Project Summary
2017/18

Project 4.2
Monitoring and evaluation of Yellingbo capital works project

This project arose from the need to develop a targeted monitoring and evaluation program to accompany Melbourne Water capital works planned for the Cockatoo Swamp, Yellingbo Nature Conservation Reserve. The capital works, including a pumping trial and partial levee bank removals, are aimed at naturalising water regimes within the Cockatoo Swamp, thus arresting tree dieback and improving the condition of its swamp forests, which provide habitat for the critically endangered Helmeted Honeyeater and lowland Leadbeater's Possum. An appropriate monitoring program has already been developed and three years of 'before' data collected. The capital works program is to be implemented by early 2018.

This project is now largely funded through a successful ARC Linkage grant: *Overcoming multiple constraints to wetland forest restoration* (LP 150100682).

Project aim
The purpose of this project is to develop and implement a targeted monitoring and evaluation program to accompany works activities at YNCR.

Research methods
The project will seek to obtain vegetation condition and water level data 'before' and 'after' the works are completed. Specifically, the project will conduct:

- Coordination of drone surveys to collect high resolution multispectral, LiDAR and video imagery.
- **S**urface water-level monitoring using water-level data recorders.
- Individual tree condition assessment using The Living Murray (TLM) method.
- Stand condition assessments using hemispherical photography (Figure 1).
- Survey of permanent quadrats to monitor for seedling recruitment and mid-/under-storey vegetation change.
- Seedfall monitoring.
- Photo-point monitoring.

Progress to date
Research into the water regime requirements of critical Eucalyptus camphora forests within the Yellingbo NCR (Greet 2015a, 2016a) led to the development of environmental watering objectives for the Cockatoo Swamp (Greet 2014). These objectives are being used to inform the planned hydrology works. An appropriate vegetation condition monitoring program has already been developed and implemented to enable assessments of

Figure 1. Example of hemispherical photographs (processed by Gap Light Analyzer) used to determine canopy cover.

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the efficacy of the works to naturalise water regimes within Cockatoo Swamp and improve vegetation condition. Three years of 'before' data for this program have already been collected (Greet 2015b, 2016b, 2017)

Project Team

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