

Ecosystem Services

What are eco-system services? They are “the conditions and processes through which natural ecosystems and the species which make them up, sustain and fulfil human life “Eco-system services are a direct result of the natural assets of an area”. The natural assets being;

- Soil
- Rivers, lakes and wetlands
- Biota (flora, fauna and other living organisms)
- Atmosphere.

These natural assets provide financial, ecological and cultural benefits. They are typically degraded by humans.

Typical ecosystem services include;

- Prevention of soil erosion
- Soil fertility
- Maintenance of soil health
- Maintaining healthy waterways
- Water filtration
- Regulation of river flows and groundwater levels
- Waste absorption and breakdown
- Provision of shade and shelter
- Maintenance and regeneration of habitat
- Pest Controller and Auditor-General pollination
- Regulation of climate
- Life-fulfilment

These ecosystem services produce goods such as;

1. Primary industries – dairying, vineyards, grazing (sheep and beef), crops, pigs, poultry, deer, apiculture, forests, mining (gravel and sand).

2. Processing industries include dairy, meat processing, wines, wood products (firewood, pulp, sawlogs, particle board, posts), honey.
3. Housing and construction – lifestyle subdivisions, urban and rural real estate.
4. Water – water production including town supply, irrigation, secondary and tertiary industries, hydroelectricity
5. Service industries – wholesale and retail trade, transport and communication, finance and business services, housing services, public administration, community services and entertainment and recreation.
6. Environmental, cultural, and aesthetic goods – biodiversity, views and scenic amenity, cultural and natural heritage and values associated with future values (wind farming, carbon).

A focus on ecosystem services results in resource managers looking at their resources in a different way which creates new opportunities and problems. There is a broader set of values and benefits which are derived from nature. It is a holistic approach and there is an emphasis on people's values rather than a reliance on science. The approach brings stakeholders and scientists together to create a better understanding.

Examples of key ecosystem services include;

- Dairying – maintenance of soil health, waste absorption and breakdown, maintenance of healthy waterways, regulation of river flows and groundwater flows, provision of shade and shelter, regulation of climate.
- Grazing – maintenance of soil health, water filtration, erosion control, maintaining healthy waterways, waste absorption and breakdown, provision of shade and shelter, maintenance and provision of genetic resources, pest control, maintenance of regeneration of habitat, life – fulfilment.
- Water production – maintaining healthy waterways, water filtration, erosion control, regulation of river flows and groundwater levels, waste absorption and breakdown (phosphorous and nitrogen), life fulfilment, pest control.

This highlights that for both dairying and grazing maintaining the soils healthy is a key parameter to be monitoring. What happens to soils and soil organisms under intensive stocking, irrigation and fertiliser regimes? Are there long term trends or critical thresholds? Can irreversible changes occur? Is the balance of soil ecosystem services to industrial inputs financially efficient and sustainable? What are the natural pest control mechanisms in pastures? To date soil monitoring is occurring at a regional level. Dairying is also dependent on a number of external ecosystem services such as healthy waterways and regulation of river flows and groundwater levels.

Erosion control and water filtration are important for the sustainability of both grazing and water production. The erosion control and water filtration functions of grazing clearly have a significant impact on water production. Thus there is a case for water users such as the dairy farmers or town supplies to contribute to the provision of this service upstream.