Extended rotations and net climate benefits?

Dr. Indroneil Ganguly, Lieke Droog, & Dr. Francesca Pierobon

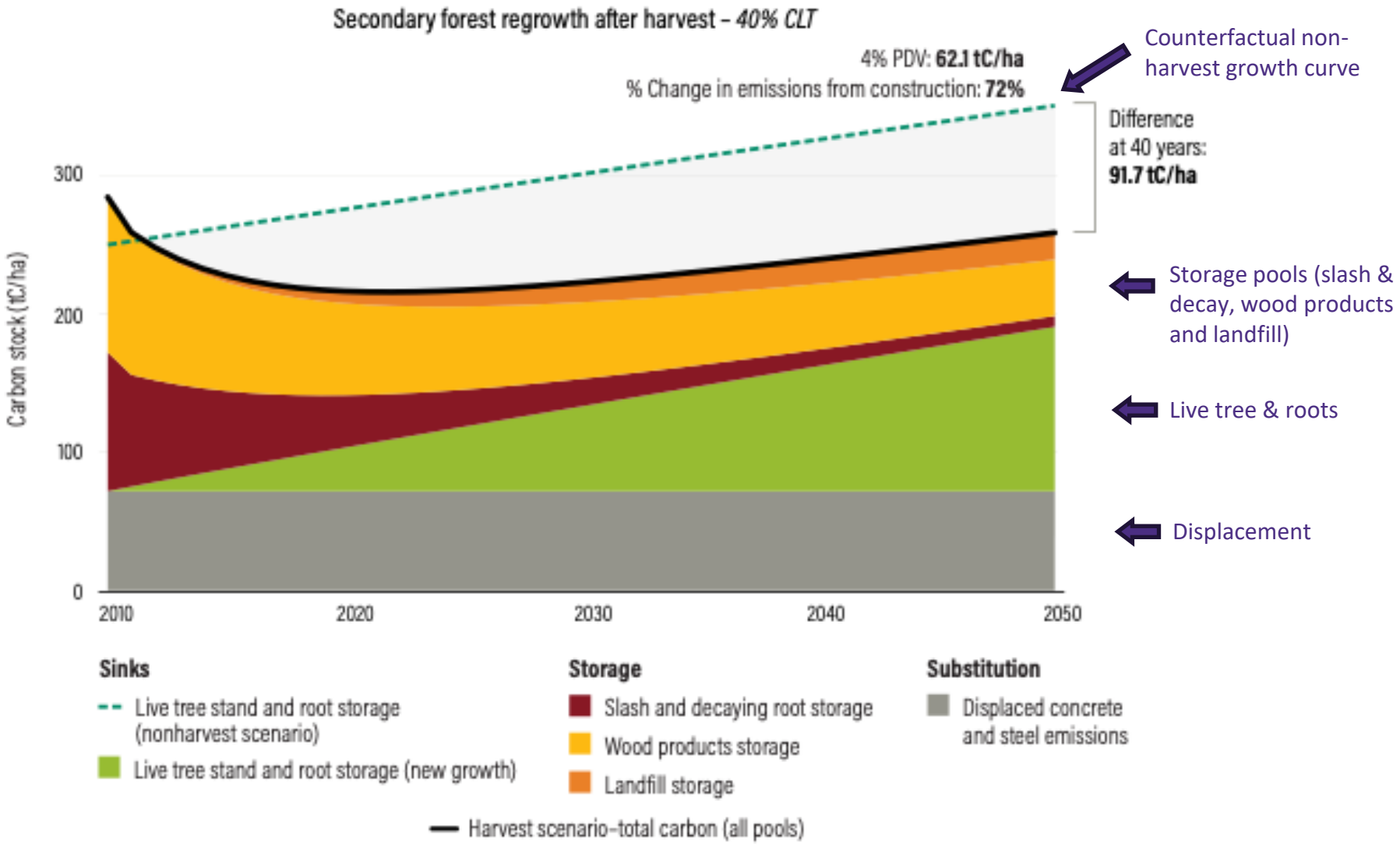
SCHOOL OF ENVIRONMENTAL AND FOREST SCIENCES
UNIVERSITY of WASHINGTON
College of the Environment

INTRODUCTION II | Goal of this study

- The resulting recent publication in Nature projected that not harvesting will help sequester an additional 2.6 – 3.2 Gt CO2-e from the forestry sector globally.
- Conclusions are used inform policy makers and create public policy.

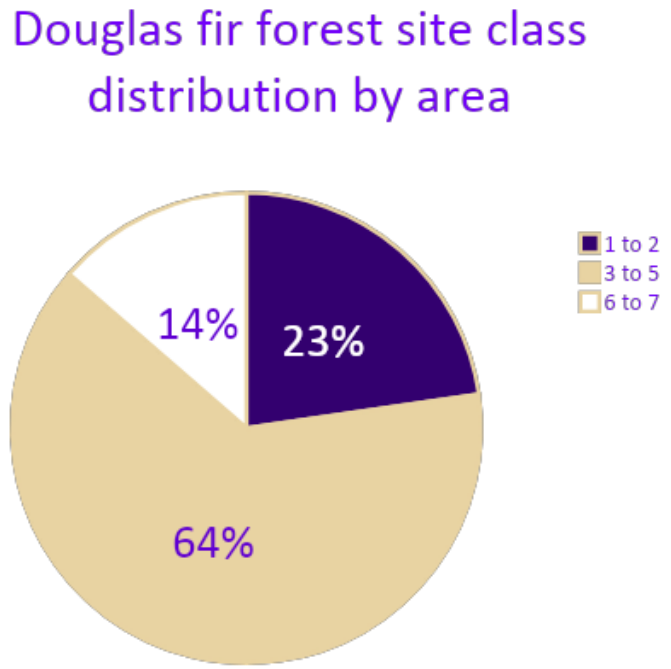
- Goal of this study: Understanding published findings and do a reality check
- Specifically look at WA Douglas fir forests

US PNW DOUGLAS FIR EXAMPLE II | high displacement benefit

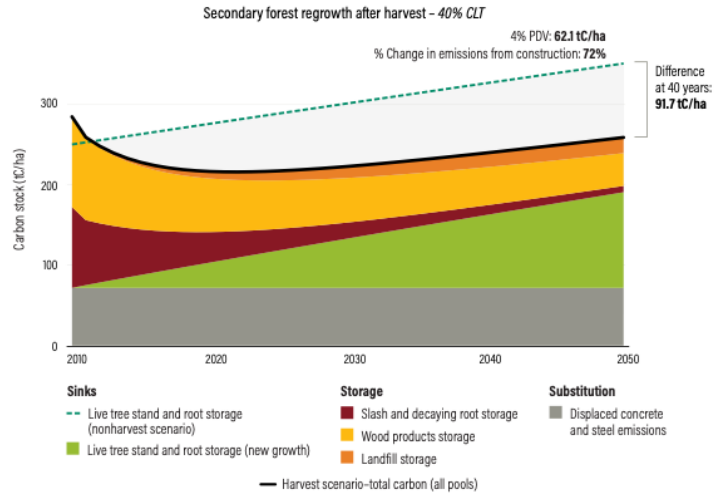


Reality check for WA Douglas fir forests

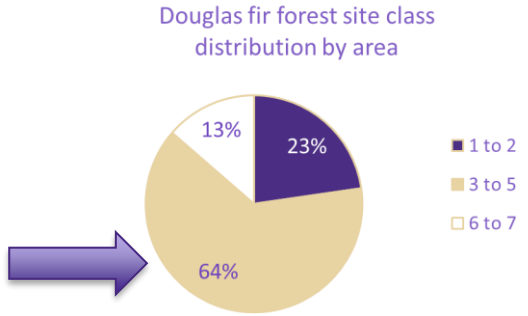
- Percentage long lived wood products vs. short lived wood products/slash piles
  - *WA wood product mix based on Mill Survey*
- Forest regrowth & counterfactual growth
  - *Forest Inventory Analysis data*
- Displacement of fossil intensive non-wood products
  - *Displacement factor study with USDA*
- Douglas Fir Stands, early growth vs late growth distribution

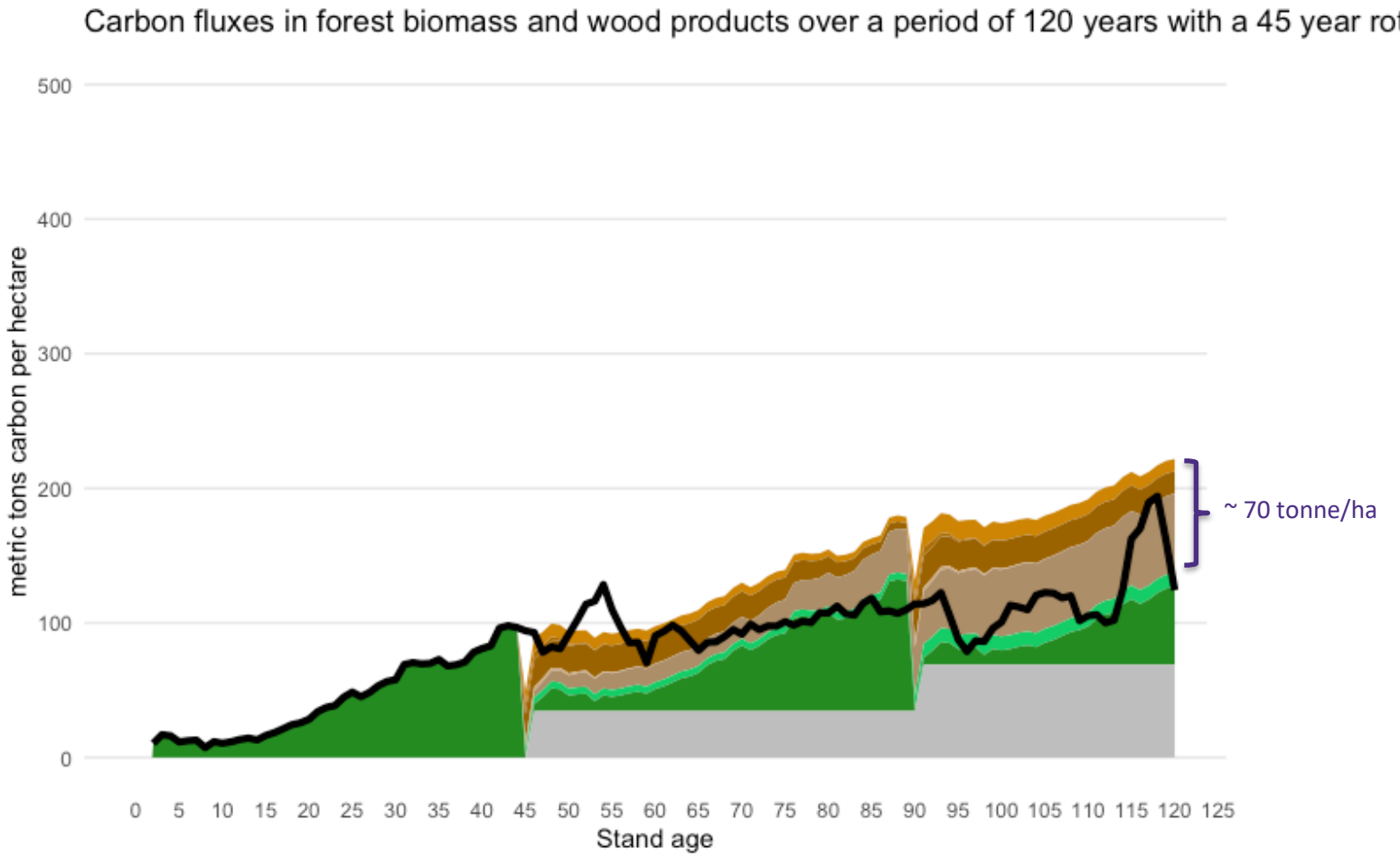


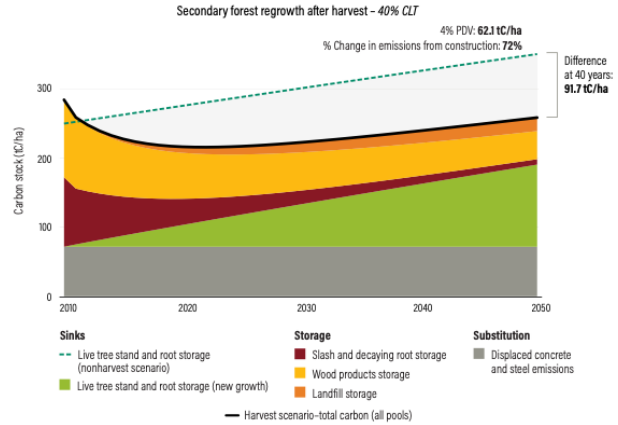
Site class indices 1 to 2

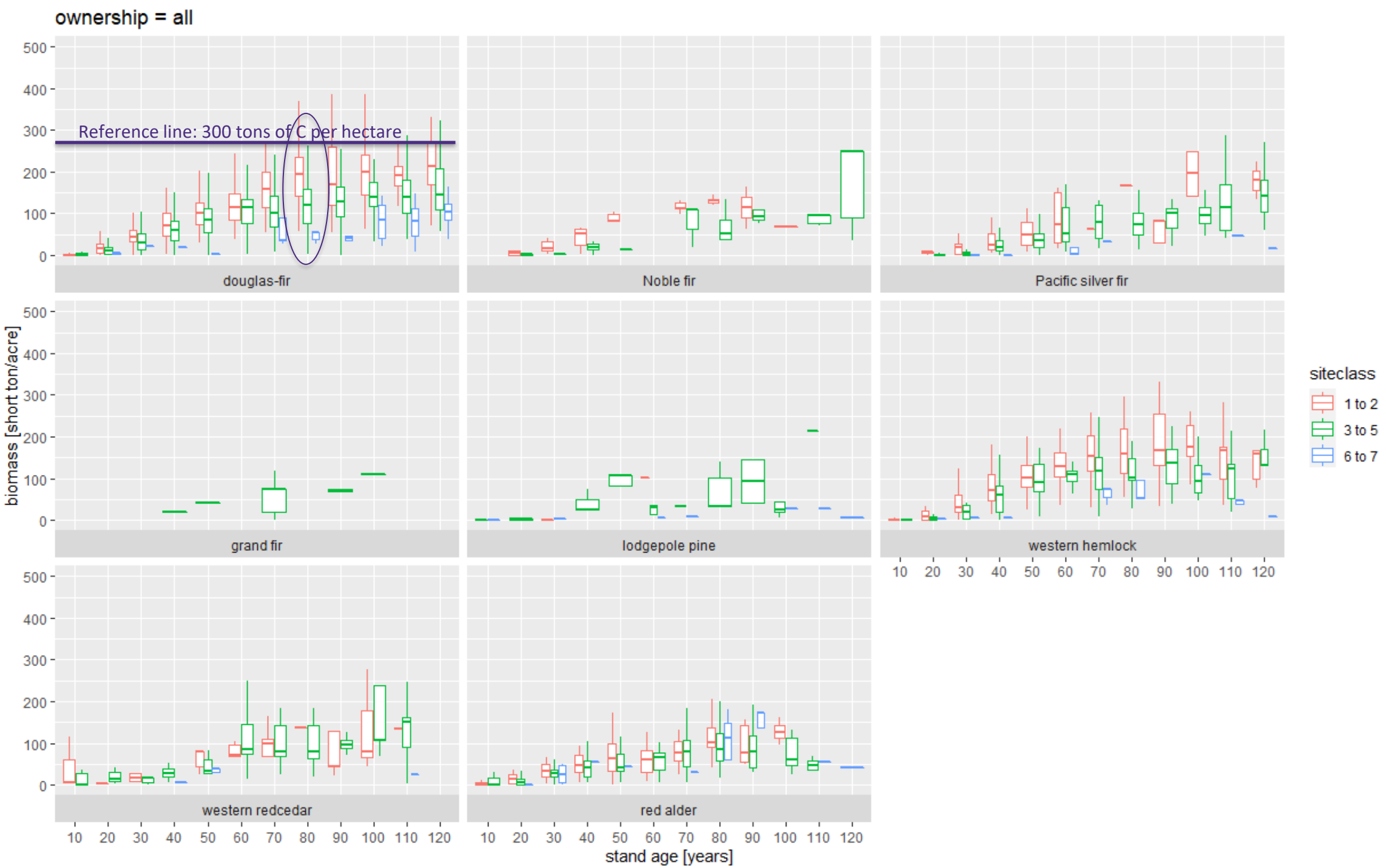


Site class indices 3 to 5








ownership = all
Reference line: 300 tons of C per hectare
douglas-fir
Noble fir
Pacific silver fir
grand fir
lodgepole pine
western hemlock
western redcedar
red alder
biomass [short ton/acre]
stand age [years]
siteclass
1 to 2
3 to 5
6 to 7

References

- Gray, A. N.; Brandeis, T. J.; Shaw, J. D.; McWilliams, W. H.; Miles, P. D. 2012. Forest Inventory and Analysis Database of the United States of America (FIA). In: Dengler, J.; Oldeland, J.; Jansen, F.; Chytry, M.; Ewald, J., Finckh, M.; Glockler, F.; Lopez-Gonzalez, G.; Peet, R. K.; Schaminee, J .H. J., eds. Vegetation databases for the 21st century. Biodiversity and Ecology. 4: 225-231.
- Searchinger, T., Peng, L., Jessica, Z., & Waite, R. (2023). The Global Land Squeeze: Managing the Growing Competition for Land.
- Sathre, R., & O'Connor, J. (2010). Meta-analysis of greenhouse gas displacement factors of wood product substitution. Environmental science & policy, 13(2), 104-114.
- Smith, D.; Larson, K. Washington Mill Survey 2016: Series Report #24; Washington State Department of Natural Resources: Olympia, WA, USA, 2017.