



Department of
Parks and Wildlife



Interim Recovery Plan No. **373**

***Grevillea* sp. Gillingarra (R.J. Cranfield 4087)**

**Interim Recovery Plan
2016–2021**



Department of Parks and Wildlife, Western Australia

December 2016

List of Acronyms

The following acronyms are used in this plan:

BGPA	Botanic Gardens and Parks Authority
CITES	Convention on International Trade in Endangered Species
CR	Critically Endangered
CWDTFRT	Central Wheatbelt District Threatened Flora Recovery Team
DAA	Department of Aboriginal Affairs
DPaW	Department of Parks and Wildlife (Parks and Wildlife)
DRF	Declared Rare Flora
EN	Endangered
EPBC	Environment Protection and Biodiversity Conservation
IBRA	Interim Biogeographic Regionalization for Australia
IRP	Interim Recovery Plan
IUCN	International Union for Conservation of Nature
NRM	Natural Resource Management
PICA	Public Information and Corporate Affairs
PEC	Priority Ecological Community
PTA	Public Transport Authority
RP	Recovery Plan
SCB	Species and Communities Branch
SWALSC	South West Aboriginal Land and Sea Council
TEC	Threatened Ecological Community
TFSC	Parks and Wildlife Threatened Flora Seed Centre
TPFL	Threatened and Priority Flora Database
UNEP-WCMC	United Nations Environment Program World Conservation Monitoring Centre
WA	Western Australia

Foreword

Interim Recovery Plans (IRPs) are developed within the framework laid down in Department of Parks and Wildlife Corporate Policy Statement No. 35 (DPaW 2015a) and Department of Parks and Wildlife Corporate Guideline No. 35 (DPaW 2015b). Plans outline the recovery actions that are required to urgently address those threatening processes most affecting the ongoing survival of threatened taxa or ecological communities, and begin the recovery process.

Parks and Wildlife are committed to ensuring that Threatened taxa are conserved through the preparation and implementation of Recovery Plans (RPs) or IRPs, and by ensuring that conservation action commences as soon as possible and, in the case of Critically Endangered (CR) taxa, always within one year of endorsement of that rank by the Minister.

This plan will operate from December 2016 to November 2021 but will remain in force until withdrawn or replaced. It is intended that, if *Grevillea* sp. *Gillingarra* (R.J. Cranfield 4087) is still listed as Threatened in Western Australia following five years of implementation, this plan will be reviewed and the need for further recovery actions assessed.

This plan was given regional approval on 29 November 2016 and was approved by the Director of Science and Conservation on 20 December 2016. The provision of funds identified in this plan is dependent on budgetary and other constraints affecting the Department of Parks and Wildlife, as well as the need to address other priorities.

Information in this plan was accurate at December 2016.

Plan preparation. This plan was prepared by:

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Acknowledgments. The following people provided assistance and advice in the preparation of this plan:

Andrew Crawford	Principal Technical Officer, Threatened Flora Seed Centre (TFSC), Department of Parks and Wildlife Science and Conservation Division
Fred and Jean Hort	Department of Parks and Wildlife volunteers
Bree Phillips	Flora Conservation Officer, Department of Parks and Wildlife, Central Wheatbelt District
Amanda Shade	Assistant Curator (Nursery), Botanic Gardens and Parks Authority (BGPA)

Thanks also to the staff of the Western Australia Herbarium for providing access to Herbarium databases and specimen information, and other Parks and Wildlife Species and Communities staff for assistance in developing this plan.

Cover photograph by Andrew Crawford.

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Summary

Scientific name:	<i>Grevillea</i> sp. Gillingarra (R.J. Cranfield 4087)	Shire:	Victoria Plains
Family:	Proteaceae	NRM region:	Northern Agricultural
Common name:	none	IBRA region:	Jarrah Forest
Flowering period:	Winter–Spring	IBRA subregion:	Northern Jarrah Forest JAF01
DPaW region:	Wheatbelt	Recovery team:	Central Wheatbelt District Threatened Flora Recovery Team
DPaW district:	Central Wheatbelt		

Distribution and habitat: *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) is known from one population south of Gillingarra, growing in clay soil on laterite along ephemeral creek banks in species-rich kwongan.

Habitat critical to the survival of the species, and important populations: *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) is listed as Threatened in Western Australia and it is considered that all known habitat for the single known population is critical to the survival of the species, and that the known population is an important population. Habitat critical to the survival of *G.* sp. Gillingarra includes the area of occupancy of the population and areas of similar habitat surrounding the population (these providing potential habitat for population expansion and for pollinators). It may also include additional occurrences of similar habitat that may contain undiscovered populations of the species or be suitable for future translocations, and the local catchment for the surface and/or groundwater that maintains the habitat of the species.

Conservation status: *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) was listed as specially protected under the Western Australian *Wildlife Conservation Act 1950* on 6 November 2012. It is ranked as Critically Endangered (CR) in Western Australia under International Union for Conservation of Nature (IUCN 2001) criterion D on the basis of the population size estimated to number fewer than 50 mature individuals. The area of occupancy has been estimated at 850m². The species is not listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Threats: The main threats to the species are rail maintenance, weeds, fire, small population size, insecure land tenure, poor recruitment and drought.

Existing recovery actions: The following recovery actions have been or are currently being implemented and have been considered in the preparation of this plan:

1. Land managers have been notified of the location and threatened status of *Grevillea* sp. Gillingarra (R.J. Cranfield 4087). Notifications detail the current DRF status of the species, the associated legal obligations in regards to its protection, and contact details for management assistance.
2. Declared Rare Flora (DRF) markers have been installed on the rail reserve at Population 1.
3. A collection of 205 seeds made in late 2013 is stored in the Department's Threatened Flora Seed Centre (TFSC) at –18°C.

Plan objective: The objective of this plan is to abate identified threats and maintain or enhance the extant population to ensure the long-term conservation of the species in the wild.

Criteria for recovery

Recovery will be considered successful if one or more of the following take place over the term of the plan.

- The single known population has remained extant and the number of mature plants within the population has remained within a 20% range or has increased by >20% from 15 to 18 or more or
- New populations have been found, increasing the number of known populations from one to two or more with no net loss of mature plants or
- The area of occupancy has increased by >10% with no net loss of mature plants.

Recovery will not be considered successful if one or more of the following take place over the term of the plan.

- The single known population has been lost or
- The number of mature plants has decreased >20% from 15 to 12 or less or
- The area of occupancy has decreased by >10%.

Recovery actions

1. Coordinate recovery actions
2. Monitor population
3. Liaise with Brookfield Rail and Aboriginal communities
4. Undertake weed control
5. Undertake surveys
6. Undertake rehabilitation works
7. Undertake taxonomic studies
8. Collect and store seed

9. Develop and implement translocations
10. Undertake regeneration trials
11. Develop and implement a fire management strategy
12. Obtain biological and ecological information
13. Map habitat critical to the survival of *Grevillea* sp. *Gillingarra* (R.J. Cranfield 4087)
14. Promote awareness
15. Review this plan and assess the need for further recovery actions

1. Background

History

Grevillea sp. Gillingarra (R.J. Cranfield 4087) was first collected from south of Gillingarra by Ray Cranfield in 1983. Despite further survey this is still the only known location for this species.

Description

Grevillea sp. Gillingarra (R.J. Cranfield 4087) is an erect, spreading, dense shrub, 50cm to 2m tall by 1 to 1.5m wide and lacks a lignotuber. The branches are terete, almost glabrous. The leaves are 1.5 to 2cm long, (3) 5 to 7 sect, the primary lobes are closely aligned, and at least basal ones usually with secondary and sometimes tertiary divisions. The lobes are linear to narrowly linear, 0.5mm wide, weakly pungent but relatively rigid. The margin is incurved-revolute to near the midvein, the upper surface is glabrous and lower surface tomentose to villous. The conflorescence is decurved, secund, 36 to 56 flowered, 4 to 5cm long and sericous. The perianth limb is red, limb pale, glabrous outside and densely pubescent in the throat inside. The pistil is 22 to 28mm long (description from Keighery 2012).

Grevillea sp. Gillingarra (R.J. Cranfield 4087) is part of the *G. thelemaniana* complex. In the past this species had been placed with *G. preisii* because of its secondary leaf divisions. However, it occurs on deep riverine clays on the Dandaragan Plateau, unlike *G. preisii* which occurs on coastal limestones. *Grevillea* sp. Gillingarra also lacks a lignotuber, is much larger, has almost glabrous stems, flowers that are glabrous on the outside, and much shorter (<2cm long) and relatively rigid leaves compared to *G. preisii*. PhD studies undertaken by Tanya Hevrov show the species is distinct from other members of the complex, and is allied to the northern *G. delta/hirtella* species group rather than *G. preisii* (Keighery 2012).

Illustrations and/or further information

Western Australian Herbarium (1998–) *FloraBase—the Western Australian Flora*. Department of Parks and Wildlife. <https://florabase.dpaw.wa.gov.au/>.

Distribution and habitat

Grevillea sp. Gillingarra (R.J. Cranfield 4087) is known from one population south of Gillingarra, growing in clay soil over laterite along ephemeral creek banks in species-rich kwongan.

Table 1. Summary of population land vesting, purpose and manager

TPFL population number & location	Parks and Wildlife district	Shire	Vesting	Purpose	Manager
1. S of Gillingarra	Central Wheatbelt	Victoria Plains	PTA	Rail reserve	Brookfield Rail

Biology and ecology

Grevillea sp. Gillingarra (R.J. Cranfield 4087) flowers during winter and spring. Pollination is by nectar feeding birds. The species lacks a lignotuber and is killed by fire. Seed is shed when mature (Keighery 2012).

Conservation status

Grevillea sp. Gillingarra (R.J. Cranfield 4087) was listed as specially protected under the Western Australian *Wildlife Conservation Act 1950* on 6 November 2012. It is ranked as Critically Endangered (CR) in Western Australia under International Union for Conservation of Nature (IUCN 2001) criterion D due to its population size estimated to number fewer than 50 mature individuals. The area of occupancy has been estimated at 850m². The species is not listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Threats

- **Rail maintenance.** Threats include grading, chemical spraying, construction of drainage channels and mowing of vegetation.
- **Weed invasion.** Weeds suppress early plant growth by competing for soil moisture, nutrients and light. They also increase the fire hazard due to the high fuel loads produced annually by many grass weed species.
- **Altered fire regimes.** Although the species is thought to regenerate from soil-stored seed following fire, there may not be enough time for recovery if the interval between fires is too short. Fire should, where possible, be prevented from occurring in the area of populations, except where it is used as a recovery action.
- **Small population size.** The small population size may result in low genetic diversity, limiting long term viability.
- **Insecure land tenure.** The species is found on land tenure that is not consistent with conservation and is of poor and deteriorating quality.
- **Poor recruitment.** Currently, there is little natural recruitment.
- **Drought.** Long term drought is a threat to the species.

The intent of this plan is to identify actions that will mitigate immediate threats to *Grevillea* sp. Gillingarra (R.J. Cranfield 4087). Although climate change may have a long-term effect on the species, actions taken directly to prevent the impact of climate change are beyond the scope of this plan.

Table 2. Summary of population information and threats

TPFL population number & location	Land status	Year / no. of plants	Condition		Threats
			Plants	Habitat	
1. S of Gillingarra	Rail reserve	1991 12 2011 12 2013 21 (12) [1] 2015 15	Healthy	Degraded	Rail maintenance, weeds, altered fire regimes, small population size, insecure land tenure, poor recruitment

Note: () = number of seedlings/juveniles; [] = number of dead; and populations in **bold text** are considered to be important populations.

Guide for decision-makers

Section 1 provides details of current and possible future threats. Actions for development and/or land clearing in the immediate vicinity of *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) may require assessment. Actions that could result in any of the following may potentially result in a significant impact on the species:

- Damage or destruction of occupied or potential habitat
- Altered fire regimes
- Reduction of pollinator habitat
- Alteration of the local surface hydrology or drainage
- Reduction in population size
- A major increase in disturbance in the vicinity of a population

Habitat critical to the survival of the species, and important populations

Grevillea sp. Gillingarra (R.J. Cranfield 4087) is listed as Threatened in Western Australia and it is considered that all known habitat for the wild population is critical to the survival of the species, and the wild population is an important population. Habitat critical to the survival of the species includes the area of occupancy of the single known population and areas of similar habitat surrounding the population (these providing potential habitat for population expansion and for pollinators). It may also include additional occurrences of similar habitat that may contain undiscovered populations of the species or be suitable for future translocations, and the local catchment for the surface and/or groundwater that maintains the habitat of the species.

Benefits to other species or ecological communities

Recovery actions implemented to improve the quality or security of the habitat of *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) will also benefit the two Declared Rare Flora (DRF) and six Priority Flora listed in the table below.

Table 3. Conservation-listed flora species occurring within 500m of *Grevillea* sp. Gillingarra

Species name	Conservation status (WA)	Conservation status (EPBC Act)
<i>Banksia serratuloides</i> subsp. <i>serratuloides</i>	DRF (CR)	CR
<i>Darwinia acerosa</i>	DRF (EN)	EN
<i>Synaphea rangiferops</i>	Priority 2	-
<i>Acacia ridleyana</i>	Priority 3	-
<i>Beaufortia eriocephala</i>	Priority 3	-
<i>Guichenotia tuberculata</i>	Priority 3	-
<i>Petrophile plumosa</i>	Priority 3	-
<i>Calothamnus pachystachyus</i>	Priority 4	-

For a description of conservation codes for Western Australian flora and fauna see https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/Listings/conservation_code_definitions.pdf

Grevillea sp. Gillingarra (R.J. Cranfield 4087) does not occur within or adjacent to any known Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs).

International obligations

This plan is fully consistent with the aims and recommendations of the Convention on Biological Diversity, ratified by Australia in June 1993, and will assist in implementing Australia's responsibilities under that Convention. The species is not listed under Appendix II in the United Nations Environment Program World Conservation Monitoring Centre (UNEP-WCMC) Convention on International Trade in Endangered Species (CITES), and this plan does not affect Australia's obligations under any other international agreements.

Aboriginal consultation

A search of the Department of Aboriginal Affairs (DAA) Aboriginal Heritage Sites Register revealed one site of Aboriginal significance occurring over the population of *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) (site #20008; Gingin Brook Waggy Site; historical, mythological, camp, hunting place, plant resource, water source; no gender restrictions). Input and involvement has been sought through the South West Aboriginal Land and Sea Council (SWALSC) and DAA to determine if there are any issues or interests with respect to management for this species. Opportunity for future Aboriginal involvement in the implementation of the plan is included as an action in the plan. Aboriginal involvement in management of land covered by an agreement under the *Conservation and Land Management Act 1984* is also provided for under the joint management arrangements in that Act, and will apply if an agreement is established over any reserved lands on which this species occurs.

Social and economic impacts

Grevillea sp. Gillingarra (R.J. Cranfield 4087) occurs on a rail reserve managed by Brookfield Rail and some social and/or economic impacts may occur through the implementation of recovery actions (controlling weeds) and restrictions imposed on the management of the land, including maintenance of rail infrastructure.

Affected interests

The implementation of this plan has some implications for Brookfield Rail.

Evaluation of the plan's performance

Parks and Wildlife, with assistance from the Central Wheatbelt District Threatened Flora Recovery Team (CWDTFRT), will evaluate the performance of this plan. In addition to annual reporting on progress and evaluation against the criteria for success and failure, the plan will be reviewed following five years of implementation.

2. Recovery objective and criteria

Plan objective

The objective of this plan is to abate identified threats and maintain or enhance the extant population to ensure the long-term conservation of the species in the wild.

Criteria for recovery

Recovery will be considered successful if one or more of the following take place over the term of the plan.

- The single known population has remained extant and the number of mature plants within the population has remained within a 20% range or has increased by >20% from 15 to 18 or more or
- New populations have been found, increasing the number of known populations from one to two or more with no net loss of mature plants or
- The area of occupancy has increased by >10% with no net loss of mature plants.

Recovery will not be considered successful if one or more of the following take place over the term of the plan.

- The single known population has been lost or
- The number of mature plants has decreased >20% from 15 to 12 or less or
- The area of occupancy has decreased by >10%.

3. Recovery actions

Existing recovery actions

Land managers have been notified of the location and threatened status of *Grevillea* sp. Gillingarra (R.J. Cranfield 4087). Notifications detail the current Declared Rare Flora (DRF) status, the associated legal obligations in regards to its protection, and contact details for management assistance.

DRF markers have been installed at Population 1. These alert people of the presence of the DRF and the need to avoid work that may damage plants or their habitat. Dashboard stickers and posters describing the significance of DRF markers have been produced and distributed.

A collection, comprising 205 seeds from 13 *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) plants made in 2013, is stored in the Department's Threatened Flora Seed Centre (TFSC) at -18°C . An additional 75 seeds were sent to the Millennium Seed Bank.

Future recovery actions

The following recovery actions are listed in approximate order of decreasing priority, influenced by their timing over the term of the plan however, this should not constrain addressing any recovery action if funding is available and other opportunities arise. Where recovery actions are implemented on lands other than those managed by Parks and Wildlife, permission has been or will be sought from the appropriate land managers prior to actions being undertaken.

1. Coordinate recovery actions

Parks and Wildlife with assistance from the Central Wheatbelt District Threatened Flora Recovery Team (CWDTFRT) will oversee the implementation of recovery actions for *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) and will include information on progress in annual reports.

Action:	Coordinate recovery actions
Responsibility:	Parks and Wildlife (Central Wheatbelt District), with assistance from the CWDTFRT
Cost:	\$8,000 per year

2. Monitor population

Monitoring of the population and its habitat, and any additional populations discovered during the life of this plan, should be undertaken to identify trends or potential management requirements. Population monitoring should record the health and expansion or decline in the population, and other observations such as pollinator activity or seed production. Site monitoring should include observations of grazing, habitat degradation including weed invasion, and hydrological status (flooding, drought). Specific monitoring of hydrology and activities relating to research into the biology and ecology of *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) are included in other recovery actions detailed below.

Action:	Monitor population
Responsibility:	Parks and Wildlife (Central Wheatbelt District), with assistance from the CWDTFRT
Cost:	\$8,000 per year

3. Liaise with Brookfield Rail and Aboriginal communities

Staff from Parks and Wildlife Central Wheatbelt District will liaise with Brookfield Rail to ensure the single known population of *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) is not accidentally damaged or destroyed and habitat is maintained in a suitable condition for its conservation. Consultation with the Aboriginal community will take place to determine if there are any issues or interests in areas that are habitat for the species and opportunities will be provided for Aboriginal people to be involved in implementing this plan.

Action:	Liaise with Brookfield Rail and Aboriginal communities
Responsibility:	Parks and Wildlife (Central Wheatbelt District) and Brookfield Rail
Cost:	\$4,000 per year

4. Undertake weed control

Weeds are a threat to the population and the following actions are recommended:

1. Determine which weeds are present and map them.
2. Control invasive weeds by hand removal and/or spot spraying as they first emerge.
3. Monitor the success of the treatment on weed death, and the tolerance of *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) and associated native plant species to the treatment methods.
4. Report on the method and success of the treatment.
5. Revegetate with site-specific species (in autumn) to suppress weeds.

Action:	Undertake weed control
Responsibility:	Parks and Wildlife (Central Wheatbelt District) and Brookfield Rail
Cost:	\$10,000 per year, as required

5. Undertake surveys

Surveys should be undertaken in areas of potential habitat with surveyed areas recorded and the presence or absence of the species documented to increase survey efficiency and reduce unnecessary duplicate surveys. Where possible, volunteers from the local community, Landcare groups, Wildflower Society of WA and naturalists' clubs will be encouraged to become involved.

Action:	Undertake surveys
Responsibility:	Parks and Wildlife (Central Wheatbelt District), with assistance from the CWDTFRT and volunteers
Cost:	\$10,000 per year

6. Undertake rehabilitation works

Revegetation using local plant species may be required following flooding and rail remediation works in 2011.

Action:	Undertake rehabilitation works
Responsibility:	Parks and Wildlife (Central Wheatbelt District) and Brookfield Rail
Cost:	\$10,000 in years 1, 3 and 5

7. Undertake taxonomic studies

The species requires further taxonomic studies and formal description.

Action:	Undertake taxonomic studies
Responsibility:	Parks and Wildlife (Science and Conservation Division)
Cost:	\$20,000 in years 1 and 2

8. Collect and store seed

To guard against the extinction of the natural population of *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) it is recommended that seed be collected and stored at the Parks and Wildlife TFSC. The collection should aim to sample and preserve the maximum range of genetic diversity possible by collecting from the widest range of reproductive plants.

Action:	Collect and store seed
Responsibility:	Parks and Wildlife (Central Wheatbelt District, TFSC)
Cost:	\$10,000 per year

9. Develop and implement translocations

Translocations may be required for the long term conservation of *Grevillea* sp. Gillingarra (R.J. Cranfield 4087), with the first priority being augmentation of the population and, secondly, establishment of a population in a secure location.

Information on the translocation of threatened plants and animals in the wild is provided in Parks and Wildlife Corporate Policy Statement No. 35 (DPaW 2015a), Parks and Wildlife Corporate Guideline No. 36 (DPaW 2015c) and the Australian Network for Plant Conservation translocation guidelines (Vallee *et al.* 2004). The 2004 guidelines state that a translocation may be needed when a species is represented by few populations and the creation of additional self-sustaining, secure populations may decrease its susceptibility to catastrophic events and environmental stochasticity. For small populations which may be declining in size or subject to high levels of inbreeding, successful population enhancement may increase population stability and hence long-term viability.

Depending on the characteristics of the species, Vallee *et al.* (2004) suggest a minimum viable population size estimated between 50 and 2,500 individuals will be required. Suitable translocation sites may include where the taxon occurs, where it was known to have occurred historically and other areas that have similar habitat (soil, associated vegetation type and structure, aspect etc.), within the known range of the taxon (Vallee *et al.* 2004).

All translocation proposals require endorsement by the department's Director of Science and Conservation. Monitoring of translocations is essential and will be included in the timetable developed for the Translocation Proposal.

Action:	Develop and implement translocations
Responsibility:	Parks and Wildlife (Science and Conservation Division, Central Wheatbelt District) and BGPA
Cost:	\$42,000 in years 1 and 2; and \$26,500 in years 3–5 as required

10. Undertake regeneration trials

It is thought that habitat disturbance (physical or fire) may promote recruitment of *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) and it is recommended that disturbance trials be undertaken. Permanent quadrats will be established to monitor response of the species (refer to Action 12.4).

Action:	Undertake regeneration trials
Responsibility:	Parks and Wildlife (Science and Conservation Division, Central Wheatbelt District)
Cost:	\$10,000 in years 1 and 3, \$4,000 in years 2, 4 and 5

11. Develop and implement a fire management strategy

A fire management strategy will be developed, in consultation with land managers, that recommends fire frequency, intensity and seasonality, precautions to prevent bushfire and strategies for reacting to bushfire, and the need, method of construction and maintenance of firebreaks. The risk of fire occurring in the habitat of the population will be minimised, except where it is being used to assist recovery. All data relating to fire response of the species will be entered into the Threatened Priority Flora (TPFL) fire response data base.

Action:	Develop and implement a fire management strategy
Responsibility:	Parks and Wildlife (Central Wheatbelt District) and landowners
Cost:	\$10,000 in year 1, and \$6,000 in years 2–5

12. Obtain biological and ecological information

It is recommended that research on the biology and ecology of *Grevillea* sp. Gillingarra include:

1. Identification of pollinators and their local abundance and effectiveness.
2. Seed viability.
3. Conditions necessary for natural germination.
4. Response to disturbance, competition, drought and grazing.
5. Longevity of plants, time taken to reach maturity, and minimum viable population size.

Action:	Obtain biological and ecological information
Responsibility:	Parks and Wildlife (Science and Conservation Division, Central Wheatbelt District)
Cost:	\$50,000 in years 1–3

13. Map habitat critical to the survival of *Grevillea* sp. Gillingarra

Although habitat critical to the survival of *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) is alluded to in Section 1, it has not yet been mapped and will be addressed under this action. If additional populations are located, then habitat critical to their survival will also be determined and mapped.

Action:	Map habitat critical to the survival of <i>Grevillea</i> sp. Gillingarra (R.J. Cranfield 4087)
Responsibility:	Parks and Wildlife (Species and Communities Branch (SCB), Central Wheatbelt District)
Cost:	\$6,000 in year 2

14. Promote awareness

The importance of biodiversity conservation and the protection of *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) will be promoted to the public through direct contact with land managers, and more broadly through the print and electronic media and by setting up poster displays. Formal links with local naturalist groups and interested individuals will also be encouraged.

Action:	Promote awareness
Responsibility:	Parks and Wildlife (Central Wheatbelt District, SCB, Public Information and Corporate Affairs (PICA)), with assistance from the CWDTFRT
Cost:	\$7,000 in years 1 and 2; \$5,000 in years 3–5

15. Review this plan and assess the need for further recovery actions

If *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) is still listed as Threatened at the end of the five-year term of this plan, the need for further recovery actions or a review of this plan will be assessed and a revised plan prepared if necessary.

Action:	Review this plan and assess the need for further recovery actions
Responsibility:	Parks and Wildlife (SCB, Central Wheatbelt District)
Cost:	\$6,000 in year 5

Table 4. Summary of recovery actions

Recovery action	Priority	Responsibility	Completion date
Coordinate recovery actions	High	Parks and Wildlife (Central Wheatbelt District), with assistance from the CWDTFRT	Ongoing
Monitor population	High	Parks and Wildlife (Central Wheatbelt District), with assistance from the CWDTFRT	Ongoing
Liaise with Brookfield Rail and Aboriginal communities	High	Parks and Wildlife (Central Wheatbelt District) and Brookfield Rail	Ongoing
Undertake weed control	High	Parks and Wildlife (Central Wheatbelt District) and Brookfield Rail	Ongoing
Undertake surveys	High	Parks and Wildlife (Central Wheatbelt District) with assistance from the CWDTFRT and volunteers	Ongoing
Undertake rehabilitation works	High	Parks and Wildlife (Central Wheatbelt District) and Brookfield Rail	2021
Undertake taxonomic studies	High	Parks and Wildlife (Science and Conservation Division)	2018
Collect and store seed	High	Parks and Wildlife (Central Wheatbelt District, TFSC)	2021
Develop and implement translocations	High	Parks and Wildlife (Science and Conservation Division, Central Wheatbelt District) and BGPA	2021
Undertake regeneration trials	High	Parks and Wildlife (Science and Conservation Division, Central Wheatbelt District)	2021
Develop and implement a fire management strategy	High	Parks and Wildlife (Central Wheatbelt District) and landowners	Developed by 2017 with implementation ongoing
Obtain biological and ecological information	High	Parks and Wildlife (Science and Conservation Division, Central Wheatbelt District)	2019
Map habitat critical to the survival of	Medium	Parks and Wildlife (SCB, Central Wheatbelt)	2018

<i>Grevillea</i> sp. Gillingarra		District)	
Promote awareness	Medium	Parks and Wildlife (Central Wheatbelt District, SCB, PICA), with assistance from the CWDTFRT	Ongoing
Review this plan and assess the need for further recovery actions	Medium	Parks and Wildlife (SCB, Central Wheatbelt District)	2021

4. Term of plan

This plan will operate from December 2016 to November 2021 but will remain in force until withdrawn or replaced. If *Grevillea* sp. Gillingarra (R.J. Cranfield 4087) is still listed as Threatened after five years, a review of this plan will be completed, the need for further recovery actions determined, and a revised plan prepared if necessary.

5. References

- Department of Parks and Wildlife (2015a) Corporate Policy Statement No. 35 *Conserving Threatened Species and Ecological Communities*. Perth, Western Australia.
- Department of Parks and Wildlife (2015b) Corporate Guideline No. 35 *Listing and Recovery of Threatened Species and Ecological Communities*. Perth, Western Australia.
- Department of Parks and Wildlife (2015c) Corporate Guideline No. 36 *Recovery of Threatened Species through Translocation and Captive Breeding or Propagation*. Perth, Western Australia.
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6. Taxonomic description

***Grevillea* sp. Gillingarra (R.J. Cranfield 4087)**

Description from Keighery (2012).

Erect spreading dense shrub, 50cm to 2m tall by 1–1.5m wide, lacking a lignotuber. Branches terete, almost glabrous. Leaves 1.5–2.0cm long, (3) 5–7 sect, primary lobes closely aligned, at least basal ones usually with secondary and sometimes tertiary divisions, lobes linear to narrowly linear, 0.5mm wide, weakly pungent but relatively rigid, margin incurved-revolute to near midvein, upper surface glabrous, lower surface tomentose to villous. Conflorescence decurved, secund, 36–56 flowered, 4–5cm long, sericeous. Perianth limb red, limb pale, glabrous outside, densely pubescent in throat inside. Pistil 22–28mm long.

