# Homework3

Baxter Worthing

9/12/2018

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- $$V_P = V_G + V_E$$
- Total phenotypic variation is the sum of the contributions of genetic variation and environmental variation
- Today we're going to focus on $V_E$

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- $$V_{GxE} :$$
- Genotype by environment interaction (what this paper was interested in)

- Regulatory Divergence

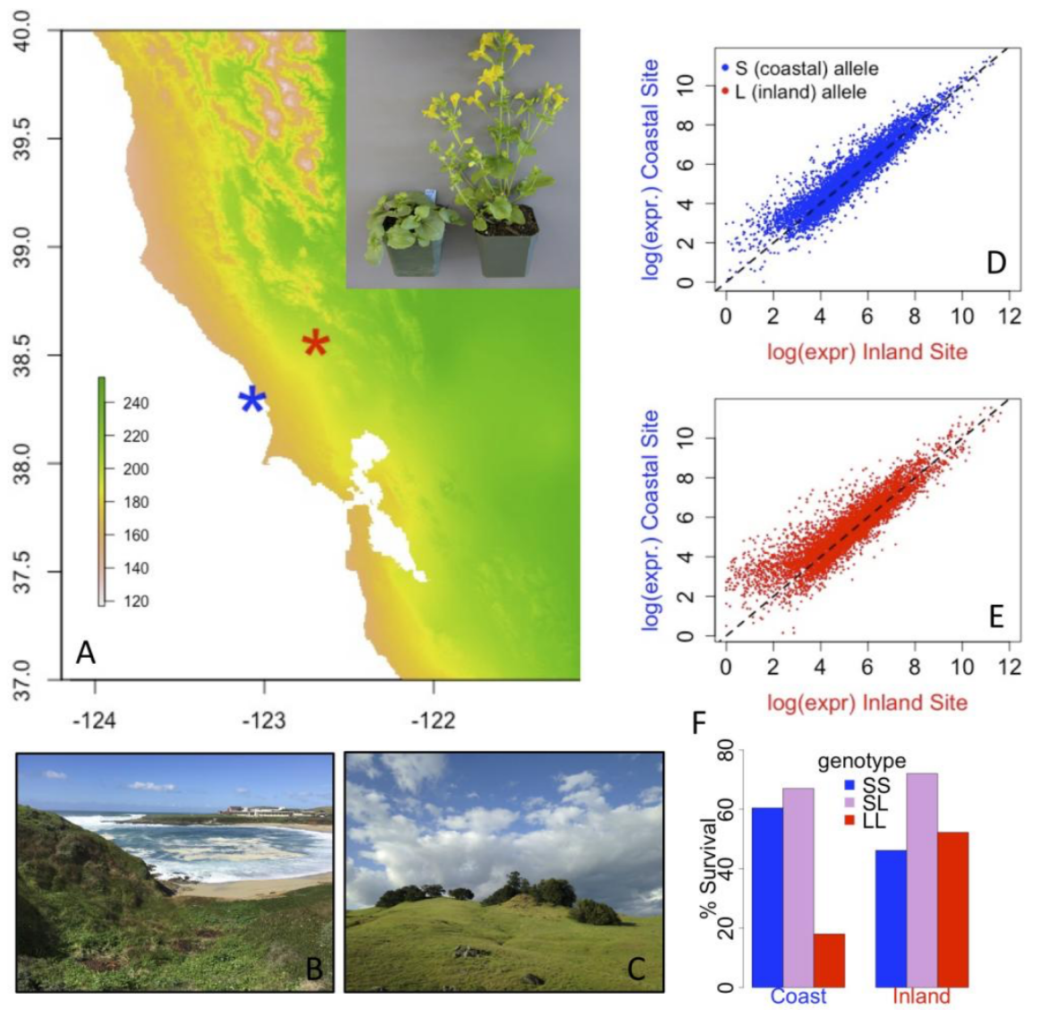
# Characterizing GxE

- Regulatory Divergence
- Allele-specific Expression (ASE)

# Main goals of this paper

- "determine the prevalence of GxE interactions affecting the expression of native and non-native alleles"
- "characterize the relative contributions of cis and/or trans regulatory variation in expression divergence"
- "establish the role of genome structure (e.g.inversions) in the evolution of potentially locally adaptive regulatory variation"
- "identify candidate genes underlying local adaptation in this system"

# Figure 1




This is the first figure from this paper. A shows a map of the locations of their two transplant sites. B shows a picture of the blue location and C shows a picture of the red location. D compares the expression of coastal alleles at both sites, while E shows the same for inland allele. F shows the difference in survival between parental plants and F1 hybrids at each site.

# Figure 2

Here is a picture of the monkeyflower they were working with