



**Hylotrupes bajulus**  
Very common on Ruhnu

## Ruhnu, July 2011





**Dry rot fungus**  
**Not much of fungal attack**



**Corner of a barn**  
**Very heavy attack by *Hylotrupes***

## Repair & Replacement

**New wood quickly attacked by  
*Hylotrupes***

## Finding resistant wood

**Laboratory experiments**

**OR**

**Field trials**

## Earlier field trials???

Ruhnu seems to be a fantastic site for  
*Hylotrupes* field trials

## Aim

To find resistant wood that can be  
used for repairs & replacements

## Resistant timbers

- Impregnated
- Chemically modified
- Heat treated

## Impregnated

Probably resistant, but not environmentally acceptable

## Naturally resistant

*Robinia pseudaccacia*  
Hardwood  
Resistant to decay and termites

## Heat treated

Decay resistance improved  
Dark brown colour  
Severe strength loss

## Chemically modified Furfurylation

Decay resistant  
Mimics natural durability  
Dark brown colour

## Natural durability

Monomers enter the cell wall  
Polymerization occurs in the cell wall

## Chemical modification Acetylation

Decay resistant  
Normal wood colour

## Test sites

Easily accessible  
Protected from vandalism





**Timber building**  
Attached to outside?



**New church**  
1944



**Severe attack in new church tower**  
Strength reductions

## Design

Size of samples  
Number of samples

## Time

Up to five years?  
Annual inspections?

## Inspections

Cutting up samples?  
X-ray?  
Tomography?

Start

Spring 2012?