

The Caddisflies (Trichoptera) collected by the Austrian-Indian Mission in 1976 on the Andaman-Islands

Part VI: Results of the Austrian-Indian Hydrobiological Mission 1976 to the Andaman-Islands

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Abstract

A list of Trichoptera is given which is the first record of this insect order for the Andaman Islands. At least 19 species were found, 14 could be identified to species, 13 were new to science. No relictiary species of particular zoogeographical interest were found.

List of species

Agapetus sp. Several larvae which could belong, according to ULMER (1957: 159ff.), to the sub-genus *Tagapetus*.

Orthotrichia sp. Two females only which could not be identified to species.

Hydroptilidae g. sp. Three females which could not be identified to genus and species. They have no ocelli, and their spur formula is 024 as in *Hydroptila*, but ULMER (1951) described three other genera from Indonesia with the same characters.

Chimarra bimbltona MAL. In addition to the adults one immature male pupa was found which belongs very probably to this species, but its abdominal structures are not fully developed.

Chimarra mongelutonga MAL.

Chimarra sp. Several larvae which could not be identified to species.

Paduniella andamanensis MAL.

Ecnomus mithrakai MAL.

Polyplectropus dhinkari MAL.

Polyplectropus sp. One larva only.

Polycentropodidae g. sp. A number of larvae from several localities which could not be associated with any genus or species of adults. With the key by ULMER (1957) a clear decision was not possible. The larvae are smaller than *Polyplectropus*

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larvae and have whitish body coloration similar to philopotamids. The head is more rounded than in *Polyplectropus*, light yellow except of the anterior half of the clypeus which is brown. The pronotum is brown except of the anterior margin which is yellow, its posterior part being strongly narrowed. The dark spots which are plenty on head and pronotum of *Polyplectropus*, *Polycentropus* etc. are nearly absent. The pygopodia are relatively short.

Dipseudopsis infuscata MCL. I think that the specimens belong to this species despite of minor differences compared with specimens from Sumatra.

Cheumatopsyche dhanikari MAL.

Cheumatopsyche bhatrapura MAL.

Cheumatopsyche sp. The larvae which are very common probably belong to the latter species, but only one mature male pupa could clearly associated with it.

cf. *Hydropsyche* sp. Several larvae may belong to *Hydropsyche*, but in absence of adult males they cannot be associated with any species. Another genus is also possible.

Goerodes doligung MAL.

Goerodes sp. One larva only which could not be identified to species.

Oecetis asmada MAL.

Setodes guptapara MAL.

Adicella starmuehlneri MAL.

Leptocerus tayaledra MAL.

Leptocerus tursiops MAL.

Leptoceridae g. sp. One very small larva only.

List of the material

(Arranged according to sampling localities under the original codes of the expedition (STARMÜHLNER, 1978).

South Andaman, Bottom samples

- No. 3** River Nayachal which is the outlet of Dhanikhari impoundment, 4. 12. 76. Water Temperature during sampling: 28.8–29.2° C; Cond.: 63 μ S; Tot. H.: 1° dH.

Cheumatopsyche sp. 300 larvae, 12 immature pupae, 1 ♀ mature pupa. Most larvae were found on gravels.

- No. 5** River near Bhatrapur, 5 km from the east coast, 5. 12. 76; Temp.: 26.4° C; Cond.: 158 μ S; Tot. H.: 3° dH.

Chimarra bimbltona 1 ♂ pupa

Polycentropodidae g. sp. 4 larvae

Cheumatopsyche sp. 47 larvae with several cases and nets, 4 immature pupae.

- No. 6** Nayachal River near the village Mongelutonge, 6. 12. 76; Temp.: 25.8–26.8° C; on gravels; Cond.: 107 μ S; Tot. H.: 1.6° dH.

Cheumatopsyche sp. 22 larvae, 4 immature pupae.

- No. 8** Stream near Guptapara close to the east coast, 7. 12. 76; Temp.: 24.2–25° C; Cond.: 80 μ S; Tot. H.: 1° dH.

Polycentropodidae g. sp. 1 larva
Cheumatopsyche sp. 9 larvae
cf. *Hydropsyche* sp. 3 larvae

- No. 9** Stream near Tayaledrabad, 7. 12. 76; Temp.: 25.5–26.6° C; Tot. H.: 11° dH.

Cheumatopsyche sp. 13 larvae

- No. 10** Stream near Bimblton close to the southern coast, 8. 12. 76; Temp.: 25.7–28.5° C, collections on gravels; Cond.: 242 μ S; Tot. H.: 5.9° dH.

Cheumatopsyche bhatrapura 1 δ , 1 ♀ mature pupae,
Cheumatopsyche sp. 35 larvae, 4 immature pupae.

- No. 11** Brook near Doligung in woodland, 8. 12. 76; Temp.: 25.2° C; Tot. H.: 2° dH; on gravels.

Cheumatopsyche sp. 2 larvae
Goerodes sp. 1 larva
Leptoceridae g. sp. 1 very small larva

- No. 12** Stream near Asmadabad in shady area, 9. 12. 76; Temp.: 23.2–23.6° C; Cond.: 138 μ S; Tot. H.: 1.8° dH.

Cheumatopsyche sp. 4 larvae, 1 immature pupa.

- No. 17** Stream near Fishery-Jetty below the Tourist House, 500 m distance from the seashore; 20. 12. 76; Temp.: 27.3–28.1° C; Cond.: 233 μ S; Tot. H.: 3.6° dH.

Cheumatopsyche sp. 44 larvae.

- No. 19** Stream above the Dhanikari impoundment, in the shade of virgin forest near Allahmajid, 150–200 m above sea level 21. 12. 76; Temp.: 24.6–25.1° C; collections on gravels; Cond.: 148 μ S; Tot. H.: 2.6° dH.

Agapetus (Tagapetus?) sp. 6 larvae
Chimarra sp. 4 larvae
Polycentropodidae g. sp. 2 larvae
Cheumatopsyche sp. 10 larvae

South Andaman, Light trap collections nearby streams

- No. 18** Light trapping near locality no. 6, Nayachal River near Mongelutonge, 20. 12. 76; 18–20°.

Orthotrichia sp. 1 ♀
Chimarra mongelutonga 1 δ
Paduniella andamanensis 1 δ
Ecnomus mithrakai 2 δ , 1 ♀
Polyplectropus dhanikari 1 δ

Cheumatopsyche dhanikari 1 ♂, 3 ♀
Cheumatopsyche bhatrapura 13 ♂, 15 ♀
Goerodes doligung 1 ♂
Oecetis asmada 1 ♂
Setodes guptapara 1 ♂, 4 ♀
Adicella starmuehlneri 8 ♂, 11 ♀
Leptocerus tayaledra 2 ♂
Leptocerus tursiops 4 ♂

No. 20 Light trapping near locality no. 10, Bimblton, 22. 12. 76, 18–20^h.

Orthotrichia sp. 1 ♀
 Hydroptilidae g. sp. 3 ♀
Chimarra bimbltona 4 ♂, 23 ♀
Chimarra mongelutonga 1 ♂, 1 ♀
Ecnomus mithrakai 6 ♂, 2 ♀
Dipseudopsis infuscata 2 ♂, 15 ♀
Cheumatopsyche dhanikari 1 ♀
Cheumatopsyche bhatrapura 50 ♂, 994 ♀
Oecetis asmada 1 ♀
Setodes guptapara 1 ♀

North Andaman, Bottom samples only

No. 2 River Kalimpong, 4 km upstream of Diglipur, 13. 12. 76; Temp.: 24.9–26.2° C; collections on gravels; Cond.: 306 μ S; Tot. H.: 10° dH.

Polycentropodidae g. sp. 6 larvae
Cheumatopsyche sp. 46 larvae
 cf. *Hydropsyche* sp. 1 larva, 1 immature pupa

No. 3 River Kalimpong near Diglipur, polluted by sewage; 13. 12. 76; Temp.: 26.7° C; on gravels; Cond.: 293 μ S; Tot. H.: 9° dH.

Polyplectropus sp. 1 larva
Cheumatopsyche sp. 2 larvae

No. 4 River Lakshmipur, 5 km southwest of Diglipur, 14. 12. 76; Temp.: 25.6–27.1° C; on gravels; Cond.: 185 μ S; Tot. H.: 4.4° dH.

Cheumatopsyche sp. 23 larvae, 1 immature pupa

No. 5 Stream between R. K. Nagar and Keralapuram, 4 km east of Diglipur, 14. 12. 76; Temp.: 26.9–27.2° C; Cond.: 195 μ S; Tot. H.: 3.6° dH.

Cheumatopsyche sp. 2 larvae

No. 6 River Durgapur, 15. 12. 76; Temp.: 26.4–27.3° C; on gravels; Cond.: 253 μ S; Tot. H.: 5° dH.

Cheumatopsyche sp. 1 larva

No. 7 River Kalimpong between localities no. 2 and no. 5, south of Diglipur, 15. 12. 76; Temp.: 27.8–28.0° C; on gravels; Cond.: 242 μ S.

Cheumatopsyche sp. 33 larvae, 3 immature pupae
 cf. *Hydropsyche* sp. 20 larvae, 6 immature pupae, 1 mature female pupa.

Discussion

This paper gives the first records of caddisflies from the Andaman Islands where the order Trichoptera was unknown. Fortunately two light trap samples were available, so that 14 species of adult caddisflies could be identified to species, 13 of them were new to science and were described in an earlier paper. Two more hydroptilid species were present in females, and three other species were found as larvae only. They may also represent new species, but the material is not sufficient for description. Only in two species (*Chimarra bimbltona*, *Cheumatopsyche bhatrapura*) the larvae, pupae and adults could be associated. For the other larvae which are in the material it is not certain whether they are conspecific with any adults in the same collections. This demonstrates once more that stream bottom sampling gives an incomplete picture of the caddisfly fauna, and that additional collecting methods such as light trapping and sweeping, but also collecting of mature pupae, are indispensable.

The material represents certainly not the complete species list of the caddisfly fauna of the islands, but it allows several conclusions.

First, the fauna of these small islands is relatively poor, compared with larger islands such as Sumatra or with the adjacent continent. ULMER (1957) mentions 93 species for Sumatra, 91 for Borneo and 98 for Java, but these figures are certainly far below the real species numbers. In two papers which deal with four families only I recently mentioned 15 additional species for Sumatra of which 13 were new to science. This brings the species number of these families to 22, compared with ULMER's figure of seven. The number of caddisfly species existing in Sumatra may therefore be estimated to a minimum of 300. In the Andaman Islands on the other hand the number exceeds perhaps not 30.

Second, the species in the material belong to widespread genera as usual in tropical regions of southern Asia. Some of the species may prove to be endemic, but wider distribution is also possible. No species were found which belong to relictary groups of particular zoogeographical interest. This suggests that the fauna of the Andaman Islands is a relatively young one, and that the islands were not separated for long geological periods from the continent.

No significant faunistic differences between North Andaman and South Andaman were found.

In ecological respect it seems that *Cheumatopsyche bhatrapura* is present everywhere in streams and rivers. The relatively few samples and the short collecting period however does not allow more conclusions. In clean and undisturbed streams in virgin forest live probably more species than in polluted ones.

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