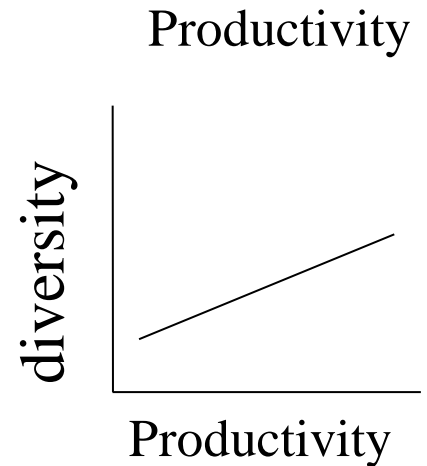
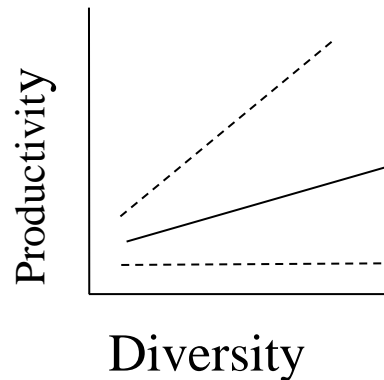
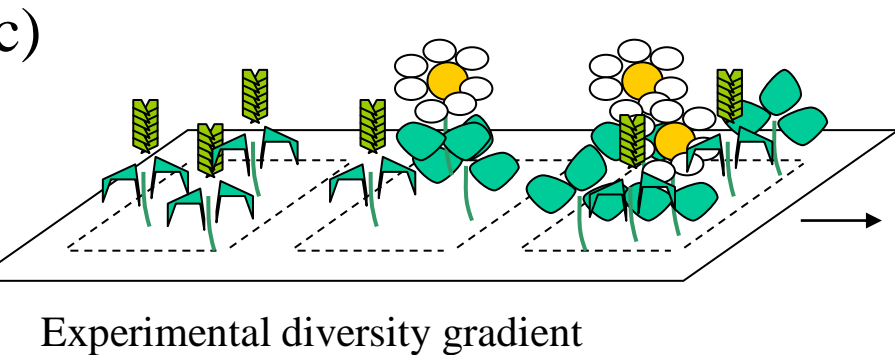
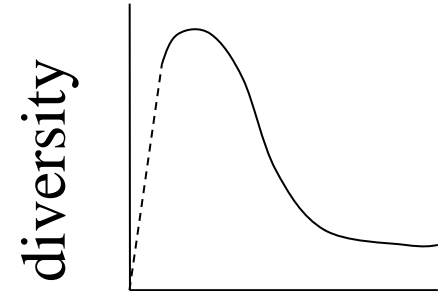
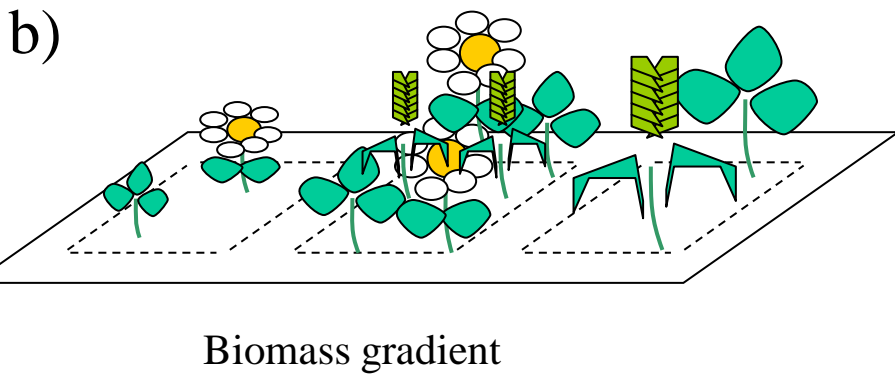
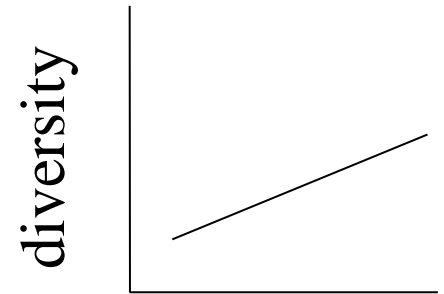
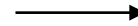
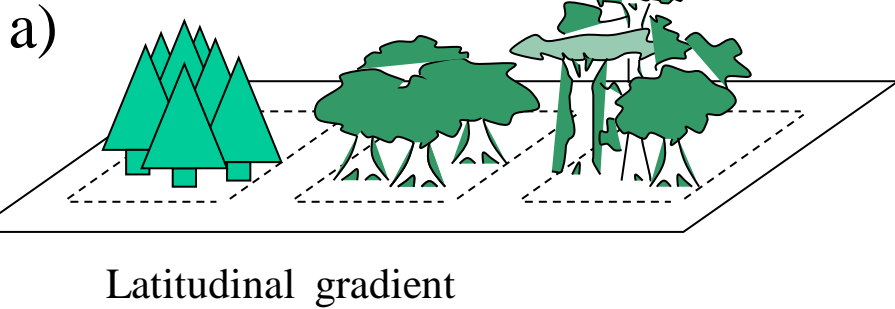


**Patterns and Predictions:
Exploring the relationship between
plant diversity and productivity across
scales**

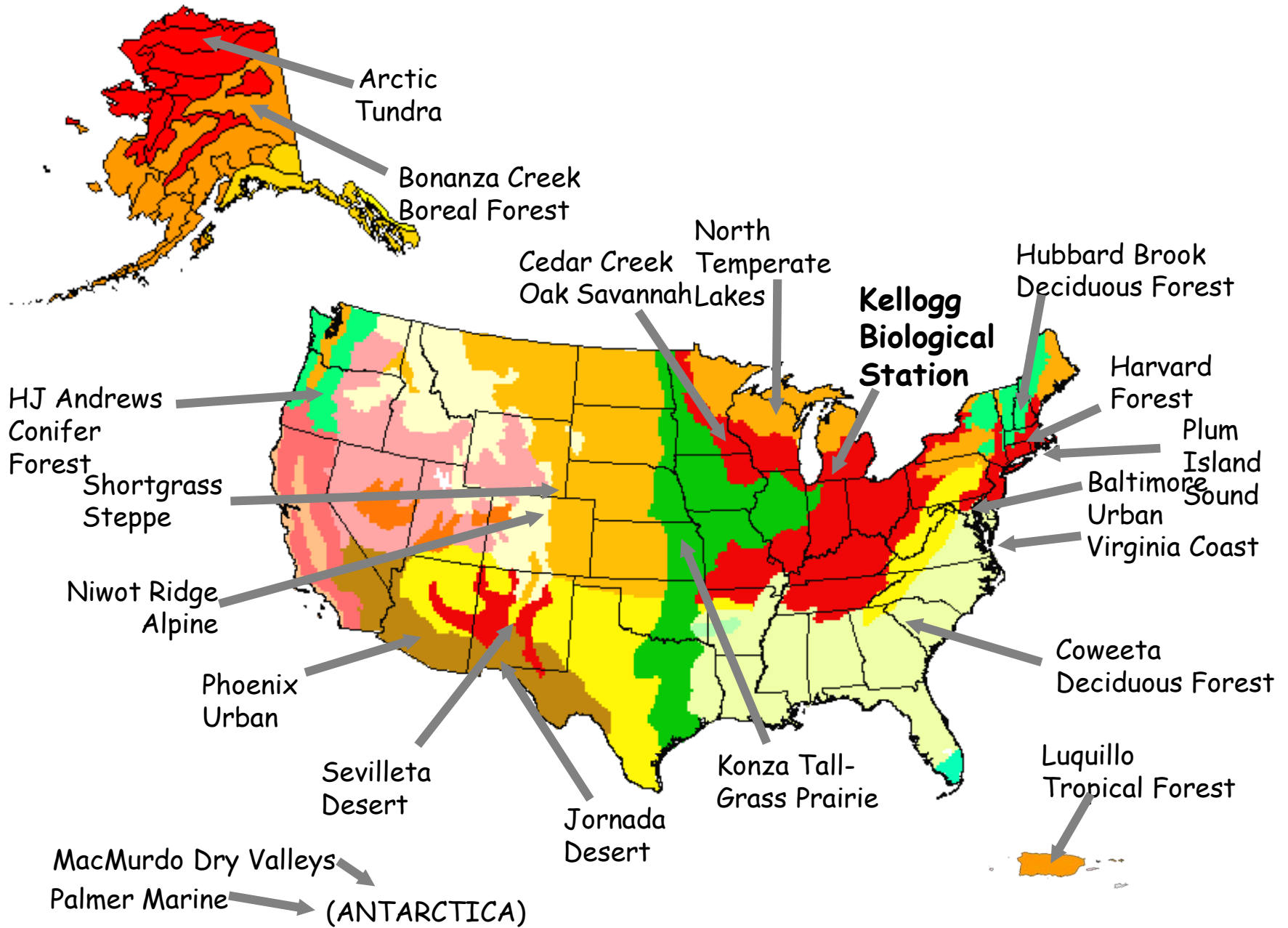
Katherine Gross and the
NCEAS Working Group on
Productivity – Diversity across LTER sites

Patterns of Productivity and Diversity

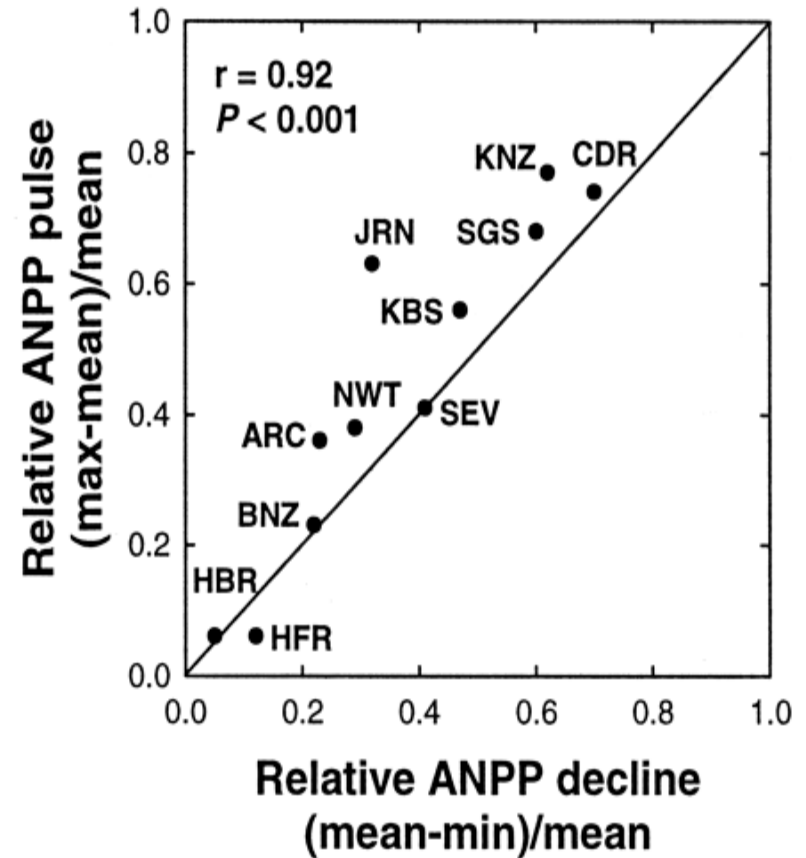
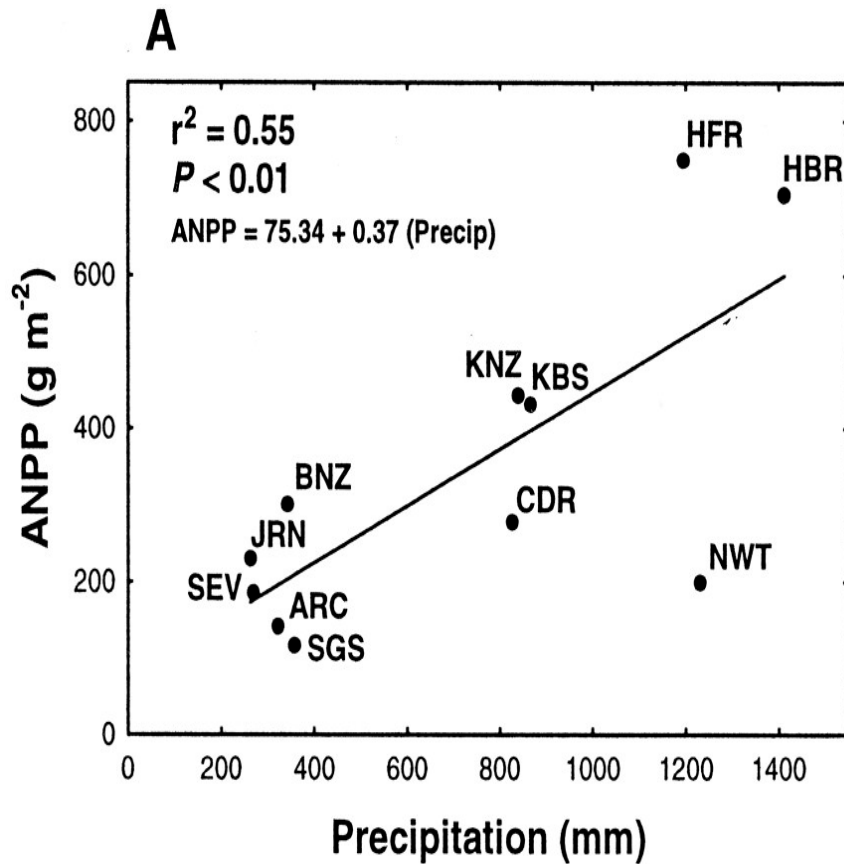
(From Purvis and Hector, Science 2000)



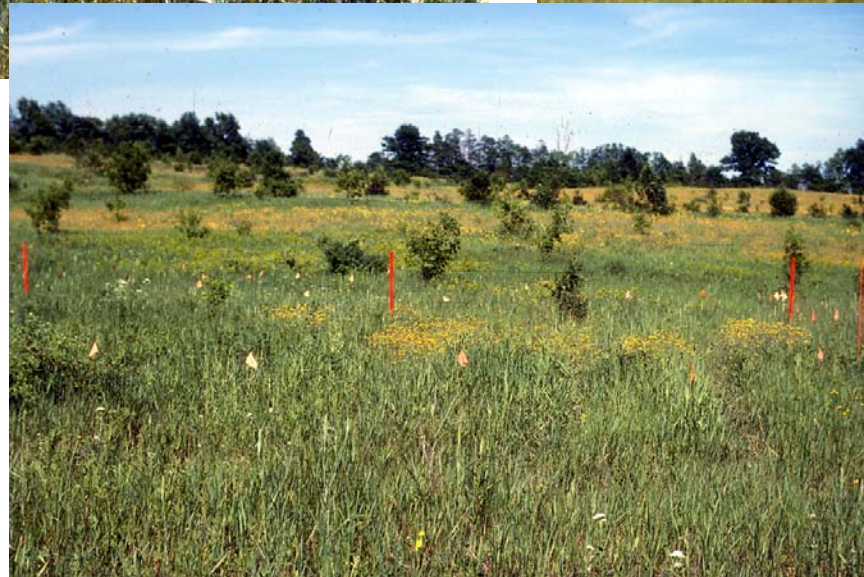
The National LTER Network



ANPP varies across LTER sites (Knapp and Smith, Science 2001)



Composition and diversity of plant communities also varies





NCEAS working group

To compare observed patterns of ANPP and Species Diversity within and across LTER sites:

Does it 'fit the expected patterns'?

Does the pattern vary with scale?

Do experimental manipulations of fertility provide a test of the mechanisms?

Products of the Working Group

- **Refereed Papers**

Waide et al. 1999 Annual Review of Ecology and Systematics

Scheiner et al. 2000 Evolutionary Ecology Research

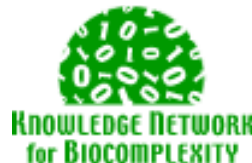
***Gross et al. 2000 Oikos**

***Gough et al. 2000 Oikos**

Dobson et al. 2000 Ecology

Mittelbach et al. 2001 Ecology

- **Knowledge Network for Biocomplexity Project (on going)**



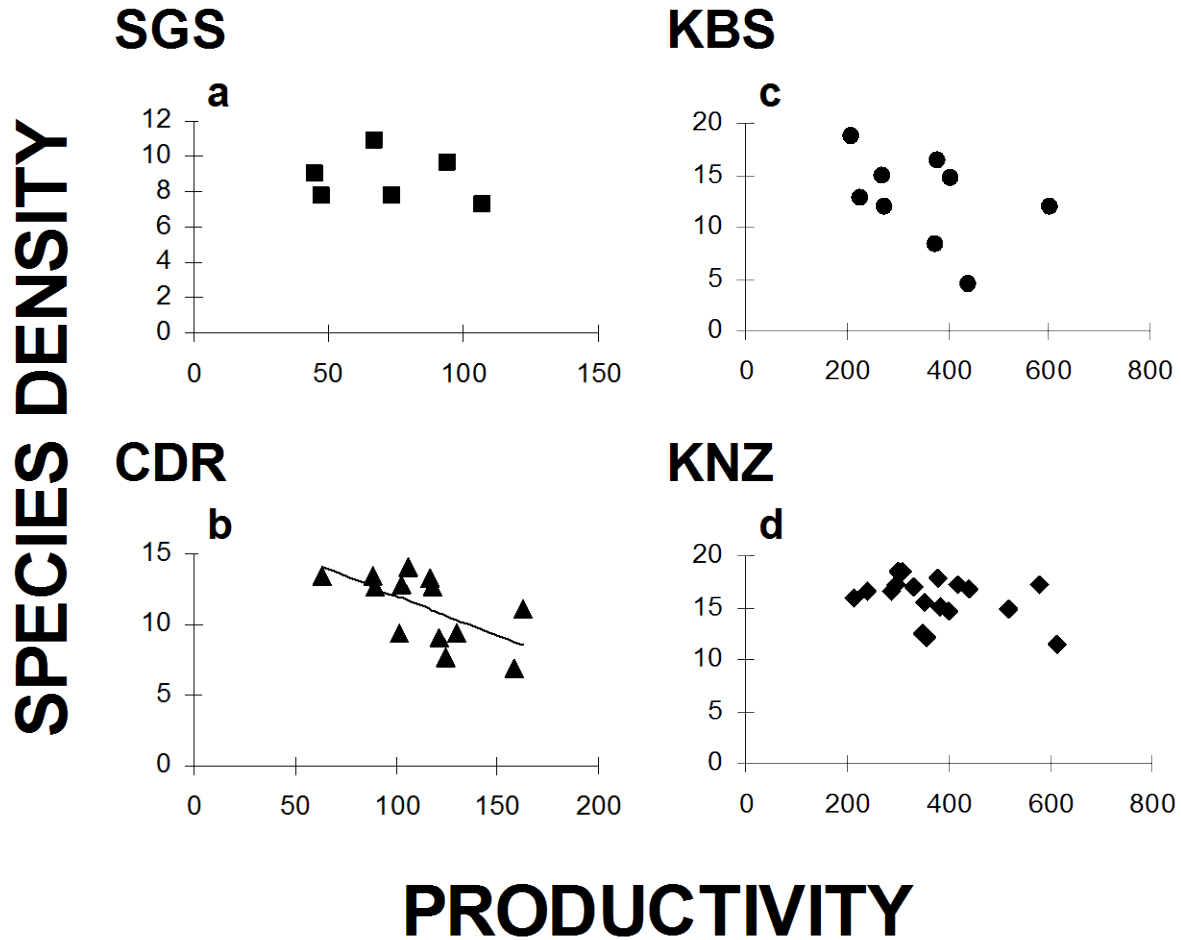
Patterns of Productivity and Diversity at LTER sites

- Prairie
 - SGS and KNZ
- Old Fields
 - CDR and KBS
- Meadows
 - ARC and NWT



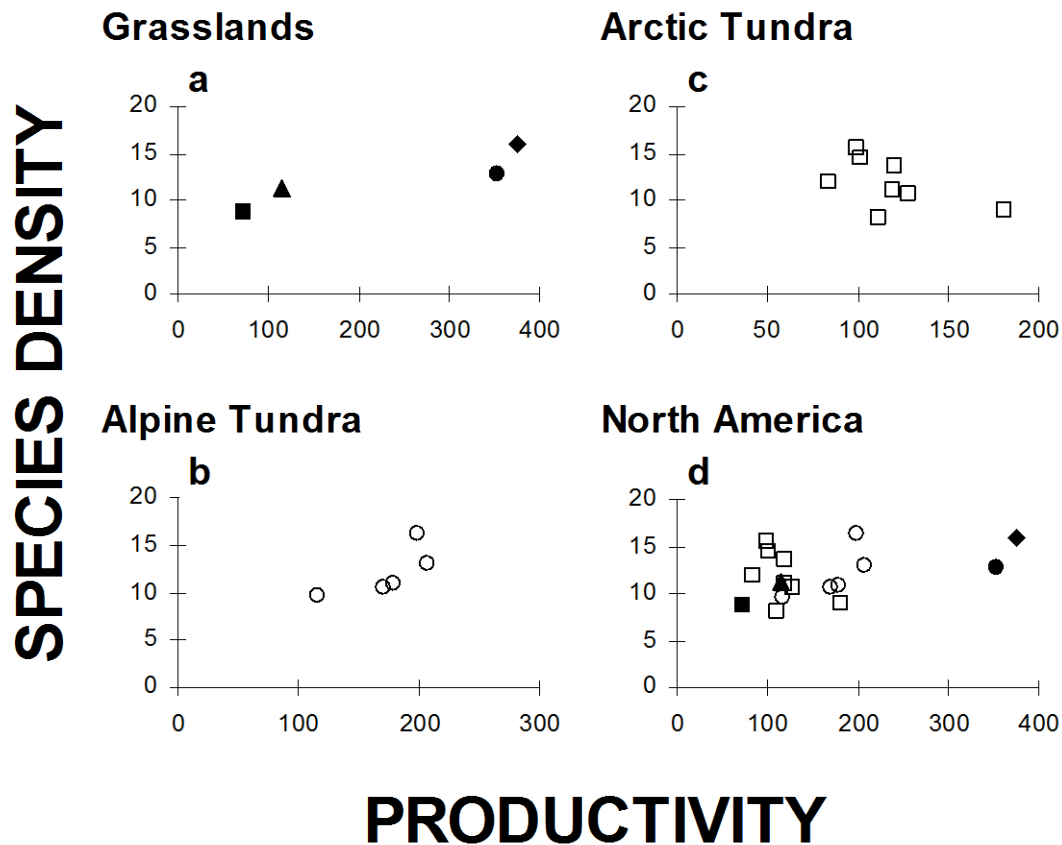
Patterns within LTER Sites

(Gross et al. 2000)



Patterns among Community Types

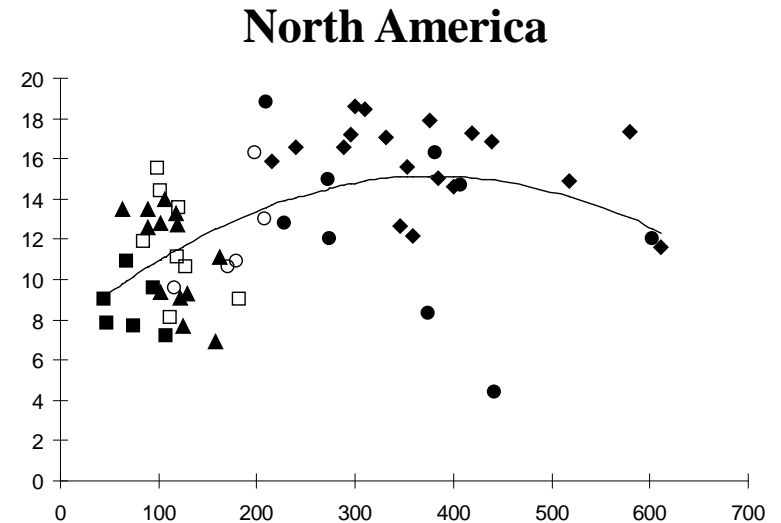
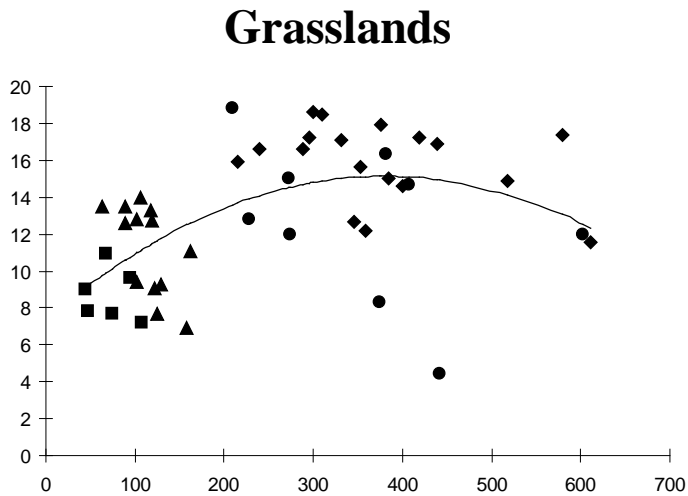
(Gross et al. 2000)



Patterns among fields across LTER Sites

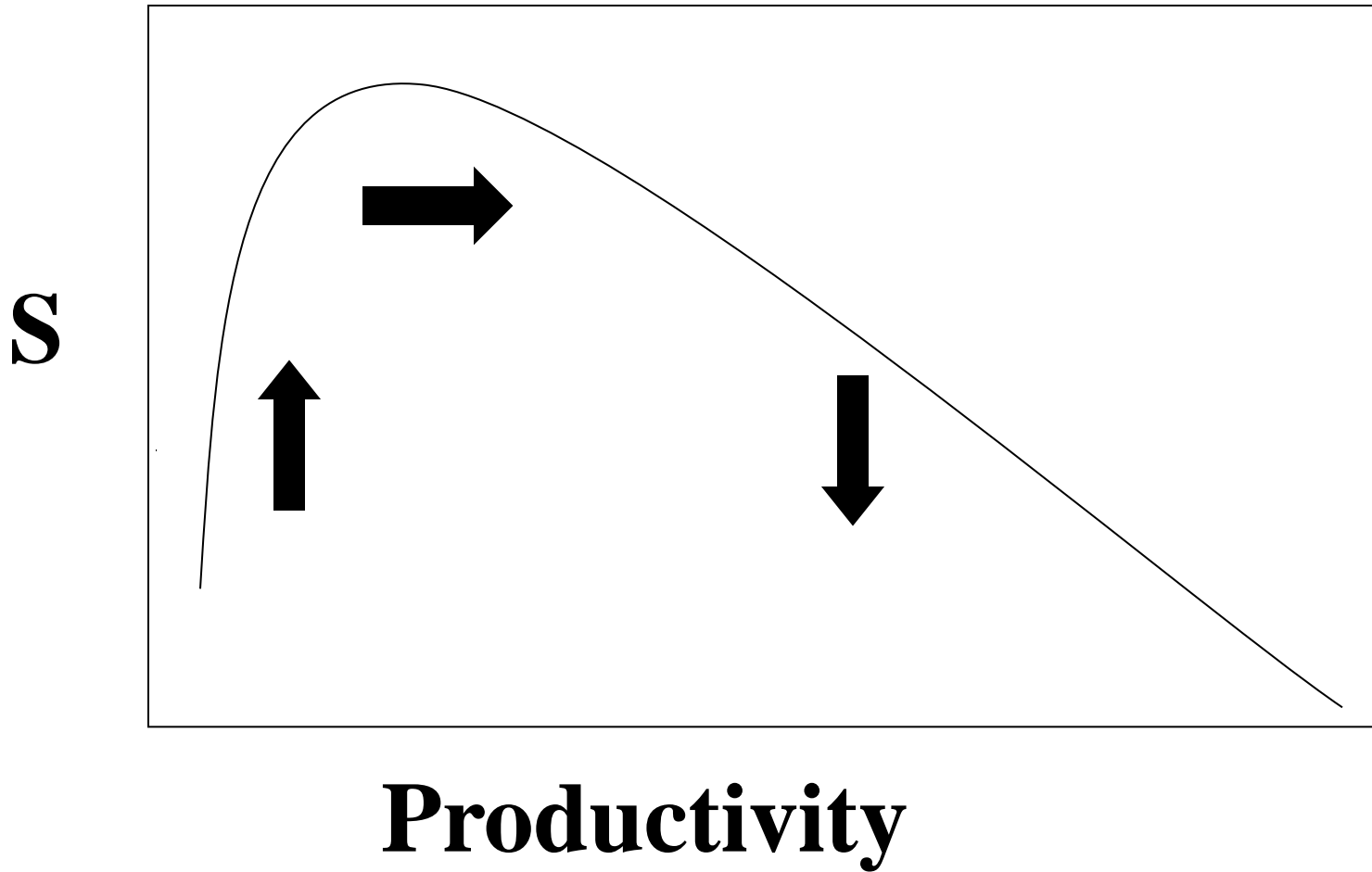
(Gross et al. 2000)

SPECIES DENSITY



PRODUCTIVITY

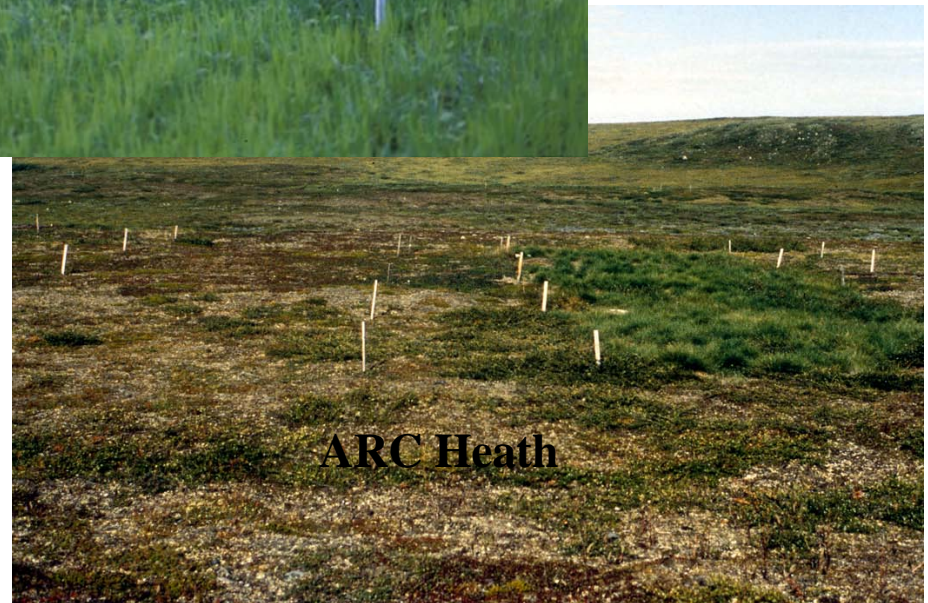
Productivity-dependent responses to Fertilization



Meta-Analysis of Fertilization Experiments at LTER Sites

Sites used

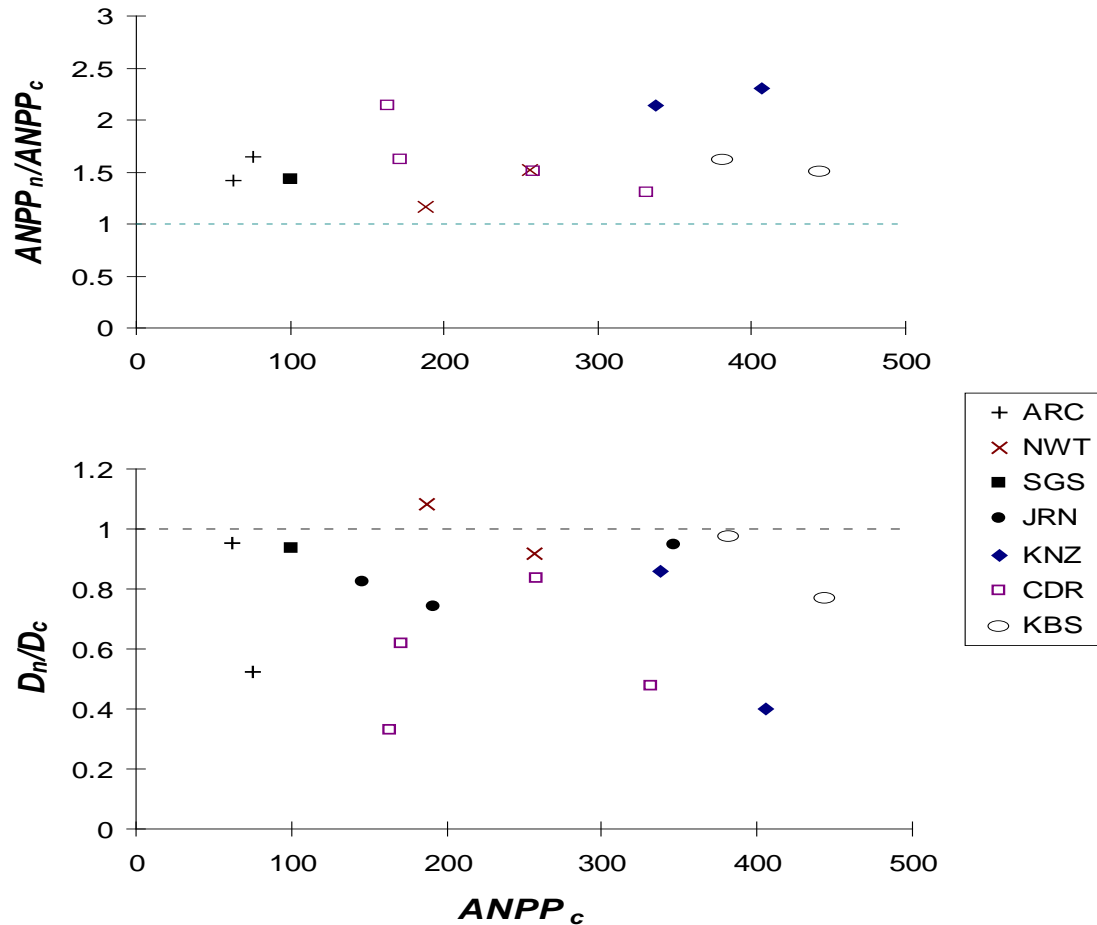
- KNZ
- SGS
- CDR
- KBS
- NWT
- ARC
- JRN



Response to Fertilization in Herbaceous Communities

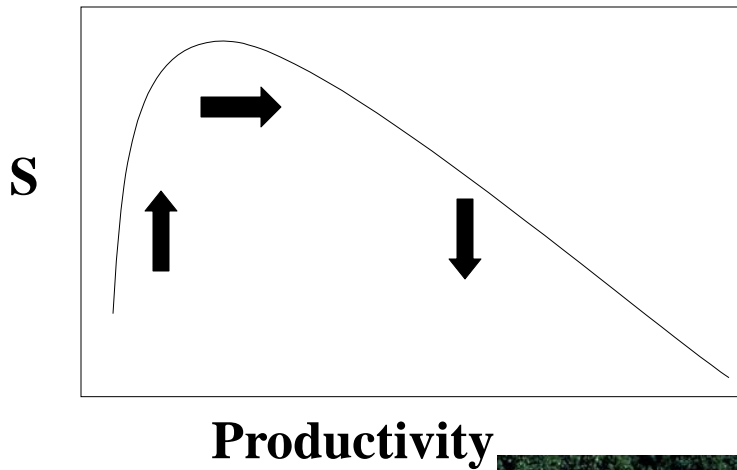
Experiments from LTER sites

(Gough et. al 2000)

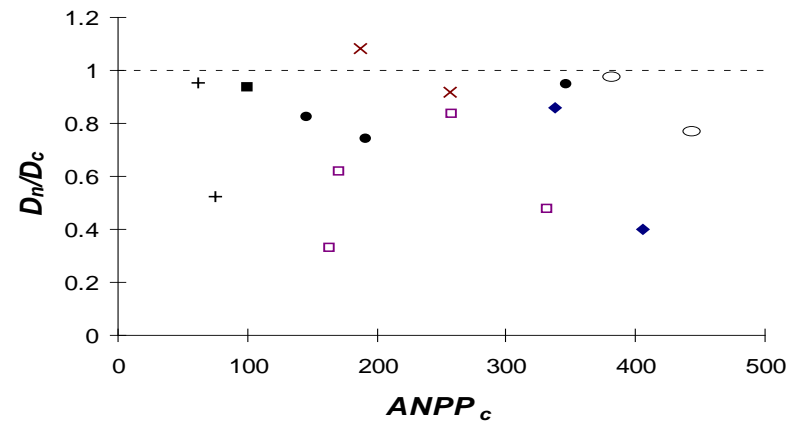
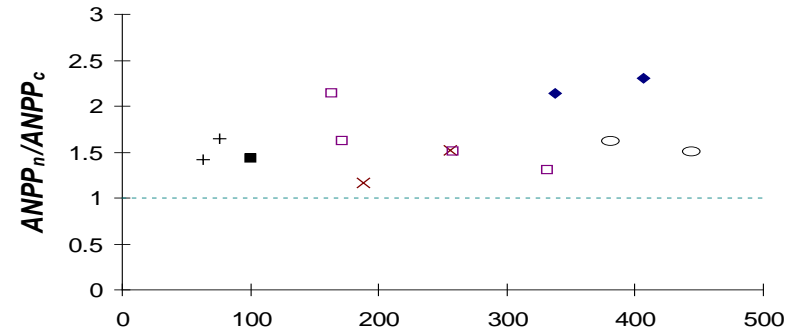


Predictions vs. Observed Responses to Fertilization

Predicted Responses



Observed Responses



- + ARC
- × NWT
- SGS
- JRN
- ◆ KNZ
- CDR
- KBS

Continuing LTER Synthesis Activities

What traits determine a species or functional group response to fertilization ?



What conditions facilitate species invasions?