



## **BREAKOUT ROOM 1: CULTURAL AND ECOSYSTEM ADAPTATION IN ACTION**

**ADAPTATION IN ACTION - BUILDING RESILIENCE IN NSW**

**#AdaptNSW2019**



# Is Gondwana our Amazon?

**Polly Mitchell**

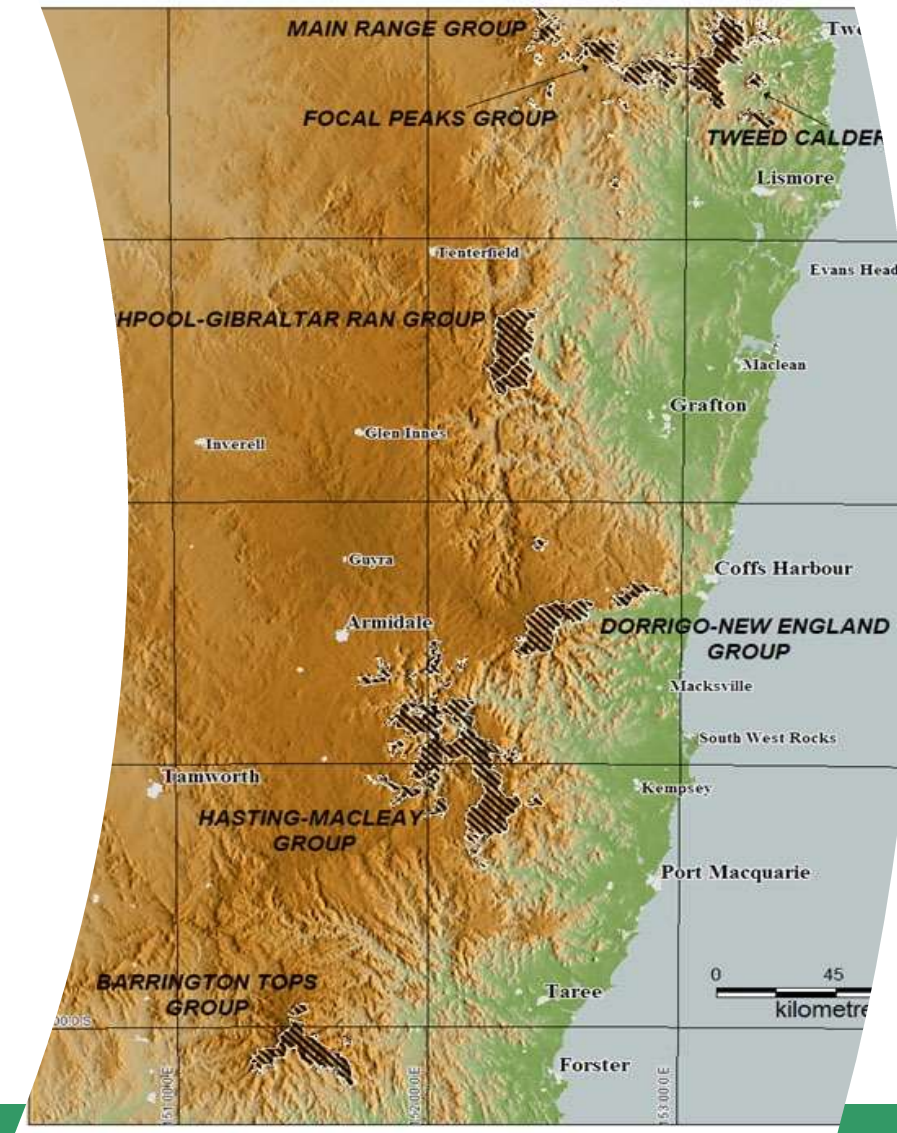
Senior Team Leader

Cultural and Ecosystem Adaptation, DPIE

# Gondwana Rainforests of Australia

A serial property

- 366,500 ha
- 40 reserves
- 2 states
- 1986, 1994



## Remnants of Gondwana

- Diversity of rainforest communities
- Ancient lineages
- Endemic species
- Ongoing species discoveries
- Biodiversity hotspot

## World Heritage

**ADAPTNSW: Adaptation in Action – Building Resilience in NSW**



# Gondwana Rainforests of Australia



## World Heritage criteria

### **(viii) A record of the past**

refuge areas for ancients and the story within landforms

### **(ix) A window to the future**

Ongoing biological evolution and new species being discovered

### **(x) A hotspot of biodiversity**

One of Australia's top Ten (10)

Niches with refugial microclimates



<https://www.nasa.gov/image-feature/goddard/2019/smoke-and-fires-in-australia-s-lamington-national-park-gondwana-rainforests>

ABC.NET.AU  
**Heritage-listed resort in Gold Coast hinterland destroyed by bushfire**



# NSW NPWS climate change adaptation strategy

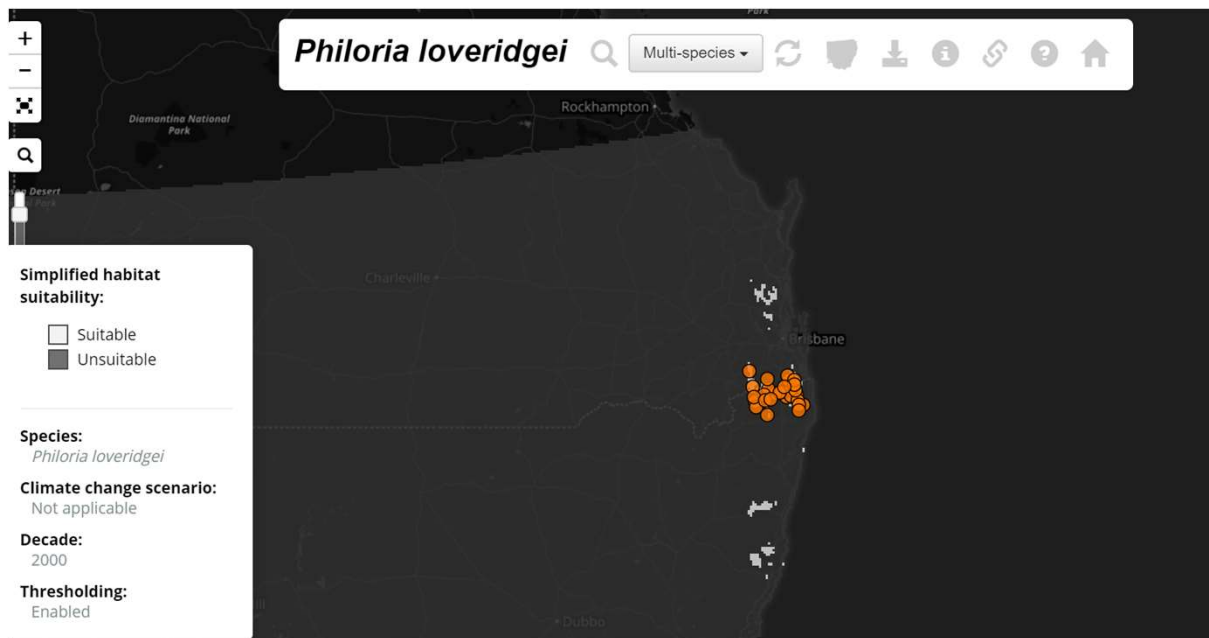
Understanding what we can do

1. Identify and protect refugia
2. Transition - Build adaptive capacity of vegetation communities with climate ready provenance strategy
3. Ex-situ – seed collection, translocate, cultivate, captive breeding



# Identifying Climate Refugia

<https://nswclimaterefugia.net>



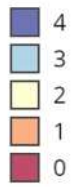
An example: *Philoria loveridgei* Loveridge's Frog

NSW Biodiversity Adaptation Research Hub

<https://climatechange.environment.nsw.gov.au/Adapting-to-climate-change/Biodiversity-Adaptation>

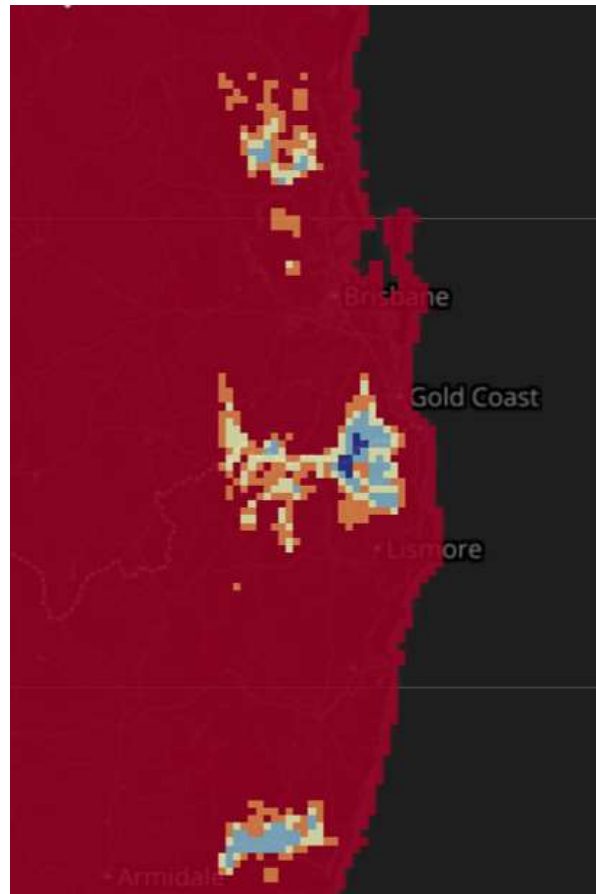


Number of future climates under which habitat is suitable:

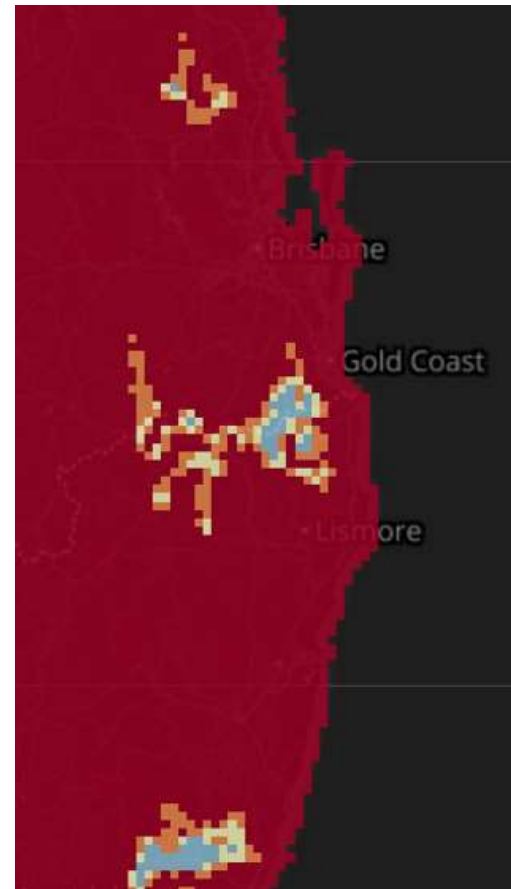


Species:  
*Phyloria loveridgei*

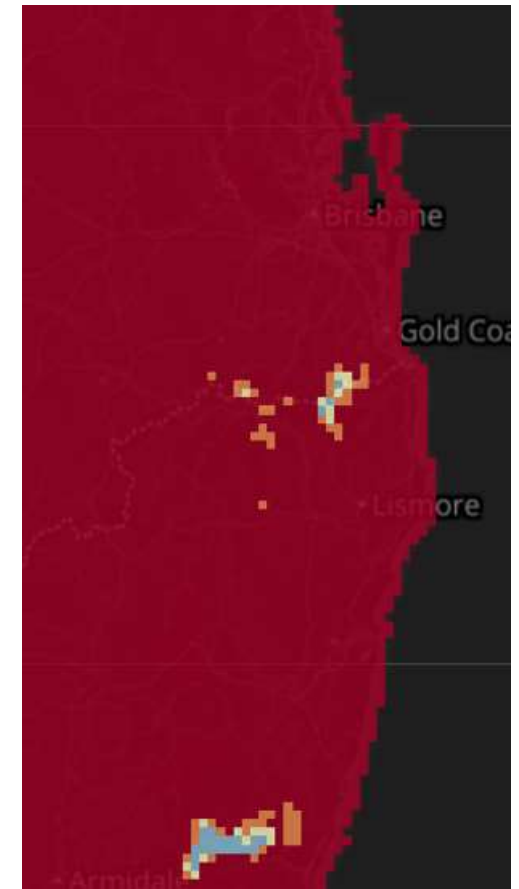
Climate change scenario:  
Consensus of 4 GCMs



2020



2040

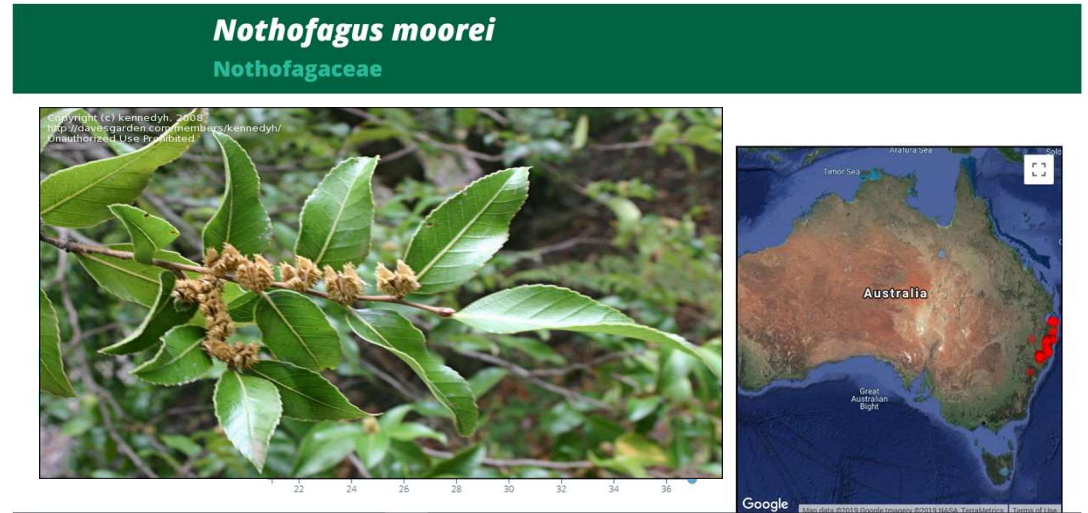
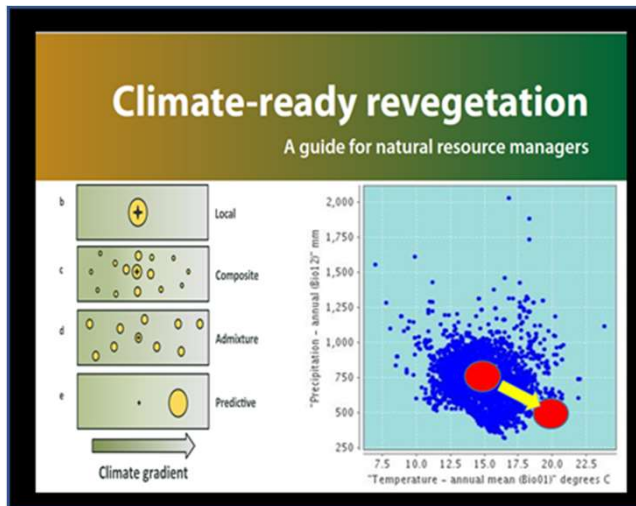


2060

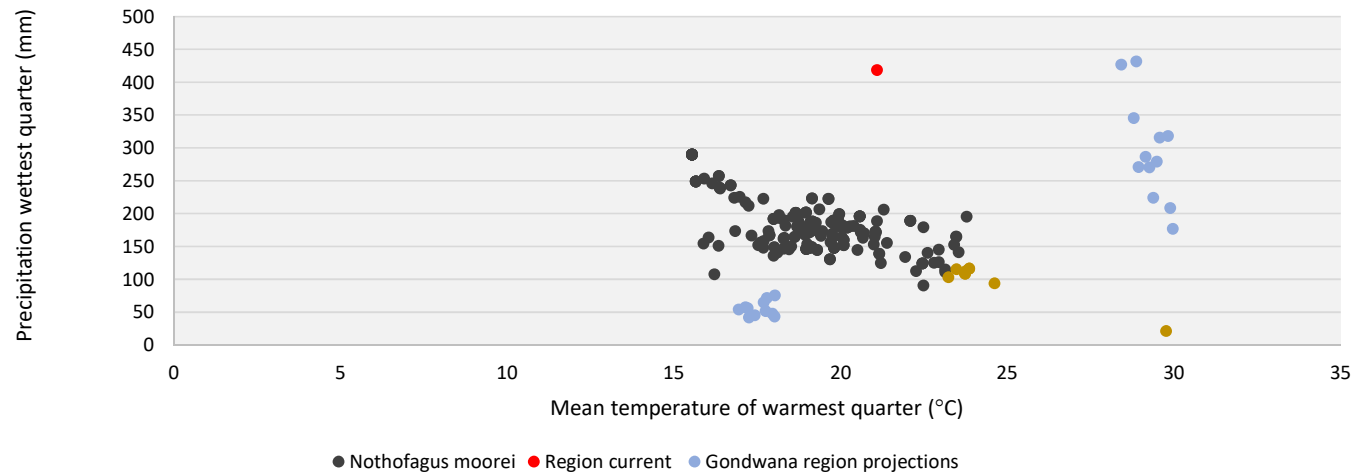
NSW Niche Finder

[http://www.nswnichefinder.net/species\\_search.php](http://www.nswnichefinder.net/species_search.php)

# Building adaptive capacity

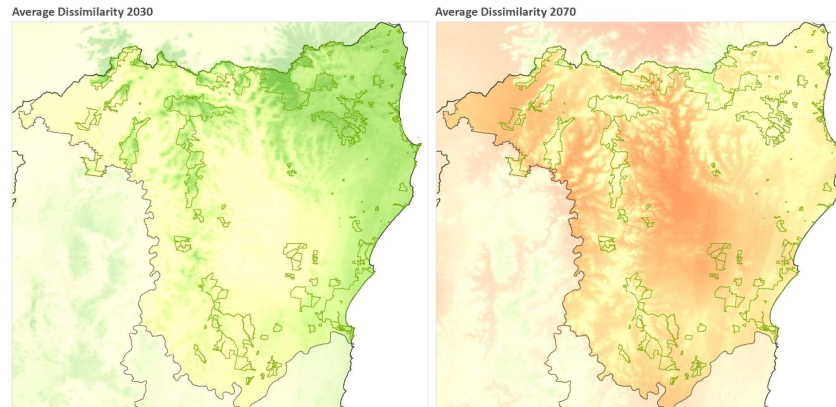


*N. moorei* mean temp hottest quarter vs precip wettest quarter



# Transition: identifying and responding to change

- Building provenance
- Understanding structural change
- Detecting change



## **NEXT STEPS:**

### **Develop Adaptation Plan for Tweed Caldera Gondwana World Heritage**

- Species distribution modelling
- Vegetation dissimilarity modelling - Michael Drielsma and Jamie Love – EES Science (drafts)
- Development of citizen-science monitoring - Dr Eren Turak EES Science e.g. Frogs

# Implementing adaptation: Where are we now?

Gives us a focus on what CAN be done to protect and conserve the Outstanding Universal Value of the Gondwana Rainforests of Australia.

# Thank you

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Skywalk view - Dorrigo National Park