

### Why Field Science?

Field learning is exciting, engaging, place-based. Are field-based scientific experiences impacting student motivation to be good science stewards, especially on public lands?

Student learning “in the field” can change lives and alter career courses for young people. But what do students take away from such an experience, especially on public lands such as state or national parks?

**Major Question: How does field paleontology impact student perception of science stewardship on public lands?**

### Setting the Stage

Each year, our freshman students participate in our experiential education rite of passage: a field paleontology dig near Barstow, California.

Freshman students spend 2 days in Rainbow Basin Natural Area where they sleep out under the stars, hike and prospect for fossils under Bureau of Land Management (BLM) permit. This is the first known study of this trip’s impact.



**What is Science Stewardship?**  
Caretaking  
Conserving  
Communicating

**Did You Know?**  
Two major national monuments have been shrunk by half in the U.S. in the last 2 years.

How are high school learners being affected?

### Methodology

1. Likert-style survey, pre- and post-field experience (12 total survey questions) (N=78 treatment group); comparison group (N=19) elected 2nd year paleontology course
2. Student self-reflections post-field experience
3. Student interviews and one teacher interview
4. Comparison of paired t-test and Fisher’s Exact Test for surveys; thematic analysis for self-reflections and interviews

Themes	Total	Percentage
Persistence	28	29.5
Failure	8	8.4
Learning in Nature	27	28.4
Conservation	14	14.7
Relaxation	10	10.5
Empathy and Collaboration	8	8.4
Total response items	95	

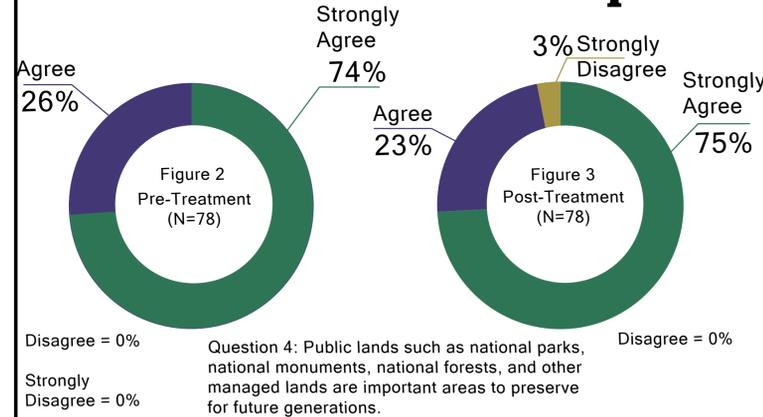
Figure 1  
Thematic Analysis of Post-Treatment Written Responses for Female-Identifying Students

### Thematic Analysis of Combined Male and Female (Total) Group

### Small Table of Fisher’s Exact Test p-values

### Quote from a teacher interview

### Results: Treatment Group



### Results: Comparison Group

### Student Quotes

**Q: How does looking for fossils on public lands make you feel?**

**A: “Happy! Just going into nature and like seeing stuff that could [be] dated back to a long time or if they’re just recent, that’s pretty cool!”**

**“On this trip, I was able to put myself out there and try something new, [which] I wouldn’t have normally done. We were unable to find any huge fossils (only snail shells) so I understand how hard it must be to sit out in the hot sun for hours with just water. It takes a lot of patience.”**

**“Fossils always seemed far away from me. I never expected to find a fossil by myself.”**

**“On the rare occasion that a real fossil is found, the feeling is unforgettable. The scientific findings that you make yourself [are] worth all the sun burns, heat exhaustion, and pain.”**

**“One thing that stood out to me was the fact that we were camping and looking for fossils on federal land. This means that this is the government’s land, and we are bound to protect it and respect it.”**

**“It is important to remember that we must take the responsibility to preserve the fossils on the land for future generations.”**

### Conclusions and Next Steps

### References and Acknowledgements

Barstow Syncline Image: Wikimedia Public Domain