

## A male of *Potamopyrgus jenkinsi* (Smith, 1889) in Poland

Andrzej FALNIOWSKI

Muzeum Zoologiczne, Uniwersytet Jagielloński, Ul. Mieczysława Karasia 6,  
30-060 Kraków, Poland

*Potamopyrgus jenkinsi*, widely known because of its expansion in European waters in relatively recent times, has an abundant literature (Fretter & Graham, 1962). The variability of this gastropod is quite striking; Warwick (1969) described a number of races suggesting that this might be a complex species. Simpson (1976) confirmed this theory only in part. Boycott (1919) and Quick (1921) have shown that parthenogenesis normally occurs in this species. For a long time only one male specimen of this snail has been known, recorded from the Thames near Sonning (Patil, 1958). This specimen had measurements similar to those of other specimens; it had a shell with a keel and reproductive organs typical of Hydrobiidae sensu Radoman with a big prostate, but without an extra outlet of the vas deferens to the mantle cavity. The organs revealed regularly developed spermatozoa. Wallace (1979) during his investigations on *P. jenkinsi* from England, Scotland, Wales and the Netherlands has found 101 males of this species, among which 65 with keeled shells or shells with bristles and 36 with smooth shells. Of these 94 had been collected in Wales, 6 in the Netherlands and 1 in Scotland. No males have been found in England, in spite of quite extensive investigations in a number of localities, among which the Thames near Sonning, where the very first male had been found.

In my investigations of the prosobranchs of Poland I have found a single male specimen in the vast material of *P. jenkinsi* (about 8,000 specimens) from different parts of Poland. It was found in the outflow of the river Pasleka from Lake Sarag (Mazurian Lake District, NE. Poland) on a clayey bottom not far from the shore among fairly abundant vegetation. In size it is similar to the parthenogenetical form; the shell is smooth. The head of this specimen (fig. 1) is poorly pigmented, its tentacles and proboscis are more massive than in parthenogenetical snails. The penis (fig. 1) is small, straight, without outgrowths, similar to those figured for Hydrobiidae sensu Radoman (Muus, 1967; Bishop, 1976; Radoman, 1977). The reproductive organs are fully developed, with a large yellowish prostate, identical with those described by Patil (1958).

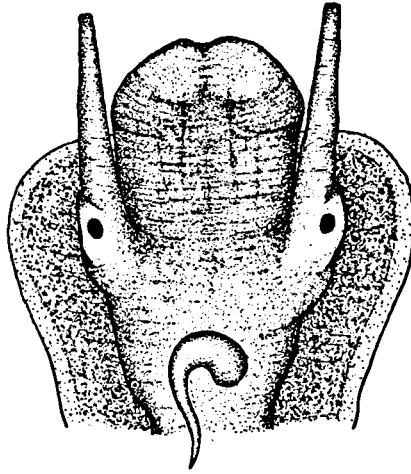


Fig. 1. The head of the male of *Potamopyrgus jenkinsi* (Smith) from the river Pasleka with well developed simple penis without any outgrowths.

The presence of a *P. jenkinsi* male in Lake Sarag proves that sexual reproduction is not all that rare in this species. This would account for the great variability and adaptive capacity of this eurytopical species, hard to reconcile with the assumption of a complete lack of recombination in the reproductive process. A few years before collecting this male the *P. jenkinsi* population in lake Sarag was limited to a very small area in the outflow of the river Pasleka. Investigations carried out three years later showed the occurrence of this species in the whole Lake. This perhaps proves that under new, difficult conditions the males begin to occur more frequently, sexual reproduction takes place, and it is only the better adapted form, the result of genetic recombination, that settles the given area. This opinion is supported by numerous data from the literature on the high mortality of *P. jenkinsi* transferred to other conditions, different from those occurring in their original environment, when confronted with a rapid dissemination in practically any type of habitat. Wallace's data (1979) also confirm this theory.

#### REFERENCES

- BISHOP, M.J., 1976. *Hydrobia neglecta* Muus in the British Isles. — J. moll. Stud. 42: 319-326.  
 BOYCOTT, A.E., 1919. Parthenogenesis in *Paludetrina jenkinsi*. — J. Conch. London 16: 54.  
 FRETTER, V., & A. GRAHAM, 1962. British prosobranch molluscs: I-XVI, 1-755. London.  
 MUUS, B., 1967. The fauna of Danish estuaries and lagoons. — Meddr Danm. Fisk. og Havunders N.S. 5: 1-316.  
 PATIL, A.M., 1958. The occurrence of a male of the prosobranch *Potamopyrgus jenkinsi* (Smith) var. *carinata* Marshall in the Thames at Sonning, Berkshire. — Ann. Mag. nat. Hist. (13) 1: 232-240.  
 QUICK, H.E., 1921. Parthenogenesis in *Paludetrina jenkinsi* from brackish water. — J. Conch. London 16: 97.

- RADOMAN, P., 1977. Hydrobiidae auf der Balkanhalbinsel und in Kleinasien. — Arch. Molluskenk. 107: 203-223.
- SIMPSON, J.F., 1976. On the existence of discrete morphological types within the species *Potamopyrgus jenkinsi* (Smith). — J. moll. Stud. 42: 108-113.
- WALLACE, C., 1979. Notes on the occurrence of males in populations of *Potamopyrgus jenkinsi*. — J. moll. Stud. 45: 61-67.
- WARWICK, T., 1969. Systematics of the genus *Potamopyrgus* (Hydrobiidae) in Europe, and the causation of the keel in this snail. — Malacologia 9: 301-302.

#### SAMENVATTING

Onder normale omstandigheden plant het slakje *Potamopyrgus jenkinsi* zich parthenogenetisch voort, d.w.z. dat uit onbevuchte eieren steeds weer vrouwtjes geboren worden. Onder bepaalde omstandigheden kunnen mannetjes ontstaan, wat echter betrekkelijk zelden voorkomt. Wallace (1979) vond onder 8528 exemplaren totaal 101 mannetjes, nl. 94 (onder 3123 stuks) in Wales, 6 (onder 1250) in Nederland en 1 (onder 1577) in Schotland (Engeland: 0 onder 2578!). De auteur van het hier gepubliceerde artikel vond 1 mannelijk exemplaar onder ongeveer 8000 stuks *P. jenkinsi* van verschillende vindplaatsen in Polen. Dit dier had een ongekielde schelp, terwijl Wallace vond dat ongeveer twee derde van zijn mannelijk materiaal gekielde schelpen of schelpen met borstels had. Fig. 1 geeft de kop van het Poolse mannetje weer met in het midden aan de ruzzijde de penis.