

THE AQUATIC BUGS (HETEROPTERA) OF THE ANAMBAS AND NATUNA ISLANDS, INDONESIA

A. D. Tran

Department of Biological Sciences, National University of Singapore, Kent Ridge, Singapore 119260

*Department of Invertebrate Zoology, Faculty of Biology, Hanoi University of Science,
Vietnam National University*

Chang Man Yang

*Raffles Museum of Biodiversity Research, Department of Biological Sciences, National University of Singapore,
Kent Ridge, Singapore 119260*

ABSTRACT. – A total of 22 species (16 identified) of 14 genera in 6 families of aquatic Heteroptera were recorded from the Anambas and Natuna islands. All species are first records from the studied islands, except *Ranatra* cf. *natunaensis* which can not be confirmed.

KEY WORDS. – Anambas, Natuna, Indonesia, Heteroptera, aquatic bugs, taxonomy.

INTRODUCTION

Anambas and Natuna (formerly Bunguran) islands, which compose of several small islands, are located in the south most part of the South China Sea, in between Malay Peninsula and Borneo (Fig. 1). The two island groups are notable for the vertebrate fauna, but work on invertebrate fauna is scanty (see Ng et al., 2004, present volume). The only report on aquatic Heteroptera is by Lansbury (1972), describing a new nepid, *Ranatra natunaensis*, based on specimens collected from Sibuning, Great Natuna Island by C. Hose in 1894.

In 2002, a joint “Anambas Expedition” for the study of biodiversity on Anambas and Natuna was co-organised by the Raffles Museum of Biodiversity Research, NUS (RMBR) and Indonesian Institute of Sciences (LIPI). The present study is to document the Heteroptera fauna collected from those islands.

MATERIAL AND METHODS

Material for present study is based on specimens collected from the Anambas islands from 13-19 March 2002, and from Natuna islands from 13-19 March and 29 October-6 November 2002. Most of the specimens were collected by hand net and rectangular-frame tray net. A few marine bugs were collected by towing of plankton net. All materials are deposited in Museum Zoologicum Bogoriense (MZB), Indonesia, and the Zoological Reference Collection (ZRC)

of the Raffles Museum of Biodiversity Research, Singapore. The collections were from various habitats at the following locations:

Anambas Islands

- Site 1. Pulau Jemaja, Teluk Jebung, inland freshwater stream near the northern mangrove inlet, 02°56.98'N, 105°50.17'E, coll. D. Wowor & M. Z. Zaidi, 13 Mar.2002 (EA-DW03).
- Site 2. East coast of Pulau Jemaja, mouth of Teluk Jebung (night collecting, surface towing by plankton net), coll. T. H. Tan, 13 Mar.2002 (EA-TT05).
- Site 3. Eastern Pulau Siantan, inland of Teluk Temburun, Air Terjun Temburun, Desa Temburun, 03°10.99'N, 106°16.31'E, coll. D. Wowor & M. Z. Zaidi, 13 Mar.2002 (EA-DW07).
- Site 4. Southern Pulau Bajau, landward site off northern most bay of Teluk Dumang, Kampung Belimbing, Desa Nyamuk, coll. D. Wowor & M. Z. Zaidi, 19 Mar.2002 (EA-DW14).

Natuna Islands

- Site 5. Pulau Laut, Teluk Air Payang, Desa Air Payang, a seasonal freshwater stream, 04°41.98'N, 107°57.15'E, coll. D. Wowor & M. Z. Zaidi, 16 Mar.2002 (EA-DW08).
- Site 6. Pulau Laut, Teluk Air Payang, Sungai Air Papan, Desa Air Payang, Kecamatan Bunguran Barat, 04°48.86'N, 107°57.79'E, coll. D. Wowor & M. Z. Zaidi, 16 Mar.2002 (EA-DW09).
- Site 7. Southern coast of Pulau Laut, sand and mudflats linking to the small island Pulau Sengat, 03°17.95'N, 106°13.10'E, coll. Z. B. Jaafar, 16 Mar.2002 (EA-ZJ08).
- Site 8. Natuna Besar, Sungai Segeram, Kecamatan Ranai, 03°58.11'N, 108°03.37'E, coll. D. Wowor, H. H. Tan & M. Z. Zaidi, 18 Mar.2002 (EA-DW11).
- Site 9. Natuna Besar, Sungai Datuk Kaya, tributary of Sungai Segeram, black water, 03°56.46'N, 108°03.95'E, coll. D. Wowor & H. H. Tan, 18 Mar.2002 (EA-DW12).

TAXONOMY

FAMILY GERRIDAE

Limnogonus fossarum fossarum (Fabricius)

Material examined. – All macropterous: **Anambas Islands:** 1 male, Pulau Jemaja, site 1 (MZB). **Natuna Islands:** 3 males, 2 females, Pulau Laut, site 5 (ZRC); 1 female, Pulau Laut, site 6 (MZB); 2 males, Natuna Besar, site 9 (MZB); 1 female, Natuna Besar, site 12 (ZRC).

Remarks. – This species is common and widespread in Oriental Region, from India to Sumatra, Philippines and Borneo.

Limnometra octopunctata Hungerford

Material examined. – **Natuna Islands:** 2 males, 1 female macropterous, Natuna Besar, site 10 (MZB, ZRC).

Remarks. – This species distributed in Malay Peninsula, Sumatra, Borneo, Sulawesi.

- Site 10. Natuna Besar, a pool near Sungai Datuk Kaya, tributary of Sungai Segeram, 03°56.46'N, 108°03.95'E, coll. D. Wowor, 18 Mar.2002 (EA-DW13).
- Site 11. West coast of Natuna Besar, surface towing by plankton net, 03°56.34'N, 107°54.41'E, coll. T. H. Tan, 18 Mar.2002 (EA-TT07).
- Site 12. Natuna Besar, Sungai Air Tayan, a stream next to Natuna Hotel, 03°56.70'N, 108°22.04'E, coll. D. Wowor & D. C. J. Yeo, 30 Oct.2002 (DW0201).
- Site 13. Natuna Besar, Mt. Ranai, waterfall and surrounding area, Kecamatan Bunguran Timur, coll. D. Wowor & D. C. J. Yeo, 31 Oct. & 4 Nov.2002 (DW0202).
- Site 14. Natuna Besar, a small stream outside Ranai, on the way to Binjai, Kecamatan Bunguran Timur, 03°54.69'N, 108°20.68'E, coll. D. Wowor & D. C. J. Yeo, 2 Nov.2002 (DW0203).
- Site 15. Natuna Besar, peat-swamp between Desa Harapan Jaya and Desa Binjai, Kecamatan Bunguran Timur, 03°50.51'N, 108°16.48'E, coll. D. Wowor & D. C. J. Yeo, 2 Nov.2002 (DW0204).
- Site 16. Natuna Besar, a black water stream 19.2km from Ranai, 2nd bridge after junction of Desa Harapan Jaya towards Desa Cemaga, 03°48.64'N, 108°18.60'E, coll. D. Wowor & D. C. J. Yeo, 5 Nov.2002 (DW0208).
- Site 17. Natuna Besar, a black water stream 16km from Ranai, 1st bridge after junction of Desa Harapan Jaya towards Desa Cemaga, 03°50.27'N, 108°17.14'E, coll. D. Wowor & D. C. J. Yeo, 5 Nov.2002 (DW0209).

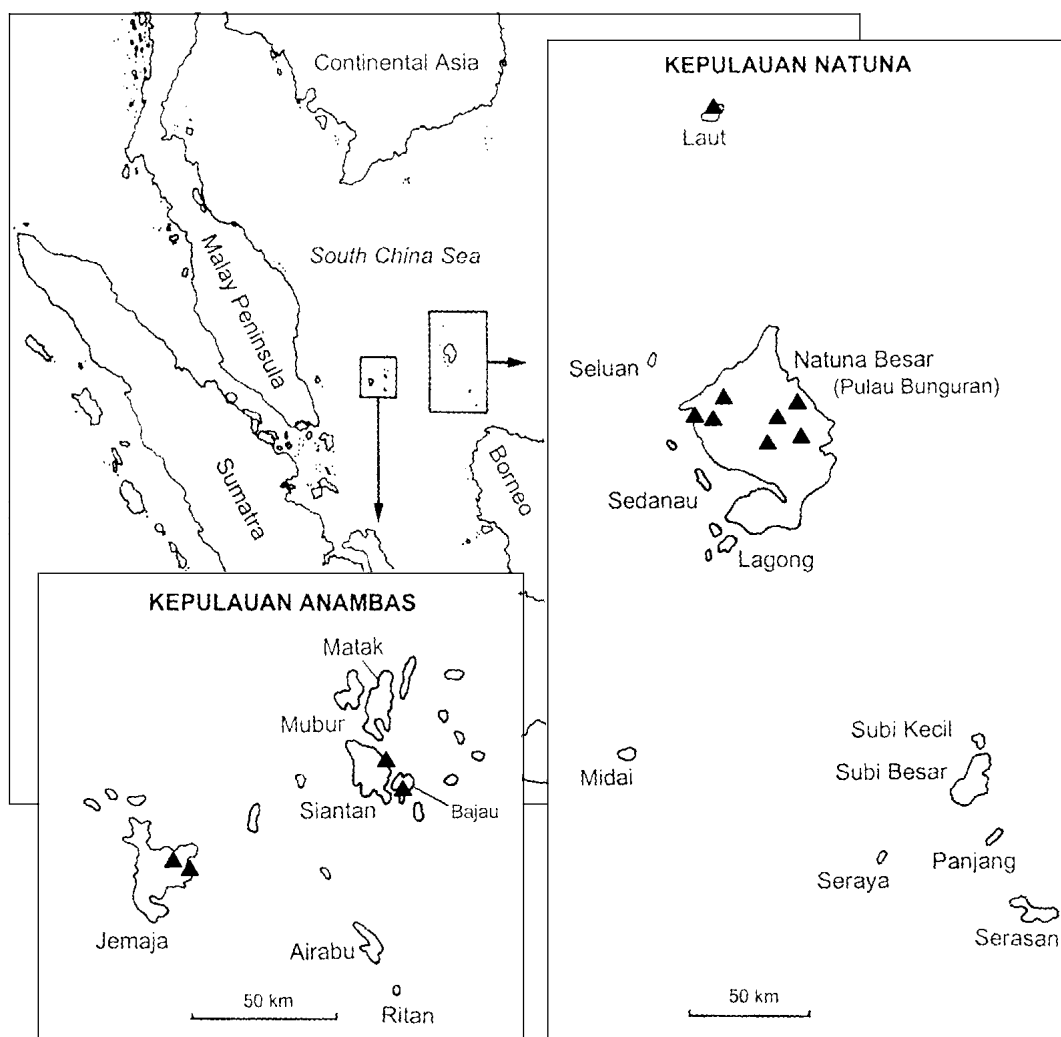


Fig. 1. Map of Anambas and Natuna Islands showing collecting locations (▲).

***Limnometra ciliata* Mayr**

Material examined. – **Anambas Islands:** 4 males, 5 females macropterous, southern Pulau Bajau, site 4 (MZB, ZRC). **Natuna Islands:** 2 females apterous, 6 males, 16 females macropterous, Pulau Laut, site 5 (MZB, ZRC); 5 males, 13 females macropterous, Pulau Laut, site 6 (MZB, ZRC).

Remarks. – This species is common and widespread from Thailand, Malay Peninsula, Philippines to Papua New Guinea.

***Limnometra insularis* Hungerford & Matsuda**

Material examined. – **Natuna Islands:** 1 male, 1 female macropterous, Natuna Besar, site 10 (MZB, ZRC).

Remarks. – This species distributed in Malay Peninsula, Sumatra, Java.

***Cylindrostethus scrutator* (Kirkaldy)**

Material examined. – **Anambas Islands:** 6 nymphs, eastern Pulau Siantan, site 3 (ZRC). **Natuna Islands:** 2 nymphs, Natuna Besar, site 9 (MZB); 1 male, 1 female apterous, Natuna Besar, site 12 (MZB, ZRC).

Remarks. – This species is common in Southeast Asia mainland, Java, Sumatra, Borneo.

***Metrocoris* sp.**

Material examined. – **Natuna Islands:** 5 nymphs, Natuna Besar, site 9 (MZB, ZRC).

***Ventidius malayensis* Hungerford & Matsuda**

Material examined. – **Natuna Islands:** 3 males, 3 females apterous, 20 nymphs, Natuna Besar, site 16 (MZB, ZRC).

Remarks. – This species distributed in Thailand, Malay Peninsula, Borneo.

***Rheumatogonus vietnamensis* Zettel & Chen**

Material examined. – All apterous: **Natuna Islands:** 4 males, 6 females, Natuna Besar, site 12 (MZB, ZRC); 4 males, 2 females, Natuna Besar, site 14 (MZB); 20 males, 11 females, Natuna Besar, site 16 (MZB, ZRC).

Remarks. – *Rheumatogonus vietnamensis* was recorded from Vietnam and Northern Thailand (Zettel & Chen, 1996; Chen & Nieser, 2002). The occurrence of this species in Natuna Besar is the first record outside from Indochina.

***Rheumatogonus* sp.**

Material examined. – **Anambas Islands:** 1 male apterous, 2 nymphs, Pulau Jemaja, site 1 (MZB).

Remarks. – This is an undescribed species as the specimen is not belonging to the known species of *Rheumatogonus*, recently revised by Chen & Nieser (2002). We have examined *R. borneensis* material from Pontianak, Borneo (in ZRC) and noted that the Anambas specimen has the similarity in external morphology but difference in vesica structure (H. Zettel, pers. comm.).

***Halobates hayanus* White**

Material examined. – **Anambas Islands:** 1 male, 1 female apterous, Pulau Jemaja, site 2 (MZB).

Remarks. – This species is widely distributed in Indo-West Pacific region (Andersen & Weir, 1994).

***Halobates germanus* White**

Material examined. – **Natuna Islands:** 2 males, 6 females apterous, 20 nymphs, Natuna Besar, site 11 (MZB, ZRC).

Remarks. – This species is widely distributed in Indo-West Pacific region (Andersen & Weir, 1994).

***Halobates* sp.**

Material examined. – **Natuna Islands:** 1 female apterous, southern coast of Pulau Laut, site 7 (ZRC).

FAMILY VELIIDAE

***Rhagovelia sumatrensis* Lundblad**

Material examined. – **Natuna Islands:** 8 males, 16 females apterous, 2 females macropterous, eastern Pulau Siantan, site 3 (MZB, ZRC); 11 males, 8 females apterous, Natuna Besar, Mt. Ranai, site 13 (MZB, ZRC); 1 male apterous, Natuna Besar, site 16 (MZB).

Remarks. – This is a common and widespread species from India, Southeast Asia to Lesser Sunda Islands (including Lombok, Sumbawa, Flores, Sumba and Timor (D. Polhemus, pers. comm.)) but does not occur in Borneo.

***Rhagovelia singaporensis* Yang & D. Polhemus**

Material examined. – **Anambas Islands:** 2 males apterous, 1 male macropterous, Pulau Jemaja, site 1 (MZB); 1 male, 1 female apterous, Pulau Bajau, site 4 (ZRC). **Natuna:** 2 males, 1 female apterous, Natuna Besar, site 12 (MZB, ZRC).

Remarks. – The specimens were collected from a shallow and slow flowing sandy stream in a cultivated land. This species has also been collected from the Malay Peninsula, Bintang Island and Java, but not yet known from Borneo.

***Rhagovelia sondaica* Polhemus & Polhemus**

Material examined. – Anambas Islands: 2 males, 1 female apterous, eastern Pulau Siantan, site 3 (MZB).

Remarks. – The specimens were collected from a moderately to fast flowing stream, near a waterfall. This is a common and widespread species found in Malay Peninsula and Borneo.

***Rhagovelia rudischiuhi* Zettel**

Material examined. – Natuna Islands: 2 males, 1 female apterous, Natuna Besar, Mt. Ranai, site 13 (MZB, ZRC).

Remarks. – This species usually inhabits the head-water or slow flowing streams in the forests of the Malay Peninsula, Singapore and Batam Island. The Natuna specimens were collected from rock pools might have been washed down from the small tributary near the waterfall.

FAMILY HERMATOBATIDAE

***Hermatobates* sp.**

Material examined. – Anambas Islands: 1 nymph, East coast of Pulau Jemaja, site 2 (MZB).

FAMILY HYDROMETRIDAE

***Hydrometra longicapitis* Torre-Bueno**

Material examined. – Natuna Islands: 1 female brachypterous, Natuna Besar, site 14 (MZB); 3 males, 6 females brachypterous, Natuna Besar, site 17 (MZB, ZRC).

Remarks. – *Hydrometra longicapitis* is common and widespread in continental Southeast Asia, Sumatra and Borneo.

FAMILY NEPIDAE

***Cercotmetus asiaticus longicollis* Montandon**

Material examined. – Natuna Islands: 1 male macropterous, 1 female apterous, Natuna Besar, site 9 (MZB); 1 female apterous, Natuna Besar, site 15 (ZRC).

Remarks. – This subspecies was recorded from Malay Peninsula and Borneo.

***Ranatra* cf. *natunaensis* Lansbury**

Material examined. – Natuna Islands: 4 males, 3 females macropterous, Natuna Besar, site 8 (MZB, ZRC).

Remarks. – *Ranatra natunaensis* was described by Lansbury (1972) based on specimens collected from “Sibuning, Great

Natuna Island” by C. Hose in 1984. The identification of this species is provisional as they differ in some minor characters from the description by Lansbury (1972) (N. Nieser, pers. comm.).

FAMILY NOTONECTIDAE

***Anisops* sp.**

Material examined. – Anambas Islands: 1 female macropterous, Pulau Jemaja, site 1 (MZB).

***Enithares* sp.**

Material examined. – Natuna Islands: 1 nymph apterous, Natuna Besar, site 8 (MZB).

DISCUSSION

The present study recorded only about 22 species (16 identified) of 14 genera in 6 families of aquatic hemipterans from the Anambas and Natuna Islands. Some females or nymphs of *Metrocoris*, *Hermatobates*, *Anisops* and *Enithares* could not be identified to the species level. Although the sampling was not extensive and more species are to be expected on these islands, this record provides some zoogeographical information on the fauna in the region.

Among the species found in this study, *Limnogonus fossarum fossarum*, *Limnometra octopunctata*, *L. ciliata*, *L. insularis*, *Cylindrostethus scrutator*, *Ventidius malayensis*, *Hydrometra longicapitis*, *Cercotmetus asiaticus longicollis* and *Rhagovelia sondaica* are common and widespread species both in continental Southeast Asia and also in Sunda Islands (Lansbury, 1973; Andersen, 1975, 1995; Polhemus & Polhemus, 1988; Nieser & Chen, 1992; Polhemus, 1994; Chen & Zettel, 1998). *Rhagovelia sumatrensis*, *R. rudischiuhi* and *R. singaporensis* are distributed in the Malay Peninsula (Polhemus & Polhemus 1995; Yang & Polhemus, 1994). No endemic species of Borneo was found during this study. *Rheumatogonus vietnamensis* was previously known from Vietnam and North Thailand and is unknown from the Malay Peninsula (Zettel & Chen, 1996; Chen & Nieser, 2002), the occurrence of this species in Natuna Islands cannot be satisfactorily explained at present. The present study indicates that fauna of Natuna and Anambas Islands closely resembles that of the Malay Peninsula, and the islands were connected to the Southeast Asian mainland during the Pleistocene period (Voris, 2000).

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