Threatened Species Program

Dalveen blue box, *Eucalyptus dalveenica* Recovery Action Plan 2025

Queensland Government

Front cover acknowledgement – DETSI.

Prepared by: Threatened Species Operations, Wildlife and Threatened Species Operations, Department of Environment, Tourism, Science and Innovation

The Department of Environment, Tourism, Science and Innovation

acknowledges Aboriginal peoples and Torres Strait Islander peoples as the Traditional Owners and custodians of the land. We recognise their connection to land, sea and community, and pay our respects to Elders past, present and emerging.

The department is committed to respecting, protecting and promoting human rights, and our obligations under the Human Rights Act 2019.

Disclaimer

This document has been prepared with all due diligence and care, based on the best available information at the time of publication. The department holds no responsibility for any errors or omissions within this document. Any decisions made by other parties based on this document are solely the responsibility of those parties. Information contained in this document is from a number of sources and, as such, does not necessarily represent government or departmental policy.

If you need to access this document in a language other than English, please call the Translating and Interpreting Service (TIS National) on 131 450 and ask them to telephone Library Services on +61 7 3170 5470.

This publication can be made available in an alternative format (e.g. large print or audiotape) on request for people with vision impairment; phone +61 7 3170 5470 or email <library@des.qld.gov.au>.

Citation

DETSI. 2025. *Eucalyptus dalveenica* Recovery Action Plan. Queensland Government Department of Environment, Tourism Science and Innovation.

Acknowledgements

Acknowledgement is given to Dr Tim Collins, NSW Department of Planning and Environment; and Liz Bourne and Carol Booth from the Stanthorpe Rare Wildflower Consortium for their contribution to the development of this plan.

January 2025

Contents

List of Figures

List of Tables

Introduction

The Dalveen blue box Recovery Action Plan' was developed as part of the Queensland Department of Environment, Science and Innovation (the department) Threatened Species Program 2020–2040 framework. It provides the strategic management direction for the recovery of the Dalveen blue box. The plan identifies the key threats impacting on the species and sets out the recovery actions needed to address these threats and facilitate the species recovery in Queensland. The goals, objectives and actions under this plan have been based on the best available information and developed in collaboration with key stakeholders.

The adaptive management approach that underpins this Recovery Action Plan (RAP) ensures that decision making, and the most effective management interventions are used in the recovery effort for the long-term.

Successful implementation of the recovery actions depends on the commitment and cooperation of all relevant stakeholders. The delivery of actions identified in the plan is a shared responsibility and one that is achieved through a collaborative and participatory approach. This document is non-statutory and does not bind any one potential contributor to resourcing or implementing the plan.

This RAP was approved by the department and is subject to modification as dictated by new findings, changes in status of the taxon or ecological community, and the completion of recovery actions. Information in this RAP was accurate as of January 2025.

Term and review date

Timeframe: 5 years from 2025 to 2030

Review date: 2030

For further information on this or other Recovery Action Plans please contact Threatened.Species@des.qld.gov.au.

Acronyms and Abbreviations

DETSI - Department of Environment, Science, Tourism and Innovation

DETSI - PPAI - Private Protected Area Investment

DETSI - TSO - Threatened Species Operations

IBRA - Interim Biogeographic Regionalisation for Australia

IUCN - International Union for the Conservation of Nature

LH – Landholders

QHBS – DETSI Queensland Herbarium and Biodiversity Sciences

RE - Regional Ecosystem

RI – Research Institutions

SRWC - Stanthorpe Rare Wildflower Consortium

SDRC - Southern Downs Regional Council

Summary

Species

- *Eucalyptus dalveenica*, Dalveen blue box

Conservation Status

- Queensland *Nature Conservation Act 1992*: Critically Endangered
- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC): Critically Endangered
- Taxon status under the International Union for Conservation of Nature (IUCN) Red List of Threatened Species: Critically Endangered

Current Population and Distribution

As of 2021, the population is estimated to be around 344 mature individuals (SRWC 2021).

Dalveen blue box is currently known only from a single population in the Dalveen district, north of Stanthorpe, in the Southern Downs local government area. Its current extent of occurrence is estimated at <0.6 km^2 over four freehold properties adjacent, or in close proximity to each other.

Current Threats

- Small isolated population
- Clearing and land use
- Dieback

Vison Statement

By 2055 the Dalveen blue box, *Eucalyptus dalveenica*, continues to persist in the wild. The population, extent of occurrence and protection are improved from 2025 levels. Knowledge on the species has improved so that management actions maximise its chances of long-term survival in the wild. The local community recognise the species' conservation significance and support conservation efforts.

Goals

1. Minimise the loss and modification of Dalveen blue box habitat resulting from land clearing and land use practices.
2. Maintain or increase the population and extent of occurrence for the Dalveen blue box to enable long term persistence in the wild.
3. Research improves understanding of the biology, ecology and threats and informs management of Dalveen blue box.
4. Improve engagement with key stakeholders and the local community to better affect recovery of the Dalveen blue box.

Engagement with First Nations people

The department is committed to progressing self-determination by recognising the rights and interests of First Nations people across Queensland. The *Gurra Gurra Framework 2020–2026* accelerates this commitment by reframing our relationship with First Nations peoples to work in genuine partnership to safeguard ecological and cultural values across Queensland.

The department acknowledges and respects First Nations peoples' lived experiences, knowledge, skills and expertise, and seeks to incorporate their perspectives into the policies, programs and systems that guide land and sea management. We commit to work in genuine partnership with First Nations people across Queensland to ensure their vision and knowledge of Country is appropriately reflected in the Threatened Species Program.

Dalveen blue box occurs on the lands of the Githabul People (Waringh Waringh) (whilst acknowledging that other peoples may have a connection to this Country). Consultation with the Githabul people will occur as soon as practicable including ascertaining the cultural significance of Dalveen blue box to them.

Species Information

Dalveen blue box, *Eucalyptus dalveenica*, was previously identified as *Eucalyptus magnificata* until 2019 when it was described and assigned as a distinct species (Collins et al. 2019).

The species is currently known only from a single restricted population in the Southern Downs local government area of south-east Queensland. The current population is estimated to be approximately 344 individual mature individuals (SRWC 2021).

Further research is needed to better understand the life history and ecology of the species, including its reproduction biology and response to fire. With improved species knowledge and targeted management there is the potential for this species to improve from its current situation.

Conservation Status

Legislation	Conservation status
Nature Conservation Act 1992	Critically Endangered
Environment Protection and Biodiversity Conservation Act 1999	Critically Endangered

Dalveen blue box is listed as Critically Endangered with a declining population trend under the International Union for the Conservation of Nature (IUCN) Red List of Threatened Species (Fensham et al. 2019).

Taxonomy and Description

Eucalyptus dalveenica was identified as a distinct species in 2019 after genetic, phytochemical and morphological analysis confirmed it to be distinct from *Eucalyptus baueriana and Eucalyptus magnificata* (Collins et al. 2019).

Dalveen blue box is a eucalypt tree, that grows up to 15 m tall. Occasionally multi-trunked, it has light grey, flaky, box-type bark, persistent on the trunk that becomes smooth above branches <50mm in diameter (Collins et al. 2019). Leaves are slightly glossy, uniform in colour, taper from a wide base to a drawn-out apex (10-15cm long and 2.6 – 4.1cm wide) and have visible intramarginal veins. Flower buds are arranged at the ends of the stem and branches or sometimes axillary, growing out of the leaf angle where it attaches to the stem, with up to 6 clusters of 7-flowers. Floral buds are 9-12 mm long and 4-4.5 mm wide, with calyptra hemispherical to conical. Fruit are conical, 7-9.8 mm long and 6.2-7.8 mm wide with 3-4 valves and dark brown seeds (Collins et al. 2019).

The species is distinguished from *E. baueriana* and *E. magnificata* by acute seedling leaf apices, shorter pedicels in bud, and mild, faintly fruity-smelling crushed leaves. It is distinguished from the co-occurring *E. conica* by larger fruit and buds, broader leaves, and mild leaf smell (Collins et al. 2019).

Biology and ecology

Very little is known about the biology and ecology of Dalveen blue box. Generation length is unknown, but it is assumed that a minimum value for generation length for eucalypts is at least 70 years (Fensham et al. 2020).

Fresh seed viability is high, with 90–94% germination after 21 days (T. Collins pers. comm 2024).

Planted specimens of Dalveen blue box take 4 to 5 years to flower for the first time (Threatened Species Scientific Committee 2023). Well-developed buds have been observed on some trees in late July to August (SRWC 2021) indicating flowering occurs in spring and early summer (Collins et al. 2019). The pollinators are unknown, and the fruits take a year to mature (Threatened Species Scientific Committee 2023). The species may also reproduce clonally, as is suspected to be the case for its close relative, *E. magnificata (*Booth and Bourne 2019). In a 2019 survey, most apparent seedlings and small saplings were observed suckering from roots up to 1m (and sometimes further) from parent plants (SRWC 2021).

Species Distribution

Current distribution:

The Dalveen blue box is only known to occur in Queensland from the Dalveen district, approximately 20km north of Stanthorpe, in the Southern Downs Local Government area and the New England Tableland IBRA Bioregion.

Its current extent of occurrence (EOO) is estimated at 0.6 km^2 (Threatened Species Scientific Committee 2023). Currently the entire known population occurs on four freehold properties adjacent to, or near, each other. Three of these occur on the western side of Granite Belt Drive and one on the eastern side of the New England Highway in

Dalveen (Threatened Species Scientific Committee 2023). This property borders the Queensland/New South Wales state border.

One other site at Cherry Gully is suspected to have Dalveen blue box present but this is still to be confirmed. Further investigation and new surveys at this site are recommended as part of the management actions under this plan (T. Collins pers. comm 2024).

Note: **Source:** Base map Geoscience Australia; species distribution data Species of National Environmental Significance database.

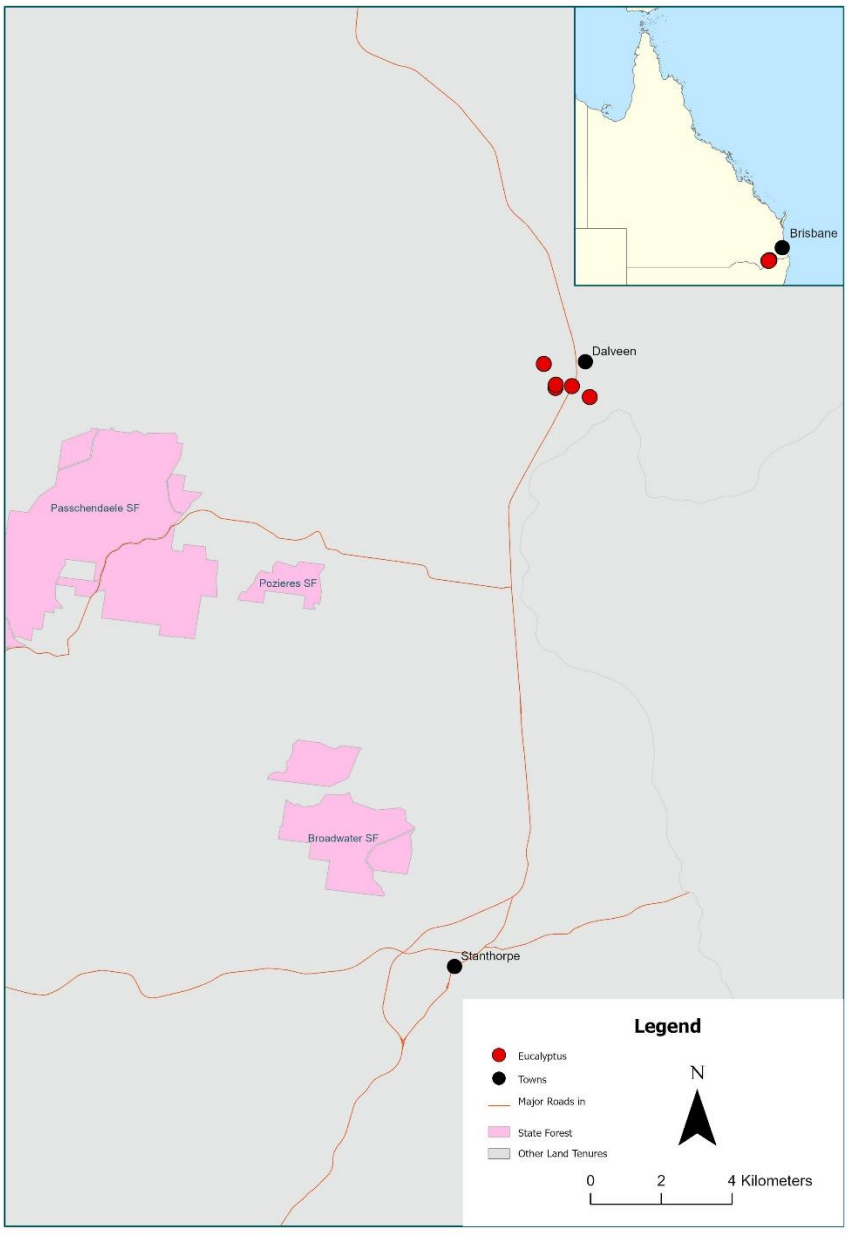

Figure 1. Map showing the current distribution of *Eucalyptus dalveenica*

Historical distribution:
The species was originally thought to have had a broader historical distribution in southern Queensland and into northern New South Wales based on several historical records. However, further studies of these historical records have since shown that some of these specimens are not Dalveen blue box (T. Collins pers. comm 2024). These records include:

- One historical record from Stanthorpe which was thought to be *E. dalveenica* has since been confirmed as *E. conica* (T. Collins pers. comm 2024).

- Three historical records from southern Queensland and northern New South Wales one from Inglewood Queensland, one near Tenterfield, New South Wales, and a single specimen collected near Legume, New South Wales in 1968 have all shown to be *E. conica* (T. Collins pers. comm 2024).

Based on this new information, previous estimates of a 99% decline in extent of occurrence from its historical extent of occurrence of at least 80 km^2 (1904) to 0.6 km^2 (2021) (Threatened Species Scientific Committee 2023) is unlikely to be an accurate representation of the species historical extent (T. Collins pers. comm 2024).

Population Status

The species is only known from one small and restricted population. In 2021, the population was estimated to be 344 mature individuals (SRWC 2021). Approximately 220 mature individuals were counted in 2008 during the first census. This increased to 244 in 2019 as juveniles matured (Threatened Species Scientific Committee 2023) and estimates increased to 344 following surveys during 2021.

The entire population is restricted to four sites with 100% of the population occurring on private property freehold tenure (refer to Table 1). Three sites occurring on the western side of the New England Highway contain approximately 70% of the total population size (Table 1. Sites 1, 2 and 3). The fourth site (Table 1. Site 4) located on the eastern side of the New England Highway contains approximately 30% of the population.

Two individual trees were recorded on roadside reserve adjacent to Site 2 during 2008, but these trees have since been cleared and the 2019-2021 census did not record any further individuals at this location.

Table 1. below describes the population estimates during the census periods and identifies the percentage of the population currently held within each site.

Table 1. Population estimates of Dalveen blue box (Silcock et al. 2021; SRWC 2021).

Site	Tenure	Number of individuals		Percentage of total population 2019-2021
		2008	2019- 2021	
Site 1	Freehold	120	168	49%
Site 2	Freehold	95	73	21%
Site 3	Freehold	Not recorded	3	1%
Site 4	Freehold	Not recorded	100	29%
Site 5	Road reserve	2	0	0%

Habitat Requirements

Dalveen blue box occurs in woodland, on clay soils with impeded drainage, mainly alongside *Eucalyptus moluccana* (Collins et al. 2019). The main regional ecosystem (RE) with which Dalveen blue box is associated is RE 13.9.2. (*E. moluccana* open forest on fine-grained sedimentary rocks). It is also associated with RE13.12.9 (*E. blakelyi* and/or *E. caliginosa* woodland to open forest on igneous rocks). Both REs are listed as endangered under the Queensland *Vegetation Management Act 1999* (VMA) (Queensland Government 2019).

.

Table 2. Summary of the habitat type critical to Dalveen blue box (Queensland Government 2019).

RE	Description	Status under the VMA Act	Estimated extent
13.9.2	*Eucalyptus moluccana* open forest. Occurs on localised patches of Cainozoic to Proterozoic consolidated, fine to medium-grained sediments.	Endangered	Pre-clearing 1000 ha; Remnant 2021: 200 ha
13.12.9	Woodland to open forest of *Eucalyptus blakelyi* and/or *E. caliginosa* and/or *E. dalrympleana*. Other canopy species include *E. conica*, *E. bridgesiana*, *E. melliodora* and *E. youmanii*. Occurs on plains and rolling hills in granite basins.	Endangered	Pre-clearing 24000 ha; Remnant 2021: 5000 ha

Current Threats

Small isolated population

Dalveen blue box has a small and highly restricted population. No sites are currently managed for conservation purposes. The small, isolated population is more susceptible to population decline from environmental stochasticity, such as prolonged or severe droughts and repeated wildfires. Other consequences of small population size are increased genetic drift and inbreeding. The population genetics of Dalveen blue box is currently unstudied. It has been documented but not published that there appears to be good genetic variation and no inbreeding in the adult trees. However, further observation of seedling success will inform any potential reproduction issues (T. Collins pers. comm 2024). Further investigation into heterozygosity in seedlings to understand the affect clearing and fragmentation may have on gene-flow and genetic diversity needs to be completed (Tim Collins pers. comm 2024).

Clearing and land use

Land clearing for agriculture in the region has reduced and fragmented the available habitat of the species (Silcock et al*.* 2021). The main regional ecosystem the species is associated with had an estimated 200ha extent remaining in 2017 from an original estimated extent of 1000ha (Queensland Government 2019). The entire population currently exists within a restricted patch of remnant regional ecosystem on freehold tenure which is surrounded by mostly cleared land.

Historic clearing and removal of trees during the last 15 years is likely to have resulted in losses of Dalveen blue box from within its current extent, including the loss of all individuals from a roadside reserve (Table 1 Site 5) (Threatened Species Scientific Committee 2023). Most mature individuals at the sites occur in remnant endangered regional ecosystems. Clearing of these ecosystems is regulated under the *Vegetation Management Act 1999.*

Some land use practices may have the potential to impact on population numbers and its ability for regeneration and recruitment. Activities such as stock grazing have the potential to directly impact the regeneration of the species through defoliation and trampling, or indirectly through the spread of invasive weeds and changes to the abiotic conditions (Booth and Bourne 2019). The specific impacts of stock grazing on the Dalveen blue box population needs further investigation.

Dieback

Some eucalypt species are known to exhibit ‘dieback’ (death and crown damage) due to unspecified causes (Fensham et al. 2020).

Three dieback events have been observed in the Dalveen blue box population between 2008 and 2019.

In an August 2019 survey, during a period of extended drought, almost 20 per cent of Dalveen blue box trees were recorded as ‘stressed’ or ‘highly stressed’ (SRWC 2021). These correspond roughly with Wylie’s (1986) quantification of dieback severity as moderate to severe.

A dieback assessment in 2015 (not a drought period) based on the method of Wylie (1986) found ‘moderate’ levels of dieback in many Dalveen blue box trees (T. Collins pers. comm 2024).

The 2008 survey also recorded ‘stressed’ trees at one of the sites (Holmes and Holmes 2008).

These observations suggest that the population is undergoing some stress from unknown causes, with drought events considered to be one possibility. Further investigation is required to better understand the scale and severity of impact of this threat on the population.

Potential Threats

Wildfires

Wildfire has been identified as a potential threat to the species. The interaction with fire is currently not well understood and there is limited evidence to support fire specific threat-based management actions that would improve recovery for Dalveen blue box. A brief description of the current observations or knowledge on fire as a threat is provided below and will be further investigated to support the recovery of the species over the long term.

Overall fire weather conditions are intensifying and becoming more frequent within the region which means that higher fire danger days are occurring and are likely associated with drought and heatwave phenomena (Queensland Reconstruction Authority 2022). The current stands occur on land identified as medium to high potential bushfire intensity under the Southern Downs Regional Council online mapping tool (Southern Downs Regional Council 2024).

It is assumed that Dalveen blue box could survive low to moderate levels of fire intensity due to its ability to resprout (Tim Collins pers. comm 2024). However, it is thought that too frequent, moderate to high intensity fire would impact this species, effectively destroying juveniles and constraining recruitment and population growth (Paul Donatiu pers. comm 2024). Further research is recommended to fully understand the impact that frequent, moderate to hot fires may have on the species and to inform any future management responses.

Threat Assessment

Each current threat has been assessed to determine its level of impact to the survival of the species (see Table 3). This has helped to inform the priorities for management response. The qualitative assessment is based on current management practices. The levels of risk and associated priority for response are defined below:

Table 3. Threats to Dalveen blue box including the extent and risk of the threat.

Likelihood of occurrence	Consequences				
	Not significant	Minor	Moderate	Major	Catastrophic
Almost certain			Small restricted population		
Likely			Dieback		
Possible				Clearing and land use	
Unlikely					
Rare or unknown					

Risk Matrix legend/Risk rating:

Low Risk	Moderate Risk	High Risk	Very High Risk

Categories for likelihood are defined as follows:

Almost certain: expected to occur every year
Likely: expected to occur at least once every five years

Possible: might occur at some time
Unlikely: such events are known to have occurred on a worldwide basis but only a few times
Rare or Unknown: may occur only in exceptional circumstances; OR it is currently unknown how often the incident will occur

Categories for consequences are defined as follows:

Not significant: no long-term effect on individuals or populations
Minor: individuals are adversely affected but no effect at population level
Moderate: population recovery stalls or reduces
Major: population decreases
Catastrophic: population extinction

Previous and current conservation and management actions

Dalveen blue box has a Conservation Advice. Management actions have also been identified by Silcock et al. (2021) in the '*Action Plan for Australia's Imperilled Plants*'.

Several management actions have been implemented through the SRWC efforts and researcher Tim Collins to better understand the species needs and manage its recovery; these include:

- Research into taxonomy (morphology, phytochemistry and molecular analysis), demography, seed viability and threats has been undertaken (Collins 2016)
- Monitoring surveys have been undertaken in 2008 (Holmes and Holmes 2008) and in 2019 (SRWC 2021).

Recovery Strategy

This Recovery Action Plan guides recovery actions for Dalveen blue box for the next *5* years.

Vision

The long-term vision of the recovery program for Dalveen blue box extends beyond the life of this plan but is important to state to ensure a consistent, long-term strategy.

By 2055 the Dalveen blue box, *Eucalyptus dalveenica*, continues to persist in the wild. The population, extent of occurrence and protection are improved from 2025 levels. Knowledge on the species has improved so that management actions maximise its chances of long-term survival in the wild. The local community recognise the species' conservation significance and support conservation efforts.

Goals

There are four goals presented in the following section, each with specific objectives and actions, that are practical steps toward achieving the long-term vision. The goals are for the life of the plan.

1. Minimise the loss and modification of Dalveen blue box habitat resulting from land clearing and land use practices.
2. Maintain or increase the population and extent of occurrence for the Dalveen blue box to enable long term persistence in the wild.
3. Research improves understanding of the biology, ecology and threats and informs management of Dalveen blue box.
4. Improve engagement with key stakeholders and the local community to better affect recovery of the Dalveen blue box.

Recovery Action Table

Actions identified for the recovery of the Dalveen blue box during the life of this plan are described in Table 4 below under each of the relevant goals and objectives.

The information in the Action Table should be interpreted as follows:

		1	2	3
Priority	Level of importance of the action	Taking prompt action is necessary to mitigate the threats and ensure the persistence of the species	Action is necessary to mitigate threats and work towards the long-term recovery of the species	Action is desirable, but not critical to recovery at this time but will provide for longer term recovery

Cost Indicative cost estimate[1]	**$1000s $10,000s $100,000s $1,000 000s**

Timeframe	Expected timeframe to start and complete the action	**1-2 years**	**3-5yrs**	**ongoing**

Potential Contributors[2]	**Where possible the action table has identified who leads the action (L) and other contributors (C). Where this is unknown a list of all potential contributors has been provided.**

Notes

1. Costs do not account for inflation, and do not include standard management activities on conservation estate by the department that are to be considered as in-kind contribution. If an action is attributed a cost and it is led by the department then at least a partial in-kind contribution is assumed. The provision of funds necessary to implement actions are subject to budgetary and other constraints affecting the parties involved, as well as the need to address other priorities.
2. The nominated lead for actions is not necessarily responsible for cost, however the lead should coordinate as necessary to determine source/s of funding for the activity.

Table 4. Recovery Action Table for the Dalveen blue box that lists the goals, objectives, performance indicators and actions for the duration of the plan.

Goal 1: Minimise the loss and modification of Dalveen blue box habitat resulting from land clearing and land use practices.

Objective 1.1: Improve the level of protection of Dalveen blue box stands by 2030.				
Performance indicators • At least one location supporting Dalveen blue box is protected under a conservation agreement by 2030.				
Action	**Priority**	**Indicative cost**	**Timeframe**	**Potential Contributors**
1.1.1 Identify and implement options to provide long-term protection to Dalveen blue box stands on private land, including opportunities for collaboration between landowners, local government and DETSI/QPWS.	1	$1,000s	1	DETSI-PPAI (L), DETSI-TSO (C), LH(C)
1.1.2 Investigate options for protection of any newly identified stands or suitable habitat identified under actions 2.2.1 and 2.2.2.	2	$1,000s	2	DETSI-PPAI (L), DETSI-TSO (C), LH (C)
1.1.3 Submit any new records of Dalveen blue box to WildNet which informs the Protected Plants mapping.	2	$1,000s	ongoing	DETSI (L)
Objective 1.2: Improve natural regeneration and recruitment of Dalveen blue box stands on private land by 2030				
Performance indicators • 50 percent of private landholders with currently known Dalveen blue box stands are actively implementing land management practices to achieve improved regeneration and recruitment. • Recruitment of Dalveen blue box stands improves from 2025 baseline.				
Action	**Priority**	**Indicative cost**	**Timeframe**	**Potential Contributors**
1.2.1 Engage with landholders to promote and enable land use practices that support the regeneration, recruitment and survival of Dalveen blue box stands (e.g. fencing areas of known habitat to protect from grazing stock and promote regeneration).	1	$10,000s	ongoing	DETSI-TSO (L), NRM (C), SRWC (C), SDRC (C)
1.2.2 Monitor the regeneration and recruitment levels of Dalveen Blue Box in consultation with landholders and species experts to understand the effectiveness of land management practices. Set baseline to measure change in population.	2	$1,000s	1	SRWC (L), DETSI-TSO (C), QHBS (C), RI (C), species experts (C)

Goal 2: Maintain or increase the population size and extent of occurrence for the Dalveen blue box to enable long term persistence in the wild.

Objective 2.1: Develop and implement population management plan to inform future management of Dalveen blue box, including ex-situ conservation actions.				
Performance indicators • All conservation activities are guided by a population management plan. • 1 (or more) suitable site/s identified and confirmed as a future reintroduction site and a conservation translocation proposal has been developed.				
Action	**Priority**	**Indicative cost**	**Timeframe**	**Potential Contributors**
2.1.1 Population management plan is developed to guide conservation and management of Dalveen blue box populations and genetics.	1	$1,000s	1	DETSI-TSO (L), SRWC (C), species experts (C), QHBS (C)
2.1.2 Collect germplasm to establish ex-situ collections of Dalveen blue box informed by genetics and manage at a suitable facility.	2	$1,000s	1	SRWC (L), species experts(C), QHBS(C), RI (C), local nurseries / Botanic gardens (C)
2.1.3 Incorporate research findings from ecological drivers, particularly soil characteristics (3.1.2), of Dalveen blue box to inform new reintroduction sites and most suitable existing sites for supplementation.	2	$10,000s	1	RI (L), QHBS (C), species experts (C), DETSI-TSO (C)
2.1.4 In accordance with the population management plan, develop a conservation translocation proposal to support the future reintroduction.	2	$1,000s	3	DETSI-TSO (L)
Objective 2.2: Determine presence of any new subpopulations of the Dalveen blue box within potential habitat by 2030.				
Performance indicators • Areas of habitat suitable as potential new subpopulation sites are surveyed.				
Action	**Priority**	**Indicative cost**	**Timeframe**	**Potential Contributors**

2.2.1 Survey for new stands in historic locations north of Dalveen township to confirm presence of Dalveen blue box and identify any new subpopulations.	1	$1,000s	1	SRWC (L), species experts (C), RI (C), QHBS (C), DETSI-TSO (C)
2.2.2 Survey for new subpopulations in suitable habitat informed by ecological driver research (action 3.1.2) by 2030.	2	$1,000s	1	SRWC (L), species experts (C), RI (C), QHBS (C), DETSI-TSO (C)

Objective 2.3: Trends in the Dalveen blue box population have been assessed by 2030

Performance indicators

- Standardised monitoring methodology has been developed for Dalveen blue box.
- All stands have been monitored by 2030
- Population trends have been assessed and reported to DETSI-TSO by 2030

Action	Priority	Indicative cost	Timeframe	Potential Contributors
2.3.1 Design a standardised population monitoring methodology and work with landholders and local stakeholders to undertake population monitoring by 2026.	1	$1,000s	1	DETSI-TSO (L), QHBS (C), species experts (C), RI (C), SRWC (C)
2.3.2 Data management protocols are established and implemented to store, analyse, and share population monitoring data.	1	$1,000s	2	DETSI-TSO (L), QHBS (C), SRWC (C), RI (C)
2.3.3 As sufficient data is collected, undertake analysis to increase understanding of trends in populations and inform management actions.	2	$1,000s	3	SRWC (L), DETSI-TSO (C), QHBS (C), species experts (C)

Goal 3: Research improves understanding of the biology, ecology and threats and informs management of Dalveen blue box.

Objective 3.1: Investigate key knowledge gaps in the reproductive requirements, population genetics, ecology and response of Dalveen blue box to fire to inform management by 2030.

Performance indicators

- The understanding of the reproductive requirements and population genetics has improved from 2024 levels and is used to inform management.

- The extent of occurrence and area of occupancy is well understood.
- The species response to fire is well understood and informs fire management.

Action	Priority	Indicative cost	Timeframe	Potential Contributors
3.1.1 Undertake research to better understand population age structure, reproductive biology (including generation length, time to reproductive maturity, germination requirements).	1	$10,000s	2	RI (L)
3.1.2 Undertake research to determine ecological drivers, particularly soil characteristics, of the distribution of Dalveen blue box.	1	$1,000s	1	RI (L), QHBS (C), species experts (C), DETSI (C)
3.1.3 Undertake research to better understand the fire ecology of the species and the interaction between potential future climatic changes and the frequency and/or intensity of wildfires.	2	$10,000s	2	RI (L), SDRC (C)

Objective 3.2: Determine the causes of dieback within the population and identify necessary responses by 2030.

Performance indicators

- The factors causing dieback in the population are well understood.

Action	Priority	Indicative cost	Timeframe	Potential Contributors
3.2.1 Undertake research to better understand the factors causing dieback in the population. Research may provide a better understanding around: • the effect of climate change and drought events on Dalveen blue box • soil condition and its correlation with dieback events • insects and pathogens	2	$1,000s	2	RI (L)
3.2.2. Work with landholders in severe dieback impact areas to trial management actions that aim to reduce the extent and severity of dieback.	2	$1,000s	2	RI (L), SRWC (C), LH (C)

Goal 4: Improve engagement with key stakeholders and the local community to better affect recovery of the Dalveen blue box.

Objective 4.1: Increase stakeholder engagement in Dalveen blue box recovery actions by December 2030.

Performance indicators

- Increase in the number of local community stakeholders actively engaged in Dalveen blue box conservation.

Action	Priority	Indicative cost	Timeframe	Potential Contributors
4.1.1 Engage with the local council, NRM regional bodies and other key stakeholders to expand support for the Dalveen blue box recovery program.	2	$1,000s	1	SRWC (L), SDRC (C), NRM regional bodies (C), local community (C)
4.1.2 Engage with local community and conservation groups to facilitate participation in conservation actions for the Dalveen blue box.	3	$1,000s	2	SRWC (L), NRM regional bodies (C), SDRC (C), local community (C)

Objective 4.2: First Nations are provided the opportunity to be actively engaged and collaborators in recovery efforts.

Performance indicators

- Where they choose to be, First Nations people are consulted and actively engaged in recovery actions and are represented in decision processes.

Action	Priority	Indicative cost	Timeframe	Potential Contributors
4.2.1 Identify First Nations organisations and extend requests for participation in the planning and delivery of recovery actions.	2	$1,000s	1	First Nations people (L), DETSI (C)

Evaluation and Review

The effective implementation of this Recovery Action Plan will require coordination by all involved parties, as resources allow.

It is recommended that a small working group provide guidance and oversight of the implementation of this plan. The implementation of actions should be regularly monitored and reported on by the working group.

The status and progress toward all goals, objectives and actions in this plan will be assessed against the performance indicators as part of an adaptive management approach to recovery. The final review of the plan will be led by DETSI Threatened Species Operations.

This plan may be changed at any point in time, in consultation with all stakeholders, to respond to unforeseen events.

References

Booth, CJ and Bourne, EM 2019, Nomination to change the conservation class of *Eucalyptus dalveenica* under the Queensland *Nature Conservation Act 1992*. Department of Environment and Science, Brisbane.

Collins TL, 2016. Rare and endangered *Eucalyptus magnificata* (Myrtaceae): taxonomy, genetic diversity and demography. Unpublished PhD Thesis: University of New England: Armidale.

Collins, TL, Andrew, RL and Bruhl, JJ 2019, Morphological, phytochemical and molecular analyses define species limits in *Eucalyptus magnificata* (Myrtaceae) and lead to the discovery of a new rare species, *Australian Systematic Botany* 32, 12–28

Fensham, R, Laffineur, B and Collingwood, T 2019, *Eucalyptus dalveenica*. The IUCN Red List of Threatened Species 2019. https://www.iucnredlist.org/species/147998306/148583980

Fensham, R, Laffineur, B, Collingwood, TD, Beech, E, Hopper, SD, Phillips, G, Rivers, MC, Walsh, N and White, M 2020, Rarity or decline: Key concepts for the Red List of Australian eucalypts *Biological Conservation* vol. 243 108455 https://doi.org/10.1016/j.biocon.2020.108455

Holmes J and Holmes G, 2008, *Botanical survey of four threatened plants: Northern Stanthorpe Plateau, Queensland*. Glenn Holmes & Associates.

Queensland Government. 2019. “Search regional ecosystem descriptions”. https://apps.des.qld.gov.au/regional-ecosystems/.

Queensland Reconstruction Authority. 2022. Darling Downs Regional Resilience Strategy. https://www.qra.qld.gov.au/regional-resilience-strategies/darling-downs

Silcock, J, Collingwood, T, Llorens, T and Fensham, R 2021, *Action Plan for Australia's Imperilled Plants.* NESP Threatened Species Recovery Hub, Brisbane.

Southern Downs Regional Council. 2024. Online Mapping. https://www.sdrc.qld.gov.au/payments---services/online-mapping

SRWC. 2021. Surveys of *Eucalyptus dalveenica*, 2019-2021. Unpublished results Stanthorpe Rare Wildflower Consortium.

Threatened Species Scientific Committee, 2023. Conservation Advice *Eucalyptus dalvenica* Dalveen blue box. Department of Climate Change, Energy, the Environment and Water, Canberra.

Wylie, FR 1986, Native tree dieback in southern Queensland: its occurrence, severity and aetiology PhD thesis, University of Queensland