

Bark beetle outbreak in the Czech republic and its impact on growing stock

Presented by

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at the

CEE Wood Industries Meeting

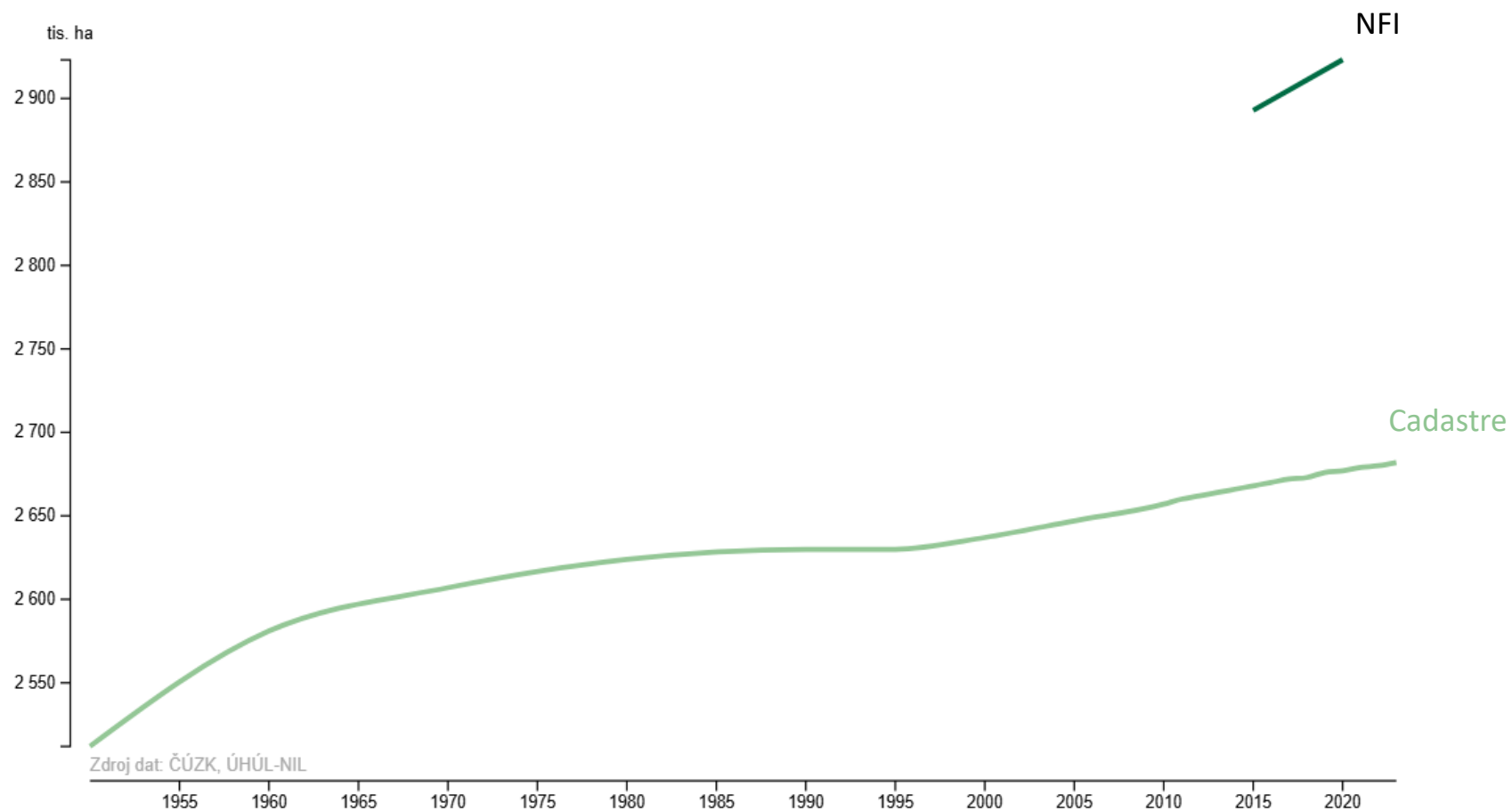
23 May 2025, Prague

Czech Forestry Institute



Forest area

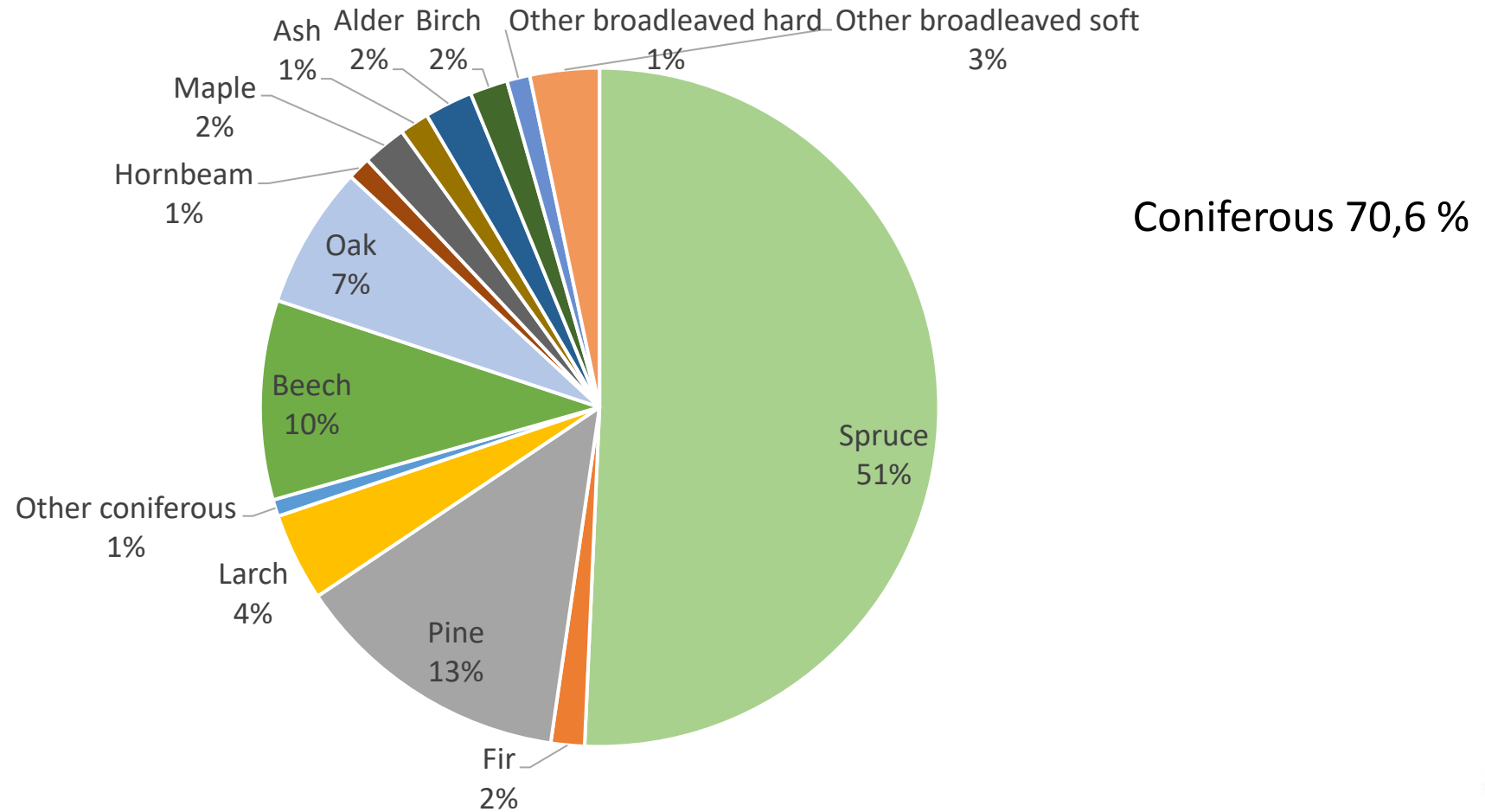
NFI 2020
2 923.2 th.ha
37,1 %



Source: NLI – NFI, Land cadastre



Species composition of growing stock



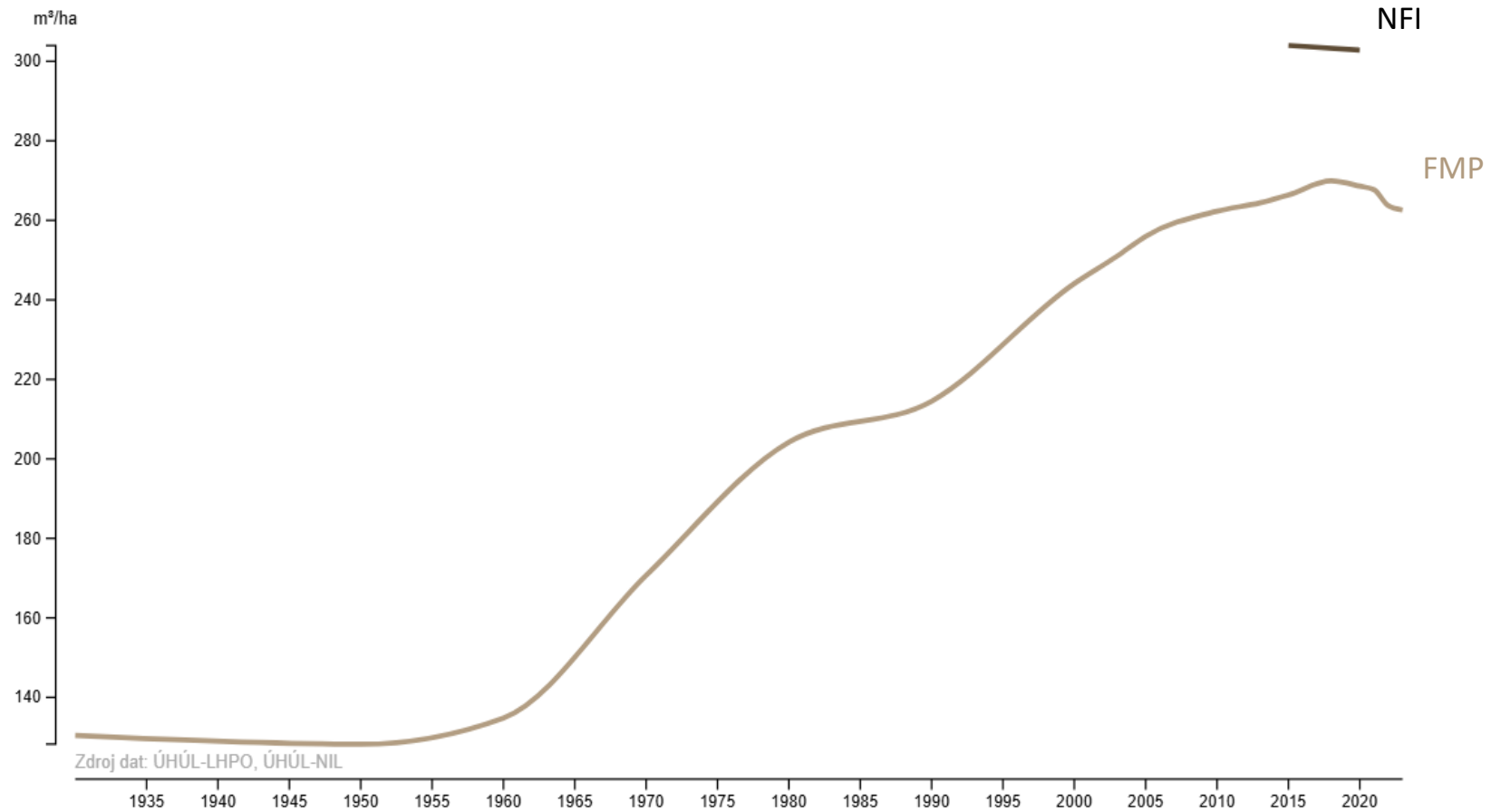
Source: NLI – NFI (2020)

Growing stock

NFI 2020

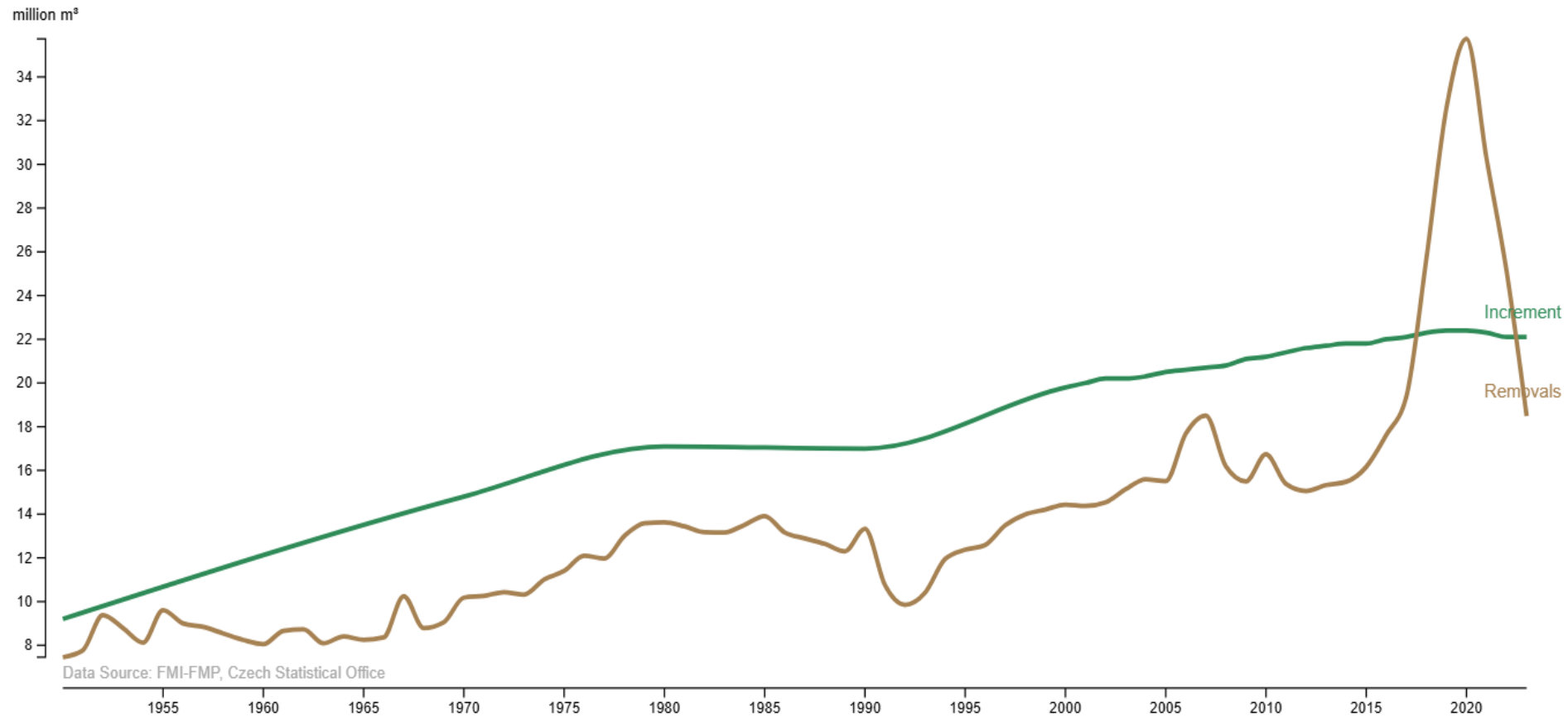
862.8 mil.m³ u.b.

302.8 m³ u.b./ha

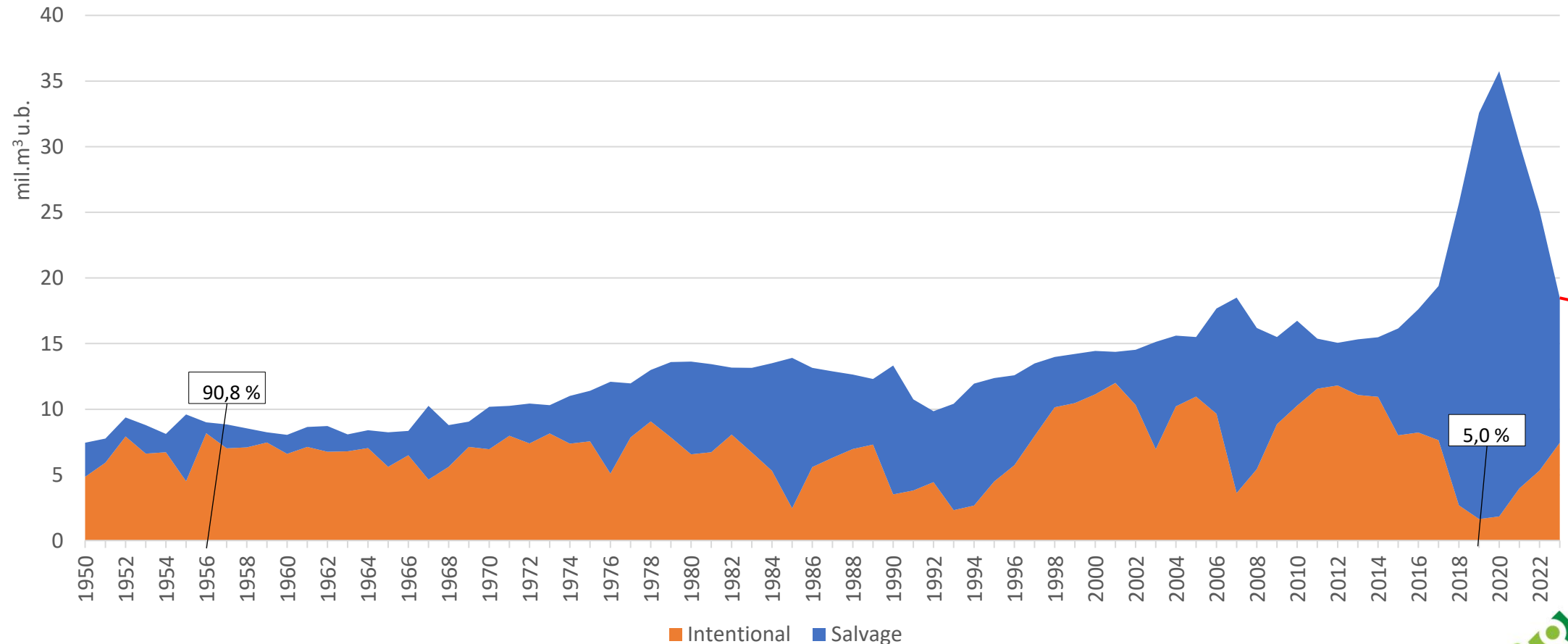


Source: NLI – NFI, FMP

Increment vs. Removals



Reported removals 1950 - 2023

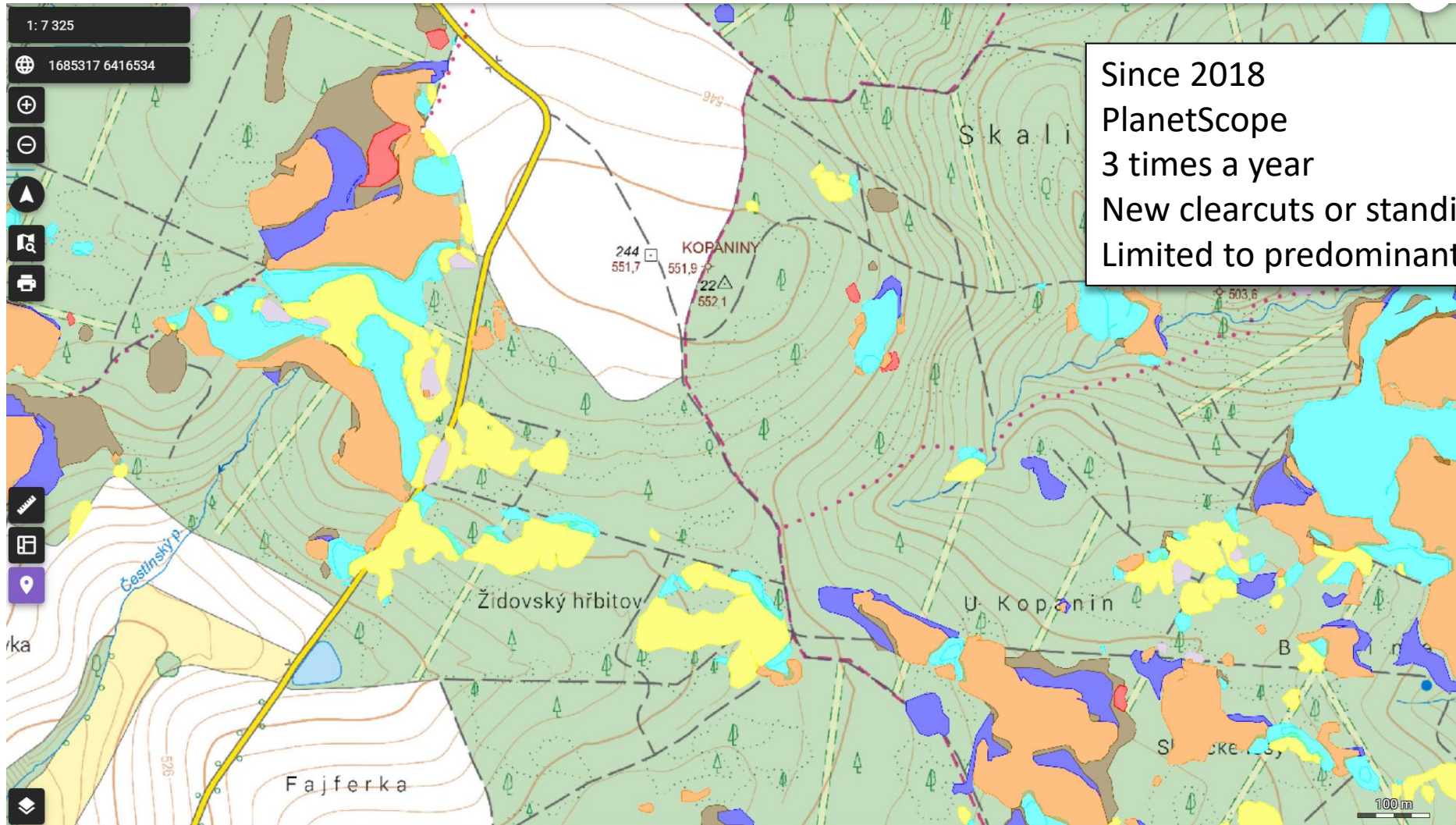


Source: CZSO

intentional/total removals – long-term average 57,6%

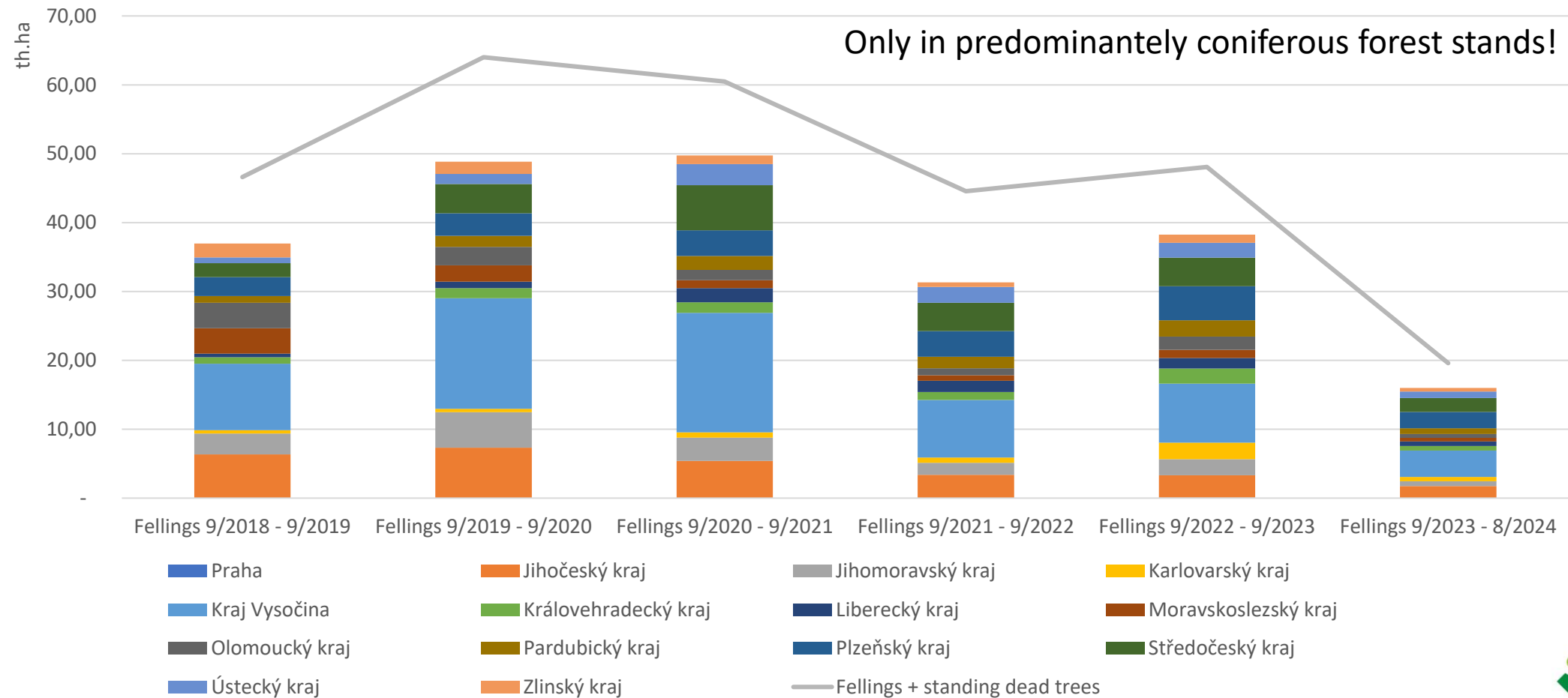


EO clearcuts and standing dead trees



Since 2018
PlanetScope
3 times a year
New clearcuts or standing dead trees
Limited to predominantly coniferous

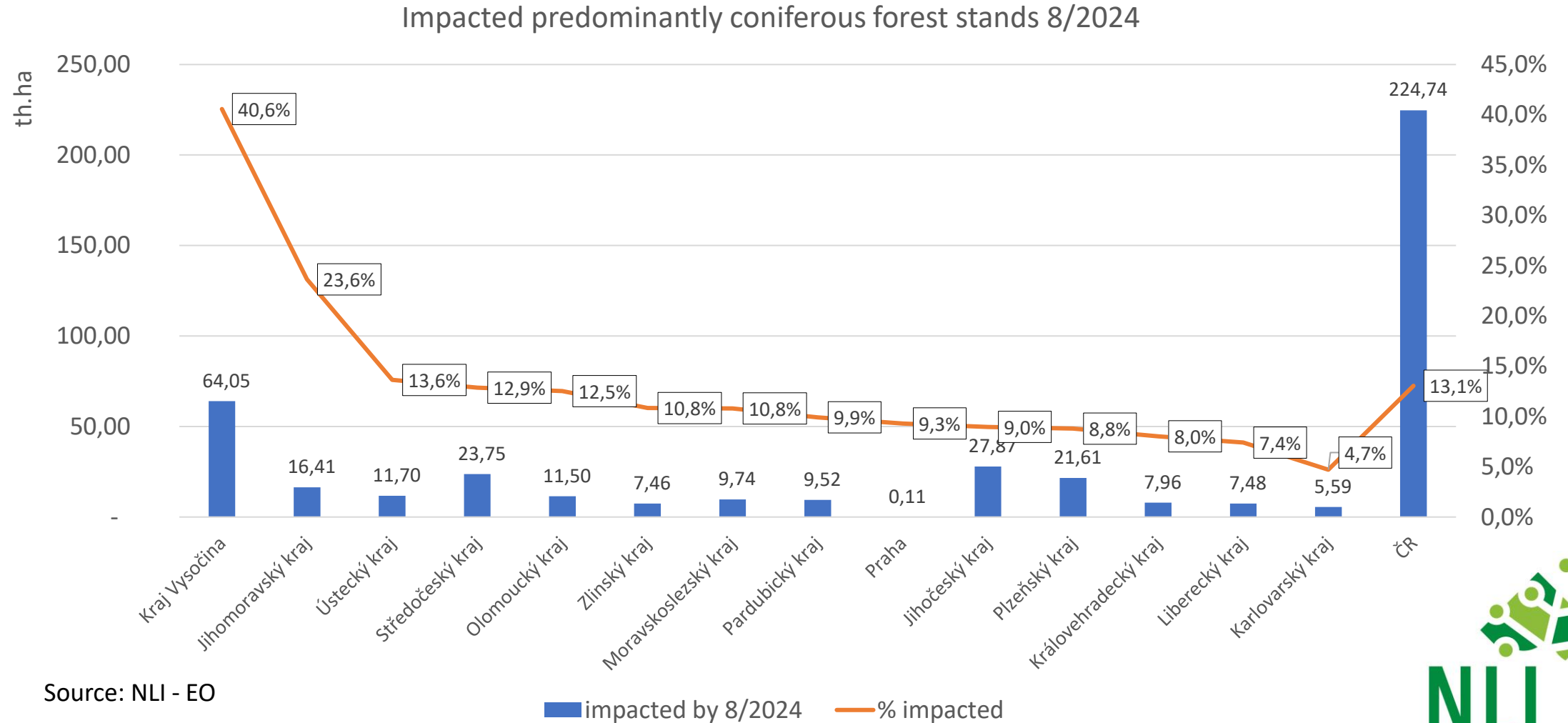
EO clearcuts and standing dead trees 9/2018 - 8/2024



Source: NLI - EO



EO clearcuts and standing dead trees 9/2018 - 8/2024



Outbreak summary

- peak in 2020
- 13% of predominantly coniferous still stands
- current fellings still above pre-outbreak values
- future developments are highly uncertain, outbreak can start again anytime

Outlook

Two models:

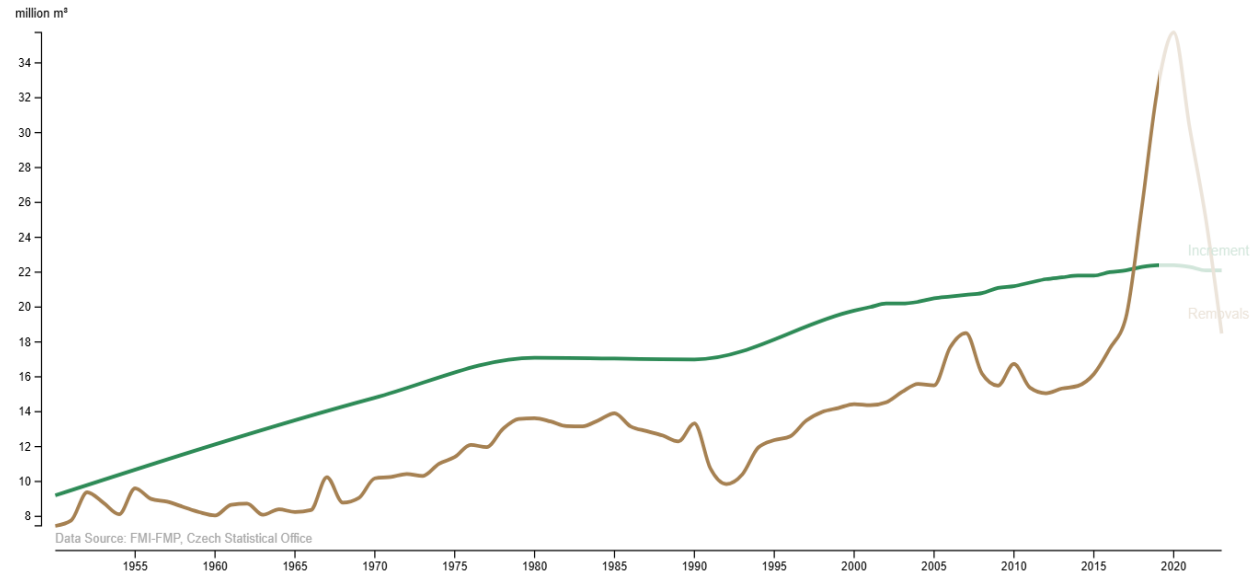
1. Model ÚHÚL (optimistic)

- based on FMPs
- outbreak stops at 2023,
- since then standard management,
- with shorter rotation periods alternative

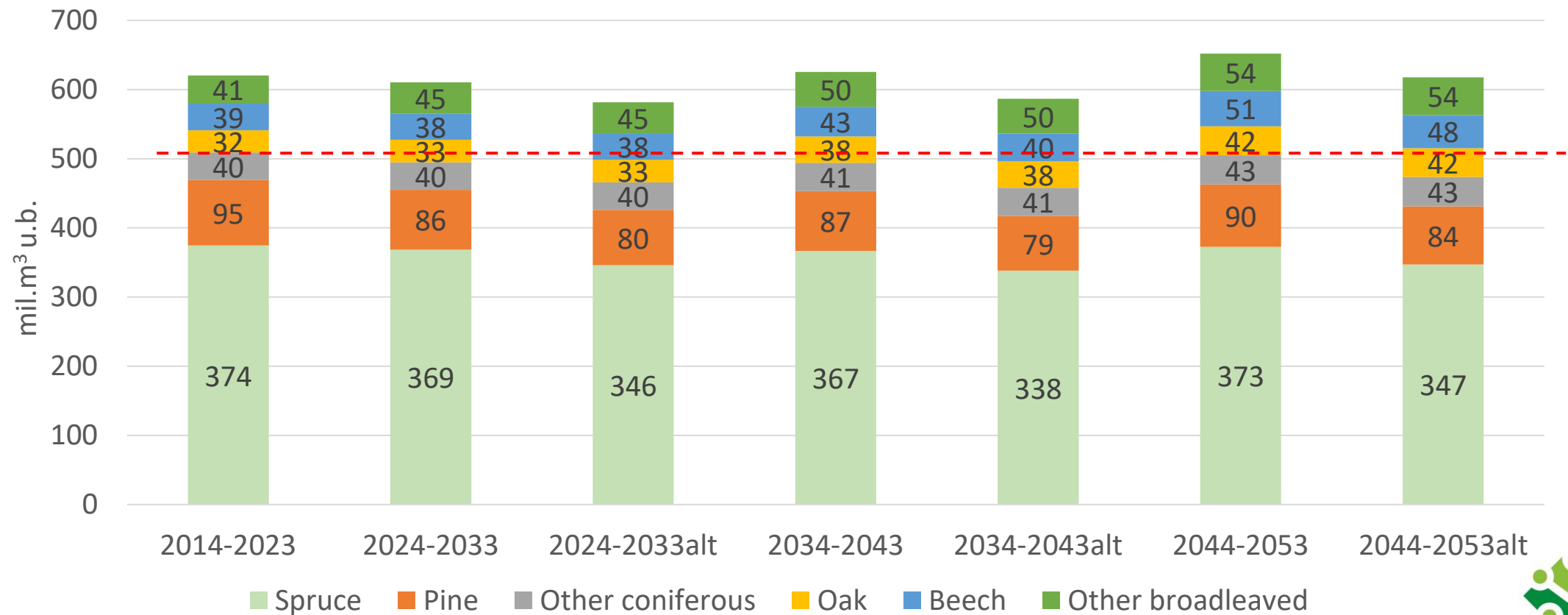
2. Model EFDM (realistic)

- based on NFI2(2011-2015) and NFI3(2016-2020)

Note: none of these two models works with climate change scenarios

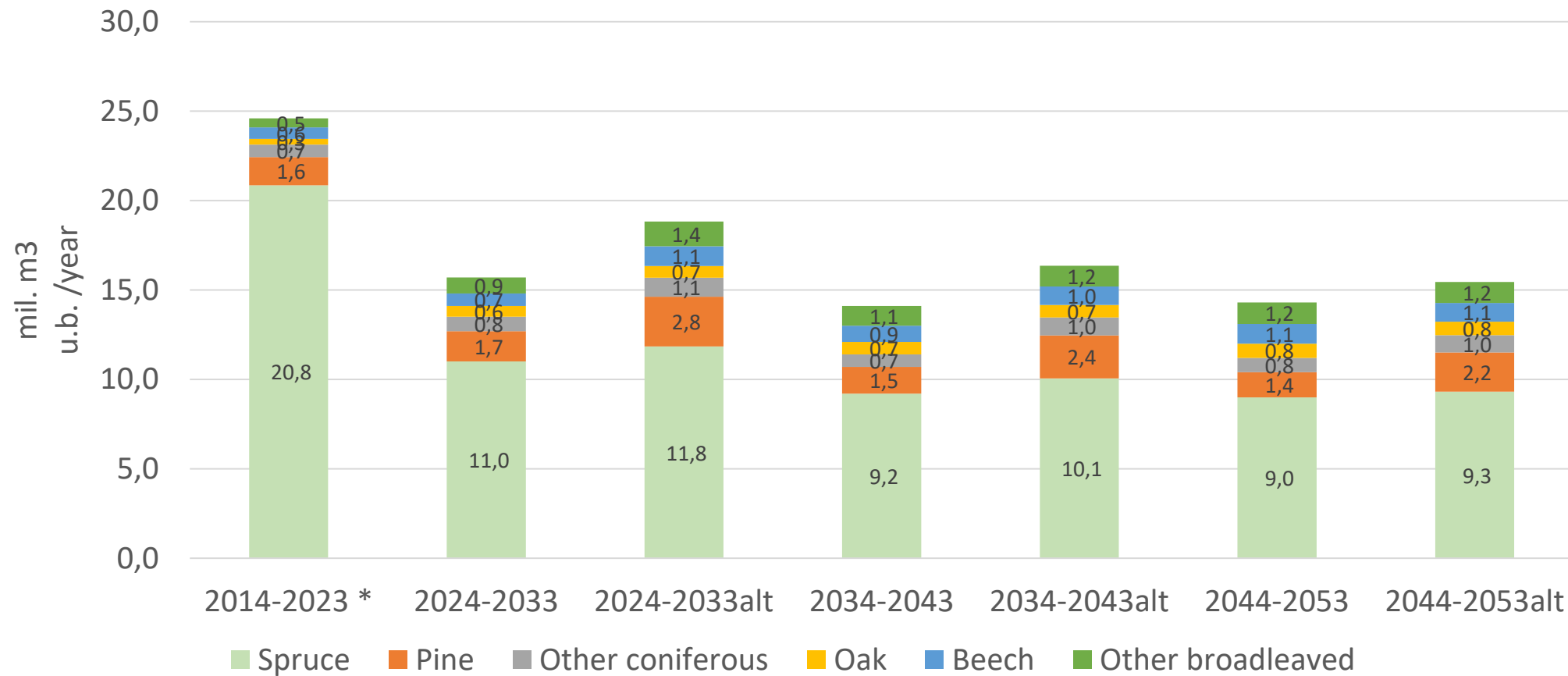


Model ÚHÚL – growing stock



Source: NLI - FMP

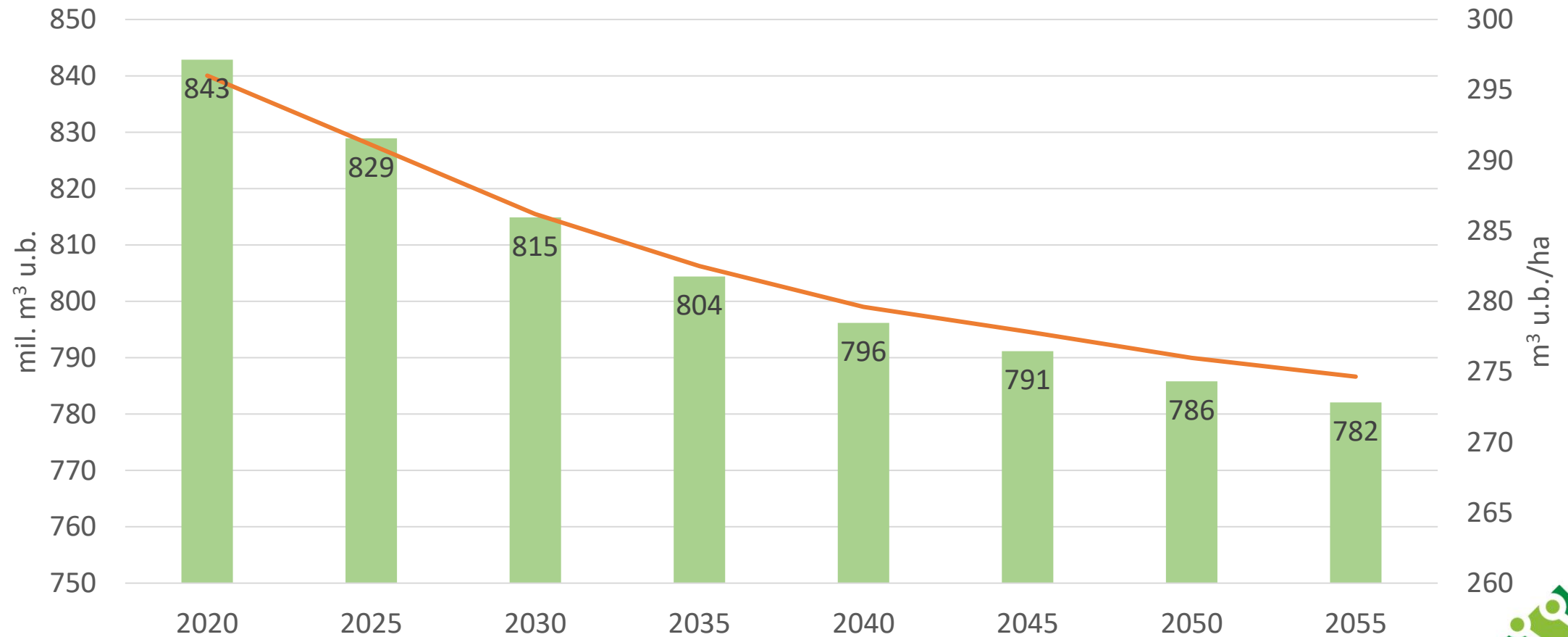
Model ÚHÚL – average annual fellings



Source: NLI - FMP

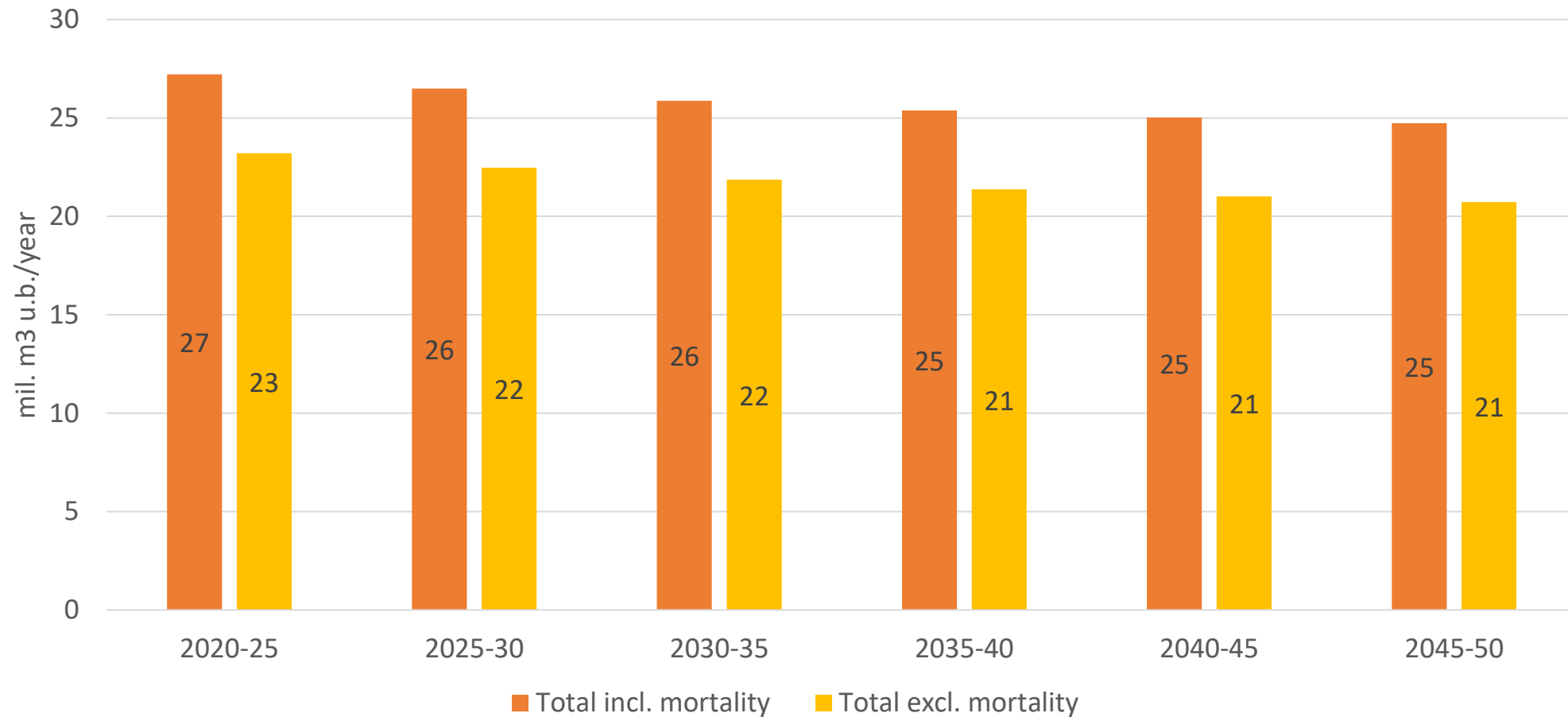
* 2021-23 estimated based on previous values

Model EFDM - growing stock



Source: NLI - NFI

Model EFDM – average annual fellings



Source: NLI - NFI

Outlook summary

- According to both models Spruce decline both in growing stock and consequently in fellings
- Increasing species diversity, but till 2050 still expected major part of spruce in fellings
- Preliminary results of EFISCEN Space model (RESONATE) shows more significant decline of growing stock
- Future developments are highly uncertain, outbreak can start again anytime



Thank You for Your attention

Questions?

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