Concept Plan SP 2016-005

Hydrological Function of Critical Ecosystems

Wetlands Conservation

Project Core Team

Supervising Scientist	Jasmine Rutherford
Data Custodian	Jasmine Rutherford
Site Custodian	

Project status as of June 24, 2016, 11:55 a.m.

Pending project plan approval

Document endorsements and approvals as of June 24, 2016, 11:55 a.m.

Project Team	granted
Program Leader	granted
Directorate	granted

Hydrological Function of Critical Ecosystems

Science and Conservation Division Program

Wetlands Conservation

Parks and Wildlife Service

Service 2: Conserving Habitats, Species and Ecological Communities

Background and Aims

Hydrology is a primary driver of wetland and riverine ecosystems and aquatic species distributions, acting directly on spatial and temporal variation in water volumes or through influences on water chemistry or habitat (e.g. acidification, salinisation, fire regimes, aquatic plants for fauna, temperature or woody debris from riparian zones). Most wetland conservation issues have a hydrological basis, requiring technical expertise to investigate the problem and advise on management. This project has been developed to bring short-term hydrological assessment studies under one umbrella project. Examples of current hydrological assessment projects include:

- Investigations identifying the major aquifers discharging groundwater and sustaining the Walyarta (Mandora Marsh) springs. This work will provide a basis on which to interpret the potential impacts of water resource development in the associated aquifers. (2015-2017). Funded by BHP via the Kimberley Region and undertaken in collaboration with researchers at The University of Western Australia.

- Assessment of key hydrological management actions within the Brixton Street wetland complex. Funded by Perth Region NRM via a grant application prepared by the Swan Region.

Proposals are also in development with the Rivers and Estuaries Division to map and understand nutrient fluxes into the Swan Estuary Marine Park and the Kimberley Region to identify and characterise different hydrological settings of the monsoon vine thicket TEC and develop effective monitoring programs.

Project objectives will vary but will generally involve identifying the critical hydrological parameter to manage that will improve conservation outcomes. To accomplish this a multi-disciplinary approach is employed to understand how these ecosystems vary in space and time, frequently involving collaborations with other researchers. Project outputs and outcomes are designed to provide more informed decision making with respect to prioritising conservation actions and assessing environmental impacts of land and water use proposals.

Combined. these projects fill an important role in reducing hydrological knowledge gaps, building an improved statewide understanding of the ecohydrology of threatened ecosystems and their critical hydrological parameters.

Expected outcome

Improved ecosystem health and resilience through ability of conservation managers to understand local hydrological function and the critical parameters requiring management. This information will be used to 1) assess environmental impacts, 2) prioritise conservation actions, 3) set limits of acceptable change (LoAC) (e.g. in Ramsar wetlands) and 4) establish or re-evaluate baseline monitoring programs.

Strategic context

The overarching aims of this project align with Parks and Wildlife's Strategic Directions 2014-2017, focusing on management priorities, conducting best practice science to protect threatened and priority plant and animal species and delivering on-ground conservation outcomes. Projects will be designed to assist in the development of management plans and where plans exist will focus on addressing priorities and targets relevant to the hydrology. For Ramsar sites hydrology project planning will be undertaken to ensure project outcomes reduce existing knowledge gaps outlined in Ecological Character Descriptions (ECD) and deliver improved limits of acceptable change (LoAC) to guide management actions.

Expected collaborations

Research will be designed and conducted in collaboration with Parks and Wildlife regional staff and scientists, in particular ecologists from the Species and Communities Branch. External links with research scientists from other state and commonwealth agencies, universities and CSIRO will be maintained and developed further. For example, the Mandora Marsh work is being undertaken in collaboration with Greg Skyzpek and Pauline Grierson at The University of Western Australia.

Proposed period of the project

May 23, 2016 – May 23, 2025

Staff time allocation

Role	Year 1 (2015-16	Year 2 (2016-17	Year 3 (2017-18)
Scientist	0.2	0.6 to 1.0	0.6 to 1.0
Technical	0.2	0.6 to 1.0	0.6 to 1.0
Volunteer			
Collaborator			

Indicative operating budget

Source	Year 1	Year 2	Year 3
Consolidated Funds (DPaW)			
External Funding	60000	100000	