

# Possible Causes of Inhibited Germination



## Rates in Native Woody Species



### Introduction:

Previous attempts at germination native woody species in the field yielded no success yet germination of species for out-planting in the greenhouse has been successful.

### Question:

Are differences in greenhouse potting soil and field soil causing the contrasting germination?

### Methods:

1. Native soil was collected from a field site where seeding had been attempted unsuccessfully.
2. The soil was sifted down to 4mm and distributed into the first 10 trays.
3. Potting soil was added to the other 10 trays.
4. Seeds from *Salvia apiana*, *Salvia leucophylla*, *Malacothamnus fasciculatus*, *Hesperoyucca whipplei*, *Ceanothus oliganthus*, and *Rhus ovata* were sown into each tray according to Figure 1.

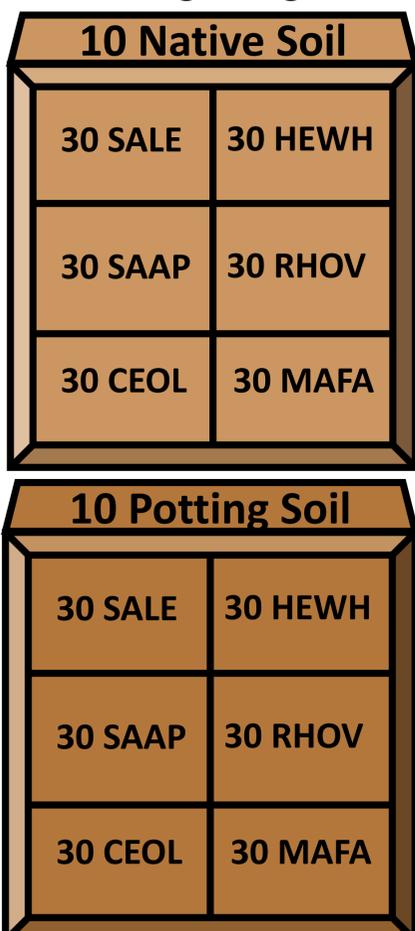


Figure 1: The two treatment setups and the position of the species sowed

Thomas Aronson<sup>1</sup>, Shane Dewees<sup>2</sup>, Carla D'Antonio<sup>1</sup>

<sup>1</sup>Environmental Studies <sup>2</sup>EEMB Department

### Results:

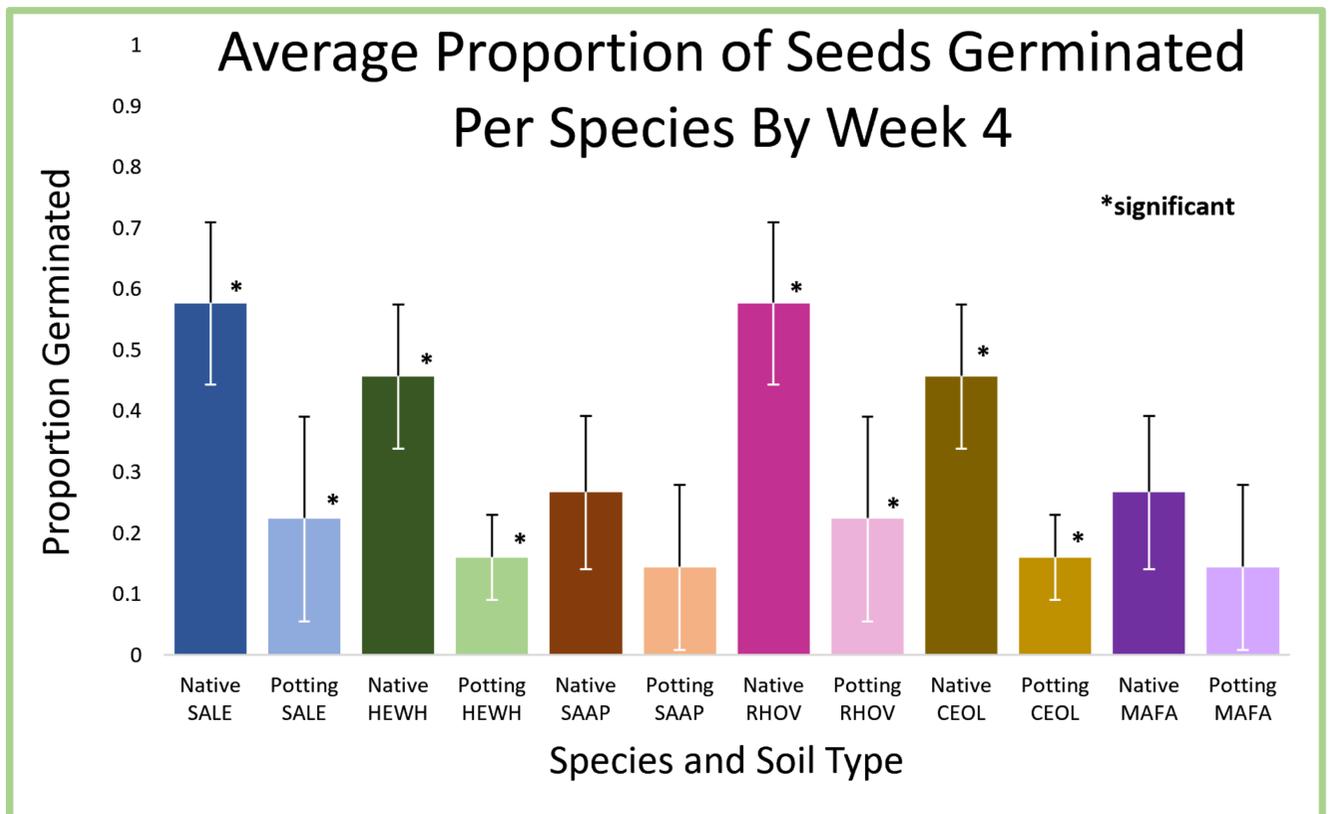


Figure 2: Bar Graphs displaying the differences in average germination rates between soil treatments for each species by week 4.

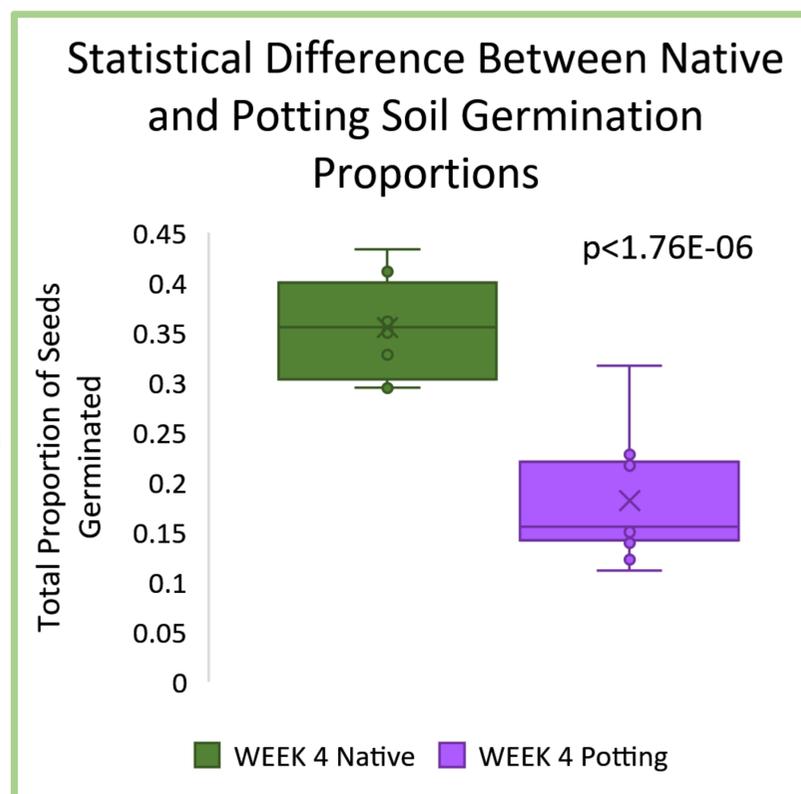


Figure 3: Box and whisker chart displaying the statistical difference between total germination rates between soil treatments by week 4

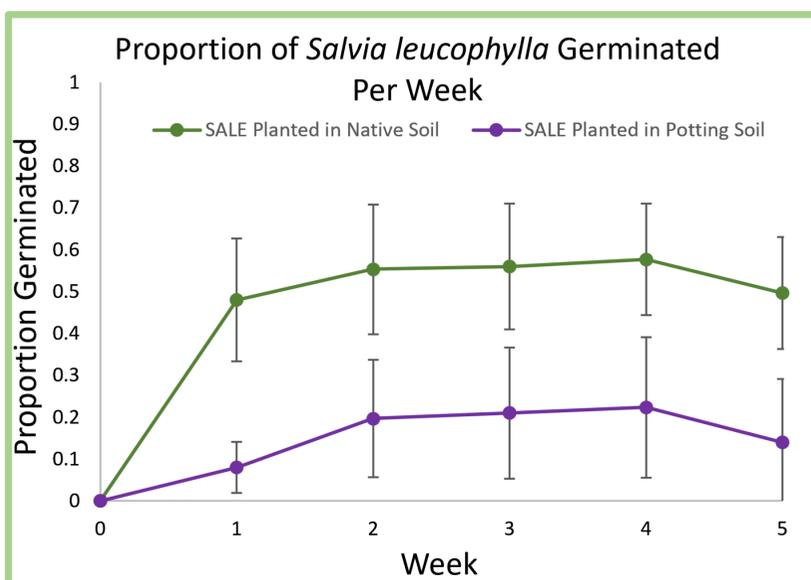


Figure 4: A timescale graph comparing weekly germination rates for *Salvia leucophylla* in both potting soil and native soil

### Discussion:

Our results suggest that we have enough evidence to reject the null hypothesis that differences in native soil are causing inhibited germination rates for the six native species explored. Some component of the native soil in fact seems to promote significantly higher germination rates when compared to standard potting soil. Therefore, future work will investigate other potential inhibitors of germination, beginning with an experiment looking at the effect of varying moisture levels on germination rates.

### Acknowledgements:

Special thanks to the entire D'Antonio Lab. This project wouldn't have been possible without help from Shane Dewees, Kyle Somoano, Amanda Priestley-Milianta, Madi Calbert, Nick Song, Gina Milan, Angie Osman, Brian Rawles, Nicholas Saglimbeni, and Angelica Horta. I appreciate Cameron Hannah-Bick and other members of the UCSB Greenhouse who have assisted me in my project. I would also like to thank URCA for selecting my research proposal and funding my project.