Climate-driven reduction of genetic variation in plant phenology alters soil communities and nutrient pools

Background

- Changes that have occurred in keystone species and associated communities across their ranges over evolutionary time scales can act as natural laboratories to understand climate change effects on ecosystems.

Goals

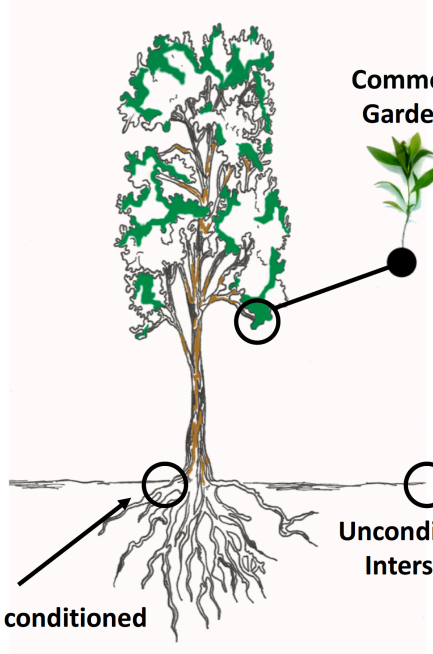
- We sought to understand if climate-driven evolution of plant traits in *Populus angustifolia* would influence associated soil microbiomes and ecosystem functions across its range from Arizona to Montana

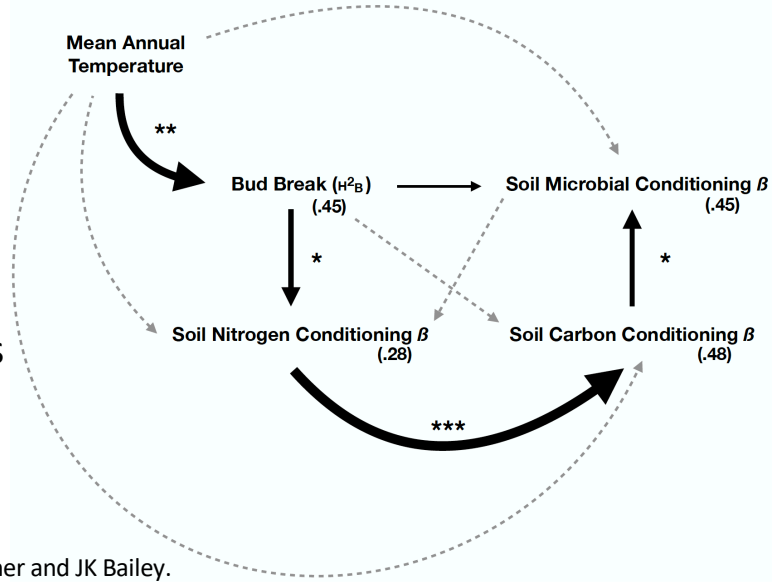
Results

- As mean annual temperature (MAT) increased across this range, genetic variation in *P. angustifolia* for bud break phenology is altered.
- These changes in bud break affect tree conditioning of soil microbiomes, soil nitrogen, and soil carbon, *above and beyond* the effects of MAT and other environmental variables in unconditioned soils.

Impact

- As the evolutionary responses of keystone tree populations are thus linked to ecosystem function, accounting for such relationships may be of great importance in predicting ecosystem resilience and response to in changing environments





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