

An illustrated key to the families of Nepomorpha in Thailand

by Nico Nieser

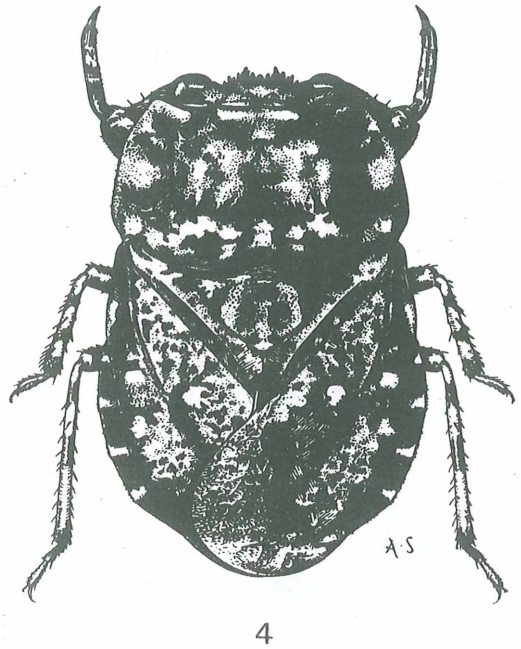
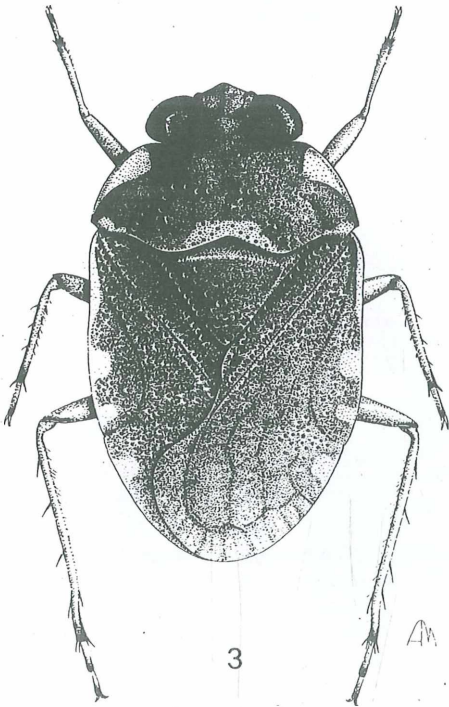
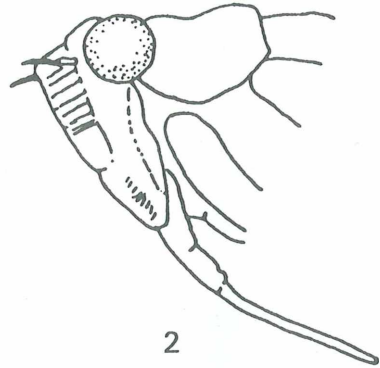
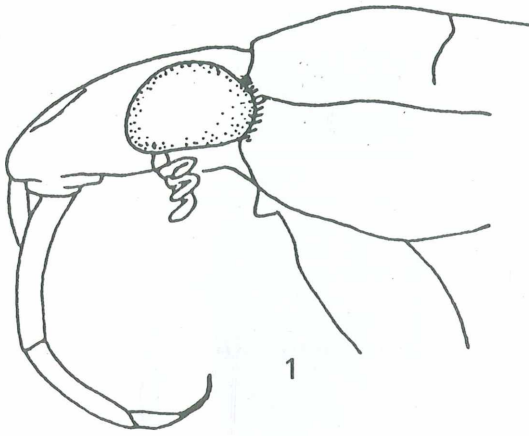
Abstract: An illustrated key is provided for the eleven families of Nepomorpha which occur in the Oriental realm. Notes on biology and habitat preference are included.

To distinguish Hemiptera from other insects the reader is referred to a general text on entomology. A useful difference between Homoptera and Heteroptera is the development of the gula, which in Homoptera is reduced so that the rostrum originates backward on the ventral side of the head (Fig. 1). In Heteroptera the gula is well developed and the rostrum originates at the anterior end of the head (Fig. 2). In addition the wings of Heteroptera, when fully developed, overlap with their caudal parts (membranes), which is not the case in Homoptera. Various Homoptera live on more or less aquatic plants. Also representatives of various terrestrial heteropteran families may live near the water's edge or on marsh plants and thus may be collected by accident in aquatic sampling and may occasionally pollute a sample.

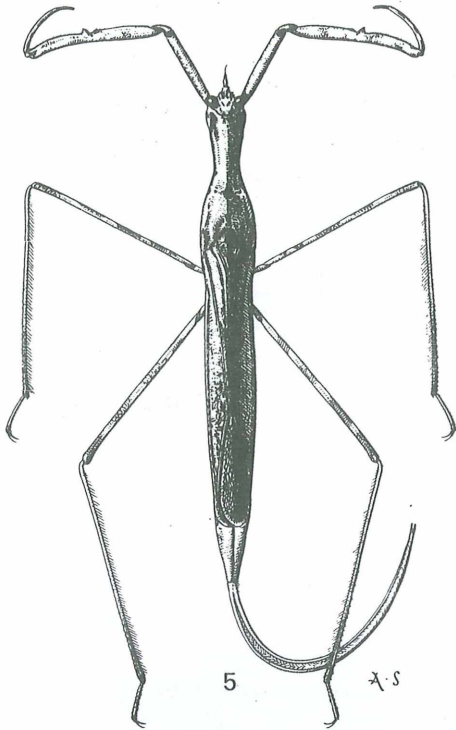
Ten families of Nepomorpha are recorded from Thailand, the presence of an eleventh family (Gelastocoridae) is likely. Nepomorpha are usually easy to distinguish from semiaquatic Gerromorpha (see following article by Chen & Zettel) and from terrestrial Heteroptera by the characters of antenna mentioned under point 0. Representatives of other families with very short antennae are very specialized forms with reduced eyes found on bats or in termites nests. The key is based on adults but most characteristics (except size and wings) are valid for larvae too.

Key to the families of Nepomorpha in Thailand

- 0 Antennae inserted beneath eyes, usually shorter than the head and at least their basal part concealed under the head (**Nepomorpha**) 1
- Antennae longer than the head, inserted forward of eyes and well visible from above **Gerromorpha and terrestrial Heteroptera**
- 1 Ocelli present (Ochteroidea) 2
- Ocelli absent 3
- 2 Fore femur not thickened, rostrum very long and slender, reaching the hind coxae, habitus see Fig. 3 **Ochteridae**
- Ochteridae are active insects, which fly easily and live terrestrially at the edge of the water. In Thailand represented by the genus *Ochterus* LATREILLE.
- Fore femur strongly thickened, rostrum short and stout, not or hardly reaching beyond the posterior margin of the prosternum, habitus see Fig. 4..... **Gelastocoridae**
- Species of this family are sluggish semiaquatic insects, which in day time burrow in wet soil usually at the edge of water bodies and creeping on the surface at night. So far this family is not recorded from Thailand, but occurrence of the genus *Nerthra* SAY is probable.
- 3 Rostrum short and broadly triangular, not segmented but in some species with transverse grooves, posterior margin of head covering the anterior part of pronotum (Corixoidea)

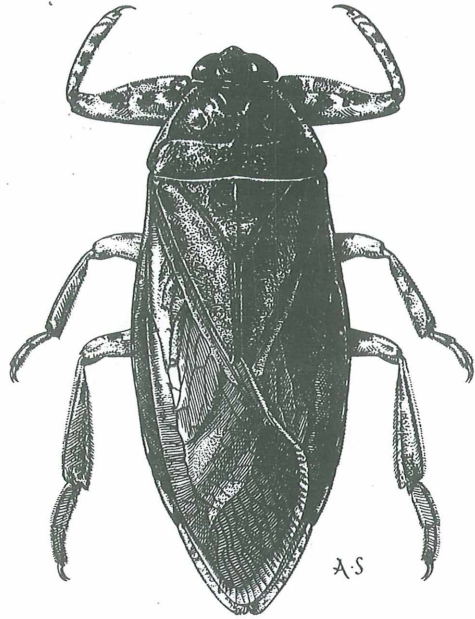


Figs. 1 - 2: Head in lateral view, (1) Heteroptera, (2) Homoptera (from NIESER & ALKINS-KOO 1991).
 Figs. 3 - 4: Habitus of (3) *Ochterus* sp. (Ochteridae) and (4) *Nerthra* sp. (Gelastocoridae) (3 from NIESER 1982; 4 from USINGER 1956 in MENKE 1979) (different scales).



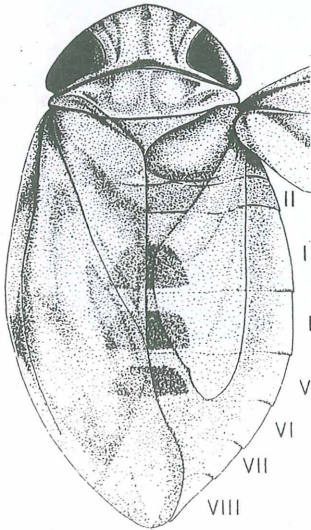
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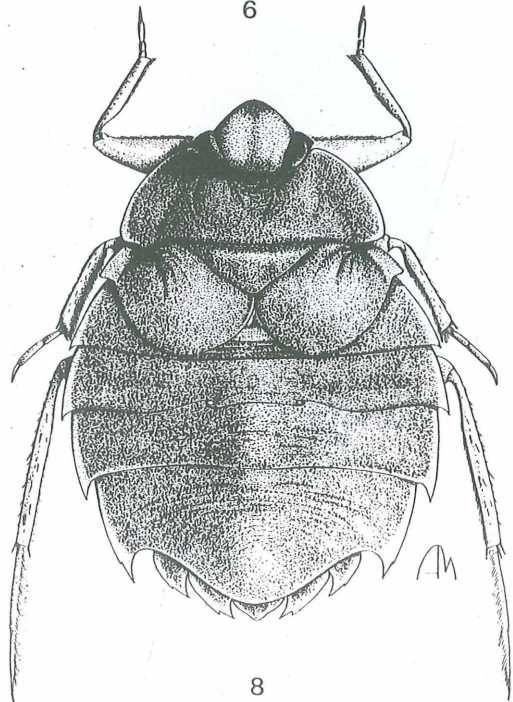


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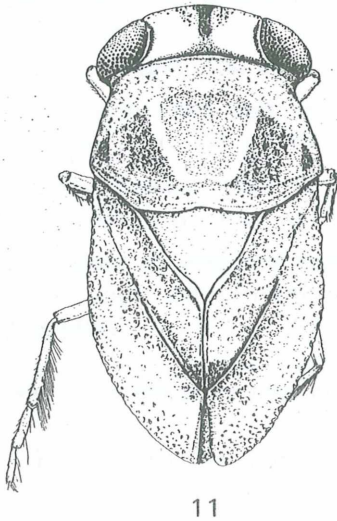
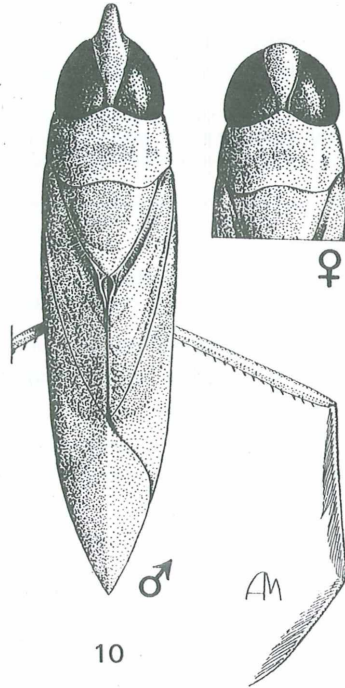
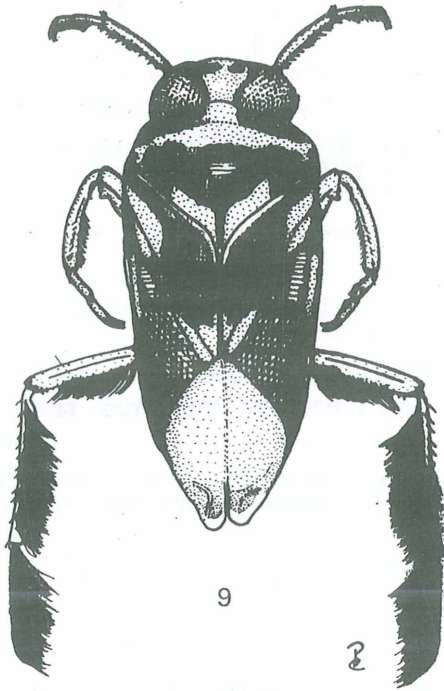
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Figs. 5 - 8: Habitus of (5) *Ranatra* sp. (Nepidae), (6) *Lethocerus* sp. (Belostomatidae), (7) *Micronecta* sp. (Micronectidae), and (8) *Aphelocheirus* sp. (Aphelocheiridae) (5, 6 from USINGER 1956 in MENKE 1979; 7, 8 from NIESER 1982) (different scales).

- Rostrum distinctly segmented and more or less parallel-sided, posterior margin of head not covering anterior part of pronotum..... 5
- 4 Scutellum exposed, rostrum without transverse grooves, small species, length less than 3 mm, habitus see Fig. 7 **Micronectidae**
- Species live in more or less stagnant waters including quiet bays of streams. Various species are regularly collected at light. Two genera occur in Thailand: *Synaptonecta* LUNDBLAD, with one species, and *Micronecta* KIRKALDY represented by numerous species.
- Scutellum entirely or nearly entirely covered by pronotum, length 3 mm or more..... **Corixidae**
- Habitat and biology are similar to preceding family. In Thailand Corixidae are represented by the genus *Sigara* FABRICIUS, mainly subgenus *Tropocorixa* HUTCHINSON.
- 5 A long, non retractable respiratory siphon present (Fig. 5) (the halves of the siphon are not fully fused, especially in dry specimens they may split sometimes) (Nepoidea) **Nepidae**
- Nepidae are mostly slowly moving insects which usually hide in the mud or between plants. In Thailand three genera are recorded: *Laccotrephes* STÅL, *Ranatra* FABRICIUS, and *Cercotmetus* AMYOT & SERVILLE.
- Respiratory appendages absent or paired and retractable 6
- 6 A pair of retractable caudal respiratory strips present, membrane with distinct veins (Fig. 6) (Nepoidea)..... **Belostomatidae**
- Belostomatidae are excellent swimmers, which, nevertheless, usually hide within vegetation. In Thailand this family is represented by two genera, *Lethocerus* MAYR ("Giant Water Bug") and *Diplonychus* LAPORTE.
- Respiratory appendages absent, membrane without veins (e.g. Fig. 9) 7
- 7 Flat oval to nearly circular insects, swimming with their belly downward, anterior legs inserted on the anterior margin of the prosternum (Naucoroidea) 8
- Boatshaped or globular insects, swimming with their belly upward, anterior legs inserted on the posterior margin of the prosternum (Notonectoidea) 9
- 8 Rostrum long and narrow, reaching hind coxae, head elongate, as long as or slightly longer than broad, apical part of antennae often visible from above, fore femur hardly thickened, habitus see Fig. 8 **Aphelocheiridae**
- Species of the single genus *Aphelocheirus* WESTWOOD live in streams with sandy bottoms, during the day burrowing in the sand of the stream bed, at least some species at night active on the surface.
- Rostrum short and stout, not reaching beyond fore coxae, head distinctly transverse, antennae fully concealed under the head, fore femur distinctly thickened **Naucoridae**
- This family is represented by several genera in Thailand. Depending on species, occurring in both stagnant and running waters.
- 9 Head and pronotum fused (in most species head and pronotum recognizable by a shallow more or less W-shaped groove), antennae with 2 segments or less, small insects, length 3.5 mm or (usually distinctly) less **Helotrephidae**



Figs. 9 - 11: Habitus of (9) *Enithares* sp., (10) *Anisops* sp. (both Notonectidae), and (11) *Plea* sp. (Pleidae), (9 from NIESER & CHEN, in print; 10, 11 from NIESER 1982) (different scales).

Most species are found at the edges of streams, usually at places with little current, only a few species are typical for stagnant waters. So far six genera are known to the author from Thailand.

- Head and pronotum separate (Figs. 9 - 11), antennae with 3 or 4 segments, size variable 10

- 10 Small insects, length about 2.5 mm or less, antennae with 3 segments, membrane of hemielytra apparently absent, habitus see Fig. 11 **Pleidae**

Species of the single Oriental genus *Paraplea* ESAKI & CHINA live in stagnant waters within vegetation.

Size variable but nearly always over 3 mm, antennae with 4 segments, membrane of hemielytra present (large in macropterous forms, rather small in some brachypterous forms), habitus see Figs. 9 - 10 **Notonectidae**

Notonectidae prefer stagnant waters, including bays of streams with virtually no current, usually free floating either at the surface or suspended in the water. In Thailand the following genera are recorded: *Anisops* SPINOLA, *Aphelonecta* LANSBURY, *Enithares* SPINOLA, and *Nychia* STÅL.

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Artikel/Article: [An illustrated key to the families of Nepomorpha in Thailand. 4-9](#)