

## BIODIVERSITY CRISIS

Victoria is facing a biodiversity crisis. The most cleared state in the country, almost a third of our native animals and close to half our native plants are extinct or threatened with extinction.

Many of the valuable ecological services we take for granted are also under threat, including clean air and water, pollination and pest control. Add the pressures of climate change, habitat fragmentation, rampant weeds and feral animals, and it's easy to see why Victoria's environment is in a state of crisis.

The Victoria Naturally Alliance, a partnership of eight environment groups led by the Victorian National Parks Association, has been formed to work with government and the community to solve this crisis.

The State Government has already responded to our concerns by launching a [Land and Biodiversity White Paper](#) and we're pushing for more funding to help land managers protect and enhance native vegetation on their property.

We want to see a White Paper that sets an agenda not only for the protection and preservation of current ecosystems but also for restoration of native vegetation on both public and private land.

The alliance is made up of the Victorian National Parks Association, Australian Conservation Foundation, Environment Victoria, The Wilderness Society, Bush Heritage Australia, Trust for Nature, Invasive Species Council and Greening Australia (Vic).

## SPECIES UNDER SIEGE

The combination of habitat loss, climate change, invasive weeds and feral animals is pushing Victoria's native animals to the brink of extinction.

- Already 30 per cent of Victoria's native animals are either extinct or threatened.

Environmental Sustainability Issues Analysis for Victoria, CSIRO.

- The highest number of threatened species in any one region of Australia occurs in north-western Victoria.

National Land and Water Resources Audit, 2002.

- Even under the lowest global warming scenario major reductions and losses in species and ecological communities are predicted under climate change.
- More than a third of the 90 Australian animal species so far identified as at risk from climate change are found in Victoria and are on the state's threatened species list. These studies are far from comprehensive – the actual number is likely to be much greater.

Climate Action Network Australia. [www.cana.net.au/bush/aus\\_animals.htm](http://www.cana.net.au/bush/aus_animals.htm)

## VICTORIAN ANIMALS AT RISK FROM CLIMATE CHANGE

**MAMMALS:** Bridled Nailtail Wallaby, Brush-tailed Bettong, Eastern Barred Bandicoot, Eastern Quoll, Heath Rat, Leadbeater's Possum, Long-footed Potoroo, Mountain Pygmy-Possum, New Holland Mouse, Red-tailed Phascogale, Smoky Mouse, Swamp Antechinus, Western Barred Bandicoot.

**AMPHIBIANS:** Spotted Tree Frog.

**BIRDS:** Black-eared Miner, Ground Parrot, Helmeted Honeyeater, Hooded Plover, Little Tern, Mallee Emu-wren, Orange Bellied Parrot, Plains Wanderer, Red-lored Whistler, Red-tailed Black Cockatoo, Regent Honeyeater, Regent Parrot, Rufous Bristlebird, Slender-billed Thornbill, Sooty Owl, Swift Parrot, Western Whipbird.

**REPTILES:** Striped Legless Lizard, She-oak Skink, Swamp Skink.

**FISH:** Australian Grayling, Trout Cod.

**INVERTEBRATES:** Giant Gippsland Earthworm.

### Website

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“All Victorians enjoy the benefits that come from a healthy environment – good quality food and wine, clean water, holidays at the beach and in the bush. Biodiversity is the basis of this prosperity. But our unique plants and animals are under increasing pressure from land clearing, habitat destruction and climate change. We need firm and enduring action on these issues now if we want our kids to enjoy the benefits we do.”  
– Don Henry, Australian Conservation Foundation executive director



## HISTORY OF CLEARING

Since European settlement in Victoria we've lost about 70% of our native vegetation through land clearance. This rapid development has taken a heavy toll on our native plants and wildlife and can be categorised as occurring in three phases:

- **Initial settlement:** Arrival of stock, the grazing of native vegetation, clearing of small areas with good soils for agriculture.
- **Agricultural and industrial expansion:** Discovery of gold massively increases Victoria's population in the 1850s. Leads to clearing of virtually all lowland areas with more fertile soils. Logging operations commence in uncleared forest and woodland areas. Most major wetlands and rivers altered to some degree. More than half the state's freshwater marshes drained to make way for agricultural production. Dams built on most major rivers. Deliberate and accidental introduction of foreign plants and animals begins.
- **Intensification of land use:** Ongoing intensification of agriculture and human settlement.

## A LAND IN NEED OF REPAIR

CSIRO research shows Victoria is the most cleared state in Australia, so preserving what's left of our native vegetation through revegetation projects is crucial in the battle to end the state's biodiversity crisis.

- 44% of Victoria's native plants are either extinct or threatened.

Environmental Sustainability Issues Analysis for Victoria, CSIRO.

- 75% of our waterways are degraded and 35% of wetlands destroyed.

The Health of Our Catchments: A Victorian Report Card.

- 12% of Victoria's remaining native vegetation is on private land yet supports 30% of our threatened species populations.

Department of Sustainability and Environment.

- Under a business-as-usual scenario more than 20% of agricultural land and 60% of irrigation land will be degraded by 2050.

Environmental Sustainability Issues Analysis for Victoria, CSIRO.

- Invasive weeds like blackberry are probably the single biggest cause of habitat loss and land degradation in Victoria. The impacts of feral animals is also wreaking havoc on our biodiversity.

Nature Conservation Review Victoria 2001.

## LET'S FIX THIS MESS

The Victoria Naturally Alliance is working with governments, industry and the community to:

- Identify what is needed to adapt and react to threats facing Victoria's biodiversity, including the impacts of climate change.
- Control feral species invading native habitats.
- Maximise what is robust, and propose changes to improve the health of ecological processes.
- Ensure ecological restoration is adequately funded and legislated for by government.
- 66% of Victoria is private property. Landowners need support to manage and enhance the natural environments on their land.
- We need top quality science and data as well as practical on-ground knowledge to plan for resilient ecosystems that can adapt to the vagaries of climate change.
- We need to end damaging land use practices.

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## WHY CLIMATE CHANGE THREATENS SPECIES

Certain species are particularly at risk from climate change because:

(Brereton et al, 1995):

- Animals that have been reduced to small populations and have a small genetic base (such as the Eastern Barred Bandicoot) are at risk because they may not be as robust in dealing with changes.
- Species that have very specific and narrow habitat requirements, such as Victoria's Leadbeater's Possum, are at risk because they are less able to adapt. These species may be very dependent on certain forest types and specific plants, which could also be negatively affected by climate change.
- Animals that have a poor ability to migrate are at risk if climate change requires them to move to new areas with more suitable climate.
- Species that have lost large areas of habitat because of land clearing or other uses, such as Victoria's Giant Gippsland earthworm, are at risk because if their habitat is unable to adapt to climate change it is unlikely that habitat will be recreated elsewhere.
- Animals that are located on the edge of their range (such as the Sooty Owl) are at greater risk than those at the centre of their range.
- Animals like Koalas *Phascolarctos cinereus* are at risk by the changes that increased CO<sup>2</sup> may have on the quality of food plants. Plants may have more roots and stems, less leaf tissue, and reduced food quality from reduced nitrogen content and increased concentrations of defensive compounds such as phenolics and tannins (Arnold, 1988; Lawler et al., 1997).

Source: Climate Action Network Australia - [http://www.cana.net.au/bush/aus\\_animals.htm](http://www.cana.net.au/bush/aus_animals.htm)

## PUSHED TO THE BRINK OF EXTINCTION

The Mountain-Pygmy Possum, Helmeted Honeyeater and Mallee Emu Wren are just a few of Victoria's native animals that could become extinct if the world's temperatures continue to climb.

Work by CSIRO scientist Dr Roger Jones shows increased temperatures under climate change could expose a number of Victorian animal species to the risk of extinction as early as 2030, and certainly by 2050.

Under climate change average annual temperatures across Victoria could rise by as much as 1.2°C from 1990 to 2030 and 2.3°C by 2050.

Figures produced by Dr Jones show that a temperature increase of just 0.9°C would be enough for the Mountain-Pygmy Possum to completely lose its "bioclimatic envelope" (climate suitable habitat range).

An increase of 1.4°C and the nationally endangered Helmeted Honeyeater in Victoria loses its bioclimatic envelope, 1.7°C and the Giant Gippsland Earthworm has lost its bioclimatic envelope.

Figures are based on original work done by Raymond Brereton, Simon Bennett and Ian Mansergh – Enhanced Greenhouse Climate Change and its Potential Effect on Selected Fauna of South-Eastern Australia: A Trend Analysis, which examined the potential effect of enhanced greenhouse climate change on the distribution of 42 species of fauna of south-eastern Australia.

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### Temperature increase before these species lose their habitat

