

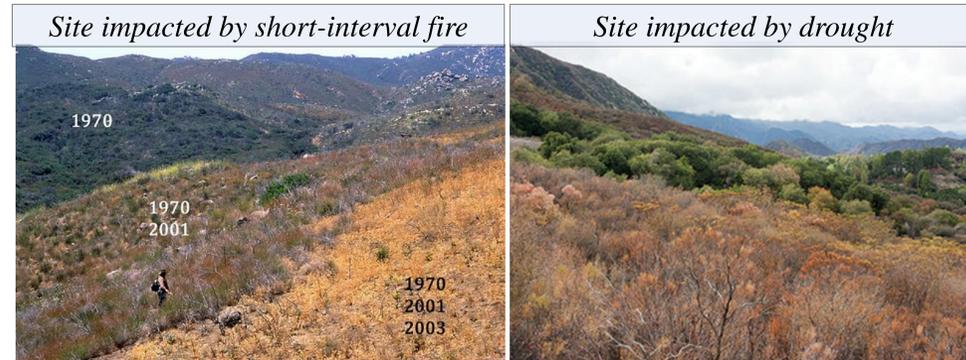
Evaluating Response of Southern California Chaparral Landscapes to Short-Interval Fire and Drought (1984-2018)

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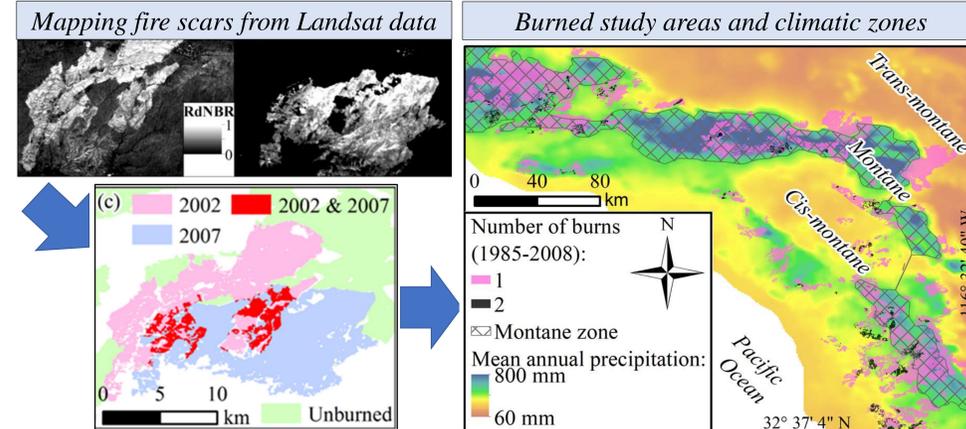
Rationale & Study Areas

Rationale

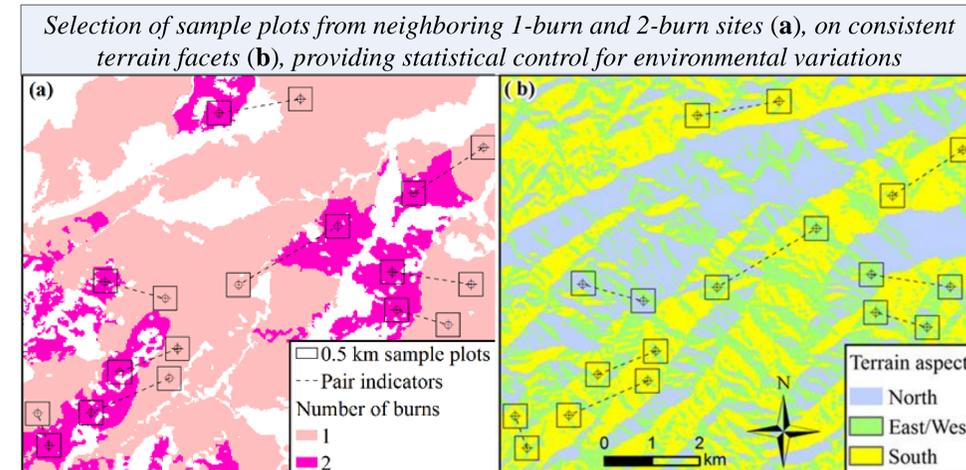
- Postfire vegetation recovery is *critical* to ecological resilience and stability
- Chaparral shrublands are subject to *frequent fires* and *severe droughts*
- *Low resilience* and *conversion* to exotic grass observed in *small-scale studies*
- Regional *pattern* and *controls* on resilience are poorly understood
- Satellite remote sensing enables *regional-scale* evaluation of recovery



Regional fire history



Analysis site selection

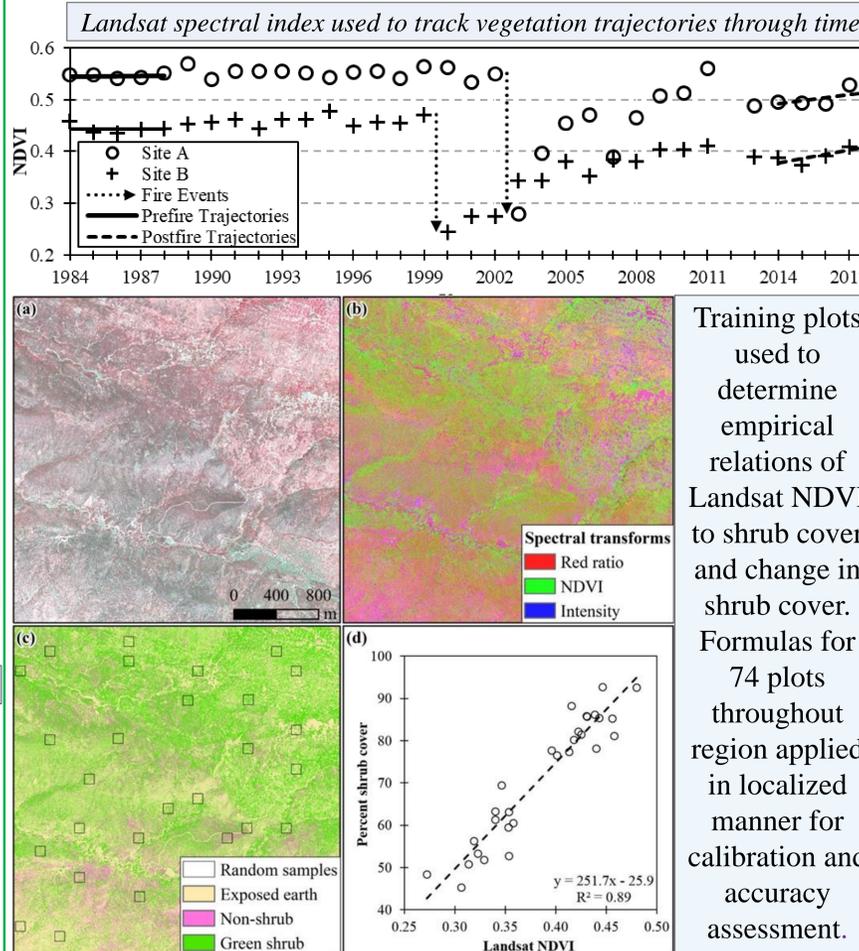


Research Questions

1. Do short-interval fires significantly diminish postfire recovery?
2. How do severity and timing of drought affect recovery?
3. Which variables best predict drought impact at landscape scales?

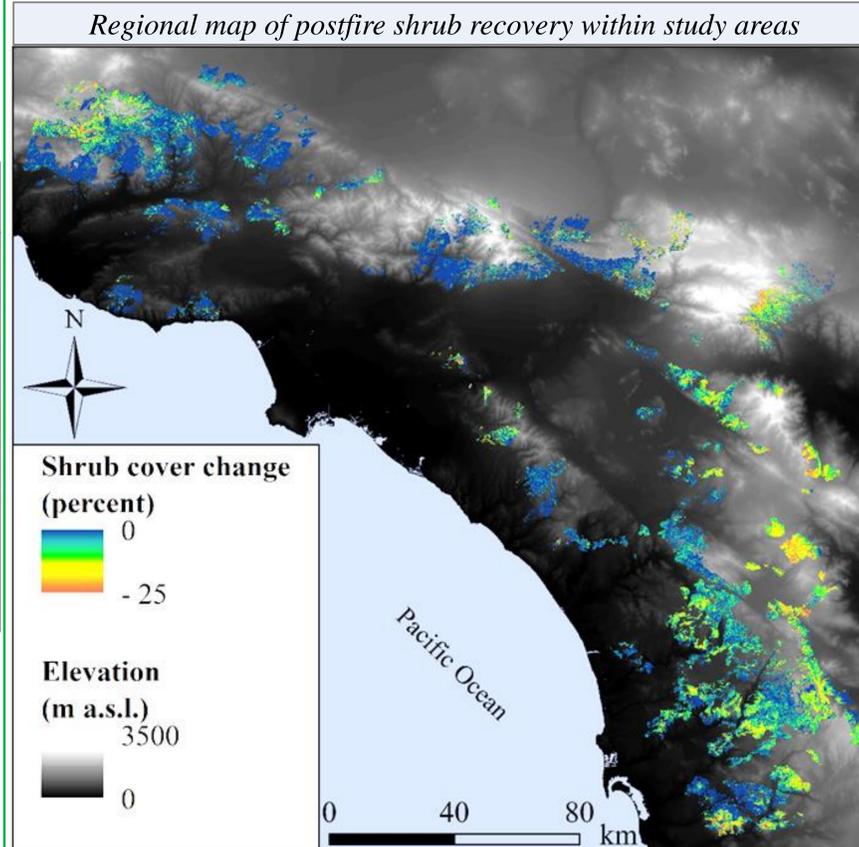
Methods, Validation, & Data Product

Landsat pixel-based estimates of postfire recovery

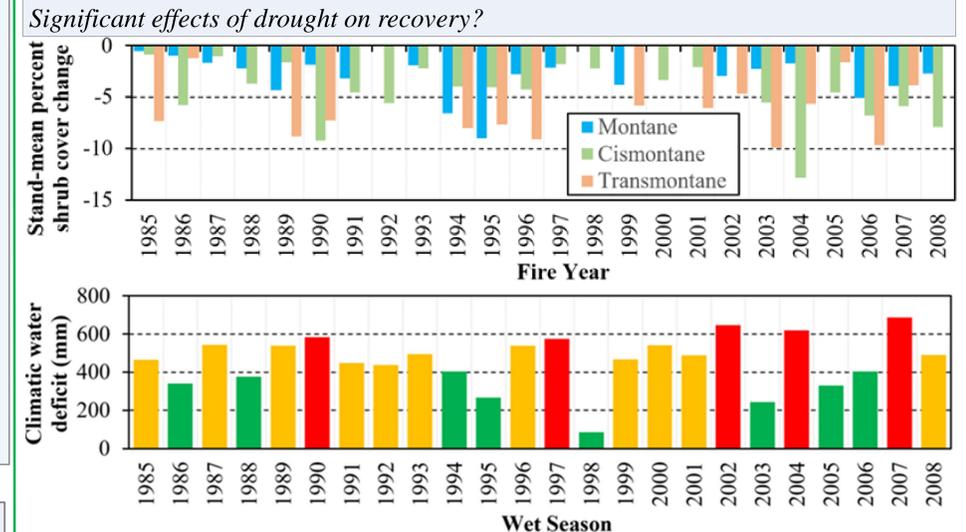
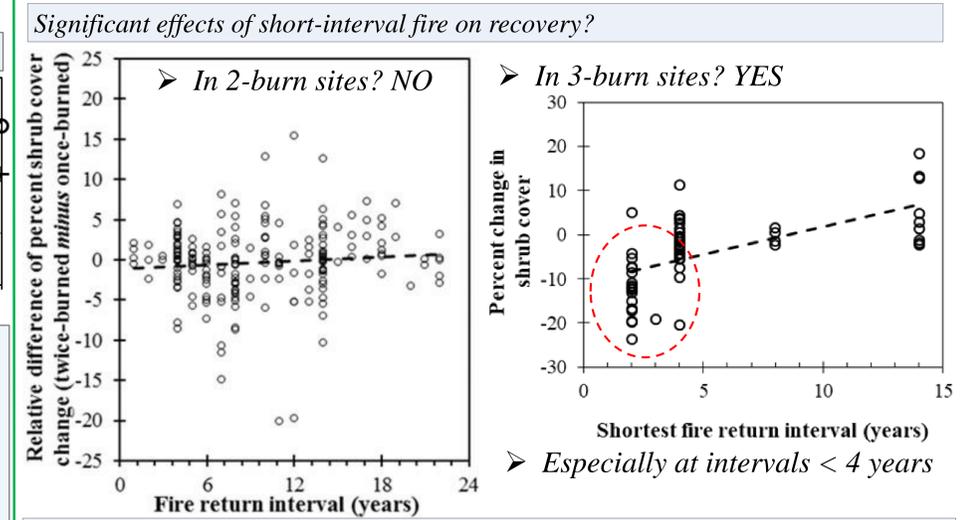


Training plots used to determine empirical relations of Landsat NDVI to shrub cover and change in shrub cover. Formulas for 74 plots throughout region applied in localized manner for calibration and accuracy assessment.

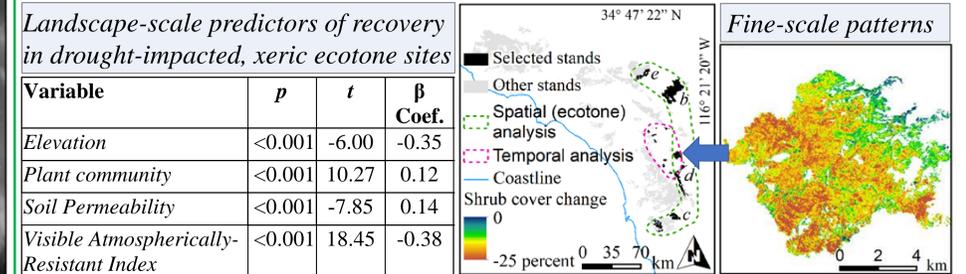
Results



Statistical Analysis & Interpretations



- Climatic zone, soils, and plant community explain 30% of regional pattern
- Drought accounts for ~40 percent of recovery variation amongst xeric sites



Conclusions

- Drought is a significantly greater control on recovery than fire interval
- Drought impact most severe near inland deserts, at middle elevations
- Landscape-scale drought impact somewhat predictable from spatial data
- Conservation and fire control should focus on vulnerable sites

Acknowledgements

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