

PROJECT PHOENIX



EVERYTHING YOU WANTED TO KNOW ABOUT ACCESS TO LAND FOR NATIVE SEED COLLECTION



PROJECT SUMMARY
JUNE 2021

Across all of our Project Phoenix activities and actions we pay respect to the Traditional Owners and Custodians of the lands and waters on which we work. We honour the resilience and continuing connection to country, culture and community of all Aboriginal and Torres Strait Islander people across Australia. We recognise the decisions we make today will impact the lives of generations to come.

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Australian Government



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EXECUTIVE SUMMARY

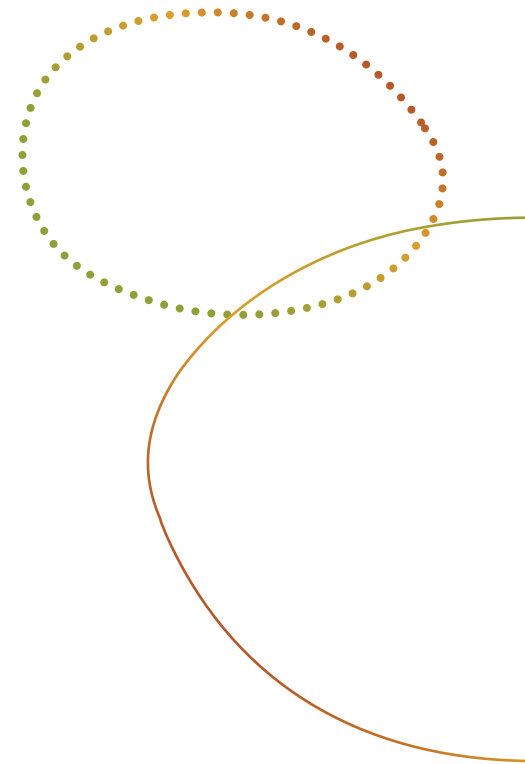
About the project

Land access was identified as a major issue in the Project Phoenix report, *Everything you wanted to know about access to land for native seed collection*. This report is a first of its kind review of native flora licensing across Australia's states and territories.

Scope

The scope of this project was to undertake a national legislative and legal review of land access for native seed collection across public and private land.

The interlinkages of these factors make the licensing system inherently complex. This report explores land access since it is considered a significant barrier to scaling-up seed collection for large-scale restoration, especially in terms of population genetics and climate-adjusted provenance.



Introduction

Environments across the globe are under stress. Native vegetation has historically been cleared and degraded across the Australian landscape due to various drivers including land use change for agriculture, mining and urbanisation (Metcalf & Bui 2017). Land degradation and fragmentation have also had adverse impacts on biodiversity and ecosystems services. For example, fragmentation may reduce biodiversity by up to 75% (Haddad *et al.* 2015) and reduce ecosystems' resilience to disease, invasive species and further degradation. A recent paper by Bergstrom *et al.* (2021) provides a stark assessment of collapses in 19 ecosystems (both terrestrial and marine) spanning from Australia to Antarctica.

'Ecosystem collapse' can be defined as vegetation being degraded beyond a baseline state, loss of extent and key species and, in turn, ecosystem services (Bergstrom *et al.* 2021). Australia has one of the highest land clearing rates in the world, with approximately 44 per cent of forests and woodlands cleared since European settlement began (Metcalf & Bui. 2016). The decline in Australia's environment has coincided with a marked increase in restoration activities, however the restoration and native seed sector are still facing a suite of challenges in the race to massively scale up revegetation and restoration.

The United Nations has declared 2021–2030 as the Decade of Ecosystem Restoration, aligned to the deadline of the Sustainable Development Goals and emphasising the important role ecosystems play in creating a sustainable future (United Nations 2019). The magnitude of this task is in the range of hundreds of millions of hectares of land restoration. This is a massive scale in and of itself that is heightened by the insufficient political support and technical capacity required to increase restoration initiatives worldwide.

The supply of native seed is a core concern for the restoration sector, particularly considering the ecosystem decline and genetic diversity concerns of harvesting seed from small, fragmented populations (Broadhurst *et al.* 2015).

In addition to the human-induced destruction of native vegetation and soils, climate change adds an extra layer of complexity as we seek to restore our landscapes. We cannot simply continue to restore landscapes to their historical structure and composition because those species may not be able to adapt to the current and future climatic conditions of that particular landscape. However, there are things we can do to increase the genetic resilience of our restoration plantings including:

- incorporating climate-adjusted provenance by sourcing seed from hotter/drier and cooler/wetter regions and
- consider planting different native species that are more adapted to projected climatic conditions.



With the increasing awareness and implementation of guidelines (e.g. DELWP guidelines in Victoria) for implementing climate-adjusted genetic provenance into restoration programs, it will be important that seed from the required provenance can be sourced. The *Australian Native Plant Survey Report* suggests that native seed is being used in projects beyond what is considered to be local provenance (Hancock *et al.*, 2020). The lack of availability of high-quality seed is considered a strong driver of this.

This report aims to review land tenures across Australia to identify key land access mechanisms that are enablers or detractors to large-scale seed collection and production. To our knowledge, this is the first report of its kind that attempts to identify these mechanisms across a broad range of land tenures.

Issues

Two key issues were encountered during the execution of this review:

1. As part of this research, an attempt was made to gather historical seed collection data from state-licensing data. However, this data was inconsistent across states and ultimately there were too many gaps to integrate everything into the output presented in this report.
2. There was a slight delay (three weeks) in the completion of GIS mapping of land tenures and land use, which in turn delayed the completion of the final report.

Comment

The inability to access historical seed collection data has been noted in the final report and formulated as a future recommendation to:

- gather this data from local government sources to collate and
- influence the implementation of an integrated database that collates this local data to a single source.

Key outputs

The key outputs of this activity are:

- GIS mapping of land tenures, land use and burn extent from the 2019–20 Black Summer bushfires and
- a final report that identifies and reviews land access mechanisms across several key land tenures.



Outcomes

This research was conducted primarily as a desktop-based study whereby publicly available legislation and scientific literature was identified and reviewed to make inferences regarding land access for large-scale seed collection.

In addition, an attempt was made to reach out to several organisations and individuals to try to understand the policy context regarding seed collection.

Three organisations responded and an additional two individuals provided broad-level input. In combination with the information gathered online, this was considered sufficient to make some high-level assessments.

In addition, GIS mapping was subcontracted out to trusted and expert scientists. They were asked to develop map packages for each state across Australia comprising land tenure, land use and burn extent from the 2019–20 Black Summer bushfire datasets.

Findings

The key findings from this research are:

- The identification of **land tenure extent** across the landscape at the state-level across Australia.
- The identification of **land tenures and land access mechanisms that may act as enablers** for increasing large-scale seed collection for landscape revegetation and restoration:
 - e.g. conservation reserves and water reservoirs where seed collection doesn't typically occur, but where there is appetite for future collection provided it meets a set of criteria
 - a set of criteria would need to be developed and built into an organisation's policy regarding vegetation management.
- The identification of **land tenures and land access mechanisms that may act as detractors** to increasing large scale seed collection such as carbon offset planting sites, whereby commercial seed collection is prohibited under the *Carbon Credits (Carbon Farming Initiative) Act 2011*.



Evidence

This research reviewed publicly available legislation in addition to scientific research (where available and appropriate). A list of references is available in the full project report. In addition, qualitative data was collected by speaking with several organisations and individuals who were considered stakeholders in this research. For example, Trust for Nature in Victoria were interviewed with regard to land managed under a conservation covenant.

Furthermore, various government datasets were utilised to develop the GIS land tenure mapping used in this research.

Refer to the report *Everything you wanted to know about access to land for native seed collection* for further details and all references.



RECOMMENDATIONS

RECOMMENDATIONS

1

Identify core species required in priority restoration locations (e.g. bushfire recovery and vulnerable landscapes) to build incentives and capacity for the development of seed orchards and seed production areas (SPAs) in strategic locations.

This should take into consideration the importance of incorporating climate-adjusted provenance into restoration programs so as to improve the resilience of vegetation to the unpredictable impacts of climate change. Furthermore, because genetic variation and resilience is so important when establishing a SPA, access to high-quality native seed from National and State Parks is likely to be important.

It is suggested that partnerships between government departments be investigated so as to enable the harvest of native seed from these protected areas in a strategic way.

At this point, the land tenure mapping conducted as part of this research will become increasingly valuable as we seek to identify land tenures that may be strategically placed in the landscape for a SPA.

2

Development of seed collection baselines to reduce unintended consequences of wild seed collection on native vegetation.

This research identified that there is apprehension about ongoing seed harvesting occurring within National and State Parks, conservation covenants or conservation reserves and reservoirs and dams. The key driver behind this is the risk of causing unintended harm to populations (e.g. reduced capability of vegetation to naturally regenerate by reducing canopy and soil seed banks, as well as introduction of weed species).

This may be heightened in areas where population genetic diversity is low, or vegetation is fragmented or degraded. This risk is valid and, as restoration practitioners, protecting the environment is of the utmost importance.



RECOMMENDATIONS

Therefore, to reduce the risk of causing unintended harm, establishing a standard baseline for seed collection to be permitted is recommended. For example, a minimum population size.

This standard would play an important role in influencing the development and implementation of policy clauses for seed collection across various tenures including conservation covenants and water reservoirs and dams.

3

Develop Land Access Agreements and Memoranda of Understanding (MOU) across key land tenures in priority areas.

In speaking to several landowners across various sectors including water utilities and conservation organisations, it was identified that there is an appetite for increasing access to intact vegetation on these land tenures for seed collection and development of SPAs. Access for seed collection would depend on the species intended for harvest and the health and extent of that species on the land tenure.

In order to facilitate access for the supply of high-quality native seed for restoration purposes, the following arrangements are proposed:

- Seed collection requirements are to be discussed with each landowner on an annual basis and/or, in alignment with the local licensing requirements, and access is assessed according to a set of criteria established under an organisational policy.
 - The benefit of this arrangement is that seed collection practitioners will be able to build relationships with landowners and will be aware of the potential to collect seed from these areas.
 - However, seed collection is often opportunistic (due to various factors including flowering intervals and climatic conditions) and therefore won't always be driven by upcoming project demand, but rather by the knowledge that the seed will be used within the next couple of years. This will be highly varied according to species and seed storage viability.
 - Therefore, relying on approval on an annual basis may delay access and missing the window in which to harvest seed, which is not dissimilar from current existing barriers to accessing wild native seed.



RECOMMENDATIONS

- A land access agreement or MOU is to be established to facilitate timely access for seed collectors. The benefit to this arrangement is that these agreements can be established for multiple years, provide flexibility, and increase the ability to collect seed opportunistically by reducing the permission process.
 - Such agreements could be incentivised through mutual benefit arrangements whereby, for example, a condition report of the vegetation being harvested is to be submitted on completion of harvest or observations of weed species are to be relayed back to the landowner.

4

Build land tenure maps into interactive maps that can be utilised by various stakeholders within the native seed sector to identify areas where access is permitted and any requirements needed to access a particular area. This would be particularly useful for climate-adjusted seed collection which may sit outside of a regular seed collection area.

This research pulled together various datasets from government sources to map land tenure and land use across Australia's states, in addition to burn extent from the 2019–20 bushfires using the NIAFED dataset.

It is recommended that the land tenure maps be further developed into a live, interactive web-based application to complement species distribution mapping. This would be valuable for practitioners and help them to easily identify areas to access for seed collection.

For example, if you were wanting to collect *Eucalyptus viminalis* seed you could search for this species and obtain a distribution output. Clicking on a specific location could then tell you the land tenure, land use, licensing requirements, who to contact for land access permissions and list the seed contractors operating in the region.



RECOMMENDATIONS

5

Access historical seed collection data and implement an integrated data system that provides collation of data to a single source to build a robust dataset for seed collection that is species and location specific.

In their current state, the maps created (examples are provided in the full report section 1.2) are useful in order to identify the extents of these land tenures and their locality with regard to burn extent from the 2019–20 Black Summer bushfires. However, the usefulness of these maps could be improved by contextualising this mapping with species specific, location seed collection data.

As part of this research, an attempt was made to gather historical seed collection data from state-licensing data. However, this data was inconsistent across various states and ultimately there were too many gaps to integrate the information gathered into the output presented in this report. It is believed that gathering this data would be useful but would firstly require accessing licensing data from local government offices as this data was typically not collated to a single, state-wide source.

The implementation of integrated data systems to collate local data to a single source would make this data acquisition easier in subsequent years. However, licensing data is not likely to tell the full story of what seed is collected and where, due to licensing not being required under all circumstances (e.g. collecting a non-threatened species on private land). Therefore, capturing all seed collection data would require collaboration amongst all stakeholders in reporting annual harvests.



WANT TO KNOW MORE?

For further information read the full report *Everything you wanted to know about access to land for native seed collection*.

Related projects

- *Australian native seed production in 2021*
- *Psst... Everything you wanted to know about native seed licensing*
- *Do we need a National Seed Code of Practice?*
- *Native seed transfer zones in Australia — How far can seed go?*
- *New FloraBank training for the native seed*

This project contributes to the evidence base for a ten-year strategy to guide the native seed and landscape sector. The document, which is untitled until endorsement in September 2021, is referred to as the Strategy in all Project Phoenix publications.



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