

Preliminary findings of drought-induced changes to ecosystem processes across U.S. deserts

Timothy Ohlert, Mariah Patton, Scott Collins
University of New Mexico, Department of Biology

Email: tohlert@unm.edu

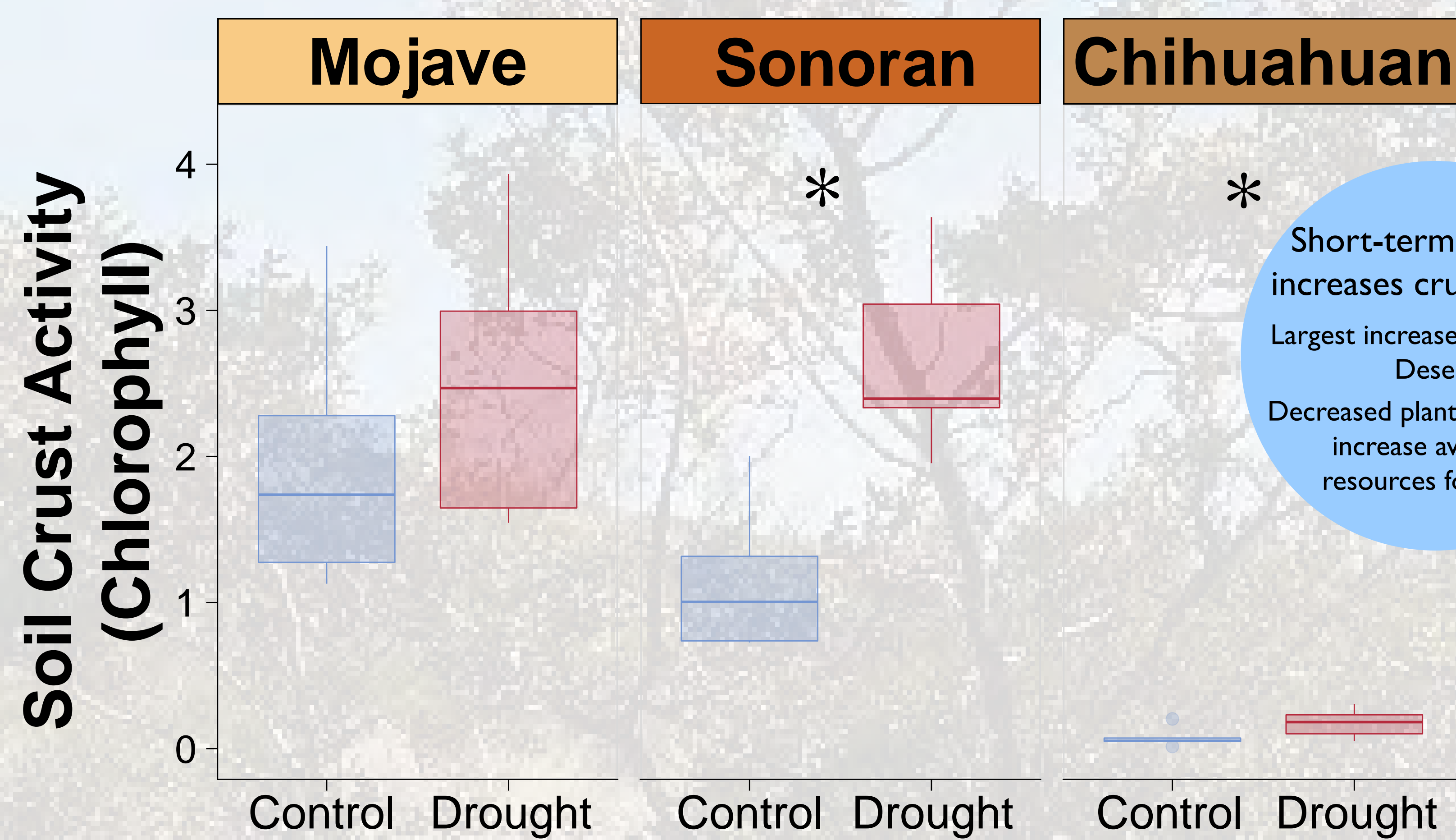
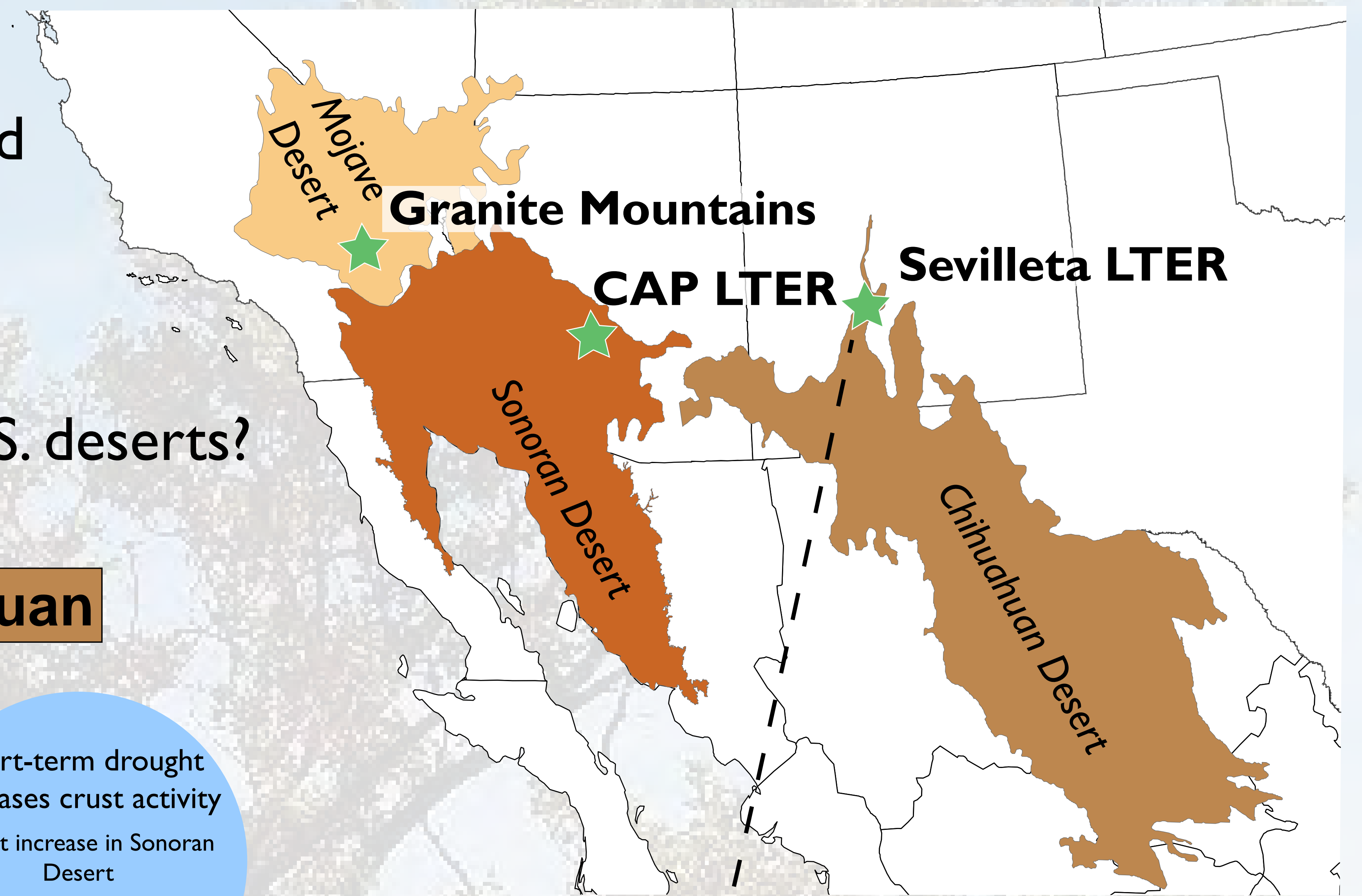
@tim-ohlert

Questions

1) Which ecosystem characteristics are affected by drought?

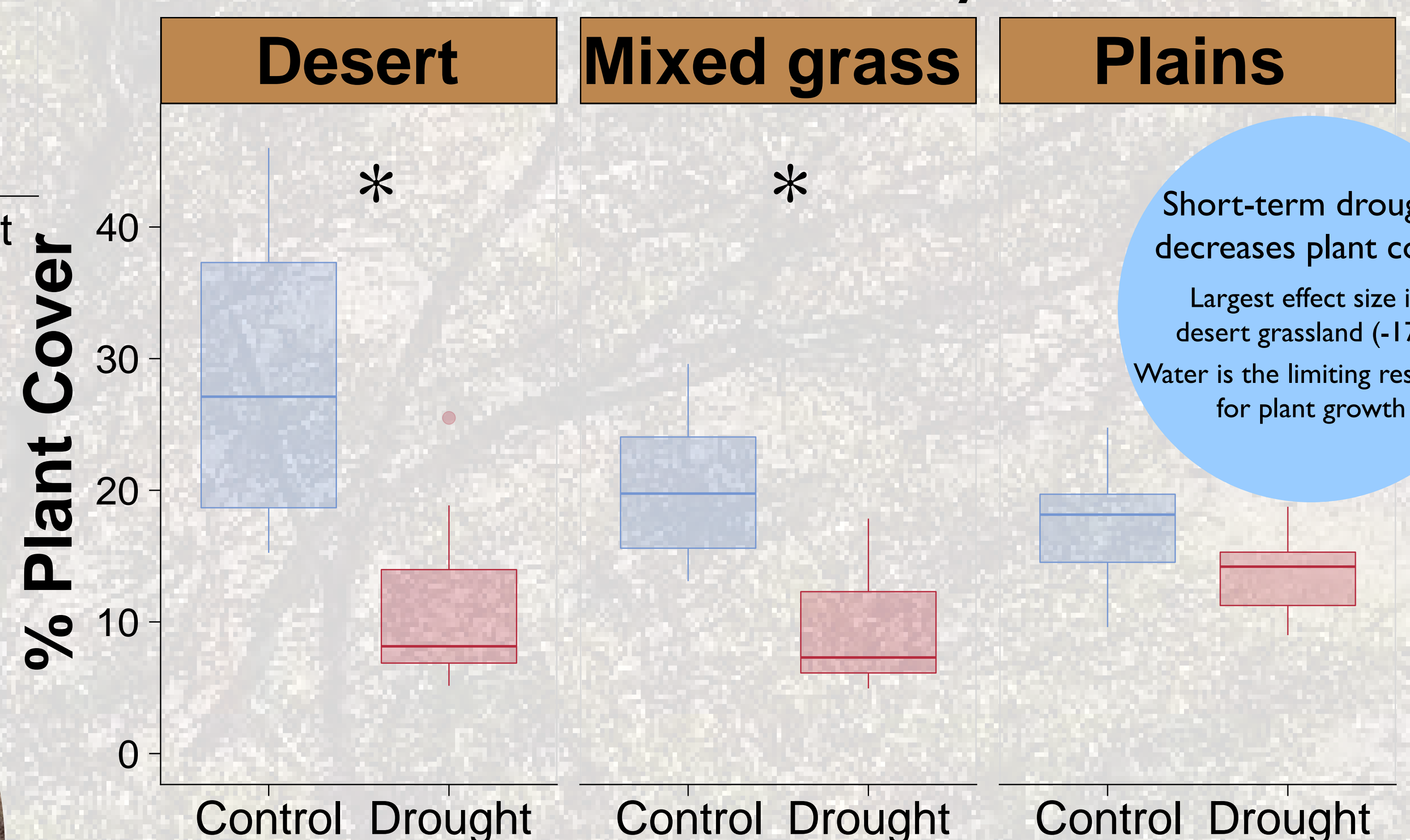
-Soil crust, plant cover, species richness

2) Are drought responses consistent across U.S. deserts?

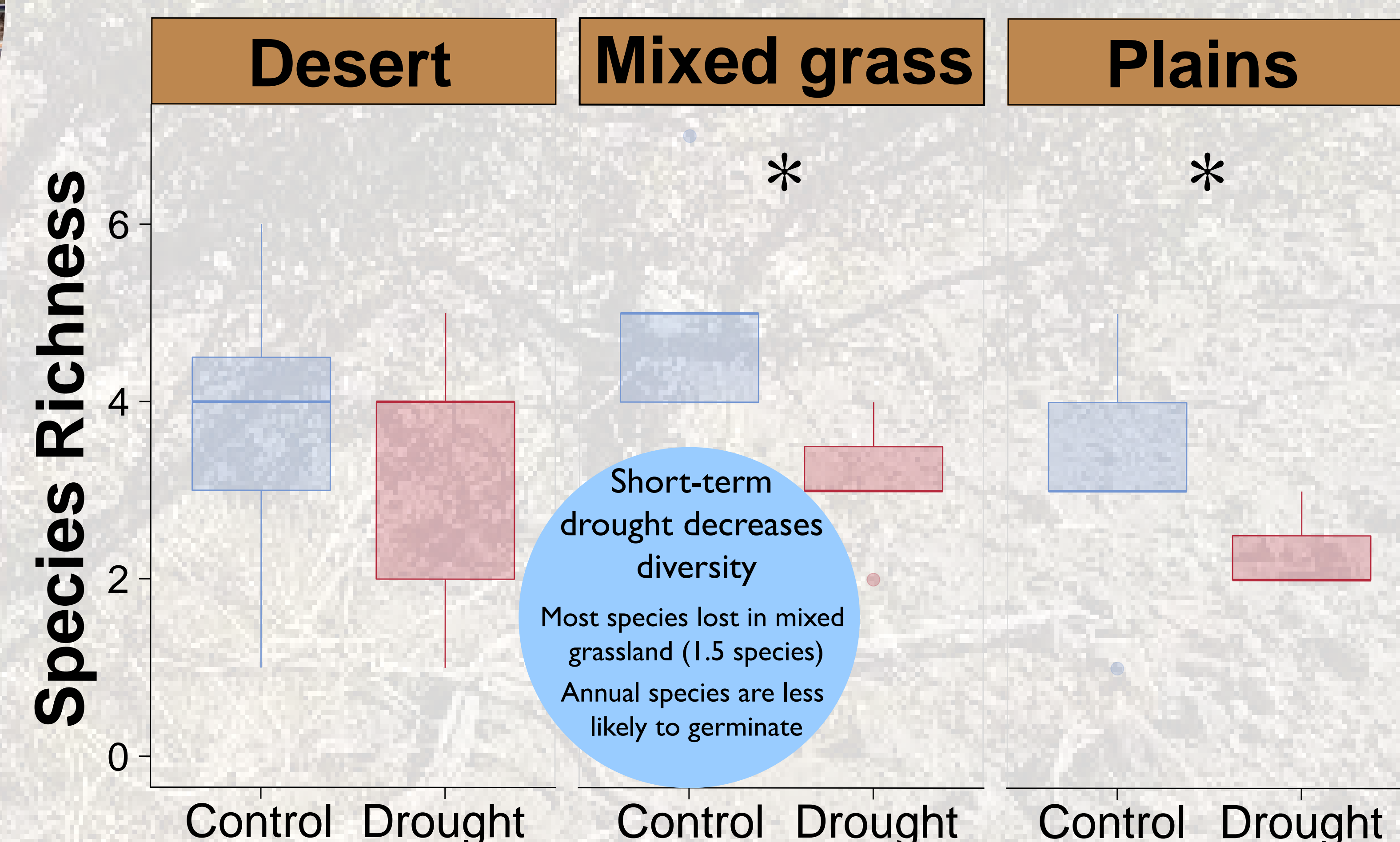


Short-term drought increases crust activity
Largest increase in Sonoran Desert
Decreased plant cover might increase available resources for crust.

Sevilleta only



Short-term drought decreases plant cover
Largest effect size in desert grassland (-17%)
Water is the limiting resource for plant growth



Short-term drought decreases diversity
Most species lost in mixed grassland (1.5 species)
Annual species are less likely to germinate

Experimental design

- 66% reduction of annual precipitation
- 2.5 x 2.5m plots
- 7 sites in the three hot deserts of North America: Mojave, Sonoran, Chihuahuan
- 7 replicates per site
- Drought treatment start date: Fall 2018/Spring 2019



Future Directions

- Drought treatments will continue until 2022 to assess drought severity effects
- Post-drought recovery monitoring will test ecosystem resilience to drought
- Data will be used in global analyses with the Drought Network

Acknowledgements

Thank you to Maricopa County Parks, Sevilleta National Wildlife Refuge, UC Natural Reserve System for use of their property and facilities. Additional thanks goes to the Sevilleta and CAP LTER programs and the Granite Mountains Desert Research Center for their continued support.

