

W12 Vegetation Values: Monitoring riparian vegetation condition, extent and benefits for environmental values.

Objective(s)

To: i) establish data on restoration trajectories, enabling better understanding of factors that influence vegetation restoration effectiveness and outcomes at early, mid and later phases of restoration; and ii) develop improved tools to characterise and detect disturbances, and to assess changes in the condition and extent of remnant vegetation and revegetation across the Port Philip and Western Port region.

Why this research is important

Vegetation management and revegetation are key activities that Melbourne Water undertakes to maintain and/or improve riparian and waterway habitat and conditions. It involves high investment by Melbourne Water and their stakeholders.

In the Healthy Waterways Strategy MERI framework and HWS mid-term review, several key evaluation questions (KEQs) focus on maintaining, managing and restoring vegetation along waterways. Understanding what vegetation management activities deliver in practice and the difference it makes for environmental values are critical questions.

Assessing vegetation condition and extent, the effectiveness of revegetation outcomes, how these outcomes influence faunal values, and a better understanding of instream vegetation is vital to manage vegetation more effectively as a key value along with the biodiversity it supports.

Contribution to Melbourne Water research priorities

- MWRPP-4 (RV3): Measuring changes in waterway vegetation condition and extent across the region using remote sensing methods.
- MWRPP-2 (B3, B4, RV11): Investigating streamside and instream habitat restoration activities and outcomes for key environmental values.

Approach

This project will be delivered through two work programs:

- *Restoration Outcomes Monitoring Protocol (ROMP): vegetation restoration effectiveness and fauna use.* Will continue to develop and refine the database for recording and storing ROMP assessments to ensure data is complete, quality assessed, robust and fit-for-use.

- *Remote sensing methods for assessing vegetation condition.* Will focus on the use of Sentinel-2 and Landsat satellite imagery and Nearmap aerial imagery for the assessment of vegetation condition.

Key Outputs

- Refined Survey123 tool for efficient field data collation and management and database for recording and storing ROMP assessments.
- Report on concurrent ROMP and faunal monitoring across the region, tracking how revegetated areas change and develop over time and how this relates to habitat use by fauna.
- High quality reference dataset containing Landsat time-series (1993-2023) vegetation disturbance classification for riparian and catchment vegetation in the PPWP region
- Summary of accuracy and limitations of Nearmap vegetation data for 2018 and 2022 and implications for applications such as quantifying vegetation extent and change in extent over time.

Expected benefits

- Improved understanding of site, contextual, management interventions and revegetation actions that influence the effectiveness of revegetation survival, growth and development
- Better understanding of how fauna such as birds and macroinvertebrates are associated with revegetated areas over time.
- Improved approaches for characterising and reporting riparian vegetation condition.
- Better understanding of accuracy, limitations and implications of Nearmap vegetation data.

Project teams

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