



Seeds for success

Gippsland Forest Red Gums are adapting to a changing climate thanks to management options identified in a climate change strategy for the West Gippsland Catchment Management Authority region.

The strategy

The West Gippsland Regional Natural Resource Management (NRM) Climate Change Strategy was developed by West Gippsland Catchment Management Authority (WGCMA) with its partner organisations to help better understand and prepare for the impacts of climate change on the natural environment.

The strategy was funded by the Australian Government and identifies climate change adaptation and mitigation management options to protect vegetation in the local region.

These options include building connectivity between patches of remnant vegetation; removing or minimising existing stressors; and introducing genetics from drier, hotter areas into revegetation programs.

Some of these options are now being trialled in a project focused on the Gippsland Red Gum Grassy Woodlands vegetation community.

The challenge

The latest climate projections from the Bureau of Meteorology and CSIRO indicate the WGCMA region will be subject to a warmer, drier and more variable climate in the future.

The frequency and magnitude of flood, fire and drought is projected to increase, and rising sea levels and storm surge are anticipated.

Less average annual rainfall, higher rates of evaporation and reduced surface run-off will result in rivers, estuaries and wetlands receiving less water and changes in river flow regimes.

The impact of climate change on plants and animals is difficult to predict with any certainty, as changes will occur from individuals to ecosystems.

Existing threats to native vegetation and habitat will be amplified, including weed invasion, fragmentation, drought and intense bushfires.

A gradual change in the composition of vegetation communities may occur, as some species are replaced by those suited to warmer, drier environments. The most susceptible species of plants and animals will be those with restricted or specialised habitat requirements, poor dispersal abilities, or small populations.

Critically endangered vegetation

The Gippsland Red Gum Grassy Woodland and Associated Native Grassland is a nationally-listed critically endangered ecological community. It is protected under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

This ecological community used to be common and widespread across the central Gippsland plain and comes in two forms; as a woodland, and as a grassland with few or no trees. Currently, less than five per cent of its original coverage remains.

The Red Gum Grassy Woodlands has been degraded by grazing pressure, weeds, feral animals, and clearing over many years and cannot recover on its own.

The remaining fragmented vegetation needs connectivity and large patch sizes to self-regenerate and support wildlife into the future.

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Through its revegetation efforts, Greening Australia is working towards reversing the vegetation decline.

Restoration is a complex business

As the effectiveness of revegetation efforts sometimes won't be revealed for decades, the future condition of each site needs to be considered, so that planting efforts today will result in successful outcomes in the long term.

Greening Australia staff are already noticing changes in plants and animals locally due to climate. The revegetation sites are becoming hotter and drier, species composition is changing, and plants are competing for decreasing water supplies.



When choosing plants for their revegetation projects, Greening Australia must consider not only which plants will grow now, but which species will be able to withstand hotter and drier conditions in the future.

While locally sourced seed has traditionally been considered best suited to local environments, Greening Australia's practitioners now select seed based on climate change distribution modelling and data on environmental differences between plant populations.

By blending suitable seed from hotter locations with regionally local seed, Greening Australia is creating the best chance for revegetated plants to adapt and evolve in response to a changing climate.

Helping the future of Forest Red Gums

Greening Australia is using a range of tools and resources to examine the impact of climate change on vegetation species distribution.



These tools include the NRM Climate Change Strategy, 'Sourcing seed for future climates program' in Tasmania, Atlas of Living Australia, and CSIRO climate change modelling.

Modelling suggests that in the future, the central Gippsland plains environment will become more suited to the Box Ironbark vegetation community, which is currently found almost entirely north of the Great Dividing Range.

There are only two known populations of Box Ironbark vegetation communities south of the divide – in the Dawson and Heyfield areas of Gippsland.

These local Box Ironbark communities currently merge and co-exist with the Forest Red Gum communities, so Greening

Australia is looking at the climatic conditions surrounding this area as a living reference to how the Forest Red Gum communities have adapted.

Seed from these 'climate ready' drought tolerant Forest Red Gum is now being incorporated into the revegetation seed mix being planted across the Gippsland plain. This is to increase the diversity of the local provenance seed to help the next generation of Forest Red Gums within the Gippsland Red Gum Grassy Woodland vegetation community adapt to the predicted future hotter and drier climatic conditions.