

Baltic ForBio, WP 2, GA 2.4

Demonstration Site GE1 “Altlandsberg” Early Thinning in Mixed Spruce Stand

Country	Germany
Region	Brandenburg
Demonstration Site ID	Demonstration Site GE1 "Altlandsberg"
Year/Date of the Thinning	January 2019
Topic	Early thinning using small harvester, harvester operation with midfield

Information about the Forest Stand

General Information

Forest Stand ID	4429a3
Area [ha]	1,98 ha
Age [years]	26 / 27 years

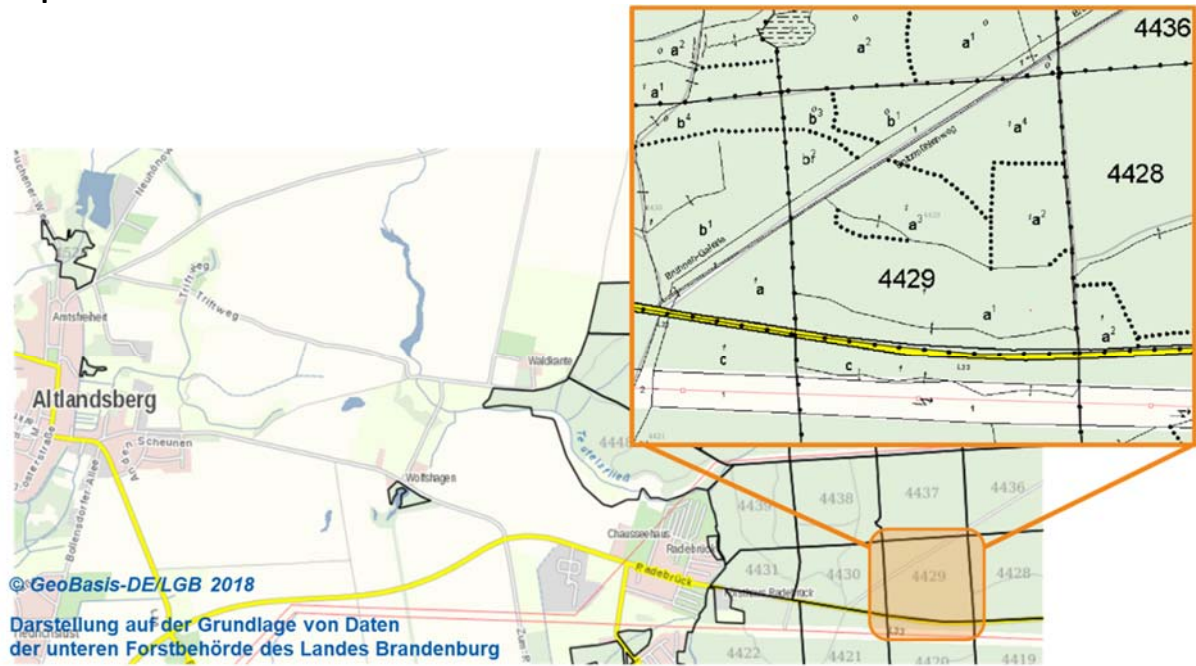
Tree Species

- mixed spruce stand, single-layer
- spruce (*picea abies*), main species (74%)
- pine (*pinus sylvestris*), single trees (4%)
- douglas fir, single trees (8%)
- birch, single trees (13%)

Terrain and Soil Conditions

- flat
- moderate water supply

Map with the Location of the Demonstration Site



Stand Description Before Thinning

Dbh (arithmetic mean) [cm]	13 cm
Tree height [m]	17 m
Number of trees per hectare [N/ha]	
Volume [m ³ /ha]	241 m ³ /ha

Objectives of Forest Management

Longterm Objectives:

- Production of high quantities of coniferous roundwood
- Volume accumulation, high annual increment
- Stable and healthy forest stand
- Long term planning:
 - o Thinning twice a decade, favoring douglas fir
 - o Final felling, clear cut < 2 ha

Former Treatment

- Planting: Spruce about 7.000 -8.000/ha; douglas fir has been supplemented a year after plantation
- Clearing of strip roads in 2014 (distance 20 m, with 3 m)

Objective of Early Thinning

- treatment of the whole forest stand
- reduction of number of trees
- increasing growth space of "future trees"
- felling of trees with inferior quality
- regulating mixture of tree species
- obtaining stable and healthy forest stand
- increasing annual increment → volume accumulation
- production of high quantities of coniferous roundwood (industrial roundwood and energy wood)

Pictures *Before* Thinning



Forest stand before thinning, visit during the Baltic ForBio project partner meeting in summer 2018

← *Photo: R. Bermanis*

↓ *Photo: P. Poikonen*



Stand Description After Thinning:

Dbh (arithmetic mean) [cm]	
Tree height [m]	
Number of trees per hectare [N/ha]	
Volume [m ³ /ha]	130 m ³ /ha

Tree Species After Thinning

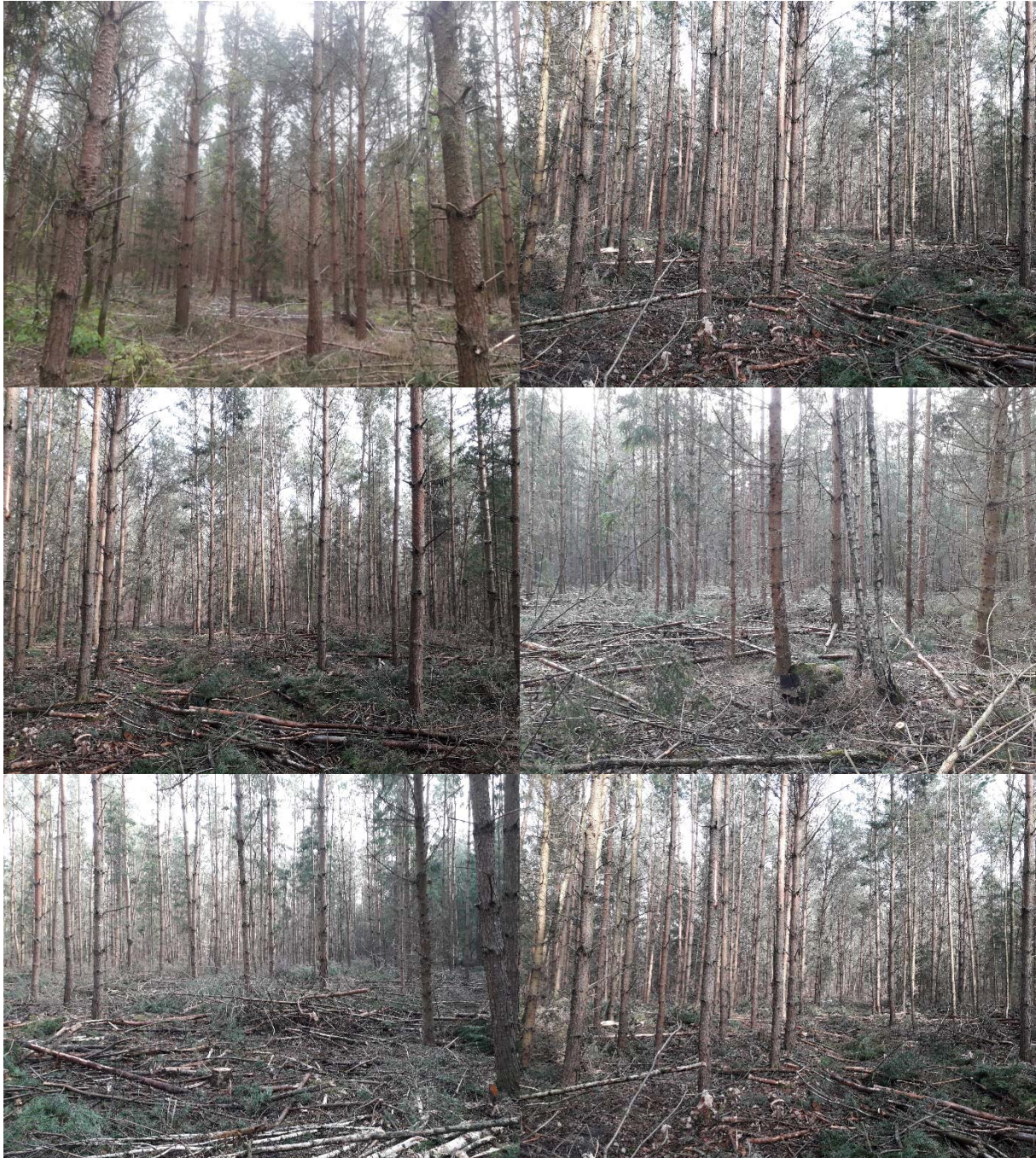
- pine 59%
- spruce 28%
- oak 6%
- birch 5%
- douglas fir 2%

Production of 92,97 m³ coniferous industrial roundwood, 40,71 m³ industrial roundwood from birch, and 12,67 m³ energy wood.



Forest stand on Demonstration Site GE1 "Altlandsberg" after thinning and wood production

Pictures After Thinning



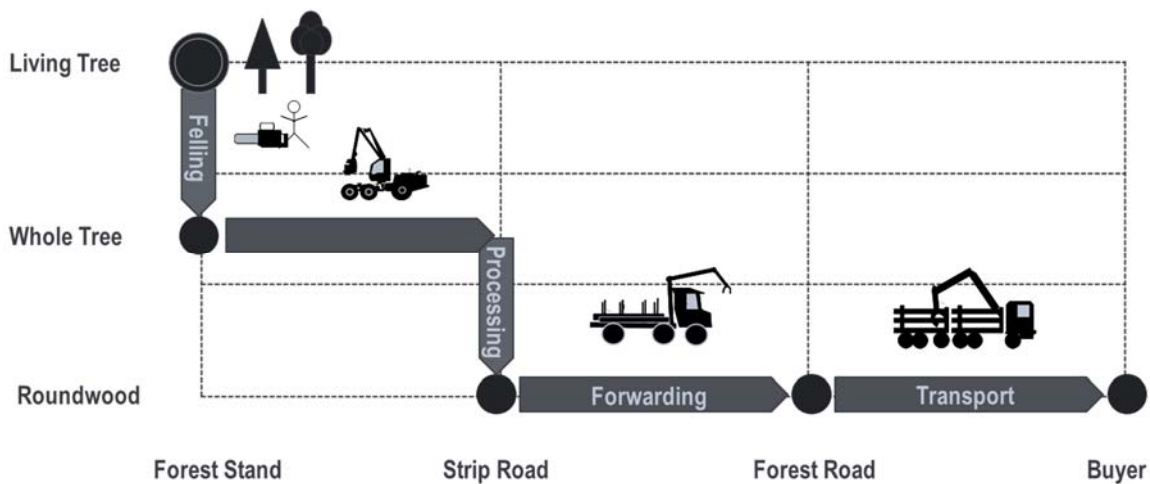
Forest Stand on Demonstration Site GE1 "Altlandsberg" directly after Thinning

Damages to Trees and Soil

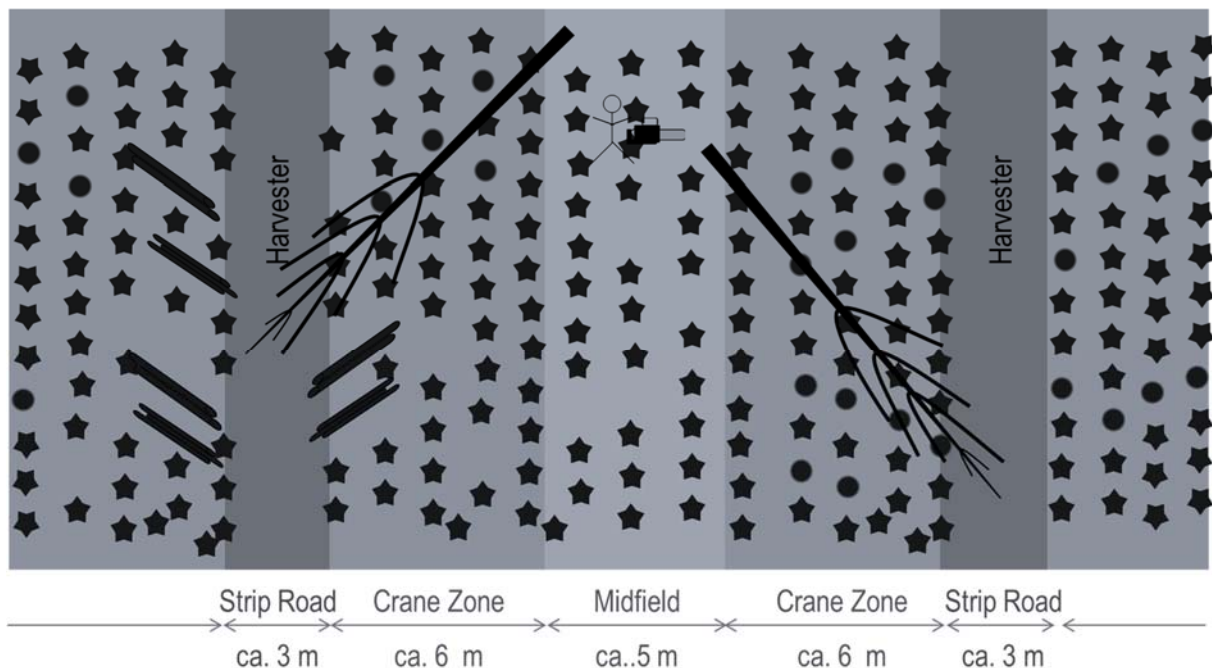
No notable damages to trees and soil.

Thinning Method

- Use of small harvester (Sampo Rosenlew) with crane range 7 m
- Driving between the strip roads not allowed
- Step 1: Felling in the midfield between the crane zones using chainsaws
- Step 2: Felling and processing using harvester
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- Forwarding roundwood from midfield to crane zone: motormanual processing of trees and manual forwarding of logs into crane zone and (if applicable) felling whole trees towards crane zone, so that the harvester can grab it



Machines:

Harvesting:

Small harvester Sampo Rosenlew

- Width: 2.10 - 2.40 metres
- Weight: 8 - 9.5 tonnes
- Crane range 7 m



Harvester Sampo Rosenlew on Demonstration Site GE1 "Altlandsberg", Picture: M. Estler

Forwarding: tractor from Valtra and forwarding trailer.