

Introduction to Plant Translocation and Overview of the Translocation Guidelines

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Photo: D Coates

Threatened plants

- 1355 threatened flora species in Australia (EPBC)
- Conservation actions to prevent extinction:
 - Habitat protection
 - Threat management
 - Ex-situ conservation
 - Translocation



Translocation

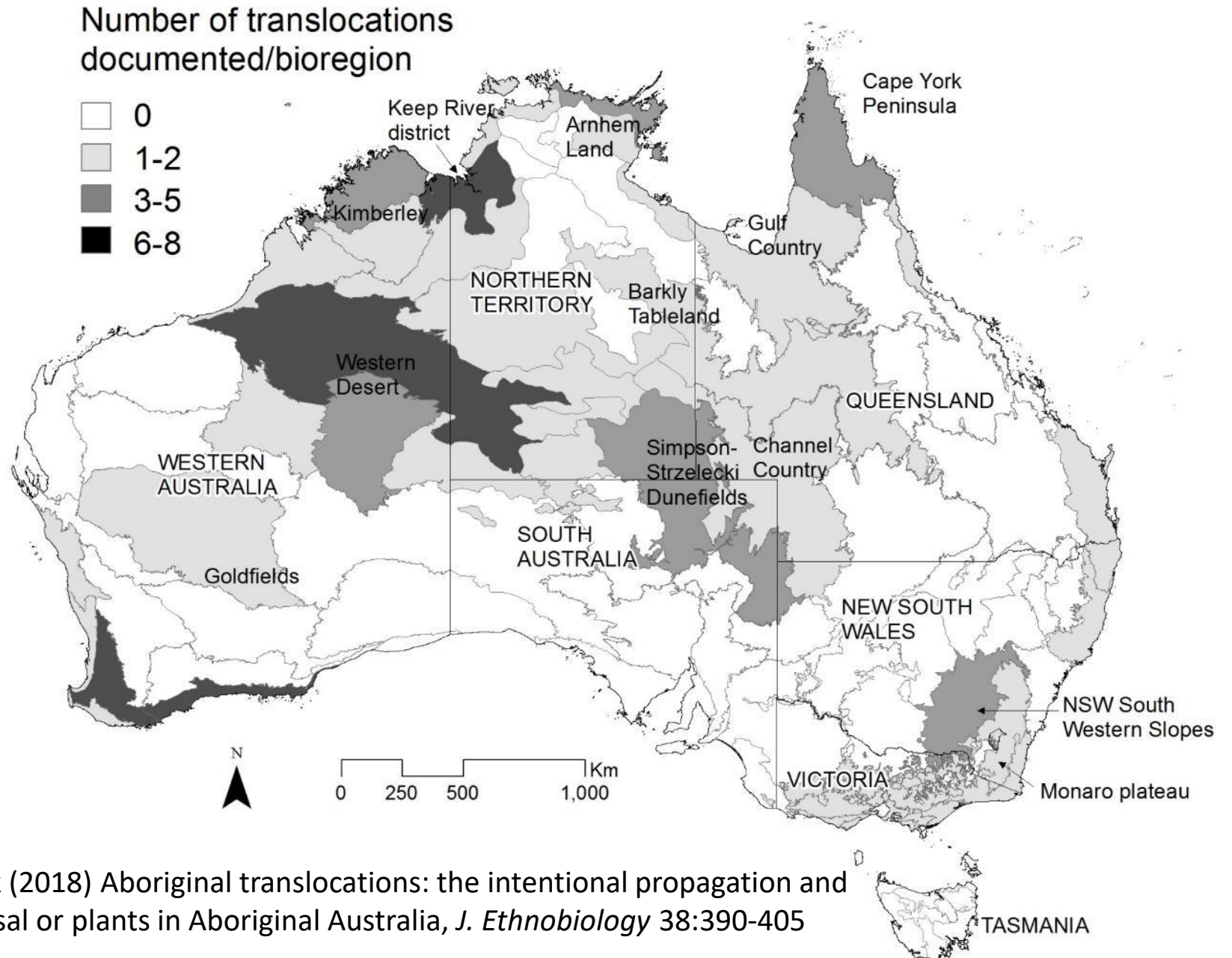
- The intentional transfer of plants or regenerative plant material from an ex situ collection or natural population to a new location.
 - Introduction
 - establish a population in a site where it has not previously occurred but is within the known range of the species
 - Reintroduction
 - establish a population in a site or habitat type where it no longer occurs (locally extinct).
 - Reinforcement (augmentation)
 - Adding individuals of a species into an existing population
 - Assisted migration
 - establish a species, for the purpose of conservation, outside its indigenous range in what is considered to provide appropriate habitat for the species based on climate change or habitat change predictions.



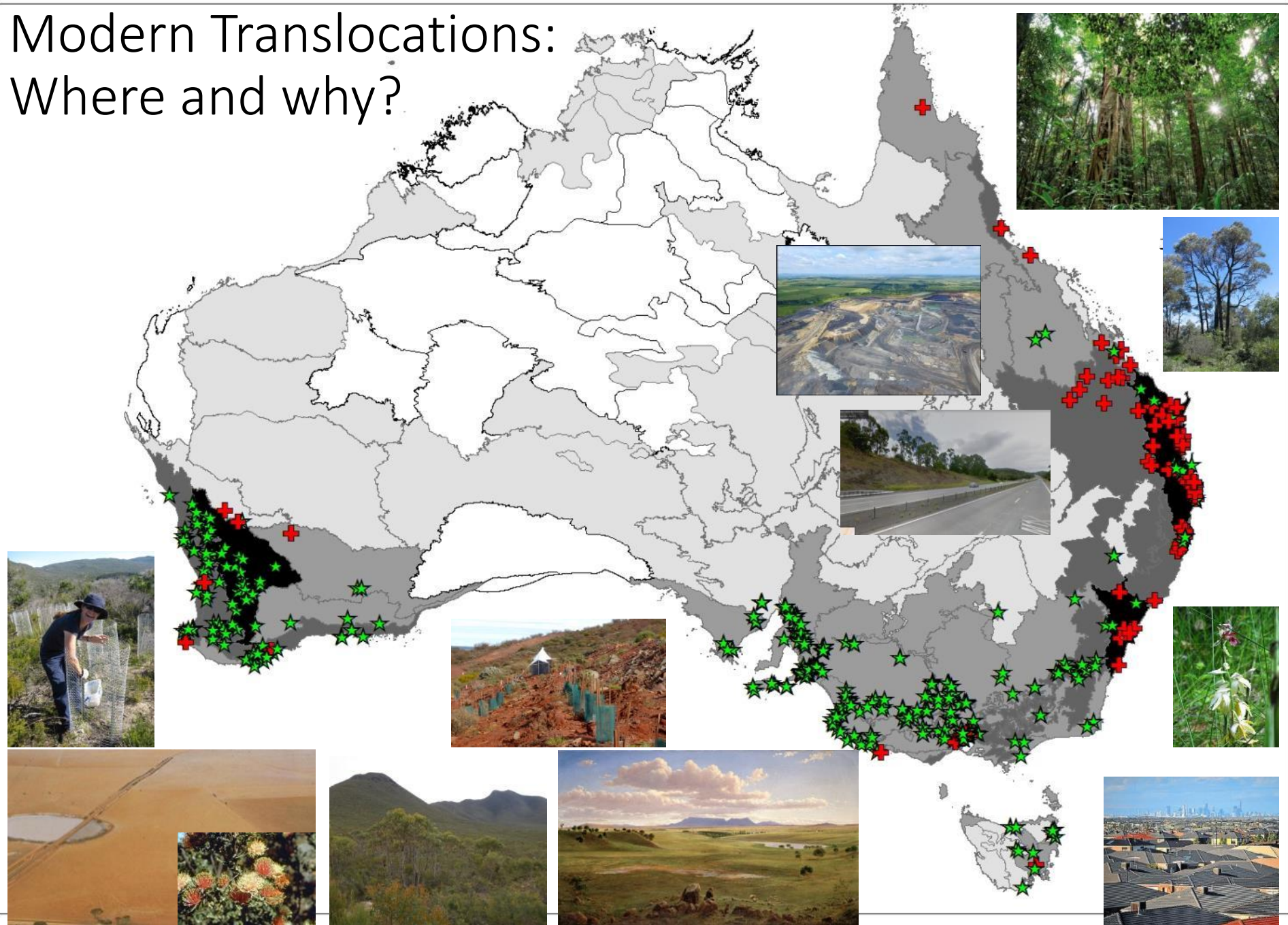
Photo: L Monks

Translocation is an ancient practice

>50 species recorded as being deliberately translocated



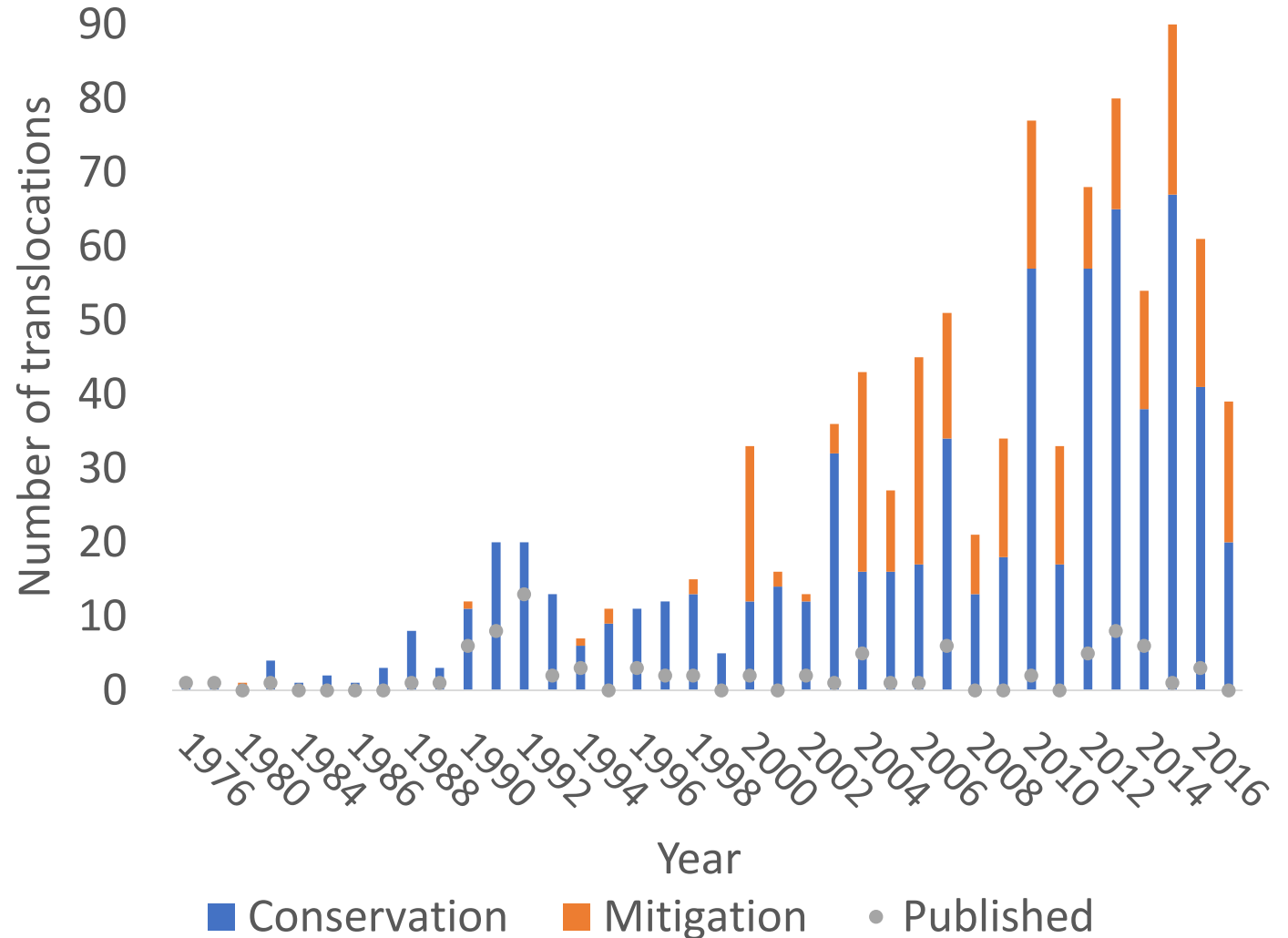
Modern Translocations: Where and why?



Silcock et al,
unpublished

Australian Plant Translocation Database

- **1001 translocations of 376 taxa**
- Difficult to predict translocation performance – importance of inherent traits of spp.
- Importance of long-term commitment and monitoring
- Success related to sufficient founder propagules (500)
- Second-generation recruitment major factor inhibiting success



Silcock et al, unpublished

Translocation Guidelines: need for an update



**Best-practice guide
on the why and how
to do translocation**



Australian Network for
Plant Conservation Inc



**First Edition 1997,
Second Edition 2004**



**Increased number of
translocations since
2004**



Globally unique



**Widely cited by
conservation
agencies**



National Environmental Science Programme

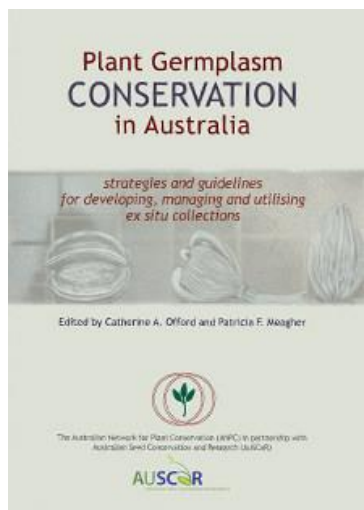
**Threatened Species
Recovery (TSR) Hub**

Australian Network for Plant Translocation

- Mission “Promote and develop plant conservation in Australia”
- Not-for profit organisation
- Publications
 - Publishes research and practice in APC
 - Plant conservation techniques and guidelines
- Activities
 - Workshops, courses and conferences
 - Programs in partnership: Orchid conservation, Bringing back the Banksias
- Committee from state gvt, practitioners, CSIRO



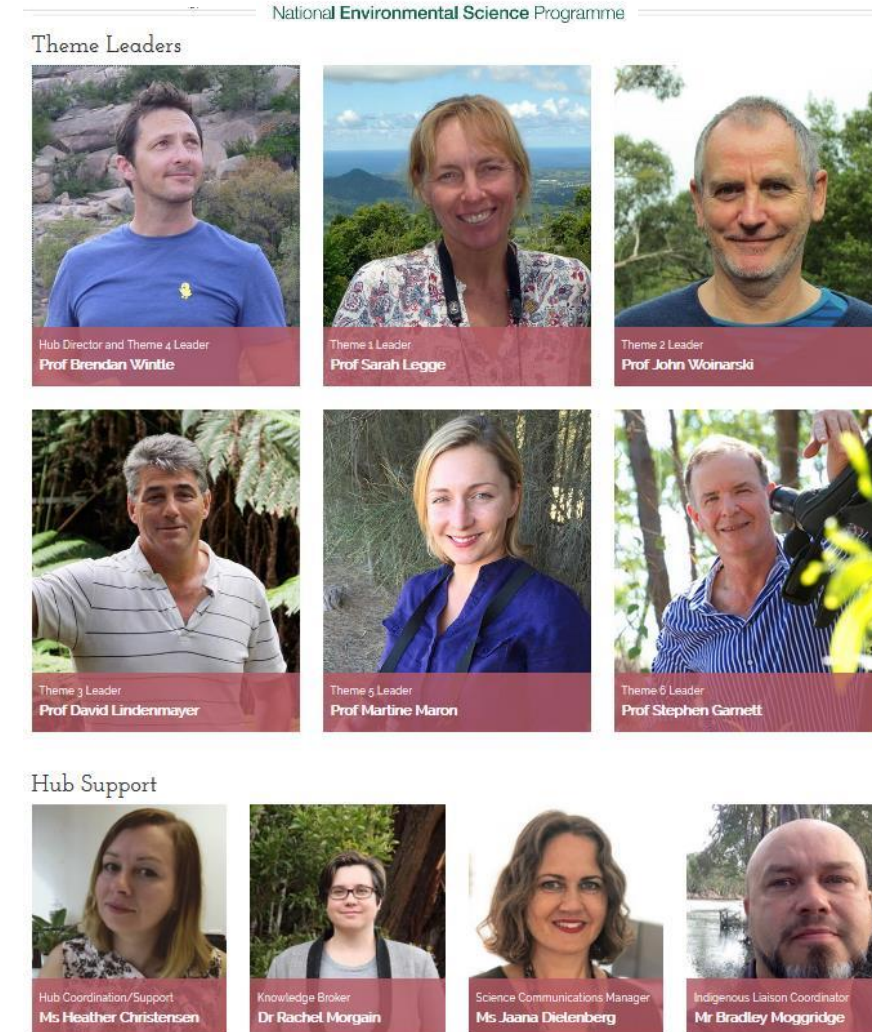
Australian Network for
Plant Conservation Inc



National Environmental Science Programme's Threatened Species Recovery Hub



- One of six hubs within NESP
- Research that improves the management of Australia's threatened species
- >24 collaborating organisations
- Seven main themes:
 - 1. Threats
 - 2. Red hot red list
 - 3. Monitoring and management
 - 4. Reintroductions and refugia
 - 5. Policy
 - 6. Social and economic opportunities
 - 7. Synthesising and building
- www.nespthreatenedspecies.edu.au
- E-newsletter, facebook



TSR Hub Project 4.3 (team leader Dr David Coates, DBCA, WA)

Objectives:

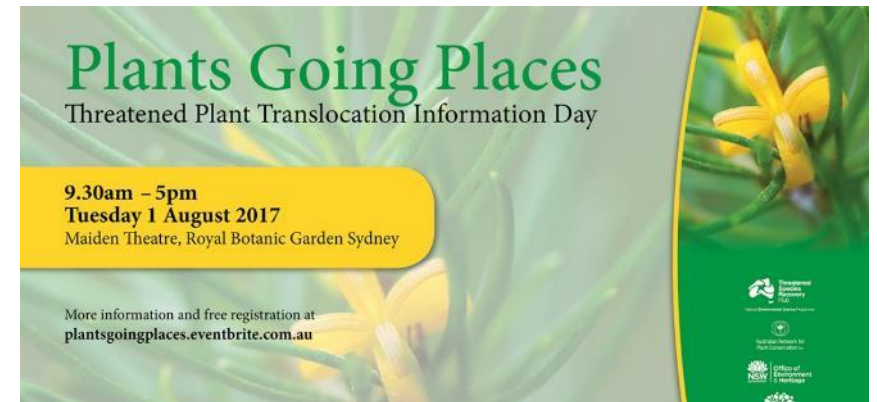
- 1) **Review** plant translocations in Australia (Jen Silcock, Laura Simmonds)
- 2) Develop a registry and online **database** (as above)
- 3) Establish **field trials** and identify factors that contribute to **success** (meta-analysis, genetic rescue)
(Leonie Monks, Bec Dillon, David Coates, Marc Freestone, Nouskha Reiter)
- 4) Evaluate alternative **measures of success** (genetic variation, mating systems, Population Viability Analysis) (as above)
- 5) Updating **Guidelines for Translocation** of Threatened Plants in Australia
(Lucy Commander, ANPC steering committee)
- 6) Examples of **best practice** translocation (Lucy Commander, ANPC)
- 7) Scoping the benefits of **gene pool mixing** (workshop, paper)



Photo: L Monks

The revision process

- TSR Hub Project 4.3
 - Improving threatened plant reintroduction success and species recovery
- ANPC Steering committee:
 - David Coates, Linda Broadhurst, Bob Makinson, Cathy Offord, Maria Matthes
- 1 project manager
- May 2017 – October 2018
- Guidelines workshop and information day in Sydney
- Genetic mixing workshop in Melbourne
- 30+ chapter authors
- Case study authors



What's new



Decision making
framework



Selecting source
and recipient sites



Revised
translocation
proposal template



Updated
references



23 new and
updated case
studies

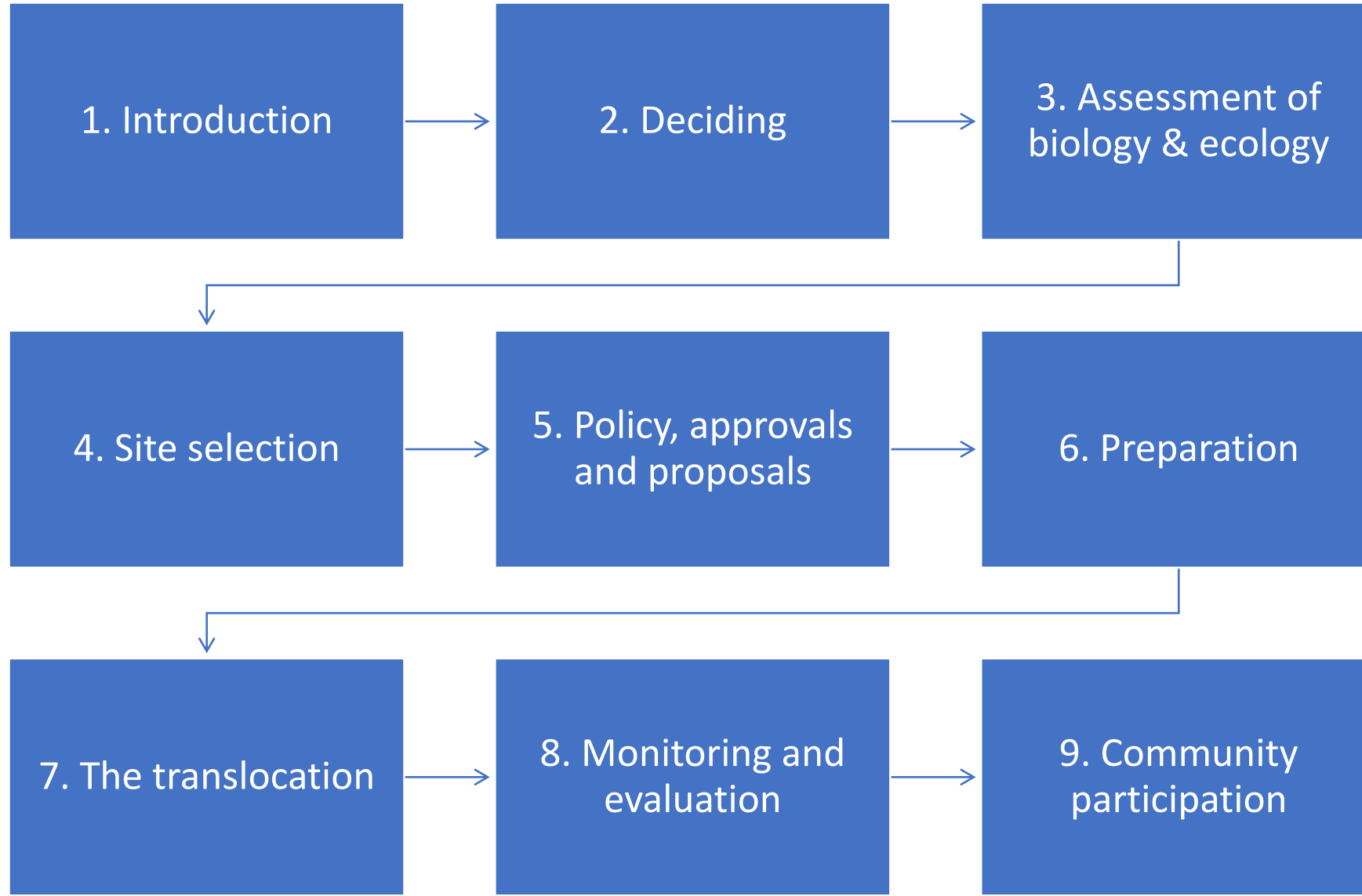


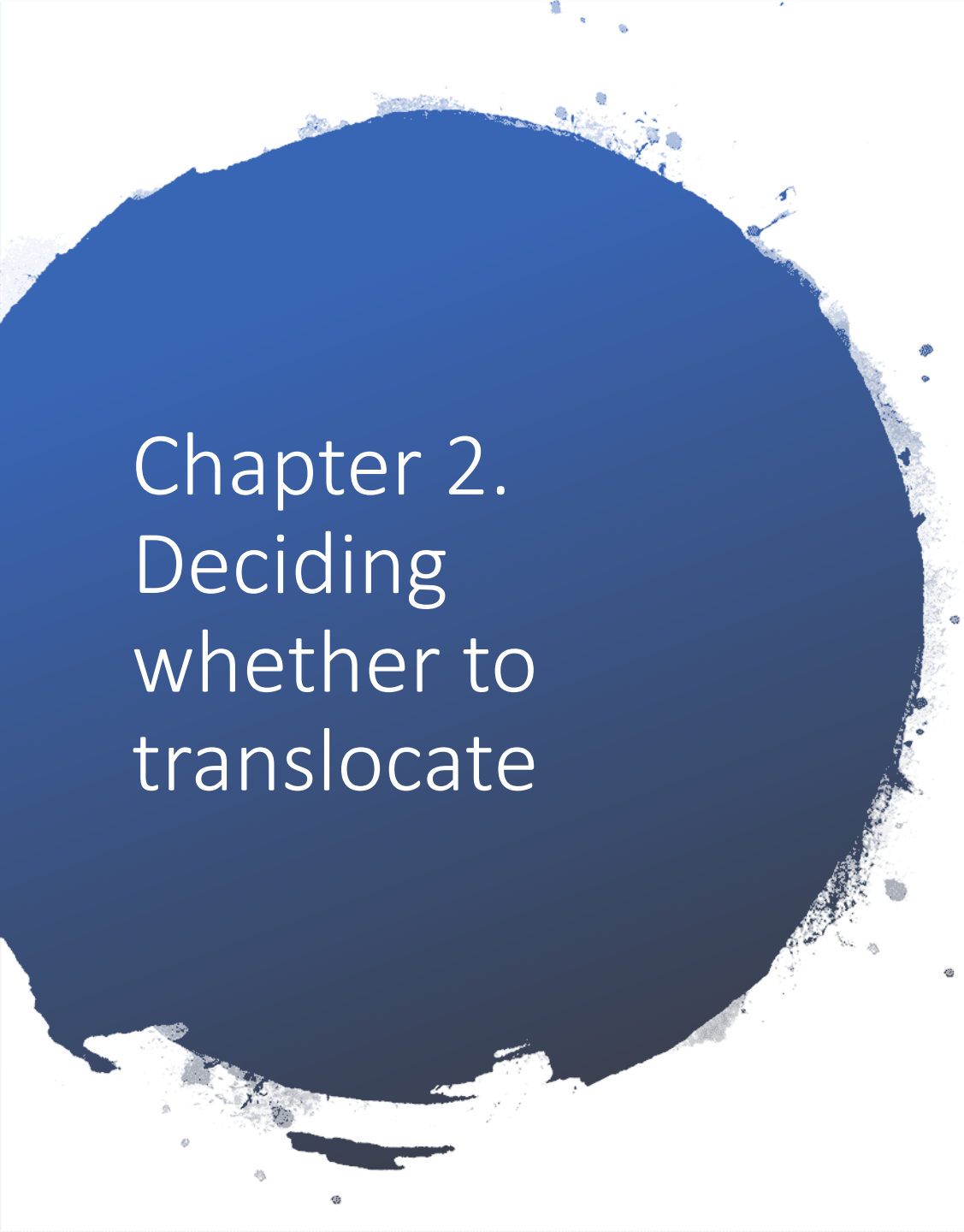
New photos
illustrating
techniques



Foreword by Joyce
Maschinski

The structure of the Guidelines





Chapter 2. Deciding whether to translocate

Conservation actions available

Benefits and risks

Is it necessary?

Goals and objectives

Decision making framework



Recovery team /
translocation working
group

- Bring together people from a range of disciplines who have experience in conserving a species
- Experts and stakeholders

Chapter 3. Pre-translocation assessment of biology and ecology



Collect all the information about the species that is needed for the translocation

Informs everything from site selection to monitoring



This information will go in the translocation proposal

Chapter 4. Selecting source and recipient sites

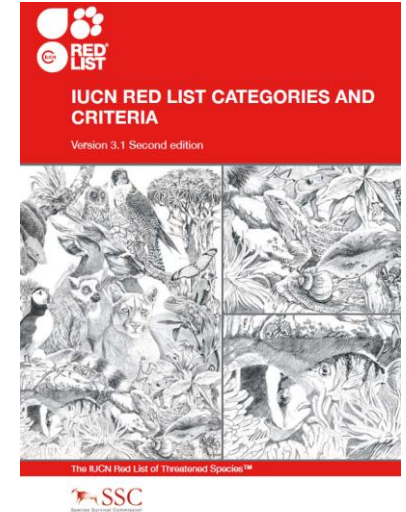
- Selecting source population: issues to consider
 - Which source populations?
 - Should you mix populations?
 - How many individuals?
 - How many plants to propagate?
- Selecting recipient sites
 - Decreasing extinction risk
 - How many sites?
 - Site assessment
 - Habitat, climate, tenure, threat management, size
- Selecting sites beyond the known range – assisted migration
 - Abiotic and biotic suitability, pollinators
 - Potential for use of predictive tools



Photo: D Coates

Site selection to decrease extinction risk

- Extinction risk for plants includes:
 - rate of decline
 - reduction in geographic distribution
 - reduction in population abundance
- Introduction, reintroduction or reinforcement?



Preventing unintended consequences

- Do a risk assessment
- Disturbance
 - Introduction of weeds, pathogens, pests
 - Trampling of existing vegetation
- Ecological impacts
 - Competition, invasion
- Cultural values
 - Engage with Traditional Owners in the co-design of the translocation process, especially the selection of the recipient site(s) to consider potential impacts on cultural values



Grassy weeds around translocated
Acanthocladium dockeri (grey leaf)
(Photo: M Jusaitis)

Chapter 5. Policy, approvals and translocation proposals

Translocation policies

- Explains or guides how a government authority or agency will process or consider proposals to translocate
- Other policies may be relevant, such as those for threatened species

Requirements for approval

- Licences and permits may be required.
- May need multiple approvals from different authorities
- Consent from traditional owners
- Can be time consuming – start applying early!

Chapter 6. Pre-translocation preparation

- People and resources
- Timelines
- Collecting material
- Ex-situ collections
- Experimental design
- Planning for management, monitoring and evaluation
- Site preparation

Photo: R Snashall



Photo: D Coates



Photo: M Jusaitis



Chapter 7. Implementing the translocation and ongoing maintenance

Photo: L Monks

- Timing
 - Rainfall
 - Plant age, health, acclimatisation
- Preparing plants
- Planting
 - Hygiene, layout, labelling
- After-planting care
 - Watering, guards
 - Site management



Photo: L Monks



Photo: R Dillon



Chapter 8. Translocation monitoring and evaluation

- **Document** what you're trying to achieve (goals, objectives).
- Give yourself the best chance to **explain** the results (explanatory variables – management, environment).
- Permanently tag and **census** all plants.
- Monitor **frequently** in year one, and then **annually**. Compare like with like.
- Be **clear** on what you're measuring, but look out for **surprises**.

Chapter 9. Community participation and support

- 'Community' consists of
 - NRM bodies, local gvt, consultants, nursery, friends groups, traditional owners, native plant societies, local environmental centres
- Practical support
 - Surveys
 - Reducing threats
 - Local contacts
- Raising the profile
- Citizen Science
- Celebrate achievements and recognise community



Where to find more

- Translocation Guidelines
 - Purchase
 - <http://www.anpc.asn.au/translocation>
 - Download
 - <https://tsrhub.worldsecuresystems.com/news/plant-translocation-new-guidelines-a-game-changer>
- Case Studies
 - <https://www.anpc.asn.au/translocation-case-studies-2/>
- Australasian Plant Conservation
 - <https://www.anpc.asn.au/apc/>
- Join the ANPC
 - <https://www.anpc.asn.au/membership/>



Thanks and Acknowledgements

- Threatened Species Recovery Hub
 - Rachel Morgain, Jaana Dielenberg, Mary Cryan and Heather Christensen
- Australian Network for Plant Conservation
 - Steering Committee, Jo Lynch
- All the authors, case study authors, and workshop participants
- Authors of the previous editions
- Royal Botanic Gardens Sydney and Royal Botanic Gardens Victoria for hosting workshops.
- DBCA for desk space, hosting this workshop
 - David Coates, Leonie Monks, Margaret Byrne, Melissa Millar
- 'Plant conservation is awesome work. I offer sincere thanks to those who strive to save plants across the world.'
- Joyce Maschinski



Photo: D Coates