

# AUDRC Research Note

## From grey to green infrastructure



## *What drains should be upgraded for liveability and sustainability?*

### Background

- Due to the historic draining of hundreds of hectares of wetlands, Perth's suburbs are dotted with drainage corridors and compensation basins. However, a preoccupation with drainage functions (providing flood control and conveyance) means most of this drainage land delivers little liveability or sustainability benefits to surrounding urban areas.

- As a result, Local Governments across Perth are engaged in delivering Green Infrastructure upgrades to such drainage land, often in the form of living streams that function as a biological filter sieving out both organic and inorganic material, providing a habitat and food web for a variety of plants and animals and enhance the amenity of the area.

- However, questions remain about where such upgrades should be targeted for maximum benefit. Indeed, some decisions on what drainage land to upgrade are made on a 'rule of thumb' or intuitive basis.

- This situation is concerning because open space (including drainage land) needs to become more multifunctional as the urban density increases, climate change impacts escalate, biodiversity is increasingly threatened, and stubborn public health challenges endure. Moreover, such pressures are not felt evenly across metropolitan areas.

### Objectives

- In response to a lack of an overarching framework to guide upgrades to drainage land, this research project poses the question:

'Where should planners and policymakers invest in green infrastructure upgrades to open drains and compensation basins for the greatest sustainability and liveability impact?'

- In answering this question, we are conducting a mapping-based 'suitability analysis' (in ArcMap 10.5) using five sub-models related to environment (e.g. as threatened ecological communities, urban forest canopy cover), society (e.g. cohorts undertaking low or no exercise, low socio-economic areas), planning (e.g. proximity to existing public open space, zoned urban density), hydrology (e.g. drains with high phosphorous and nitrogen loads) and climate (Land surface temperature and Urban heat island effect).

- The project's next stage will work with select local governments to develop sub-model weighting appropriate to their priorities.

### Contact

For further information, publications, media, and presentation opportunities, please get in touch with Julian Bolleter at [julian.bolleter@uwa.edu.au](mailto:julian.bolleter@uwa.edu.au).