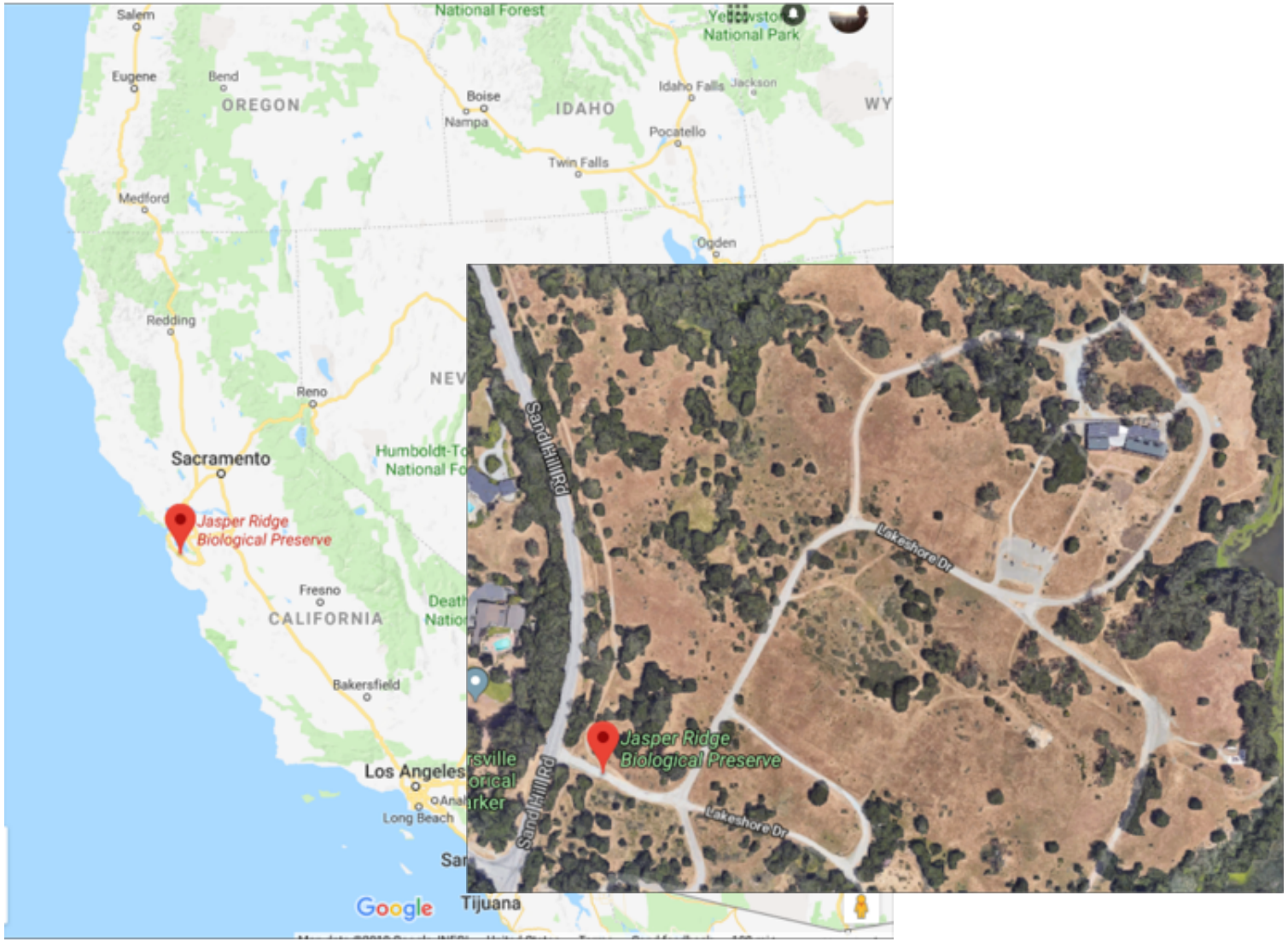
The Jasper Ridge Global Change Experiment

The Jasper Ridge GCE: location



Annual grassland
Mediterranean climate

The Jasper Ridge GCE: treatments

Treatments included all combinations

CO2 (FACE)
1. Ambient
2. 680 ppm

Temperature (heaters)
1. Ambient
2. Ambient + 1°C

Precipitation (sprinklers)
1. Ambient
2. 150% Ambient

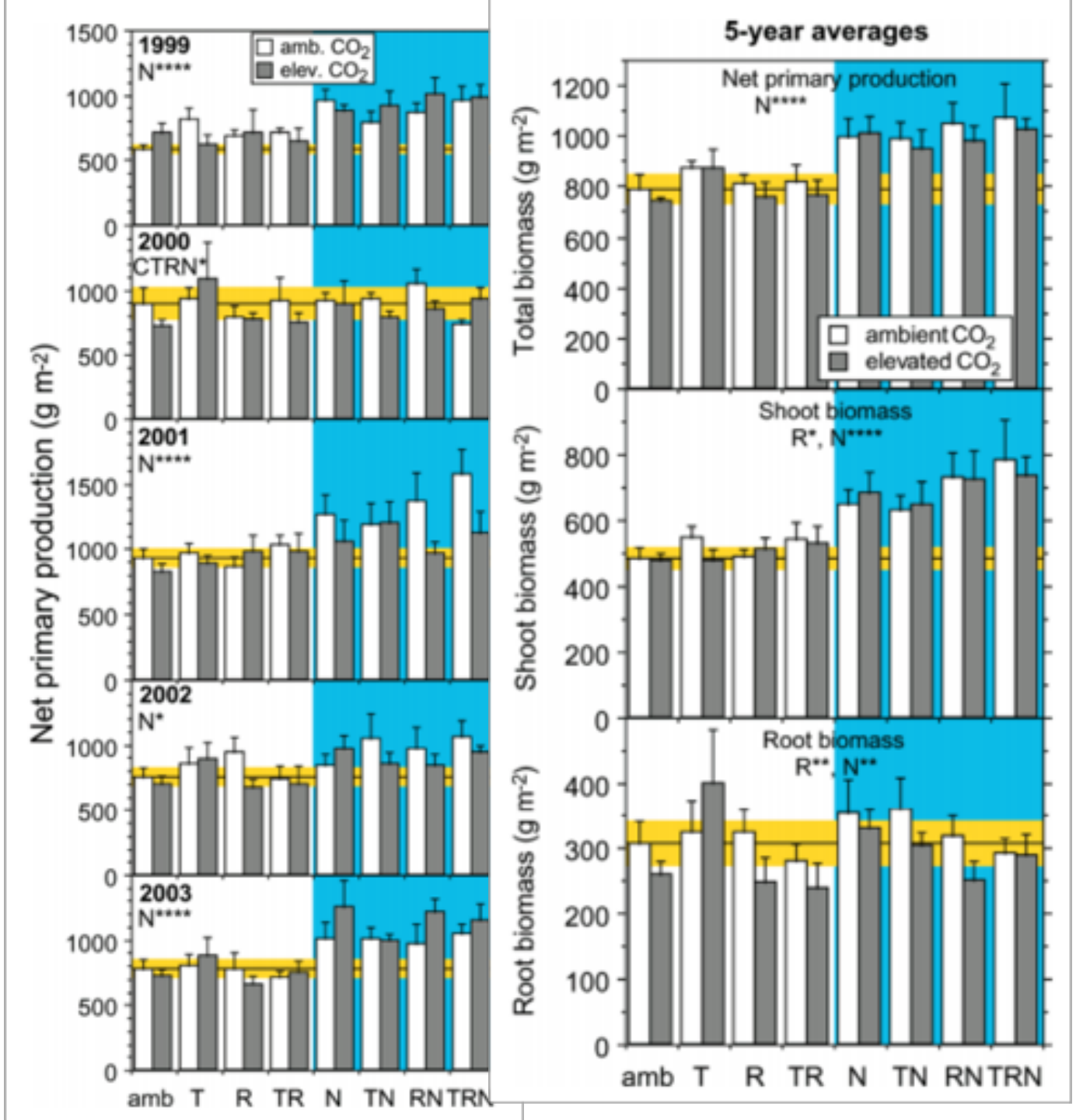
Nitrogen (fertilizer)
1. None
2. +5 g m^{-2} yr^{-1}

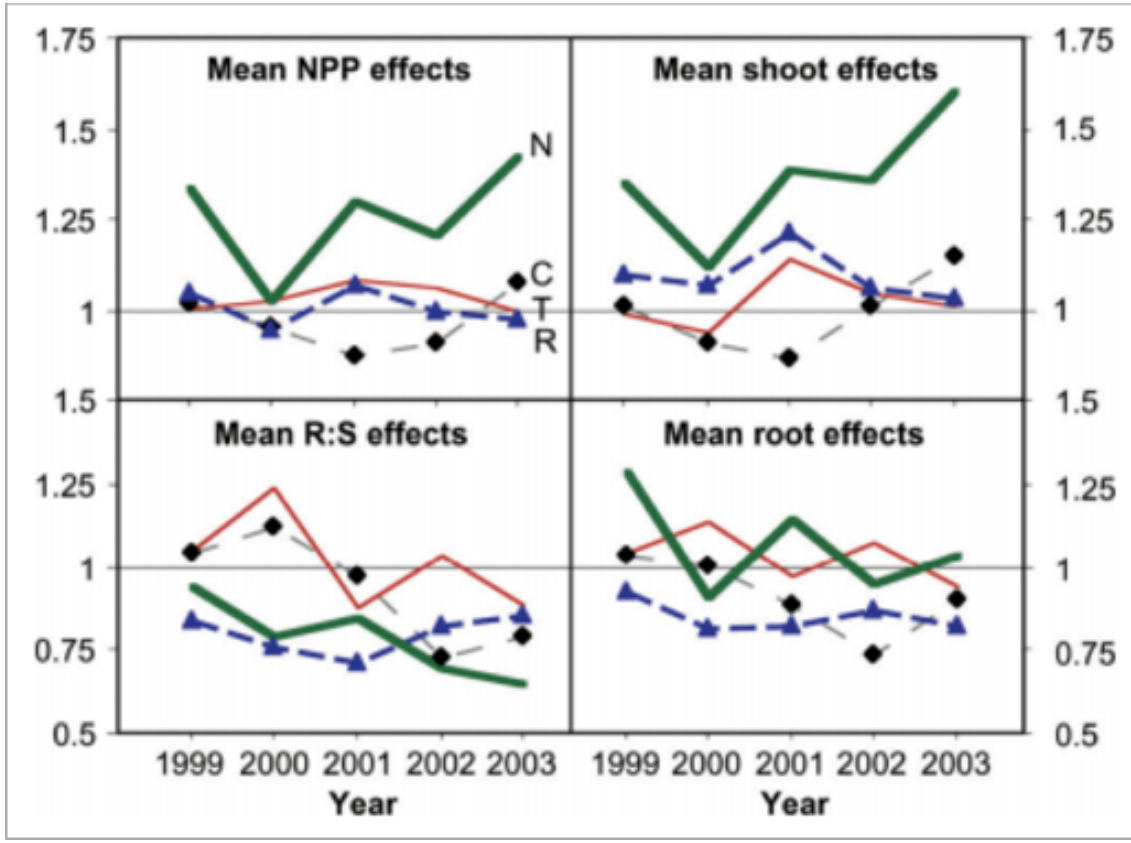
The Jasper Ridge GCE: measurements

- Root and shoot biomass
- Plant community diversity

Assignment: develop a hypothesis for how you would expect the treatments to impact the measured variables.

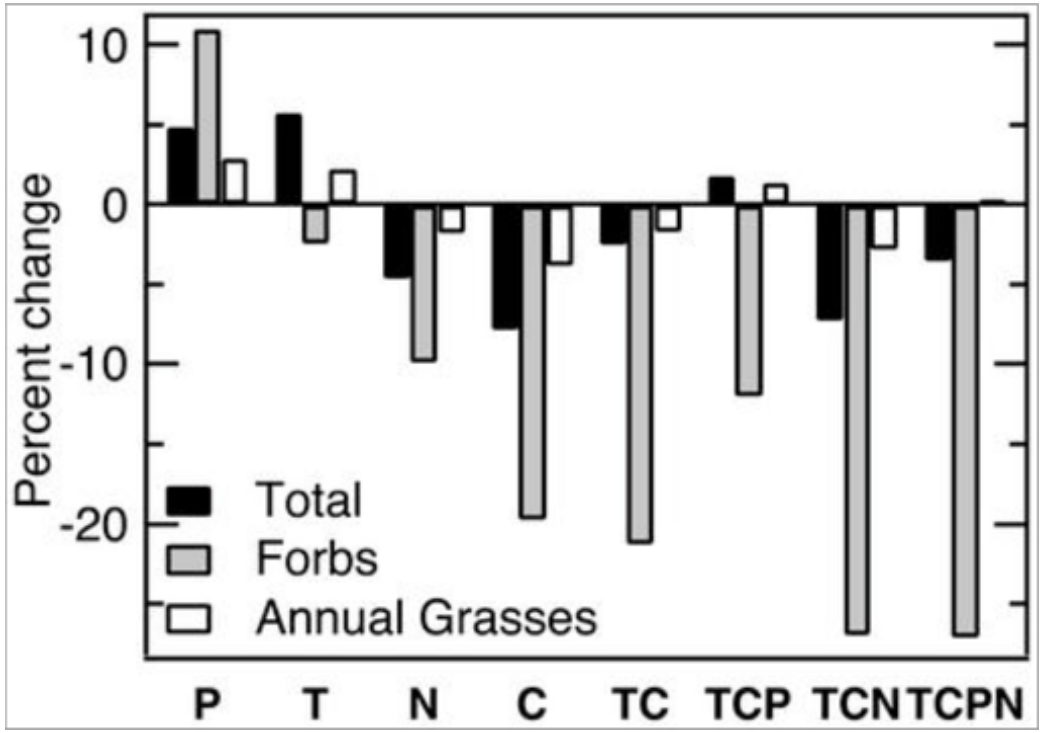
Biomass





Dukes et al. (2005)

Diversity



Zavaleta et al. (2003)

Table 1.

Plant diversity responses to single and combined global change treatments

Treatment	Level	*n*	Annual grasses	Forbs	Perennial grasses	Total
C	Low	64	6.0	4.0	0.35	10.5
	High	64	5.7	3.2*	0.47	9.7**
T	Low	64	5.8	3.6	0.34	9.8
	High	64	5.9	3.5	0.47	10.4
N	Low	64	5.9	3.8	0.39	10.3
	High	64	5.8	3.4***	0.43	9.8*
P	Low	64	5.7	3.4	0.42	9.8
	High	64	5.9	3.8*	0.39	10.3*
C + T	Low	32	5.9	4.1	0.36	10.3
	High	32	5.8	3.2***	0.59**	10.0
C + T + N	Low	16	5.9	4.4	0.24	10.7
	High	16	5.7	3.2	0.57	9.9
C + T + P	Low	16	5.9	3.8	0.62	10.5
	High	16	6.0	3.4	0.48	10.6
C + T + N + P	Low	8	5.9	4.3	0.35	10.4
	High	8	5.9	3.1*	0.54**	10.0

Diversity shown in mean number of species. Diversity means are ANCOVA-adjusted for preexisting differences among plots. C, elevated CO_2; T, elevated temperature; N, N deposition; P, precipitation. *, $P = 0.05$. **, $P = 0.10$. ***, $P = 0.01$.