



Durable Eucalyptus for a toxic free planet



Modelling stem properties for durable *Eucalyptus* in New Zealand's dryland environments

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Introduction

- Lack of naturally durable timber in NZ
- Use of toxic timber treatments (CCA)
- Compatibility of stem taper and volume model
- Compatibility of heartwood taper and volume model
- Novel idea of connecting both in one compatible model (to predict dimension of the log products)

Methodology

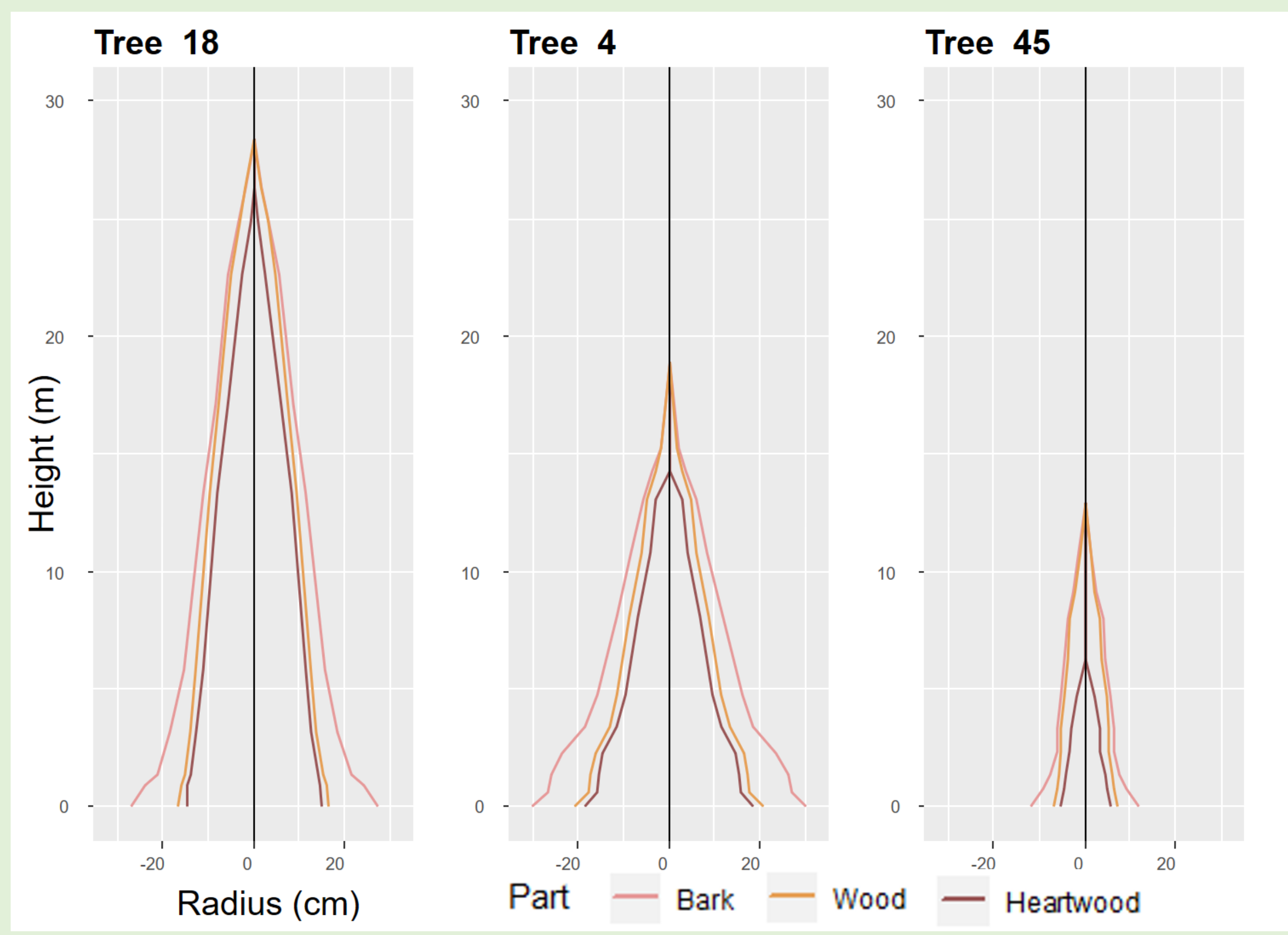
- Collect taper measurements and discs
- Collect heartwood cores from live trees
- Estimate topographic and climatic effects on heartwood formation
- Process heartwood measurements
- System Fit with Weighted Least Squares method
- Constraints: sapwood+heartwood=wood; sap.+heart.+bark=total volume



Research objectives

- Develop equations for *Eucalyptus globoides*:
stem volume and taper compatible with
heartwood volume and taper
- Explore genotypic and environmental effects on heartwood formation

Data



```
> predv(45,35)
[1] Height      = 35 m
[1] Dbh         = 45 cm
[1] Heartwood   = 0.78486 m^3 +
[1] Sapwood     = 0.42686 m^3 =
[1] Wood        = 1.21173 m^3 +
[1] Bark        = 0.75836 m^3 =
[1] Total       = 1.97009 m^3
> |
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