

*Climate proofing landscapes in a complex world:
bringing science into the competing claims arena*

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Take home message

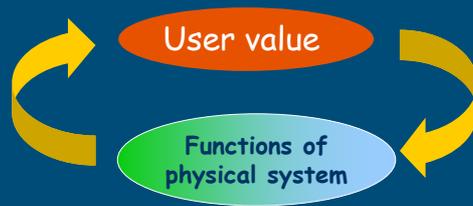
To be relevant for building a sustainable future, science for climate change adaptation should:

- *Link physical landscapes to human values*
- *Link large scale and local scale planning*



The local scale: where it is happening

- Linking physical to human systems



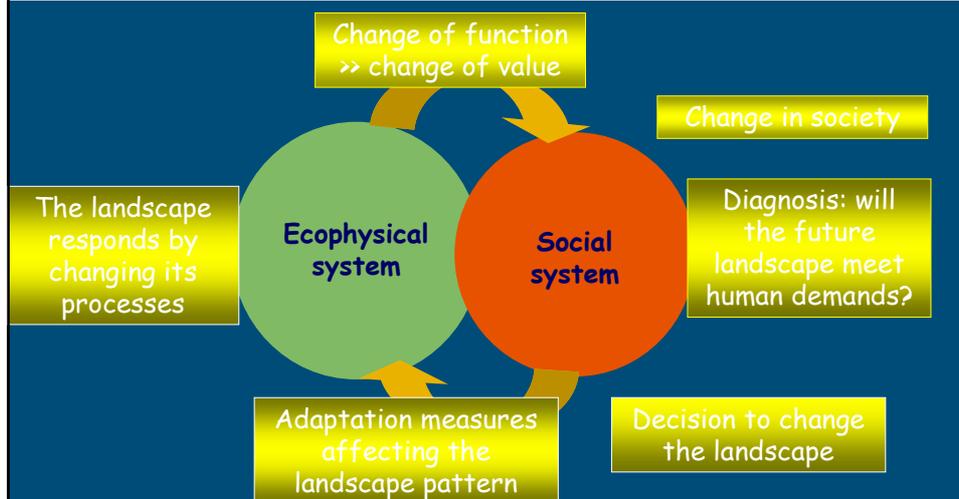
Humans have always adapted their landscapes
in response to changed conditions
to prevent loss, to gain values

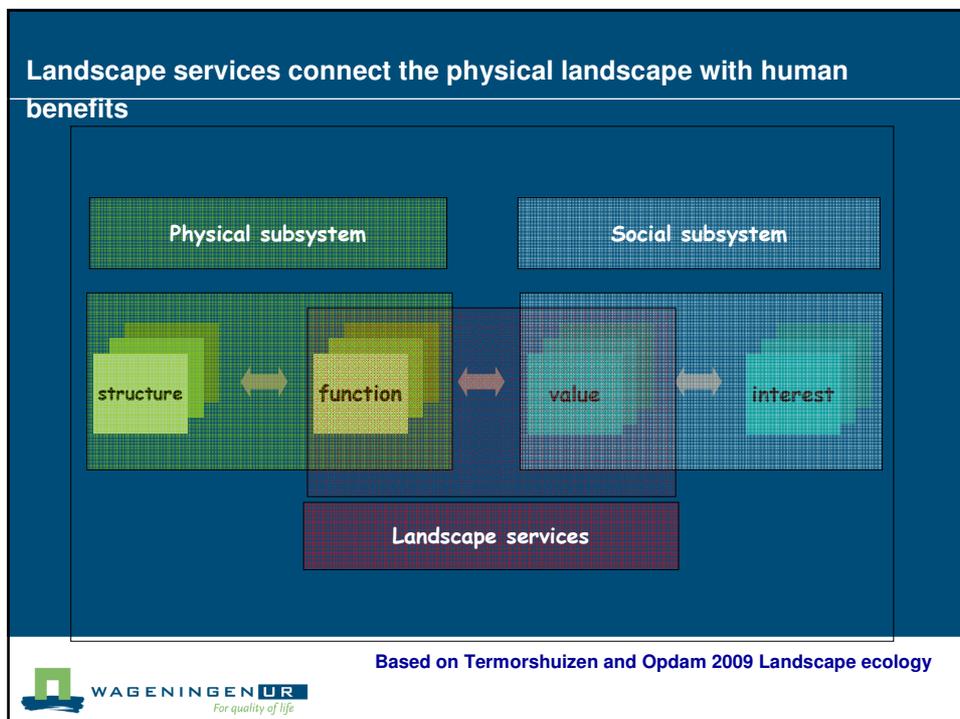
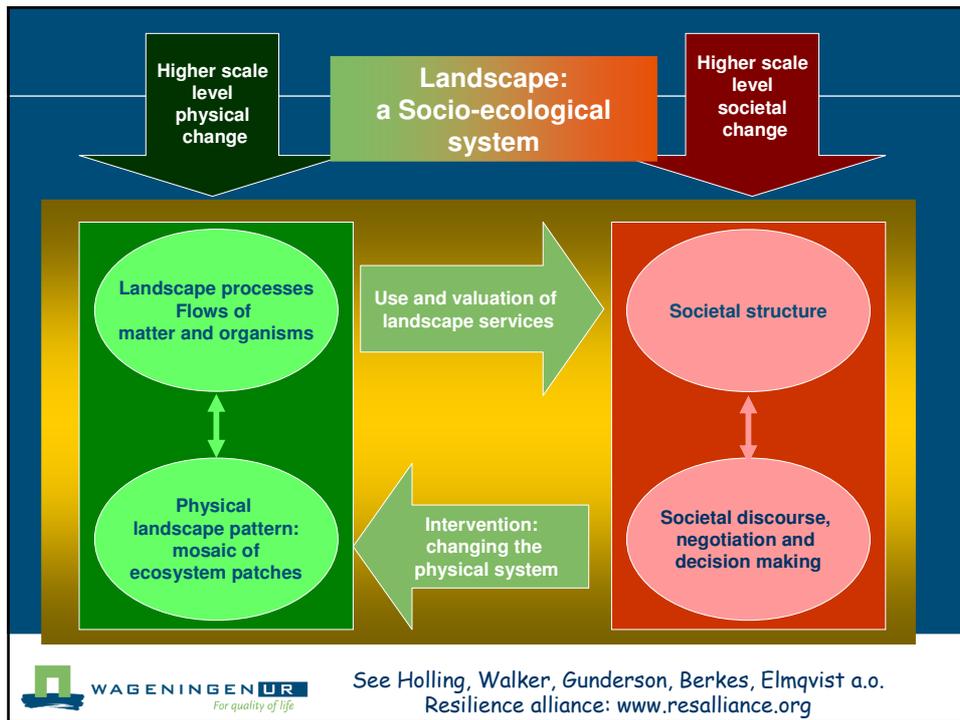


Adapting landscapes is mostly about HUMANS !

- A reason: expected loss of value, wish to increase value
- A decision: to do something (feel of urgency!)
- A physical change: humans restructure the landscape pattern
- A perspective: things will get better
- A societal change: humans use the landscape differently

Landscape adaptation as a cyclic process



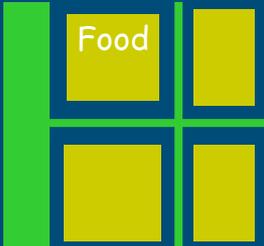
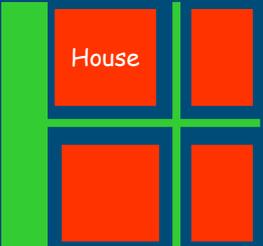


Where is the physical basis of landscape services?



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For quality of life

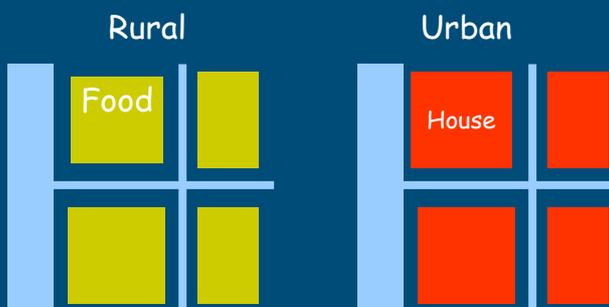
Separating natural and human dominated processes;
natural processes often need larger scale

Rural	Urban
	

Green Infrastructure, Green Networks

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For quality of life

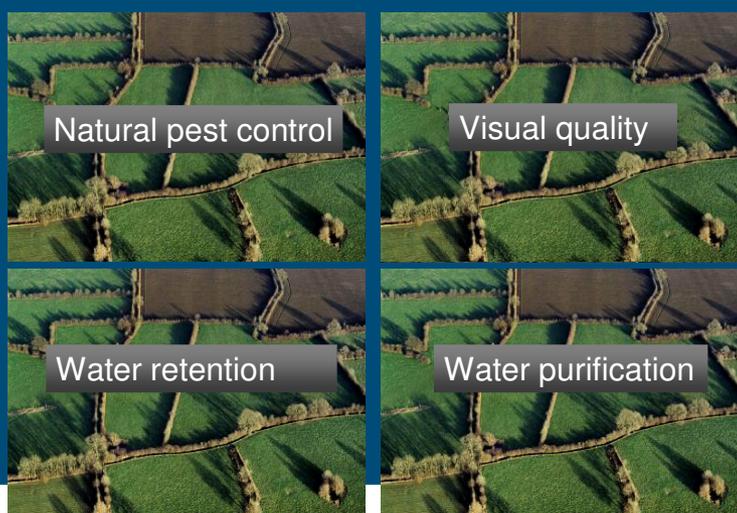
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Blue Infrastructure, Blue Networks



Green infrastructure as a planning concept:
one structure, many services



Termorshuizen & Opdam Landsc Ecol 2009

Adding up services:

Natural pest control

Water retention

Visual quality

Water purification

Added value combined efforts

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If landscape services can be linked to a physical structure, and to stakeholders, we get a basis for sustainable landscape change

Visual quality

Human health

Quality of life for workers

Food growing

Natural pest control

Water retention

Social value

Cultural identity

biodiversity

Ecological value

Economic value

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Building methods based on landscape services to inform and facilitate local communities in sustainable landscape development


Steingröver et al. 2010 *Landscape ecology*

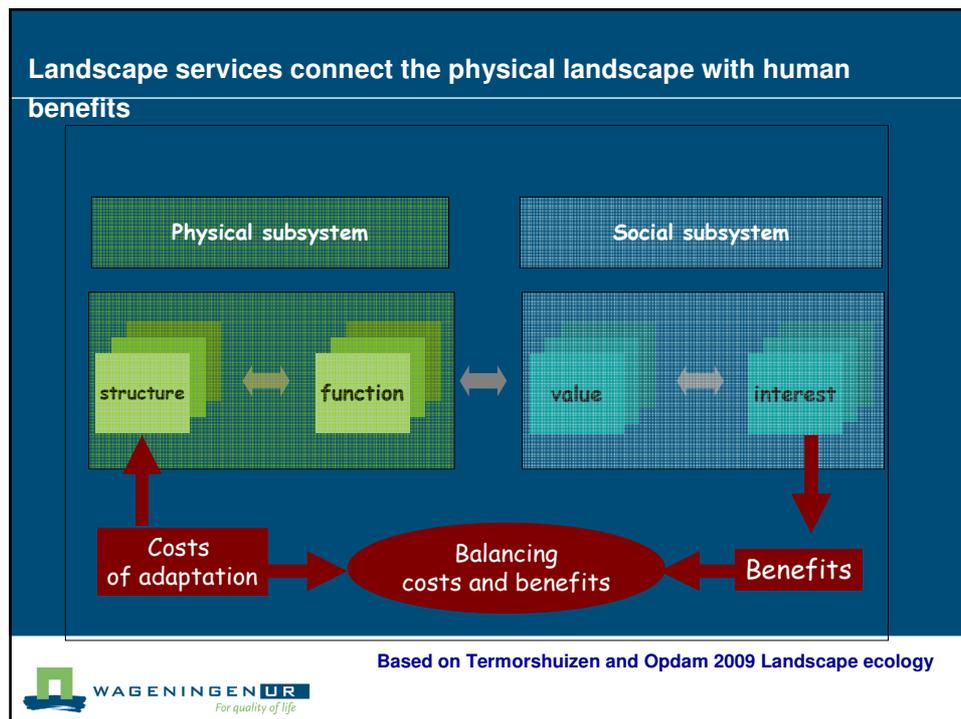
Cost-benefit ratio



	Optimal situation biological control	Investment in public space only
Costs	64,8	25,6
Benefits	102,4	50,8
Balance	46,5	25,7

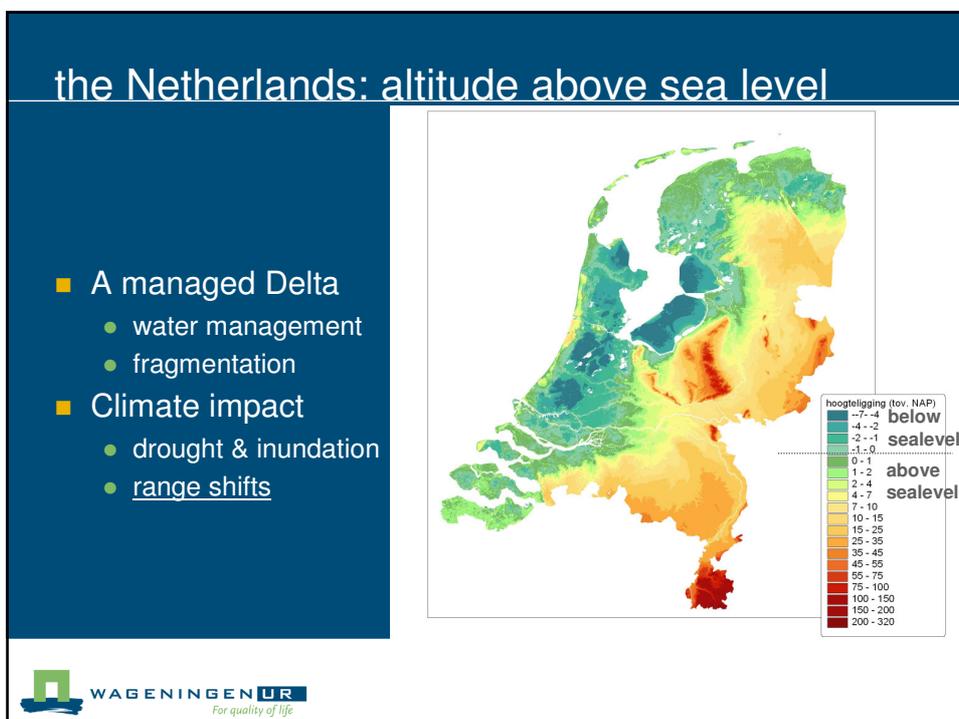
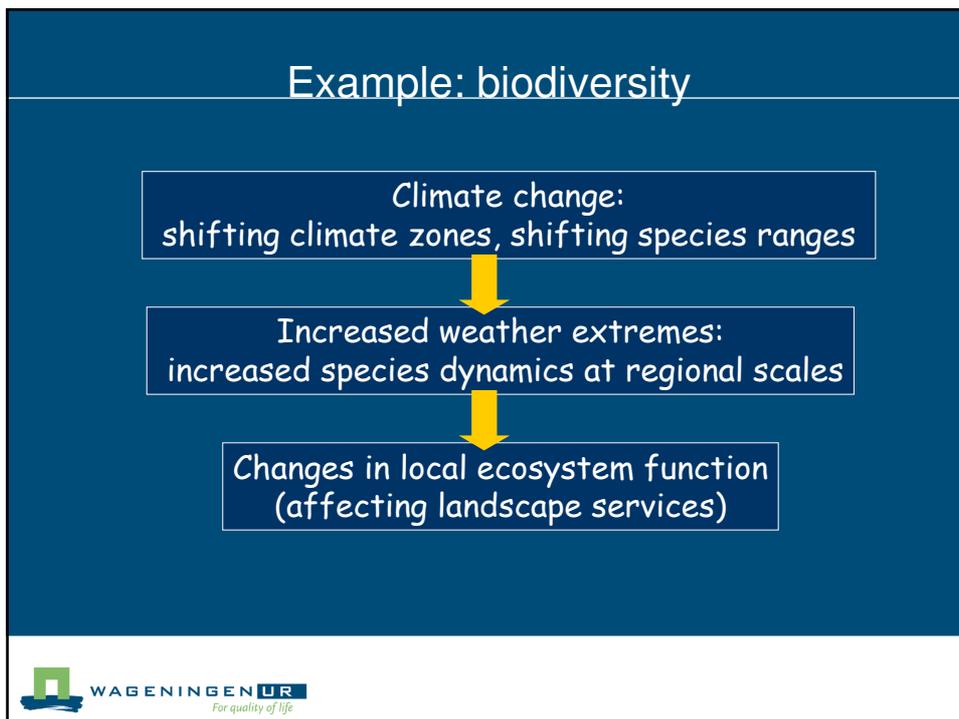



Steingröver et al. 2010 *Landscape ecology*

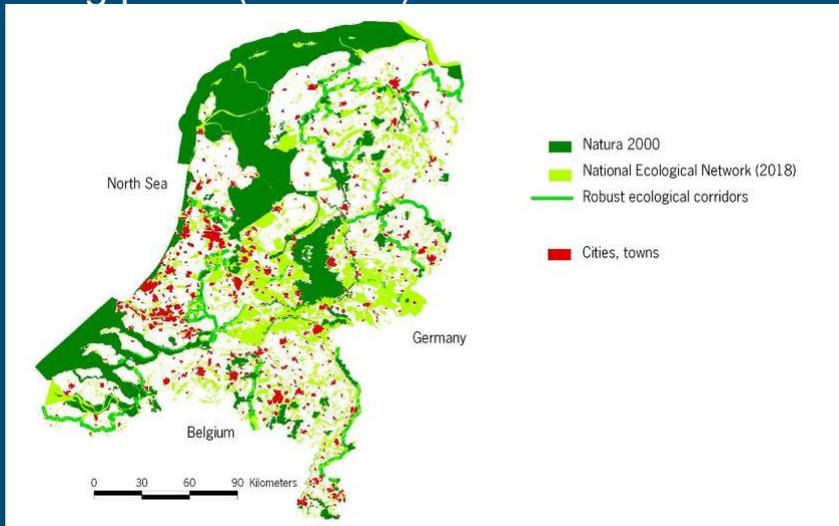


Linking physical and governance scales

- Europe
- Netherlands
- Province
- Local communities

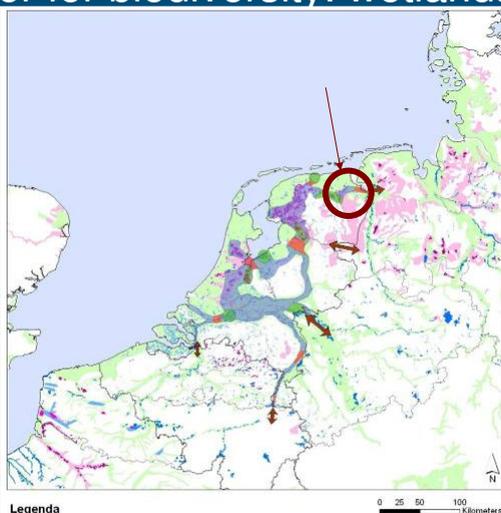


Existing plans (national)



Climate corridor for biodiversity: wetlands

Vonk et al. 2010



Regional case study: Groningen

- Including climate change adaptation in Provincial Environmental Plan
 - Nature conservation
 - Water management
 - Agriculture
 - Housing



Approach

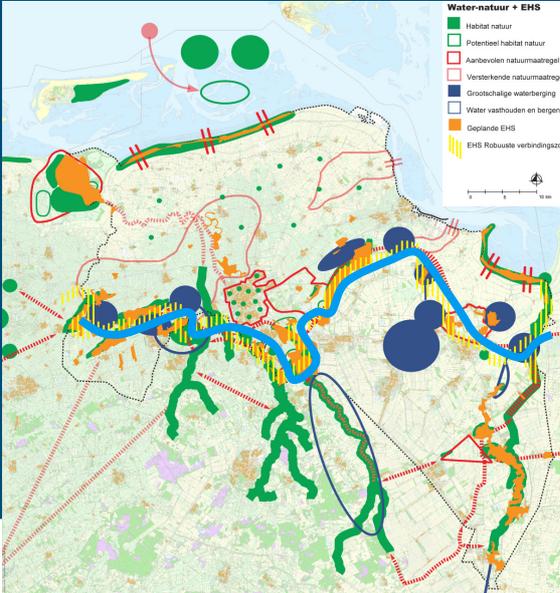
- Cooperation with regional stakeholders
 - Targets nature and water adaptation
 - Integrated alternatives
 - Selection alternatives

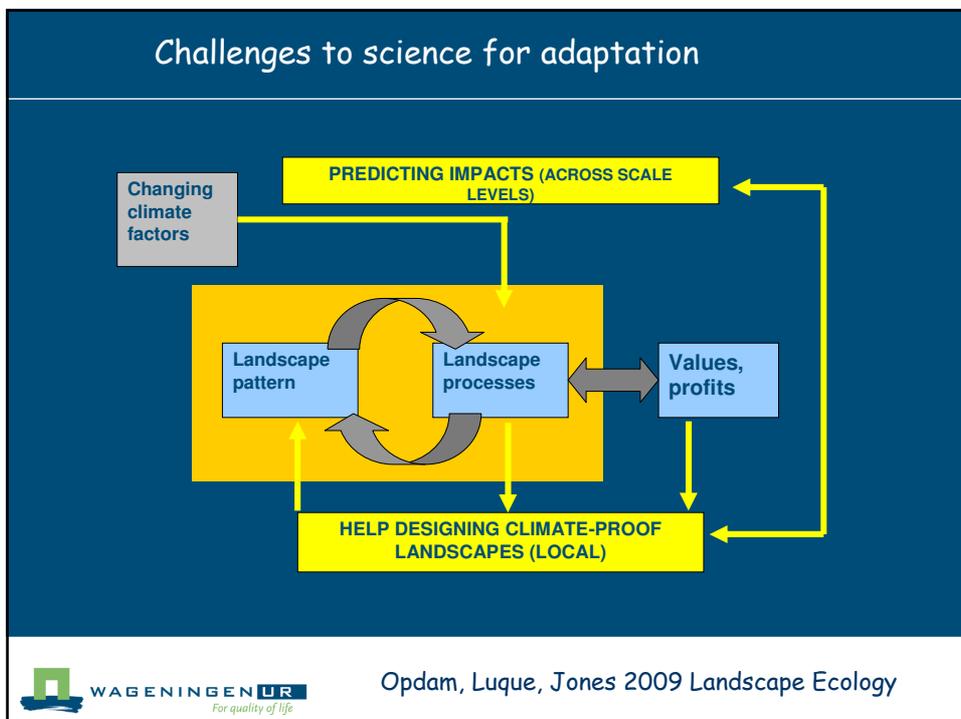


Regional adaptation plan contributes to international corridor

...and may coordinate local action







Thank you

