

# The Great Eastern Ranges Initiative: A large-scale response to protection & recover landscapes for wildlife

Prof. Brendan Mackey<sup>1</sup> & Gary Howling<sup>2</sup>

<sup>1</sup>Board Member, Great Eastern Ranges Initiative  
Director, Griffith Climate Beacon, Griffith University

<sup>2</sup>CEO Great Eastern Range Initiative



Papua  
New Guinea

# Our vision

Well connected, resilient and thriving communities,  
landscapes and natural systems across 3,600km of  
eastern Australia.

Queensland

Calms

Brisbane

New South  
Wales

Sydney

Victoria

Canberra

Melbourne

Tasmania



# Where we work

The GER vision covers a vast 3,600km swathe of eastern Australia  
- an area we call the Great Eastern Ranges corridor

60%

of our threatened  
animal species

70%

of our threatened  
plant species

80%

of our  
population

2.5

gigatonnes of  
stored carbon

63

water  
catchments



# Our work

GER serves as a backbone organisation for connectivity conservation, bringing people, communities, networks and organisation together to protect and regenerate nature, and help provide solutions for our climate, biodiversity and community wellbeing challenges



Wildlife



Climate resilience



Disaster recovery



Connectivity science  
data & information



Policy advice &  
guidance



Resource mobilisation

# Bringing partners together



- We support a network of 12 'regional partnerships' formed to bring local organisations together who share a common interest as part of the GER corridor
- Shared common goals and priorities, and coordination of efforts to maximise impact
- Their work is complimented by 25 or more state, national and international organisations who work in complementary ways across the GER is its entirety



# Connectivity conservation is...



A socio-ecological approach

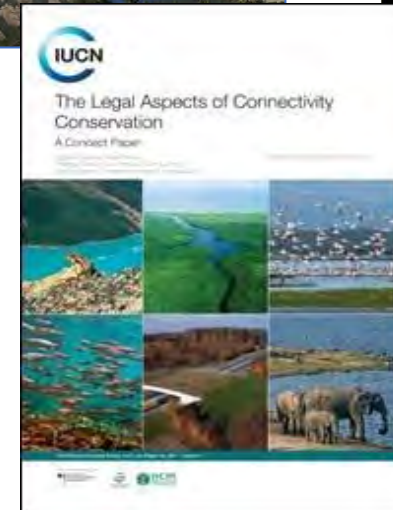
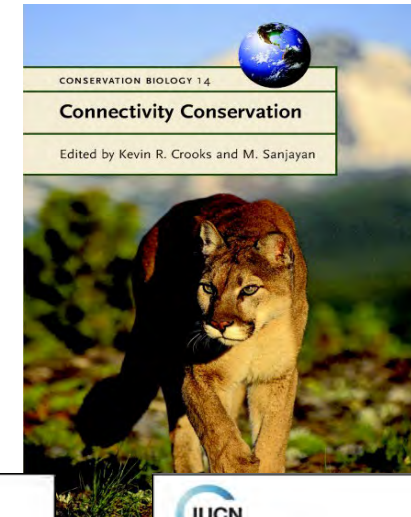
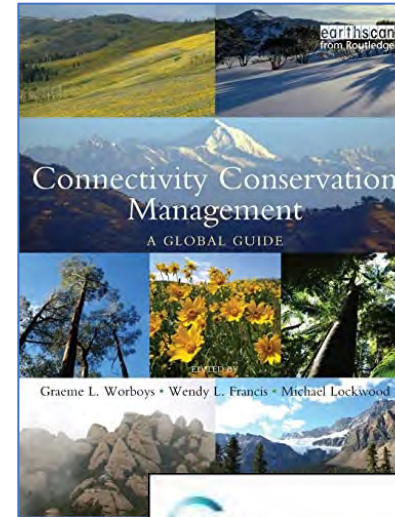
Community-led and voluntary

Cross-tenure and multi-faceted

Multiscale (spatial and temporal)

Interconnected networks

Supporting underlying processes

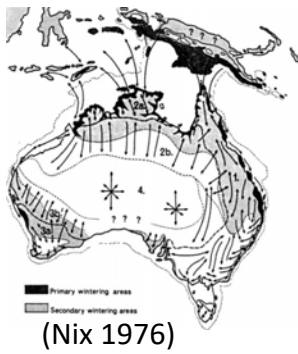


In Australia, connectivity needed to support conservation needs,  
including...

1. Dispersive fauna (~50% of terrestrial birds)
2. Maintaining critical micro-habitat networks
3. Facilitating species response to climate change
4. Achieving coordinated, multi-scale conservation outcomes

See: Soulé M. E., Mackey B. G., Recher H. F., Williams J. E, Woinarski J. C. Z., Driscoll D.,  
Dennison W.C. and Jones M. E. (2004) The Role of Connectivity in Australian  
Conservation. *Pacific Conservation Biology* 10, 266-279.



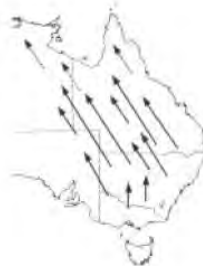


# Indicative patterns in long distance dispersive bird movements

- Towards North Inland and Coast**  
15 species
- Darter (*Anhinga melanogaster*)
  - Little Egret (*Egretta garzetta*)
  - White-necked Heron (*Ardea pacifica*)
  - Great Egret (*Ardea alba*)
  - Intermediate Egret (*Ardea intermedia*)
  - Nankeen Night Heron (*Nycticorax caledonicus*)
  - Straw-necked Ibis (*Threskiornis spinicollis*)
  - Cockatiel (*Nymphicus hollandicus*)
  - Sacred Kingfisher (*Todiramphus sanctus*)
  - Striated Pardalote (*Pardalotus striatus*)
  - White-throated Gerygone (*Gerygone olivacea*)
  - Little Friarbird (*Philemon citreogularis*)
  - Leaden Flycatcher (*Myiagra rubecula*)
  - Olive-backed Oriole (*Oriolus sagittatus*)
  - Double-barred Finch (*Taeniopygia bichenovii*)
- Slope Line**  
14 species
- Australian Wood Duck (*Chenonetta jubata*)
  - Little Black Cormorant (*Phalacrocorax sulcirostris*)
  - Brown Goshawk (*Accipiter fasciatus*)
  - Little Eagle (*Hieraaetus morphnoides*)
  - Budgerigar (*Melopsittacus undulatus*)
  - Southern Boobook (*Ninox novaeseelandiae*)
  - Spotted Nightjar (*Eurostopodus argus*)
  - Rufous Whistler (*Pachycephala rufiventris*)
  - Black-faced Cuckoo-shrike (*Coracina novaehollandiae*)
  - White-winged Triller (*Lalage sueurii*)
  - White-breasted Woodswallow (*Artamus leucorhynchus*)
  - Masked Woodswallow (*Artamus personatus*)
  - Clamorous Reed-Warbler (*Acrocephalus stentoreus*)
  - Little Grassbird (*Megalurus gramineus*)
- Inland Circle**  
5 species
- Pallid Cuckoo (*Cuculus pallidus*)
  - Horsfield's Bronze-Cuckoo (*Chrysococcyx basalis*)
  - White-browed Woodswallow (*Artamus superciliosus*)
  - Rufous Songlark (*Cincloramphus mathewsi*)
  - Brown Songlark (*Cincloramphus cruralis*)



Tasmanian Fan  
3 species



Whole East Coast  
6 species



Intercontinental, Whole Coast  
7 species

Blue-winged Parrot (*Neophema chrysostoma*)  
Pink Robin (*Petroica rodinogaster*)  
Olive Whistler (*Pachycephala olivacea*)



Fan-tailed Cuckoo (*Cacomantis flabelliformis*)  
Shining Bronze-Cuckoo (*Chrysococcyx lucidus*)  
Noisy Friarbird (*Philemon corniculatus*)  
Satin Flycatcher (*Myiagra cyanoleuca*)  
Rufous Fantail (*Rhipidura rufifrons*)  
Grey Fantail (*Rhipidura fuliginosa*)

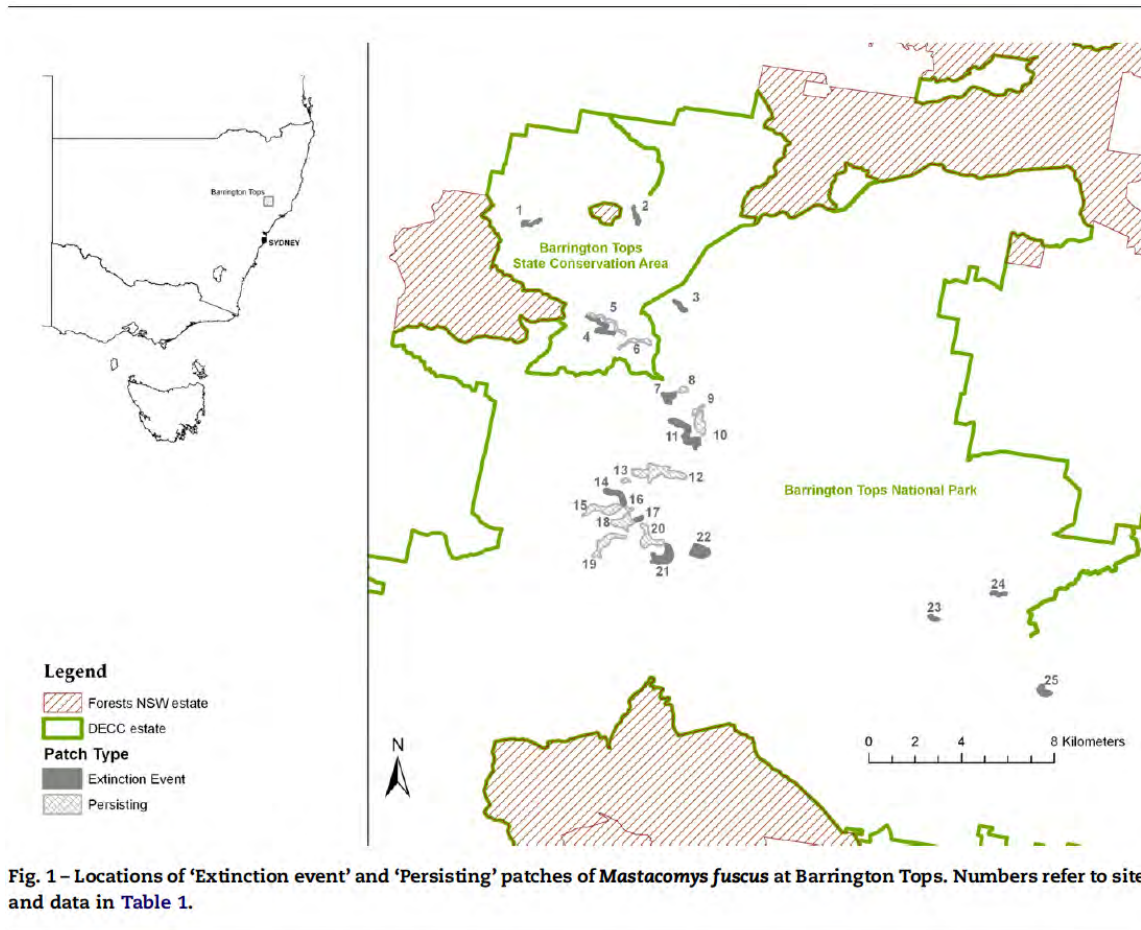


Little Tern (*Sterna albifrons*)  
Brush Cuckoo (*Cacomantis variolosus*)  
Common Koel (*Eudynamis scolopacea*)  
Channel-billed Cuckoo (*Scythrops novaehollandiae*)  
Dollarbird (*Eurystomus orientalis*)  
Black-faced Monarch (*Monarcha melanopsis*)  
Cicadabird (*Coracina tenuirostris*)

Source: Griffioen, P. a & Clarke, M.F., 2002. Large-scale bird-movement patterns evident in eastern Australian atlas data. *Emu*, 102(1), pp.99–125. Available at: <http://www.publish.csiro.au/paper/MU01024>.



# Connectivity for meta-population dynamics

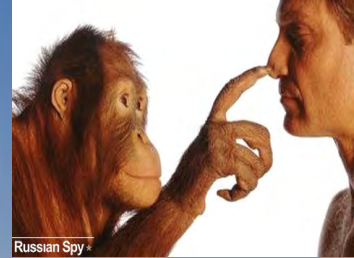


“...we identified 12 swamps where *M. fuscus* persists and 13 where there has been a history of colonisation and extinction. The species now appears to be entirely absent from seven of these latter swamps....recommend research to identify the factors that are limiting dispersal and re-colonisation so that the species' decline can be slowed and reversed...”

O'Brien, C.M. et al., 2008. Metapopulation dynamics and threatened species management: Why does the broad-toothed rat (*Mastacomys fuscus*) persist? *Biological Conservation*, 141(8), pp.1962–1971.

# Species natural adaptation strategies to climate change

Evolution of new traits



Phenotypic plasticity



Retreat to refugia

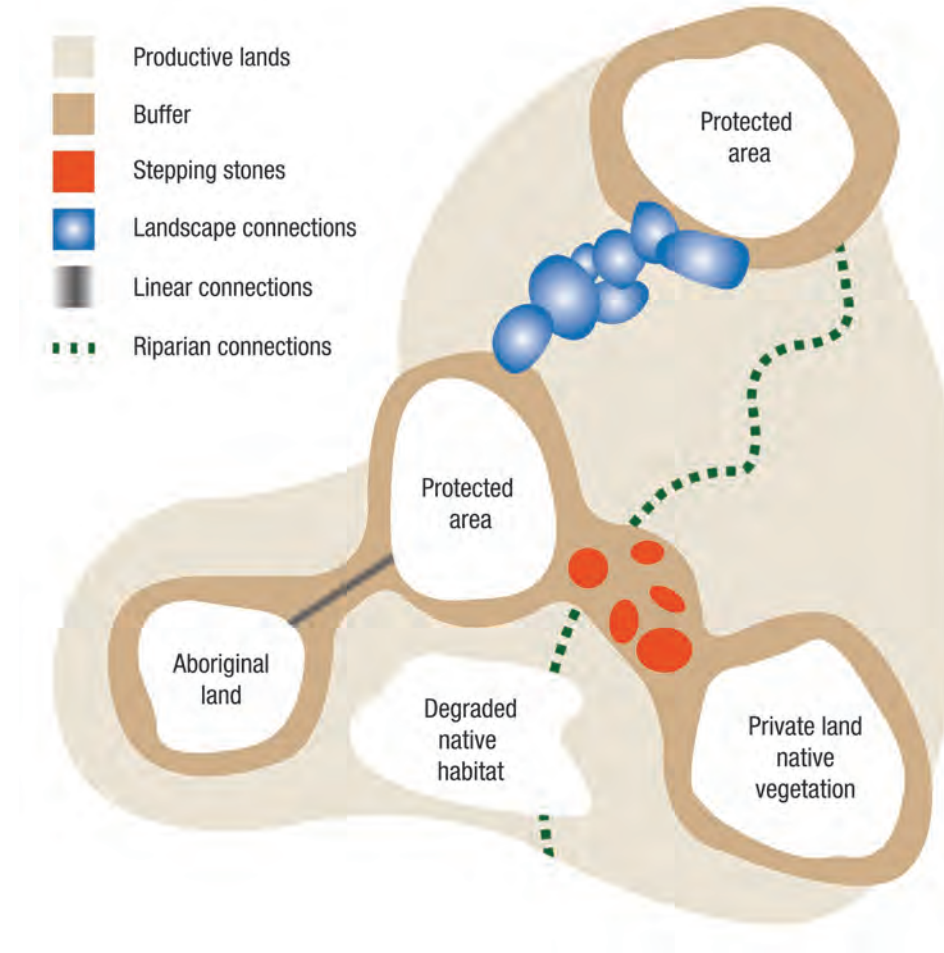


Dispersal to favourable locations

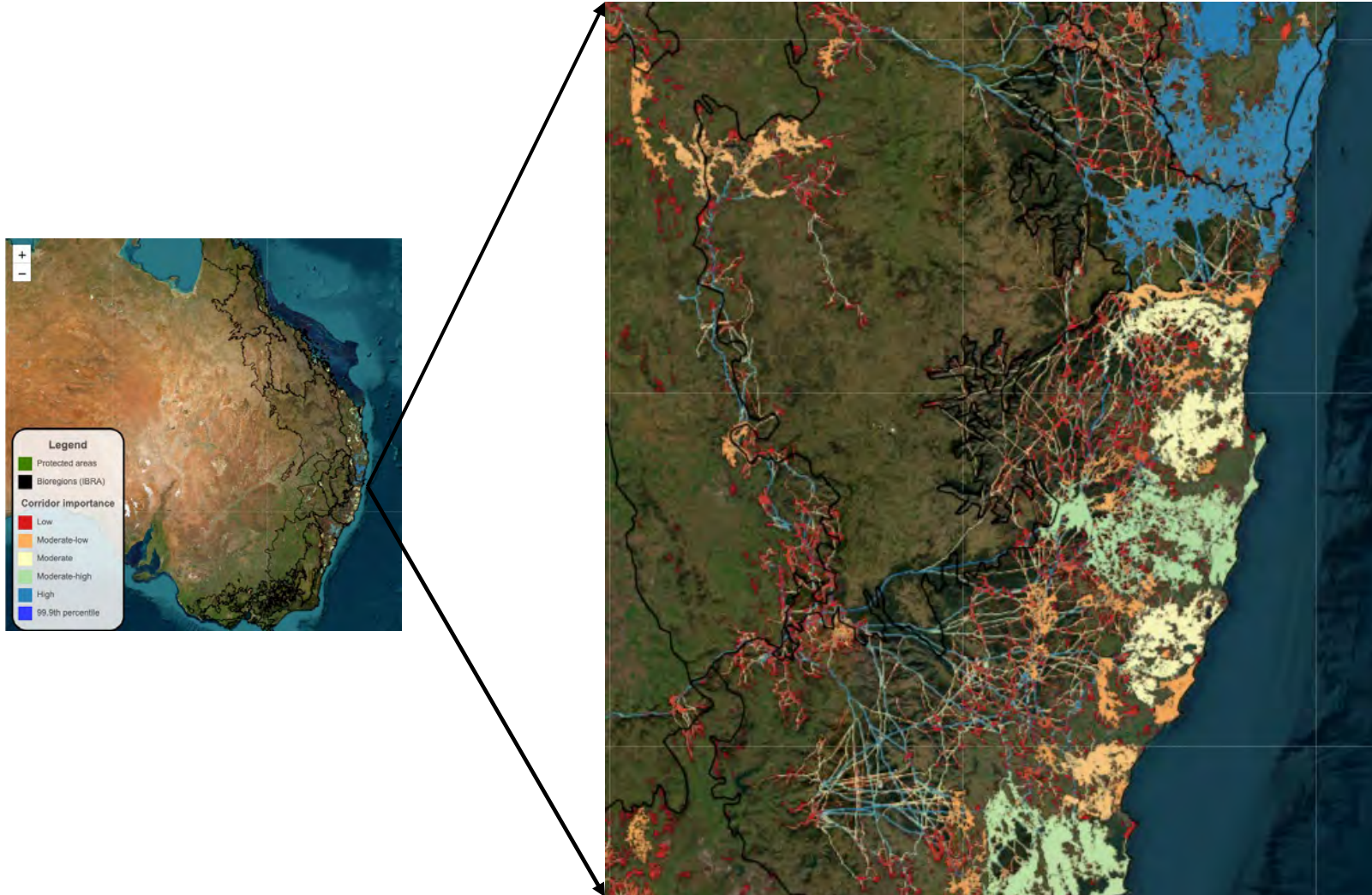




# Spatial planning for connectivity



# Connectivity conservation data & information



- Habitat connectivity decision support tool for spatial planning
- Funded by The Ian Potter Foundation
- Focused on Great Eastern Ranges and the forests and woodlands of south-west Western Australia (Gondwana Link)
- Builds upon Michael Drielsma's work (e.g. Drielsma, M., Manion, G., Ferrier, S., 2007. The spatial links tool: automated mapping of habitat linkages in variegated landscapes. *Ecol. Model.* 200, 403–411.
- Publication in review (Norman and Mackey)

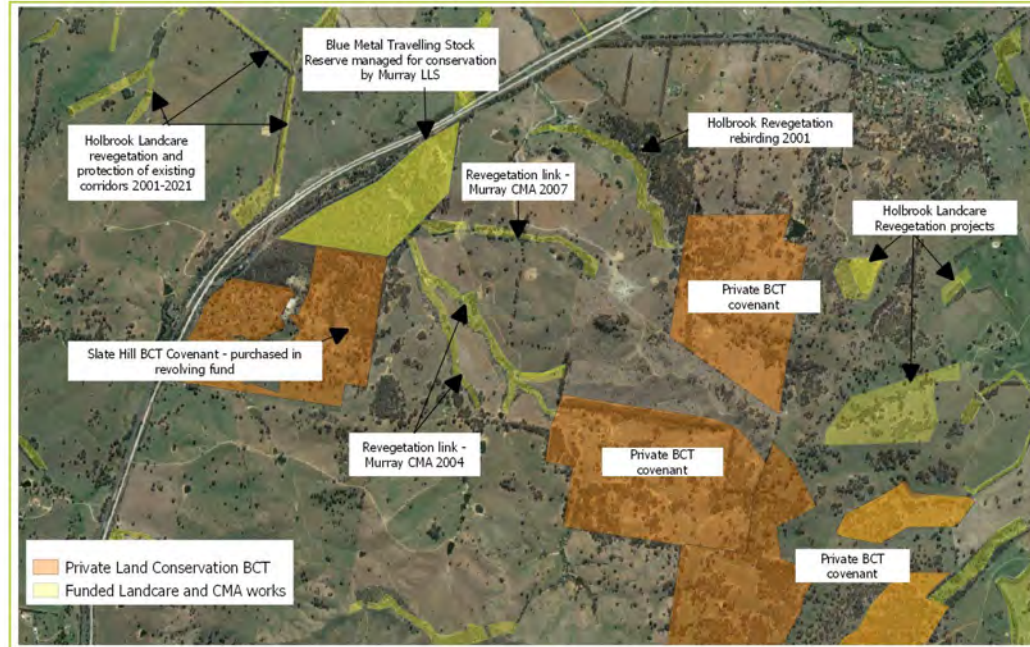




## Examples of GER supported regional connectivity action

- On the ground, regional partnerships encourage landholders and land managers to link their efforts across property boundaries to create corridors across entire landscapes

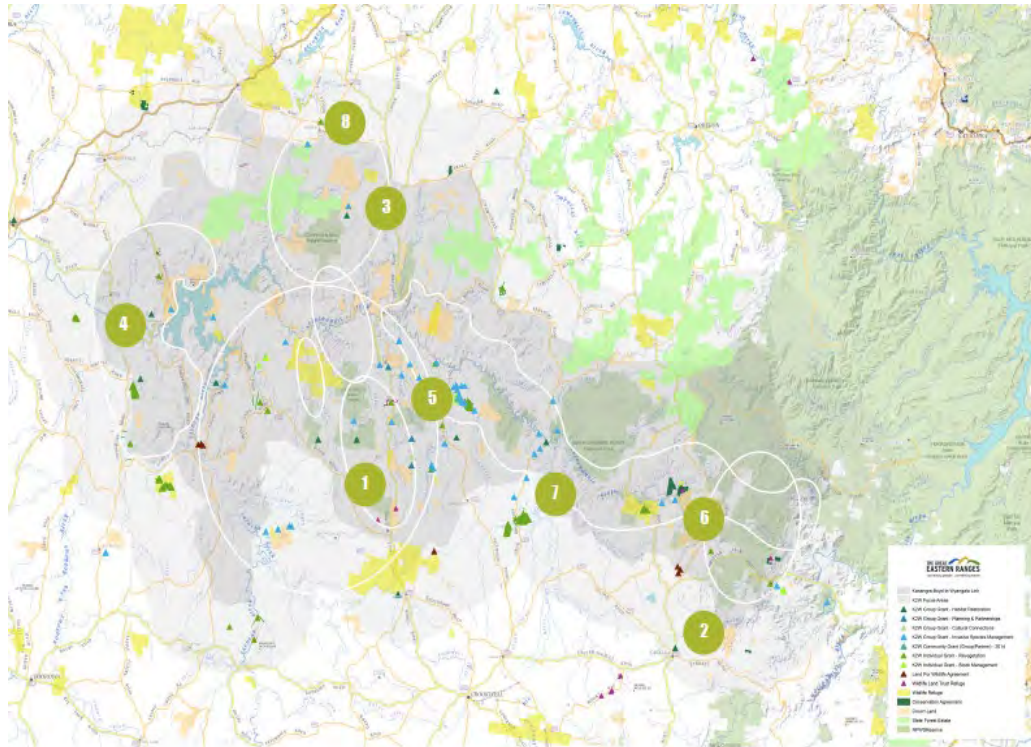
# Woomargama to Benambra corridor in Slopes to Summit



- This example is the – linking Woomargama National Park to an otherwise isolated nature reserve
- Multiple mechanisms including council reserves, covenanted private lands, travelling stock reserves, roadside reservations, replanted areas and artificial crossing structures
- Demonstrated via genetic studies to enable the movement of threatened Squirrel Glider on a landscape scale (including across the Hume Highway)



# K2W Link in the NSW central tablelands



Supporting the delivery and expansion of Tussock Tarners in the Abernombie catchment, to assist landholders with preparing to undertake landscape-wide weed management.



Working with International Volunteers for Peace to restore the local Stonequarry Cemetery. This includes rehabilitation of the site's native vegetation and preservation of the cemetery's social and cultural history.



Engaging landholders through the National Parks Association of NSW's 'Who's Living on My Land' program to employ infrared motion detection cameras to monitor the wildlife on their properties.

- A natural corridor between the Blue Mountains and western woodlands
- Each of the green dots represents a local corridor of landholder commitments linking up across gaps in connectivity.



Engaging the Hovells Creek community through local landscape in efforts to restore diversity of plants and animals by increasing the capacity of landholders to better manage habitats.



Providing funding to Limerick Tuena Landcare for a range of community consultation and planning workshops, events and activities.



Partnering with Taralga Landcare to evaluate the success of past plantings, enhance existing revegetation sites and provide advice to local landholders.



Delivering a suite of integrated activities and conservation mechanisms through Fullerton Hadley Landcare to achieve improved connectivity of conservation efforts and habitats.



Working with Orange Local Aboriginal Land Council to collate and present information on the natural and cultural assets of properties in the K2W Link.



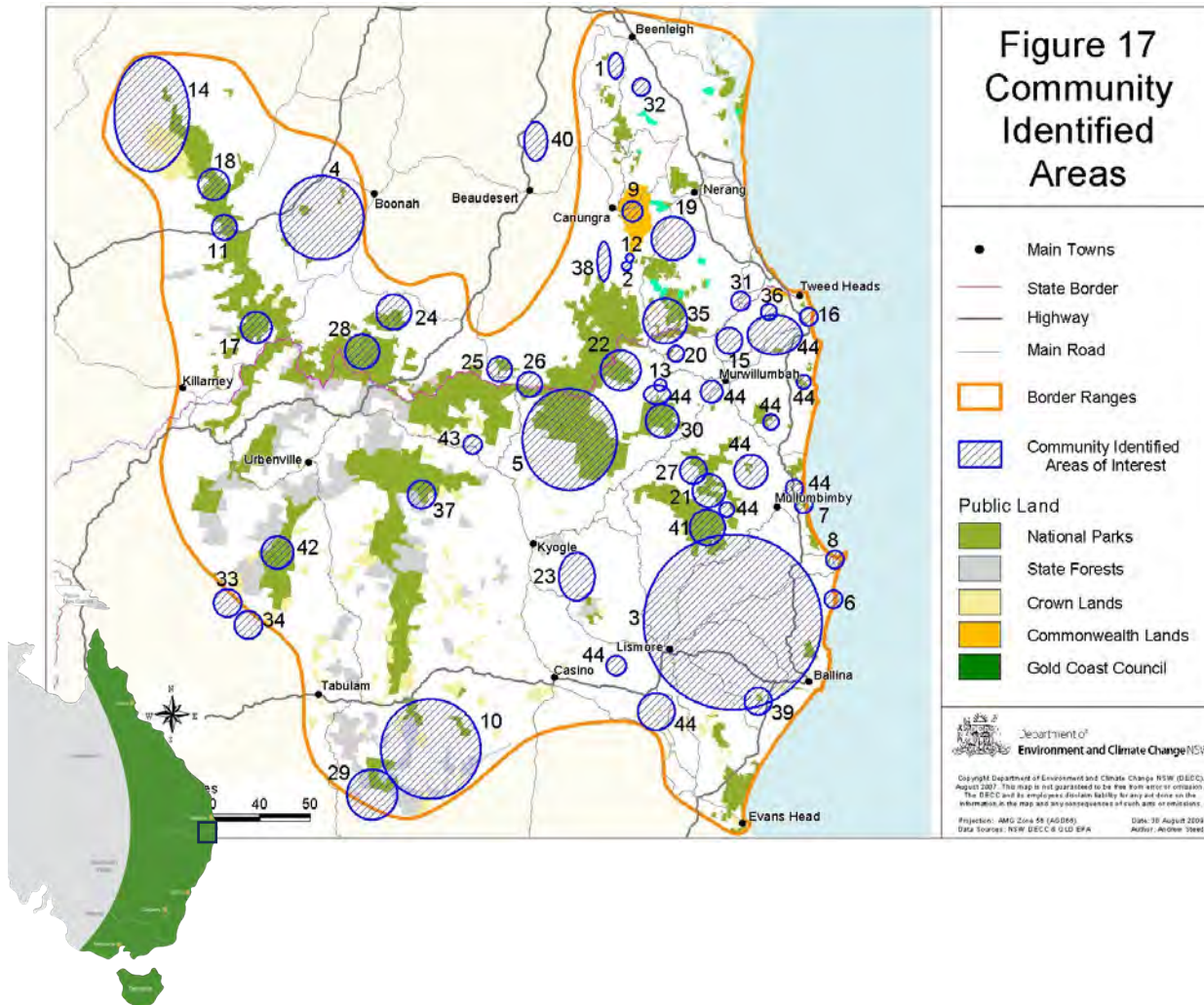
# Rainforest restoration - Border Ranges



- Established in 2008 as one of the first five regional partnerships established by GER
- Comprised 35 local organisations from Queensland and NSW
- All shared a common interest in implementing the 'Border Ranges Rainforest Regional Biodiversity Management Plan' (a Commonwealth-funded multi-species threatened species recovery plan)



# Rainforest restoration - Border Ranges



- The 'Plan' identifies a series of priority areas that serve as core habitat or connective links
- Since 2007 GER has supported a multitude of projects and activities including:
  - Mapping baseline connectivity and core habitat condition
  - Partnership facilitation and support, enabling field days and workshops
  - Aboriginal capacity building including the Cultural connections program and interactive CD ROM
  - Voluntary management agreements contributing to >16,000 ha habitat protection
  - Aboriginal management plans and visitor infrastructure for two-way knowledge sharing
  - Restoring critically important koala feed areas following the 2019-20 fires
  - Landholder outreach and recovery/damage assessment across >50 properties in 2022

# Rainforest restoration – Bunyas to Border



Bunyas to  
Border

- More recently, with the support of International Fund for Animal Welfare and in partnership with our partners the Lockyer Valley Uplands Catchment Initiative, we have launched a new 'Bunyas to Border' regional partnership to:

- Bolster the resilience of rainforest remnants in the 'western horn' of the Border Ranges in south east Queensland, and enable climate adaptation by species using the wider corridor (circles 11, 14, 17 and 18 on the BRRBMP map in previous slide)
- Secure a major climate adaptation corridors for koala and other arboreal mammals that also serves as key transit flyways for migratory birds, bats and insects



# Rainforest restoration – Illawarra NSW



- The 'Thin Green Line' is a narrow rainforest corridor on the edge of the Illawarra Escarpment (Macquarie Pass National Park, NSW) that comprises a 'pinch point' in forest connectivity - the thinnest and most tenuous connection between the Hunter Valley and Australian Alps
- One of ten critical north-south and plateau-coast corridors identified in the Illawarra-Shoalhaven region, the corridor is significant both regionally as habitat for rainforest pigeons, endangered ecological communities
- Since 2015 GER has supported a network of private landholders, Aboriginal corporations, local government and NPWS to create a corridor of collaboration that consolidates this narrow connection



## Recent projects include...



WWF Australia  
'Cores, Corridors & Koalas, Phase 2'



W.I.R.E.S.  
'Glideways, Flyways & Stepping Stones'



IFAW Oceania  
'Koala Climate Corridors'



NSW Regional Services  
'Restoring Country and Communities'



Agriculture, Environment & Water  
'Eucalypt Return to Flowering'

GER helps to scale-up connectivity conservation in support of rainforest conservation so that efforts at local scale can have more aggregate regional and national impact by

- mobilising additional resources
- coordinating efforts across multiple regions
- Promoting new supportive policy options

- GER's key points of difference in each of these projects are:
  - Multiple regions
  - Cross-jurisdictional
  - Linked efforts beneficially impacting widespread umbrella species and habitats
  - Contribution of connectivity to adaptation and resilience



# Outcomes at scale can be achieved through targeted, coordinate and well thought-through interventions

Shared goals, priorities and plan for action

Understanding and supporting the skills and capacity of different groups

Commitment to local outcomes that contribute to the 'bigger picture' outcomes

Coordination to link efforts and 'be a whole that is more than the sum of our parts'

Leadership, trust and goodwill

## Impact at a glance



**618,095ha**

Of improved landscape connectivity



**250+ organisations**

Working contributing to the GER vision



**1,000**

People engaged in conservation projects and activities



**217**

Private properties involved



**54**

Threatened and regionally significant animal species supported through projects



**7 Sustainable Development Goals**

Being advanced through the Great Eastern Ranges initiative

