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AQUATIC AND SEMI-AQUATIC HEMIPTERA (HETEROPTERA : INSECTA) OF KARAIKAL AND PONDICHERRY

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INTRODUCTION

The information available on aquatic and semi-aquatic Hemiptera indicate that not much is known about the group from Karaikal and Pondicherry except for recording a few species by Distant (1903, 06, 10b). While studying Gerromorpha of India, Thirumalai (2002) recorded 7 species accommodated under 3 families. The present study material has been collected from diverse habitats such as ponds, pools, puddles, river and other wetlands of the State collected by the Southern Regional Station of Zoological Survey of India during 1991-1992. In the present report the authors have studied 20 species and 15 genera accommodated under 9 families. The descriptive account of each species includes the synonymy, other accompanying work necessary to understand the taxon, the diagnostic characters and the details of their distribution. A key to the families of aquatic and semi aquatic Hemiptera from Karaikal and Pondicherry so far known is also given. A systematic index is provided below to all the species so far known.

KEY TO THE FAMILIES OF AQUATIC AND SEMI-AQUATIC HETEROPTERA OF PONDICHERRY STATE

1. Antenna conspicuous and visible in dorsal view; inserted in front of eyes, and longer than head; lives on the surface of water, walking or skating; wingless & winged forms (semi-aquatic) 2
- Antenna hidden, not visible in dorsal view; very much shorter than head; lives in submerged water; always winged forms... (aquatic) 4
2. Claws of atleast front tarsi inserted before its tip; hind femora long, surpassing end of abdomen GERRIDAE
- Claws of all legs inserted at the tip; hind femora short, never surpassing end of abdomen 3

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3. Stick like insect with thread liked legs, body long, head as long as entire thorax; antenna and legs thread like, always winged form, simple ovipositor and not saw like
 HYDROMETRIDAE
- Small, slender, body short, head shorter than thorax; antenna and legs not thread like, saw like ovipositor, winged and wingless forms MESOVELIIDAE
4. Rostrum short, triangular, not distinctly segmented; front tarsi single segmented, scoop-like, fringed with setae CORIXIDAE
- Rostrum long, cylindrical, distinctly segmented; fore tarsi one or more segmented, simple without setae 5
5. Oblong, oval or elongate forms without abdominal appendages, swims upside down 6
- Flattened forms with or without abdominal appendages, swims normally with back towards the water surface 7
6. Elongate forms with long ore-like hind legs; hind tibia and tarsi ciliated, abdomen with a mid ventral keel NOTONECTIDAE
- Oval forms, all legs simple and alike, hind tibia and tarsi not ciliated, abdominal ventral with out keel PLEIDAE
7. Tip of the abdomen without a long and slender siphon;a distinctive pair of flat retractile strap-like appendages at the apex of abdomen; size ranges from 15 to 100 mm
 BELOSTOMATIDAE
- No distinctive appendages at the apex of abdomen; fore leg raptorial, size less than 15 mm
 *Naucoridae*

**A SYSTEMATIC INDEX TO THE AQUATIC AND SEMI-AQUATIC
 HEMIPTERA OF KARAIKAL AND PONDICHERRY**

Class INSECTA

Order HEMIPTERA

Suborder HETEROPTERA

Infraorder NEPOMORPHA (Aquatic)

Family CORIXIDAE

Subfamily CORIXINAE

Tribe **Agraptocorixini**

1. **Agraptocorixa (Agraptocorixa) hyalinipennis* (Fabricius)

Family PLEIDAE

2. *Paraplea frontalis* (Fieber)
3. *Paraplea buenoi* Kirkaldy

Family NOTONECTIDAE

Subfamily NOTONECTINAE

Tribe **Nychiini**

4. **Nychia sappho* Kirkaldy

Subfamily ANISOPINAE

Tribe **Anisopini**

5. **Anisops bouvieri* Kirkaldy
6. **Anisops cavifrons* Brooks

Family NEPIDAE

Subfamily NEPINAE

Tribe **Nepini**

7. **Laccotrephes griseus* (Guerin)
8. **Laccotrephes ruber* (Linnaeus)

Subfamily RANATRINAE

Tribe **Ranatrini**

9. *Ranatra elongata* Fabricius
10. **Ranatra filiformis* Fabricius
11. **Ranatra varipes* Stål

Family BELOSTOMATIDAE

Subfamily BELOSTOMATINAE

12. **Diplonychus rusticus* (Fabricius)

Family NAUCORIDAE

Subfamily NAUCORINAE

13. *Naucoris scutellaris* Stål

INFRAORDER GERROMORPHA (Semi-aquatic)

Family MESOVELIIDAE

Subfamily Mesoveliinae

14. **Mesovelia vittigera* Horvath

Family GERRIDAE

Subfamily GERRINAE

Tribe **Gerrini**15. **Limnogonus (Limnogonus) fossarum fossarum* (Fabricius)16. *Limnometra fluviorum* (Fabricius)17. **Neogerris parvula* (Stål)

Subfamily RHAGADOTARSINAE

18. **Rhagadotarsus (Rhagadotarsus) kraepelini* Breddin

Subfamily TREPOBATINAE

Tribe **Naboandelini**19. **Naboandelus signatus* Distant

Family HYDROMETRIDAE

Subfamily HYDROMETRINAE

20. **Hydrometra greeni* Kirkaldy, 1898.

*Species actually collected.**SYSTEMATIC ACCOUNT**

Family CORIXIDAE

Subfamily CORIXINAE

1. *Agraptocorixa (Agraptocorixa) hyalinipennis* (Fabricius)1803. *Sigara hyalinipennis* Fabricius, *Syst. Rhyn Brusvigae*, 105.1926. *Agraptocorixa hyalinipennis* (Fabricius) : Jaczewski, *Ann. Zool. Mus. Polon. Warsaw*, 5 : 18.1989. *Agraptocorixa hyalinipennis* (Fabricius) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No. 18* : 11.1994. *Agraptocorixa hyalinipennis* (Fabricius) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No. 165* : 8.

This species can be very easily recognized by its uniform hyaline brown coloration, unmarked elytra and pronotum. The abdominal sixth dorsum bearing the strigil, produced backwards as a well-defined peduncle (Fig. 2A). *A. hyalinipennis* is the only species of the genus so far known from India and commonly found to inhabit the ditches, puddles and stagnant pools in various parts of the country including Eastern and Western Ghats.

Material examined : 13♂, 23♀ and 6 immature stages from Ammankulam, Kombakkam, Pondicherry, 25.III.1992, Coll. K. R. Rao.

Distribution : India; Myanmar; New Guinea; Pakistan; Taiwan.

Family PLEIDAE

2. *Paraplea buenoi* Kirkaldy

1904. *Plea buenoi* Kirkaldy, *Wien. Ent. Zeit.*, **28** : 128.
 1910b. *Plea buenoi* Kirkaldy : Distant, *Fauna British India*, **5** : 48.
 1933. *Plea buenoi* Kirkaldy : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 126.
 1844. *Paraplea frontalis* (Fieber) : Thirumalai. 1999, *IAAB*, **7** : 34.

P. buenoi is almost entirely confined to Pondicherry state and not so far recorded outside this State. The body is strongly rather coarsely punctate; head with a very short longitudinal streak, like a spot on the front.

Distribution : India : Pondicherry.

3. *Paraplea frontalis* (Fieber)

1844. *Plea frontalis* Fieber, *Entomologische Mongraphien, Leipzig*, **18**.
 1947. *P. (Paraplea) frontalis* (Fieber) : Hafiz & Pradhan, *Rec. Indian Mus.*, **45** : 349.
 1910b. *Plea pelopea* Distant, *Fauna British India*, **5** : 336.
 1999. *Paraplea frontalis* (Fieber) : Thirumalai. *IAAB*, **7** : 34.

The head with a small dark reddish-brown longitudinal stripe. Elytra with very fine hairs, coarsely and reticulately punctate; thoracic keels with spine like protuberance. This species is restricted to Oriental region. In India *P. frontalis* is recorded from Andaman & Nicobar Islands, Bihar, Orissa, Pondicherry, Tamil Nadu, Uttar Pradesh and West Bengal.

Distribution : India; China; Indonesia; Malaysia; Taiwan.

Family NOTONECTIDAE

Subfamily NOTONECTINAE

4. *Nychia sappho* Kirkaldy

1901. *Nychia sappho* Kirkaldy, *Ann. Mus. Genova*, **15** : 809.
 1985. *Nychia sappho* Kirkaldy : Lansbury, *Beagle*, **2** : 4.

1991. *Nychia sappho* Kirkaldy : Nieser & Chen, *Tijdschrift Voor Entomol.*, **134** : 64.
 1910b. *Nychia marshalli* (Scott, 1872) : Distant, *Fauna British India*, **5** : 334.
 2001. *Nychia prox marshalli* (Scott) : Thirumalai, *Fauna of conservation area*, **11** : 116.
 1933. *Nychia malayana* Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 148.

This genus is with only a few, poorly known species. The species can easily be identified by the structure of the eyes, which is united basally (Fig. 2B). The fore tarsus in male is two segmented.

Material examined : 1 ♂, from a pond at Mulliar, near T. R. Pattinam, Karaikal, 23.III.1992, Coll. K. R. Rao.

Distribution : India, Australia; Indonesia; Malaysia; New Guinea; Sri Lanka.

Remarks : *Nychia marshalli* (Scott) is strictly African species and the Indian species must be called *Nychia sappho* Kirkaldy. *N. infusata* Paiva is a synonym (Polhemus, 1998 – personal communication).

Subfamily ANISOPINAE

5. *Anisops bouvieri* Kirkaldy

1904. *Anisops bouvieri* Kirkaldy, *Wiener Ent. Zeit.*, **23** : 116.
 1951. *Anisops bouvieri* Kirkaldy : Brooks, *Kans univ. Sci. Bull.*, **34** : 430.
 1989. *Anisops bouvieri* Kirkaldy : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.* No. **118** : 23.

The male of *A. bouvieri* have more or less acuminate and longer cephalic projection that extends one fifth of its ventral length beyond the anterior margin of the eyes (Fig. 3C). The chaetotoxy of male fore femur is as in Fig. 3D. This is one of the most common species of the genus found in India. The habitat includes freshwater pools, lakes, ponds, and forest streams.

Material examined : 2 ♂, from Thengaithittu, 19.III.92; 1 ♂, 2 ♀ & 2 immature stages from Ammankulam, Kombakkam, 25.III.1992; 1 ♂, from Nadukolam, Bahor, Pondicherry, 26.III.1992, Coll. K. R. Rao.

Distribution : India; Bangladesh; China; Malaysia; Myanmar; New Guinea; Thailand.

6. *Anisops cavifrons* Brooks

1951. *Anisops cavifrons* Brooks, *Kans. Univ. Sci. Bull.*, **34** : 418.
 1989. *Anisops cavifrons* Brooks : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.* No. **118** : 24.
 1989. *Anisops cavifrons* Brooks : Thirumalai, 1994, *Rec. zool. Surv. India, Occ. Pap.* No. **165** : 16.

The cephalic horn of this species is as in Fig. 3A. The male of *A. cavifrons* have a procumbent spine (Fig. 3B) on the fore tibia and there are three closely arranged small setae near the base of tarsus. This species is also recorded from backwaters.

Material examined : 1 ♂, from Nadukolam, Bahor, Pondicherry, 26.III.1992, Coll. K. R. Rao.

Distribution : India; Pakistan.

Family NEPIDAE

Subfamily NEPINAE

7. *Laccotrephes griseus* (Guerin)

1844. *Nepa griseus* Guerin, Mexeville, *Iconoogr. Regne. Anim. Ins.*, 352.
 1910b. *Laccotrephes griseus* (Guerin) : Distant, *Fauna British India*, 5 : 314.
 1988. *Laccotrephes griseus* (Guerin) : Ravishankar and Venkatesan, *Entomon*, 13 : 227.
 1989. *Laccotrephes griseus* (Guerin) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.* No. 118 : 28.
 1994. *Laccotrephes griseus* (Guerin) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.* No. 165 : 21.

This species can be identified by the presence of slightly hooked and symmetrical parameres, abdominal appendages shorter than the body, presence of an obtusely rounded tooth at the base of the anterior femora. This species is commonly found in Peninsular India. It is a very sluggish species often found under weeds or at the bottom of slow or stagnant waters.

Material examined : 2♂, from Sankaraparani River, Villandor, 20.III.1992; 1♀, from a pond at Mulliar, near T. R. Pattinam (Karaikal), 23.III.1992; 1♂, from Velarampet, 25.III.1992, Coll. K. R. Rao.

Distribution : India; Malaysia; Myanmar; Seychelles; Sri Lanka; Thailand.

8. *Laccotrephes ruber* (Linnaeus)

1764. *Nepa ruber* Linnaeus, *Mus. Lud. ulr.*, 165.
 1906. *Laccotrephes ruber* (Linnaeus) : Distant, *Fauna British India*, 3 : 18.
 1989. *Laccotrephes ruber* (Linnaeus) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.* No. 118 : 29.
 1994. *Laccotrephes ruber* (Linnaeus) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.* No. 165 : 22.

This is a common species with wide distribution in the Indo – Australian region and is largely found in habitats like rivers, streams, tanks, etc. The abdominal appendices are distinctly longer than the body, the prosternum is convex in the middle and has a curved and hook shaped male paramere.

Material examined : 2♀, from a pond at Mulliar, near T. R. Pattinam, Karaikal, 23.III.1992; 2♂, 1♀, from Kuyavansavdi, 23.III.1992; 1♂, from Kanapettai pond, 25.III.1992, Coll. K. R. Rao.

Distribution : India; China; Japan; Nepal; Pakistan; Taiwan.

Subfamily RANATRINAE

9. *Ranatra elongata* Fabricius

1790. *Ranatra elongata* Fabricius, *Skrif. Nat. Selesk.*, 1 : 228.
 1906. *Ranatra elongata* Fabricius : Distant, *Fauna British India*, 3 : 20.
 1972. *Ranatra elongata* Fabricius : Lansbury, *Trans. R. Ent. Soc. Lond.*, 124 : 306.

1989. *Ranatra elongata* Fabricius : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.* No. 118 : 30.

1994. *Ranatra elongata* Fabricius : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.* No. 165 : 22.

This genus is cosmopolitan in distribution and contains more than 120 species all over the world. It is reported to be feeding on tadpoles, nymph of mayflies and other aquatic hemipteran groups and during dry seasons it is known to migrate in search of suitable areas. This species can be identified by the structure of the anterior femur, which is provided with a triangular tooth beyond the middle of its length, and the metasternal process, which is sub triangular, and centrally longitudinally foveately sulcate. The forecoxae are two-thirds the length of prothorax and anterior lobe of prothorax less than twice the length of posterior lobe. This species can also be distinguished by large body size (40–60 mm) and the length of the respiratory siphon that is equal or longer than the body.

Distribution : India; Australia; Nepal; Sri Lanka.

10. *Ranatra filiformis* Fabricius

1790. *Ranatra filiformis* Fabricius, *Skrif. Nat. Selesk.*, 1 : 228.

1906. *Ranatra filiformis* Fabricius : Distant, *Fauna British India*, 3 : 21.

1972. *Ranatra filiformis* Fabricius : Lansbury, *Trans. R. Ent. Soc. Lond.*, 124 : 320.

1989. *Ranatra filiformis* Fabricius : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.* No. 118 : 31.

1994. *Ranatra filiformis* Fabricius : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.* No. 165 : 22.

1997. *Ranatra filiformis* Fabricius : Bal & Basu, *Fauna of Delhi, State Fauna Series*, 6 : 266.

The males of this species can be identified by the absence of a tooth and presence of several small spines on the inner margins of distally hook shaped paramere and presence of wide interocular space. This species is smaller in size (20–30 mm) than *R. elongata*. This species is mostly found among vegetation, fringing the shallower parts of water, clinging to submerged vegetation and feeds on nymphs of dragonflies and mosquito pupae.

Material examined : 1 ♀, from Velarampet, 25.III.1992; 1 ♂, from a pond, Ammankulam, Kombakkam, 25.III.1992.

Distribution : India (Widely distributed); Nepal; Pakistan; Philippines; Sri Lanka.

11. *Ranatra varipes varipes* Stål

1861. *Ranatra varipes* Stål, *Ofvers. K. Vetensk. Akad. Forh.*, 18 : 203.

1972. *Ranatra varipes* Stål, Lansbury, *Trans. R. Ent. Soc. Lond.*, 124 : 316.

1998. *Ranatra varipes varipes* Stål : Nieser & Polhemus, *Amemboa*, 2 : 22.

Small body size 20–33 mm; respiratory siphon shorter than body; fore femora are broad with irregular brown markings. However, the most reliable diagnostic characters are the parameres which is hatchet shaped distally.

Material examined : 1 ♂ and 1 immature stage from Sankaraparani River, Villiandor, 20.III.1992, Coll. K. R. Rao.

Distribution : India; Australia; Indonesia; Malaysia; Myanmar; Taiwan.

Family BELOSTOMATIDAE

Subfamily BELOSTOMATINAE

12. *Diplonychus rusticus* (Fabricius)

1794. *Nepa rustica* Fabricius, *Ent. Syst.*, 4 : 62.
 1906. *Sphaerodema rusticus* (Fabricius) : Distant, *Fauna British India*, 3 : 36.
 1961. *D. rusticus* (Fabricius) : Lauck & Menke, *Ann. Entomol. Soc. Amer.*, 54 : 649.
 1989. *D. rusticus* (Fabricius) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.* No. 118 : 28.
 1994. *D. rusticus* (Fabricius) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.* No. 165 : 25.
 1981. *Diplonychus indicus* Venkatesan & Rao, *J. Bombay nat. Hist. Soc.*, 88 : 299.

D. rusticus can easily be identified by the smaller size (Less than 20 mm), pale lateral basal margins of pronotum, head length is shorter than the width between the eyes, single segmented fore tarsus and a smaller claw. This species commonly found in fishponds and is a voracious feeder on fish larvae. It is also known to feed on a wide variety of aquatic organisms including mosquito larvae.

Material examined : 6♂, 4♀, from Veerampattinam, 19.III.1992, 1 immature stage from Thengaithittu, 19.III.1992; 4♂, 3♀ & 2 immature stages from Neravy, Karaikal, 23.III.1992; 7♂, 4♀ from Kanaapettai pond, 25.III.1992; 2♂, 1♀ from Velarampet, 25.III.1992; 1♀ from Nadukolam, Bahor, 26.III.1992, Coll. K. R. Rao.

Distribution : India; Australia; China; Indonesia; Japan; Malaysia; Myanmar; New Guinea; New Zealand; Sri Lanka; Thailand.

Family NAUCORIDAE

Subfamily NAUCORINAE

13. *Naucoris scutellaris* Stål

1859. *Naucoris scutellaris* Stål, *Kongl. Svenska. Sugenises*, 4 : 266.
 1910b. *Naucoris scutellaris* Stål : Distant, *Fauna British India*, 5 : 325.
 1933. *Naucoris scutellaris* Stål : Lundblad, *Arch. Hydro Biol. Suppl.*, 12 : 63.
 1971. *Naucoris scutellaris* Stål : La Rivers, *Biol. Soc. Nev.*, 72.
 1991. *Naucoris scutellaris* Stål : Nieser & Chen, *Tijds., Entomol.*, 134 : 53.
 1910b. *Naucoris sordidus* Distant, *Fauna British India*, 5 : 325.
 1910b. *N. vividus* Distant, *Fauna British India*, 5 : 326.
 1904. *Thurselius greeni* Distant, *Entomologist*, 37 : 259.
 1910b. *T. clathratus* Distant, *Fauna British India*, 5 : 327.

The femur (raptorial) is largely enlarged at its inner apical two-thirds; inner margin deeply serrated. *N. scutellaris* (Fig. 2C), a widespread species, found from India to Sri Lanka, Thailand to Indonesia. The genus is poorly known from India.

Distribution : India : (Kerala, Pondicherry, West Bengal); Indonesia; Sri Lanka; Thailand.

Family MESOVELIIDAE

Subfamily MESOVELIINAE

14. *Mesovelia vittigera* Horvath

1895. *Mesovelia vittigera* Horvath, *Rev. Entomologie*, **14** : 160.
 1989. *Mesovelia vittigera* Horvath : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No. 118* : 35.
 1994. *Mesovelia vittigera* Horvath : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No. 165* : 28.
 1901. *M. orientalis* Kirkaldy, *Ann. Mus. Civ. Genova*, **20** : 808.
 1933. *M. orientalis* Kirkaldy : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 186.
 1903. *M. mulsanti* White : Distant, *Fauna British India*, **2** : 169.
 1980. *M. vittigera* Horvath : Andersen & Polhemus, *Ent. Scand.*, **11** : 290.

The ventral abdominal segment in males possesses a group of median spines (Fig. 4A) and two sets of brush like hairs laterally. The middle femur in females is spiny below. They prefer stagnant or slow running water covered by emergent or floating vegetation.

Material examined : 1 ♀ (apterous) from Thengaithittu, 19.III.1992, Coll : K. R. Rao.

Distribution : India (Very widely distributed); Africa; Australia; Egypt; Indonesia; Malaysia; Palestine; Philippines; Syria; Samoa Islands; Sri Lanka.

Family GERRIDAE

Subfamily GERRINAE

15. *Limnogonus (Limnogonus) fossarum fossarum* (Fabricius)

1775. *Cimex fossarum* Fabricius, *Syst. Ent.*, 727.
 1903. *Gerris fossarum* (Fabricius) : Distant, *Fauna British India*, **2** : 178.
 1868. *Limnogonus fossarum* Stål, *K. Svenska Vetensk. Akad.*, **7** : 133.
 1960. *L. (L). fossarum* (Fabricius) : Matsuda, *Kans. Univ. Sci. Bull.*, **41** : 198.
 1975. *L. (L). fossarum* (Fabricius) : Andersen, *Ent. Scand. Suppl.*, **7** : 30.
 1989. *L. (L). fossarum* (Fabricius) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No. 118* : 40.

A median yellow line on the anterior pronotal lobe extending to its entire length separates this species from all the known species (Fig. 1C). The connexivum does not terminate in a prominent spine. A very common species of Gerrinae in Indo-Australian regions, found in wide variety of habitats including hot springs, brackish pools, from Sea level to about 1000 meters.

Material examined : 2 ♂, 5 ♀ (apterous), 3 ♀ (macropterous) and 5 immature stages from Nadukolam, Bahor, Pondicherry, 26.III.1992, Coll : K. R. Rao.

Distribution : China; Hong Kong; India; Indonesia; Japan; Malaysia; Myanmar; Philippines; Singapore; Taiwan; Thailand; Vietnam.

16. *Limnometra fluviorum* (Fabricius)

1798. *Cimex fluviorum* Fabricius, *Ent. Syst. Suppl.*, 543.
 1903. *Gerris fluviorum* (Fabricius) : Distant, *Fauna British India*, 2 : 177.
 1958. *L. fluviorum* (Fabricius) : Hungerford & Matsuda, *Kans. Univ. Sci. Bull.*, 39 : 401.
 1960. *Tenagogonus (Limnometra) fluviorum* (Fab.) : Matsuda, 1960. *Kans. Univ. Sci. Bull.*, 41 : 206.
 1989. *Tenagogonus (Limnometra) fluviorum* (Fab.) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No. 118* : 43.
 1995. *Limnometra fluviorum* (Fab.) : Andersen, *Steenstrupia*, 21 : 118.
 1903. *Gerris armata* Spinola : Distant, *Fauna British India*, 2 : 180.

L. fluviorum can easily be identified by the presence of a spine-like projection on the dorsolateral rear margin of middle coxa (Fig. 1A). This is a very common species found throughout Southern India and also recorded from a wide variety of freshwater habits.

Distribution : India; Philippines; Sri Lanka.

17. *Neogerris parvula* (Stål)

1859. *Gerris parvula* Stål, *Zoology*, 4 : 265.
 1939. *Limnogonus parvulus* (Stål) : Hafiz & Riberio, *Rec. India Mus.*, 41 : 427.
 1958. *L. (Limnogonellus) parvulus* (Stål) : Hungerford & Matsuda, *J. Kans. Ent. Soc.*, 32(1) : 41.
 1960. *L. (Neogerris) parvulus* (Stål) : Matsuda, *Kans. Univ. Sci. Bull.*, 41 : 114.
 1975. *Neogerris parvula* (Stål) : Andersen, *Ent. Scand. Suppl.*, 7 : 86.
 1989. *Neogerris parvula* (Stål) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No. 118* : 40.
 1994. *Neogerris parvula* (Stål) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No. 165* : 34.
 1903. *G. tristan* Kirkaldy : Distant, *Fauna British India*, 2 : 179.

N. parvula is easily separated from all the known species of this genus by the presence of a large round or quadrangular yellow spot on the pronotum (Fig. 1B). A very common species found, in slow running streams, reservoirs, ponds and rain-fed pools, throughout Indian subcontinent.

Material examined : 1 ♂ (macropterous) from Nadukolam, Bahov, Pondicherry, 26.III.1992, Coll. K. R. Rao.

Distribution : China; India; Indonesia; Iran; Japan; Malaysia; Myanmar; New Guinea; Oman; Pakistan; Philippines; Solomon Island; Sri Lanka; Taiwan; Thailand; Vietnam.

Subfamily RHAGADOTARSINAE

18. *Rhagadotarsus (Rhagadotarsus) kraepelini* (Breddin)

1905. *Rhagadotarsus kraepelini* Breddin, *Mitt. Nat. Mus. Hamburg*, 22 : 137.
 1933. *R. kraepelini* Breddin : Lundblad, *Arch. Hydrobiol. Suppl.*, 12 : 412.
 1960. *R. (Rhagadotarsus) kraepelini* Breddin : Matsuda, *Kans. Univ. Sci. Bull.*, 41 : 322.

1992. *R.* (*Rhagadotarsus*) *kraepelini* Breddin : Anderson & Foster, *J. nat. Hist.*, **26** : 549.
1993. *R.* (*Rhagadotarsus*) *kraepelini* Breddin : Polhemus & Karunaratne, *Bull. Raffles Mus (Zoology)*, **41**(1) : 100.
- 1910a. *Nacebus dux* Distant, *Ann. Mag. Nat. Hist.*, **5** : 153.

The body colour is black. The eighth abdominal segment in males is cylindrical, strongly longitudinally depressed ventrally. The female genitalia is having a well formed saw-like ovipositor (Fig. 1D). This species is always found on the calm surface of ponds and lakes. Anderson & Foster (1992) has recorded *R. kraepelini* on the surface of sheltered ponds of brackish water in Kerala.

Material examined : 1 ♂, 2 ♀ (apterous), 1 immature stage from a pond at Mulliar, near T. R. pattinam, 23.III.1992, Coll. K. R. Rao.

Distribution : China; India; Indonesia; Malaysia; Myanmar.

Subfamily TREPOBATINAE

19. *Naboandelus signatus* Distant

- 1910a. *Naboandelus signatus* Distant, *Ann. Mag. Nat. Hist.*, **5** : 152.
- 1910b. *Naboandelus signatus* Distant, *Fauna British India*, **5** : 164.
1960. *Naboandelus signatus* Distant : Matsuda, *Kans. Univ. Sci. Bull.*, **41** : 357.
2002. *Naboandelus signatus* Distant : Thirumalai, *Rec. zool. Surv. India*, **100** : 71.

Body short and somewhat oval. Size male (apterous) 1.9 to 2.1 mm; female (apterous) 2.1 to 2.4 mm. There is a large black spot surrounded by brownish area on dorsal side of the head (Fig. 1E). Pronotum is with a median yellow spot. Second genital segment with lateral process prominent (Fig. 1F) and the endosoma as in Fig. 1G. This species has been reported from stagnant pond. However, this species was also recorded from a perennial river from South India by the senior author.

Material examined : 4 ♂, 8 ♀ (apterous) from a pond at Mulliar, near T. R. Pattinam, Karaikal, 23.III.1992, Coll. K. R. Rao.

Distribution : India : (Chandigarh, Karnataka, Pondicherry, Tamilnadu, Tripura, Uttar Pradesh, West Bengal).

Family HYDROMETRIDAE

Subfamily HYDROMETRINAE

20. *Hydrometra greeni* Kirkaldy

1898. *Hydrometra greeni* Kirkaldy, *Entomologist*, **31** : 2.
1994. *Hydrometra greeni* Kirkaldy : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.* **165** : 29.
1995. *Hydrometra greeni* Kirkaldy : Polhemus & Polhemus, *Bishop. Occ. Pap.*, **43** : 22.
1903. *Hydrometra vittata* (Stål) : Distant, *Fauna British India*, **2** : 170.

Anteclypeus conical, seventh abdominal sternite in male with a deep depression, fringed with short stiff hairs (Fig. 4B). In India this species occurs from near sea level to over 1500 metres elevation. Its habitats include ponds, swampy areas, rocky, up and low land streams, lakes and flooded paddy fields.

Material examined : 2♂ from Thengaithittu, 19.III.1992 : Coll. K. R. Rao.

Distribution : India (Very Widely distributed); Bangladesh; China; Nepal; Sri Lanka; Sumatra; Thailand; Vietnam.

SUMMARY

The aquatic and semi-aquatic Heteroptera of Pondicherry State collected during the state faunal survey undertaken by the Southern Regional Station of Zoological Survey of India during March-April, 1991-1992, was studied in depth. The study revealed the presence of 15 genera and 20 species belonging to 9 families. In addition to the worldwide distribution of each species, brief remarks facilitating identification of taxa is also given. Key to the families is also provided.

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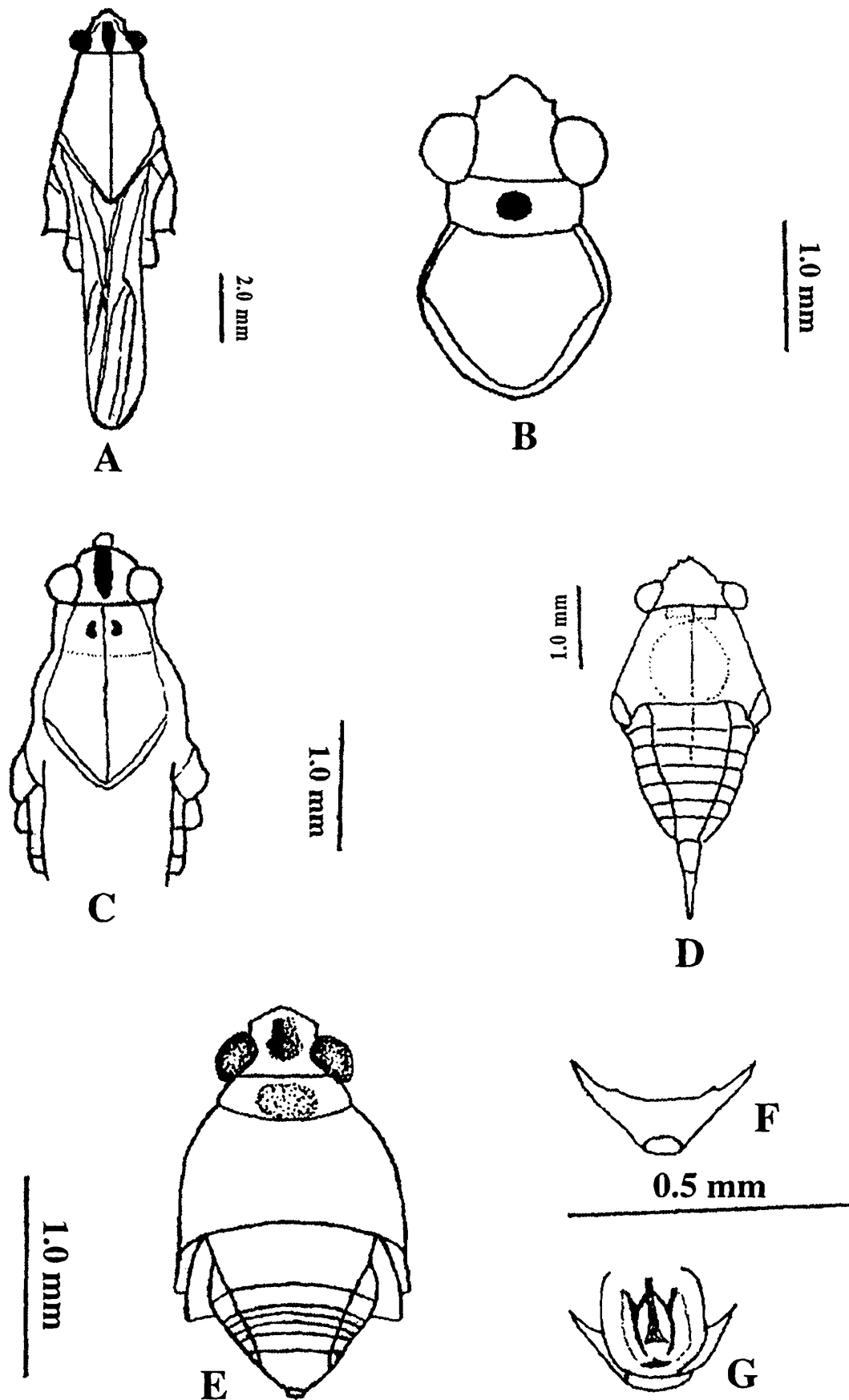


Fig. 1. : (A) *Limnometra fluviorum* (Fabricius)-Winged male; (B) Dorsal view of head and thorax of *Neogerris parvula* (Stål)-Winged male; (C) Dorsal view of head and pronotum of *Limnogonus (L.) fossarum* (Fab.)-Winged female; (D) *Rhagadotarsus (R.) kraepelini* Breddin (Apterous female dorsal view); (E) *Neboandelus signatus* Distant (apterous male dorsal view); (F) Second genital segment of male *N. signatus*; (G) Dorsal view of endosoma of *N. signatus*.

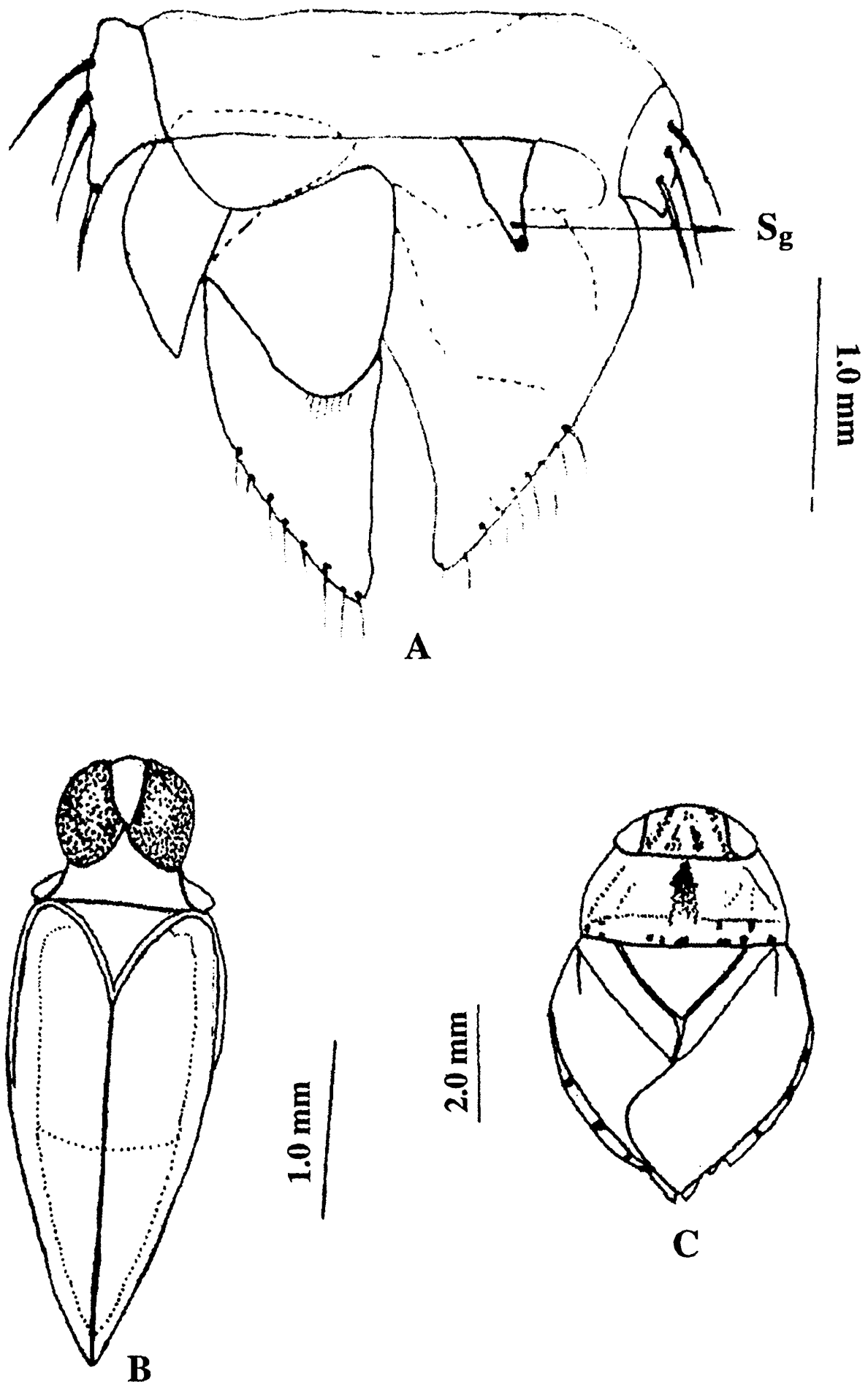


Fig. 2. : (A) *Agraptocorixa (A.) hyalinipennis* (Fab.) sixth to eight dorsal abdominal segments (Sg. Strigil); (B) *Nychia sappho* Kirkaldy-Dorsal view; (C) *Naucoris scutellaris* Stål-Dorsal view.

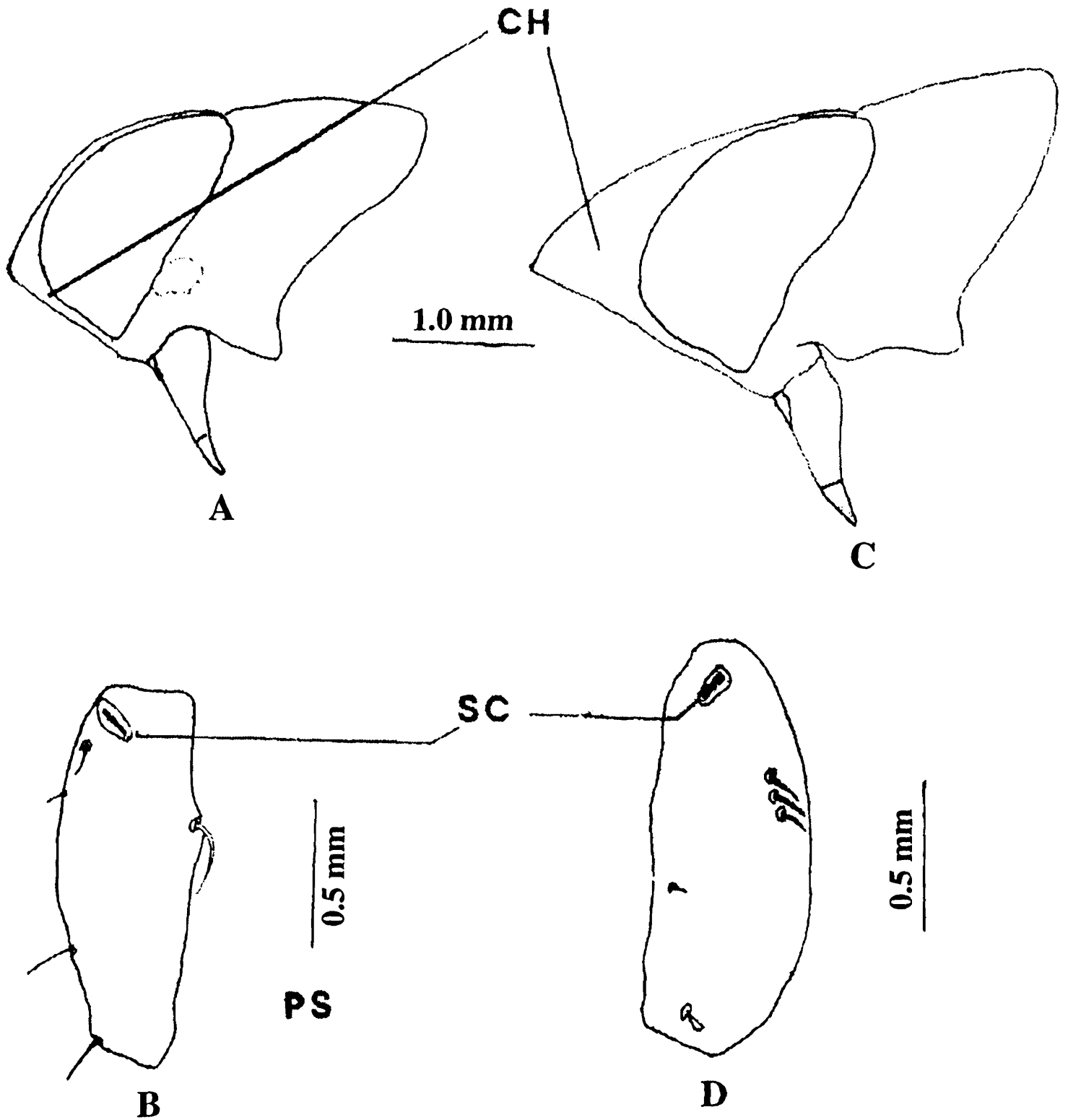


Fig. 3. : (A) *Anisops cavifrons* Brooks Head and pronotum lateral view (CH–Cephalic horn); (B) Male fore femur of *A. cavifrons* Brooks (PS–Procumbent spine; Sc–Stridulatory comb); (C) *Anisops bouvieri* Kirkaldy-Head and pronotum lateral view (CH–Cephalic horn); (D) Male fore femur of *A. bouvieri* Kirkaldy (Sc–Stridulatory comb).

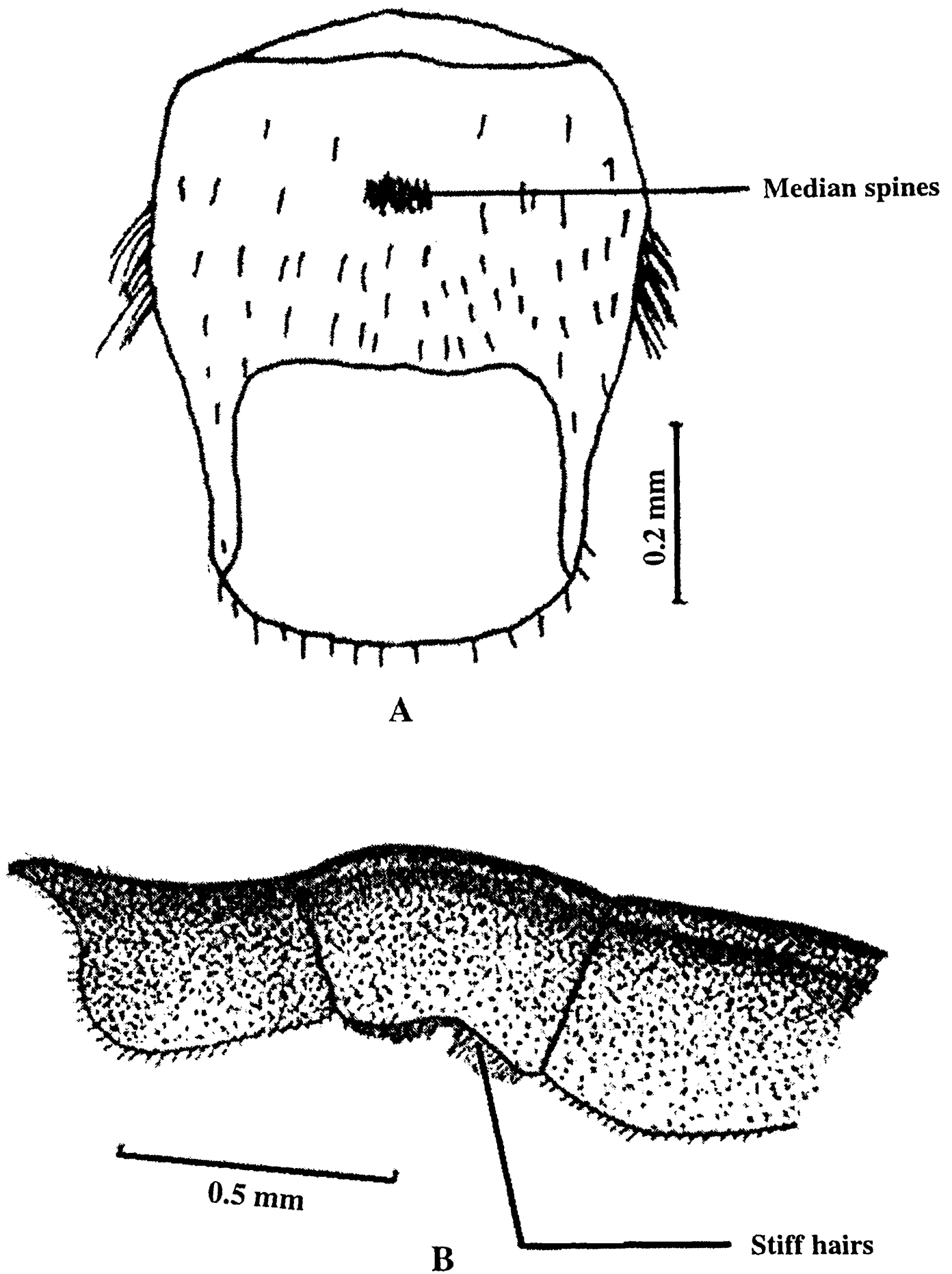


Fig. 4. : (A) *Mesovelgia vittigera* Horvath Male abdominal segment-Ventral view; (B) *Hydrometra greeni* Kirkaldy-Male abdominal sternites-Lateral view.