The effects of having different unmanaged (wild) plant species in California vineyards and how they influence spider abundance, taxonomic diversity, and guild diversity

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## **BACKGROUND:**

Spiders are very effective biocontrol agents, particularly when their communities are more diverse. In the progression of more sustainable and natural agriculture, supporting spider communities in California vineyards has potential to keep vines safer from pests. The viability of this idea is unstudied for the Central Valley of California, where both wine production and biodiversity are highly concentrated. I decided to observe spider taxonomic and guild richness, as well as abundance, on crop and non-crop vegetation in vineyards, while recording a site's plant species richness and assigning each of those species to be native or not. I set out to determine what factors support more spiders, more spider diversity, and ultimately, how those factors may encourage spider communities on the vines themselves.

## METHODS

- Assigned two plots for three vineyard sites. Each plot consisted of two transects: one for wild vegetation and one for a nearby grapevine row.
- Collected spiders using a beat sheet and aspirator from 15 individual plants (or cluster of grape leaves) per transect.
- 3. For wild vegetation, determined plant species and classified it as native or non-native.
- 4. Counted spider specimens, identified all via microscope to genus level, identified sex, and assigned guild type as described by *Cardoso et al* 2011.
- 5. Performed Poisson linear regression for all predictor and response variables.





## <u>Plant-Dwelling Spiders Care Where They Live:</u> Higher Diversity and Greater Abundance On Native Plant Species, Specific Plant Types, and in Areas With Vegetation Richness



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To Emma Jochim, for introducing me to the basics of spider identification.

Finally, insurmountable thanks to the owners of the three sampled vineyards, for trusting me with their land, crops, and precious spiders.



Scan me to view a slideshow of all the spider specimens! There are some lookers in there.