

Baltic ForBio, WP 2, GA 2.4

Information about Demonstration Site and Demonstration of Early Thinning for Wood Fuel/Energy

| | |
|---------------------------|----------------------|
| Country | Lithuania |
| Region | Prienai |
| Demonstration Site ID | 54.572498; 23.954721 |
| Year/Date of the Thinning | 2020 |
| Topic | Second thinning |

Information about the Forest Stand

General Information

| | |
|-----------------|--|
| Forest Stand ID | <i>official ID of the forest stand (if applicable)</i> |
| Area [ha] | 10,4 ha |
| Age [years] | 25 |

Tree Specie

Species in stand: 100 % of pine, but there are impurities of spruce and birch. The stand is planted, not natural origin. Underbrush is rare, rowan and alder buckthorn.

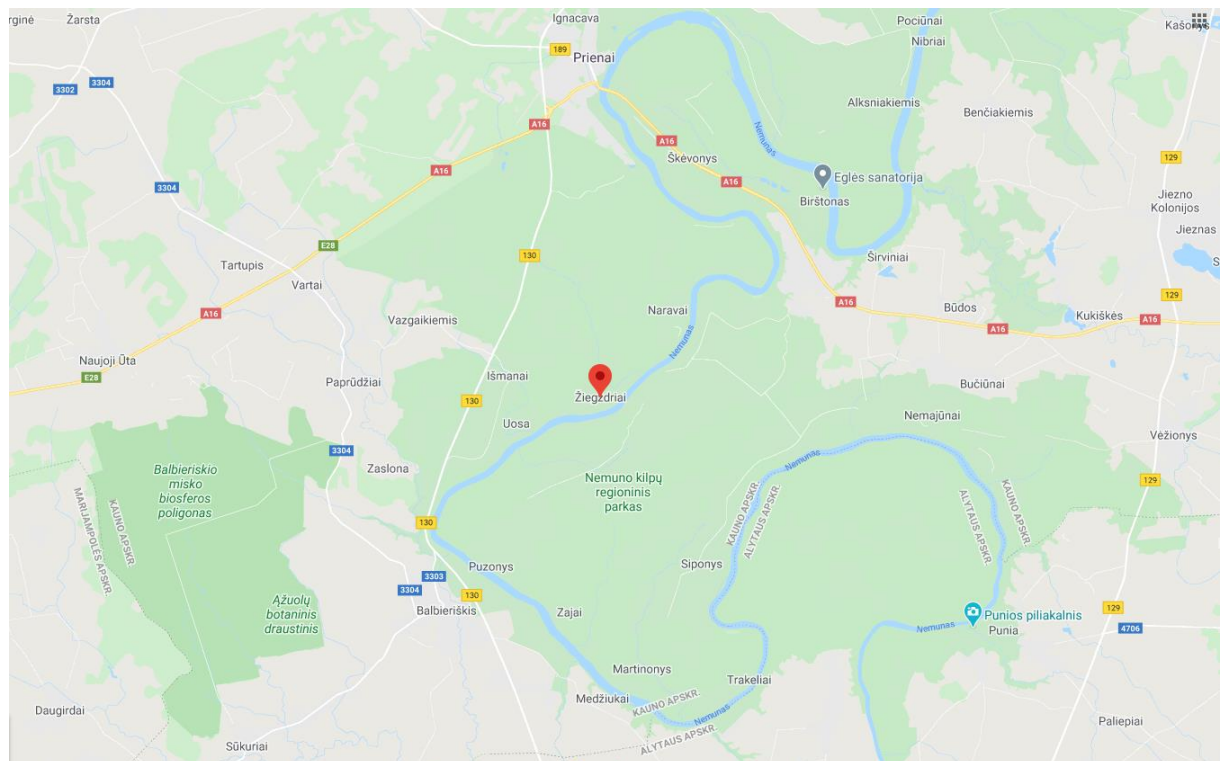
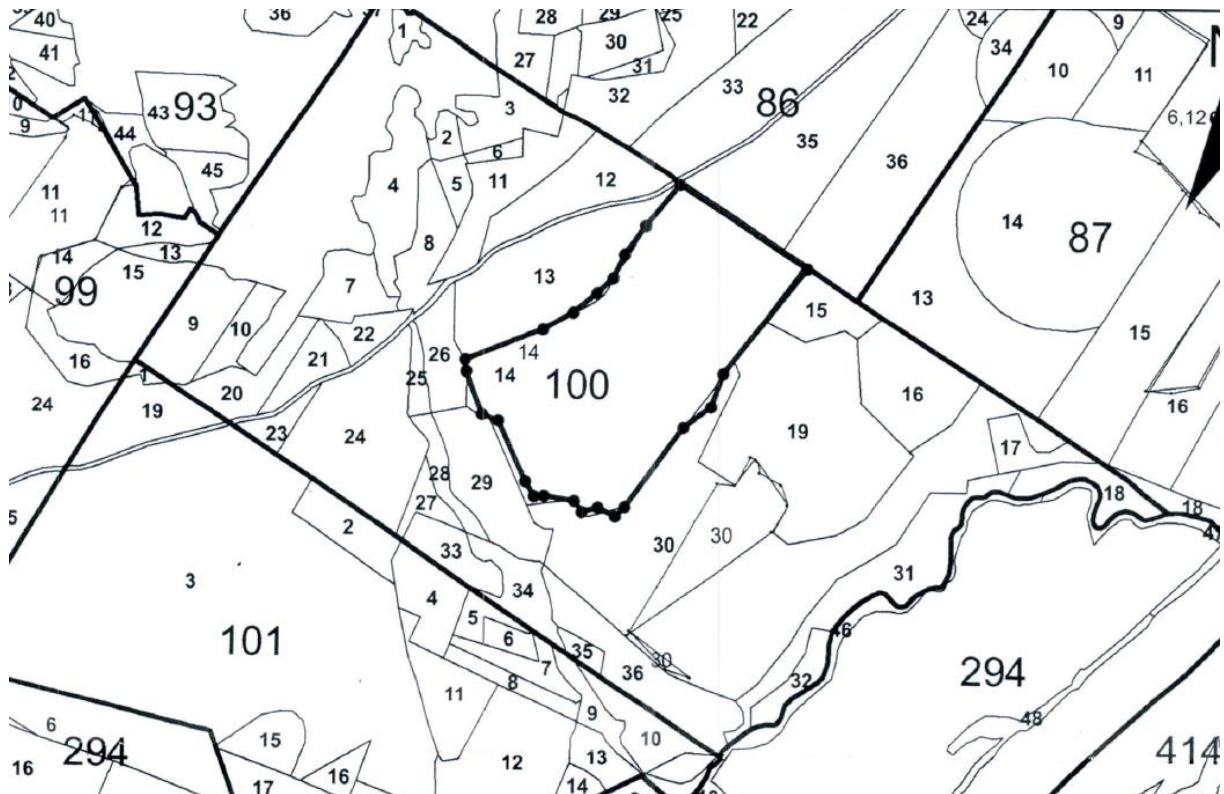
Terrain and Soil Conditions

The area is flat. Soil of stand is normal moisture, infertile, sandy. Forest type - vacinio-myrtilliosa. There are some skidding roads.

Map with the Location of the Demonstration Site

Demonstration site is marked "14" in the map.

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Stand Description Before Thinning

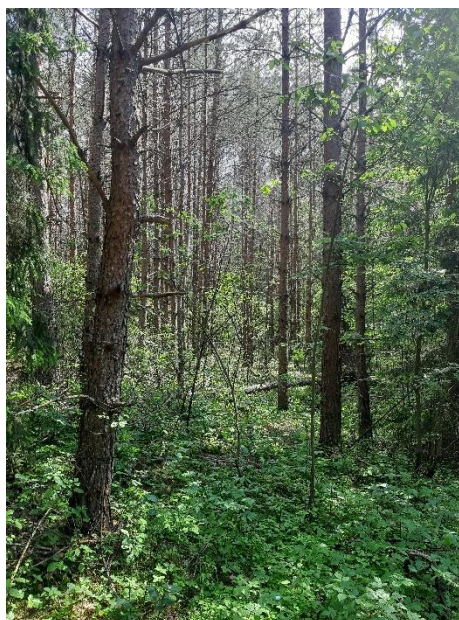
| | |
|------------------------------------|------|
| Dbh (arithmetic mean) [cm] | 14 |
| Tree height [m] | 15 |
| Number of trees per hectare [N/ha] | 2700 |
| Volume [m ³ /ha] | 200 |

Objectives of Forest Management

In Lithuania clear cutting in pine stands is available from 101 years and thinning are available from 20 years. At this stand it was second commercial thinning. Lithuania has quite strict felling rules, which specify the age at which felling is required. The main aim of this thinning is to reduce density of trees and if needed adjust the species composition at the stand. Also thinning felling are important to promote the growth of the volume of the best trees and the whole stand, to cut shaded, delayed growth trees.

Pictures *Before* Thinning

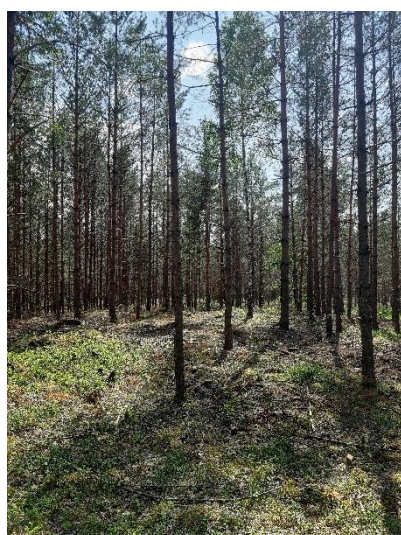




Stand Description After Thinning:

| | |
|------------------------------------|------|
| Dbh (arithmetic mean) [cm] | 16 |
| Tree height [m] | 16 |
| Number of trees per hectare [N/ha] | 1300 |
| Volume [m ³ /ha] | 160 |

Pictures *After* Thinning



Damages to Trees and Soil

The right time was chosen for both harvesting and biofuel extraction from stand, so no road ruts appeared after the forest work. The sandy soil is not so sensitive for machinery and compression. Some bark damages were observed near skidding roads after forwarding process.

Thinning Method

Description of Working Process:

Harvesting process was carried out using forest machinery, not brush saw/chainsaw operators. Truck for this machinery is needed, but according to size of forest stand it was cost effective. After thinning was made some good quality wood production. State forest manager decided to extract part of felling residues from stand. According rules and order of cutting some felling residues have to remain at stand. It was left more biomass as required. Some biomass was used for skidding roads. Biofuel was extracting using the same forwarder as for wood production. Due reduced biofuel prices it is not profitable to produce wood chips from felling residues at the moment. Felling residues are extracted only if a buyer occurs.

Machines (incl. pictures):

The choice of machines was determined by economic calculations, duration of work process and machinery options. For harvesting process Forest State company used small harvester - Amkodor. This harvester is adapted to work in commercial thinning, has only four wheels, is maneuverable. Harvester is very heavy and can press the soils (especially wet soils). For biofuel extraction Ponsse Wisent forwarder were used. Though Ponsse Wisent is large harvester, but its agility and excellent visibility in all directions from the cabin reduce damage to standing trees. Harvester is lightweight, so it causes less damage to the terrain.



Attachments:

- Map with forest stand (general map / detailed map)
- Pictures of the forest stand before thinning
- Pictures of the forest stand after thinning
- Pictures of the machines