



Ecological legacies are:

- **Anything handed down from a pre-disturbance ecosystem (Perry 1994).**
- **The carry-over or memory of the system with regard to past events (Little et al. 1997).**
- **A framework for elucidating the influence of past events or past conditions on the structure and dynamics of extant ecosystems (Moorhead et al. 1999).**

Boreal ecological legacies are:

What?

(write on your pink sticky notes)

Ecological legacies are:

“Grunge” ecology?

Old wine in a new bottle?

Everything?



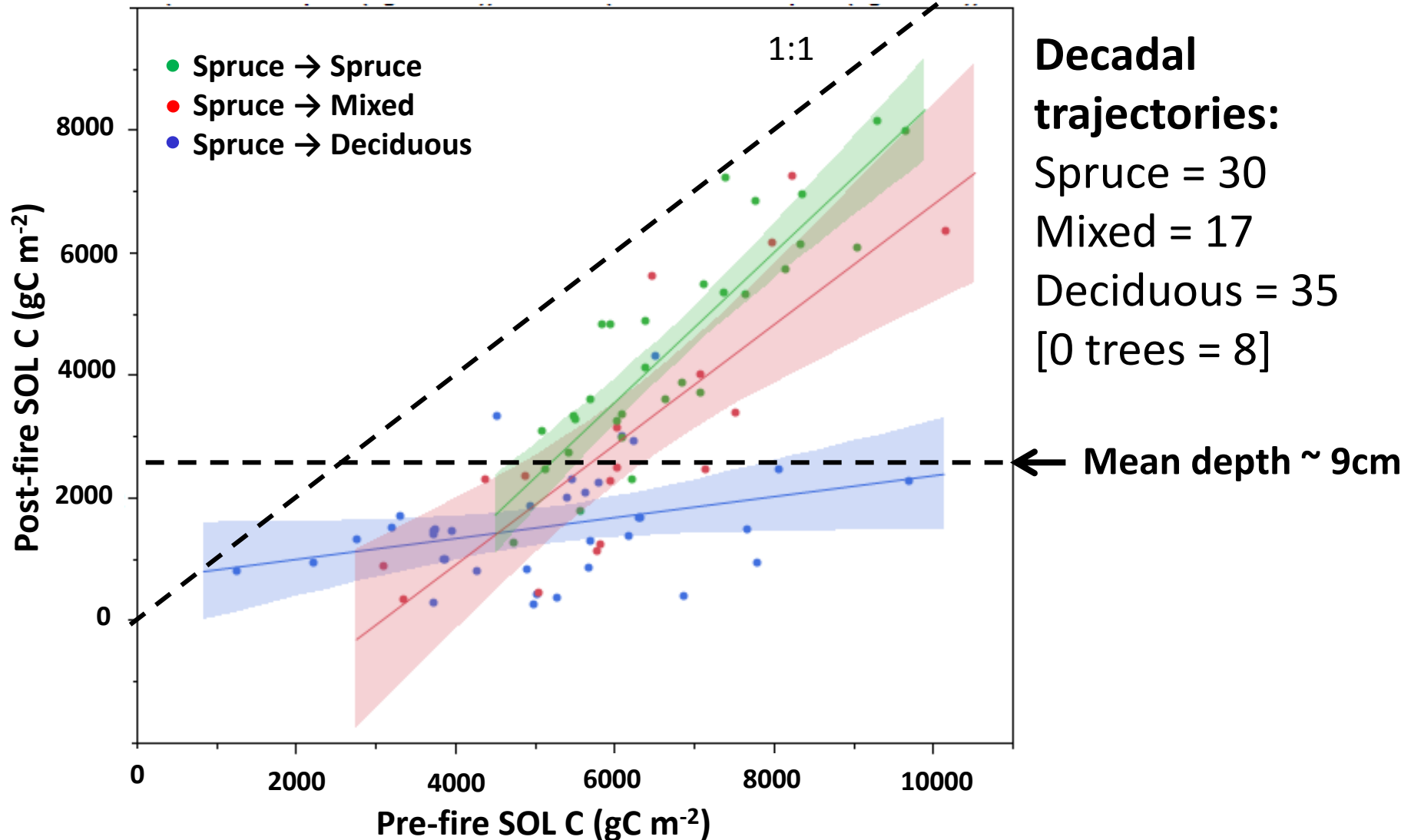
**Can ecological legacies help us
understand the resilience or vulnerability
of boreal forest ecosystems to changing
climate?**

Material legacies:

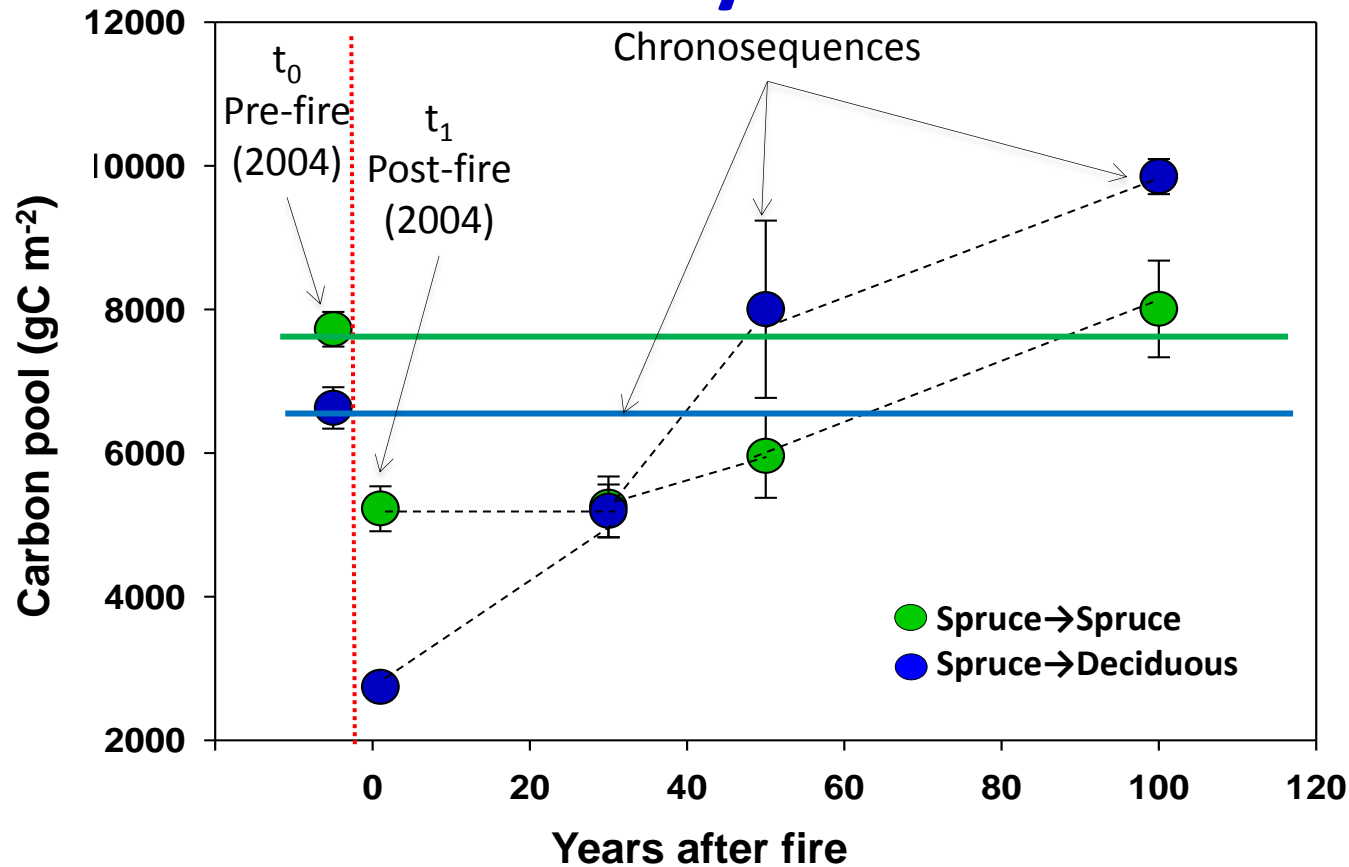
- **Establish biogeochemical linkages between ecosystems in time**
- **Requires temporal trends in the balance between inputs and outputs; not at steady state**
- **Help us understand temporal variation—juxtapose past pools with present fluxes to understand change**
- **Shed light on transient states in ecosystem response to change**



Residual SOL-C pools and successional trajectory



Ecosystem carbon pools over the disturbance cycle



Net C accumulation (t₁₀₀-t₁):

Spruce 2877 g C m⁻²

Deciduous 7110

% legacy carbon at t₁₀₀:

Spruce 64 %

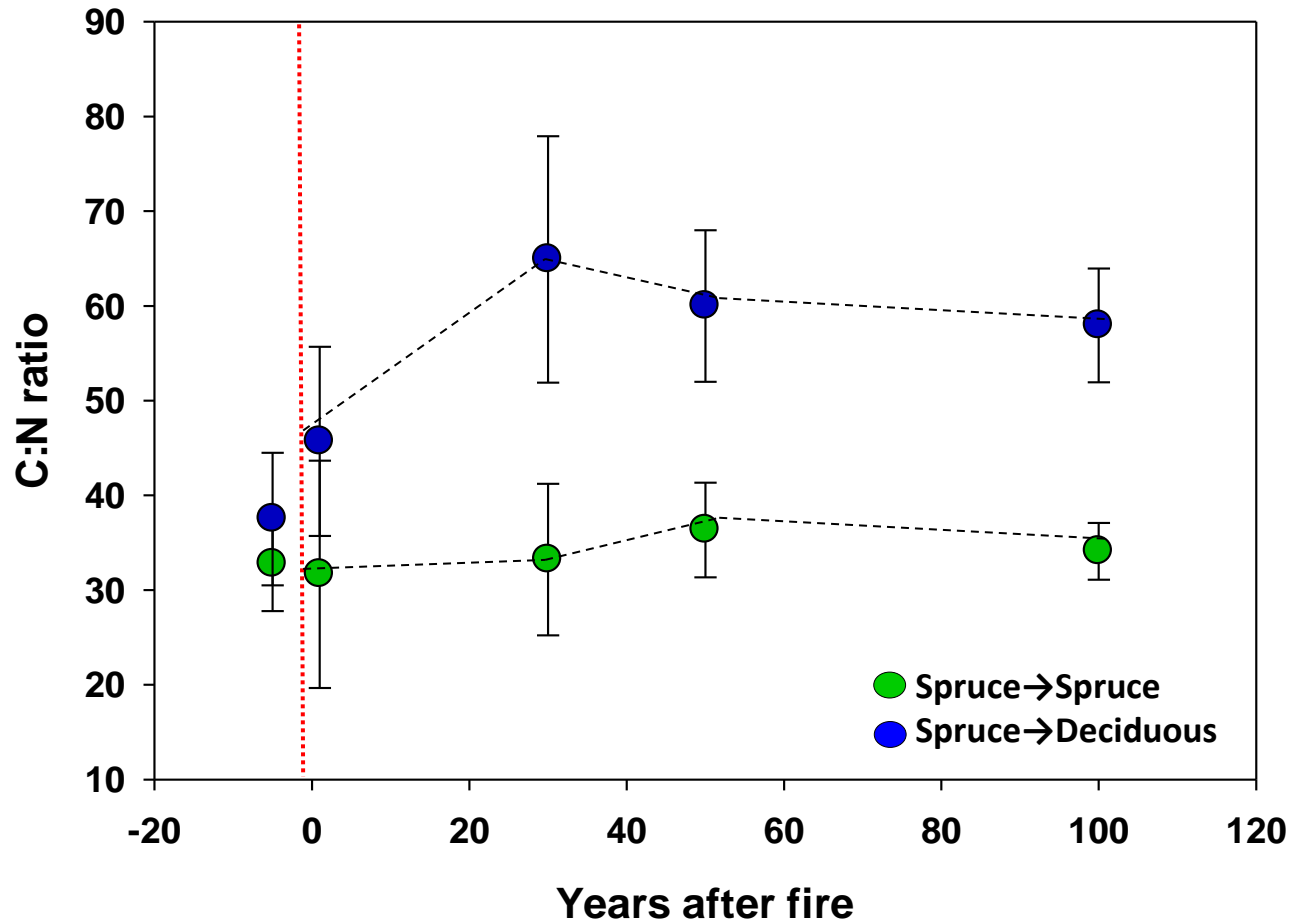
Deciduous 28

NECB (t₁₀₀-t₀):

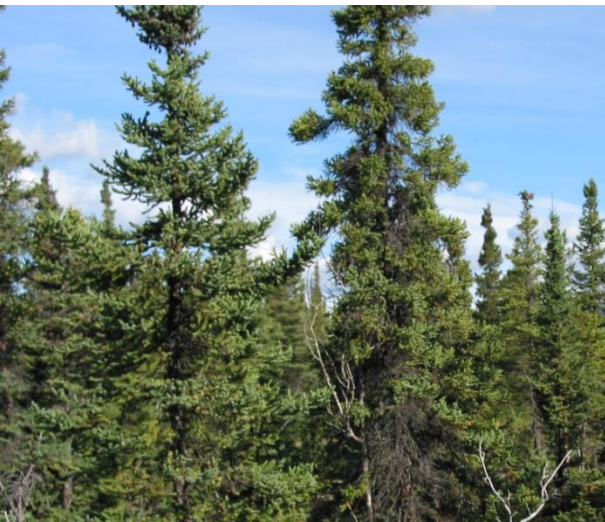
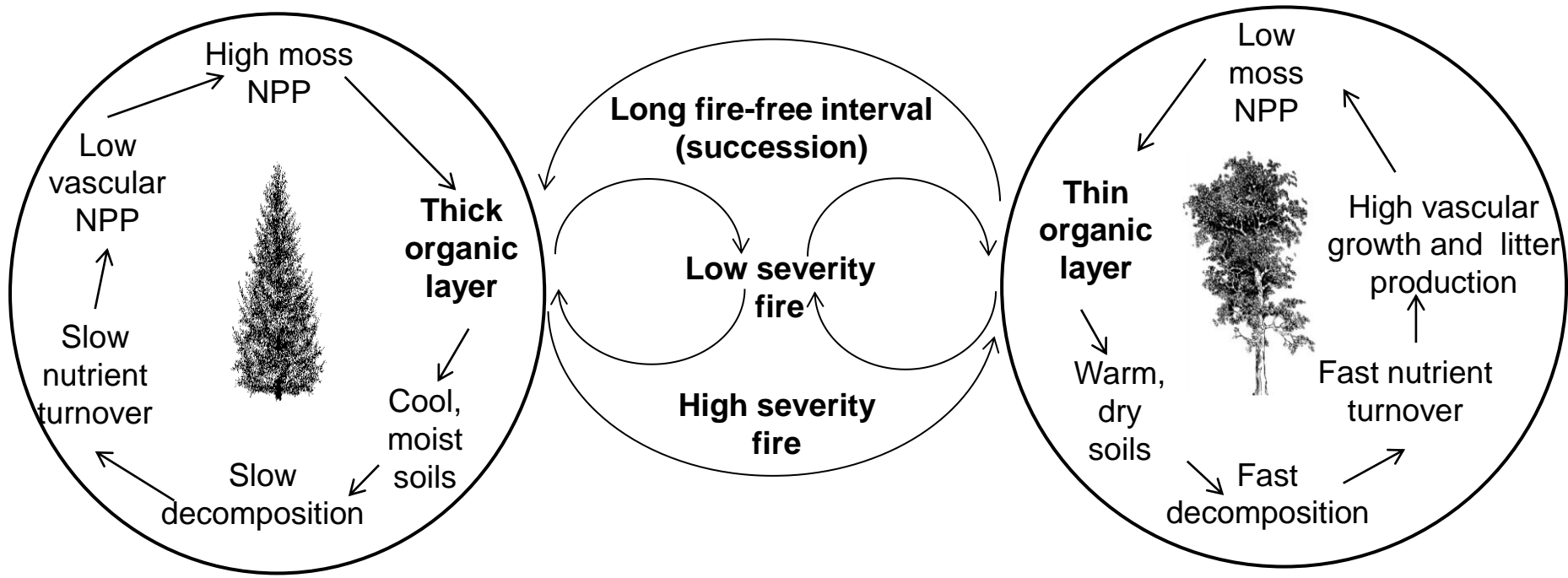
Spruce 375 g C m⁻²

Deciduous 3,233

Ecosystem C:N ratio over the disturbance cycle



Are legacies a source of resilience?

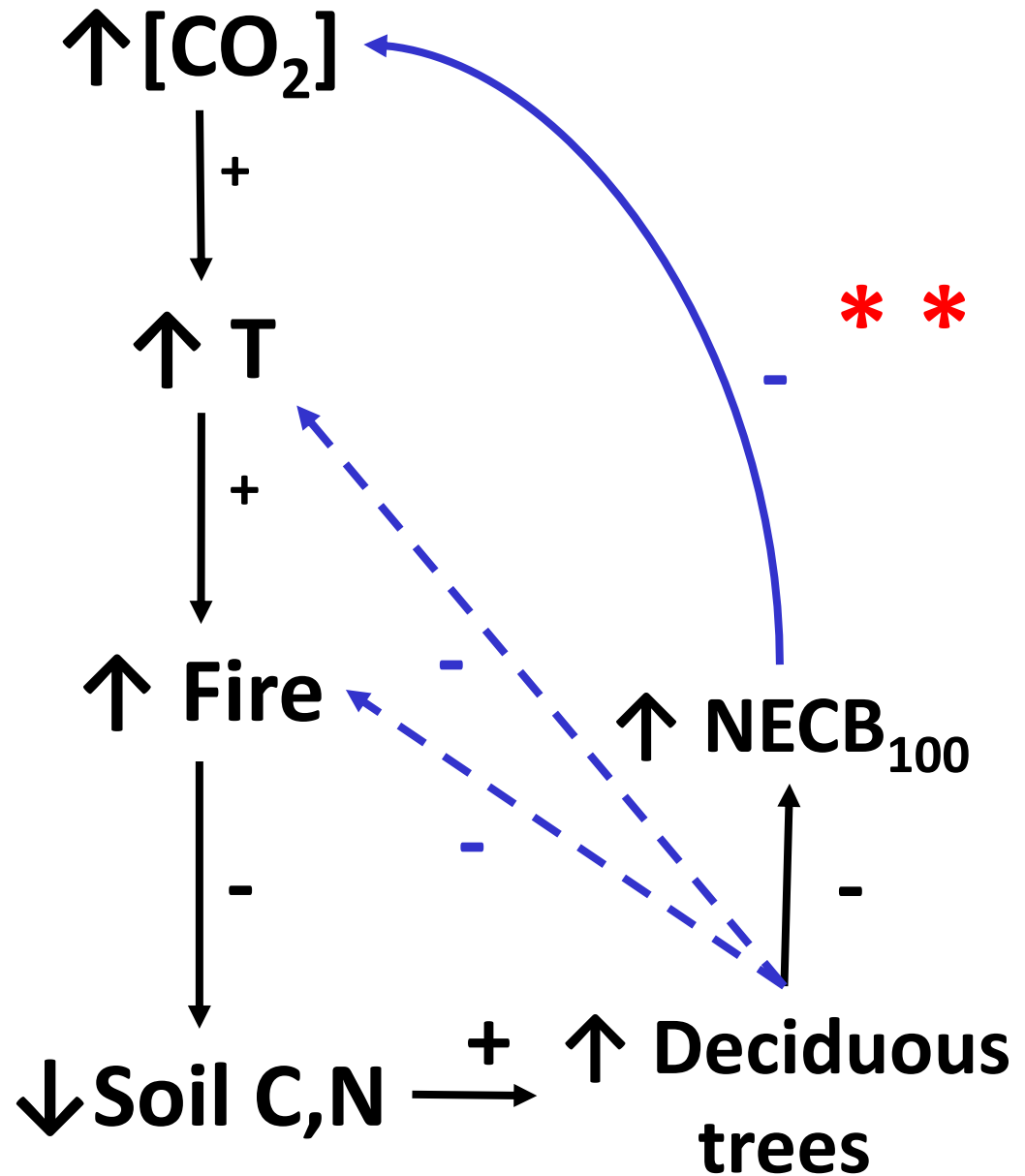


Results:

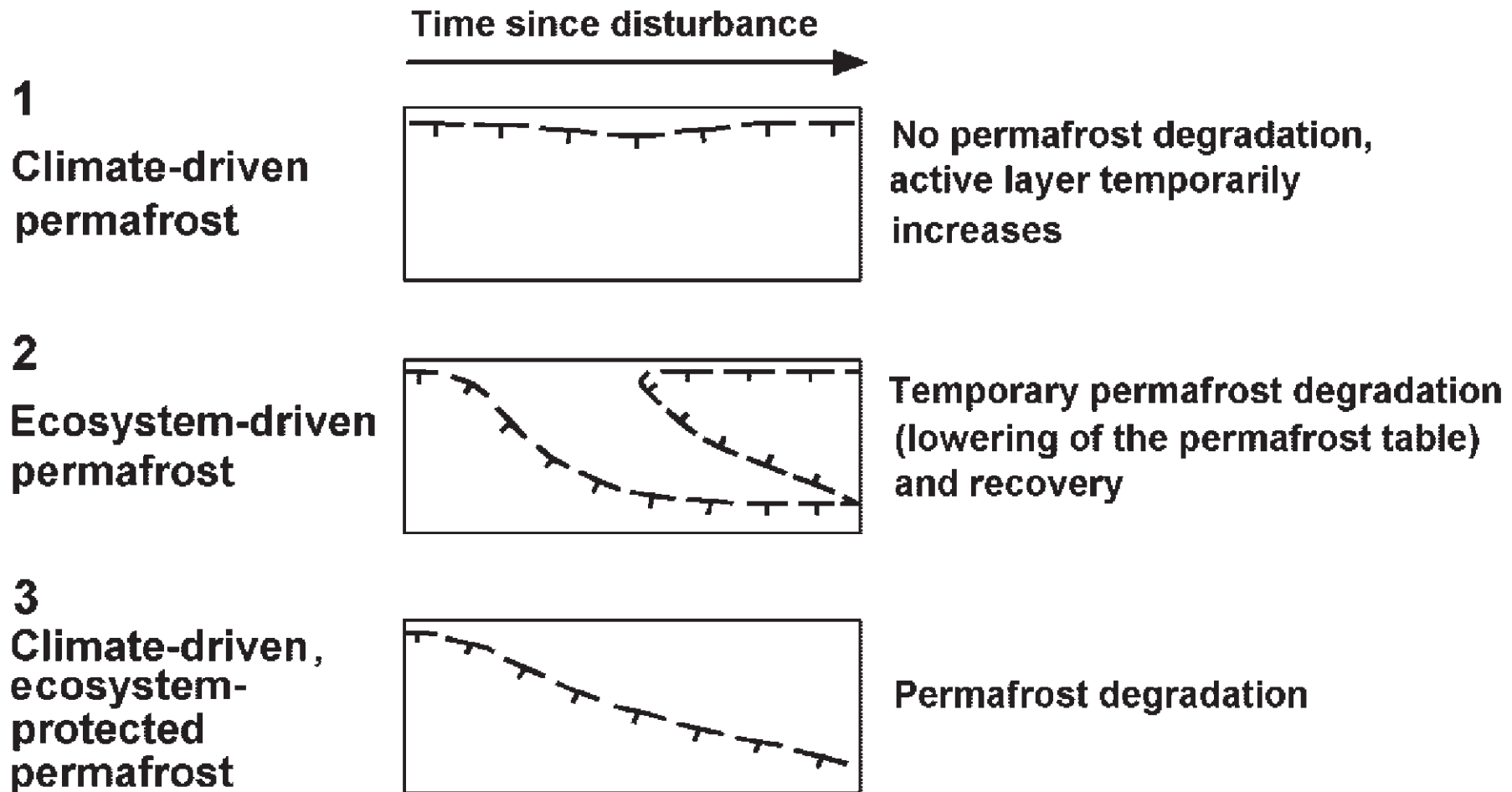
Spruce → Deciduous



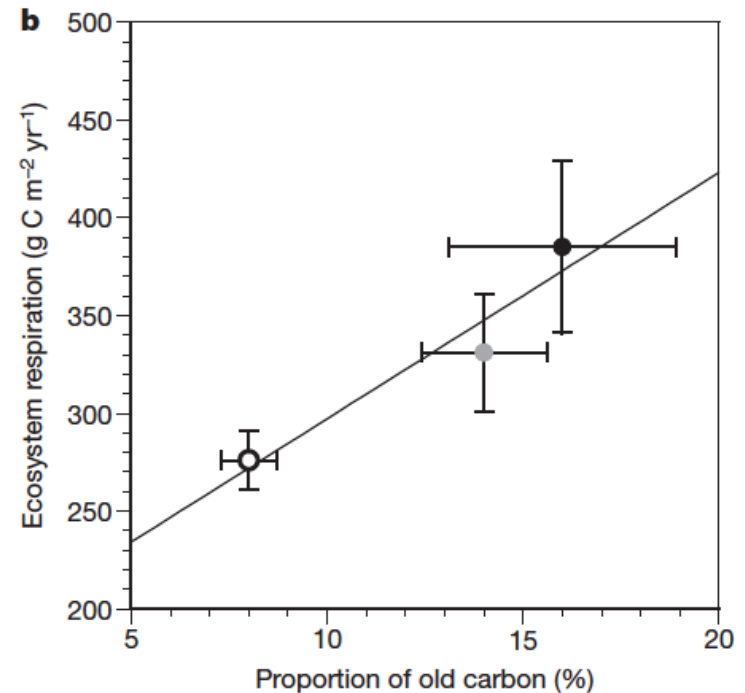
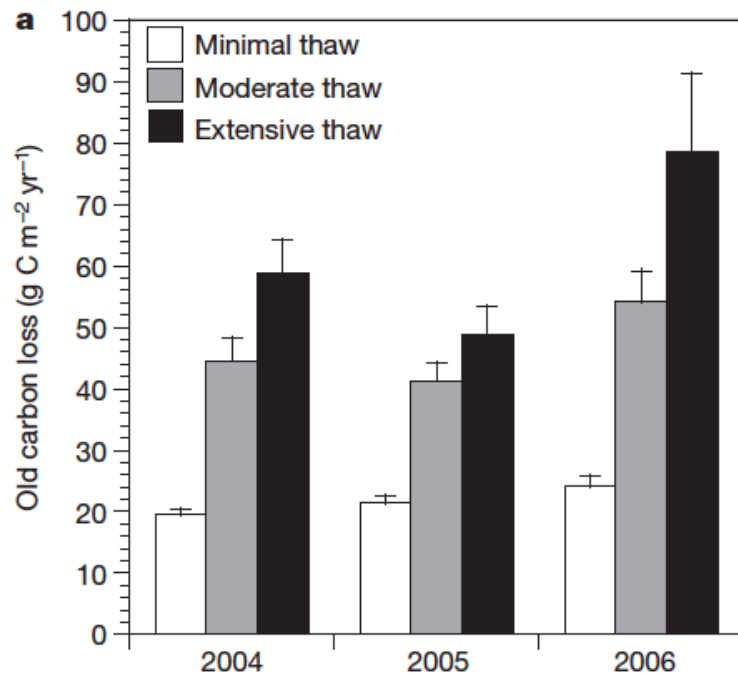
↓ Soil C < ↑ Plant C

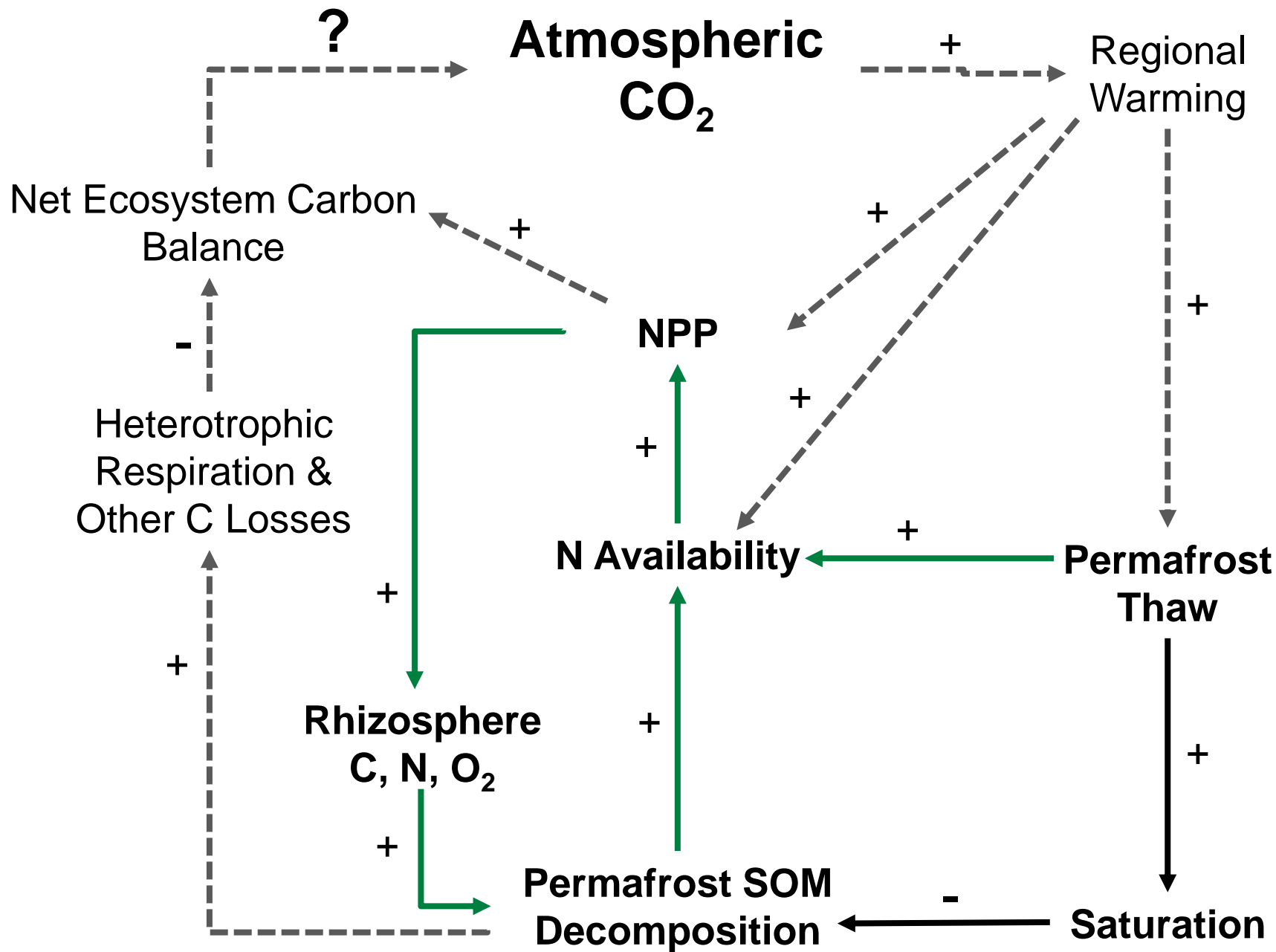


Or do legacies render ecosystems vulnerable to change?



Do legacies render ecosystems vulnerable to change?





**Are ecological legacies a source of resilience
to changing climate?**

(yellow sticky notes)

Or

**Do they render ecosystems vulnerable to
state change?**

(orange sticky notes)

