A large field of vibrant orange California poppies stretches across the background of the slide. The flowers are densely packed and cover the ground, with some green foliage visible between them. The scene is captured from a slightly elevated perspective, showing the vastness of the field.

Rapid Evolution of Invasive California Poppies

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Rapid evolution

- e.g. herbicide resistance



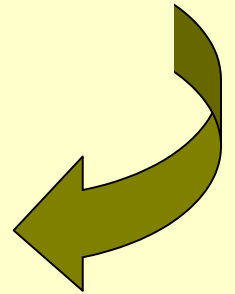
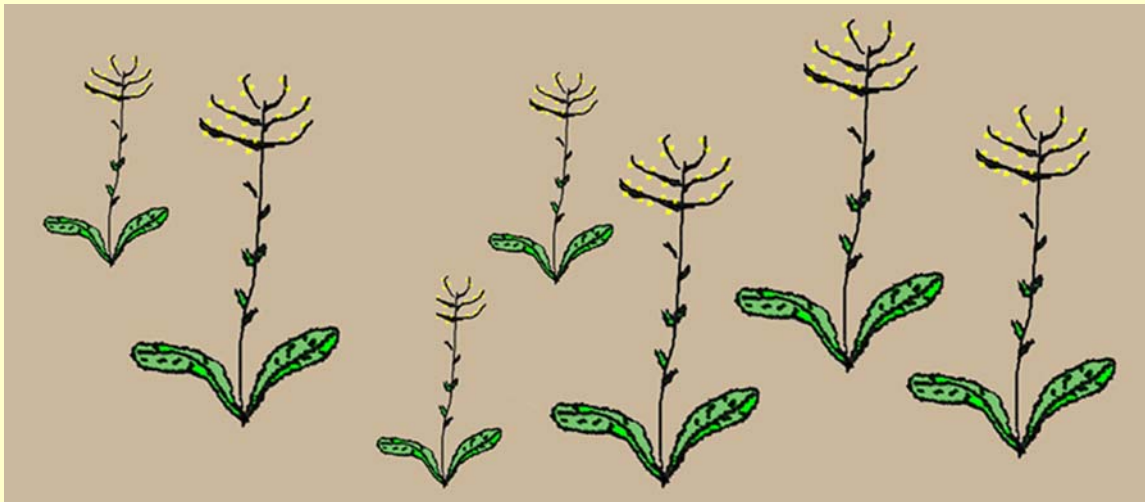
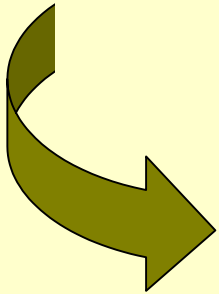
Rapid evolution


- e.g. herbicide resistance



Rapid evolution?

- climate
- disturbance regimes
- insect enemies
- pathogens
- soil biota
- interactions with new plants





Rapid evolution in the California poppy

- Increases in size of invasive poppies
- Adaptation to local climate
- Changes in herbivore resistance

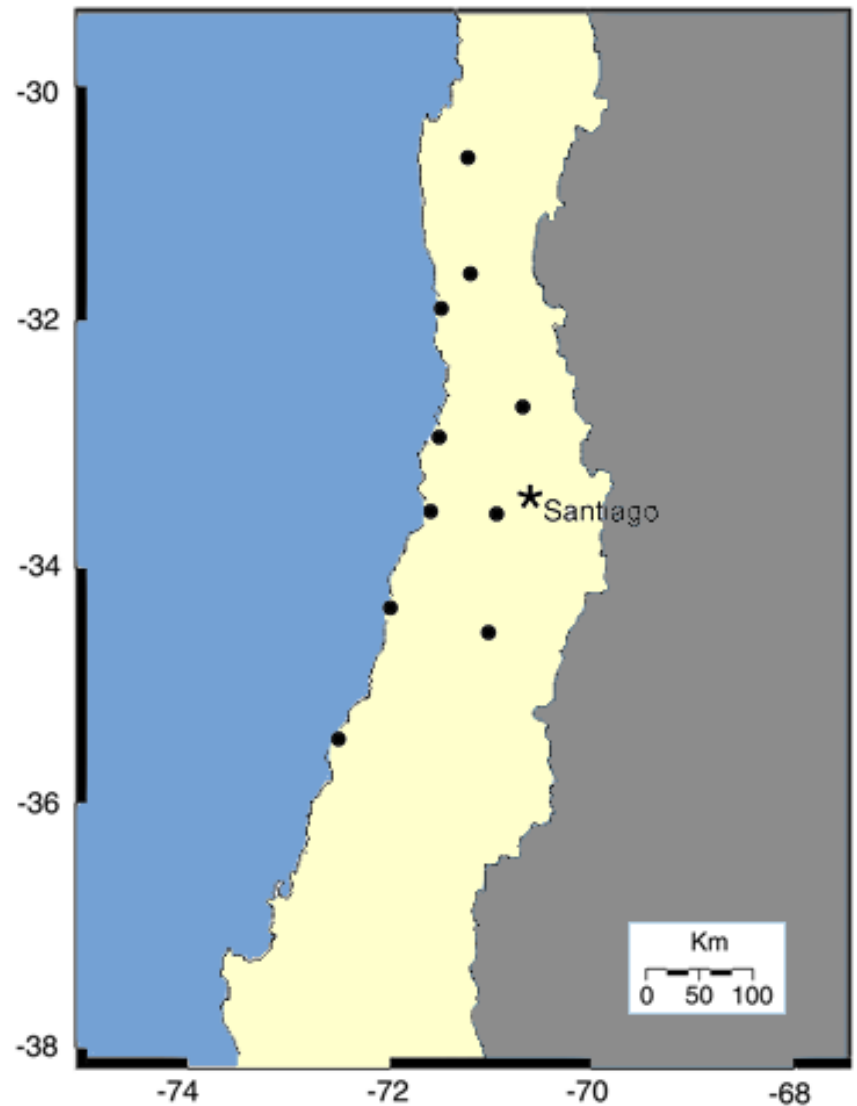
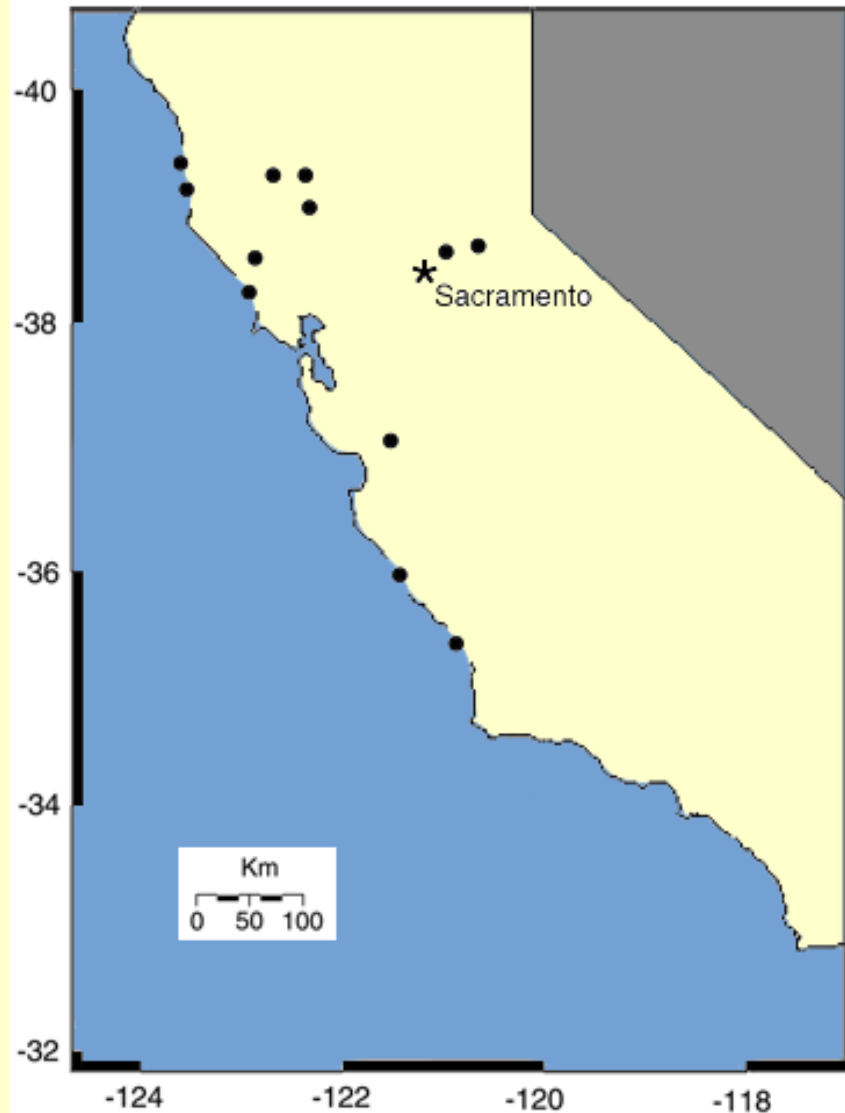
Natural and invasion history



- native to western North America
- invasive plants in areas with Mediterranean climates
- introduced into Chile around 1850

Eschscholzia californica

Collection sites



Common gardens

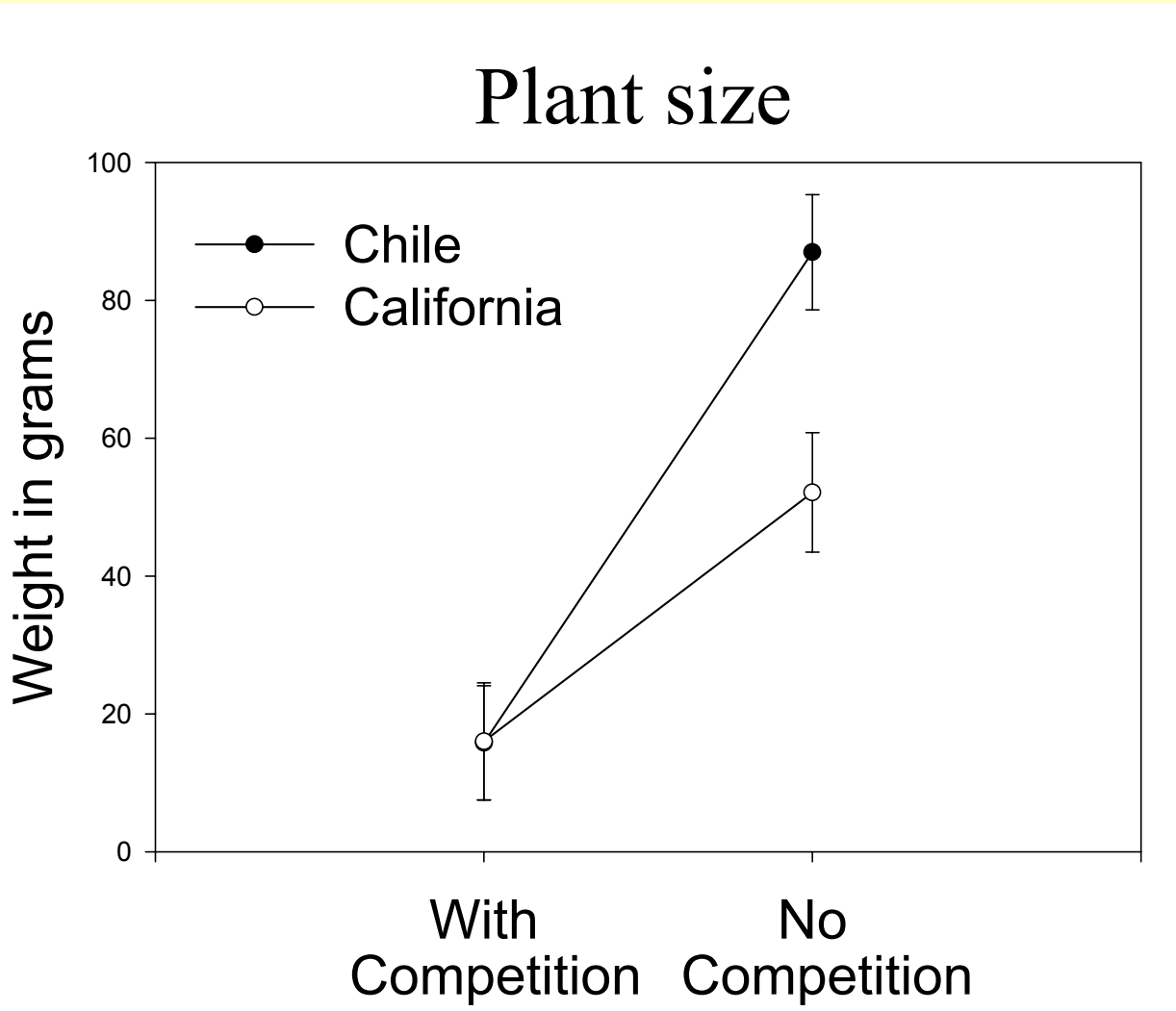


- 10 californian populations + 10 chilean populations
- Half with competition, half without

Are invasive poppies larger and more fit than natives?



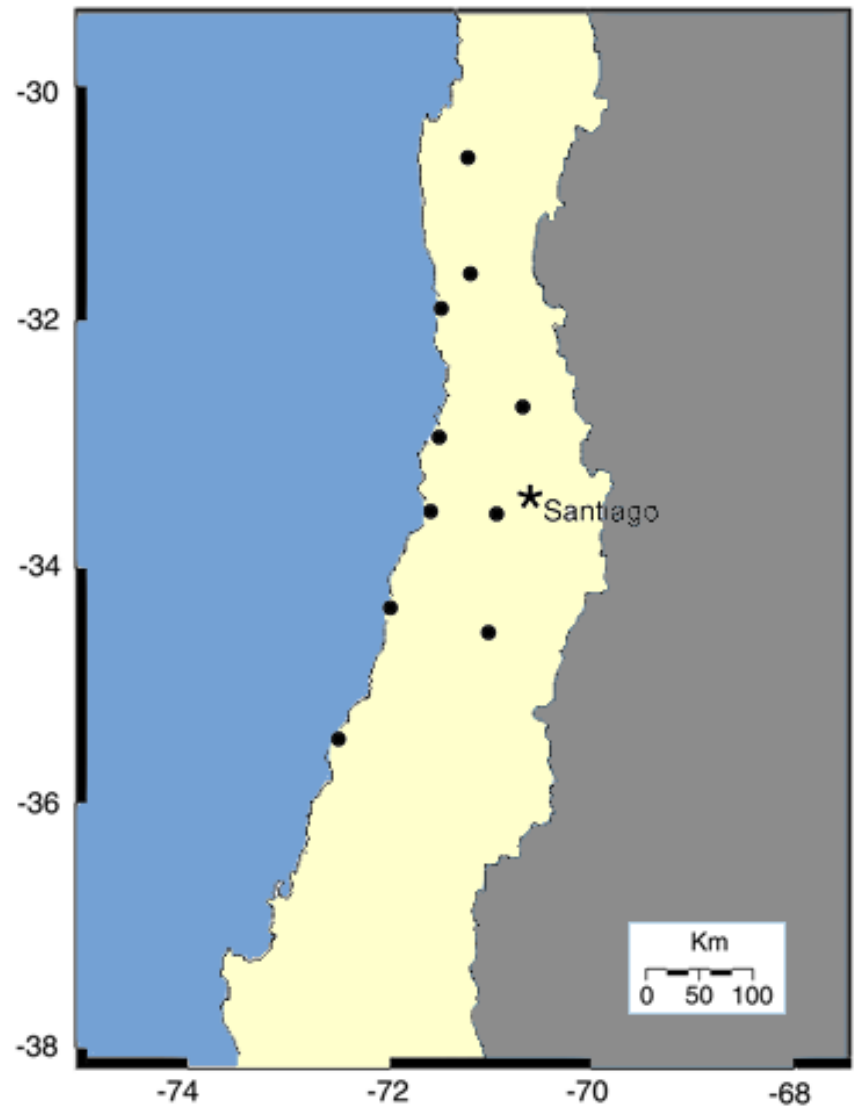
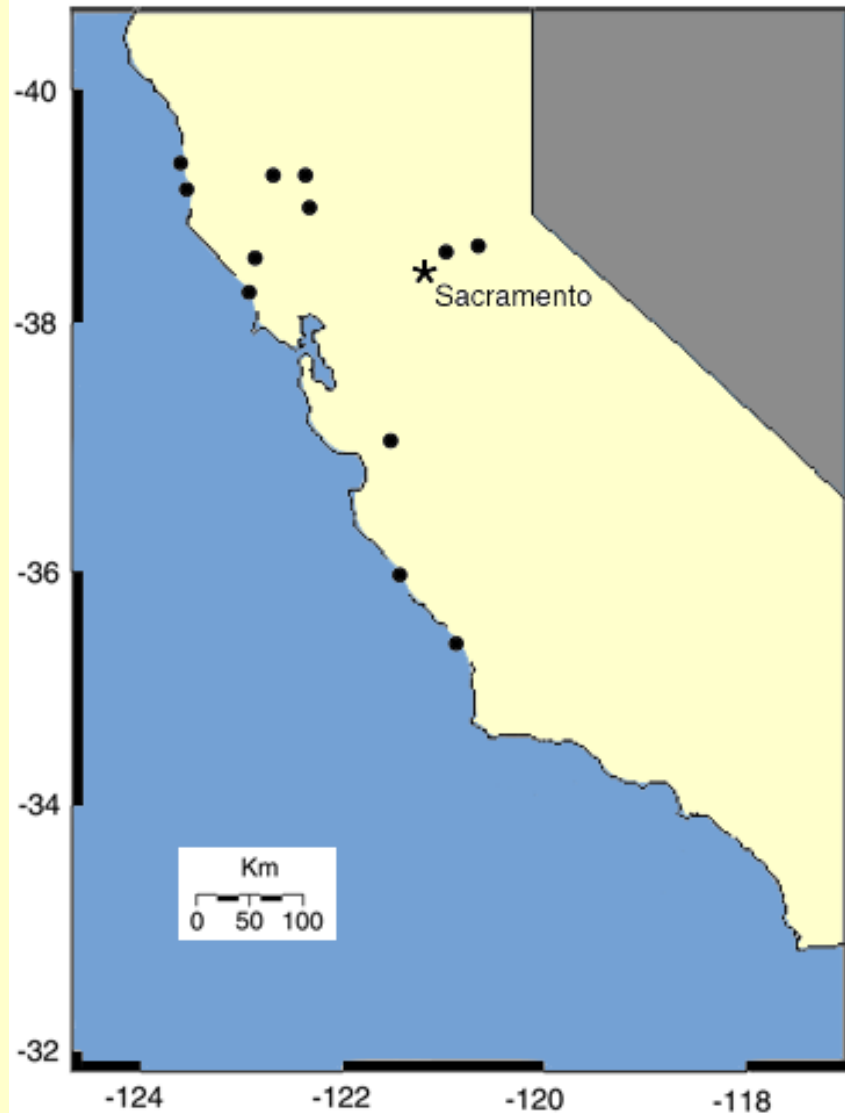
Are invasive poppies larger and more fit than natives?



Do California poppies
demonstrate similar clinal
variation in their native and
invasive ranges?



Similar climatic gradients



Plant traits

- Plant size
- Plant fecundity
- Flower and seed characteristics
- Phenology

Environmental traits

- Latitude, longitude
- Elevation
- Precipitation
- Temperature

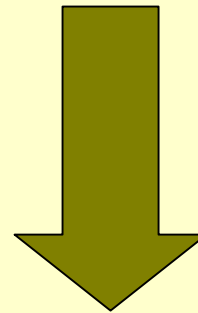
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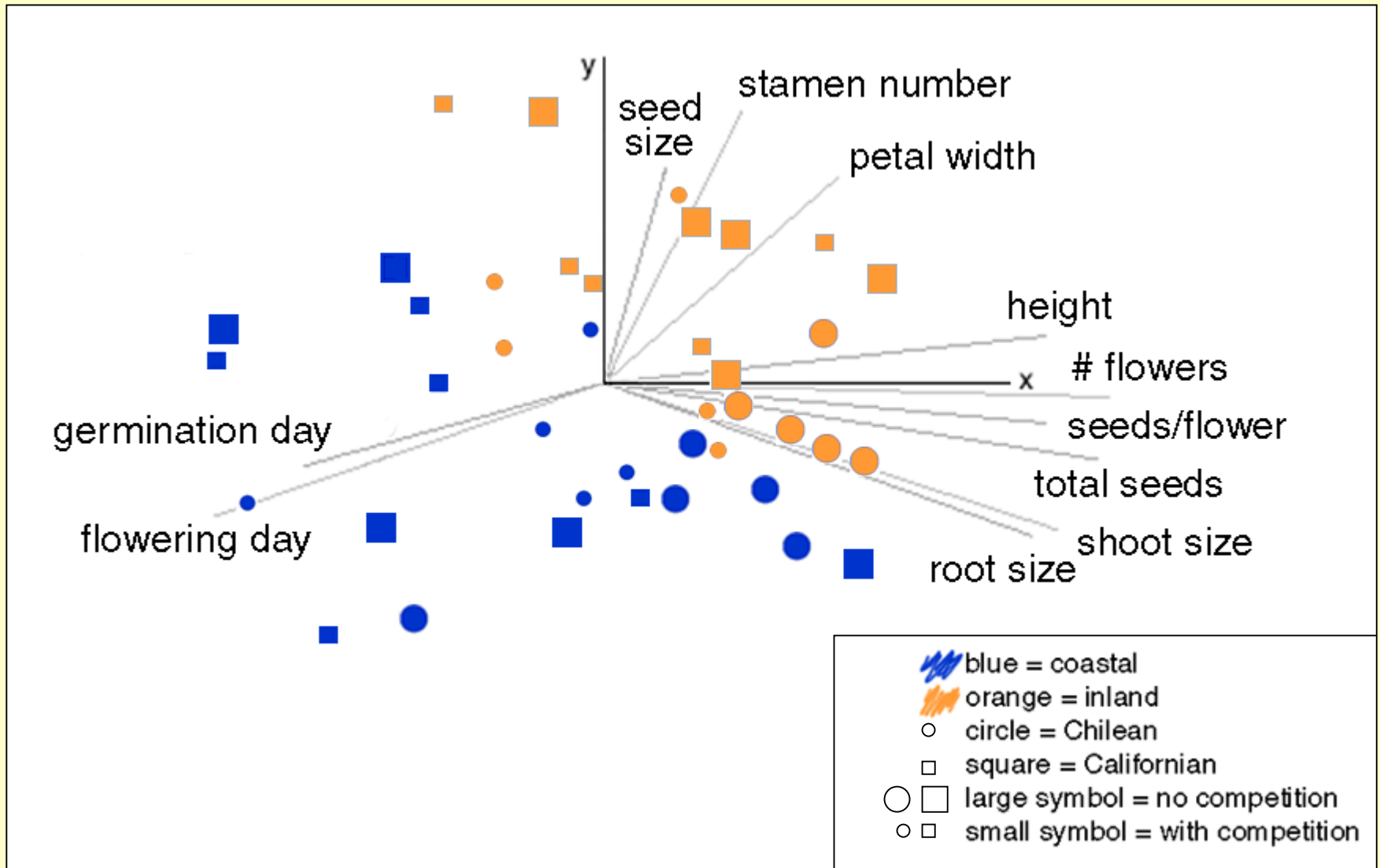
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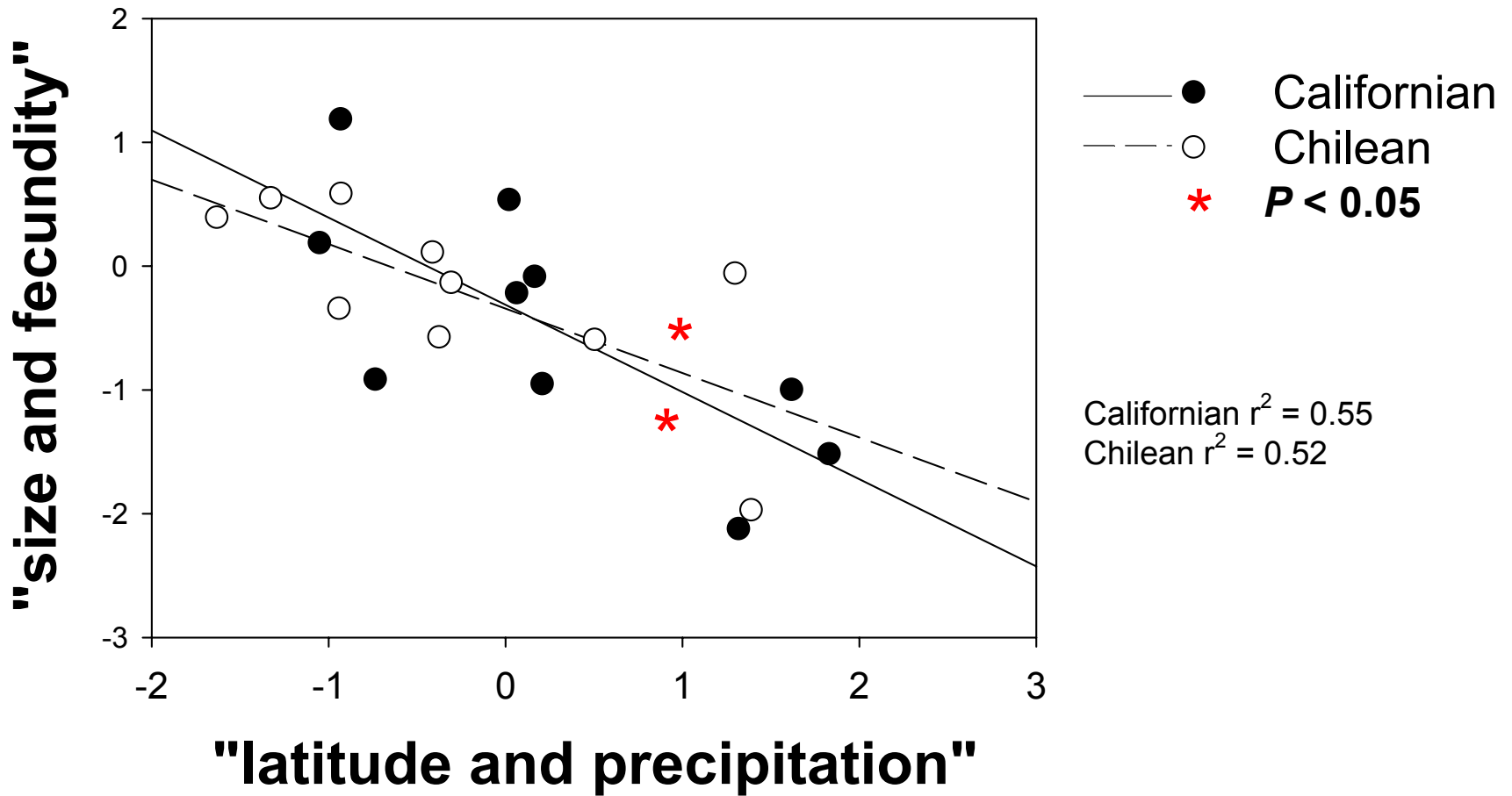


Principle components that represent correlated traits

Coastal and inland gradients



Similar latitudinal gradients



Are invasive poppies less
resistant to herbivores than
natives?



The herbivores...



Cabbage looper, *Trichoplusia ni*

- Cosmopolitan generalist

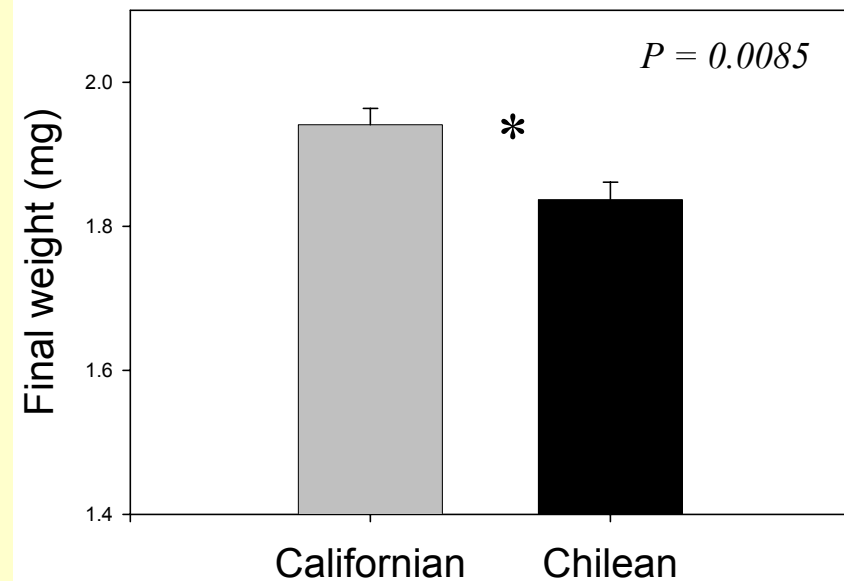


Tussock moth, *Orgyia vetusta*

- Native generalist

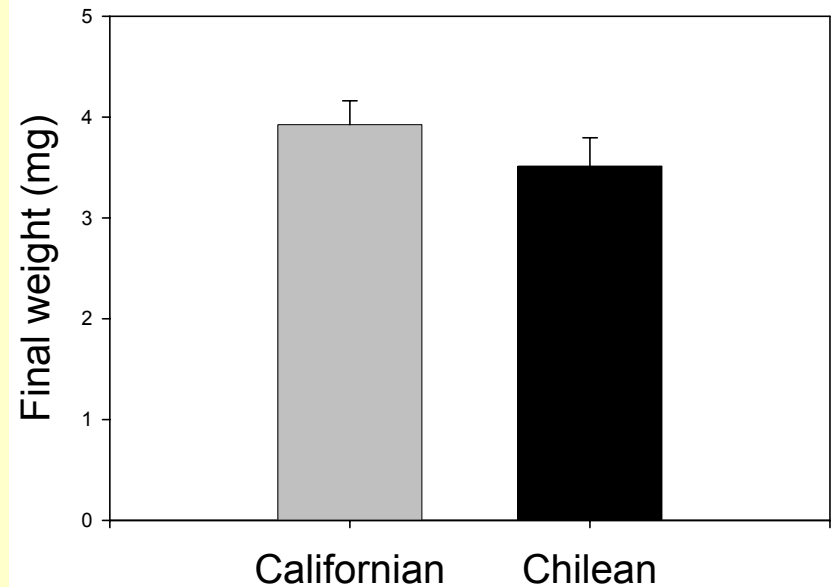
Invasive poppies are more resistant to herbivores

Final caterpillar weight



cabbage looper, *Trichoplusia ni*

Final caterpillar weight



tussock moth, *Orgyia vetusta*

Invasive poppies are:





Invasive poppies are:

- Larger when grown with reduced competition



Invasive poppies are:

- Larger when grown with reduced competition
- Adapted to local climatic conditions



Invasive poppies are:

- Larger when grown with reduced competition
- Adapted to local climatic conditions
- More resistant to herbivores than are native plants

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