

Money can't buy me love, but you can put a price on a tree

October 11 2017, by Heather Keith, David Lindenmayer And Michael Vardon



Mountain ash in the Victorian Central Highlands. Credit: Takver/Flickr, CC BY-SA

What is something worth? How do you put a dollar value on something like a river, a forest or a reef? When one report announces that the Great Barrier Reef is worth A\$56 billion, and another that it's effectively priceless, what does it mean and can they be reconciled?

This contrast points to fundamentally different notions of value. Environmental accounting is a way of recognising and comparing multiple sources of value, in order to better weigh competing priorities in resource management.

In practice it is sometimes crude, but it's been [standardised internationally](#) and its scope is expanding to include [social, cultural, and intrinsic benefits](#).

Using environmental accounting we've [investigated](#) the tall, wet forests of Victoria's Central Highlands to weigh the competing economic cases for continuing [native timber harvesting](#) and creating a [Great Forest National Park](#). But first we'll explain a little more about environmental accounting, and how we put a price on trees.

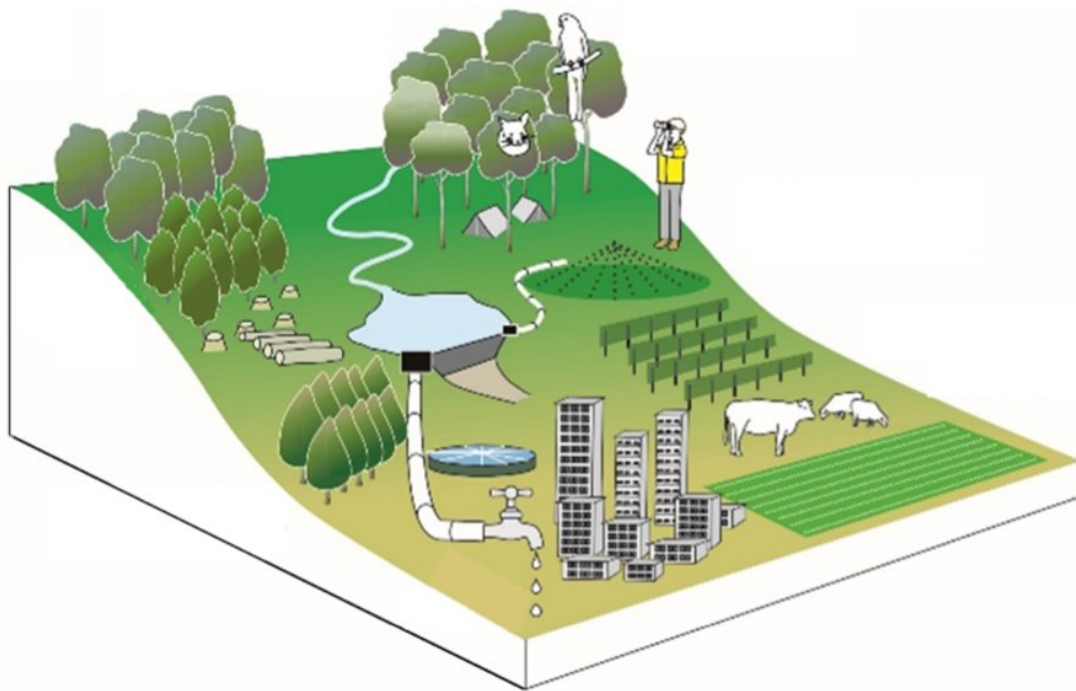
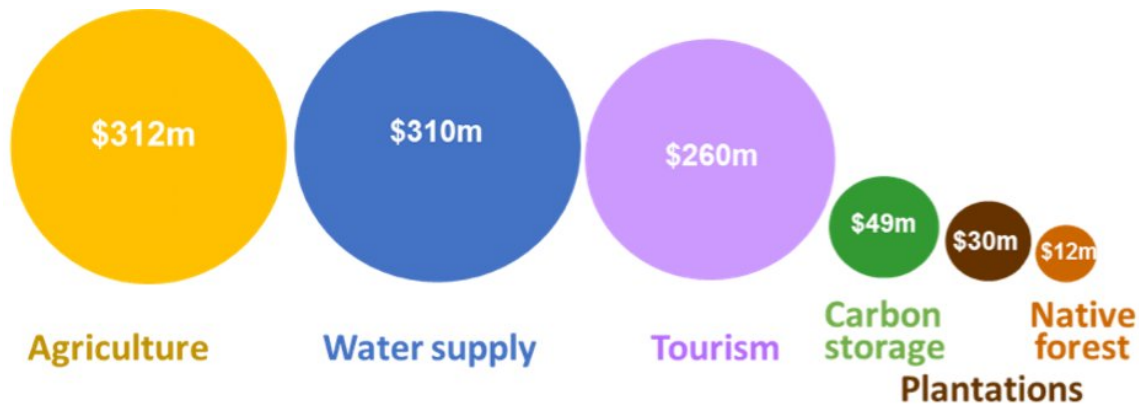
What we count

Essentially, environmental accounting involves identifying the contributions of the environment to the economy, summarised as gross domestic product (GDP). In Australia, the Australian Bureau of Statistics standardises the data and reporting of these contributions in the [System of National Accounts](#). The Bureau also produces [environmental accounts](#) that extend the range of information presented - e.g. [water](#) and energy use and greenhouse gas emissions.

But there are other things of value, like positive environmental and social outcomes, worth incorporating into calculations. [Ecosystem accounting](#) gives researchers a framework for doing this, extending the accounting to look at the value of different "ecosystem services" – the contributions of ecosystems to our wellbeing - and not just goods and services captured in our national accounts or environmental accounts.

For example, businesses and homes pay a price for water delivery, but

the supplier doesn't pay for the water that entered the dam. That water is an ecosystem service created by forests and the atmosphere. By assessing costs in the water supply industry, we can estimate the value of the ecosystem service of water provisioning.



The GDP contribution in millions of dollars by primary industries in 2013-14.

The value of Victoria's Central Highlands

Victoria's Central Highlands are contested ground. Claims and counter-claims abound between the proponents of native timber production and those who are concerned about the impacts of logging on water supply, climate abatement and threatened species.

[Our research](#) has, for the first time, directly compared the economic and environmental values of this ecosystem. It shows that creating a Great Forest National Park is clearly better value.

With any change in land management, there will be gains and losses for different people and groups. Assessing these trade-offs is complex, made even more so by patchy and inconsistent data.

Through careful accounting, we synthesised the available data and calculated the [annual contributions of industries](#) to GDP. In 2013-14, the latest year for which all financial data were available, these came to A\$310 million for water supply, A\$312 million for agriculture, A\$260 million for tourism and potentially A\$49 million for [carbon storage](#). (There is no current market for carbon stored in [native forests](#) in Australia – more on that in a minute.)

All of this far exceeds the A\$12 million from native timber production. Although timber production is a traditional industry, its contribution to the regional economy is now comparatively small.

The industries that use ecosystem services are classified as [primary production](#) – agriculture, forestry and water supply. This classification is comprehensive (it covers all economic activities) and mutually exclusive (there is no overlap of categories). Downstream uses of the products from agriculture, forestry and water supply are an important consideration for the industries as a whole, but are included in

manufacturing industries and not in ecosystem accounts.

	water	carbon	biodiversity	ecotourism
water				
carbon				
biodiversity				
ecotourism				
native timber				

Trade-offs between industries in their use of ecosystem services can be complementary (green) or conflicting (red).

Older forests are more valuable

Native timber production involves clearfell harvesting ([removing the majority of trees at the site](#)) and slash burning (using [high-intensity fire to burn logging residue and provide an ash bed for regeneration](#)).

Regenerating forests are younger, with all trees the same age, and have lower species diversity.

This means these young forests contribute less to biodiversity, carbon storage, water supply and recreation. Therefore harvesting native timber

requires a trade-off between these conflicting activities.

But [more than 60%](#) of the native timber harvested in the Central Highlands is used for pulp. This can be substituted by production from plantations that are more efficient and increased use of recycled paper. Both softwood and hardwood plantations can provide [substitute sawlogs](#).

If we phased out native forest harvesting, increases in the value of water supply and carbon storage would offset the loss of A\$12 million per year contributed by the industry. (It would also most likely increase profits for the tourism and plantation timber sectors.)

Older trees use less water than young regrowth, and allowing native forests to age would increase the supply of water to Melbourne's main reservoirs by an estimated 10.5 gigalitres per year. That's worth [A\\$8 million per year](#). Security of water supply for the increasing population of Melbourne is an ever-present concern, particularly with [projected decreases in rainfall and streamflow](#).

Older forests also [store more carbon](#) than younger regrowth forests. The federal government's Emission Reduction Fund does not recognise native forest management as an eligible activity for [carbon trading](#), but if this changed the [forest](#) could earn carbon credits worth A\$13 million per year. This would provide an ongoing and low-cost source of carbon abatement, which could be used to meet Australia's emissions reduction targets, while the Victorian government could use the money gained to support an industry transition.

Of course, economic benefit is only one way of looking at land. We know that the Central Highlands is home to unique flora and fauna that cannot be replaced (much of which is [increasingly under threat](#)). But careful environmental accounting can help explicitly define the various trade-offs of different activities.

It's particularly important when legacy industries – like native timber harvesting – are no longer environmentally or economically viable. The accounting reveals the current mix of benefits and costs, allowing management of this area to be reconsidered.

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