



PostDoc
Latvia

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18 - 20 May 18-20th, 2022

INTERNAL DECAY ASSESSMENT USING DRILLING RESISTANCE IN MATURE COMMON ALDER (*ALNUS GLUTINOSA* (L.) GAERTN.) STANDS

Alise Bleive; Jānis Liepiņš; Kaspars Liepiņš; Andis Lazdiņš

1.1.1.2/VIAA/4/20/687



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IEGULDĪJUMS TAVĀ NĀKOTNĒ



Introduction

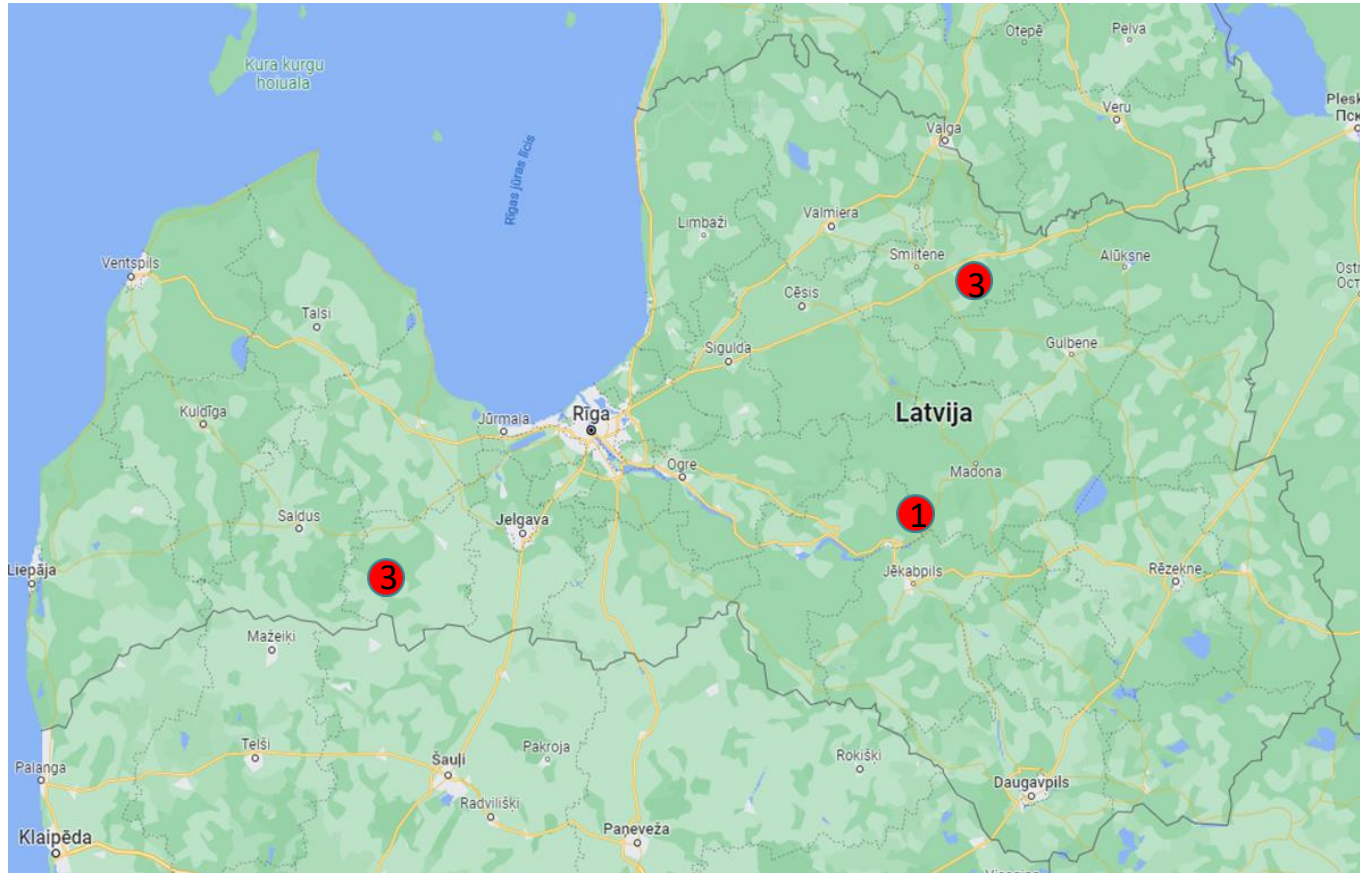


- According to National Forest Inventory (NFI) data, common alder forests cover 6.0 % of the total forest area in Latvia.
- Presence of decay in stems may decrease not only amount of valuable wood, but also cause losses of stored carbon in tree biomass.
- It is almost impossible to detect internal stem decay presence only by visual tree evaluation.

Aim of the study

Test the potential of micro-drill to non-destructive detection of decay in stems of common alder and assess the occurrence of the internal tree decay in common alder stands.

Materials and methods (I)



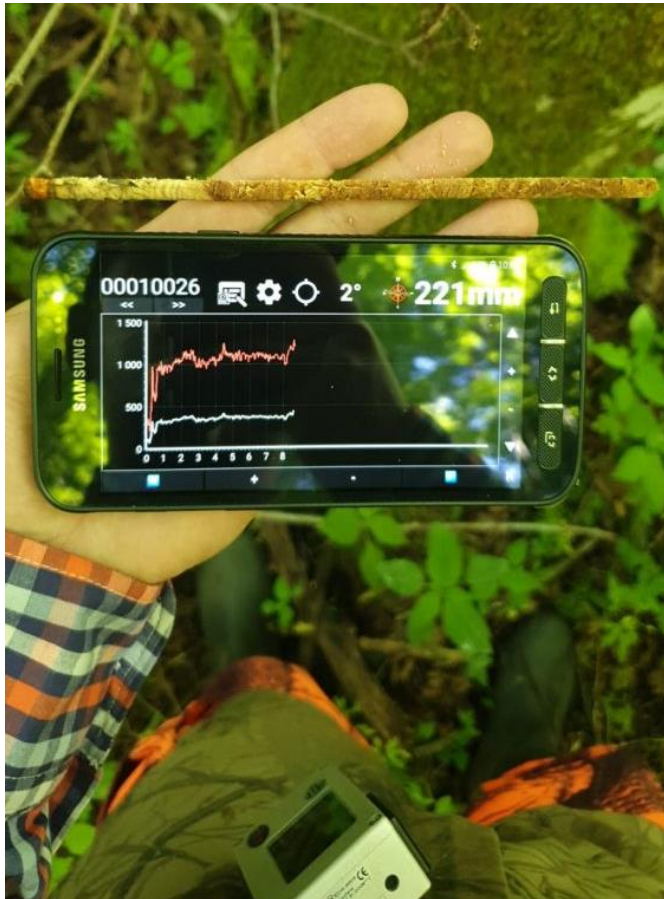
Materials and methods (II)

Main characteristics of studied common alder stands

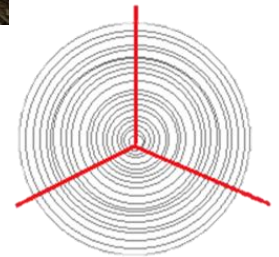
Stand No.	Stand age, years	DBH _g , cm	H _g , m	G, m ²	Mean tree volume, m ³	Stand volume, m ³ ha ⁻¹	Number of trees, ha ⁻¹	Forest type (according (Zālītis & Jansons, 2013))
1	98	31.8	25.3	52.4	0.95	647.9	660	<i>Dryopteriosocaricosa</i>
2	87	31.2	26.8	45.9	0.97	591.2	600	<i>Oxalidoso turf. mel.</i>
3	122	32.3	23.7	19.7	0.92	227.5	240	<i>Dryopteriosocaricosa</i>
4	111	32.6	25.4	25.0	1.00	307.0	300	<i>Caricoso-phragmitosa</i>
5	65	23.3	26.2	33.3	0.53	419.1	780	<i>Myrtilloso-sphagnosa</i>
6	74	20.6	24.1	24.6	0.38	286.2	740	<i>Dryopteriosocaricosa</i>
7	72	23.1	22.8	37.7	0.45	418.4	900	<i>Dryopteriosocaricosa</i>

DBH_g – weighted average diameter at breast height; H_g – weighted average tree height; G – weighted average stands basal area.

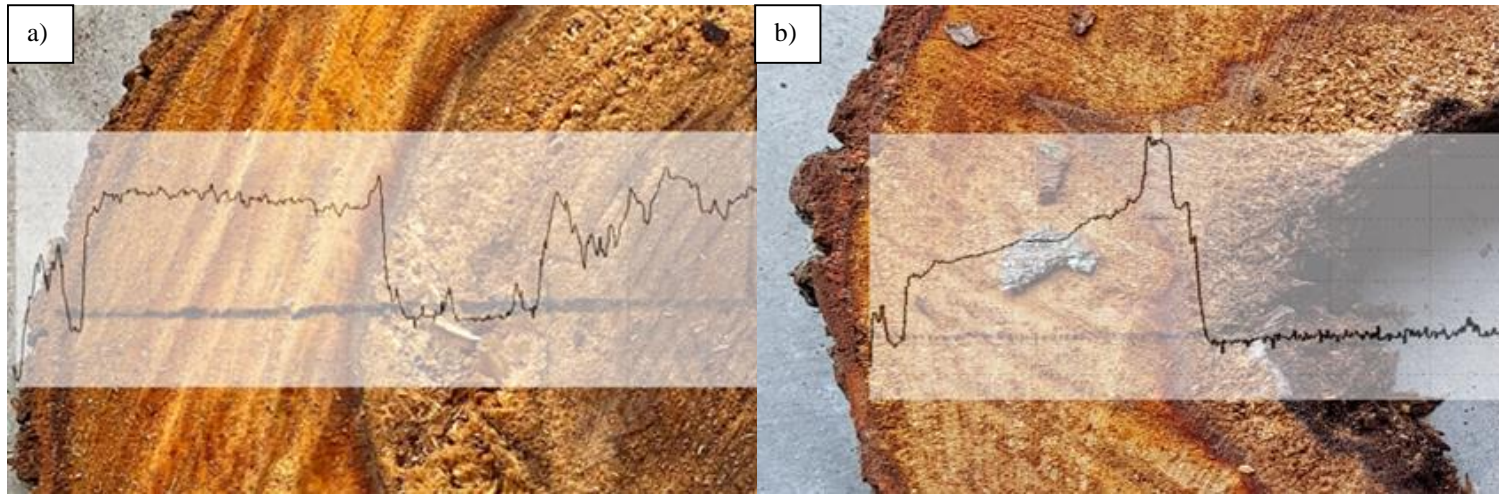
Materials and methods (III)



Rinntech Resistograph® R650



Materials and methods (IV)



Rinntech RESISTOGRAPH® R650 drilling profile and actual cross-cut at corresponding height: a) intact wood and spongy rot; b) intact wood and cavity.

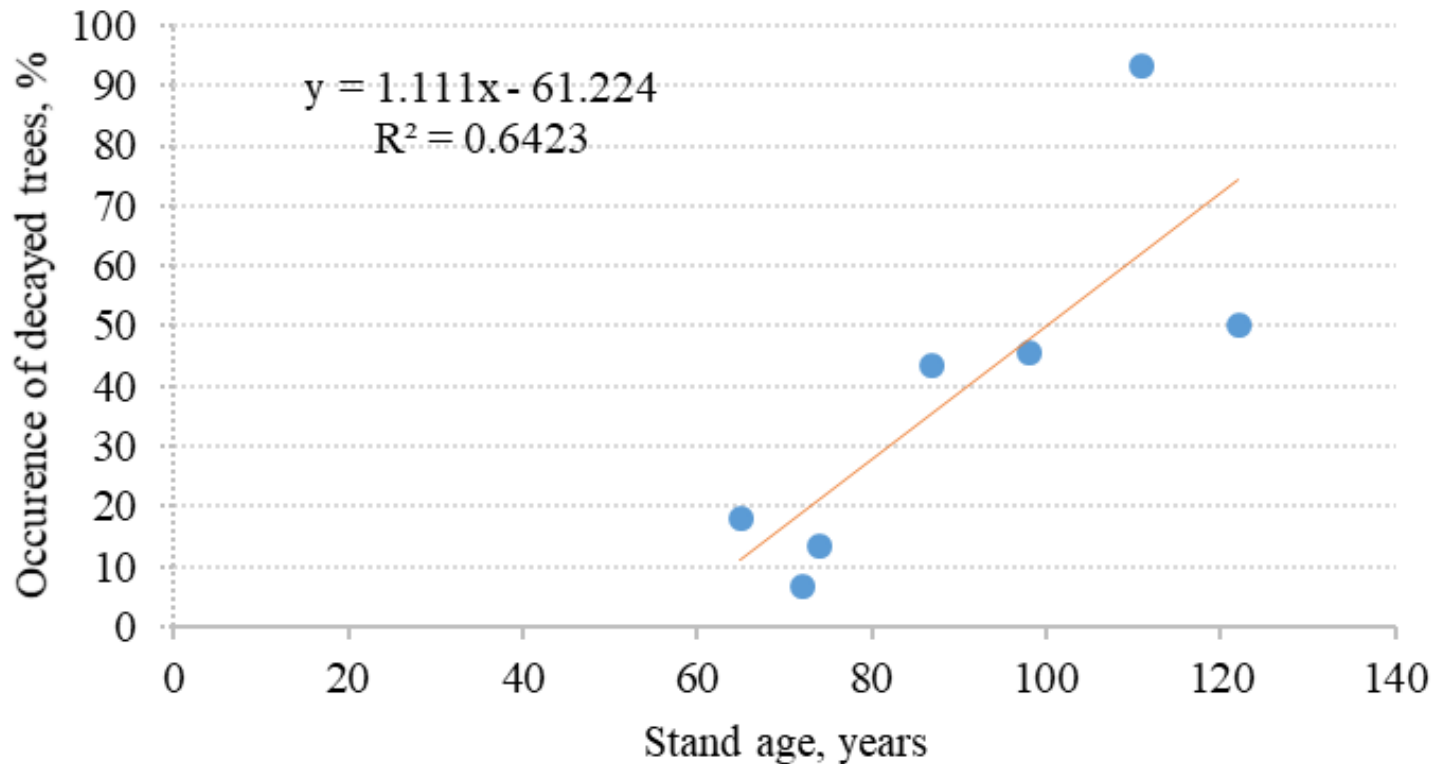
Results and Conclusions (I)

Decay occurrence in mature common alder stands

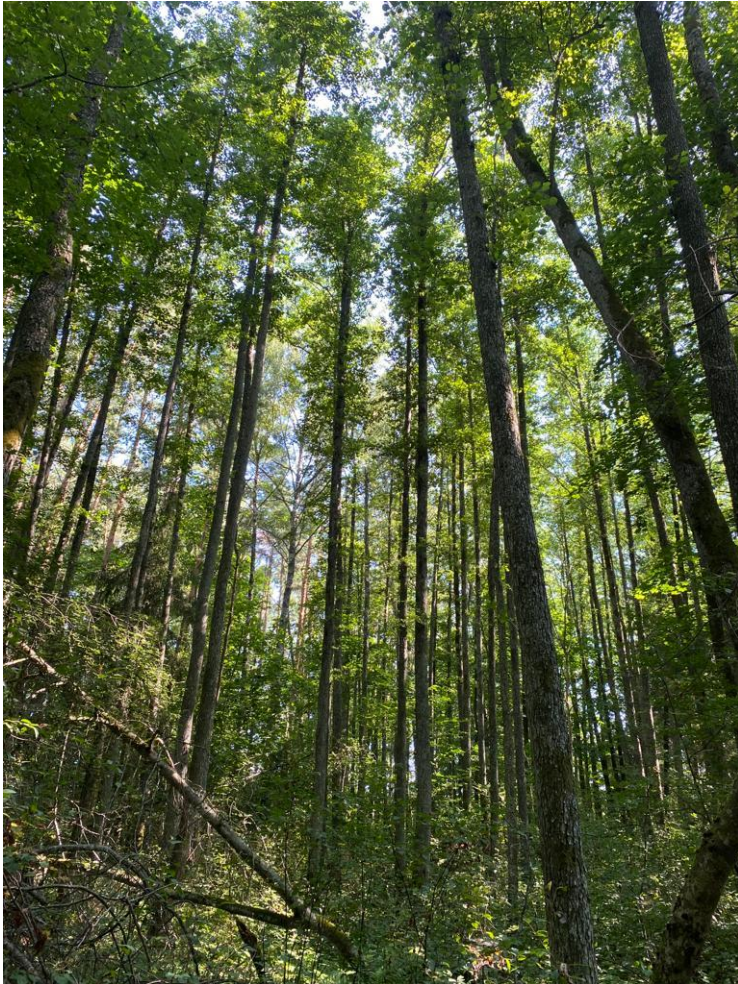
Stand No.	Number of inspected trees	Healthy, %	Spongy rot, %	Cavity, %	Occurrence of decayed trees in stand, %
1	33	54.5	36.4	9.1	45.5
2	30	56.7	26.7	16.6	43.3
3	12	50.0	33.3	16.7	50.0
4	15	6.7	40.0	53.3	93.3
5	39	82.1	12.8	5.1	17.9
6	37	86.5	10.8	2.7	13.5
7	45	93.3	4.4	2.3	6.7

Results and Conclusions (II)

Correlation between common alder stand age and occurrence of decayed trees



Thank you for your attention!



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