

## Dr Winston Ponder

Molluscs are a very diverse and conspicuous phylum that is ecologically, commercially and culturally important. They comprise about 23% of all named marine organisms and many are unnamed, most of which are the so-called micromolluscs (under 10mm). Winston started research on the systematics and anatomy of New Zealand micromolluscs in the early 1960s while completing BSc, MSc, and PhD studies at the University of Auckland. The taxonomically difficult groups he chose to work on are often



abundant and diverse in Australasian sublittoral and intertidal marine communities and he continued this work after moving to Australia in 1968. Some of these studies resulted in the introduction of several new families and encompassed faunas in the tropical Pacific, Antarctic, sub-Antarctic and western South America. Winston was awarded a DSc by the University of Auckland in 1991 mainly as a result of those studies. Small gastropods are also common in estuarine environments and these have been the main focus of his marine research in recent years, mainly through collaborative studies with Dr Hiroshi Fukuda, Okayama University, Japan. Also, two of his recent students, Isabel Hyman and Rosemary Golding, have carried out work on mangrove and salt marsh taxa. Golding's honours work on amphibolids resulted in the description of several new taxa including two new families.

Winston organised a symposium (at an international malacological congress in Edinburgh in 1986) on prosobranch phylogeny which resulted in an edited book (published 1988). This included a summary of work by Gerhard Haszprunar suggesting that the concept of three long-recognised gastropod subclasses (Prosobranchia, Opisthobranchia and Pulmonata) was severely flawed. This led to Winston and David Lindberg (University of California, Berkeley) testing Haszprunar's ideas using maximum parsimony methods with morphological and ultrastructural characters. The results of this important paper (published 1997) differed in some details from Haszprunar's concepts, but confirmed his idea that the prosobranchs are paraphyletic and comprised of four major groups. The pulmonates and opisthobranchs are closely related (as indicated by Haszprunar) and part of a larger group (Heterobranchia) that also contains some taxa previously treated as prosobranchs. Further testing of these relationships using molecular data, in collaboration with Don Colgan (Australian Museum), resulted in two publications. Winston continued working with David Lindberg in co-organising a symposium on molluscan phylogeny at the World Congress of Malacology in Perth in 2004 which resulted in an edited book (Phylogeny and evolution of the Mollusca) published this year.

Again with Don Colgan, Winston recently undertook molecular phylogenetic studies on the largest group of gastropods, the caenogastropods. This was followed by a multi-author review and combined morphological-molecular analysis published this year. Rosemary Golding has been continuing aspects of caenogastropod phylogeny with the investigation of new characters as her PhD project.

Winston spent his career building up the Australian Museum mollusc collections. Data from such collections represents by far the largest source of distributional, historical and habitat information for marine invertebrate data. With adequate filtering, museum collections can provide excellent data for Geographic Information Systems (GIS). By using background sampling methods (introduced in a Conservation Biology paper in 2001 by Winston and two colleagues) presence-only issues can be overcome.

Winston, with Pat Hutchings and Rebecca Chapman, reviewed marine invertebrate conservation in Australia and Winston also later reviewed the special concerns regarding marine molluscs with narrow distributional ranges.

Molluscan experts are few and scattered and there is an urgent need to train new researchers. Winston has supervised postgraduate and undergraduate students and, with Andy Davis, runs a course on molluscan biology at the University of Wollongong. He is in the final stages of development of a web-based interactive key for marine molluscs of temperate Australia and helped set up a major project to checklist the marine molluscs of the Indo-West Pacific. Winston retired in 2005 and is currently writing a text book on molluscan biology and evolution with David Lindberg. In addition to continuing to publish research papers, he also edits Molluscan Research.