

Cryopreservation Technology for A Native Australian Rainforest Species: Macadamia



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Acknowledgment of **Country**

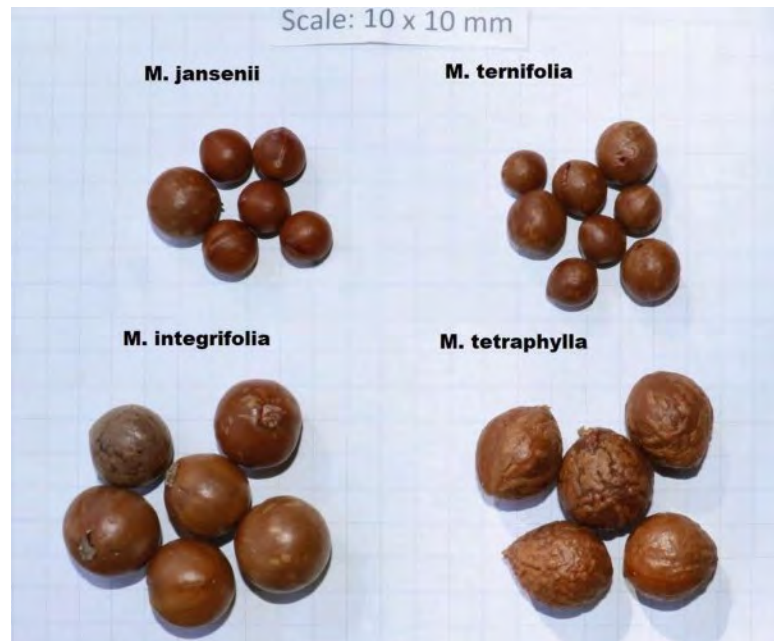
The University of Queensland (UQ) acknowledges the Traditional Owners and their custodianship of the lands on which we meet.

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

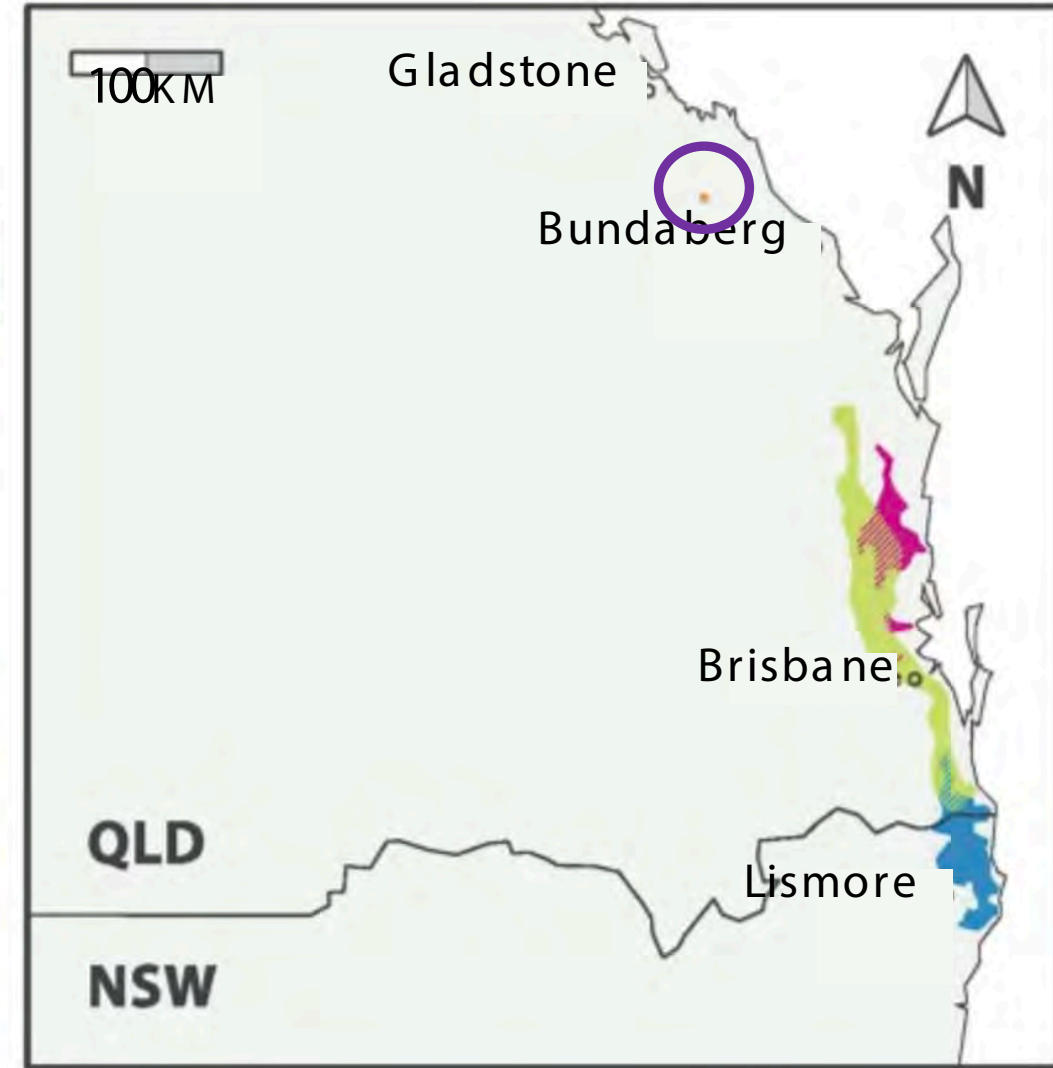
We recognise their valuable contributions to Australian and global society.



Macadamia species - (Bauple nut) – an Australian legend



- M. jansanii*
- M. ternifolia*
- M. integrifolia*
- M. tetraphylla*





Current conservation of Australian *macadamia* species



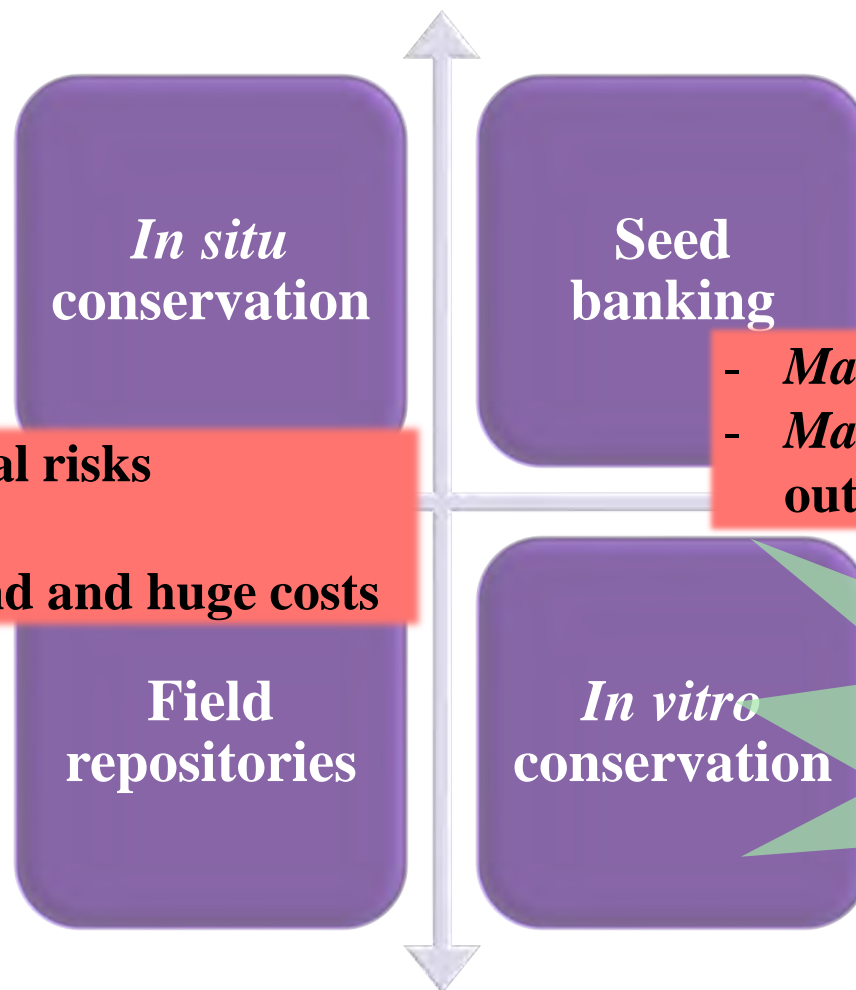
Australian Government

Australian Research Council



- Environmental risks

- Restricted land and huge costs



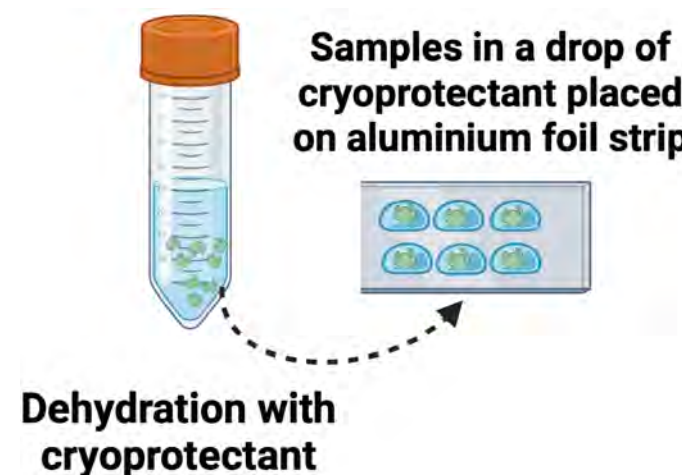
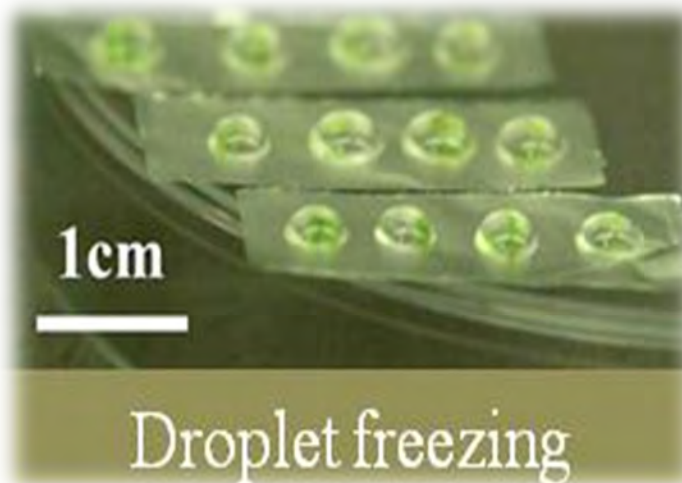
The Royal
BOTANIC GARDEN
Sydney

- *Macadamia* seed: intermediate
- *Macadamia*: open-pollinated, highly out-crossing; not true to type

**Tissue culture and
cryopreservation
are needed!**

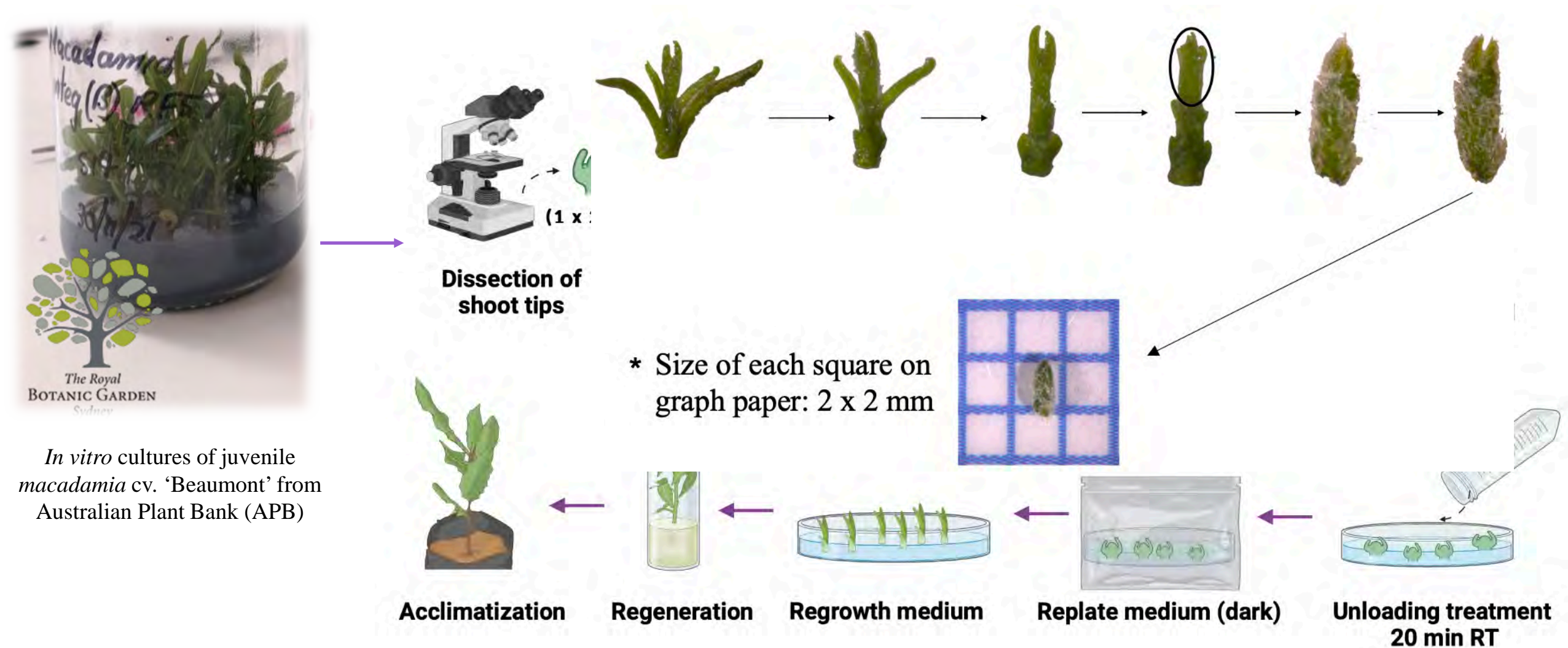
Cryopreservation - Droplet vitrification

- Storage of living materials at an ultra-low temperature (-196°C) in liquid nitrogen (LN).
- The cryopreservation protocol is commonly species-dependent or even cultivar-dependent
- Ultra-rapid cooling and rewarming of explant samples due to the ideal thermal conductivity of aluminium foil stripes





General process

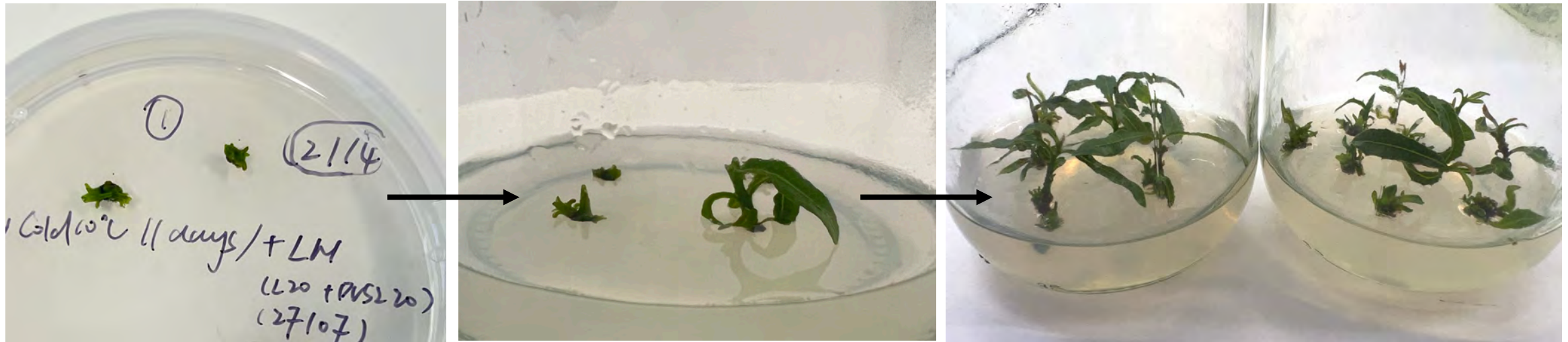


• Moving on ...+ LN experiment



* Antioxidants

* cold pretreatment and sucrose pretreatment



11-day cold pretreatment culture (Regrowth: 4.3%)