

Climate-resilient landscapes

An adaptation case study in NSW's Northern Rivers region and the Wet Tropics of Queensland



Resilient
Landscapes

National Environmental Science Program



Barron River in flood, Kamerunga, Far North Queensland. Photo: Alice Buhrich

The Northern Rivers region of NSW and the Wet Tropics of Queensland contain significant species, habitats and ecosystems that are threatened by climate change. This project will engage with communities in each region to identify the key risks posed to selected species and ecosystems and provide the tools, data and skills to identify adaptation options and undertake adaptation decision pathway planning.

Climate change is escalating risks in complex ways

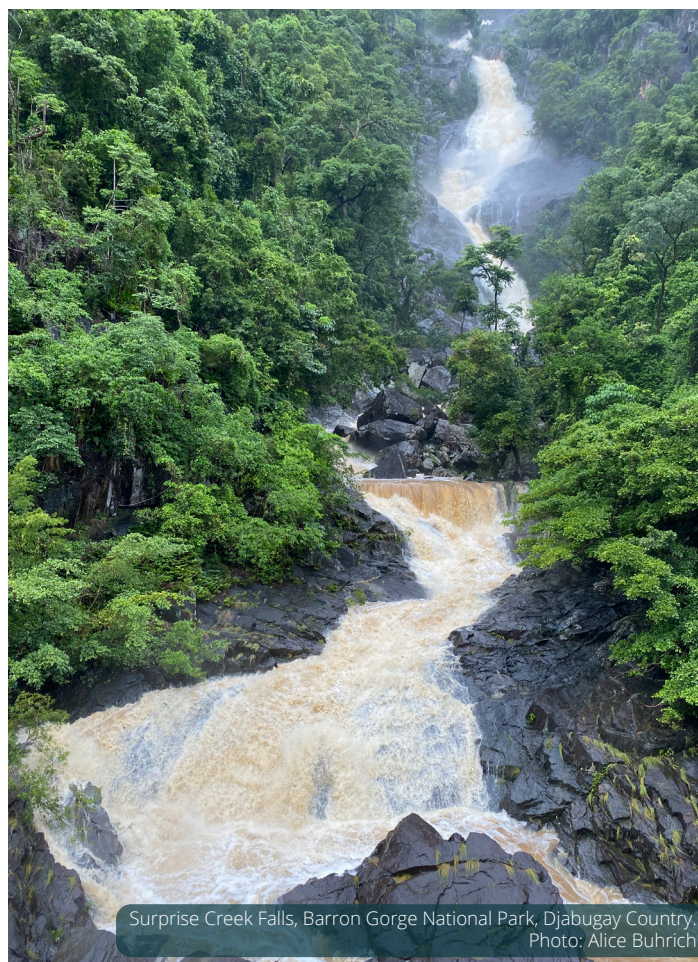
The Northern Rivers region in NSW and the Wet Tropics of Queensland have both endured a series of natural disasters in recent years, and both regions are projected to experience extreme weather events that are more intense, frequent and longer as the climate changes. While warming temperatures and changing rainfall patterns pose threats in themselves, they may also exacerbate the risks from other threats such as feral animals, weeds and development pressures.

Under such complex scenarios, stakeholders and decision-makers need data, information and tools to ensure that adaptation strategies and actions are appropriate and effective. These strategies and actions must be culturally appropriate; informed by local knowledge, including Traditional Knowledge; and accepted by the community. Climate adaptation plans must also identify decision points where changed circumstances require a shift in strategy or the adoption of new options.

Creating effective and appropriate climate adaptation plans

In each region, researchers will work with local community groups, Indigenous organisations, NRM groups and government agencies to:

- help increase their capacity to recognise climate-related risks to prioritised species and ecosystems
- identify feasible adaptation options
- develop adaptation decision pathway plans.



Surprise Creek Falls, Barron Gorge National Park, Djabugay Country. Photo: Alice Buhrich

Key research areas

The research approach is based on the climate adaptation planning process and will involve four sub-components:

1. Focal species and ecosystems: Threatened and culturally significant species and ecosystems, in terrestrial, aquatic and coastal environments, will be identified and prioritised in consultation with the community. Available biological and environmental data, such as information on species location, ecosystem extent, and current and future climate, will be assembled. Existing data and new habitat information will be mapped, and critical habitat resources and ecosystem condition assessed. Species distribution models for the focal species will be updated using new high resolution data on vegetation structure.

2. Climate risk assessment: The project will use the latest high-resolution spatial data on climate hazards that are most relevant to each region. Species distribution models will be updated with the latest high-resolution data on projected climate change. A climate-risk database will be built for each focal species and ecosystem, followed by climate-risk models for current and projected conditions.

3. Workshops: In each region, six one-day workshops involving 30–50 participants from partner organisations will be conducted. The purpose of these workshops is to build the capacity of participants and their organisations' for climate adaptation decision pathway planning.

4. Decision support: The data, information, tools, guidance and other materials arising from the project will be made available through the NESP Land and Sea Adapt decision support platform to support community members, rights holders and stakeholders with their climate adaptation planning.

Further information

The project is being led by Professor Brendan Mackey from Griffith University, Oliver Costello from the Jagan Alliance Aboriginal Corporation and Associate Professor Diane Jarvis from James Cook University.

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