Australian Government

National Landcare Program

20 Million Trees Program review

Summary

The 20 Million Trees Program was initiated in 2014 to re-establish green corridors, urban forests and threatened ecological communities. The program formed part of the National Landcare Program Phase One and complemented and aligned with other Australian Government initiatives, such as the work of the Office of the Threatened Species Commissioner.

This program review examines how the program measured against its 4 objectives: 20 million trees, environmental conservation, community engagement and carbon reduction.

The review provides key statistics and achievements of the program available at 30 June 2021, with the program still finalising a small number of projects. The review focuses on purchased outputs and does not discuss or predict the long-term benefits of the plantings, except in relation to carbon reduction.

Information for the review has been taken from program applications, progress and final reports, social media, satellite imagery and case studies.

The program achieved its 4 objectives by establishing 20 million trees by 2020, improving native vegetation supporting native species, working cooperatively with the community and contributing to Australia's carbon sequestration.

The program established 29,508,062 trees and 4,061,837 understorey plants through 235 projects. The program has spent $61.775 million of its just over $62 million revised budget, which was reduced from the original $70 million budget in line with expected achievement of program objectives.

The program has shown leadership in the tree planting space and has successfully paved the way for future tree planting programs initiated by private enterprise, community groups, non-government organisations and other government bodies. The Australian Government will continue to invest in rehabilitating natural habitats and in revegetation activities through other elements of the National Landcare Program.

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Cataloguing data

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Introduction

The 20 Million Trees Program was an Australian Government commitment, administered by the Department of Agriculture, Water and the Environment.

The program had 4 objectives:

- 20 million trees—20 million trees and associated understorey established by 2020
- environmental conservation—supporting local environmental outcomes by improving the extent, connectivity and condition of native vegetation that supports native species (including threatened species and threatened ecological communities)
- community engagement—work cooperatively with the community
- carbon reduction—reducing Australia's greenhouse gas emissions.

The program supported projects that established native vegetation through planting tube stock or direct seeding. Plantings comprised of native species suitable to each specific site and region over the longer term. Projects that included plantings of appropriate understorey species were encouraged to ensure locally appropriate vegetation structures were achieved.

The program also supported projects that expanded community knowledge through collaboration. Applicants were encouraged to work with relevant traditional owners, local government and planning authorities, community groups and regional natural resource management organisations when designing projects.

Photo: Aerial view of a 20 Million Trees Program urban tree planting project © City of Greater Geelong

Program delivery

The department took an innovative approach to delivering the program by using 3 delivery streams: competitive grants; service provider procurement; and non-competitive discretionary grants.

For this report, all those receiving funding (whether for competitive grants, procurement or non-competitive discretionary grants) are called 'proponents'. Proponents under the program were responsible for carrying out site preparation, direct seeding, planting and ongoing site maintenance (see Table 1).

Table 1 Breakdown of program delivery

Delivery stream	Program element	Description
Stream 1: Competitive grants	Competitive grants	Competitive grants to groups and individuals to carry out tree planting projects.
Stream 2: Procurement	Service providers	Three service providers were selected through a tender process to deliver large-scale tree plantings across Australia.
Stream 3: Non-competitive discretionary grants	Cumberland Conservation Corridor	A government commitment to provide funding to applicants in greater western Sydney, New South Wales.
	Cumberland Conservation Management of Land	Conservation management of land in the Cumberland area, New South Wales.
	Greening the West of Melbourne	A government commitment awarded to LeadWest to plant 1,000,000 trees in Victoria.
	One Tree Per Child	This national project engaged local organisations, local councils, local tree planting organisations and primary schools to plant 100,000 trees.
	Planet Ark	This project worked with a range of organisations to establish 21,000 native trees and appropriate understorey to celebrate National Tree Day's 21 years of operation in New South Wales, Victoria, Queensland, South Australia, Tasmania, the Northern Territory and the Australian Capital Territory.
	Bass Coast Landcare Network	A project in the Flinders electorate, Victoria to acquire and plant native trees with the Bass Coast Landcare Network.
	Men of the Trees	A project to plant trees in Wattle Grove, Western Australia as part of a Swan and Canning Rivers Green Army commitment.
	Mayo Local Environment Plan	A project for a Mayo Local Environment Plan, including for the Lower Lakes, South Australia.

Three open competitive grant rounds were held with approximately $13.3 million (GST exclusive) funding awarded across 168 projects, undertaken by a range of community groups and organisations (Figure 1).

Grants were designed to support individuals and organisations including local Landcare groups, natural resource management groups and Indigenous organisations to deliver project outcomes by providing funds in advance of project activities.

In addition, 3 service providers – CO_2 Australia, Greening Australia and Landcare Australia – were engaged through a competitive tender process, with 44 projects totalling more than $37.6 million (GST exclusive) funded under 3 competitive tranche rounds (Figure 2).

The program also included 23 projects funded under non-competitive discretionary grants, totalling almost $11 million (GST exclusive).

The mix of grants and large-scale service provider projects ensured the program targeted specific local environmental outcomes, as well as larger landscape priorities.

Figure 1 Project numbers by delivery stream

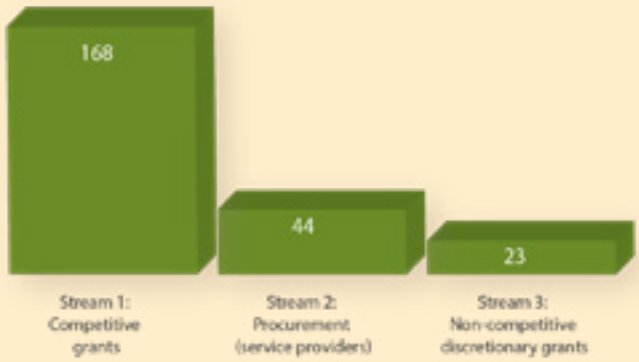


Figure 2 Funding expensed by delivery stream

20 Million Trees Program review methodology

The 20 Million Trees Program review examines the program achievements against its 4 objectives, its efficiency and effectiveness and future directions. The Program Delivery Branch, within the department, undertook the review. The Australian Government Department of Industry, Science, Energy and Resources supplied information regarding the contribution of the program to carbon abatement in Australia.

This report uses information available at 30 June 2021. At that time, 9 grant projects with contracts to deliver 133,592 trees were yet to submit final plant survival surveys and as such the results have not been included in this report. This is important to note when examining the cost per tree information, for grant rounds 1, 2 and 3, however, is unlikely to materially change the final figures.

The review includes quantitative and qualitative data, which was entered by the proponents into the department's online Monitoring Evaluation Reporting and Improvement Tool (MERIT). MERIT is designed to collect and store planning, monitoring and reporting data associated with natural resource management projects funded by the Australian Government. The review data is reliant on what has been entered into MERIT by proponents, which may be subject to human error and differing interpretation.

It is anticipated the long-term benefits of the program will continue to be seen for decades to come. This report focuses primarily on the program's outcomes at an 'output' level, for example, the number of trees planted and established on project sites, rather than the ongoing impact of those trees on the local environment.

Program objectives

Objective 1: 20 million trees by 2020

Trees and associated understorey contracted to be established by 2020

Table 2 Trees and associated understorey contracted

Delivery stream	Trees	Understorey
Stream 1: Competitive grants	3,314,794	1,441,376
Stream 2: Procurement (service providers)	14,459,414	–
Stream 3: Non-competitive discretionary grants	2,025,511	47,140
Total	19,799,719	1,488,516

The Australian Government contracted proponents to establish almost 19.8 million trees and almost 1.49 million understorey plants (see Table 2). An established tree is defined as growing to a height of 2 m or more when mature and understorey less than 2 m in height when mature.

Proponents were contracted to report on the number of trees and understorey they planted and direct seeded, the number surviving and the survival rate. For example, a project may have planted 10,000 tube stock, had 8,000 survive and had an 80% survival rate; or a project may have direct seeded aiming for 10,000 trees but produced 12,000 trees and so had a higher than expected survival rate of 120%.

By the end of the project, proponents must have established the contracted number of trees. This meant if lower than expected germination rates or survival of planted species occurred, proponents needed to replant the necessary number within that habitat to ensure target survival numbers were met. This was called 'make-good provisions'. Sometimes however, replanting was not possible due to a range of environmental factors and alternative planting sites were found, or in some isolated cases the project did not fully deliver the contracted number of trees.

Trees and associated understorey planted

Trees and understorey were planted using tube stock and direct seeding methods. Tube stock is the term used for young plants that have been grown from seed to the point where they are ready for planting in the ground (see Table 3).

Table 3 Trees and associated understorey planted using tube stock

Delivery stream	Trees	Understorey
Stream 1: Competitive grants	3,083,181	862,127
Stream 2: Procurement (service providers)	11,276,987	340,585
Stream 3: Non-competitive discretionary grants	1,785,230	138,051
Total	16,145,398	1,340,763

Direct seeding describes the process of sowing seed directly into the final location (see Table 4). Direct seeding is likely to have lower establishment costs compared to tube stock planting, but this method can be slower to achieve germination and not all seeds may germinate. Therefore, there is potentially a higher risk in terms of the final number of trees established. Proponents reported 47,864 kg of tree seed and 1,399 kg of understorey seed had been sown using this method. Many proponents used a combination of tube stock planting and direct seeding to ensure they could deliver on their project outcomes.

Table 4 Direct seeding used to plant trees and associated understorey

Delivery stream	Trees (seed kg)	Associated understorey (seed kg)
Stream 1: Competitive grants	15,813	668
Stream 2: Procurement (service providers)	17,042	730
Stream 3: Non-competitive discretionary grants	15,009	1
Total	47,864	1,399

Photo: Seeds being mixed before planting, project 20MT-LAL-T3-07

Trees and associated understorey established

As at 30 June 2021, proponents reported 29,508,062 established trees and 4,061,837 understorey plants delivered through the program (see Table 5), exceeding Objective 1 by over 9 million trees (see Table 6). Remaining projects to be finalised include a possible tree count of 133,592 contracted trees, meaning the total established trees under the program could increase by approximately 0.45%.

Table 5 Trees and associated understorey established

Delivery stream	Trees	Understorey
Stream 1: Competitive grants [a]	3,245,733	1,577,758
Stream 2: Procurement (service providers)	24,334,903	2,367,385
Stream 3: Non-competitive discretionary grants	1,927,426	116,694
Total	29,508,062	4,061,837

a Not all plant survival surveys have been finalised, so the established trees and understorey is likely to increase.

Table 6 Trees and associated understorey contracted and established

Delivery stream	Program element	Contracted trees	Contracted understorey	Established trees	Established understorey
Stream 1: Competitive grants	Grant round 1 [a]	1,113,920	411,992	1,316,795	753,419
	Grant round 2 [a]	994,498	317,303	980,305	215,855
	Grant round 3 [a]	1,206,376	712,081	948,633	608,484
Stream 2: Procurement	Service provider tranche 1	6,762,700	–	13,837,564	1,924,600
	Service provider tranche 2	2,499,564	–	3,029,365	110,528
	Service provider tranche 3	5,197,150	–	7,467,974	332,257
Stream 3: Non-competitive discretionary grants	Cumberland Conservation Corridor	794,951	3,000	716,695	79,942
	Cumberland Conservation Management of Land	–	–	–	10
	Greening the West of Melbourne	1,000,000	–	978,142	–
	One Tree Per Child	100,000	–	87,229	2,969
	Planet Ark	21,000	–	17,982	4
	Bass Coast Landcare Network	25,000	5,500	39,507	1,602
	Men of the Trees	50,000	30,000	50,159	21,244
	Mayo Local Environment Plan	34,560	8,640	37,712	10,923
Total		19,799,719	1,488,516	29,508,062	4,061,837

a Not all plant survival surveys have been finalised, so the established trees and understorey is likely to increase.

Some projects over-delivered on the total number of trees established because of the efficient and effective methods used. Service providers used refined and thoroughly tested methodology to deliver large-scale restoration projects, using both tube stock and direct seeding methods. High tree numbers were also due to service providers taking a conservative approach to risk and planting/direct seeding additional trees to reduce the risk of not achieving their contracted number of trees and being required to undertake replanting.

Thorough site evaluation and mapping occurred to allow extensive site planning, preparation and planting of suitable species selections that matched the local soil type, conditions and location in the landscape. Seeds were sown at the most appropriate time based on seasonal conditions and insecticide and pest management techniques applied, which resulted in limited animal browsing. Using a diverse range of approaches to revegetation, direct seeding and tube stock planting resulted in project success, including higher than expected germination and survival of direct seeding.

While the total number of trees and associated understorey established under the program were much higher than expected, not all projects were successful. Results from the many highly successful projects offset tree losses from less successful projects. As at 30 June 2021, 7 projects had terminated. The reasons for termination included the withdrawal of landholder support (which included the sale of land for 1 project) and the closure of a proponent.

As a flexible and responsive program, it was possible for proponents to vary their projects. This allowed projects to adapt to changing conditions in the environment, including natural disasters such as bushfires, cyclones and floods, as well as dry spells or drought. This led to the underperformance of some projects for acceptable causes. These environmental conditions and the impact of COVID-19 restrictions delayed plantings for some projects, and resulted in the germination and tree maturity results being insufficient to allow their inclusion in the final plant survival surveys. Tree planting efforts are highly subject to environment factors, including large-scale bushfires, which are often outside of proponents' control. As such, the department, in line with the contract, was able to consider such events when deciding whether to enforce contractual obligations.

Table 9 Average cost per tree across delivery streams, provides an overview of the cost per tree for the program. While it is interesting to compare the cost per tree across the different delivery streams, caution must be exercised in viewing it as an indicator of success or failure for a particular stream.

The reasons for differing cost per tree across the program included:

- difficulty of the site to access, for example urban as opposed to rural
- difficulty of the site to plant, for example steeply sloped
- project objectives, such as an increased focus on community engagement activities
- complexity of the projects to coordinate
- revegetation method chosen (for example, tube stock planting versus direct seeding).

There was a trend for the average cost per tree to be higher for projects in major cities as opposed to projects in regional or remote areas (see Table 7). Reasons for this trend could include the smaller size of major city planting sites, the inability to use large tree planting machinery, or the increased focus of major city projects on community participation.

Projects in urban areas also tended to focus more on community engagement, which favoured tube stock planting over direct seeding (tube stock planting being a more expensive option than direct seeding). To see all the project sites by regional classification, refer to Map 5. As can be seen in Table 8, average cost per tree tended to be higher for delivery streams with higher volunteer participation, which is frequently a key element of community engagement in tree planting efforts. Community engagement was one of the objectives of the program.

Table 7 Average established tree cost by regional classification

Regional classification	Established tree cost ($ average) [a b]
Major cities	7.08
Inner regional	3.37
Outer regional	2.33
Remote	1.82
Very remote	1.29

a This table reflects only projects that were 100% in a singular regional classification. The cost per tree figures were therefore derived using 180 of the 235 20 Million Trees projects. **b** The established tree cost was calculated using Australian Government funding expensed $ (GST exclusive) divided by the number of established trees.

Table 8 Established tree cost shown with volunteer numbers

Delivery stream	Program element	Established tree cost ($ average)	Number of volunteers
Stream 1: Competitive grants	Grant round 1	3.31 [a]	23,154
	Grant round 2	4.88 [a]	12,534
	Grant round 3	4.23 [a]	12,907
Stream 2: Procurement	Service provider tranche 1	1.18	3,599
	Service provider tranche 2	2.41	2,279
	Service provider tranche 3	1.88	901
Stream 3: Non-competitive discretionary grants	Cumberland Conservation Corridor	7.07	13,114
	Cumberland Conservation Management of Land	–	1,760
	Greening the West of Melbourne	5.11	4,310
	One Tree Per Child	3.44	17,346
	Planet Ark	5.56	3,336
	Bass Coast Landcare Network	1.27	343
	Men of the Trees	2.99	764
	Mayo Local Environment Plan	5.30	307
Total			96,654

a At 30 June 2021, 9 grant projects with contracts to deliver 133,592 trees were yet to submit final plant survival surveys and as such the results have not been included in this table.

Table 9 Average cost per tree across delivery streams

Delivery stream	Program element	Australian Government funding contracted $ (GST exclusive)	Contracted trees expected to reach >2 m in height when mature	Contracted tree cost ($ average) [a]	Australian Government funding expensed $ (GST exclusive)	Number of established trees	Established tree cost ($ average) [b]	Area revegetated (ha)	Revegetation cost per hectare ($) [c]
Stream 1: Competitive grants	Grant round 1	4,351,775.55	1,113,920	3.91	4,359,699.79 [d]	1,316,795	3.31 [e]	3,218	1,354.44
	Grant round 2	4,793,750.00	994,498	4.82	4,788,224.00	980,305	4.88 [e]	2,196	2,178.46
	Grant round 3	4,149,916.00	1,206,376	3.44	4,010,916.00	948,633	4.23 [e]	2,543	1,577.95
Stream 2: Procurement	Service provider tranche 1	16,320,512.73	6,762,700	2.41	16,320,512.50	13,837,564	1.18	11,426	1,429.05
	Service provider tranche 2	7,286,382.00	2,499,564	2.92	7,286,381.91	3,029,365	2.41	5,003	1,459.28
	Service provider tranche 3	14,079,754.75	5,197,150	2.71	14,004,694.35	7,467,974	1.88	4,888	2,872.30
Stream 3: Non-competitive discretionary grants	Cumberland Conservation Corridor	5,065,398.25	794,951	6.37	5,065,398.25	716,695	7.07	603	8,403.04
	Greening the West of Melbourne	5,000,000.00	1,000,000	5.00	5,000,000.00	978,142	5.11	1,767	2,828.70
	One Tree Per Child	300,000.00	100,000	3.00	300,000.00	87,229	3.44	209	1,435.73
	Planet Ark	100,000.00	21,000	4.76	100,000.00	17,982	5.56	14	7,141.42
	Bass Coast Landcare Network	50,000.00	25,000	2.00	50,000.00	39,507	1.27	13	3,859.53
	Men of the Trees	150,000.00	50,000	3.00	150,000.00	50,159	2.99	60	2,499.59
	Mayo Local Environment Plan	200,000.00	34,560	5.79	200,000.00	37,712	5.30	94	2,126.31

a Australian Government funding contracted $ (GST exclusive) divided by contracted trees expected to reach >2 m in height when mature. **b** Australian Government funding expensed $ (GST exclusive) divided by the number of established trees. **a** and **b** Do not account for cost of trees planted that did not survive, cost of understorey (plants <2 m) plants planted and other funding contributions towards projects (cash and/or in-kind). **c** Number of established trees divided by area revegetated (ha) multiplied by established tree cost ($ average). **d** Figure includes expensed funding of $32,424.25 for one terminated project that was not included in the 235 project numbers, as the project was not entered into MERIT. **e** At 30 June 2021, 9 grant projects with contracts to deliver 133,592 trees were yet to submit final plant survival surveys and as such the results have not been included in this table.

During the program design phase, the department anticipated the average costs per tree would be approximately $5.00 for competitive grant projects and $3.50 for large-scale service provider projects. These estimates were based on consultations with industry groups, the Australian Government's pre-2013 election policy document (Direct Action Plan), a request for information process and an internal review of tree planting projects previously funded by the department. The program mostly delivered projects around the anticipated per tree cost, with service provider projects being lower than anticipated.

Objective 2: Environmental conservation

Projects support local environmental outcomes by improving the extent, connectivity and condition of native vegetation that supported native species

Supporting local environmental outcomes was integral to the design of the program. To reduce planting failure and achieve better revegetation outcomes, the program encouraged localised, site-specific approaches, rather than a rigid program-wide approach. Tree plantings were to be appropriate to the characteristics of each project site and reflect the structure and composition of the local native vegetation community. Maintaining a healthy understorey was vital for maintaining a natural balance and sustaining ecosystems. Trees planted through the program focused on providing habitat for local threatened ecological communities and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed threatened species.

Plantings were to be naturally occurring trees, shrubs and associated understorey species from the local area. Plantings were to be sourced from seeds within the natural local distribution of the species, although proponents were encouraged to maintain genetic diversity when sourcing plants, which could help to provide a buffer against climate change.

Figure 3 Facebook post highlighting how projects can improve the local environments

Source: Facebook

Proponents are to maintain vegetation or have arrangements in place for vegetation maintenance for at least 10 years after project completion, to ensure environmental and carbon abatement benefits are sustained. The department has access to remote sensing capability (satellite imagery) to monitor project sites into the future, if required.

More than 30,000 hectares were revegetated and over 2,500 species planted through the program. A list of the top 10 species planted can be seen in Table 10.

Table 10 Top 10 species planted

Scientific name	Common name	Total number planted	Number of projects that planted species
Allocasuarina luehmannii	Bull oak	786,333	24
Eucalyptus largiflorens	Black box	661,608	14
Eucalyptus arenacea	Desert stringybark	506,101	7
Eucalyptus microcarpa	Grey box	460,863	27
Acacia spectabilis	Mudgee wattle	431,530	4
Allocasuarina verticillata	Drooping she-oak	350,572	66
Eucalyptus tereticornis	Forest red gum	338,476	51
Pittosporum angustifolium	Weeping pittosporum	273,320	33
Acacia melanoxylon	Blackwood	248,723	84
Eucalyptus camaldulensis	River red gum	246,231	48

The program supported native vegetation through site preparation and site maintenance activities, including weed control, which improved the survival rates and condition of native vegetation.

On many project sites it was necessary to undertake weed control before planting or seeding to ensure acceptable survival rates. Proponents could use other site preparation and maintenance activities suited to the site and the project; these activities were often essential to the success of the project.

The top 5 weed treatment methods are listed in Table 11 and the top 5 weeds treated across the program are listed in Table 12. As at 30 June 2021, proponents had reported 17,958 hectares had been treated for weeds.

Table 11 Top 5 weed treatment methods used

Treatment method	Number of projects using method
Chemical control – foliar spraying	129
Manual control – hand pulling	40
Chemical control – cut and swab	36
Mechanical control – slashing	28
Chemical control – cut stump	23

Table 12 Top 5 weeds treated

Scientific name	Common name	Number of projects that treated weed
Bidens pilosa	Cobbler's pegs	20
Lantana camara	Common lantana	20
Eragrostis curvula	African lovegrass	19
Conyza bonariensis	Flax-leaf fleabane	18
Lycium ferocissimum	African boxthorn	17

Satellite imagery

The impact of projects on the local area can be seen through satellite imagery. Change at this scale cannot be seen for all projects, due to the height and density of trees required; however, for some projects it provides an additional viewpoint of how program planting can positively impact the local landscape.

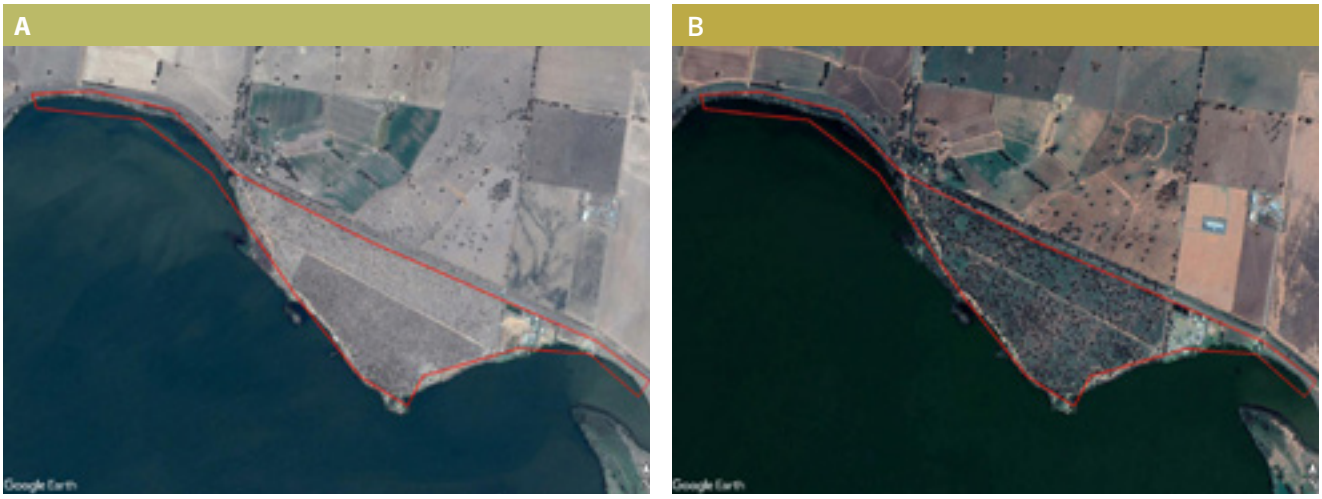


Photo: Grant round 1 project site to enhance ecological values at Lake Hume and Lake Mulwala (20MT-255), 2014 a and 2020 b, New South Wales © Google Earth

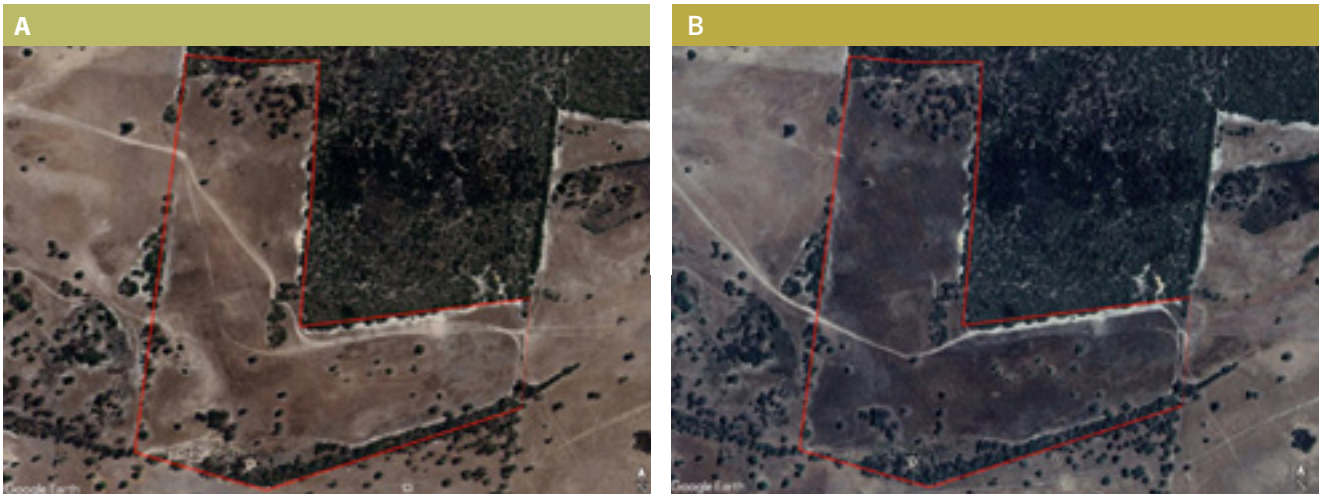


Photo: Procurement tranche 1 project site for Booroopki–Bank Australia Conservation Landbank (20MT-LAL-2), 2016 a and 2019 b, Victoria © Google Earth

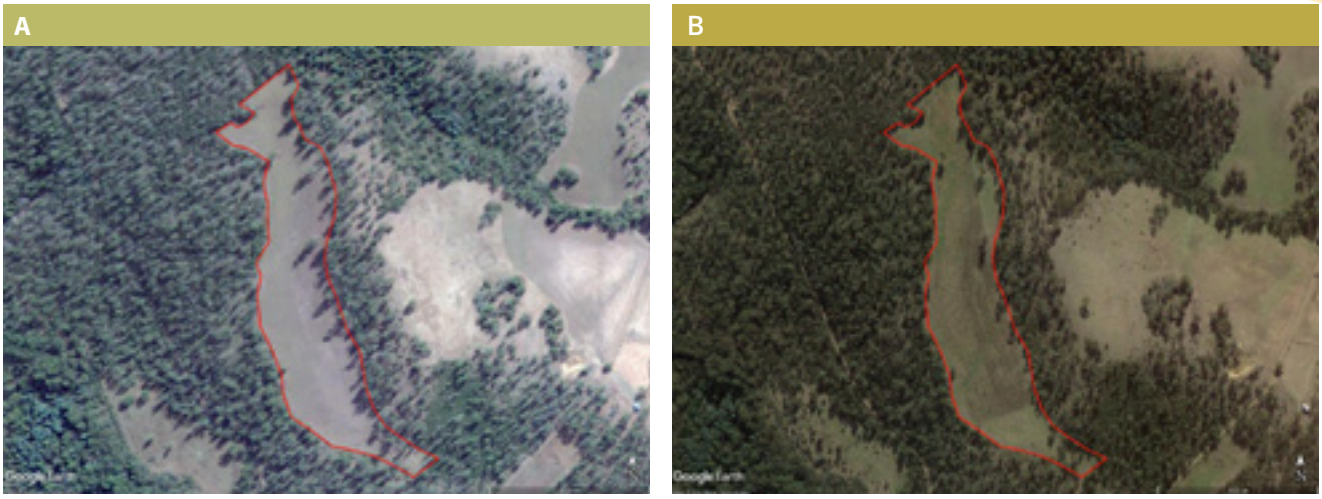


Photo: Grant round 2 project site for Marchwiel Endangered Bird, Mammal and Stag Beetle Habitat Restoration project (20MT-R2-159), 2014 a and 2019 b, Tasmania © Google Earth

Photo: Grant round 3 project site for Trees for the Valley (20MT-R3-338), 2015 a and 2020 b, Victoria © Google Earth

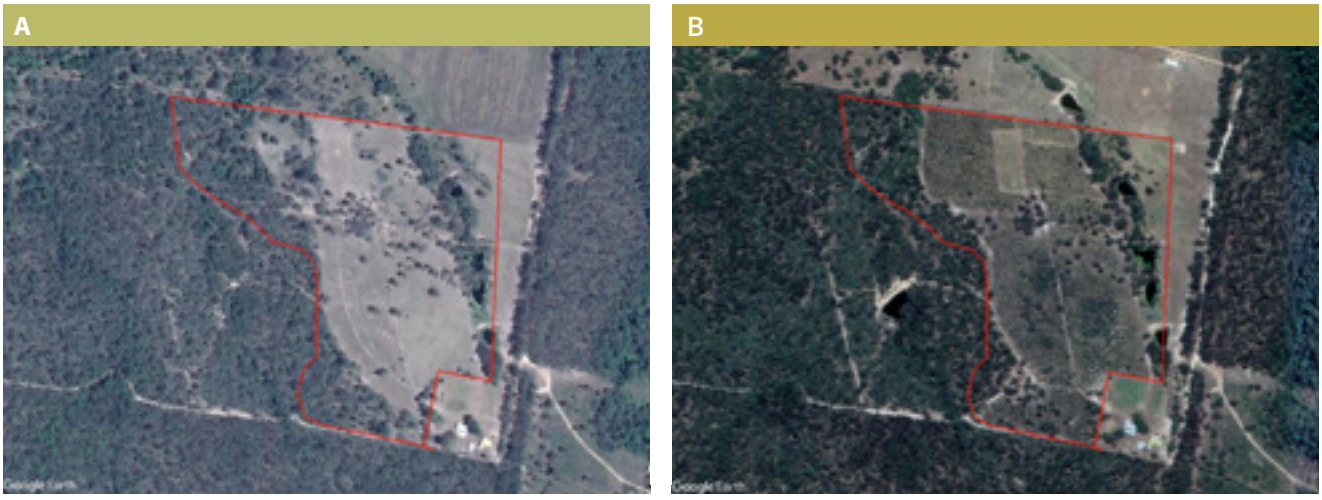


Photo: Grant round 2 project site for Baloghs Road, Anderleigh–restoring degraded landscapes in Mary River Catchment (20MT-R2-208), 2016 a and 2019 b, Queensland © Google Earth

Photo: Grant round 1 project site for Hexham Swamp Revegetation (20MT-216), 2014 a and 2019 b, New South Wales © Google Earth

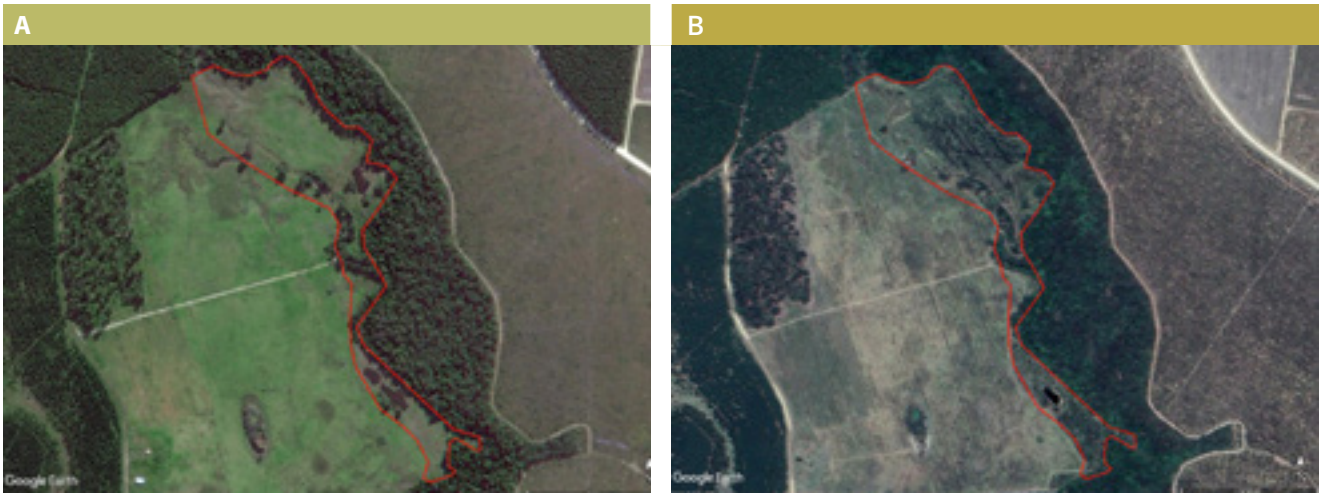
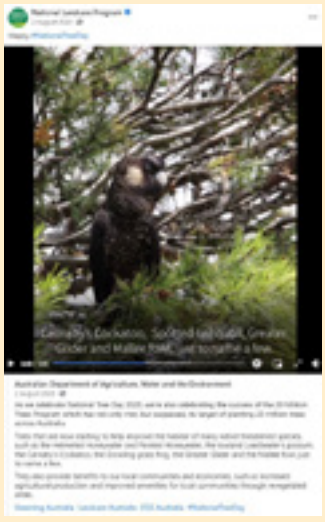


Photo: Grant round 1 project site for Tinana Creek Riparian Corridor–revegetation for Local Conservation Outcomes (20MT-375), 2015 a and 2019 b, Queensland © Google Earth

Positive contribution to relevant Matters of National Environmental Significance, including threatened species, threatened ecological communities and other assets

Over 90% of projects supported EPBC Act listed threatened species and/or threatened ecological communities. Competitive grants round 3 and service provider tranche 3 were designed with a focus on 42 tree dominant threatened ecological communities as well as EPBC Act listed threatened species with service providers and applicants being unable to apply unless they were targeting an EPBC Act listed threatened species and/or threatened ecological community.

Figure 4 Facebook post highlighting the benefits for many native threatened species



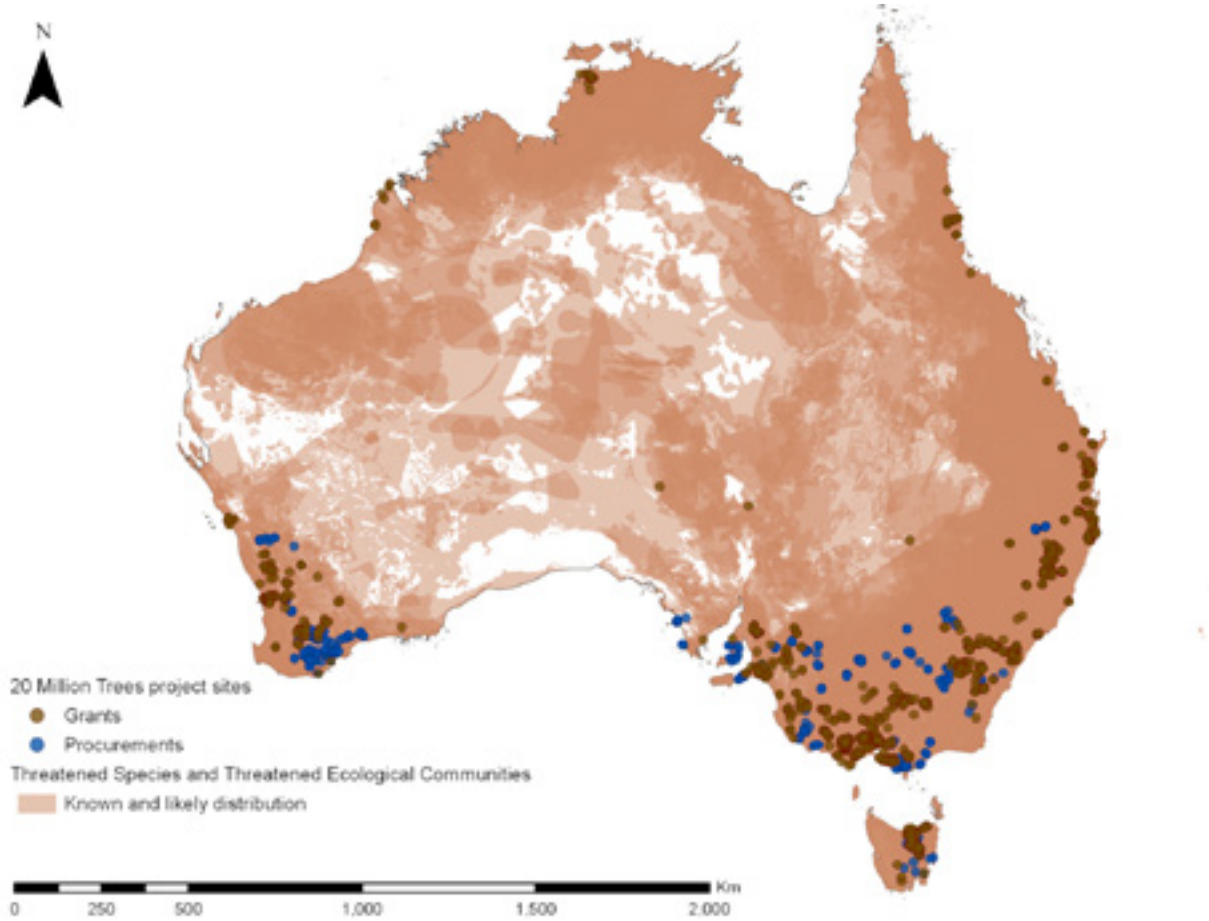
Source: Facebook

The number of projects that addressed Matters of National Environmental Significance can be seen at Table 13. An overlay view of projects with threatened species and threatened ecological communities can be seen in Map 1, demonstrating projects in high-density areas.

Table 13 Projects by Matters of National Environmental Significance

Matter of National Environmental Significance	Number of projects
Natural/cultural assets managed	90
Threatened species	174
Threatened ecological communities	154
Migratory species	43
Ramsar wetland	30
World heritage area	11
Community awareness/participation in natural resource management	132
Indigenous cultural values	33
Indigenous ecological knowledge	25
Remnant vegetation	155
Aquatic and coastal systems including wetlands	57

Map 1 Projects and threatened species and threatened ecological communities



Note: 'Grants' includes competitive grants and non-competitive discretionary grants.

Objective 3: Community engagement

Projects actively engage communities

Community engagement was an objective of the program as this is a strong indicator of likely success of a project, that is, leading to a higher chance of achieving environmental outcomes. It is assumed projects that actively engage the local community are more likely to be maintained by that community into the future. The program prioritised projects that were to engage local communities and increase awareness of environmental and community benefits of revegetation, in regional and urban environments.

A wide range of stakeholder types including Landcare groups, environmental non-government organisations and natural resource management groups managed the program's competitive grant projects. Most projects demonstrated strong community engagement, including by increasing community awareness and involving community groups and individuals in project activities. Service provider projects, although managed by the program service providers, also reported on community engagement aspects.

Throughout the program, 96,654 people, not employed by projects, participated in project activities as volunteers, of which 60,496 were new participants who attended a project event for the first time. Participants could attend multiple events for multiple projects, so the figure of 96,654 may not represent the number of individual people.

Projects actively engage Indigenous communities

The department values Aboriginal and Torres Strait Islander people's knowledge of, and relationship with country and recognises their contribution to protecting Australia's natural and cultural heritage. The program had a specific focus on engaging Indigenous communities and prioritised applications that demonstrated active engagement with local Indigenous communities (see Figure 5).

Where proposed project activities were to directly affect Indigenous sites, places, values or communities, applicants needed to demonstrate that the relevant traditional owners and/or local Indigenous organisations supported the project.

Figure 5 Facebook post introducing an Aboriginal heritage coordinator with Parks Victoria

Source: Facebook

As seen in Table 14, 141 Indigenous people were employed through the program in ranger and non-ranger positions. The program assisted in 6 new Indigenous businesses being established and involved 3,371 Indigenous participants at project events.

Table 14 Indigenous participation summary

Indigenous participation category	Number
Indigenous participants at project events (not employed on project)	3,371
Indigenous on-country visits	2,468
Indigenous people employed (rangers)	76
Indigenous people employed (non-rangers)	65
New Indigenous businesses established	6
Formal (contractual) engagements with Indigenous businesses	12

Objective 4: Carbon reduction

Program contribution to carbon abatement in Australia

The amount of carbon sequestered through the program is calculated using the methodology for the Australian Greenhouse Accounts. This figure is dependent on several factors including planting location, density, species composition and layout.

A likely range of CO_2 sequestration for an average tree in typical locations for tree planting projects is 0.005 to 0.01 tonne of CO_2 sequestration per average tree per year over the first 30 years of its life. This includes any understorey vegetation established in addition to the trees themselves.

Using this average, 29.5 million trees of over 2 m height could indicatively sequester on average 147 to 295 ktCO2-e per year, or 1.47 to 2.95 million tonnes CO_2 over the decade from 2021 to 2030.

This methodology was supplied by the Australian Government Department of Industry, Science, Energy and Resources and was based on information collected from project reports.

Delivery streams

Stream 1: Competitive grants

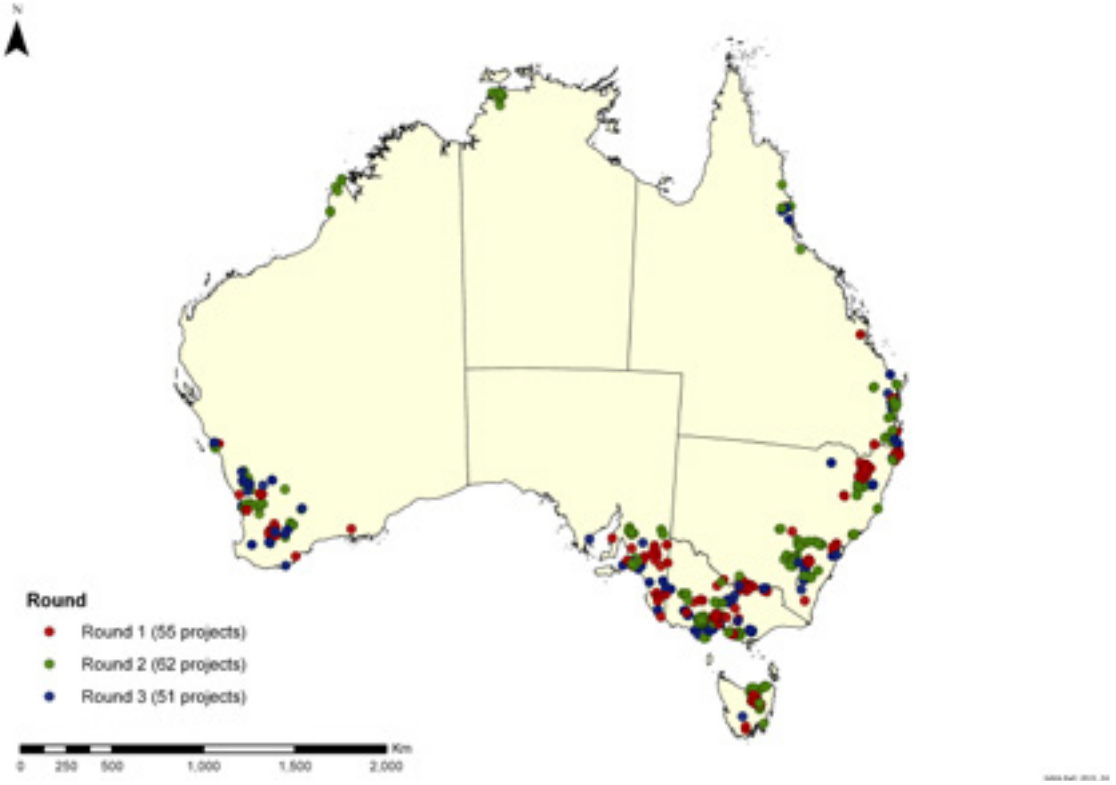
The competitive grants stream of the program provided an opportunity for a range of stakeholders to undertake planting projects that improved the extent, connectivity and condition of native vegetation. These groups came from different sectors of the community and included local government, schools, businesses, community groups, Indigenous communities and natural resource management organisations. A breakdown of projects by each competitive grant round is at Table 15.

Table 15 Competitive grant round summary

Grant round	Number of projects	Australian Government funding expensed $ (GST exclusive)	Number of established trees	Established tree cost ($ average)	Area revegetated (ha)
1	55	4,359,699.79 [a]	1,316,795	3.31 [b]	3,218
2	62	4,788,224.00	980,305	4.88 [b]	2,196
3	51	4,010,916.00	948,633	4.23 [b]	2,543
Total	168	13,158,839.79	3,245,733	4.05 [c]	7,957

a Figure includes expensed funding of $32,424.25 for one terminated project which was not included in the 235 project numbers as the project was not entered into MERIT. **b** At 30 June 2021, 9 grant projects with contracts to deliver 133,592 trees were yet to submit final plant survival surveys and as such the results have not been included in this table. **c** Total established tree cost average achieved by dividing the total Australian Government funding expensed $ (GST exclusive) by the total number of established trees.

Map 2 Distribution of competitive grant projects across Australia



The guidelines for each round outlined the application and assessment process, eligibility criteria and applicant requirements, and provided guidance for designing projects.

Assessment was based on a competitive, merit-based selection process consistent with the guidelines for each round. The assessment determined whether a project represents an efficient, effective, economical and ethical use of Commonwealth resources. Eligible applications were assessed against these 4 assessment criteria:

1. project alignment with the program objectives
2. capacity of the applicant to deliver
3. risk management including work health and safety risks
4. value for public money.

Successful applicants entered into a funding agreement with the Commonwealth. The funding agreement set out the general reporting and auditing terms under which funding was provided.

Based on stakeholder feedback sought through a voluntary survey undertaken after the first competitive grant round, the following key changes were made to the second competitive grant round:

- Applicants could submit up to 3 applications. Each application was for a single project.
- Applicants could apply for up to 3 Green Army teams per application to assist with delivery of their project.

Approximately 30% of eligible round 2 applicants applied for a Green Army team to assist with their activities.

Stakeholder feedback received following the roll out of the first 2 competitive grant rounds was incorporated into the third and final grant round of the program. These included:

- Projects needed to directly benefit a threatened species and/or threatened ecological community listed under the EPBC Act. To be successful, a project could have (but was not required to) focus on more than one threatened species or threatened ecological community, however, a combined limit of 3 threatened ecological communities and/or threatened species applied to each project application.
- Round 3 prioritised projects that would benefit threatened ecological communities listed in the guidelines.
- Round 3 prioritised projects that included participation of the Indigenous community.
- There was no limit to the number of applications that could be submitted by an applicant.
- Applicants in round 3 could not apply through the program for Green Army teams to assist with the delivery of their project.
- The application form was redeveloped into a HTML form and included an updated mapping tool. Projects had to be mapped as accurately as possible through the mapping tool in the application form.
- Where the applicant did not own or manage the proposed project site/s, the applicant had to attach, to the application form, written consent of the property owner or manager to implement project activities.

Stream 2: Procurement (service providers)

Under stream 2 of the program, the department engaged 3 service providers, CO_2 Australia, Greening Australia and Landcare Australia to deliver large-scale biodiverse tree planting projects.

The department used a request for tender process via AusTender to select the service providers. The request for tender was open from mid December 2014 to early February 2015 and the decision on service providers was announced in late May 2015. Service providers were engaged using a Deed of Standing Offer and funding was allocated between the service providers on a competitive basis.

There were 3 national service provider project tranches resulting in 44 projects totalling $37,611,588.76 (GST exclusive) expensed and delivering 24,334,903 established trees (see Table 16 and Table 17).

Table 16 Procurement summary

Service provider tranche	Number of projects	Australian Government funding expensed $ (GST exclusive)	Number of established trees	Established tree cost ($ average)	Area revegetated (ha)
1	22	16,320,512.50	13,837,564	1.18	11,426
2	10	7,286,381.91	3,029,365	2.41	5,003
3	12	14,004,694.35	7,467,974	1.88	4,888
Total	44	37,611,588.76	24,334,903	1.55 [a]	21,317

a Total established tree cost average achieved by dividing the total Australian Government funding expensed $ (GST exclusive) by the total number of established trees.

Table 17 Procurement projects by service provider

Service provider	Tranche 1 projects	Tranche 2 projects	Tranche 3 projects
CO_2 Australia	5	2	4
Greening Australia	14	5	7
Landcare Australia	3	3	1
Total	22	10	12

Map 3 Distribution of service provider projects across Australia

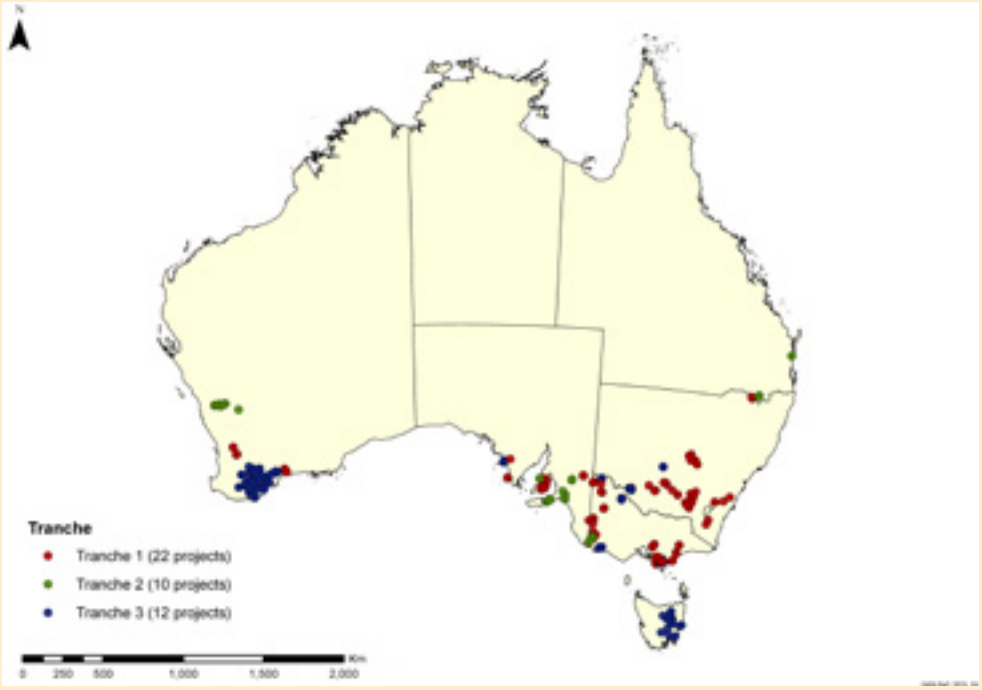


Photo: Germinated seeds being prepared for propagation © CO_2 Australia

Stream 3: Non-competitive discretionary grants

Cumberland Conservation Corridor

The Cumberland Conservation Corridor was an Australian Government commitment to protect threatened ecosystems near Penrith in western Sydney, New South Wales. The aim of the corridor was to improve the resilience of a critically endangered ecological community by connecting areas of remnant vegetation to support the movement of species and improve biodiversity in the area.

Protection of remnant bushland through the Cumberland Conservation Corridor supported the protection of the endangered 'Cumberland Plain Woodland and Shale Gravel Transition Forest' (Cumberland Plain Woodland) ecological community, listed under the EPBC Act.

Land clearing, weed invasion and urban development created a patchwork of fragmented remnant vegetation pockets, which had flow on effects for flora and fauna listed as threatened under the EPBC Act.

In 2014–15, the Cumberland Conservation Corridor 20 Million Trees Program opened a competitive grant round inviting applications for tree planting projects within specified local government areas of western Sydney. Tree planting project proposals worth between $100,000 and $3 million were invited in the grant round.

Projects were considered eligible for funding if they were undertaken within the Blue Mountains, Hawkesbury, Blacktown, Fairfield and Liverpool local government areas, with priority given to projects in the Penrith local government area (see Table 18).

Table 18 Cumberland Conservation Corridor summary

Program element	Number of projects	Australian Government funding expensed $ (GST exclusive)	Number of established trees	Established tree cost ($ average)
Cumberland Conservation Corridor	13	5,065,398.25	716,695	7.07

Cumberland Conservation Management of Land

In 2014–15, 2015–16 and 2017–18 four projects were approved for conservation management of land with a total project value of $10,500,000 (see Table 19). These projects were funded from another measure within the National Landcare Program and the funding is additional to the 20 Million Trees Program budget.

The projects supported the Cumberland Conservation Corridor government priority through conservation and management of land and the protection of the critically endangered 'Cumberland Plain Woodland and Shale Gravel Transition Forest' (Cumberland Plain Woodland) ecological community listed under the EPBC Act.

The Cumberland Conservation Management of Land contributed to the resilience of a critically endangered ecological community, by connecting areas of remnant vegetation and supporting the movement of species. The activities on the land provided opportunity for increased engagement of the local community in sustainable natural resource management in the Cumberland area and increased the area of land available for restoration and rehabilitation.

Table 19 Breakdown of Cumberland Conservation Management of Land

Funding recipient	Funding (GST exclusive) ($)
Conservation Volunteers Australia	1,500,000
Nature Conservation Trust of NSW	7,910,000
Cumberland Land Conservancy Inc.	915,695
Conservation Volunteers Australia	174,305
Total	10,500,000

Greening the West of Melbourne

In May 2015, a joint initiative was announced between the program and the Green Army to plant one million trees across the west of Melbourne. Funding of $5 million (GST exclusive) was approved.

LeadWest was contracted to deliver the project and worked with Melbourne's 6 western municipalities and around 30 local stakeholder groups, to contribute to sustainable, liveable, healthy communities through urban and peri-urban revegetation activities in West Melbourne (see Table 20). Projects occurred within the local government areas of Brimbank, Hobson's Bay, Maribyrnong, Melton, Moonee Valley and Wyndham, including Point Cook Coastal Park, as shown in Map 4.

Map 4 Greening the West of Melbourne Plan

Table 20 Greening the West of Melbourne summary

Program element	Number of projects	Australian Government funding expensed $ (GST exclusive)	Number of established trees	Established tree cost ($ average)
Greening the West of Melbourne	1	5,000,000	978,142	5.11

Photo: Greening the West of Melbourne planting © LeadWest

One Tree Per Child

The One Tree Per Child project was a project by 'Do Something!' to deliver on-ground revegetation activities in partnership with local schools by engaging locally based organisations, local councils and local tree planting organisations. The total project value was $300,000 (GST exclusive) for the delivery of 100,000 trees (see Table 21).

Table 21 One Tree Per Child summary

Program element	Number of projects	Australian Government funding expensed $ (GST exclusive)	Number of established trees	Established tree cost ($ average)
One Tree Per Child	1	300,000	87,229	3.44

Planet Ark

Commencing in 2016, the '21,000 Trees for 21 years of National Tree Day' project was delivered by Planet Ark with the support of the local community and partner groups that demonstrated delivery in tree planting and environmental conservation projects.

Criteria for site selection included sites that would improve extent, connectivity and condition of native vegetation and support native species including threatened species, migratory species, threatened ecological communities and/or aquatic and coastal systems. The environmental conservation outcomes centred on the delivery and establishment of 21,000 trees (see Table 22).

Table 22 Planet Ark summary

Program element	Number of projects	Australian Government funding expensed $ (GST exclusive)	Number of established trees	Established tree cost ($ average)
Planet Ark	1	100,000	17,982	5.56

2016 Government priorities

During 2016, the Australian Government committed to delivering 20 Million Trees projects in the electorates of Flinders, Bowman, Mayo and Hasluck, and to providing additional funding for the Cumberland Conservation Corridor (see Table 23 and Table 24).

These commitments were non-competitive discretionary grants.

Table 23 2016 Government priorities

Commitment name	Commitment details	20 Million Trees Program funding (GST exclusive) ($)
Bass Coast Landcare Network	A commitment to provide $50,000 (GST exclusive) under the 20 Million Trees Program to the electorate of Flinders for the acquisition and planting of native trees with the Bass Coast Landcare Network – 25,000 trees and 5,500 understorey plants.	50,000
Men of the Trees	A commitment to provide $150,000 (GST exclusive) under the 20 Million Trees Program for planting trees in Wattle Grove as part of Swan and Canning Rivers Green Army commitment – 50,000 trees and 30,000 understorey plants.	150,000
Mayo Local Environment Plan	A commitment of $1.2 million for a Mayo Local Environment Plan includes $200,000 (GST exclusive) for the Lower Lakes under the 20 Million Trees Program – 34,560 trees and 8,640 understorey plants.	200,000
Total		400,000

Table 24 2016 Government priorities summary

Program element	Number of projects	Australian Government funding expensed $ (GST exclusive)	Number of established trees	Established tree cost ($ average)
2016 Government priorities	3	400,000	127,378	3.14

Case studies

Case study 1 Improving local connectivity

Project name: Great Otway National Park – improving the connectivity of Potoroo habitat (20MT-R2-54)

Project lead: Southern Otway Landcare Network

Location: Victoria

Trees established: 13,600

Southern Otway Landcare Network partnered with the Conservation Ecology Centre to restore degraded coastal headland and coastal woodland in the Great Otway National Park. The revegetation work aimed to improve habitat connectivity between core populations of the threatened long-nosed potoroo (SE Mainland) (*Potorous tridactylus tridactylus*) and tiger quoll (*Dasyurus maculatus maculatus*) and extend their range throughout coastal woodlands. Cape Otway is also a popular tourist destination with revegetation works contributing to the economic value of the region.

This project restored 21 hectares of coastal dune scrub, coast tussock grassland and damp sands herb rich woodland. Two sites were chosen for revegetation, one at Marengo next to the Great Ocean Walk and another at Cape Otway. The Marengo site was a degraded former grazing lease, which now also hosts an ecotourism venture. The Cape Otway site was suffering from collapse of the *Eucalyptus viminalis* (manna gum) canopy.

Site preparation included treatment of kikuyu grass and blackberries with herbicide. More than 14,000 plants were planted across both project sites, including a diverse range of canopy and understorey species to improve habitat diversity and structure. This revegetation has improved habitat quality, extent and connectivity for the threatened long-nosed potoroo and tiger quoll.

The Marengo site was only accessible on foot or quad bike, which made revegetation works and community participation challenging. This was the first time revegetation had been undertaken on such a difficult to access stretch of the Great Ocean Walk. The site also had substantial blackberry infestations and a high population of wallabies.

Photo: Great Otway National Park project site © Southern Otway Landcare Network

The planting and protection methodology was adapted to meet these challenges. A wallaby-proof electric fence was established around the site to prevent wallaby browsing. Seedlings were strategically planted in treated blackberry bushes as a further browsing deterrent. Blackberries and senecios, also known as ragworts, provided good support for plant establishment, providing suitable habitat and protection for tube stock. This is an important lesson for remote sites where it is difficult to continually monitor and support planting. Blackberries are being outcompeted by plantings and pasture grass is returning to native vegetation at the site.

Planting design in the future at the Marengo site will incorporate a broader range of plants that provide support for emergent seedlings, better mimicking natural succession processes in difficult to manage environments.

This project had substantial involvement from the community in many aspects of ecosystem restoration. Volunteers were involved with tasks ranging from seed collection, seedling propagation, planting and site surveys. A community planting day, 'The Great Otway Tree Project', benefited local businesses in the region.

These activities actively engaged the community in environmental management and led to an increase in knowledge and skills relating to local environmental processes. The project has involved a partnership between 2 not-for-profit environmental organisations local to Cape Otway, raising the profile of environmental work in the region.

It has also had a flow-on effect to the local economy with the restoration of the canopy at Cape Otway contributing to the visual amenity of this area. The works at Marengo have improved amenity values for the highly visited Great Ocean Walk.

On Cape Otway, plant survival was high and substantial areas of land have been revegetated with local canopy and understorey species. This will contribute to landscape scale restoration and support a range of biota.

The Marengo site presented more challenges including a highly exposed, salty, bogged and heavily browsed site. Species survival was more selective at this site, with *Allocasuarina verticillate* (drooping she-oak) dominating survival among the canopy species and *Acacia verticillate* (prickly moses), along with 2 Indigenous senecio species, dominating survival in the understorey. Despite the challenges, the restoration of this site has been effective and is providing habitat for threatened long-nosed potoroos and tiger quolls.

Case study 2 Restoring habitat

Project name: Restoring habitat for the critically endangered Regent Honeyeater in southern Queensland (CO2-T2-01)

Project lead: CO_2 Australia

Location: Queensland

Trees established: 455,070

This project aimed to establish 455,000 trees across at least 300 hectares within and adjacent to nature refuge lands in southern Queensland to increase the amount and quality of habitat available for the regent honeyeater (*Anthochaera (Xanthomyza) phrygia*). This project included using revegetation to link existing remnants of Ironbark/Box and Box Gum Grassy Woodland threatened ecological communities and increased the amount of critical habitat available to a variety of other fauna species listed as vulnerable or endangered under the EPBC Act. Species targeted included spot-tailed quoll (*Dasyurus maculatus maculatus*), swift parrot (*Lathamus discolor*), koala (*Phascolarctos cinereus*), painted honeyeater (*Grantiella picta*) and southern squatter pigeon (*Geophaps (Geophaps) scripta scripta*).

The regent honeyeater is listed under the EPBC Act in the highest category of critically endangered. The regent honeyeater primarily feeds on nectar from eucalypts and mistletoes and, to a lesser extent, insects and their exudates (lerps and honeydew). The honeyeater prefers to forage in taller and larger diameter trees.

This project planted 5 species of eucalyptus, 4 species of acacia and other tree species designed to improve connectivity of existing remnant patches of vegetation. This project revegetated important ecosystems in previously degraded areas within Wilga Park Nature Refuge, which will lead to the long-term conservation of the threatened species habitat.

The project site was historically used to graze sheep, which resulted in a number of environmental issues such as erosion causing loss of topsoil. Activities undertaken to prepare the site for planting included ripping and weeding of target species such as *Bellis perennis* (English daisy) and *Glandularia aristigera* (Mayne's pest).

Site preparation also included creating spot-tailed quoll habitat by piling previously felled logs adjacent to existing remnant vegetation, combined with soil cultivation in a single pass. This approach reduced the amount of machinery on site, making it less likely to erode and allowed the rip lines to follow the natural contours of the land.

CO_2 Australia engaged BirdLife Australia's BirdLife Southern Queensland and registered the project site on their on-farm monitoring program, which resulted in volunteers surveying the site and considering it as a potential captive bred regent honeyeater release site.

Photo: Project team members surveying for birds © CO_2 Australia

BirdLife Southern Queensland have committed to undertaking 2 surveys per annum – one in spring and the other in autumn – for 10 years, as well as targeted surveys for regent honeyeaters and swift parrots. CO_2 Australia staff also volunteer their time to assist with the bird surveys on the project site.

This project used seed collection to propagate and hand plant 480,000 trees across 300 hectares of previously cropped and grazed land. The project method was based on CO_2 Australia's tried and tested approach to broad-scale revegetation, refined over 16 years of application throughout Australia and resulted in 455,070 trees surviving (94.8%). The landholder has engaged a dedicated Landscape Conservation Manager whose role includes looking after the site planting area following project completion, which will allow protection in perpetuity through a nature refuge on degraded land previously cropped and grazed.

During the first avifauna survey of the property in April 2017, 108 different bird species were observed, and it was confirmed 19 honeyeater species used the surrounding area, including the vulnerable painted honeyeater. While the noisy friarbird (*Philemon (Tropidorhynchus) corniculatus*) and the noisy miner (*Manorina (Myzantha) melanocephala*) are the abundant species, the spread of species indicates the property has a highly diverse representation of other bird species. Out of the top 20 species identified, the honeyeater family was well represented with 7 species. Mistletoebird (*Dicaeum (Dicaeum) hirundinaceum*) species were also abundant which accounted for the large number of mistletoebird observations, and all 4 species of lorikeet found in South-East Queensland were recorded.

Photo: Project participant assisting with site preparation © CO_2 Australia

Case study 3 Increasing habitat for threatened species

Project name: Increasing connectivity and threatened species habitat in Tasmania's Midlands (20MT-R2-169)

Project lead: Northern Tasmanian Natural Resource Management Association

Location: Tasmania

Highlights: The project revegetated private lands and increased habitat for threatened species. The project supported employment for people with disability.

Trees established: 16,379

While Tasmania has large areas of native vegetation, there are also extensive tracts of agricultural land where native habitat is highly fragmented. Expansion of irrigation infrastructure and associated agricultural intensification further threaten these remnant patches and habitat connectivity.

This project targeted revegetation of suitable areas on private land in the Midlands, including pivot corners and riparian areas, establishing future stepping-stones for movement of wildlife across a cleared landscape.

The project established almost 30 hectares of mixed native vegetation, creating shelterbelts (15 to 20 m wide), pivot corners and small to medium sized patches. Plantings included a canopy and shrub layer, and in most cases native grasses. When mature, these plantings will benefit a range of biota, including threatened species such as the Tasmanian devil (*Sarcophilus harrisii*), eastern barred bandicoot (Tasmania) (*Perameles gunnii gunnii*), spotted-tailed quoll (*Dasyurus maculatus maculatus*) and Tasmanian wedge-tailed eagle (*Aquila (Uroaetus) audax fleayi*), which are already present in the project area.

With a strong focus on site preparation, dry conditions and weed competition were addressed early. Weed management included spraying and the use of weed mats, which reduced weed competition for moisture. Rip mounding sites enabled good root growth and soil permeability for seedlings to make the most of the moisture available.

Corflute (corrugated plastic) guards were used on most sites and sites with particularly high browsing pressure from native animals or deer presence were excluded. Most sites had good plant survival rates, despite a dry spring following planting in 2017. As well as improving survival and growth rates, the site preparation made planting easier and more efficient for Green Army teams.

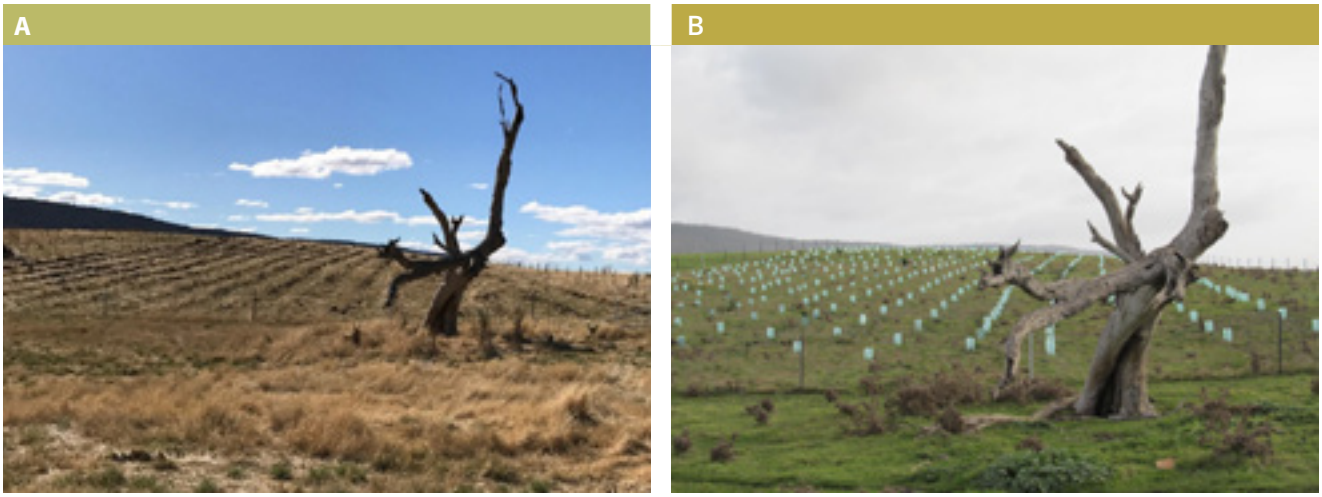


Photo: Lewisham site preparation 2016 a and post-planting 2018 b, Tasmania © Northern Tasmanian Natural Resource Management Association

Over the years, revegetation and remnant protection in Tasmania's Midlands have been supported by Australian Government programs, as well as self-funded by some landholders. Staging these activities to improve connectivity is important when the work spreads across a large area in order to match the capacity and willingness of landholders to participate. It also inspired later adopters to become involved when they saw the benefits of revegetation.

Materials, labour and expertise for this project were sourced locally whenever possible, to the benefit of Tasmanian suppliers. This project contributed income and supported employment for local nurseries, a forestry consultancy, 2 producers of guards and wooden stakes, a planting crew, farm labour and Green Army teams. The project also supported employment for people with disability, with the supplier of wooden stakes and a planting work crew being disability employers.

Within just a few years, the plantings will provide shelter and shade for stock and crops, and in some areas will help to mitigate salinity issues. Landholders are increasingly opting for plantings along property boundaries, contributing added benefit of a biosecurity buffer between their own and their neighbours' stock.

As one landholder stated, 'The production benefits are clear; our farm is pretty exposed and the paddocks with more shelter have much better lamb survival. The progress we've made in just a few years is fantastic and we just want to keep going with it. It's great to know we can contribute to biodiversity on the farm and in the landscape as well'.

Photo: Elsdon site 10-months post-planting 2018 a and 2021 b, Tasmania © Northern Tasmanian Natural Resource Management Association

Case study 4 Engaging local communities

Project name: Seedlings For Success (20MT-R2-237)

Project lead: Greening Australia

Location: Northern Territory

Highlights: The project provided landholders with increased revegetation and land management knowledge, and an understanding of the habitat required for the endangered black-footed tree-rat (Kimberley and mainland Northern Territory) (*Mesembriomys gouldii gouldii*).

Trees established: 11,759

In the Northern Territory, Greening Australia partnered with the Green Army to assist landholders rehabilitate suitable habitat for the black-footed tree-rat, planting key species to kickstart revegetation and establishment of open (tropical) woodland.

A series of 3 two-day workshops were offered attracting participation of landholders, Land for Wildlife members and the local community to learn more about native plant identification, seed collection, site preparation techniques and native plant propagation. By providing opportunities to up-skill in revegetation techniques, more landholders were able to integrate nature conservation on their properties and contribute towards improved habitat quality, protection and restoration of remnant vegetation.

Greening Australia, with the help of Green Army, grew and assisted the planting of 20 selected species identified as suitable open (tropical) woodland tree species. These species were selected for propagation based on their suitability as food and habitat for the black-footed tree-rat and sourced as known species to previously cleared or degraded areas.

By providing tube stock of suitable key plant species, the project secured the re-establishment of the native vegetation linked to the black-footed tree-rat's habitat. Species were planted across 30 hectares of land spanning at least 12 properties located in a Darwin rural area.

The black-footed tree-rat is found across northern Australia in open woodlands, riverine areas and along the coast. It is listed as endangered under the EPBC Act and is facing decline. This project contributed to securing suitable habitat for the species by planting appropriate fruiting species that are a known food source.

Landholders involved have increased their revegetation and land management knowledge as well as increased an understanding of the type of habitat needed for the black-footed tree-rat to thrive. Charles Darwin University and schools have included restoration projects in their curriculum expanding learning outcomes and widening community engagement.

Photo: Project team undertaking potting activities © Greening Australia

Case study 5 Volunteers and community engagement

Project name: One Tree Matters (20MT-R3-335)

Project lead: Brettacorp

Location: Queensland

Highlights: The increase in community engagement extended the network of community, business and landholders willing to manage weeds. Across the sites there is now greater connectivity between areas of established and self-sustaining habitat, supporting an increase in fauna and increasing competition for invasive weeds. Local businesses were supported as the source of native trees and other project resources.

Trees established: 12,025

One Tree Matters identified unused degraded land to create and enhance habitat for local threatened native species and ecosystems. Invasive pest species were reduced in numbers, helping to build the resilience of ecosystems to better respond to climate change and allow for an increase in insect and small reptile populations. Native grasses have re-emerged, the riverbank has stabilised with tree planting and there is an increase in water filtration and silt runoff in rain events.

This project increased engagement with the local community to build forests and increase social networks for the common goal of environmental preservation.

Local community volunteers and contract labourers collaborated to expand the efforts of local community groups. The project also benefited from support from Indigenous community hubs. Six community tree planting days attracted the interest of the public who participated in tree planting and gained knowledge and skills in habitat restoration.

Photo: Refreshments after planting at a community engagement day © Brettacorp

Photo: Site ready for planting © Brettacorp

Traditional owners were consulted and provided advice about the site. This assisted with the identification of endemic species they recommended for planting, as well as contributing to the transfer of knowledge to uncover the history of past land use and how it changed over time.

The project supported the endangered southern cassowary (*Casuarius casuarius johnsonii*) and mahogany glider (*Petaurus gracilis*) through the creation of habitat and rehabilitation of riverbanks and riparian zones, targeting areas across the distribution of the *Melaleuca viridiflora* (broad-leaved tea-tree) woodland in the coastal north Queensland threatened ecological community.

Photo: Trees planted by volunteers © Brettacorp

The broad-leafed tea-tree was the main species among over 100 woodland species planted, maximising food options for the cassowary. Understorey shrubs, bushes and groundcovers including mat rushes, *Lomandra* (mat rush or spiny-headed mat-rush), *Dianella* (flax lily), *Alpinia* and related endemic species were established in a form to encourage woodland growth. With favourable climate and location of the sites to water sources, it is expected foliage cover will be quite dense close to the river edge and become more open away from the watercourse.

The diverse range of tree stock was sourced from local community nurseries and suppliers, supplemented by the propagation of trees and seeds being collected by the project team. A seed bank was created and made available to the cassowary recovery team to promote population growth and enhancement of the species.

Photo: Volunteers propagating trees © Brettacorp

Case study 6 Restoration of Indigenous land

Project name: Restoration of Indigenous land in the Southern Wheatbelt to enhance Carnaby's cockatoo and Eucalyptus Woodlands of the Western Australian Wheatbelt (20MT-GA-T3-04)

Project lead: Greening Australia

Location: Western Australia

Highlights: The involvement of local Indigenous people was key to the success of this project. The planting team included Aboriginal rangers working on land owned by Indigenous groups. Plantings exceeded the contracted tree target of 301,150 with 450,257 (almost 150%) more trees established.

Trees established: 751,407

The project sites, owned by Tambellup Noongar Land Association and Dowrene Aboriginal Corporation, were restored with the participation of Indigenous people. The project provided skills and knowledge development in conservation and restoration. An Aboriginal ranger team planted all the seedlings for this project.

Photo: Ranger group planting seedlings © Greening Australia

The project aimed to establish 301,150 trees and shrubs across 317 hectares of cleared farmland. This would increase the extent and connectivity of habitat for the nationally listed Carnaby's black cockatoo (*Zanda latirostris*) (endangered) and other threatened fauna and flora species, and restore habitat and buffer remnants of the critically endangered Eucalyptus Woodlands of the Western Australian Wheatbelt threatened ecological community.

Site preparation included ripping and mounding 188 hectares of waterlogged soils and weed spraying 300 hectares. The project selected vegetation species that matched the local soil type, conditions and location in the landscape as well as threatened species habitat requirements. Over 70 species of native trees and shrubs were used to revegetate primarily by direct seeding and were augmented with tube stock planting. Some saline soils at Tambellup were revegetated using seedlings.

The project established proteaceous nodes (increasing the extent of the nationally listed Proteaceae Dominated Kwongkan Shrublands threatened ecological community) and planted *Callistemon phoeniceus* (lesser bottlebrush), *Banksia attenuata* (slender banksia), *Hakea corymbosa* (cauliflower hakea), *Hakea prostrata* (harsh hakea) and *Hakea trifurcata* (two-leaved hakea) as feeding species for Carnaby's black cockatoo. In addition, large areas of Eucalyptus Woodlands, in particular *Eucalyptus wandoo* were established, increasing the extent of the Eucalyptus Woodlands of the Wheatbelt threatened ecological community.

Photo: Direct seedling success © Greening Australia

Other project elements

Monitoring and reporting

The department's online Monitoring Evaluation Reporting and Improvement Tool (MERIT) system (**www.fieldcapture.ala.org.au**) was developed in collaboration with Atlas of Living Australia. Program proponents used MERIT to record planning, monitoring and reporting data about their projects.

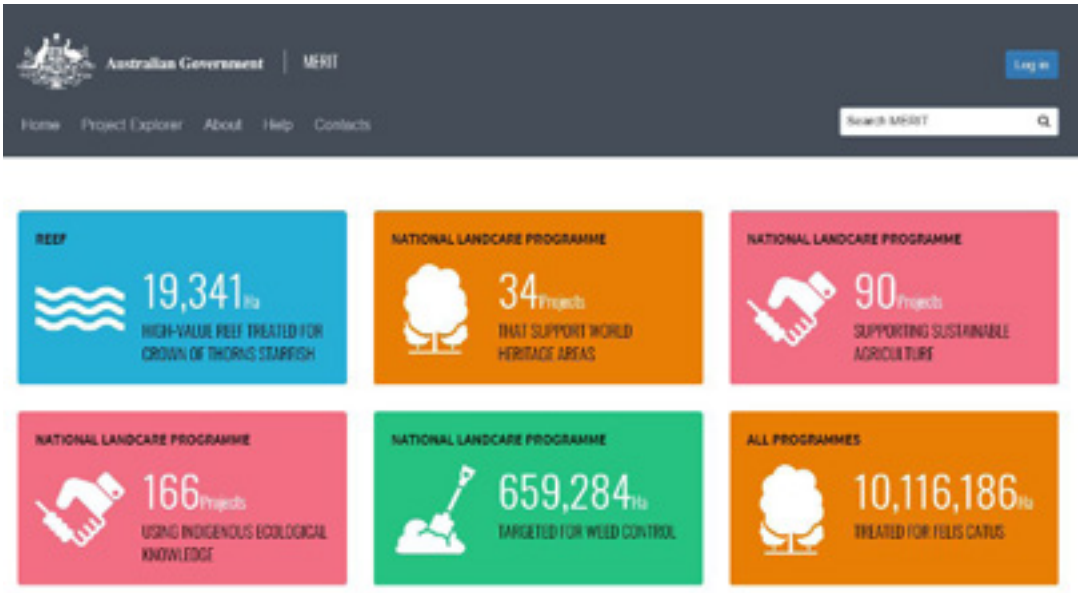
Funding of $140,000 (GST exclusive) was provided to the Commonwealth Scientific and Industrial Research Organisation (CSIRO) via a collaboration agreement to collect, store and use monitoring and evaluation data for natural resource management programs in the Atlas of Living Australia. This ensured electronic reporting was available for 20 Million Trees Program proponents and the department could use this information to monitor the program. It also enabled members of the public to access high-level information about the program's progress.

For proponents, reporting through MERIT included collecting project specific information about the natural resource management, biodiversity and heritage conservation activities delivered, spatial data as well as tracking and reporting on lessons learnt through the project.

Proponents provided the following information and reports to the department, and additional information on request:

- a monitoring, evaluation, reporting and improvement plan shortly after project commencement
- an online progress report every 6 months during the project period
- financial reports (not required for service providers as managed through a procurement model)
- a final project report, including plant survival survey.

Figure 6 Front page of the department's online MERIT system



Managing project risks

All projects funded through the program were required to comply with relevant land and planning regulations. In addition, all projects were required to identify, manage and mitigate project risks including climate conditions, fires and potential biosecurity risks.

The department monitored the progress of projects through MERIT and the financial reporting for grants. Proponents tracked project progress through activities such as setting up photo points to provide photographs of sites before and after project activities. While audits were not a key component of program design, departmental staff visited some project sites to check how projects were progressing and work to manage any risks (see Figure 7).

In terms of climate change risks, under the program service providers were required to develop a climate adaptation data collection and management plan for each project to facilitate future research into how native tree species respond in a changing climate. Seed of mixed provenance was also used to increase climate resilience.

Figure 7 Facebook post showing a site visit from departmental staff

Source: Facebook

Work health and safety

Work health and safety (WHS) was a high priority for the program. A preliminary independent WHS assessment of each project was undertaken during the project assessment phase. Proponents prepared a WHS plan consistent with funding agreement provisions and declared they were aware of and would comply with all relevant WHS legislation.

Proponents were responsible for all WHS obligations, including mitigation strategies and implementation of high standards of WHS at all project sites, including:

- ensuring all parties comply with the relevant Commonwealth, state or territory WHS legislation, as applicable
- providing a safe work environment and appropriate safety equipment for all project participants
- ensuring equipment provided for use on the project was in good working order and met safety performance and servicing standards
- ensuring safe access to and from the project site where work was being carried out.

During the program, 2 projects had notifiable WHS incidents. The incidents were a medical episode and asbestos found on site. Both incidents were fully managed by the project proponents and were reported appropriately to the department.

Program efficiency and effectiveness

The 20 Million Trees Program was delivered effectively and efficiently, using a variety of delivery methods to ensure success. Of the program's budget, $61.775 million of just over the $62 million revised funding (originally $70 million) has been expensed, with all projects contributing to the program objectives. All 4 objectives were achieved.

The program has supported the department's purpose of 'Enhancing Australia's agriculture, environment, heritage and water resources through regulation and partnership' through the objective to 'Improve stewardship and sustainable management of Australia's environment and unique heritage'.

The procurement model allowed for large-scale plantings with organisations experienced in tree planting. Service providers brought both administrative and on-ground capacity to their project design and the experience to ensure cost-effective methods. This capacity is evidenced through the cost per tree, with service providers achieving an average cost range of $1.18 to $2.41 across the 3 tranches of funding. Liaising with 3 service providers covering 44 projects also provided a streamlined approach for the department, requiring less Australian Government staff to manage funding.

The procurement model allowed the Australian Government to manage the risk associated with program delivery, ensuring if tree losses were suffered during the term of the project, service providers would replant those plantings to achieve the contracted number of trees. In the procurement method, payments were made on the delivery of agreed services, thus leading to a reduced risk within projects and increased deliverables. The established trees purchased through the procurement model were key in ensuring the 20 million trees target for the program was met.

While the average cost per tree was higher for competitive grant projects (currently $3.31 for round 1, $4.88 for round 2 and $4.23 for round 3), delivering a component of the program through competitive grants allowed the department to further promote Objective 3: community engagement. Applications driven by partnerships between different sectors of the community were encouraged to apply, as it is believed that revegetation activities that actively engage the local community are more likely to be maintained by that community. Building community capacity in tree planting and increasing community appetite for environmental projects are likely to better place groups for similar work going forward.

Non-competitive discretionary grants provided an opportunity for the Australian Government to fund areas requiring direct focus. This approach allowed the Australian Government the flexibility to help protect specific threatened ecosystems, engage in large community engagement activities and to bring together multiple partners to deliver a single project.

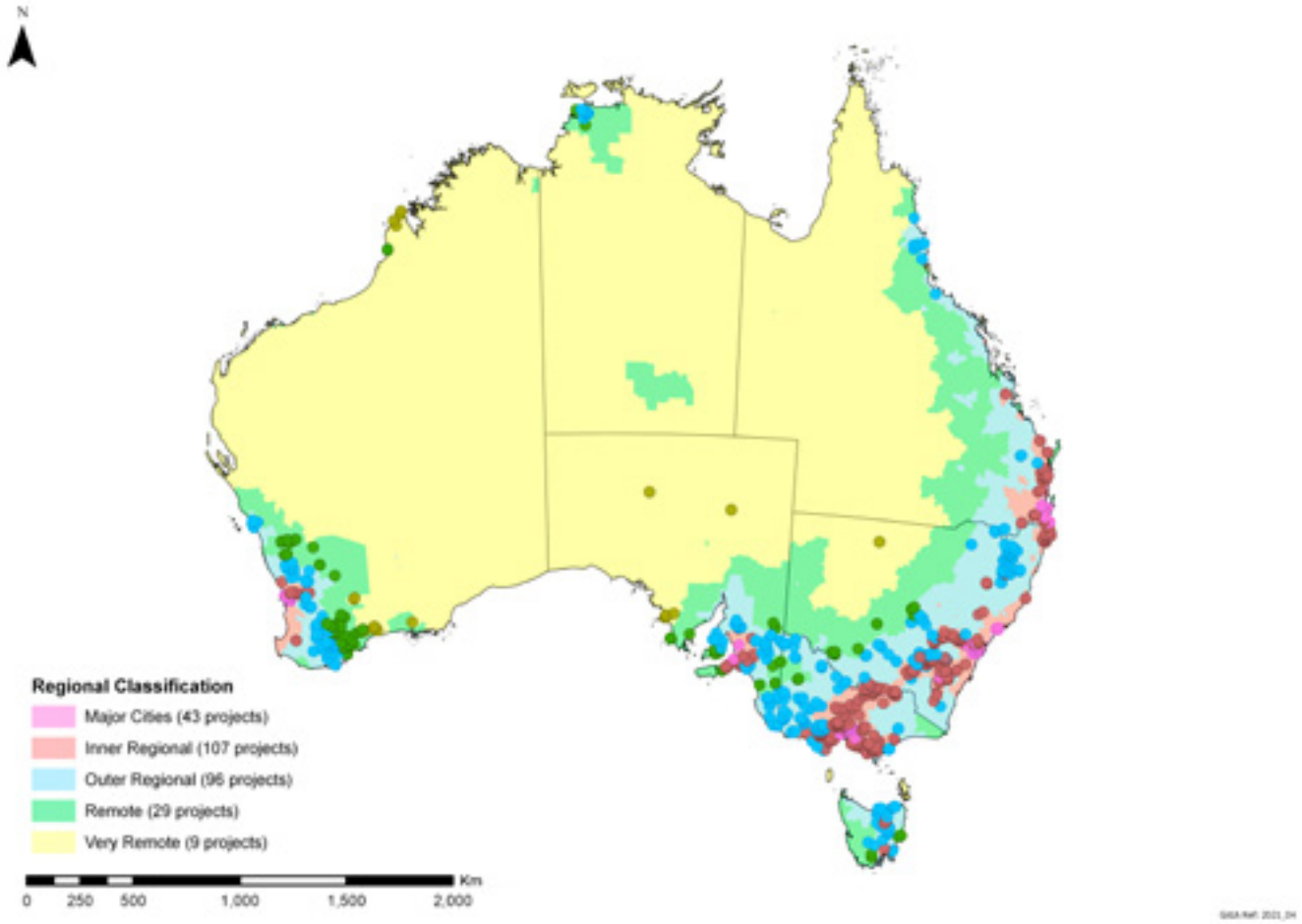
While not a direct aim of the program, combining multiple delivery methods allowed opportunity for project delivery across all states and territories and regions, from major cities to very remote, as seen in Table 25 and Map 5.

Table 25 Project sites across states and territories

Program element	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total
Competitive grant round 1	18	16	7	8	8	3	–	–	60
Competitive grant round 2	14	10	19	5	6	6	1	1	62
Competitive grant round 3	10	13	10	7	10	1	–	–	51
Procurement (service providers) tranche 1	6	7	–	5	5	–	–	–	23
Procurement (service providers) tranche 2	–	1	2	6	1	–	–	–	10
Procurement (service providers) tranche 3	2	5	–	1	3	1	–	–	12
Non-competitive discretionary grants	20	9	1	2	1	4	–	–	37
Total	70	61	39	34	34	15	1	1	255

Note: Some projects had sites in more than one state or territory. The total number therefore does not sum to the 235 projects that delivered the program.

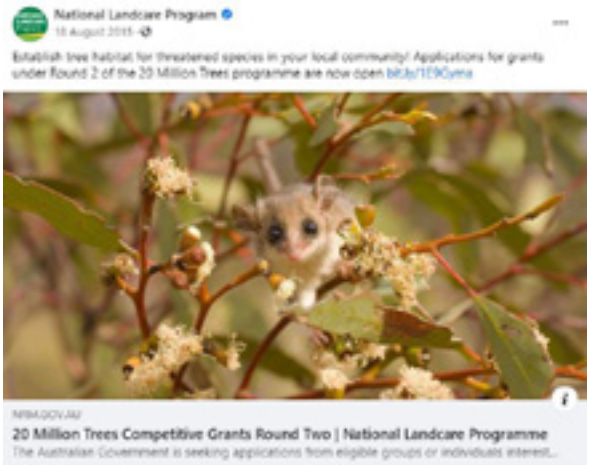
Map 5 Project sites by regional classification



Note: Some 20 Million Trees projects have more than one project site. If a project has sites in more than 1 regional classification, it is represented on the map more than once. Project numbers in the map therefore do not sum to the 235 projects that delivered the program.

The 20 Million Trees Program was purposely designed to link with other Australian Government environmental priorities. Grant rounds 1 and 2 of the program allowed for plantings that improved environmental outcomes in urban areas, engaged communities and targeted threatened species, threatened ecological communities and associated habitat. Round 3 of the program targeted projects that directly benefited threatened species or threatened ecological communities. Working through numerous programs on threatened species recovery further supports the department in meeting its obligations to protect nationally significant animals, plants, habitats and places as outlined in the EPBC Act.

Figure 8 Facebook post advertising competitive grant round 2 focusing on threatened species



Source: Facebook

Lessons learnt

Through the 20 Million Trees Program a wealth of knowledge has been created for future tree planting programs to draw upon. In designing future programs, a key message demonstrated through this review is to consider differences in delivery methods and ensure the chosen method aligns with the intended program objectives. For example, if cost per tree is the key consideration, then a procurement delivery model using service providers to plant trees at a large scale in rural landscapes could be the best option. Tree planting programs that wish to also deliver on community engagement objectives across a range of rural and urban landscapes, may wish to favour grants processes. Having multiple delivery streams, as with the 20 Million Trees Program, can allow for a balance of multiple priorities.

Although the 20 Million Trees Program was highly successful, as with any grant and procurement program, lessons can be learnt and used in future program design where appropriate. As part of the review process, the department held a workshop with departmental project managers and their feedback was considered along with that of proponents, which was provided throughout the program. Areas for future consideration could include:

- **Auditing—**a formal on-ground or field auditing program was not part of the original design and therefore physical audits of projects were only performed on an ad-hoc basis. On-ground audits occurred if a reason for concern was raised or if departmental officers were in the region visiting a project from another program. Building a dedicated schedule of field audits into the program design proportionate to the value of the program may have provided an opportunity for issues to be more easily identified and resolved earlier.
- **Knowledge sharing—**the program attracted many individuals and groups that had a high level of expertise in environmental management. However, these groups were siloed in the program, with no formal way to interact or learn from each other. A community of practice between proponents may have assisted in increased environmental outcomes and shared efficiencies.
- **Reporting—**to report on the program's objectives, proponents entered information into the department's online tool, MERIT. As highlighted in the 20 Million Trees Program review methodology section, the data is subject to human error and differing interpretation. Providing additional instruction and ongoing training opportunities on using MERIT may increase the accuracy of data the department has available for monitoring and evaluating its programs, as well as assist when there is proponent staff and departmental staff turnover.
- The level of both financial and data reporting required through the competitive grants process was the same regardless of the amount of funding awarded. This level of reporting may have been more difficult for a small organisation with a $20,000 project as opposed to a larger organisation expending $100,000 through the program. Scaling reporting requirements to be proportionate to the amount of funding awarded may also be more reflective of the financial risk involved.

In October 2015, the Australian National Audit Office (ANAO) undertook a routine performance audit of the program and provided recommendations. The objective of this audit was to assess the effectiveness of the department's awarding of funding under the program. The ANAO examined the design and accessibility of the program and the assessment and selection of grant applicants and tender submissions.

The report focused on the allocation of funding under the program during 2014–15 and the first half of 2015–16. This included a first round of competitive grants, Cumberland Conservation Corridor, Greening the West of Melbourne, One Tree Per Child and the first tranche of funding for service provider projects.

The ANAO concluded the 20 Million Trees Program was designed appropriately to deliver the Australian Government's objectives. The ANAO made the following 2 recommendations in its report:

- Recommendation 1: The Department of the Environment should implement arrangements for eligibility assessment that clearly establish eligibility criteria and ensure that these criteria are consistently applied.
- Recommendation 2: The Department of the Environment should draw to the attention of decision-makers important issues relating to the assessment and selection process for grants programmes and ensure that accurate information is provided in briefings for decision-makers.

The department accepted the report's 2 recommendations and undertook actions to improve business processes, for example, changes to the subsequent funding rounds to include clearer eligibility criteria that are simpler to address, more systematic quality assurance processes and improving assessment and selection processes.

Future directions

The 20 Million Trees Program is just one of the ways the Australian Government has been investing in tree planting across the country and one part of a strategic and coordinated approach to threatened species recovery. The Australian Government will continue to invest in rehabilitating natural habitats and revegetation activities, currently through other elements of the National Landcare Program, such as the Regional Land Partnerships Program and bushfire recovery for native wildlife and habitat.

- The Regional Land Partnerships Program is investing $450 million to 2022–23 to deliver national priorities at a regional and local level, as well as a range of dedicated threatened species recovery projects. The program is funded to achieve a range of environmental outcomes, implemented through multiple services, including revegetation.
- Bushfire recovery for native wildlife and habitat has received $200 million to help secure the future of treasured native species from the koala to the Kangaroo Island dunnart (*Sminthopsis griseoventer aitkeni*) and the northern corroboree frog (*Pseudophryne pengilleyi*), as well as unique plants such as the *Wollemia nobilis* (wollemi pine), banksia and bottlebrush. This funding provides for activities aimed at preventing extinction and limiting species decline, including interventions such as feral animal and weed control, revegetation and regeneration, protection of refuges and landscape management delivering umbrella benefits for plants and animals. An important component of this funding is the restoration of habitats and ecological communities affected by the 2019–20 bushfires.

As the 20 Million Trees Program was designed for a defined timeframe, the program had an objective of community engagement and has helped build community capacity in tree planting and other environmental projects that will last beyond the duration of the program. The program has encouraged partnerships between groups at the local level to help lead national scale achievements in re-establishing green corridors, urban forests and threatened ecological communities. The program's investment in these partnerships will help ensure communities are able to continue the activities promoted by the 20 Million Trees Program as opportunities arise.

The 20 Million Trees Program has forged a path for other large-scale tree planting programs, driven by private enterprise. For example, AstraZeneca's 'AZ Forest' is a global initiative that aims to plant 25 million trees in locations around Australia that support threatened species and habitat connectivity. Initiatives run by non-government organisations, such as National Tree Day, are also playing an important role in mobilising volunteers at the grass roots level to engage in tree planting activities. The example of the 20 Million Trees Program will also continue to be highlighted around the world and used as a model for others through the Queen's Commonwealth Canopy initiative, a network of forest conservation projects across the Commonwealth.

Having established the 20 Million Trees Program to provide leadership in tree planting, the Australian Government can now conclude the program knowing capability in the sector has been enhanced and is continuing to attract private and community funding.

Glossary

Term	Definition
biodiversity	The variability among living organisms from all sources (including terrestrial, aquatic, marine and other ecosystems and the ecological complexes of which they are part), at all levels of organisation, including genetic diversity, species diversity and ecosystem diversity.
condition of native vegetation	The capacity of a native vegetation community to support the full range of native species that might be expected to use a stand of vegetation of a particular type under natural circumstances. Any native vegetation patch can be assessed relative to the average characteristics of a mature and long undisturbed patch of the same vegetation type (a benchmark or reference state).
connectivity	The capacity of landscapes or aquatic environments to allow ecological movement among resource patches.
department	The Australian Government Department of Agriculture, Water and the Environment.
direct seeding	The term used to describe the process of sowing seed directly into the final location instead of growing the seed into seedlings for planting.
ecological communities	Naturally occurring groups of plants and animals. Their species composition can be determined by factors such as soil type, position in the landscape, climate and water availability.
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*, Australia's national environment legislation.
established tree cost	Australian Government funding expensed (GST exclusive) divided by the number of established trees (over 2 m when mature).
funding agreement	A legally enforceable, performance-based contract between the department and the successful applicant setting out the terms and conditions governing the funding to be provided under the program.
Green Army	The Australian Government's Green Army Program.
make-good provisions	Provisions enabling parties to fulfil their obligations to deliver the contracted number of trees at the end of the project term, if tree losses are suffered during the term of the project. For example, should a portion of plantings be lost to frost or heatwave before the end of the project term, the proponent needed to replant (or 'make-good') those plantings in order to achieve the contracted number of trees.
peri-urban	Areas with population densities of at least 14 people per square km that are about or are within 25 km of urban areas.
program	The 20 Million Trees Program.
proponent	Grant recipients and service providers under the 20 Million Trees Program.
Queen's Commonwealth Canopy initiative	A network of forest conservation projects across the Commonwealth. See **queenscommonwealthcanopy.org/** for more information about the Queen's Commonwealth Canopy initiative.
remnant vegetation	Two or more areas of largely intact (structurally and/or compositionally) native vegetation that remains after the removal (usually by clearing) of parts of a natural area. Definitions of remnant vegetation may vary from state to state, defined under relevant legislation.
revegetation	The re-establishment of vegetation in cleared or highly modified areas. Revegetation methods include planting tube stock and direct seeding.
threatened ecological community	For the purposes of the program, threatened ecological community refers to any nationally listed threatened ecological community under the EPBC Act. See **www.awe.gov.au/environment/biodiversity/threatened/communities** for more information about threatened ecological communities.
threatened species	For the purposes of the program, threatened species refers to any nationally listed species under the EPBC Act. See **www.awe.gov.au/environment/biodiversity/threatened/species** for more information about threatened species.
tree	For the program, a tree is defined as a plant growing to a height of 2 m or more when mature.
understorey	For the program, understorey is defined as plants less than 2 m in height when mature.

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