Concept Plan SP 2014-025

Taxonomy, zoogeography and conservation status of aquatic invertebrates

Wetlands Conservation

Project Core Team

Supervising Scientist	Adrian Pinder
Data Custodian	Adrian Pinder
Site Custodian	Adrian Pinder

Project status as of Aug. 27, 2017, 5:51 p.m.

Approved and active

Document endorsements and approvals as of Aug. 27, 2017, 5:51 p.m.

Project Team	granted
Program Leader	granted
Directorate	granted

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Science and Conservation Division Program

Wetlands Conservation

Parks and Wildlife Service

Service 2: Conserving Habitats, Species and Ecological Communities

Aims

The wetlands conservation program has a strong focus on aquatic invertebrate biodiversity, including spatial patterning and trends over time in relation to threats. Over half of the species we deal with are not formally described, but they are consistently named across projects through maintenance of a voucher specimen collection.

As opportunities and skills allow program staff undertake systematics studies (primarily species descriptions), sometimes with specialist co-authors. This allows formal naming and description of Western Australian endemics that would not otherwise occur and allows species to be consistently identified by external research groups. Examples include descriptions of 'giant ostracods by Halse and McRae (Hydrobiologia 524) and first records of phallodriline oligochaetes from Australian non-marine waters by Pinder et al. (Zootaxa 1304). Kirsty Quinlan is currently describing a species of Boeckella copepod from Lorna Glen.

For many groups of invertebrates there are inadequate tools for their identification and program staff frequently devise in-house keys to help with identification consistency. On occasion we have been able to produce tools of sufficient quality to release to the public. Examples are keys to aquatic oligochaetes (two publications in Museum of Victoria Science Reports by Pinder) and keys to non-biting midge larvae of south-western Australia by Leung et al. Adrian Pinder is also working with Russell Shiel (University of Adelaide) to revise and expand keys to Australian rotifers.

Kirsty Quinlan is starting to investigate the use of bar coding for our work, focusing on being able to identify larvae of species normally only identified from adults. Her recent success with Berosus (scavenger beetle) larvae demonstrates we have the capacity to undertake this work. We are also undertaking a molecular study of Glacidorbis snails from Drummond Nature Reserve (are they Glacidorbis occidentalis?), with analyses being performed by the Western Australian Museum with funding from the Drummond NDRC.

Expected outcome

Improved ability to consistently identify aquatic invertebrates, both within internally and externally, allowing 1) greater compatibility between datasets, 2) reduced sample processing times and 3) more complete identifications (by enabling identification of previously unidentifiable life stages or sexes). These improvements mean we can better describe spatial and temporal trends in biodiversity and better understand species distributions and conservation status.

Strategic context

This project mainly addresses corporate goals by adding value to other projects, by allowing more complete and consistent species lists in monitoring and survey projects. In this way this project contributes to:

DPaW Strategic Goals:

- "Integrated science and nature conservation: Ensure conservation management is based best practice science."
- "Protection of threatened animals in partnership with other organisations, traditional owners and the community." (many oligochaetes are rare/restricted or part of TECs)

A Strategic Plan for Biodiversity Conservation Research:

- Goal 1 "Understand the composition of, and patterning in, terrestrial and marine biodiversity": Strategy 1.15 "Continue collections and descriptions of fungi and invertebrates in association with research, survey and monitoring".

Expected collaborations

There will be numerous opportunities for collaborations with external taxonomists, as has happened in the past (e.g. Chris Watts from SA Museum, Russell Sheil from University of Adelaide and Christer Erseus from Sweden).

Proposed period of the project

Dec. 9, 2014 – None

Staff time allocation

Role	Year 1	Year 2	Year 3
Scientist (Pinder)	0.1	0.1	0.1
Technical (Quinlan et al.)	0.1	0.1	0.1
Technical (Cale)	0.05		
Collaborator			

Indicative operating budget

Source	Year 1	Year 2	Year 3
Consolidated Funds (DPaW)			
External Funding	3000	2000	2000