Valuation Frameworks:

Economic and trans-disciplinary tools

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Massey University

21st June 2013, Prepare for the Future Workshop, Wellington, NZ

Ecological Economics

"A trans-disciplinary enquiry into the re-creation of value propositions with the goal of sustainable development"

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‘Ecosystem Service’ paradigm

‘The benefits people obtain from ecosystems’

Millennium Ecosystem Assessment (2002-2005)

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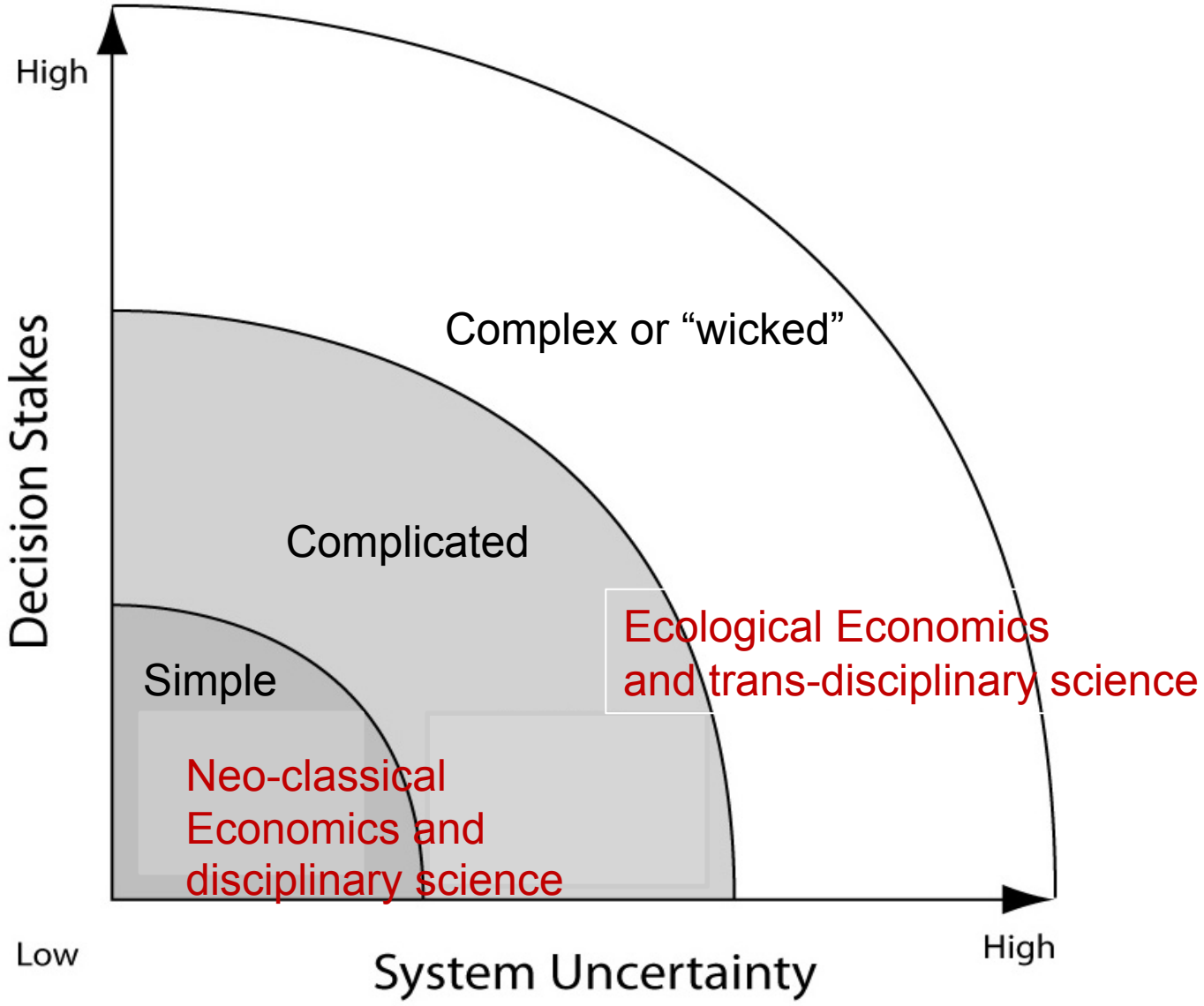
The next 15 minutes……..



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Tools for establishing Economic value *for* people

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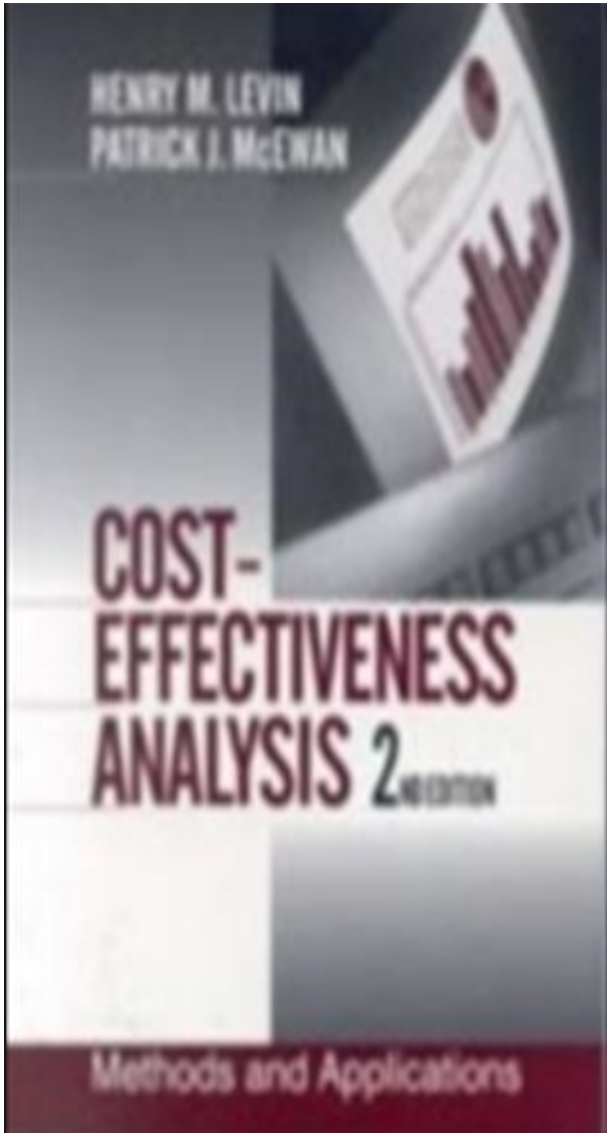
Cost Benefit Analysis (CBA)

- Options, benefits and assumptions have to be clear
- Project-oriented, rather than systems-oriented
- 'All-else-is-equal' needs to be agreed upon, at least in the short run
- Cost and benefits have distributive aspects
- Are the benefits from a CBA bigger than the cost of a CBA?
- *See CBA report of 5 options from IFS on www.ifs.org*

Economic Impact Analysis (EIA)

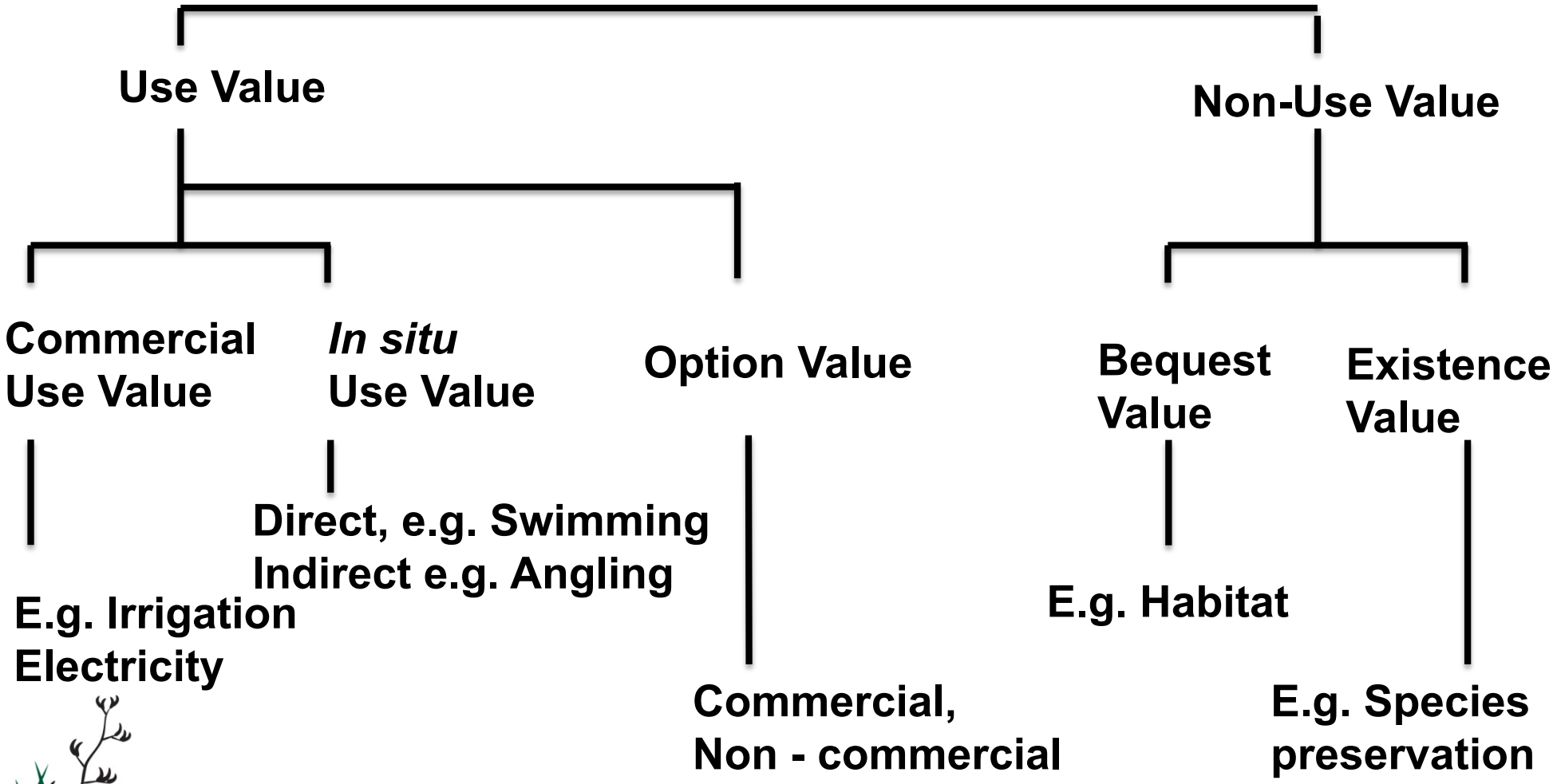
- Traces dollars and employment through economic sectors at local and national level.
- Limited to ‘economic’ activities only: price isn’t equal to value.
- What is good for local level isn’t always good for national level.
- Example EIA report of 5 options from IFS on www.ifs.org

Cost Effectiveness Analysis (CEA)



- Determine a specific, measurable, achievable, realistic, time bound goal
- Develop alternative pathways toward that goal
- Calculate the cost toward that goal
- Reveal all assumptions to get to goal

Total Economic Value (TEV)



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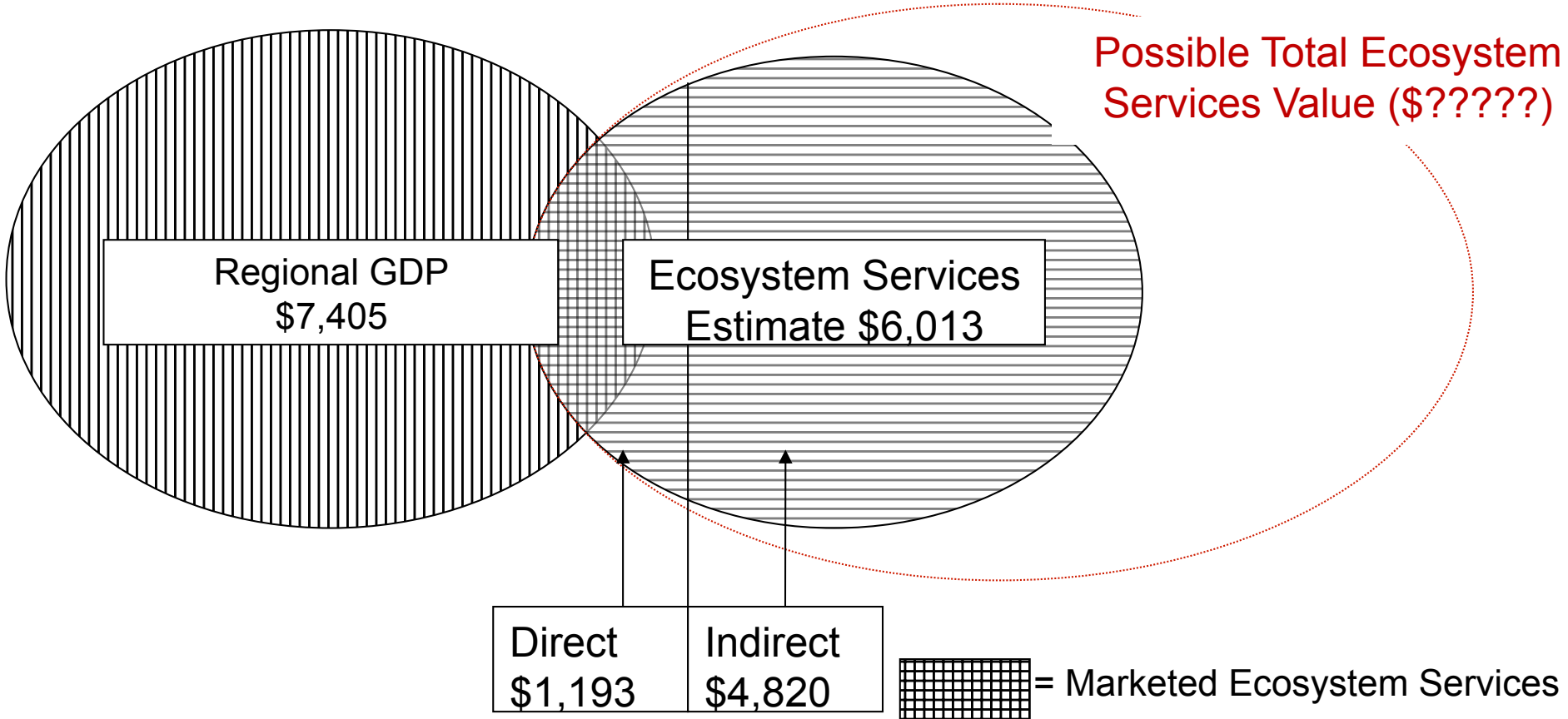
Total Economic Value (TEV)

used in Rapid Ecosystem Service Assessments

e.g.Manawatu-Wanganui

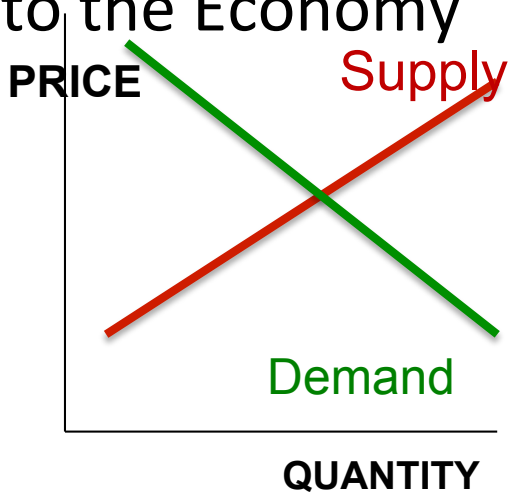


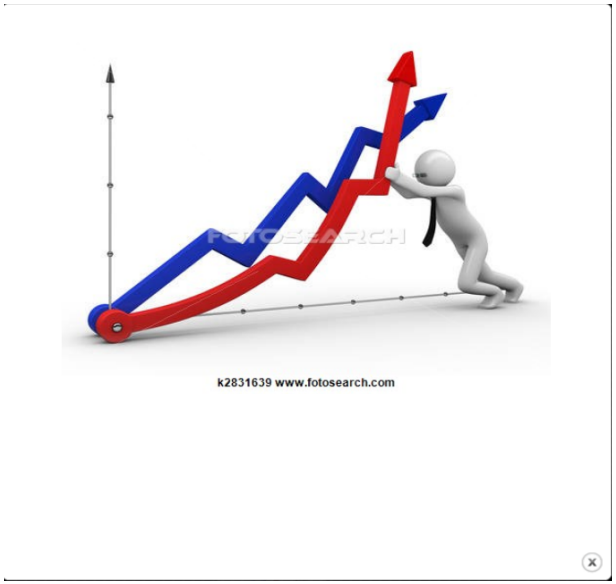
Notes:
- All values in $\$_{2006}$millions.
- Areas don't represent exact relative sizes.


Cost
Product
Hedonic
Income
Estimation
Valuation
Group
Replacement
Avoided
Pricing
Contingent
Willingness-to-Pay
Marginal
Factor
Travel

Assumptions behind Economic Valuation

- Value = Price
- System of National Accounting (SNA)
- Growth (of Gross Domestic Product - GDP)
- 'All-else-equal' – Ceteris Paribus
- People behave like rational utilitarians
- Ecosystem is substitutable rather than fundamental or complementary to the Economy
- Discount rates





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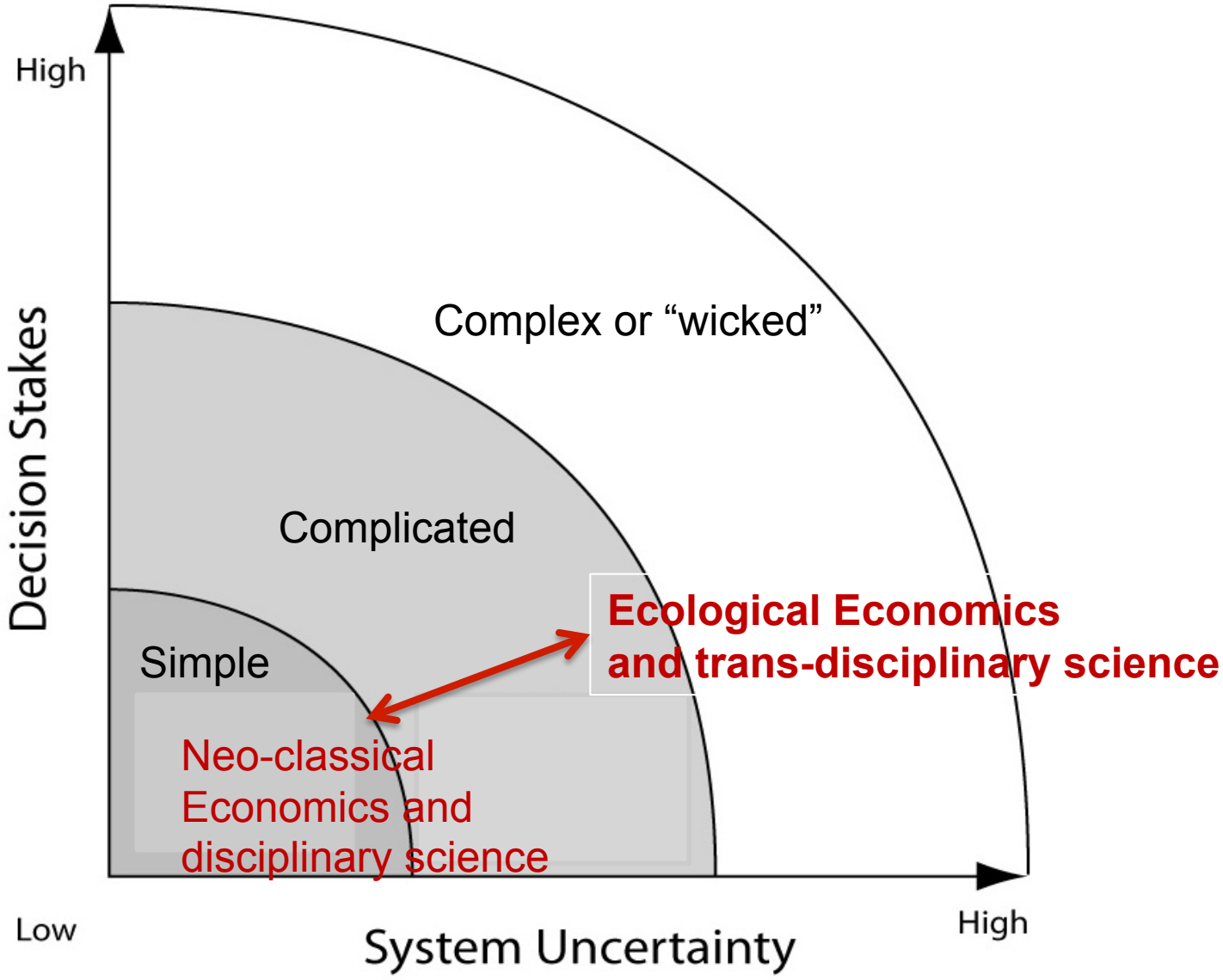
Do people behave like rational utilitarians?

Accessed 20/3/13: Blogspot.com

What happens when all-else-is-NOT-equal?

Integrated Assessments in Collaborative and Adaptive Management



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Multiple Decision Support Systems

envirolink Home About Case Studies DSSs GO Advanced Search

Decision Support Systems Directory

Need support for your decision making processes?

Then welcome to the Envirolink Decision Support Systems (DSS) Directory which contains a range of relevant models and systems that have been developed or used in New Zealand for supporting decision making.

The DSS Directory contains key data about each model or system and where available case study examples of how they have been applied. Links and references for further information are also included.

Read more...

Find DSSs that may be of interest by:

Type of DSS

- Frameworks/Analytical techniques

COMPUTER MODELS

- Spatial Models
- Non-Spatial Models

Management Domain

- Air Sheds
- Catchment/Land Management
- Coastal
- Urban Systems
- Hazards Management
- Biosecurity
- Biodiversity
- Community

Stage in Planning Cycle

About

- Decision Support Systems - Overview
- Glossary
- Suggestion Box

Featured Case Studies See All

WISE - Urban Growth

This case study applies Waikato Integrated Scenario Explorer (WISE) to explore urban sprawl scenarios for the Future Proof project centred on Hamilton and surrounding districts.

Read more

BBN - Rural Land Use and Streams - Bog Burn, Southland

Maintaining key values in streams and rivers in areas of intensive dairy farming often requires concerted action based on a shared understanding of the links between waterway values, farm practices and stressor mitigations.

Read more

http://tools.envirolink.govt.nz/

Developer Login

Tools for establishing value *with* people

- Systems thinking
- Mediated Modelling
- Multi-scale, spatially dynamic modelling
- Adaptive Management

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Linear Thinking
e.g. Flood Protection

Development on river banks → Flood risk → Flood protection

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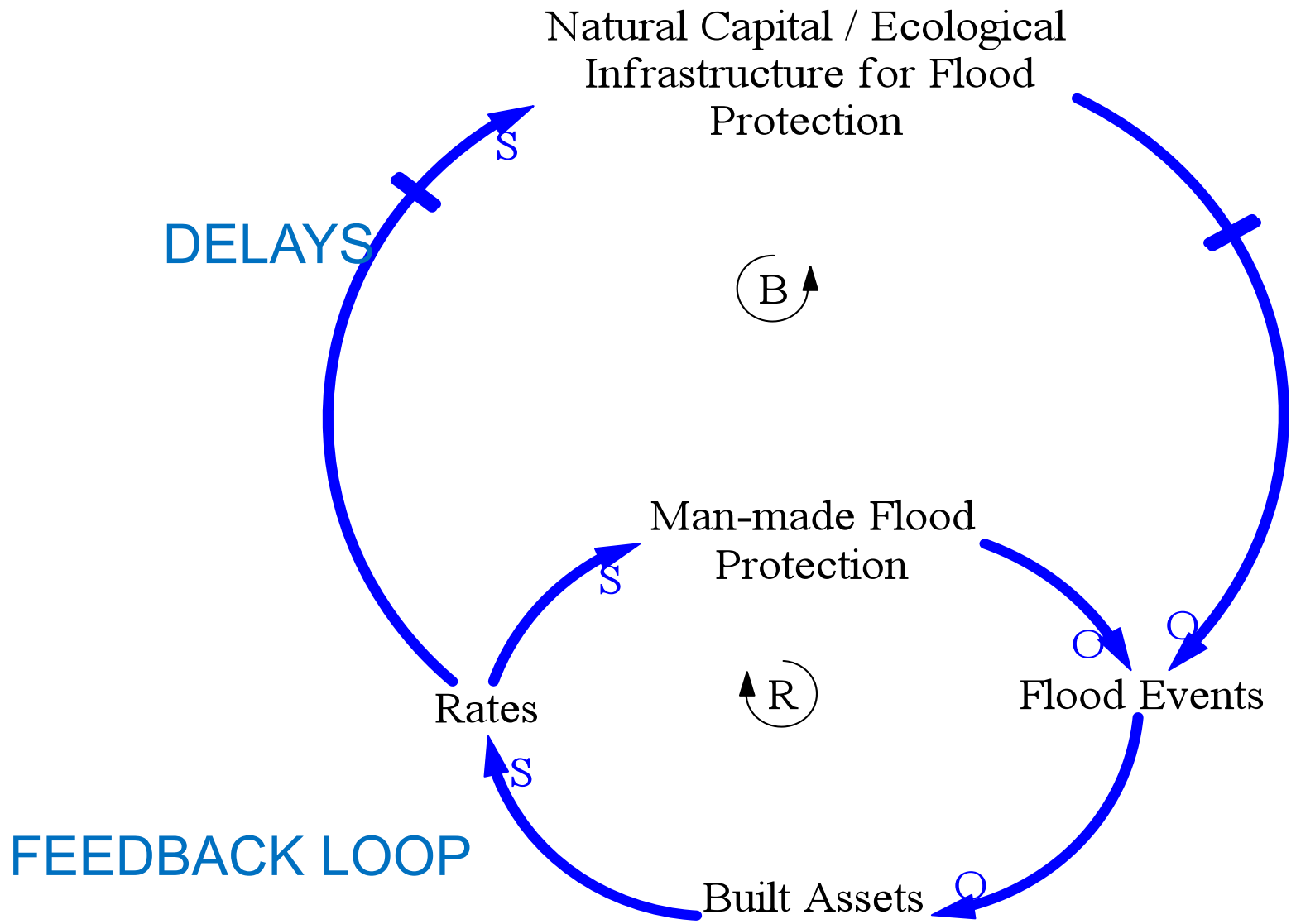
Systems Thinking

Flood Protection: an investment trap between man-made and natural capital (e.g. forest, wetlands)

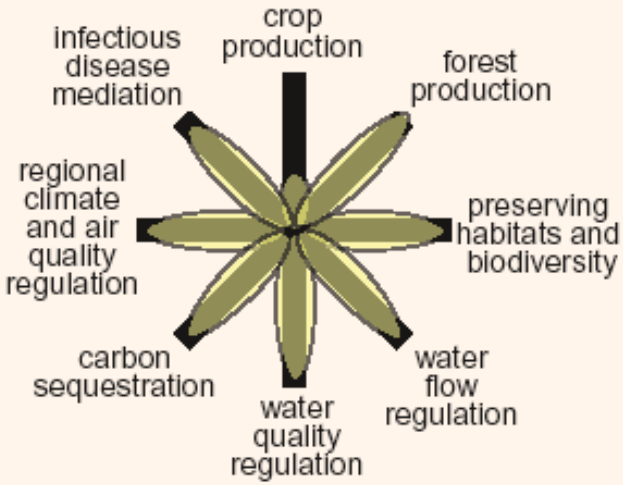


Mediated Modelling

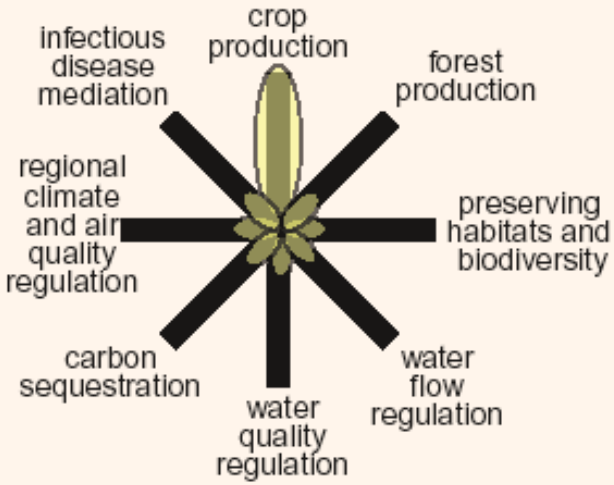
‘Model building *with*, rather than *for*, people’

Auckland Mediated Modelling, Sustainable Pathways 2, 2012

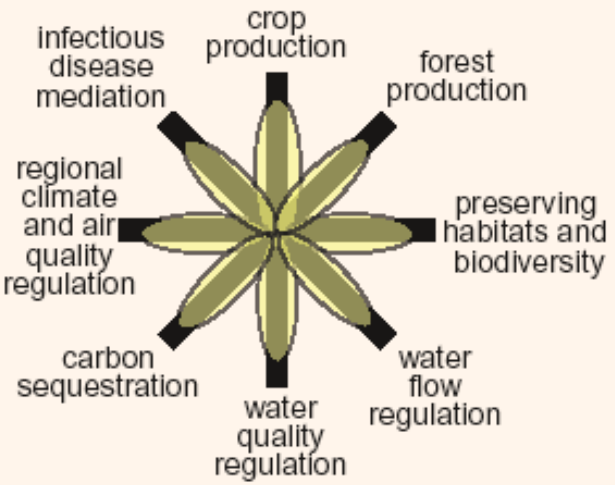
Ecosystem Benefits from 'productive' landscapes; from conservation, agricultural to urban



natural ecosystem



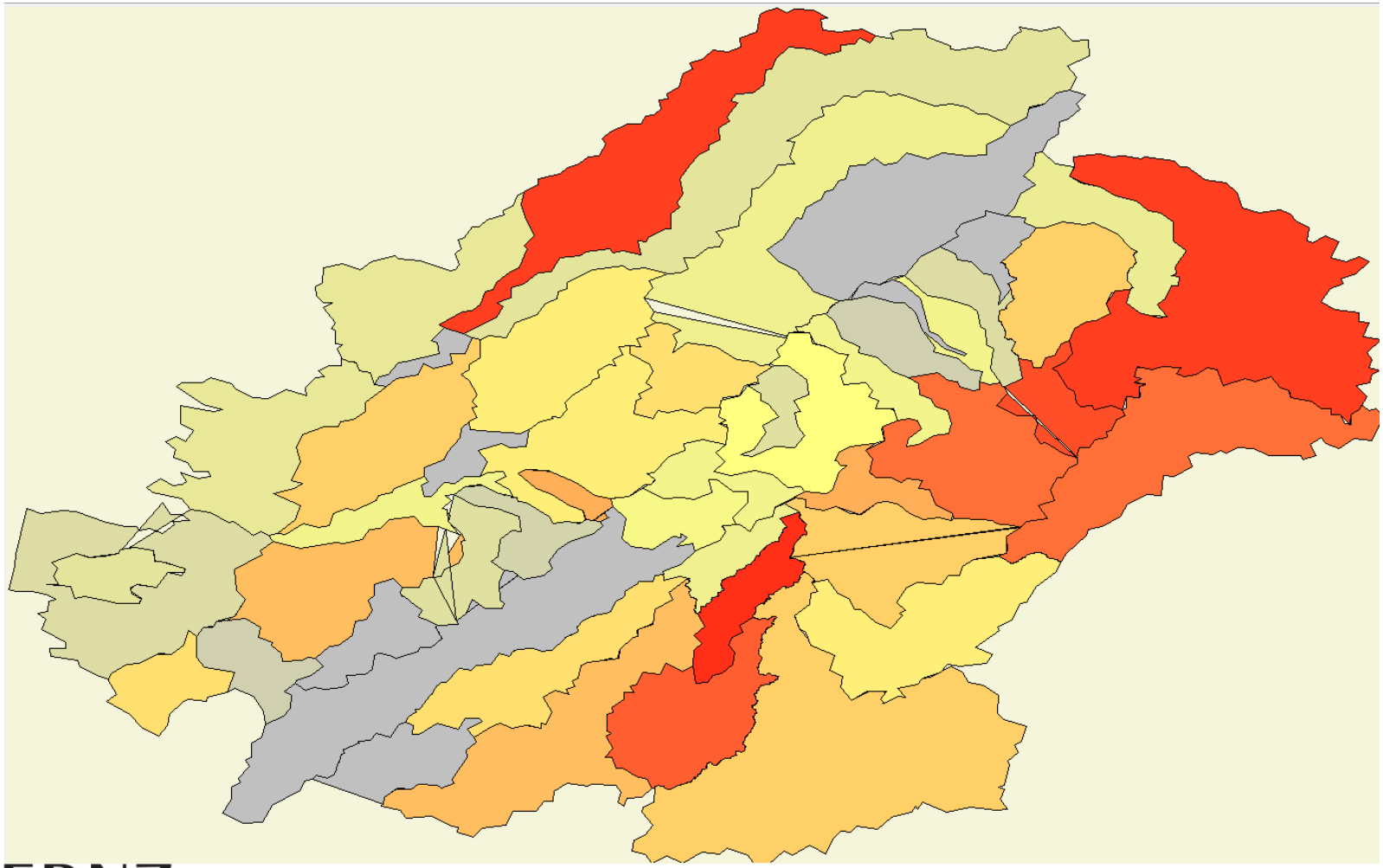
intensive cropland



cropland with restored ecosystem services

Source: Foley et al. 2005. Global consequences of land use. *Science*, 309:570-574

Multi-scale, Spatial, Integrated Modelling of Ecosystem Services



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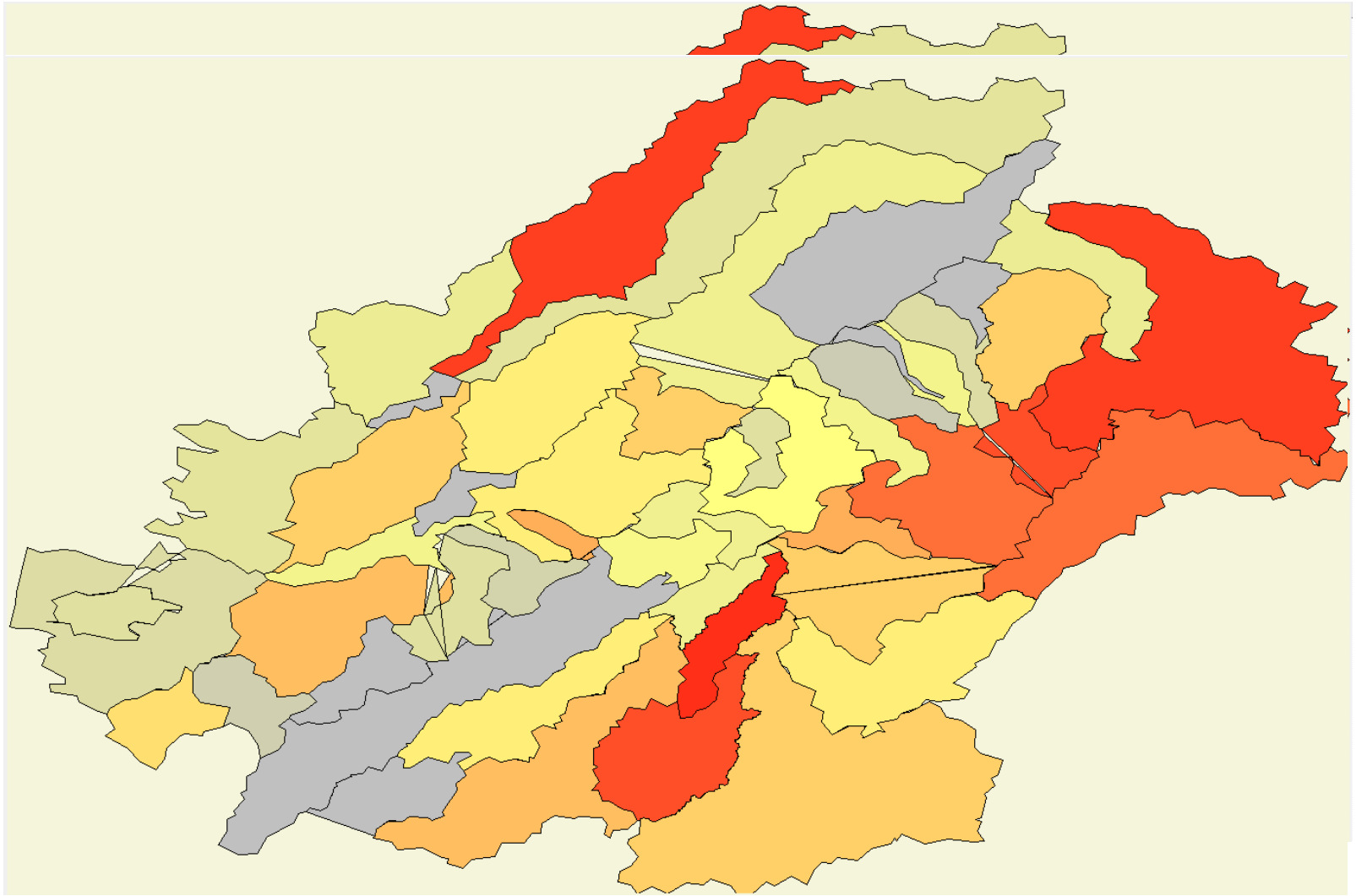
2000

Multi-scale, Spatial, Integrated Modelling of Ecosystem Services



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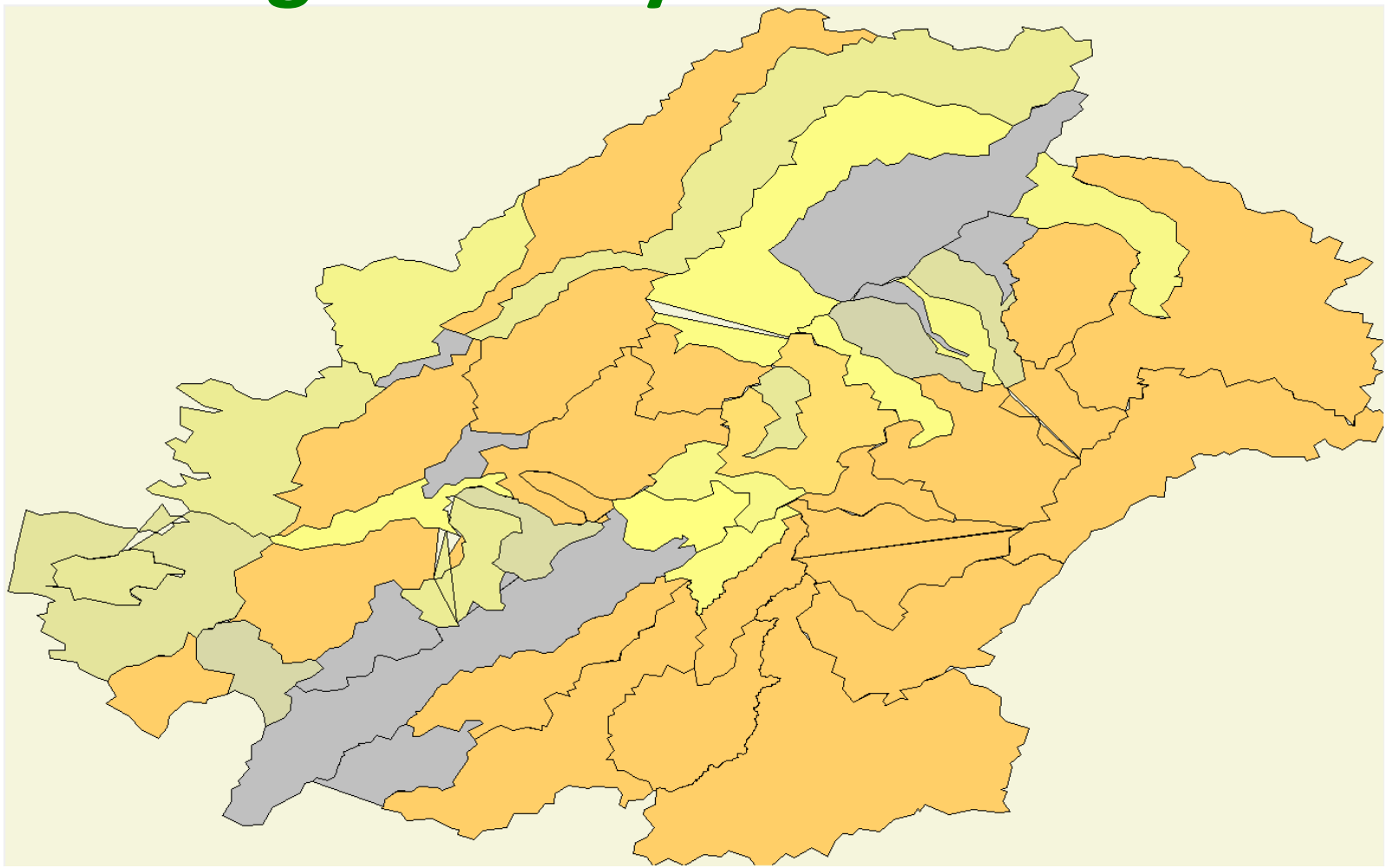
2013

Multi-scale, Spatial, Integrated Modelling of Ecosystem Services



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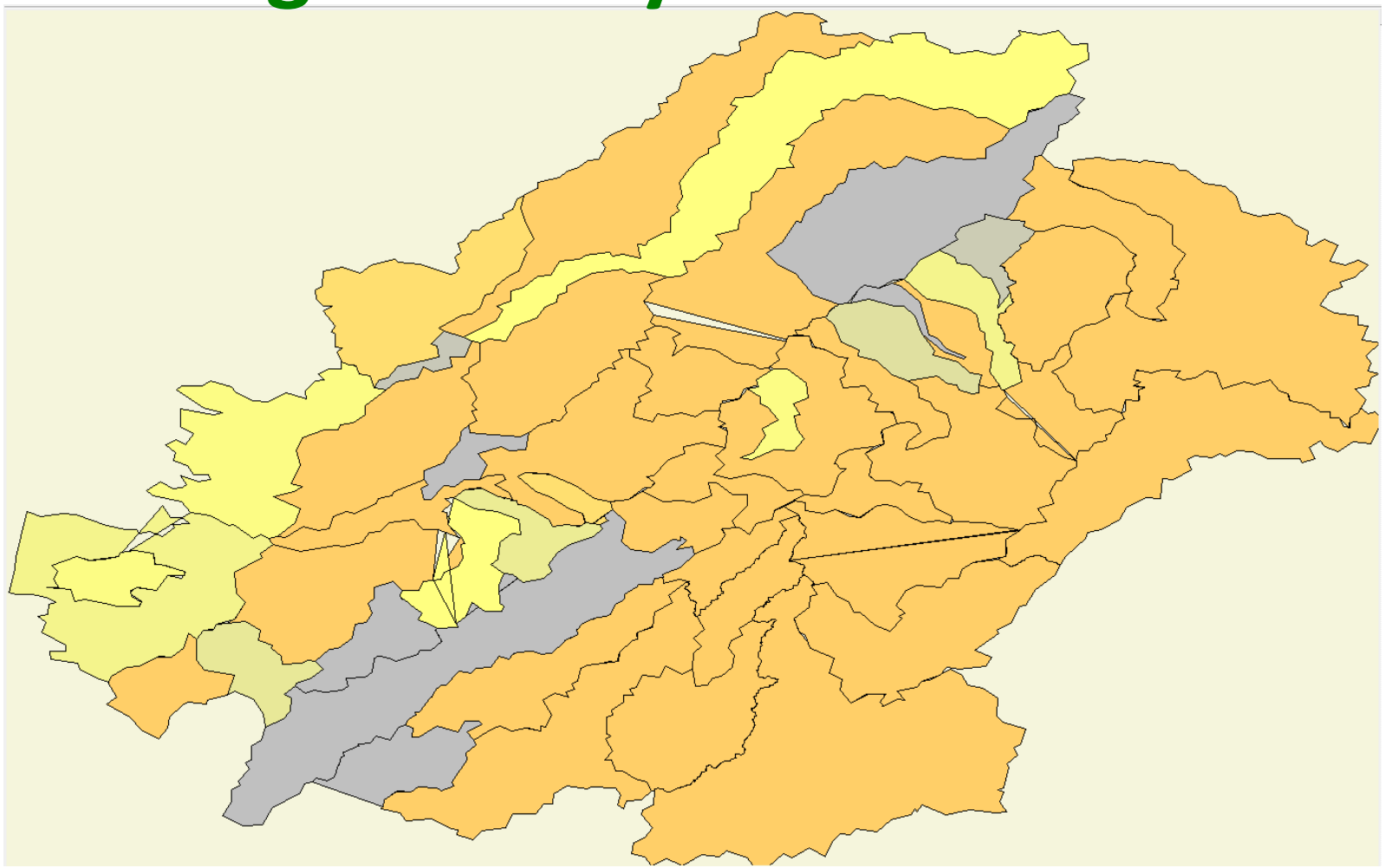
2020

Multi-scale, Spatial, Integrated Modelling of Ecosystem Services



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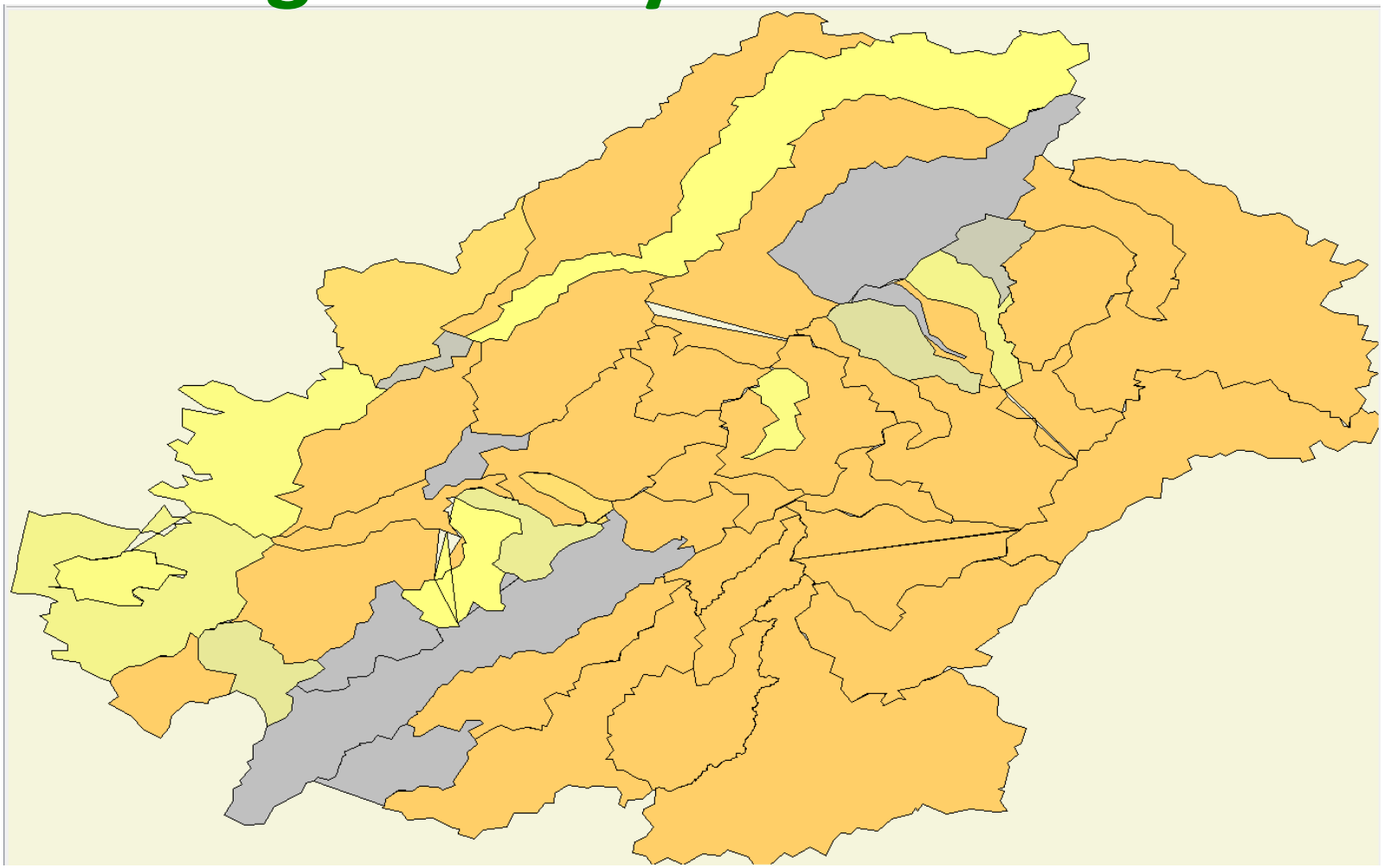
2030

Multi-scale, Spatial, Integrated Modelling of Ecosystem Services



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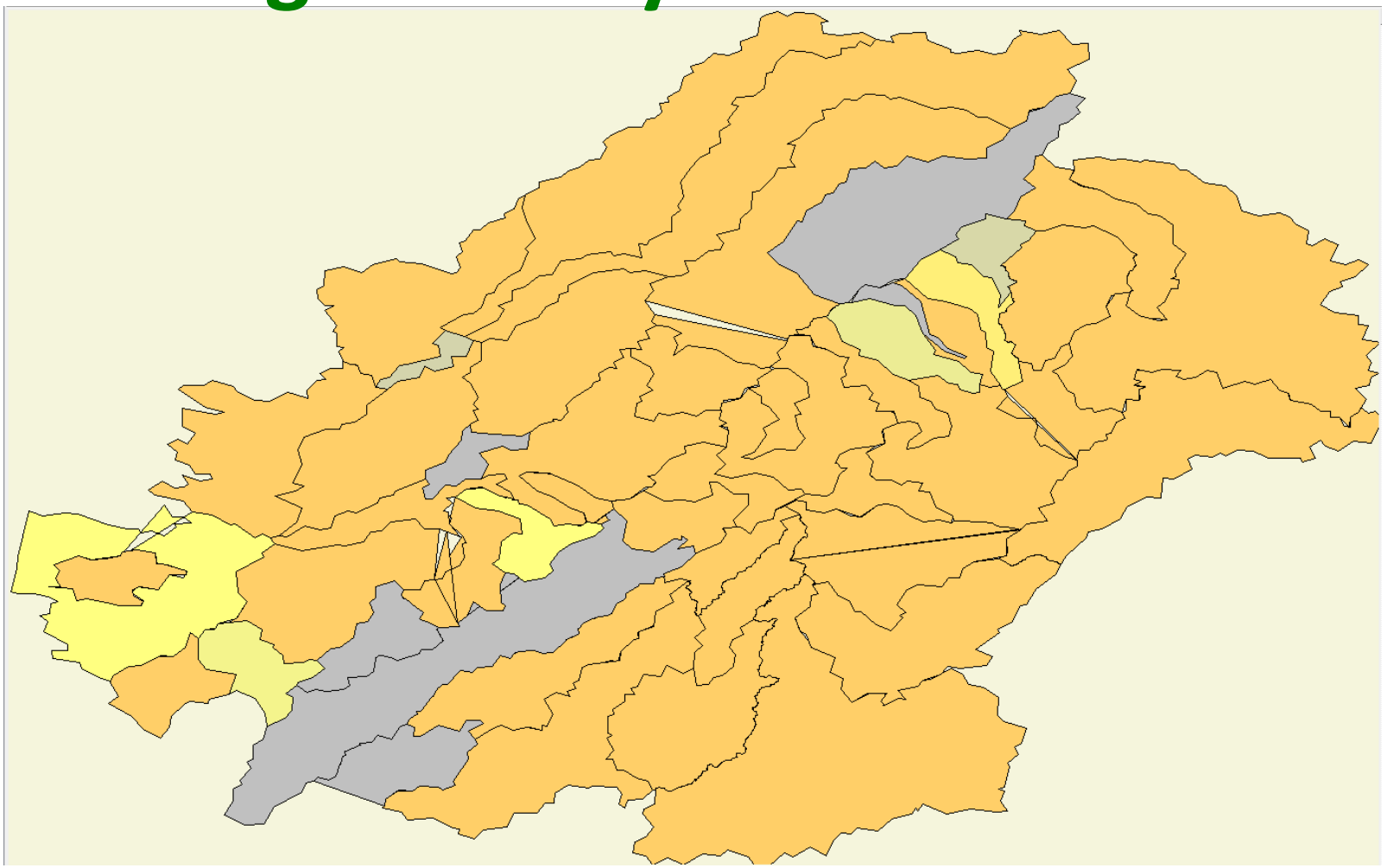
2040

Multi-scale, Spatial, Integrated Modelling of Ecosystem Services



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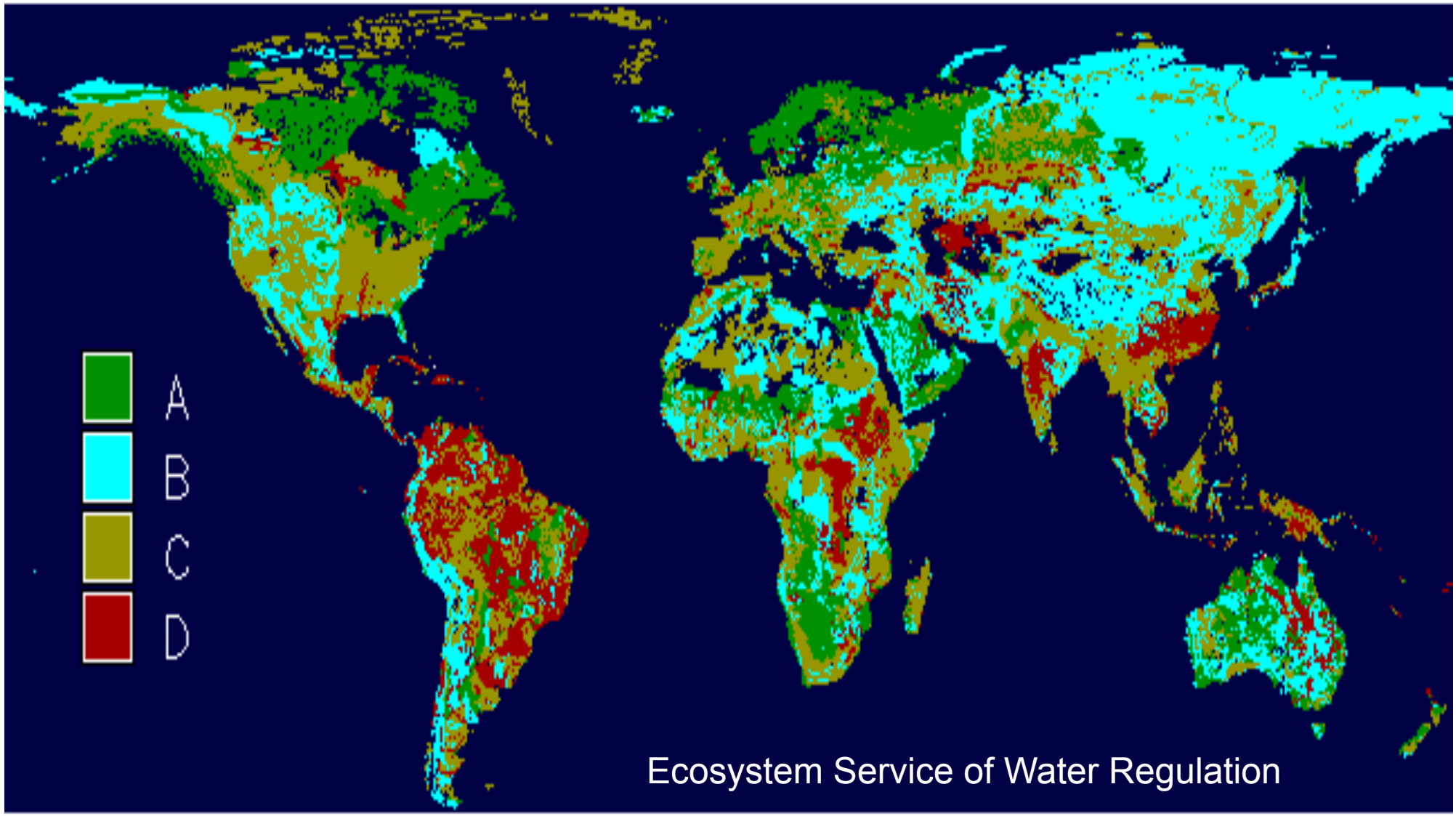
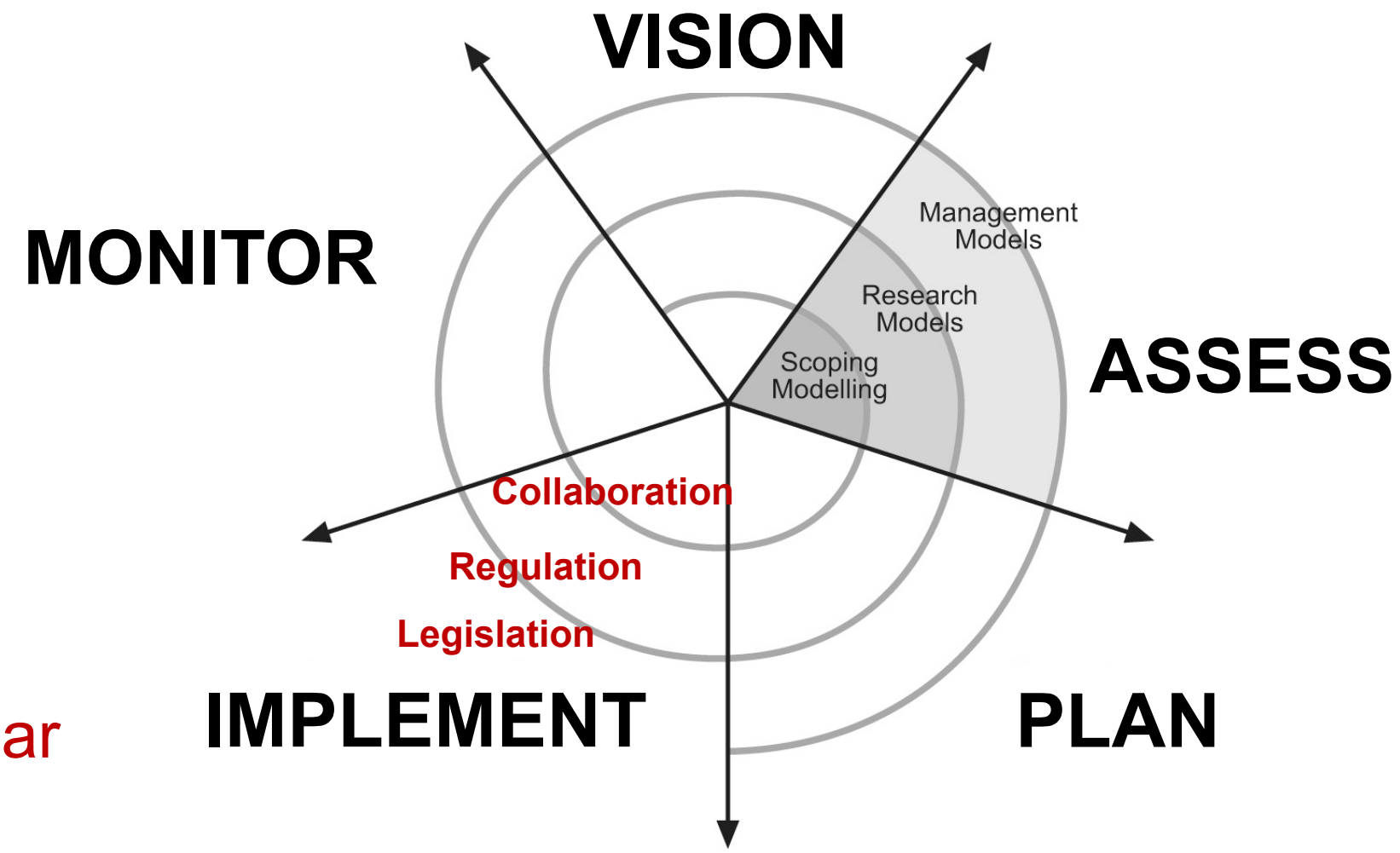
2050

Multi-scale, Spatial, Integrated Modelling of Ecosystem Services



Fostering Adaptive Capacity:

both Natural and Social Science in Integrated Assessments



Not a linear process

Take away message

- Economic valuation tools useful under limited conditions
- A paradigm shift is needed to include investing in Natural Capital/ Ecological Infrastructure and Ecosystem Services as part of 'economic' behavior
- Collaboration plays an important role
- Trans-disciplinary science is needed to develop a 'thinking space' for multi-scale spatial planning; part of adaptive management
- New institutional arrangements required to facilitate such shift

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Thank you!

Massey's Applied Ecological Economics paper is a unique 'atelier' paper, giving you place-based learning-by-doing through engagement, use of tools and reflections.

Whether you work in public policy, local government or a corporate organisation, this course will give you a practical insight into this area of growing importance.

The course runs in the Summer Semester from 18 November 2013 to 15 February 2014 with the atelier or workshop component from 15th to 24th January 2014.

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