EVALUATING LAND MANAGEMENT SCENARIOS: IMPACTS ON POLLINATION AND ECOSYSTEM SERVICES TRADE-OFFS IN LUXEMBOURG

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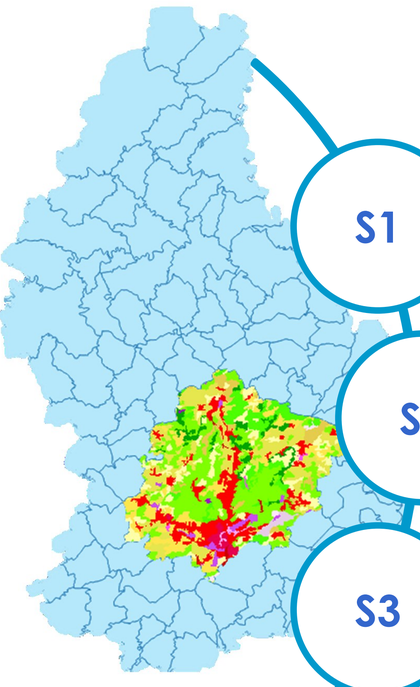


agement questions

S1 How will different decisions affect the provision of ecosystem services?

S2 Should preservation be benefits- or precautionary-based?

S3 Should we cooperate with our neighbours?

s of urban expansion from 2012 to 2032 based on official land management plans)

Calibrated Land Use Changes Matrix

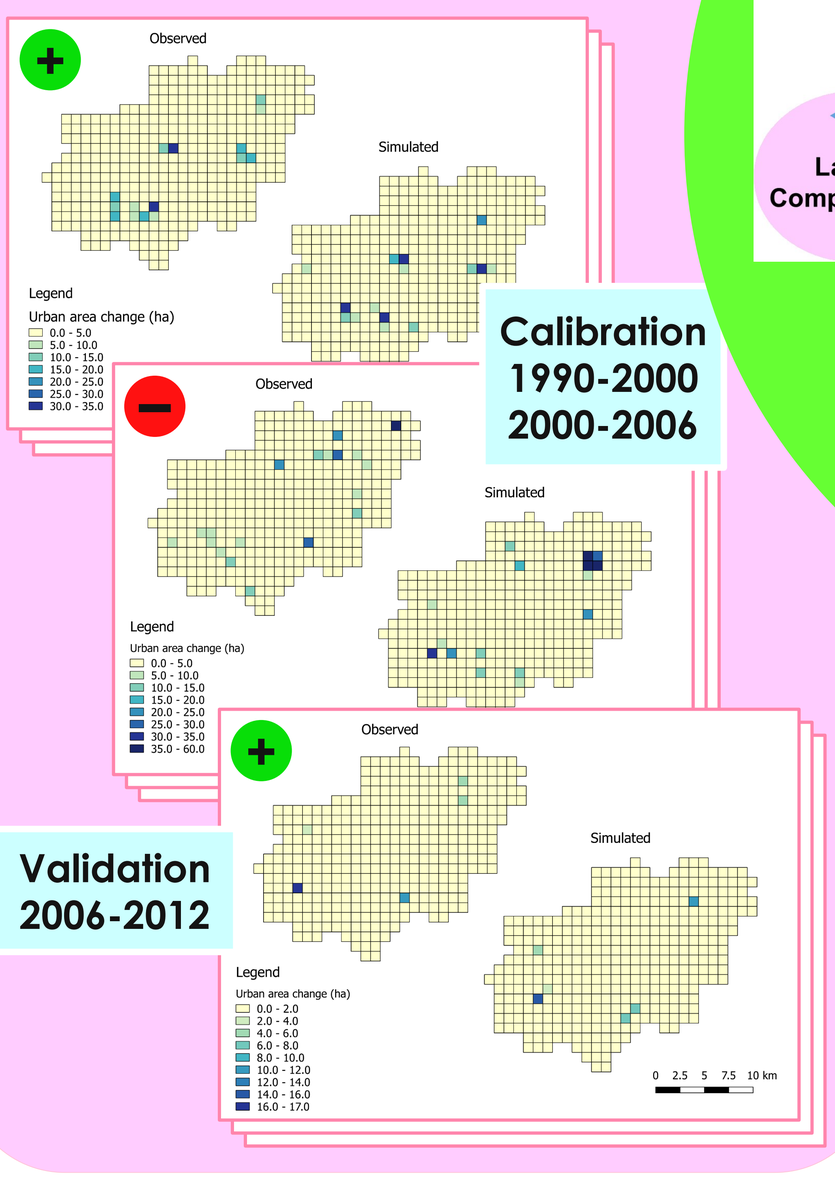
Land Use from → / Land Use to ↓	Housing	Green Urban	Industrial/ Commercial	Infrastructure	Mine	Recreation	Crops	Forest	Grassland
Housing	0	0	0	0	0	0	?	0	?
Green Urban	0	0	0	0	0	0	Const → 0	Const → 0	Const → 0
			0	0	0	0	?	?	?
			0	0	0	0	?	?	?
			0	0	0	0	Const → 0	Const → 0	Const → 0
			0	0	0	0	Event → 0	Event → 0	Event
Crops	0	0	0	0	0	0	0	?	
Forest	0	0	0	0	0	0	?	0	
Grassland	0	0	0	0	0	0	?	?	0

Built areas don't change | Land uses are not converted to themselves | Some land uses remain constant | Some land use changes happen as events | Some parameters are easy to deduce

Scenarios influence coefficients

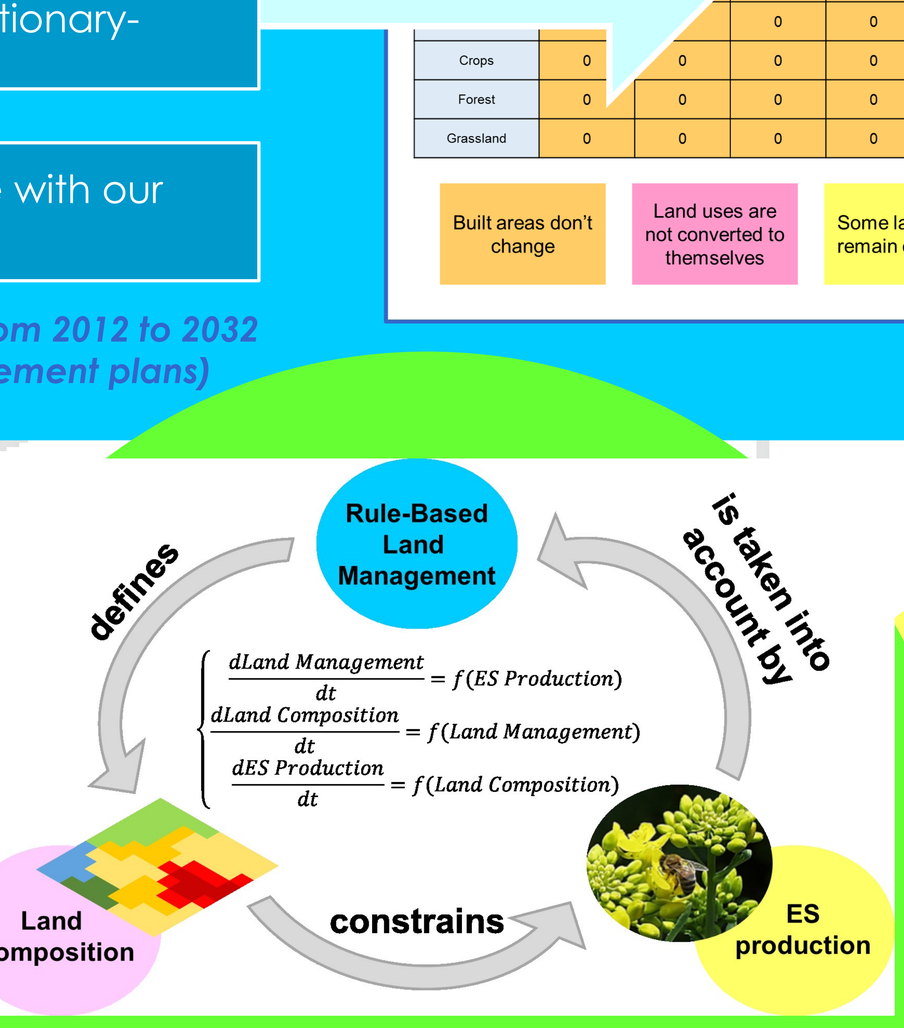
Benefits influence coefficients

Implementation of the rules in a cellular automata



Calibration 1990-2000 2000-2006

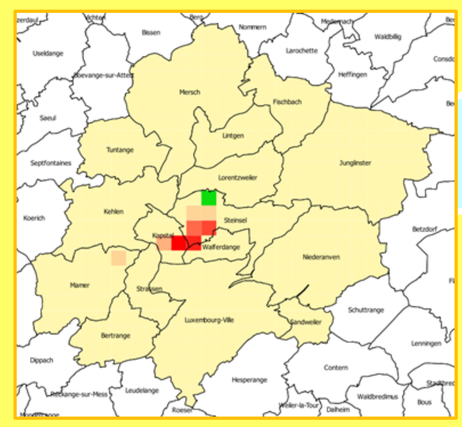
Validation 2006-2012



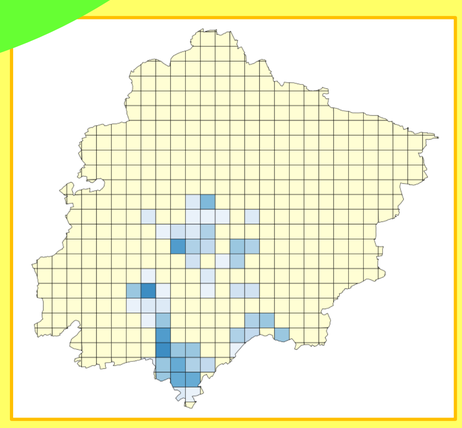
MIMES*
System dynamics
Integrated modelling
(Urban expansion)

Input to InVEST (yearly dynamic) 2012-2032

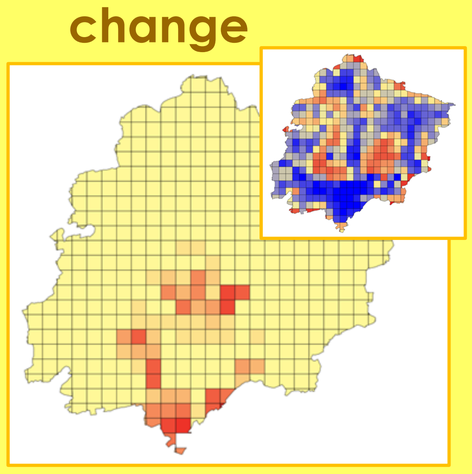
Interpretation of the benefits against the rules



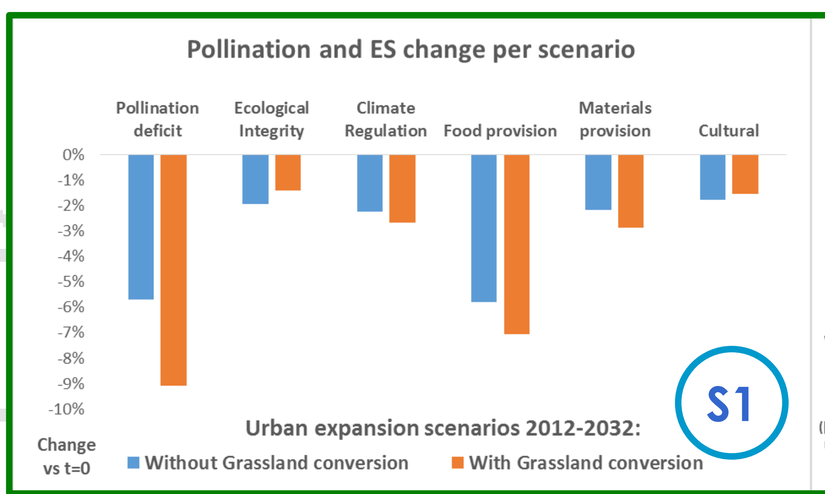
Orchards Yield change

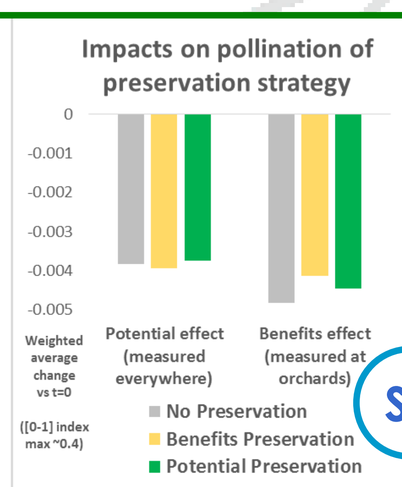


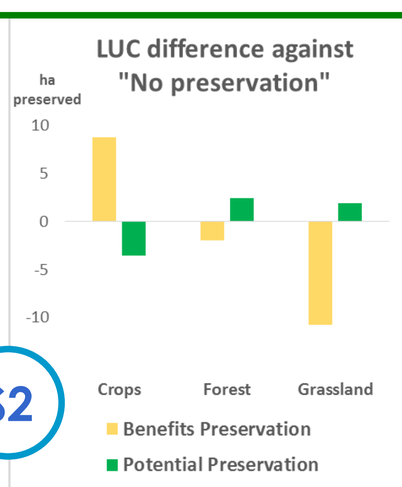
Urban Expansion

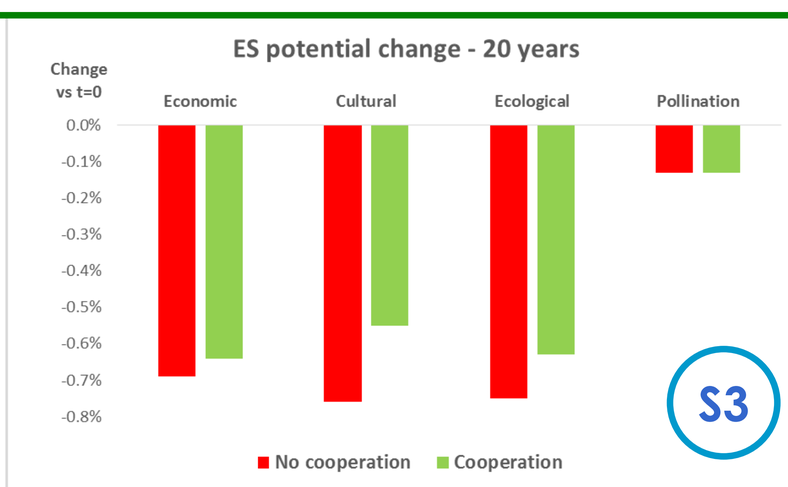


Pollination Supply change









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