

# Geology, Society, and Justice: A place-based geoscience class to recenter land justice in geoscience education

Cameron Chavez Reed\*, Lindsay Lowe Worthington *Department of Earth and Planetary Sciences*

\*creed5@unm.edu



CENTER FOR ADVANCEMENT OF SPATIAL INFORMATICS RESEARCH & EDUCATION

## Why we need land justice in geoscience

Whose identities have been omitted from place-building? Construction of place is important in both relations with land(scapes) and settler colonialism (Calderón, 2014).

**Transformations of land into commodity shape our relations with places and landscapes**

**Intersections of Land and Place in the Arid SW**

Explanation:  
 - Indigenous land cessions  
 - Land distributed through the Morrill Act  
 - Land grant institution  
 - River

Navajo generating station  
 Central Arizona Project Arizona Canal  
 Church Rock mine site

Acequia near Embudo

Lands of the Southwest with major land grant universities including parcels of land that were stolen to fund them. Data from the database created as part of the Land-Grab Universities database published by High Country News.

Colonial transformations of lands are intimately connected to everyday life and our roles as educators in settler colonial institutions.

Data from the investigation by Robert Lee, Tristan Ahtone, Margaret Pearce, Kalen Goodluck, Geoff McGhee, Cody Jeff, Katherine Lanpher and Taryn Salinas (2020)

Geoscience should welcome the work of many beyond the field that seek to undo the harm of centuries of settler colonialism and environmental degradation and who have long understood the inseparable (and intersectional) nature of climate justice and decolonization.

- Unit based: transferrable to other courses
- Seminar style and non-hierarchical
- Field components: Petroglyph NM, Valle del Oro, Chaco Culture...
- Invited lecturers: Dr. Crystal Tulley-Cordova

Navajo Nation Water Access Coordination Group

ENTERING ENERGY SACRIFICE ZONE

Yucca Mountain

Powell, 1875

**Recenter land and people in discussions of place**

Passion for justice and problem solving

Apply what is learned to **personal connections**  
Futures thinking

Learn (listen/share) stories of landscapes  
Past, present, and future

Synthesize other ways of knowing and methods

Cultivate a sense of **place, identity, and belongingness**

Practice **reciprocal** relations with land and place

Yadīthi - All Darkness Above (Sky)  
 Near-Surface Environment, Life  
 Natural Cycles  
 Natural Cycles  
 Nehosdzáán - Ground (Earth)

Semken and Morgan, 1997

**EPS 300/520**  
 GEOLOGY, SOCIETY, JUSTICE

**PLACE**

just water resilient community decolonized climate energy land

Practices in Unmapping i.e. Iralu, 2021

What do radically different geoscience futures look like?

## Geoscientists are fundamentally storytellers

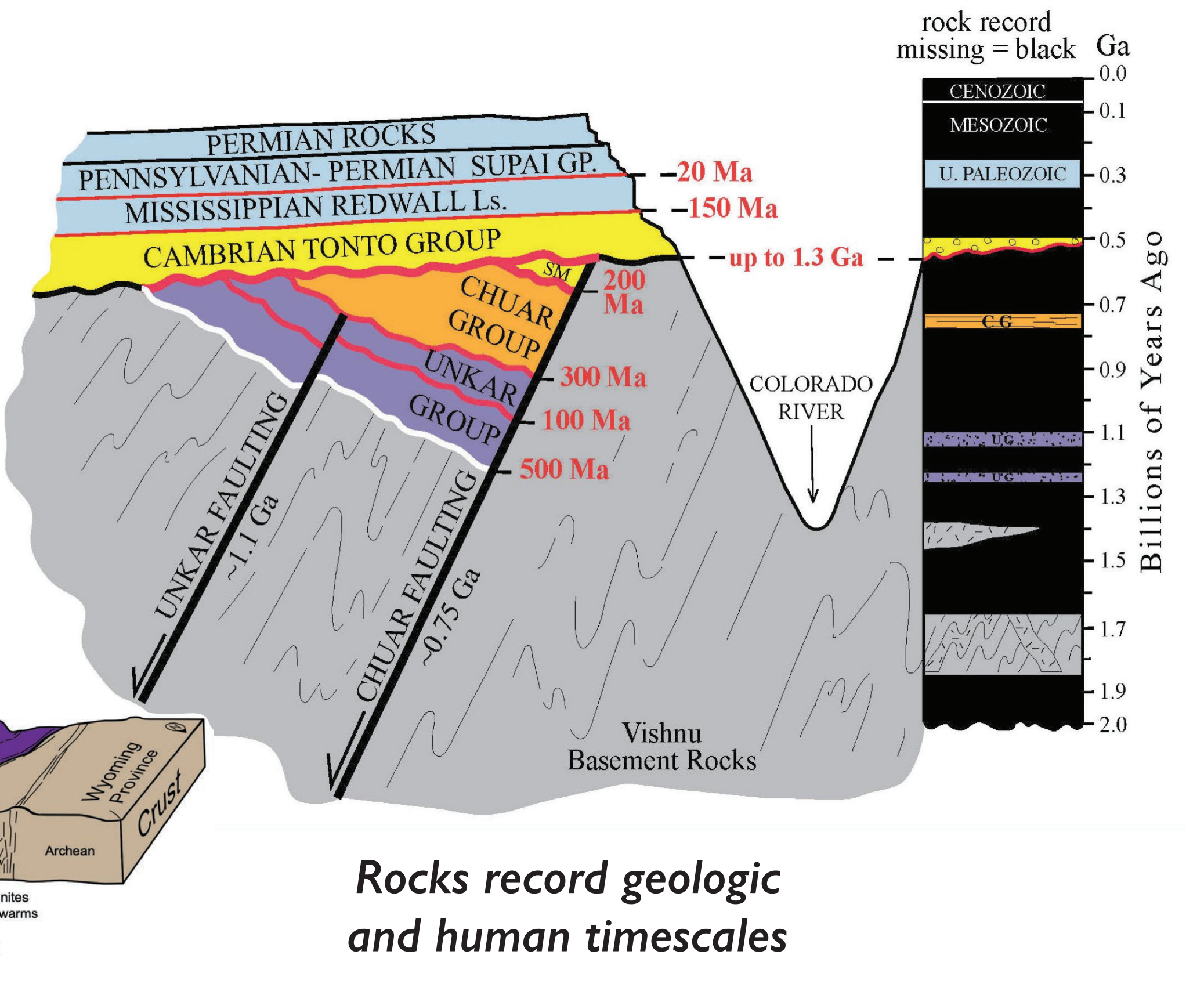
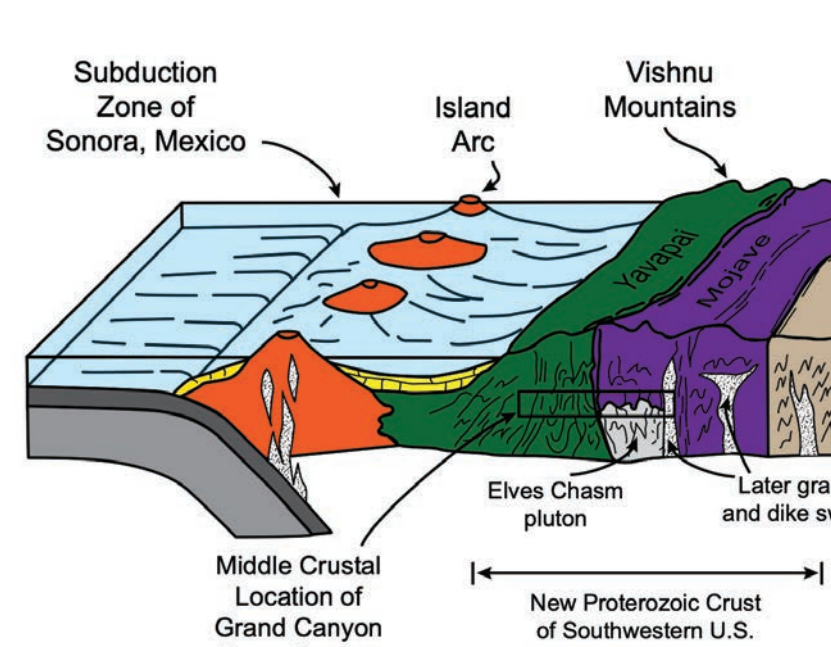
**Diversity Makes Our Science Better**

**Diversity Is Necessary to Build Resilience And Protect Our Kin From The Climate Crisis**

Reject DEI as tools to maintain academic structures



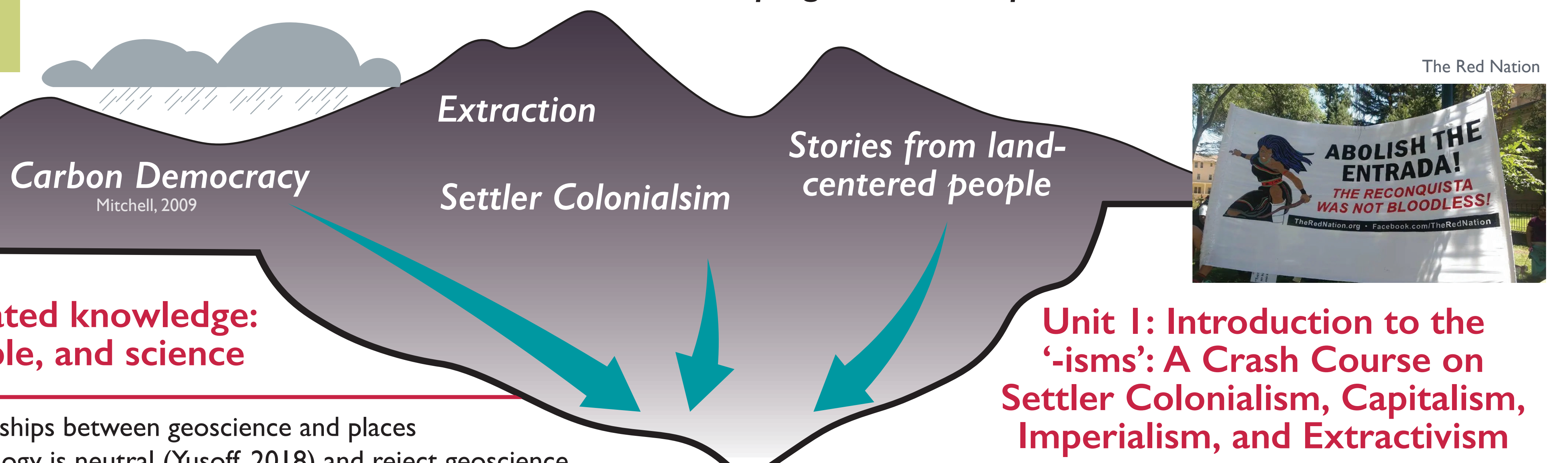
Trail of Time (ToT) at Grand Canyon National Park, Karlstrom et al., 2021. Collaboration between the NPS and UNM (Karlstrom and Crossey) and ASU (Semken).



Rocks record geologic and human timescales

## Carving Cultures and Landscapes Geology and Place

The headwaters: Historical context that contributes to shaping the landscape



### Unit 2: Place-situated knowledge: Land, place, people, and science

- Examine the relationships between geoscience and places
- Explore how no geology is neutral (Yusoff, 2018) and reject geoscience as a neutralizing study of land
- Invited speakers (Crystal Tulley-Cordova, Diné) to speak on connections between land, people, and place in geoscience with a SW perspective.

### Unit 3: Environmental Humanities and Justice

### Recenter land and people in discussions of place

Passion for justice and problem solving

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Semken and Morgan, 1997

Querencia: that which gives us a sense of place, anchors us to the land, and makes us a unique people

Juan Estevan-Arellano

### Unit 4: Flowing Cultures and Landscapes: Water and Place in the SW

Water is the nexus of geoscience, culture, and the bioregional landscape in the SW

Leverage the knowledge of Indigenous and Manito communities of NM

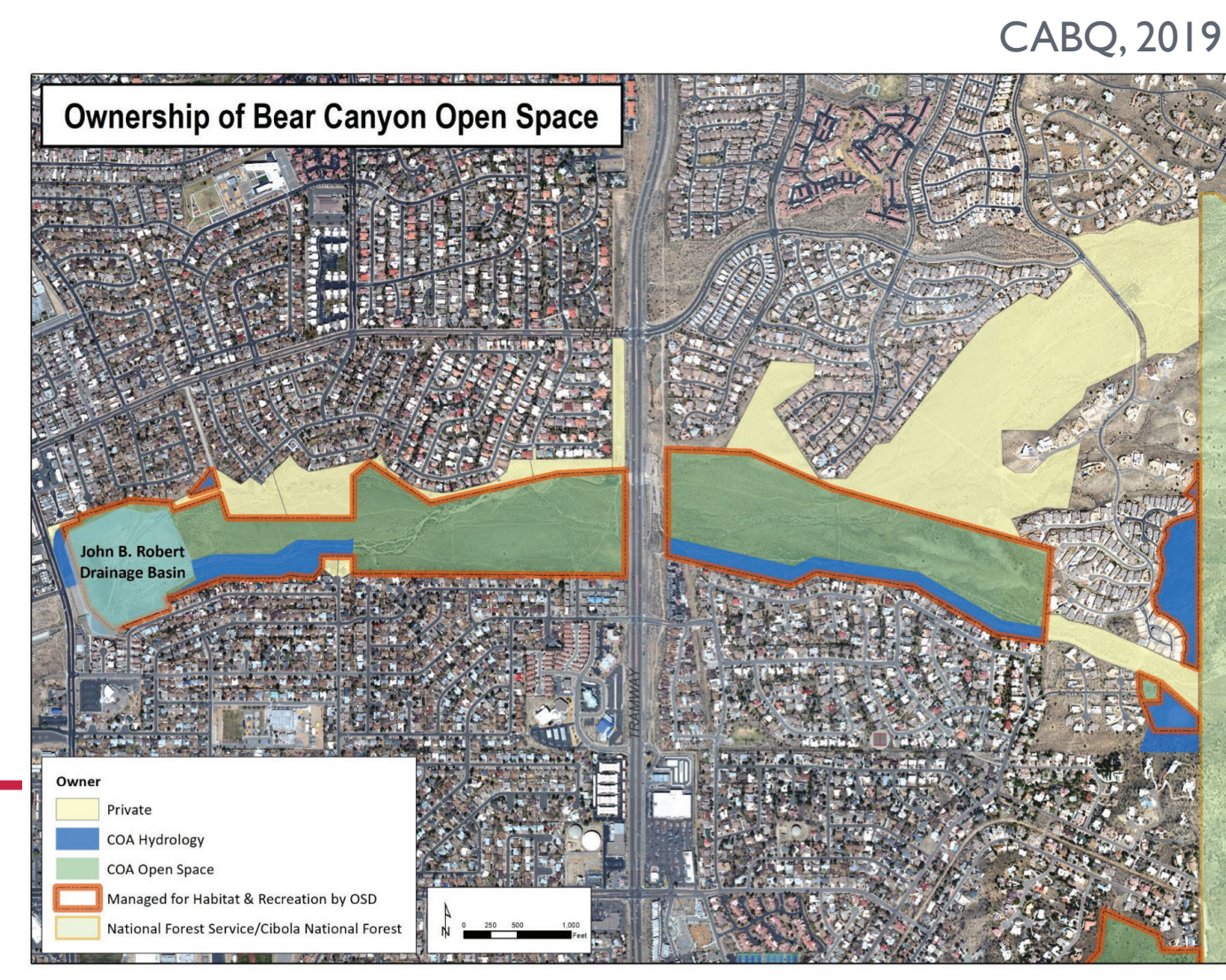


Waterways are sensitive and evolving systems, clearly demonstrate the interconnectivity of land, people, and place

Relations with water emphasize reciprocity

### Unit 5: Place-based Research and Futures Thinking in Practice

Geophysical tools in place-situated learning to connect issues of societal importance with technical experience and data.



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See prior year's syllabus

Share feedback and ideas!

