An illustrated key to the genera of Hebridae (Gerromorpha) in Thailand

by Herbert Zettel

Abstract: Five genera of the family Hebridae are known from Thailand. An illustrated key is presented and notes on the habitat preferences are given.

Introduction

Hebrids (Velvet Water Bugs) are very small insects, which live predominantly or obligatorily predacious. Hebridae is a basic family of the suborder Gerromorpha ("Semiaquatic Bugs"), but most species inhabit terrestrial habitats or the extreme edge of the water. Only a few species live steadily at the water surface, and a few are even subaquatic.

The morphology and systematics of Hebridae have been excellently treated by ANDERSEN (1981, 1982). Since then, only one genus, *Nieserius* ZETTEL, 1999, has been added. In Thailand the family is represented by five genera in two subfamilies: *Hyrcanus* DISTANT, 1910, and *Nieserius* of the exclusively Oriental Hyrcaninae, which was recently revised by the author (ZETTEL 1998, 1999a); and *Hebrus* CURTIS, 1833, *Merragata* BUCHANAN-WHITE, 1877, and *Timasius* DISTANT, 1909, of the Hebrinae.

Hebridae can be easily distinguished from other Thai Gerromorpha by using the key by CHEN & ZETTEL (1996).

Key to the genera of Hebridae in Thailand

(modified after ANDERSEN 1981, 1982)

1 Antenna distinctly shorter than greatest width of pronotum; antennal segments stout, segment 4 without desclerotized zone, antenna therefore clearly 4-segmented (Figs. 1 - 3) **2**

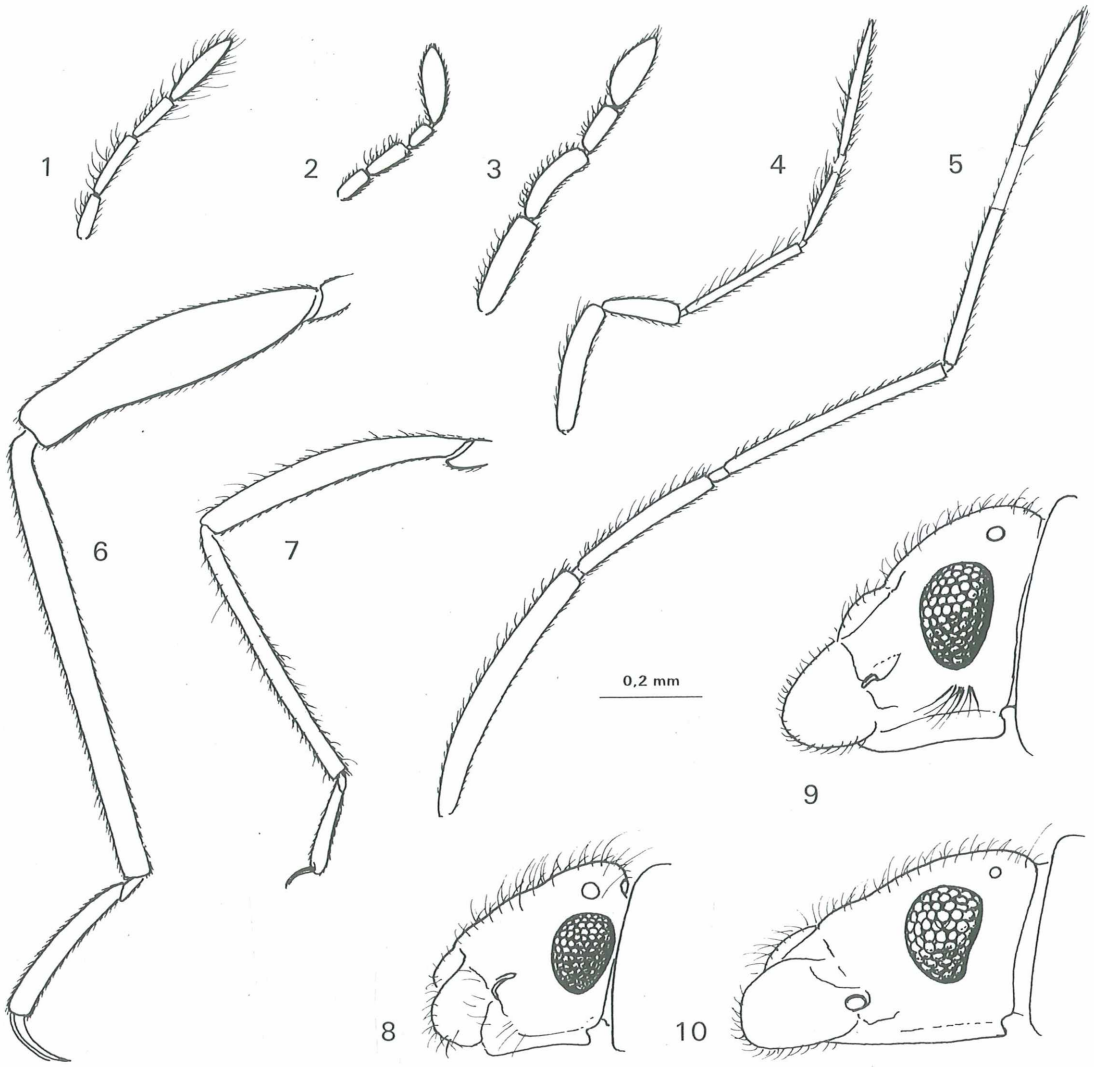
Antenna at least subequal in length to greatest width of pronotum; antennal segments slender; last segment (4th!) more or less clearly divided by a desclerotized zone, antenna therefore appearing 5-segmented (Figs. 4, 5) **4**

2 Middle sized to large species (body length more than 2.1 mm); head longer, narrow and pointed (Figs. 9, 10); eyes sessile; corium of forewing dark; antenna relatively stout (Figs. 2, 3); femora stout (Fig. 6) **3**

Very small species (body length less than 1.8 mm); head short and broad; eyes pedunculate, situated close to antero-lateral margin of pronotum (Fig. 8); antenna slender (Fig. 1); corium of forewing with white patch; femora slender (Fig. 7). ***Merragata***

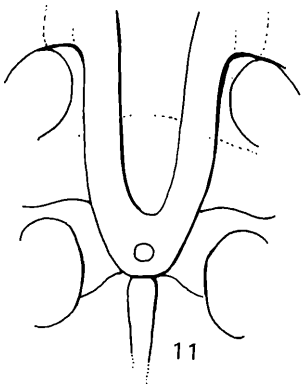
One species, *Merragata pallescens* DISTANT, 1909, is known from Thailand. It inhabits the edges of large stagnant waters (see ZETTEL 1999b).

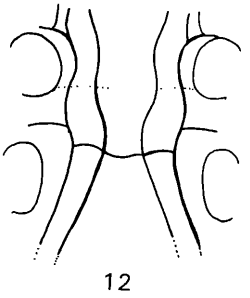
3 Antennal segment 1 shorter than segments 2 and 4 (Fig. 2); eye far removed from the pronotum, distance between eye and antero-lateral margin of the pronotum more than 0.4 times width of eye (Fig. 10); head below eyes with-



Figs. 1 - 10: (1 - 5) antenna of (1) *Merragata pallescens*, (2) *Nieserius subaquaticus*, (3) *Hyrcanus draculus*, (4) *Hebrus cruciatus*, (5) *Timasius miyamotoi*; (6, 7) hind leg of (6) *Nieserius subaquaticus* and (7) *Merragata pallescens*; (8 - 10) head, lateral view, of (8) *Merragata pallescens*, (9) *Hyrcanus draculus*, and (10) *Nieserius subaquaticus*.

out conspicious long bristles, only with some relatively short hairs; legs slender, mesofemur less than 3.7 times as long as broad (Fig. 6); brachypterous or macropterous ..... ***Nieserius***





Figs. 11 12: Meso- and metasternum and base of abdomen, schematically, in (11) *Timasius* and (12) *Hebrus*.

One species is known from North Thailand. The biology of *Nieserius* differs from that of all other Hebridae: *Nieserius* lives subaquatically on the fine sediments of smaller streams and brooks (ZETTEL 1999a).

Antennal segment 1 longer than segment 2 and subequal to segment 4 (Fig. 3); eye relatively close to pronotum, distance between eyes and antero-lateral margin of the pronotum clearly less than 0.4 times width of eye; Head below eyes with a tuft of conspicious long bristles (Fig. 9); legs stout, mesofemur more than 3.5 times as long as broad; always macropterous..... ***Hyrcanus***

Four species are so far known from Thailand, two of which seem to be endemic. *Hyrcanus* species inhabit places associated with brooks, streams, and rivers, either hygropetric (especially in mosses) or semiaquatic between leaf litter at the edge or even in the middle of streams. Probably some species go into the water, too (ZETTEL 1998).

4 Paired, longitudinal carinae of thoracic venter converging and meeting before hind margin of metasternum (Fig. 11) ***Timasius***

Only two species are reported from Thailand, but in fact the number of species is much higher. Two species groups, the *T. livens* group and the *T. chinai* group (see ANDERSEN 1981), form complexes of allopatric species with high radiation in the Indo-Chinese area. *Timasius* species are typically found hygropetric on wet, shaddy rock faces at the edge of running waters.

Paired, longitudinal carinae of thoracic venter parallel throughout and continuing separately onto the base of abdomen (Fig. 12)..... ***Hebrus***

The Oriental species of the genus *Hebrus* are unrevised. Many, mostly unnamed, species are known from Thailand. Nearly all Oriental *Hebrus* species are hygropetric (often on mosses) or ripicolous, but a few species are also found at the edge of the surface of stagnant waters. Specimens of *Hebrus cruciatus* DISTANT were found under large stones on a river bank in Mindanao, Philippines, where they found shelter from the heat at noon; this species occurs also in Thailand.

Check-list of Hebridae species known from Southeast Asia

NHMW = Natural History Museum Vienna

Subfamily Hyrcaninae

Hyrcanus chenae ZETTEL, 1998	China (Yunnan)
Hyrcanus draculus ZETTEL, 1998	Thailand (Chiang Mai, Mae Hong Son), North Laos, South China
Hyrcanus saxatilis ANDERSEN, 1981	Thailand (Chiang Mai)
Hyrcanus shepardi ZETTEL, 1998	Thailand (Phetchabun)
Hyrcanus varicolor ANDERSEN, 1981	Thailand (widespread), Viet Nam, Indonesia (Sumatra, Java)
Nieserius subaquaticus ZETTEL, 1999	Thailand (Chiang Mai, Mae Hong Son)
Nieserius brachypterus ZETTEL, 1999	North Laos

Subfamily Hebrinae

Merragata pallescens (DISTANT, 1909)	India, Thailand, Java (see ZETTEL 1999b)
Timasius livens ANDERSEN, 1981	Thailand (Chiang Mai)
Timasius miyamotoi ANDERSEN, 1981	Thailand (Chiang Mai)

Timasius spp. (several undescribed species from Thailand in NHMW)

Hebrus cruciatus (DISTANT, 1910)	Philippines, Thailand (Chiang Mai, NHMW)
Hebrus nereis POLHEMUS & POLHEMUS, 1989	Thailand (Andersen, unpubl. list), Singapore

Hebrus spp. (numerous undescribed species from Thailand in NHMW)

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Opinion:

Owners of the Bugs

Roam a meadow and enjoy nature. Observe the thousands of buzzing, creeping and swarming insects and think: Who is their owner?

This crazy thought has a real background. In our materialistic world everything (and everybody? see discussion on genetic "resources" of ethnic minorities) *has* to be owned. Since the agreement in the "Convention of Biodiversity" wild animals (including protozoes, worms, and insects), plants, and even microbes are owned by the states, who own the rights to self-controlled exploitation. The "common heritage principle" (in my opinion even this term is worth discussion) was replaced by the "common concern principle". Respect for nature is obviously not even considered.
It is not only a Christian attitude, than men subject Mother Earth. In most "civilizations" nature is owned by somebody; those creatures which are not owned by a person or a company are owned by the state. Ecological movements did not reduce this trend, but even enforced it involuntarily. Ecologists said, "be responsible for our nature", but politicians heard only "our nature": they made laws stating that wildlife (more modern: its genetic "resources") belongs to the country, which must be a little responsible for it ("... not too much, please, respect economic needs!"), but can use it as it likes. Biodiversity projects were (and still are) justified by (often not existing) follow-up research on usage of yet undiscovered species (in medical plants, etc.). Politicians heard "usage" and made laws to regulate this possible use in advance.
One of the disastrous consequences of the "Convention of Biodiversity" will be a quickly growing administration and regulation of biodiversity research (especially concerning export regulations), which may result even in a de facto end to international cooperation. Consequently, nature destruction may overtake biodiversity research, especially in those tropical countries where scientific cooperation is essential for well-founded nature protection.

Be sure: *It's good for the economy!*

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P.S.: Yesterday, at a newspaper kiosk, I read a headline in a popular journal: "Biodiversity: There are at least 13 million living creatures. - Who really needs them all?"

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