Threatened
Species
Program

Coochin Hills grevillea
Grevillea hodgei
Recovery Action Plan 2025-2035

Queensland
Government

Front cover photograph acknowledgement – *Grevillea hodgei*, Glenn Leiper

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

The Department of the 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.

Citation

DETSI. 2025. Coochin Hills grevillea *Grevillea hodgei* Recovery Action Plan 2025-2035. Queensland Government Department of the Environment, Tourism, Science and Innovation.

February 2025

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INTRODUCTION

The 'Coochin Hills grevillea *Grevillea hodgei* Recovery Action Plan' was developed as part of the Queensland Department of the Environment, Tourism, Science and Innovation (the department) *Threatened Species Program 2020–2040* framework. It provides the strategic management direction for the recovery of Coochin Hills grevillea. 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 evidence-based 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 February 2025.

Term and review date

Timeframe: 10 years from 2025 to 2035

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 the Environment, Science, Tourism and Innovation

DETSI - TSO – Threatened Species Operations

CG – Community Groups

DETSI - QHBS - Queensland Herbarium and Biodiversity Sciences

QPWS&P – Queensland Parks and Wildlife Service & Partnerships

RI – Research Institution

SCC – Sunshine Coast Council

SUMMARY

Species

- Coochin Hills grevillea, *Grevillea hodgei*

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) (IUCN 2019) Red List of Threatened Species: Endangered

Current Population and Distribution

The Coochin Hills grevillea is restricted to two small hills in the Sunshine Coast Hinterland, in south-east Queensland:

- Coochin Hills section of the Glass House Mountains National Park.
- private land on the nearby Rupari Hill.

In 2020 the population was estimated to be between 150-250 individuals (Silcock et al. 2021).

Current Threats

- Small and restricted population
- Hybridisation with other *Grevillea* species
- Inappropriate fire regimes
- Land use
- Plant Pathogens i.e. *Phytophthora* spp.

Vision Statement

By 2035, populations of the Coochin Hills grevillea are secure at all locations with an increased population size, improved habitat condition and a reduction of threats. Its value in the landscape is recognised by the local community through active involvement in the species management and recovery.

Goals

1. Population monitoring measures Coochin Hills grevillea response to management and informs future management actions.
2. Research improves biological and ecological knowledge and management of the Coochin Hills grevillea.
3. Threats that impact Coochin Hills grevillea populations and its habitat are managed, and populations have increased by 2035.
4. Improve engagement with the local community to increase support for the conservation of the Coochin Hills grevillea.

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.

The Coochin Hills grevillea occurs on the traditional lands of the Kabi Kabi Peoples Aboriginal Corporation. Consultation with the Kabi Kabi Peoples Aboriginal Corporation will occur as soon as practicable including ascertaining the cultural significance of Coochin Hills grevillea.

SPECIES BACKGROUND

Conservation Status

The status of the Coochin Hills grevillea is shown in Table 1.

Table 1. Status of the Coochin Hills grevillea

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

The International Union for Conservation of Nature Red List of Threatened Species has listed the species as Endangered (IUCN 2020) with a declining population trend.

Taxonomy and Description

The Coochin Hills grevillea, *Grevillea hodgei* (Proteaceae:Grevilleodeae) (Olde & Marriott 1994) is an erect shrub 1-4 m tall with leaves 6-19 cm long, deeply divided into 6-14 parallel, linear lobes each 5-12 cm long and 1.5-2.8 mm. Confloresence is simple, 20-80mm long, erect and cylindrical with creamy-yellow flowers that have dense brown hairs. Follicles are hairy and 13-14 mm long. The species is similar to *G. whiteana* but has shorter confloresences (20-80 mm rather than 80-120mm), shorter pistils (26-35 mm rather than 43-46 mm) and more abundant and persistent rusty-brown hairs on the outer perianth (Makinson 2000).

Biology and Ecology

Flowering occurs all year but peaks in March and October (Makinson 2000, Silcock et al. 2021). Flowers provide a food source for nectarivorous birds and arboreal mammals, which are likely pollinators of the species (Silcock et al. 2021) and it is believed to be a facultative outbreeder (i.e. can be open pollinated with other individuals but is not restricted to outbreeding). The Coochin Hills grevillea is thought to be an obligate seeder (i.e. an individual plant is killed by high-intensity fire and regenerates from seed) however, it has been observed resprouting after low intensity fire and germinating after mechanical disturbance on Rupari Hill (Silcock et al. 2021).

Generation length is unknown, however individuals can live for at least ten years and possibly much longer (Silcock et al. 2021). An action of this plan is to build knowledge of the ecology of the species including its regeneration niche. The regeneration niche is defined as the requirements sexually mature plants have for successful reproduction, dispersal, germination and seedling establishment (Grubb 1977).

Species Population and Distribution

The Coochin Hills grevillea is a narrow-range endemic species found near Beerwah in south-east Queensland (Figure 1). It is only known from two locations, Mt Coochin and Rupari Hill (Silcock et al. 2021). The estimated extent of occurrence (EOO) and area of occupancy (AOO) are calculated as 4.0 km^2 with a high certainty due to the targeted surveys in the surrounding area (Threatened Species Scientific Committee 2021).

This plan refers to the species as having been recorded at two locations with the majority of the plants protected in the Coochin Hills section of Glass House Mountains National Park, and the remaining plants found on private property at Rupari Hill, 550m east of Coochin Hills (Threatened Species Scientific Committee 2021). However, the Action Plan for Australia's Imperilled Plants (Silcock et al. 2021) identifies the species as having three subpopulations based on the number of geographic locations where the species has been recorded. Genetic investigations have not been undertaken to confirm sub-population status, and pollination between the locations cannot be ruled out due to their close proximity. As such, this plan will refer to the two locations, rather than sub-populations.

The conservation of the species at both locations is considered critical to the species long-term survival. Targeted surveys have been undertaken on surrounding mountain peaks and unrecorded populations are unlikely (Silcock et al. 2021).

No comprehensive estimate of the population size of the Coochin Hills grevillea has been undertaken, although the maximum population size has been estimated to be less than 250 plants, with 115 plants observed on the western peak and 27 plants observed on the lower slopes of the eastern peak of Coochin Hills (Silcock et al. 2021). In 2020, the Rupari Hill population consisted of 15 plants (Silcock et al. 2021). Time series monitoring has not been undertaken and the population estimates in Table 2 are taken from historical records (Silcock et al. 2021). This species occurs in the well-surveyed region of south-eastern Queensland.

Table 2. Population estimates of Coochin Hills grevillea.

Location	Number observed (year)
Mt Coochin western peak	"Abundant" (1967) / 115 (2020)
Mt Coochin eastern peak	27 (2020)
Rupari Hill	35 (2014) / 15 (2020)

Data sourced from Silcock et al. 2021.

Habitat Requirements

The Coochin Hills grevillea occurs on well-drained, skeletal, sandy loam soils amongst exposed trachyte rock outcrops (Silcock et al. 2021). At Rupari Hill it grows on mid-upper slopes in shrubby woodland where the trachyte soil meets the underlying sandstone layer and in montane heath on the summit (Silcock et al. 2021).

Suitable habitat is relatively limited at Mt Coochin, where the Coochin Hills grevillea is restricted to exposed trachyte outcrops and open grassy woodland on low slopes, rather than the more prevalent heathland and wet sclerophyll forests (Silcock at el. 2021). It is commonly associated with *Allocasuarina littoralis*, *Lophostemon suaveolens*, *Corymbia trachyphloia* and *Xanthorrhoea latifolia* (Silcock et al. 2021). The Coochin Hills grevillea has been recorded in regional ecosystem 12.8.20 and 12.8.19 (Threatened Species Scientific Committee 2021), both of which are listed as 'Of concern' under the Queensland *Vegetation Management Act 1999*.

Current Threats

Threats to the Coochin Hills grevillea include:

- Small and restricted population
- Hybridisation with other *Grevillea* species
- Inappropriate fire regimes
- Land use
- Plant pathogens i.e. *Phytophthora* spp.

Small and restricted population

The Coochin Hills grevillea has a small and restricted population (Threatened Species Scientific Committee 2021, Silcock et al. 2021) making it vulnerable to stochastic events including frequent severe fires and prolonged drought (Threatened Species Scientific Committee 2021). This small population size and potentially low genetic diversity has the potential to result in inbreeding depression. Genomic analysis is required to increase our understanding of genetic diversity, effective population size and gene flow between the three locations. This will inform future management strategies.

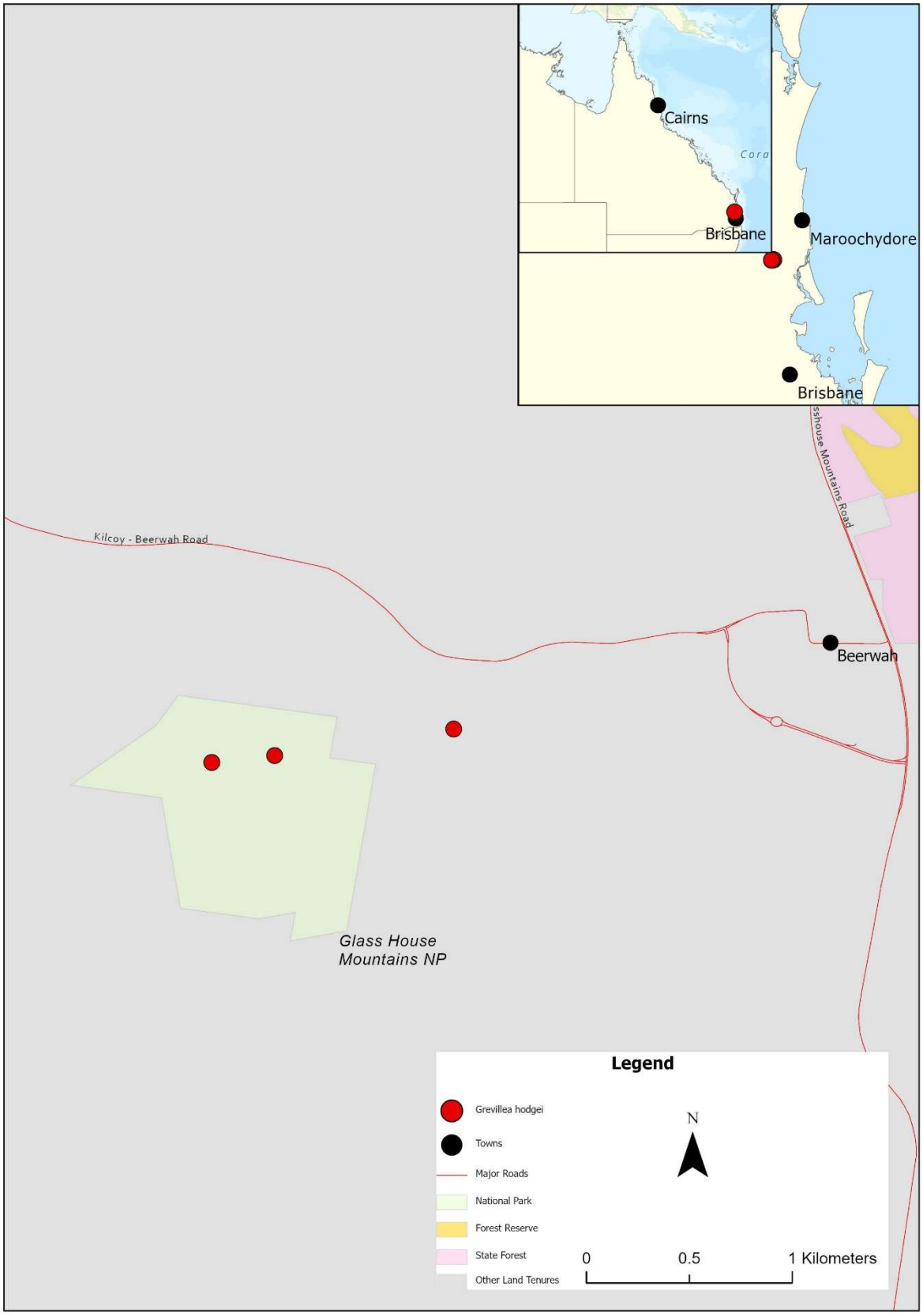

Figure 1. Distribution of Coochin Hills grevillea.

Hybridisation with other Grevillea species

Evidence of hybridisation between the Coochin Hills grevillea and the more abundant *Grevillea banksii* has been observed, with *G. banksii* and hybrids being considered weed species (Silcock et al. 2021). Mount Coochin is surrounded by residential properties with gardens that may contain other *Grevillea* cultivars and it is possible these cultivars are also hybridising with Coochin Hills grevillea (Jason Halford pers. comm. 2023). *Grevillea banksii* and *G. banksii/hodgei* hybrids may compete with the Coochin Hills grevillea for resources but more importantly they may further reduce genetic diversity of the species.

Inappropriate fire regimes

The Coochin Hills grevillea is vulnerable to inappropriate fire regimes (Threatened Species Scientific Committee 2021; Silcock et al. 2021). It is thought to be an obligate seeder (i.e. it regenerates from seed) and may be killed by moderate-high intensity fire (Silcock et al. 2021), but it has been observed resprouting following low intensity fire. The interval between fires must be long enough to ensure seed production and recruitment for the next generation (Threatened Species Scientific Committee 2021). Conversely, the lack of fire could result in a senescent population if fire is required for germination (Threatened Species Scientific Committee 2021). On Rupari Hill no young plants have been observed and it is unknown when this population was last exposed to fire. Mt Coochin was burnt in 2010, with plants of various age classes observed (Silcock et al. 2021). More recently, in 2022 a prescribed burn was implemented on part of Mt Coochin to stimulate further recruitment, with emerging seedlings observed in 2023 (L. Geelen, pers. comm. 2023).

The optimal fire regime, including interval between fires and required intensity to ensure the long-term survival of the Coochin Hills grevillea, needs to be determined. Due to the close proximity of existing populations, inappropriate fire regimes or adverse fire events have the potential to impact the entire population of Coochin Hills grevillea.

Land use

The Rupari Hill population of the Coochin Hills grevillea is found on private land which is zoned Limited Development (landscape residential) under the Sunshine Coast Council planning scheme. Future urban development of this property is possible. Ongoing infrastructure maintenance located at the summit of Rupari Hill has impacted the Coochin Hills grevillea population through the clearing of individual plants and unintentional spraying of seedlings through weed control work (Silcock et al. 2021).

Plant pathogens

Phytophthora spp. (commonly *Phytophthora cinnamomi*) is a water-mould soil pathogen that causes the dieback of many species of plants (Shearer et al. 2013). Many genera in the Proteaceae family, including *Grevillea*, are susceptible to the impacts of phytophthora (Shearer et al. 2013), although it is unknown if the Coochin Hills grevillea is susceptible. Once phytophthora becomes established at a site it is impossible to eradicate in natural environments, with the only treatment being the application of phosphite, which can have unintended impacts (Boulle et al. 2023). *Phytophthora* has been recorded at Mt Coochin by a detection dog (S. Cosgrove, pers. com. 2024) but has not been confirmed through laboratory analysis and its effect on the Coochin Hills grevillea remains unknown. No investigations for Phytophthora have been made at Rupari Hill.

Potential Threats

Other potential threats to the species include, but are not limited to:

- Weed invasion.
- Human impacts.
- Climate change.

The impact of these potential threats is not well understood and there is limited evidence to support specific threat-based management actions that would improve recovery for the Coochin Hills grevillea. A

brief description of the current observations or knowledge on these threats is provided below and will be the subject of ongoing discussions or research as required.

Weed invasion: Common weed species of concern include lantana *Lantana camara* and Ochna *Ochna serrulata,* but these are not currently impacting Coochin Hills grevillea (Silcock et al. 2021). Following fire (prescribed burns and bushfire) these weed species have the potential to increase significantly.

Human impacts: Climbing of Mt Coochin is growing in popularity (Donna Haslam, QPWS&P, pers. comm. 2024). Incidental damage to Coochin Hills grevillea from people using the unauthorised walking track has been observed (Silcock et al. 2021). Damage presumably from bushwalkers, has been observed on at least one mature Coochin Hills grevillea found directly on the track. With multiple seedlings (~10) observed regenerating post fire immediately adjacent to the track's edge in October 2023 (L. Geelen pers. comm. 2023) there is potential that survival of more plants may be affected. Impacts will potentially increase, as will the number of unauthorised tracks. This unauthorised access may increase the risk of introducing/spreading pathogens (i.e. *Phytophthora* spp.) to the Glass House National Park that have the potential to impact the species.

Climate change: Predictions for south-east Queensland indicate reduced annual rainfall, increased prevalence of drought and increased average temperatures in the region (CSIRO 2020), which could have multiple effects on the Coochin Hills grevillea and its habitat. This combination of reduced rainfall, prevalence of drought and increased temperatures will drive increased fire-risk (CSIRO 2020). Increased regularity of bushfires have the potential to negatively impact the Coochin Hills grevillea, along with prescribed fire where intervals between fires are too short (Threatened Species Scientific Committee 2021). The fire intensity required to promote the germination of the Coochin Hills grevillea is unknown and high or catastrophic intensity bushfires, may have the potential to kill plants and prevent seed germination.

Threat Assessment

Each 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:

Very High – immediate mitigation action required
High – mitigation action and an adaptive management plan required, the precautionary principle should be applied
Moderate – obtain additional information and develop mitigation action if required
Low – monitor the threat occurrence and reassess threat level if likelihood or consequences change

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

Table 3. Threats to Coochin Hills grevillea including the extent and risk of the threat.

Likelihood of occurrence	Consequences				
	Not significant	Minor	Moderate	Major	Catastrophic
Almost certain				**Small and restricted population**	
Likely				**Inappropriate fire regimes** **Hybridisation**	
Possible				**Land use** **Plant pathogens**	
Unlikely					
Rare or unknown					

Previous and current conservation and management actions

The species has a Conservation Advice (Threatened Species Scientific Committee 2021). Management actions have also been identified by Silcock et al. (2021). The Glass House Mountains National Park Management Statement (Department of National Parks, Recreation, Sport and Racing 2013) recognises the Coochin Hills grevillea as one of twenty-three plant species of conservation significance recorded on the park.

A prescribed burn was implemented on Mount Coochin in 2022, along with follow up weed management works, to promote the regeneration of the Coochin Hills grevillea.

RECOVERY STRATEGY

This Recovery Action Plan guides recovery actions for the Coochin Hills grevillea for the next 10 years.

Vision

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

By 2035, populations of the Coochin Hills grevillea are secure at all locations with an increased population size, improved habitat condition and a reduction of threats. Its value in the landscape is recognised by the local community through active involvement in the species management and recovery.

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. These goals are for the life of the plan.

1. Population monitoring measures Coochin Hills grevillea response to management and informs future management actions.
2. Research improves biological and ecological knowledge and management of the Coochin Hills grevillea.
3. Threats that impact Coochin Hills grevillea populations and its habitat are managed, and populations have increased by 2035.
4. Improve engagement with the local community to increase support for the conservation of the Coochin Hills grevillea.

Recovery Action Table

Actions identified for the recovery of the Coochin Hills grevillea during the life of this plan are described below under each of the relevant goals and objectives. The information in the Action Table should be interpreted as follows:

Factor	Description	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
Timeframe	Expected time to implement and /or achieve the result	Very short: 1-2 years	Short: 2-5yrs	Medium: 5-10yrs

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

Potential Contributors[2] - Identify who leads the action (L). Other contributors (C) are also identified where possible

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.

Recovery Action Tables for the Coochin Hills grevillea that list the goals, objectives, performance indicators and actions for the duration of the plan.

Goal 1: Population monitoring measures Coochin Hills grevillea response to management and informs future management actions.

Objective 1.1: By 2035, the response of Coochin Hills grevillea to management actions is understood and trends in the population have been assessed.

Performance indicators

- Scientifically robust monitoring has been implemented for Coochin Hills grevillea.
- Population trends have been assessed for each location and reported to land managers.
- Current and emerging threats are identified and addressed.

Action	Priority	Indicative cost	Timeframe	Potential Contributors
1.1.1 Develop population, habitat and threats monitoring plan and commence implementation by June 2025.	1	$10,000s	1	DETSI-TSO (L), QPWS (C), CG (C), QHBS (C)
1.1.2 As sufficient data is collected, undertake analysis to increase understanding of trends in populations and status of threats.	3	$1,000s	2	DETSI-TSO (L), QPWS (C), QHBS (C)
1.1.3 Periodically review management actions based on observed population trends.	3	$1,000's	3	DETSI-TSO (C), QPWS (C), QHBS (C)

Goal 2: Research improves biological and ecological knowledge and management of the Coochin Hills grevillea.

Objective 2.1: Research to improve our understanding of the life history, ecology, threats and germination requirements of the Coochin Hills grevillea has been undertaken by 2035.

Performance indicators

- Reproductive biology, including population age structure, generation length, time to reproductive maturity and germination requirements are well understood and inform management.
- Conservation genetics of Coochin Hills grevillea are well understood and informs management responses.
- Optimal fire regimes for Coochin Hills grevillea are understood and inform the management of its habitat.
- The risk of *Phytophthora* spp. to Coochin Hills grevillea is understood and informs management response.

Action	Priority	Indicative cost	Timeframe	Potential Contributors
2.1.1 Undertake research to document population age structure, conservation genetics, reproductive strategies (including seed production and viability and germination requirements) and responses of the Coochin Hills grevillea to fire by 2030.	1	$10,000s	1	RI (L), DETSI-TSO (C), QHBS (C)
2.1.2 Incorporate research findings into management strategies, including fire management, genetic conservation and other threat mitigation strategies, for Coochin	1	$1,000's	2	QPWS (L), DETSI-TSO (C)

Hills grevillea and its habitat on Glasshouse Mountains National Park by 2033.				
2.1.3 Confirm the presence/absence of *Phytophthora* spp. through laboratory analysis on Mt Coochin and Rupari Hill.	1	$100's	2	DESTI – TSO (L), QPWS (C), RI (C), SCC (C)
2.1.4 Determine the impacts of *Phytophthora* spp. on Coochin Hills grevillea through field investigations and nursery trials.	2	$1,000's	2	DETSI – TSO (L), RI (C), QPWS (C)

Goal 3: Threats that impact Coochin Hills grevillea populations and habitat are managed, and populations have increased by 2035.

Objective 3.1: Reduce the impact of inappropriate fire regimes and unplanned bushfires on Coochin Hills grevillea populations and habitat in the Glass House Mountains National Park by 2035.

Performance indicators

- Bushfire is prevented from impacting Coochin Hills grevillea populations.
- Ongoing monitoring identifies recruitment and increased population size of Coochin Hills grevillea.

Action	Priority	Indicative cost	Timeframe	Potential Contributors
3.1.1 Implement fire management zones and activities, including low intensity prescribed burning in and around suitable habitat for the Coochin Hills grevillea.	1	$10,000's	1	QPWS (L), DETSI-TSO (C)
3.1.2 Undertake post-fire monitoring of the Coochin Hills grevillea and share reports with stakeholders.	2	$1000's	2	QPWS (L), RI (C), CG (C)

Objective 3.2: Reduce the threat of hybridisation with *Grevillea banksii* to populations of Coochin Hills grevillea by 2035.

Performance indicators

- The number of *G. banksii* and *G. hodgei/G. banksii* hybrids on the Coochin Hills section of Glass House Mountains National Park and adjoining properties has reduced in abundance from 2023 levels.

Action	Priority	Indicative cost	Timeframe	Potential Contributors
3.2.1 Use genomic analysis to determine extent of hybridisation to respond appropriately and inform removal of hybrids.	1	$10,000's	1	DETSI-TSO (L), QPWS (C), QHBS (C)
3.2.2 Develop a field identification guide for *G. hodgei, G. banksii* and hybrids to support removal of *G. banksii* and hybrids from areas with Coochin Hills grevillea and share with the community through key stakeholders.	2	$1000's	2	DETSI-TSO (L), QPWS (C), SCC (C)
3.2.3 Remove *G. banksii* and hybrids from the Coochin Hills section of Glass House Mountains National Park.	2	$1000's	1	QPWS (L)

Objective 3.3: Reduce impacts of infrastructure maintenance and land use on Coochin Hills grevillea populations located on private land by 2035.

Performance indicators

- Coochin Hills grevillea populations on private land are stable or increase.

Action	Priority	Indicative cost	Timeframe	Potential Contributors
3.3.1 Engage with landholders and infrastructure managers to reduce and mitigate impacts of community infrastructure (including maintenance activities) on Coochin Hills grevillea population on Rupari Hill.	2	$100's	2	SCC (C), DETSI-TSO (C), DETSI (C)
3.3.2 Identify options to provide long-term protection to Coochin Hills grevillea found on private land.	2	$10,000's	2	SCC (L), DETSI-TSO (C), DETSI (C)

Goal 4: Improve engagement with the local community to increase support for the conservation of the Coochin Hills grevillea.

Objective 4.1: Increase the profile of Coochin Hills grevillea in the local community by 2030.

Performance indicators

- Increase in the number of local community members actively involved in, or supporting, the recovery of the Coochin Hills grevillea.

Action	Priority	Indicative cost	Timeframe	Potential Contributors
4.1.1 Use various media opportunities to promote the conservation value of the Coochin Hills grevillea.	3	$100's	1	QPWS (L), SCC (C), DETSI-TSO (C)
4.1.2 Identify opportunities for community participation (e.g. weed management, population monitoring, removal of *G. banksii*) in the recovery of the Coochin Hills grevillea and engage the community where appropriate.	3	$1000's	2	QPWS (L), SCC (C), DETSI-TSO (C)

EVALUATION AND REVIEW

The plan will be implemented as resources allow by the relevant parties listed in the Recovery Action Table. A working group or recovery team may be established to support the implementation of actions and reporting of recovery outcomes.

Performance indicators are used to evaluate progress toward meeting the objectives. A comprehensive review of the extent to which actions have been delivered and progress made towards the goals of the plan will be undertaken after five years, and again at the completion of the plan. More frequent reviews may be undertaken if actions or research/learnings highlight a need. The evaluation findings will inform future implementation and improve program effectiveness.

All actions have been prioritised based on their benefit to the species, their likelihood of success and their cost. 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.

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

REFERENCES

Boulle, M, Stewart, BA and Barrett, S 2023 'To spray or not to spray: Impact of phosphite spraying for *Phytophthora cinnamomi* control on Proteaceae species in southwestern Australia', *Conservation Science and Practice*, 5 (3) https://doi.org/10.1111/csp2

CSIRO 2020 https://www.climatechangeinaustralia.gov.au/en/projections-tools/regional-climate-change-explorer/super-clusters/?current=ESC&tooltip=true&popup=true Accessed 3 November 2022.

Department of National Parks, Recreation, Sport and Racing 2013 Glass House Mountains National Park Management Statement 2013 Glass House Mountains National Park Management Statement 2013 (des.qld.gov.au) accessed June 2022.

Grubb, PJ 1977 '*The maintenance of species richness in plant communities: the importance of the regeneration niche*', *Biological Reviews,* 52, 107–145.

IUCN 2020 *Grevillea hodgei*. https://www.iucnredlist.org/species/113020671/113309405. Accessed June 2022

IUCN Standards and Petitions Committee. 2019. Guidelines for Using the IUCN Red List Categories and Criteria, Version 14, Prepared by the Standards and Petitions Committee. http://www.iucnredlist.org/documents/RedListGuidelines.pdf

Makinson, RO 2000 *Grevillea* In 'Flora of Australia Volume 17A, Proteaceae 2, *Grevillea'*, Eds. A.E Orchard, H.S Thompson, P.M McCarthy, A.J.G Wilson, pp. 101. ABRS/CSIRO, Melbourne.

Olde, PM and Marriott, NR 1994 New names and combinations in Grevillea (Proteaceae:Grevilleoideae), *The Grevillea Book* 1: 185.

Shearer, BL, Crane, CE, Cochrane, JA and Dunne, CP 2013 'Variation in susceptibility of threatened flora to *Phytophthora cinnamomi*', *Australasian Plant Pathology*, 42, pp. 491-502.

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

Threatened Species Scientific Committee 2021 Conservation Advice Grevillea hodgei Coochin Hills grevillea. Department for Energy, Climate Change, Environment and Water, Canberra environment.gov.au/biodiversity/threatened/species/pubs/68250-conservation-advice-08122021.pdf

APPENDIX 1: Statement of Co-Benefit

Several other flora species listed under the NCA have been recorded in the Mt Coochin section of the Glass House Mountains National Park. These actions listed above are likely to have positive outcomes for these listed species. None of these species have a Recovery Action Plan, Conservation Advice or Recovery Plan.

Species	NCA	EPBC Act	Mt Coochin	Rupari Hill
Aggreflorum luehmannii	Vulnerable		✓	
Gonocarpus effusus	Vulnerable		✓	
Styphelia recurvisepala	Endangered		✓	✓
Eucalyptus kabiana	Vulnerable	Vulnerable	✓	
Allocasuarina filidens	Vulnerable		✓	
Coleus torrenticola	Vulnerable	Endangered		✓
Eucalyptus curtisii	Near Threatened		✓	✓

The following Regional Ecosystems listed under the Queensland *Vegetation Management Act 1999* as 'Of concern' occur in the Mt Coochin section of the Glass House Mountains National Park:

- 12.8.19 Heath and rock pavement with scattered shrubs or open woodland on Cainozoic igneous hills and mountains
- 12.8.20 Shrubby woodland with *Eucalyptus racemosa* subsp. *racemosa* or *E. dura* on Cainozoic igneous rocks