

## Project 4.6

# Evidence for effective climate-adapted seed sourcing strategies for revegetation success and transition to mine closure in a changing climate

### Why the project?

Climate change is one of the most widespread and significant current threats to ecosystems and biodiversity worldwide. While the impacts of climate change on ecosystems are well-recognised, most on-ground ecological management programs in Australia (and elsewhere) do not yet account for a changing climate. Indeed, there have been many climate adaptation management options put forward from a theoretical perspective, but few have been tested for effectiveness. To gain credibility and secure social licence for adaptation management, a strong evidence base needs to be established, preferably by embedding trials within business-as-usual operations.

Post-mine revegetation is exposed to the impacts of climate change, with a high likelihood of long-term failure of rehabilitated areas to meet criteria for successful mine-closure. Mine closure planning is critical to help alleviate climate risk in mine closure, and should occur early. It is thus becoming increasingly urgent to seek tangible solutions to enhance climate-resilience of revegetation in a post-mining context.



### What are the project objectives?

The project will develop evidence for the effectiveness of climate-adapted seed sourcing strategies for post-mine revegetation. In particular, it focusses on the effectiveness of climate-adapted seed-sourcing strategies. To achieve this, the project aims to:

- embed experimental revegetation plantings (experimental infrastructure) at multiple mine revegetation sites across Australia
- obtain early plant growth and fitness measurements for these, as yet, untested, alternative seed-sourcing strategies
- provide industry and regulators with the evidence needed to guide effective mine closure that confers greater climate resilience and reduces risk of post-mine revegetation failure, now and under future changes.

### What will the project deliver?

This project will:

- embed experimental infrastructure in post-mine revegetation plantings, for monitoring of short and long-term revegetation success,
- provide data and conclusions on the relative performance of business-as-usual vs climate-adapted seed-sourcing strategies for early vegetation establishment
- demonstrate an experimental design that can potentially be taken up across a wider range of mine sites and other revegetation sites in Australia and around the world, to build a larger network of sites testing this concept for different species and environments.

## Who are the end users?

Project outcomes will provide guidance applicable to mining companies, industry and regulators looking to enhance revegetation outcomes. More broadly, these findings will be applicable to revegetation for other contexts and industries.

## How can I engage?

Project information will be shared through conferences, CRC TiME webinars and partner events, and publications. Additional engagement opportunities will be communicated as the project progresses.

## Timeline

2022 - 2025



## How does this align with CRC TiME Impact objectives?

Mines are closed in ways that deliver social, economic and environmental value

Closed sites are repurposed to enable a faster transition to diverse and resilient local economies

Mine closure business solutions drive new commercial and/or regional closure opportunities

Continued investment in Australian resources

Policy, decisions and management systems reduce risks

## Project Partners

### Project Participants

BHP, Murdoch University, Flinders University, Department of Biodiversity, Conservation and Attractions (WA), Australian Genome Research Facility, Hanson Construction, Newmont Mining Services, Revegetation Industry Association of Western Australia, Anglo American, CSIRO

### Advisory Participants

Department for Energy and Mining (SA)