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A CHECKLIST OF AQUATIC AND SEMIAQUATIC HEMIPTERA (INSECTA) OF MADHYA PRADESH

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INTRODUCTION

The aquatic and semi-aquatic groups of insects are highly specialized and constitute a significant level of diversity (Pennak, 1978; Ghosh, 1996). Among them, the aquatic and semi-aquatic heteropterans form food in different trophic levels of freshwater ecosystem. These bugs are overall indicators of long term environmental conditions and constitute integral components of almost all freshwater communities (Hynes, 1984; Patrick & Palavage, 1994; Ramakrishna, 2000). Because of their poor dispersal capabilities, this group of bugs serves as zoogeographical indicators for diverse habitats (Jordon, 1951; Hungerford & Matsuda, 1958). Further, some members belonging to the families of infraorder Nepomorpha are useful in the biological control of mosquito larvae (Jenkins, 1964). Besides, a few species of corixids are known as indicators of water quality. Moreover, studies also indicate that the quality of aquatic environment is partially dependent on the abundance of aquatic bug population (Murdoch, *et al.*, 1984; Thirumalai & Raghunathan, 1988). Thus, the inventerisation of aquatic insects becomes imperative to understand the functional aspects of community structure in any aquatic ecosystem and provides information of energy flow (Ananthakrishnan, 1989).

The aquatic and semi-aquatic fauna of India is represented by 79 genera and 284 species accommodated in 15 major families as against 302 genera and 3946 species in 19 recognized families globally (Thirumalai, 1999 & 2002, Thirumalai, 2007 and Thirumalai & Krishnan, press). The aquatic and semi-aquatic bugs of Madhya Pradesh belonging to the infraorders Gerromorpha and Nepomorpha received only rather cursory attention, limited to taxonomic preliminaries including recording of species from different parts of the state. However, the work of Agarker *et al.*, (1994) and Thirumalai (2002) throw some light on the fauna from the state. The present checklist includes the study of aquatic and semi-aquatic heteropterans collection present in Zoological Survey of India, Jabalpur

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which comprises of 57 species belonging to 27 genera accommodated in 13 families, revealing the rich diversity of aquatic and semi-aquatic bugs occurring in this table land of Central India. This study also records the occurrence of 3 families, Aphelocheiridae, Naucoridae, Ochteridae and 33 species first time from the state. Under each species citation of the original description and other accompanying work necessary to understand the taxon or its occurrence in India is also provided.

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

Family	Habitat	World	India	Madhya Pradesh
	Infraorder GERROMORPHA			
Gerridae	→ (water striders)-surface of fresh & brackish waters (sea)	696	79	11
Hebridae	→ (velvet water bugs)-marshes & wet riparian mosses Infraorder Nepomorpha	192	15	1
Hydrometridae	→ (water measurers)-surface of calm waters	125	3	1
Mesoveliidae	→ (water treaders)-vegetated banks of ponds & lakes	46	3	1
Veliidae	→ (riffle bugs)-surface of ponds & streams, also brackish	876	31	3
	Infraorder NEPOMORPHA			
Aphelocheiridae	→ (bottom bugs) lentic & lotic	63	5	1
Belostomatidae	→ (giant water bugs)-ponds, on vegetation	143	6	4
Corixidae	→ (water boatmen)-fresh & brackish lentic waters	552	48	10
Gelastocoridae	→ (toad bugs)-shorelines, in mud & plant debris	103	4	No report
Helotrephidae	→ (beetle back-swimmers) ponds & lakes, on vegetation	171	13	No report
Naucoridae	→ (creeping water bugs)-lentic & lotic, stones & vegetation	325	17	2
Nepidae	→ (water scorpions)-ponds, on vegetation	230	24	9
Notonectidae	→ (back-swimmers)-ponds and lakes	347	31	11
Ochteridae	→ (shore bugs)-stream margins, pond vegetation	36	1	1
Pleidae	→ (pygmy back-swimmers)-ponds & lakes, on vegetation	36	4	2

AQUATIC AND SEMI-AQUATIC HETEROPTERA OF MADHYA PRADESH

Order HEMIPTERA

Suborder HETEROPTERA

Infraorder GERROMORPHA POPOV, 1971

Superfamily MESOVELIOIDEA Douglas & Scott, 1867

Family MESOVELIIDAE Douglas & Scott, 1867

Subfamily MESOVELIINAE Douglas & Scott, 1867

Genus *Mesovelia* Mulsant & Rey, 18521. *Mesovelia vittigera* Horvath, 1895

1895. *Mesovelia vittigera* Horvath *Revue. ent.*, **14** : 160.
 1994. *Mesovelia vittigera* Horvath : Thirumalai, *Misc. Occ. Pap. Rec. zool. Surv. India*, **165** : 28.
 1903. *Mesovelia mulsanti* White : Distant, *Fauna British India*, **2** : 169.
 1901. *Mesovelia orientalis* Kirkaldy, *Annali Mus. civ. Stor. Nat. Giacomo Doria*, **20** : 808.
 2002. *Mesovelia vittigera* Horvath : Thirumalai, *Rec. zool. Surv. India*, **100** : 73.

Superfamily HYDROMETROIDEA Billberg, 1820

Family HYDROMETRIDAE Billberg, 1820

Subfamily HYDROMETRINAE Esaki, 1927

Genus *Hydrometra* Latreille, 17962. *Hydrometra greeni* Kirkaldy, 1898

1898. *Hydrometra greeni* Kirkaldy, *Entomologist*, **31** : 2.
 1994. *Hydrometra greeni* Kirkaldy : Thirumalai, *Misc. Occ. Pap. Rec. zool. Surv. India*, **165** : 29.
 1995. *Hydrometra greeni* Kirkaldy : Polhemus & Polhemus, *Bishop Mus. Occ. Pap.*, **43** : 22.
 2002. *Hydrometra greeni* Kirkaldy : Thirumalai, *Rec. zool. Surv. India*, **100** : 79.
 1903. *Hydrometra vittata* (Stål) : Distant, *Fauna British India*, **2** : 170.

Superfamily GERROIDEA Reuter, 1910

Family VELIIDAE Amyot & Serville, 1843

Subfamily MICROVELIINAE

Genus *Microvelia* Westwood, 1834Subgenus *Microvelia* Westwood, 18343. *Microvelia (Microvelia) annandalei* Distant, 1909

1909. *Microvelia annandalei* Distant., *Ann. Mag. nat. Hist.*, **3**(8) : 501.
 1989. *Microvelia annandalei* Distant : Thirumalai, *Misc. Occ. Pap. Rec. zool. Surv. India*, **118** : 52.
 2002. *Microvelia annandalei* Distant : Thirumalai, *Rec. zool. Surv. India*, **100** : 72.

Subgenus *Picaultia* Andersen & Weir, 20034. *Microvelia (Picaultia) douglasi* Scott, 1874

1874. *Microvelia douglasi* Scott, *Ann. Mag. nat. Hist.*, **14** : 448.
 1903. *Microvelia repentiana* Distant, *Fauna Brit. India*, **3** : 174.
 1909. *M. kumaonensis* Distant, *Ann. Mag. nat. Hist.*, **3(8)** : 500.
 1995. *Microvelia (Microvelia) douglasi* Scott : Andersen, *Cat. Het. Palaearctic Region*, **1** : 87.
 2002. *Microvelia (Microvelia) douglasi* Scott : Thirumalai, *Rec. zool. Surv. India*, **100** : 73.
 2003. *Microvelia (Picaultia) douglasi* Scott : Andersen and Weir. *Invertebrate Systematic*, **17** : 338.
 2006. *Microvelia (Picaultia) douglasi* Scott : Thirumalai & Suresh Kumar, *Zool. Surv. India Fauna of Conservation Area Series*, **27** : 79.

Subfamily RHAGOVELIINAE China & Usinger, 1949

Genus *Rhagovelia* Mayr, 1865Subgenus *Rhagovelia* Mayr, 18655. *Rhagovelia (Rhagovelia) ceylanica* Lundblad, 1936

1936. *Rhagovelia ceylanica* Lundblad, *Ark. Zool.*, **28(21)** : 32.
 1910. *Rhagovelia nigricans* (Burmeister) : Distant, *Fauna British India*, **5** : 132.
 1989. *R. (Rhagovelia) ceylanica* Lundblad : Thirumalai., *Misc. Occ. Pap. Rec. zool. Surv. India*, **118** : 51.
 1994. *R. (Rhagovelia) ceylanica* Lundblad : Thirumalai, *Rec. zool. Surv. India*, **94** : 386.
 2002. *R. (Rhagovelia) ceylanica* Lundblad : Thirumalai, *Rec. zool. Surv. India*, **100** : 75.

Family GERRIDAE

Subfamily GERRINAE

Genus *Aquarius* Schellenberg, 18006. *Aquarius adelaidis* (Dohrn, 1860)

1860. *Aquarius adelaidis* Dohrn., *Stettin. ent. Ztg.*, **21** : 408.
 1896. *Gerris spinolae* Leth. & Ser., *Cat. gen. Hemiptera*, **3** : 63.
 1903. *Gerris spinolae* Leth. & Ser. : Distant., *Fauna British India*, **2** : 180.
 1990. *Aquarius adelaidis* (Dohrn) : Andersen., *Steenstrupia*, **16(4)** : 61.
 1994. *Gerris spinolae* Leth. & Ser. : Agarker *et al.*, *Bionature*, **14** : 78.
 2002. *Aquarius adelaidis* (Dohrn) : Thirumalai., *Rec. zool. Surv. India*, **100(1-2)** : 60.

Genus *Neogerris* Matsumura, 19137. *Neogerris parvula* (Stål, 1859)

1859. *Gerris parvula* Stål, *Zoology*, **4** : 265.
 1934. *Limnogonus parvulus* (Stål) : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 384.

1959. *L. (Limnagonellus) parvulus* (Stål) : Hungerford & Matsuda, *J. Kans. Ent. Soc.*, **32**(1) : 41.
 1961. *L. (Neogerris) parvulus* (Stål) : Hungerford & Matsuda., *Insecta matsum.*, **24** : 114.
 1975. *Neogerris parvula* (Stål) : Andersen, 1975. *Ent. Scand. Suppl.*, **7** : 86.
 2002. *Neogerris parvula* (Stål) : Thirumalai, *Rec. zool. Surv. India*, **100**(1-2) : 63.
 1899. *Gerris tristan* Kirkaldy, *Revue. Ent.*, **18** : 88.

Genus *Limnagonus* Stål, 1868

Subgenus *Limnagonus* Stål, 1868

8. *Limnagonus (Limnagonus) nitidus* (Mayr, 1865)

1865. *Hydrometra nitida* Mayr, *Verh. zool.-bot. Ges. Wien*, **15** : 443.
 1903. *Gerris nitida* (Mayr) : Distant, *Fauna British India*, **2** : 178.
 1908. *Limnagonus nitidus* (Mayr) : Kirkaldy, *Wissenschaft Ergebn. der Schwed. Zool. Exped. nach dem Kilimandjaro*, **12** : 21.
 1975. *L. (Limnagonus) nitidus* (Mayr) : Andersen, *Ent. Scand. Suppl.*, **7** : 62.
 2002. *L. (Limnagonus) nitidus* (Mayr) : Thirumalai, *Rec. zool. Surv. India*, **100**(1-2) : 62.

9. *Limnagonus (Limnagonus) fossarum fossarum* (Fabricius, 1775)

1775. *Cimex fossarum* Fabricius, *Syst. Ent.*, 727.
 1903. *Gerris fossarum* (Fabricius) : Distant, *Fauna British India*, **2** : 178.
 1868. *Limnagonus fossarum* Stål, *K. Svenska Vetensk. Akad.*, **7** : 133.
 1975. *L. (L) fossarum* (Fabricius) : Andersen, *Ent. Scand. Suppl.*, **7** : 30;
 2002. *L. (L) fossarum* (Fabricius) : Thirumalai, *Rec. zool. Surv. India*, **100**(1-2) : 62.

Genus *Limnometra* Mayr, 1865

10. *Limnometra fluviorum* (Fabricius, 1798)

1798. *Cimex fluviorum* Fabricius, *Ent. Syst. Suppl.*, 543.
 1903. *Gerris fluviorum* (Fabricius) : Distant, *Fauna British India*, **2** : 177.
 1958. *Limnometra fluviorum* (Fabricius) : Hungerford & Matsuda, *Kans. Univ. Sci. Bull.*, **39** : 401.
 1960. *Tenagogonus (Limnometra) fluviorum* (Fab.) : Matsuda, *Kans. Univ. Sci. Bull.*, **41** : 206.
 2002. *Limnometra fluviorum* (Fabricius) : Thirumalai, *Rec. zool. Surv. India*, **100**(1-2) : 63.
 2006. *Limnometra fluviorum* (Fabricius) : Thirumalai & Suresh Kumar, *Zool. Surv. India Fauna of Conservation Area Series*, **27** : 24.
 1903. *Gerris armata* Spinola : Distant, *Fauna British India*, **2** : 180.

Subfamily EOTRECHINAE Matsuda, 1960

Genus *Amemboa* Esaki, 1925

Subgenus *Amemboa* Esaki, 1925

11. *Amemboa (Amemboa) kumari* (Distant, 1910)

1910. *Onychotrechus kumari* Distant, *Ann. Mag. nat. Hist.*, **5** : 145.
 1984. *Amemboa (Amemboa) kumari* (Distant) : Polhemus & Andersen, *Steenstrupia*, **10**(3) : 85.
 2002. *Amemboa (Amemboa) kumari* (Distant) : Thirumalai, *Rec. zool. Surv. India*, **100**(1-2) : 58.
 1950. *Amemboa pervati* Pradhan, *Rec. Indian Mus.*, **48**(3 & 4) : 12.

Subfamily CYLINDROSTETHINAE

Genus *Cylindrostethus* Mayr, 1865

12. *Cylindrostethus productus* (Spinola, 1840)

1840. *Gerris productus* Spinola, Esaki. *Sur less insectes hemipteres rhynchotes on heteropteres*, 64.
 1903. *Cylindrostethus productus* (Spinola) : Distant, *Fauna British India*, **2** : 184.
 1994. *Cylindrostethus productus* (Spinola) : Polhemus., *Bishop Mus. Occ. Pap.*, **38** : 10.
 2002. *Cylindrostethus productus* (Spinola) : Thirumalai., *Rec. zool. Surv. India*, **100**(1-2) : 58.
 2006. *Cylindrostethus productus* (Spinola) : Thirumalai & Suresh Kumar, *Zool. Surv. India Fauna of Conservation Area Series*, **27** : 73.
 1910. *Janias elegantulus* Distant., *Ann. Mag. nat. Hist.*, **5**(8) : 145.

Subfamily PTILOMERINAE

Genus *Ptilomera* Amyot & Serville, 1843

Subgenus *Ptilomera* Amyot & Serville, 1843

13. *Ptilomera (Ptilomera) agroides* Schmidt, 1926

1926. *Ptilomera agroides* Schmidt, *Ent. Mitt.*, **15**(1) : 63.
 1903. *Ptilomera laticaudata* (Hardwicke) : Distant, *Fauna Brit. India*, **2** : 185 (Fig : 133).
 1960. *Ptilomera (Ptilomera) agroides* Schmidt : Matsuda, *Kans. Univ. Sci. Bull.*, **41**(2) : 269.
 2002. *Ptilomera (Ptilomera) agroides* Schmidt : Thirumalai, *Rec. zool. Surv. India*, **100**(1-2) : 69.
 2006. *Ptilomera (Ptilomera) agroides* Schmidt : Thirumalai & Suresh Kumar, *Zool. Surv. India, Fauna of Conservation Area Series*, **27** : 77.
 1926. *Ptilomera lachne* Schmidt, *Ent. Mitt.*, **15**(1) : 64.

Genus *Stridulobates* Zettel & Thirumalai, 2001

14. *Stridulobates anderseni* Zettel & Thirumalai, 2001

2001. *Stridulobates anderseni* Zettel & Thirumalai, *Insect Syst. Evol.* : **31** : 434.
 2004. *Stridulobates anderseni* Zettel & Thirumalai : *Rec. zool. Surv. India*, **102**(1-2) : 62.
 2004. *Stridulobates anderseni* Zettel & Thirumalai : Thirumalai *et al.*, *Zool. Surv. India. Fauna of Conservation Area Series*, **20**, *Fauna of Pench National Park* : 248.

Subfamily HALOBATINAE

Tribe METROCORINI Matsuda, 1960

Genus *Metrocoris* Mayr, 186515. *Metrocoris communis* (Distant, 1910)

1910. *Euodus communis* Distant, *Ann. Mag. nat. Hist.*, **5**(8) : 151.
 1929. *Metrocoris communis* (Distant) : Esaki, *Ann. Mag. nat. Hist. Soc.*, **4**(10) : 419.
 1965. *Metrocoris communis* (Distant) : Den Boer, *Zool. Verh. Leiden.*, **74** : 13.
 1993. *Metrocoris communis* (Distant) : Chen & Nieser., *Steenstrupia*, **19**(2) : 49.
 2002. *Metrocoris communis* (Distant) : Thirumalai, *Rec. zool. Surv. India*, **100**(1-2) : 65.
 2006. *Metrocoris communis* (Distant) : Thirumalai & Suresh Kumar, *Zool. Surv. India Fauna of Conservation Area Series*, **27** : 77.

16. *Metrocoris communoides* Chen & Nieser, 1993

1993. *Metrocoris communoides* Chen & Nieser, *Steenstrupia*, **19**(2) : 51.
 2002. *Metrocoris communoides* Chen & Nieser : Thirumalai, *Rec. zool. Surv. India*, **100**(1-2) : 66.

Family HEBRIDAE

Subfamily HEBRINAE

Genus *Hebrus* Curtis, 1833Subgenus *Hebrus* Curtis, 183317. **Hebrus (Hebrus) orientalis* Distant, 1903

1903. *Hebrus orientalis* Distant : *Fauna British India*, **2** : 167.
 1994. *Hebrus orientalis* Distant : Agarker *et al.*, *Bionature*, **14** : 78.

*Agarkar *et al.*, (1994) identification of this species is doubtful. This species is known from Myanmar.

Infraorder NEPOMORPHA

Superfamily NEPOIDEA Latreille, 1802

Family BELOSTOMATIDAE Leach, 1815

Subfamily BELOSTOMATINAE Leach, 1815

Genus *Diplonychus* Laporte, 183318. *Diplonychus annulatus* (Fabricius, 1781)

1781. *Nepa annulata* Fabricius, *Carol. Ernest. Bokhni. Hamburgi et Kiloni*, 333.
 1832. *Belostoma marginata* Gray, *Griffith's Animal King., Insecta.*, **2** : 248.
 1833. *Sphaerodema rotundata* Laporte, *Systematique Hemipteres, zoologie, Paris* : 18.
 1863. *Sphaerodema annulatum* (Fabricius) : Dufour, *Ann. Soc. Entomol. France*, (4)**3** : 397.

1906. *Sphaerodema annulatum* (Fabricius) : Distant, *Fauna British India*, **3** : 35.
 1994. *Sphaerodema annulatum* (Fabricius) : Agarker *et al.*, *Bionature*, **14** : 77.
 1995. *Diplonychus annulatus* (Fabr.) : Polhemus *et al.*, *Proc. Entomol. Soc. Washington*, **97** : 651.
 2002. *Diplonychus annulatus* (Fabr.) : Thirumalai, Metha & Sharma, *Res. Bull. Panjab Univ.*, **52** : 157.
 1985. *Abedus sangameshwari* Rupavathi, *Ph.D Dissertation, Nagarjuna University, Andhra Pradesh*, 169.

19. *Diplonychus molestus* (Dufour, 1863)

1863. *Appasus molestum* Dufour, *Ann. Soc. Ent. France*, (4)**3** : 395.
 1871. *Diplonychus molestum* (Dufour) : Mayr, *Verh. zool.-bot. Ges. Wien*, **21** : 437.
 1906. *Sphaerodema molestum* (Dufour) : Distant, *Fauna British India Rhyn.*, **3** : 36.
 1947. *Sphaerodema molestum* (Dufour) : Hafiz and Pradhan, *Rec. Indian Mus.*, **45** : 374.
 2000. *Diplonychus molestus* (Dufour) : Ramakrishna, *Rec. Zool. Surv. India*, **98** : 183.
 2002. *Diplonychus molestus* (Dufour) : Thirumalai, Metha & Sharma, *Res. Bull. Panjab Univ.*, **52** : 157.
 2004. *Diplonychus molestus* (Dufour) : Bal & Basu, *Zool. Surv. India, State Fauna Series*, **10** : 302.
 1871. *Diplonychus subrhombus* Mayr, *Verh. zool.-bot. Ges. Wien*, **21** : 437.

20. *Diplonychus rusticus* (Fabricius, 1781)

1781. *Nepa rustica* Fabricius, *Species insectorum*, **2** : 333.
 1868. *Diplonychus rusticus* (Fab.) : Mayr *Zoolog. TeilWien*, 188.
 1871. *Diplonychus rusticum* (Fab.) : Mayr, *Verh. zool.-bot. Ges. Wien*, **21** : 437.
 1906. *Sphaerodema rusticum* (Fab.) : Distant, *Fauna British India*, **3** : 36.
 1915. *Sphaerodema rustica* (Fab.) : Bergroth, *J. Bombay nat. Hist.*, **24** : 179.
 1934. *Diplonychus rusticum* (Fab.) : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 55.
 1961. *Diplonychus rusticus* (Fab.) : Lauck & Menke., *Ann. Entomol. Soc. Amer.*, **54** : 649.
 1994. *Diplonychus rusticus* (Fab.) : Thirumalai, *Misc. Occ. Pap. Rec. Zool. Surv. India*, **165** : 25.
 1995. *Diplonychus rusticus* (Fab.) : Polhemus *et al.*, *Proc. Entomol. Soc. Wash.*, **97** : 651.
 2005. *Diplonychus rusticus* (Fab.) : Thirumalai & Suresh Kumar, *Rec. zool. Surv. India*, **105** : 13.
 1776. *Nepa plana* Sulzer, *abgek. Gesch. Insect*, 92.
 1863. *Appasus marginicollis* Dufour, *Ann. Soc. Ent. France*, (4)**3** : 393.
 1980. *Diplonychus indicus* Venkatesan & Rao, *J. Bombay. Nat. Hist. Soc.*, **77** : 299.

Subfamily LETHOCERINAE Lauck & Menke, 1961

Genus *Lethocerus* Mayr, 1853

Subgenus *Lethocerus* Mayr, 1853

21. *Lethocerus indicus* (Lepeletier & Serville, 1825)

1825. *Belostoma indica* Lepeletier & Serville, *Encycl. Meth.*, **X** : 272.
 1871. *Belostoma indicum* Lepeletier & Serville : Mayr, *Verh. zool.-bot. Ges. Wien*, **21** : 426.

1906. *Belostoma indicum* (Lepeletier & Serville) : Distant, *Fauna British India*, **3** : 38.
 1911. *Belostoma indica* Lepeletier & Serville : D'Abreu, *J. Bombay nat. Hist.*, **20** : 883.
 1934. *Lethocerus indicus* (Lep. & Serv.) : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 52.
 1939. *Lethocerus indicus* (Lep. & Serv.) : Hafiz & Ribeiro, *Rec. Indian Mus.*, **41**(4) : 432.
 2004. *Lethocerus indicus* (Lep. & Serv.) : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 67.
 1901. *Amorgius indicus* Kirkaldy, *Entomologist*, **34** : 51.

Family NEPIDAE Latreille, 1802

Subfamily NEPINAЕ Latreille, 1802

Tribe NEPINI Latreille, 1802

Genus *Laccotrephes* Stål, 1866

22. *Laccotrephes griseus* (Gúerin-Méneville, 1844)

1844. *Nepa griseus* Gúerin-Méneville, *Iconoogr. Regne. Anim. Ins.*, 352.
 1910. *Laccotrephes griseus* (Gúerin-Méneville) : Distant, *Fauna British India*, **5** : 314.
 1994. *Laccotrephes griseus* (Gúerin-Méneville) : Thirumalai, *Misc. Occ. Pap. Rec. Zool. Surv. India*, **165** : 21.
 2001. *Laccotrephes griseus* (Gúerin-Méneville) : Thirumalai, ZSI, *Fauna of Conservation Area*, **11** : 118.
 2004. *Laccotrephes griseus* (Gúerin-Méneville) : Thirumalai, *Rec. zool. Surv. India*, **102** : 66.
 2006. *Laccotrephes griseus* (Gúerin-Méneville) : Thirumalai & Suresh Kumar, *Rec. zool. Surv. India*, **105** : 11.

23. *Laccotrephes ruber* (Linnaeus, 1764)

1764. *Nepa ruber* Linnaeus, *Mus. Lud. Ulr.*, 165.
 1906. *Laccotrephes ruber* (Linn.) : Distant, *Fauna Brit. India*, **3** : 18.
 1981. *Laccotrephes robustus* Stål : Selvanayagam & Rao, *J. Bombay, Nat. Hist.*, **78** : 621.
 1994. *Laccotrephes ruber* (Linn.) : Thirumalai, *Misc. Occ. Pap. Rec. Zool. Surv. India*, **165** : 22.
 2004. *Laccotrephes ruber* (Linn.) : Bal & Basu, *Zool. Surv. India, State Fauna*, **10** : 298.
 2006. *Laccotrephes ruber* (Linn.) : Thirumalai & Suresh Kumar, *Rec. zool. Surv. India*, **105** : 11.

Subfamily RANATRINAE Douglas & Scott, 1865

Tribe RANATRINI Douglas & Scott, 1865

Genus *Cercotmetus* Amyot & Serville

24. *Cercotmetus brevipes* Montandon, 1909

1909. *Cercotmetus brevipes* Montandon, *Annl. Hist. Nat. Mus. nat. Hung.*, **7** : 65.
 1934. *Cercotmetus brevipes* Montandon : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 48.
 1973. *Cercotmetus brevipes* Montandon : Lansbury, *Tijdschrift Voor Entomol.*, **116** : 92.
 1995. *Cercotmetus brevipes* Montandon : Polhemus *et al.*, *Cat. Het. Palaearctic region*, **1** : 17.

25. *Cercotmetus fumosus* Distant, 1904

1904. *Cercotmetus fumosus* Distant, *Entomologist*, **37** : 278.
 1906. *Cercotmetus fumosus* Distant : *Fauna Brit. India*, **3** : 23.
 1947. *Cercotmetus fumosus* Distant : Hafiz & Pradhan, *Rec. Indian Mus.*, **45** : 361.
 1973. *Cercotmetus fumosus* Distant : Lansbury, *Tijdschrift Voor Entomol.*, **116** : 100.
 2001. *Cercotmetus fumosus* Distant : Thirumalai, ZSI, *Fauna of Conservation Area*, **11** : 118.

Genus *Ranatra* Fabricius, 1790

26. *Ranatra digitata* Hafiz & Pradhan, 1947

1947. *Ranatra digitata* Hafiz & Pradhan, *Rec. Indian Mus.*, **45** : 361.
 1972. *Ranatra digitata* Hafiz & Pradhan : Lansbury, *Trans. R.ent. Soc. Lond.*, **124** : 337.

27. *Ranatra elongata* Fabricius, 1790

1790. *Ranatra elongata* Fabricius, *Skrif. Nat. Selesk.*, **1** : 228.
 1906. *Ranatra elongata* Fabricius : Distant, *Fauna Brit. India*, **3** : 18.
 1947. *Ranatra elongata* Fabricius : Hafiz & Pradhan, *Rec. Indian Mus.*, **45** : 368.
 1972. *Ranatra elongata* Fabricius : Lansbury, *Trans. R. Ent. Soc. Lond.*, **124** : 306.
 1994. *Ranatra elongata* Fabricius : Thirumalai, *Misc. Occ. Pap. Rec. zool. Surv. India*, **165** : 22.
 2004. *Ranatra elongata* Fabricius : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 66.

28. *Ranatra filiformis* Fabricius, 1790

1790. *Ranatra filiformis* Fabricius, *Skrit. Nat. Selsk.*, **1** : 228.
 1906. *Ranatra filiformis* Fabricius : Distant, *Fauna British India*, **3** : 21.
 1972. *Ranatra filiformis* Fabricius : Lansbury, *Trans. R. Ent. Soc. Lond.*, **124** : 321.
 1994. *Ranatra filiformis* Fabricius : Thirumalai, *Misc. Occ. Pap. Rec. zool. Surv. India*, **165** : 22.
 2001. *Ranatra filiformis* Fabricius : Thirumalai, ZSI, *Fauna of Conservation Area*, **11** : 118.
 1860. *Ranatra sordidula* Dohrn, *Stett. ent. Zeit.*, **21** : 409.

29. *Ranatra titilaensis* Hafiz & Pradhan, 1947

1947. *Ranatra titilaensis* Hafiz & Pradhan, *Rec. Indian Mus.*, (**45**) : 369.
 1972. *Ranatra titilaensis* Hafiz & Pradhan : Lansbury, *Trans. R. Ent. Soc. Lond.*, **124** : 338.

30. *Ranatra varipes atrophha* Montandon, 1903

1903. *Ranatra atrophha* Montandon, *Bull. Soc. Sci. Bucarest*, **12** : 105.
 1907. *Ranatra varipes atrophha* Montandon, *Ann. Soc. Ent. France*, **76** : 57.
 1972. *Ranatra varipes* var *atrophha* Mayr : Lansbury, *Trans. R. Ent. Soc. Lond.*, **124** : 317.
 1998. *Ranatra varipes atrophha* Montandon : Nieser & Polhemus, *Amemboa*, **2** : 22.
 2005. *Ranatra varipes atrophha* Montandon : Thirumalai & Suresh Kumar, *Rec. zool. Surv. India*, **105** : 12.

Superfamily OCHTEROIDEA Kirkaldy, 1906

Family OCHTERIDAE Kirkaldy, 1906

Genus *Ochterus* Latreille, 1807

Subgenus *Ochterus* Latreille, 1807

31. *Ochterus marginatus marginatus* (Latreille, 1804)

1804. *Acanthia marginata* Latreille, *Hist. Nat. Crust. Ins. Paris*, **12** : 242.
 1807. *Pelogonus marginatus* Latreille, *Gen. Crust. Ins. Paris*, **3** : 143.
 1910. *Pelogonus marginatus* (Latreille) : Distant, *Fauna British India*, **5** : 310.
 1934. *Ochterus marginatus marginatus* (Latreille) : Jaczewski, *Ann. Mag. nat. Hist.*, **13** : 602.
 1971. *Ochterus marginatus* (Latreille) : Kormilev, *Pac. Ins.*, **13** : 433.
 1989. *Ochterus marginatus marginatus* (Latreille) : Thirumalai, *Misc. Occ. Pap. Rec. zool. Surv. India*, **118** : 9.
 2001. *Ochterus marginatus marginatus* (Latreille) : Thirumalai, *Fauna Conservation Area Series*, **11** : 113.
 2004. *Ochterus marginatus* (Latreille) : Bal & Basu, *State Fauna Series*, **10** : 295.
 1874. *Pelogonus flavomarginatus* Scott, *Ann. Mag. nat. Hist.*, **14** : 446.
 1915. *Pelogonus formosanus* Matsumura, *Ent. Mag. Kyoto*, **1** : 103.

Superfamily CORIXOIDEA Leach, 1815

Family CORIXIDAE Leach, 1815

Subfamily CORIXINAE Leach, 1815

Genus *Sigara* Fabricius, 1775

Subgenus *Tropocorixa* Hutchinson, 1940

32. *Sigara (Tropocorixa) distorta* (Distant, 1910)

1910. *Corixa distorta* Distant, *Fauna British India*, **5** : 343.
 1933. *Sigara distorta* (Distant) : Hutchinson, *Rec. Indian Mus.*, **35** : 403.
 1940. *Corixa (Tropocorixa) distorta* Distant : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 440.
 1947. *Corixa (Tropocorixa) distorta* Distant : Hafiz & Pradhan, *Rec. Indian Mus.*, **45** : 356.
 1994. *Corixa distorta* Distant : Agarker *et al.*, *Bionature*, **14** : 78.
 1995. *Sigara (Tropocorixa) distorta* (Distant) : Polhemus *et al.*, *Cat. Het. Palaerctic Region*, **1** : 54.
 2004. *Corixa (Tropocorixa) distorta* Distant : Bal & Basu, *Zool. Surv. India, State Fauna Series*, **10** : 297.
 1910. *Corixa affinis* Distant, *Fauna British India*, **5** : 341.
 1910. *Corixa verecunda* Distant, *Fauna British India*, **5** : 344.

33. *Sigara (Tropocorixa) graveleyi* (Hutchinson, 1940)

1940. *Corixa (Tropocorixa) graveleyi* Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 453.
 1989. *Corixa (Tropocorixa) graveleyi* Hutchinson : Thirumalai, *Misc. Occ. Pap. Rec. zool. Surv. India*, **118** : 12.

2001. *Sigara (Tropocorixa) graveleyi* Hutchinson : Thirumalai, *Fauna Conservation area*, **11** : 113.
 2005. *Sigara (Tropocorixa) graveleyi* Hutchinson : Thirumalai & Sharma, *Zool. Surv. India, Conservation area Series*, **24** : 351.
 1910. *Corixa lima* Distant, *Fauna British India*, **5** : 342.

Subfamily MICRONECTINAE Jaczewski, 1924

Genus *Micronecta* Kirkaldy, 1897

Subgenus *Basilonecta* Hutchinson, 1940

34. *Micronecta (Basilonecta) scutellaris scutellaris* (Stål, 1858)

1858. *Sigra scutellaris* Stål, *Vetens akad. Forh.*, **15** : 319.
 1940. *Micronecta (Basilonecta) scutellaris scutellaris* (Stål) : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 365.
 1940. *Micronecta scutellaris pseudostriata* Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 371.
 1947. *Micronecta (Basilonecta) scutellaris scutellaris* (Stål) : Hafiz and Pradhan, *Rec. Indian. Mus.*, **45** : 354.
 1994. *Micronecta (Basilonecta) scutellaris scutellaris* (Stål) : Thirumalai, *Misc. Occ. Pap. Rec. Zool. Surv. India*, **165** : 9.
 1997. *Micronecta scutellaris* (Stål) : Sarala & Venkatesan, *Hexapoda*, **9** : 41.
 2004. *Micronecta (Basilonecta) scutellaris scutellaris* (Stål) : Thirumalai, *Rec. Zool. Surv. India*, **102** : 68.
 2005. *Micronecta (Basilonecta) scutellaris scutellaris* (Stål) : Thirumalai & Sharma, *Zool. Surv. India, Fauna of Melghat Tiger Reserve Conservation area Series*, **24** : 352.
 1908. *Micronecta malabarica* Kirkaldy, *Canad. Ent.*, **40** : 209.
 1910. *Micronecta dione* Distant, *Fauna Brit. India*, **5** : 348.
 1910. *Micronecta proba* Distant, *Fauna Brit. India*, **5** : 348.

Subgenus *Dichaetonecta* Hutchinson, 1940

35. *Micronecta (Dichaetonecta) albifrons* (Motschoulsky, 1863)

1863. *Corixa albifrons* Motschoulsky, *Bull. Soc. Nat. Moscou*, **36** : 94.
 1897. *Sigara albifrons* (Motschoulsky) : Kirkaldy, *Entomologist*, **30** : 240.
 1940. *Micronecta (Dichaetonecta) albifrons* (Motschoulsky) : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 379.
 1940. *Micronecta (Dichaetonecta) albifrons albifrons* (Motschoulsky) : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 380.
 1940. *Micronecta (Dichaetonecta) albifrons albifrons* trans ad *striatella* Lundblad : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 381.
 1940. *M. albifrons striatella* Lundblad : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 382.
 1960. *Micronecta albifrons* (Motschoulsky) : Chen, *J. Kans. ent. Soc.*, **33** : 116.29.
 1999. *Micronecta (Dichaetonecta) albifrons* (Motschoulsky) : Thirumalai, *Zoos Print J.*, **1-10** : 132.

1999. *Micronecta albifrons* (Motschoulsky) : Nieser, *Amemboa*, **3** : 11.

1910. *Micronecta lucina* Distant, *Fauna Brit. India*, **5** : 345.

1960. *Micronecta fascioclavus* Chen, *J. Kans. ent. Soc.*, **33** : 108.

36. *Micronecta (Dichaetonecta) prashadana* Hutchinson, 1940

1940. *Micronecta (Dichaetonecta) prashadana* Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 387.

1950. *Micronecta (Dichaetonecta) prashadana* Hutchinson : Pradhan, *Rec. Indian Mus.*, **48** : 102.

1972. *Micronecta prashadana* Hutchinson : Wróblewski, *Bull. Entomol. Pologne.*, **42** : 16.

1989. *Micronecta (Dichaetonecta) prashadana* Hutchinson : Thirumalai, *Misc. Occ. Pap. Rec. Zool. Surv. India*, **118** : 15.

2001. *Micronecta (Dichaetonecta) prashadana* Hutchinson : Thirumalai, *Fauna conservation area*, **11** : 114.

2004. *Micronecta (Dichaetonecta) prashadana* Hutchinson : Thirumalai, *Rec. Zool. Surv. India*, **102** : 69.

Subgenus *Indonectella* Hutchinson, 1940

37. *Micronecta (Indonectella) grisea* (Fieber, 1844)

1844. *Sigara grisea* Fieber, *Entomol. Mono. Leipzig*, 14.

1968. *Micronecta (Indonectella) grisea* (Fieber) : Wróblewski, *Bull. Entomol. Pologne.*, **38** : 773.

1972. *Micronecta grisea* (Fieber) : Wróblewski, *Bull. Entomol. Pologne.*, **42** : 23. *India*, **118** : 13.

1995. *Micronecta (Indonectella) grisea* (Fieber) : Polhemus *et al.*, *Cat. Het. Palaerctic region*, **1** : 30.

2002. *Micronecta grisea* (Fieber) : Nieser, *Raffles Bull. Zoology*, **50** : 267.

2004. *Micronecta (Indonectella) grisea* (Fieber) : Thirumalai, *Rec. zool. Surv. India*, **102** : 69.

1910. *Micronecta thyesta* Distant, *Fauna Brit. India*, **5** : 349.

1940. *Micronecta (Indonectella) thyesta* Distant : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 363.

1960. *Micronecta (Indonectella) thyesta* Distant : Chen, *J. Kans. ent. Soc.*, **33** : 117.

1968. *Micronecta (Indonectella) thyesta* Distant : Wróblewski, *Bull. Entomol. Pologne.*, **38** : 772.

1994. *Micronecta (Indonectella) thyesta* Distant : Thirumalai, *Misc. Occ. Pap. Rec. zool. Surv. India*. **165** : 8.

2001. *Micronecta (Indonectella) thyesta* Distant : Thirumalai, *ZSI. Fauna Conservation area*, **11** : 115.

Subgenus *Pardanecta* Wroblewski, 1962

38. *Micronecta (Pardanecta) punctata* Horvath, 1904

1904. *Micronecta haliploides* Horvath, *Ann. Hist. Nat. Mus. Hung.*, **2** : 594.

1934. *Micronecta haliploides* Horvath : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 104.

1940. *Micronecta (Dichaetonecta) haliploides* Horvath : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 377.

1960. *Micronecta punctata* Fieber : Chen, *J. Kans. ent. Soc.*, **33** : 117.

1977. *Micronecta haliploides* Horvath : Julka, *Oriental Insects*, **11** : 141.

1999. *Micronecta (Pardanecta) haliploides* Horvath : Nieser, *Amemboa*, **3** : 9.

2002. *Micronecta haliploides* Horvath : Nieser, *Raffles Bull. Zoology*, **50** : 267.
2002. *Micronecta (Pardanecta) punctata* Fieber : Thirumalai, *Vistas Entomological Research New Millenium*, **25**.
2004. *Micronecta (Dichaetonecta) haliploides* Horvath : Bal & Basu, *Zool. Surv. India, State Fauna Series*, **10** : 296.
1905. *Micronecta inflatula* Breddin, *Soc. Ent. Zurich*, **20** : 57.
1905. *Micronecta pardalina* Breddin, *Soc. Ent. Zurich*, **20** : 57.
1910. *Micronecta merope* Distant, *Fauna Brit. India*, **5** : 351.

Note : Fieber, 1844 described *Micronecta punctata* in *Sigara* Illiger, 1807 described what is now *Corixa punctata* in *Sigara* so the epitheton *punctata* is not available for *M. punctata* and the next available name should be used *i.e.* *M. haliploides* Horvath, 1904 (Nieser, Personal communication, 2006).

Subgenus *Micronecta* Kirkaldy, 1897

39. *Micronecta (Micronecta) anatolica anatolica* Lindberg, 1922

1922. *Micronecta anatolica* Lindberg, *Not. Ent. Helsingfors*, **2** : 116; *Sci.*, **33** : 359.
1962. *Micronecta anatolica* Lindberg : Wróblewski, *Bull. Acad. Polon. Sci., CI II*, **10** : 33.
1968. *Micronecta anatolica* Lindberg : Wróblewski, *Bull. Entomol. Pologne*, **38** : 754.
1999. *Micronecta anatolica* Lindberg : Nieser, *Amemboa*, **3** : 11.
2002. *Micronecta anatolica* Lindberg : Thirumalai, *Vistas Entomological Research New Millenium*, **25**.
1940. *Micronecta (Micronecta) wui kashmirica* Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 356.
1940. *Micronecta (Micronecta) wui wui trans. ad. kashmirica* Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 358.
1940. *Micronecta (Micronecta)*. cf. *wui. kashmirica* and *poweri* Hutchinson, *Trans. Connecticut Acad. Art.*
1988. *Micronecta wui* Lundblad : Bisht, *Recent Adv. Fish Ecol. Limnology & Conservation*, **124**.

Subgenus *Sigmonecta* Wroblewski, 1962

40. *Micronecta (Sigmonecta) quadririgata* Breddin, 1905

1905. *Micronecta quadririgata* Breddin., *Soc. Ent. Zurich*, **20** : 57.
1940. *Micronecta (Basileonecta) quadririgata* Breddin : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 376.
1947. *Micronecta (Basilonecta) quadririgata* Breddin : Hafiz and Pradhan, *Rec. Indian. Mus.*, **45** : 355.
1962. *Micronecta (Sigmonecta) quadririgata* Breddin : Wróblewski, *Bull. Acad. Pol. Sc. II. Warszawa*, **10** : 176.
1972. *Micronecta (Sigmonecta) quadririgata* Breddin : Wróblewski, *Bull. Entomol. Pologne*, **42** : 29.
1983. *Micronecta quadririgata* Breddin : Rupavathi & Radhakrishna, *J. Aqua. Biol.*, **1** : 66.
1994. *Micronecta (Sigmonecta) quadririgata* Breddin : Thirumalai, *Misc. Occ. Pap. Rec. zool. Surv. India*, **165** : 8.

2000. *Micronecta (Sigmonecta) quadristrigata* Breddin : Ramakrishna, *Rec. Zool. Surv. India*, **98** : 183.
 2002. *Micronecta (Sigmonecta) quadristrigata* Breddin : Nieser, *Raffles Bull. Zoology*, **50** : 269.
 2004. *Micronecta (Sigmonecta) quadristrigata* Breddin : Thirumalai, *Rec. zool. Surv. India*, **102** : 70.
 2006. *Micronecta (Sigmonecta) quadristrigata* Breddin : Thirumalai & Sureshkumar, *ZSI. Fauna of Biligiri Rangaswamy Temple Wildlife Sanctuary, Conservation Area Series*, **27** : 71.
 1910. *Micronecta minthe* Distant, *Fauna Brit. India*, **5** : 347.

Position of the subgenus of the following species is not clear

41. *Micronecta tarsalis* Chen, 1960

1960. *Micronecta tarsalis* Chen, *J. Kans. ent. Soc.*, **33** : 114.
 1968. *Micronecta tarsalis* Chen : Wróblewski, *Bull. Entomol. Pologne*, **38** : 761.
 1972. *Micronecta tarsalis* Chen : Wróblewski, *Bull. Entomol. Pologne*, **42** : 40.
 2002. *Micronecta tarsalis* Chen : Nieser, *Raffles Bull. Zoology*, **50** : 270.
 2007. *Micronecta tarsalis* Chen : Thirumalai, *Rec. zool. Surv. India, Misc. Occ. Pap.*, **273** : 31.

Superfamily NAUCOROIDEA Leach, 1815

Family APHELOCHEIRIDAE Fieber, 1851

Genus *Aphelocheirus* Westwood, 1833

Subgenus *Aphelocheirus* Westwood, 1833

42. *Aphelocheirus (Aphelocheirus)* sp. could turn out new to science

Family NAUCORIDAE Leach, 1815

Subfamily LACCOCORINAE Stål, 1876

Genus *Heleocoris* Stål, 1876

Subgenus *Heleocoris* Stål, 1876

43. *Heleocoris (Heleocoris) bengalensis bengalensis* Montandon, 1910

1910. *Heleocoris bengalensis* Montandon, *Bull. Soc. Sci. Bucarest*, **19** : 653.
 1910. *Heleocoris bengalensis* Montandon : Distant, *Fauna British India*, **5** : 323.
 1950. *Heleocoris bengalensis* Montandon : Pradhan, *Rec. Indian Mus.*, **48** : 102.
 1971. *Heleocoris bengalensis bengalensis* Montandon : La Rivers, *Biol. Soc. Nev. Mem.*, **2** : 78.

44. *Heleocoris (Heleocoris) elongatus* Montandon, 1897

1897. *Heleocoris elongatus* Montandon, *Ann. Soc. Ent. Belg.*, **41** : 59.
 1906. *Heleocoris elongatus* Montandon : Distant, *Fauna British India*, **3** : 31.
 1910. *Heleocoris elongatus* Montandon : Distant, *Fauna British India*, **5** : 324.
 1919. *Heleocoris elongatus* Montandon : Paiva, *Rec. Indian Mus.*, **16** : 154.
 1971. *Heleocoris elongatus* Montandon : La Rivers, *Biol. Soc. Nev. Mem.*, **2** : 78.

Superfamily NOTONECTOIDEA Latreille, 1802

Family NOTONECTIDAE Latreille, 1802

Subfamily ANISOPINAE Hutchinson, 1929

Tribe ANISOPINI Hutchinson, 1929

Genus *Anisops* Spinola, 1837

45. *Anisops barbatus* Brooks, 1951

1951. *Anisops barbata* Brooks, Kan. Univ. Sci. Bull., **34** : 387.
 1994. *Anisops barbata* Brooks : Thirumalai, Misc. Occ. Pap. Rec. zool. Surv. India, **165** : 13.
 1995. *Anisops barbatus* Brooks : Polhemus *et al.*, Cat. Heteroptera Palaearctic region, **1** : 64.
 2004. *Anisops barbatus* Brooks : Thirumalai, Rec. zool. Surv. India, **102**(1-2) : 65.
 2004. *Anisops barbatus* Brooks : Nieser, Raff. Bull. Zoology, **52** : 84.

46. *Anisops bouvieri* Kirkaldy, 1904

1904. *Anisops bouvieri* Kirkaldy, Wiener Ent. Zeit., **23** : 116.
 1951. *Anisops bouvieri* Kirkaldy : Brooks, Kans univ. Sci. Bull., **34** : 430.
 2004. *Anisops bouvieri* Kirkaldy : Thirumalai, Rec. zool. Surv. India, **102**(1-2) : 65.
 2004. *Anisops bouvieri* Kirkaldy : Nieser, Raff. Bull. Zoology, **52** : 85.

47. *Anisops breddini* Kirkaldy, 1901

1901. *Anisops breddini* Kirkaldy, Entomologist, London, **34** : 5.
 1951. *Anisops breddeni* Kirkaldy : Brooks, Kans univ. Sci. Bull., **34** : 439.
 1991. *Anisops breddini* Kirkaldy : Polhemus., J. Kans. Entomol. Soc., **64** : 442.
 1997. *Anisops breddini* Kirkaldy : Bal & Basu, Zool. Surv. India, State Fauna Series, **6** : 273.
 2004. *Anisops breddini* Kirkaldy : Nieser, Raff. Bull. Zoology, **52** : 85.
 1951. *Anisops kempi* Brooks, Kans. Univ. Sci. Bull., **34** : 441.
 1964. *Anisops kempi* Brooks : Lansbury., Ann. zool. Warszawa, **22** : 215.

48. *Anisops cavifrons* Brooks, 1951

1951. *Anisops cavifrons* Brooks, Kans. Univ. Sci. Bull., **34** : 418;
 1994. *Anisops cavifrons* Brooks : Thirumalai, Misc. Occ. Pap. Rec. Zool. Surv. India, **165** : 16.
 2004. *Anisops cavifrons* Brooks : Thirumalai, Rec. zool. Surv. India, **102**(1-2) : 65.

49. *Anisops exiguus* Horvath, 1919

1919. *Anisops exigua* Horvath, Abhandl. Senckenberg. Naturf. Gesell., **35** : 314.
 1951. *Anisops exigera* Horvath : Brooks, Univ. Kans. Sci. Bull., **34** : 447.
 1991. *Anisops exigua* Horvath : Polhemus, J. Kans. Ento. Soc., **64** : 442.

1994. *Anisops exigera* Horvath : Thirumalai, *Misc. Occ. Pap. Rec. zool. Surv. India*, **165** : 16.
 1995. *Anisops exiguus* Horvath : Polhemus *et al.*, *Cat. Het. Palaearctic region*, **1** : 65.
 2002. *Anisops exiguus* Horvath : Thirumalai, Metha & Sharma, *Res. Bull. Panjab Univ.*, **52** : 156.
 2004. *Anisops exiguus* Horvath : Nieser, *Raff. Bull. Zoology*, **52** : 86.

50. *Anisops naustus* Fieber, 1851

1851. *Anisops nausta* Fieber, *Abhandl. Konigl. bohm. Ges. Wiss.*, **7** : 484-485.
 1947. *Anisops nausta* Fieber : Hafiz, H.A. and K.S. Pradhan *Rec. Indian. Mus.*, **45** : 352.
 1951. *Anisops nausta* Fieber : Brooks, *Kans. Univ. Sci. Bull.*, **34** : 416.
 1994. *Anisops nausta* Fieber : Agarker *et al.*, *Bionature*, **14** : 79.
 2004. *Anisops naustus* Fieber : Nieser, *Raff. Bull. Zoology*, **52** : 87.
 1906. *Anisops fieberi* Kirkaldy : *Distant, Fauna British India*, **3** : 46.

51. *Anisops nigrolineatus* Lundblad, 1934

1934. *Anisops nigrolineata* Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 160.
 1951. *Anisops nigrolineata* Lundblad : Brooks, *Kans. Univ. Sci. Bull.*, **34** : 409.
 1995. *Anisops nigrolineatus* Lundblad : Polhemus *et al.*, *Cat. Het. Palaerctic region*, **1** : 65.
 2004. *Anisops nigrolineatus* Lundblad : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 65.
 2004. *Anisops nigrolineatus* Lundblad : Nieser, *Raff. Bull. Zoology*, **52** : 88.

52. *Anisops niveus* (Fabricius, 1775)

1775. *Notonecta nivea* Fabricius, *Systema Entomologiae, Flensburgi et Lipsiae*, 690.
 1851. *Anisops niveus* (Fabricius) : Fieber, *Abhandl. Konigl. bohm. Ges. Wiss.*, **7** : 484.
 1934. *Anisops nivea* (Fabricius) : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 163.
 1947. *Anisops (Anisops) nivea* (Fabricius) : Hafiz & Pradhan., *Rec. Indian Mus.*, **45** : 353.
 1951. *Anisops nivea* (Fabricius) : Brooks, *Kans. Univ. Sci. Bull.*, **34** : 373.
 2001. *Anisops nivea* (Fabricius) : Thirumalai, *Fauna conservation area*, **11** : 117.
 2004. *Anisops niveus* (Fabricius) : Nieser, *Raff. Bull. Zoology*, **52** : 88.

53. *Anisops sardeus sardeus* Herrich-Shaffer, 1850

1850. *Anisops sardeus* Herrich-Shaffer, *Die wanzenartigen Insecten*, **9** : 41.
 1906. *Anisops sardeus* Herrich-Shaffer : Distant, *Fauna British India*, **3** : 45.
 1951. *Anisops sardeus* Herrich-Shaffer : Brooks., *Univ. Kans. Sci. Bull.*, **34** : 423.
 1989. *Anisops sardea* Herrich-Shaffer : Thirumalai, *Misc. Occ. Pap. Rec. zool. Surv. India*, **118** : 26
 1995. *Anisops sardeus sardeus* Herrich-Shaffer : Polhemus *et al.*, *Cat. Het. Palaerctic region*, **1** : 66.

Subfamily NOTONECTINAE Latreille, 1802

Tribe NOTONECTINI Latreille, 1802

Genus *Enithares* Spinola, 183754. *Enithares ciliata* (Fabricius, 1798)

1798. *Notonecta ciliata* Fabricius, *Suppl. Ent. Syst.*, 524.
 1959. *Enithares ciliata* (Fabricius) : Baid, *J. Bombay nat. Hist.*, **56** : 362.
 1968. *Enithares ciliata* (Fabricius) : Lansbury, *Pacific Insects*, **10** : 413.
 2001. *Enithares ciliata* (Fabricius) : Thirumalai, *Fauna conservation area*, **11** : 115.
 2004. *Enithares ciliata* (Fabricius) : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 65.
 1891. *Notonecta abbreviata* Kirby, *J. Linn. Soc. London*, **24** : 126.
 1906. *Enithares indica* Spinola : Distant, *Fauna British India*, **3** : 42.
 1910. *Enithares paviana* Distant, *Fauna British India*, **5** : 329.
 1919. *Enithares laceta* Paiva., *Rec. Indian Mus.*, **16** : 155.

55. *Enithares fusca* Brooks, 1948

1948. *Enithares fusca* Brooks, *J. Kans. Ent. Soc.*, **21** : 46.
 1968. *Enithares fusca* Brooks : Lansbury, *Pacif. Insects*, **10** : 412.
 2001. *Enithares fusca* Brooks : Thirumalai, *ZSI. Fauna Conservation area*, **11** : 115.
 2004. *Enithares fusca* Brooks : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 65.

Superfamily PLEOIDEA Fieber, 1851

Family PLEIDAE Fieber, 1851

Genus *Paraplea* Esaki & China, 192856. *Paraplea frontalis* (Fieber, 1844)

1844. *Plea frontalis* Fieber, *Entomologische Monographien, Leipzig* : 18.
 1898. *Plea frontalis* Fieber : Kirkaldy, *Wien. ent. Zeit.*, **17** : 141.
 1906. *Plea frontalis* (Fieber) : Distant, *Fauna British India*, **3** : 48.
 1934. *Plea (Paraplea) frontalis* (Fieber) : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 138.
 1947. *Plea (Paraplea) frontalis* (Fieber) : Hafiz & Pradhan, *Rec. Indian Mus.*, **45** : 349.
 1989. *Plea frontalis* (Fieber) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.*, **118** : 19.
 1989. *Plea frontalis* (Fieber) : Benzie, *Hydrobiologia*, **179** : 157.
 1995. *Paraplea frontalis* (Fieber) : Polhemus *et al.*, *Cat. Het. Palaerctic region*, **1** : 74.
 2002. *Paraplea frontalis* (Fieber) : Thirumalai & Ramakrishna, *Rec. Zool. Surv. India*, **100** : 107.
 2006. *Paraplea frontalis* (Fieber) : Thirumalai & Sureshkumar, *Rec. Zool. Surv. India*, **105** : 9.
 1910. *Plea pelopea* Distant, *Fauna British India*, **5** : 336.
 1934. *Plea (Paraplea) quinque maculata* Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 135.

57. *Paraplea liturata* (Fieber, 1844)

- 1844b. *Ploa frontalis* Fieber, *Entomologische Monographien, Leipzig* : 19.
 1906. *Plea, liturata* (Fieber) : Distant, *Fauna British India*, **3** : 47.
 1934. *Paraplea liturata* (Fieber) : Lunblad, *Arch. Hydrobiol. Suppl.*, **12** : 129.
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 1910. *Plea metiadusa* Distant, *Fauna British India*, **5** : 337.

DISCUSSION

Information on families, habitats, species of Gerromorpha and Nepomorpha known from world, India and Madhya Pradesh are provided in the table 1. As checklists of provincial area is of immense value in diversity studies (Daniels, 1997), this account provides a baseline data to the functional aspects of freshwater communities and to dispel taxonomic uncertainties existing at various levels.

The present study also records three families of nepomorphan bugs, Aphelocheiridae, Naucoridae and Ochteridae first time from the state. It is interesting to note that the family Aphelocheiridae, so far known from Southern Western Ghats and Eastern Himalaya, is recorded from the state and the species could turn out new to science (Zettel, 2007 personal communication). The occurrence of *Stridulobates andersoni* hitherto, known from Southern Western Ghats and Satpura range in Western India is a note worthy finding from this table land of Central India. The presence of *Ptilomera (Ptilomera) agroides*, a common torrential 'water strider' of Western Ghats, exhibits an extended distribution to this Gondwana land. These findings support the Satpura hypothesis of Hora (1949), put forward to explain disjunct distribution in wet-zone species. Hora (1949) postulated that the wet-zone species colonized southern India by way of once continuous corridor of tropical evergreen forests from Eastern Himalaya across Vindhya-Satpura ranges to the Western Ghats of South India (Karanth, 2003).

The present checklist documents 33 species of aquatic & semi aquatic bugs for the first time from the state viz. (*Amemboa (Amemboa) kumari*, *Hydrometra greeni*, *Limnogonus (Limnogonus) nitidus*, *Limnometra fluviorum*, *Mesovelgia vittigera*, *Metrocoris communis*, *Metrocoris communoides*, *Microvelia (Microvelia) annandalei*, *Microvelia (Picaultia) douglasi*, *Neogerris parvula*, *Ptilomera (Ptilomera) agroides*, *Rhagovelia (Rhagovelia) ceylanica*, *Stridulobates anderseni*, *Anisops cavifrons*, *Anisops nigrolineatus*, *Anisops niveus*, *Aphelocheirus (Aphelocheirus) sp.* {could turn out new to science} *Cercotmetus brevipes*, *Cercotmetus fumosus*, *Enithares ciliata*, *Enithares fusca*, *Heleocoris (Heleocoris) bengalensis bengalensis*, *Heleocoris (Heleocoris) elongatus*, *Micronecta (Dichaetonecta) albifrons*, *Micronecta (Dichaetonecta) prashadana*, *Micronecta (Indonectella)*

grisea, *Micronecta* (*Micronecta*) *anatolica anatolica*, *Micronecta tarsalis*, *Ochterus marginatus marginatus*, *Ranatra digitata*, *Ranatra titilaensis*, *Sigara* (*Tropocorixa*) *graveleyi*, *Paraplea frontalis*). The study forms the authentic report of all the known five families of Gerromorpha from the state. Out of 3000 species of Indian freshwater insects (Alfred and Nandi, 2001), the aquatic and semi-aquatic bugs constitute 9.5%. The present checklist of 57 species belonging to 13 families from Madhya Pradesh constitutes 20.1% of Indian occurrence reiterates the necessity to explore the group intensively.

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