

Applied Period in Forest Institutions 2020

Forstamt Johanniskreuz

Thomas Henson

Friday 25th September 2020



Outline

- ❖ Weekly activities
- ❖ Highlights
- ❖ Project 1: Preparing of a Stand for Future Timber Extraction
- ❖ Project 2: Formulating an Annual Plan for a Local Community
- ❖ Project 3: Managing Diameter Growth in Oak Stands
- ❖ Overall learning outcomes and final thoughts
- ❖ Questions

Weekly Activities



Annual plan meetings



Forest stand evaluation



Visiting contractors in the forest



Website homepage translation



Project work



Home study

Highlights



Oak Timber Grading

Stand Examination and Planning Future Silvicultural Interventions





Drainage Maintenance and Road Grading



Mit neuen Ideen zurück in die Heimat

TRIPPSTADT: Junge Forstleute aus aller Welt machen weiterhin im Forstamt Johanniskreuz ihr Studienpraktikum

VON GABY BÖHMER

Das Forstamt Johanniskreuz verlängert seine Zusammenarbeit mit der finnischen Universität Joensuu für den internationalen Studiengang „European Forestry“. Neben dem fachlichem Austausch sind dabei persönliche Kontakte in die ganze Welt für die hiesigen Forstleute wie für die Gäste von großer Bedeutung. Seit Ende Juni ist der Brite Tom Henson als Praktikant im Pfälzerwald unterwegs.

Wenn sich junge Menschen für einen internationalen forstlichen Masterstudiengang interessieren, dann entdecken sie auch das Angebot der Universität Joensuu (University of Eastern Finland). Diese bietet den Studiengang „European Forestry“ an. Dabei arbeitet sie mit fünf anderen europäischen Universitäten mit forstlicher Ausbildung zusammen, darunter die deutsche Albert-Ludwigs-Universität in Freiburg/Breisgau. Die Hochschulen wiederum kooperieren mit weiteren Partnern aus der Wissenschaft



Forstamtsleiter Burkhard Steckel mit seinem britischen Praktikanten Tom Henson: Trotz der Corona-Pandemie findet der fachliche Austausch mit Masterstudenten aus aller Welt in Johanniskreuz weiter statt. FOTO: VIEW

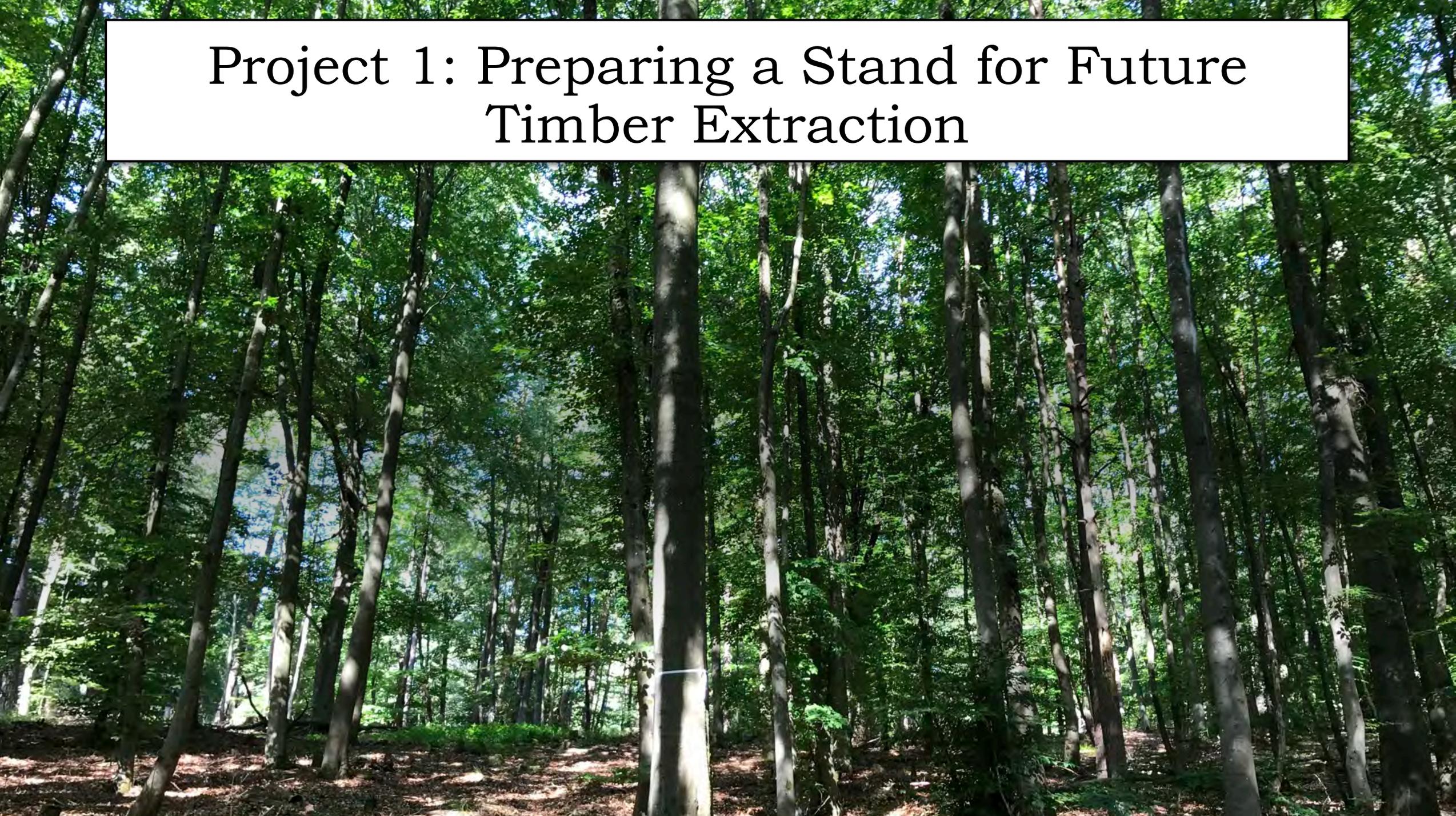
ZUR SACHE

Erasmus Mundus Joint Master Degree

Das Erasmus Mundus Joint Master Degree (EMJD) ist ein renommier-tes, integriertes, internationales Studi-ensprogramm, das gemeinsam von ei-nem internationalen Konsortium von Hochschuleinrichtungen durchge-führt wird. Das zweijährige interdiszi-plinäre Programm bietet eine akade-mische Ausbildung im Bereich des nachhaltigen Ressourcenmanage-ments mit Schwerpunkt auf aktuellen Bioökonomie-Themen an. Es arbeitet an einem neuen Ansatz für Forst- und Naturmanagementmärkte und ver-bindet die wachsende Zahl forstbezo-gener Fragen mit einer europäischen Dimension auf internationaler und nationaler Ebene. Ziel des Programms ist es, Fachleute auszubilden, die ein gründliches Verständnis einer nach-haltigen Waldbioökonomie sowie der europäischen Unternehmenskultur haben. |gby

Projects

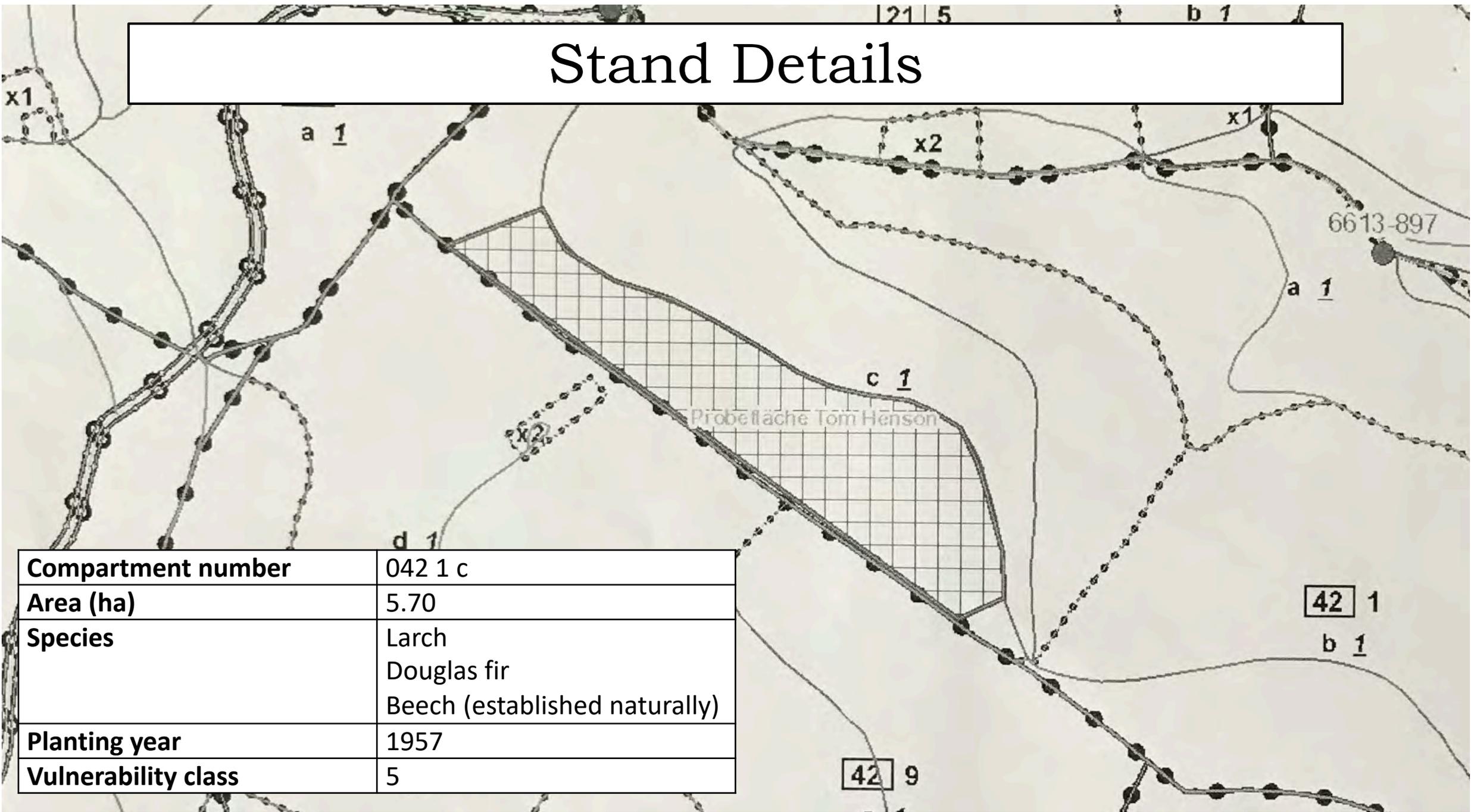
Project 1: Preparing a Stand for Future Timber Extraction



Objectives

- ❖ Prepare a stand for a future high thinning by selecting the future crop trees (FTC's) and the trees to be harvested
- ❖ Relieve FCT's from competition by neighbouring trees to improve future growth
- ❖ Calculate the DBH of all the trees selected to be harvested
- ❖ Calculate yield and associated costs and revenues
 - The volume of timber to be harvested
 - Assortment types and % of harvesting allocated to each
 - Harvesting costs
 - Revenue after harvesting
- ❖ Analyse success of the operation

Stand Details



Fieldwork



Number of trees selected as future crop trees

Species	Number of trees
Beech	60
Larch	68
Pine	1
Total	129

The number of trees selected to be harvested

Species	Number of trees
Beech	163
Larch	56
Total	219

Results

Species	Assortment Type	% of Harvested Volume Allocated to Assortments*	Market Price (€/m ³)*	Value of Harvested Assortments (€)	Harvesting Cost (€)*	Profit after Harvesting (€)
Beech	Industrial wood	50	48	2,467.5	1,968.75	
	Pallet wood	25	57	1,496.25		
Larch	AB+ Sawlogs	70	85	3,748.5	1,417.5	
	Industrial wood	20	20	252		
				7,964.25	3,386.25	4,578

* The percentage of harvested volume allocated to each assortment does not add up to 100% due to the residuals (small diameter, unmarketable wood) that are left in the forest

* Based on market price as of August 2020

* Harvesting will be performed by mechanical harvester

Conclusions

- ❖ Total revenue: €4,578
- ❖ Larch was the more valuable species with AB+ sawlogs holding a good market price (€85 per/m³)
- ❖ The total harvesting costs almost halved the final revenue obtained from the operation and was roughly equal to the value of the beech assortments
- ❖ Three quarters of the harvested trees were beech that were competing with FTC's

Project 2: Formulating an Annual Plan for a Local Community



Objectives

- ❖ Select areas of forest that will produce a range of assortments from different species
 - Mature oak and beech
 - Spruce
 - Mixed broadleaf
 - Pine and beech
 - Beech
- ❖ Calculate numerical and financial aspects to determine the revenue generated from each of the five stands:
 - The planned cut per ha
 - Assortment types
 - Current market prices
 - Harvesting method and cost per m³
 - Total harvesting costs
 - Calculate revenue prior to considering fixed costs
- ❖ Calculate financial outcome after considering fixed costs

Results

Area	Harvesting Volume (m³)	Assortment types	Market Price (€/m³)	Timber value (€)	Harvesting costs (€/m³)	Profit before calculation of fixed costs (€)
Mature oak and beech	Oak: 40 Beech 160 Total: 200	Furniture Wine cask Veneer	Oak: 150 Beech: 50	14,000	5,000	9,000
Spruce	300	Saw log Industrial wood pulp	30	9,000	9,000	0
Mixed broadleaf	100	Firewood	40	4,000	4,000	1,000
Pine and beech	Pine: 350 Beech: 50 Total: 400	Pine: AB+ Sawlogs, AB- Pallet wood Beech: Industrial wood	Pine: AB+ Sawlogs: 60 AB-Pallet wood: 60 Beech: 40	23,000	23,000	11,000
Beech	60	Firewood	50	3,000	1,800	1,200
						22,200

Hunting Revenue, Fixed Costs and Final Conclusions

- ❖ Additional revenue from hunting fees: €20,000
- ❖ The €22,200 revenues after harvesting and additional hunting fees may appear favourable but many fixed costs have to be considered
- ❖ Additional costs are divided into two separate categories:
 - Extra forestry related costs
 - Planting
 - Road closures for safe operations
 - Road maintenance and vegetation clearance
 - Fixed costs
 - Taxes
 - Salary of the previous forest manager
- ❖ Final outcome is estimated at around **-€70,000**

Project 3: Managing Diameter Growth in Oak Stands



Information about the Experiment

- ❖ Location of research site: Miederwiese, Elmstein
- ❖ Stand established: 1941 - Planted with oak, beech naturally regenerated
- ❖ Start of experiment: 1993 (27 years old)
- ❖ Aim: To demonstrate how different thinning regimes can affect the radial growth of oak trees and the production of valuable oak timber
- ❖ 4 thinning treatments to date in plots 1 and 3

Plot	Plot size (ha)	Number of future crop trees (ha)	Number of future crop trees per plot	Number of remaining future crop trees	Thinning treatment
ELM01	0.43	80	29	28	1993, 1999, 2006 and 2014
ELM02	0.33	80	27	24	Control plot – No thinning treatments
ELM03	0.37	160	64	64	1993, 1999, 2006 and 2014

Objectives

- ❖ Gather a number of measurements to allow comparisons between the 3 research plots
 - DBH
 - Top height
 - Crown base height
 - Height of lowest dead branch
- ❖ Examine the increase in growth since the beginning of the experiment
- ❖ Analyse how thinning regimes affect the growth of the future crop trees in each plot

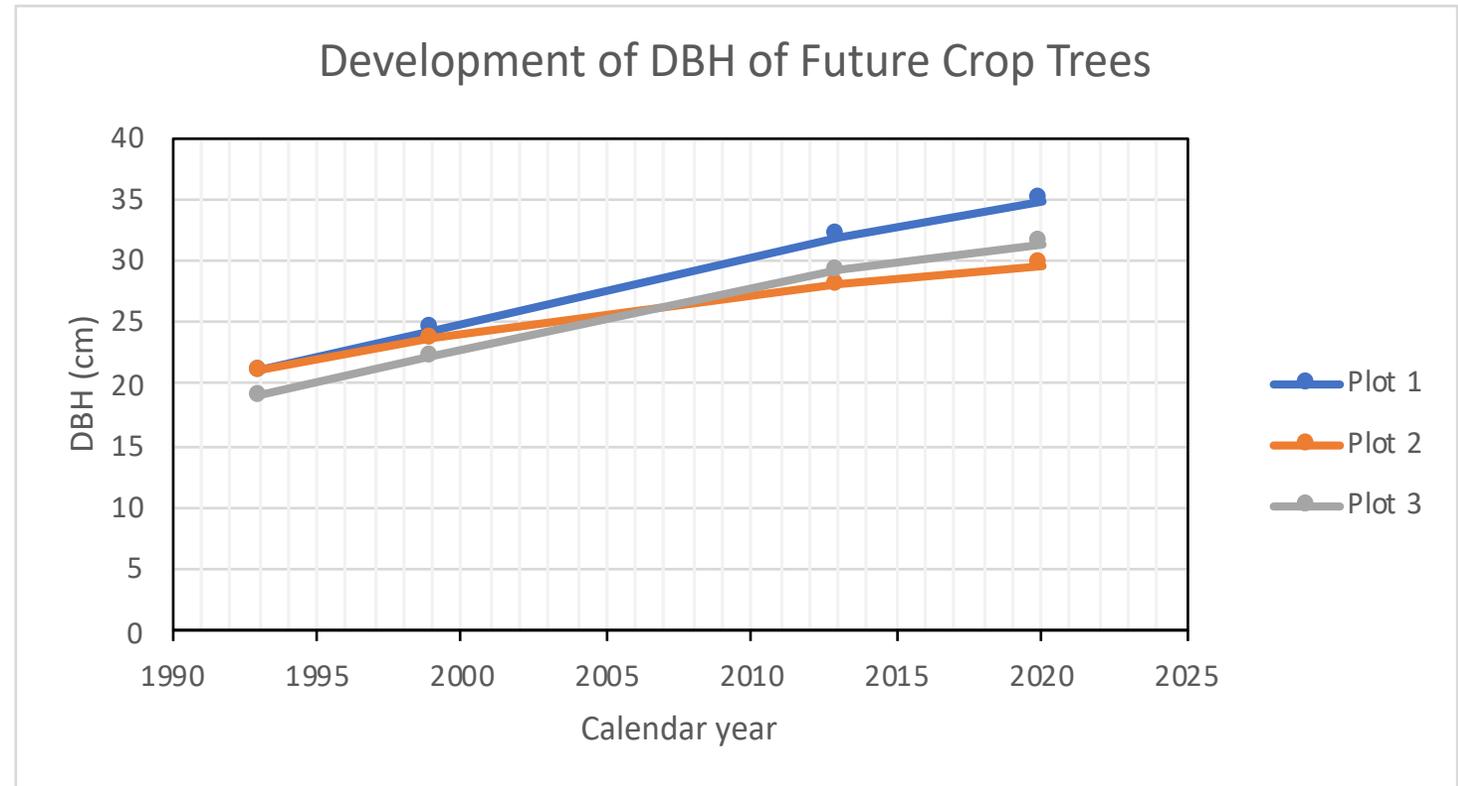
Problems with Obtaining Measurements



Results

- ❖ The control plot where no thinnings have taken place has the lowest Avg. DBH most likely due to the higher competition for crown space within the stand which is suppressing the growth of the FCT's
- ❖ This is also supported by the control plot having the lowest additional increment between 1993-2020
- ❖ Plot 1 where there are 29 FCT's and thinning interventions have taken place is displaying the highest avg. DBH and additional increment as the plot has the least competition from neighboring trees
- ❖ Statistical analysis using a One-Way Anova showed now statistically significant results between the 3 plots

	Avg. DBH 1993	Avg. DBH 1999	Avg. DBH 2013	Avg. DBH 2020	Additional Increment 1993-2020
Plot 1	21.03	24.4	31.93	34.9	13.87
Plot 2	21.05	23.64	28.11	29.6	8.55
Plot 3	19.11	22.18	29.15	31.4	12.29



Conclusions

- ❖ It appears that thinning regimes play a key role in the increase of radial increment to produce high quality oak timber
- ❖ Trees under more competition are likely to exhibit less vertical and radial growth than those with more space to develop unhindered
- ❖ Crown size is the most important characteristic when determining a tree's future growth potential
- ❖ Therefore, if a certain annual growth is desired, it is important to ensure that the canopies of selected trees are released from competition on a regular basis to accelerated diameter growth can be achieved

Final Thoughts



Thank you!
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