Progress Report SP 2011-018

Western Australian wetland fauna surveys

Wetlands Conservation

Project Core Team

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

Project status as of July 5, 2017, 10:13 a.m.

Update requested

Document endorsements and approvals as of July 5, 2017, 10:13 a.m.

Project Team	granted
Program Leader	granted
Directorate	required

Western Australian wetland fauna surveys

A Pinder, K Quinlan, R Coppen, L Lewis, F Thompson

Context

Regional biological surveys provide analyses of biodiversity patterning for conservation planning at broader scales, but sites in these projects are usually too sparse for use at a more local scale, such as individual reserves, catchments or wetland complexes. This project is designed to fill gaps within and between the regional surveys by providing aquatic invertebrate biodiversity data and analyses at finer scales. Past examples of such projects are surveys of wetlands in the Drummond, Warden and Bryde Natural Diversity Recovery Catchments, the Hutt River/Hutt Lagoon catchments and the mound springs near Three Springs. This project runs on an 'as-needed' basis.

Aims

- Provide understanding of aquatic biodiversity patterning at the scale of individual wetlands to wetland complexes, catchments or regions to inform local conservation planning and as baselines for future monitoring.
- Provide better data on the distribution, ecological tolerances and conservation status of aquatic fauna species and communities.

Progress

- Completed a report on aquatic invertebrate diversity at springs of the Walyarta Ramsar site/Walyarta Conservation Park.
- Undertook the last round of field work for a Rangelands NRM funded survey of flora and aquatic invertebrates of wetlands along the middle to upper Fortescue Valley in the Pilbara, completed identifications and produced a report.
- Worked with Goldfields Region to sample aquatic invertebrates in a number of additional wetlands with the aim of accumulating a regional dataset.
- Published paper on influence of dispersal ability and isolation of genetic diversification in Australia's arid zone.
- Completed identifications of wetland associated flora in the Cervantes to Coolimba Region (part of an offset from CSR Gyprock) and progressed a paper on this work.
- Surveyed northern Wheatbelt wetlands for *Parartemia* brine shrimp to assist with determining the conservation status of *Parartemia extracta*.
- Progressed identification of aquatic invertebrates from vegetated claypans of the south-west to analyse spatial patterns in these threatened but high value wetlands.

Management implications

- In the Cervantes to Coolimba wetland system, the survey of wetland flora will assist with assessment of proposals to expand gypsum mining and determining the ecological water requirements of groundwater dependent ecosystems.
- Ongoing survey of aquatic invertebrates in Goldfields wetlands fills a gap in knowledge of biodiversity in an area still subject to intensive mining, thus allowing more informed assessment and approvals decision making.
- Survey work at Walyarta has contributed to assessing the relative condition and values of the springs and to the selection of sites for hydrological monitoring in response to abstraction of groundwater from the West Canning Basin. It will also be used to report on the ecological character of the springs when reporting on this Ramsar wetland to the Commonwealth. High turnover in species composition between 1999 and 2015 is likely to be natural, partly in responses to major episodic rainfall events, rather than a response to change in condition. This information was used to provide advice on monitoring invertebrates in the Interim Recovery Plan for the springs.

- In the Fortescue Valley, the survey of wetland biota will inform efficient wetland conservation planning in an important area for wetland biodiversity in the Pilbara.
- *Parartemia extracta* is likely to be restricted to the Cervantes to Coolimba salt lakes and its conservation status needs to be assessed.
- Vegetated claypans of south-western Australia support distinctive aquatic invertebrate and flora communities with high regional endemism and should be a priority for wetland management given their vulnerability to hydrological change.

Future directions

- Publish a paper on invertebrate diversity in vegetated claypans of south-west Western Australia.
- Complete a paper on Cervantes to Coolimba area wetland flora.
- Produce a poster and a Science Information Sheet on Fortescue valley wetland survey.
- Survey additional wetlands (including the type locality) in the northern Wheatbelt for *Parartemia extracta*.
- Process samples of aquatic invertebrates collected from Goldfields wetlands in 2017 and survey additional Goldfields Region wetlands depending on rainfall during 2017/18.
- Participate in a biological survey of Kimberley region coastal mound springs.