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Ecosystem accounts define trade-offs in natural resource management both explicitly and spatially

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Abstract:

Ecosystem accounting provides an exciting opportunity to significantly improve policy development and decision-making about complex uses of natural resources. Accounting quantifies ecosystem assets and services, and their benefits for human well-being consistent with national economic accounts. We present ecosystem accounts for a case study of the Central Highlands of Victoria with the objective of providing information about the relative values of ecosystem services and human activities in a region with controversial management of forest resources. Trade-offs in the use of natural resources were identified in terms of their physical and monetary values and spatial distribution.

In the Central Highlands, the impact of native forest logging reduces the ecosystem condition of other assets, such as carbon storage, water yield and biodiversity. Analysis of the counterfactual case, the difference in values of the services if logging had not occurred, demonstrated that the gain in value of other services outweighed the loss from native timber production.

Valuation of ecosystem services and their contribution to industries allows management to prioritise the highest value services. These services include water and food provisioning, carbon sequestration and cultural and recreational services in the Central Highlands. Assessing the relative contribution of industries to the economy provides greater transparency of costs and benefits by explicitly identifying ecosystem services that are subsidised. Additional policy and market instruments that are needed to realise the value of ecosystem services were identified. For example, carbon sequestration by forests is an ecosystem service that occurs and benefits the public, but the benefit of native forest protection as a carbon abatement activity cannot be realised because it is not included in government regulations. Ecosystem accounts present an integrated picture of the benefits of ecosystems for human well-being, identify trade-offs needed to improve ecosystem condition and solutions to environment-economic conflicts.