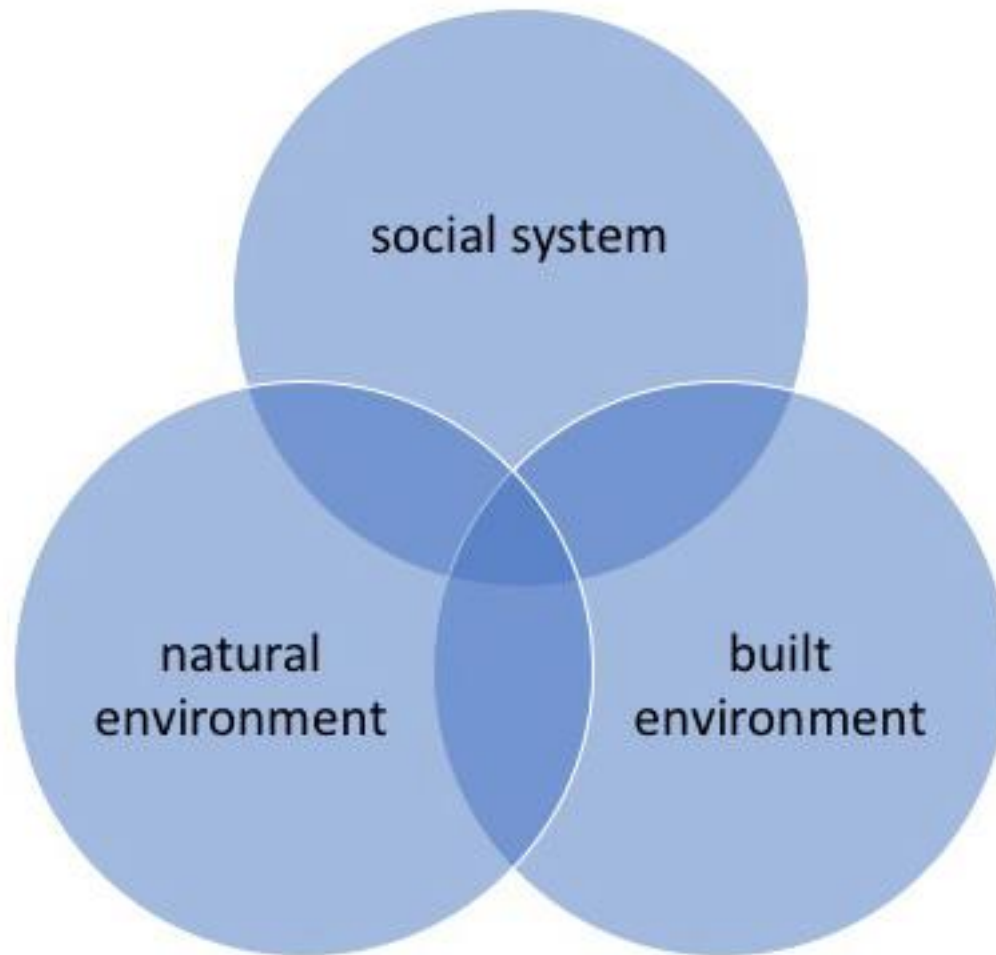




Integrating Arctic Research: perspectives from the Canadian (High) Arctic

Greg Henry
UBC

Integrating Arctic Research



NSF – Navigating the New Arctic: looks a lot like a Canadian program - ArcticNet

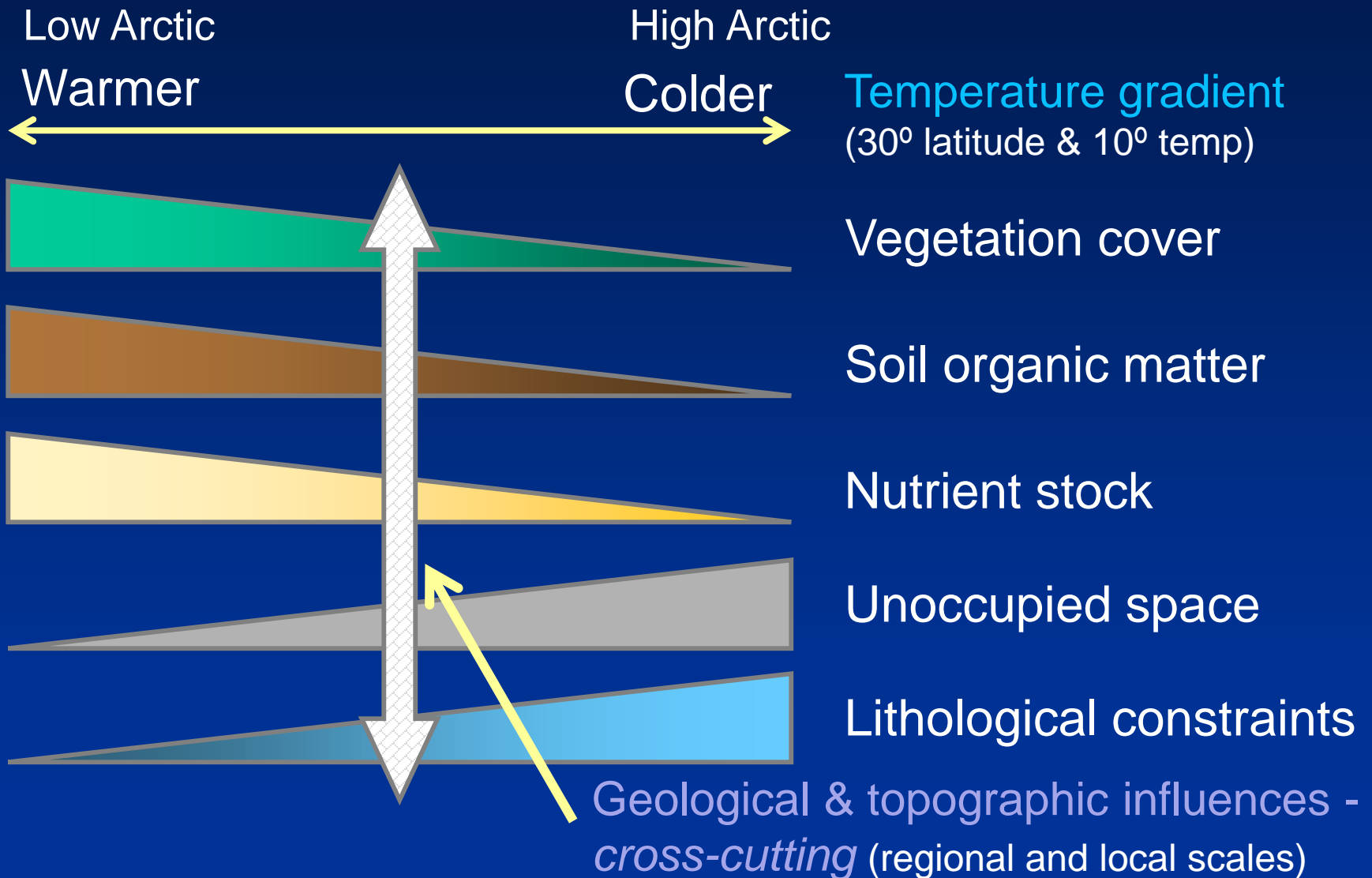
Integration needs and examples: Canadian Arctic

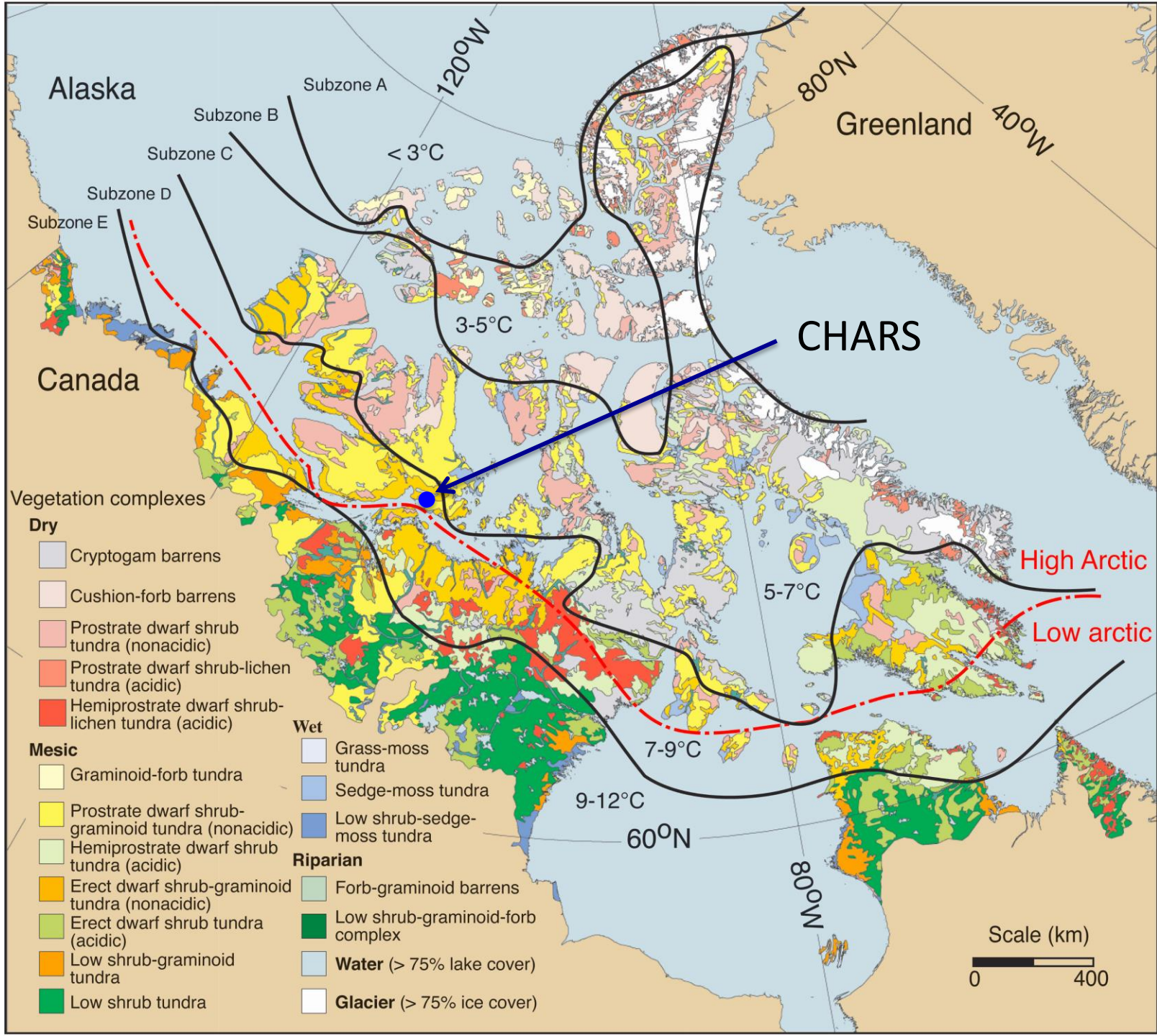
- Greening of the High Arctic: potential, evidence and constraints
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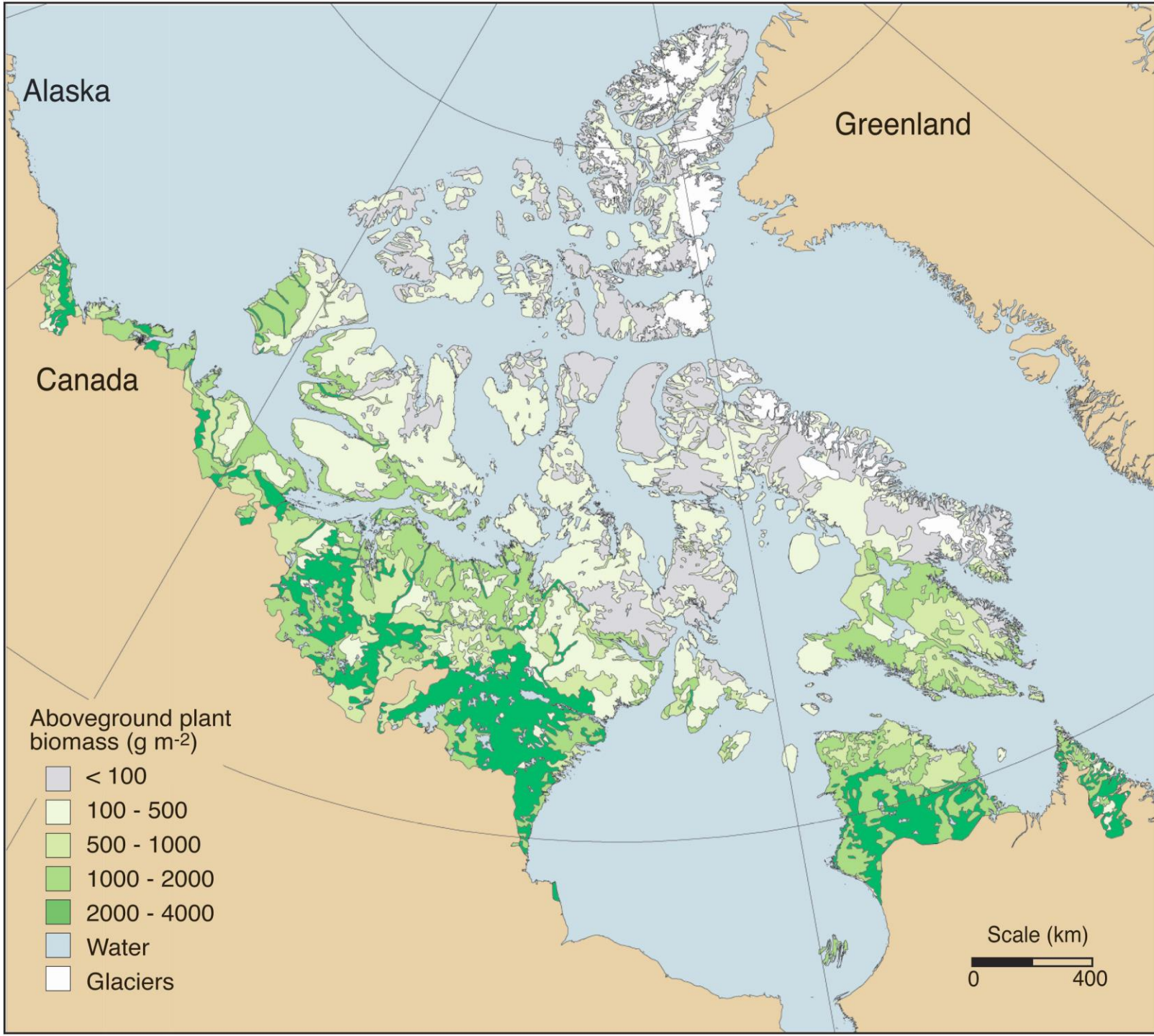
The setting

- Canadian High Arctic land area = 1.25 M km²
18 % of total circumpolar tundra
- ~50 % of tundra area in Canada has < 50 %
plant cover (polar barrens)
- Areas for vegetation development: Greening
of the High Arctic
- Marginal environments
- Still recovering from last continental glaciation

Simplistic regional gradients

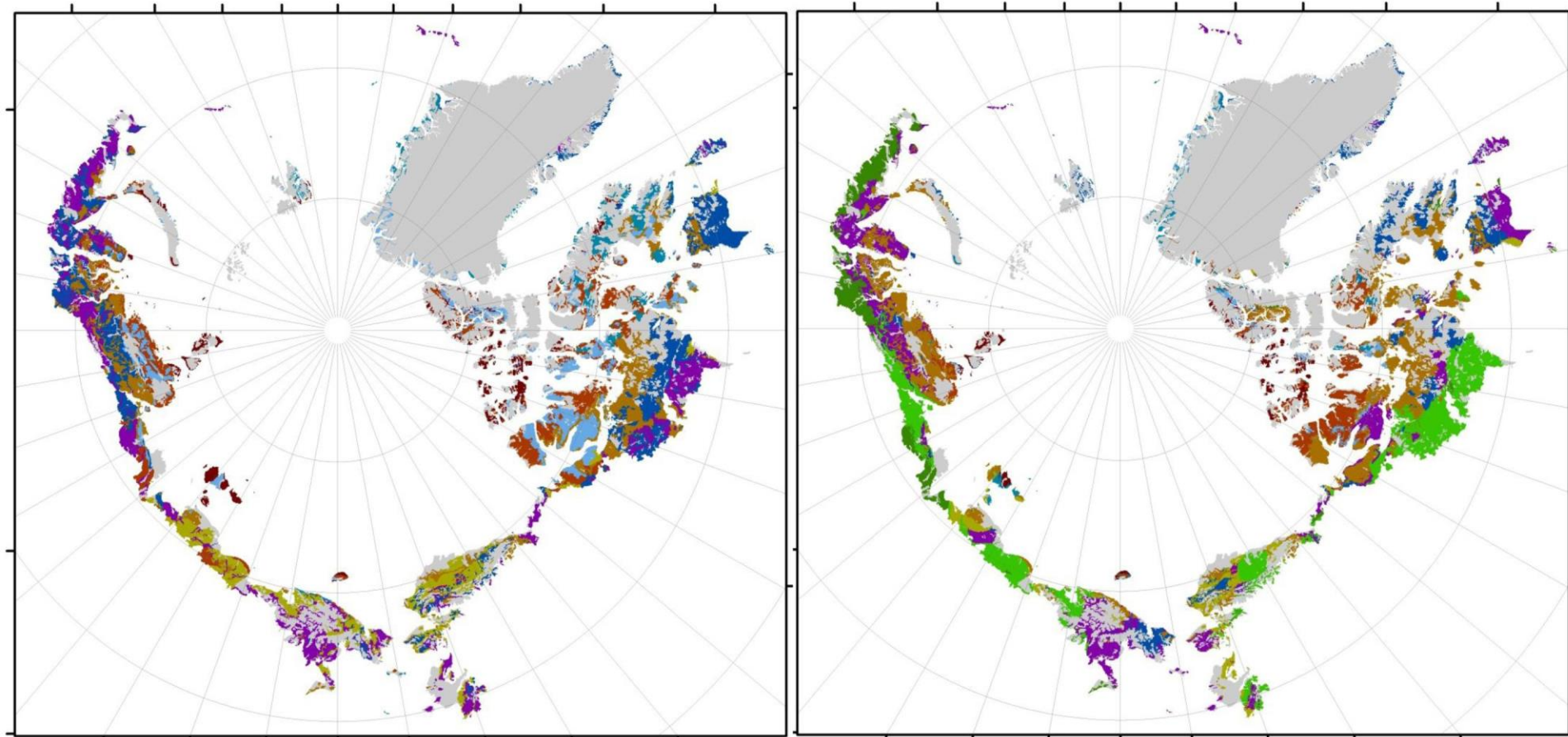




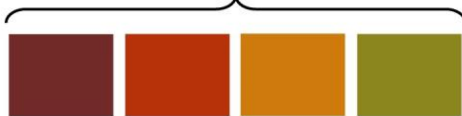


Current vegetation

Predicted vegetation: 2050



Graminoid
tundras



Prostrate
shrubs

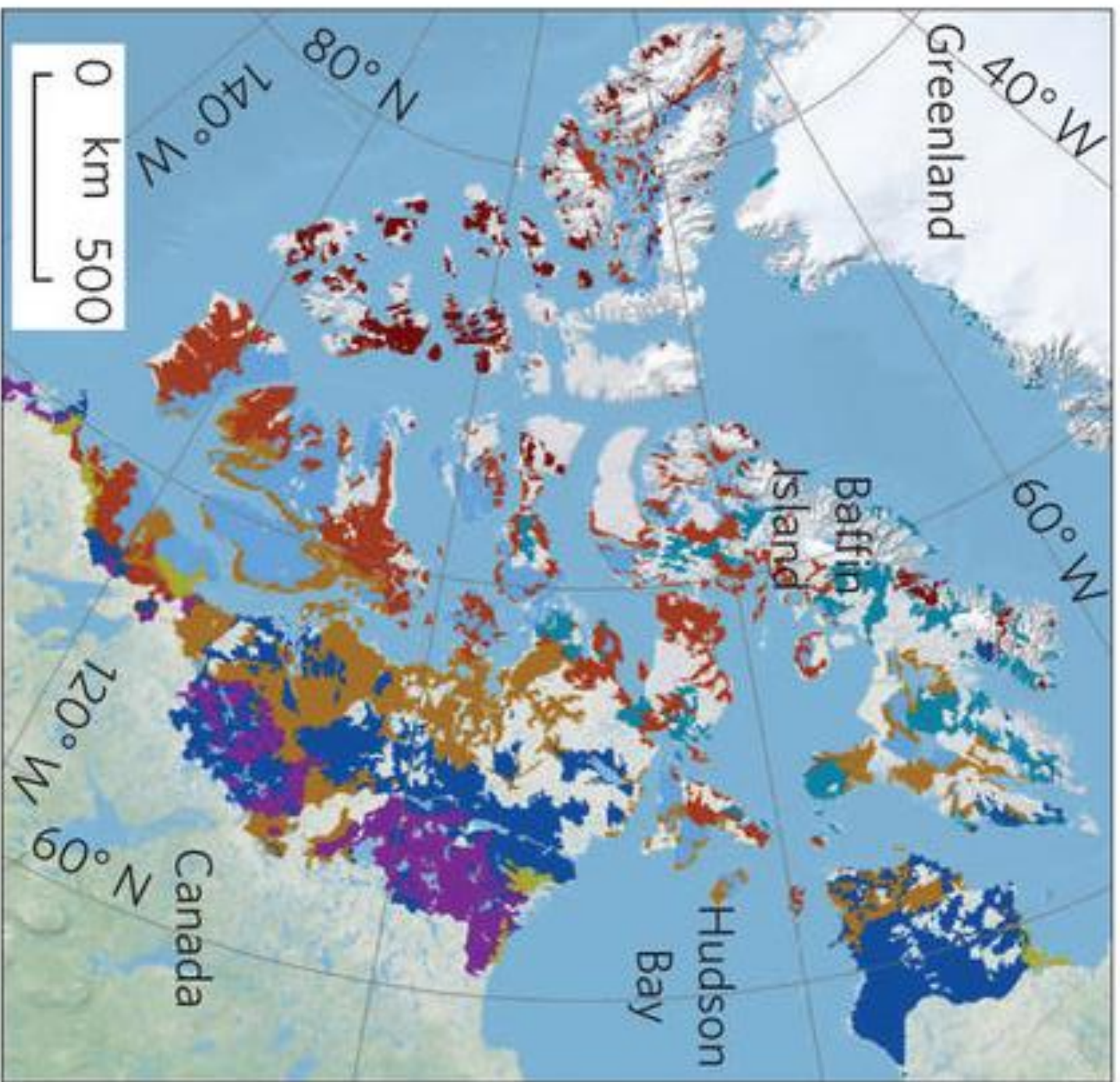


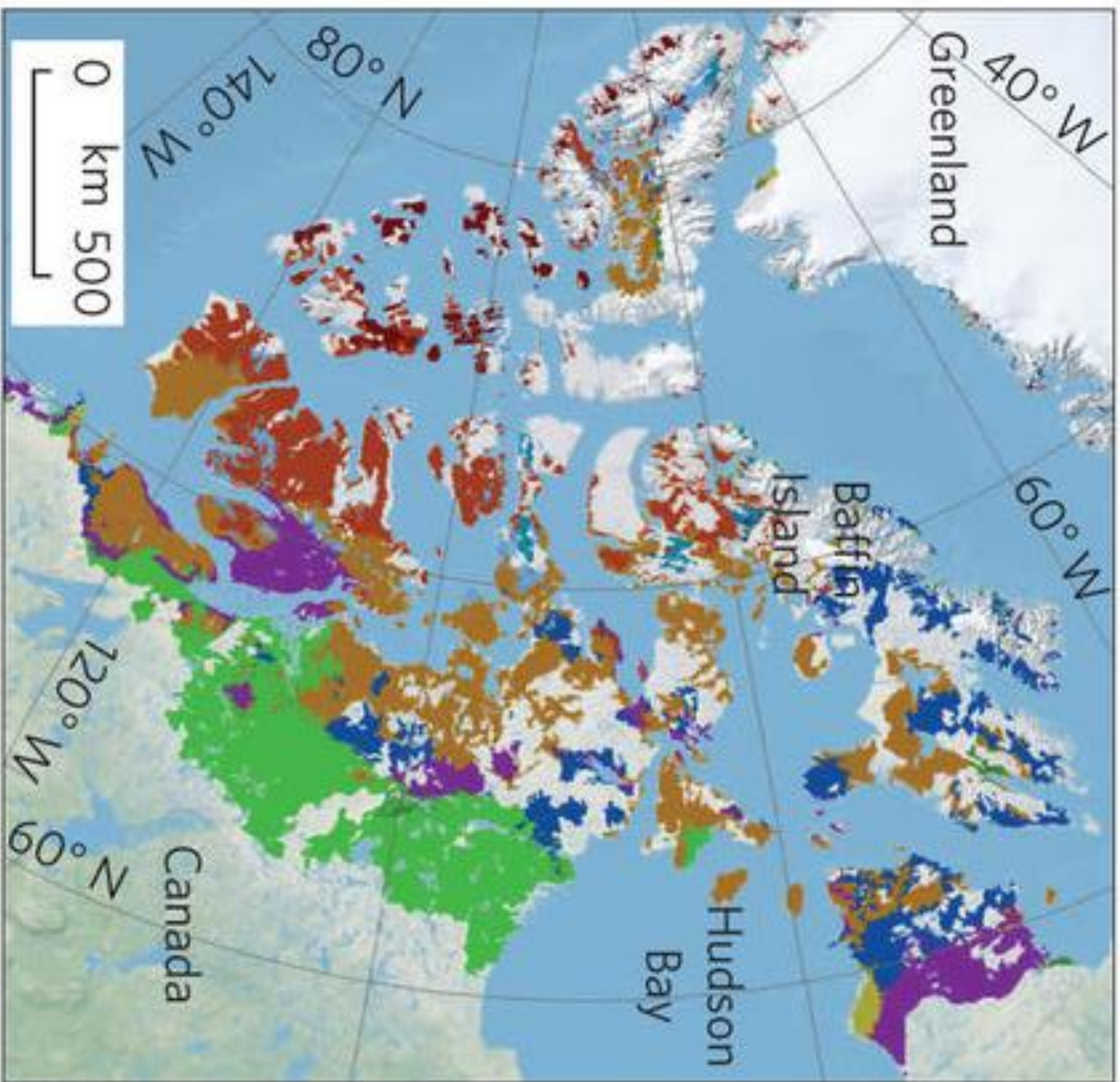
Erect
shrubs

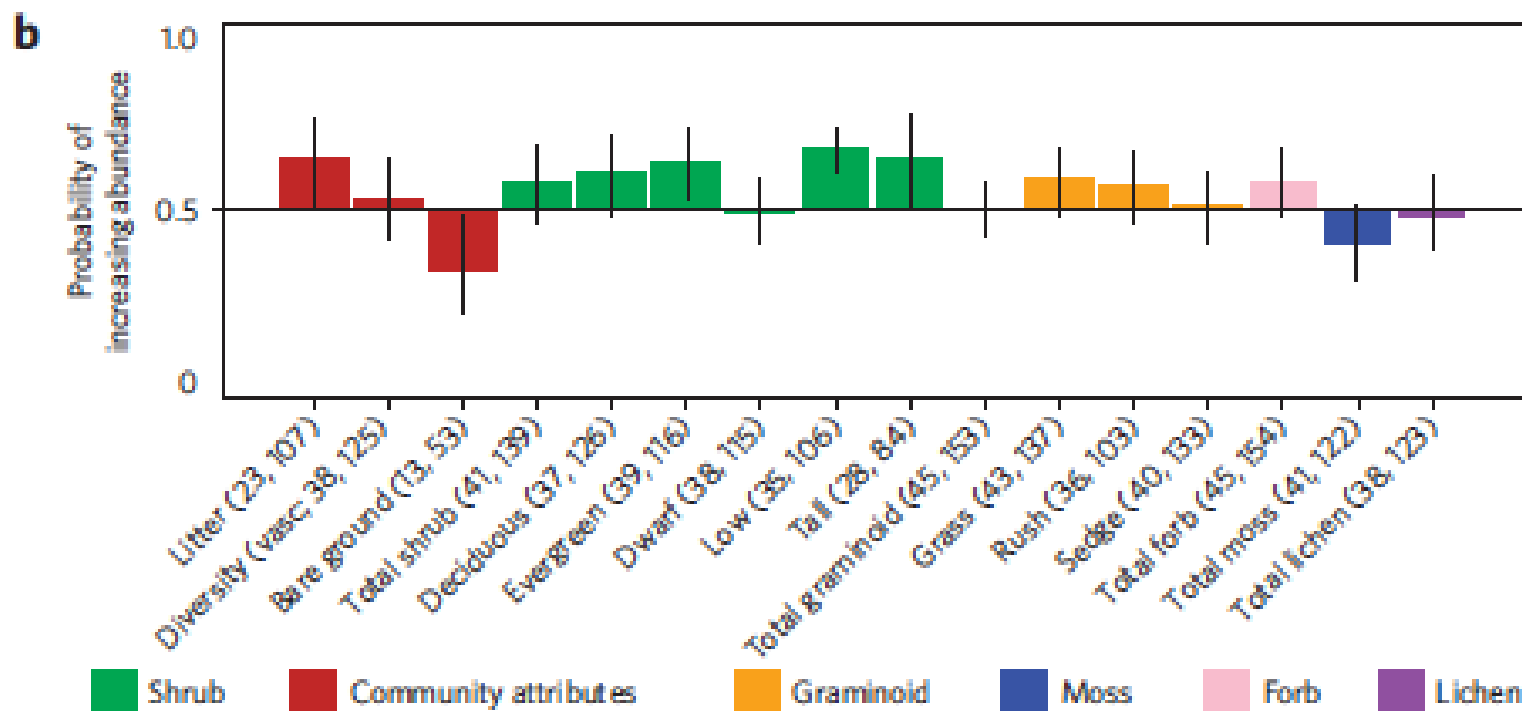
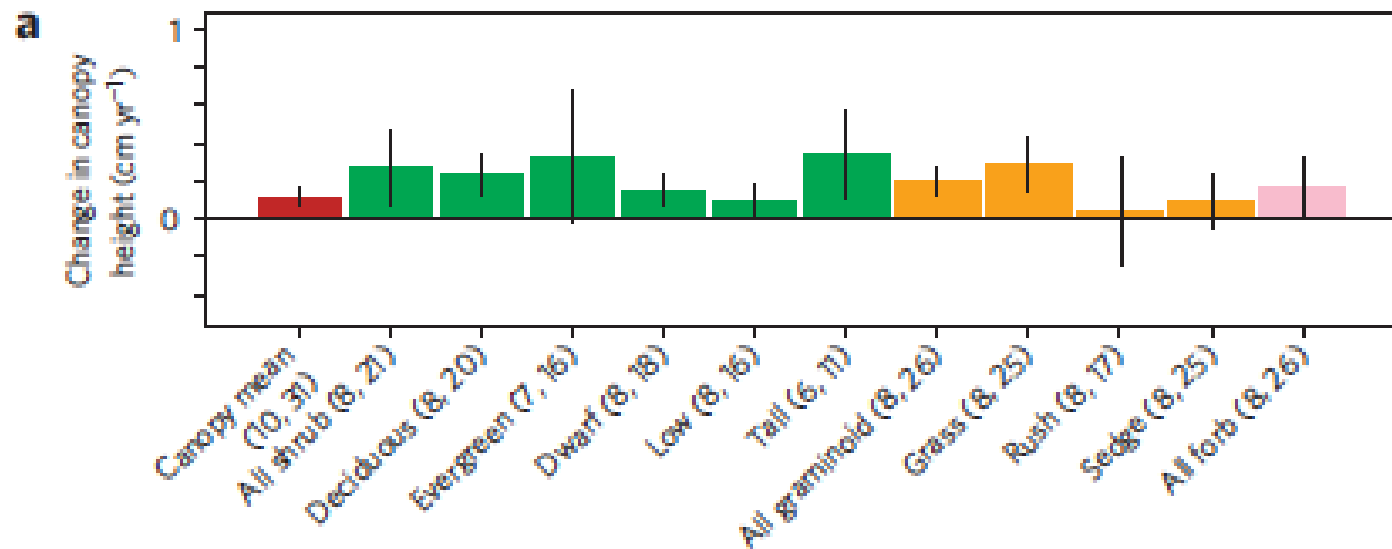


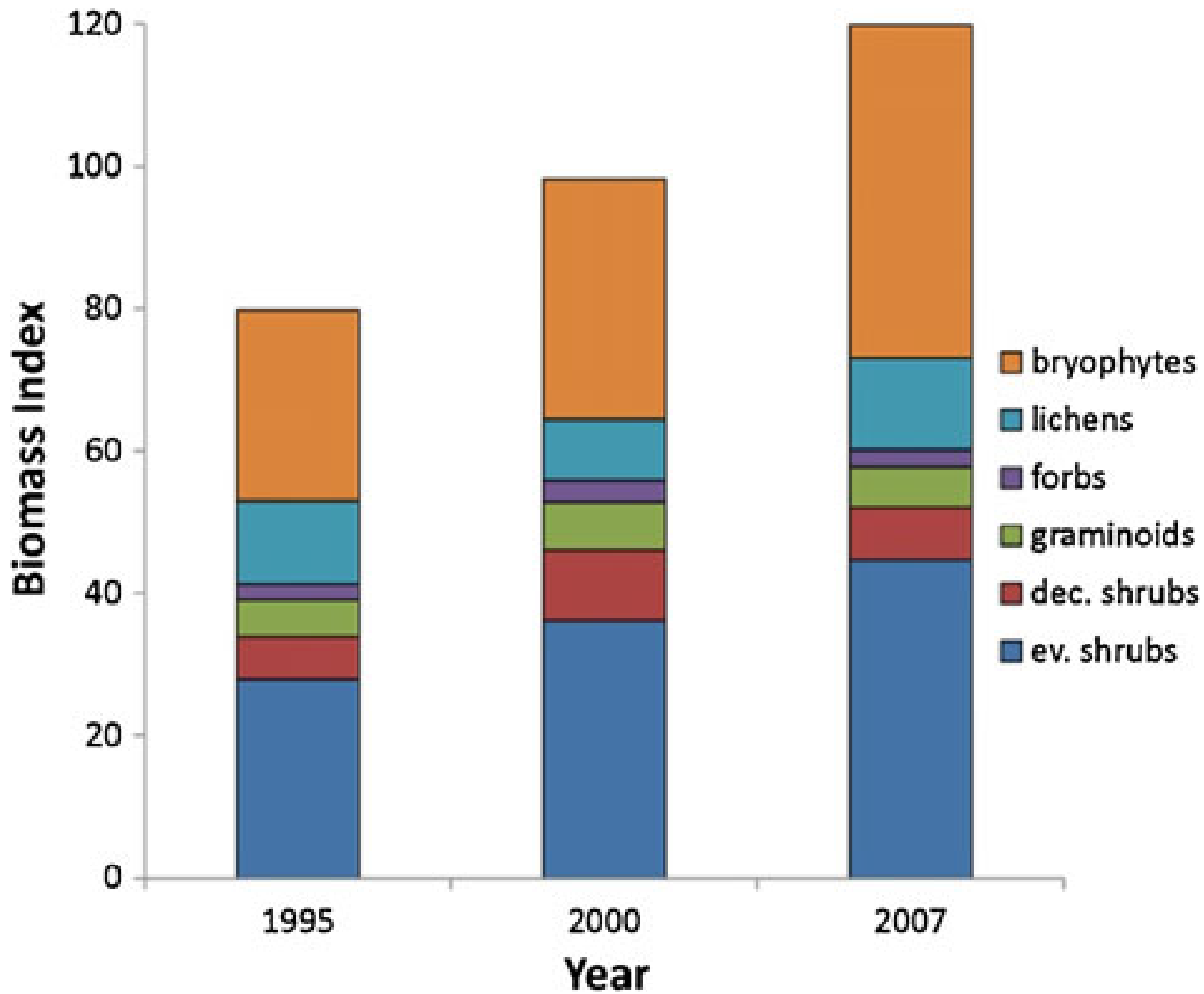
Trees











Change in biomass (index) of a mesic heath community





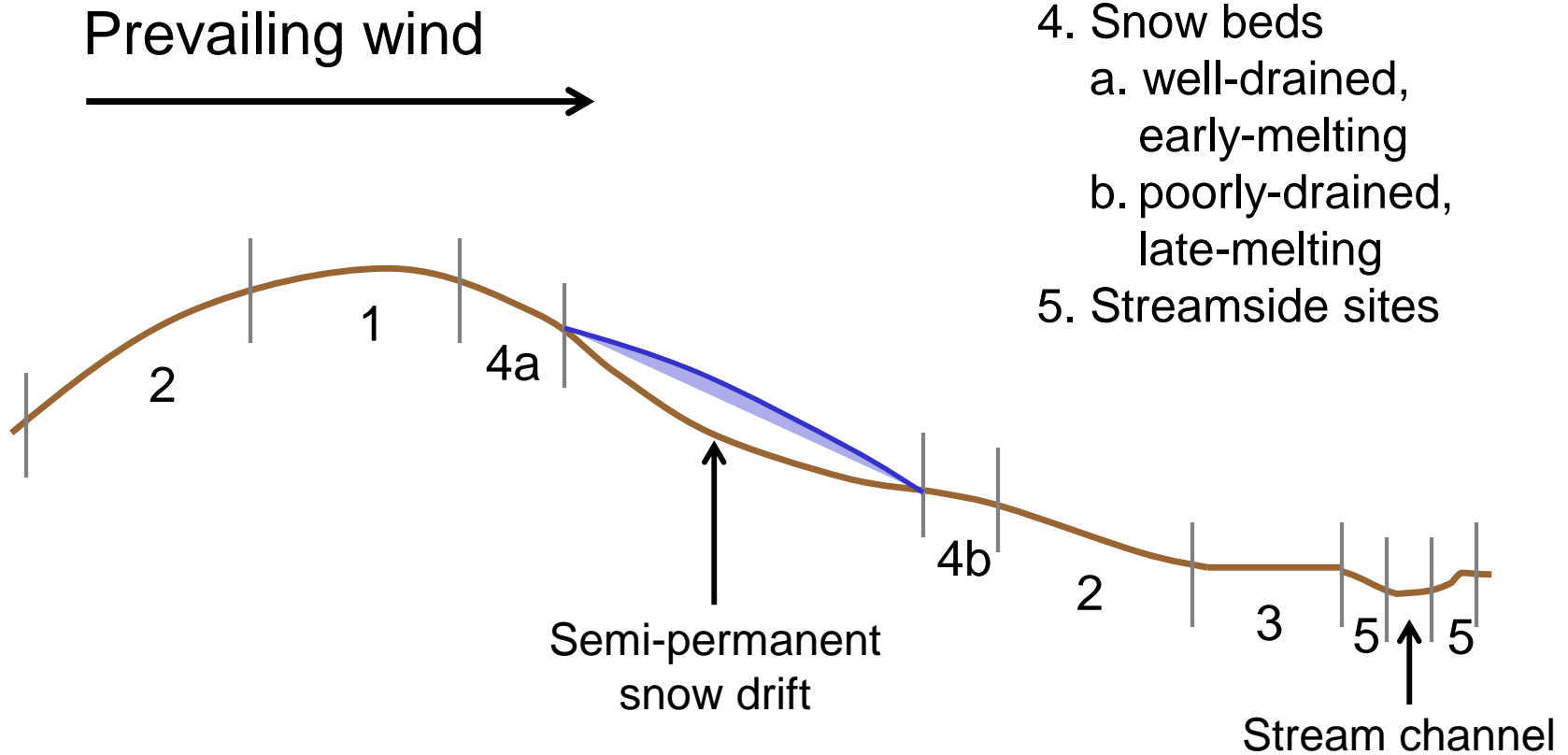


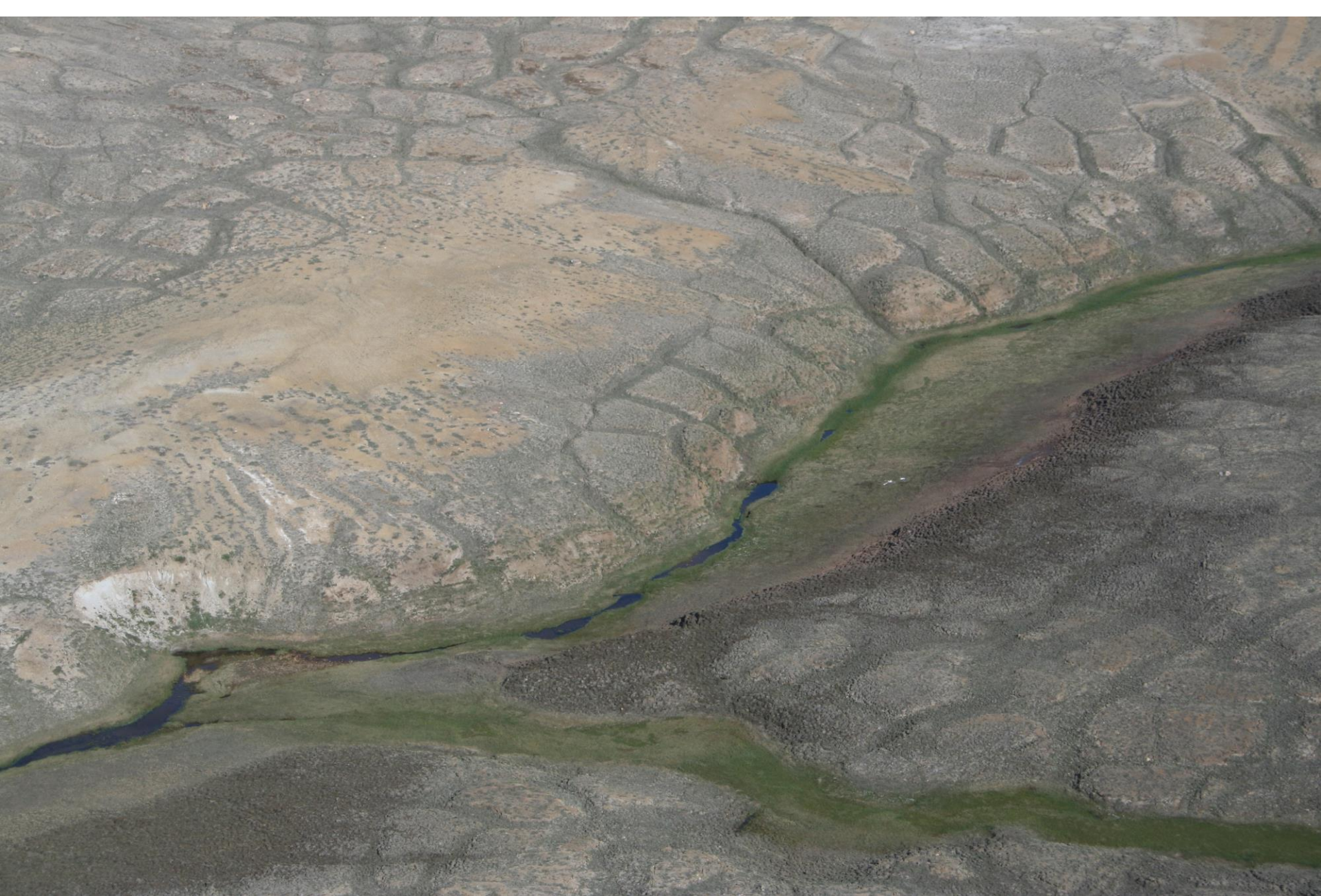
Resolute, Nunavut: typical polar desert landscape



Topography and tundra plant communities

1. Dry exposed ridges
2. Mesic zonal sites
3. Wet meadows
4. Snow beds
 - a. well-drained, early-melting
 - b. poorly-drained, late-melting
5. Streamside sites



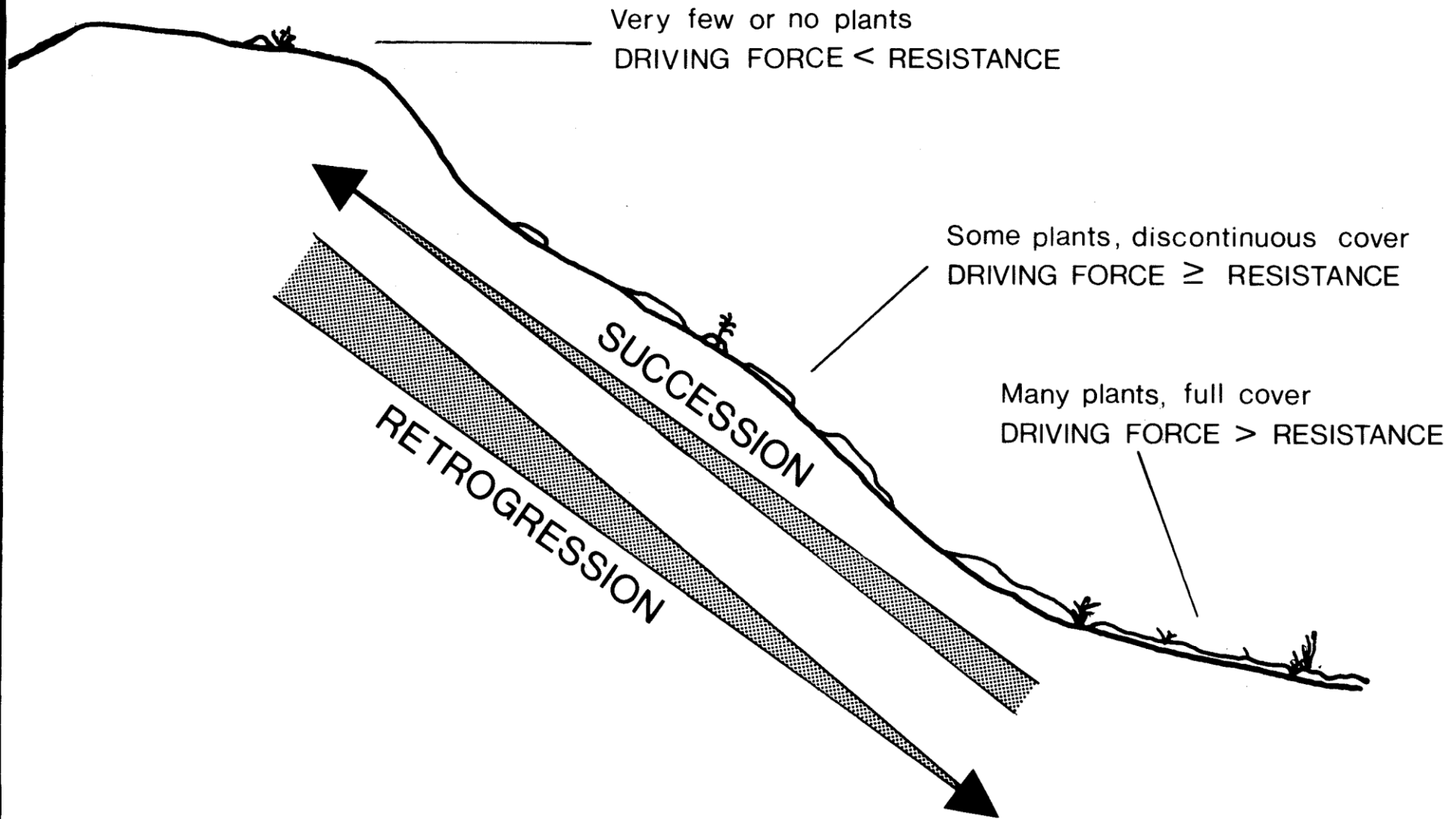




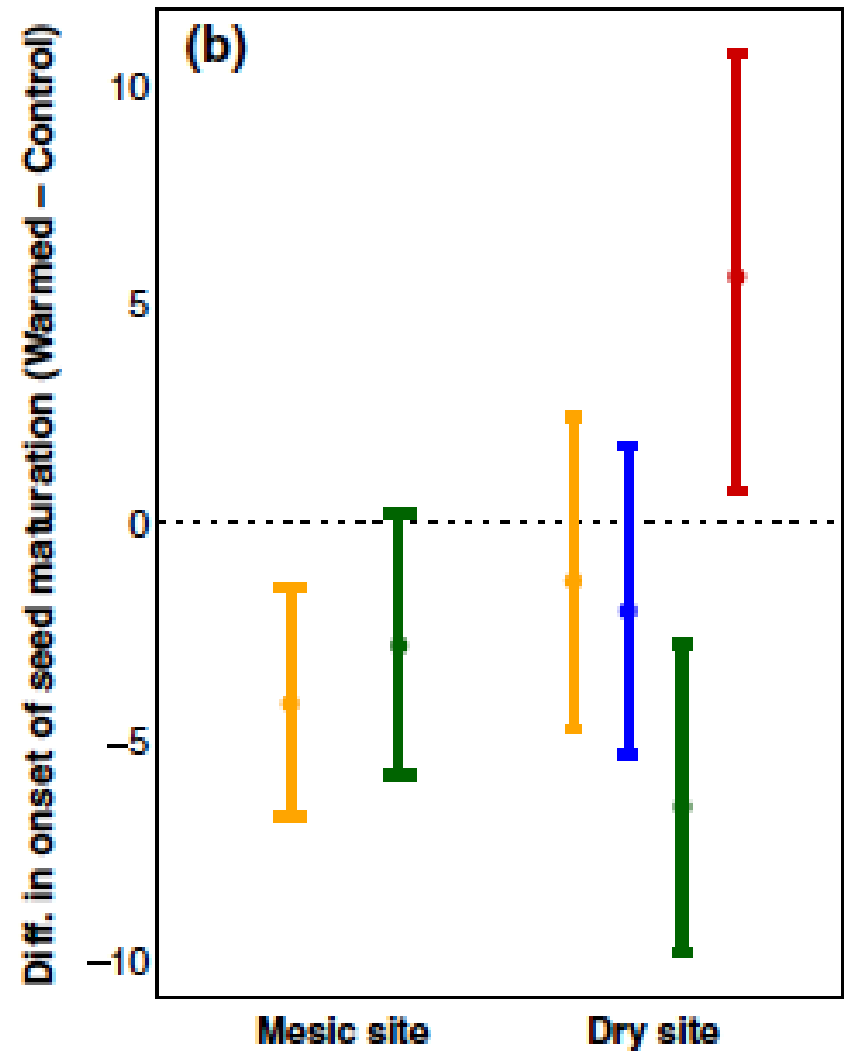
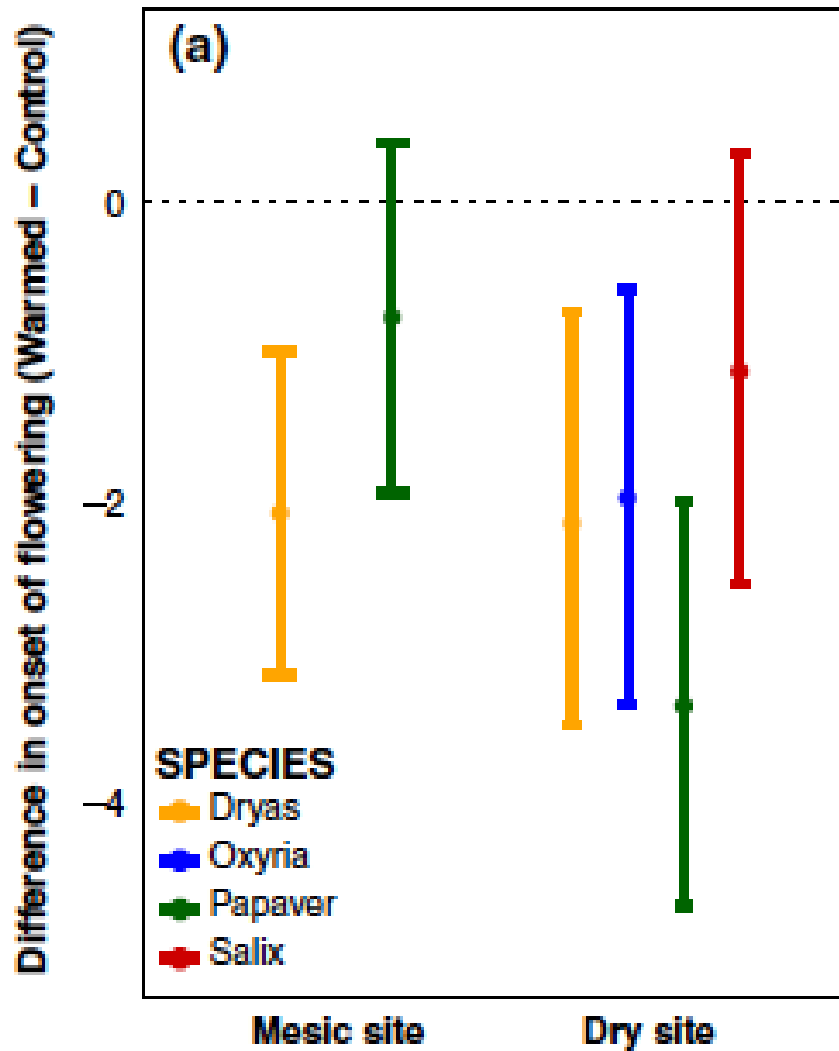
Influence of substrate



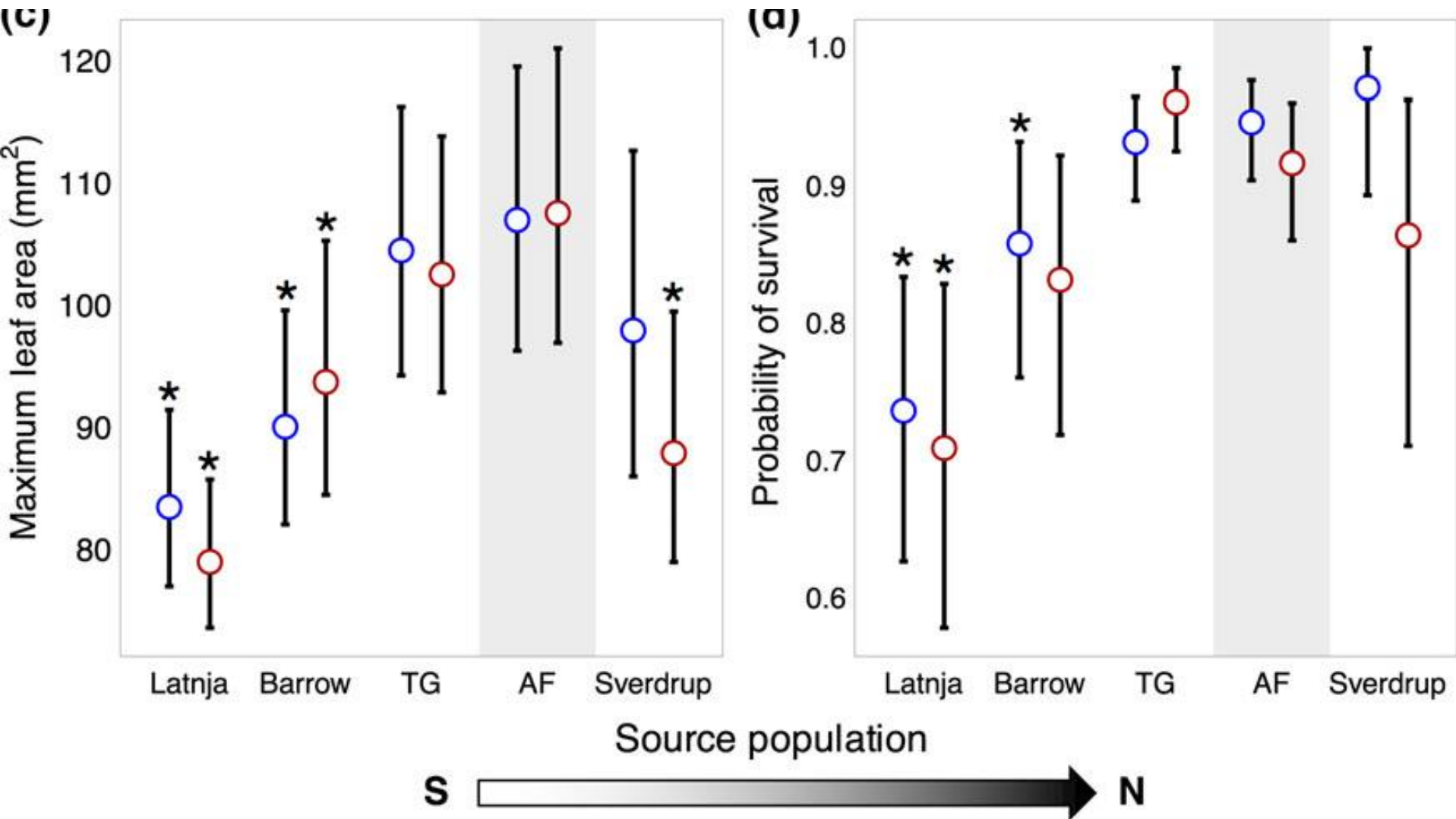
$$GA = \sum BDF + \sum ER$$







Experimental warming effect on phenology



Home site advantage in a migration experiment for an Arctic species



Integration needs and examples: Canadian Arctic

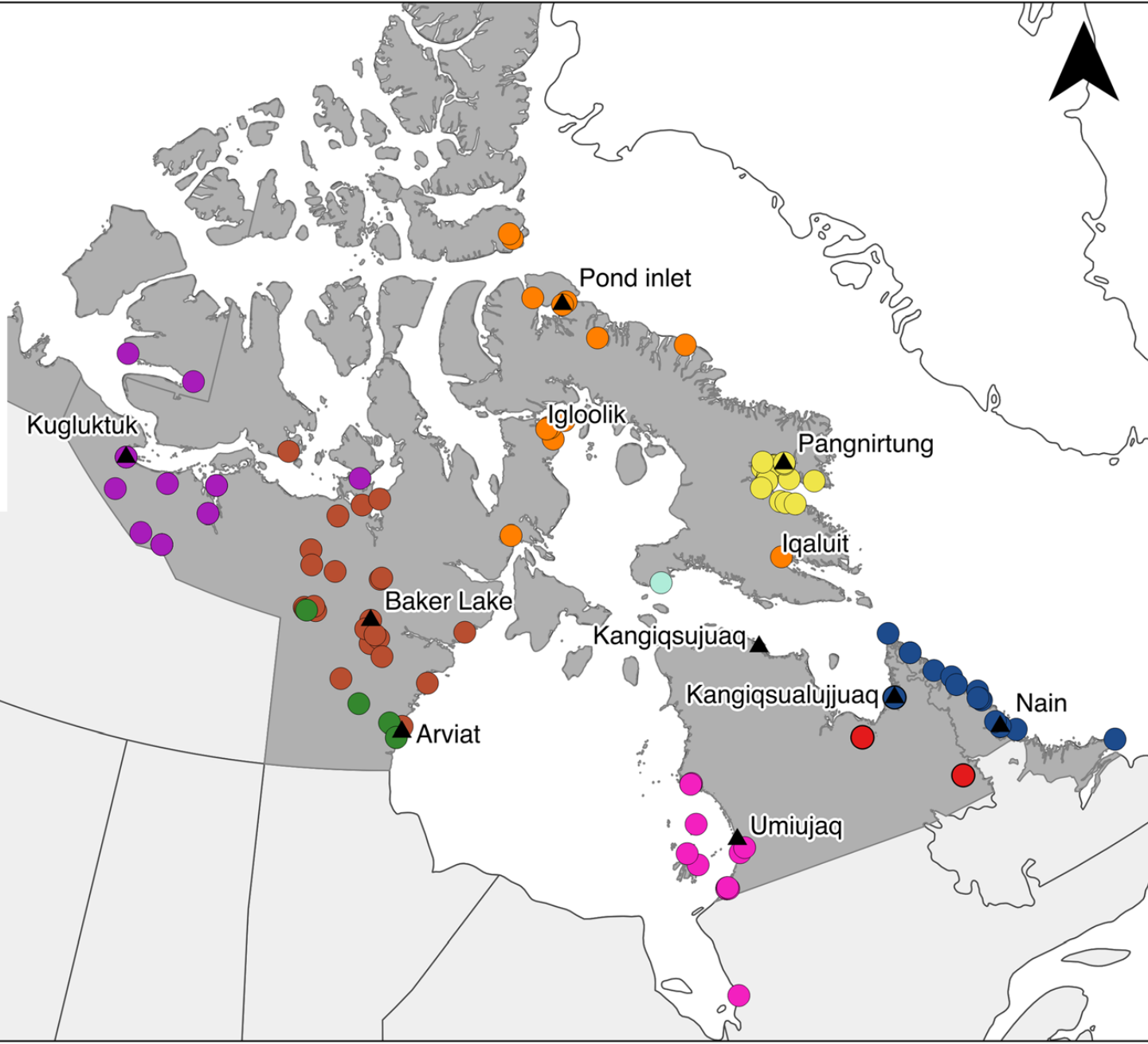
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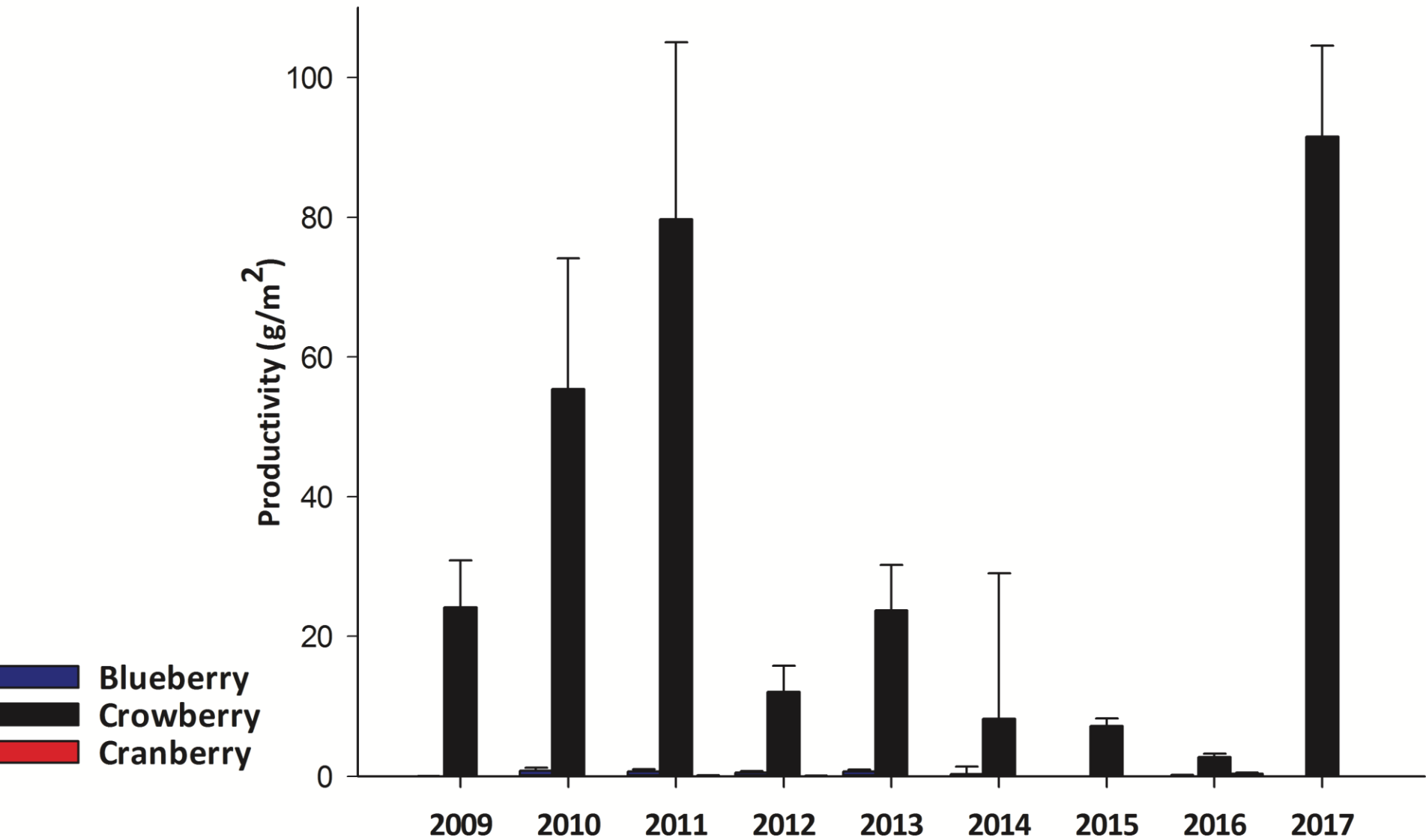


Legend

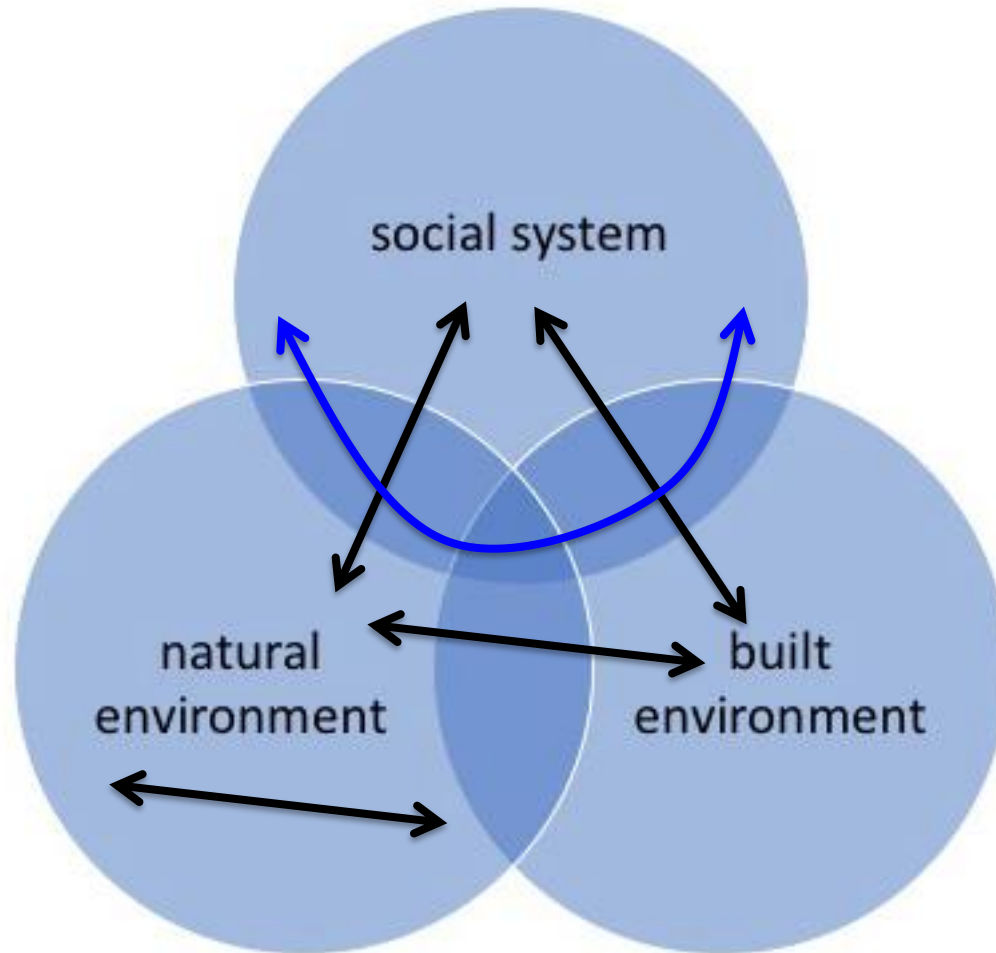
- Inuit Nunangat
- ▲ Community
- Informant's birthplace
- Current community of residence**
- Arviat (n=4)
- Baker Lake (n=23)
- Kangiqsualujuaq (n=2)
- Kangiqsujuaq (n=1)
- Kugluktuk (n=16)
- Nain (n=20)
- Pangnirtung (n=19)
- Pond Inlet (n=15)
- Umiujaq (n=15)



Iqaluit Berry Productivity 2009-2017



Integrating Arctic Research



Integration must be dynamic and reciprocal

