Beat the heat

Water improves forest air conditioning

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ESCAPE FROM THE HEAT

Forest canopies can create cool microclimates by shading the ground and evaporating soil water.

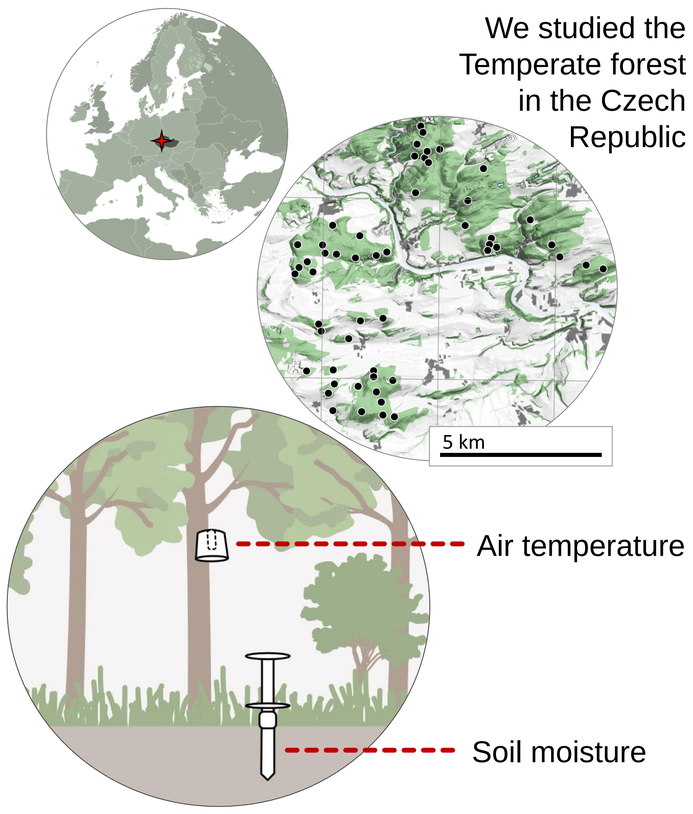
Microclimate cooling is an important ecosystem function that is threatened by drier summer climates, harvesting and drainage.

THE QUESTIONS WE ASK

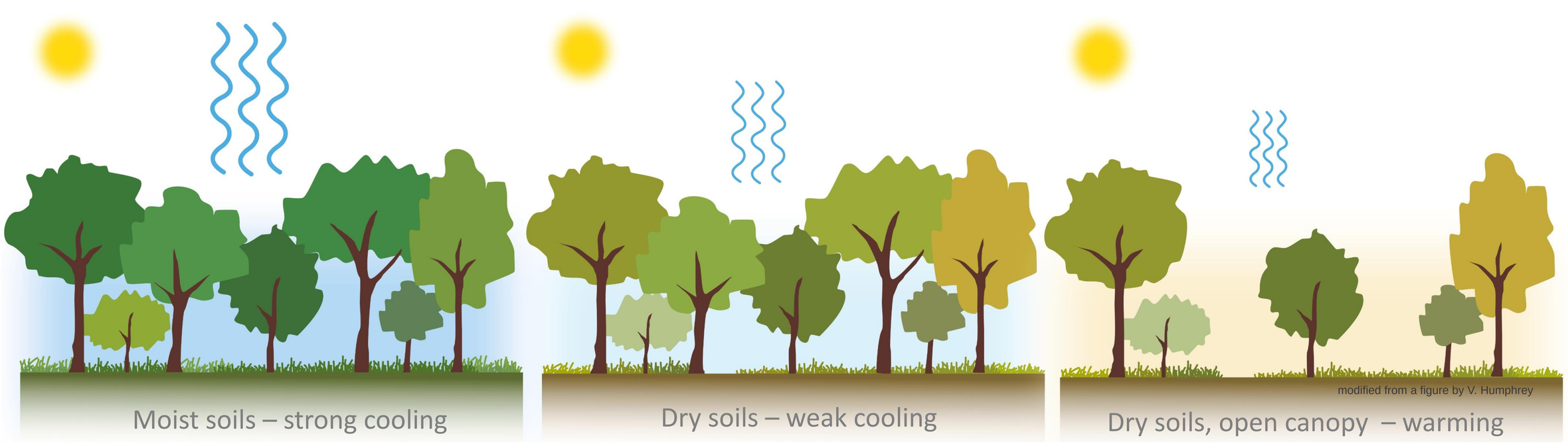
Do wetter soils lead to cooler forests?

Which forests lose their cooling function during dry spells?

LET'S ASK THE LOGGERS!



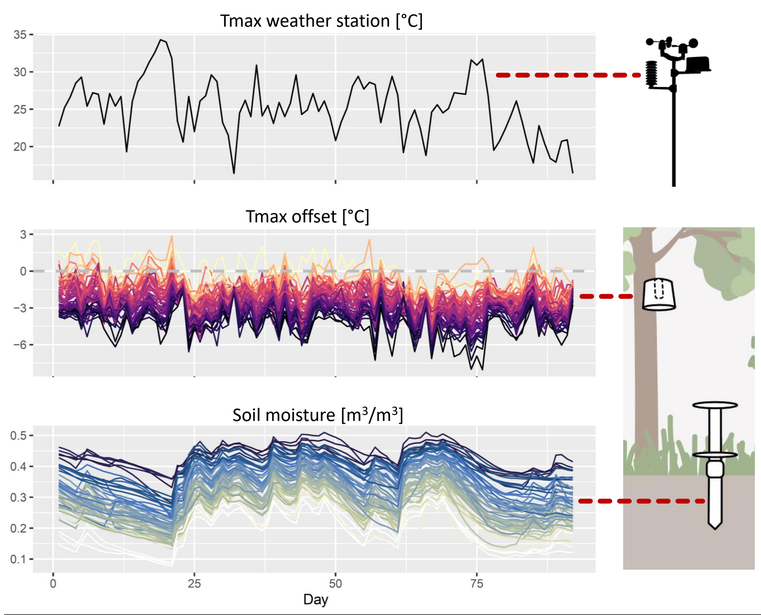
We use a network of 57 loggers measuring sub-canopy air temperature and soil moisture.



OUR APPROACH

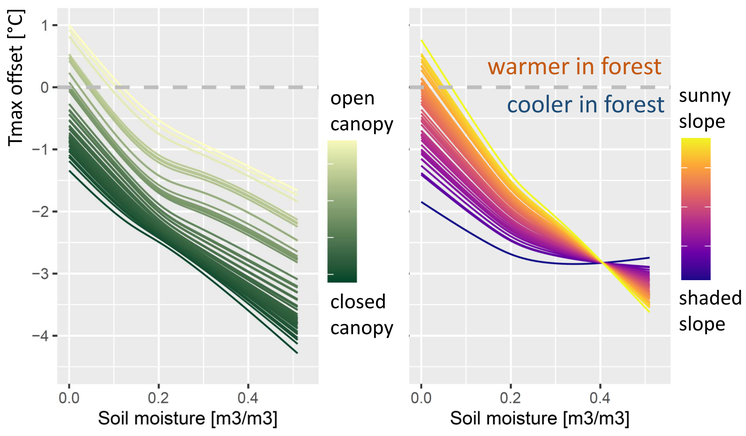
For each logger, we calculate daily temperature offsets from reference weather stations.

$$\text{Offset} = Tmax_{logger} - Tmax_{weatherstation}$$



MOIST SOILS = COOL FORESTS

In our statistical models, we find a strong cooling effect of soil moisture.



But the link between moisture and cooling depends on canopy cover, topographic heat load, and general weather.

AND BOREAL FORESTS?

We don't know yet.
But we have set up a logger network across Sweden and started to monitor forest microclimate in boreal forests.

We will also test the soil moisture effect in other forests across entire Europe using the global **SoilTemp database.**

SoilTemp

Bolin Centre for Climate Research
Stockholm University
SLU
SNS Nordic Forest Research

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Project ForestBuffer
FORMAS

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