

*SPEEDTALK*

# **Diversity of Australasian freshwater turtles**

**with an  
annotated synonymy and keys to species**

Arthur Georges and Scott Thomson

Wildlife Genetics Laboratory  
Institute for Applied Ecology  
University of Canberra

**SPEEDTALK: Diversity of Australasian freshwater turtles, with an annotated synonymy, keys to species and a web-based database of distributional data.**

Arthur Georges and Scott Thomson

*Wildlife Genetics Laboratory, Institute for Applied Ecology, University of Canberra, Canberra ACT 2601, Australia.*

- Cogger in his first edition of his *Reptiles of Australia* (1975) observed that the taxonomy of Australian freshwater turtles was in dire need of review.
- While there have been many advances in our knowledge of Australasian freshwater turtle biodiversity in the last three decades (many advances evident in the work presented at this meeting), taxonomy of our turtle species remains in dire need of review.
- Indeed, the proliferation of names in unpublished manuscripts and in taxonomic works published in ephemeral (often privately printed) magazines, journals of dubious status and books, without the benefits of peer review and often with little justification and scant diagnoses, has led to considerable confusion.
- The new generation of taxonomists has not only to contend with the imposing weight of deconstructing often inadequate 18th and 19th century descriptions, dealing with complex synonymies and locating scattered type material, but they must contend also with the modern proliferation of equally inadequate species descriptions and other unnecessary and destabilizing nomenclatural changes of the type generated by Wells and Wellington (Wells & Wellington, 1983;1985; Wells, 2007c;a;b;2009).

## Wells and Wellington, 1985

*Elseya purvisi* sp nov

Holotype: Australian Museum R44654. Mature female collected in a river 15km S., 32.3km E. of Nowendoc, New South Wales (31 39'S X 152 04'E, elevation 183m) by J. Legler et. al., on 23 February, 1973.

Diagnosis: A member of the *Elseya latisternum* complex readily separated from all other *Elseya*, by the excellent illustrations and descriptions of Cann (1978: Plate 65, mature male, Plates 66-67, mature female, Plate 64 habitat of this species). The presence of a bright yellow facial streak readily separates this species from *Elseya latisternum*. Found in rivers of north-eastern New South Wales. Cogger (1983) provides diagnostic illustrations of its nearest relative, *Elseya latisternum* (Plates 408-410). Etymology: Named for Malcolm Purvis of North Sydney, New South Wales, noted herpetologist.



**The science is  
almost  
entirely  
lacking!**

The science in some of these descriptions is almost entirely lacking.

(a) They purport to describe new species, but often include little or no description,

## Wells and Wellington, 1985

### *Elseya purvisi* sp nov

Holotype: Australian Museum R44654. Mature female collected in a river 15km S., 32.3km E. of Nowendoc, New South Wales (31 39'S X 152 04'E, elevation 183m) by J. Legler et. al., on 23 February, 1973.

Diagnosis: A member of the *Elseya latisternum* complex readily separated from all other *Elseya*, by the excellent illustrations and descriptions of Cann (1978: Plate 65, mature male, Plates 66-67, mature female, Plate 64 habitat of this species). The presence of a **bright yellow facial streak** readily separates this species from *Elseya latisternum*. Found in rivers of north-eastern New South Wales. Cogger (1983) provides diagnostic illustrations of its nearest relative, *Elseya latisternum* (Plates 408-410). Etymology: Named for Malcolm Purvis of North Sydney, New South Wales, noted herpetologist.



**The science is  
almost  
entirely  
lacking!**

(b) Diagnoses are scant and often patently erroneous,

## Wells and Wellington, 1985

*Elseya purvisi* sp nov

Holotype: Australian Museum R44654. Mature female collected in a river 15km S., 32.3km E. of Nowendoc, New South Wales (31°39'S X 152°04'E, elevation 183m) by J. Legler et. al., on 23 February, 1973.

Diagnosis: A member of the *Elseya latisternum* complex readily separated from all other *Elseya*, by the excellent illustrations and descriptions of Cann (1978: Plate 65, mature male, Plates 66-67, mature female, Plate 64 habitat of this species). The presence of a bright yellow facial streak readily separates this species from *Elseya latisternum*. Found in rivers of north-eastern New South Wales. Cogger (1983) provides diagnostic illustrations of its nearest relative, *Elseya latisternum* (Plates 408-410). Etymology: Named for Malcolm Purvis of North Sydney, New South Wales, noted herpetologist.



**The science is  
almost  
entirely  
lacking!**

- (c) The reader is referred to pictures and illustrations elsewhere in the literature and expected to draw their own conclusions without guidance,
  - (d) There is no analysis of characters or evidence of consistency of diagnostic characters across individuals of the taxon.
  - (e) Specimens examined are not listed, and many key specimens in species descriptions may well not have been examined at all by the authors.
  - (f) Scientific peer review, an essential ingredient in the passage of new knowledge into the body of science, is not undertaken.
- Taxonomists are distracted from the main game of serving the broader community with stable and informative classifications and bringing new biodiversity to light.
  - Those who are outside taxonomy, but who rely upon a stable classification representative of actual biodiversity, are presented with a confusing array of new names and name combinations.
  - The credibility of taxonomy as a scientific discipline is eroded, the service a stable taxonomy provides is diminished, and funding agencies might be forgiven for seeing alpha taxonomy as poor value for money

## Principles

- Is the name that has been applied to a taxon **available** under the ICZN Code?
- Is the taxon to which the name applies unambiguously **defined**?
- Is there **evidence** in the scientific literature to support the designation of the taxon at the level to which it has been assigned?



**Does  
it matter  
that there is  
no science?**

- We have reviewed the Australasian freshwater turtle fauna and present an annotated synonymy, keys to species and subspecies, and updated distribution maps.
- We have taken a conservative approach, asking
  - (a) Is the name that has been applied to a taxon **available** under the ICZN Code.
  - (b) Is the taxon to which the name applies unambiguously **defined**.
  - (c) Is there **evidence** in the published scientific literature to support the designation of the taxon at the level to which it has been assigned.
- In other words, we provide an assessment of the taxonomy of Australasian freshwater turtles, focusing on information available to establish the validity of taxa as biological entities (as opposed to the validity of the names).
- We hope that this publication will form a basis for the taxonomy of Australasian turtles to move forward as a science, in the same way as the publication by Cogger et al. served this role for all Australian reptiles back in 1983.

## Carettochelydidae

*Carettochelys insculpta*

## Trionychidae

*Pelochelys bibroni* & *signifera*

## Chelidae

- *Chelodina canni, longicollis, mccordi, novaeguineae, pritchardi, reimanni, steindachneri*
- *Chelodina burrungandjii, expansa, parkeri, rugosa*
- *Chelodina colliei*
- *Elseya albagula, branderhorsti, dentata, irwini, lavarackorum*
- *Elseya belli, georgesi, latisternum novaeguineae, purvisi*
- *Emydura macquarii, subglobosa, tanybaraga, victoriae*
- *Elusor macrurus, Rheodytes leukops, Pseudemydura umbrina*



## Summary

32 species in 9  
genera  
Decisions on  
genera, subgenera  
and subspecies

**We call upon the ICZN to  
amend the Code**

*otherwise*

- **destabilization of our taxonomy will continue**
- **the traditional Linnaean binomial nomenclature will be undermined**
- **credibility will build for other forms of nomenclature on a firmer scientific footing, but in other ways inferior**



**We need a  
positive list of  
journals for  
taxonomic  
works**

- We call upon the International Commission on Zoological Nomenclature to incorporate effective measures into the Code to prevent the destabilizing influence of the proliferation of names for taxa that have not been established as real biological entities through the normal processes of peer reviewed publication.
- The inclusion of a positive list of journals in which nomenclatural acts must appear in order to be valid, in addition to meeting the other provisions of the Code, is suggested as such a measure.
- Without such action, destabilization of our taxonomy will continue, the traditional Linnaean binomial nomenclature will be undermined, and credibility will build for other forms of nomenclature that are on a firmer scientific footing, but in other ways inferior.

**Based on a paper with the same  
title soon to be submitted to  
Zootaxa**

