

Australia's biodiversity

Australia is one of the world's most biologically diverse countries, and has more endemic species (found nowhere else) than any other nation. This is due to Australia's geographical isolation since early in the earth's history, and the great variation in our climate.

Throughout geological history, climate change has been a driving force for evolution, with plants and animals slowly adapting to new conditions. However, the changes we are facing now with predicted climate change are likely to be much more rapid. Along with change in average temperature (which is predicted to generally increase) and rainfall, changes to the frequency of extreme events such as storms, floods, heatwaves and bushfires are anticipated.

How climate change may affect biodiversity

Climate change may cause patterns of biodiversity in the landscape to change over time. Existing ecological communities may disappear and new ones emerge.

Some species will be at risk including those with long life spans, poor reproducers, limited mobility, those only found in a narrow range of locations, those with specific relationships with other species and ecosystems, isolated and specialised species and those which require large areas of land for their survival. Conversely, some species, both native and exotic, may be advantaged by climate change as they migrate into new areas and compete with local species.

Species that coped with previous climate change by migrating to more suitable areas will find this more difficult in our landscape where habitats have been fragmented. Other environmental stresses such as weeds, overgrazing, fire and water extraction will also affect the ability of native plants and animals to adapt.

Climate change would pose a threat to any species living in areas near the upper limit of their temperature range, particularly if they cannot migrate.

What can landholders do to protect our biodiversity?

Despite the uncertainties about how individual species and ecosystems might respond, a range of useful actions can be taken, and many have added benefits. For example, reducing emissions from industries will not only decrease greenhouse gases, but will also improve air quality and human health. Similarly, planning for biodiversity and climate change builds on and adapts strategies already in place to help protect native plants and animals and secure ecosystem services.

Landholders can undertake actions and strategies to help native plants and animals survive and adapt.

Create networks of protected areas

Predictive modelling shows that many native species could be adversely affected unless they are able to move across the landscape. Networks linking native vegetation across regions will assist these plants and animal to migrate. To help adaptation to climate change, these vegetation corridors need to incorporate the different climatic gradients and to have a network of protected areas representing the range of Australian ecosystems.

With most of Australia's bushland in private ownership, this is not just a government action—the community plays a key role. Participating in voluntary conservation through the Conservation Partners Program (see over for details) is an important way landowners in NSW can help ensure the habitat under their stewardship remains available to our plants and animals.

Build resilience to climate change

The resilience of an ecosystem is a measure of its ability to withstand and recover from environmental stresses and disturbances. Healthy ecosystems are more resilient and are better able to adapt to climate change.

Landholders are already building the resilience of ecosystems by controlling weeds and pest animals, and fire management will become increasingly important.

Create refuges

Refuges are natural areas where native plants and animals may survive the immediate impacts of extreme weather events and then disperse to colonise new areas as conditions allow. Native vegetation on private land is instrumental in providing refuges for wildlife.

Create buffers

Buffer zones around key habitats are important in maintaining the health and resilience of the core habitat as they provide a degree of protection from threats such as weed invasion.

Where private land and public conservation reserves adjoin, the quality of native vegetation on both is more easily maintained where landholders are managing their land for conservation. Landholders working collaboratively with reserve managers and other landholders make a major contribution.

Monitoring conservation values and threats

Landholders with Conservation Agreements and Wildlife Refuge properties are in an ideal position to implement monitoring programs and provide information about changes on their properties. Adaptive management decisions can be made to respond to these changes.

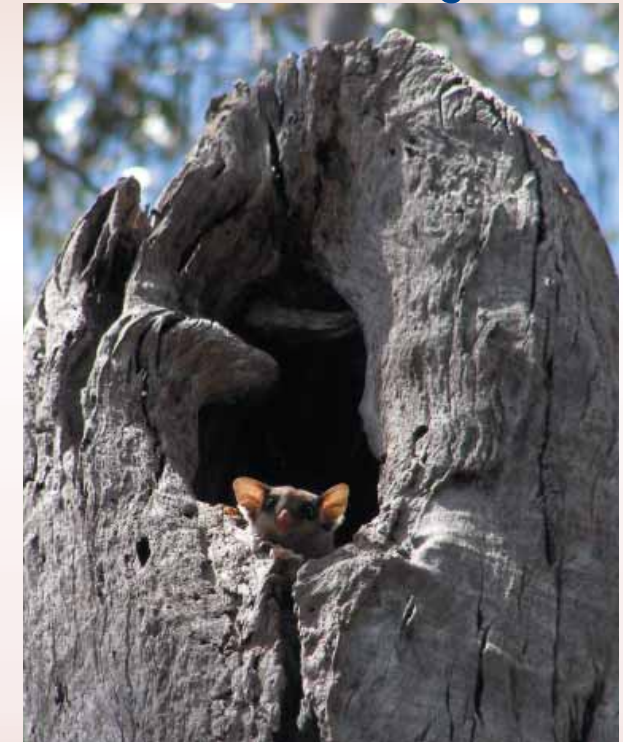
Find the best management techniques

To identify the best techniques to protect our most vulnerable species, research is needed on different management approaches to address, for example, fire management, grazing, regeneration of habitats, and include long-term monitoring and evaluation programs. Landholders can participate in such programs.



voluntary conservation

managing biodiversity for climate change



Conservation Partners Program

The DECC Conservation Partners Program offers landholders a range of options to formalise conservation commitments on their property, including Conservation Agreements and Wildlife Refuges. These options are voluntary and provide landholders with a range of choices to suit their needs. Land can be privately or publicly owned or leased from the Crown.

For more information on the Conservation Partners Program options available for you or your organisation: visit the DECC website at: www.environment.nsw.gov.au/cpp/ConservationPartners.htm

Email: conservation.partners@environment.nsw.gov.au

Telephone: 02 9995 6768

Conservation Partnerships Section
Landscapes and Ecosystems Conservation Branch
Department of Environment and Climate Change NSW
Level 12, 59-61 Goulburn Street, Sydney
PO Box A290, Sydney South NSW 1232

Infoline: 1300 361 967

For information on the Land For Wildlife Scheme:

visit the Community Environment Network website at: www.cen.org.au

Email: admin@cen.org.au

Telephone: 02 4349 4756

For information on climate change, go to: www.environment.nsw.gov.au/climatechange/index.htm

For information about government initiatives to address climate change and biodiversity go to: www.environment.nsw.gov.au/biodiversity/climatechange.htm



Animals of Australia's alpine zone such as the mountain pygmy possum and southern corroboree frog are at particular risk from climate change. Photos: © DECC Main—D. Hunter, Inset—L. Broome

Protecting conservation values on your property

Conservation Agreements, and Wildlife Refuges are legal mechanisms under the *National Parks and Wildlife Act 1974*, providing voluntary conservation options for landholders.

Conservation Agreements are most suitable for those who have areas of high conservation value including native vegetation, wildlife habitat, geological features or Aboriginal cultural heritage. Landholders who wish to make a commitment to conservation can ensure that the conservation values on their land are legally protected after they leave the property. The Agreement is registered on the land title and transfers to subsequent owners when the land is sold. Land under these Agreements is exempt from Council rates, and tax concessions may also apply.

Wildlife Refuges This option is most suited for those who have a variety of natural, modified or artificial habitats (eg woodlots, dams) which may include remnant native vegetation and who want to commit their land for the protection and conservation of wildlife and their habitats. A Wildlife Refuge is noted on the land title. The Wildlife Refuge status remains even after sale. Landowners can make changes to the status of the Refuge at any time.

Property Registration is available through **Land for Wildlife** which is voluntary property registration scheme co-ordinated in NSW by the Community Environment Network.

Landholders can also register their property with the Conservation Partners Program.

Produced as part of the
Climate Action Wildlife Habitats and Corridors Conservation Project
funded by the NSW Greenhouse Office

Cover photo: © DECC, H. Matthews
DECC 2009/266

Department of Environment & Climate Change NSW

