

CATASCOPIA, A NEW GENUS FOR THREE NEARCTIC AND ONE PALAEARCTIC STAGNICOLINE SPECIES (GASTROPODA: LYMNAEIDAE)

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ABSTRACT: A new genus, *Catascozia* Meier-Brook et Bargues, is erected for the North American stagnicoline lymnaeid snails *catascopium*, *emarginata* and *elodes*, and the Palaearctic species *occulta* Jackiewicz, 1959 is included. The separation from the genus *Stagnicola* is based on striking dissimilarities in base pair lengths of the rDNA ITS-2 sequences.

INTRODUCTION

Two recent papers (BARGUES et al. 2001, BARGUES et al., in press) yielded the insight that the stagnicoline lymnaeid species of North America and Eurasia are far more distantly related to each other than most external characters had implied. Thus BURCH & TOTTENHAM (1980) included the North American species in the Old World genus *Stagnicola* Jeffreys, 1830. But already WALTER (1969) had detected, on a purely morphological basis, some profound differences, which led him to suggest taxonomic consequences. Also REMIGIO & BLAIR (1997)

proposed to raise *Hinkleyia* F.C. Baker, 1928 to generic rank. The creation of a new genus name, despite being based on no more than molecular characteristics, is nevertheless dared here, as the authors definitely deem it justified (cp. JELNES 1979). Moreover it was a surprise of the study by BARGUES et al. (in press) to find an unusually close relationship of *Stagnicola occulta* (Jackiewicz, 1959) with three North American stagnicoline species and a striking dissimilarity with all other Eurasian species of the group.

CATASCOPIA NOVUM GENUS

DIAGNOSIS

Catascozia nov. gen. is differentiated from all other stagnicoline snails by extraordinarily short lengths of the rDNA ITS-2 sequences which consist of 444–449 base pairs. The four species hitherto assigned to the new genus differ in this character from all European stagnicoline species examined, whose rDNA ITS-2 lengths are between 468 and 484 base pairs.

DESCRIPTION

A new genus of stagnicoline species of the basommatophoran snail family Lymnaeidae which are at the moment not otherwise characterized but by a length of 444 to 449 base pairs in the internal transcribed spacer 2 sequences of ribosomal desoxyribonucleic acid. This is the autapomorphy of the new taxon justifying its creation, which, however, should be complemented after thorough morphological comparison.



Type species: *Limnaea catascopium* Say, 1817, which has been the morphologically best known lymnaeid snail world-wide since the publication of WALTER's (1969) monograph.

The new genus comprises at this time the lymnaeid species *catascopium* Say, 1817, *elodes* Say, 1821 and *emarginata* Say, 1821 in the Nearctic and *occulta* Jackiewicz, 1959 in the Palaearctic regions.

REMARKS

As stressed by BARGUES et al. (in press) the genus name *Stagnicola* should be confined to Palaearctic species of stagnicoline Lymnaeidae. Since *Stagnicola* seems to be absent from the Nearctic (except introduced species), it is necessary to raise the taxon *Hinkleyia* F.C. Baker, 1928 to genus rank again, as was already proposed by REMIGIO & BLAIR (1997: 1544). *Hinkleyia* had since long been regarded as a subgenus of *Stagnicola* (e.g. by BURCH & TOTTENHAM 1980).

It is interesting to note that, as early as 1969, WALTER's morphological studies "indicate that it is very likely that *L. palustris* and *L. catascopium* are very different species" (WALTER 1969: 5). Even an American affinity of the new European species *occulta* struck WALTER: "A lymnaeid recently discovered in Poland, and described as a new species (*Limnaea occulta* Jackiewicz, 1959), undoubtedly is of advanced

stagnicoline character; one may suspect that it is an American species (*L. caperata* Say?) introduced into Europe."

A justification to name a new genus is drawn from the wide gap in base pair numbers in ITS-2 sequences. Between the narrow range of 444 to 449 on one hand and a range of 468 to 484 in the Palaearctic stagnicolines on the other hand there is gap wide enough to indicate that reproductive isolation between populations of the their common stem species existed for a very long period. Afterwards the two stagnicoline species, which became the stem species of the monophyla *Stagnicola* and *Catascozia*, apparently have considerably diversified. The relations between these two and *Hinkleyia* deserve further clarification.

An argumentation for generic separation on the width of (however, morphological) gaps has in similar cases of Molluscan taxonomy been forwarded for generic separations in the Planorbini tribe of Planorbidae (MEIER-BROOK 1983: 84) where anatomical features alone would not have sufficed.

It will be a future task to examine if all of the 21 units regarded as North American species of a taxon called "subgenus *Stagnicola* s.s." and divided into a *Stagnicola elodes* group and a *Stagnicola emarginata/catascopium* group by BURCH & TOTTENHAM (1980: 176–180) will have to be assigned to *Catascozia* nov. gen.

REFERENCES

- BARGUES M. D., VIGO M., HORÁK P., DVORÁK J., PATZNER R. A., POINTIER J. P., JACKIEWICZ M., MEIER-BROOK C., MAS-COMA S. 2001. European Lymnaeidae (Mollusca: Gastropoda), intermediate hosts of trematodiases, based on nuclear ribosomal DNA ITS-2 sequences. *Infection, Genetics and Evolution* 1: 85–107.
- BARGUES M. D., HORÁK P., PATZNER R. A., POINTIER J. P., JACKIEWICZ M., MEIER-BROOK C., MAS-COMA S. Insights into the relationships of Palaearctic and Nearctic lymnaeids (Mollusca: Gastropoda) by rDNA ITS-2 sequencing and phylogeny of stagnicoline intermediate host species of *Fasciola hepatica*. *Parasite* (in press).
- BURCH J. B., TOTTENHAM J. L. 1980. North American freshwater snails. Species list, ranges and illustrations. *Walkerana* 1: 81–215.
- JELNES J. E. 1979. Experimental taxonomy of *Bulinus* (Gastropoda: Planorbidae). II. Recipes for horizontal starch gel electrophoresis of ten enzymes in *Bulinus* and de-
- scription of internal standard systems and of two new species of the *Bulinus forskalii* complex. *J. Chromatogr.* 170: 405–411.
- MEIER-BROOK C. 1983. Taxonomic studies on *Gyraulus* (Gastropoda: Planorbidae). *Malacologia* 24: 1–113.
- REMIGIO E. A., BLAIR D. 1997. Relationships among problematic North American stagnicoline snails (Pulmonata: Lymnaeidae) reinvestigated using nuclear ribosomal DNA internal transcribed spacer sequences. *Can. J. Zool.* 75: 1540–1545.
- WALTER H. J. 1969. Illustrated biomorphology of the "angulata" lake form of the basommatophoran snail *Limnaea catascopium* Say. *Malac. Rev.* 2: 1–102.

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