What are ecosystem services and (how) can they be used as part of the EA?

- What is Ecosystem services?
- And what is Resilience?
- How do you determine the "health" of an ecosystem?
- Is an Ecosystem Service Approach useful for decision making?

Joseph Priestley
1733 – 1804

"... it seems to be extremely probable that the putrid effluvium [i.e., whatever it is that extinguishes candles and mice] is in some measure extracted from the air, by means of the leaves of plants, and therefore that they render the remainder more fit for respiration"


"...highly probable, that the injury which is continually done to the atmosphere by the respiration of such a number of animals, and the putrefaction of such masses of both vegetable and animal matter is, in part at least, repaired by the vegetable creation"

"...the direct and indirect contribution from ecosystems to human-wellbeing". MEA 2005

**ecosystem services**

Source: Christie et al. (2008).
I understand ecosystem services as:

“A heuristic device for making human-ecology interaction more visible in decision making.”

And it can contribute in three different ways:

1) Increasing overall understanding and awareness of human dependence on ecosystems.

2) Quantification and valuation (in some form) of services from nature and inclusion of these values in decision making.

3) To inspire novel solutions, new institutions, for sustainable management and governance of ecosystems.

... the capacity of a system to absorb disturbance and reorganize while undergoing change and still retain essentially the same function, structure, identity, and feedbacks

Folke, Carpenter, & Walker, 2010

Nature progress towards a relatively stable climax state. Successional stages are evident.

Human are a destructive force reducing nature from it’s natural progression.

Ecology can help reorganize society and supress destructive individualism. The “wholeness” is the priority.
If nature changes continuously, there is no absolute norm to separate disturbed nature from undisturbed.

The doomsday is overestimated and the idea of wholeness is neighbours with totalitarianism.

We must look forward to the future and meet the demand of a future with humans.

**James Malin, 1893-1979**

A highly prolific historian, a myth-buster.

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**System failure**

“a failure of systems to provide services or goods upon demand.” (Naem 1998)

forced transformation

unintentional regime shift

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**Is an Ecosystem Service Approach useful for decision making?**

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**Spatial Resilience - recovery from disturbance depending upon “support area”**

Source from Lundberg & Moberg 2003

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**Where should we restore forest?**

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Restoration of ecosystem services in Seoul to enhance water quality in the bay.

“We end, I think, at what might be called the standard paradox of the twentieth century: our tools are better than we are, and grow faster than we do. They suffice to crack the atom, to command the tides. But, they do not suffice for the oldest task in human history:

- to live on a piece of land without spoiling it.”

Aldo Leopold, 1938