

Legal framework and practical implementation of SFM in Austria

Dr. Georg Frank

Austrian Forest Research Institute

Unit of Natural Forest Reserves

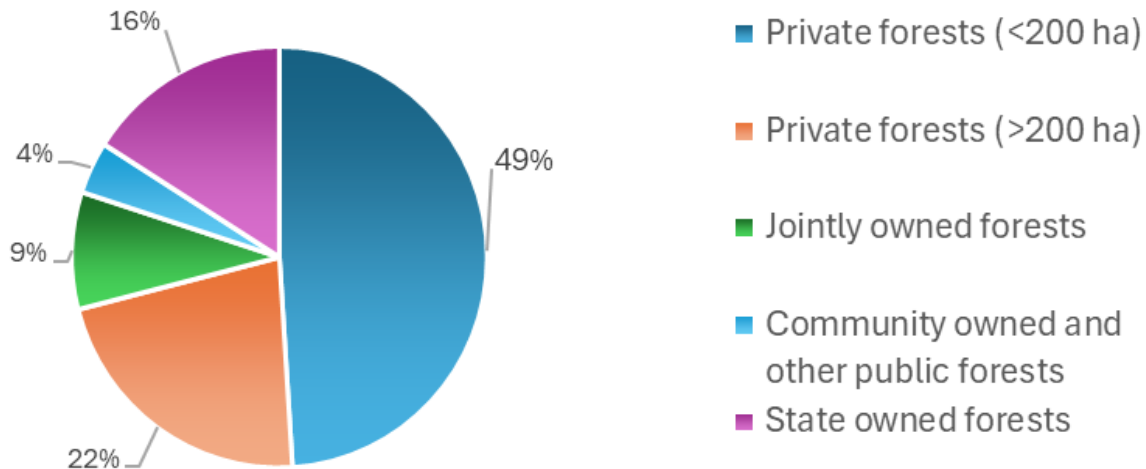
Torino, IT, 08-04-2024

Characteristics of Austrian forests

Total Area: 8.38 Mio ha

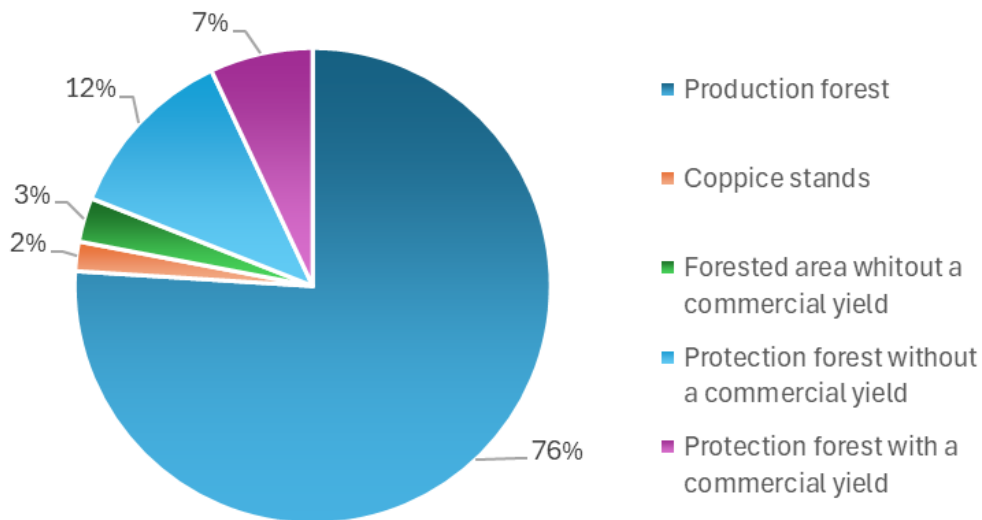
Forests: 4.02 Mio ha = 47,9 %

Ownership - structure



Characteristics of Austrian forests

Proportions of forest functions and silvicultural management methods



Total Area: 8.38 Mio ha

Forests: 4.02 Mio ha = 47,9 %

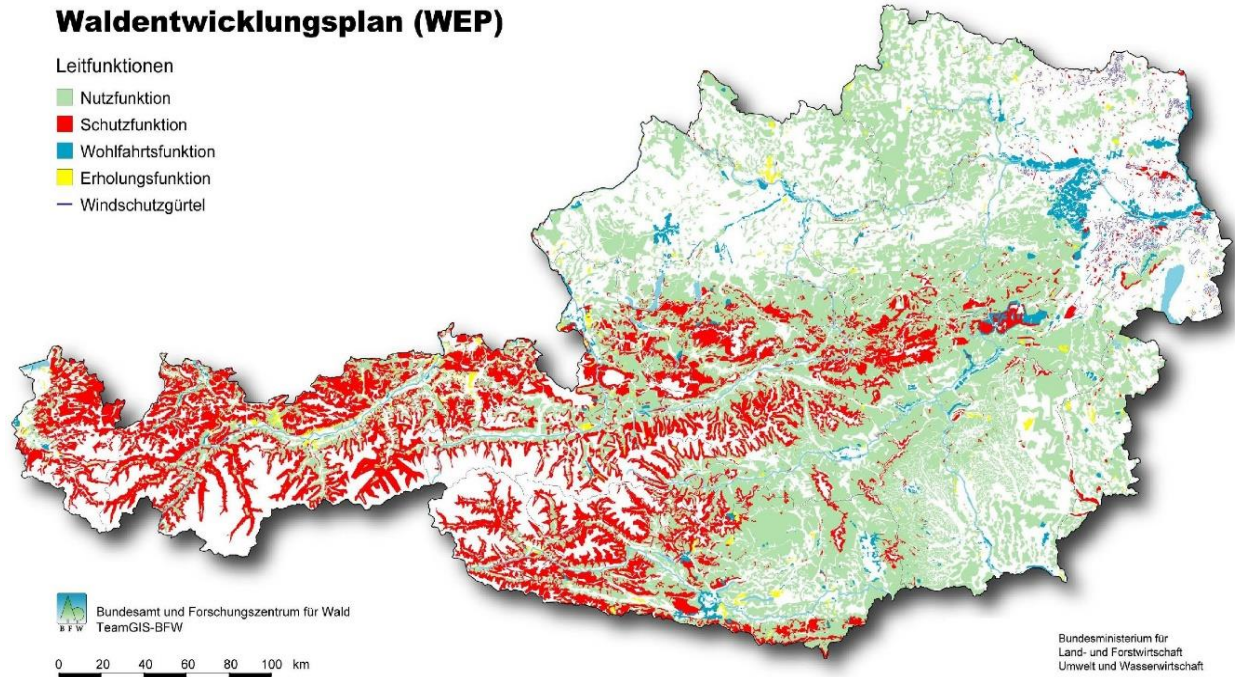
Characteristics of Austrian forests

Protective effects of forests – the Forest Development Plan (WEP)

Waldentwicklungsplan (WEP)

Leitfunktionen

- Nutzfunktion
- Schutzfunktion
- Wohlfahrtsfunktion
- Erholungsfunktion
- Windschutzgürtel



Bundesamt und Forschungszentrum für Wald
TeamGIS-BFW

Bundesministerium für
Land- und Forstwirtschaft
Umwelt und Wasserwirtschaft

Characteristics of Austrian Forests

Protective effects of forests

Clear distinction between protective forests on specific harsh sites (**site protective forests**) and ...

... and protective forests protecting human objects like settlements, infrastructure (**object protective forests**)



Characteristics of Austrian Forests

Naturalness - Hemeroby

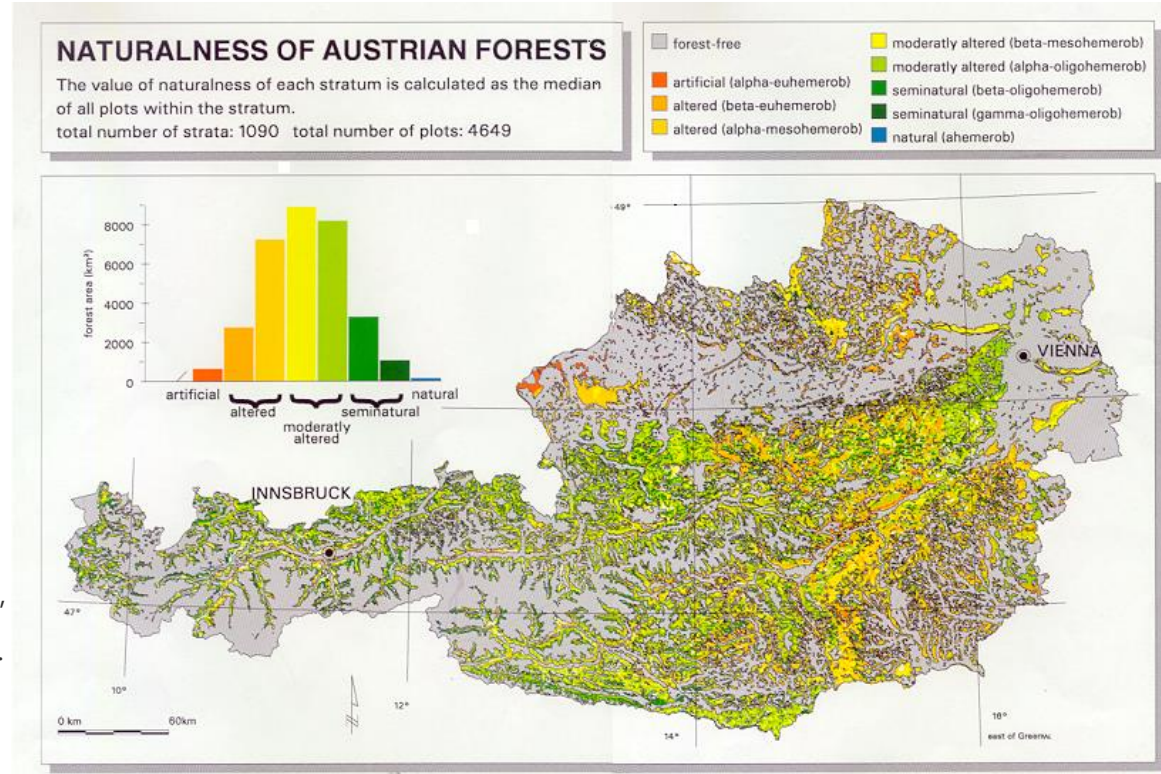
Hemeroby is the reciprocal value of closeness to nature

Carried out in 1992 – 98

Replication planned in 2010

**Feasibility study >
Replication simply
not possible**

Grabherr G., Koch G., Kirchmeir H.,
 Reiter K. 1988: Hemerobie
 österreichischer Waldökosysteme.
 Österreichische Akademie der
 Wissenschaften. MaB-Programm
 Bd. 17



SFM in Austria – legal framework

- **Federal Forest Act of 1975** (amended several times)
 - Definitions, principles and objectives (Forests, SFM etc.)
 - General protection of forest land
 - Specific protection of forest ecosystems
 - Rights, limitations and obligations for utilisation
 - Regulation of access to forests
- **Other Federal acts**
 - Implementation of EU FLEGT and Timber Regulation
 - Water Act and others
- **Provincial laws**
 - Nature conservation
 - Hunting and others



Legal framework

SFM in Austria – the national frame

Forest law 1852 „Reichsforstgesetz“ as a basis

**Very poor forest condition, degraded forests after overexploitation
(forest grazing, large-scale clear-cutting, plundering)**

Forest law 1975

Slight amendments 1977,...,1996 and 2002..., 2023

**The Forest Act 1975 is intended to ensure the maintenance of
forest resources and functions while at the same time allowing
sustainable utilization**

Legal framework

Austria – the national frame

- **Forestry and Forest Management**



Legislation within the competence of the Federal Government

Administration in the responsibility of provinces and regional authorities

- **Nature and Landscape Conservation**
- **Hunting**



covered by 9 Federal Provinces

Exception: international agreements, relevant EC-programmes, e.g. Natura 2000, support of National Parks

→ **Federal Government**

Legal framework – the Austrian Forest Law

Section, Topics	Content	Direct relevance for Close-to-nature forestry
I Forest, general	Sustainable Forest Management, Safeguarding multifunctional functions of forests	§ 1 (1) Amendment 2023: extention to include climate change function; § 1 (3) includes a general commitment to sustainable use (without explicitly mentioning "biodiversity")
II Spatial forest planning	Task, scope; Forest functions; Forest development plan, technical forestry plan, hazard zone plan	§ 6 (1c) Amendment 2023: The welfare effect of the forest is extended to include the conservation of biodiversity, § 8 (2b) : Technical forestry plan as a potential instrument for maintenance of biodiversity
III Maintaining the forest and the sustainability of its effects	Treatment and use of protective forests, forests with special habitats, Forests with special treatment, use of forests for recreational purposes, forests with secondary use	§ 13: reforestation in the right time
IV Forest protection	Protection against forest fires, protection against forest pests, forest-damaging air pollution	§ 43, § 44: Obligation to report and prevent mass gradation of "forest pests"
V Logging	Logging on land, logging over foreign properties, logging cooperatives	
VI Utilization of forests	General restrictions on use, supervision of felling by forest authorities, authorization of provincial legislatoion	§ 82: Prohibition of clear-cutting (larger than 2 ha or larger than 50 x 600 m) - Exceptions: operational or economic reasons
VII Protection from torrents and avalanches	Forest management in catchment areas, preventive measures	§ 100: specific forest treatment in catchment areas (suitable reproductive material of tree species, felling subject to authorization)
VIII Forest personell	Forestry bodies and forest protection bodies, forestry college	
IX Forestry research, education and training	Austrian Research Centre for Forests	
X Forestry subsidies	Tasks, objectives and measures of forestry support	
XI Forest seed and forest seedlings	repealed, see annex Forest Reproductive Material Act 2002	
XII Punishment, transitional and final provisions, execution	Responsibility and duties of the authorities, expert opinions of the authorities, forestry supervision, penalty provisions, execution	§ 174: custodial sentences or more or less severe fines - only administrative penalties

Legal framework

Aims of the Forest Law (§ 1)

(2) Ziel dieses Bundesgesetzes ist

1. die Erhaltung des Waldes und des Waldbodens,
2. die Sicherstellung einer Waldbehandlung, dass die Produktionskraft des Bodens erhalten und seine Wirkungen im Sinne des § 6 Abs. 2 nachhaltig gesichert bleiben und
3. die Sicherstellung einer nachhaltigen Waldbewirtschaftung.

(2) The aim of this Federal Act is

1. the maintenance of the forest and the forest soil
2. to ensure that forest management maintains the productive capacity of the soil and ensures that its effects within the meaning of § 6 para. 2 remain sustainable and
3. ensuring sustainable forest management

The Austrian forest law regulates the maintenance and use of forests in a sustainable way but it is not a nature protection act !!!

Definition of SFM in the Forest Law (§ 1)

(3) Nachhaltige Waldbewirtschaftung im Sinne dieses Bundesgesetzes bedeutet die Pflege und Nutzung der Wälder auf eine Art und in einem Umfang, dass deren biologische Vielfalt, Produktivität, Regenerationsvermögen, Kohlenstoffaufnahme- und Kohlenstoffspeicherfähigkeit, Vitalität sowie Potenzial dauerhaft erhalten wird, um derzeit und in Zukunft ökologische, ökonomische und gesellschaftliche Funktionen auf lokaler, nationaler und globaler Ebene, ohne andere Ökosysteme zu schädigen, zu erfüllen. Insbesondere ist bei Nutzung des Waldes unter Berücksichtigung des langfristigen forstlichen Erzeugungszeitraumes und allenfalls vorhandener Planungen vorzusehen, dass Nutzungen entsprechend der forstlichen Zielsetzung den nachfolgenden Generationen vorbehalten bleiben.

(3) Sustainable forest management within the meaning of this Federal Act means the management and use of forests in such a way and to such an extent that their biological diversity, productivity, regenerative capacity, vitality and potential are permanently maintained in order to fulfill ecological, economic and social functions at local, national and global level, now and in the future, without damaging other ecosystems. In particular, when using the forest, taking into account the long-term forestry production period and any existing plans, care must be taken to ensure that uses are reserved for future generations in accordance with forestry objectives.



The definition of SFM is congruent with the CBD definition of sustainability and the MCPFE definition of SFM

Legal framework

Definition of SFM in the Forest Law

§ 1 (SFM) is very general and refers to the entire Forest Act



There is no direct reflection in the execution of the law and no subsequent consequences in the punishment provisions (§ 170 ff.)

Legal framework

Prohibition of clear-cutting (§ 81)

Verbot von Kahlhieben

§ 82. (1) Verboten sind

a) Kahlhiebe, die

1. die Produktionskraft des Waldbodens dauernd vermindern,
2. den Wasserhaushalt des Waldbodens erheblich oder dauernd beeinträchtigen,
3. eine stärkere Abschwemmung oder Verwehung von Waldboden herbeiführen oder
4. die Wirkung von Schutz- oder Bannwäldern gefährden,

b) Großkahlhiebe im Hochwald.

§ 82 (1) are prohibited

a) Clear-cutting which

1. permanently prevent the productive capacity of the forest soil
2. significantly or permanently impair the water balance of the forest soil
3. cause increased washing away or drifting of forest soil or
4. jeopardize the effect of protection and ban forests.

b) Large-scale clear-cutting in the high forest

.... but many exceptions



Legal framework

Prohibition of clear-cutting (§ 82)



.... but many exceptions and reforestation again with problematic species

Pro Silva Austria

a slightly different approach

- Part of Pro Silva, founded in 1989 in Slovenia
- European Association of Foresters, Forest Owners, Scientists and Friends of the Forest
- Established in Austria in 1991
- Officially founded and independent since 2000



Our mission statement

- Comprehensive care and management of the forest
- Ecological, economic and social sustainability
- Use in such a way that the forest ecosystem is preserved and not destroyed periodically
- Cooperation with science and research
- Meetings and excursions - Best practice examples from forestry enterprises



Pro Silva Austria Principles

Congruent with MCPFE-SFM-principles

MCPEE – Criteria on SFM	Pro Silva Austria- Principles
Criterion 1: Forest resources and their contribution to global carbon cycles	Grundsatz 1: Verbesserung der Waldsubstanz
Criterion 2: Forest ecosystem health and vitality	Grundsatz 2: Erhaltung der Gesundheit und Vitalität der Wälder
Criterion 3: Productive functions of forests	Grundsatz 3: Stärkung der Wirtschaftsleistung des Waldes
Criterion 4: Biological diversity in forest ecosystems	Grundsatz 4: Erhaltung der biologischen Vielfalt von Waldökosystemen
Criterion 5: Protective functions in forest management	Grundsatz 5: Erhaltung der Schutz- und Wohlfahrtswirkungen
Criterion 6: Other socio-economic functions and conditions	Grundsatz 6: Wirtschaftliche und soziale Rahmenbedingungen für die nachhaltige Waldbewirtschaftung



Pro Silva Austria – Integrative forest management

- **Prerequisite: Biotope-adapted game densities**
- **Peeling damage is wood damage**
- **Browsing damage is damage to the ecosystem !!!**



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Co-operation with Pro Silva Austria

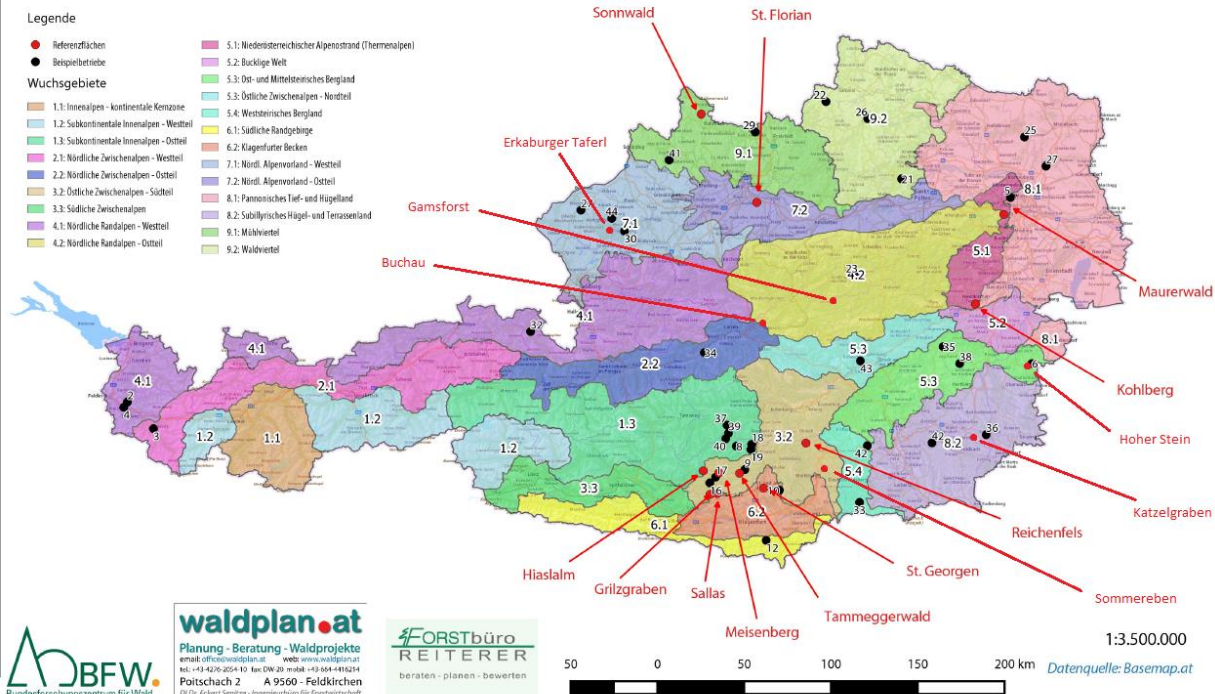
-ResynatWald
-(2014 – 2016)

-ReSynatWald 2.0 –
Forest Integrate
Austria
-(2019 – 2022)

-Forest Integrate
Austria –
ReSynatWald
-24-25

Übersichtskarte Beispielbetriebe Resynat Wald

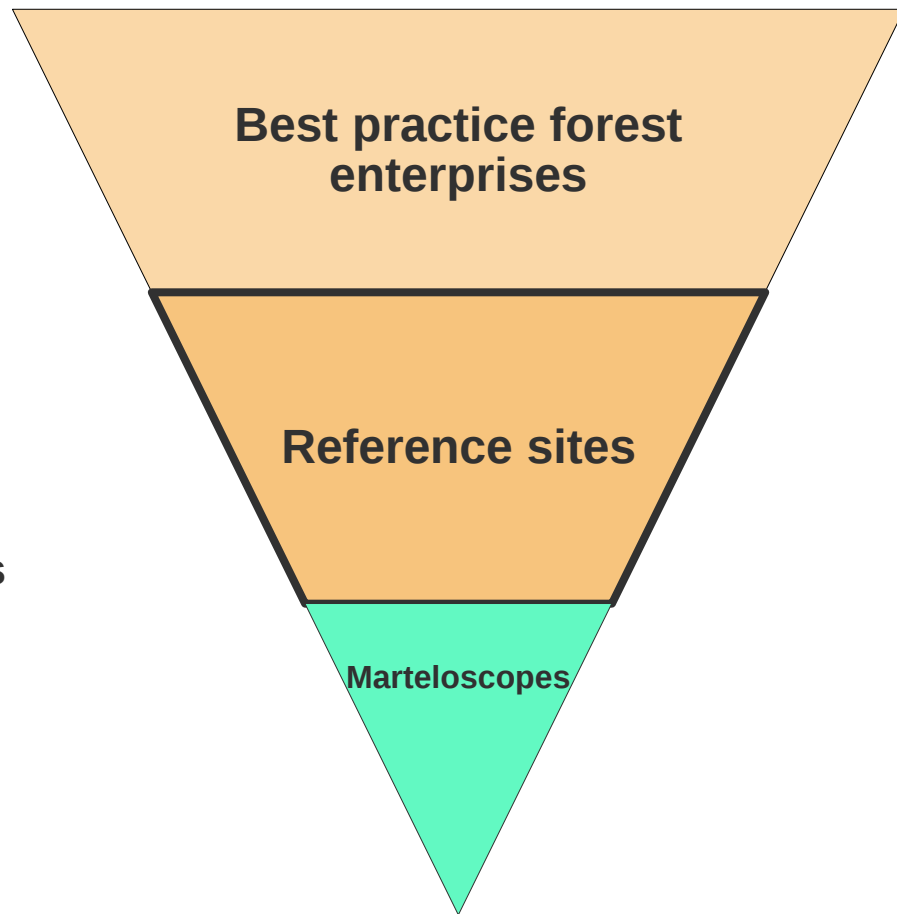
Entwicklung eines Referenzflächen-Systems zur wissenschaftlichen
Qualifizierung naturnaher Waldbaumethoden in Österreich



ReSynatWald 2.0 – Forest Integrate Austria

Basic idea

- Identification of suitable **best practice forest enterprises** working with continuous cover forestry
(Pro Silva Austria members)
- Establishment of **reference sites** as permanent observation areas
- Establishment of **demonstration sites** for modelling, workshops and tree selection exercise

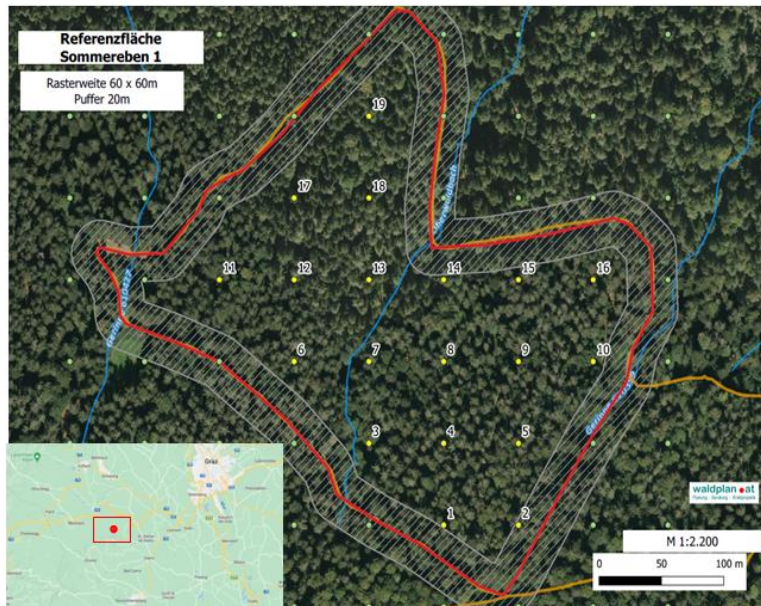


ReSynatWald 2.0 – Forest Integrate Austria

RESYNAT WALD

Projektflächen

Sommereben



Legende

- Stichprobenpunkte aufgenommen
- Grenzen Referenzflächen
- Grenzen Grundstücke



Stand: 04.04.2022

Datenquelle Orthofotos: Basemap.at CC-BY 3.0 AT



ReSynatWald 2.0 – Forest Integrate Austria

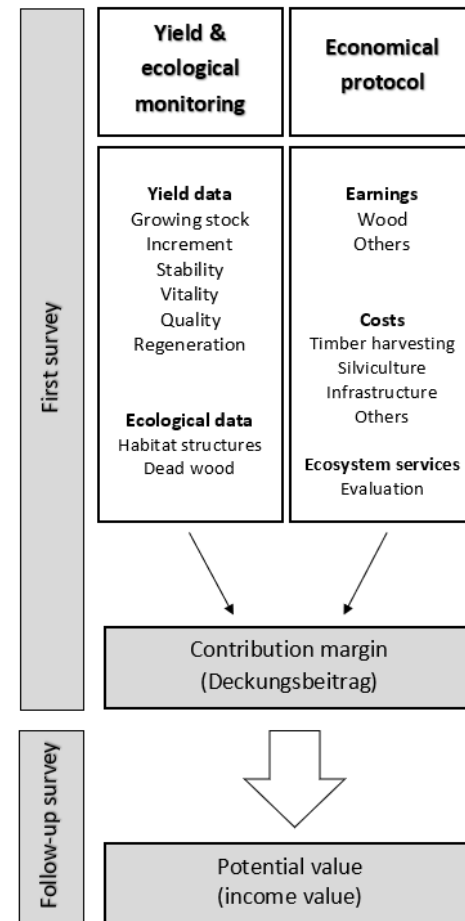
Research aims

Forest
growth and
structure
analysis

Ecological
monitoring

Economic
protocol

Benefits of close-to-nature silviculture
Costs of nature conservation in forests

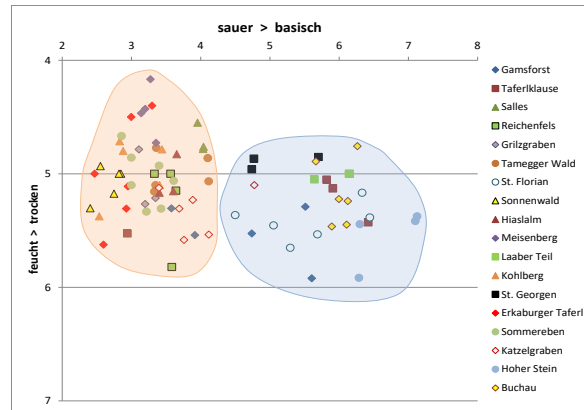
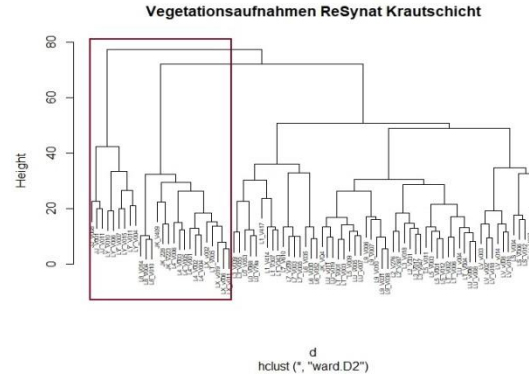


ReSynatWald 2.0 – Forest Integrate Austria

Assessment of the naturalness of the forest types

Clear differentiation between forest types on acidic substrate and on alkaline soils

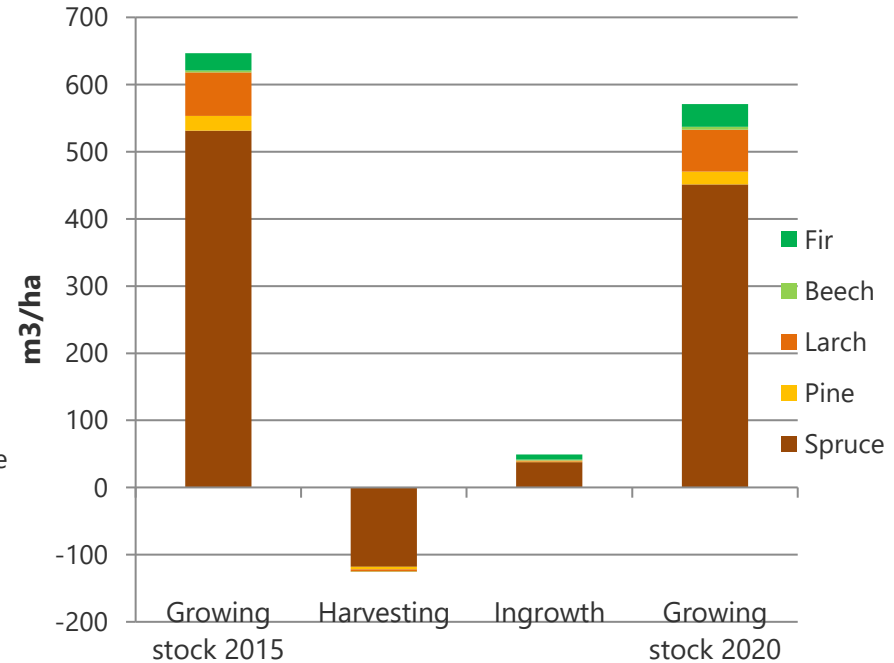
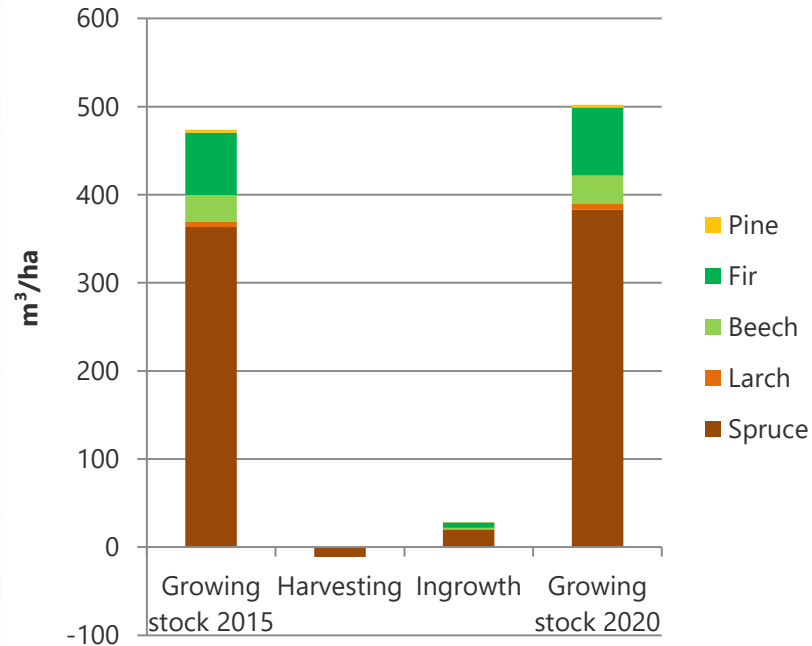
Only partial correspondence between the current / actual vegetation and the potential vegetation.



Referenzfläche	ID	aktuell	potenziell
Grilzgraben	L2	Wollgras-Fichtenwald	Wollgras-Fi-Ta-BuWald
		Cabomgrosto-villosae-Fagetum	Cabomgrosto-villosae-Fagetum
Hiasalm	L6	Silikat-Lössen-Schneewald	Alpenrätlich-Fichtenwald
		Carici-Fagetum comense	Homogro-Pinetum
Kohlberg	L9	Hainnsamen-Fichtenwald	Hainnsamen-Ta-BuWald
		Luzulo-Fagetum	Luzulo-Fagetum
Lainzer Tiergarten - Laaber Teil	L8	Traubeneichen-Hainbuchenwald	Waldmeister-Buchenwald
		Gallo sylvatici-Carpinetum	Gallo odoris-Fagetum
Meisenberg I	L7	Hainnsamen-Fichtenwald	Hainnsamen-Fichten-Tannenwald
		Luzulo-Fagetum	Luzulo-Fagetum
Meisenberg II	L7	Petitschermos-Fichtenwald	Petitschermos-Fichten-Tannenwald
		Bozzonio-Pinetum	Bozzonio-Pinetum
Reichenfels	L1	Alpenrätlich-Fichtenwald	Alpenrätlich-Fichtenwald
		Homogro-Pinetum	Homogro-Pinetum
Salles	L1	Basenarmer Sumpffichtenwald	Basenarmer Sumpffichtenwald
		Gallio-Fagetum	Gallio-Fagetum
Salles	L0	Hainnsamen-Fichtenwald	Hainnsamen-Fi-Ta-BuWald
		Luzulo-Fagetum	Luzulo-Fagetum
Sonnenwald	L5	Petitschermos-Fichten-Tannenwald	Wollgras-Fi-Ta-BuWald
		Wollgras-Fi-Ta-BuWald	Cabomgrosto-villosae-Fagetum
St. Florian	L4	Sengras-Fichtenwald	Waldmeister-Buchenwald
		Caric. bre. Area ab. Ges	Gallo odoris-Fagetum
St. Georgen	L5	Waldmeister-Buchenwald	Waldmeister-Fi-Ta-BuWald
		Bozzonio-Pinetum	Gallo odoris-Fagetum
Tamegger Wald	L3	Hainnsamen-Fichtenwald	Kalk-Buchenwald
		Luzulo-Fagetum	Mercuriali-Fagetum
Erbkurger Taferl	L7	Hainnsamen-Fi-Ta-BuWald	Hainnsamen-Fi-Ta-BuWald
		Luzulo-Fagetum	Luzulo-Fagetum
Sommeren	L1	Petitschermos-Fi-TaW	Hainnsamen-Ta-BuWald
		Bozzonio-Pinetum	Luzulo-Fagetum
Katzelgraben	L1	Petitschermos-Fi-TaW	Hainnsamen-Fi-Ta-BuWald
		Bozzonio-Pinetum	Luzulo-Fagetum
Hoher Stein	LX	Montaner Hainnsamen-Fichtenwald	Wachteleichen-Buchenwald
		Wachteleichen-Buchenwald	Melompro-Fagetum
Buchau	L1	Bingelkraut-Buchenwald	Bingelkraut-Buchenwald
		Mercuriali-Fagetum	Mercuriali-Fagetum
Gamsforst	L1	Schneehede-Rotföhrenwald	Schneehede-Rotföhrenwald
		Eriko-Pinetum sylvaticis	Eriko-Pinetum sylvaticis
Gamsforst	L1	Nordalpscher frischer Fi-TaW	Nordalpscher Karbonat-Fi-Ta-BuWald
		Tortilio-Pinetum	Adrostylo glabre-Fagetum
Gamsforst	L1	Nordalpscher Karbonat-Fi-Ta-BuWald	Adrostylo glabre-Fagetum
		Adrostylo glabre-Fagetum	Kleesbaumkraut-Fi-Ta-BuWald
Gamsforst	L1	Labkraut-Fichten-Tannenwald	Labkraut-Fichten-Tannenwald
		Gallo rotundifolii-Pinetum	Cardamine triflorae-Fagetum
Gamsforst	L1	Sengras-Fichten-Tannenwald	Sengras-Fichten-Tannenwald
		Carici brisoidis-Albertum	Carici brisoidis-Albertum
Gamsforst	L1	Montaner Hainnsamen-Fichtenwald	Hainnsamen-Fi-Ta-BuWald
		Luzulo-luzulids-Pinetum	Luzulo-luzulids-Pinetum

ReSynatWald 2.0 – Forest Integrate Austria

Repeated Surveys



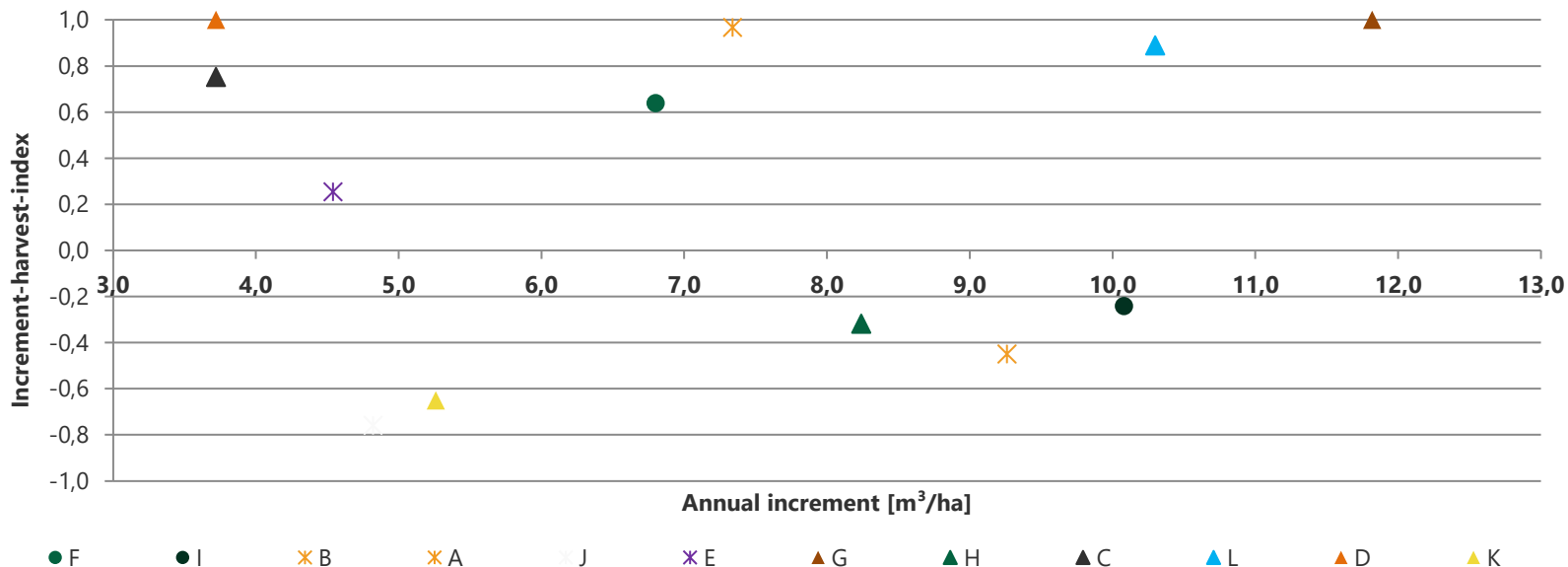
ReSynatWald 2.0 – Forest Integrate Austria

$$\text{Increment} - \text{harvest} - \text{index} = \frac{(V_{t-n} + i_n - V_t) - (V_t + h_n - V_{t-n})}{(V_{t-n} + i_n - V_t) + (V_t + h_n - V_{t-n})}$$

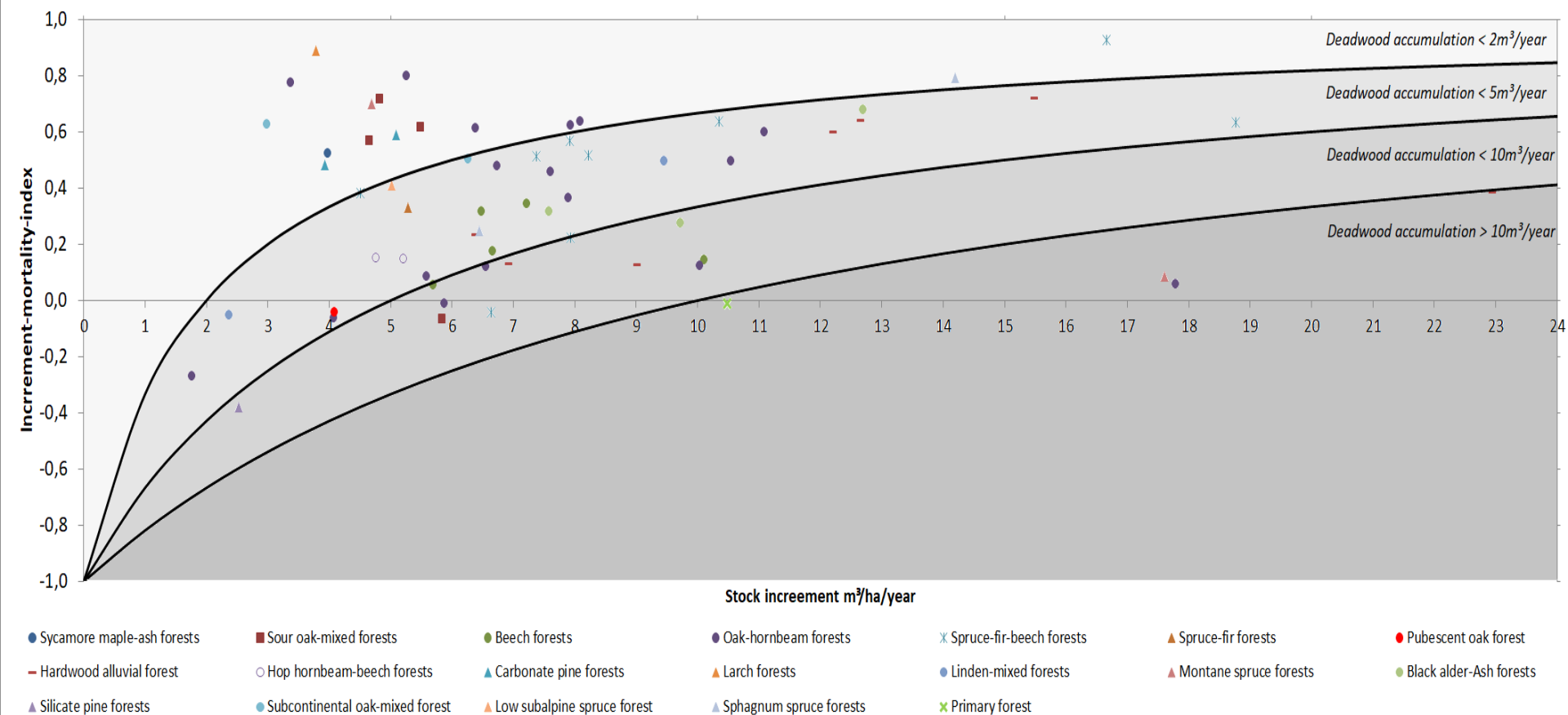
$$= \frac{(i_n - h_n)}{(i_n + h_n)} \quad [-1 < I < 1]$$

V_t = Growing stock at period end
 V_{t-n} = Growing stock at period start
 i_n = Increment over period (ingrowth + volume increment)
 h_n = Harvesting volume in the period
 n = Period length in years

HI Increment-Harvesting-Index (managed forests)

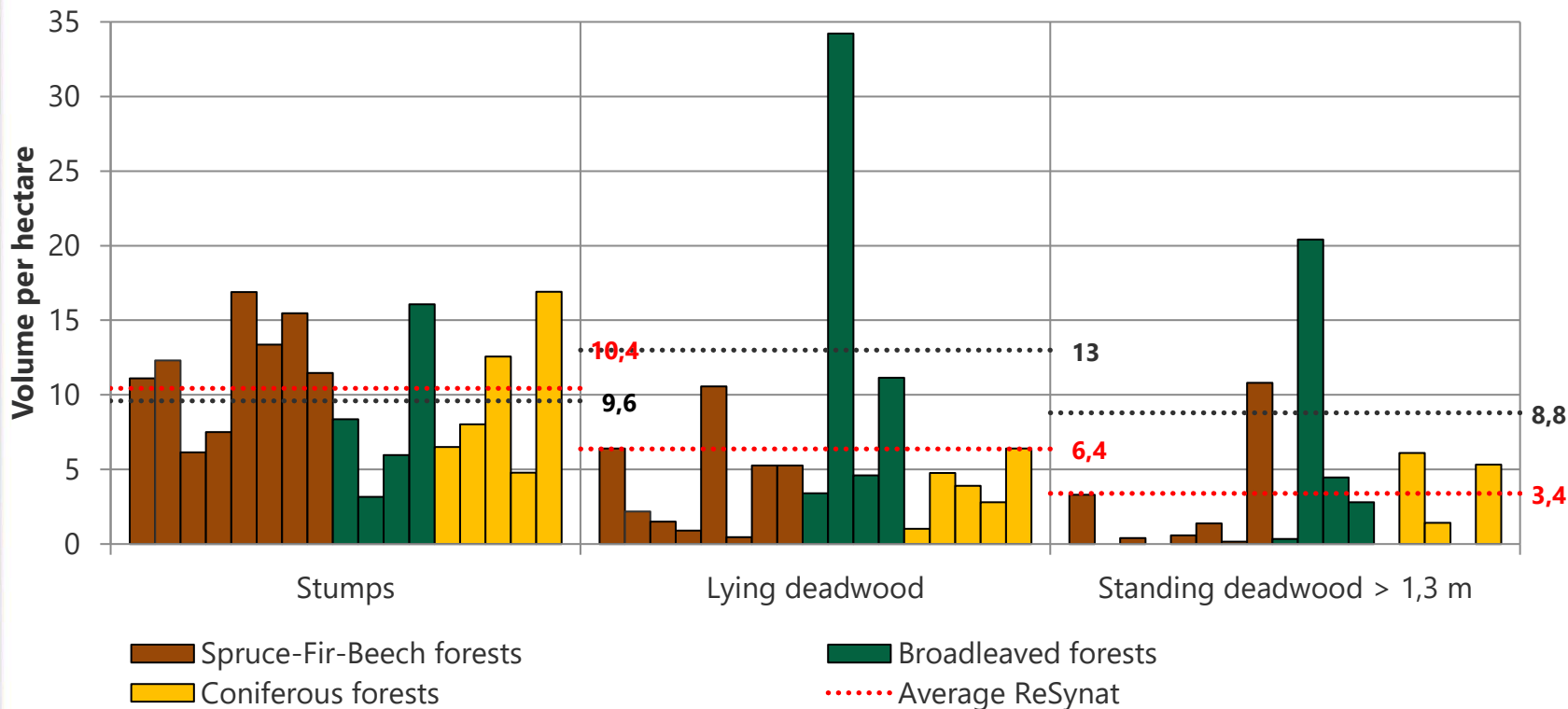


IMI Increment-Mortality-Index (Natural Forest Reserves)



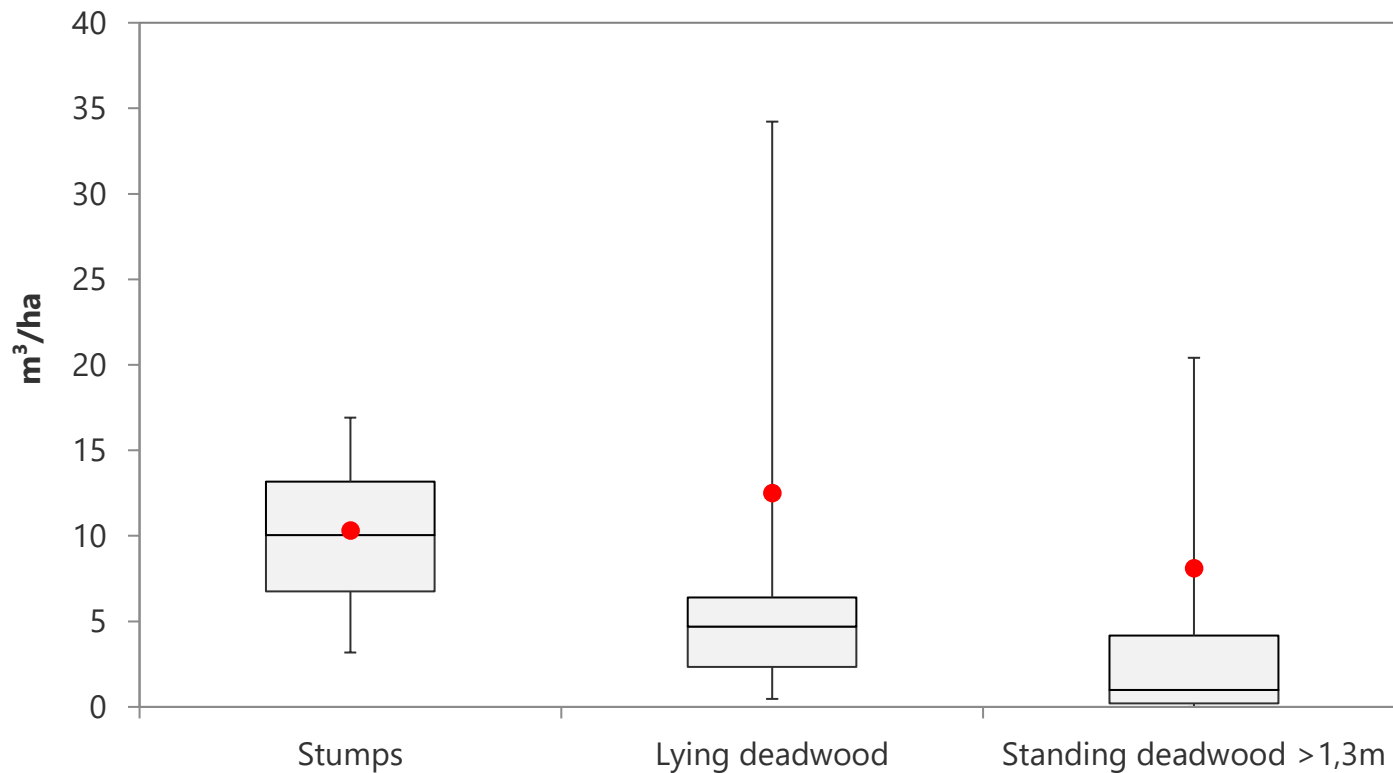
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Deadwood quantities in forest types (n=18)



ReSynatWald 2.0 – Forest Integrate Austria

Deadwood quantities (18 reference areas)



TreMs (tree-related Microhabitats)

TreMs are nearly undetectable



Economic monitoring

- Owners of the sites maintain continuous records on the earnings and expenses on the reference sites

Earnings e.g

- timber harvesting
- other income (hunting etc.)
- other non-wood-forest products
- subsidies (e.g. habitat trees)

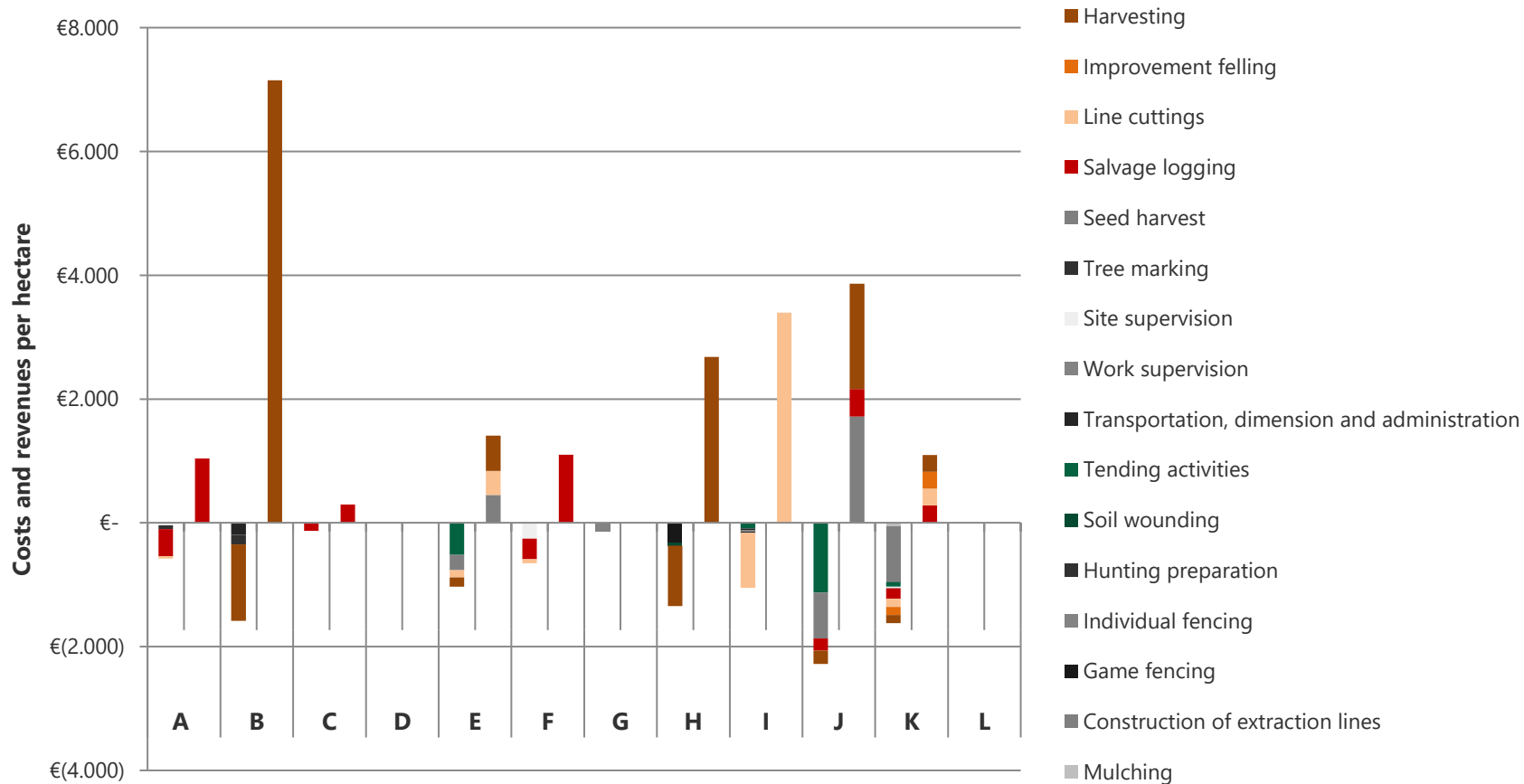
Expenses e.g.

- harvesting costs
- tending activities
- cost for tree marking
- protection against browsing
- quality control

[illegible]

ReSynatWald 2.0 – Forest Integrate Austria

Costs and revenues per hectare from the first survey period



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Lessons learned:

Close(r)-to-nature silviculture = 3 + 1

1. **Orientation towards tree species composition of the potential natural forest community**
2. **Using natural regeneration and self-differentiation**
3. **Selective single-tree harvesting**
4. **Consideration of biodiversity**

Thank you for your attention !

Dr. Georg Frank

Austrian Research Centre for Forests (BFW)

Natural Forest Reserves

++43 664 4024697

georg.frank@bfw.gv.at

Torino, 08-04-2024