

Background

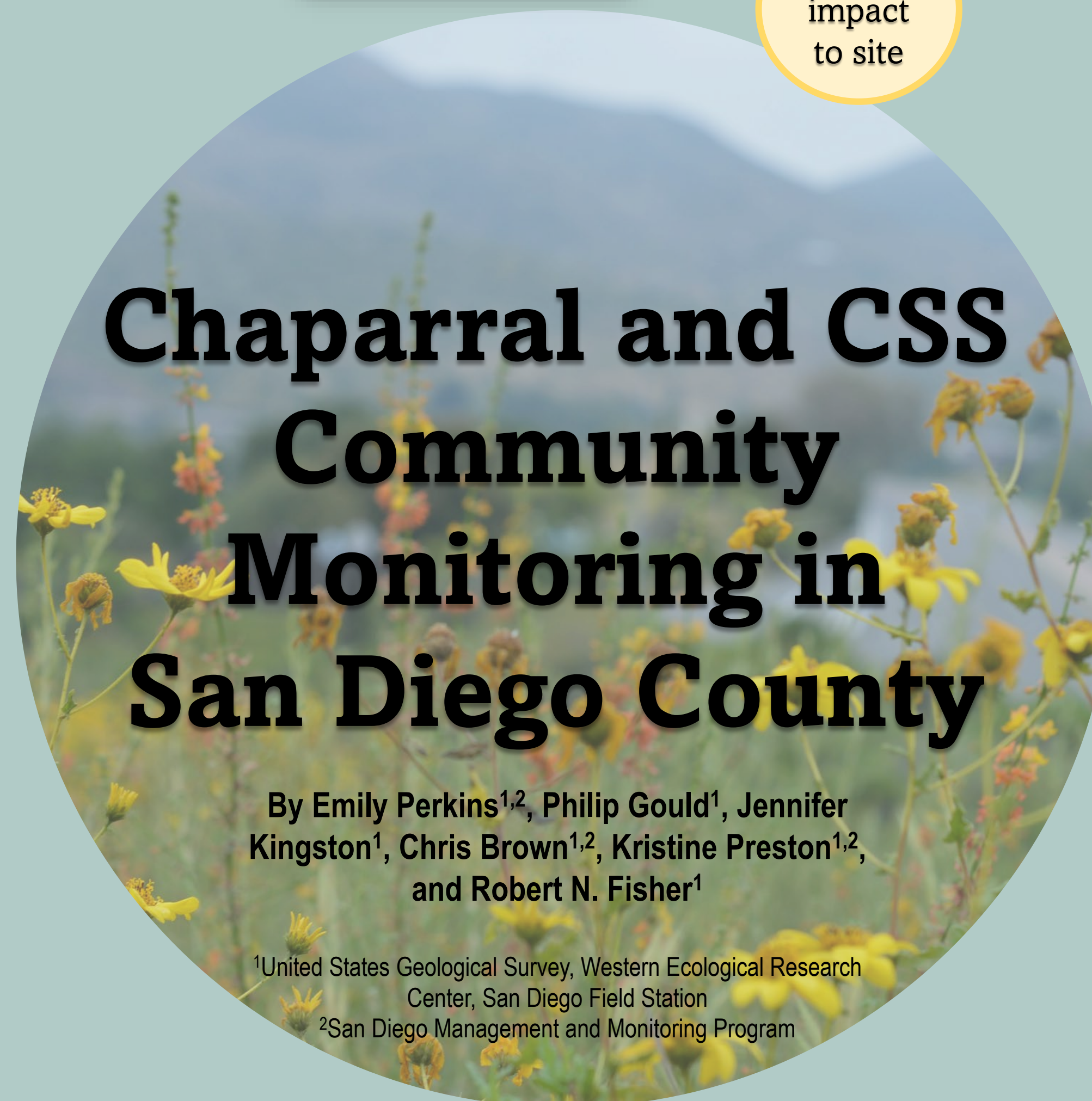
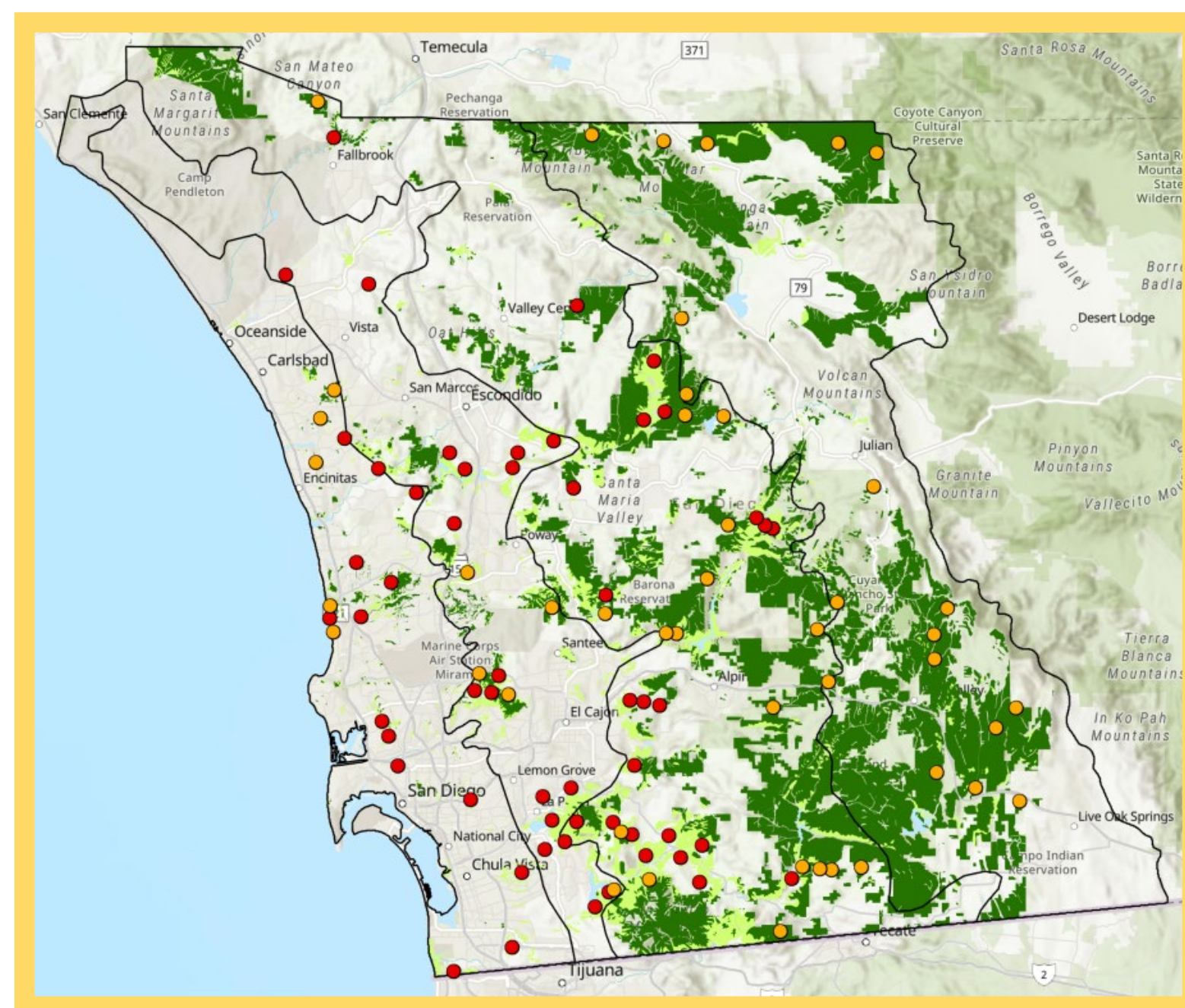
- Type conversion to invasive grasslands is a major concern for native shrublands
- Research indicates that the main drivers associated with change are fire, nitrogen deposition, and drought
- Invasive grass cover has been identified as a key measurement for ecological integrity of shrublands

Research Questions

1. What is the distribution, composition, structure, and integrity of CSS and chaparral vegetation communities in the MSPA?
2. How are these attributes of the vegetation community changing over time?
3. What threats and abiotic factors are associated with changes in vegetation community attributes? Specifically, what factors are associated with a decline in ecological integrity and type conversion?
4. How well does the proposed measure of ecological integrity (non-native annual grass cover) align with changes in the native plant community? What thresholds are important for predicting decline in native species richness and abundance?

Field Plot Selection

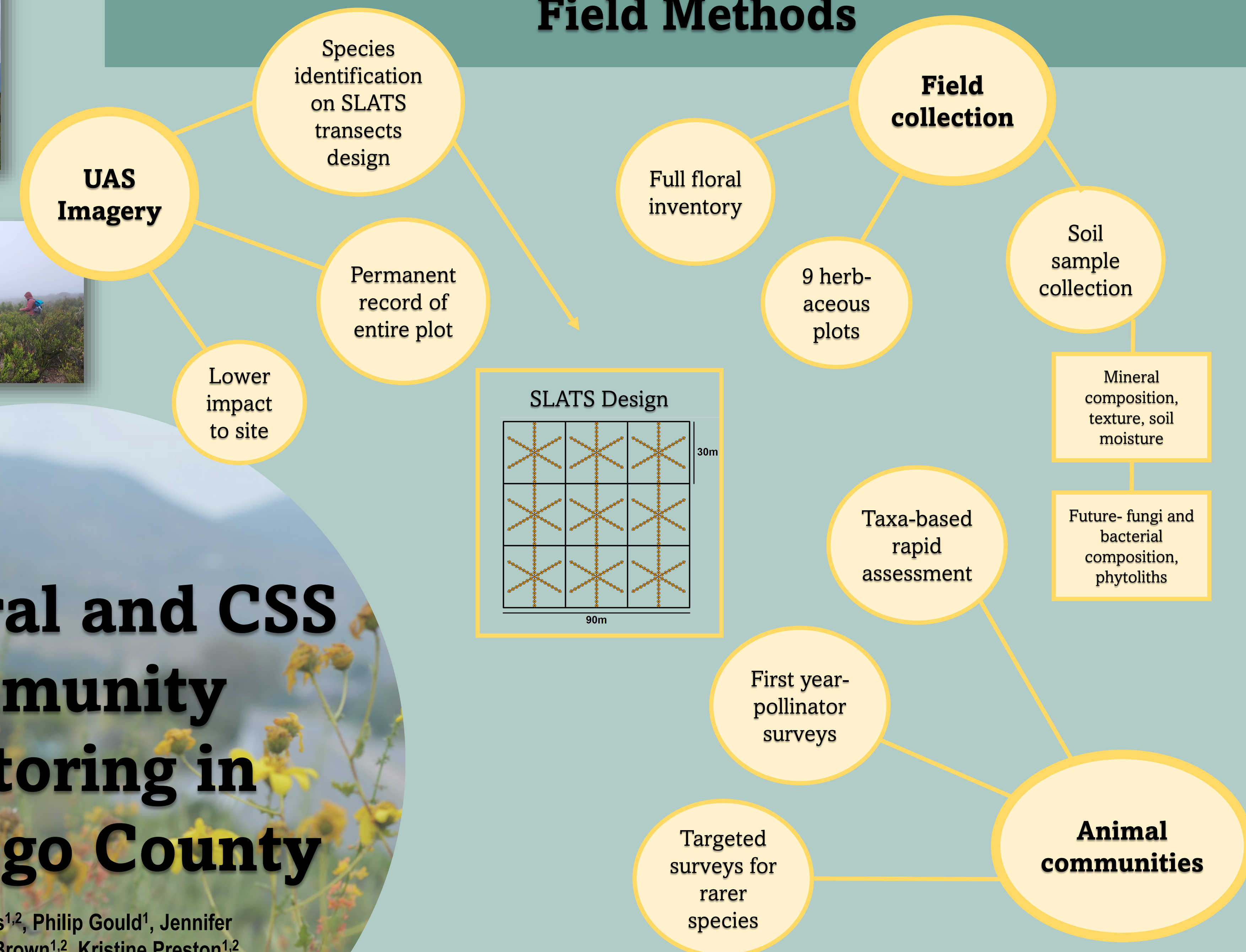
- 100 plots selected in a stratified random sample
 - 55 CSS and 45 chaparral
- VTM (1930s) Vegetation classification used to capture historical shrublands and range of current conditions
- Power to detect a 20% increase and decrease in shrub and herbaceous cover at plots over time.



Use of UAS



Field Methods



Links to GIS & Remote Sensing

Plots provide detailed information about a limited area. Tying the field data to remote sensing and landscape-scale GIS layers is key to understanding the larger impact. This project was designed to integrate with other remote sensing images.

- Plots align with LANDSAT pixels while accounting for registration error
- Top of canopy information can be used to refine remote sensing models
- Under canopy information provides insight into lost information from images
- Transects are designed to give percent cover estimates for the entire plot as well as heterogeneity within the plot at the subplot level.

Full in report in review, will be available at:
https://sdmmp.com/view_project.php?sdi=SDMMP_P_SDID_71_663178c710cba#overview-tab

