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Notes on the taxonomy of *Rhadicoleptus*, *Ptilocolepus* and *Pseudoneureclipsis*.

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**Abstract.** Ptilocolepinae is raised to family rank Ptilocolepidae. The placement of *Pseudoneureclipsis* in Dipseudopsidae is considered to be incorrect. The female of *Rhadicoleptus ucenorum* is figured, and it is suggested that the species belongs to Stenophylacini rather than to Limnephilini.

1. *Rhadicoleptus*

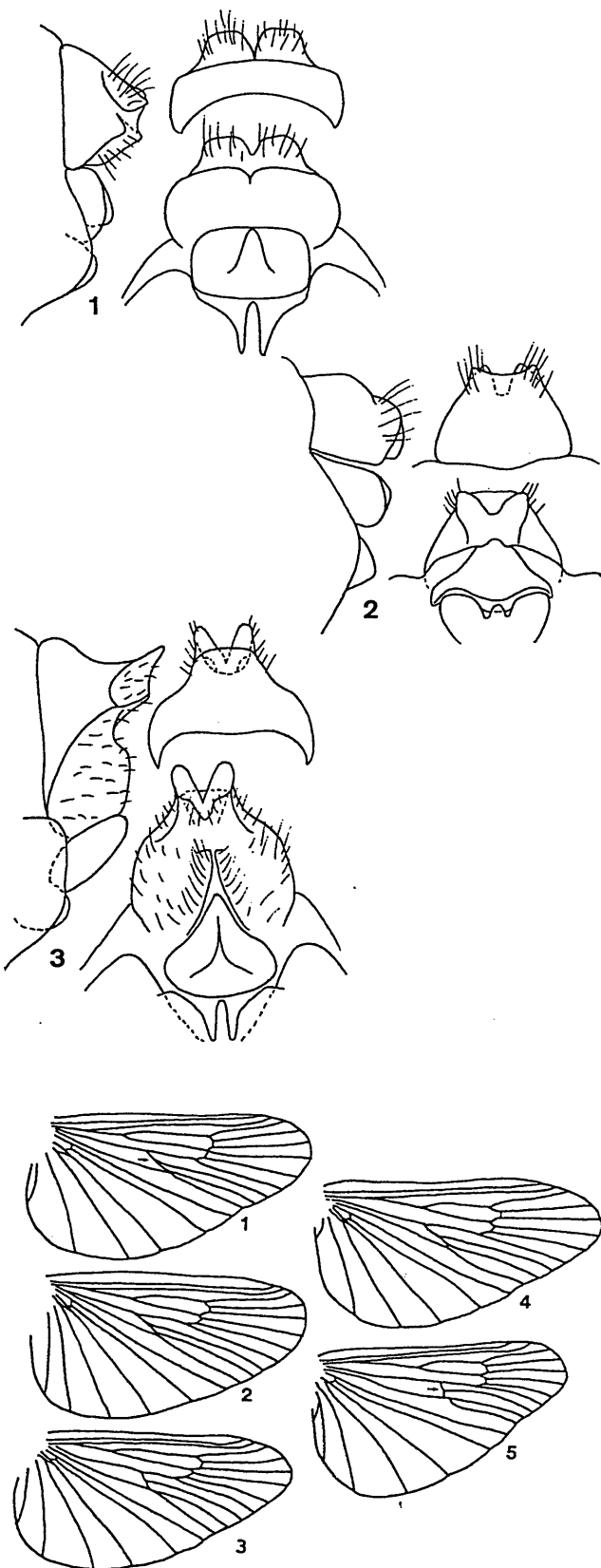
In his revision of the Limnephilidae, SCHMID (1955) placed the genus *Rhadicoleptus*, with the species *alpestris*, *spinifer* and *ucenorum*, in his newly created tribe Limnephilini. *R.spinifer* is now considered a subspecies of *R.alpestris*; *R.ucenorum* remained relatively unknown. MCLACHLAN (1874-80) who described *R.ucenorum* had collected it himself in the French Alps on 8 July 1876 "at a small land-spring at the highest point of the mule-path leading from Bourg d'Oisans to Villard Reymond (about 4800 feet). A few days later it was abundant at land-springs on the treeless flowery slopes of the Col du Lautaret (about 5500 feet)..."

On 10 July 2001 I went to Villard Reymond but failed to find this insect there. Probably the new road is not in the same place as the mule-path more than hundred years ago. But plenty of adults were found at Col du Lautaret in the same day. I found it also in the upper valley of river Guil, south of La Roche Ecroulée, on 13 July, at an altitude of 1900m, and on 15 July on the Italian side of Monte Viso, west of Santa Anna in the Valle Varaita, in 2000m (which is possibly a new record for Italy). Many years ago I had seen one male from Leiden Museum, collected at Gemmipaß near Kandersteg (Switzerland) on 20 July 1939 by H.C.Blötz in an elevation of 1900-2300m, which I have figured in my Atlas (MALICKY 1983). It appears that these are all the known records of the species.

MCLACHLAN (l.c.) gave a description, with insufficient drawings, of the female of *R.ucenorum*. Here I give new figures. One can see at the first glance that it is very different from *R.alpestris*, and, as the male genitalia are also very different, one may really ask if they are congeneric. SCHMID (l.c.:166) gives a detailed description of the genus, but in fact, this is mostly the description of the characters of *R.alpestris* and does not apply to *R.ucenorum*, from the forewing pattern to the female genitalia. In my opinion it would be justifiable to describe a new genus for *R.ucenorum*, but I hesitate to do this as we have already enough poorly defined genera in Limnephilidae. So I leave it in *Rhadicoleptus* for the moment. More interesting is however its position in the system.

SCHMID (l.c.) has separated within the subfamily Limnephilinae the tribes Limnephilini and Stenophylacini. They are certainly different in phylogenetical, ecological and zoogeographical respects, but it is difficult to separate them by eidonomic characters, and to place a particular species in one of them. SCHMID (l.c.:172) mentioned that "...elle [i.e. Stenophylacini] ne s'en [i.e. Limnephilini] distingue par aucun caractère très frappant, mais au contraire par toute une série de particularités...". If we compare these series of characters, we soon recognise that they are not very useful. The head of the adult is long and narrow in most Limnephilini, and short and broad in Stenophylacini, but also in *Rhadicoleptus* and *Anabolia*. The eyes and the anastomosis of the forewings are different according to species, and the latter is also individually variable; the pronotum is long only in *Grammotaulius* and *Nemotaulius*, otherwise short; the discoidal cell of the hindwing may be short or long in both tribes, and the bifurcation of the median vein in the hindwing may be before or after the radial one, or in the same level. The only fairly consistent characters which I found, comparing many species in my collection, are the median veins of the hindwing which are strongly curved in Limnephilini, but slightly bent in Stenophylacini – but also in *Rhadicoleptus* and *Anabolia* (see the figure)! I am not sure whether *Rhadicoleptus alpestris* may belong to Limnephilini or Stenophylacini, but *Anabolia* belongs clearly to the former according to characters in the genitalia. So it appears that no character is in existence (or has not been found) which clearly separates these two tribes, and we have to use the genital structures of a species in question to compare them with others and find out where it is most

similar. Using this method, I suppose that *R.ucenorum* belongs to Stenophylacini, and should be placed somewhere near *Anisogamus* and *Platyphylax*. For *R.alpestris*, I could not find an appropriate relationship.



Female genitalia (lateral, dorsal, ventral) and hindwing venation of *Rhadicoleptus ucenorum* (1), *Anisogamus difformis* (2), *Rhadicoleptus alpestris* (3), *Anabolia lombarda* (4) and *Limnephilus sparsus* (5)

## 2. *Ptilocolepus*.

In my Atlas of European Trichoptera (MALICKY 1983) I had placed the genus *Ptilocolepus* among Glossosomatidae. I am often asked whether I had transferred the genus from Hydroptilidae where it is placed by most recent authors. No, I have not transferred it, but left it where it was.

MCLACHLAN (1874-80) arranged *Ptilocolepus* in his section III of Rhyacophilidae together with *Glossosoma* and *Agapetus*, i.e. the family Glossosomatidae in our modern sense, and some authors including MARTYNOV and myself have maintained this position. THIENEMANN (1904) described early stages and biology of *Ptilocolepus granulatus* with the conclusion that it fits neither in Glossosomatinae (of Rhyacophilidae) nor in Hydroptilidae in a satisfying manner. Based on this conclusion, ULMER (1907) transferred the genus into Hydroptilidae. At the beginning of the 20<sup>th</sup> century, one of the dominant hypotheses in biology was the Biogenetic fundamental law (Biogenetisches Grundgesetz) which indicated, that an organism during its ontogeny repeats its phylogeny in the development of morphological characters. Therefore the larval characters were considered more important than the adult characters. The larva of *Ptilocolepus* shares more characters with hydroptilid larvae, but the adults had more in common with glossosomatids. So THIENEMANN and ULMER thought that it must be placed into Hydroptilidae despite the former author finding that it does not fit into either. This ancient hypothesis is now almost forgotten, and in our modern sense all characters have to be considered equally. I have never studied *Ptilocolepus* in detail myself, but it appears now appropriate to draw a clear conclusion from THIENEMANN's results after one century, and to raise the Ptilocolepinae (genera *Ptilocolepus* and *Palaeagapetus*) to family rank Ptilocolepidae. According to the International Code of Zoological Nomenclature, Art. 34.1, the author is MARTYNOV 1913. For detailed information see THIENEMANN (1904).

## 2. *Pseudoneureclipsis*

In a recent paper, LI & al. (2001) concluded, based on a cladistic analysis, that *Pseudoneureclipsis* may belong to Dipseudopsidae. The following objections may be made to this decision.

1. The larvae of *Pseudoneureclipsis* and *Dipseudopsis* are very different in many characters, as one can easily see by comparing the descriptions and figures by e.g. GIBBS (1968) and TACHET & al. (2001), although they have a similar biology, living in tubes burrowed in the substrate.

2. The genus *Kambaitipsyche* which may have a key position in the analysis was not included in the study.

3. In the character state matrix given by LI & al (l.c.) on which the cladistic analysis is based, the inferior appendages of both Polycentropodidae and *Pseudoneureclipsis* are said to be one-segmented (character no. 10). However, in *Kambaitipsyche* which is considered to belong to Polycentropodidae, the inferior appendages are clearly two-segmented. In *Pseudoneureclipsis*, the inferior appendages have a dorso-basal process which is spine-shaped in most species (but see also *P.philemon* MALICKY & PROMMI 2000), and which is distinctly separated by an intersegmental membrane. The primary condition of inferior appendages in Trichoptera is two-segmented; so, if a caddis adult has a structure, separated by an intersegmental membrane from the basal segment, what else could it be than the second segment? Instead, LI & al.(l.c.) give as character no. 11 "with articulated basodorsal process..." Certainly, the dorso-basal position of this structure is unusual, but also in other caddis groups the second segment may be inserted in another place than distally, e.g. in some odontocerids where it links to the inner surface of the basal segment. Similar dorso-basal processes in many Lepidostomatidae or Leptoceridae cannot be second segments because they are not segmented.

In my opinion, the placement of *Pseudoneureclipsis* in the family Dipseudopsidae can therefore not be accepted. Instead, the relations between *Pseudoneureclipsis* and *Kambaitipsyche* should be studied. I have a larva from the high elevations of Doi Inthanon in Thailand which could be *Kambaitipsyche*, but this is not proved. I hope that one of our doctoral students at the University of Chiangmai will clear up this problem.

## References

- GIBBS, D.G., 1968, The larva, dwelling-tube and feeding of a species of *Protodipseudopsis* (Trichoptera: Dipseudopsidae). – Proc.R.ent.Soc.Lond.(A) 43:73-79.
- LI, Y.J., MORSE, J.C., TACHET, H., 2001, Pseudoneureclipsinae in Dipseudopsidae (Trichoptera: Hydropsychoidea), with descriptions of two new species of *Pseudoneureclipsis* from East Asia. – Aquat.Insects 23:107-117.
- MCLACHLAN, R., 1874-80, A monographic revision and synopsis of the Trichoptera of the European fauna. Reprint 1968, Clasesy: Hampton.
- MALICKY, H., 1983, Atlas of European Trichoptera. Junk: The Hague, 1-300.
- SCHMID, F., 1955, Contribution à l'étude des Limnophilidae (Trichoptera). – Mitt. Schweiz. Ent. Ges. (Beiheft) 28:1-245.
- TACHET, H., MORSE, J.C., BERLY, A., 2001, The larva and pupa of *Pseudoneureclipsis lusitanicus* Malicky, 1980 (Trichoptera: Hydropsychoidea). Description, ecological data and taxonomic considerations. – Aquatic Insects 23:93-106.
- THIENEMANN, A., 1904, *Ptilocolepus granulatus* Pt., eine Übergangsform von den Rhyacophiliden zu den Hydroptiliden. – Allg. Z. Ent. 9:418-424, 437-441.
- ULMER, G., 1907, Trichopteren, in: Genera Insectorum 60:1-259.



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## Moretti collection in Bergamo

In addition to the large "official" Trichoptera collection of the late Professor G.P. Moretti, he had a smaller private collection in his home near Miláno which included much of the material which he had collected when he was young and which was published in some of his early publications. It includes also other caddisflies which he got by exchange or purchase from other workers. Dr. Marco Valle tells me that this collection is now located in the Museo Civico di Scienze Naturali "E. Caffi" in Bergamo where it will be restored and catalogued. Ma.

## News from Mara Marinković

For many years we had no information about Dr. Mara Marinković-Gospodnetić who was with us at the symposia in Lunz and Reading, who contributed important papers to the knowledge of the Trichoptera of former Yugoslavia, and described several remarkable species, e.g. *Hydropsyche dinarica*. Dr. Gerhard Tarman tells me now that during his recent visit in Sarajevo he was informed that the collections and notes of Dr. Marinković were in her institute which burnt down during the war, and that she has ceased her scientific activity. Ma.