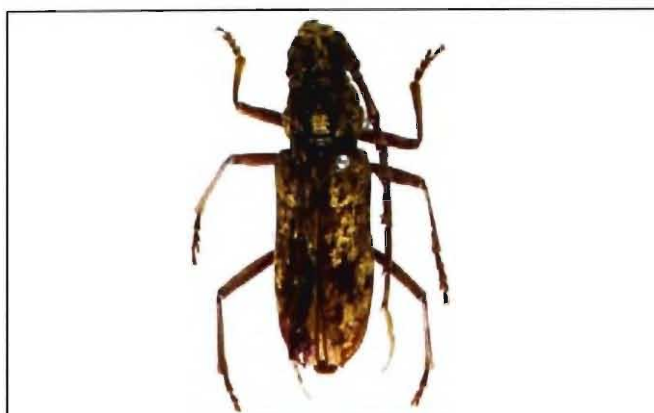
Astathes bimaculata Gahan



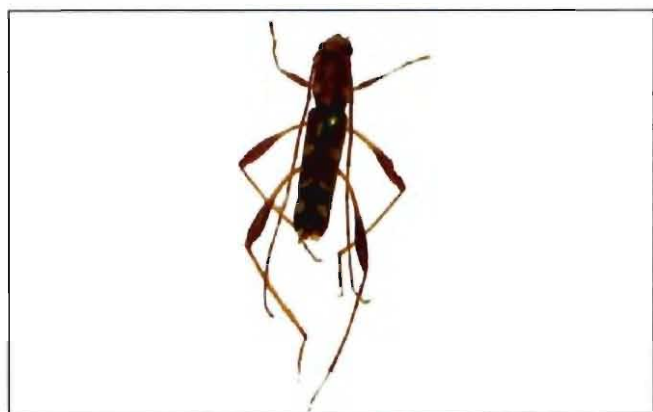
Xoanodera amoena Pascoe



Xystrocera globosa (Olivier)



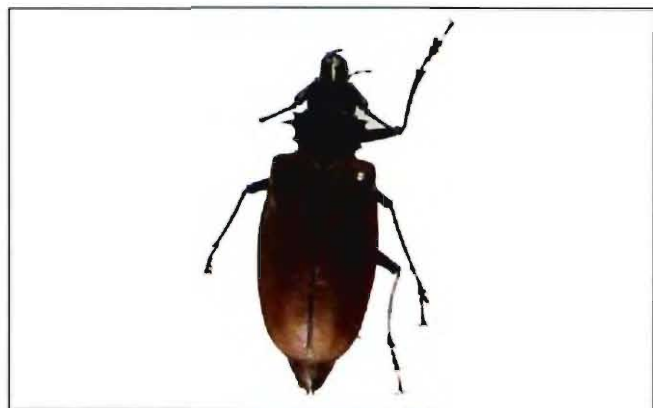
Xystrocera globosa (Olivier)



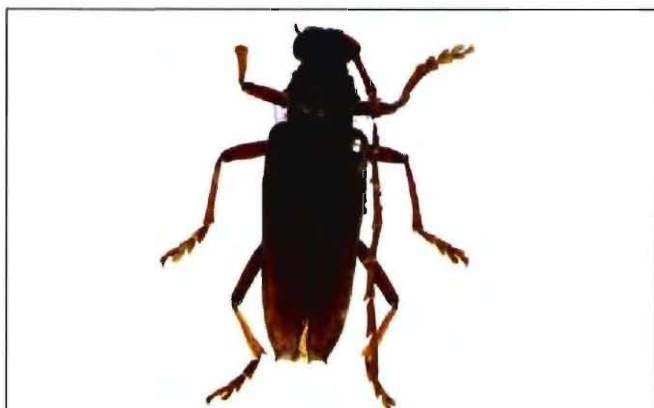
Clytocera chionospila Gahan



Nupserha madurensis Pic



Priotyrannus mordax (White)



Plocaederus humeralis (White)

Some Birds of Tamil Nadu



Brown -headed Barbet



Common Coot



Chestnut Bittern



Changeable Hawk-Eagle



Common Greenshank



Cattle Egret



Common Hoopoe



Common Tailorbird

Some Birds of Tamil Nadu



Coppersmith Barbet



Darter



Emerald Dove



Eastern Skylark



Eurasian Golden Oriole



Ashy Prinia



Eurasian Spoonbill



Asian Openbill Stork

Some Birds of Tamil Nadu



Golden Plover



Little Brown Dove



Great Cormorant



Great Pied Hornbill



Grey Heron



Indian Roller



Common Greenshank



Small Bee-eater

Some Birds of Tamil Nadu



Greater Flamingo



Greater Coucal



Great Stone-Plover



Grey Wagtail



Indian Treepie



Indian Pond Heron



Indian Pitta



Indian white-breasted Waterhen

Some Birds of Tamil Nadu



Marsh Sandpiper



Loten's Sunbird



Rose-ringed Parakeet



rock pigeon



Red-crested Pochard Male



Red-crested Pochard Female



Red-whiskered Bulbul



River Tern

Some Birds of Tamil Nadu



Stork-billed Kingfisher



Steaked Weaver



White-throated Fantail Flycatcher



Spot-billed Pelican



Small Minivet



House Swallow



Rufous-backed Shrike



Grey-Headed Flycatcher

Some Birds of Tamil Nadu



Blue-winged Parakeet



Orange-headed Thrush



Black-headed Oriole



Plum-headed Parakeet



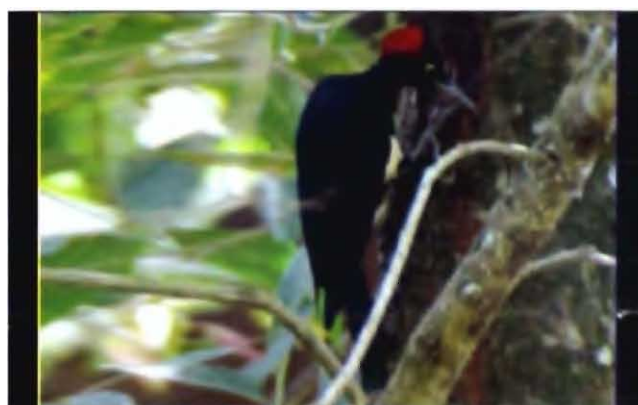
Eurasian Eagle-owl



Oriental White-eye



Jerdon's Chloropsis



Great Black Woodpecker

Some Mammals of Tamil Nadu



Indian Crested Porcupine



Indian Giant Squirrel



Indian Wild Dog



Jungle Cat



Slender Loris



Small Indian Civet



Striped Hyena



Common House Shrew

Some Butterflies of Tamil Nadu



Papilio liomedon



Pachliopta pandiyana



Tanaecia minos



Tanaecia lepidea



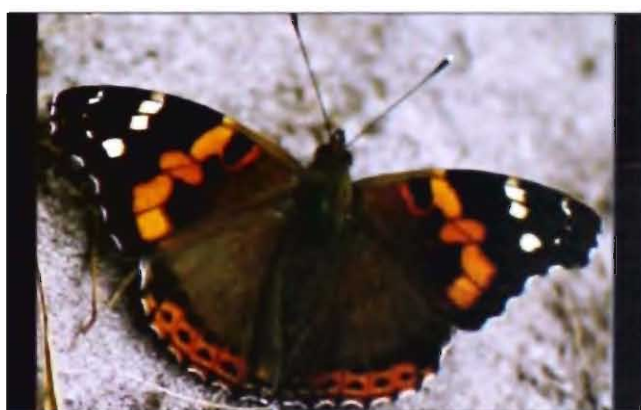
Idea malabarica



Kallima horsfieldi



Polyura athamas



Vanessa indica

Some Butterflies of Tamil Nadu



Vindula erota



Zipoetis saitis



Prioneris sita



Leptosia nina



Spindasis vulcanus



Caleta caleta

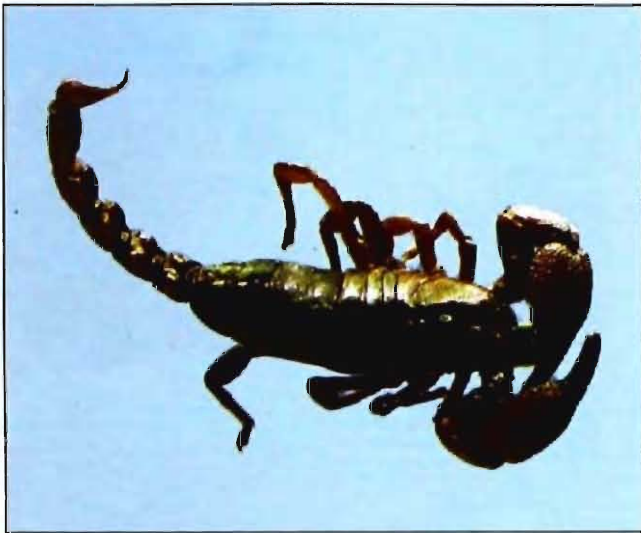


Gomalia elma



Cogia indrani

Some Scorpions of Tamil Nadu



Heterometrus (Chersonesometrus)
granulomanus Couzijn



Mesobuthus tamulus tamulus
(Fabricius)



Liocheles laeviceps laeviceps (Pocock)



Isometrus (Closotrichus) sankeriensis
Tikader and Bastawade



Lychas (Alterotrichus) hendersoni Pocock



Lychas (Endotrichus) albimanus Henderson

Some Scorpions of Tamil Nadu



Heterometrus (Chersonesometrus) barberi Pocock



Stenochirus politus Pocock



Lychas (Endotrichus) tricarinatus Simon



Mesobuthus hendersoni (Pocock)



Heterometrus (Heterometrus) malapuramensis Tikader and Bastwade



Isometrus (Reddyanus) brachycentrus (Pocock)

Some Freshwater Gastropods of Tamil Nadu



Indoplanorbis exustus



Gyraulus convexiusculus



Lymnaea (Pseudosuccinea) luteola f. impura



Lymnaea (Pseudosuccinea) luteola f. typica



Plaudomus (Paludomus) rotunda



Plaudomus (Paludomus) transcauricus



Thiara (Tarebia) granifera



Thiara (Tarebia) lineata

Some Freshwater Gastropods of Tamil Nadu



Thiara (Melanoids) tuberculata



Thiara (Thiara) scabra



Stenothyra blanfordi



Pila virens



Pila globosa



Bellamya dissimilis

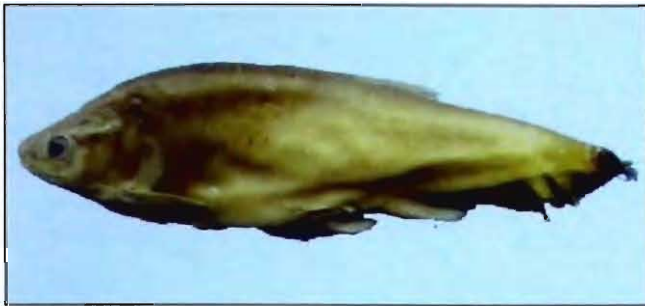


Bellamya bengalensis

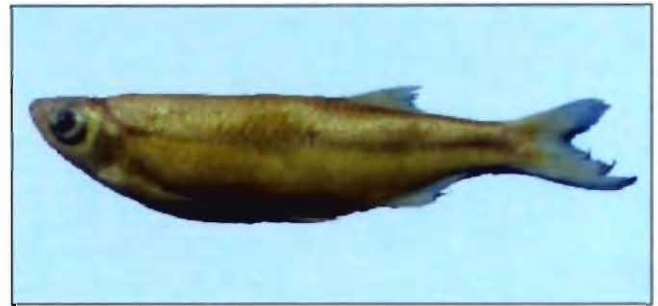


Plaudomus (Paludomus) annandalei

Some Freshwater Fishes of Tamil Nadu



Notopterus notopterus (Pallas)



Salmophasia acinaces (Valenciennes)



Salmophasia clupeoides (Bloch)



Barilius bendelisis (Hamilton)



Barilius gatensis (Valenciennes)



Esomus thermoicos (Valenciennes)



Danio malabaricus (Jerdon)



Rasbora caverii (Jerdon)

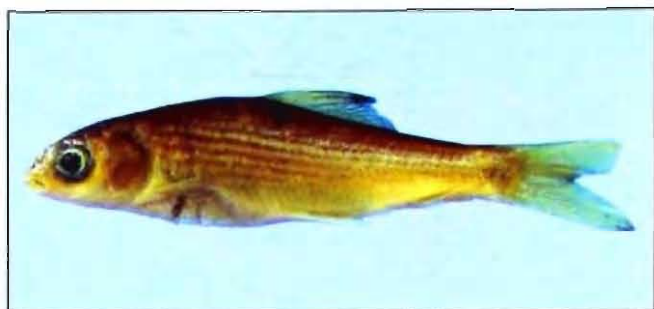


Rasbora daniconius (Hamilton)



Cyprinus carpio communis (Linnaeus)

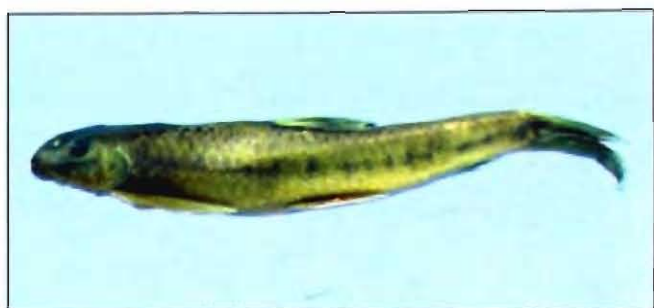
Some Freshwater Fishes of Tamil Nadu



Cirrhinus cirrhosus (Bloch)



Labeo rohita (Hamilton)



Garra hughi Silas



Garra mclellandii (Jerdon)



Garra mullia (Sykes)



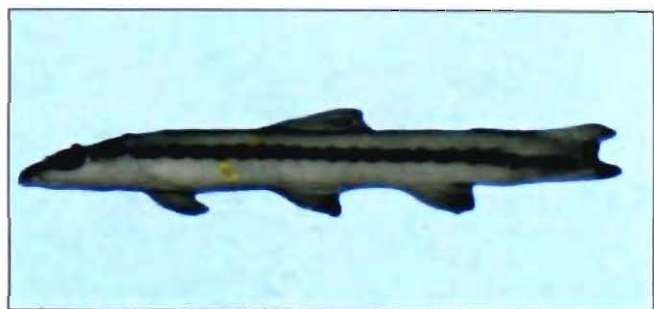
Bhavana australis (Jerdon)



Schistura denisoni denisoni (Day)



Mesonemacheilus herrei Nalbant & Banarescu



Nemacheilus monilis Hora

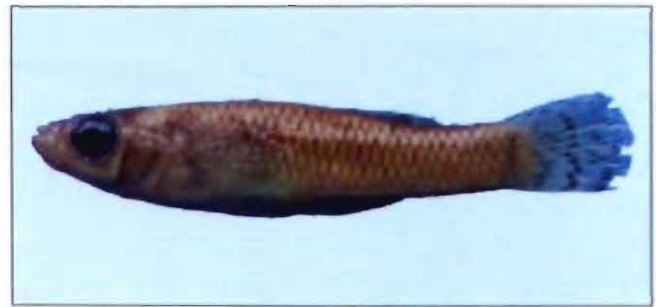


Lepidocephalus thermalis (Valenciennes)

Some Freshwater Fishes of Tamil Nadu



Aplocheilichthys lineatus (Valenciennes)



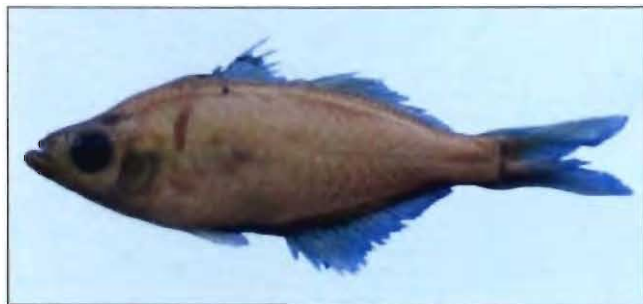
Gambusia affinis (Baird & Girard)



Mastacembelus armatus (Lacepede)



Mastacembelus guentheri Day



Channa nama (Hamilton)



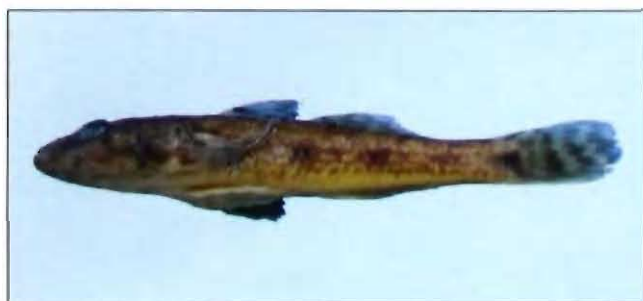
Pristigaster marginatus Jerdon



Etroplus maculatus (Bloch)



Oreochromis mossambica (Peters)



Glossogobius aureus (Hamilton)



Channa orientalis Bloch and Schneider

Some Amphibians of Tamil Nadu



Duttaphrynus melanostictus



Bufo parietalis



Pedostibes tuberculosus



Fejervarya keralensis



Indirana beddomii



Hydrophylax malabaricus



Clinotarsus curtipes



Sylvirana aurantiaca

Some Amphibians of Tamil Nadu



Sylvirana temporalis



Rhacophorus malabaricus



Rhacophorus lateralis



Polypedates maculatus



Ramanella triangularis



Micrixalus saxicola



Fejervarya rufescens



Ichthyophis beddomei

Some Reptiles of Tamil Nadu



Marsh crocodile



Indian pond turtle



Indian star tortoise



Indian flapshell turtle



Collegal rock gecko



Nilgiri dwarf gecko



Beddome's Dwarf gecko

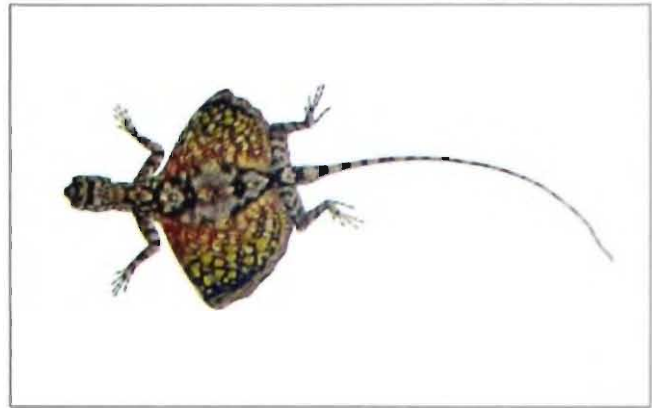


Termite hill gecko

Some Reptiles of Tamil Nadu



Punjab snake-eyed lizard



South Indian flying lizard



Indian chameleon



Slender worm snake



Brahminy worm snake



Striped keelback



Olive keelback



Common bronze back tree snake

Some Reptiles of Tamil Nadu



Common wolf snake



Common cat snake



Common kukri snake



Travancore wolf snake



Common vine snake



Trinket snake



Banded racer



Indian rat snake

Some Reptiles of Tamil Nadu



Red sand boa



Common sand boa



Indian rock python



Russell's viper



Saw-scaled viper



Spectacled cobra



Common krait



King cobra

Some Birds of Tamil Nadu



Black Crowned Night Heron



Alexandrine Parakeet



Median Egret



Black-winged Stilt



Black Ibis



Black-shouldered Kite



Black-headed Gull



Black-headed Cuckoo