

## A CHECKLIST OF AQUATIC AND SEMI-AQUATIC HEMIPTERA (INSECTA) OF TAMIL NADU

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### Introduction

Water Bugs play an important role in fresh water ecosystems and the knowledge of the group is essential for the study of fish biology and for the proper management of hatcheries. Further, certain families of the bugs may be utilised in the biological control of mosquitoes. Jansson (1977) demonstrated that members of the family Corixidae are used as indicators of water quality. Because of their diverse habitats and poor dispersal capability, these water bugs serve as zoogeographical indicators (Jordon, 1951).

Of the 51 families of extant Hemiptera, 23 are associated with aquatic and semiaquatic habitats. Out of 292 genera and about 3436 species distributed all over the world, aquatic bugs fauna in India is represented by 78 genera and about 263 species under 16 major families. The aquatic and semiaquatic hemipterans of Tamil Nadu received only rather cursory attention largely by foreign scientists limited to taxonomic preliminaries including recording of species from different parts of the state. However, an attempt to consolidate the information on the group by throwing more light on the present taxonomic status of some families has been made by Ravishankar and Venkatesan (1988), Thirumalai (1989, 1992, 1994a, 1994b, 1997), Thirumalai and Dam (1996), Thirumalai and Raghunathan (1988).

During the span of last 15 years, the author has carried out intensive and extensive surveys of Tamil Nadu. The study revealed the rich diversity of aquatic and semiaquatic hemipteran fauna occurring in the state. This comprises of 40 genera and 95 species under 13 families, which are listed in this paper. This includes the record of *Micronecta flavens* Wroblewski (family: Corixidae) from Virudunagar district, hitherto known from Sri Lanka. Besides, a number of species, namely *Micronecta desertana dravida* (Hutchinson), *Sigara horana* (Hutchinson) and *S. nilgirica* (Hutchinson) reported earlier have been discovered after a lapse of more than fifty years.

The percentage of occurrence of aquatic and semiaquatic hemipterans in Tamil Nadu based on the author's study is presented

in Figs. 1 and 2. The studies indicate that diverse ecological niches available in Tamil Nadu provide ideal locations for habitat selection for many aquatic and semiaquatic bugs.

### Aquatic and semi-aquatic Hemiptera of Tamil Nadu

Infraorder	Nepomorpha (Aquatic)
Family	<i>Belostomatidae</i>
Subfamily	<i>Belostomatinae</i>
	<i>Diplonychus annulatus</i> (Fabricius, 1781)
	<i>Nepa annulata</i> (Fabricius, 1781)
	<i>Sphaerodema annulatum</i> Distant, 1906
	<i>Abedes sangameshwari</i> Rupavathi, 1985
	<i>D. rusticus</i> (Fabricius, 1781)
	<i>Nepa rustica</i> Fabricius, 1781
	<i>Sphaerodema rusticum</i> Distant, 1906
	<i>Diplonychus indicus</i> Venkatesan & Rao, 1980
Subfamily	<i>Lethocerinae</i>
	<i>Lethocerus indicus</i> (Lepeletier & Serville, 1825)
	<i>Belostoma indicum</i> Distant 1906
Family	<i>Corixidae</i>
Subfamily	<i>Corixinae</i>
	<i>Agraptocorixa (Agraptocorixa) hyalinipennis hyalinipennis</i> (Fabricius, 1803)
	<i>Sigara hyalinipennis</i> Fabricius, 1803
	<i>Sigara (Trpocorixa) graveleyi</i> (Hutchinson, 1940)
	<i>Corixa (Tropocorixa) graveleyi</i> Hutchinson, 1940
	<i>S. (T) horana</i> (Hutchinson, 1940)
	<i>Corixa (Tropocorixa) horana</i> Hutchinson 1940
	<i>S. (T) indica</i> (Hutchinson, 1940)
	<i>Corixa (Tropocorixa) indica</i> Hutchinson 1940
	<i>S. (T) nilgirica</i> (Hutchinson, 1940)
	<i>Corixa (Tropocorixa) indica</i> Hutchinson, 1940
	<i>S. (T) pruthiana</i> (Hutchinson, 1940)
	<i>Corixa (Trpocorixa) pruthiana</i> Hutchinson, 1940
Subfamily	<i>Micronectinae</i>
	<i>Micronecta (Basilonecta) scutellaris</i> (Stål, 1858)
	<i>Sigara scutellaris</i> Stål, 1858.
	<i>Micronecta dione</i> Distant, 1910
	<i>Micronecta malabarica</i> Distant, 1910
	<i>Micronecta proba</i> Distant, 1910
	<i>M. scutellaris pseudostriata</i> Hutchinson, 1940
	<i>M. (B) siva</i> (Kirkaldy, 1897)
	<i>Micronecta striata</i> Fieber: Distant, 1906
	<i>M. (Dichaetonecta) albifrons</i> (Motschulsky, 1863)
	<i>Corixa albifrons</i> Motschulsky, 1863
	<i>Micronecta lucina</i> Distant, 1910
	<i>M. albifrons albifrons</i> Hutchinson, 1940
	<i>M. albifrons albifrons trans ad striatella</i> Lundblad: Hutchinson, 1940
	<i>M. albifrons striatella</i> Lundblad : Hutchinson, 1940
	<i>M. (D) desertana dravida</i> Hutchinson, 1940
	<i>M. desertana dravida conconensis</i> Hutchinson, 1940
	<i>M. (D) eucosmeta</i> Hutchinson, 1940

Received 27 February 1999;

Accepted 10 August 1999

- M. (D) janssoni* Thirumalai, 1989
- M. (D) flavens* \* Wroblewski, 1960 (\*New record to the country)
- M. (D) prashadana* Hutchinson, 1940
- M. (Indonectella) grisea* (Fieber, 1844)  
*Sigara grisea* Fieber, 1844  
*M. thyesta* Distant, 1910  
*M. (I.) thyesta* Distant: Thirumalai, 1994
- M. (Mesonecta) waltoiana* Hutchinson, 1940
- M. (Sigmonecta) quadristrigata* Breddin, 1905  
*M. minthe* Distant, 1910
- Family Gelastocoridae**
- Subfamily Nerthrinae**
- Nerthra indica* (Atkinson, 1888)  
*Mononyx indicus* Atkinsin, 1888  
*M. projectus* Distant, 1910
- Family Naucoridae**
- Subfamily Laccocorinae**
- Helecoris bergrothi* Montandon, 1897  
*H. breviceps* Montandon, 1897  
*H. majusculus* Montandon, 1908  
*H. rotundatus* Montandon, 1908
- Family Nepidae**
- Subfamily Nepinae**
- Laccotrephes griseus* (Guerin-Meneville, 1835)  
*Nepa griseus* Guerin-Meneville, 1835  
*L. ruber* Linnaeus, 1764)  
*Nepa ruber* Linnaeus, 1764
- Subfamily Ranatrinae**
- Cercotmetus fumosus* Distant, 1906  
*Ranatra elongata* Fabricius, 1790  
*R. filiformis* Fabricius, 1790  
*R. varipes atropha* Montandon, 1903  
*R. varipes varipes* Stal, 1861
- Family Notonectidae**
- Subfamily Anisopinae**
- Anisops barbatus* Brooks, 1951  
*A. barbata* Brooks, 1951  
*A. bouvieri* Kirkaldy, 1904  
*A. breddeni* Kirkaldy, 1901  
*A. campbelli* Brooks, 1951  
*A. cavifrons* Brooks, 1951  
*A. exigua* Horvath, 1919  
*Anisops exigera* Horvath, 1919  
*A. extendofrons* Brooks, 1951  
*A. nigrolineatus* Lundblad, 1933  
*Anisops nigrolineata* Lundblad, 1933  
*A nivea* (Fabricius, 1775)  
*Notonecta nivea* Fabricius, 1775
- Anisops niveus* (Fab.): Distant, 1906
- A paranigrolineatus* Brooks, 1951
- Anisops paranigrolineata*, Brooks, 1951
- A sardae* Herrich-Shaffer, 1850  
*Anisops sardae* Herrich - Shaffer, 1850
- A. stali* Kirkaldy, 1904
- A. waltairensis* Brooks, 1951
- Subfamily Notonectinae**
- Enithares ciliata* (Fabricius, 1798)  
*Notonecta ciliata* Fabricius, 1798  
*Enithares indica* Spinloa : Distant, 1906  
*E. lacta* Paiva, 1919  
*E. abbreviata* (Kirby) : Hafiz and Mathai, 1938  
*E. fusca* Brooks, 1948  
*E. hungerfordi* Brooks, 1948  
*E. triangularis* (Guerin-Meneville, 1844)  
*Notonecta triangularis* Guerin - Meneville, 1844  
*Nychia marchalli* Scott, 1872
- Family Ochteridae**
- Ochterus marginatus marginatus* (Latreille, 1804)  
*Acanthia marginata* Laterille, 1804  
*Pelagonus marginatus* Distant , 1906
- Family Pleidae**
- Paraplea frontalis* (Fieber, 1844)  
*Plea pelopea* Distant, 1910  
*P. (Paraplea) frontalis* Hafiz & Pradhan , 1947
- Infraorder Gerromorpha (Semi-aquatic)**
- Family Gerridae**
- Subfamily Cylindrostethinae**
- Cylindrostethus productus* Spinola, 1840  
*Janias elongatus* Distant, 1910
- Subfamily Eotrechinae**
- Amemboa (Amemboa) kumari* (Distant, 1910)  
*Onychotrechus kumari* Distant, 1910  
*Amemboa pervati* Pradhan, 1950  
*Onychotrechus rhexenor* Kirkaldy, 1903
- Subfamily Gerrinae**
- Aquarius adelaidis* (Dohrn, 1860)  
*Gerris spinolae* Leth. & Serv., 1896  
*Limnogonus (Limnogonus) fossarum* *fossarum* (Fabricius, 1775)  
*Cimex fossarum* Fabricius, 1775  
*Gerris fossarum* Distant, 1903  
*L. (L.) nitidius* (Mayr, 1865)  
*Hydrometra nitida*, Mayr, 1865  
*Gerris nitida* : Distant, 1903  
*Limnometra anadyomene* (Kirkaldy, 1901)  
*Gerris anadyomene* Kirkaldy, 1901  
*Tenagogonus (Limnometra) anadyomene* Hungerford & Matsuda,

1958

- Tenagogonus (Limnometra) longispinus* Thirumalai, 1986  
*L. fluviorum* (Fabricius, 1798)  
*Cimex fluviorum* Fabricius, 1798  
*Gerris fluviorum* Distant, 1903  
*Gerris armata* Distant, 1903  
*Tenagogonus (Limnometra) fluviorum* Hungerford & Matsuda, 1958

- Family Mesoveliidae**  
**Subfamily Mesoveliinae**  
*Mesovelia horvathi* Lundblad, 1934  
*M. indica* Horvath, 1915  
*M. vittigera* Horvath, 1895  
*Mesovelia orientalis* Kirkaldy, 1910  
*M. mulsanti* White Distant, 1903

1958

- Neogerris parvula* (Stål, 1859)  
*Gerris parvula* Stål, 1859  
*Gerris triton* Distant, 1903  
*Limnogonus parvulus* Hafiz & Ribeiro, 1939

- Family Veliidae**  
**Subfamily Halovelinae**  
*Strongylovelia* sp  
*Xenobates* sp

Subfamily Halobatinae

- Asclepios annandalei* Distant, 1915  
*Halobates flaviventris* Eschscholtz, 1822  
*Metrocoris communis* (Distant, 1910)  
*Euodus communis* Distant 1910  
*M. communoides* Chen & Nieser, 1993  
*M. indicus* Chen & Nieser, 1933  
*Metrocoris stali* \* (Dohm)  
\* Specimens from Southern India earlier identified as *M. stali* refer to *M. indicus*  
*M. malabaricus* Thirumalai, 1986  
*M. velamentus* Chen & Nieser, 1993  
*Ventidius (Ventidius) aquarius* Distant, 1910

- Subfamily Microveliinae**  
*Microvelia (Microvelia) annandalei* Distant, 1909  
*M. (M.) diluta* Distant, 1909  
*M. (M.) douglasi douglasi* Scott, 1874  
*Microvelia repentina* Distant, 1903  
*M. kumaonensis* Distant, 1909  
*M (M.) javadiensis* Thirumalai, 1989  
*M (M.) santala* Hafiz & Ribeiro, 1939

Subfamily Ptilomerinae

- Plecioicates tuberculatus* Esaki, 1930  
*Ptilomera (Ptilomera) agroides* Schmidt, 1926  
*Ptilomera lachne* Schmidt, 1926  
*P. laticudata* Distant, 1903

Subfamily Perittopinae

- Perittopus cambelli* Lundblad, 1933  
*P. horvathi* Lundblad, 1933

Subfamily Rhagadotarsinae

- Rhagadotarsus (Rhagadotarsus) kraepelini* Breddin, 1905  
*Nacebus dux* Distant, 1910

Subfamily Rhagoveliinae

- Rhagovelia (Rhagovelia) ceylanica* Lundblad, 1936  
*Rhagovelia nigricans* Distant, 1910

Note: The report on *R. nigricans* (Burmeister) from different localities from India refers to *R. ceylanica* (Thirumalai, 1994b).

- R. (R.) tibialis* Lundblad, 1936

- R. (Neorhagovelia) nilgiriensis* Thirumalai, 1994

- Tetraripis asymmetricus* Polhemus & Karunaratne, 1979

Subfamily Trepobatinae

- Nabondelus signatus* Distant, 1910

#### Acknowledgement

The author is grateful to the Director, Zoological Survey of India, Calcutta and Dr P.T. Cherian, Scientist SG & Officer-in-Charge, Zoological Survey of India, Southern Regional Station, Chennai for facilities and encouragement.

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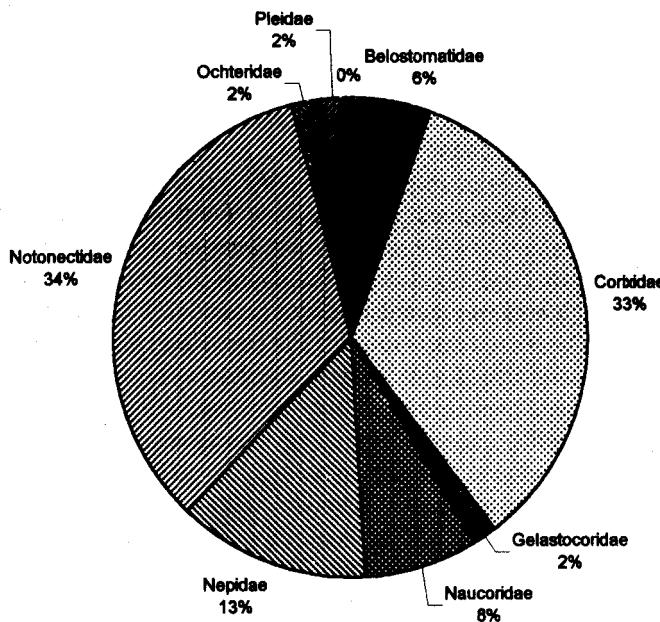
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Number of species=52

Figure 1. *Nepomorpha*

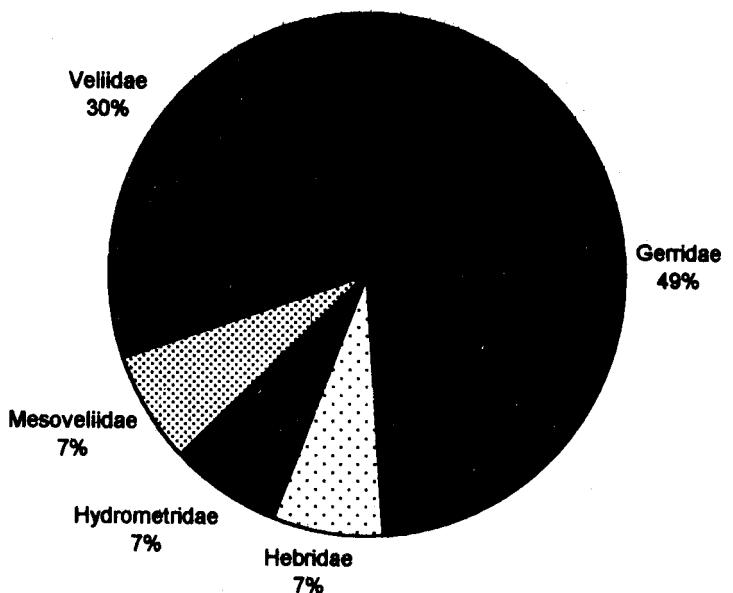


Figure 2. *Gerromorpha*

Number of species=43