Bad neighbours

Investigating the effects of higher temperatures and vegetation on seedlings of two common alpine plant species

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1 No seedlings, no adults

The alpine landscape is a harsh climate for plants. Climate change and rising temperatures could be beneficial for some species, and detrimental to others.

Studying what influences **seedling growth**, could therefore be just as important as studying adult plants.

Their vulnerable seedlings might need **neighbouring plants** as shelter from frost and wind. Could neighbours help each other during climate change?

2 Objectives

Investigate how seedling biomass, used as a proxy for plant wellbeing, responds to **increased temperatures** and **removal of neighbouring vegetation.**

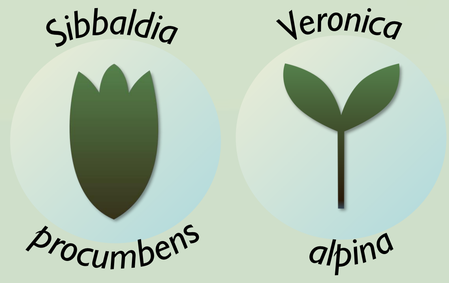
I assume that facilitation is beneficial for seedling growth, and that higher temperatures provide a better growing environment for our species.

3 Fieldwork in South-western Norway

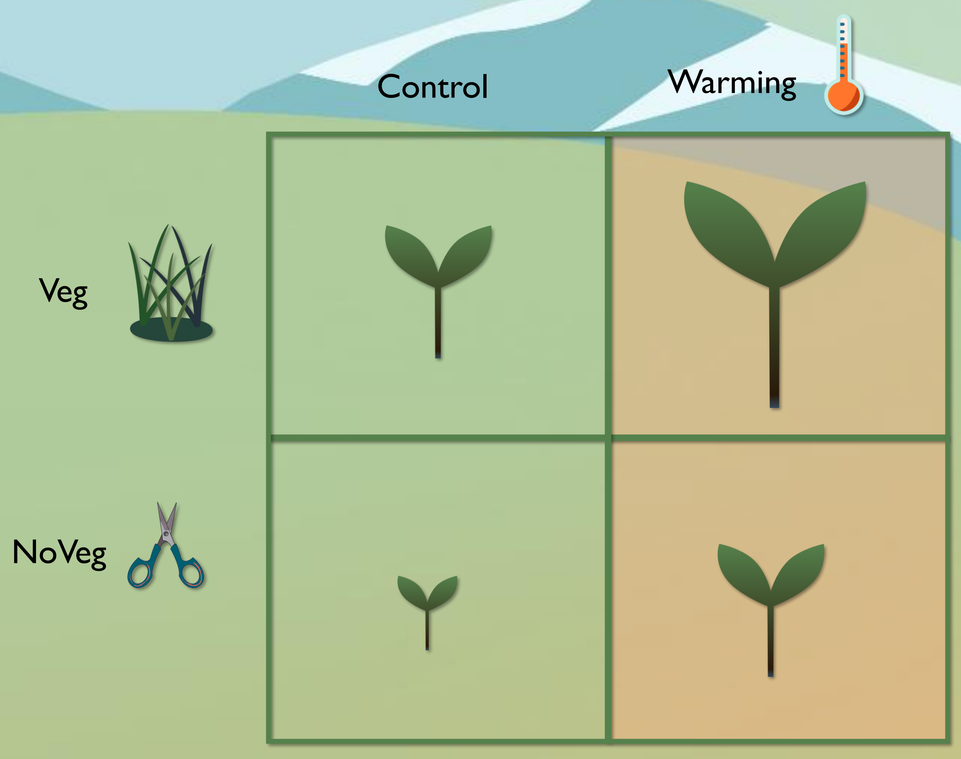
Seeds of ***Sibbaldia Procumbens*** (SP) and ***Veronica alpina*** (VA) were sowed along a precipitation gradient and subjected to two parallel treatments, along with a control treatment (C):

The temperature was raised by +1.5-3$°C$ with open top chambers (OTC) hexagonal greenhouses

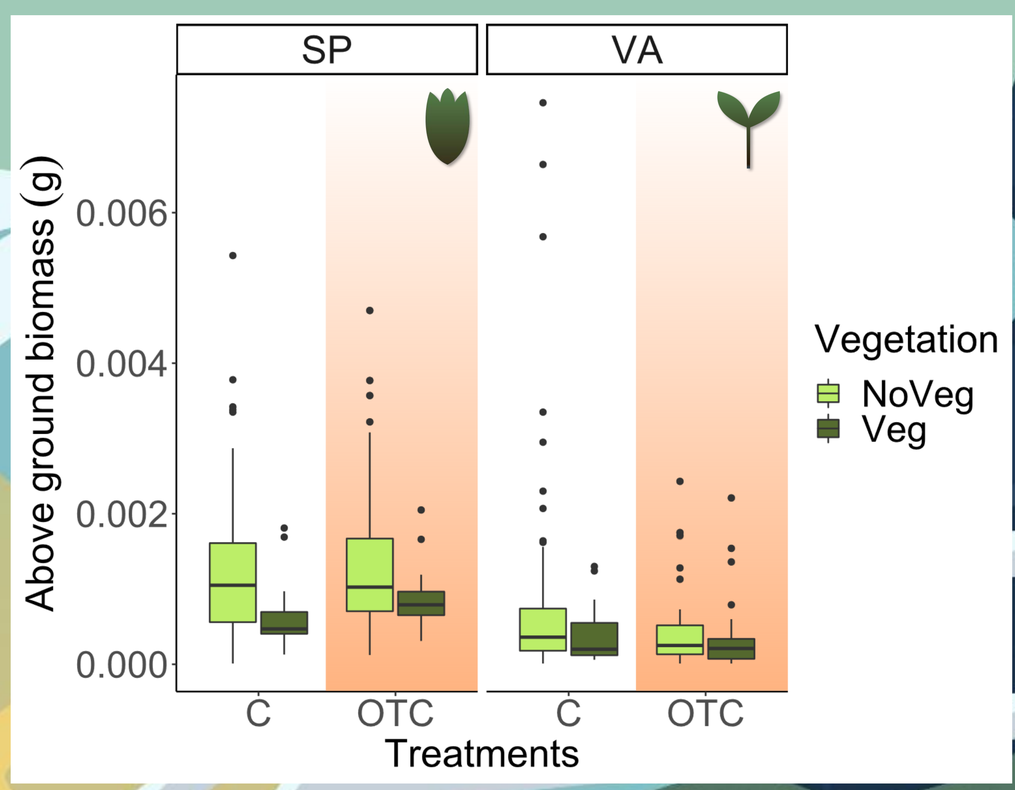
Seedlings grew with vegetation (Veg) and without (NoVeg)



Expectations



Results



4 Removal of vegetation impacted biomass *more* than temperature

Contrary to my expectations, plants were heavier when the surrounding vegetation was removed, regardless of temperature. The pattern was stronger for SP than VA.

- The competitive release led to an increase in biomass.
- The temperature did not affect the biomass of the seedlings.
- Maybe traditional alpine plants like SP and VA won't be able to compete with other species who grow better during climate change?

Where the trail leads

This is only a tidbit of our results! Next, we'll look at the seedling's leaf traits and survival rates to further investigate interactions, increased temperature effects and resource allocations.

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