

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

Objective(s)

To: i) obtain 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 extent and condition 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 extent and condition, the effectiveness of revegetation outcomes, and how these outcomes influence faunal values is vital to manage vegetation more effectively as a key value along with the biodiversity it supports.

Contribution Key Research Areas

- Streamside vegetation and instream habitat
Developing decision support tools to support improved investment in riparian and instream habitat activities and locations.

Approach for year 3

This project will be delivered through two work programs:

- Restoration Outcomes Monitoring Protocol (ROMP): vegetation restoration effectiveness and fauna use. Will continue to monitor revegetated and paired remnant sites, and to develop and refine the database for recording and storing ROMP assessments to ensure data is complete, quality assessed, robust and fit-for-use. It will also assess how bird species are using revegetated and remnant areas. We will continue to work with Traditional Owners on co-developed restoration monitoring projects.

- Consolidate and update revegetation guidelines. Consolidate standards and guidelines that relate to revegetation in Melbourne Water and update with relevant knowledge, research, and practices, particularly with respect to climate change impact. This will also involve working with Traditional Owner groups to better incorporate their values and knowledge into how Melbourne Water undertakes revegetation and vegetation management more broadly.

The project may also undertake the following:

- *Remote sensing methods for assessing vegetation condition.* Re-run anomaly detection of vegetation using Sentinel-2 data from 2024 to 2025/2026. Update the existing vegetation condition random forest model using data from Vegetations Visions from the planned 2025 surveys.

Key outputs year 3

- Refined Survey123 tool for efficient field data collection, storage and management of ROMP assessments.
- Report on findings-to-date of ROMP-monitored revegetation and paired remnant sites and faunal use.
- Co-developed adapted ROMP method for use by Traditional Owner groups
- Consolidated standards and guidelines that relate to revegetation in Melbourne Water

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 are associated with revegetated areas over time.
- Consolidated revegetation guidelines incorporating traditional owner values and representing up-to-date knowledge, research and practices for improved effectiveness
- Improved methods and tools for detecting vegetation anomalies, and characterising and reporting riparian vegetation condition.

For more information

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