

**Web site review: Kupriyanova, E.K., Wong, E., & Hutchings, P.A. (eds) 2013. Invasive Polychaete Identifier – an Australian perspective. Version 1.1, 04 Dec 2013. <http://polychaetes.australianmuseum.net.au/>**

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Glasby, Wilson, and Hutchings (2003) and other contributors through CSIRO Publishing, provided the award-winning Polychaete Identification Guide CD-ROM over a decade ago. The Guide remains an excellent, if aged, tool familiar to many student and professional researchers alike. The Australian Museum demonstrates similar interactive skill with their newest contribution - the *Invasive Polychaete Identifier*. The *Identifier* is a clear effort to promote awareness of invasive spionid, serpulid, and sabellid species of Australia (Kupriyanova, Wong, & Hutchings, 2013). Do these invaders bring homogeneous doom to our coast? Or do they prop up biodiversity and ecosystem function? Before researchers can answer such questions they must first be able to reliably separate exotics which are expanding their range from indigenous taxa. Monitoring programmes, our first-line of defence at harbour and mariculture sites, have difficulty contributing to a cohesive national picture due to the widely varying resources available to them. Records from the grey literature, such as technical consulting reports, also have the potential to provide reliable datasets if only it were possible to provide some assurance of identification uniformity. The Australian Museum's *Invasive Polychaete Identifier* attempts to bring some uniformity and order to the chaos and it does so with style.

The Identifier provides a simple, dynamic user interface with engaging polychaete imagery throughout. It seems to have been effectively designed as a compromise for its apparent audience. It doesn't offend specialists with ponderous click-throughs to get to the species lists, yet it also supports workers with limited polychaete experience. Dynamic features were occasionally corrupted so a few workers accessing the Identifier on small screens may find themselves confused at times by disjointed layouts really intended for 1024 x 768 pixel or larger displays. The page design is a bit wasteful of screen real estate, perhaps in an attempt to be less intimidating, but it behaved well in Firefox, Chrome, and IE browsers.

Like so many polychaete workers I've often shuddered at the poorly-preserved mess some field staff bring back to be identified. Since it seems likely that consulting laboratories

form a substantial part of the Identifier's audience, I found myself wishing that the treatment of polychaete fixation, preservation, and examination methods was more comprehensive and prominent in the menu structure instead of buried at the bottom of an introductory page. Access to the bibliography and recommended references is tortured and incomplete, but hopefully that will be fixed in the next revision. Overall, the writing is stilted with ambiguous punctuation and grammar in an obvious attempt to be concise, but the essence of the Identifier is its species list, well-documented character states, fabulous imagery, and clear four colour key providing authoritative status for native, cryptogenic, introduced & established, and potentially invasive species. Although the key is clear, humans tend to associate values with colours such as red, yellow, green, and blue so in addition to helping the colour-blind, a more neutral icon system could be deployed in future revisions.

The Identifier provides three ways of accessing the same information. A full species list gives the user quick access to exceptional and frequently annotated illustrations in multiple resolutions alongside clear character statements. It is clear that the authors have taken pains to provide images of the whole animal, anterior features, tube structure, and standout somatic and chaetal characteristics. I found the comparative comments regarding other species which look similar to be enormously helpful. I was also happily surprised by the provision of contact details for specialists - a true testament to the dedication of the authors to providing a valuable service to *Identifier* subscribers. I was, however, disappointed with some of the unqualified comments on geographic distribution. If the intent of the Identifier is to help track species invasions, it is logically counterproductive to encourage technicians to discriminate similar species by geographic distribution rather than character states. The 'Quickfinder' provides access to the same information using a drop-down menu structure whereas a classic pictorial key can be accessed through the unambiguously named 'Identification tool.'

The most useful tool to polychaete neophytes is the gorgeously illustrated glossary. An enormous amount of work

is apparent in the illustrations with a clear eye toward bright and darkfield stereomicroscope users where it would have been easy, instead, to include SEM images so frequently dismissed by monitoring technicians. The authors' technical skill can be most appreciated in the natural colour images of exquisitely mounted specimens with excellent depth-of-field; even when illustrating those pesky soft radiolar features of sabellids. While the pictures are very informative, some of their value is lost when the Identifier provides them in a single fixed resolution. Posting thumbnails linked to higher-resolution images is such a common and useful feature for workers using different kinds of screens that I was puzzled by its sporadic use in the Identifier.

Fundamentally, the Identifier is a response to the ever-present demand by technicians to have good pictures which they can use to process collections quickly and reliably. The illustrations are of unparalleled diagnostic (and frequently artistic) quality and they are extremely valuable even though the 'picture-book identification method' is addictive and inherently dangerous as it can lead to a multi-choice selection process instead of promoting accurate identification practices. The Identifier mitigates this problem by providing clear access to character states which are reliably linked to the excellent glossary. This design will hopefully encourage responsible technicians to associate structures with descriptions and help them develop useful skills in other groups.

The web was invented by scientists and it is in our nature to let information be as free and as accessible as possible, so I

am confident that the authors had to put such a useful tool behind a paywall only under duress and pragmatic funding limitations. The pricing structure reflects a clear effort to trade value for value with the end users.

Students are asked to pay a one-time fee of AU\$50, while professionals are charged AU\$300, and businesses AU\$500. I think many workers will be watching to see if this funding model is successful. The cost to a 'developed country' classroom or business is small and if this level of funding is adequate to provide timely updates as more invasives are identified, then the value for money is excellent and well-worth our support in the hopes that the Identifier can continue to develop. Overall, I think the biggest drawback of the Identifier is its isolationist structure. Although publicly accessible databases like the World Register of Marine Species and Encyclopedia of Life can't link to the Identifier, I don't understand why the Identifier doesn't link its users out to such increasingly useful resources.

The *Invasive Polychaete Identifier* is a useful and beautiful tool I will use professionally to identify taxa and as a training utility. The authors and the Australian Museum deserve applause for providing such useful information in a readily accessible and affordable format which is sure to benefit private and governmental monitoring technicians, students, and academics,

Glasby, C.J., Wilson, R.S., & Hutchings, P.A. 2003. *Polychaetes – An interactive identification guide*. CD-ROM ISBN: 9780643067028