Proposed Research Outline

Christophe Rouleau-Desrochers

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1 Abstract

1. Trends of spring and autumn phenological events and their drivers (**?**)
2. Evidence of declining sensitivity to warming, predominance of winter temperature in spring phenological responses (*to work on*) (**?**)
3. Mechanisms that could limit growth despite having a longer growing season
4. How these shifts translate into effects on trees/forests not totally clear – Pros and cons of early/late start of season:
5. Growing season shifts consequences on forest ecosystems and services

Chapter 1: experiment on drought and spring frosts on biomass accumulation

1. 10 species
2. Drought, heat wave and spring frost treatments.
3. Micro-dendrometer

Chapter: cambial phenology X drone imagery phenological observations

1. Relevance of using high-resolution drone imagery to monitor forest community imagery (4 sites on the east coast following a latitudinal gradient)
2. Microcores sampling using Trephor weekly for the whole growing season (Dox 2022, Rossi 2006)
3. Soil moisture measurements and temperature sensors: microclimates?
4. Goals:
   Goal 1: understand how leaf and wood phenology relate
   Goal 2: dendrometer X early vs late wood
5. Would help understanding if growing season shifts lead to carbon sequestration shifts

Chapter 3: meta-analyses on something

1. should figure something out