Zootaxa 2053: 32–42 (2009)
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

Myuchelys gen. nov. —a new genus for *Elseya latisternum* and related forms of Australian freshwater turtle (Testudines: Pleurodira: Chelidae)

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Abstract

Myuchelys, a new genus, is erected for a well supported clade of Australasian freshwater turtles; its establishment resolves an unacceptable paraphyly in relationships among species of the genus *Elseya*. Molecular and morphological evidence indicates that the closest relationship of the new genus is with *Emydura*, not the redefined *Elseya*.

Key words: Phylogeny; paraphyly; side-necked turtle; sawshelled turtle

Introduction

The genus *Elseya* has had a long and confused history. It was erected by Gray (1867) for the species *Chelymys* [now *Elseya*] *dentata* Gray, 1863 and *Elseya latisternum* Gray 1867. *Elseya dentata* was later designated as the type species (Lindholm, 1929). The genus was diagnosed by the presence of a horny shield on the dorsal surface of the head; flat polygonal plates on the temples, cheeks and throat; prominent tubercles on the dorsal surface of the neck; a pair of tubercles on the chin; and the usual absence of a cervical scute (Gray, 1867; Gray, 1872). Boulenger (1889) redefined the genus, placing significance on the alveolar ridge (a longitudinal ridge on the triturating surface of the maxillary sheath and underlying bone) as a character, then known to be present only in *Elseya dentata*. *Elseya latisternum* and *Elseya novaeguineae* (Meyer, 1874) lack the alveolar ridge, and so Boulenger placed them in the genus *Emydura*. Later, Goode (1967) disagreed with the importance placed on the alveolar ridge, noting that well-established cryptodiran genera displayed considerable variation in this character, and returned *E. latisternum* and *E. novaeguineae* to the genus *Elseya*.

Elseya novaeguineae, *Emydura signata* Ahl, 1932 and *Emydura subglobosa* (Krefft, 1876), as defined in 1980, were virtually indistinguishable using total serum protein electrophoresis and were very closely related to *Elseya latisternum* (Frair, 1980). Their karyotypes are identical, with a diploid number of 50 (Bull & Legler, 1980), and Gaffney (1977) could not consistently differentiate the various taxa using skull morphology. McDowell (1983) considered a wide range of morphological characters and concluded that the closest relatives of *Elseya dentata* are among the species of *Emydura*, not *Elseya latisternum*. Frair (1980), Gaffney (1977), and McDowell (1983) all argued for synonymising *Emydura* and *Elseya*, but that recommendation has not gained wide acceptance. The paraphyletic arrangement of species within *Elseya* was well established with the addition of molecular evidence (Georges & Adams, 1992; Seddon, *et al.*, 1997; Georges, *et al.*, 1998) and the descriptions of *Elusor* (Cann and Legler 1994) and *Rheodytes* (Legler and Cann 1980) (see Megirian & Murray, 1999).

 Accepted by S. Carranza: 19 Feb. 2009; published: 25 Mar. 2009