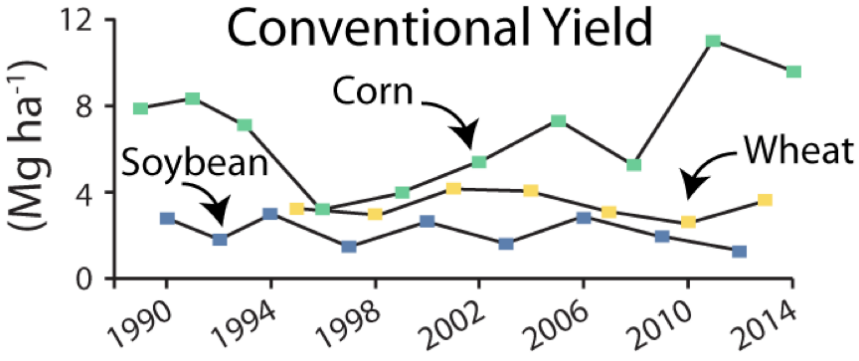
New directions for the next phase

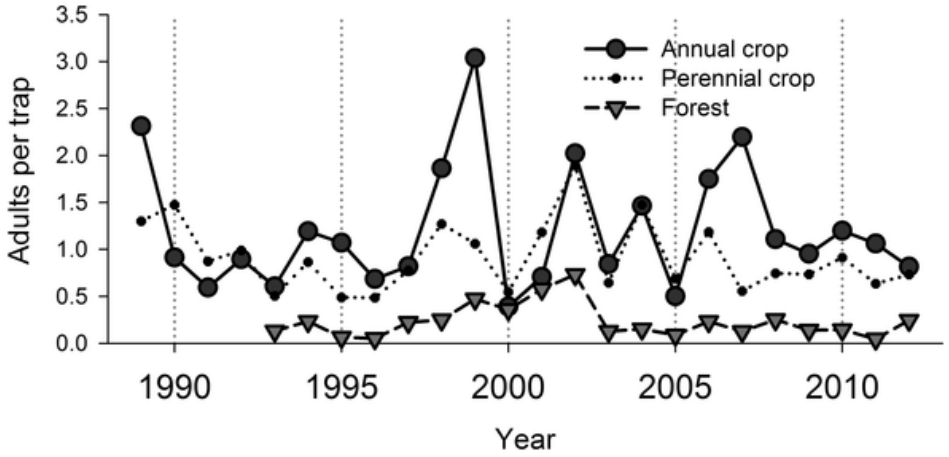
Jen Lau

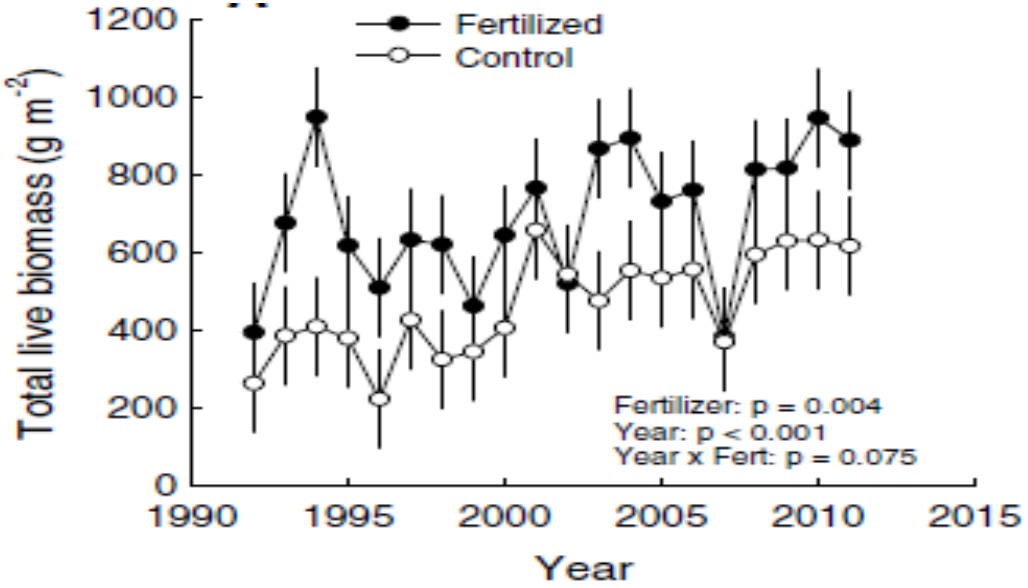
I. Linking our past to our future
II. Our new conceptual model
III. The mechanisms of resilience
IV. Overview of the approach

V. Co-PI presentations on more specific research ideas

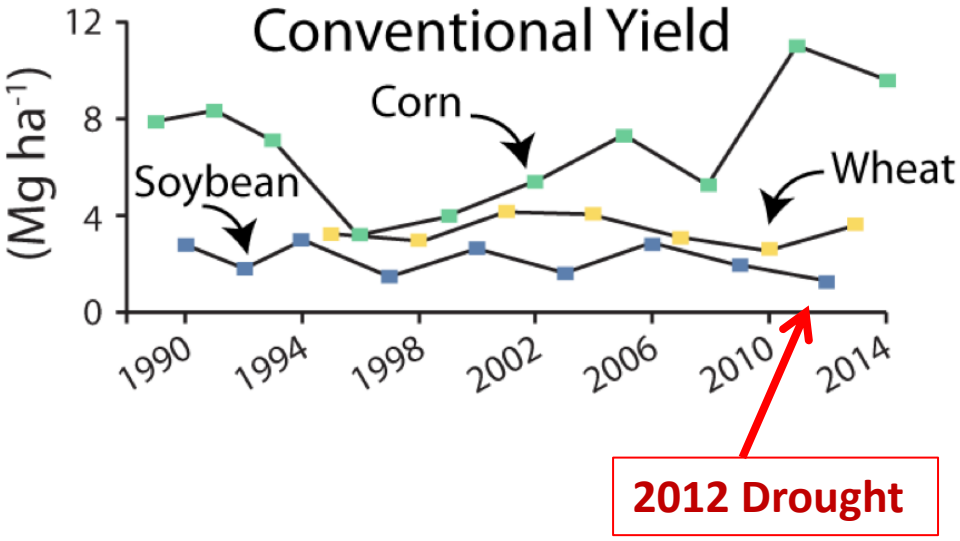
In recent years, we have focused on understanding the ecosystem services provided by agronomic landscapes…

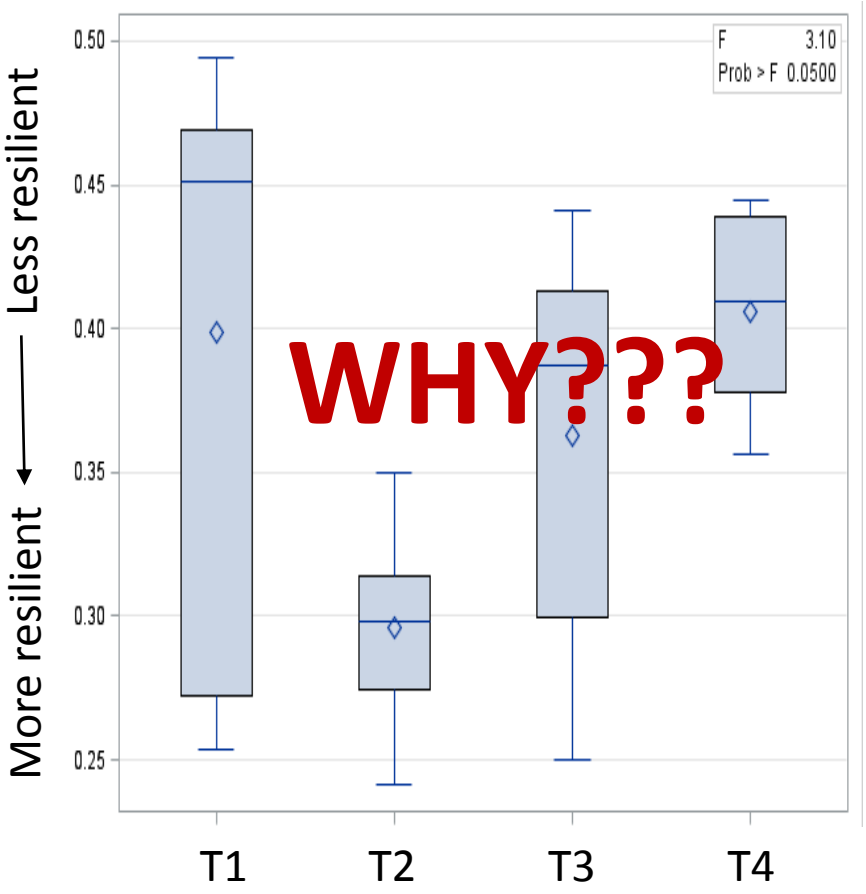




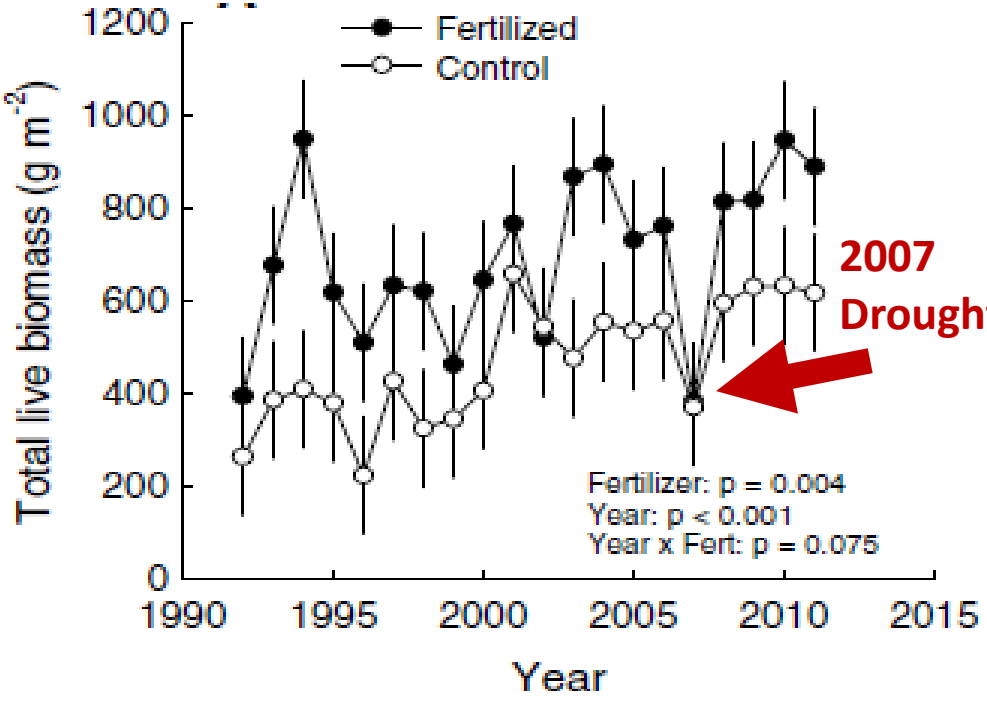


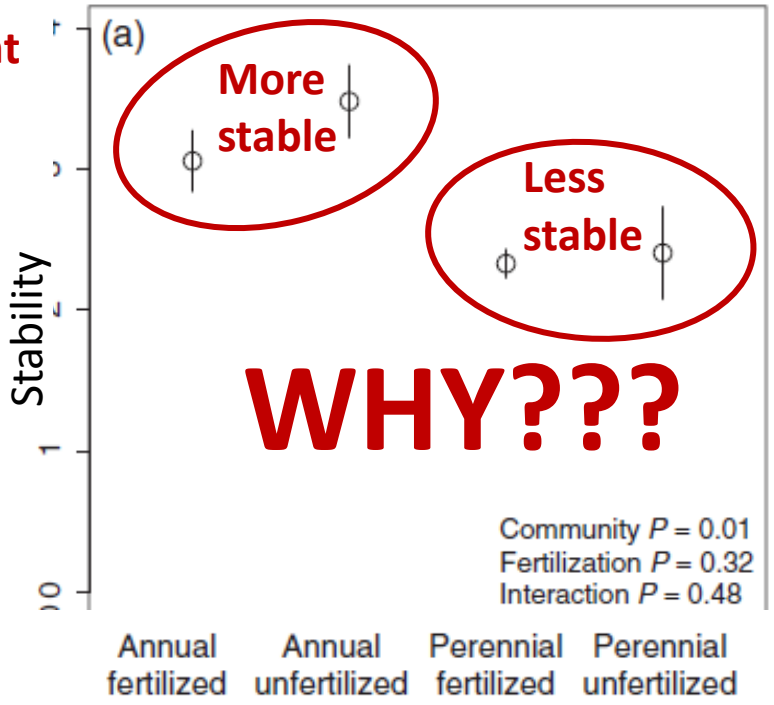
But there is substantial temporal variability in services and some systems seem to be more resilient to environmental change…



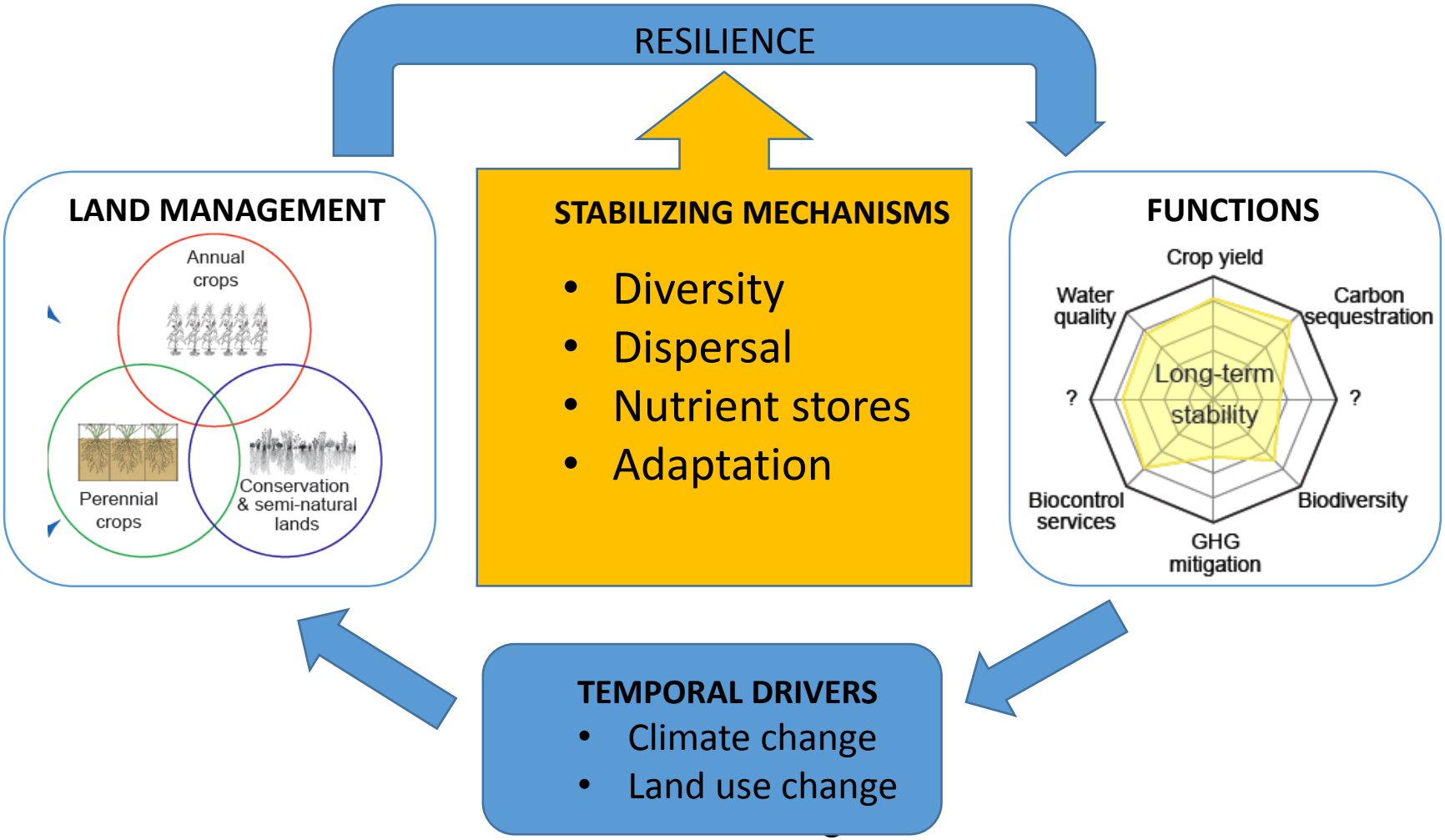


These changes affect functions and some systems seem to be more resilient to change…





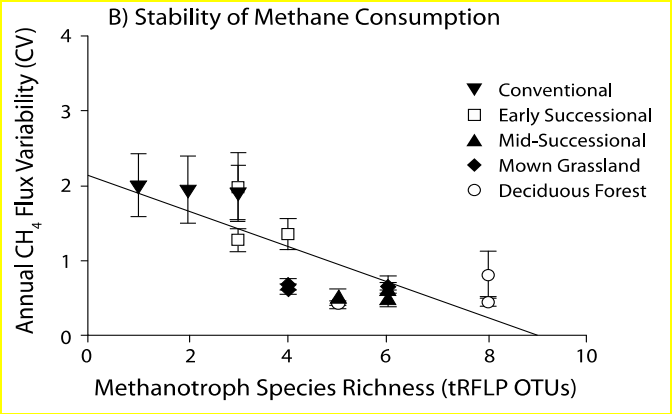
II. New conceptual model



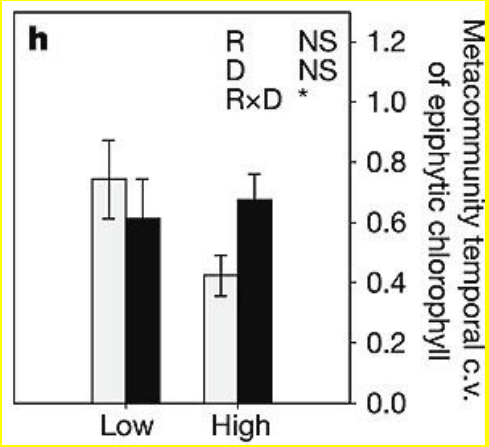
What key mechanisms contribute to the long-term stability of important ecosystem services provided by complex agricultural landscapes?

Stabilizing mechanisms:

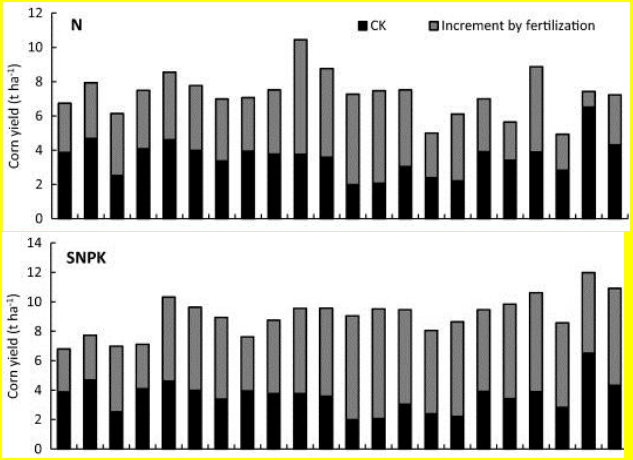
1. Diversity



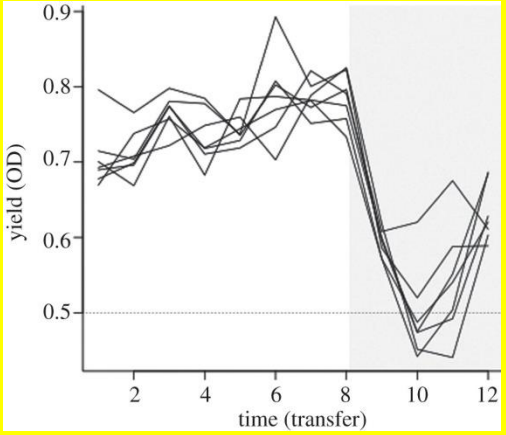
2. Dispersal



3. Nutrient stores

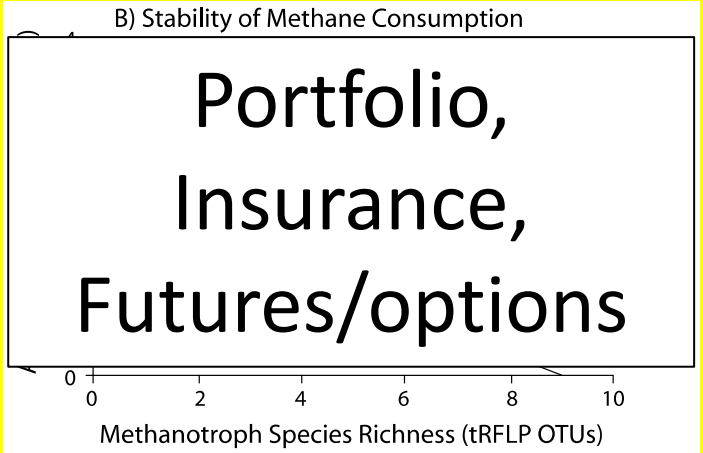


4. Adaptation



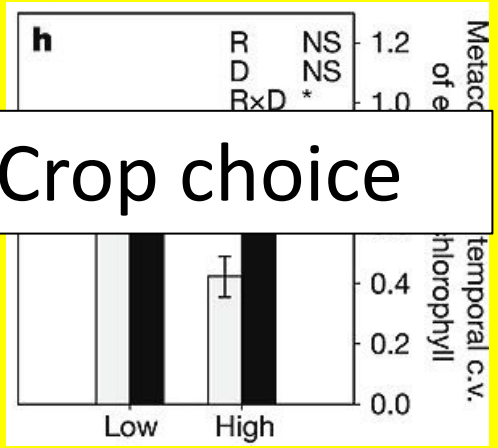
Stabilizing mechanisms:

1. Diversity



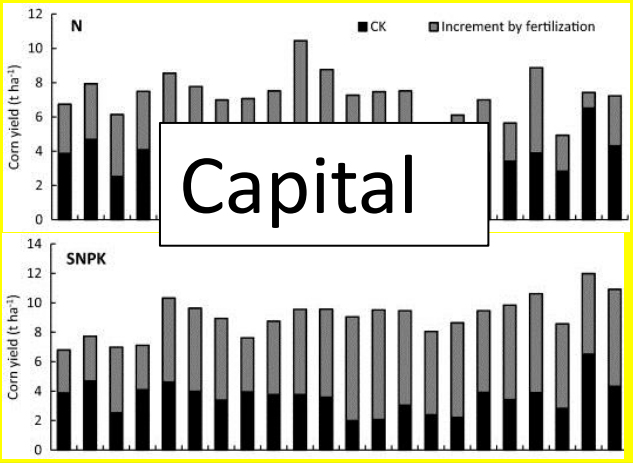
Portfolio, Insurance, Futures/options

2. Dispersal



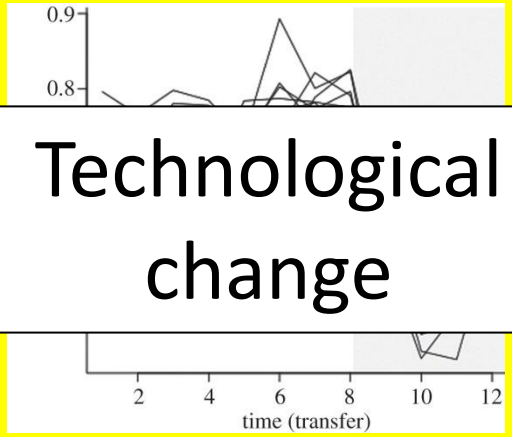
Crop choice

3. Nutrient stores



Capital

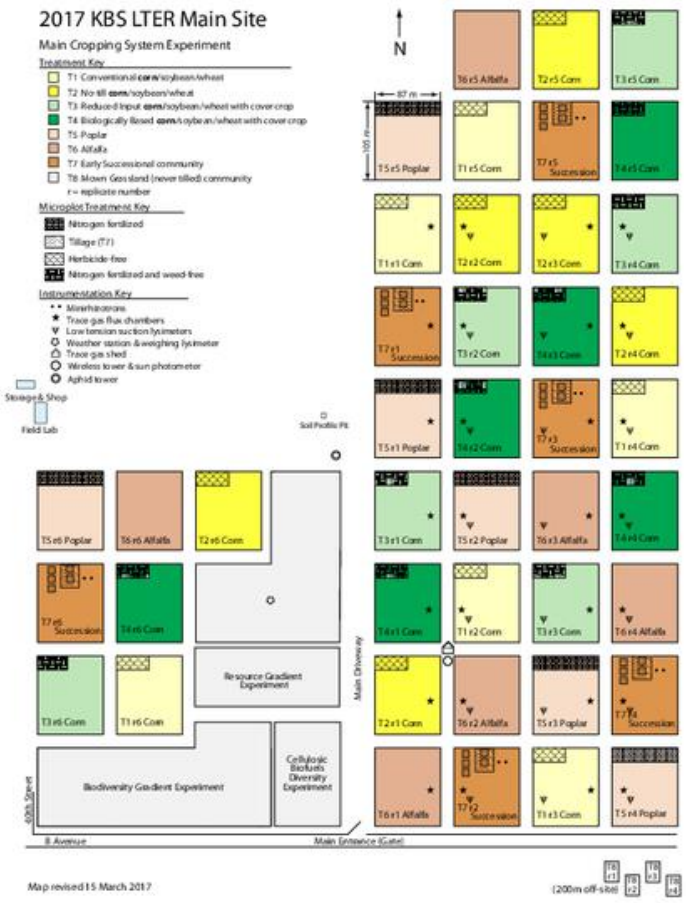
4. Adaptation



Technological change

Current approaches

Main Cropping System Experiment (MCSE)



Ancillary Experiments such as:

- Biodiversity gradient
- Irrigation x fertilizer gradient
- Rainfall manipulations
- Warming experiments

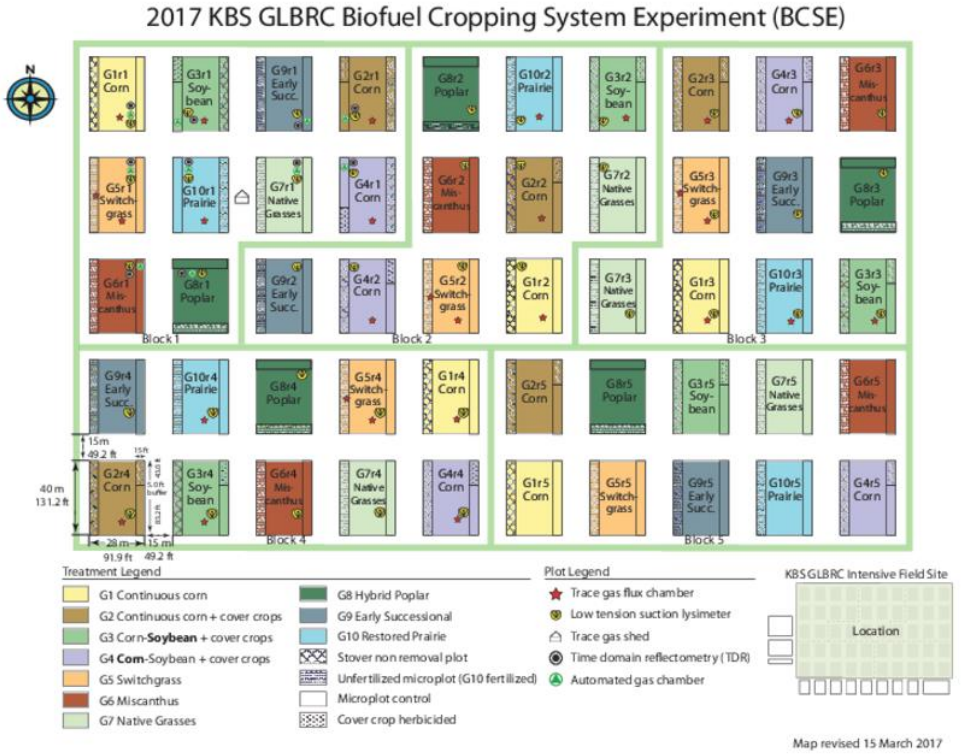
Crop Management and Stewardship Practices Survey

What changes/new treatments would make these experiments even more powerful?

The approach…creating synergies with other experiments

Conservation Lands Experiment (CLE)

Biofuel Cropping System Experiment (BCSE)



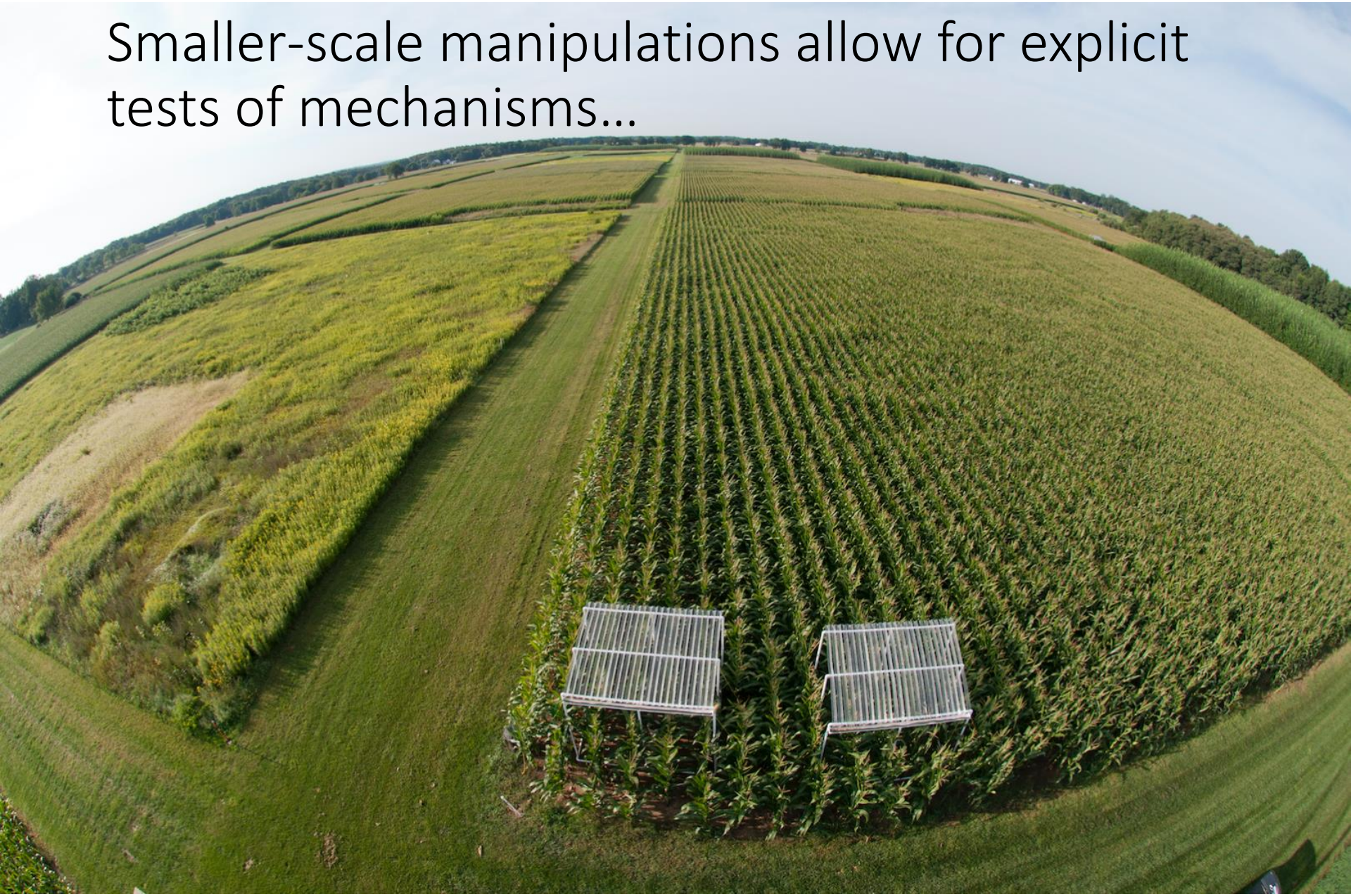
What changes/new treatments would make these experiments even more powerful?

This combination of large-scale experiments allows for tests of resilience and the mechanisms contributing to resilience in a variety of land use types.



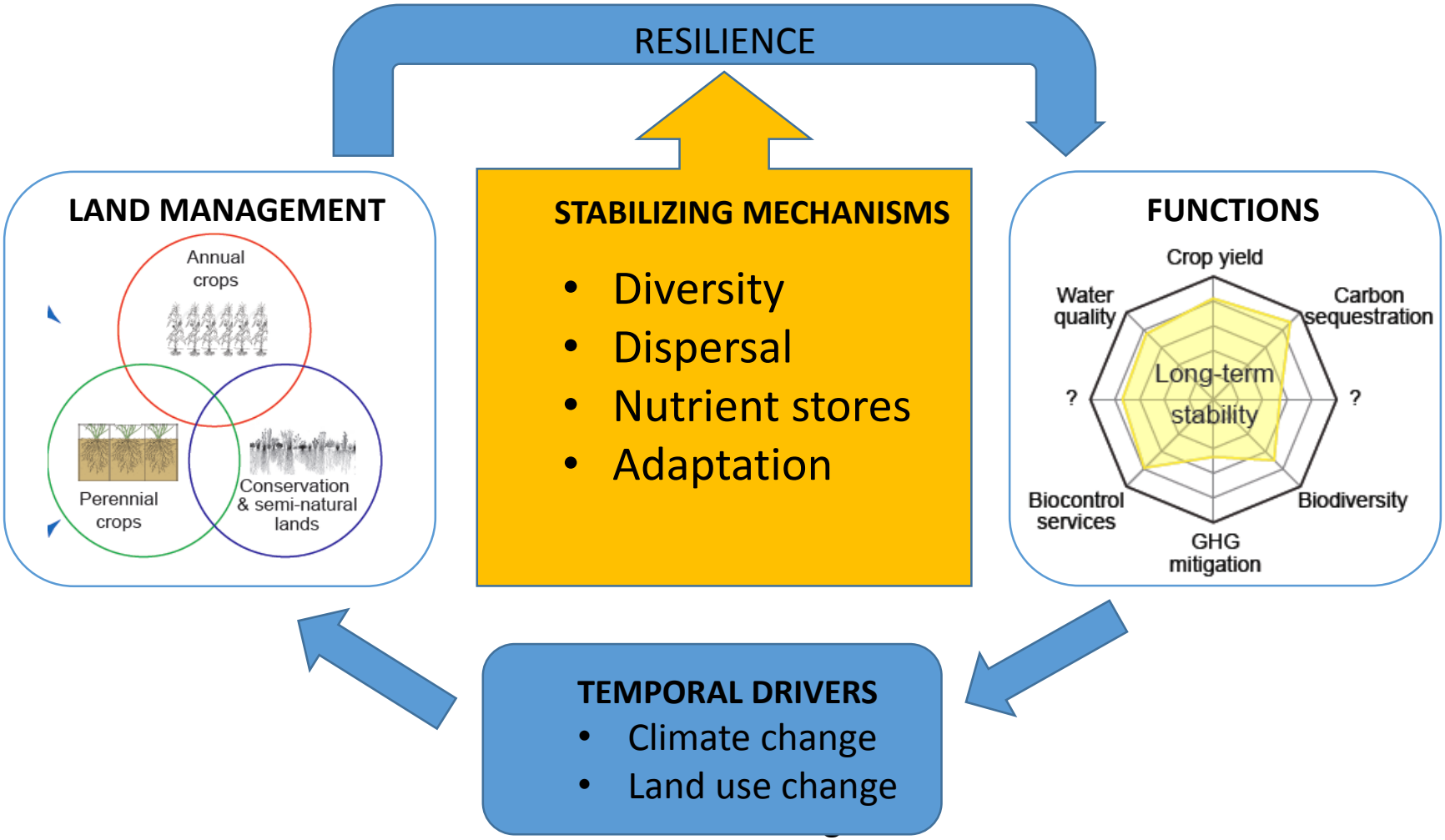
Do the same mechanisms promote stability in annua
row crops and diverse prairies?

Smaller-scale manipulations allow for explicit tests of mechanisms…



What manipulations do you think would provide novel tests of the mechanisms underlying resilience?

Feedback & ideas???



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