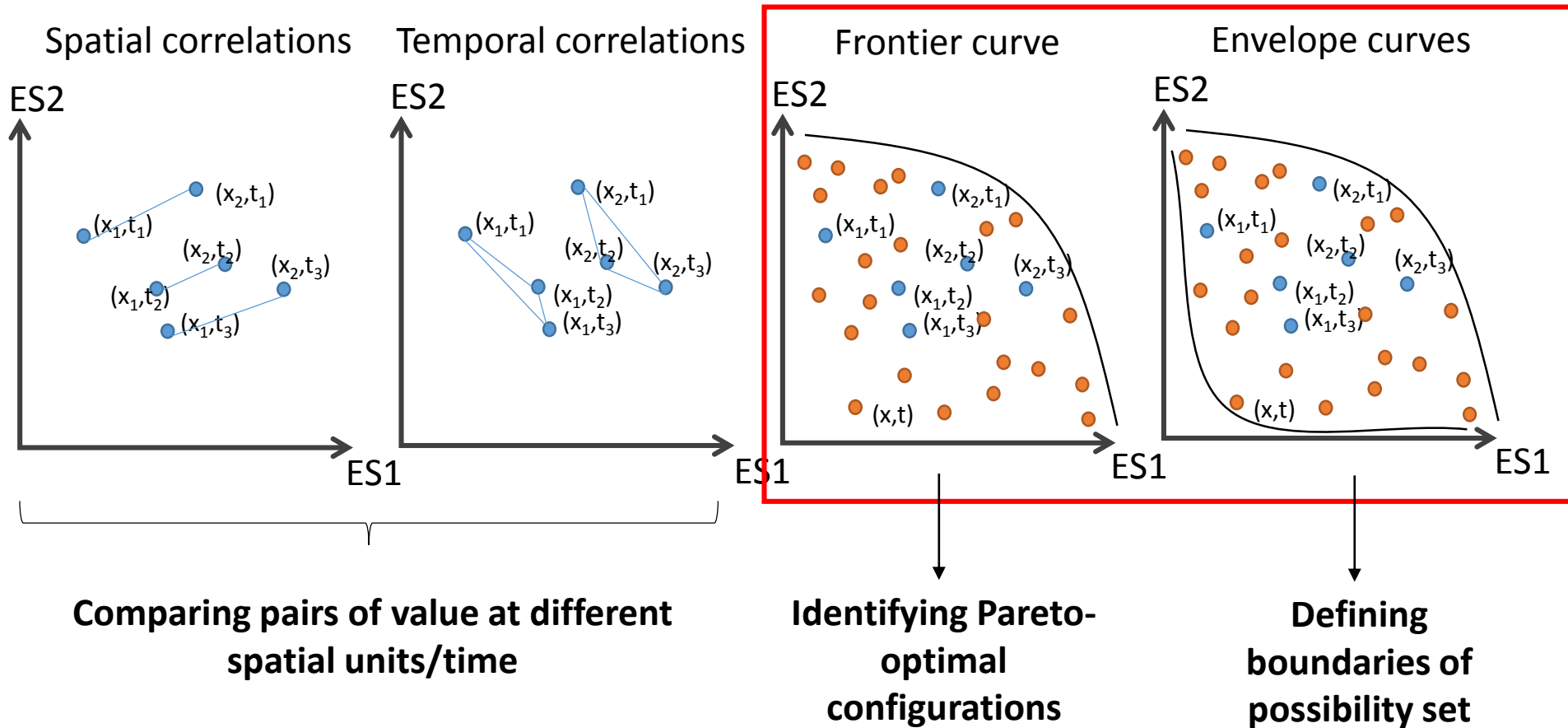


Ecosystem service tradeoffs and ecological-economic production possibilities frontier: A case study in Costa Rica

Vallet A.; Locatelli B.; Levrel H.



How to analyze ES interactions?

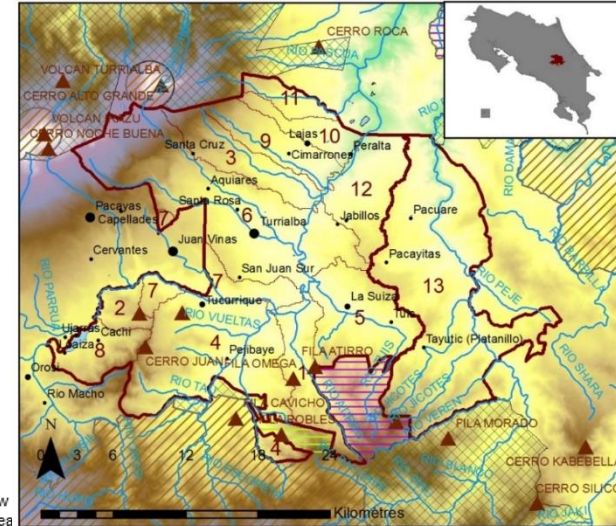


- Different approaches can describe ecosystem services interactions differently

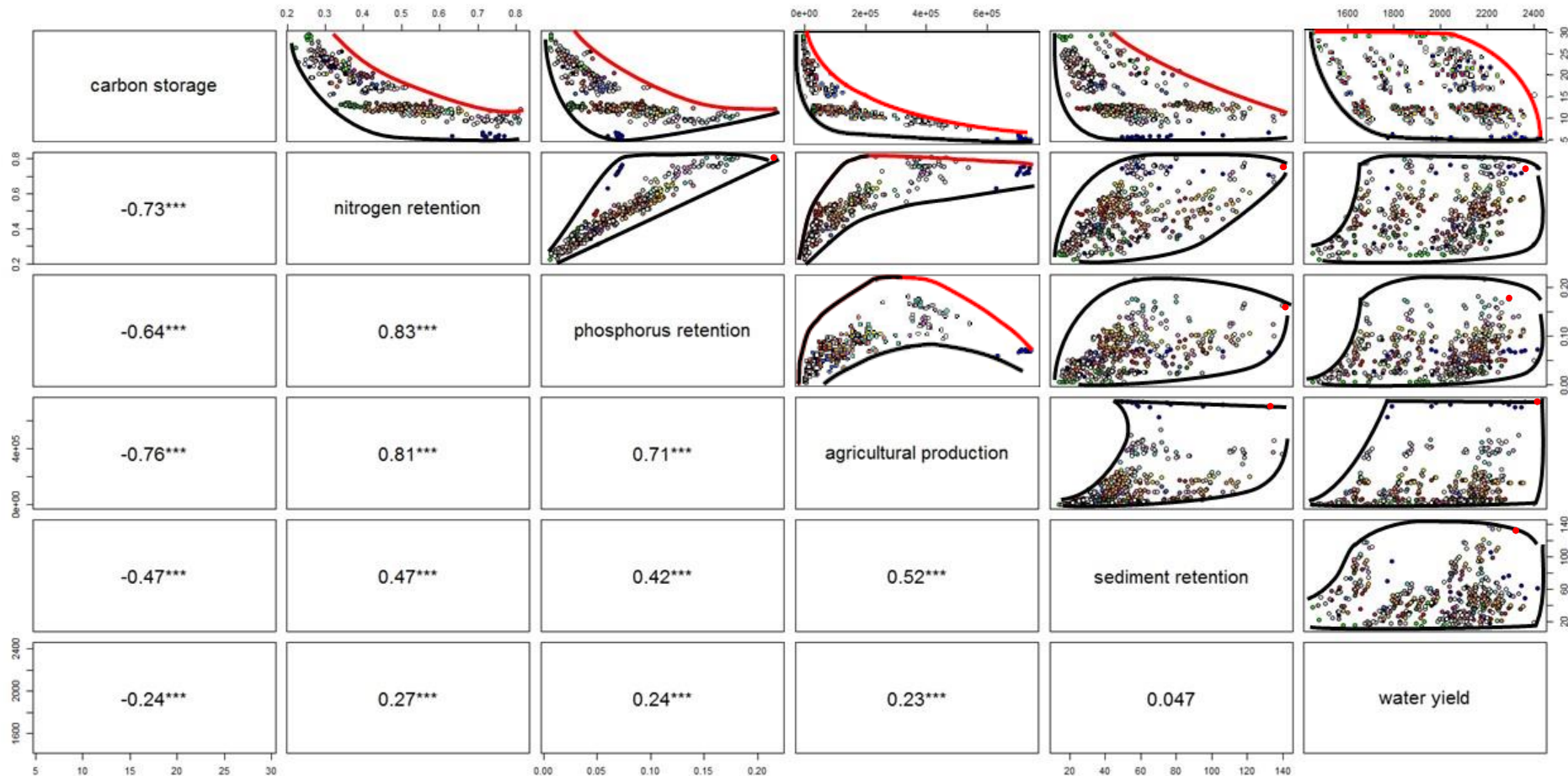
Application in Costa Rica

- Modeling of 6 ecosystem services using InVEST (Sharp et al. 2014)
- 4 observed land-use maps in 1986, 1996, 2001 and 2008
- 32 contrasting land-use scenarios

Central Volcanic-Talamanca Biological Corridor

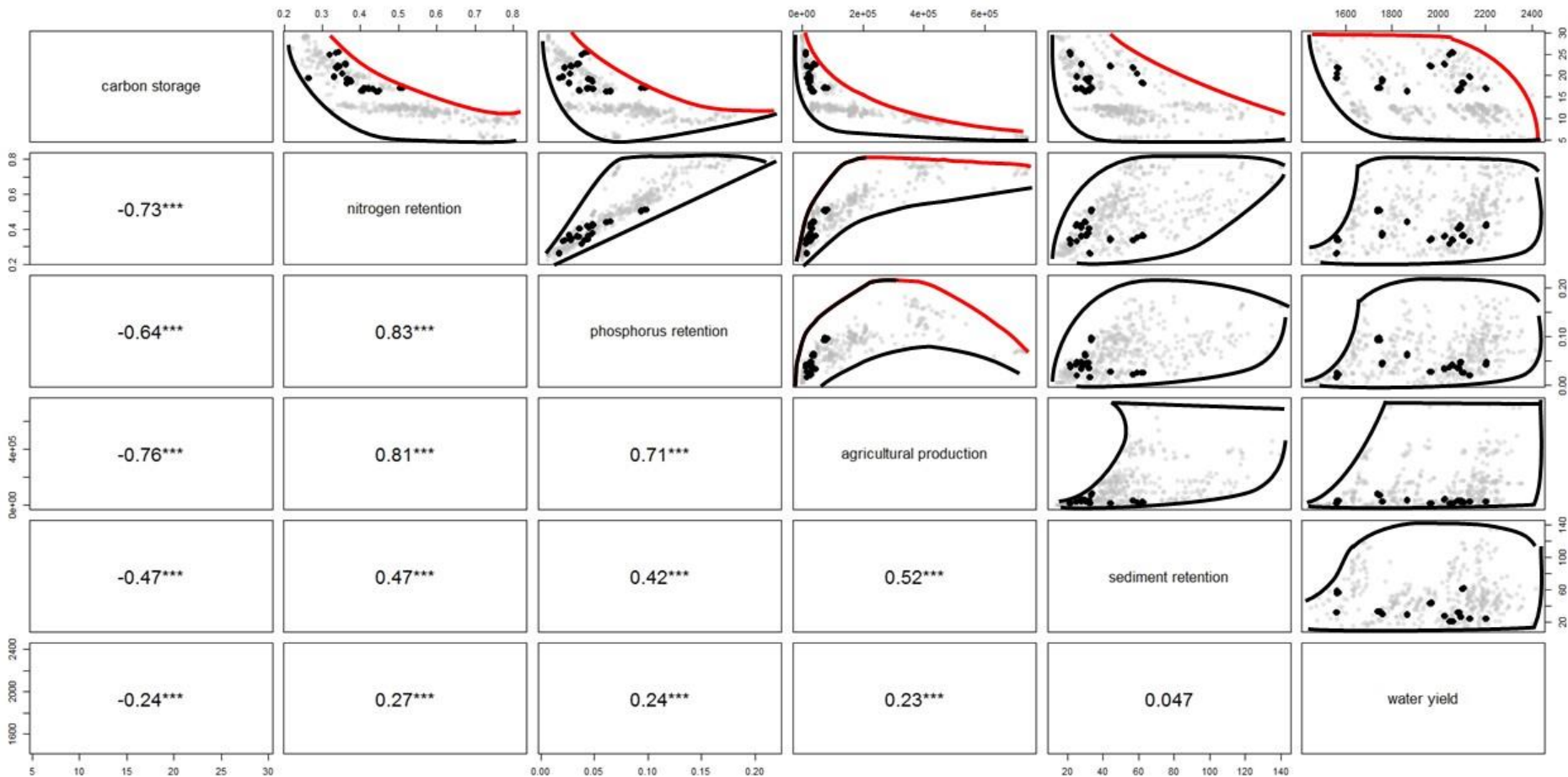


Frontier and envelope curves



- Frontier curves exist only for tradeoffs (in red)
- Threshold effects in moderate and non-monotonic tradeoffs
- Frontier curves poorly reflect the range of possible ecosystem services levels
- Envelope curves are more generalizable (in black)

Position of observed land-uses



- Observed situations → far from optimal
- Not explained by rational optimization (social constraints)
- Possibility sets include socially unacceptable situations
- How to consider these constraints in the analysis?