Mitigating myrtle rust threat in *Gossia* and *Decaspermum* species through innovative *ex situ* conservation techniques

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Acknowledgment of **Country**

The University of Queensland (UQ) acknowledges the Traditional Owners and their custodianship of the lands on which we meet.

We pay our respects to their Ancestors and their descendants, who continue cultural and spiritual connections to Country.

We recognise their valuable contributions to Australian and global society.

Introduction to *Decaspermum* and *Gossia*

- the Myrtaceae family
- Threatened by anthropogenic and environmental threats
- Myrtle rust—*in situ* Conservation
- 14 *Gossia* species and 2 Australian native *Decaspermum*: hosts of Myrtle rust
- *G. fragrantissima*, *G. gonoclada*, and the Australian *Decaspermum* sp.


G. gonoclada


D. struckoilicum

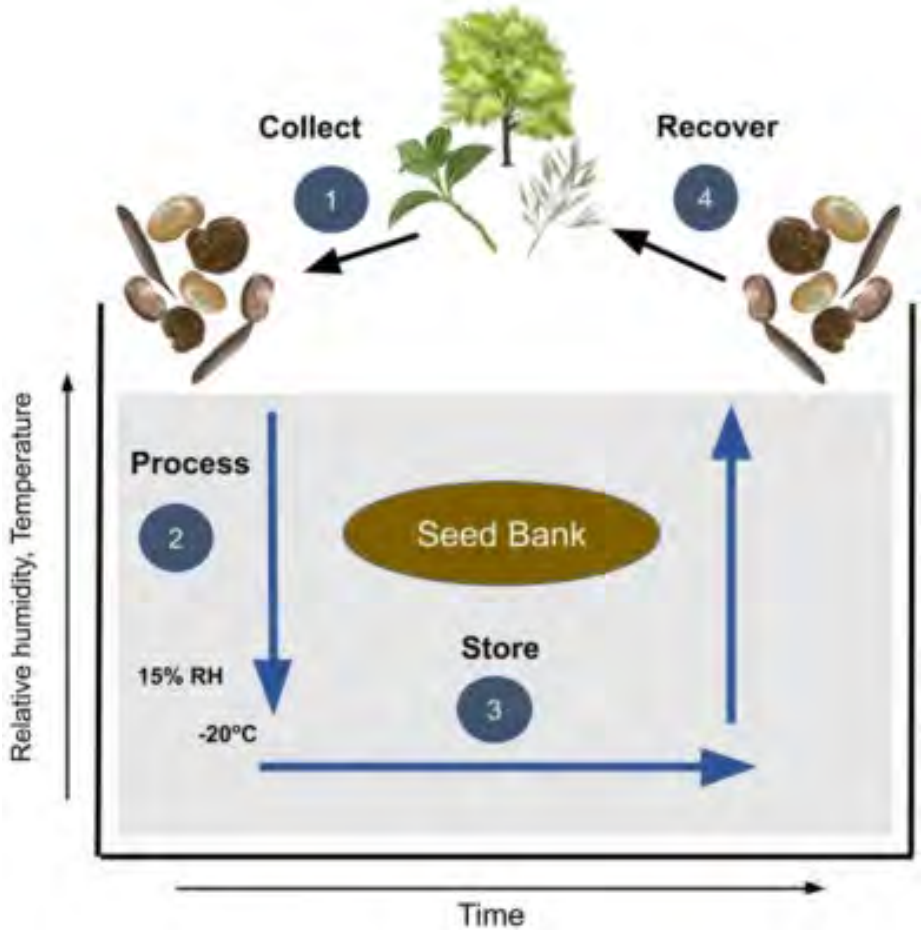

Myrtle rust on *G. gonoclada*

Species	EPBC Act	QLD	MR national action plan
G. fragrantissima	EN	EN	VERY HIGH priority
G. gonoclada	EN	CR	VERY HIGH priority
D. struckoilicum	CR	CR	-
D. humile	LC	LC	VERY HIGH priority

Ex situ conservation options

- Seedbank: non-exceptional species
- Living collections
- Tissue culture
- Cryopreservation

Exceptional species:
species with no or little seeds available, with seeds sensitive to desiccation and/or freezing (seed bank conditions), or with seeds have germination difficulties after storage



(Pence, 2022)

Tissue culture

G. fragrantissima

1) Cultures (3 accessions) provided by the Australian PlantBank

2) Basal media optimization using response surface methodology

3) Root strengthen (vermiculite+1/2 liquid basal media)

100%

G. gonoclada

Aseptic cultures established, currently trialing for multiplication

Decaspermum sp.

Spontaneous rooting

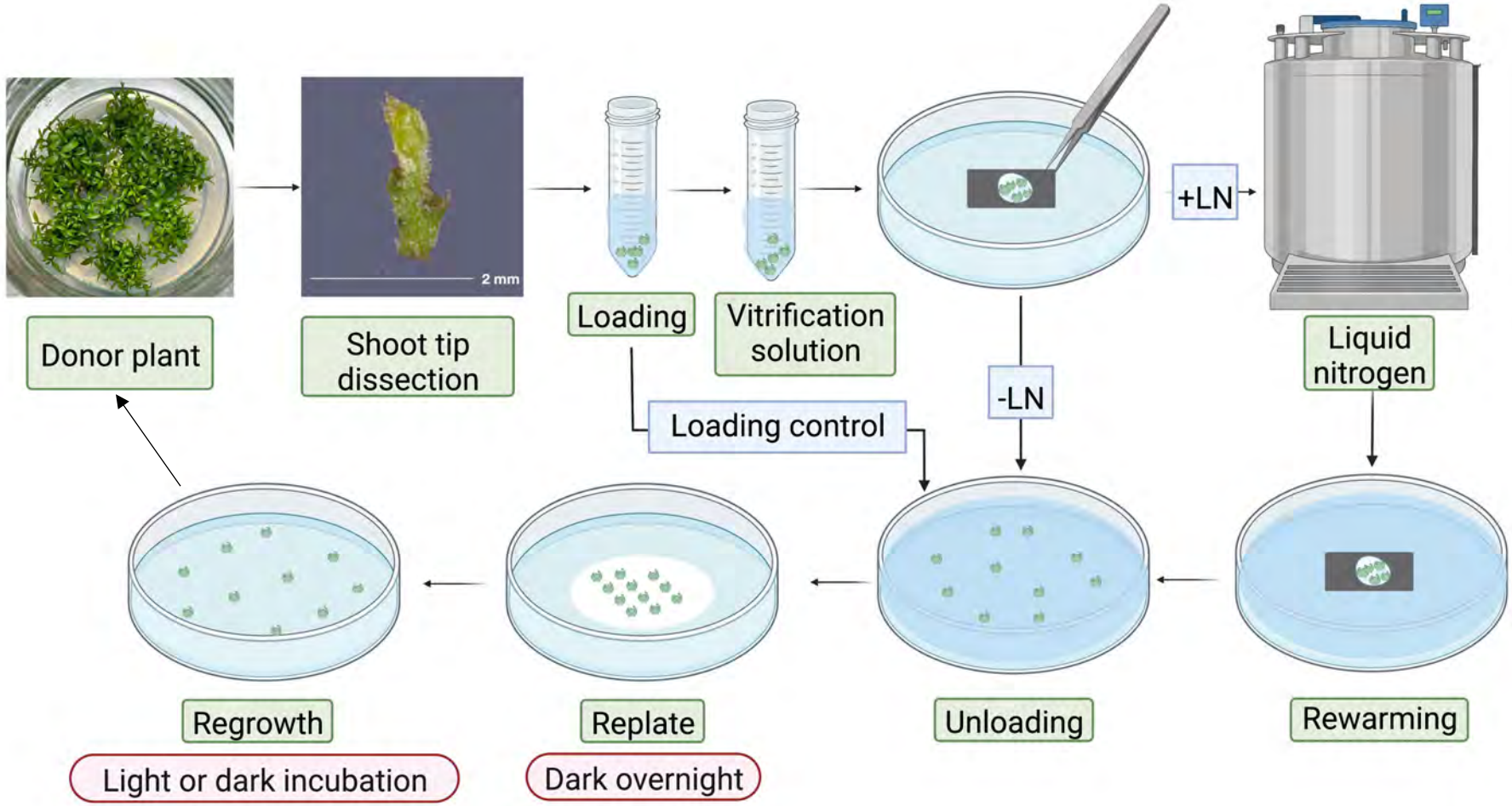
88.6%

IBA/NAA 0.25-1 mg/L

85.7%

Cedar Grove Landcare

Cryopreservation



- Apical shoot tips of *G. fragrantissima*
- 40% post-cryo regeneration

Future directions

- Continue contributing tissue culture generated plants to future revegetation programs (e.g. using genetic diverse and myrtle rust tolerant mother plants)
- Translate developed cryopreservation protocols at the Australian PlantBank (cryobanks)
- Extend *ex situ* conservation to broader threatened Myrtaceae sp.

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