



## The services provided by Victoria's ecosystems

*Biological diversity or biodiversity: the variety of all life forms including the different plants, animals and micro-organisms, the genes they contain and the ecosystems of which they form a part.*

*Ecosystem: All the organisms in a community, together with the associated physical and environmental factors (living and non-living) with which they interact.*

### The value of healthy ecosystems

Biodiversity and the ecosystems it supports are fundamental to life and to our lifestyles. When they function properly, ecosystems provide a diverse range of goods and services that drive our economy and support the wellbeing of our communities. Ecosystem services such as the productivity of soil and the purification of water can be readily costed and can be easily factored into economic decisions. Other services like cultural heritage values and the health benefits of spending time in nature are more difficult to place a value on and as a result are often taken for granted. These services are provided free of charge by nature and we may not realise their value until they are lost.

When we make an effort to protect nature it is not only for the sake of maintaining the natural environment, but also to make sure it continues to provide these ecosystem services. Because nature is so complex, it is not always possible to replace ecosystem services that are lost, or where technological alternatives are available, replacing them can be very expensive. Protecting ecosystems so that nature continues providing these services is usually cheaper and more effective than engineering solutions.

For example, a shift in thinking about the value of ecosystem services saved New York City more than US\$4 billion, and provided ongoing benefits for people and the environment. The city decided that instead of building a US\$6 billion water filtration facility, it would spend US\$1.5 billion to restore ecosystems around water. Investing in these natural assets provided the same water purification services, but at a much lower cost and with positive outcomes for the environment.

Much of Victoria's environment is degraded and we are experiencing the effects of prolonged drought, changed fire regimes, restricted water supplies and loss of fauna species and native vegetation. These pressures are threatening the health of our ecosystems. If we don't adequately address these challenges we will continue to lose the important services these ecosystems provide.

The concept of ecosystem services lets us think differently about the benefits that flow from natural assets. An environment rich in diversity and complexity ensures we continue to have options for sustainable economic activity, the capacity to nurture human welfare and the ability to adapt to change.

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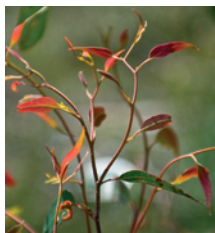
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Images: Grampians National Park - Photo: Tourism Victoria, Bush-tailed Phascogale - Photo: Parks Victoria, Hooded Plovers - Photo: Faye Bedford.

The following are examples of ecosystem services that are valued by Victorians.



#### Maintenance of air quality

As plants grow, they capture carbon dioxide (the main greenhouse gas contributing to climate change) and produce oxygen, as well as filtering pollutants caused by human activities.



#### Food security

Agricultural systems rely on ecosystem services such as nutrient cycling to produce the majority of our food. Victoria's commercial and recreational fishing industries depend on the food sources, breeding areas and shelter provided by marine, wetland and estuary habitats.



#### Maintenance of water quality and supply

Ecosystems absorb and recycle essential nutrients and help purify water. Vegetation in ecosystems regulates the water balance and also helps prevent erosion and silting of waterways.



#### Health

The environments we enjoy spending time in are important to our general wellbeing. Studies have found that connecting with nature can help reduce depression and improve overall health and wellbeing.



#### Pest control

Some potential crop pests can be managed by other organisms such as insects, birds and fungi.



#### Spiritual and cultural value

People appreciate knowing that natural environments exist and natural features help make cities and towns liveable. Many landscapes have important cultural heritage values.



#### Detoxification and decomposition of wastes

Microbes and organisms living in soils break down organic wastes as well as many industrial wastes, such as detergents and oils.



#### Tourism and recreation

Natural spaces in both metropolitan and rural areas are used for a wide range of recreational pursuits that keep Victorians fit and active. The beauty and function of our ecosystems underpin the billions of dollars that tourism contributes to the State's economy.



#### Pollination and crop production

Insects and birds transport pollen and seeds that are needed for the pollination and reproduction of many flowering plants, including food crops.



#### Indigenous cultural heritage

For Indigenous Australians, ecosystems are intertwined with their cultural, social and spiritual systems. Indigenous people have a long and ongoing association with the natural environment and there are many sites of cultural significance throughout Victoria.



#### Climate stabilisation

Plants and other organic materials in land and ocean ecosystems absorb carbon, helping slow the build-up of carbon dioxide in the atmosphere. In hot climates, forests release moisture causing rainstorms in local areas and in cold areas they insulate regions.



#### Income

Healthy ecosystems are essential to Victoria's economy. Victoria's natural resources underpin primary industries, that were estimated in 2006 to be worth over \$9.3b annually and are important generators of jobs and income. Our parks contribute \$860 million per year to the state's economy and Victoria's commercial fisheries generate around \$100 million per year. Over 70,000 Victorians are employed in agricultural industries and 47,000 in food processing industries.



#### Prevention and mitigation of natural degradation

Trees, grasses and other plant roots help protect landscapes against erosion, salinity, nutrient loss and landslides. Vegetated ecosystems can help absorb floodwaters and prevent coastal erosion.