



# Final Report

## *Critically Endangered Project*

Prepared by the Australian Seed Bank Partnership  
for the Royal Botanic Gardens, Kew

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**Prepared by**

Bradley Desmond

Assistant Coordinator, Australian Seed Bank Partnership.

+61 2 6250 9473 / +61 418 955 661

[coordinator@seedpartnership.org.au](mailto:coordinator@seedpartnership.org.au)



## 1.0 PROJECT OVERVIEW

In 2022, a financial grant was made by the Royal Botanic Gardens, Kew (RBG) to the Australian Seed Bank Partnership (the Partnership) to support a project aimed at the recovery and overall conservation of 10 Critically Endangered (CE) Australia plant species. This includes plants listed nationally<sup>1</sup> or under Western Australian and Tasmanian state environmental legislation<sup>2</sup>.

The project ran between December 2022– December 2024 and began with pre-collection field surveys to ensure the plants could be located, to estimate the likely timing of seed set, and to determine if the population was likely to produce enough seed to make a collection. Collection trips were then undertaken to secure germplasm from target species. Where possible, partners focussed on collecting seed from species new to the Millennium Seed Bank (MSB), however, species were also collected if existing accessions required improved genetic representation, duplicates were needed to boost small collection sizes, or collections were required to replace those with declining viability. Germination trials were then completed to develop species germination protocols. Recovery and restoration activities followed after, including the use of propagules for seed production areas or translocations.

The following Partnership organisations were involved in the project:

- **BGPA** – The Western Australian Seed Centre, Kings Park, Botanic Gardens and Parks Authority.
- **DBCA** – Western Australian Seed Centre, Kensington, Department of Biodiversity, Conservation and Attractions.
- **RTBG** – Tasmania Seed Conservation Centre, Royal Tasmanian Botanical Gardens.

## 2.0 PROJECT OUTCOMES

Over the course of this two-year project, the Partnership worked across Western Australia and Tasmania to support the conservation of critically endangered target species, and other listed plants where they were found to be producing seed in the same area.

The project supported conservation of a total of 22 listed species including 16 species listed as critically endangered nationally or under state environmental legislation (Table 1). Of the 22 species, 15 were orchids, three were grevilleas, and the remaining four were comprised of a bitter pea, a eucalypt, a feather flower and a daisy.

For each project activity, the Partnership exceeded the prescribed targets including:

- securing 92 collections of 15 critically endangered taxa, as well as an additional 16 collections for 6 other listed taxa.
- Completing germination trials and establishing protocols for 12 critically endangered taxa, as well as an additional 3 protocols for 3 other listed taxa.
- Completing 10 recovery/restoration activities for 10 critically endangered taxa, as well as an additional recovery activity for one other listed taxa.

For a full summary of project targets and outcomes see Table 2. Partner-specific highlights are discussed below, and further information can be found in the accompanying data report attachment.

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<sup>1</sup> Plants listed as CE under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

<sup>2</sup> Plants listed as CE under Western Australia's *Biodiversity Conservation Act 2016*, or Tasmania's *Threatened Species Protection Act 1995*.

Table 1: Project outcomes by taxa

Taxa	National status	State status	Germplasm collection	Germination trial	Restoration/recovery
<i>Caladenia anthracina</i>	Critically Endangered	Endangered	✓		
<i>Eucalyptus morrisbyi</i>	Critically Endangered	Endangered	✓		
<i>Parapasophyllum incorrectum</i>	Critically Endangered	Endangered	✓	✓	Translocation
<i>Parapasophyllum limnetes</i>	Critically Endangered	Endangered	✓	✓	
<i>Parapasophyllum milfordense</i>	Critically Endangered	Endangered	✓		
<i>Parapasophyllum olidum</i>	Critically Endangered	Endangered	✓	✓	Seed Production Area
<i>Pterostylis commutata</i>	Critically Endangered	Endangered	✓		
<i>Pterostylis wapstrarum</i>	Critically Endangered	Endangered	✓	✓	
<i>Caladenia elegans</i>	Endangered	Critically Endangered	✓	✓	Seed Production Area
<i>Caladenia viridescens</i>	Endangered	Critically Endangered	✓	✓	Seed Production Area + living collection
<i>Daviesia euphorbioides</i>	Endangered	Critically Endangered	✓	✓	Translocation
<i>Grevillea batrachoides</i>	Endangered	Critically Endangered	✓	✓	Translocation
<i>Grevillea dryandroides</i> subsp. <i>dryandroides</i>	Endangered	Critically Endangered	✓	✓	Translocation
<i>Grevillea humifusa</i>	Endangered	Critically Endangered	✓	✓	Translocation
<i>Pterostylis sinuata</i>	Endangered	Critically Endangered	✓	✓	Seed Production Area
<i>Verticordia plumosa</i> var. <i>ananeotes</i>	Endangered	Critically Endangered		✓	Translocation
<i>Caladenia dienema</i>	Endangered	Endangered	✓		
<i>Parapasophyllum crebiflorum</i>	Endangered	Endangered	✓	✓	Seed Production Area
<i>Parapasophyllum tunbridgense</i>	Endangered	Endangered	✓	✓	
<i>Pterostylis rubenachii</i>	Endangered	Endangered	✓	✓	
<i>Pterostylis ziegeleri</i>	Vulnerable	Vulnerable	✓		
<i>Xerochrysum palustre</i>	Vulnerable	Vulnerable	✓		
<b>Total</b>	<b>22 taxa (16 CE + 6 listed)</b>		<b>21 taxa (15 CE + 6 listed)</b>	<b>15 taxa (12 CE + 3 listed)</b>	<b>11 taxa (10 CE + 1 listed)</b>

Table 2: Project outcomes by Partner institution

Project activity	Partner	Target	Outcome
Germplasm collection	BGPA	1 collection (1 CE taxa)	65 collections (3 CE taxa)
	DBCA	4 collections (4 CE taxa)	14 collections (4 CE taxa)
	RTBG	3 collections (3 CE taxa)	13 collections (8 CE taxa) + 6 collections (6 listed taxa)
<b>Total</b>		<b>8 collections (8 CE taxa)</b>	<b>92 collections (15 CE taxa) + 16 collections (6 listed taxa)</b>
Germination trial	BGPA	2 trials (2 CE taxa)	3 trials (3 CE taxa)
	DBCA	4 trials (4 CE taxa)	13 trials (5 CE taxa)
	RTBG	3 trials (3 CE taxa)	4 trials (4 CE taxa) + 3 trials (3 listed taxa)
<b>Total</b>		<b>9 trials (9 CE taxa)</b>	<b>20 trials (12 CE taxa) + 3 trial (3 listed taxa)</b>
Recovery/ Restoration	BGPA	3 seed production areas (3 CE taxa)	3 seed production areas (3 CE taxa)
	DBCA	4 translocations (4 CE taxa)	5 translocations (5 CE taxa)
	RTBG	3 seed production areas (3 CE taxa)	2 seed production areas (1 CE taxa, 1 listed taxa) + 1 translocation (1 CE taxa)
<b>Total</b>		<b>10 activities (10 CE taxa)</b>	<b>11 activities (10 CE taxa, 1 listed taxa)</b>

### 3.0 PARTNER HIGHLIGHTS

#### Tasmanian Seed Conservation Centre (RTBG)



*Parasophyllum incorrectum*  
(image: Tim Rudman, CC BY-NC 2.0 at <https://flic.kr/p/9sDgzr>)

The critically endangered Golfers leek orchid (*Parasophyllum incorrectum*) is native to damp native grassland and banksia woodland in the midlands of Tasmania. Under this project the RTBG undertook experimentation with new orchid germination media using alternate cereals as carbon sources for the mycorrhizal fungi. Traditionally oatmeal has been the primary cereal used in symbiotic propagation of terrestrial orchids. Germination media using brown rice flakes, quinoa flakes and polenta have been trialled and the resulting germination scored at six weeks. These results established a new highly effective germination protocols for *P. incorrectum* as well as six other orchid species. Germination of leek orchids to the green leaf stage in six weeks had not previously been observed at the RTBG. These seedlings have grown rapidly, many reaching dropper initiation by twelve weeks. This work, inspired by Dr Jenny Guerin from the South Australian Seed Conservation Centre, is anticipated to improve seedling survival rates once transferred into nursery.

#### The Western Australian Seed Centre, Kensington (DBCA)

*Grevillea batrachioides* is a Critically Endangered plant species known only from a single location in the Midwest region of Western Australia which currently numbers less than twenty plants in the wild. A translocation of the species commenced in 2004, with these plants growing and seeding well. Then, in 2011 a wildfire burnt through the translocation site killing all the plants. Subsequently, fifty seedlings were observed naturally recruiting in the translocation site. These seedlings were later augmented with additional, nursery grown seedlings which were planted in 2012. By 2024, 95 of these plants were known to be surviving.

In September 2024 the number of plants in the translocated population was further enhanced by the addition of 61 seedlings planted as part of the Critically Endangered Project helping ensure the long-term sustainability of this translocated population.



*Grevillea batrachioides* flowering (image: Andrew Crawford)

## The Western Australian Seed Centre, Kings Park (BGPA)



*Caladenia viridescens* seedlings in the Kings Park SPA  
(image: Belinda Davis)

The Dunsborough Spider-orchid (*Caladenia viridescens*) is listed as Critically Endangered in WA due to limited distribution, habitat fragmentation and continuing population decline. At the beginning of this project, BGPA completed germination trials for the species developing information about baseline viability and fungal efficacy, and accessioning fungal isolates in long term cryostorage. Germinants from this work were then utilised to establish a Seed Production Area (SPA) at Kings Park and Botanic Garden. In September 2024, 10 of the SPA orchids were then incorporated into pollinator surveys to identify potential translocation sites and critical habitat for the species. This aspect of the work was provided in-kind as part of Kings Parks larger orchid conservation program.

### 4.0 FINANCIAL REPORT

Grant funding was allocated to three seed bank partners under the project. All funds awarded by RBG have been spent as of December 2024 (see Table 3). In addition, the seed bank partners have leveraged a significant contribution of \$132,035.90 / £70,419.15 in in-kind support for the project.

Table 3: Project budget, expenditure, remaining funds and in-kind contributions.

Grant Award Budget	Project Expenditure to date	Total funds remaining	Partner In-kind Expenditure
\$45,000.00 <sup>#</sup>	\$45,000.00	\$0.00	\$132,035.90
£24,000.00	£24,000.00	£0.00	£70,419.15

<sup>#</sup> Due to unfavourable exchange rates at the time of project payments, the Council of Heads of Australian Botanic Gardens (CHABG) contributed \$8,268.77 (GST inclusive) in project funds to reflect the anticipated grant amount of \$45,000.00.

### 5.0 ACKNOWLEDGEMENTS

The Australian Seed Bank Partnership acknowledges the generous financial support of the Royal Botanic Gardens, Kew.

### 6.0 ATTACHMENTS

0.ASBP-Critically Endangered Project-Final Data Report