



Natural capital accounting in Australia's primary industries

CSIRO is leading research into applying natural capital accounting to Australia's primary industries. Natural capital accounting can help industries measure and report their environmental performance and track it against their economic information, improving their decision making.

What is natural capital and natural capital accounting?

Natural capital is the stock of renewable and non-renewable resources – such as soil, water, plants, animals, minerals, land and the atmosphere – on which all businesses rely to generate goods and services that benefit people.

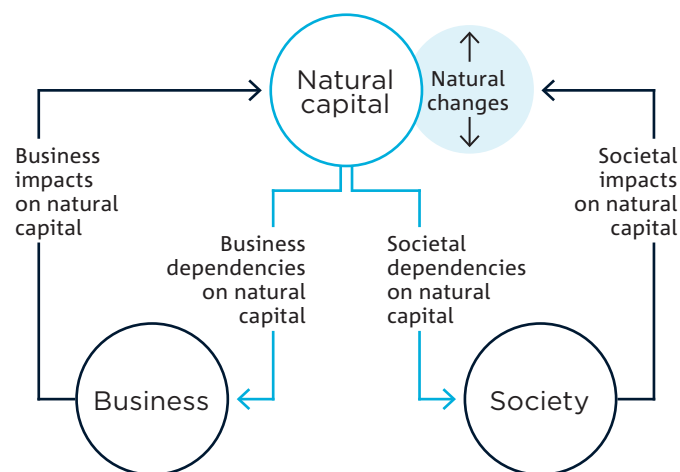
Primary industries are particularly dependent on natural capital, as the food and fibre they produce flow directly from that natural capital. The unsustainable use of natural capital assets, and their depletion below thresholds, or tipping points, present a material risk to businesses. The 'invisibility' of some natural assets constrains the capacity for industries to measure and report their environmental performance and track it against economic information.

Globally, both businesses and governments are increasingly interested in accounting for natural capital as a normal part of decision-making and reporting. This is reflected in the Natural Capital Declaration of 2012, in which members of the global finance sector committed to integrate natural capital thinking into their products; and the formation of the Natural Capital Coalition in 2016. These and other initiatives have progressed the development of methods for natural capital accounting.

Natural capital accounting is the process of generating unbiased data about the stocks and flows of natural capital that are material to a business, ecosystem or region, and including these assets in balance sheets. Such accounts can inform government, corporate and consumer decision making around the use or consumption of natural resources and land and enable sustainable behaviour. Natural capital accounting brings together environmental and economic information, so that businesses and stakeholders can assess the risks and opportunities associated with natural capital. It involves compiling consistent, comparable and regularly reported indicators of natural capital and associated flows of ecosystem services, within an accounting framework.

Key frameworks used in Australia include:

- the Natural Capital Protocol (<https://naturalcapitalcoalition.org>), a standardised framework to identify, measure and value the impacts and dependencies of organisations on natural capital
- the System of Environmental-Economic Accounting (SEEA) (<https://seea.un.org/>), a statistical framework developed primarily for public sector decision makers. The Central Framework focuses on individual environmental assets, and was extended in the SEEA Experimental Ecosystem Accounting (SEEA-EEA) framework to account for more complex ecosystem assets made up of multiple interacting components and processes, such as water and carbon cycles interacting with biodiversity to produce multiple ecosystem services.



Dependency and impacts of businesses and society on natural capital

CSIRO tested the application of natural capital accounting in three primary industries: cotton, fisheries and forestry. The objectives were to:

- develop detailed conceptual models of the relationships between natural capital and the industries
- use these conceptual models to define the scope and objectives of natural capital accounts
- implement experimental natural capital accounts.

The project applied the principles of natural capital assessment, as outlined by the Natural Capital Protocol, to characterise the relationship between enterprises and natural capital. This involved the development of a conceptual model of the impacts and dependencies of each industry on natural capital and ecosystem assets. Cost-efficient and measurable indicators of the extent and condition of these ecosystem assets were then chosen and measured. The resultant accounts were designed to align with the SEEA-EEA framework, which allows ecosystem assets to be reported in an accounting framework that is consistent internationally and can ultimately be integrated with the economic System of National Accounts.

The main outputs of this research were:

- syntheses of extensive stakeholder interviews within each industry to test the value proposition for natural capital accounting, better understand the level of knowledge and awareness of natural capital thinking within the industry, and define the objectives for natural capital accounts
- conceptual models of the interactions of enterprises with natural capital
- proposed shell accounts so that enterprises can get started with standardised reporting within each industry
- experimental accounts for each of the industries, improving understanding of the logistical challenges associated with compiling and interpreting relevant information.

These natural capital accounts provide a common set of data to assist government, industry and the community to make decisions. CSIRO is continuing engagement and research in order to refine the accounts, fill data gaps and support the mainstreaming of natural capital accounting in Australian primary industries.

Further information can be found in the following reports.

O'Grady AP, Pinkard EA, Mount RE, Schmidt RK, Cresswell ID and Stewart SB. 2020. Conceptual model to support natural capital accounting of a forestry enterprise. CSIRO, Australia.

Pinkard EA, O'Grady AP, Wall J, Mount RE, Stewart SB, Schmidt RK and Cresswell ID. 2020. Designing natural capital accounts for irrigated cotton enterprises. CSIRO, Australia.

Schmidt RK, Raoult V, Cresswell ID, Ware C, Taylor MD, Mount RE, Stewart SB, O'Grady AP, Pinkard E and Gaston TF. 2020. Designing natural capital accounts for the prawn-fishing industry. CSIRO, Australia.

Stewart SB, O'Grady AP, Mount RE, England J, Opie K, Roxburgh S, Ware C, Scheufele G, McVicar T, Van Niel T, Smith G. 2020. Experimental ecosystem accounts for the forestry industry in the Green Triangle. CSIRO, Australia.

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Ware C, Stewart SB, Cresswell ID, Schmidt RK, Raoult V, Taylor MD, Mount RE, Pinkard EA, Gaston TF and O'Grady AP. 2020. Experimental natural capital accounts for the prawn-fishing industry in the Wallis Lake estuary. CSIRO, Australia.

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