

BLAST FROM THE PAST: ORGAN MOUNTAINS HISTORICAL ECOLOGY







RESEARCH QUESTION

Have plant communities in the Organ Mountains shifted in elevation over the past century in association with climate change and land use changes?

INTRODUCTION

- Climate change is altering plant community composition and distribution globally, with serious implications in the arid southwest United States¹.
- Plants generally advance in elevation where topographic complexity and montane weather systems ameliorate climate-induced drought^{2,3}.
- Understanding these processes is essential for preparing for future ecological conditions, yet predictions remain unreliable⁴.

OBJECTIVES

- Inventory existing plant species occurrences through time in the Organ Mountains
- Evaluate changes in plant community composition and habitat attributes in space and time.
- Match historical and modern weather and climate conditions with plant community composition.

IMPLICATIONS & FUTURE DIRECTIONS

- Protection of socio-ecological natural resources
- Awareness of biodiversity loss in study area.
- Protection of tourism related ecosystem services
- Inform conservation and restoration
- populations

ACKNOWLEDGEMENTS

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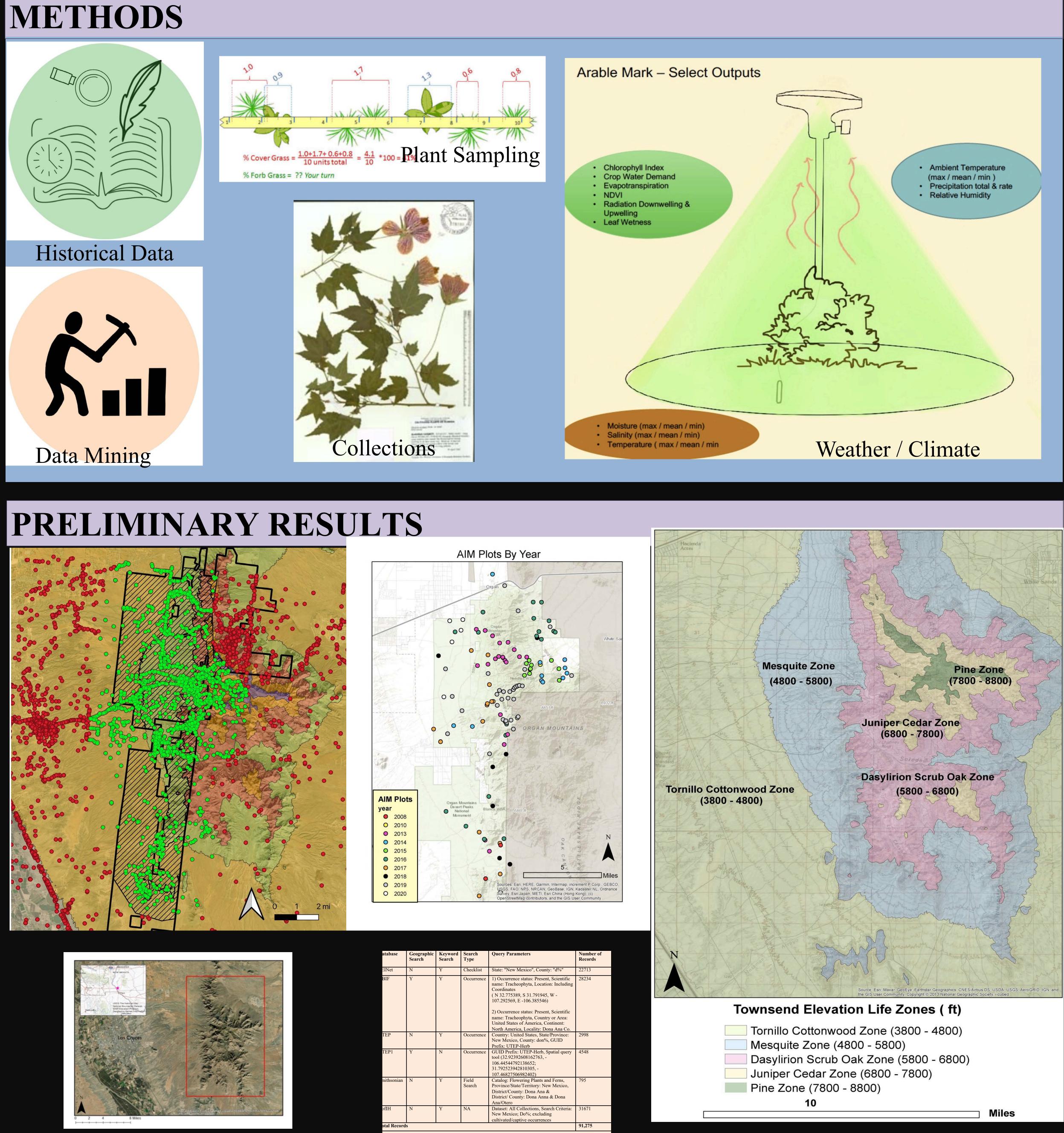
CITATIONS

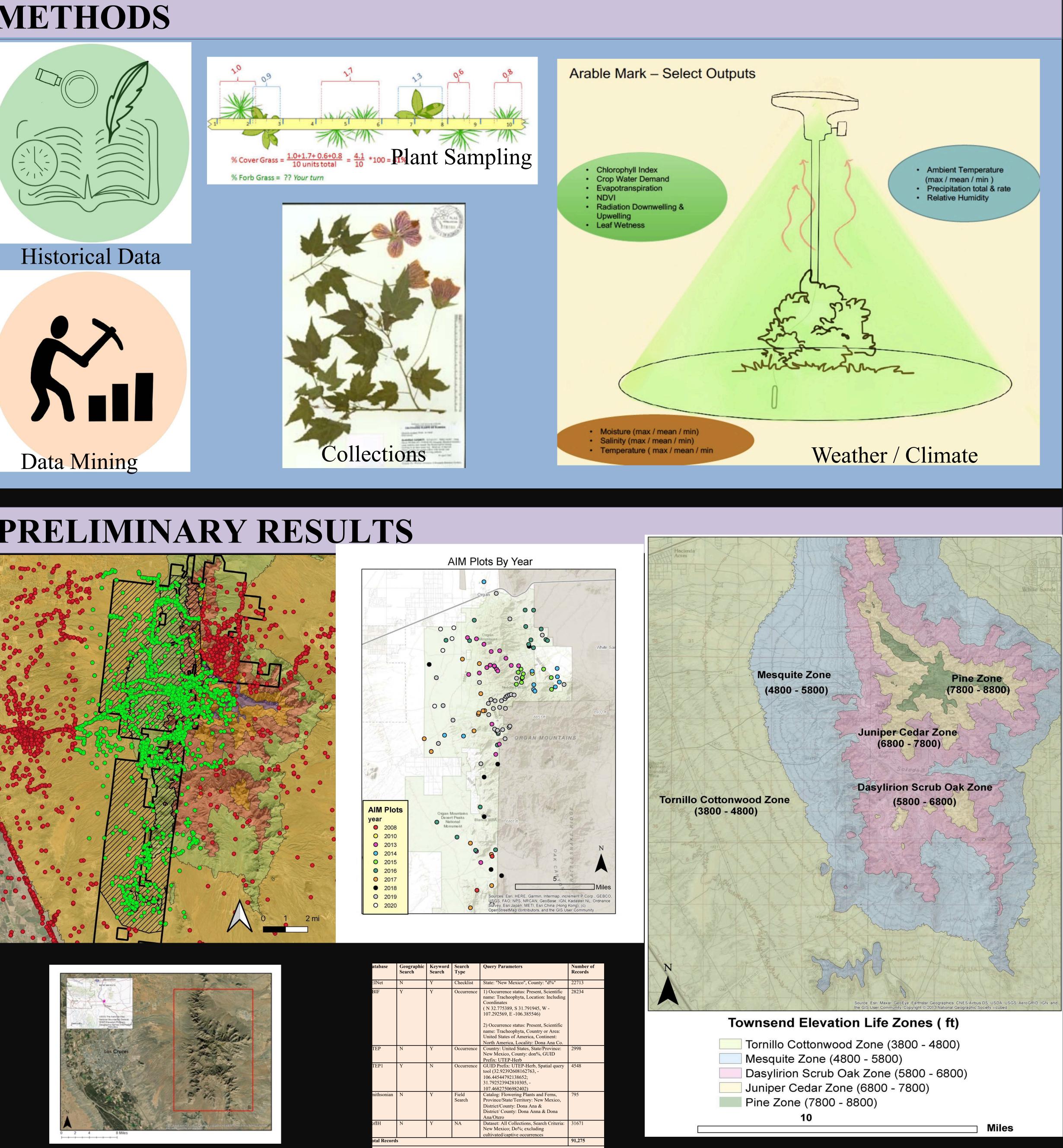
1. Archer, S. R., and K. I. Predick. 2008. "Climate Change and Ecosystems of the Southwestern United States." Rangelands 30 (3): 23–28. https://doi.org/10.2111/1551-501X(2008)30[23:CCAEOT]2.0.CO;2. 2. Brusca, R. C., J. F. Wiens, W. M. Meyer, J. Eble, K.Franklin, J. T. Overpeck, and W. Moore. 2013. https://doi.org/10.1002/ece3.832. 3. Rumpf, S. B., K. Hülber, G. Klonner, D. Moser, M. Schütz, J. Wessely, W. Willner, N. E. Zimmermann, and S. Dullinger. 2018. "Range Dynamics of the National Academy of Sciences of the United States of America 115 (8): 1848–53. https://doi.org/10.1073/pnas.1713936115. 4 Rapacciuolo, G., S. P Maher, A. C Schneider, T. T Hammond, M. D Jabis, R. E Walsh, K. J Iknayan, et al. 2014. "Beyond a Warming Fingerprint: Individualistic Biogeographic Responses to Heterogeneous Climate Change in California." Global Change Biology 20 (9): 2841–55.

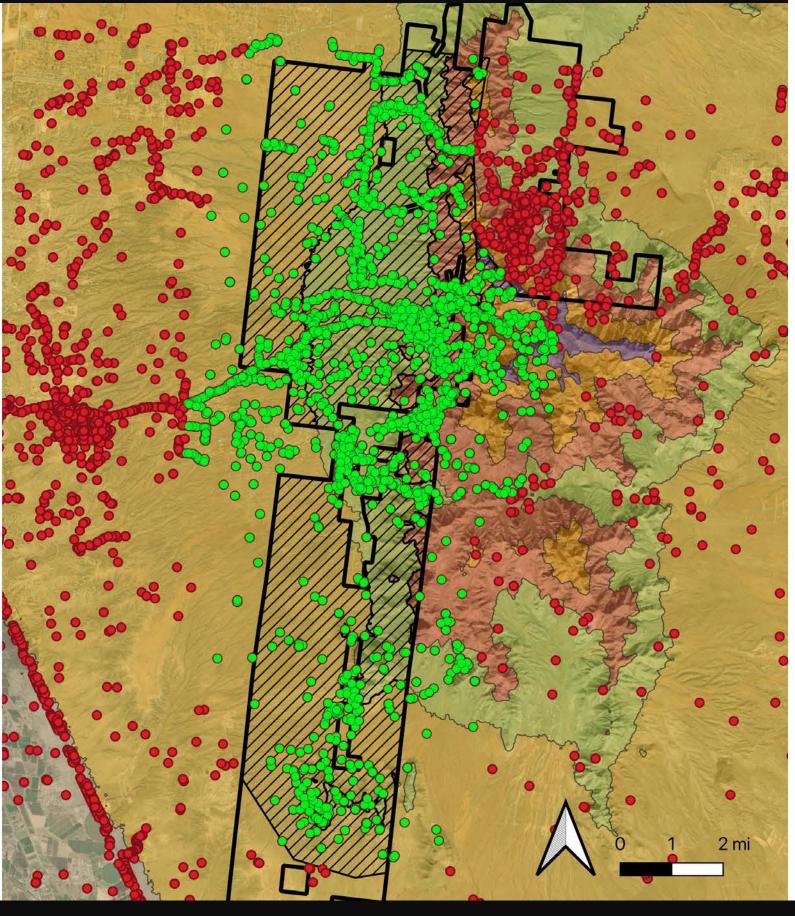
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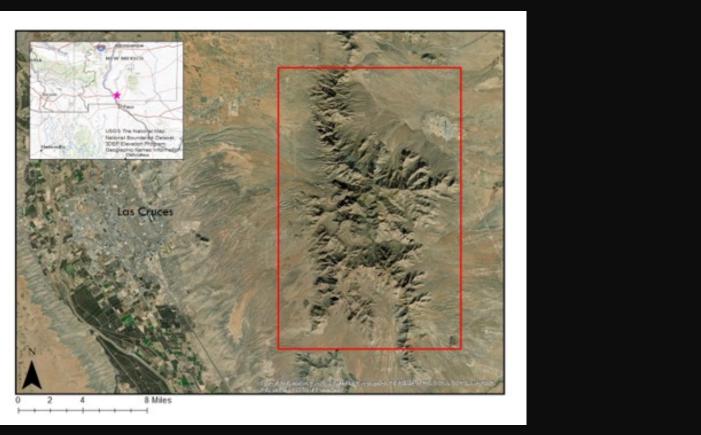
practices and policies

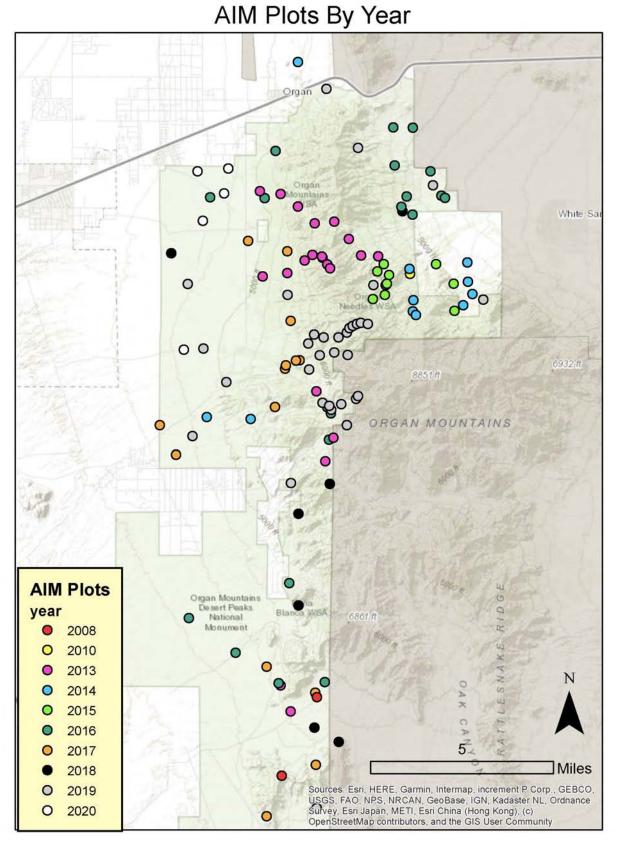
- Supply models for plant community
- response to climate change
- Long-term ecological monitoring
- Local extirpations, new invasions,
- sensitive taxa, and threatened











atabase	Geographic Search	Keyword Search	Search Type	Query Parameters	Number of Records
EINet	N	Y	Checklist	State: "New Mexico", County: "d%"	22713
BIF	Y	Y	Occurrence	 1) Occurrence status: Present, Scientific name: Tracheophyta, Location: Including Coordinates (N 32.775389, S 31.791945, W - 107.292569, E -106.385546) 2) Occurrence status: Present, Scientific name: Tracheophyta, Country or Area: United States of America, Continent: North America, Locality: Dona Ana Co. 	28234
TEP	N	Y	Occurrence	Country: United States, State/Province: New Mexico, County: don%, GUID Prefix: UTEP-Herb	2998
TEP1	Y	N	Occurrence	GUID Prefix: UTEP-Herb, Spatial query tool (32.92392608162763, - 106.44544792138652; 31.792523942810305, - 107.46827506982402)	4548
nithsonian	Ν	Y	Field Search	Catalog: Flowering Plants and Ferns, Province/State/Territory: New Mexico, District/County: Dona Ana & District/ County: Dona Anna & Dona Ana/Otero	795
ofIH	N	Y	NA	Dataset: All Collections, Search Criteria: New Mexico; Do%; excluding cultivated/captive occurrences	31671
otal Records					91,275



