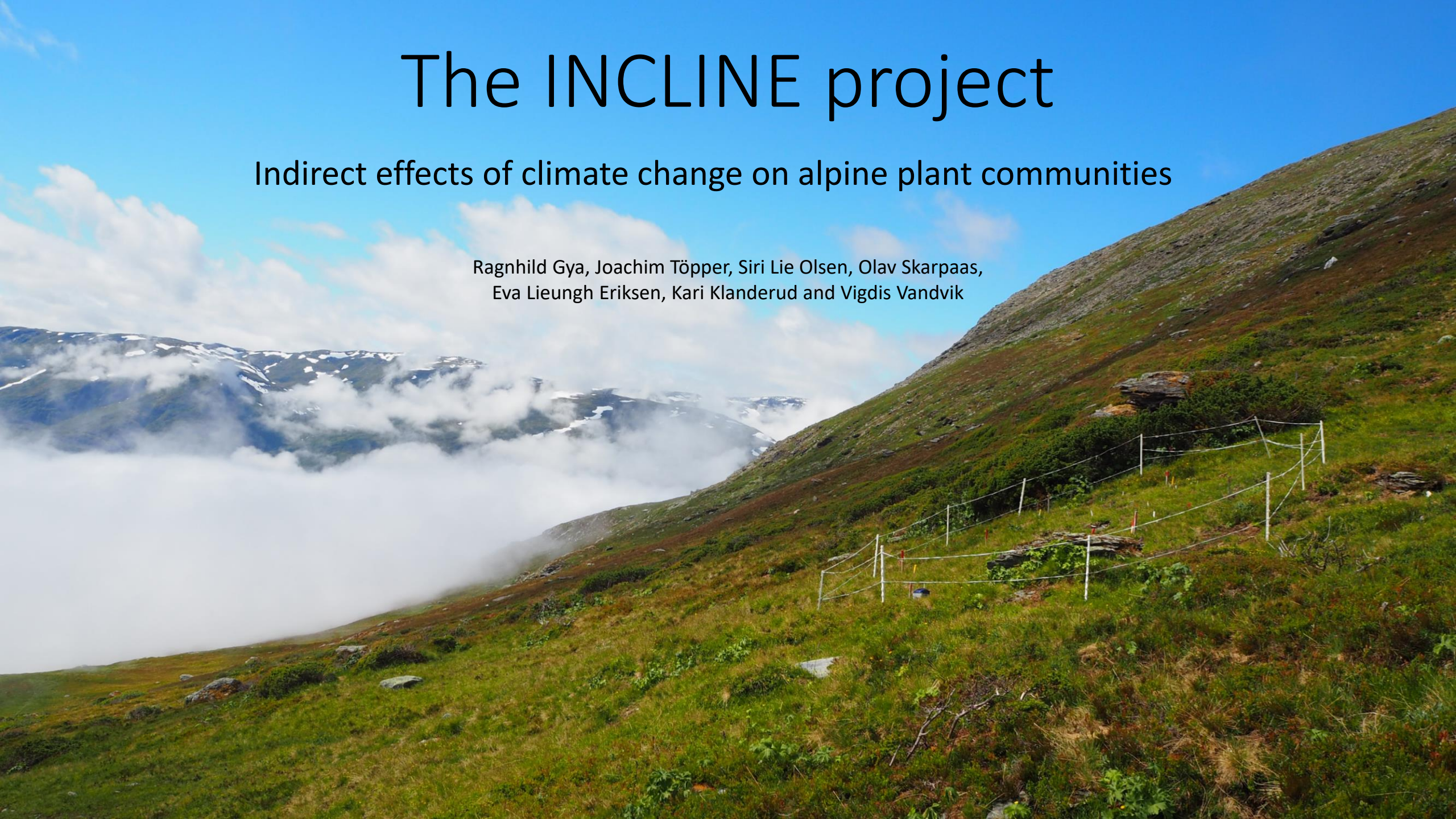
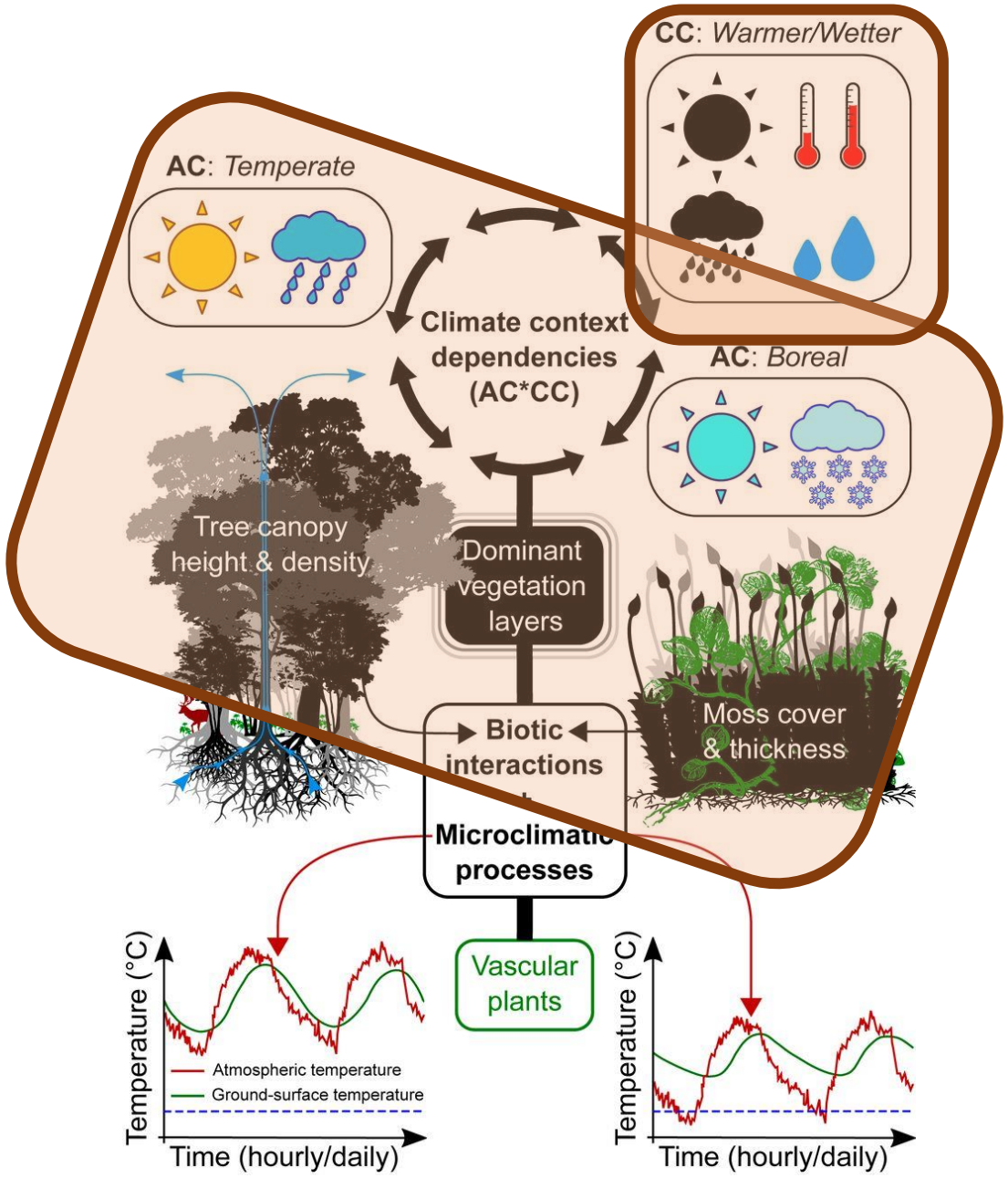
The INCLINE project

Indirect effects of climate change on alpine plant communities

Ragnhild Gya, Joachim Töpper, Siri Lie Olsen, Olav Skarpaas,
Eva Lieungh Eriksen, Kari Klanderud and Vigdis Vandvik





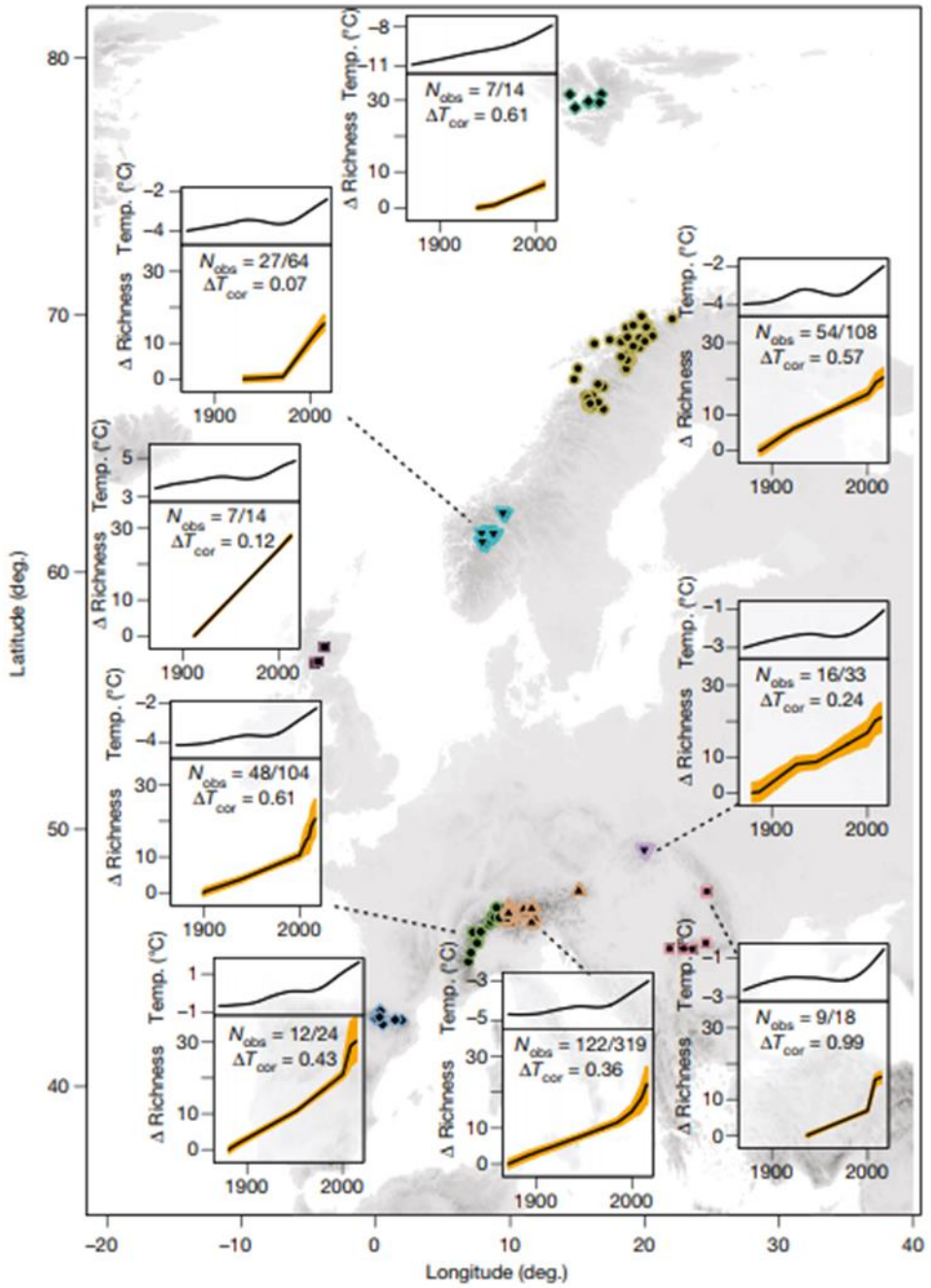
COMMENTARY

Rethinking climate context dependencies in biological terms

Jonathan Lenoir[a,1]

Biotic rescaling reveals importance of species interactions for variation in biodiversity responses to climate change

Vigdis Vandvik[a,b,1], Olav Skarpaas[c,d], Kari Klanderud[e], Richard J. Telford[a,b], Aud H. Halbritter[a,b], and Deborah E. Goldberg[f]

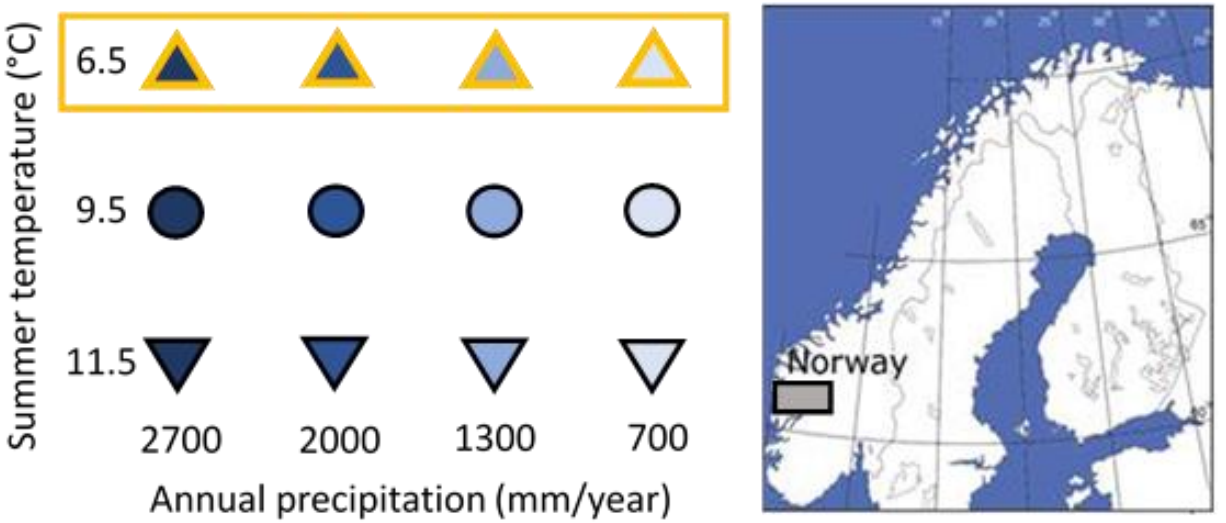


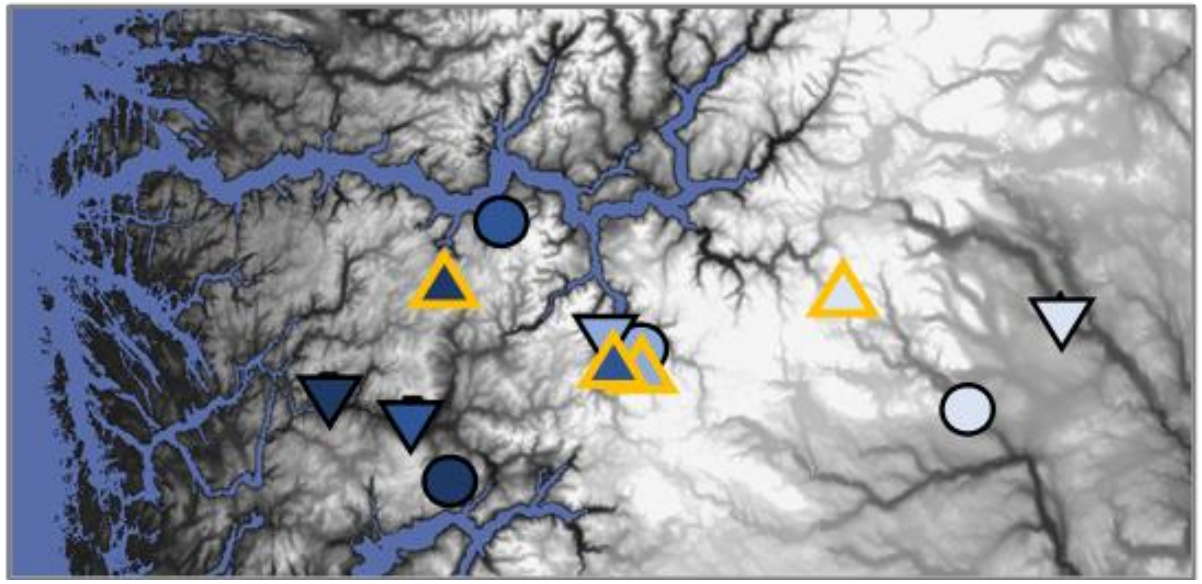
Plants are on the move

Steinbauer et al., 2015, Nature

- Direct and indirect effects of climate change

- Warming experiment
- Transplants experiment
- Removal experiment





The alpine species

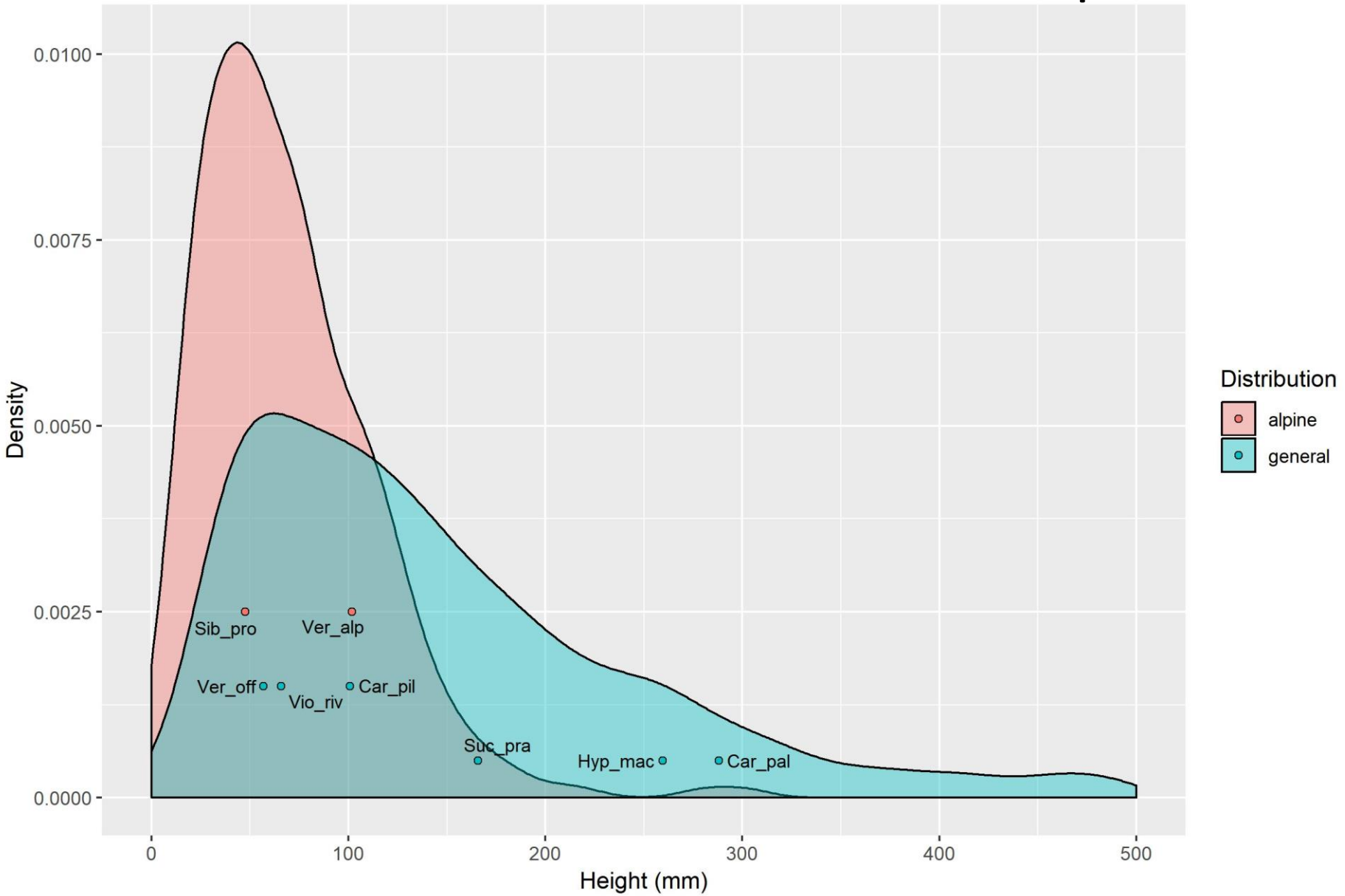
Sibbaldia procumbens
Photo: Ragnhild Gya

Veronica alpina
Photo: Ragnhild Gya

Warming

Photo: Siri Lie Olsen

Novel function with novel competitors?



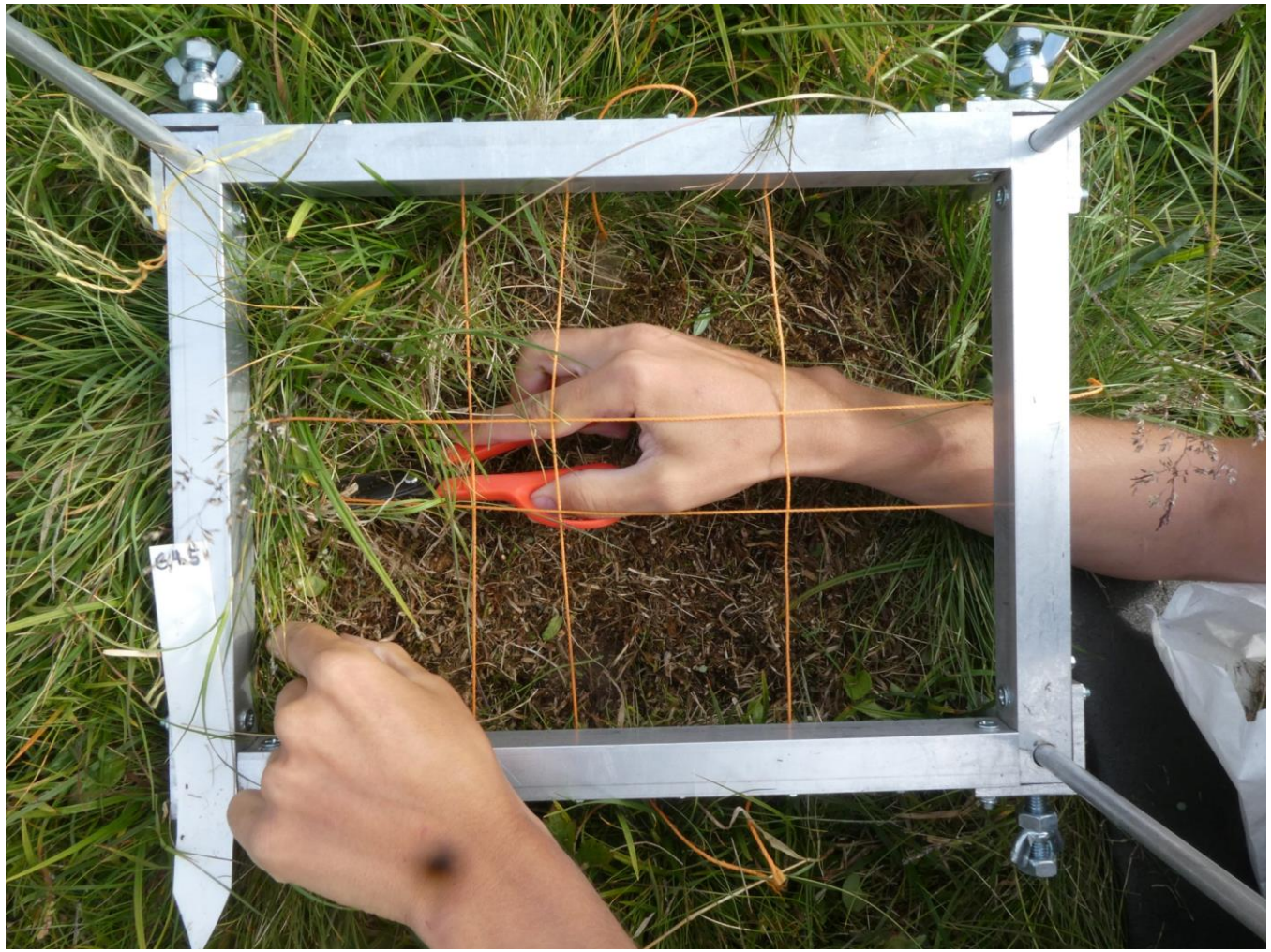
Transplanting

Lowland competitors with novel traits

Alpine control

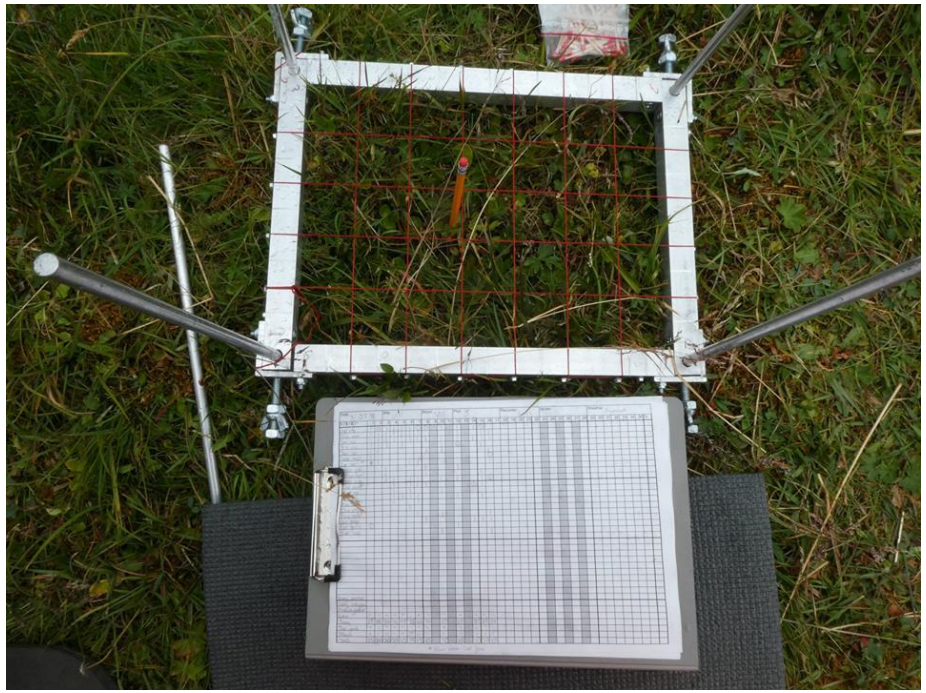
Lowland competitors with similar traits

Removal



What are we measuring?

- Community repsonse



What are we measuring?

- Community repsonse
- Demography

What are we measuring?

- Community repsonse
- Demography
- C-flux

Photo: Joseph Gaudard

What are we measuring?

- Community repsonse
- Demography
- C-flux
- Seedling survival

What are we measuring?

- Community repsonse
- Demography
- C-flux
- Seedling survival
- Soil properties

Photo: Joseph Gaudard

What are we measuring?

- Community repsonse
- Demography
- C-flux
- Seedling survival
- Soil properties
- Microclimate

What are we measuring?

- Community repsonse
- Demography
- C-flux
- Seedling survival
- Soil properties
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- Site climate

What are we measuring?

- Community repsonse
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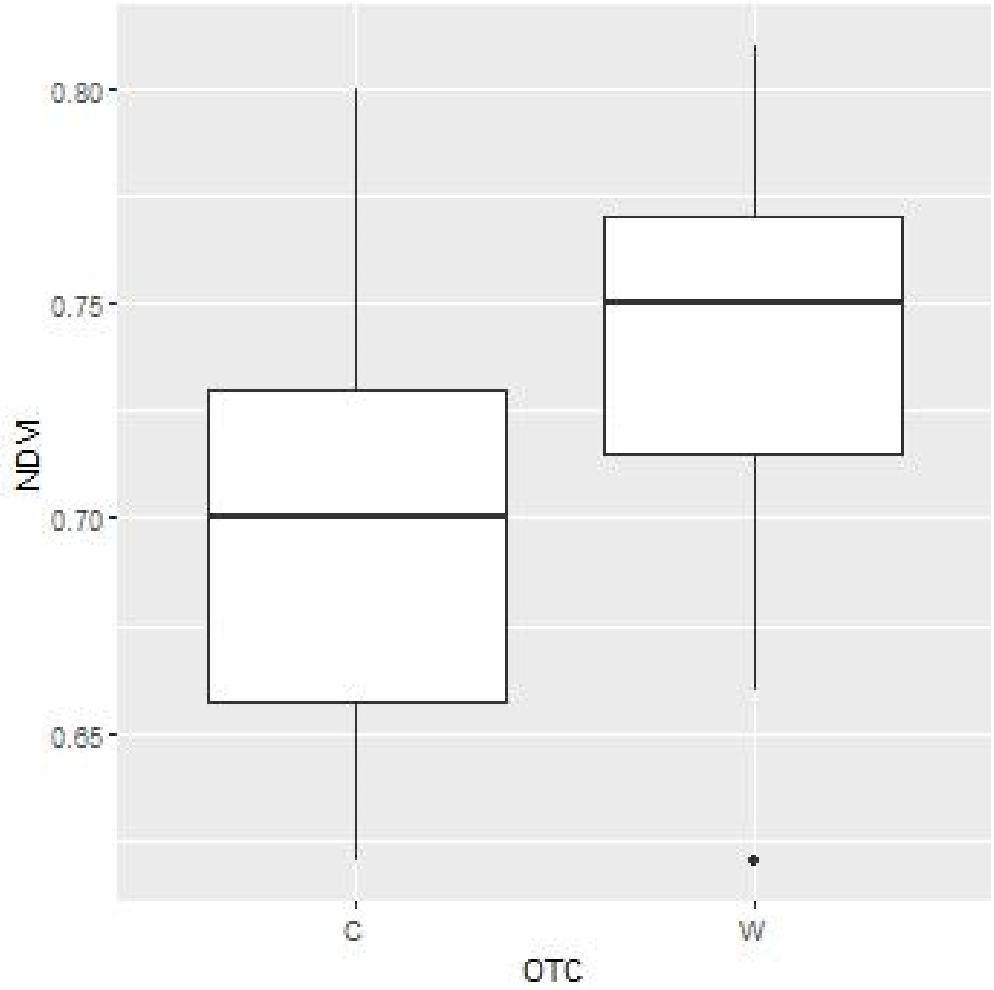
- NDVI



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UiO : Naturhistorisk museum

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