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Comments on two recently published papers on *Cheumatopsyche* (Hydropsychidae) and *Chaetopteryx* (Limnephilidae)

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Abstract. From the paper by THAWARORIT & al. (2013), all five newly described species in the genus *Cheumatopsyche* are synonymised with well-known common species: *C. recta* = *C. charites* MALICKY & CHANTARAMONGKOL 1997, **nov. syn.**; *C. diversa* = *Potamyia phaidra* MALICKY & CHANTARAMONGKOL 1997, **nov. syn.**; *C. triangula* = *C. chrysothemis* MALICKY & CHANTARAMONGKOL 1997, **nov. syn.**; *C. tongto* = *C. chryseis* MALICKY & CHANTARAMONGKOL 1997, **nov. syn.**; *C. cava* = *C. lucida* ULMER 1907 **nov. syn.** - From the paper by OLÁH & al. the following synonyms are stated: *Chaetopteryx prealpensis* OLÁH 2012 = *C. rugulosa* KOLENATI 1848, **nov. syn.**; *C. zalaensis* OLÁH 2012 = *C. rugulosa* KOLENATI 1848, **nov. syn.**; *C. papukensis* OLÁH & SZIVÁK 2012 = *C. schmidi* BOTOSANEANU 1957, **nov. syn.**

1. THAWARORIT, K.; SANGPRADUB, N.; MORSE, J.C., 2013, Five new species of the genus *Cheumatopsyche* (Trichoptera: Hydropsychidae) from the Phetchabun Mountains, Thailand. – *Zootaxa* 3613:445-454.

This paper deals with the descriptions of five new species from Thailand. An examination of the descriptions and the figures revealed the following.

Cheumatopsyche recta nov. spec.: Comparison of the figures with the figures of *C. charites* (in MALICKY 2010, p. 213) shows that the differences which are presented in the text are explained by the normal variation and in the slightly different drawing aspect of these three-dimensional structures, caused by preparation and drawing techniques: *Cheumatopsyche recta* THAWARORIT, SANGPRADUB & MORSE 2013 = *Cheumatopsyche charites* MALICKY & CHANTARAMONGKOL 1997, **nov. syn.** – *C. charites* is common in Thailand, Laos, Vietnam and Cambodia.

Cheumatopsyche diversa nov. spec.: The figures are practically identical with those of *Potamyia phaidra* (in MALICKY 2010, p. 203). The authors found no similarity with any *Cheumatopsyche* species which is not surprising as it is a species of *Potamyia*: *Cheumatopsyche diversa* THAWARORIT, SANGPRADUB & MORSE 2013 = *Potamyia phaidra* MALICKY & CHANTARAMONGKOL 1997, **nov. syn.** – *P. phaidra* is common in Central and Northern Thailand and in Laos.

Cheumatopsyche triangula nov. spec.: The authors compare this species with *C. chryseis* which is really different, but they did not mention that it corresponds very well with *C. chrysothemis* (in MALICKY 2010, p. 208): *Cheumatopsyche triangula* THAWARORIT, SANGPRADUB & MORSE 2013 = *Cheumatopsyche chrysothemis* MALICKY & CHANTARAMONGKOL 1997, **nov. syn.** – *C. chrysothemis* is common in Thailand, and was also recorded from Vietnam, Cambodia and Perak.

Cheumatopsyche tongto nov. sp.: The differences which are given by the authors between this one and *C. chryseis* (in MALICKY 2010, p. 209) are easily explained by the slightly different preparation and drawing techniques, and not so much in the natural variation: *Cheumatopsyche tongto*

THAWARORIT, SANGPRADUB & MORSE 2013 = *Cheumatopsyche chryseis* MALICKY & CHANTARAMONGKOL 1997, **nov. syn.** – *C. chryseis* is common in northern and Central Thailand.

Cheumatopsyche cava nov. sp.: I have earlier (MALICKY 1997) pointed on the difficulties in separating the three species described by G. Ulmer (*C. lucida* ULMER 1907, *C. angusta* ULMER 1930 and *C. cognita* ULMER 1951) as they are quite variable in size and coloration, and appears that molecular genetic methods will be useful to clear the situation. But *C. cava* clearly falls into the variation of these three „species“ for which I am using the oldest name: *Cheumatopsyche cava* THAWARORIT, SANGPRADUB & MORSE 2013 = *Cheumatopsyche lucida* ULMER 1907 **nov. syn.** – *C. lucida* is widespread in Thailand, Vietnam, Sumatra, Jawa, Bali, the Nicobar Islands and the Philippines, and common in many sites.

Conclusion: All five newly described species in this paper are synonyms of common species of which I have seen hundreds of specimens of each. Sometimes, one may ask oneself what peer-reviewers might be good for.

2. OLÁH, J., KOVÁCS, T., SIVEC, I., SZIVÁK, I., URBANIČ, G., 2012, Seven new species in the *Chaetopteryx rugulosa* species group: applying the phylogenetic species concept and the sexual selection theory (Trichoptera: Limnephilidae). – *Folia Hist. Nat. Mus. Matraensis* 36:51-79.

The phylogenetic age of a species may be very different. According to the current cladistic concept, each bifurcation means the origin of two new species while the former species is supposed to disappear. This is a brilliant methodical trick but does not correspond with reality. According to this concept, anything which may be hybridised is not a separate species at all. However, any bifurcation in this sense does not mean a „point“ in the evolution but rather a large area in time of sometimes considerable expansion. From zoogeography we know that extremely „old“ species may still exist which live for long geological ages without considerable change, e.g. *Hughscottiella auricapilla* since 135 million years (MALICKY 1994). On the other hand, we know „species“ which are obviously very „young“, not yet well separated genetically, and which may be hybridised but may nevertheless be separated by traditional taxonomic methods. Sometimes hybridisation is even possible after more than one „bifurcation“, e.g. in *Anabolia* (MEY 1982).

In an earlier paper (MALICKY 1996), I had pointed out the problematic group of *Chaetopteryx rugulosa*, which appears to be in dynamic or even exploding in speciation in recent times. Several peripheral populations may be easily separated by traditional methods, and are well recognised as „good species“ (*goricensis*, *clara*, *euganea*, *irenae*, *marinkovicae*, *schmidi*, *bucari*), but the widespread *C. rugulosa* includes relatively stable populations in some areas, but becomes more variable in others. Therefore, I had suggested the use of new methods for the study of their natural relationship. Meanwhile some results from molecular genetic studies are available in the paper by KUČINIĆ & al. (2013) and from personal communication by Karl KJER (i.l.), which confirm the specific status of the above mentioned taxa.

A look on the biology of these insects may be useful for understanding the following. The adults of *Chaetopteryx* species have a reduced ability to fly, and many of them are practically flightless. In the field they are often seen in copula, and it is known that the females may copulate several times with different males. If individuals of different species are put together in captivity, they copulate

immediately without respect of different species. I have experienced this with males and females of *C. clara*, *rugulosa*, *goricensis* and *marinkovicae*. The hybrid larvae develop in a normal manner and are more or less fully fertile. I have bred several of these hybrids, and the adults of the F1 generation were copulating in the normal manner with partners of any species, and the larvae of F2 generation started to develop normally. So there is no reproductive barrier between them in the sense of cladistics. However, I have not tried to breed the F2 larvae for technical reasons. A brood takes one full year, and one has to make sure that the adults which are necessary for crossbreeding will emerge at the same time of the following year which is not easy. In the species of the related group of *Chaetopteryx villosa*, hybrid populations are well known in the field in their overlapping areas (MAJECKA & al. 2005). In the laboratory, hybrids of *C. fusca* and *C. morettii* developed in the normal manner (MALICKY & PAULS 2012). According to the strict cladistic definition, all of these species are not real species at all, but most of them may be well separated by eidonomic as well as by molecular genetic methods.

The problem will certainly not be solved if every population which looks slightly different is covered by a specific name, and even more if the identification of specimens is vague. OLÁH & al. (2012) identified, in two cases, two species from the same site: from the site "Kamnik, Volovljek" *C. pohorjensis* and *C. kamnikensis*, and from the site "1,4 km above Restaurant Krautwaschl" *C. rugulosa* and *C. prealpensis*. In my opinion, it is impossible that more than one species of this same group could occur together in one site. Remember that all of them copulate with one another and have fertile offspring.

In the introduction, OLÁH & al. present theoretical considerations on species concept and sexual selection, but no evidence is given that these theories really apply to the *Chaetopteryx* in discussion. It is not clear which real application these explanations might have to the systematic part of the same paper. In my opinion, a species is what we find in the nature, which means that the individuals recognise each other as mating partners, by whatever mechanisms. This works well in most animal species, but obviously not so well in the *rugulosa* group. It is not the intention of zoological nomenclature to supply a specific name for every specimen which looks slightly different. Every biological individual in the world is different from all others, and even homozygous twins are not totally alike. Nowadays scientists mainly pay attention to selection processes to explain the evolution of species, according to which the better adapted individuals survive (according to DARWIN), only because they have „better“ characters. This cannot however explain the immense number of existing species. How does one explain which characters are „better“ among 500 species of *Oecetis* or *Rhyacophila* which are only separated from each other by minor characters. I think that isolation is much underestimated as an evolutionary factor.

To the systematic part:

Chaetopteryx prealpensis n.sp.: „differs by having subapical lateral processes on the aedeagus platform and directed oblique upward, not digitiform and not horizontal“ as in *C. rugulosa*. These lateral digitiform processes are variable in their length, and are only slightly sclerotised which means that they may easily be deformed during maceration. This explains their slightly different size and position. The supposed difference is therefore based on natural variation and on an artefact. The authors accept only a few populations from the surroundings of Graz as true *rugulosa*, not considering that *Chaetopteryx rugulosa* was

described from Dalmatia - a distance of more than 300 km away (although the exact locality is unknown). As far as I know, no *rugulosa* were collected in Dalmatia recently, obviously because nobody has collected there during the appropriate season at the right sites. Conclusion: *Chaetopteryx prealpensis* OLÁH 2012 = *Chaetopteryx rugulosa* KOLENATI 1848, **nov. syn.**

Chaetopteryx zalaensis n.sp.: „differs by having subapical lateral processes on the aedeagus short and pointed gemmiform, not long digitiform“, which character is variable, see above; „cerci stalked, not parallel-sided“ in contrast to *rugulosa*. The paratype series includes specimens from the locality Szőce, from where I have a series when I was collecting there together with Á. Uherkovich on 5 November 1985. I made several male genital preparations, and in one of them, the cerci (i.e. the superior appendages) had exactly the same stalked shape in the lateral aspect as in the figure by OLÁH. Slightly turning the preparation revealed that this appendage was rectangular and parallel-sided as in all other specimens of *C. rugulosa*. The difference is caused by a slightly differing aspect in drawing of these three-dimensional structures and therefore based on an artefact, and does not exist: *Chaetopteryx zalaensis* OLÁH 2012 = *Chaetopteryx rugulosa* KOLENATI 1848, **nov. syn.**

Chaetopteryx papukensis n.sp. from Papuk Mts. is very similar to both *C. mecsekensis* and *C. schmidi*. In *schmidi* and *papukensis* the superior appendages are broad triangular, but rather broadly rounded rectangular in *mecsekensis*. The lateral fingers of the aedeagus are small like in *schmidi*. In fact, *papukensis* is hardly distinguished from *schmidi*. According to the results of DNA analyses (K. KJER, pers.comm.), the specimens of *schmidi* from Derdap Mts. (Serbia) and those of *papukensis* from Jankovac (Croatia) are identical: *Chaetopteryx papukensis* OLÁH & SZIVÁK 2012 = *Chaetopteryx schmidi* BOTOSANEANU 1957, **nov. syn.**

Concerning the taxonomic rank of the taxa considered good species by OLÁH & al., I still maintain my opinion of 1996 (MALICKY 1996) that *C. noricum* may go as a subspecies of *rugulosa* although it is practically identical in the DNA analysis with *rugulosa*, including the population of Pohorje (KUČINIĆ & al. 2013; Kjer i.l.) which is described as "*C. pohorjensis*" by OLÁH & URBANIĆ but does certainly not merit a specific name. The same may be said for the population of Tržić ("*C. kamnikensis*" OLÁH & URBANIĆ) which I had described but not named in my paper of 1986. On the other hand, *C. mecsekensis* may merit the status of a subspecies or even species according to DNA analysis (KUČINIĆ & al. 2013, KJER i.l.), and is not very close to *C. schmidi* as earlier supposed.

Concerning *C. giulienensis* OLÁH & KOVÁCS and *C. idriensis* OLÁH & KOVÁCS, I have no comparative material, but they appear to be very close to *C. goricensis*. Except for the usual individual variability of the structures, the only difference is, as far as I can see, the number of spines of the parameres, both having a small bunch of them. *C. goricensis* normally has only one spine, but some specimens from the type locality Deskle have two.

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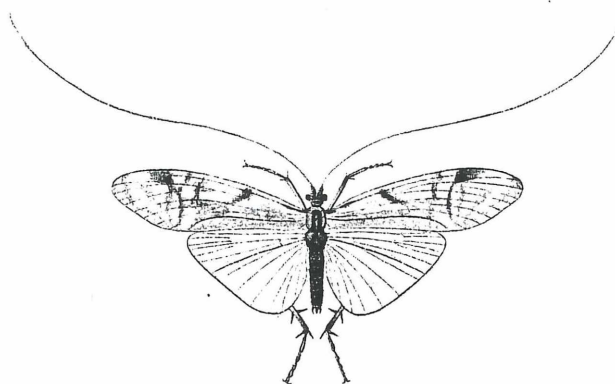


Fig. 2

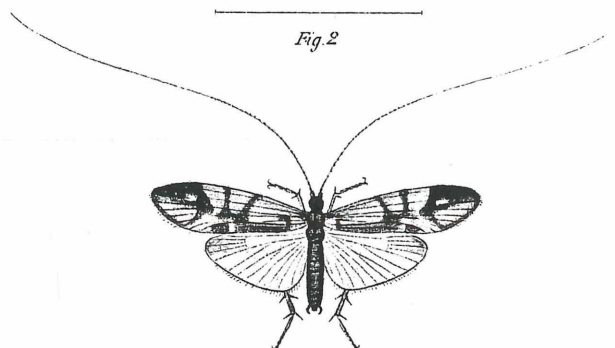


Fig. 4.

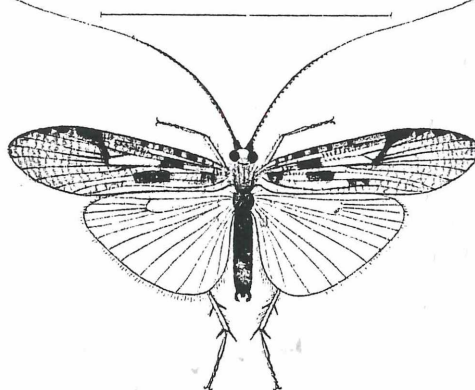


Fig. 6

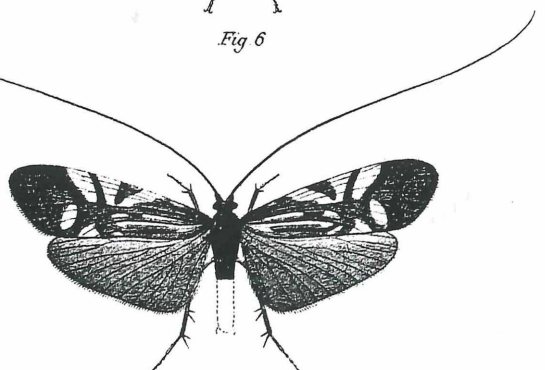


Fig. 37

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