

## AN ACCOUNT OF CADDISFLIES (TRICHOPTERA) FROM BARIO, KELABIT HIGHLANDS, SARAWAK

F. Abang & Sulaiman Hanapi  
Universiti Malaysia Sarawak

### ABSTRACT

*A study on the taxa composition of caddisflies collected from Bario Highlands revealed 9 families of Trichoptera; namely Glossosomatidae, Philopotamidae, Hydroptilidae, Polycentropodidae, Psychomyidae, Hydropsychidae, Leptoceridae, Goeridae and Lepidostomatidae. Among these taxa, Philopotamidae was found to be most abundant. Hydroptilidae, Polycentropodidae, Goeridae and Lepidostomatidae were not well represented.*

### INTRODUCTION

Borneo is noted for its richness in the insect fauna and high degree of endemism. Although much has been said about this, most of its insect fauna, still remain undocumented and unknown to science. The aquatic insects, in particular, have been little surveyed and very rarely been the subject of detailed ecological study (Huisman & van Tol, 1989). The caddisflies of Sarawak is relatively unknown with respect to their biological and taxonomic status. The present study was carried out during an expedition to Bario from 10-20 April 1995 as part of a series of Scientific Journey Through Borneo organized by the Universiti Malaysia Sarawak (UNIMAS). Its main objective was to determine the taxa composition and abundance of the caddisflies in the Bario Highlands and establish a baseline documentation for the Trichoptera of Sarawak.

### MATERIALS AND METHODS

Collections of adult caddisflies were made with light sheet traps Powered by a 160-watt mercury vapor lamp. The sheet was set up on an exposed site. Three collecting sites located in the vicinity of a settlement area about 1,200m a.s.l. were sampled during 6 night sessions. Most samples were taken at the site of a settlement dominated by bamboo and cultivated vegetation. The larvae were collected by hand, using a kitchen sieve. The specimens Were stored in 75% ethyl alcohol. Specimens were identified under a dissecting microscope to the family level based on Hilsenhoff (1991) Identification to species level was not possible to date as keys and published descriptions to the caddisflies encountered are not available for the Trichoptera fauna of Sarawak. Materials collected were deposited in the UNIMAS Insect Reference Collection for further taxonomic studies.

### RESULTS AND DISCUSSIONS

As pointed out by Bishop (1973), the difficulty in discussing the Trichoptera was the inability to satisfactorily identify the larval stages and even to separate the taxa present. In addition to this, the published work on the biology and taxonomy of this group for Sarawak is poor. Because of these problems, only a brief discussion and indication on taxa composition and relative abundance of the Trichoptera is given here.

*Table 1. The taxa composition and relative abundance of caddisflies from Bario in April 1995*

Taxa Composition	Relative Abundance
1. Glossosomatidae	+
2. Philopotamidae	+++
3. Hydroptilidae	+
4. Polycentropodidae	+
5. Psychomyidae	++
6. Hydropsychidae	++
7. Leptoceridae	++
8. Goeridae	+
9. Lepidostomatidae	+

  

+++	<i>Abundant</i>
++	<i>Common</i>
+	<i>Few</i>

Most specimens collected in this study comprised of species that were attracted to light. Table 1 shows the taxa composition and relative abundance of the caddisflies from the collecting sites near the settlement area in Bario.

From this study, 9 families of Trichoptera were recorded namely Glossosomatidae, Philopotamidae, Hydroptilidae, Polycentropodidae, Psychomyidae, Hydropsychidae, Leptoceridae, Goeridae and Lepidostomatidae. Among the 9 taxa sampled, Philopotamidae was the most abundant, followed by Psychomyidae, Hydropsychidae and Leptoceridae. The sampling sites and time of the year when sampling was done could possibly be contributing factors to account for the presence and abundance of the Trichoptera. Huisman (1989) noted the differences in abundance in the families of Trichoptera in Sabah and Sarawak based on regions, different vegetation types, seasonal and altitudinal distribution and occurrences in rivers of different widths.

Glossosomatidae was previously regarded as a subfamily of Rhyacophilidae. However, Rhyacophilidae was not encountered in this study. Adults of Glossosomatidae were small, dull, greyish to black and rather uniform in appearance. The glossosomatids were previously reported to be abundant at altitudes between 1,000m a.s.l. and 1,500m a.s.l. and were almost absent in the regions of lower altitudes (Huisman, 1989). In contrast to Huisman's (1989), Glossosomatidae, being relatively less abundant at the time when sampling was done, was not commonly encountered as compared to the philopotamids. The time of collection was however different.

Huisman (1989) noted that Glossosomatidae was most abundant and reached maximum in March whilst sampling in this study was done in April.

Caddisflies in the family Philopotamidae are usually brownish With gray wings. The larvae live in silken retreats and feed on algae and detritus captured in their silken nets. Bishop (1973) noted that this group was normally restricted to forest rivers where the larvae Were found generally in gravels behind and beneath stable stones in the current.

The other families Hydroptilidae, Polycentropidadae, Goeridae and Lepidostomatidae were also present although not well represented. Hydroptilidae were found to be most abundant along rivers surrounded by dipterocarp forest from sea level to 1,000 meters from January until March and October (Huisman, 1989). This family is a large family consisting of the microcaddisflies. The larvae are well distributed and may be found in a wide variety of lentic and lotic habitats where they feed mostly on algae and other plant materials.

#### ACKNOWLEDGEMENTS

We would like to thank the following who, in one way or another, have made this study possible: UNIMAS and the Sarawak Forestry Department for organizing this scientific expedition; UNIMAS for Research Grant no.10/95 and En. Wahab Marni and Lim Chan Koon for field assistance rendered.

#### REFERENCES

**Bishop, J.E.**

[1973] Limnology of small Malayan River, Gombak. Monographiae Biologicae 22. The Hague: Junk.

**Hilsenhoff, W.L.**

[1991] Diversity and Classification of Insects and Collembola. In: J.H. Thorp and A.P. Covich (eds.). Ecology and Classification of North American Freshwater Invertebrates. Academic Press Inc. California. 911 pp.

**Huisman, J**

[1989] A study of Trichoptera in Sabah and Sarawak. Proceedings of the Sixth International Symposium on Trichoptera. Lodz-Zakopane (Poland), 12-16.

**Huisman, J. & Tol, J. van.**

[1989] Dragonflies and caddisflies (Odonata and Trichoptera) from waters around the Danum Valley Field Centre. Sabah Soc.Jour 9 (1): 112-123.