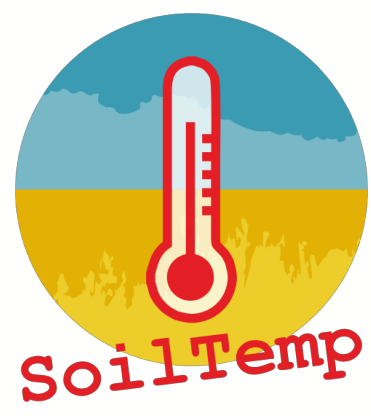


Vegetation diversity buffers soil microclimatic extremes: phenomenon and mechanisms

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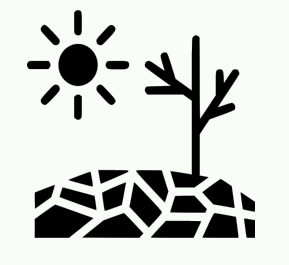


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Introduction



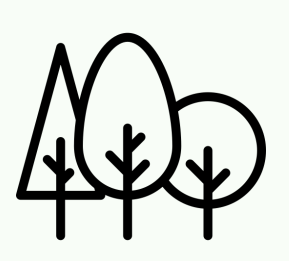
The frequency and intensity of extreme climatic events is increasing.



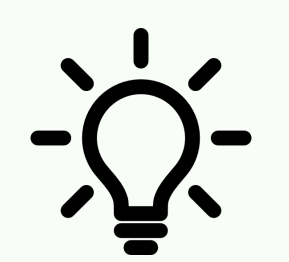
Belowground communities and functions are highly sensitive to changes in microclimatic conditions (Cesarz *et al.*, 2021, Gottschall *et al.*, 2019).



Vegetation has shown its potential to mitigate external macroclimatic conditions by buffering macroclimatic fluctuations (de Frenne *et al.*, 2019, 2021).



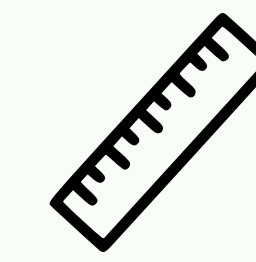
Higher vegetation diversity increases primary productivity and vegetation periode (Huang *et al.*, 2018; Sapijanskas *et al.*, 2014).



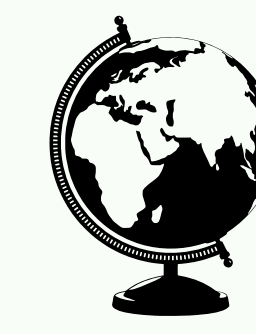
Vegetation diversity should increase the buffering of macroclimatic fluctuations.

Objectives

Here, we propose to:



Quantify the effect of vegetation diversity on climatic buffering ...



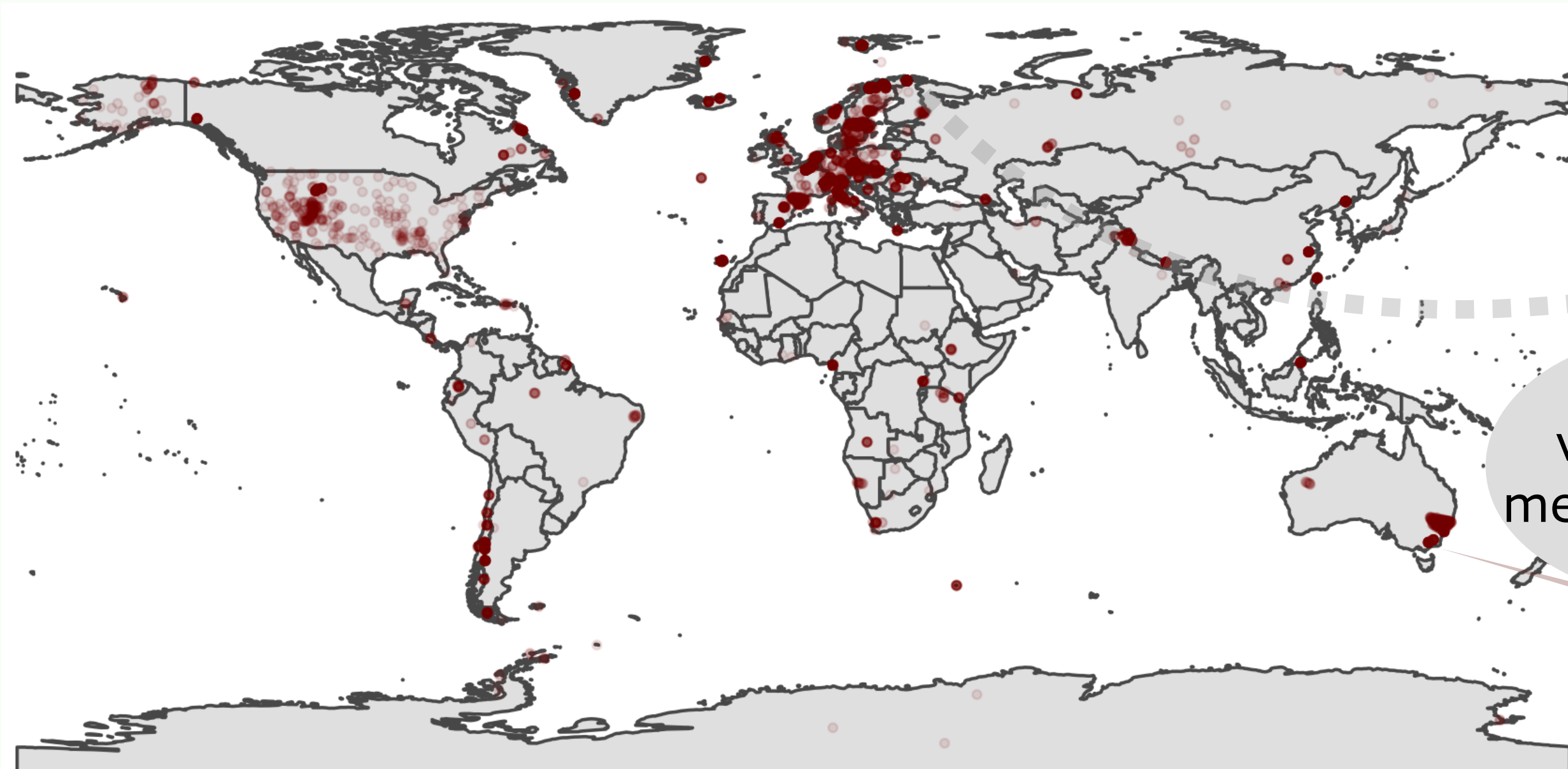
... across ecosystems using the SoilTemp database and remote-sensing measurements of the vegetation.



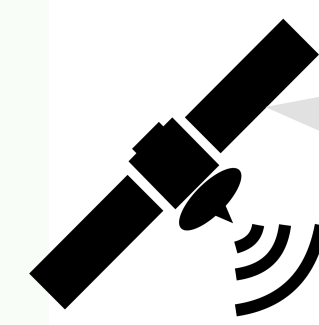
Understand the mechanisms behind vegetation diversity effects on climatic buffering using *in situ* measurements of the vegetation.

Methods

Global temperature sampling



~6000 locations



Remote-sensed vegetation measurements

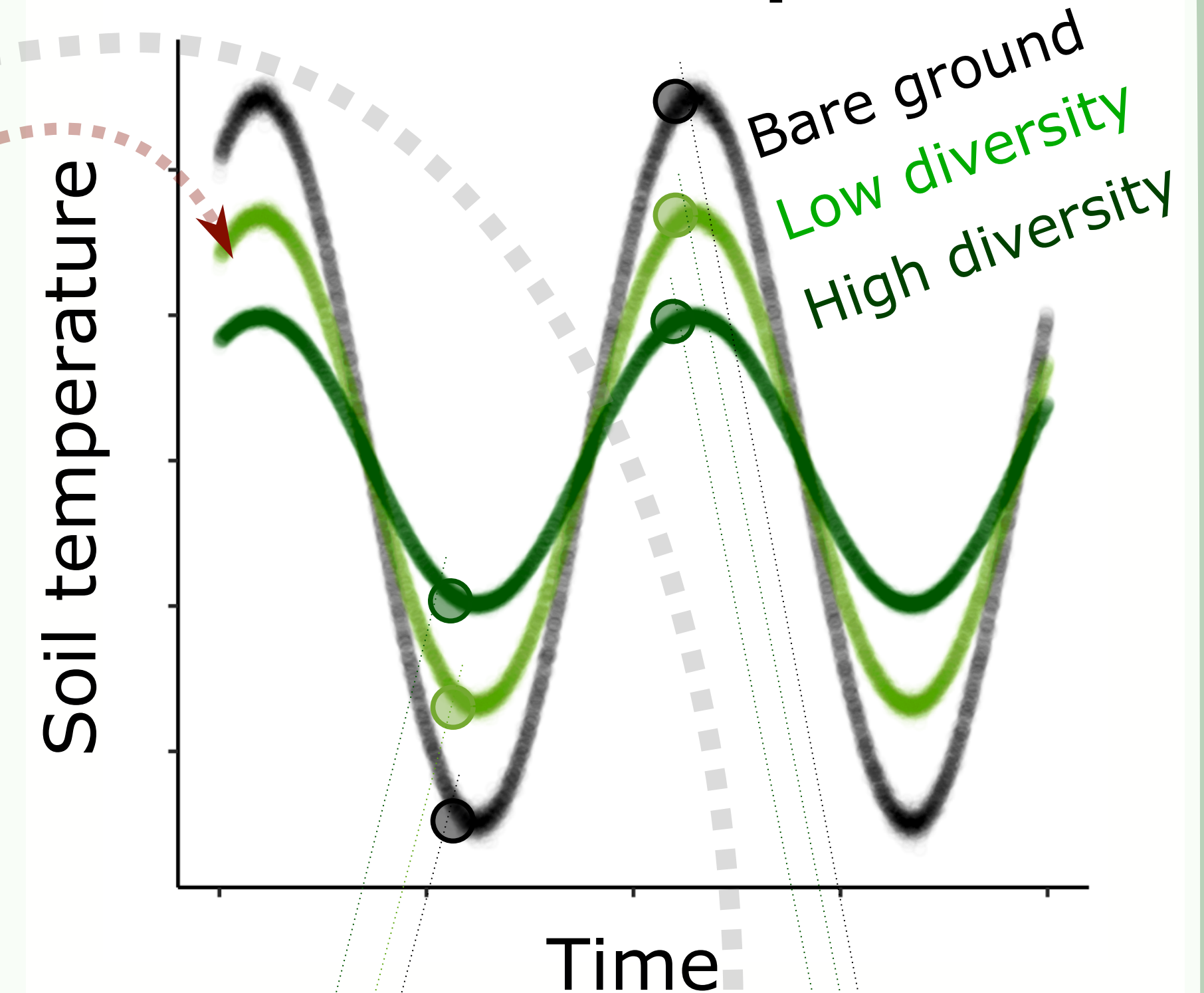
In situ vegetation measurements



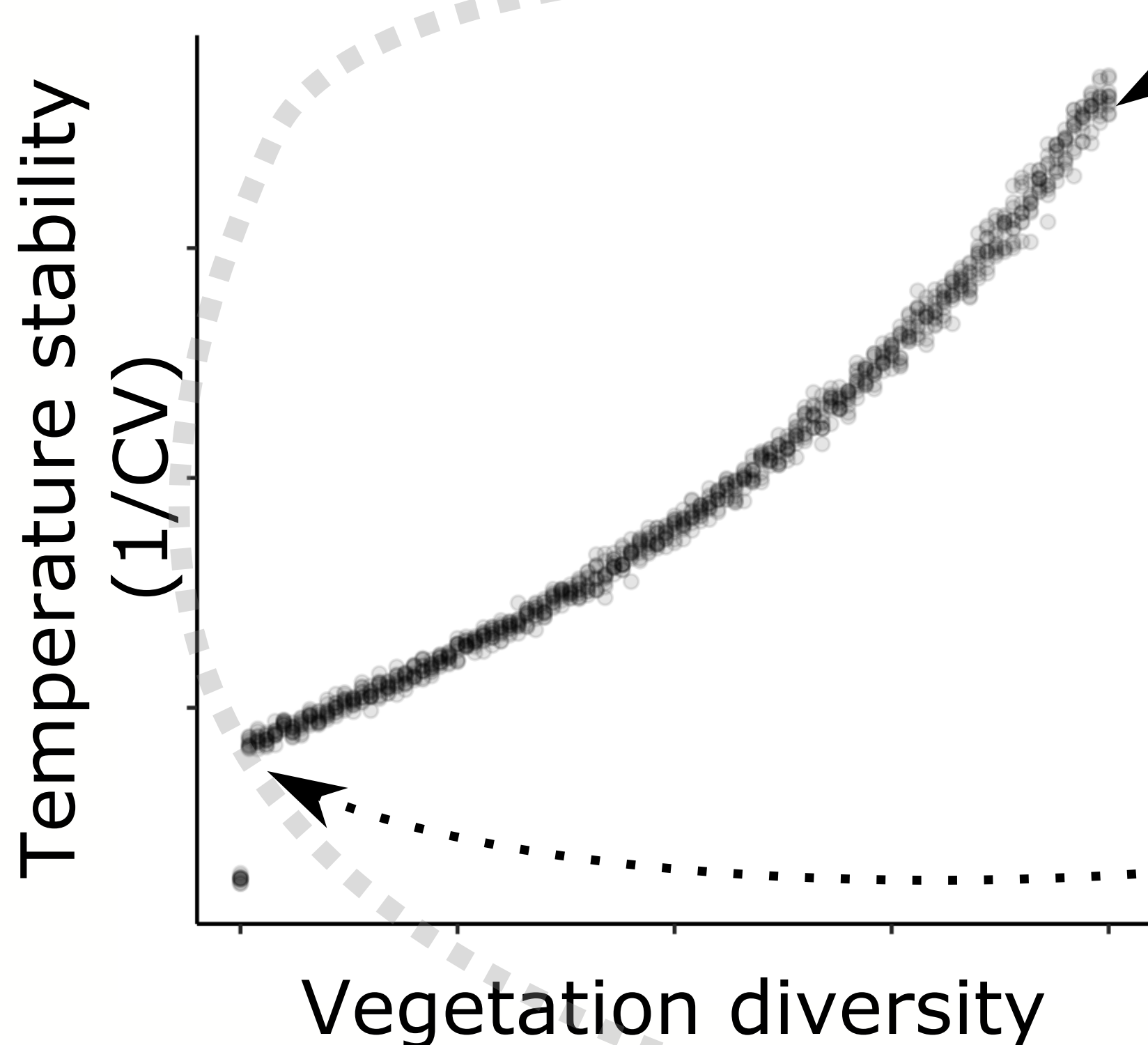
Local temperature measurements

Hypotheses

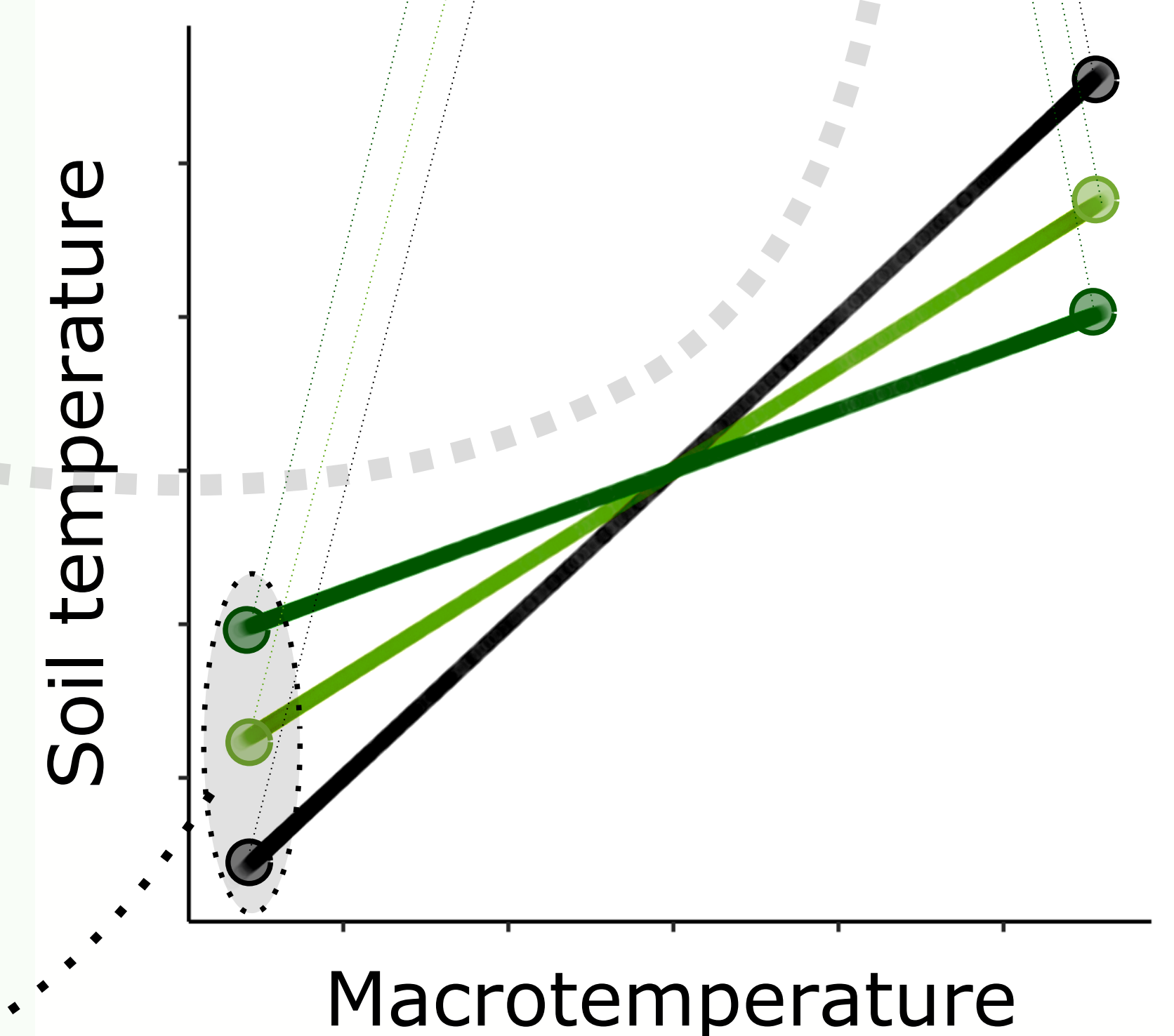
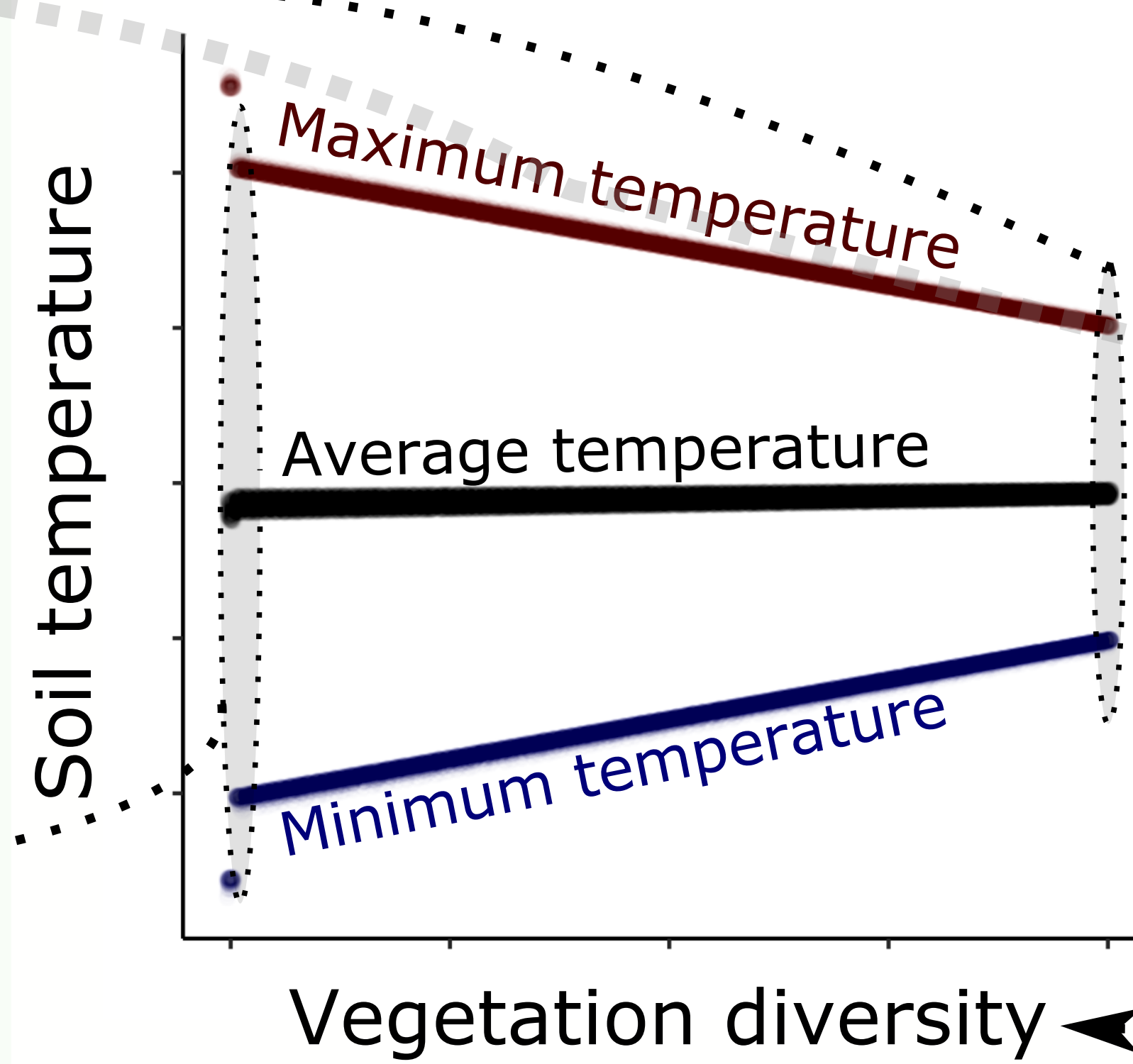
H1: vegetation diversity buffers soil temperature



H4: vegetation diversity increases temperature stability



H3: vegetation diversity reduces temperature extremes



H2: vegetation diversity weakens the relationship between soil and macrotemperature

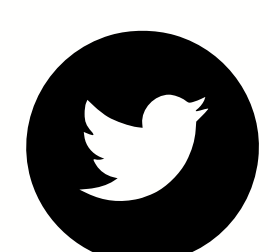
Perspectives

Vegetation diversity could protect undercanopy communities against climate change

Call for contributors

You measured soil temperature and would like to contribute to these analyses drop us a line!

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