



# **HOLZCLUSTER STEIERMARK**

## **(WOODCLUSTER STYRIA)**

**Rome, May 21, 2025**

**Alexander Pinter, CEO Holzcluster Steiermark**

**Economy grows here.**





# **Our mission**

**As Holzcluster, we are your central contact for your questions about innovation management and cooperation opportunities.**

**We also see ourselves as an industry networker and bring science and business together to jointly shape a successful future for our value chain.**



# Our Network

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# Projects in the cluster







# Current projects with cluster participation

2025



- Bioeconomy Austria Netzwerk
- Spitzen!Leistung Holz 2022+



- ForForestInnovation
- Forest Eco Value
- Digital Forest Education (FOREE)
- WoodLogistics
- SMURF



- WoodWork
- SysWood
- Greenwood
- SeRenoWood



- CARpenTiER
- UniStrand
- TraceWood
- Future Wood Trans
- Habitable
- BIOCHARm





# Transformation topics

- **TRANSFORMATION IN DIGITAL FORESTRY**
- **TRANSFORMATION IN THE BUILDING/PRODUCT SECTOR**
- **TRANSFORMATION IN MARKET MODELS**





# ForForestInnovation

Forstliche Innovationsräume für Climate-Smart-Forestry

Overview

Climate-smart forestry

 **Waldfonds  
Republik Österreich**

Eine Initiative des Bundesministeriums  
für Land- und Forstwirtschaft, Regionen  
und Wasserwirtschaft





# Objectives

## Making forest development a tangible experience

- **Simulation of the impacts of today's management decisions:** from biodiversity to timber resources
- Significance for individuals as well as the regional value chain
- Visualizing the forest of the future in 3D through a WebApp
- **Making the latest scientific findings accessible:** decision support tool





# Target Groups

- **Forest Owners (including those living far from their property)**
- **Forestry Operations**
- **Decision Makers**
- **Forestry Consultants**
- **Forestry Novices, Urban Audience & Forest Enthusiasts**



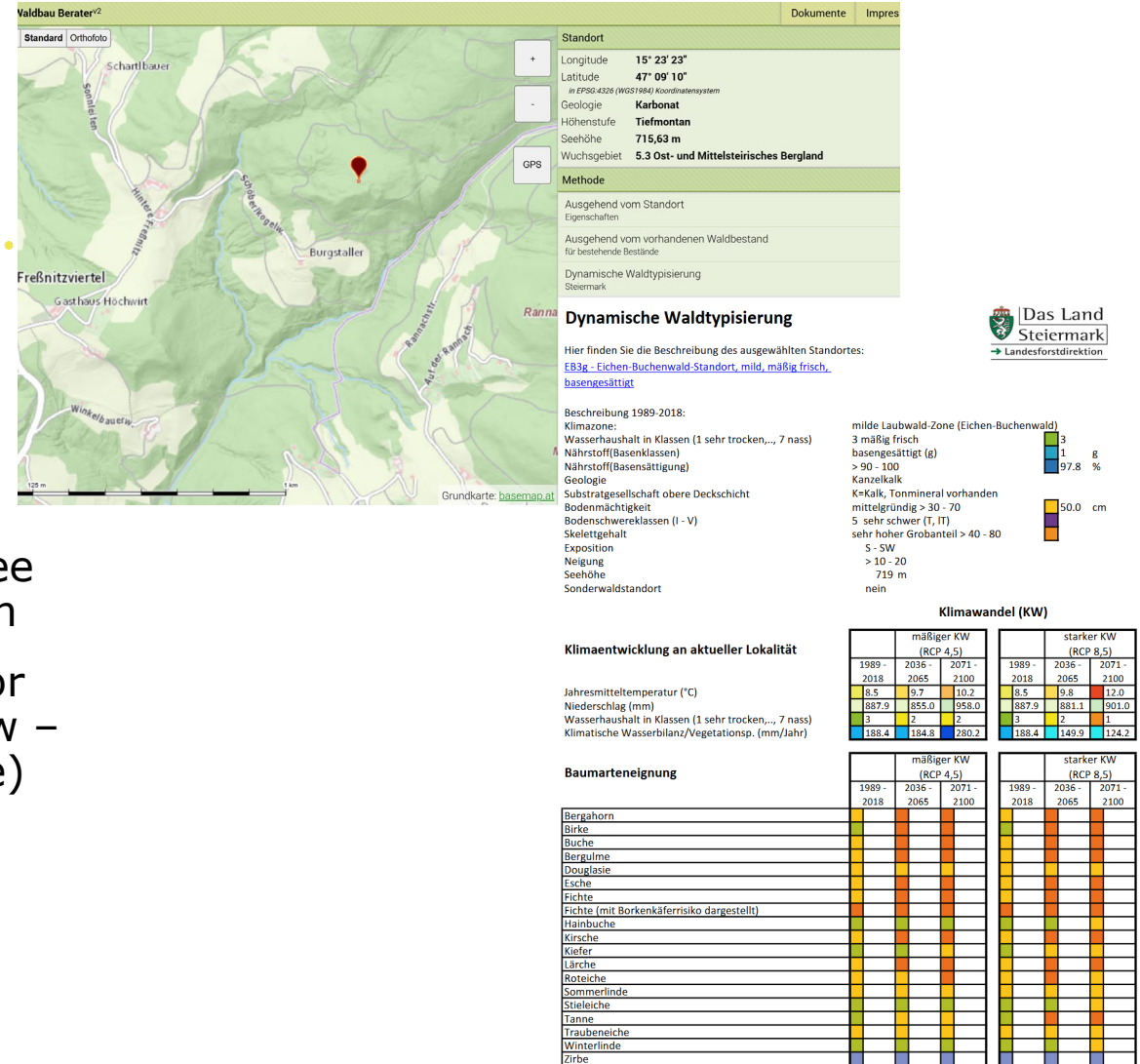




# Dynamic Forest Typing

## MAKING THE RIGHT TREE SPECIES CHOICES

- Pick a spot on the map
- For any location in Styria, you will get a tree species recommendation, scale is 30 x 30m
- Recommendations work with a 4-scale color code (dark green – 1, light green -2, yellow – 3, red -4 with one being the optimal choice)
- Free of charge
- [www.waldbauberater.at](http://www.waldbauberater.at)

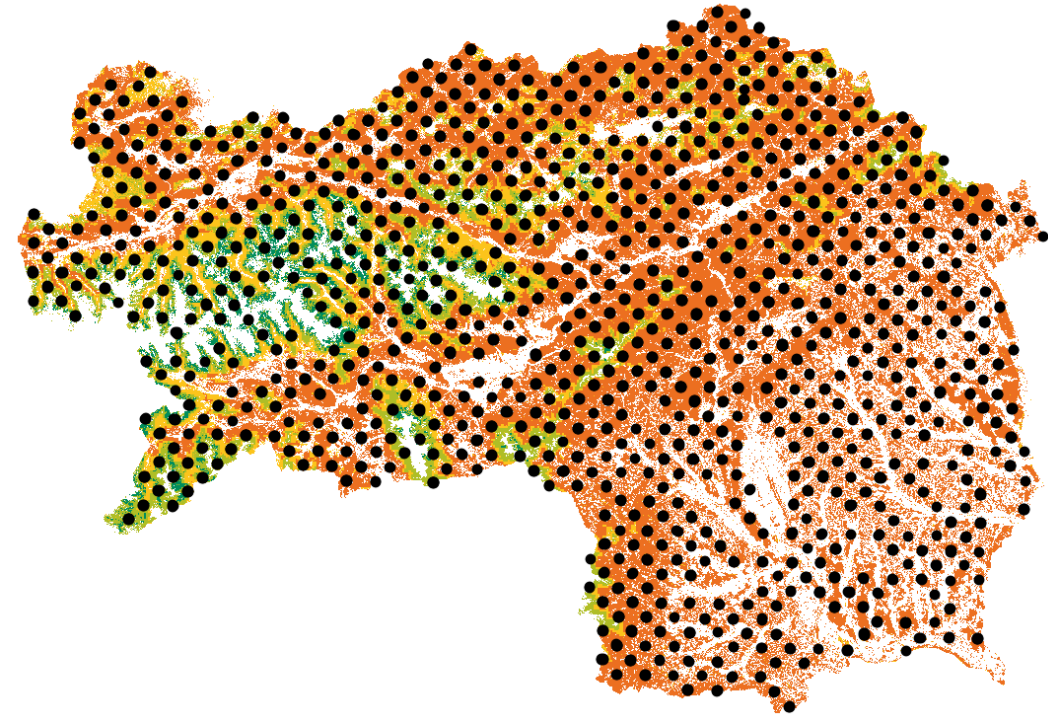


Result



# Data Basis

- Dynamic Forest Typing (FORSITE)  
Tree Species Recommendations
- Austrian Forest Inventory (ÖWI)  
2,513 Sample Plots  
Individual Tree Data
- Forest Growth Model (CALDIS)  
Simulation of Future Forest  
Development (up to 2100)



Fichte (2100, RCP 8.5 mit Borkenkäfer)

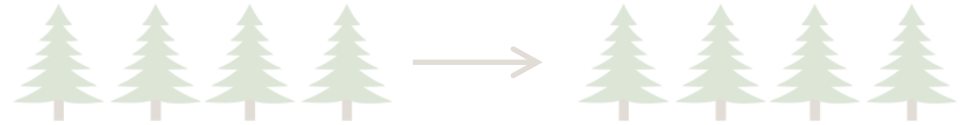


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## No Management

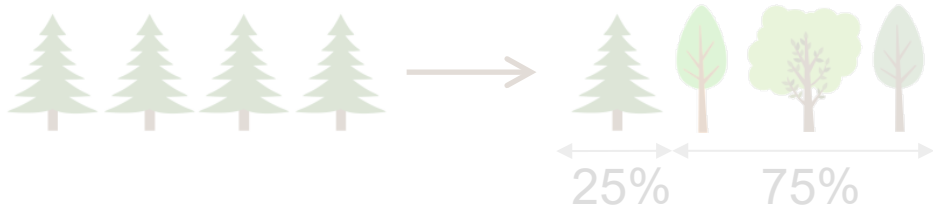


## Business As Usual (BAU)



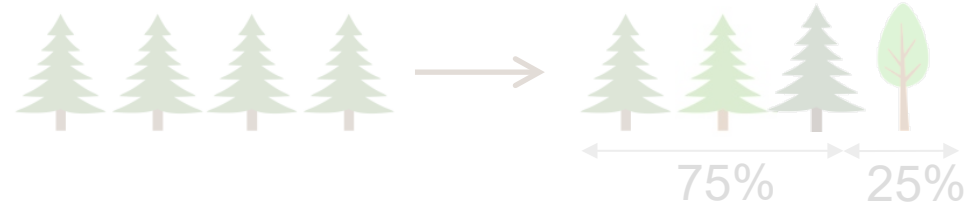
## Climate-Resilient Deciduous Forest

Dynamic forest typing



## Climate-Resilient Coniferous Forest

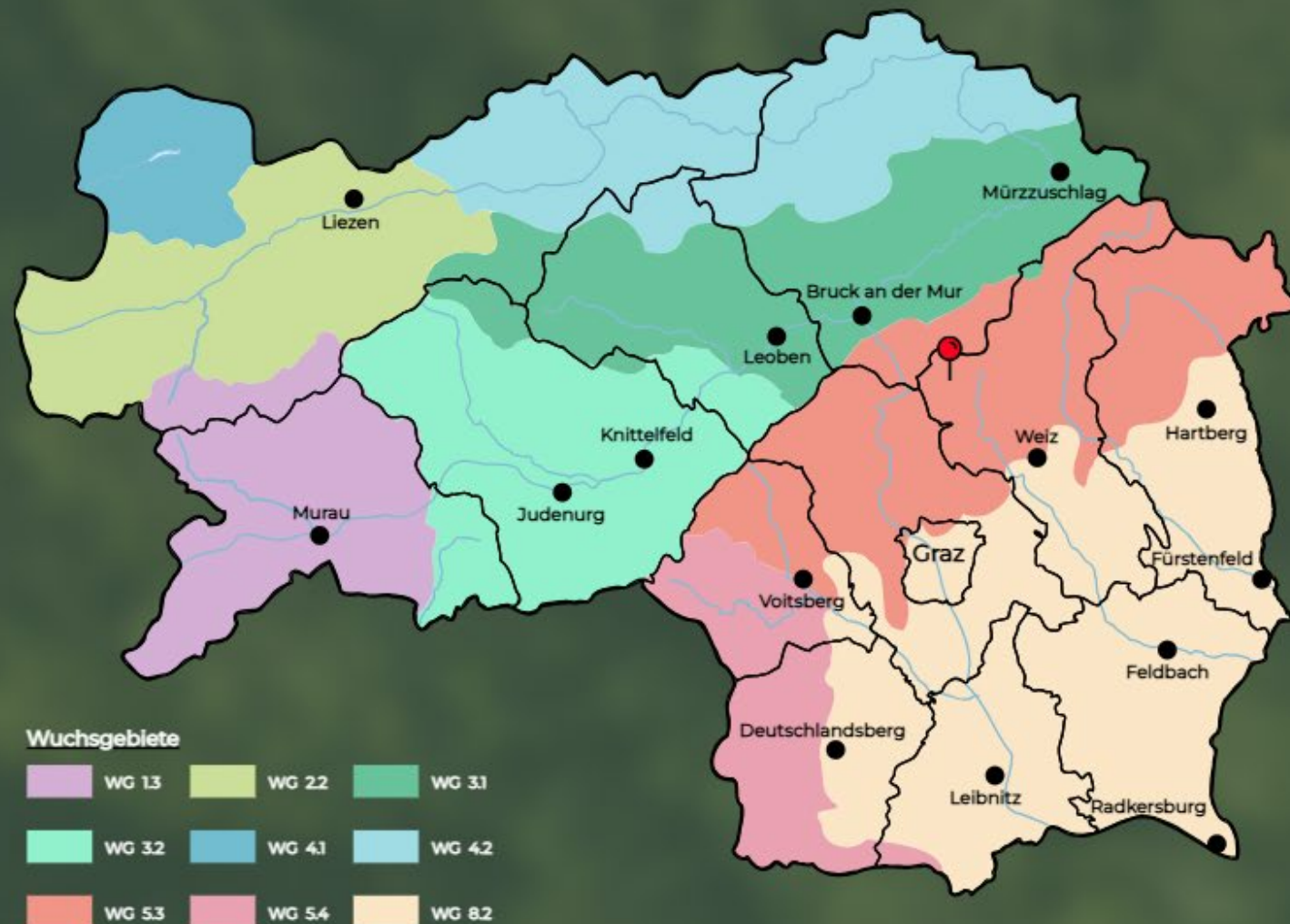
Dynamic forest typing





# Der Wald der Zukunft in 3D

Hier wird die **Entwicklung des Waldes bis zum Jahr 2100** simuliert. Wählen Sie im nächsten Schritt zwischen den Waldbauszenarien „Weiter wie bisher“, „Klimafitter Laubmischwald“, „Klimafitter Nadelmischwald“ oder „Kein Management“ und vergleichen Sie die Auswirkungen. Was bedeutet Ihre Auswahl für Wirtschaftlichkeit, Klimafitness oder Biodiversität?



Gewählte Region:

**Weiz**

Wähle eine der verfügbaren Höhenlagen:

< 600 m

600 m - 1200 m

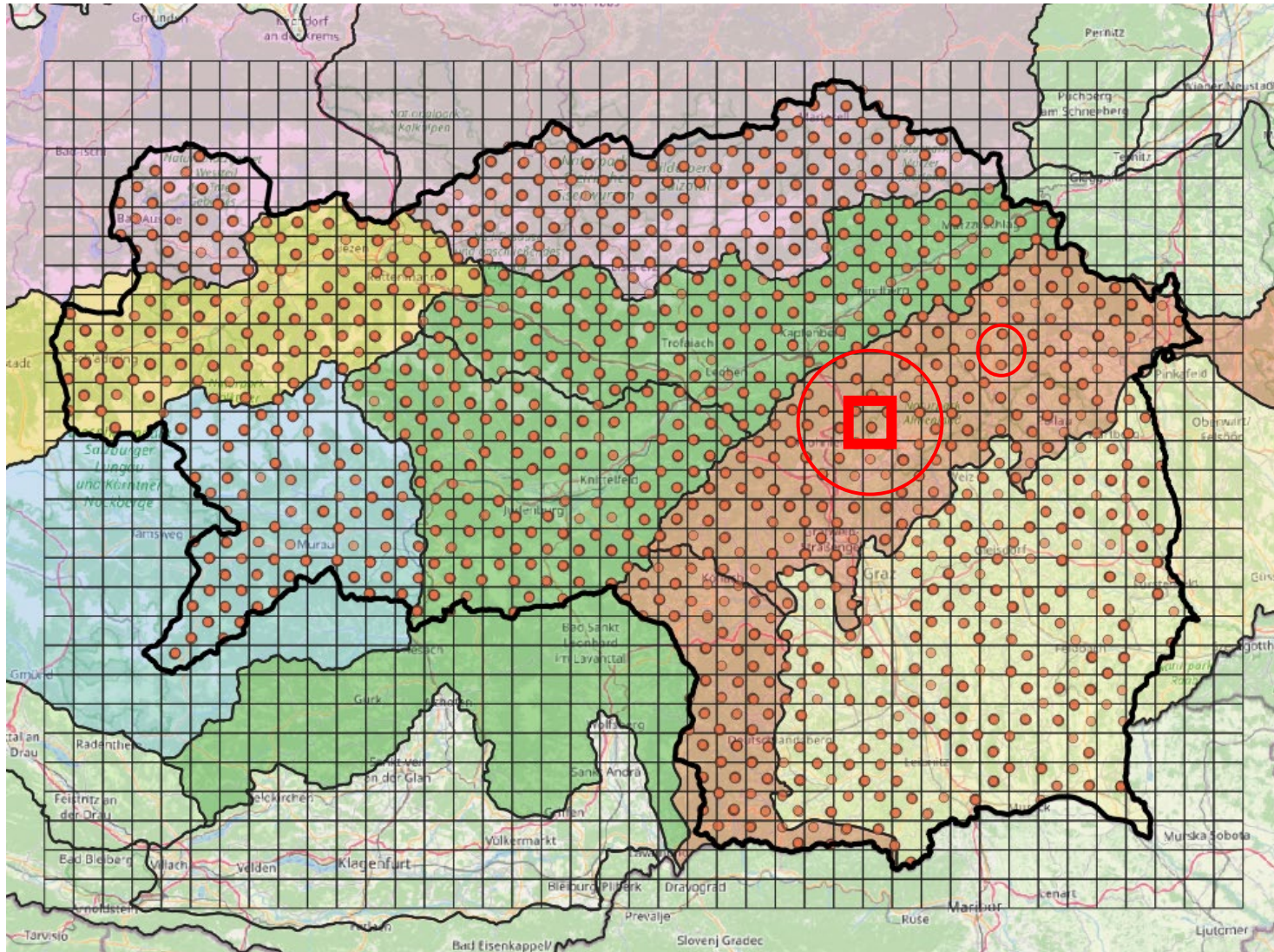
> 1200 m



**Zum Wald der Zukunft**



# What's happening behind the scenes...



- The 15 Nearest ÖWI Plots from the Same:
  - Forest Growth Region
  - Altitude Zone
- Selection Affects:
  - Forest
  - Background
  - Ecosystem Services





▼ Weiter wie bisher

▼ Klimafitter Laubmischwald

Zurück  
zur Karte

Mehr Infos  
zum Wald



2063



1x



## Zahlen und Fakten zum Wald der Zukunft (Jahr 2100)



### Weiter wie bisher

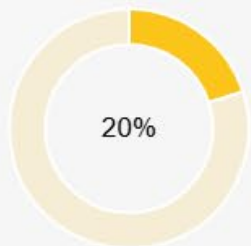
### Klimafitter Laubmischwald

### Klimafitter Nadelmischwald

### Kein Management

Im Waldbauszenario „Weiter wie bisher“ bleibt die Bewirtschaftung, wie sie derzeit ist und nur Baumarten, die jetzt schon vorkommen, werden zukünftig verwendet.

#### Klimafitness



Der Wald ist **mäßig klimafit** unter einem starken Klimawandel.

#### Baumarten

Der Wald setzt sich aus **3 Baumarten** zusammen. Den größten Anteil haben:



83% Fichte



16% Laerche



1% Aspe oder Weisspappel



0% Tanne

[Mehr Infos...](#)

#### Gespeicherter Kohlenstoff



Im Wald sind **79 Tonnen Kohlenstoff pro ha** in der lebenden ober- und unterirdischen Biomasse gebunden. Das entspricht 289 Tonnen CO<sub>2</sub>.

#### CO<sub>2</sub> Aufnahme



Zwischen den Jahren 2018 und 2100 wurden vom Wald insgesamt **731 Tonnen CO<sub>2</sub> pro ha** aufgenommen, also 8.8 Tonnen CO<sub>2</sub> pro ha und Jahr.

#### Holzernte



Die jährliche Holzerntemenge beträgt **6.7 efm/ha**.

#### Holzerlös



Der durchschnittliche holzerntekostenfreie Erlös beträgt **331 €/ha pro Jahr** bzw. **49.1 €/efm**

[Mehr Infos...](#)

#### Strukturvielfalt



Der Wald ist weniger strukturreich als 75% des heutigen steirischen Waldes. (Gini-Index = 0.12)

#### Totholz



Es gibt **2 vfm/ha** stehendes Totholz im Wald. Das liegt unter dem heutigen steirischen Durchschnitt (10.2 Vfm/ha).



# Zahlen und Fakten zum Wald der Zukunft (Jahr 2100)

Weiter wie bisher

Klimafitter Laubmischwald

Klimafitter Nadelmischwald



Kein Management

Im Waldbauszenario „Weiter wie bisher“ bleibt die Bewirtschaftung, wie sie derzeit ist und nur Baumarten, die jetzt schon vorkommen, werden zukünftig verwendet.

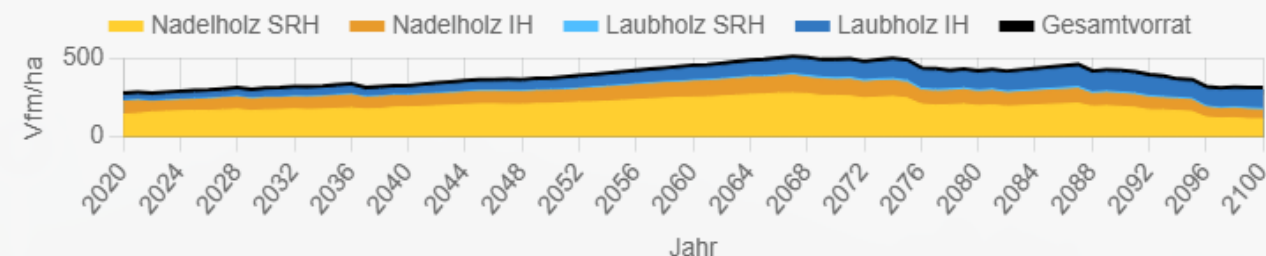
[← Zurück zur Übersicht](#)

## Holzernte

Die jährliche Holzerntemenge beträgt **5.2 efm/ha** ha mit einem durchschnittlichen holzerntekostenfreien Erlös von **43 €/efm** bzw. **227 €/ha und Jahr**.

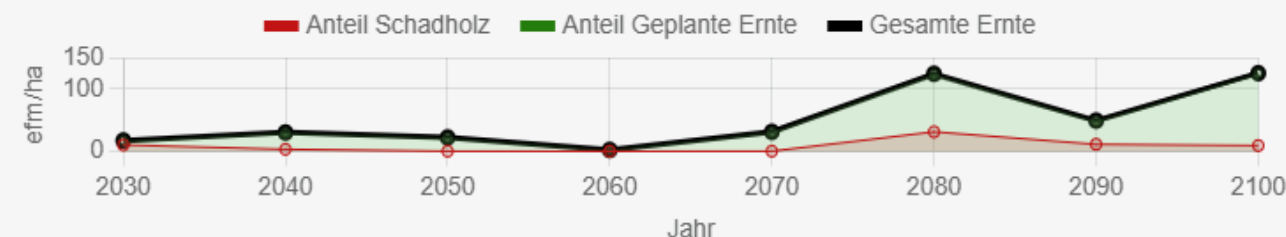
	€/efm	€/ha pro Jahr	Details												
Holzerlös (frei Straße)	76 €	397 €	<div><div>Nadelholz</div><div>Laubholz</div></div>												
Durchschnittliche Holzerntekosten	33 €	171 €	<div>Holzerntekosten je nach Erntetechnik</div> <table><tr><th></th><th>€/fm</th><th>€/ha/Jahr</th></tr><tr><td>Harvester</td><td>28 €</td><td>146 €</td></tr><tr><td>Traktor</td><td>31 €</td><td>162 €</td></tr><tr><td>Seilkran</td><td>39 €</td><td>202 €</td></tr></table>		€/fm	€/ha/Jahr	Harvester	28 €	146 €	Traktor	31 €	162 €	Seilkran	39 €	202 €
	€/fm	€/ha/Jahr													
Harvester	28 €	146 €													
Traktor	31 €	162 €													
Seilkran	39 €	202 €													
Waldbaukosten	13 €	68 €	<div><div>Pflanzung</div><div>Schutz</div><div>Pflege</div></div>												

## Vorratsentwicklung



## Holznutzung

Summe der Holzernte der letzten 10 Jahre (efm/ha) inkl. des Anteils der geplanten Ernte und Schadholznutzungen



Die Berechnung der prognostizierten Kosten und Erlöse basieren auf den Daten der Österreichischen Waldinventur (ÖWI), des Waldentwicklungsmodells CALDIS und ökonomischen Durchschnittswerten für die Steiermark.

# ForForestInnovation

Forstliche Innovationsräume für Climate-Smart-Forestry

[www.forforestinnovation.com](http://www.forforestinnovation.com)

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und Wasserwirtschaft







UNI  
STRA  
ND



## Reimagining Panel-Shaped Wood Construction Materials





Three-layer UniStrand  
Element made from  
cross-laminated  
unidirectional single  
panels



Mehr  
Informationen  
online

**The "UniStrand" project aims to outline and research the technological and structural foundations for a panel-shaped wood construction material suitable for multi-story, load-bearing building applications.**

The starting material will be wood strands, which can be produced with high raw material efficiency. Both hardwood and softwood assortments, or a combination thereof, will be used as raw materials. By producing unidirectionally oriented panels with varying densities, the project aims to create a predictable intermediate product with improved mechanical properties compared to already established strand-based products (e.g., OSB, LSL).

Finally, by cross-laminating these layers, the required shear strength and material thickness for layered wall and ceiling elements can be achieved. Based on a structural optimization of the elements, combined with application-oriented cutting optimization, it will be possible to manufacture elements that use high-performance panel material only where it is structurally necessary.



"With the 'UNISTRAND' project, Holzcluster Steiermark is implementing a project that targets both resource efficiency and the use of lower-grade assortments."



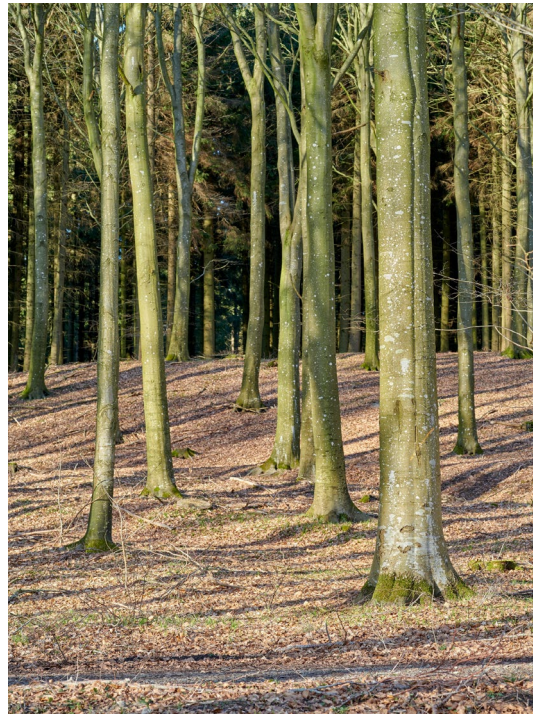


# Tree species

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## TREE SPECIES EXAMINED IN „UNISTRAND“

- Oak
- Poplar
- Spruce
- Larch
- Beech
- Douglas Fir
- Pine
- Birch



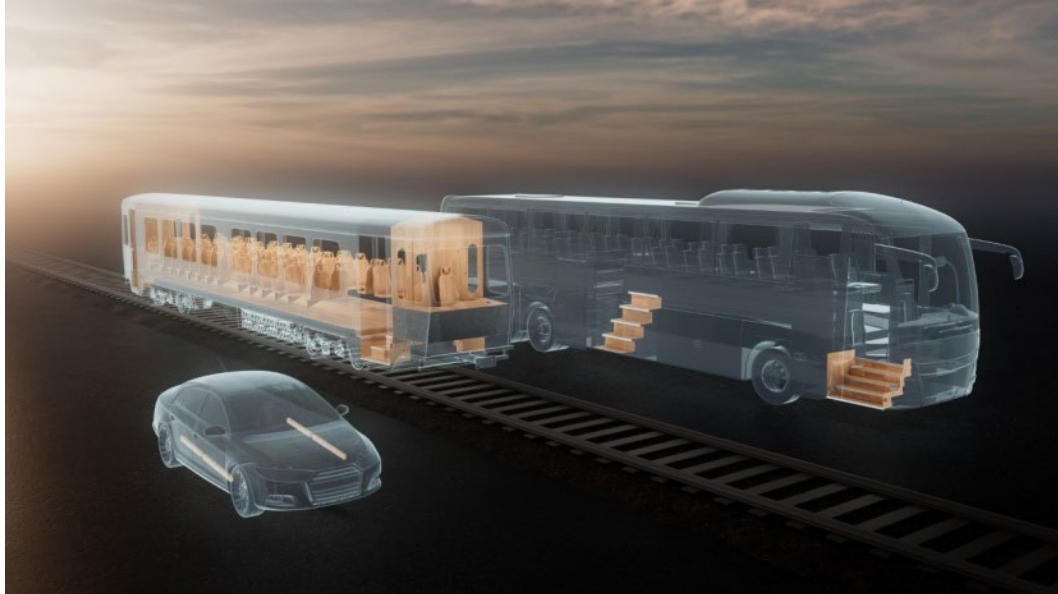


# Products

[www.weitzer-woodsolutions.com](http://www.weitzer-woodsolutions.com)

## 35% Weight Reduction and 45% Less CO2 Possible

The concrete use case of a bus step in lightweight wood construction led to a weight reduction of up to 35% and a reduction of up to 45% in emitted CO2. In the area of interior fittings for the entire mobility sector – structurally as well as on the surface – much more is possible. But that's not all: "With the know-how we have gained from research projects in Styria, completely new business fields are opening up for the entire wood production sector. We are at the beginning of a new era, where the domestic wood industry can act as a supplier to the mobility sector, creating entirely new value chains and jobs."







## Landing gear

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# Snowmobile

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# Wind turbine

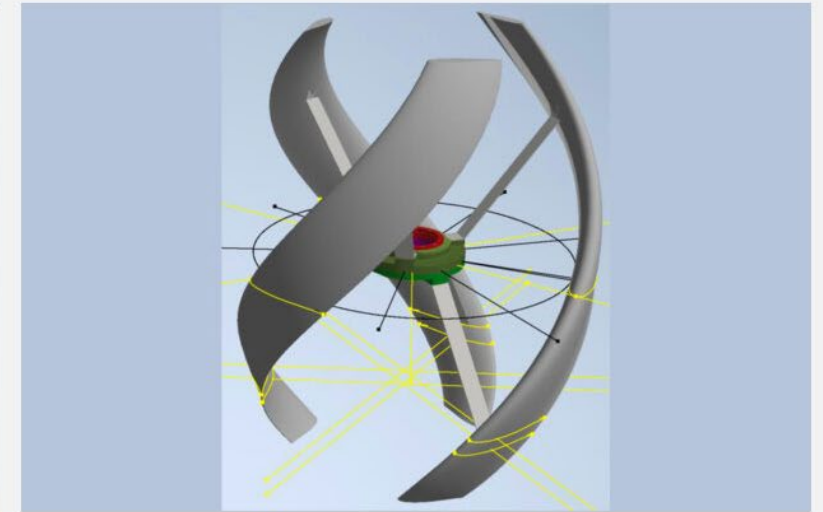
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## What makes our wind turbine unique?



### Wood-Made

Wood is the ideal material for constructing rotor blades. In addition to its low environmental impact, the use of organic certified resins results in lightweight designs. The material's optimal damping properties also aid in vibration reduction.



### Helix Shape

Our design process involves CFD simulations and optimization runs utilizing computational fluid dynamics. This enables us to optimize our product for low wind speeds, ensuring high performance even in challenging conditions. The resulting design also provides a wide bandwidth for high wind speeds.

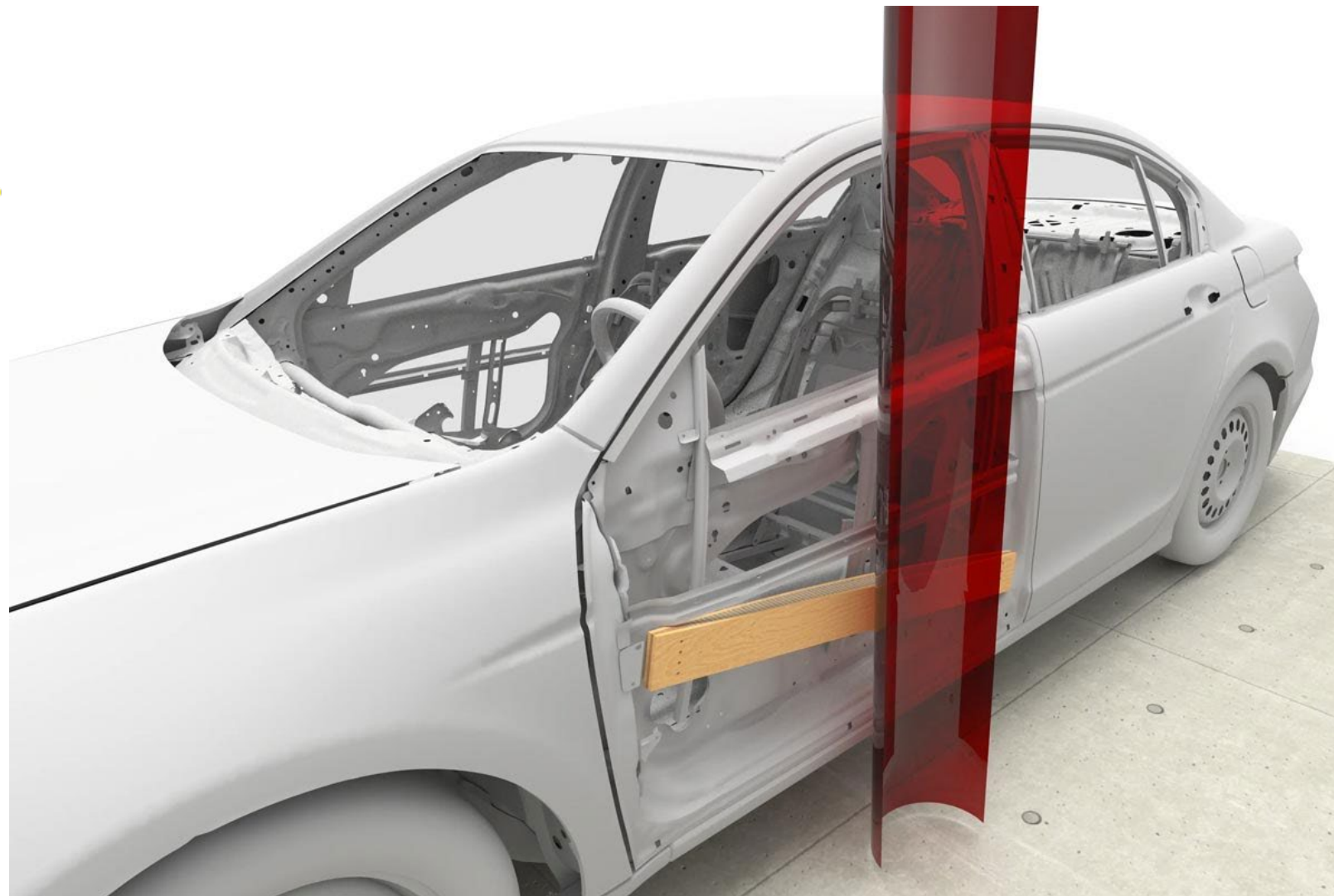


## Side impact bar



Tree species used for new  
lightweight solutions:

- Poplar
- Birch
- Beech
- Paulownia







**Creative  
Industries  
Styria®**

## Event: Design Month 2024 – What if?

A car exclusively made of wood.



Die CART Brothers nehmen Fahrt auf.  
Alexander Pinter überzeugte sich selbst davon.







**Interreg**

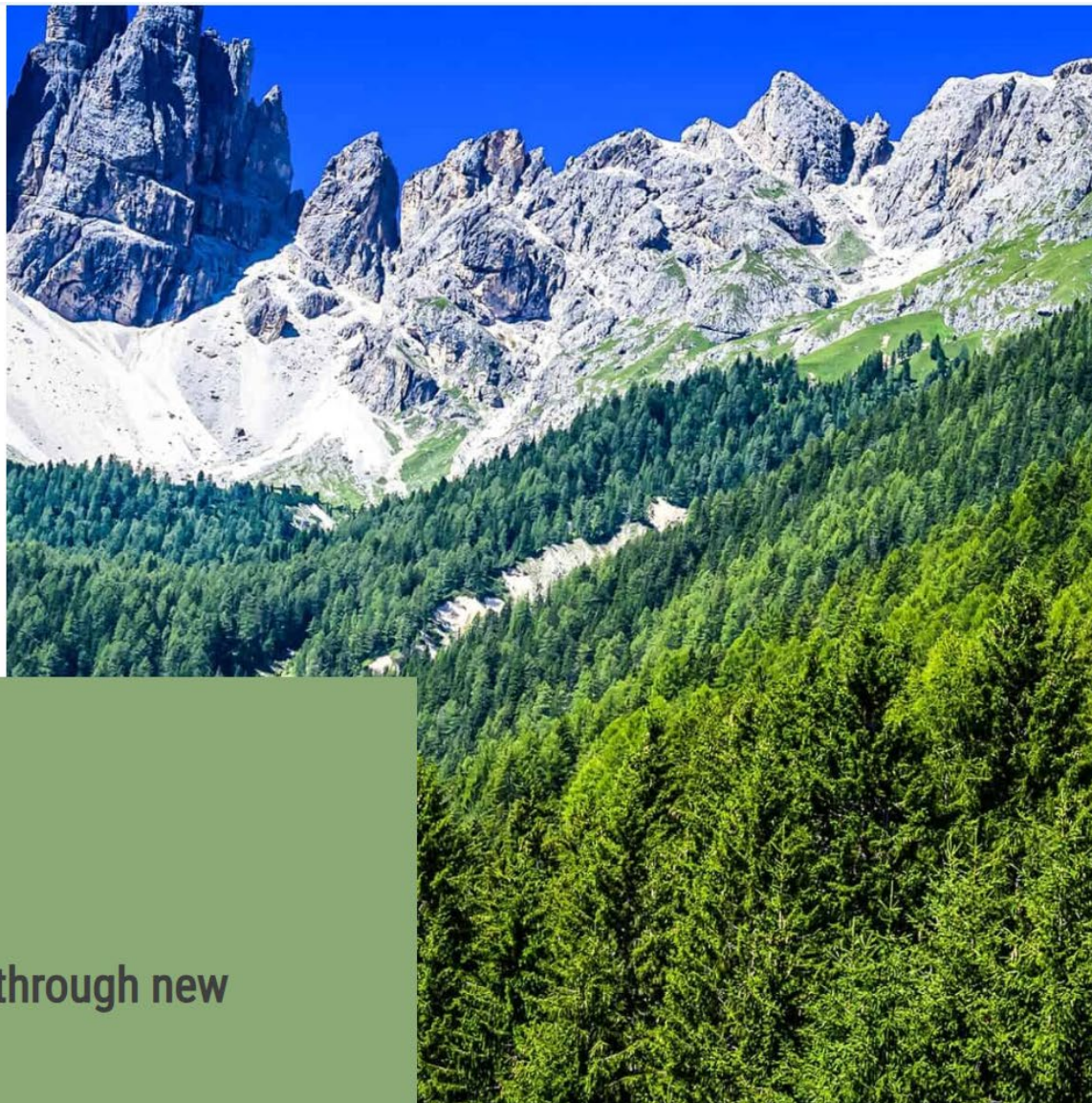


Co-funded by  
the European Union

**Alpine Space**

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Forest EcoValue



# Forest EcoValue

Supporting multiple forest ecosystem services through new circular/green/bio markets and value chains.





# Forest Eco Value

## Overview

Forests of the Alpine region are facing serious threats from abandonment, climate change, and territorial degradation, that cause a decline in natural resources and in the essential services that forests provide. This, in turn, leads to high maintenance costs, making it difficult for both public and private owners to sustainably manage them.

**Forest EcoValue** comes to the rescue by proposing **sustainable business models** that focus on **circular, green, and bio value chains** in areas such as energy, construction, chemistry/pharmaceuticals, food, and recreation.

By bringing together the efforts of the public and private sectors, along with the participation of citizens, Forest EcoValue aims to **create market frameworks and payment systems for the forest ecosystem services**. Through these sustainable business models, Forest EcoValue can generate green businesses and job opportunities, thus boosting the economy in the entire region.

# Living Lab What is it

- ➔ A Living Lab is a pilot area for the development, testing, and validation of new ideas and sustainable, future-proof solutions.
- ➔ In Styria, we address the topics “Biodiversity” and “Carbon Sequestration”

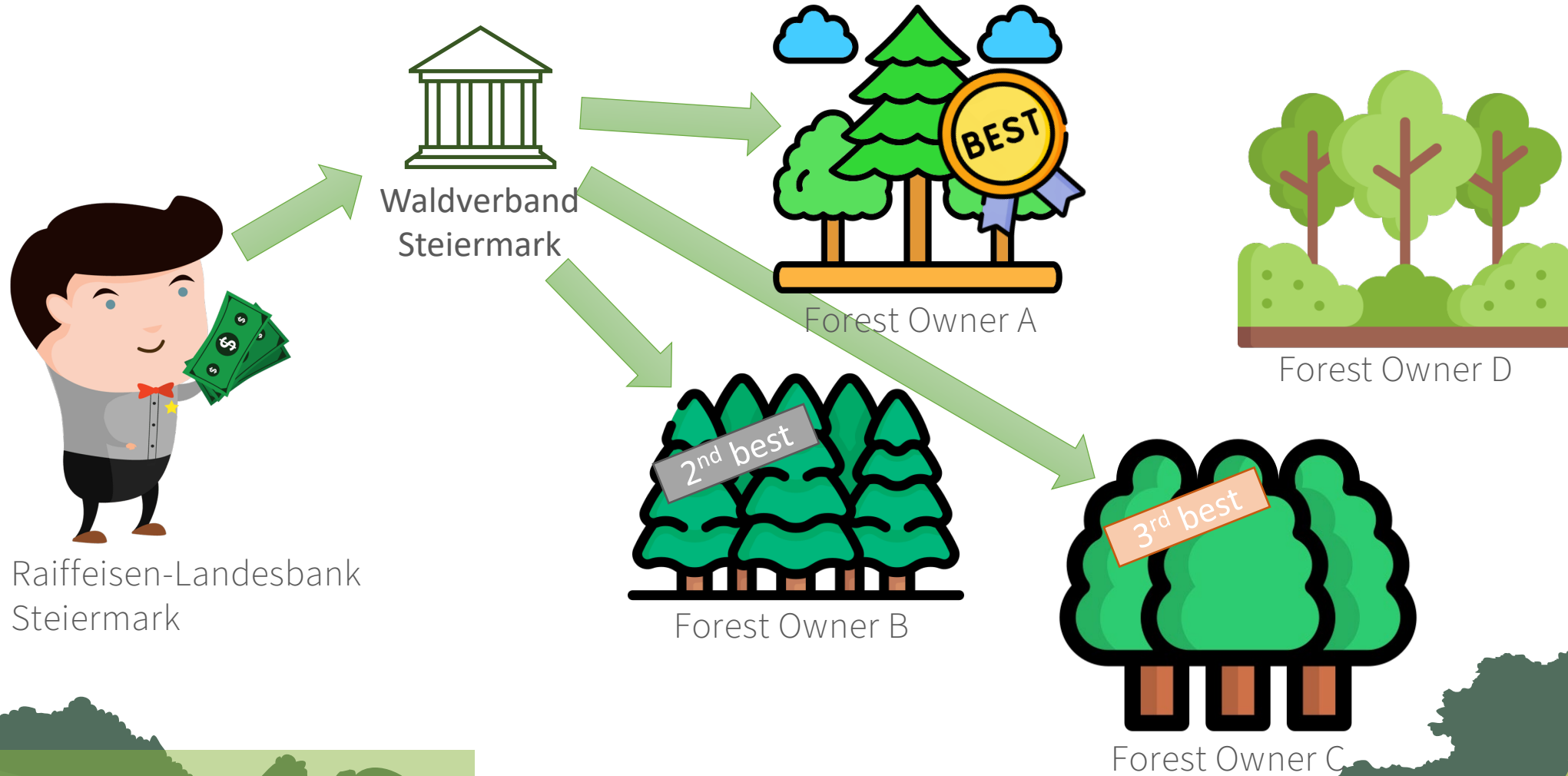




# A network of 5 «Living Labs»



# Reverse Auction





# Thank you!