

# Permeability survey on Scots pine sapwood from Northern Europe

Katrin Zimmer

Norwegian Forest and Landscape Institute  
Norwegian University of Life Science



Scots pine

# Properties

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Easy available

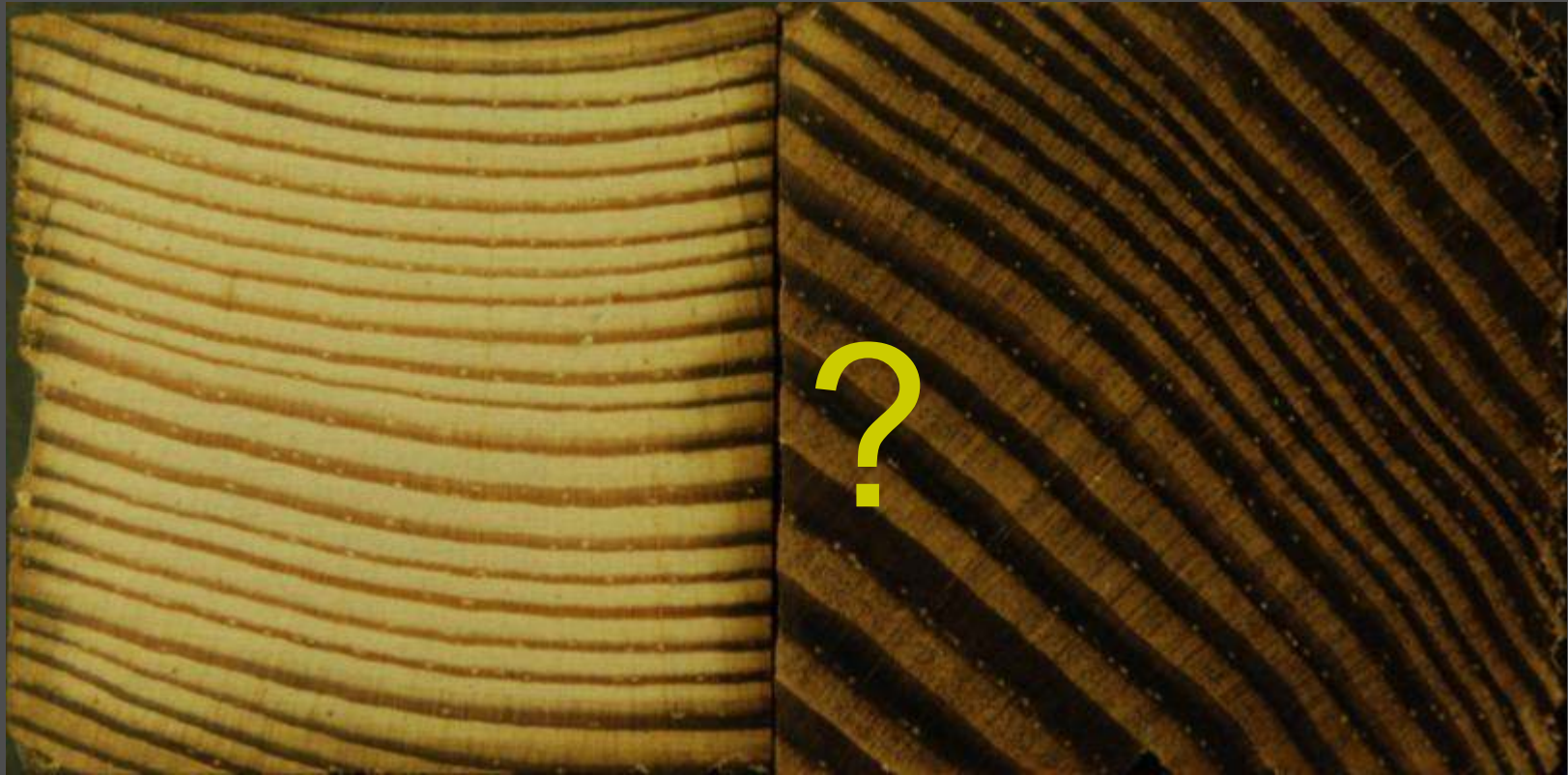
Large natural distribution in Northern Europe

Sustainability

Good mechanical properties

Heartwood good natural durability

Sapwood easy to impregnate  
(EN350-2)



Differences in permeability

What is different within the material?

Structure

Chemistry

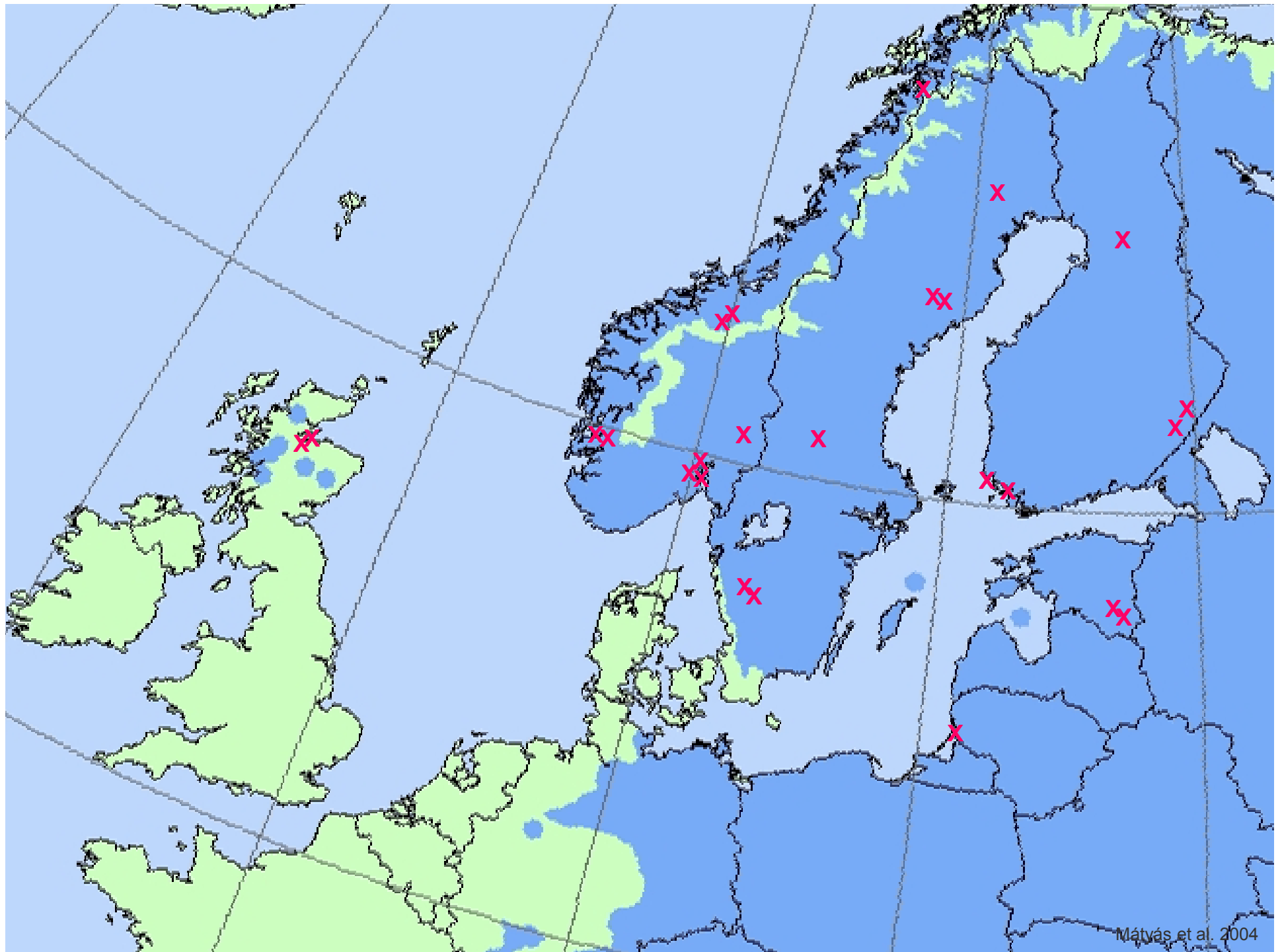
Origin

Scots pine











235



log



log

slab



log

slab

pole with bark



log

slab

pole with bark

planed pole



log

slab

pole with bark

planed pole

raw samples



log

slab

pole with bark

planed pole

raw samples

sealed samples



log

slab

pole with bark

planed pole

raw sample

sealed sample

impregnated sample

# Data Overview

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6 countries

25 stands

235 trees

Latitudinal range                      55°44 N - 66°52 N

Longitudinal range    3°41 W - 28°57 E

Altitude                                    20m - 630m

Site index (H40)                        1.4 – 20.1

Tree age                                    72 - 209

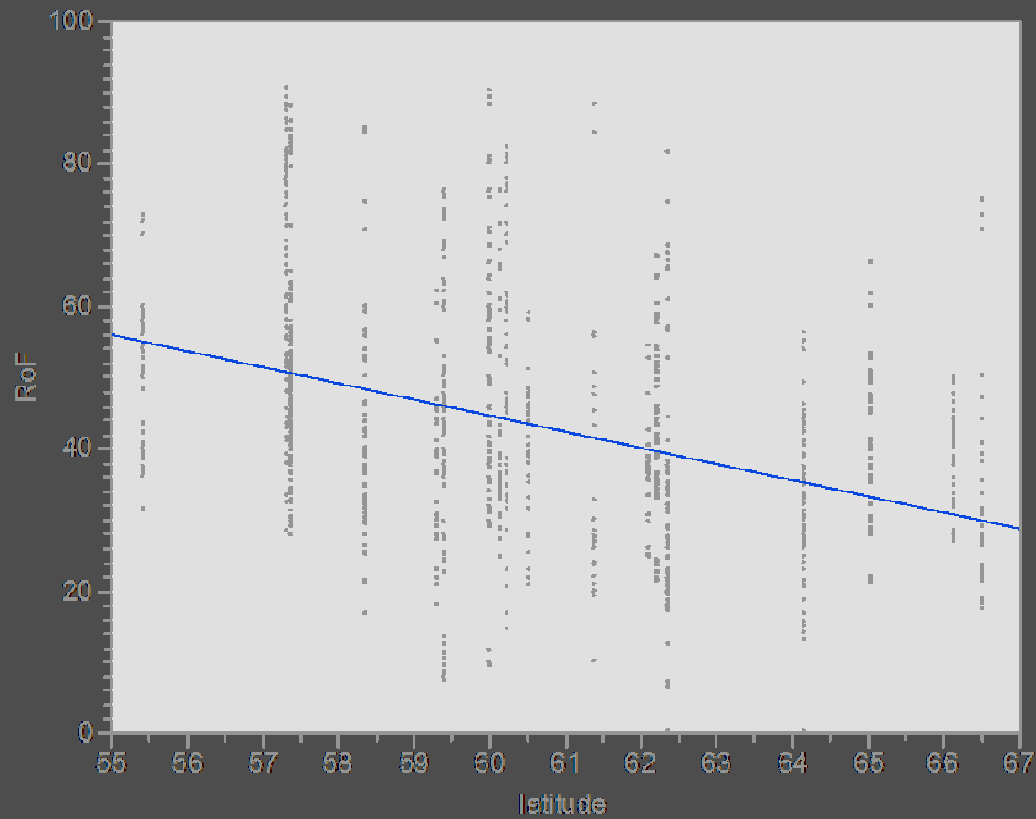
# Data Overview

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Density [g/cm <sup>3</sup> ]	0.35 – 0.62
WPG [%]	4.5 – 27.8
RoF [%]	6 - 90 (mean 43.5)

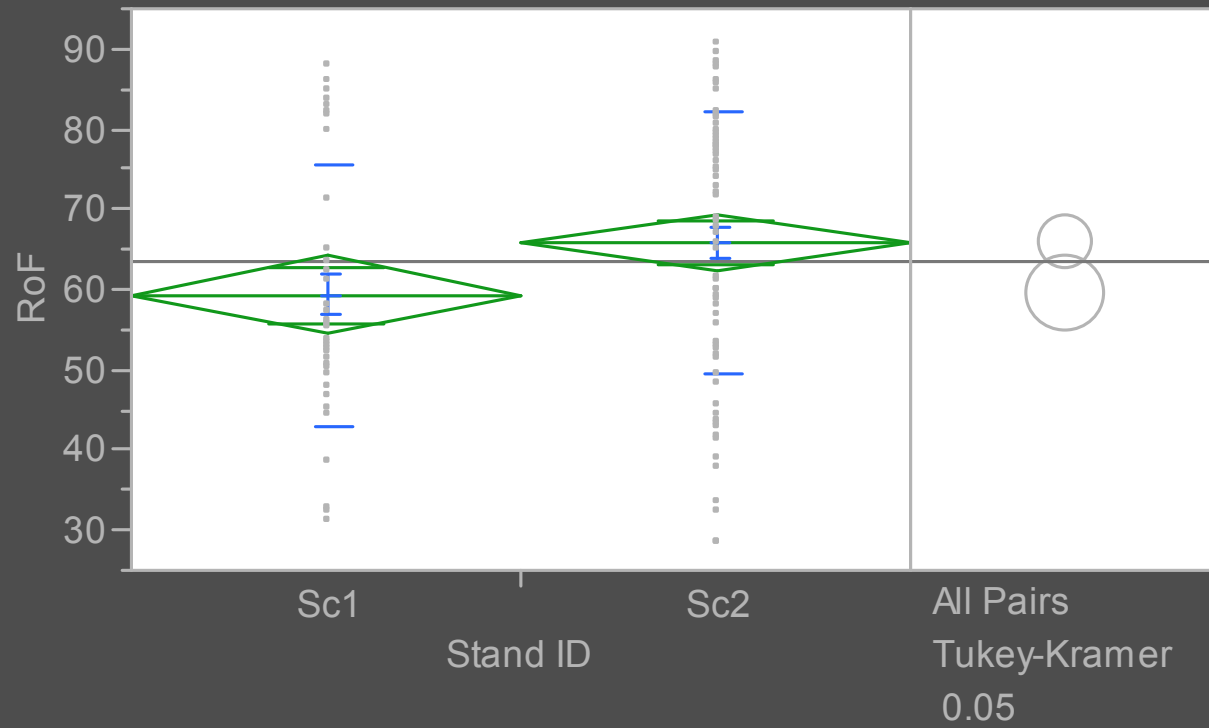
# Data Overview

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Trend apparent:  
the higher the latitude the  
lower the RoF

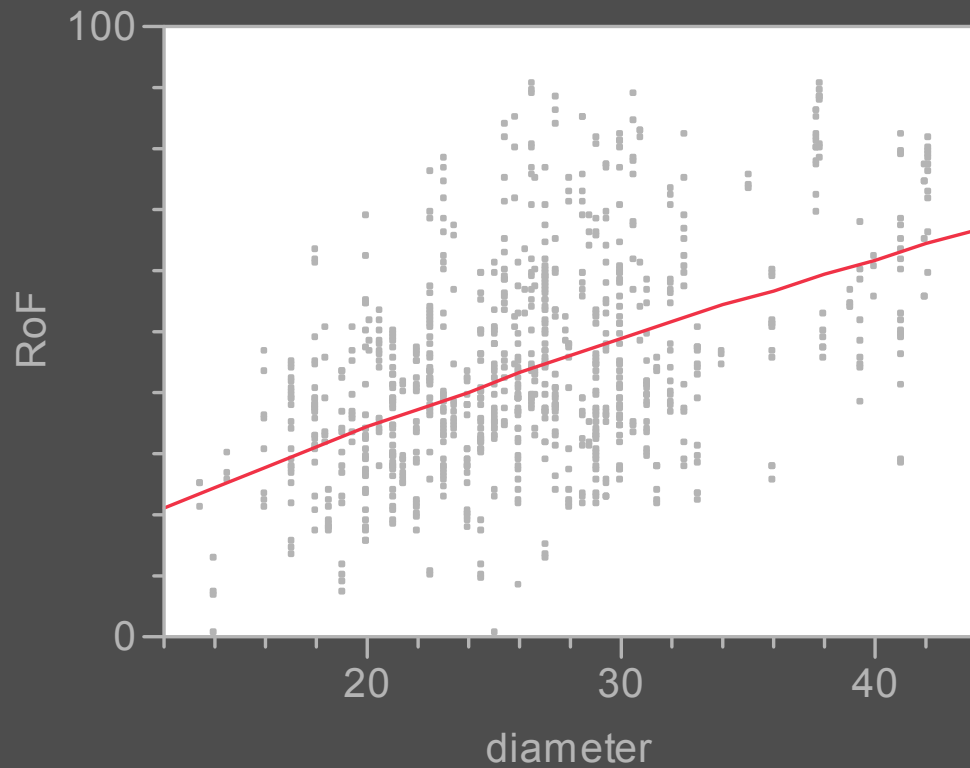
# Data Overview



Mean RoF 63.6

# Data Overview

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Trend apparent:  
the larger the diameter  
the higher the RoF

# Preliminary Conclusions

structure is influencing the permeability

permeability changes with sample origin  
what is exactly changing?

# Future Prospects

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Macroanatomical analysis

Chemical analysis

Impregnation of selected samples with  
optical traceable molecules

Microscopy

# Acknowledgements

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all the helpers on the way,  
Erik Larnøy, Georg Behr



