Welcome to this week's presentation & conversation hosted by the **Canadian Association for the Club of Rome**, a Club dedicated to intelligent debate & action on global issues.

The views and opinions expressed in this presentation are those of the speaker & do not necessarily reflect the views or positions of CACOR.

CACOR Live

Where are the Elders?
Parallels Between Dying Ecosystems and Cultures

Profile: Tal Engel is a forest rehabilitation practitioner & a regenerative farmer with a thousand-tree apple orchard on his family farm near Merville, BC. His relationship with the forests around him & grave concern for their future led him to develop a novel approach to forest restoration that is gaining traction regionally, nationally, & internationally. In 2024, Tal founded WolfTree Integrative Forest Rehabilitation, a not-for-profit society dedicated to transforming people's relationship with forests. WolfTree offers forest rehabilitation services, conducts research, & engages in advocacy, especially on how industrialized forests lack resilience. Tal is pursuing his MSc on forest resilience, aided by a team of experts in sustainable forestry & soil ecology.

Summary: Today, Tal explores the similarities between the social & ecological conditions for sustaining both forest "Tree Elders" and human "Old Growth Cultures," & how industrialization impedes the development of both. Elders were essential elements of cultures: they were the holders of meaning & purpose, vessels for a culture's past & arrows to its future; they were healers, sages, prophets, & leaders. Most importantly, they had the full range of relationships that define a culture & enable it to prosper. Today finds "the elderly," a pale shadow of the Elder. The loss of the Elder is a symptom & a catalyst for cultural collapse. To understand ourselves, we have always sought out our reflections in the natural world—what we have done to the once thriving natural cultures of our planet, especially forests, tells a haunting story that is ultimately about what we have done to ourselves.

CACOR acknowledges that we all benefit from sharing the traditional territories of local Indigenous peoples (First Nations, Métis, & Inuit in Canada) and their descendants.

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Where are The Elders?

Parallels Between Dying Cultures and Dying Ecosystems

A Presentation For the Canadian Association for the Club of Rome

Agenda

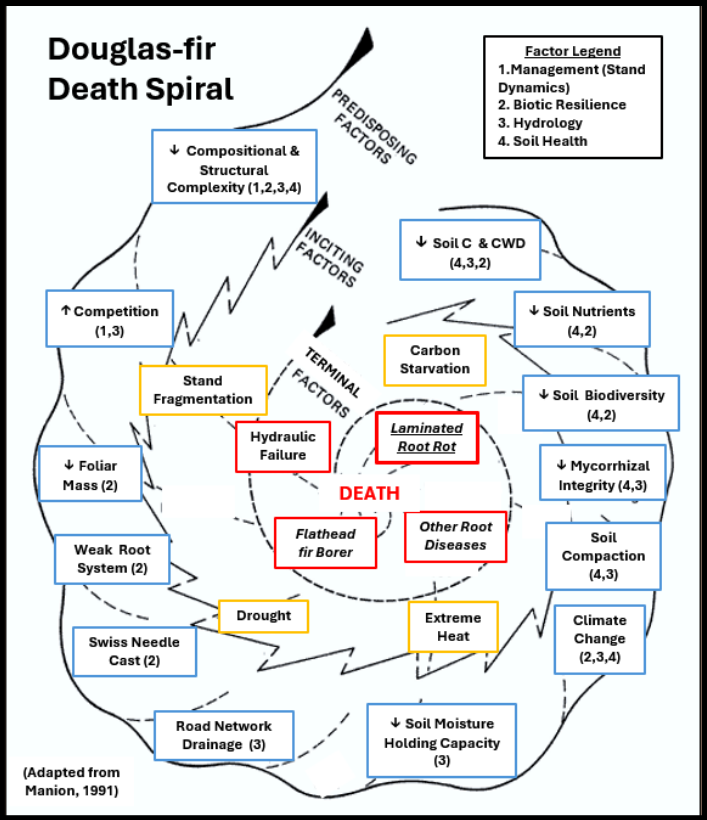
Part 1: Old Growth Cultures

Part 2: Tree Elders

Part 3: Manufactured Life

WolfTree

INTEGRATIVE FOREST REHABILITATION




KEEP
COOL


Resilience
Biological Legacies
Deep Carbon Stocks
Ancient mycorrhizal systems and soil foodwebs
Longevity: hundreds to thousands of years per sere
Old Growth Forest
Biological resilience (root disease)
Structure: low competition, open, complex,
Natural succession: disturbance (fire), crop rotation
Wildlife: habitat and forage, pollinators
Composition: deciduous, shade tolerant conifers, understory
Function: fire, hydrology, nutrients.

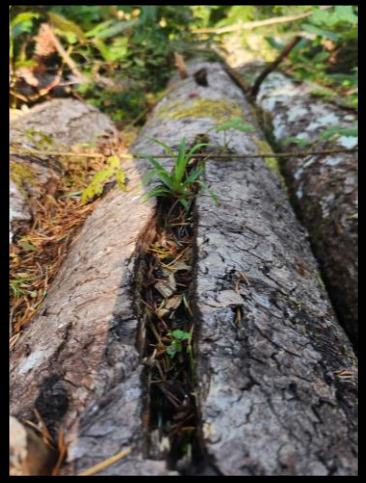
Biological Carbon Sequestration:

- (below, right) a Mycelial Grafted thinned tree (WolfTree methodology)

- (below) Ressurection: thinned overdense plantation trees burst into life as Assembled Nurse Logs, (WolfTree methodology).

Soil foodwebs depend on decaying wood

Coarse woody debris sustains aquatic habitats

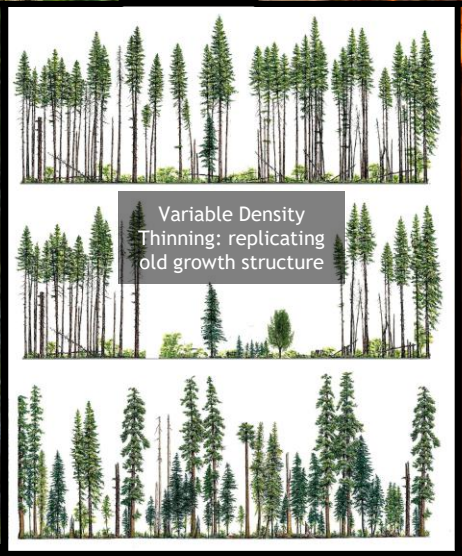


Tree children thriving on the legacy of an Elder Nurse Log

Time-Release Mortality Belt (WolfTree Methodology)

Stand maintaining Ceremonial Burning: an ancient indigenous death-life love letter to the land and its inhabitants

Partial Girdling (WolfTree Methodology)

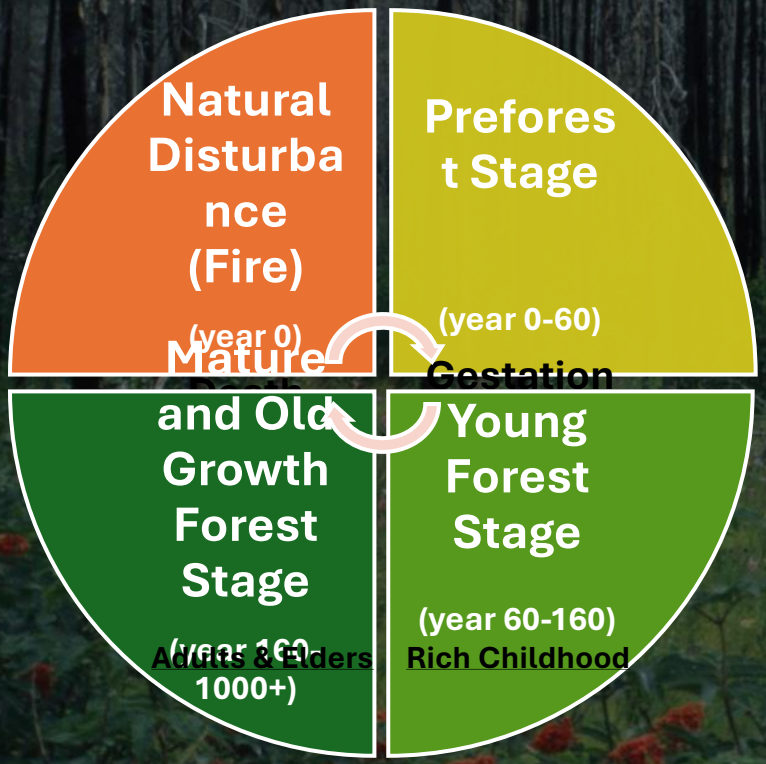


Variable Density Thinning: replicating old growth structure

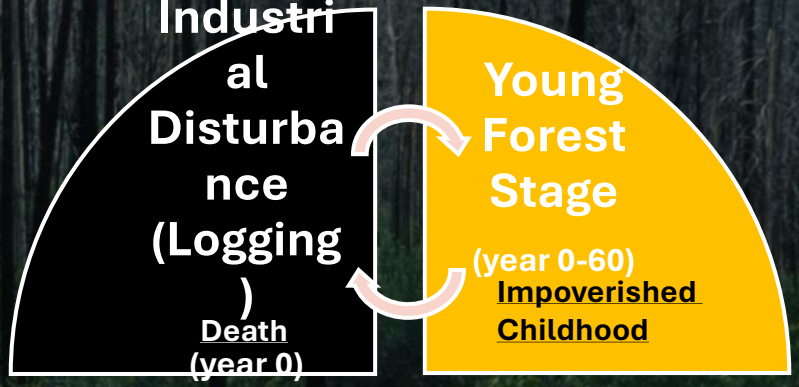
Stand replacing (renewing) fire: a rich inheritance for future generations

Rising From Ashes: The Eternal Forest Cycle

Natural Succession



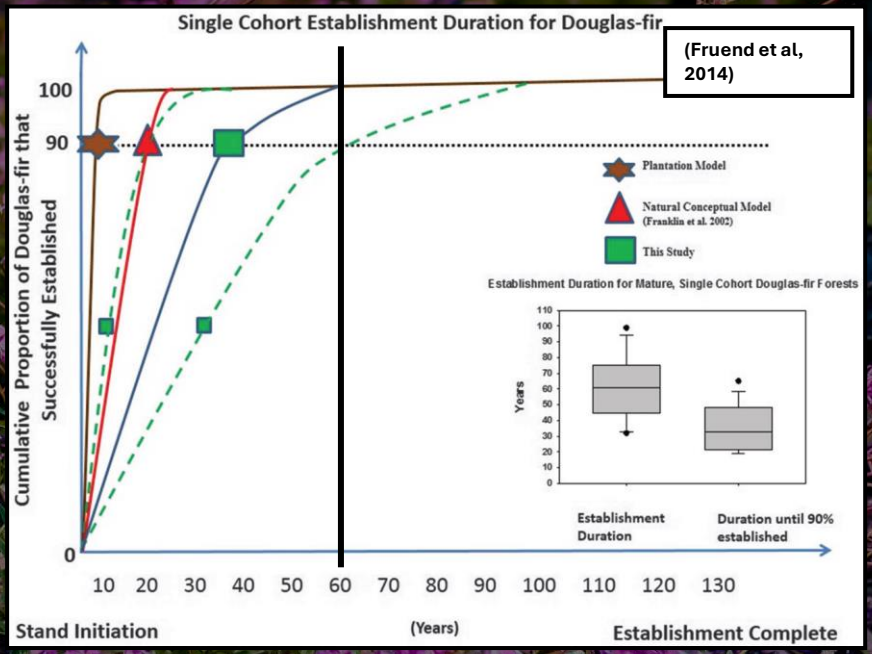
Successional Poverty Trap



Death

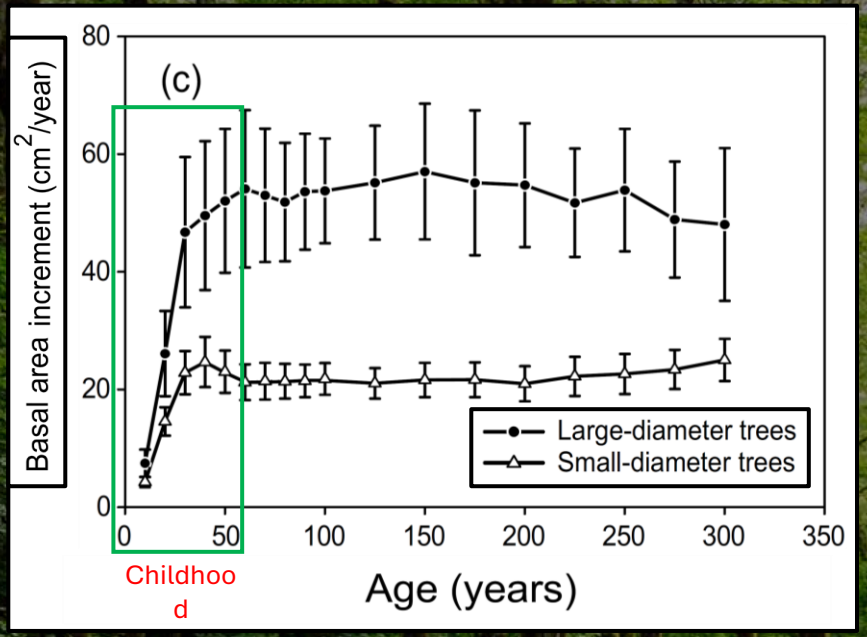
“The Forgotten Stage of Natural Succession”: The Preforest

How are Tree Elders Born and Raised?



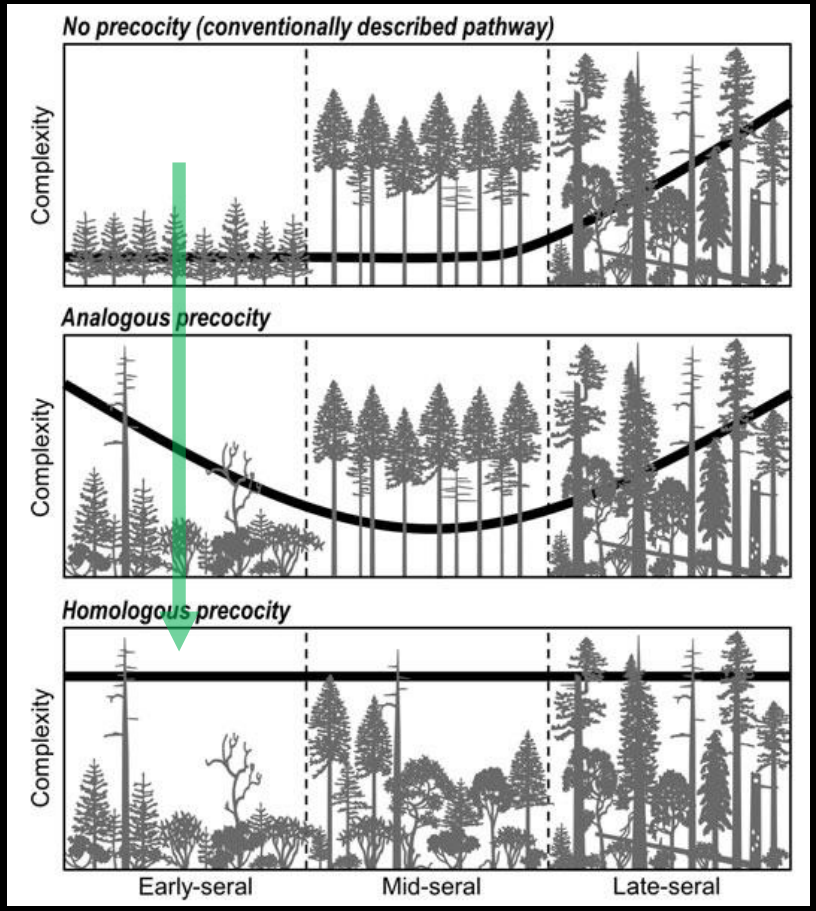
The Spacious, Rich Childhood of an Immortal Giant

How are Tree Elders Born and Raised?



Childhood is crucial: The first 50 years of a tree's life determine its development the next 300 years and more (Poage and Tappeiner, 2002); presenter additions in red and green)

The Unrestricted Life: Precocious Cultures



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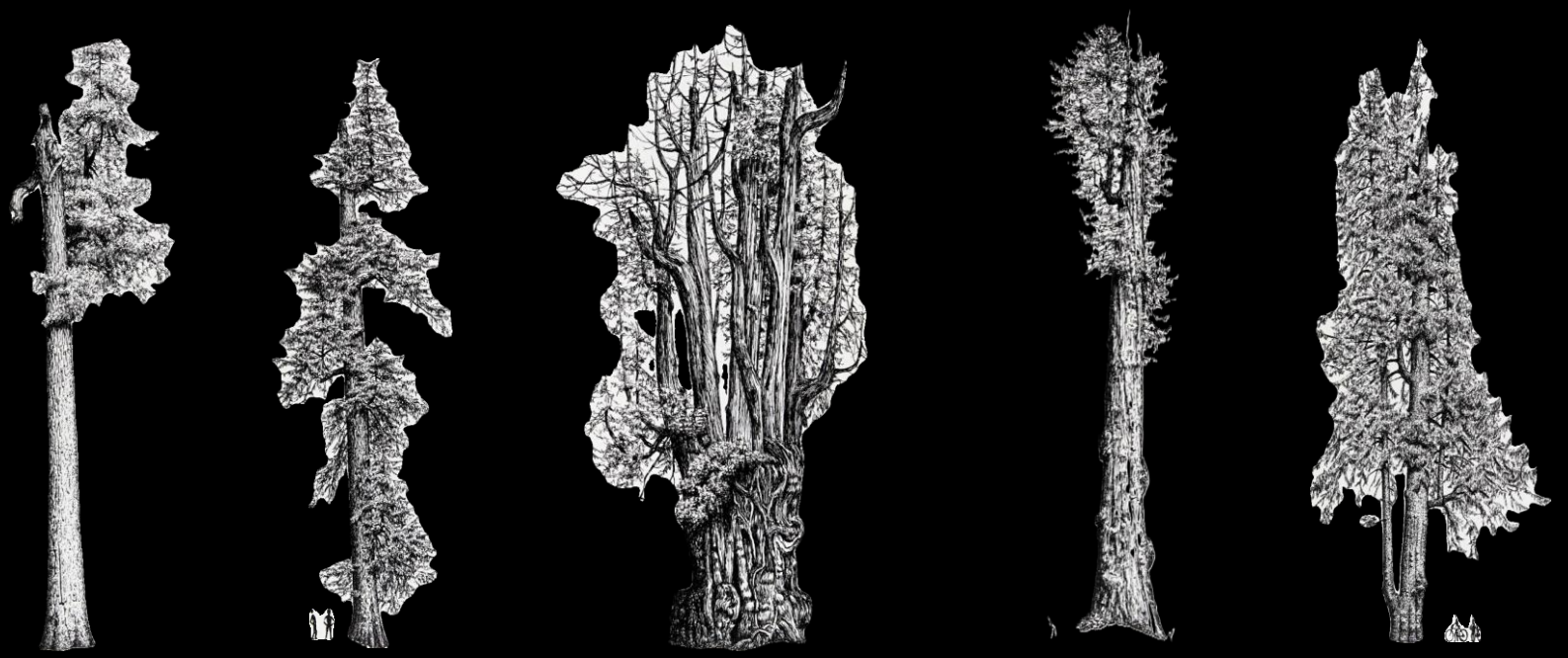
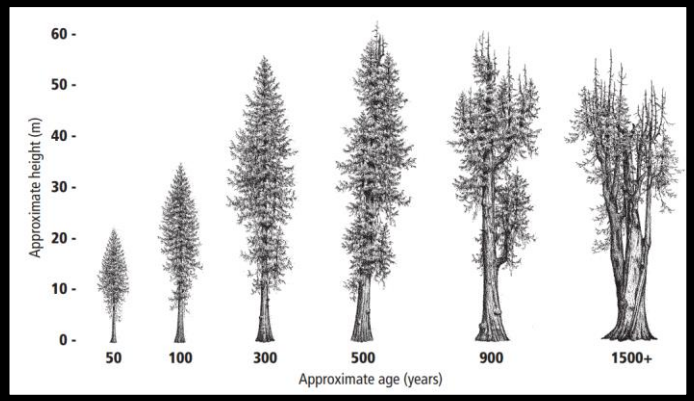
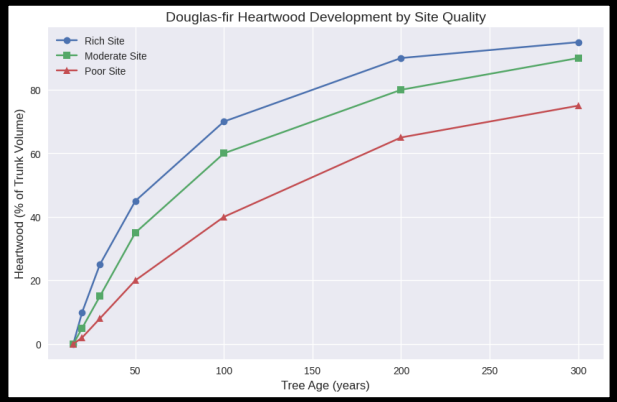
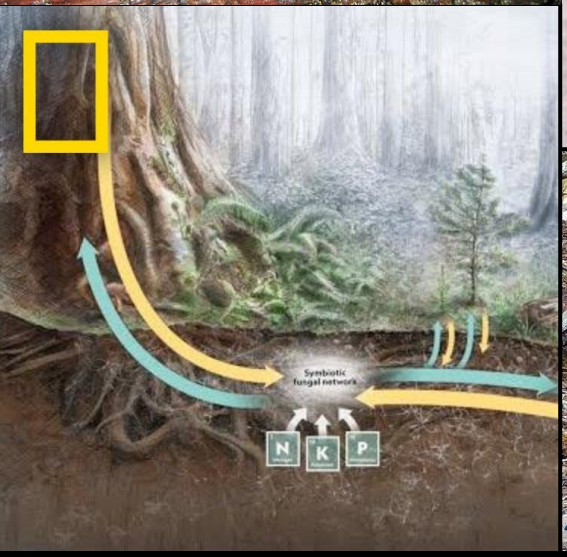
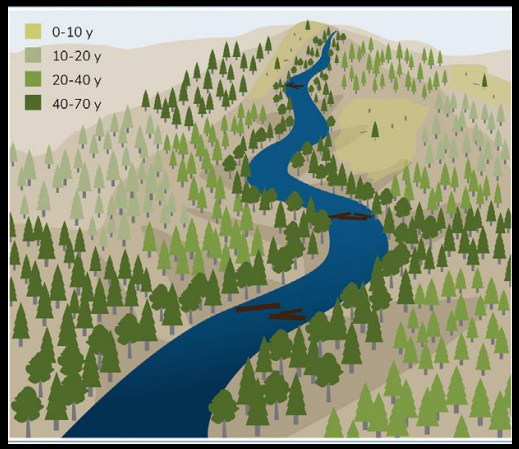


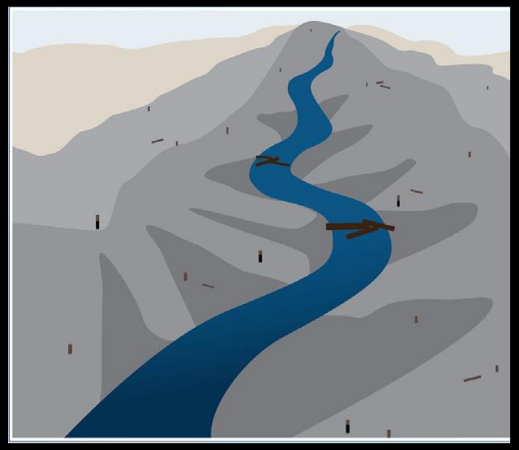

60 -
50 -
40 -
30 -
20 -
10 -
0 -
Approximate height (m)
50
100
300
500
900
1500+
Approximate age (years)


Douglas-fir Heartwood Development by Site Quality
Rich Site
Moderate Site
Poor Site
Heartwood (% of Trunk Volume)
0
20
40
60
80
50
100
150
200
250
300
Tree Age (years)

Bound From Womb to Tomb: Elders And Children

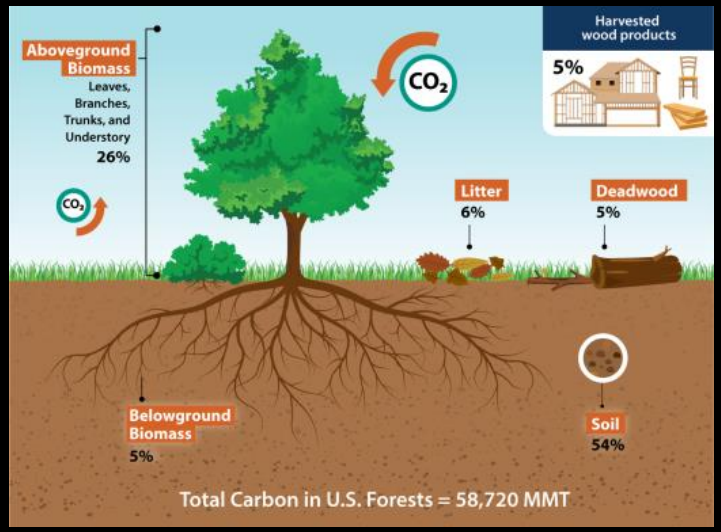






Coble, A. A., Barnard, H., Du, E., Johnson, S., Jones, J., Keppeler, E., ... & Wagenbrenner, J. (2020). Long-term hydrological response to forest harvest during seasonal low flow: Potential implications for current forest practices.

- Segura et al., (2020)
- Jones and Grant (1996)
- Toman (2004):
- Wemple and Jones (1996):
- Ziegler et al. (2007):
- Hutchinson (2014):
- Ares et al. (2005):
- Nazari et al. (2017):



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- **Wang et al. (2021):**
- **Dong et al. (2021):**
- **Greacen and Sands (1980)**
- **Entry and Emmingham (1998):**

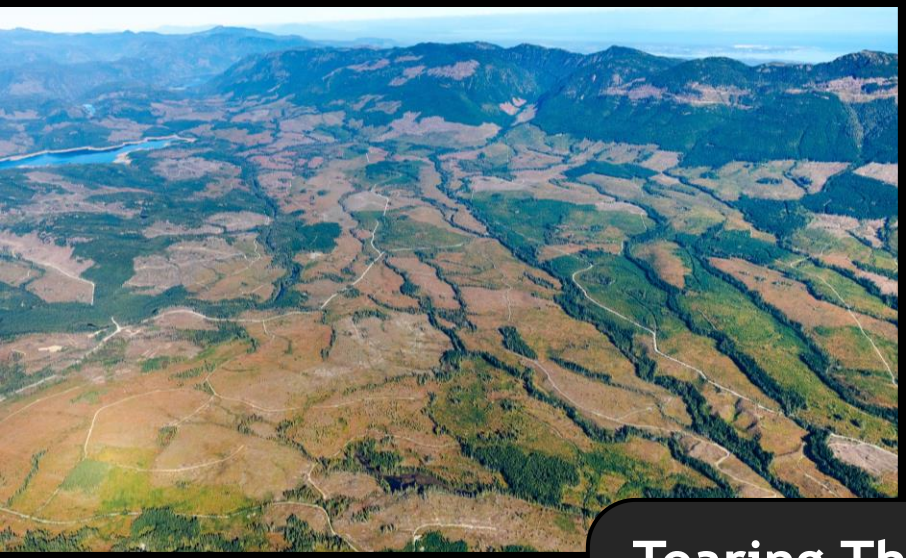
  declined by 55% and 80% (respectively), and belowground carbon by 35% and 65%.
- **Brockett, Prescott and Grayston (2012):**
- **Simard et al. (2012):**
- **Nitrogen depletion:**

Douglas-fir flathead fir borer beetle mortality in Oregon State

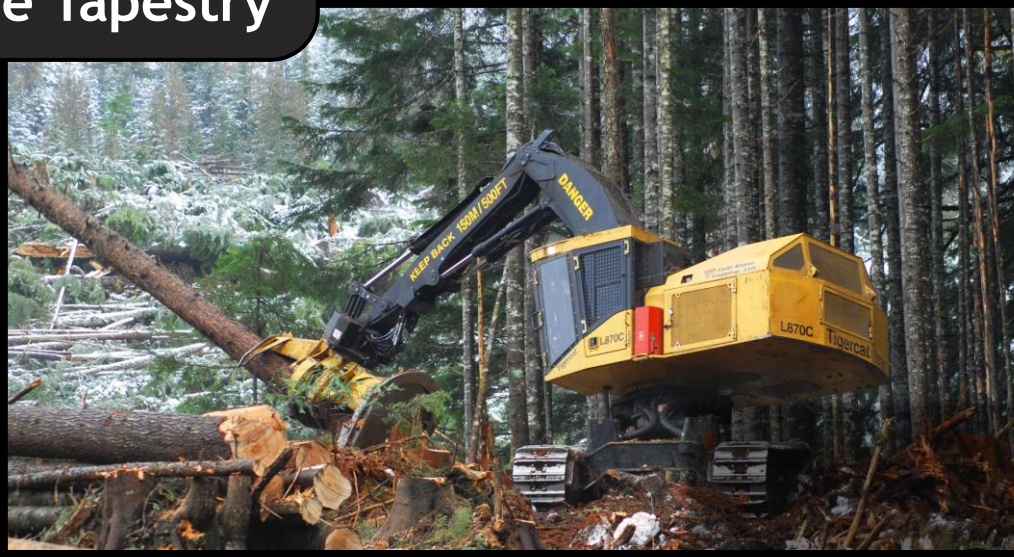
- Williams et al. (2022):
- Cline et al. (2025):
- British Columbia Government (2013 BC forests transitioned from a sink to a source of atmospheric CO2"
- Cavelier (2025):
- Dong et al. (2021):
  reduce photosynthesis rates of old growth DF forests by 77%
- Cailleret et al., 2019:
- Zhang and He (2015): "Competition was the primary factor causing the long-term changes in tree mortality

  increase in tree mortality in seven of the nine most common trees

Manufactured Life
Life: Weaponized



Tearing The Tapestry



The Death of Immortality

“So, so you think you can tell heaven from hell? Blue skies from pain? Can you tell a green field from a cold steel rail? A smile from a veil?”

Wish You Were Here, Pink Floyd

The Tower of Babylon Still Rises