

## HONOURS PROJECT

**Project Title:** Invertebrate biodiversity within Perth's lentic freshwater systems.

**Supervisor(s):** Dr Alison Blyth, Dr Mattia Saccó



### Project

Urban environments are a rapidly growing ecosystem type, making understanding their biodiversity and ecological function crucial to conservation (Turrini and Knop 2015). At the same time, freshwater systems are subject to increasing loss, perturbation, and alteration, with Earth's natural wetlands being reduced by up to 87% since 1700 (Davidson 2014). Understanding how biodiversity and abundance of different taxonomic groups persist in freshwater systems within the context of industrial and suburban development is crucial to protecting key ecosystems. However, a recent review of the impact of urbanisation on freshwater macroinvertebrates (Gál et al., 2019) concluded that insufficient data exists for lentic systems (lakes and ponds).

The Perth metro area is a rapidly expanding urban system within the ecologically unique south west of Australia. As much of the metropolitan area is low-lying, natural wetlands are an established part of the landscape, and developments require drainage systems and incorporation of lentic water bodies. This may be via retaining natural lakes, or by installing artificial pond systems. However, preliminary data collected within the City of Kalamunda shows that, in terms of macroinvertebrate biodiversity, not all suburban water-bodies are equal, with observable differences even within a single suburb.

In this project the student will sample and analyse lentic freshwater invertebrate biodiversity and water parameters across a range of environmental contexts within the Perth Metropolitan region. The project outcomes will provide essential baseline taxonomic data for these systems to conservation managers and allow assessment of biodiversity against environmental setting and water conditions. In addition, there is scope for project collaboration with the Australian Nuclear Science and Technology Organisation to explore the isotopic reconstruction of ecosystem function within different communities.

**Funding:** Supervisor research funds

**Special notes:** The student may be eligible to apply for an AINSE top up scholarship.

### References:

- Davidson, 2014. *Marine and Freshwater Research* 65, 934-941.
- Gál et al., 2019. *Ecological Indicators* 104, 357-364.
- Turrini and Knop, 2015. *Global Change Biology* 21, 1652-1667.