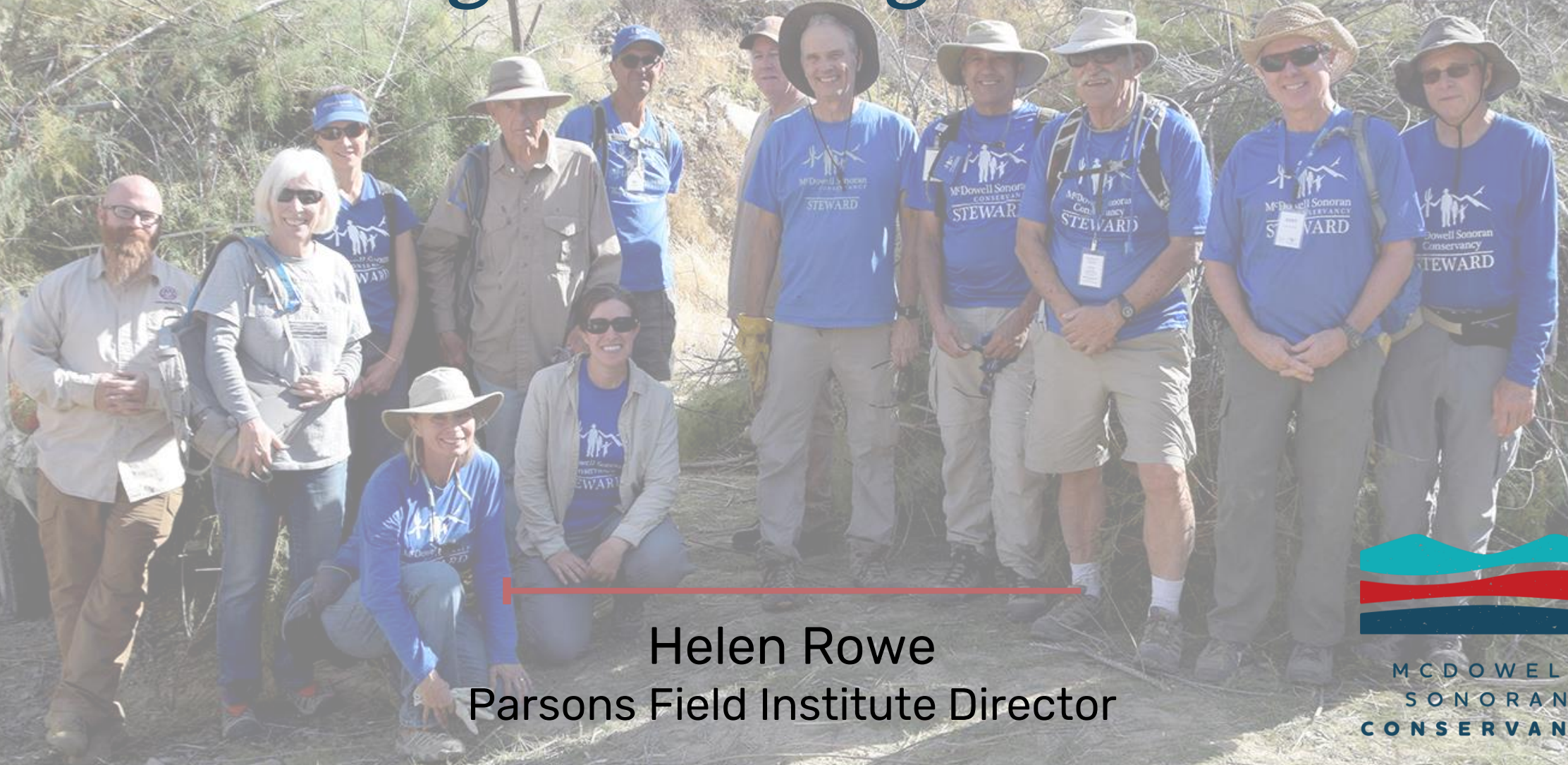


Parsons Field Institute Informing Best Management Practices



Helen Rowe
Parsons Field Institute Director



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Research Priorities

1. Assess the impact of urban stressors and climate change on Preserve resources.
2. Improve best management practices for the Sonoran Desert and other arid lands.



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Why It Matters

Arid lands are important

- >40% of world's land surface
- Home to >35% of world's human population
- Support abundant wildlife



Why It Matters

Natural arid lands are disappearing

- Development
- Food production
- Degradation

Exacerbated by climate change



Credit: Lynne Russell

Why It Matters

Protecting/restoring arid lands challenging

- Water limited
- Inter-annual variability (drought)
- Understudied system



The Importance of the Preserve

Model site

- Past degradation in now protected area
- Continued recreational use by people
- Urban and natural pressures

Can provide data-driven
recommendations



What We Do

Priority 2: Improve best management practices for the Sonoran Desert and other arid lands.

Non-native
plant control



Restoration of
degraded lands



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Non-native plants spread quickly

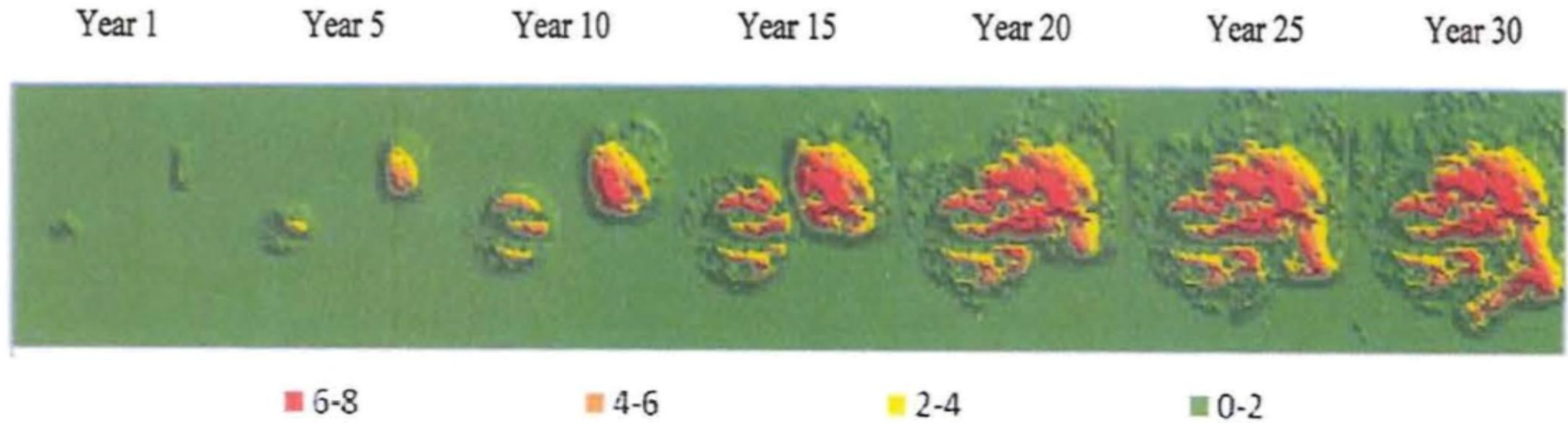


Figure 1 Buffelgrass Population Density in Years 1, 5, 10, 15, 20, 25, & 30

Figure credit: Logan Simpson Design

Fill in natural open spaces

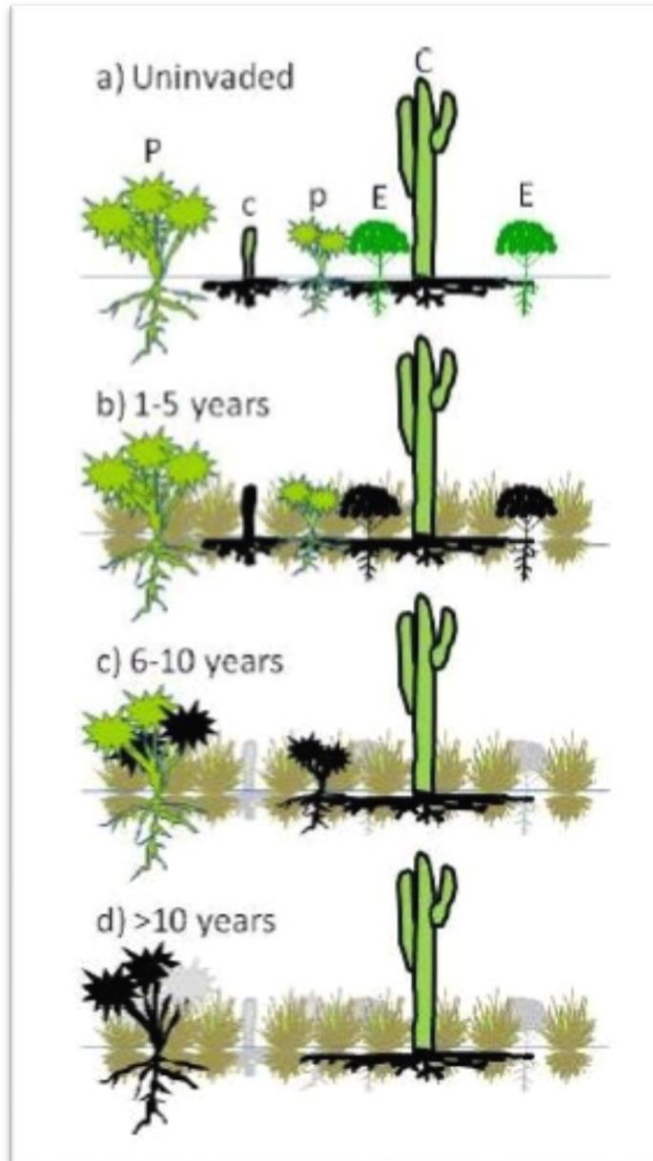


Figure credit: Logan Simpson Design

Increase fire risk



Photo credit: McDowell Mountain Park



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Displace native plants



Photo credit: NPS



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Displace native animals

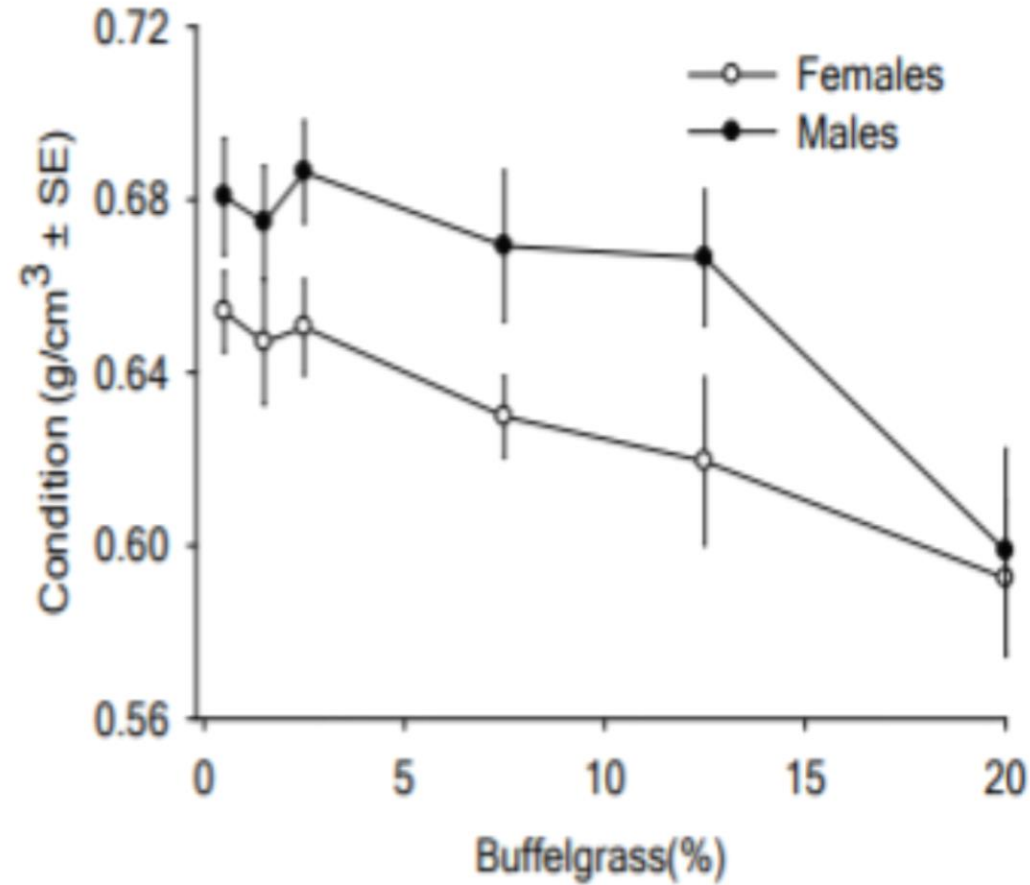


Figure 1. Average condition of adult tortoises across a gradient of buffelgrass cover

Figure credit: NPS

Difficult to control

- Widespread, remote locations
- Regrowth from roots
- Multi-year effort required



Photo credit: US Air Force



Photo credit: NPS



Photo credit: NPS

Our Non-native Plant Projects

- Mapping distribution
- Controlling populations
- Researching best treatments
- Educating the public



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What is Ecological Restoration?

- “The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.” –Society for Ecological Restoration



What Types of Lands?

Examples

- Old or illicit trails and roads
- Off-road vehicle playgrounds
- Widened trails, unauthorized & spider trails
- Past fires or grazing
- Past other use (agriculture, development)



Why is Restoration Important?

- Combats habitat degradation and fragmentation
- Improves ecosystem functioning
- Increases native plant and animal diversity



Challenges

Huge areas

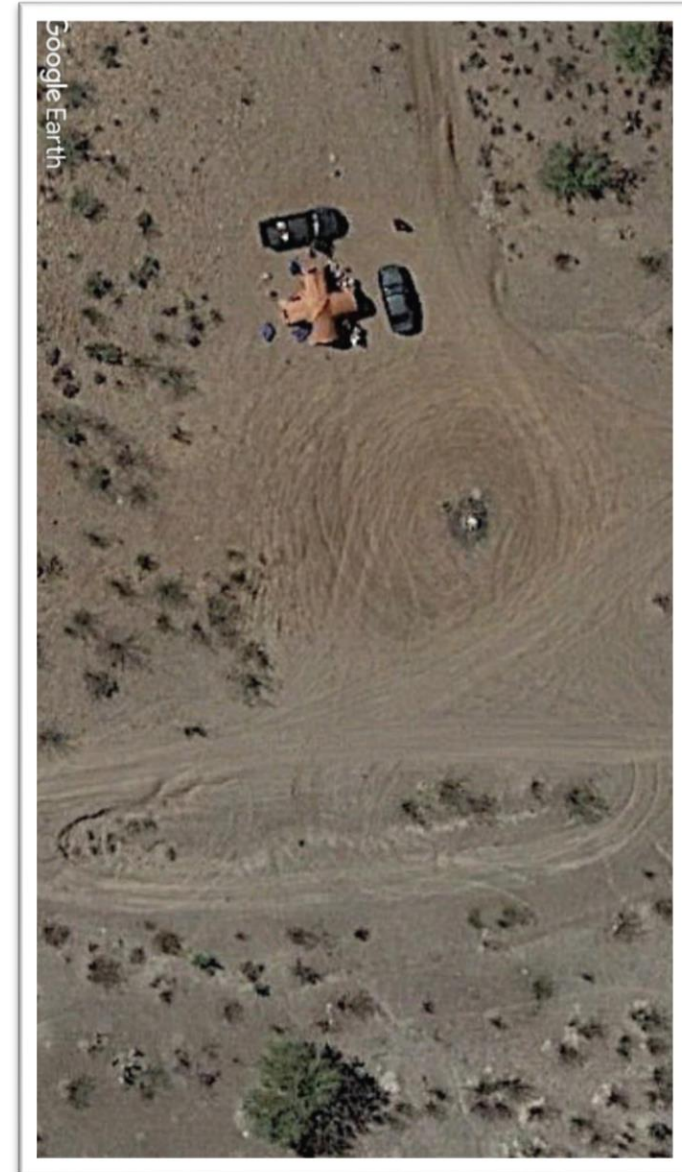
- Difficult to identify and prioritize restoration sites

Logistical constraints

- Lack of available materials/personnel

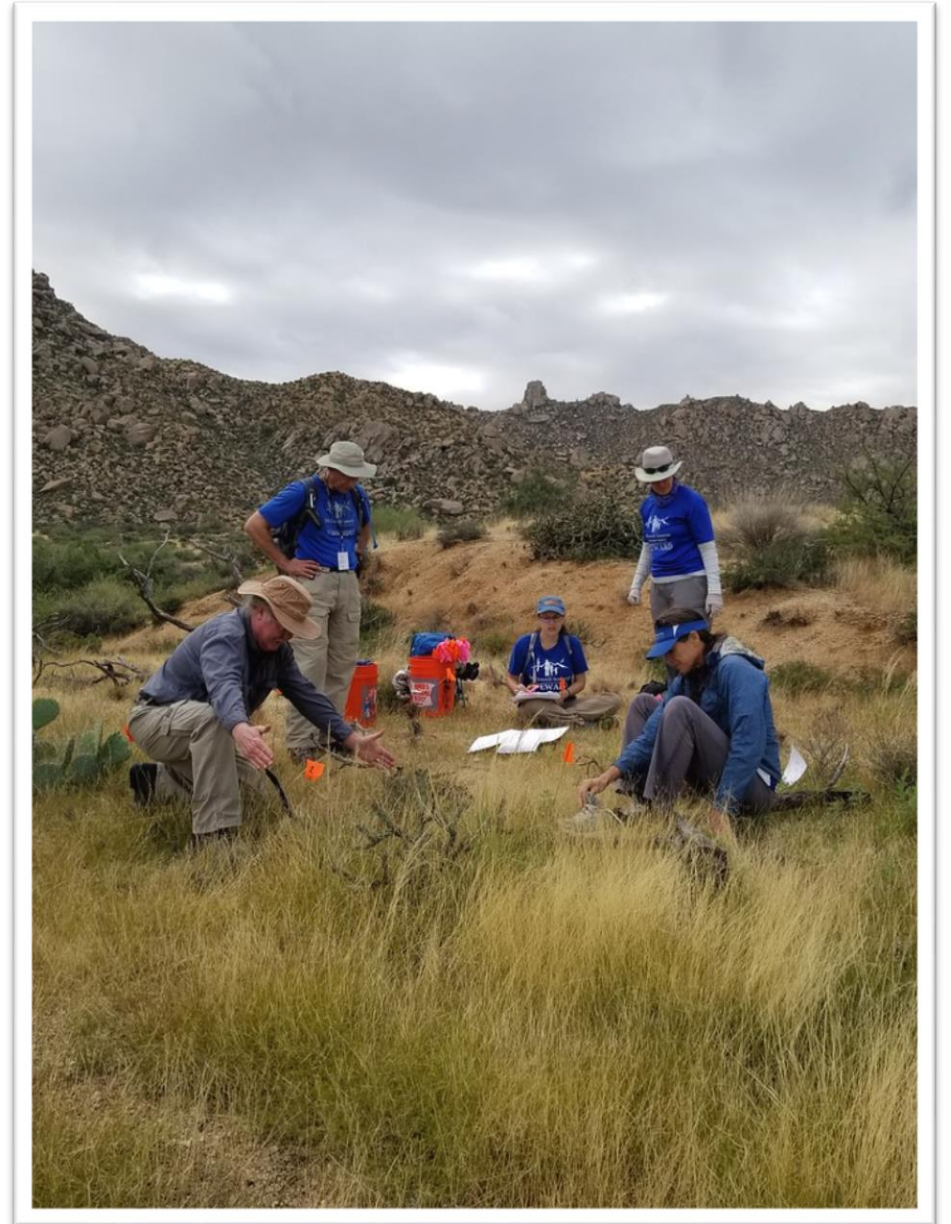
Natural barriers

- e.g., climate, drought



Our Restoration Projects

- Mapping sites
- Determining efficacy of past treatments
- Researching best treatments
- Re-establishing soil crust



And now for the presentations!

- Non-native plants
- Ecological restoration

