

Fostering U.S. Canadian partnerships through the ABoVE campaign

What is the role of Canadian academics?

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Rationale (1 of 3)

Ecosystem responses to changing climate and disturbance regimes may vary substantially between Alaska and Canada due to differences in glacial history, geomorphology, land management, resource extraction, etc.

- Ongoing Canadian-U.S. partnerships (Baltzer, Turetsky, Johnstone, Mack; GNWT, NSERC, and NSF Rapid funding) demonstrate that seasonality is a strong control on fire severity in Alaska, but is less pronounced in the NWT.
- This finding is critical for a range of remote sensing and modeling activities. For example, inverse modeling of CO and CO₂ emissions associated with biomass burning.
- Are there strong regional differences in the other key themes underpinning ABoVE?

Rationale (2 of 3)

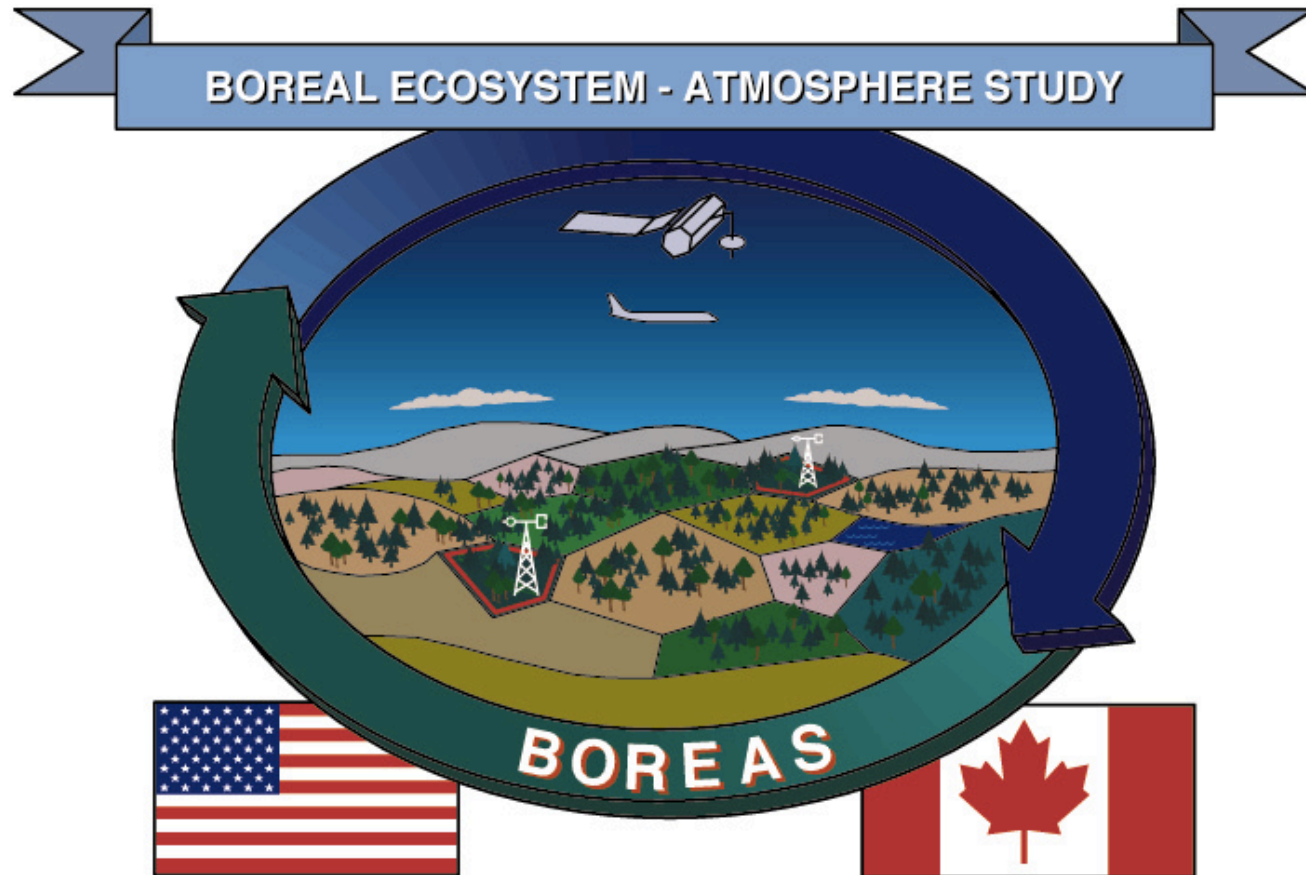
Canadian scientists manage long-running field programs, have accumulated knowledge and understanding from a variety of perspectives, and have fostered long-term relationships with communities, governments, industry.

NASA has invested most heavily in projects detecting vegetation, carbon, and wildfire. Hydrology, permafrost & ecosystem services were identified as key growth areas (Minneapolis meeting). Canadian researchers excel in these areas!



Rationale (3 of 3)

Partnerships were a vital part of the strategy that allowed BOREAS to foster innovative and creative experiments, methods, and solutions.

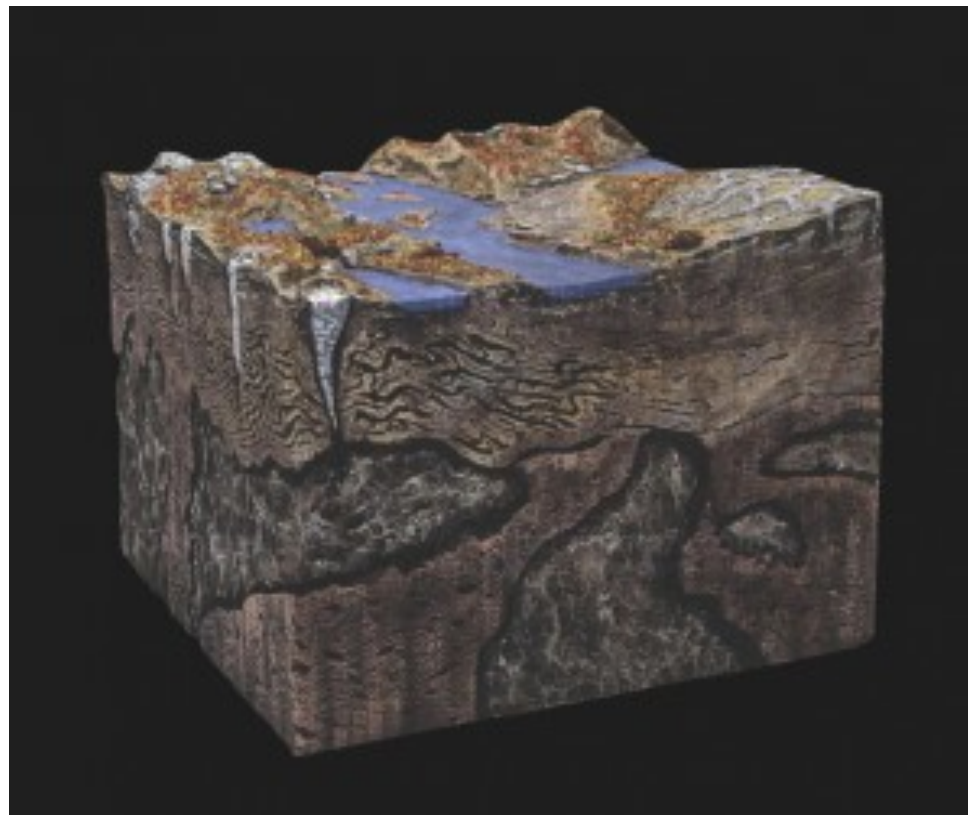
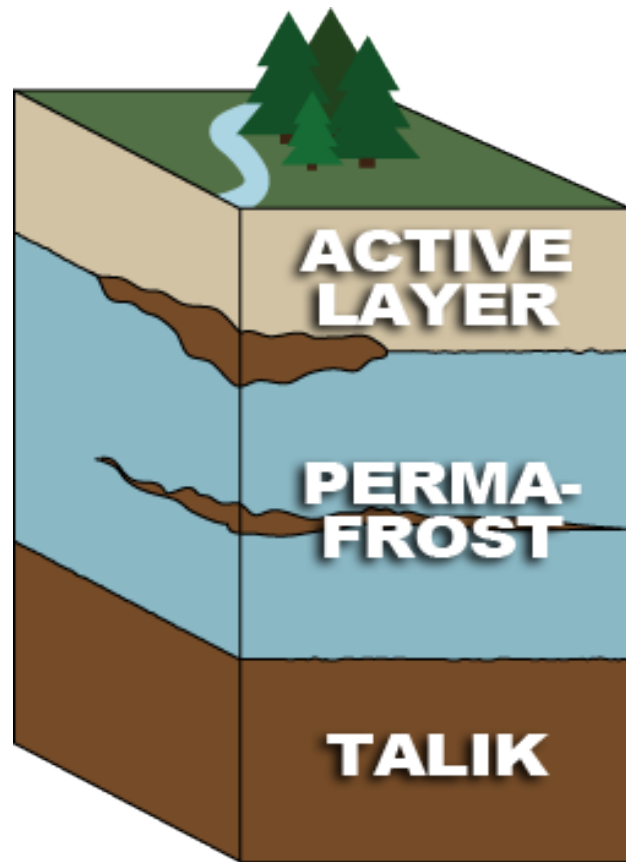


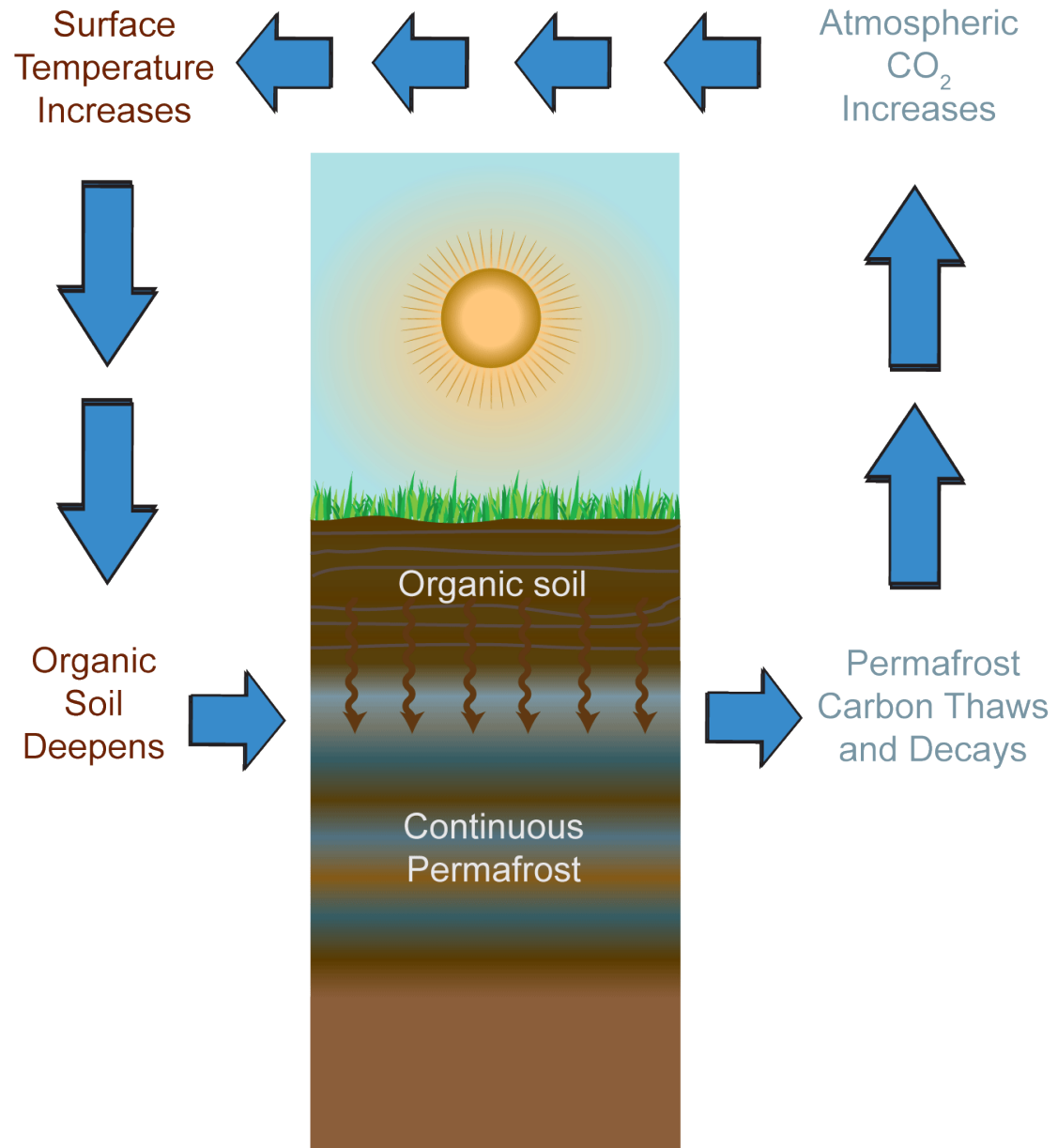
Loss of resilience in Canadian funding

Since BOREAS, the structure of NSERC has changed, with greater concentration of funding in the Discovery and Strategic programs at the expense of more flexible programs such as the Special Research Opportunity (SRO) program.

Funding for Canadian academics related to ABoVE need to fit within NSERC's current funding programs.

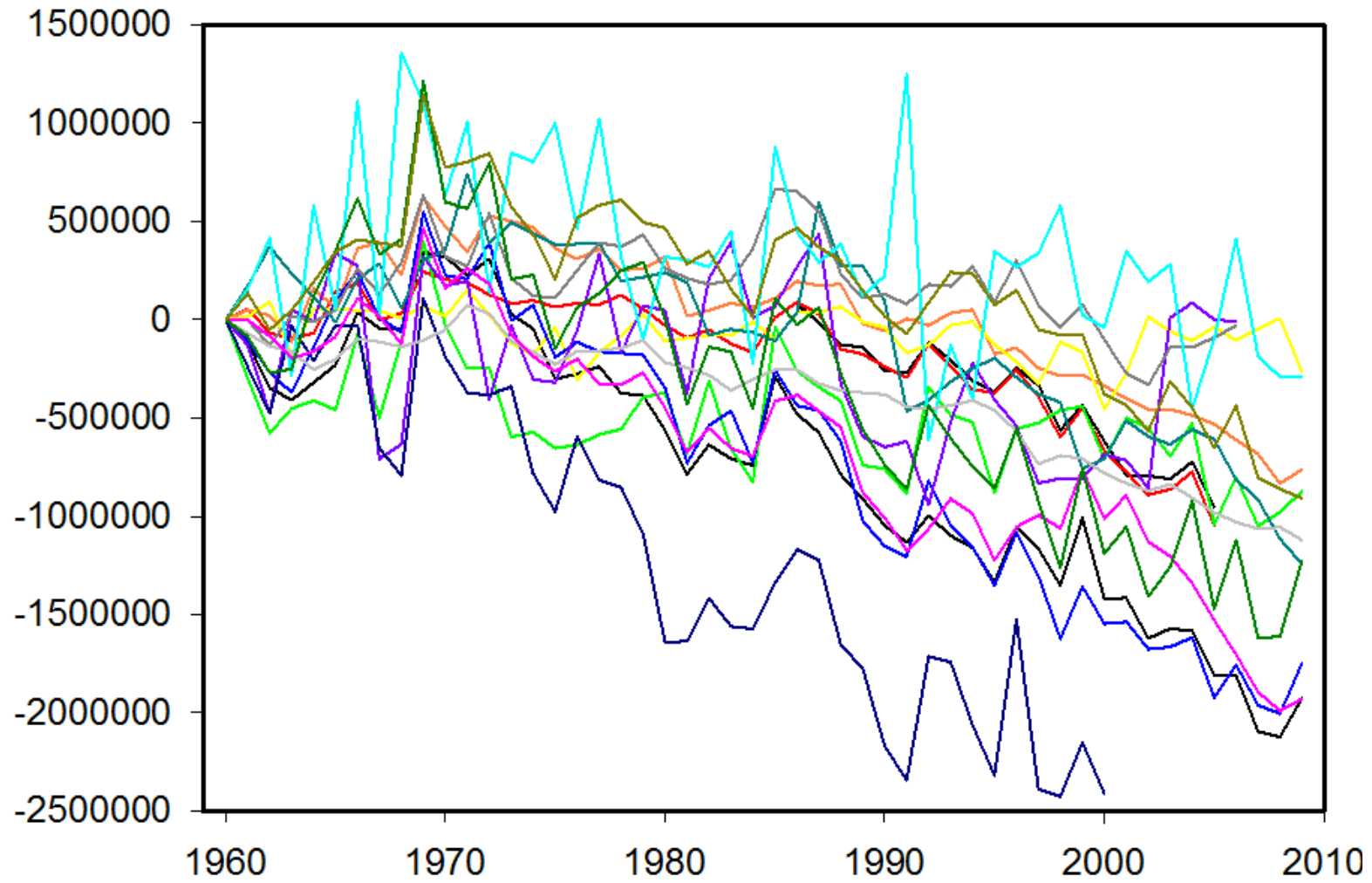
- CREATE (Collaborative Research and Training Experience Program)
- Strategic Network Grant



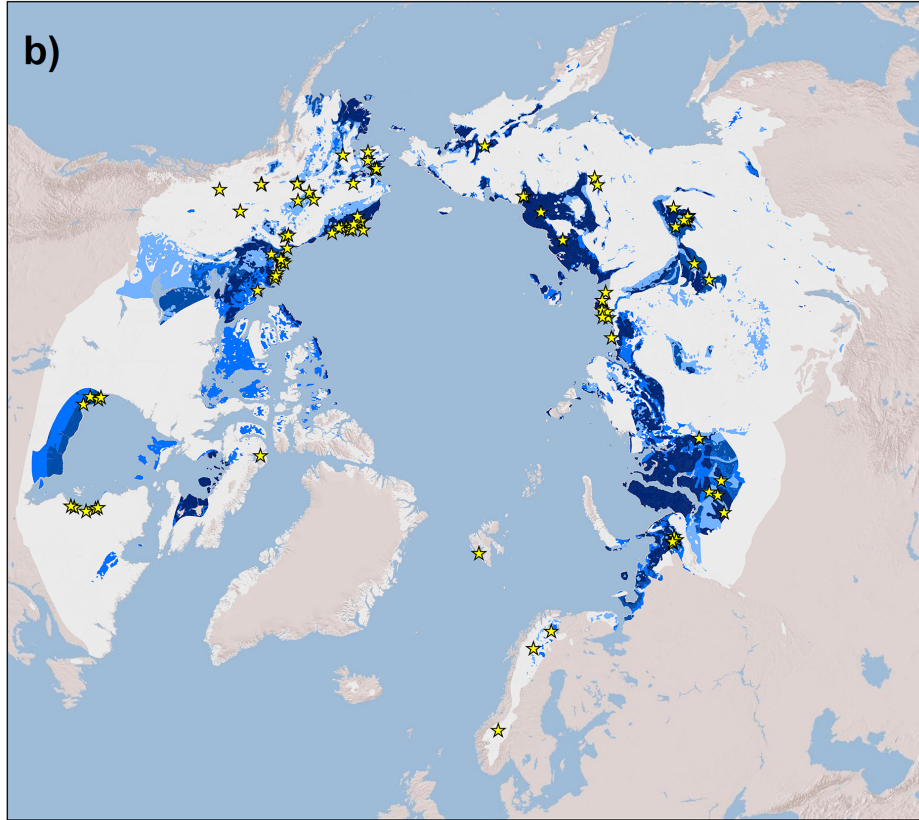
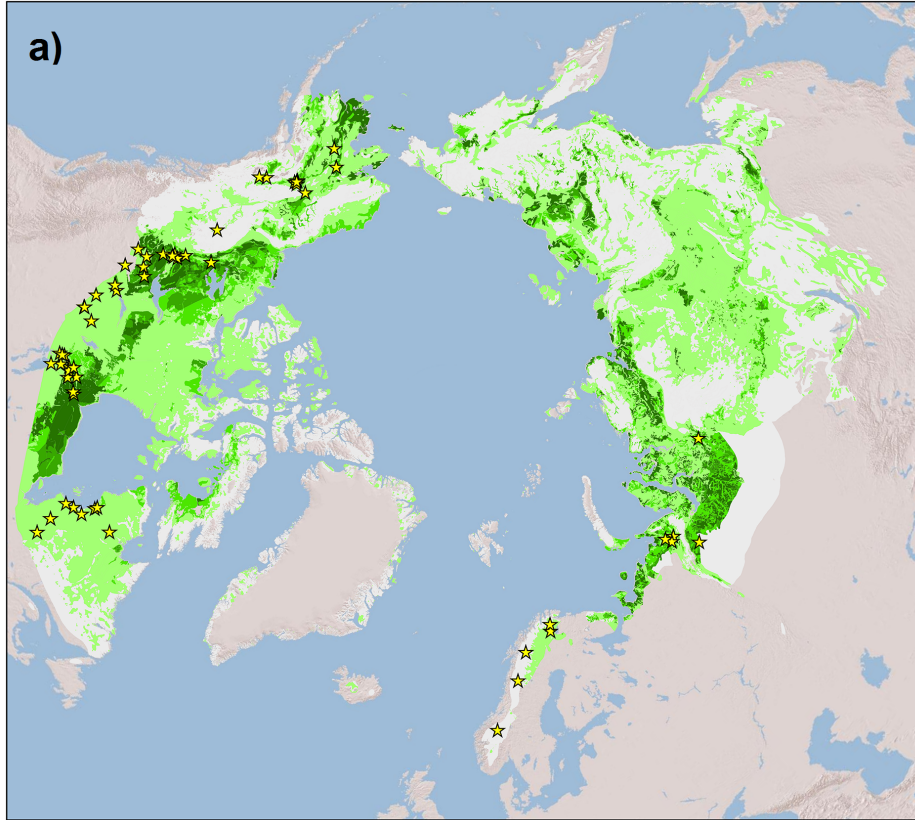




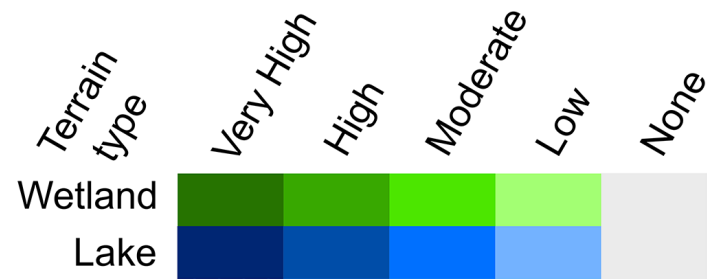
Modeled changes in permafrost area (km²)







Thermokarst terrain coverage



Northern ecosystems and the mystery of legacies

- Legacies represent the effect of the past on the present, and determine an ecosystem's response to disturbance and subsequent trajectory of reorganisation.
- Legacies can be material (permafrost, peat, old sea ice) or biological (propagules driving rapid post-fire recovery)



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Interactions between disturbance and climate change are erasing the legacies of the last millennia of ecosystem processes

