Hochschule
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Bark characteristics of Scots pine logs

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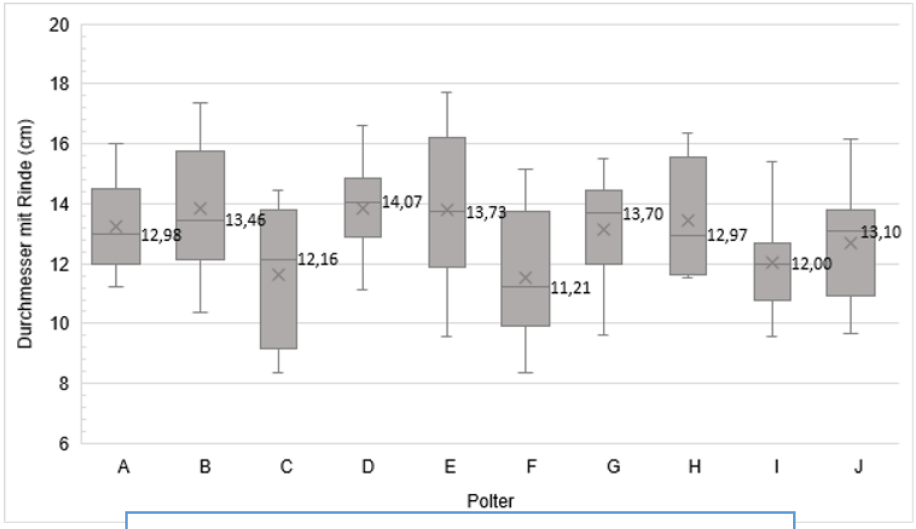
Material & methods

- N-E Germany
- 2 forest district
- 10 wood piles
- 50 logs of 3 m
- 150 timber discs

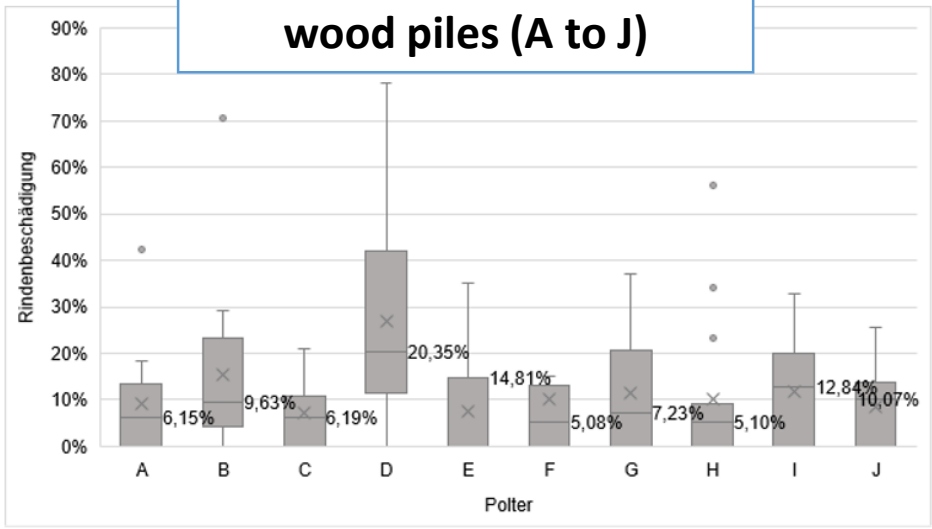
- Ø 8.35 – 17.26 cm
- Bark damaged by harvester
- Only thin and flaky bark

Material & methods



Diameter over bark of the discs (mean ± SD: 12.9 ± 2.1 cm) grouped in their respective wood pile (A to J)

Bark damage of the discs (mean ± SD: 12.0 ± 14.8 %) grouped in their respective wood piles (A to J)



Material & methods

- DBT (double bark thickness) was calculated as the difference between diameter over bark and diameter under bark. All diameters were measured with a precision caliper.
- Bark volume (fresh) was calculated as the difference between volume over bark and volume under bark. All volumes were measured by immersion in a wather bath and the displaced water mass was determined.
- Bark mass (dry) was determined after drying the samples at 103±2°C until constant weight.

Results

Variables	DBT	V_{bark}	M_{bark}
$d_{o.b.}$		✓	✓
Bark damage		✓	✓
Wood pile			
Forest district	✓		
Age			
DBH			
Growth rate			
DBT		✓	✓

✓ = significant

DBT:

Double bark thickness:

$DBT = d_{o.b.} - d_{u.b.}$

V_{bark}:

Bark volume (fresh) in relation to disc volume:

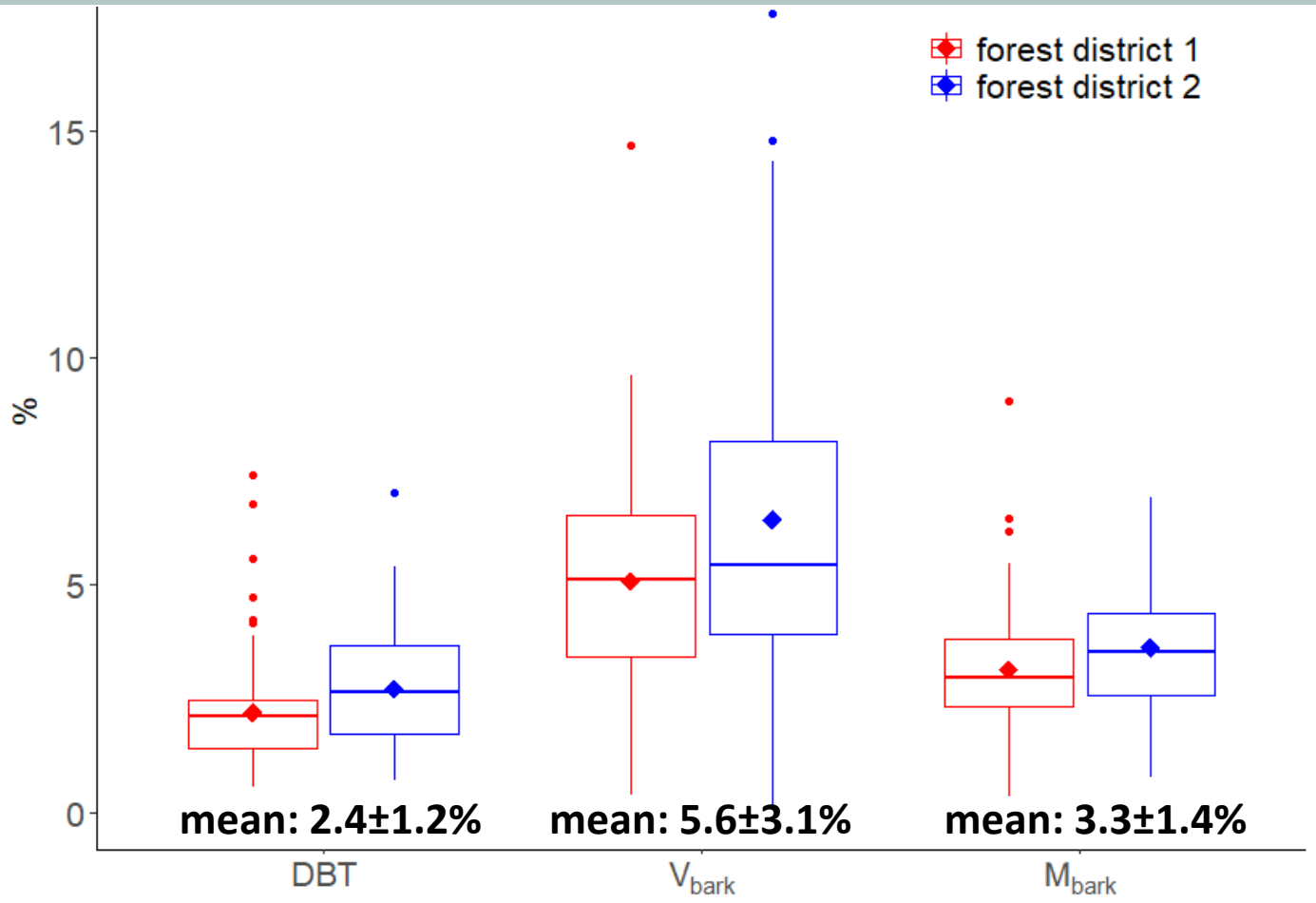
$$V_{bark} = \frac{V_{o.b.} - V_{u.b.}}{V_{o.b.}}$$

M_{bark}:

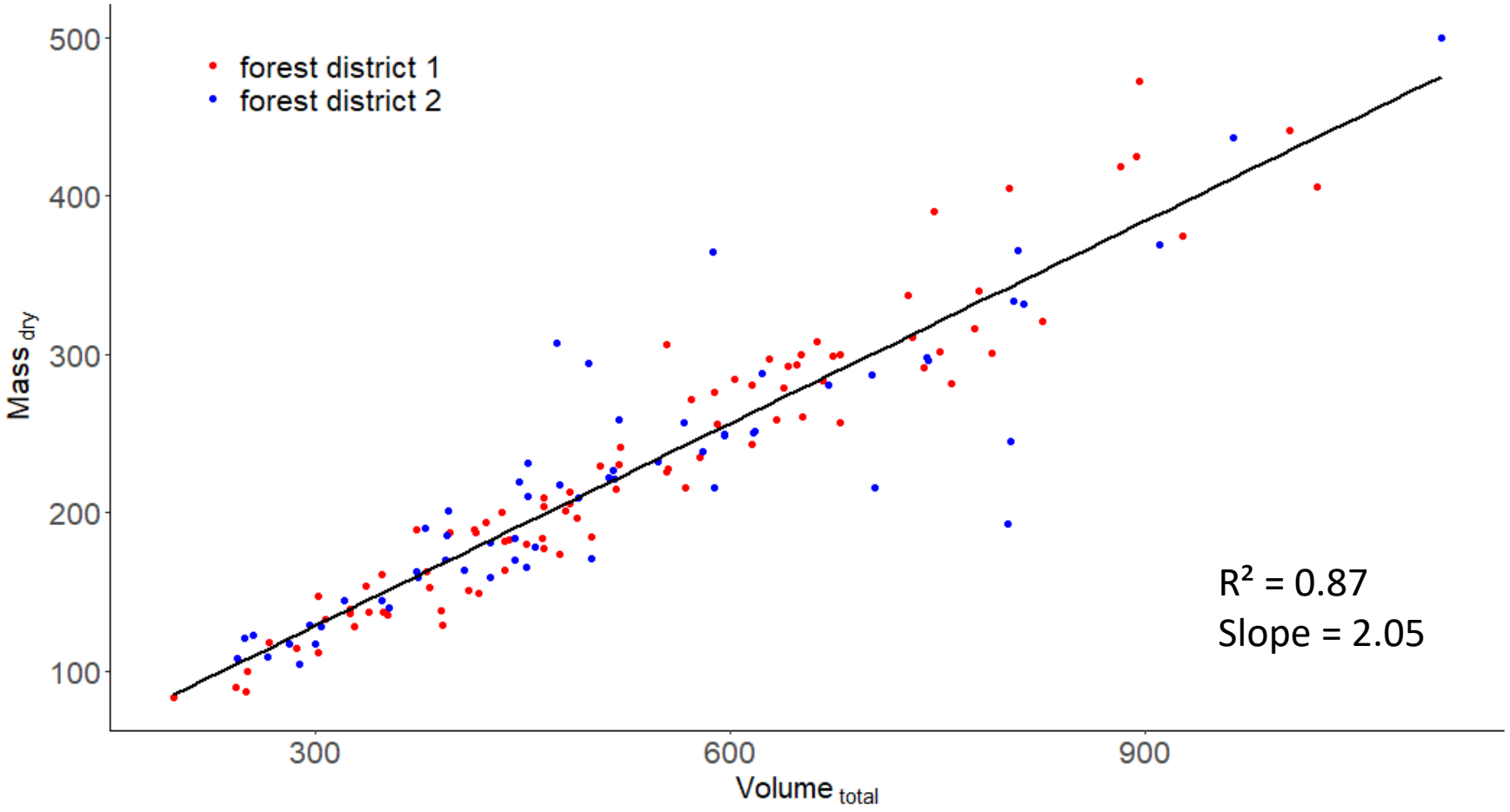
Bark mass (dry) in relation to wood mass:

$$M_{bark} = \frac{m_{bark}}{m_{bark} + m_{wood}}$$

Results


forest district 1
forest district 2
%
15
10
5
0
mean: 2.4±1.2%
mean: 5.6±3.1%
mean: 3.3±1.4%
DBT
V bark
M bark

Results

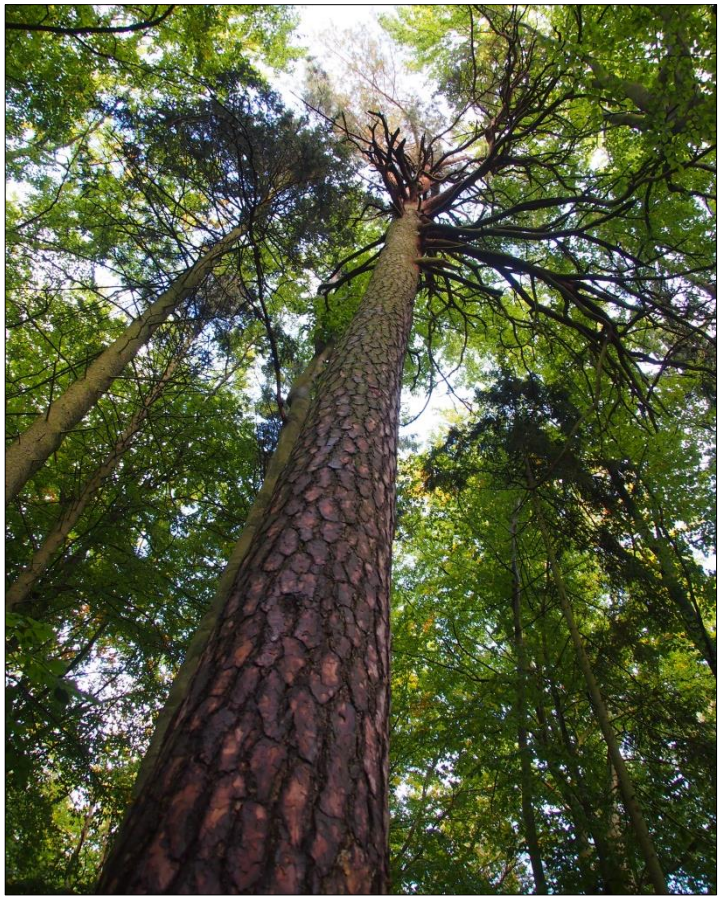

forest district 1
forest district 2
500
400
300
200
100
Mass dry
300
600
900
Volume total
R² = 0.87
Slope = 2.05

Outlook and perspective

Characterization of bark proportions for Scot pine timber with thick, rough and scaly bark

Outlook and perspective

Effect of complex forest stands (e.g. high tree species diversity) on bark proportions



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