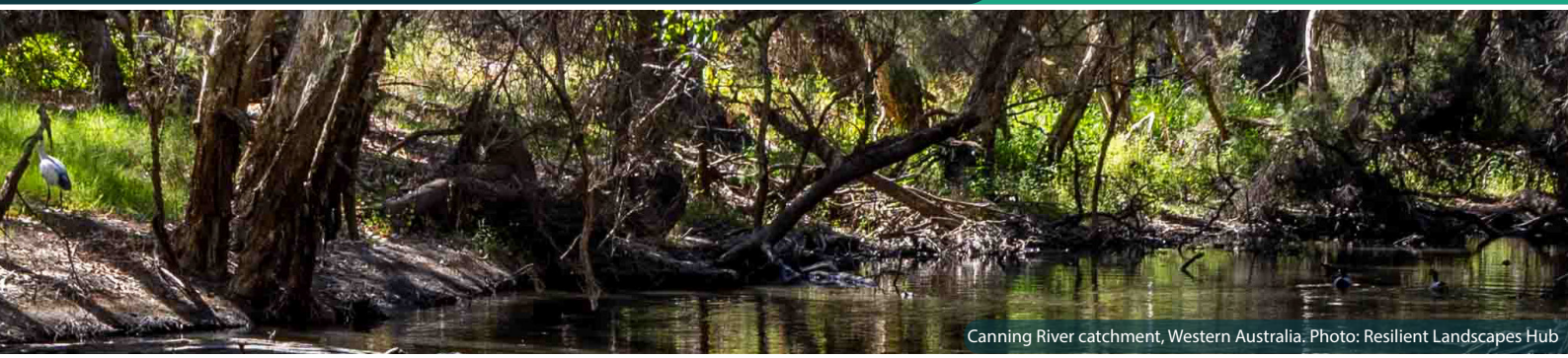
Monitoring and evaluating ecological outcomes of riparian revegetation

How can we improve if we don't measure?

Resilient Landscapes

National Environmental Science Program



Canning River catchment, Western Australia. Photo: Resilient Landscapes Hub

National Environmental Science Program (NESP) researchers from the Resilient Landscapes Hub published a review of grant funded revegetation projects delivered between 2006 and 2023 in the Canning River catchment (Western Australia). The review found that limited monitoring data often prevented assessment of ecological outcomes and highlighted opportunities to better align local project objectives with broader policy frameworks.

Freestone, F. L., Canham, C. A., Setterfield, S. A., Tayer, T. C., Beesley, L. S., & Douglas, M. M. (2026). How Can We Improve If We Don't Measure? Evaluation of Riparian Revegetation Projects Prevented by Lack of Monitoring Data. Ecological Management & Restoration, 27(1), e70034.

Did past restoration deliver ecological outcomes?

Riparian revegetation is a key activity to address the rapid decline of freshwater rivers, but demonstrating progress towards ecological improvement has historically been lacking globally. This review asked a practical question: are riparian revegetation grants delivering ecological outcomes?

The review assessed:

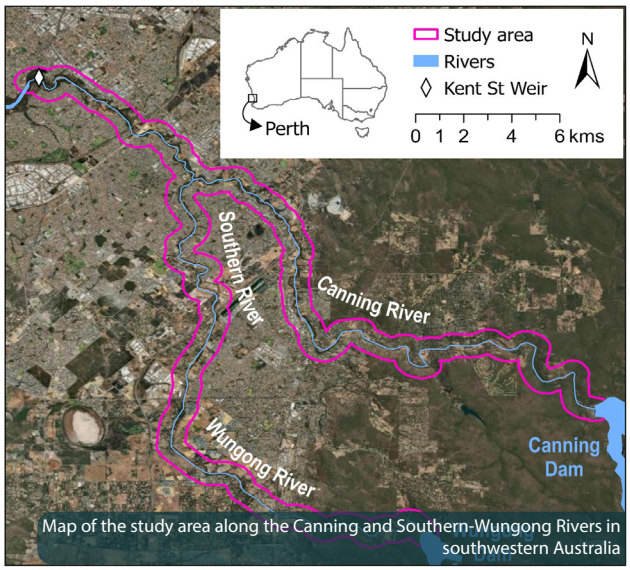
- whether past revegetation projects achieved ecological outcomes
- how data collection and reporting could be improved.

About the study

NESP researchers consulted natural resource management organisations (NRMs), local governments and Landcare groups, drawing on data from Armadale Gosnells Landcare Group (AGLG), SERCUL and Perth NRM. A total of 64 riparian revegetation projects delivered between 2006 and 2023 in the Canning River catchment were reviewed using project applications, final reports and available monitoring data.

Together, these projects represented ~$3.4 million in investment and grant funding from Commonwealth, State and private sources. Projects were assessed against three key questions:

1. Were ecological objectives SMART? (Specific, Measurable, Achievable, Relevant and Time-bound).
2. Was monitoring data collected that could measure ecological benefits?
3. Were there barriers that limited effective monitoring?



Map of the study area along the Canning and Southern-Wungong Rivers in southwestern Australia

Key research findings

The review identified several key findings:

- it was not possible to assess whether ecological objectives were achieved because monitoring data were insufficient
- no projects set SMART ecological objectives, making ecological benefits difficult to define or measure
- while most projects collected some data, quantitative monitoring data - including baseline data - was lacking, limiting adaptive management
- most projects were funded for just 12 months, limiting baseline data collection and long-term monitoring
- alignment between local revegetation projects and national and global biodiversity frameworks was limited.

All projects fell into one of three assessment categories:

1. 22% were not required by funders to provide monitoring data.
2. 3% were required to monitor, but the data was not collected or could not be found.
3. 75% were required to monitor, but the data was too limited to quantitatively assess success against the stated ecological objective.

No projects included data analysis, and data collection was never repeated.

Recommendations

To strengthen restoration outcomes and better report progress against national and global commitments, the study recommends:

1. Improving project application forms so proponents clearly link SMART objectives to program aims and broader policy frameworks (Fig 1).
2. Providing adequate resourcing so projects can develop SMART objectives and deliver robust monitoring and evaluation.
3. Increasing rigour in funding assessments so SMART objectives and monitoring are realistic within the project timeframe and support adaptive management.

Further information

This project is led by Professor Samantha Setterfield and Professor David Pannell from The University of Western Australia. Scan the QR code for more information.

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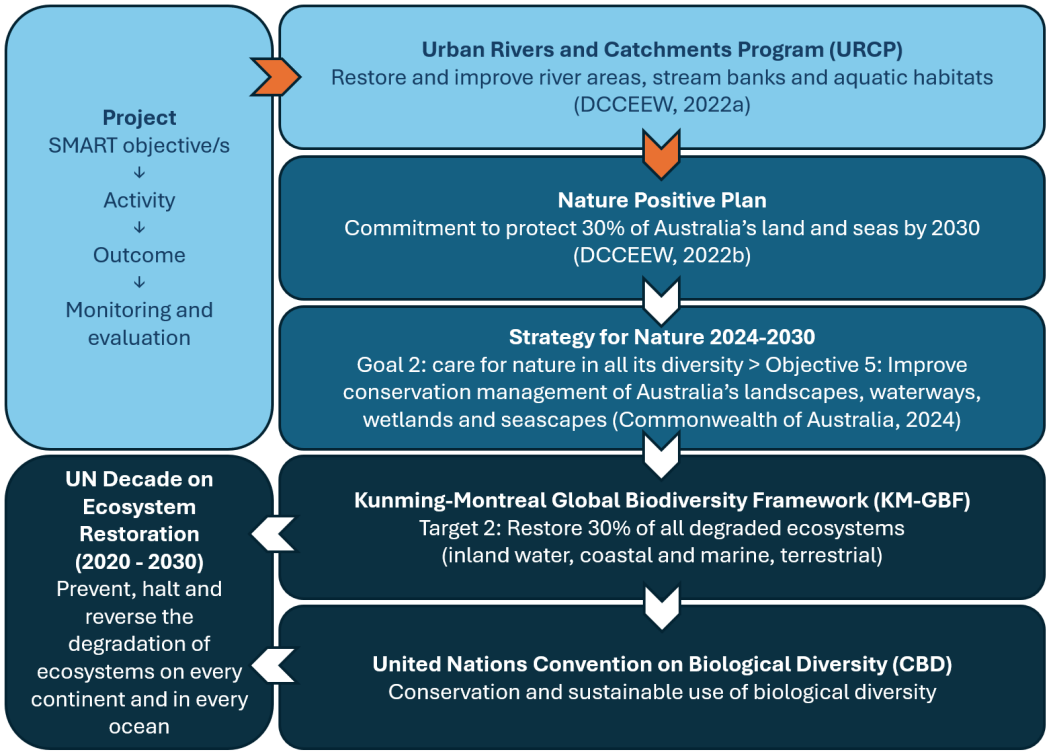

Fig 1. Conceptual diagram showing how national strategies align with global frameworks.

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