

SAVING OUR SPECIES

Unexpected and expected hurdles; managing species in a fragmented urban landscape



Acknowledgement of Country

I acknowledge the traditional custodians of the lands on which I work and show our respect for elders past, present and emerging through thoughtful and collaborative approaches to my work.



Nikita
Ridgeway



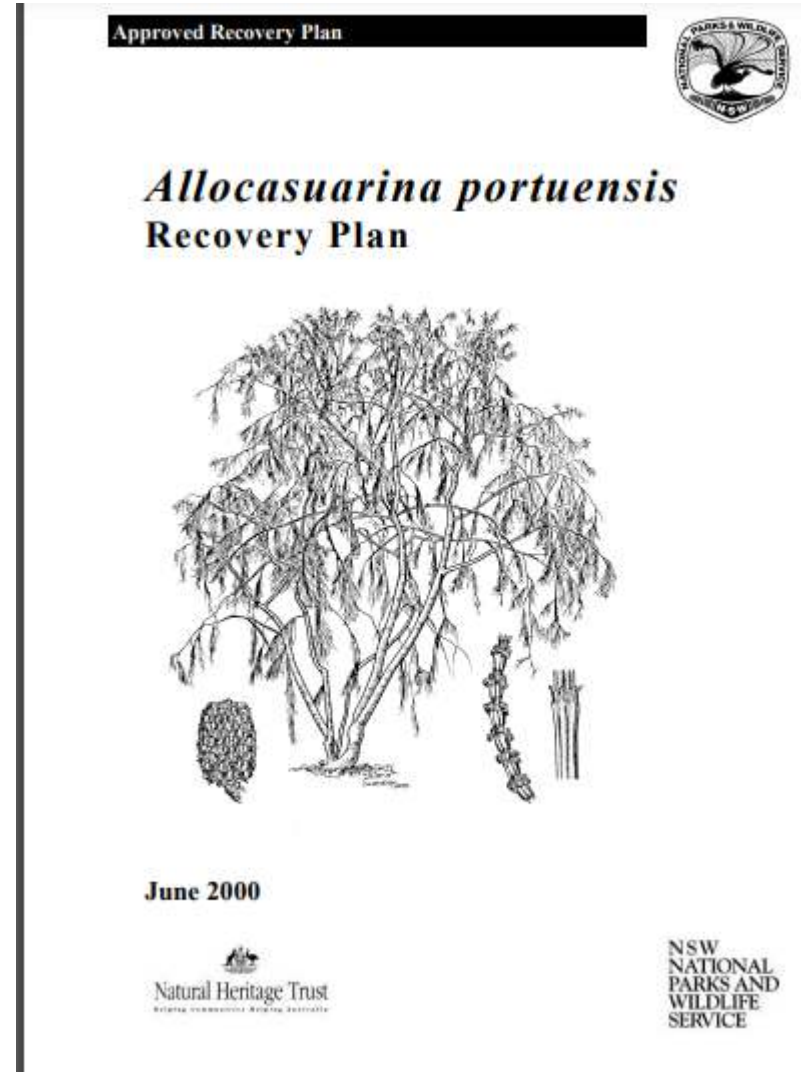
***Allocasuarina portuensis* – Nielsen Park She-oak**

- Discovered by Parks ranger Peter Brookhouse in 1986
- Only 10 plants in one small area
- Ex situ collection established at Australian Botanic Gardens
- Clones grown from plants from seeds collected
- Original plants started to die and last wild plant died in 2003



Allocasuarina portuensis – early days

- *A. portuensis* listed as a endangered species
- Recovery Team formed
- Recovery Plan written 1996-2000
- Bush regeneration begins
- Mid 1990s, plantings in Nielsen Park
- In 2000s new translocation areas – 130 plants established
- Bi-annual monitoring



1990's - now

- Numerous plantings over the years.
- No natural recruitment
- Began to wane with lack of funding
- Kick-started again 2016
- Prepared a Translocation Plan
- 100 new tube-stock planted in 2017 including across the harbour



Issues - translocation

- Where – recreational use
- Timing - key staff
- Logistics of plantings
- Lost data

Maintenance - drought

- More watering needed
- NPWS staff deployed to fires



Introducing fire

- Why
 - mescis & ash-bed for seed scattering
 - interim measure – mesic removal
- Part of translocation proposal for seed scattering post-burn
- Funded prep of burn plans to re-introduce fir
- Finally fire re-introduced
 - First burn 2021
 - Middle Head 2022
 - Second burn 2023



Issues – multi-purpose use of areas

- Park maintenance
- Park use
- Signage





The future

- Current genetic project
- 2023 -2024 new tube-stock
 - First batch planted Autumn 23
- Seed vs cutting
- Continue to explore getting germination outside nursery
- Asset of Intergeneration Significance under NP&W Act
- Fire management now in our toolbox
- Volunteers – just keep going



- More info - <https://www.plant-heroes.com/species/neilsenparksheoak>

Grevillea caleyi

- Critically endangered
- 8km radius in northern Sydney
- Highly fragmented
- 21 patches on mixed tenure
- Well researched
- Long history of management



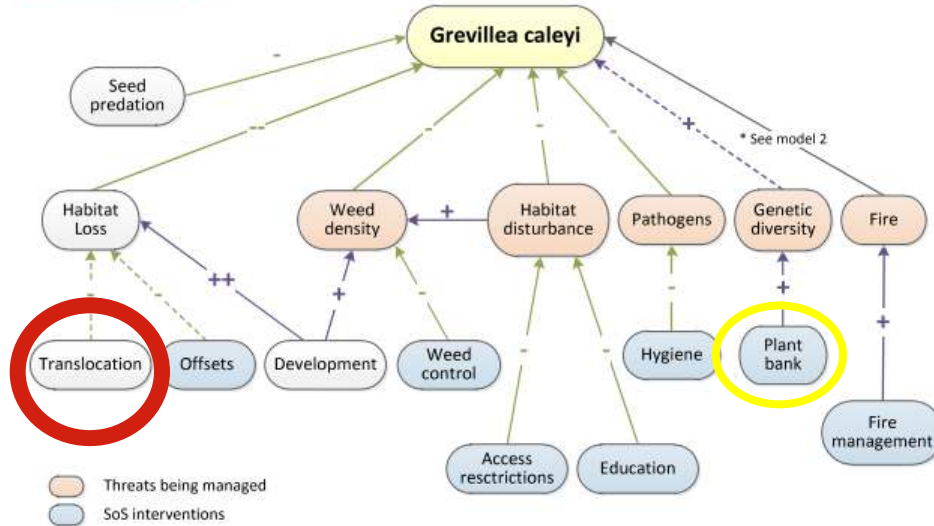
Genetic structure and diversity in the soil-stored seed bank of the endangered *Grevillea caleyi*



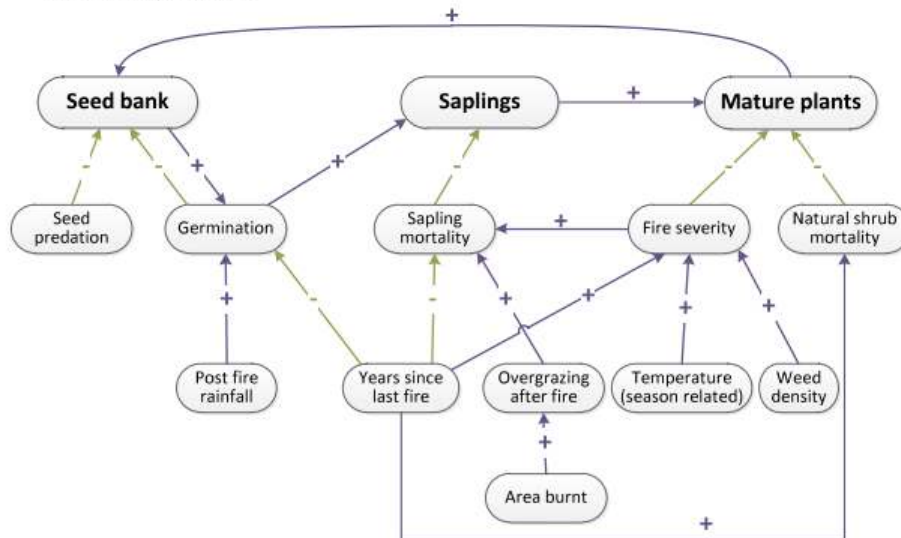
Tanya Llorens
Institute for Conservation Biology
University of Wollongong

2003

Process model



Model 2 – Response to fire



While representing the impact of fire on *Grevillea caleyi* requires the different life stages to be modelled separately, there are also several major threats that impact the species at all stages. For simplicity, two separate, complementary, models were created.

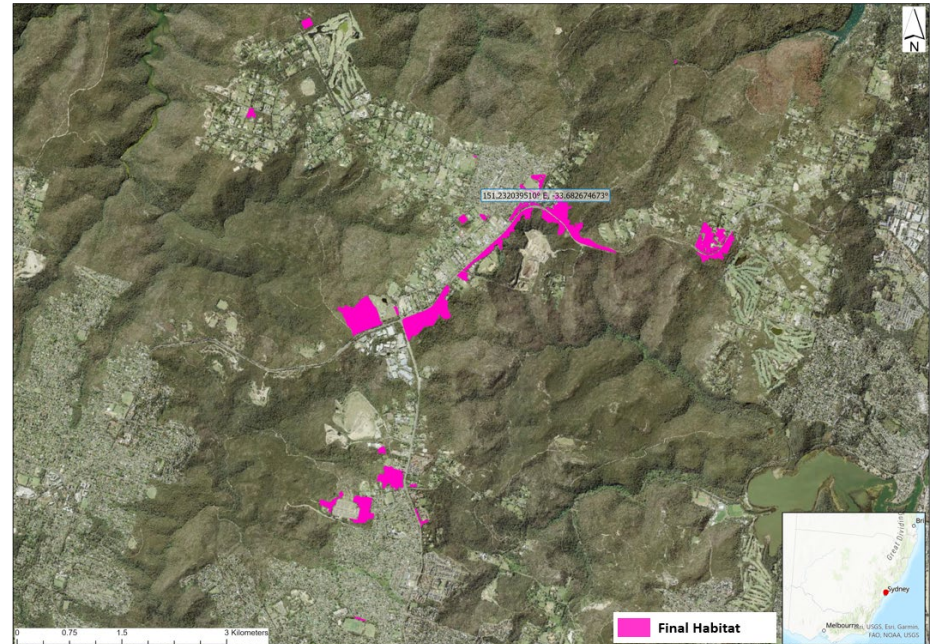


When to include conservation translocation?

In-situ works prioritised due to resource limitations

Next phase to look at conservation translations

- climate change
- on-going risk
 - small populations
 - disturbance
- continue to develop our knowledge ahead of mitigation translocations



Case study - when to move seedlings?

- 1 of the 23 sites in the National Recovery Plan
- - overhanging roadway and bridal trail so get trimmed / cleared
- Guidelines
 - size
 - risk
 - maintenance
 - outcomes



***Grevillea caleyi* -Educational translocations**

Terrey Hills Primary School – 230 students

1 of the 23 sites in the National Recovery Plan

Patch on school grounds – out of bounds for students

Two education plantings

- 2022 small area around lunch tables near remnant
- 2023 4 stage incursion program
 - Propagated friends of *G. caleyi* -seed & cuttings
 - Potted on, designed plant guards
 - Plant guard decorated
 - Planting day – included *G. caleyi* plants
- Replaced nursery grevillea's in garden beds with more appropriate species



Lessons

Collaborate with First Nations can be difficult so jump on opportunities

Building a team – volunteers, soil and genetic, disease scientists, nursery staff

Maintenance – essential, be very clear on who is doing what, have back-up plans and check

Go on site as much as possible

Risk depends on value of translocated material



Ex-situ collections, nursery knowledge, collect seed

- Collect seed, collect cuttings
- Expand living collections beyond Botanic Gardens into Council nurseries
- Set up multiple collections
- Gather knowledge about propagation

