Community-based planning with landscape services: how space matters in social-ecological systems

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Wageningen UR Informational Governance programme

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- Stakeholders in the Hoeksche Waard area

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ES not (yet) recognized in landscape planning literature as a relevant concept

	Number of papers	Landscape planning	Landscape architecture
Ecosystem services	3678	33	2

Results of *scopus* search 1984-2011

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Van Lierop, Opdam, Duchhart in prep.

ES links landscape to people, so why not embraced in landscape planning?

- Emphasis on nature conservation
- ES research addresses policy level

- However: policy is implemented at the local community scale

- How to incorporate the ES-concept in community-based landscape planning?

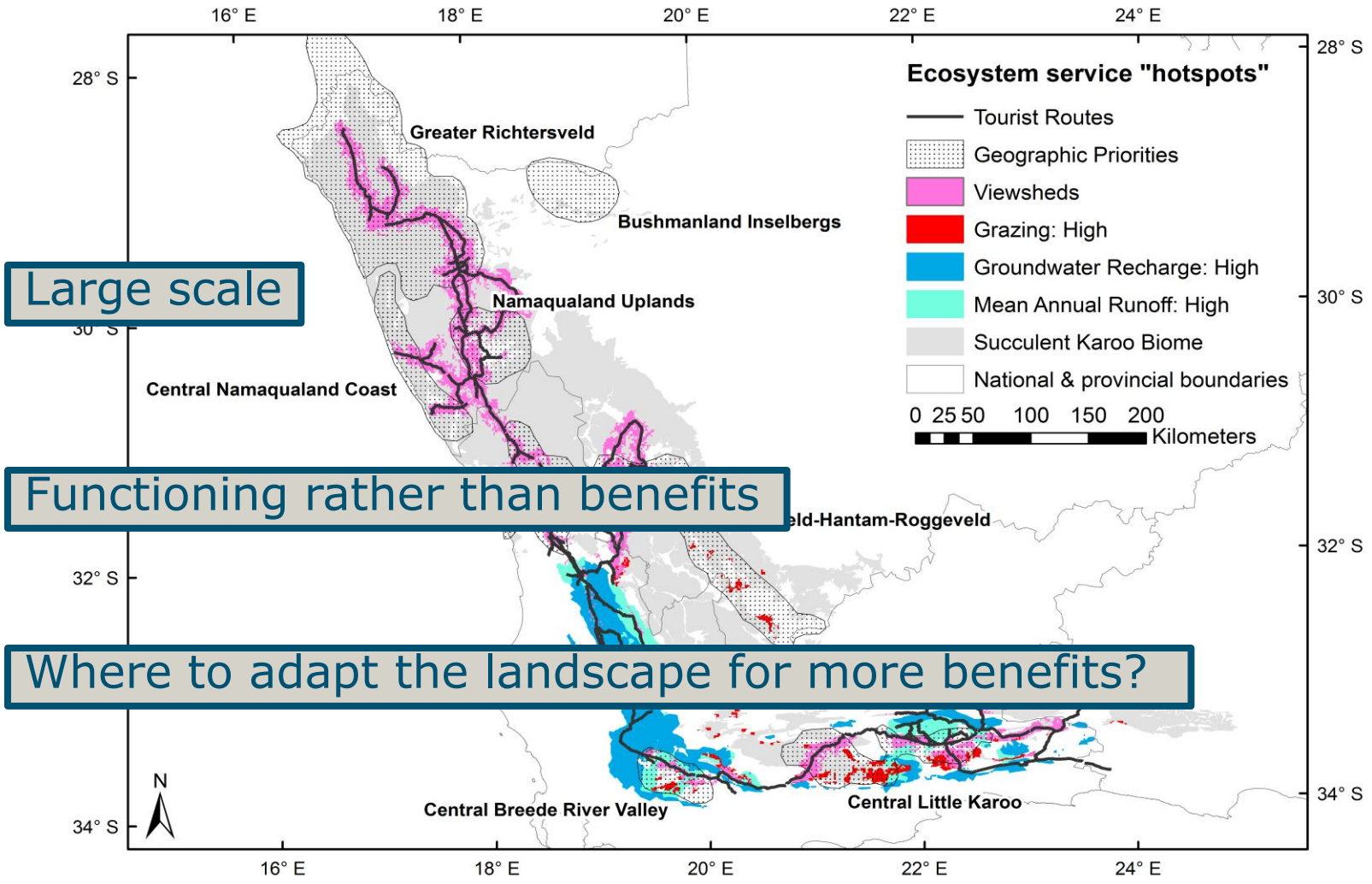
Implementation in three phases of planning process

Assessment of use and benefits

Shared vision on future, identification of solutions

Organizing interventions

Distribution of ecosystem service hotspots, Karoo, SA



Large scale

Functioning rather than benefits

Where to adapt the landscape for more benefits?

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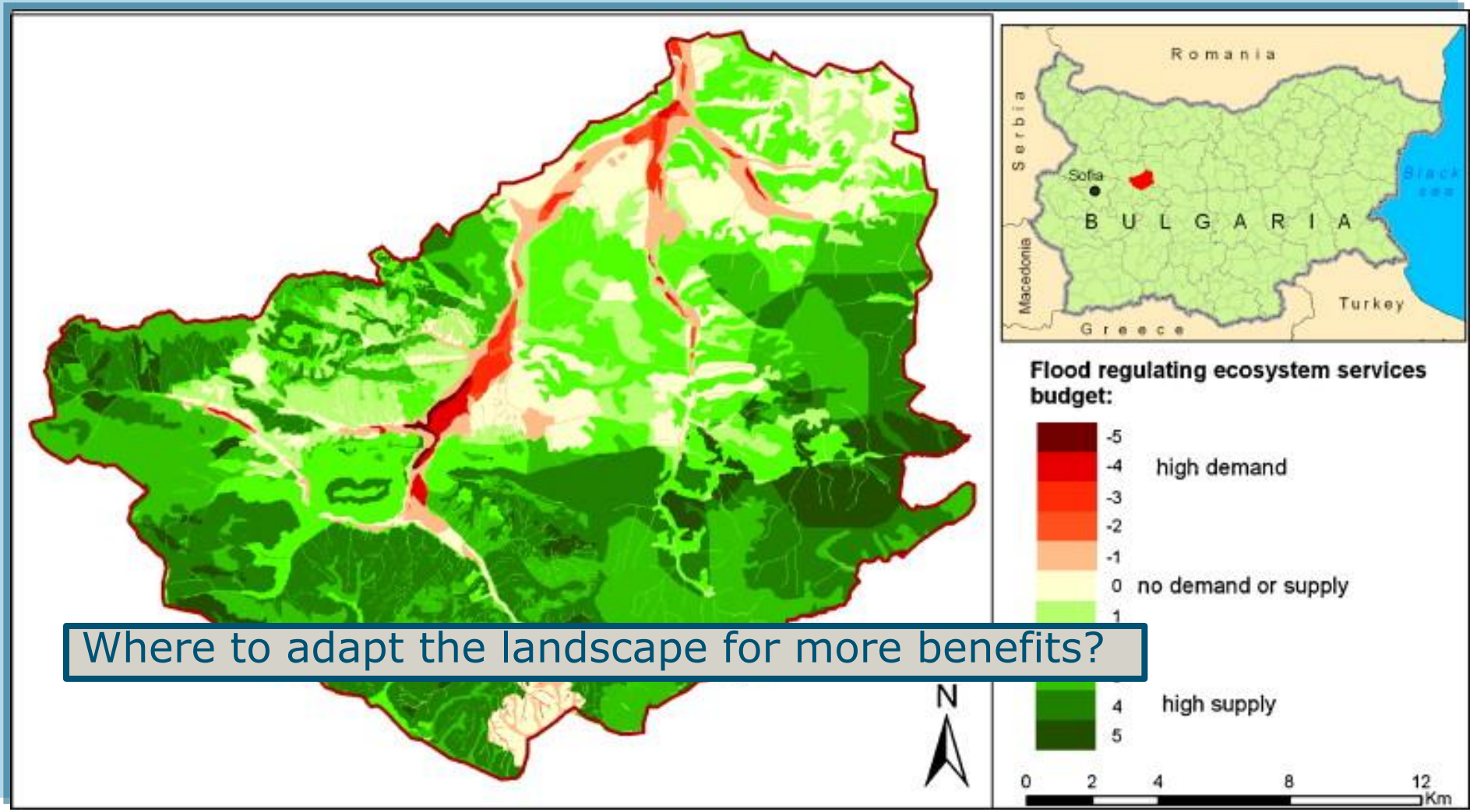
Farrell et al 2010 Landsc. Ecol 25:1231

Demand/supply of flood regulating service



Where to adapt the landscape for more benefits?

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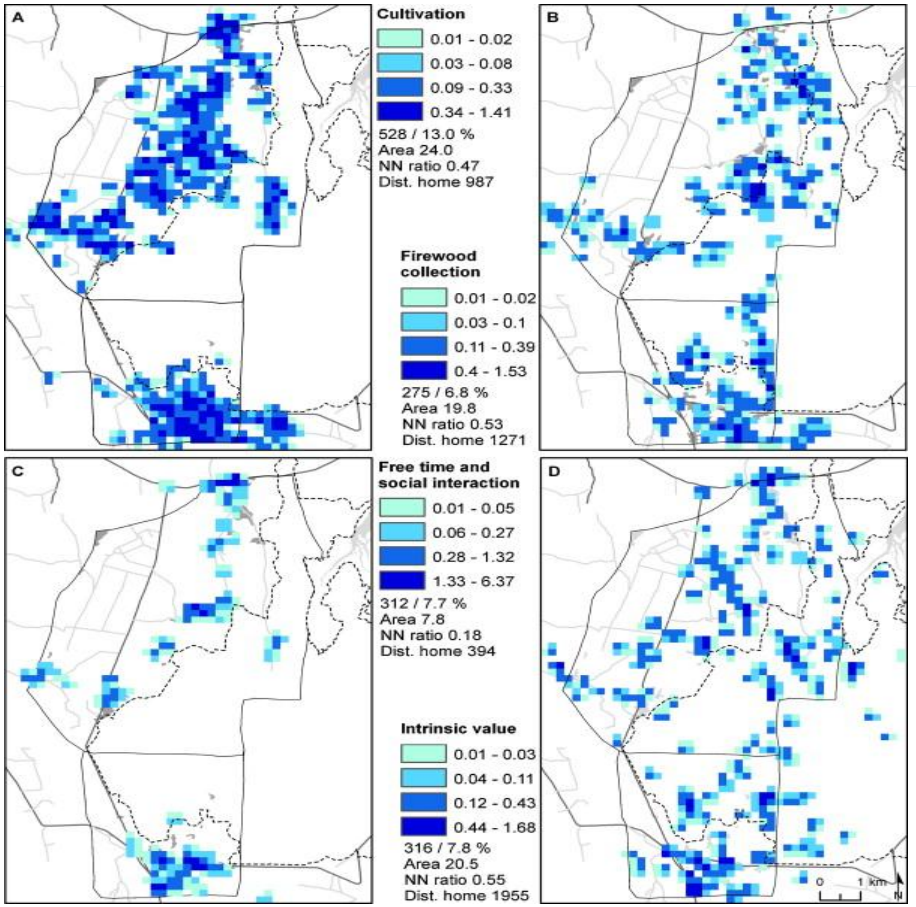
Nedkov & Burkhard 2011 Ecol indicators

Community-based mapping: incorporating stakeholders' local knowledge

Spatial intensity of landscape service indicators, mapped by local community members (Zanzibar), weighted for distance to their home.



Fagerholm et al (2012)

Ecological indicators 18:421-433

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Emphasis in ES-science is on assessment and valuation

Assessment of use and benefits

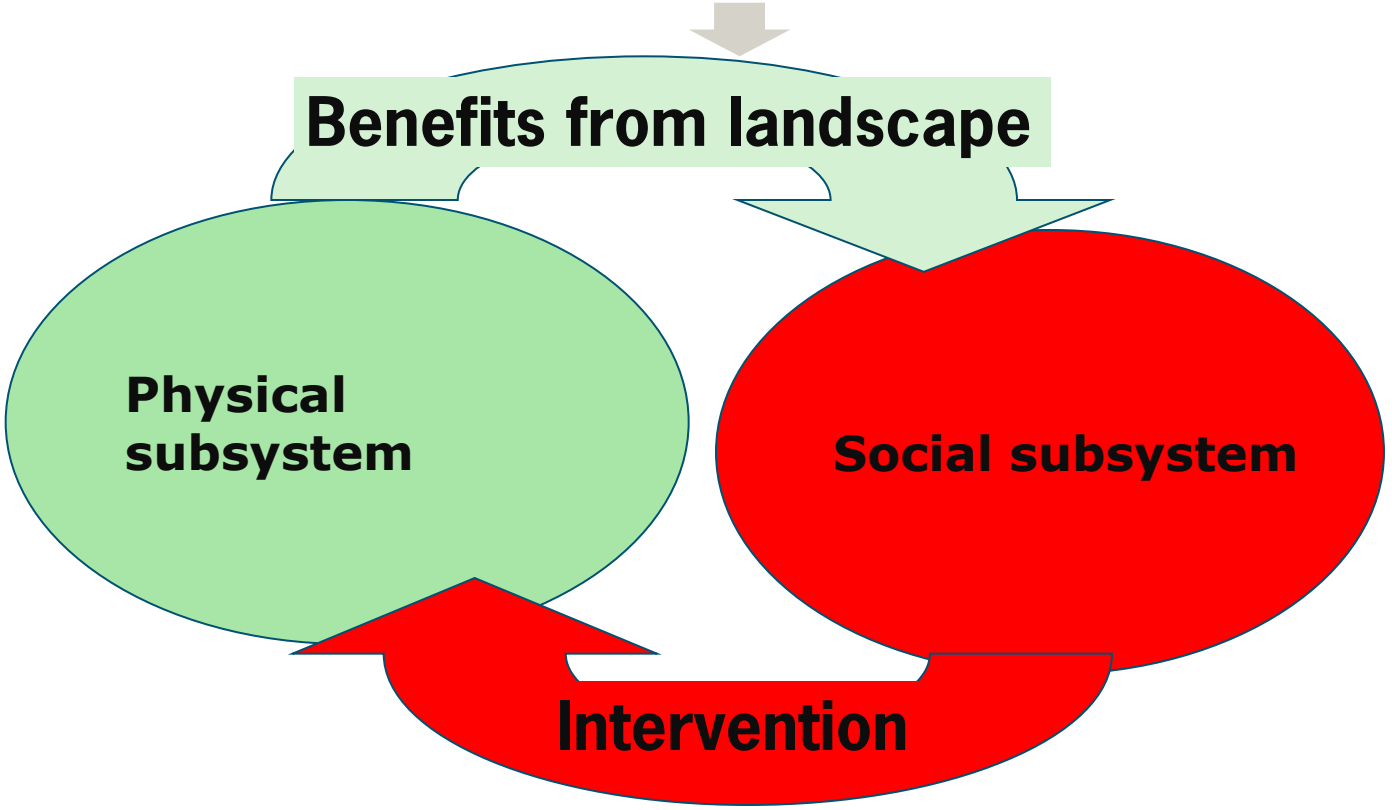
Incorporate sociological and governance concepts

Organizing interventions

Shared vision on future, identification of solutions

Landscape as a socio-ecological system

If knowledge about how landscape services depend on landscape pattern is inserted…



…what happens to the pattern of the social network?

How does it influence interventions?

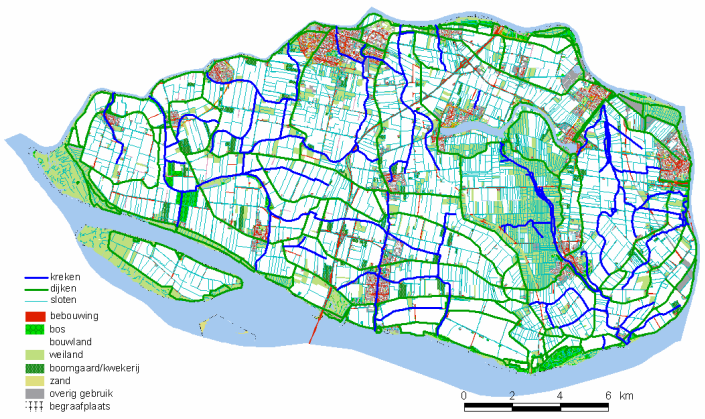
Example of community based design

Focus on green infrastructure

landscape identity, water purification and biological pest control

Main actors:

Conventional farmers
Biological farmers
Water board
Landscape conservation gr.
Local municipalities
Nature conservation org.



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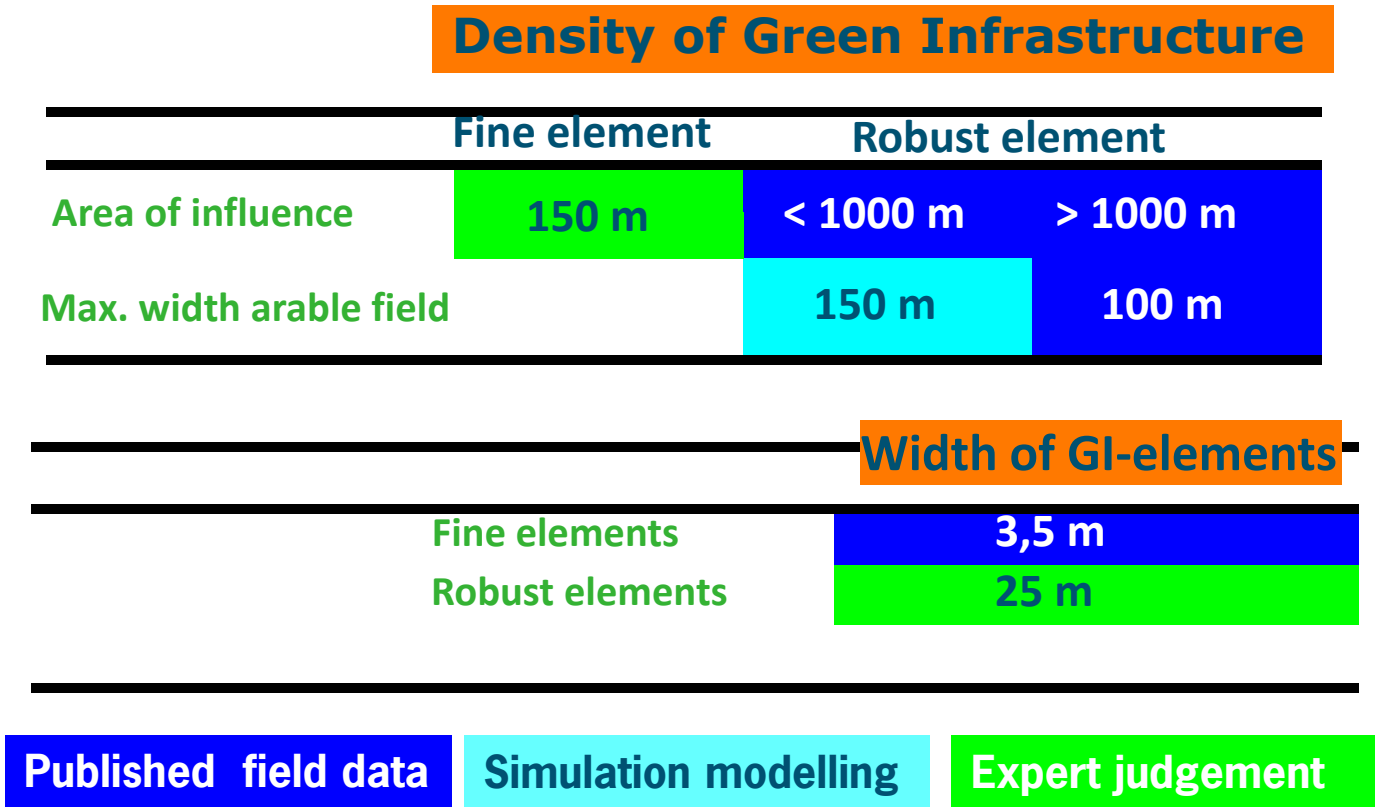
(Steingröver et al. 2010 Landscape Ecology)

Design method applied by local stakeholder groups: "appropriate functioning-requires pattern"



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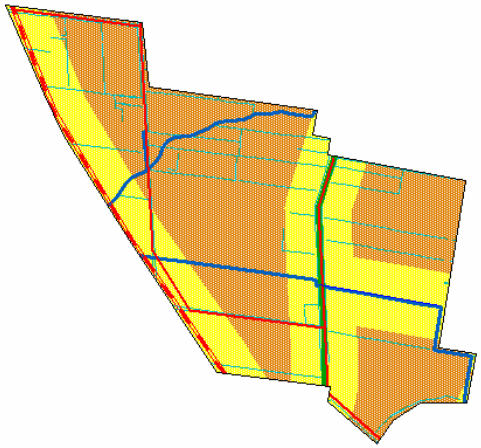
(Steingröver et al. 2010 Landscape Ecology)

Design at landscape and farm scale level



- *Design learned farmers that investment in field margins only pays if done together*

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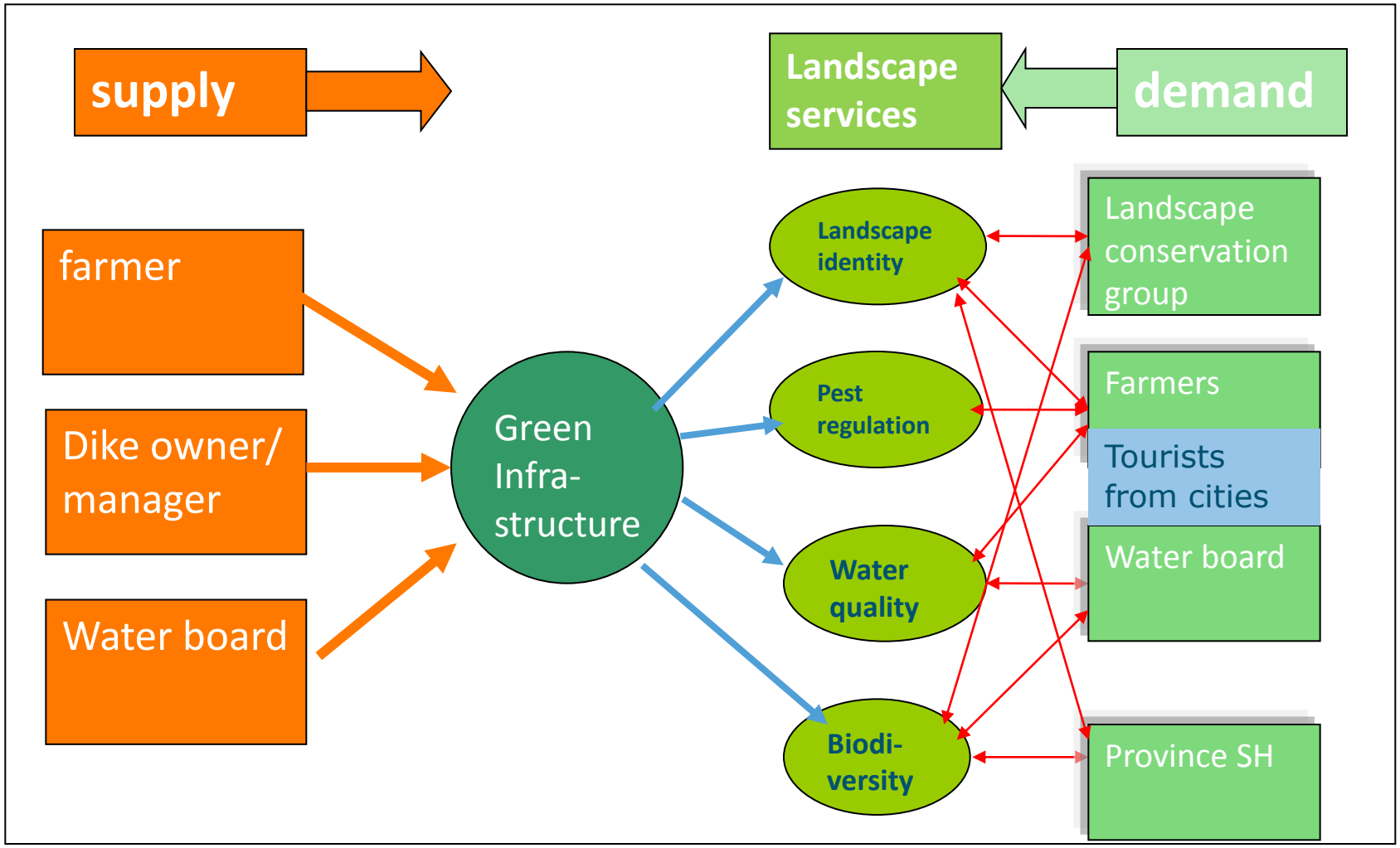
(Steingröver et al. 2010 Landscape Ecology)

Common benefits were detected



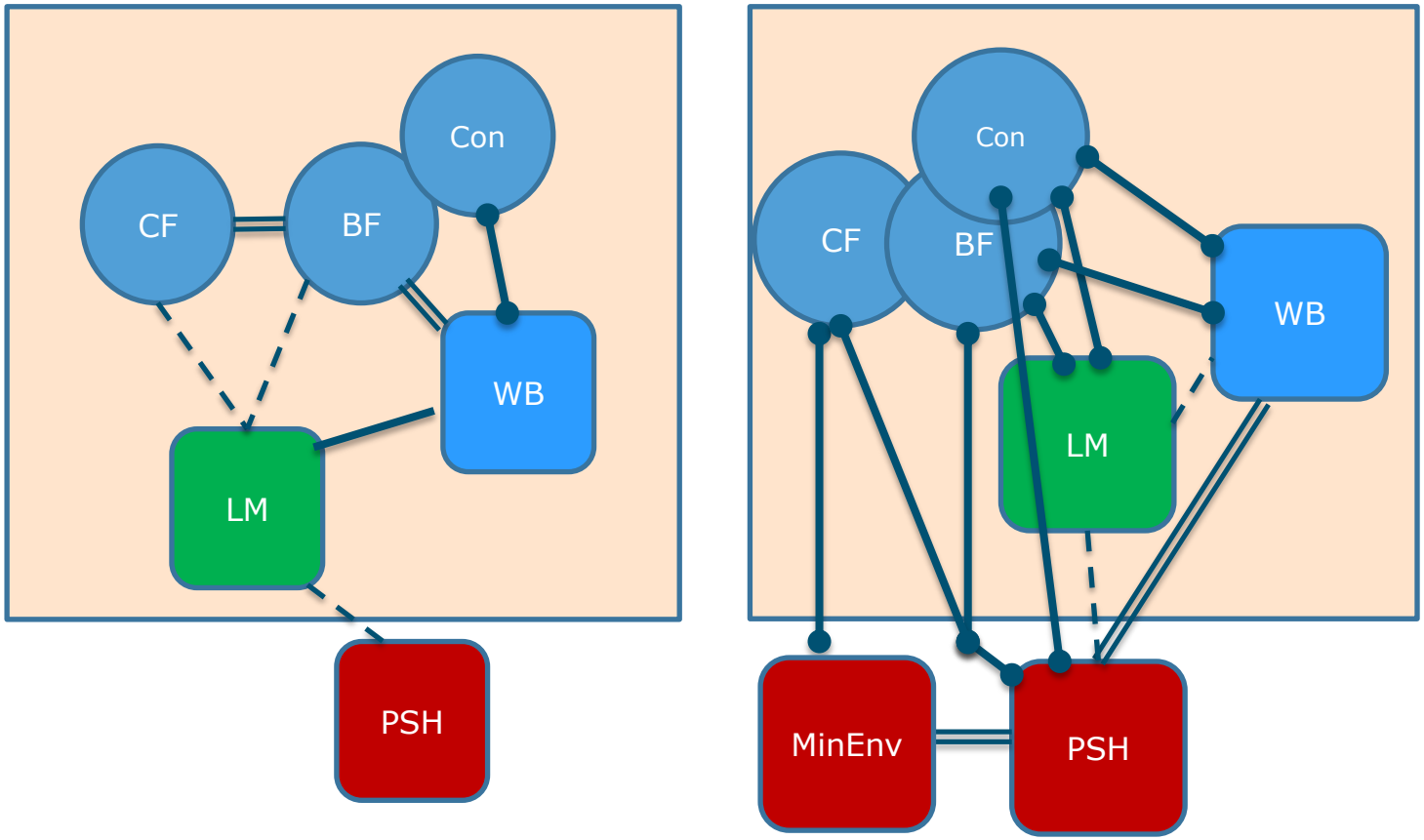
What happened in the social network?

Opdam, Steingröver & Wiersema submitted

- Farmers groups became more cohesive and powerful
- Farmers and conservation group became partners
- Increase in personal links
- The local municipality was pulled in to play a coordinating role
- Institutional arrangements: strong increase in payments for services

Changes in social network 2005-2011

Opdam, Steingröver and Wiersema submitted



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Community-based interventions in GI

Opdam, Steingröver and Wiersema submitted

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Hypothesis:

Structure matters in social-ecological systems:

Knowledge about how landscape pattern determines services

affects structure of social network,

Which enhances collective action for common benefits

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