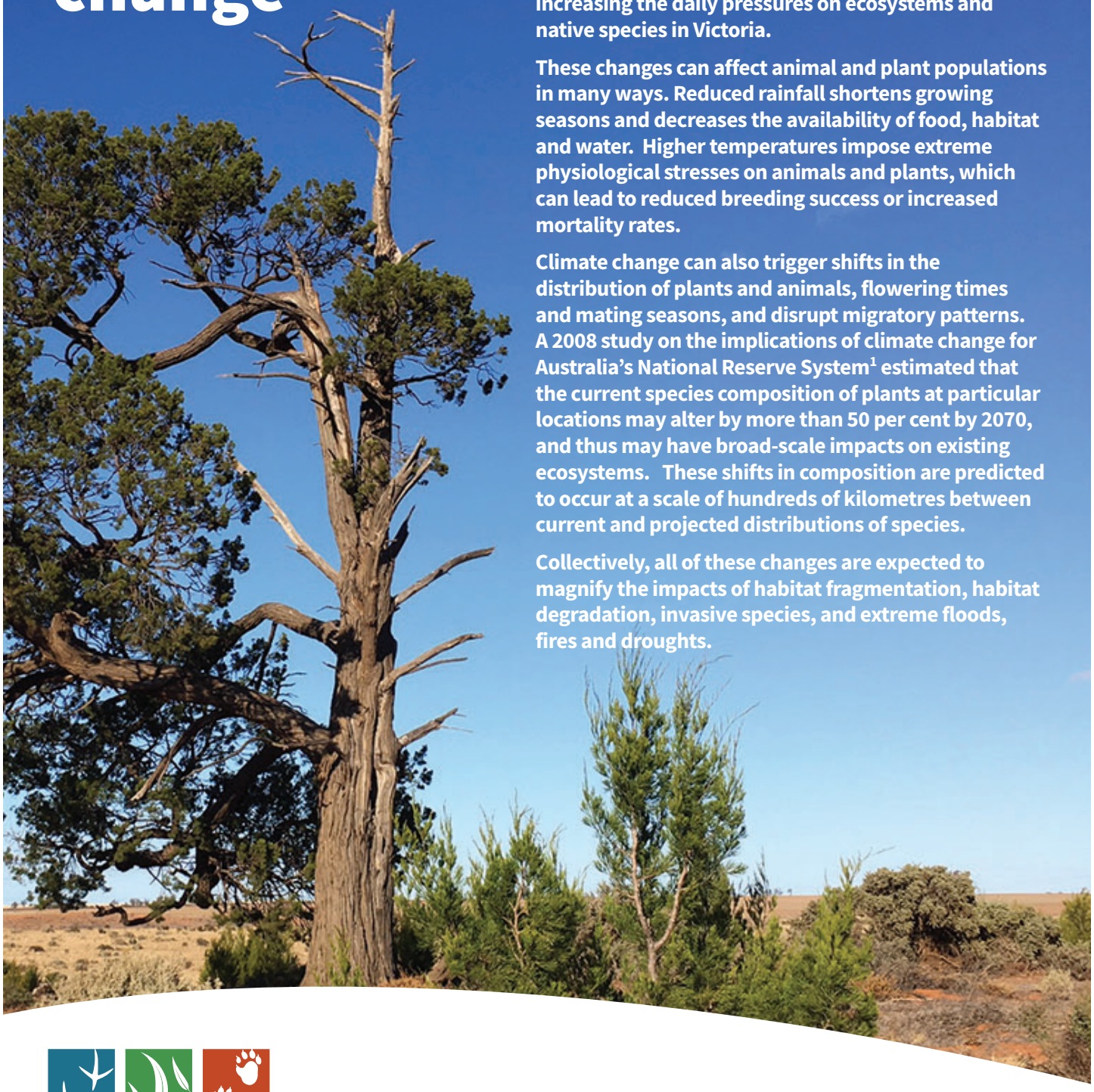
Conservation and climate change



Trust for Nature is deeply concerned about the impacts of climate change on Victoria's environment.

Hotter, drier seasons with associated reductions in rainfall and increases in extreme weather events are increasing the daily pressures on ecosystems and native species in Victoria.

These changes can affect animal and plant populations in many ways. Reduced rainfall shortens growing seasons and decreases the availability of food, habitat and water. Higher temperatures impose extreme physiological stresses on animals and plants, which can lead to reduced breeding success or increased mortality rates.

Climate change can also trigger shifts in the distribution of plants and animals, flowering times and mating seasons, and disrupt migratory patterns. A 2008 study on the implications of climate change for Australia's National Reserve System[1] estimated that the current species composition of plants at particular locations may alter by more than 50 per cent by 2070, and thus may have broad-scale impacts on existing ecosystems. These shifts in composition are predicted to occur at a scale of hundreds of kilometres between current and projected distributions of species.

Collectively, all of these changes are expected to magnify the impacts of habitat fragmentation, habitat degradation, invasive species, and extreme floods, fires and droughts.

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What we are doing

The Trust's protected areas store over 12 million tonnes of CO2 equivalent across its 42 reserves and more than 1,400 covenanted properties, an amount equal to removing four million cars from Victorian roads per year. Thanks to ongoing land management by the Trust and our growing community of covenantors, these carbon stores are increasing.

The Trust is revising its conservation planning approaches in the face of climate change taking into consideration the recommendations and guidance from partner agencies and research bodies (see www.trustfornature.org.au for more information). As a result of CSIRO research into making the National Reserve System more resilient in the context of climate change[2], we are increasingly focussed on helping protect land for restoration, for connectivity, as habitat refugia and to assist with ecosystem functionality and health.

Concentrating much of our work on our 12 focal landscapes across Victoria, where there are extensive areas of high biodiversity value on private land[3], also helps build the long-term capacity of the ecosystems and species in those landscapes to survive in the future.

References

1. Dunlop, M. & Brown, P.R. (2008). Implications of Climate Change for Australia's National Reserve System - A Preliminary Assessment. Report to the Department of Climate Change, and the Department of the Environment, Water, Heritage and the Arts, March 2008.
2. Dunlop, M., et al.. (2012) The implications of climate change for biodiversity conservation and the National Reserve System: final synthesis. CSIRO Climate Adaptation Flagship, Canberra.
3. Trust for Nature (2013). Statewide Conservation Plan for Private land in Victoria.

How property owners can respond

While the magnitude of climate change can seem daunting, there are many ways management and monitoring by landholders can help increase the resilience of native ecosystems. Below are some general principles and suggestions for local nature conservation.

1. **Enhance** your local environments to provide as much complexity as possible for animals, plants and other biota.
- Manage existing habitat to support as much diversity as possible, increasing its capacity to provide food for native species throughout the year and places for shelter and breeding
- Observe how native species on your property respond to variations in habitat and to different pressures—use this information to help think about and plan your conservation actions
2. **Prioritise** the protection, maintenance and improvement of existing habitat, especially irreplaceable habitat features such as large old trees, wetlands and soaks, and high-quality, diverse patches of understorey.
- Consider how to improve the quality of each layer of vegetation and habitat feature present on your property (for example the trees, shrubs, ground layer, fallen wood) and the actions which will achieve the most enduring change
3. **Reduce** as many pressures on the local environment and native wildlife as is practicable, through land management.
- Tackle existing and emerging threats from pest animals, weeds or over-abundant native species as a priority to reduce competition and predation pressures on local fauna and flora
4. **Target** the most fertile parts of the local environment where there is the highest chance of maintaining food resources and successful growth and reproduction.
- Maintain or improve the quality of the most fertile environmental areas of the property (for example, waterways, wetlands, mature forest, southerly or easterly slopes)
5. **Consider** how your local actions can best contribute to conservation of habitats and wildlife across the district.
- Think about revegetation strategically; how will your potential management provide additional food resources, breeding habitat, shelter, buffers or corridors?
- Improve habitat connectivity on your property and through the local district to increase access to viable habitat areas
- Record changes in species' occurrences, abundances or life-history patterns and submit records to relevant databases such as the Atlas of Living Australia, Victorian Biodiversity Atlas, BirdLife Australia's Birdata to help inform landscape-scale planning and adaptation.

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