The Great Eastern Ranges Initiative - The Great Dividing Range of Australia

An exploration of Connectivity Conservation

By: Sidney Parker

At a glance

- Habitat loss, fragmentation and decreased biodiversity are large problems facing the ecosystems and people of the Great Dividing Range.
- Connectivity conservation focuses on modifying biodiversity and conservation ideas to fit the scale of modern day species loss threats and the size of land area threatened.
- The Great Eastern Ranges Initiative strives to bring together all people of Australia and the globe into the conversation of conservation.
- Efforts are still expanding due to the size of the Great Dividing Range and diversity of ecosystems contained within it.

Background

The Great Dividing Range is Australia's longest and largest reaching mountain region, extending between 3,500-3,600 km (~2,200 mi) along the eastern coast of the continent through four states and territories, from far north Queensland to southwestern Victoria (Australian Conservation Fund, 2015). Three quarters of the Australian population lives within, along the western slopes or on the eastern slope and coastal side of the range, inexplicably linking the range with the majority of Aussie lives (Australian Conservation Fund, 2015).

A defining characteristic of the range is the diversity of everything within it. It holds a wide variety of mountainous environments from the Snowy Mountains in the south to the Wet Tropics in the north and between these a mix of rolling hills, elevated valleys, basins, plateaus, temperate to tropical mountain forests, and diverse and old rock formations of limestone, igneous, sandstone and granite rock compositions (Australian Conservation Fund, 2015).

Figure 1. Great Dividing Range (Pulsford et al., 2013)

It also contains three sub-range geographic regions that are listed under UNESCO's World Heritage Site classification for cultural and environmental significance: the Greater Blue Mountains Area, Gondwana Rainforests of the Central Eastern Rainforest Reserves and the Wet Tropics of Queensland including the oldest continuous rainforest - the Daintree Rainforest (Mackey, Watson and Worboys, 2010). These diverse geographic regions hold high levels of biodiversity,

endemic plants and animals, Aboriginal cultural heritage, and ancient Gondwanan organisms due to the isolation and relatively untouched nature of Australia until recent centuries (Australian Conservation Fund, 2015; Mackey, Watson and Worboys, 2010; Pulsford et al., 2003).

Presently most of this region is facing escalating and critical ecosystem damage with increases in housing and road development of land for growing populations, increased resource extraction and climate change effects on weather patterns and organism phenology.

The Great Dividing Range provides an array of environmental resources for the animals and plants that have inhabited it and many resources humans have been extracting. Logging, mining and water catchments are the biggest extractive industries the range provides with an estimated 70% of the range having been degraded just within the past two centuries (Australian Conservation Fund, 2015).

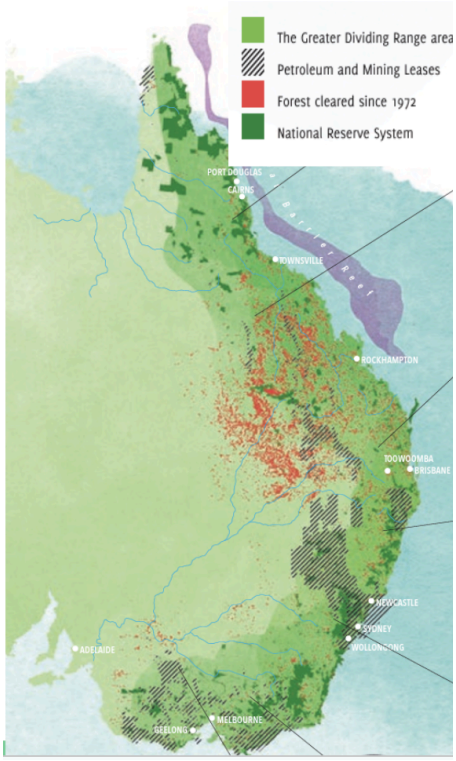


Figure 2. Great Dividing Range land protection, mining and forest clearing (Australian Conservation Fund, 2015)

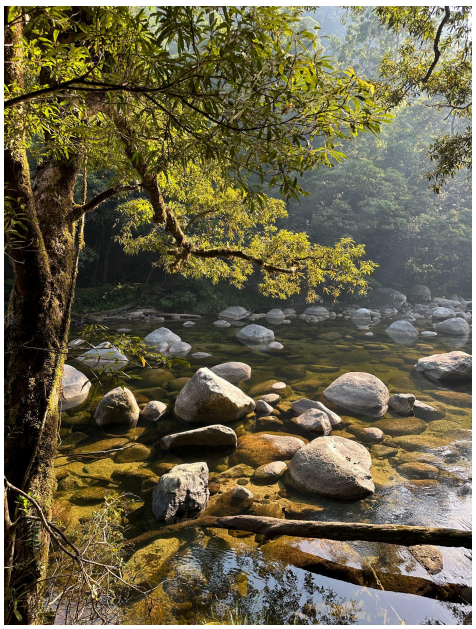
Logging in the forests which cover a large portion of the range has led to the fragmentation of already naturally disjointed forested land, due to the topography and geologic make up (Australian Conservation Fund, 2015; Mackey, Watson and Worboys, 2010). Mining is also a large extractive and land altering process happening across the central dividing areas of the region and Newcastle, on the central-eastern coast of the range, is the number one port city for coal exportation in the world (Australian Conservation Fund, 2015; Mackey, Watson and Worboys, 2010). The range also provides crucial water catchments for the majority of the three quarters of the population living around it and the damming of rivers and flooding of forests or valleys has occurred to compensate for dry climates (Australian Conservation Fund, 2015; Mackey, Watson and Worboys, 2010). Additionally, the flora of the range filters water for species use and rivers in a good portion of the range eventually dump water into the ocean towards or directly at the Great Barrier Reef (Australian Conservation Fund, 2015; Mackey, Watson and Worboys, 2010; Pulsford et al., 2003). The region and surroundings also are a main pull for domestic and international tourism and recreation due to the speciality of the ecosystems, geology and species, which brings in large amounts of money to the Australian economy (Australian Conservation Fund, 2015).

The human extraction and increased usage of this range has led to fragmentation of ecosystems, species disruption, species endangerment, decreased and altered water catchment ability, decreased species resilience towards hazards and decreases in biodiversity of endemic species (Australian Conservation Fund, 2015; Mackey, Watson and Worboys, 2010; Pulsford et al., 2013). The Great Dividing Range used to be considered as having the highest concentration of bird and mammal species, but researchers have seen declines in species and predict at least 26 could go extinct in the range by 2085, 11 of which are only found within the region (Pulsford et al., 2013; Cox, 2019). Additionally, the range has a unique concentration of Eucalypts, Acacias and Myrtaceae plant species at risk from climate change, human destruction and ecosystem fragmentation (Mackey, Watson and Worboys, 2010).

Protecting the range from further resource extraction and fragmentation is crucial to maintaining the biodiversity and functioning ecosystems within the range for both continued human use and species inhabitants. Conservation and preservation designations for land are crucial to preventing land change and extraction, but a challenge due to the wide area and regions of the range, and differences in present land ownership. However, small scale and large scale efforts have begun working together towards protection.

Case Study

In 2007, the Great Eastern Ranges Initiative (GER) was started as a small group effort of former New South Wales Department of Environment and Conservation workers to try and create a continent scale conservation effort focused on connectivity of the Great Dividing Range (Mackey, Watson and Worboys, 2010). This formal effort came after multiple corridors along the Great Dividing Range had already been identified as conservation corridors, with relatively strong banding of select protected land, but researchers saw a need for the species and ecosystems of these ranges to have longer expanding protection and a more cohesive protection effort (Pulsford et al., 2003; Pulsford et al., 2013).



Home of the traditional land owners the Kuku Yalanji people, who today look after and share the land. Mossman Gorge, Daintree Rainforest, QLD. Photo- Sidney Parker

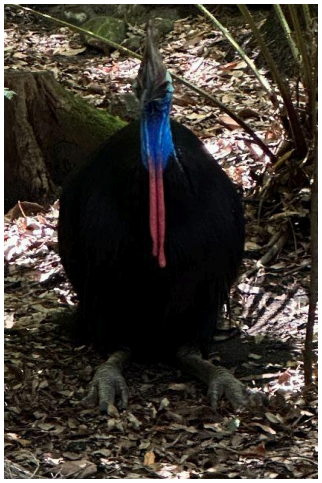
GER brings together many groups of people through relationships of trust and purpose centered around the good of the environment (Pulsford et al., 2013). State organizations, national parks, conservation programs, environmental activist groups, Aboriginal people who are considered traditional land owners, public land users and private landowners are all encouraged and utilized in forming plans for land conservation actions and choosing priority areas and species (Pulsford et al., 2013).

GER focuses on the idea of connectivity conservation on both small scales and larger state and national levels. Connectivity conservation takes standard ideas of biodiversity and land conservation practices and expands them with the understanding of implementing communities around already protected areas and that the scale of biodiversity threats today is too great for previous conservation and preservation measures (Mackey, Watson and Worboys, 2010). Main attention is given to: creating buffer spaces around already protected areas; large scale restoration to cleared areas and no isolated islands of protected land; enacting preservation in areas of high wilderness quality; and planning conservation with large scale biodiversity and species health in mind over large amounts of land (Mackey, Watson and Worboys, 2010). The goal of these priorities is to systematically create a better continuity between land and usage of land for species and humans while also creating a gradation of land management based on the specifics of an area. Targeting future protections on unprotected land is important but so is linking these lands with the human altered environment around them to strengthen the impact protected areas can have.

GER originally started with the majority of their work being based in New South Wales due to the early close connections to the NSW Department of Environment and Conservation and the already largely established national park and reserve protections the state had prior to 2007 (Pulsford et al., 2013). As GER continues to expand in funding and social resources, more focus is being able to be

present in Queensland, Victoria and the Australian Capital Territory (Australian Conservation Fund, 2015). GER and its organizers do this in a variety of ways by helping secure land rights of private lands to national parks or reserves to undergo protections, creating safe pathways across roads or cities for species migration or regular movement, restoring damaged ecosystems, and creating community engagement with Australia's wildlands (Australian Conservation Fund, 2015; Mackey, Watson and Worboys, 2010).

In northern Queensland in 2022, 35,500 hectares of land was bought by the Queensland government from a private land owner and will be turned into a new national park for the state (Editors, 2022). While this was not in direct association with GER as an organization the efforts of GER influenced this sale and Queensland's push for expanded national park lands by 2030 (Editors, 2022). Additionally, organizations have been independently buying up pockets of private land in north Queensland within and next to the Daintree Rainforest (Rainforest Trust, 2023). Preventing further development but allowing tourism rights while maintaining continuous habitats for endemic species - Boyd's Forest Dragon - and threatened species - the Southern Cassowary (Australian Conservation Fund, 2015).

Boyd's Forest Dragon Daintree Rainforest, QLD. Southern Cassowary Taronga Zoo, NSW. Photos- Sidney Parker

Species targeting and species movement resources are also implemented to help species access land disrupted by human developments or rebound from population decreases. This can be done in a number of ways, including land protection increase and resource extraction decrease. However, in other areas - particularly those fragmented by housing and roads - species underpasses, bridges, over road netting networks, ecosystem restoration and wildlife clinics all are infrastructures that can help connect and rebuild species populations (Australian Conservation Fund, 2015).

Springbrook National Park, QLD. Protected area that backs up and is fragmented by residences and roads. Photo- Sidney Parker

Lastly, creating community outreach and organizational connections increases awareness of connectivity conservation ideas, and helps the public join in the mission. Outreach can help private landowners sell or put their lands under forms of protection, or increase buffer zones with peoples properties near protected areas, to make protected land more effective (Australian Conservation Fund, 2015; Mackey, Watson and Worboys, 2010). Additionally, further outreach helps smaller organizations' impacts mean more and creates connecting relationships and missions for conservation through GER.

GER has directly helped secure protection on over 123,600 hectares, 57 species, and worked with 122 private property owners just in 2023 and influenced additional indirect conservation work and continues to work towards future sustainable goals (The Great Eastern Ranges, 2023).

Conclusion

The Great Eastern Ranges Initiative has and is still working to help further implement connectivity conservation across the Great Dividing Range, but has seen success in increased areas of protection levels. Working with environmental organizations, public and private landowners, and state and territory governments GER has connected and brought many people into the fight for conservation. Using an adaptable approach to traditional biodiversity and conservation methods with connectivity conservation GER has worked to increase species resilience and ecosystem health. However, the size and scale of the area they are working on is a limitation of how quickly measures can be taken relative to damage occurring, but a crucial area for protecting with the diversity of the Great Dividing Range. As GER continues to expand and public awareness on connectivity in the Great Dividing Range increases so too will the extent of effect it can have on ecosystems and increase the amount of people being connected to conservation and nature.

Blue Mountains National Park, NSW. Photo - Kaylee Van Pelt on behalf of Sidney Parker

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