

Supporting Technical Supplement



Protecting Victoria's
Environment –
Biodiversity 2037

This document is a supplement to the Biodiversity Plan, *Protecting Victoria's Environment – Biodiversity 2037*.

The Plan contains a number of factual statements, but does not include a list of detailed references. This document provides sources, references and further reading for facts and case studies stated in each chapter of the Plan. It matches text from the Plan with a selection of relevant material from a range of sources, including peer-reviewed scientific literature, government reports, technical reports, websites and anecdotal evidence. It does not attempt to present an exhaustive list, but enough relevant and reliable material to support the statements in the Plan.

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COVER IMAGES

Left: Twelve Apostles – Parks Victoria

Middle: Basalt Sun-orchid (*Thelymitra greagaria*) – Vanessa Craigie / DELWP

Right: Brush-tailed Rock-wallaby (*Petrogale penicillata*) – DELWP

Chapter 1

Introduction



page 4 box What is biodiversity?

Biodiversity encompasses all components of the living world: the number and variety of plants, animals and other living things, including fungi and micro-organisms, across our land, rivers, coast and ocean. It includes the diversity of their genetic information, the habitats and ecosystems within which they live, and their connections with other life forms and the natural world.

- Source
- Morton, S. and Hill, R. (2014) What is biodiversity, and why is it important? In: Morton, S., Lonsdale, M. and Sheppard, A. eds., (2014) *Biodiversity: Science and Solutions for Australia*. CSIRO Publishing.
 - Swingland, I.R. (2001) Definition of biodiversity. *Encyclopedia of Biodiversity* 1 pp.377-391.

page 4 paragraph 2 Victoria is the most intensively settled and cleared state in Australia, with over 50 per cent of the state's native vegetation cleared since European settlement.

- Source
- Australian Bureau of Statistics (2016) 3218.0 – Regional Population Growth, Australia, 2015-16. Commonwealth of Australia, Canberra.
<http://www.abs.gov.au/ausstats/abs@.nsf/mf/3218.0> – accessed 30 March 2017.
 - Commissioner for Environmental Sustainability (2013) *State of the Environment Victoria 2013*. Office of the Commissioner for Environmental Sustainability, Melbourne, Victoria.
 - Victorian Environmental Assessment Council (2011) *Remnant Native Vegetation Investigation: Final Report*. Victorian Environmental Assessment Council, East Melbourne, Victoria.

page 4 paragraph 3 As Victorians have become more conscious of the importance of biodiversity – and more active in their efforts to protect it – the rate of native vegetation clearing has slowed. Yet, despite these efforts, many native plant and animal species remain under threat. Victoria's biodiversity continues to decline, and the current level of remedial effort is not sufficient to make up for these losses.

- Source
- Commissioner for Environmental Sustainability (2013) *State of the Environment Victoria 2013*. Office of the Commissioner for Environmental Sustainability, Melbourne, Victoria.
 - Department of Environment and Primary Industries (2013) *Advisory List of Threatened Vertebrate Fauna – 2013*. Department of Environment and Primary Industries, Victoria, East Melbourne, Victoria.
 - Department of Environment and Primary Industries (2014) *Advisory List of Rare or Threatened Plants in Victoria – 2014*. Department of Environment and Primary Industries, Victoria, East Melbourne, Victoria.
 - Department of Sustainability and Environment (2008) *Native Vegetation Net Gain Accounting first approximation report*. State of Victoria, Department of Sustainability and Environment, East Melbourne, Victoria.
 - Department of Sustainability and Environment (2009) *Advisory List of Threatened Invertebrate Fauna in Victoria – 2009*. State of Victoria, Department of Sustainability and Environment, East Melbourne, Victoria.
 - Jackson, W.J., Argent, R.M., Bax, N.J., Bui, E., Clark, G.F., Cochrane, P., Coleman, S., Cresswell, I.D., Emmerson, K.M., Evans, K., Hibberd, M.F., Johnston, E.L., Keywood, M.D., Klekociuk, A., Mackay, R., Metcalfe, D., Murphy, H., Rankin, A., Smith, D.C. and Wienecke, B. (2016) *Australia State of the Environment 2016*. Australian Government Department of the Environment and Energy, Canberra.

page 4 ... there is now widespread acknowledgement that the long-term health of the economy – and,
paragraph 5 by extension, the welfare of the community – is inextricably linked to the health of the environment.

- Source
- *UNEP Inclusive Wealth Report 2017*. United Nations Environment Program.
http://web.unep.org/greeneconomy/sites/unep.org.greeneconomy/files/publications/20170321_inclusive_wealth_report_web.pdf – accessed 20 April 2017.
 - World Economic Forum (2016) *The Global Risks Report 2016*. 11th Edition. Published by the World Economic Forum, Geneva, Switzerland.
<http://www3.weforum.org/docs/Media/TheGlobalRisksReport2016.pdf> – accessed 20 April 2017.
 - Dr Ken Henry AC Speech – “Advancing Australia’s Natural Capital”. Address to The Fiona Wain Oration, Sydney, 27 May, 2016.
<http://news.nab.com.au/dr-ken-henry-ac-speech-advancing-australias-natural-capital/> – accessed 30 March 2017.
 - The World Bank (2016) *Natural Capital Accounting*. Brief prepared by The World Bank, March 31, 2016.
<http://www.worldbank.org/en/topic/environment/brief/environmental-economics-natural-capital-accounting> – accessed 20 April 2017.

1.1 Making the case for biodiversity

page 4 A healthy natural environment provides vital life-sustaining services for humans, and
paragraph 7 underpins many of the productive activities that generate value for Victorians. Victoria’s diverse and unique mix of plants, animals, soils, seas and waterways function together as ecosystems, which in turn produce some of humans’ most basic needs – provisions such as clean air and water, productive soils, natural pest control, pollination, flood mitigation and carbon sequestration. Ecosystems also provide us with food, raw materials for production (such as timber, pastures and fertilizers), genetic resources, pharmaceuticals, and contribute to waste decomposition and detoxification.

- Source
- Daily, G.C. (1997) *Nature’s services: societal dependence on natural ecosystems*. Washington, DC: Island Press.
 - Millennium Ecosystem Assessment (2005) *Ecosystems and Human Well-being: Synthesis*. Island Press, Washington, DC.
<http://www.millenniumassessment.org/documents/document.356.aspx.pdf> – accessed 30 March 2017
 - Wentworth Group of Concerned Scientists (2014) *Blueprint for a Healthy Environment and a Productive Economy*.

page 4 The value to humans of these “ecosystem services” is immeasurable, and replacing them
paragraph 9 could be extremely costly, if not impossible. For example, if natural water purification and flood protection benefits were diminished or lost, they would need to be replaced by built infrastructure, leading to potentially large increases in water bills. Protecting the environment avoids the cost of replacing ecosystem services with built alternatives, and represents a least-cost way of ensuring that we can continue to enjoy its benefits into the future.

- Source
- Holzman, D.C. (2012) Accounting for Nature’s Benefits: The Dollar Value of Ecosystem Services. *Environmental Health Perspectives*. 20(4): 152–157.
-

page 5 paragraph 1	<p>These natural assets attract millions of local, domestic and international visitors every year. Increasingly, a focus on personal, environmental and community wellbeing has helped drive growth in the demand for nature-based experiences.</p>
Source	<ul style="list-style-type: none"> Department of Economic Development, Jobs, Transport and Resources (2016) <i>Victorian Visitor Economy Strategy</i>. Department of Economic Development, Jobs, Transport and Resources, Melbourne, Victoria. http://economicdevelopment.vic.gov.au/__data/assets/pdf_file/0006/1340979/Visitor_Economy_Strategy.pdf – accessed 30 March 2017 Tourism Victoria (2013) <i>Victoria's Regional Tourism Strategy 2013-2016</i>. State of Victoria. http://yarrarangestourism.com.au/wp-content/uploads/2013/10/6588_victoria_-regional_tourism_strategy_2013-16_WEB.pdf – accessed 30 March 2017 Tourism Victoria (2014) <i>Nature-based Tourism: Market Profile Year Ending June 2014</i>. Fact sheet prepared by the Tourism Victoria Research Unit – November 2014. http://www.tourism.vic.gov.au/research/domestic-and-regional-research/product-segment-market-profiles.html –accessed 30 March 2017
page 5 paragraph 1	<p>Aboriginal cultural tourism is also expanding to meet the growing international demand for Aboriginal cultural experiences and products...</p>
Source	<ul style="list-style-type: none"> Tourism Victoria (2014) <i>Aboriginal Tourism: Market Profile Year Ending June 2014</i>. Fact sheet prepared by the Tourism Victoria Research Unit – November 2014 http://www.tourism.vic.gov.au/research/domestic-and-regional-research/product-segment-market-profiles.html –accessed 30 March 2017.
page 5 paragraph 2	<p>The term 'natural capital' is often used to describe the resources provided by nature – minerals, soil, water, ecosystem services, and all living things from which we derive material or financial value. Biodiverse ecosystems are the core component of natural capital.</p>
Source	<ul style="list-style-type: none"> Grafton, Q., Adamowicz, W., Dupont, D., Nelson, H., Hill, R. J. and Renzetti, S. (2008) <i>The economics of the environment and natural resources</i>. John Wiley & Sons.
page 5 paragraph 2	<p>Victoria's agriculture, forestry and fisheries sectors, which directly rely on natural capital, contribute around \$8 billion, or 2.8 per cent, to annual Gross State Product.</p>
Source	<ul style="list-style-type: none"> The Future Economy Group (2014) <i>Bringing Victoria's Economy into the 21st Century: Building Prosperity for Victoria's Economy, Employment and Environment</i>. Melbourne.
page 5 box	<p>Valuation of benefits from Victoria's parks</p> <p>Tourism: \$1.4 billion in spending per year associated with visits by tourists to Victoria's parks, generating \$1 billion gross value added to the state economy and 14,000 jobs.</p> <p>Health benefits: visits to parks are estimated to save Victoria between \$80 million and \$200 million per year from avoidance of disease, mortality and lost productivity.</p> <p>Water purification: avoided costs estimated at \$33 million per year in metropolitan areas and \$50 million per year in non-metropolitan areas.</p> <p>Flood protection: \$46 million per year from avoided infrastructure costs.</p> <p>Coastal protection: \$24 million-\$56 million per year from avoided costs (e.g. from erosion and storms).</p> <p>Carbon sequestration: Victoria's terrestrial parks store at least 270 million tonnes of carbon. Marine parks store at least 850,000 tonnes.</p>
Source	<ul style="list-style-type: none"> Parks Victoria (2015) <i>Valuing Victoria's Parks. Accounting for ecosystems and valuing their benefits: Report of first phase findings</i>. Parks Victoria and the Department of Environment, Land, Water and Planning. http://parkweb.vic.gov.au/about-us/news/valuing-victorias-parks – accessed 30 March 2017

page 5 box	<p>...Trust for Nature reserves and covenants are estimated to store a further 12 million tonnes of carbon.</p>
Source	<ul style="list-style-type: none"> Rimmer, L. and Young, V. (2016) <i>Conserving Carbon: a desktop assessment of forest carbon stocks in properties and covenants owned or managed by Trust for Nature Victoria</i>. Report to Trust for Nature. Forests Alive Pty. Ltd. <p>http://www.trustfornature.org.au/news/new-report-carbon-stock-on-covenanted-land-reserves/ – accessed 30 March 2017</p>
page 5 paragraph 5	<p>...Traditional Owners attach great social, economic and spiritual value to the plants and animals that have supported their subsistence and economies for thousands of years, and that feature in their Dreamtime and creation stories. Traditional Owners have knowledge of Country, and cultural obligations to manage their traditional lands and waters. In meeting these cultural obligations, they keep Country healthy, which has benefits for their own wellbeing, the natural environment and the wider Victorian community.</p>
Source	<ul style="list-style-type: none"> Burgess, C.P., Johnston, F.H., Bowman, D.M. and Whitehead P.J. (2005) Healthy country: healthy people? Exploring the health benefits of Indigenous natural resource management. <i>Australian and New Zealand Journal of Public Health</i> 29(2): 117 Federation of Victorian Traditional Owner Corporations (2017) <i>Victorian Traditional Owner Biodiversity Policy Statement 2016</i>. Federation of Victorian Traditional Owner Corporations, North Melbourne, Victoria. Kingsley, J., Townsend, M., Phillips, R. and Aldous, D. (2009) "If the land is healthy... it makes the people healthy": the relationship between caring for Country and health for the Yorta Yorta Nation, Boonwurrung and Bangerang Tribes. <i>Health Place</i> 15(1): 291-299. Walsh, F., Christophersen, P. and McGregor, S. (2014) Indigenous perspectives on biodiversity. In: Morton, S., Lonsdale, M. and Sheppard, A. (eds.) <i>Biodiversity: Science and Solutions for Australia</i>. CSIRO Publishing.
page 5 paragraph 6	<p>It is a basic human right for Traditional Owners and Aboriginal Victorians to practise their culture, and to enjoy the economic benefits that flow from healthy ecosystems.</p>
Source	<ul style="list-style-type: none"> <i>Charter of Human Rights and Responsibilities Act 2006</i> (Victoria) United Nations (2007) <i>UN Declaration on the Rights of Indigenous Peoples</i>. <p>http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf – accessed 30 March 2017.</p>
page 6 paragraph 1	<p>The Victorian Government's Aboriginal Inclusion Framework recognises and respects the value of Aboriginal knowledge and culture, and aims to enable Aboriginal Victorians to be involved in management of land and waters.</p>
Source	<ul style="list-style-type: none"> Department of Planning and Community Development (2013) <i>Victorian Aboriginal Affairs Framework 2013–2018</i>. Department of Planning and Community Development, Melbourne, Victoria. <p>http://www.vic.gov.au/aboriginalvictoria/policy/aboriginal-affairs-framework-and-report.html – accessed 30 March 2017</p>

page 6 paragraph 3	Research shows that time spent in natural spaces is linked to positive long-term health outcomes. The natural environment provides children with opportunities to develop core skills, including observation, problem-solving, reasoning, creativity and imagination, along with emotional and intellectual development and the acquisition of gross motor skills, such as agility, coordination, and balance.
Source	<ul style="list-style-type: none"> Burriss, K. and Burriss, L. (2011) Outdoor play and learning: policy and practice. <i>International Journal of Education Policy and Leadership</i> 6(8): 1-12. Duncan, M., Clarke, N., Birch, S., Tallis, J., Hankey, J., and Bryant, E. (2014) The effect of green exercise on blood pressure, heart rate and mood state in primary school children. <i>International Journal of Environmental Research and Public Health</i> 11(4): 3678-88. Ernst, J. and Monroe, M. (2004) The effect of environment-based education on students' critical thinking skills and disposition toward critical thinking. <i>Environmental Education Research</i> 10(4): 507-522. Gill, T. (2014) The benefits of children's engagement with nature: A systematic literature review. <i>Children Youth and Environments</i> 24(2): 10-34. Kellert, S. (2005) <i>Building for Life: Designing and Understanding the Human-Nature Connection</i>. Washington DC: Island Press. Schaefer, L., Plotnikoff, R.C., Majumdar, S.R., Mollard, R., Woo, M. and Sadman, R. (2014) Outdoor time is associated with physical activity, sedentary time and cardiorespiratory fitness in youth. <i>Journal of Pediatrics</i> 165(3): 516-521.
page 6 paragraph 4	The natural environment also contributes to the <i>liveability</i> of our cities and communities (the elements that contribute to quality of life, including built and natural assets, economic prosperity, social stability, and access to educational, cultural, entertainment and recreational opportunities) and to their <i>resilience</i> (the capacity of individuals, institutions, businesses and systems to adapt, survive and thrive no matter what kind of chronic stresses and acute shocks they experience).
Source	<ul style="list-style-type: none"> Department of Environment, Land, Water and Planning (2017) <i>Plan Melbourne 2017-2050: metropolitan planning strategy</i>. Department of Environment, Land, Water and Planning, East Melbourne, Victoria.
page 6 paragraph 5	The natural environment not only sequesters carbon from the atmosphere, but provides essential 'green' infrastructure services to society at a low cost. Native vegetation can lessen the impacts of extreme weather events (e.g. through vegetation reducing run-off following heavy rainfall, or mangroves buffering storm surge), mitigate climate change by carbon sequestration, and cool cityscapes and provide people respite from heat through shade – while also reducing energy demands for cooling...
Source	<ul style="list-style-type: none"> Department of Environment, Land, Water and Planning (2016) <i>Victorian Climate Change Adaptation Plan 2017-2020</i>. Department of Environment, of Environment, Land, Water and Planning, East Melbourne, Victoria. United Nations Environment Programme (2010) <i>The Role of Ecosystems in Developing a Sustainable 'Green Economy'</i>. UNEP Policy Series. Ecosystem Management Policy Brief 2. United Nations Environment Programme.
page 6 paragraph 6	Victorians take pride in the state's unique plants and animals. Iconic species and natural sites of historical and cultural significance are highly valued. Biodiversity provides a sense of place: from the Dandenongs and the Grampians, to Port Phillip Bay, the Murray River, our coastlines and the High Country – these are but a few of the wonderful places which, along with the plants and animals that inhabit them, help define our Victorian identity.
Source	<ul style="list-style-type: none"> Australian Bureau of Statistics (2013) <i>Measures of Australia's Progress, 2013</i>. Commonwealth of Australia, Canberra. <p>http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/1370.0main+features132013 – accessed 30 March 2017.</p>

1.2 Our national and international obligations

page 6 paragraph 8	<p>In 2010, the 196 signatory nations to the United Nations Convention on Biological Diversity, including Australia, adopted the international Strategic Plan for Biodiversity 2011-2020.</p>
Source	<ul style="list-style-type: none">• United Nations (1992) <i>Convention on Biological Diversity</i>. https://www.cbd.int/ – accessed 30 March 2017.• United Nations (2010) <i>Strategic Plan for Biodiversity 2011-2020</i>. https://www.cbd.int/sp/ – accessed 30 March 2017.
page 6 paragraph 8	<p>In 2010, Australia delivered on this commitment by producing the <i>Biodiversity Conservation Strategy 2010-2030</i>.</p>
Source	<ul style="list-style-type: none">• Natural Resource Management Ministerial Council (2010) <i>Australia's Biodiversity Conservation Strategy 2010-2030</i>. Australian Government, Department of Sustainability, Environment, Water, Population and Communities, Canberra. http://www.environment.gov.au/biodiversity/publications/australias-biodiversity-conservation-strategy – accessed 30 March 2017.
page 7 paragraph 1	<p>The vision and goals of the Biodiversity Plan are consistent with those of the Convention and of the Australian Strategy, which states: “<i>The vision of this Strategy is that Australia's biodiversity is healthy and resilient to threats, and valued both in its own right and for its essential contribution to our existence.</i>” This Plan also addresses the three main priorities of the Australian Strategy:</p> <ul style="list-style-type: none">• Engaging all Australians in biodiversity conservation.• Building ecosystem resilience in a changing climate.• Getting measurable results.
Source	<ul style="list-style-type: none">• Natural Resource Management Ministerial Council (2010) <i>Australia's Biodiversity Conservation Strategy 2010-2030</i>. Australian Government, Department of Sustainability, Environment, Water, Population and Communities, Canberra. http://www.environment.gov.au/biodiversity/publications/australias-biodiversity-conservation-strategy – accessed 30 March 2017.
page 7 paragraph 3	<p>The Biodiversity Plan also complements the Sustainable Development Goals adopted by the United Nations in 2015, the targets of which include improving biodiversity conservation on land and in water environments.</p>
Source	<ul style="list-style-type: none">• United Nations (2015) <i>2030 Agenda for Sustainable Development</i>. http://www.un.org/sustainabledevelopment/sustainable-development-goals/ – accessed 30 March 2017.
page 7 paragraph 4	<p>The 2016 <i>Paris Agreement</i>, struck within the United Nations <i>Framework Convention on Climate Change</i>, acknowledges the threat of climate change and commits signatory nations, including Australia, to undertake greenhouse gases emissions mitigation and climate change adaptation.</p>
Source	<ul style="list-style-type: none">• United Nations (1994) <i>The United Nations Framework Convention on Climate Change</i>. http://unfccc.int/essential_background/convention/items/6036.php – accessed 30 March 2017.• United Nations (2016) <i>Paris Agreement on climate change</i>. http://www.un.org/sustainabledevelopment/climatechange/ – accessed 30 March 2017.

page 7 paragraph 4	The Victorian Government's approach to managing the impacts of climate change across the state is articulated in <i>Victoria's Climate Change Adaptation Plan 2017 - 2020</i> .
Source	<ul style="list-style-type: none"> Department of Environment, Land, Water and Planning (2016) <i>Victoria's Climate Change Adaptation Plan 2017-2020</i>. Department of Environment, Land, Water and Planning, East Melbourne, Victoria.
<hr/>	
page 7 paragraph 5	In fulfilling national and international commitments to biodiversity and climate change, the Victorian Government also commits to fulfilling its obligations under the United Nations <i>Declaration of the Rights of Indigenous Peoples</i> , which explicitly recognises the unique relationships that Aboriginal peoples have with their lands and waters.
Source	<ul style="list-style-type: none"> United Nations (2007) <i>UN Declaration on the Rights of Indigenous Peoples</i>. http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf – accessed 30 March 2017.
<hr/>	
page 7 paragraph 6	The Biodiversity Plan is consistent with the 2014 Charter of the Federation of Victorian Traditional Owner Corporations – notably, the vision for keeping Country healthy – and with the Federation's Biodiversity Statement. The Statement shares the goals of this Plan, and supports many of its principles. It states in part: <i>"We view the natural world within an interconnected ecological, cultural and livelihood system. Land and waters managed for landscape and community health require active and adaptive management to be able to restore, maintain and enhance biodiversity and improve its ability to effectively recover from shock and stresses. We take a holistic and landscape view for planning and management, using fire, water and silviculture (gardening) as integral management tools for maintaining a productive and healthy landscape."</i>
Source	<ul style="list-style-type: none"> Federation of Victorian Traditional Owner Corporations (2014) <i>Federation Charter</i>. Federation of Victorian Traditional Owner Corporations, North Melbourne, Victoria. Federation of Victorian Traditional Owner Corporations (2017) <i>Victorian Traditional Owner Biodiversity Policy Statement 2016</i>. Federation of Victorian Traditional Owner Corporations, North Melbourne, Victoria. <p>http://fvtoc.com.au/wp-content/uploads/2017/05/FVTOC-BioPolSment.pdf - accessed 15 May 2017.</p>

Chapter 2

Facing the challenge



page 10
paragraph 3

Victoria has seen a continuing legacy of biodiversity loss over almost two centuries. Future generations have been denied the opportunity to see 18 species of mammal, two birds, one snake, three freshwater fish, six invertebrates and 51 plants that have become extinct since European settlement. Today, between one quarter and one third of all of Victoria's terrestrial plants, birds, reptiles, amphibians and mammals, along with numerous invertebrates and ecological communities, are considered threatened with extinction.

Source

Plants

The figure of 51 plants that have become extinct was based on the 2005 *Advisory List of Rare or Threatened Plants in Victoria*.

Advisory Lists of rare or threatened plants in Victoria (both vascular and non-vascular plants)

Date	Presumed extinct	Endangered	Vulnerable	Rare	Poorly known	Total
2003	48	250	473	818	311	1900
2005	51	283	495	838	305	1972
2014	43	369	515	858	318	2097

Of the approximately 4000 known taxa of vascular plants, just under 50% are included on the 2014 *Advisory List of Rare or Threatened Plants*; about 22% are considered to be threatened with extinction (i.e. endangered or vulnerable).

- Department of Environment and Primary Industries (2014) *Advisory List of Rare or Threatened Plants in Victoria – 2014*. Department of Environment and Primary Industries, East Melbourne, Victoria.

Vertebrate animals

Twenty-four vertebrates (18 mammals, 2 birds, one snake, 3 freshwater fish) are presumed extinct, being classified as extinct, regionally extinct (i.e. extinct in Victoria but surviving elsewhere in Australia) or extinct in the wild.

Advisory Lists of threatened fauna in Victoria (all recent lists)

Date	Extinct	Regionally Extinct	Extinct in the Wild	Critically Endangered	Endangered	Vulnerable	Near Threatened	Data Deficient	Total
2003	10	14	-	37	53	70	71	20	275
2007	9	15	-	37	52	72	68	24	277
2013	9	15	1	50	57	84	64	14	294

Of the extant taxa of all vertebrate groups, approximately 16% of terrestrial mammals, 17% of birds, 32% of reptiles, 42% of amphibians and 65% of freshwater fish are considered to be threatened with extinction (i.e. critically endangered, endangered and vulnerable).

- Department of Environment and Primary Industries (2013) *Advisory List of Threatened Vertebrate Fauna – 2013*. Department of Environment and Primary Industries, East Melbourne, Victoria.

Invertebrate animals

Advisory List of rare or threatened invertebrates in Victoria

Date	Extinct	Regionally Extinct	Extinct in the Wild	Critically Endangered	Endangered	Vulnerable	Near Threatened	Data Deficient	Total
2009	1	5	-	20	28	79	7	38	178

127 taxa are considered to be threatened with extinction (i.e. critically endangered, endangered and vulnerable).

- Department of Sustainability and Environment (2009) *Advisory List of Threatened Invertebrate Fauna in Victoria – 2009*. Department of Sustainability and Environment, East Melbourne, Victoria.

page 10
paragraph 4 Natural environmental processes (such as fire and water regimes and native animal grazing) have undergone significant change due to human impacts including urban, rural and coastal development, agriculture, and efforts to protect people and property from risks of bushfire and flooding. As the population continues to grow, the demands on land, waterways and marine ecosystems are resulting in diminished productivity from Victoria's environment.

- Source
- Bennett, A.F., Haslem, A., Cheal, D.C., Clarke, M.F., Jones, R.N., Koehn, J.D., Lake, P.S., Lumsden, L.F., Lunt, I.D., Mackey, B.G., MacNally, R.M., Menkhorst, P.W., New, T.R., Newell, G.R., O'Hara, T., Quinn, G.P., Radford, J.Q., Robinson, D., Watson, J.E.M. and Yen, A.L. (2009) Ecological processes: a key element in strategies for nature conservation. *Ecological Management and Restoration* 10(3): 192-199.
 - Commissioner for Environmental Sustainability (2013) *Victoria: State of the Environment 2013*. Office of the Commissioner for Environmental Sustainability, Melbourne, Victoria.

page 10
paragraph 4 And the devastating effects of European settlement on the state's Indigenous population have meant that many traditional methods previously utilised for biodiversity management are no longer known and can no longer be fully employed.

- Source
- Federation of Victorian Traditional Owner Corporations (2017) *Victorian Traditional Owner Biodiversity Policy Statement 2016*. Federation of Victorian Traditional Owner Corporations, North Melbourne, Victoria.

page 10
paragraph 5 Victoria is the most intensively settled and cleared state in Australia.

- Source
- Australian Bureau of Statistics (2016) 3218.0 – Regional Population Growth, Australia, 2015-16. Commonwealth of Australia, Canberra.
<http://www.abs.gov.au/ausstats/abs@.nsf/mf/3218.0> – accessed 30 March 2017.
 - Commissioner for Environmental Sustainability (2013) *Victoria: State of the Environment 2013*. Office of the Commissioner for Environmental Sustainability, Melbourne, Victoria.
 - Victorian Environmental Assessment Council (2011) *Remnant Native Vegetation Investigation: Final Report*. Victorian Environmental Assessment Council, East Melbourne, Victoria.

page 10 paragraph 5	<p>Although the rate of land clearing has slowed since the introduction of Victoria's native vegetation regulations in 1989, the quality and extent of native vegetation continues to shrink by about 4000 habitat hectares each year. This trajectory is largely the result of activities and entitled uses that are outside the regulatory framework (resulting in loss of extent of native vegetation), together with insufficient management of threats (resulting in loss of quality).</p>
Source	<ul style="list-style-type: none"> • Department of Environment, Land, Water and Planning (unpub.) <i>2015 qualitative update of the 2008 Net Gain approximation</i> report. Department of Environment, Land, Water and Planning, East Melbourne, Victoria. • Department of Environment and Primary Industries (2013) <i>Permitted clearing of native vegetation – Biodiversity assessment guidelines</i>. Department of Environment and Primary Industries, East Melbourne, Victoria. • Department of Sustainability and Environment (2008) <i>Native Vegetation Net Gain Accounting first approximation report</i>. State of Victoria, Department of Sustainability and Environment, East Melbourne, Victoria.
page 10 paragraph 6	<p>The introduction of exotic plants and animals has had significant consequences for Victoria's native animal and plant species. Many of these introductions have come through the legacy of European settlement and the associated acclimatisation of animals and plants, which have become pests and weeds. Increased globalisation and a changing climate also bring a risk of new invaders.</p>
Source	<ul style="list-style-type: none"> • Department of Sustainability and Environment (2010) <i>Invasive Plants and Animals Policy Framework</i>. Department of Sustainability and Environment, East Melbourne, Victoria. • Department of Environment, Land, Water and Planning (2016) <i>Flora and Fauna Guarantee Act 1988 Processes List: December 2016 "Invasion of native vegetation by 'environmental weeds'"</i>. Department of Environment, Land, Water and Planning, East Melbourne, Victoria.
page 10 paragraph 7	<p>Marine and waterway environments are threatened by ongoing coastal development and infrastructure, runoff of excessive nutrients and sediments from catchments, high levels of water consumption, altered flow regimes, pollution and the introduction of existing and new marine pests.</p>
Source	<ul style="list-style-type: none"> • Carey, J.M., Burgman, M.A., Boxshall, A., Beilin, R., Flander, L., Pegler, P. and White, A.K. (2007) Identification of threats to natural values in Victoria's Marine National Parks and Marine Sanctuaries. <i>Parks Victoria Technical Series</i> No. 33. Parks Victoria, Melbourne. • Commissioner for Environmental Sustainability (2013) <i>Victoria: State of the Environment 2013</i>. Office of the Commissioner for Environmental Sustainability, Melbourne, Victoria. • Environment Conservation Council (2000) <i>Marine Coastal and Estuarine Investigation – Final Report</i>. Environment Conservation Council, Victoria.
page 11 paragraph 1	<p>There is an overwhelming consensus among scientists that the global climate change we are now experiencing is largely the result of human activity producing an increase in carbon dioxide concentrations in the atmosphere. It is predicted that climate change impacts will continue to alter natural processes and regimes in sometimes unpredictable ways, which may mean that current conservation methods become less effective over time. Thus, while we can be certain that climate change will cause significant and widespread changes to biodiversity and natural ecosystems over time, the exact nature and scale of changes, and the degree to which individual species, populations and ecological processes can adapt, is still uncertain.</p>
Source	<ul style="list-style-type: none"> • IPCC (2013) <i>Climate Change 2013: The Physical Science Basis</i>. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1535 pp. • Oreskes, N. (2004) Beyond the ivory tower. The scientific consensus on climate change. <i>Science</i> 307(5708): 355. • Doran, P.T. and Kendall Zimmerman, M. (2009) Examining the Scientific Consensus on Climate Change. <i>Eos</i> 90(3): 22-23.

page 11 Climate change will increase the pressure on Victoria's biodiversity, by exacerbating existing
 paragraph 2 threats and introducing new ones...

- Source
- Australian Academy of Science (2015) *The science of climate change: Questions and answers*. Australian Academy of Science, Canberra.

www.science.org.au/climatechange – accessed 30 March 2017.
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-

Chapter 3

A fresh vision for Victoria's biodiversity in a time of climate change



page 13
paragraph 7 ...*Water for Victoria*, the government's plan for strategic direction for management of the state's water resources, which commits to protecting and improving the health of our waterways to support environmental values, and will ensure they continue to deliver positive outcomes for biodiversity.

Source • Department of Environment, Land, Water and Planning (2016) *Water for Victoria*. Department of Environment, Land, Water and Planning, East Melbourne, Victoria.

3.3 Setting directions for the goal Victoria's natural environment is healthy

page 16
paragraph 5 The fate of species and ecosystems in a changing climate will be determined by a combination of factors: exposure to climate change and associated ecosystem shifts, sensitivity due to particular traits, and capacity to adapt to those changes. Some species and ecosystems will be more resilient than others and be better able to withstand the impacts of climate change, while others will be more sensitive and vulnerable.

Source • Dunlop, M., Hilbert, D., Ferrier, S., House, A., Liedloff, A., Prober, S., Smyth, A., Martin, T., Harwood, T., Williams, K., Fletcher, C. and Murphy, H. (2012) *The Implications of Climate Change for Biodiversity, Conservation and the National Reserve System: Final Synthesis*. CSIRO Climate Adaptation Flagship, Canberra.

• MacNally, R., Bennett, A.F., Thomson, J.R., Radford, J.Q., Unmack, G., Horrocks, G. and Vesk, P.A. (2009) Collapse of an avifauna: climate change appears to exacerbate habitat loss and degradation. *Diversity and Distributions* 15: 720-730.

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• Steffen, W., Burbidge, A.A., Hughes, L., Kitching, R., Lindenmayer, D., Musgrave, W., Smith, M.S. and Werner, P.A. (2009) *Australia's biodiversity and climate change*. CSIRO Publishing.

page 16
paragraph 8

Biodiversity conservation can include various approaches, such as:

1. Continuing to protect the best of our remaining biodiversity by directly managing key threats, such as further loss of habitat, weeds and pest animals, inappropriate regimes (including fire, water and resource utilisation).
2. Enhancing biodiversity by directly managing native species...
3. Identifying where native or even non-native species are recolonising previously disturbed sites, or are substantially established in existing remnants and can provide suitable habitat for species of conservation importance.
4. Promoting benefits for biodiversity that may be delivered in human-dominated and production settings – for example, by using biodiversity-friendly soil conservation practices, undertaking carbon sequestration with native mixed-species plantings, or stocking waterways with native fish for recreational fishing.

Source

- Heller, N.E and Zavaleta, E.S. (2009) Biodiversity management in the face of climate change: A review of 22 years of recommendations. *Biological Conservation* 143: 14-32.
 - Kueffer, C. and Kaiser-Bunbury, C.N. (2014) Reconciling conflicting perspectives for biodiversity conservation in the Anthropocene. *Frontiers in Ecology and Environment* 12(2): 131–137.
 - Mawdsley J.R., O'Malley R., and Ojima, D.S. (2009) A Review of Climate-Change Adaptation Strategies for Wildlife Management and Biodiversity Conservation. *Conservation Biology* 23:5 1080–1089.
 - Prober, S.M., Williams, K.J., Harwood, T.D., Doerr, V.A.J., Jeanneret, T., Manion, G., Ferrier, S. (2015) *Helping Biodiversity Adapt: Supporting climate-adaptation planning using a community-level modelling approach*. CSIRO Land and Water Flagship, Canberra.
- www.AdaptNRM.org – accessed 4 April 2017.

Chapter 4

A healthy environment for healthy Victorians



- page 24
paragraph 2 ...a healthy natural environment is good for us –for individuals and for society as a whole. People who spend time in nature – be it native, introduced, cultivated or wild – are more likely to recognise its importance to their own wellbeing and to society, and therefore to behave in ways that help to protect and sustain the natural environment.
- Source
- Dunn, R.R., Gavin, M.C., Sanchez, M.C. and Solomon, J.N., (2006) The pigeon paradox: dependence of global conservation on urban nature. *Conservation Biology* 20(6): 1814-1816.
 - Dutcher, D.D., Finley, J.C., Luloff, A.E. and Johnson, J.B. (2007) Connectivity with Nature as a Measure of Environmental Values. *Environment and Behavior* 39(4): 474-493.
 - Kollmuss, A. and Agyeman, J. (2002) Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental education research* 8(3): 239-260.
 - Krekel, C., Kolbe, J. and Wüstemann, H. (2016) The greener, the happier? The effect of urban land use on residential well-being. *Ecological Economics* 121: 117-127.

4.1 Raising awareness about the importance of nature

- page 24
paragraph 5 *ResourceSmart Schools*, run by the Victorian Government, helps schools embed sustainability in everything they do.
- Source
- Rickinson, M., Hall, M. and Reid, A. (2014) *ResourceSmart Schools Research Project Final Report*. Sustainability Victoria, Melbourne.

4.2 Connecting with nature is good for us

- page 25
paragraph 1increasing urbanisation is leading to a decrease in people accessing nature...
- Source
- Cutts, B.B., Darby, K.J., Boone, C.G. and Brewis, A. (2009) City structure, obesity, and environmental justice: an integrated analysis of physical and social barriers to walkable streets and park access. *Social Science & Medicine* 69(9): 1314-22.
-
- page 25
paragraph 2 The government's *Victorian Public Health and Wellbeing Plan 2015-2019* highlights the importance of creating liveable neighbourhoods to improve health and wellbeing, and recognises that interacting with nature contributes to a reduction in chronic disease risk factors, increases social inclusion and builds strong communities.
- Source
- Department of Health and Human Services (2015) *Victorian Public Health and Wellbeing Plan 2015-2019*. Department of Health and Human Services, Victoria.

page 25 paragraph 2	Reported health outcomes include physiological benefits from improved fitness, and psychological benefits from improved attentional capacity and stress reduction.
Source	<ul style="list-style-type: none"> Alvarsson, J.J., Wiens, S., Nilsson, M.E. (2010) Stress recovery during exposure to nature sound and environmental noise. <i>International Journal of Environmental Research and Public Health</i> 7(3): 1036–46. Beil, K. and Hanes, D. (2013) The influence of urban natural and built environments on physiological and psychological measures of stress—a pilot study. <i>International Journal of Environmental Research and Public Health</i> 10(4): 1250–67. O’Brien, L., Morris, J. and Stewart, A. (2014) Engaging with peri-urban woodlands in England: the contribution to people’s health and well-being and implications for future management. <i>International Journal of Environmental Research and Public Health</i> 11(6): 6171–92.

page 25 paragraph 2	The health benefits experienced from contact with nature have been linked to increased work productivity, faster recovery rates from surgery, lowering blood pressure, mitigating the symptoms of hyperactivity disorder, mitigating disease, fewer medications, and a strengthened immune system.
Source	<ul style="list-style-type: none"> Abraham, A., Sommerhalder, K. and Abel, T. (2010) Landscape and well-being: a scoping study on the health promoting impact of outdoor environments. <i>International Journal of Public Health</i> 55(1): 59–69. Blanck, H.M., Allen, D., Bashir, Z., Gordon, N., Goodman, A. and Merriam, D. (2012) Let’s go to the park today: the role of parks in obesity prevention and improving the public’s health. <i>Childhood Obesity</i> 8(5): 423–8. Bowler, D.E., Buyung-Ali, L.M., Knight, T.M. and Pullin, A.S. (2010) A systematic review of evidence for the added benefits to health of exposure to natural environments. <i>BMC Public Health</i> 10(1): 456–66. Duncan, M., Clarke, N., Birch, S., Tallis, J., Hankey, J., and Bryant, E. (2014) The effect of green exercise on blood pressure, heart rate and mood state in primary school children. <i>International Journal of Environmental Research and Public Health</i> 11(4): 3678–88. Kuo, F.E., and Faber Taylor, A. (2004) A potential natural treatment for Attention-Deficit/Hyperactivity Disorder: Evidence from a national study. <i>American Journal of Public Health</i> 94(9): 1580–1586. Maller, C., Townsend, M., St Leger, L., Henderson-Wilson, C., Pryor, A., Prosser, L. and Moore, M. (2008) Literature Review: <i>Healthy Parks Healthy People: The Health Benefits of Contact with Nature in a Park Context - A Review of Current Literature</i>. 2nd Edition. Deakin University, Parks Victoria. Melbourne, Australia. Sandifer, P.A., Sutton-Grier, A.E. and Ward, B.P., (2015) Exploring connections among nature, biodiversity, ecosystem services, and human health and well-being: Opportunities to enhance health and biodiversity conservation. <i>Ecosystem Services</i> 12: 1–15. World Health Organization and Secretariat of the Convention on Biological Diversity (2015) <i>Connecting Global Priorities: Biodiversity and Human Health: a state of knowledge review</i>. Report prepared by the Secretariat of the Convention on Biological Diversity and the World Health Organization. <p>Available at https://www.cbd.int/health/SOK-biodiversity-en.pdf – accessed 30 March 2017.</p>

page 25 paragraph 3	<p>Spending time playing and learning outdoors provides children with developmental benefits including improved mental health, resilience and social connections. Playing in nature – particularly unstructured play – is increasingly recognised as an essential component of child development.</p>
Source	<ul style="list-style-type: none"> Dowdell, K., Gray, T. and Malone, K. (2011) Nature and its Influence on Children's Outdoor Play. <i>Australian Journal of Outdoor Education</i> 15(2): 24-35. Ernst, J. and Monroe, M. (2004) The effect of environment-based education on students' critical thinking skills and disposition toward critical thinking. <i>Environmental Education Research</i> 10(4): 507-522. Gill, T. (2014) The benefits of children's engagement with nature: A systematic literature review. <i>Children Youth and Environments</i> 24(2): 10-34.
page 25 paragraph 3	<p>Engaging children with nature increases the likelihood that as adults they will be more actively concerned about biodiversity conservation for future generations. Conversely, a lack of connection with and/or appreciation of nature can contribute to the destruction and vandalism of natural environments by children and teenagers.</p>
	<ul style="list-style-type: none"> Asah, S. T., Bengston, D. N. and Westphal, L. M. (2012) The influence of childhood: operational pathways to adulthood participation in nature-based activities. <i>Environment and Behavior</i> 44(4): 545-69. Wells, N. and Lekies, K. (2006) Nature and the life course: pathways from childhood nature experiences to adult environmentalism. <i>Children, Youth and Environments</i> 16(1): 1-24.
page 25 paragraph 5	<p>In recent years, we have seen the emergence of concepts such as environmental equity and environmental justice. These concepts hold that all people should have equitable access to nature for enjoyment, recreation, cultural and spiritual reasons, and as a way to enhance their mental and physical health.</p>
Source	<ul style="list-style-type: none"> ESRC Global Environmental Change Programme (2001) <i>Environmental justice – Rights and means to a healthy environment for all</i>. Report from the Healthy Planet Forum of the WHO Environment and Health Ministers Meeting in London. <p>https://www.foe.co.uk/sites/default/files/downloads/environmental_justice.pdf – accessed 30 March 2017.</p>
page 25 paragraph 5	<p>But there are many reasons why people cannot, or choose not to have daily contact with nature – for example, distance from green spaces, difficulties of access, discomfort, cultural issues and disability.</p>
Source	<ul style="list-style-type: none"> Cutts, B.B., Darby, K.J., Boone, C.G. and Brewis, A. (2009) City structure, obesity, and environmental justice: an integrated analysis of physical and social barriers to walkable streets and park access. <i>Social Science and Medicine</i> 69(9): 1314-22. Townsend, M., Henderson-Wilson, C., Warner, E., and Weiss, L. (2015) <i>Healthy Parks Healthy People: The State of the Evidence</i>. School of Health and Social Development, Deakin University.
page 25 paragraph 7	<p>Another important aspect of environmental justice is the notion that people with disabilities should have easy access to the benefits of nature. Almost one in five Australians has a disability of some type, and their numbers are expected to increase considerably in the next 10-20 years due to the ageing population.</p>
Source	<ul style="list-style-type: none"> Australian Bureau of Statistics (2015) 4430.0 – Disability, Ageing and Carers, Australia: Summary of Findings, 2015. Commonwealth of Australia, Canberra. <p>http://www.abs.gov.au/ausstats/abs@.nsf/mf/4430.0 – accessed 30 March 2017</p> <ul style="list-style-type: none"> Department of Health and Human Services (2015) <i>Health and wellbeing status of Victoria: Victorian public health and wellbeing plan 2015-2019 companion document</i>. Department of Health and Human Services, Melbourne.

page 26
paragraph 1 *Plan Melbourne 2017-2050* has committed to development of a network of accessible, high-quality, local open spaces, and the preparation of a new metropolitan open space strategy to ensure Melbourne's growing population is provided with, and has access to, quality open space.

Source

- Department of Environment, Land, Water and Planning (2017) *Plan Melbourne 2017-2050: metropolitan planning strategy*. Department of Environment, Land, Water and Planning, East Melbourne, Victoria.

page 26
paragraph 1 The current public open-space planning provision for growth areas and urban infill sites aims to locate local parks within safe walking distance (400 metres) of at least 95 per cent of all dwellings.

Source

- Victorian Planning Scheme (2009) Clause 56.05-2 Public open space provision objectives. Standard C13. <http://planningschemes.dpcd.vic.gov.au/schemes/vpps> – accessed 30 March 2017.

4.3 Victorians acting for the natural environment

page 26
paragraph 5 ...the responsible disposal of litter, as encouraged by Zoos Victoria's *Seal the Loop* campaign, protects wildlife from being harmed by plastic waste, makes our beaches and waterways cleaner and more attractive and increases plastic recycling.

Source

- Zoos Victoria website – Act for wildlife: Seal the Loop
<https://www.zoo.org.au/get-involved/act-for-wildlife/seal-the-loop> – accessed 30 March 2017.

page 26
paragraph 5 Responsible pet ownership – which can involve actions such as registering and de-sexing cats and dogs, and keeping them indoors at night – helps to reduce the number of native animals killed by wandering pets.

Source

- Department of the Environment and Heritage web page: Protecting our Wildlife: Responsible pet ownership.
<http://www.environment.gov.au/resource/protecting-our-wildlife-responsible-pet-ownership> – accessed 30 March 2017.
- Dickman, C.R. (2009) House cats as predators in the Australian environment: impacts and management. *Human-Wildlife Conflicts* 3(1): 41–48.
- Seebeck, J., and Clunie, P. (1998) *Predation of native wildlife by the cat (Felis catus)*. Action Statement 80. Department of Natural Resources and Environment, East Melbourne, Victoria.

Chapter 5

Linking our society and economy to the environment



page 29
paragraph 1 ...the protection of Victoria's valuable environmental assets – referred to by economists and others as natural capital – is critically important for the health and cultural identity of communities, and for key sectors of the economy ranging from agriculture to tourism.

Source • Townsend, M., Henderson-Wilson, C., Warner, E., and Weiss, L. (2015) *Healthy Parks Healthy People: The State of the Evidence*. School of Health and Social Development, Deakin University.

page 29
paragraph 2 The desirability of actively rebuilding Victoria's natural capital has been explored in a report by the Future Economy Group in association with the Nous Group. Modelling conducted by these groups indicates the competitive edge that Victoria can achieve by fostering a prosperous economy while caring about liveability and rebuilding natural capital. The Future Economy Group estimated that by 2028, healthier natural capital could provide between \$15 billion and \$36 billion in economic benefits for Victoria.

Source • Nous Group (2014) *The Future Economy Project: The economic impact of diminishing natural capital in Victoria*. A report for The Future Economy Group, May 2014.

page 29
paragraph 3 Figure 5.1 is a theoretical depiction of how significant interventions such as regulation, government investment and community action have slowed the decline of our natural capital. It shows that despite this, Victoria's natural capital is still in decline, but that there are significant benefits associated with stopping the decline and choosing a positive trajectory of rebuilding Victoria's natural capital.

- Nous Group (2014) *The Future Economy Project: The economic impact of diminishing natural capital in Victoria*. A report for The Future Economy Group.

page 29
paragraph 4 ...inaction and allowing the continuing decline of natural capital could result in an economic loss of between \$16 billion and \$78 billion. Recently, a CSIRO Australian National Outlook report similarly predicted that strong economic benefits would be realised by shifting towards policy settings that deliver co-benefits for both environmental and economic performance.

Source • Nous Group (2014) *The Future Economy Project: The economic impact of diminishing natural capital in Victoria*. A report for The Future Economy Group, May 2014.

• Hatfield-Dodds, S., Schandl, H., Adams, P.D., Baynes, T.M., Brinsmead, T.S. Bryan, B.A., Chiew, F.H.S., Graham, P.W., Grundy, M., Harwood, T., McCallum, R., Rod McCrea, R., McKellar, L.E., Newth, D., Nolan, M. Prosser, I. and Wonhas, A. (2015) Australia is 'free to choose' economic growth and falling environmental pressures. *Nature* 527 49–53.

5.1 Leading the way in accounting for our environmental assets

page 30
paragraph 1 Currently there is a global effort to account for the many benefits that natural capital provides for society – a necessary precursor to choosing policies and practices that drive co-benefits for both the environment and economy.

Source • Grafton, Q., Adamowicz, W., Dupont, D., Nelson, H., Hill, R. J. and Renzetti, S. (2008). *The economics of the environment and natural resources*. John Wiley & Sons.

page 30 paragraph 1	Currently there is a global effort to account for the many benefits that natural capital provides for society – a necessary precursor to choosing policies and practices that drive co-benefits for both the environment and economy.
Source	<ul style="list-style-type: none"> Grafton, Q., Adamowicz, W., Dupont, D., Nelson, H., Hill, R. J. and Renzetti, S. (2008). <i>The economics of the environment and natural resources</i>. John Wiley & Sons.
page 30 paragraph 1	In 2012, the United Nations launched a new global environmental accounting system known as the System of Environmental-Economic Accounting (SEEA). The SEEA is a conceptual framework designed to support understanding and measurement of the interactions between the economy and the environment, and the stocks of and changes in environmental assets.
Source	<ul style="list-style-type: none"> European Commission, Food and Agriculture Organization, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, World Bank (2012) <i>System of Environmental-Economic Accounting – Central Framework</i>. United Nations Statistics Division. System of Environmental-Economic Accounting (SEEA). http://unstats.un.org/unsd/envaccounting/seea.asp – accessed 30 March 2017
page 30 paragraph 4	Several sectors of the economy are exposed to the risk of degradation of natural capital, so it is critical to engage with businesses to support innovation and improve environmental management.
Source	<ul style="list-style-type: none"> Nous Group (2014) <i>The Future Economy Project: The economic impact of diminishing natural capital in Victoria</i>. A report for The Future Economy Group.
page 30 paragraph 5	Alongside SEEA, businesses are adopting the 'Natural Capital Protocol'. The Protocol is a complementary initiative that can enable interested businesses to monitor their impacts on natural capital relevant to their operations, risk profiles, customer portfolios, supply chains and business opportunities.
Source	<ul style="list-style-type: none"> Natural Capital Coalition (2016) Natural Capital Protocol. http://naturalcapitalcoalition.org/protocol/ – accessed 30 March 2017. Natural Capital Coalition (2016) Natural Capital Protocol Framework http://naturalcapitalcoalition.org/wp-content/uploads/2016/07/Framework_Book_2016-07-01-2.pdf – accessed 30 March 2017.
page 30 paragraph 7	Leading companies in the financial sector, including National Australia Bank, VicSuper and Bank Australia, are collaborating with agribusinesses, sending a market signal for the protection of natural capital. In doing so they are reducing risks in business portfolios and gaining a competitive edge with an increasingly environmentally-conscious investor base.
Source	<ul style="list-style-type: none"> Websites – accessed 30 March 2017: https://www.vicsuper.com.au/~media/files/pdfs-and-downloads/other/seminars-and-events/vicsuperandnaturalcapital.pdf https://www.nab.com.au/about-us/corporate-responsibility/environment/natural-value https://bankaust.com.au/responsible-banking/planet/our-conservation-reserve/

5.2 Creating more liveable and climate-adapted local communities

page 32 paragraph 3	Victoria's environmental assets play a pivotal role in sustaining, protecting and enhancing our communities, and making them liveable and resilient in the face of climate change.
Source	<ul style="list-style-type: none"> Lavorel, S., Colloff, M.J., McIntyre, S., Doherty, M.D., Murphy, H.T., Metcalfe, D.J., Dunlop, M., Williams, R.J., Wise, R.M. and Williams, K.J. (2015) Ecological mechanisms underpinning climate adaptation services. <i>Global Change Biology</i> 21(1): pp.12-31.
page 32 paragraph 3	...marine and coastal habitats – seagrasses, saltmarshes and mangroves – support high levels of biodiversity, mitigate the effects of storm surges and sea level rise, and sequester carbon. These habitats can bury carbon at a rate up to 57 times faster than tropical rainforests, and can store carbon for thousands of years. It's estimated that vegetated coastal habitats contribute 50% of carbon burial in the oceans (otherwise known as 'blue carbon').
Source	<ul style="list-style-type: none"> Barbier, E. B., Hacker, S. D., Kennedy, C., Koch, E. W., Stier, A. C. and Silliman, B. R. (2011) The value of estuarine and coastal ecosystem services. <i>Ecological monographs</i> 81(2): 169-193. Carnell, P., Ewers, C., Rochelmeyer, E., Zavalas, R., Hawke, B., Ierodiaconou, D., Sanderman, J. and Macreadie, P., (2015) <i>The Distribution and Abundance of 'Blue Carbon' within Port Phillip and Westernport</i>. Deakin University, Melbourne. Duarte, C. M., Losada, I. J., Hendriks, I. E., Mazarrasa, I. and Marbà, N. (2013) The role of coastal plant communities for climate change mitigation and adaptation. <i>Nature Climate Change</i> 3(11): 961-968.
page 32 paragraph 5	In urban areas, networks of natural and designed green spaces, or 'green infrastructure,' (such as parks, gardens, street trees, backyards, green roofs, green walls and rain gardens) improve liveability and provide significant cost savings that would otherwise be incurred if the same benefits were provided through other means.
Source	<ul style="list-style-type: none"> Ely, M. and Pitman, S. (2014) <i>Green Infrastructure: Life support for human habitats. The compelling evidence for incorporating nature into urban environments. A review of research and literature</i>. Adelaide Botanic Gardens of South Australia, Department of Environment, Water and Natural Resources. Healthy Parks Healthy People Central website. <i>Urban planning and the importance of green space in cities to human and environmental health</i>. http://www.hphpcentral.com/article/urban-planning-and-the-importance-of-green-space-in-cities-to-human-and-environmental-health – accessed 30 March 2017. Pitman, S. D., Daniels, C. B., and Ely, M. E. (2015) Green infrastructure as life support: urban nature and climate change. <i>Transactions of the Royal Society of South Australia</i> 139(1): 97-112.
page 32 paragraph 6	In recognition of the benefits provided by green infrastructure, local governments are planting urban forests and using integrated water management to cool built-up environments by reducing the urban heat island effect, while also removing harmful air pollutants, filtering water and providing opportunities for people to connect with nature, particularly where native plants are used.
	<ul style="list-style-type: none"> City of Melbourne (2012) <i>Urban Forest Strategy: Making a great city greener 2012-2032</i>. City of Melbourne.

page 32 paragraph 6	<p><i>Resilient Melbourne...</i> aims to ensure a viable, sustainable, liveable and prosperous city, long into the future, and to enable strong natural assets and ecosystems alongside a growing population.</p>
Source	<ul style="list-style-type: none"> Resilient Melbourne Strategy (2016) <i>Resilient Melbourne</i>. Joint project of 32 metropolitan Melbourne councils, Melbourne's academic, business and community sectors, and the Victorian Government, supported by 100 Resilient Cities – Pioneered by the Rockefeller Foundation. City of Melbourne, May 2016. <p>http://resilientmelbourne.com.au/wp-content/uploads/2016/05/COM_SERVICE_PROD-9860726-v1-Final_Resilient_Melbourne_strategy_for_web_180516.pdf – accessed 30 March 2017.</p>
page 32 box	<p>The 'urban heat island' effect has been estimated to cost the City of Melbourne \$283 million in indirect health costs.</p>
Source	<ul style="list-style-type: none"> van Raalte, L., Nolan, M., Thakur, P., Xue, S. and Parker, N. (2012) <i>Economic Assessment of the Urban Heat Island Effect</i>. Prepared for the City of Melbourne by AECOM Australia Pty Ltd. <p>https://www.melbourne.vic.gov.au/SiteCollectionDocuments/eco-assessment-of-urban-heat-island-effect.pdf – accessed 30 March 2017.</p>
<h3>5.3 Increasing nature-based tourism</h3>	
page 33 paragraph 2	<p>The natural environment is Victoria's biggest tourist attraction, contributing billions of dollars to the economy each year. Tourism is worth more than \$20 billion annually and employs more than 200,000 people, many in regional areas. More than 1.4 million international nature-based tourism visitors travel to Victoria annually, accounting for more than 35 million overnight stays. About 4.3 million day trips are taken by domestic nature-based tourists.</p>
Source	<ul style="list-style-type: none"> Tourism Victoria (2014) <i>Nature-based Tourism: Market Profile Year Ending June 2014</i>. Fact sheet prepared by the Tourism Victoria Research Unit – November 2014. <p>http://www.tourism.vic.gov.au/research/domestic-and-regional-research/product-segment-market-profiles.html – accessed 30 March 2017.</p> <ul style="list-style-type: none"> Tourism Victoria (2014) <i>Economic Contribution of Tourism to Victoria 2013-14</i>. Fact sheet prepared by the Tourism Victoria Research Unit – November 2014. <p>http://www.tourism.vic.gov.au/research/economic-significance.html – accessed 30 March 2017</p>
page 33 paragraph 2	<p>In 2012 it was estimated that the Little Penguins at Phillip Island contributed \$125 million to the state economy, with half of that spent in the Bass Coast area.</p>
Source	<ul style="list-style-type: none"> Phillip Island Nature Parks (2012) <i>Strategic Plan 2012-2017</i>. <p>https://www.penguins.org.au/assets/About/PDF-Local-Community/Strategic-Plan-2012-17sm.pdf – accessed 4 April 2017</p>
page 33 paragraph 3	<p>...\$1.4 billion per year is spent on visits to Victoria's parks. This generates about \$1 billion gross value added and supports 14,000 jobs. Regional economies that benefit most from park-based tourism include the Grampians, the Great Ocean Road, Phillip Island, the Yarra Valley, the Dandenong Ranges and Gippsland.</p>
Source	<ul style="list-style-type: none"> Parks Victoria (2015) <i>Valuing Victoria's Parks. Accounting for ecosystems and valuing their benefits: Report of first phase findings</i>. Parks Victoria and the Department of Environment, Land, Water and Planning.

Chapter 6

Investing together to protect our environment



6.2 Supporting non-government investment in biodiversity

page 35
paragraph 7 The link between a healthy environment and the economy is becoming part of mainstream thinking, and businesses are responding by becoming increasingly environmentally conscious.

Source • Grafton, Q., Adamowicz, W., Dupont, D., Nelson, H., Hill, R. J. and Renzetti, S. (2008). *The economics of the environment and natural resources*. John Wiley & Sons.

6.3 Creating more opportunities for private landholders

page 36
paragraph 4 Private landholders manage two-thirds of the Victorian landscape, and therefore have a critical role to play in conserving biodiversity. Private land hosts some of the state's most threatened species and some of its most important and irreplaceable native vegetation.

Source • Bennett, A. F. (1995) Wildlife conservation and management on private land – facing the challenge. In: Bennett, A., Backhouse, G. and Clark, T. (eds.) *People and Nature Conservation: Perspectives on Private Land Use and Endangered Species Recovery*. pp. 119-127. Royal Zoological Society of New South Wales, Sydney.

• Victorian Environmental Assessment Council (2011) *Remnant Native Vegetation Investigation: Final Report*. East Melbourne, Victoria.

page 37
paragraph 1 Permanent protection of private land for conservation... makes a valuable long-term contribution to Victoria's environment...

Source • Department of Environment and Primary Industries (2013). *Biodiversity Conservation Strategy for Melbourne's Growth Corridors*. Department of Environment and Primary Industries, East Melbourne, Victoria.

• Trust for Nature (2013) *Trust for Nature's Statewide Conservation Plan for Private Land in Victoria*. Trust for Nature, Carlton, Victoria.

page 37
paragraph 2 Victoria already has a strong track-record of innovative approaches to conservation on private land, including through the use of conservation auctions (such as BushTender and revolving funds) and stewardship payments (such as through the *Victorian Waterway Management Strategy*).

Source • Department of Environment and Primary Industries (2013). *Improving Our Waterways: Victorian Waterway Management Strategy*. Department of Environment and Primary Industries, East Melbourne, Victoria.

• Department of Sustainability and Environment (2008) *EcoTender and BushTender: tender-based ecomarkets*. Department of Sustainability and Environment, East Melbourne, Victoria.

• Trust for Nature (2013) *Trust for Nature's Statewide Conservation Plan for Private Land in Victoria*. Trust for Nature, Carlton, Victoria.

Chapter 7

Biodiversity response planning



7.1 Making the most of our collective effort

- page 39
paragraph 5
- Excellent collaborative models already exist, variously inspired by community or government efforts, such as through conservation management networks, threatened species' Recovery Teams, various 'ark' and 'eden' projects and project alliances that span multiple landscapes and administrative boundaries.
- Source
- Context Pty Ltd. (2008) *Strategic Plan for Conservation Management Networks in Victoria: Working together to protect biodiversity*. Context Pty Ltd, Brunswick Victoria.
http://www.dse.vic.gov.au/__data/assets/pdf_file/0010/100216/CMN_Strategy_8_Sept_08.pdf – accessed 4 April 2017.
 - Robley, A., Gormley, A. Albert, R., Bowd, M., Hatfield, C., McDonald, R. Scroggie, M., Smith, A., Thorp, A. and Warton, F. (2012) Glenelg Ark 2005–2011: Evidence of Sustained Control of Foxes and Benefits for Native Mammals. *Arthur Rylah Institute for Environmental Research, Technical Report Series No. 240*. Department of Sustainability and Environment, Victoria.
http://www.delwp.vic.gov.au/__data/assets/pdf_file/0006/275622/ARI-Technical-Report-240-Glenelg-Ark-2005-2011-evidence-of-sustained-control-of-foxes-and-benefits-for-native-mammals.pdf – accessed 4 April 2017.
 - Lambourne, S. and Edmonds, M. (2016) Central Highlands Eden – Working along the invasive species curve continuum. Summary of presentation to the Twentieth Australasian Weeds Conference.
<http://caws.org.au/awc/2016/awc201613401.pdf> – accessed 30 March 2017.

Chapter 8

Working with Traditional Owners and Aboriginal Victorians



page 43 paragraph 1	<p>Traditional Owners and Aboriginal Victorians view the natural world within an interconnected ecological, cultural and livelihood system. Land and waters managed for landscape and community health require active and adaptive management to maintain and enhance biodiversity and improve its ability to recover from shocks and stresses. Traditional Owners and Aboriginal Victorians take a holistic and landscape planning and management approach, using fire, water and vegetation management as integral management tools for maintaining a productive and healthy landscape.</p>
Source	<ul style="list-style-type: none"> Federation of Victorian Traditional Owner Corporations (2014) <i>Federation Charter</i>. Federation of Victorian Traditional Owner Corporations, North Melbourne, Victoria. Federation of Victorian Traditional Owner Corporations (2017) <i>Victorian Traditional Owner Biodiversity Policy Statement 2016</i>. Federation of Victorian Traditional Owner Corporations, North Melbourne, Victoria.
page 43 paragraph 2	<p>The effects of a violent colonial history and the resulting dispossession of Country have significantly curtailed the ability of Aboriginal Victorians to utilise traditional ecological knowledge to protect and promote biodiversity. Sadly, some of this traditional ecological knowledge has been lost, and is only now being recaptured, thanks to the collective efforts of many people.</p>
Source	<ul style="list-style-type: none"> Federation of Victorian Traditional Owner Corporations (2017) <i>Victorian Traditional Owner Biodiversity Policy Statement 2016</i>. Federation of Victorian Traditional Owner Corporations, North Melbourne, Victoria. Department of Premier and Cabinet (2016) <i>Victorian Government Aboriginal Affairs Report 2016</i>. Department of Premier and Cabinet, Victoria. <p>http://www.vic.gov.au/system/user_files/Documents/av/Victorian_Government_Aboriginal_Affairs_Report_2016.pdf – accessed 24 April 2017.</p>
page 43 paragraph 8	<p>Health and wellbeing</p> <p>Victoria's Aboriginal population has suffered greatly from the impacts of European colonisation. Traditional Owners define their identity and spirituality by their connection to their Country. When Country is not maintained, health and wellbeing become compromised. Biodiversity that provides a healthy ecosystem in which the living world thrives is therefore central to Traditional Owner wellbeing.</p>
Source	<ul style="list-style-type: none"> Federation of Victorian Traditional Owner Corporations (2017) <i>Victorian Traditional Owner Biodiversity Policy Statement 2016</i>. Federation of Victorian Traditional Owner Corporations, North Melbourne, Victoria. Kingsley, J., Townsend, M., Phillips, R. and Aldous, D. (2009) "If the land is healthy... it makes the people healthy": the relationship between caring for Country and health for the Yorta Yorta Nation, Boonwurrung and Bangerang Tribes. <i>Health Place</i> 15(1): 291-99.

page 43 paragraph 9	While healthy Country is integral to healthy people, recent evidence extends beyond that to prove that there are positive social outcomes for Traditional Owners engaged in working on Country – either in natural resource management roles or undertaking cultural practices. This has the twin policy outcomes of savings to the health sector from healthier people, and achieving a healthier Victorian environment from the application of Traditional Owner knowledge.
Source	<ul style="list-style-type: none"> Burgess, C.P., Johnston, F.H., Bowman, D.M. and Whitehead, P.J. (2005) Healthy country: healthy people? Exploring the health benefits of Indigenous natural resource management. <i>Australian and New Zealand Journal of Public Health</i> 29(2): 117. Burgess, P., Mileran, A. and Bailie, R. (2008) Beyond the mainstream – health gains in remote aboriginal communities. <i>Australian Family Physician</i> 37(12): 986-8. Burgess, C. P., Johnston, F. H., Berry, H., McDonnell, J., Yibarbuk, D., Gunabarra, C., Mileran, A. and Bailie, R. (2009) Healthy country healthy people: superior Indigenous health outcomes are associated with Caring for Country. <i>The Medical Journal of Australia</i> 190: 567-572. Johnston, F. H., Jacups, S. P., Vickery, A. J. and Bowman, D. M. (2007) Ecohealth and Aboriginal testimony of the nexus between human health and place. <i>EcoHealth</i> 4(4): 489-499.

8.1 Considering Aboriginal values in biodiversity planning and management

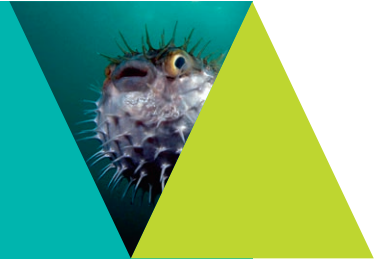
page 44 paragraph 4	The Department's <i>Aboriginal Inclusion Plan 2016-2020 Munganin-Gadhaba 'Achieve Together'</i> , takes a best practice approach towards recognition and protection of Aboriginal customary knowledge.
Source	<ul style="list-style-type: none"> Department of Environment, Land, Water and Planning (2016) <i>Munganin-Gadhaba 'Achieve Together' DELWP Aboriginal Inclusion Plan 2016-2020</i>. Department of Environment, Land, Water and Planning, East Melbourne, Victoria.

8.2 Aboriginal access to biodiversity for economic development

page 45 paragraph 3	Aboriginal enterprises are around 100 times more likely to employ Aboriginal people than non-Aboriginal enterprises, so strengthening Aboriginal business will have a significant flow-on impact on Aboriginal employment.
Source	<ul style="list-style-type: none"> Hunter, B. (2014) Indigenous employment and businesses: Whose business is it to employ Indigenous workers? <i>Working Paper No.95</i>, CAEPR, ANU, Canberra.
page 45 paragraph 4	The government has established the Victorian Aboriginal Economic Board, to drive job and business opportunities for Aboriginal Victorians. In the spirit of self-determination, the Board brings together Aboriginal community members, business and government to drive the delivery of the <i>Victorian Aboriginal Economic Strategy 2013-2020</i> .
Source	<ul style="list-style-type: none"> Department of Premier and Cabinet and Aboriginal Affairs Victoria (2013) <i>Victorian Aboriginal Economic Strategy 2013-2020</i>. Department of Premier and Cabinet, Melbourne, Victoria.

Chapter 9

Better protection and management of our biodiversity



9.1 Delivering improved biodiversity management on public land and across the landscape

page 47 paragraph 4	Seventy per cent of Victoria's highest value terrestrial biodiversity areas exist on the forty per cent of land that is publicly owned. These areas include national parks and conservation reserves, and land used for multiple purposes – including State Forests, and smaller public land parcels such as road reserves, rail reserves, local government reserves and water frontages.
Source	<ul style="list-style-type: none"> Victorian Environment Assessment Council (2016) <i>Statewide Assessment of Public Land Discussion Paper</i>. Victorian Environment Assessment Council, Melbourne.
page 47 paragraph 4	Approximately 54,000 ha of Victoria's marine waters are formally protected for nature conservation through 13 marine national parks and 11 marine sanctuaries.
Source	<ul style="list-style-type: none"> DELWP website – marine national parks and sanctuaries https://www.coastsandmarine.vic.gov.au/marine/marine-national-parks-and-sanctuaries – accessed 30 March 2017 Parks Victoria (2003) <i>Parks Victoria Annual Report 2002-2003</i>. Parks Victoria, Melbourne. Parks Victoria (2015) <i>Valuing Victoria's Parks. Accounting for ecosystems and valuing their benefits: Report of first phase findings</i>. Parks Victoria and the Department of Environment, Land, Water and Planning.
page 47 paragraph 6	Depending on their frequency and type, fires, including planned burning, can have significant positive or negative effects on biodiversity. Negative impacts on biodiversity can occur when fires are too frequent, intensive or extensive for recovery to occur. The threat of 'too frequent fire' will be exacerbated by climate change.
Source	<ul style="list-style-type: none"> Enright, N. J., Fontaine, J. B., Bowman, D. M., Bradstock, R. A. and Williams, R. J. (2015) Interval squeeze: altered fire regimes and demographic responses interact to threaten woody species persistence as climate changes. <i>Frontiers in Ecology and the Environment</i> 13(5): 265-272. Fairman, T. A., Nitschke, C. R. and Bennett, L. T. (2016). Too much, too soon? A review of the effects of increasing wildfire frequency on tree mortality and regeneration in temperate eucalypt forests. <i>International Journal of Wildland Fire</i> 25(8): 831-848. Scientific Advisory Committee (2001) <i>Final recommendation on a nomination for listing: "High frequency fire resulting in disruption of life cycle processes in plants and animals and loss of vegetation structure and composition."</i> (Potentially Threatening Process) (Nomination No. 565). Scientific Advisory Committee, Flora and Fauna Guarantee. Department of Natural Resources and Environment, East Melbourne, Victoria. Scientific Advisory Committee (2003) <i>Final Recommendation on a nomination for listing: "Inappropriate fire regimes causing disruption to sustainable ecosystem processes and resultant loss of biodiversity."</i> (Potentially Threatening Process) (Nomination No. 664) Scientific Advisory Committee, Flora and Fauna Guarantee. Department of Sustainability and Environment, East Melbourne, Victoria.

page 47 paragraph 7	Introduced plants and animals are a primary cause of biodiversity decline in all Victorian environments.
Source	<ul style="list-style-type: none"> • Department of Sustainability and Environment (2010) <i>Invasive Plants and Animals Policy Framework</i>. Department of Sustainability and Environment, East Melbourne, Victoria. • Department of Sustainability and Environment (2012) <i>Department of Sustainability and Environment Flora and Fauna Guarantee Act 1988 Processes List</i>: December 2016. Department of Sustainability and Environment, East Melbourne, Victoria. <ul style="list-style-type: none"> – Degradation and loss of habitats caused by feral Horses (<i>Equus caballus</i>). – Introduction and spread of <i>Spartina</i> to Victorian estuarine environments. – Invasion of native vegetation by Blackberry <i>Rubus fruticosus</i> L. agg. – Invasion of native vegetation by 'environmental weeds'. – Invasion of native vegetation communities by Tall Wheat-grass <i>Lophopyrum ponticum</i>. – Loss of biodiversity in native ant populations and potential ecosystem integrity following invasion by Argentine Ants (<i>Linepithema humile</i>). – Predation of native wildlife by the cat, <i>Felis catus</i>. – Predation of native wildlife by the introduced Red Fox <i>Vulpes vulpes</i>. – Reduction in biodiversity of native vegetation by Sambar (<i>Cervus unicolor</i>). – Reduction in biomass and biodiversity of native vegetation through grazing by the Rabbit <i>Oryctolagus cuniculus</i>. – Soil degradation and reduction of biodiversity through browsing and competition by feral goats (<i>Capra hircus</i>). – Soil erosion and vegetation damage and disturbance in the alpine regions of Victoria caused by cattle grazing. – The introduction and spread of the Large Earth Bumblebee <i>Bombus terrestris</i> into Victorian terrestrial environments. – The introduction of exotic organisms into Victorian marine waters. – Threats to native flora and fauna arising from the use by the feral honeybee <i>Apis mellifera</i> of nesting hollows and floral resources.

page 47 paragraph 8	Human-induced changes to the environment have, in some situations, led to native species such as kangaroos, Noisy Miners, sea urchins, Sweet Pittosporum and Burgan becoming locally over-abundant, often to the detriment of other native species.
Source	<ul style="list-style-type: none"> • Coulson, G. and Eldridge, M. D. B. (2010) <i>Macropods: the biology of kangaroos, wallabies, and rat-kangaroos</i>. CSIRO Publishing. • Kirschbaum, S. B. and Williams, D. G. (1991) Colonization of pasture by <i>Kunzea ericoides</i> in the Tidbinbilla Valley, ACT, Australia. <i>Australian Journal of Ecology</i> 16: 79–90. • Maron, M., Grey, M.J., Catterall, C.P., Major, R.E., Oliver, D.L., Clarke, M.F., Loyn, R.H., Mac Nally, R., Davidson, I. and Thomson, J.R. (2013) Avifaunal disarray due to a single despotic species. <i>Diversity and Distribution</i> 19(12): 1468–1479. • Mullett, T. and Simmons, D. (1995) Ecological impacts of the environmental weed sweet pittosporum (<i>Pittosporum undulatum</i> Vent.) in dry sclerophyll forest communities, Victoria. <i>Plant Protection Quarterly</i> 10(4): 131–138. • Department of Sustainability and Environment (2012) <i>Department of Sustainability and Environment Flora and Fauna Guarantee Act 1988 Processes List: December 2016</i>. Department of Sustainability and Environment, East Melbourne, Victoria. <ul style="list-style-type: none"> – Loss of biodiversity as a result of the spread of Coast Wattle (<i>Acacia longifolia</i> subsp. <i>sophorae</i>) and Sallow Wattle (<i>Acacia longifolia</i> subsp. <i>longifolia</i>) into areas outside its natural range. – Reduction in biodiversity resulting from Noisy Miner (<i>Manorina melanocephala</i>) populations in Victoria. – Spread of <i>Pittosporum undulatum</i> in areas outside its natural distribution.
page 47 paragraph 10	Altered hydrological regimes and ongoing demands for water are placing increasing pressure on Victoria’s marine and waterway ecosystems.
Source	<ul style="list-style-type: none"> • Commissioner for Environmental Sustainability (2013) <i>Victoria: State of the Environment 2013</i>. Office of the Commissioner for Environmental Sustainability, Melbourne, Victoria. • Department of Environment, Land, Water and Planning (2016) <i>Water for Victoria</i>. Department of Environment, Land, Water and Planning, East Melbourne, Victoria. • Department of Environment, Land, Water and Planning (2016) <i>Draft Port Phillip Bay Environmental Management Plan 2017-2027: Supporting Document</i>. Department of Environment, Land, Water and Planning, East Melbourne, Victoria.

9.2 Maintaining and improving a world-class reserve system

page 48
paragraph 5 ...in landscapes that consist mostly of private land – especially in Victoria’s most productive landscapes – many ecosystems, habitats and threatened species are inadequately represented in the reserve system and need increased protection. For example, in the Victorian Volcanic Plains (VVP) bioregion, only 1.3 per cent of the native vegetation is in conservation reserves, and the corresponding figure for the Wimmera bioregion is only 1.5 per cent.

- Source
- Booth, C. (2014) *Natural Victoria – Conservation Priorities for Victoria’s Natural Heritage. Nature Conservation Review. Full Report*. Victorian National Parks Association, Melbourne.
 - Commissioner for Environmental Sustainability (2013) *Victoria: State of the Environment 2013*. Office of the Commissioner for Environmental Sustainability, Melbourne, Victoria.
 - Victorian Environmental Assessment Council (2010) *Remnant Native Vegetation Investigation Discussion Paper*. Victorian Environmental Assessment Council, East Melbourne, Victoria.
 - Victorian Environmental Assessment Council (2011) *Remnant Native Vegetation Investigation: Final Report*. Victorian Environmental Assessment Council, East Melbourne, Victoria.

page 49
paragraph 1 The estimated gap in additional protected areas required to meet Australia’s criteria for a comprehensive, adequate and representative reserve system is 2.1 million hectares.

- Source
- Victorian Environmental Assessment Council (in press) *Statewide Assessment of Public Land Discussion Paper (supplement)*. Victorian Environmental Assessment Council, Melbourne.

