Fact sheet 7: Climate change

Understanding the impacts of climate change on forests and forest-dependent species

Key points

- Across Victoria it has become warmer and drier due to climate change.
- In future, Victoria can expect increased temperatures, more hot days and warm spells, fewer frosts, more frequent and more intense downpours, harsher fire weather and longer fire seasons, and less rainfall.
- Further work is underway to improve our understanding of the likely effects of climate change on populations of forest-dependent threatened species.
- Climate change is likely to increase pressure on already threatened species.
- Forests are an important part of the global carbon cycle, and carbon sequestration is expected to decrease due to climate change.
- Researchers are assessing the likely impacts of climate change on forest ecosystems and using new climate scenarios to assess future vulnerability of forests and forest-dependent threatened species.
- The results will inform decisions about levels of protection for species and forest ecosystems.

Regional Forest Agreements

Regional Forest Agreements (RFAs) are agreements between the Australian Government and states that establish the framework for the sustainable management of forests within each region. The Victorian Government is reforming the state's RFAs. The objective is to improve the long-term management of our forests and ensure the RFAs reflect modern science and consider community needs.

Research project title

Climate change

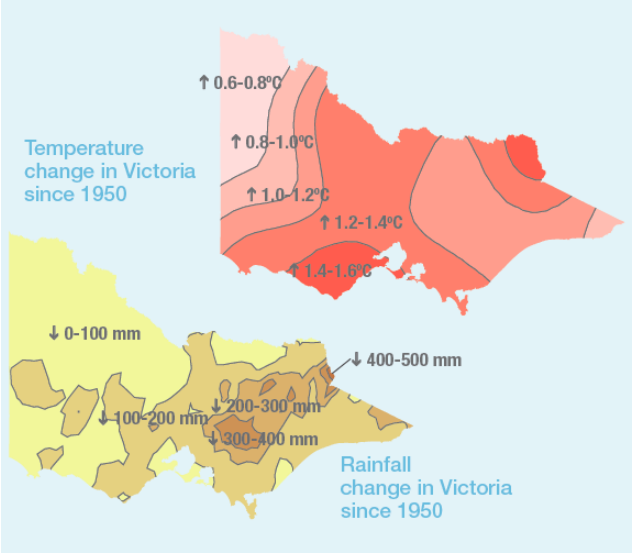
Who is doing this work?

Victorian Government Department of Environment, Land, Water and Planning

Researchers are assessing the likely impacts of climate change on forest ecosystems (ecological vegetation classes). The findings from this research can then be used to inform decisions around the design of protected areas and may lead to changes to targets for the protection of different forest ecosystems that are more vulnerable to climate change.

Climate change scenarios are being used in population viability analysis. This will relate the location and extent of habitats suitable for threatened species with the viability of populations under various climate scenarios. The research will improve our understanding of the likely effects of climate change on populations of forest-dependent threatened species.

Using new climate scenarios developed by CSIRO, available in July 2019, the researchers will bring together data and examine a range of future scenarios to assess the vulnerability of forest ecosystems and forest-dependent species over time and across Victoria. This will inform modelling of species populations and habitats, the design of forest reserves, and management strategies.



It has been getting warmer and drier across Victoria. Image: DELWP Climate Ready Victoria

VICTORIA State Government | Environment, Land, Water and Planning

Climate change and its impacts

Victoria experiences a wide range of climatic conditions. These range from the hot summers in the north of the state to the winter snow storms of the alpine areas, and from the relatively dry wheat belt and the Grampians to the wet elevated areas of Gippsland.

Observed and projected changes

Across Victoria it has been getting warmer and drier. Temperatures have increased by about a degree since the mid-20th century, with the rate of warming increasing. On average, rainfall has declined since the 1950s, especially in autumn.

In the future, due to climate change, the state can expect temperatures to continue to increase year-round. There will be more hot days and warm spells, fewer frosts, more frequent and more intense downpours, harsher fire weather and longer fire seasons, less rainfall in winter and spring south of the Great Dividing Range, and less rainfall in autumn, winter and spring north of the Divide (See DEWLP Climate Ready Victoria, 2016, at https://www.climatechange.vic.gov.au/information-and-resources).

Impacts on forestry

Climate change has introduced new threats to forestry. These changes could lead to a number of impacts, including changes to the tree species that can be grown, changes to the growth rates of forests, and a range of complex changes to forest communities and the species that live within them.

Warmer and drier conditions and harsher fire weather will be a challenge, with the area suitable for forestry likely to be reduced. Other impacts of climate change include earlier flowering and planting times, reduced water security, changed distribution of pests and diseases, and bushfires. In addition, climate change will amplify existing threats to flora and fauna, alter disturbance regimes, and change habitats and the dynamics of invasive species.

More frequent and severe fires as a result of changing climate are expected to cause tree mortality, and changes to regeneration and seed viability in the fire sensitive forest types including eucalypt forests.

Impacts on biodiversity

Victoria is home to many species and forest ecosystems that may be at risk from climate change. Impacts such as higher temperatures and more severe droughts will affect populations and habitats. The most immediate impacts are likely to arise from increased fire frequency and intensity, changes to soil moisture and hydrology, changes to food supply, flowering and interactions between species (e.g. competition and predation). These changes are likely to increase pressure on already threatened species.

New data on the distribution of threatened species obtained from our Statewide Landscape Scale Surveys will inform and improve our Habitat Distribution Models (HDMs). HDMs provide DELWP with a long-term and whole of landscape understanding of the distribution and abundance of endangered ecosystems and biodiversity and their changes over time.

Impacts on stored carbon

In addition, forests are an important part of the global carbon cycle, therefore monitoring carbon stocks in forests is an essential part of sustainable forest management (see Fact Sheet 8: Carbon). Carbon sequestration is expected to decrease due to climate change and the associated increase in fire hazards.

Climate change is likely to lead to harsher fire weather and longer fire seasons. Image: DELWP Image library

More information

Future of our Forests
https://www2.delwp.vic.gov.au/futureforests

This series of fact sheets
https://www2.delwp.vic.gov.au/futureforests/forest-values-assessment/forest-values-assessment-fact-sheets

ISBN 978-1-76077-516-2 (Print)

ISBN 978-1-76077-517-9 (pdf/online/MS word)

Accessibility

If you would like to receive this publication in an alternative format, please telephone the DELWP Customer Service Centre on 136186, email customer.service@delwp.vic.gov.au, or via the National Relay Service on 133 677 www.relayservice.com.au. This document is also available on the internet at www.delwp.vic.gov.au.