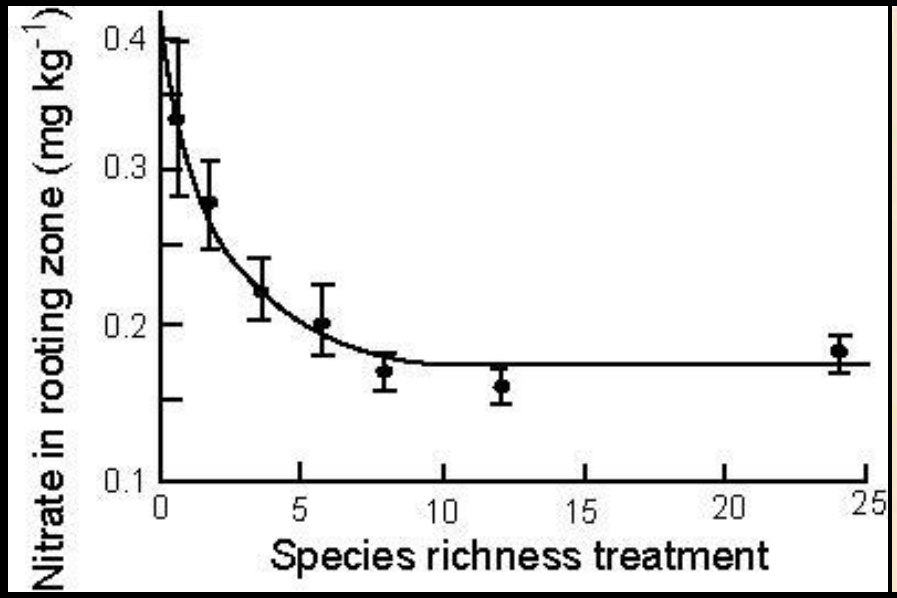
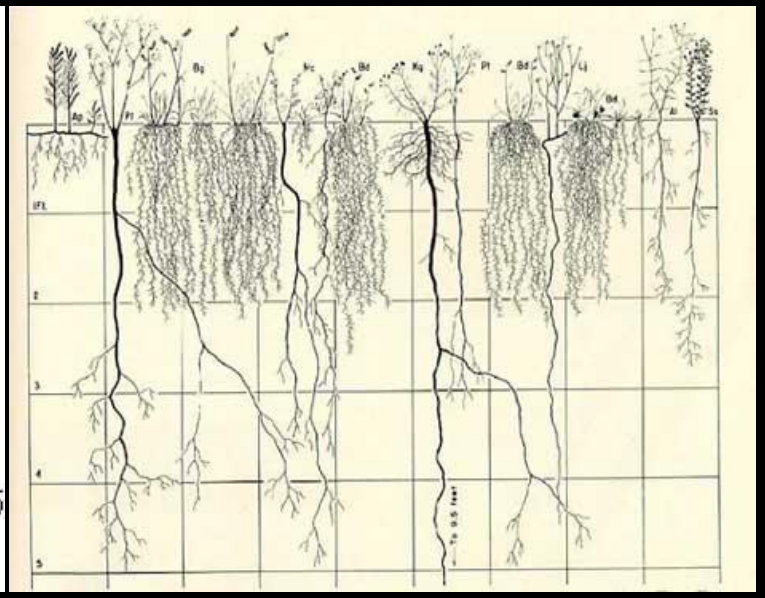
Nutrient Uptake Enhanced by Biodiversity in Grassland Ecosystems



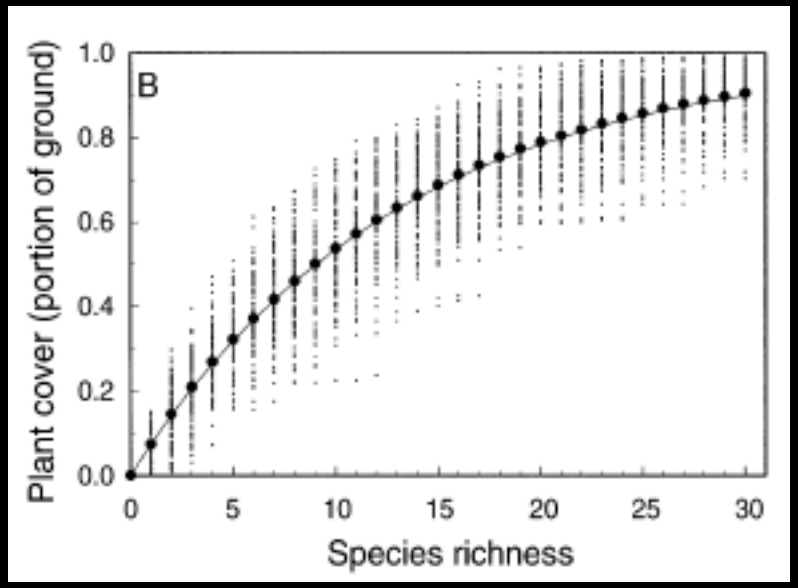


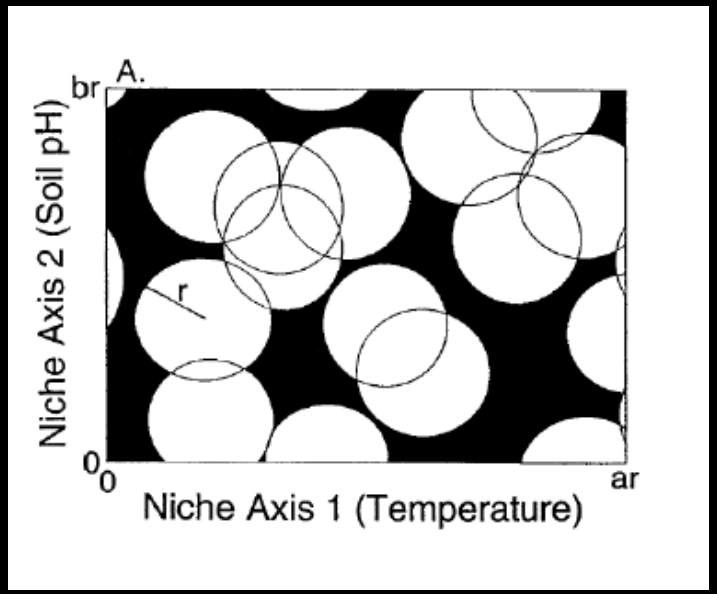
Better nitrate uptake with increasing plant diversity

Complementarity: Species yields are higher on average than expected on based on the average monoculture yield (Loreau & Hector 2001).

Communities will be more productive than the best monoculture (overyielding).

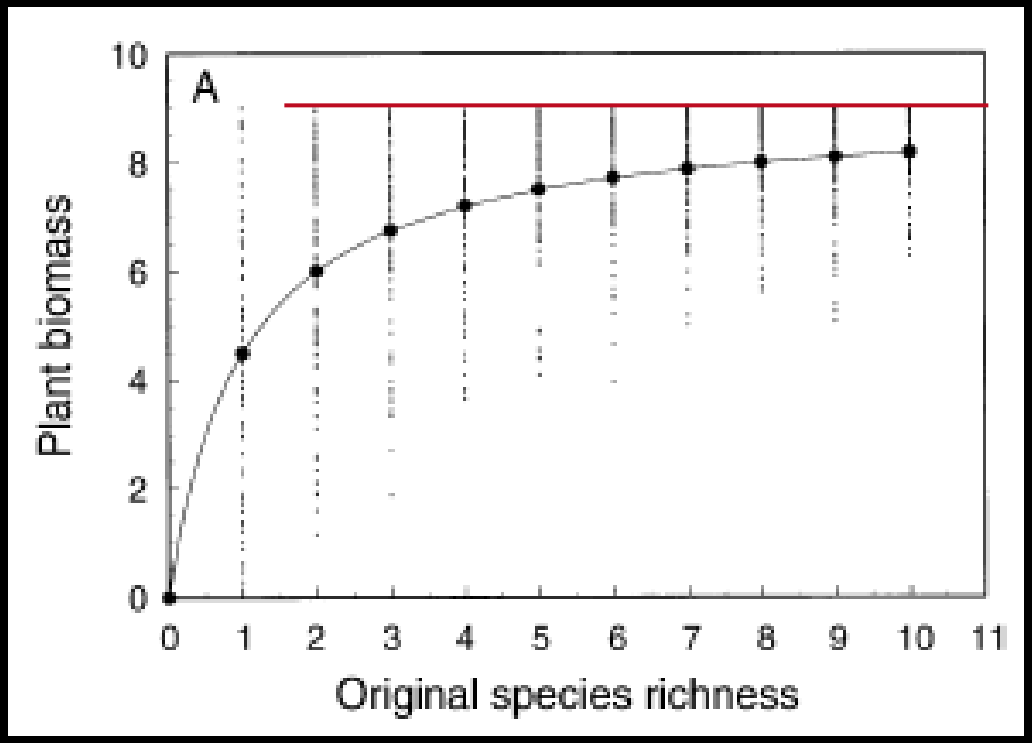
Complementarity due to resource exploitation





Tilman et al. (1997) PNAS

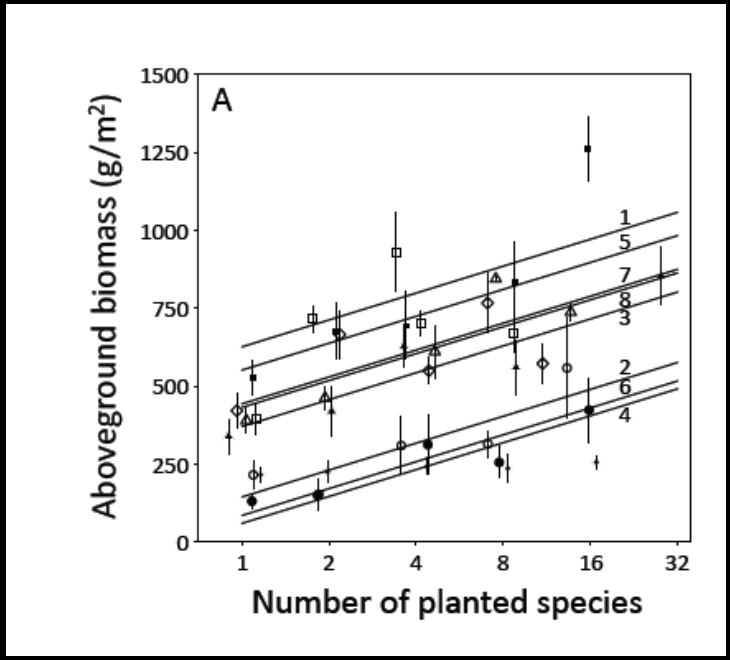
Selection effect: If species with higher than average monoculture yields dominate the mixture.



Best monoculture

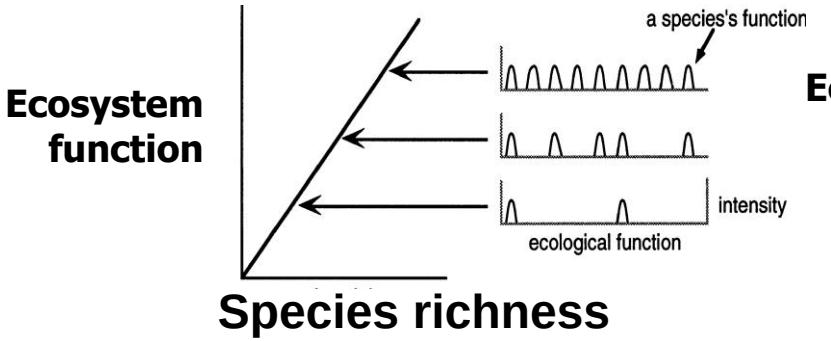
Productivity Influenced by Biodiversity in Grassland Ecosystems

Randomly assembled plant communities

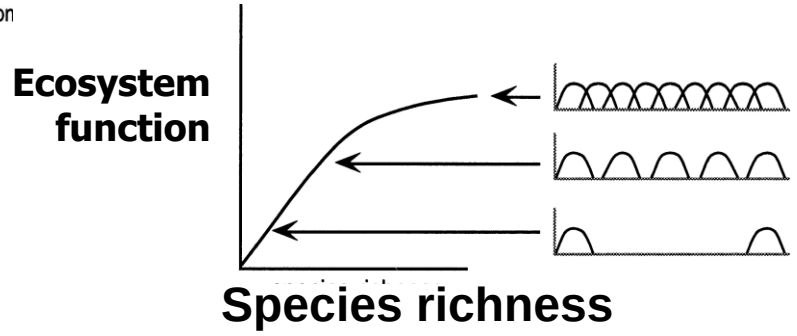


Early 'models' (circa 1980-90) relating diversity and functioning

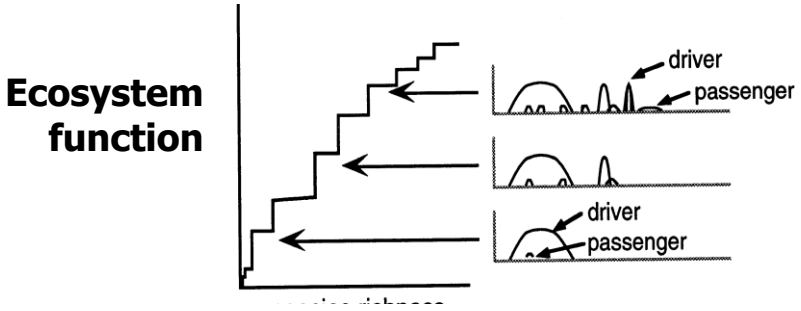
"Complementarity"



"Rivet" (Ehrlich & Ehrlich 1981)

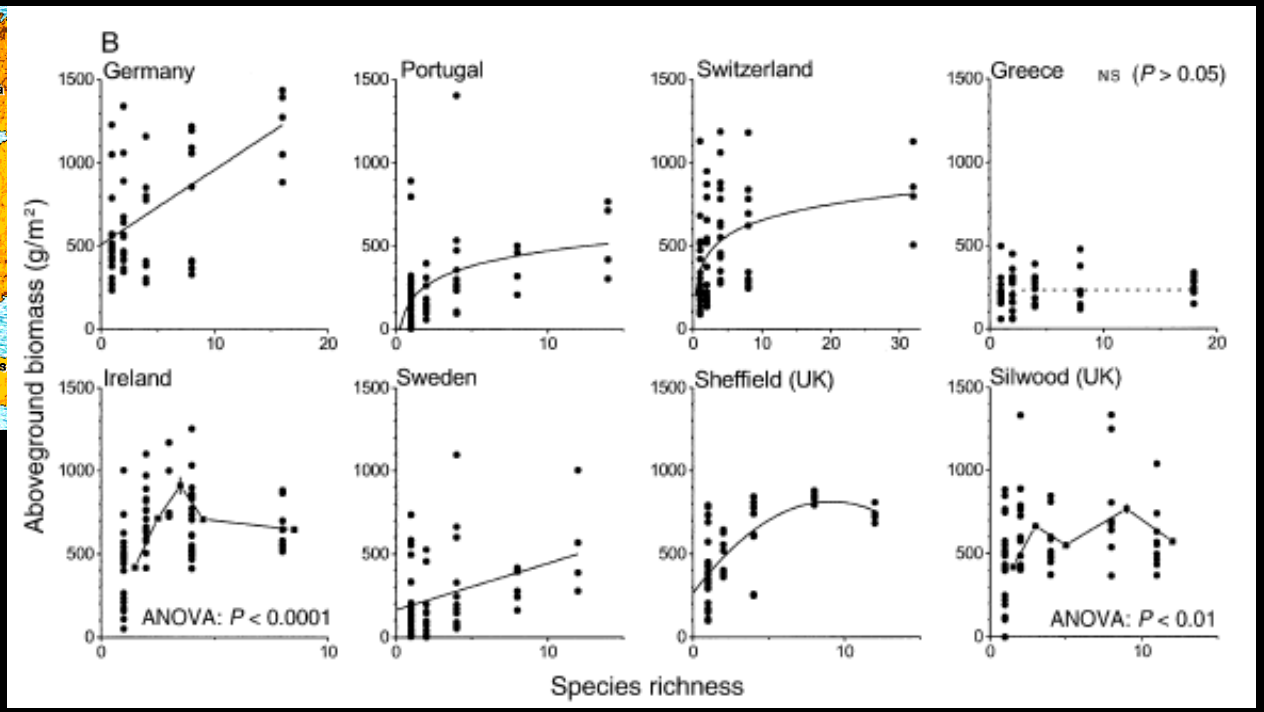


"Drivers and Passengers" (Walker 1992)



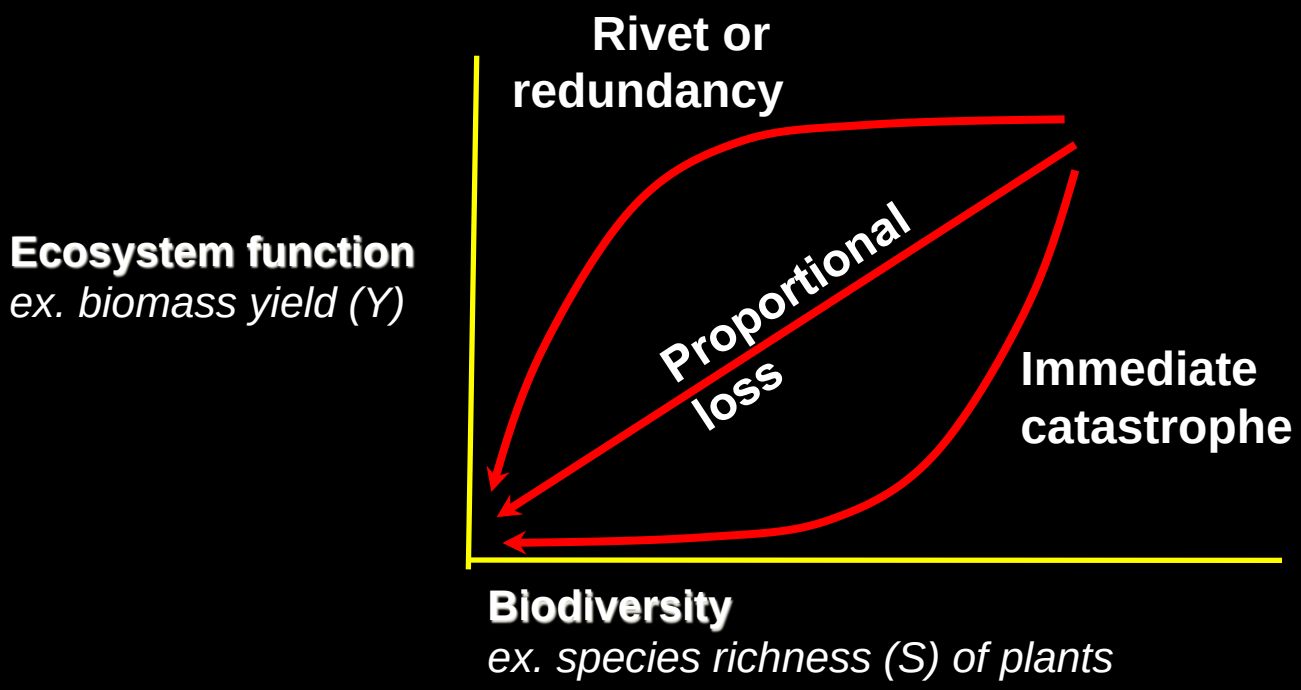
Across a larger spatial scale: the "Biodepth" experiment

Pan-European grassland experiment

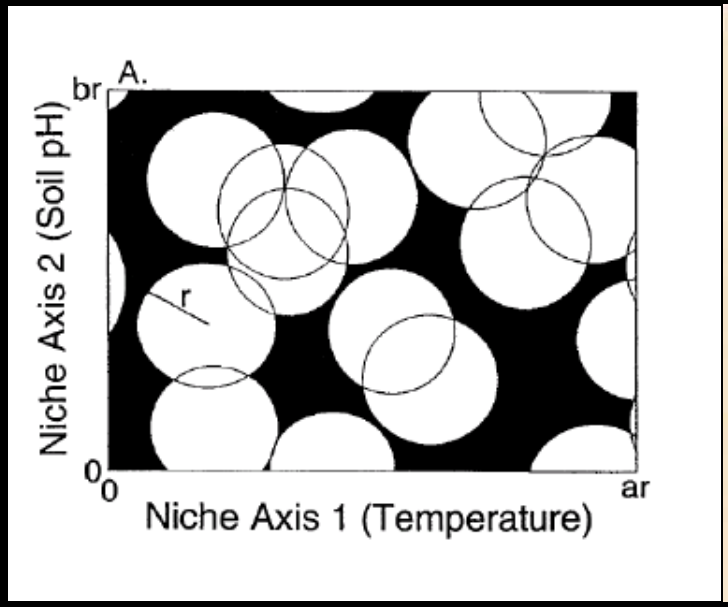


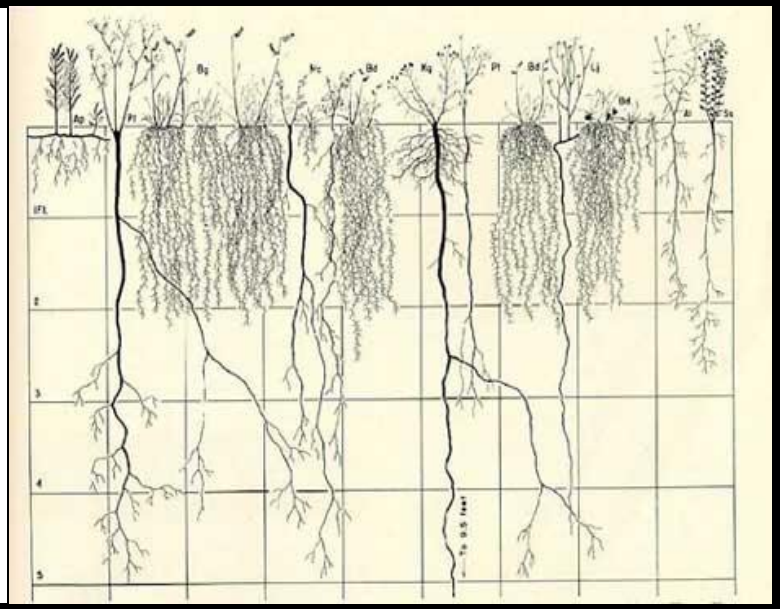
Hector et al. (2000) Science

What shape is the productivity richness relatonship in your data? Which model is it most consistent with?



What ecological processes might explain the relationship you observe in your data?





R code to generate linear model output and scatter plot with regression line (3/5)

Description of richness – productivity relationship and generating model (1/5)

Discussion of likely ecological process(es) (1/5)