

**Integrate final conference 27. Oktober 2016 in Handthal**

# **Introduction**

## **Ebrach biodiversity concept**

***by Ulrich Mergner, Ebrach***



A photograph of a forest landscape in Romania showing clear-cutting. The image features a dirt path in the foreground, a large tree stump in the middle ground, and a hillside in the background with patches of green vegetation and bare soil. A large green text box is overlaid on the image.

**Clear-cutting is the predominant  
management regime worldwide**

**Cut and leave, Romania**  
**(Photo: Ulrich Mergner)**



A photograph of a river valley. In the foreground, a large pile of cut logs lies on a grassy bank next to a paved road. The logs are dark and show signs of decay. In the background, a wide river flows towards a distant shoreline where a large ship is visible. The sky is overcast.

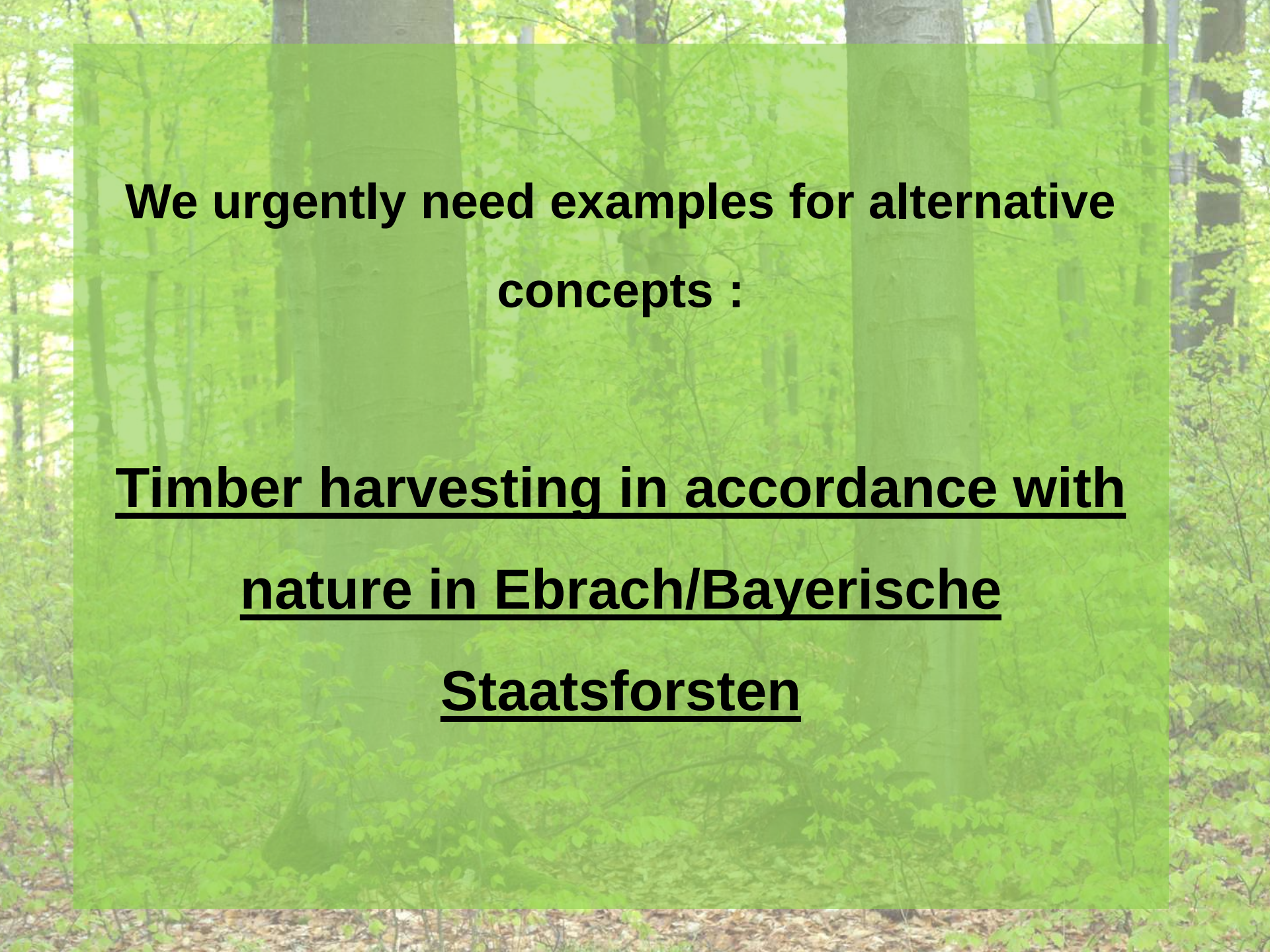
**Forest biodiversity lost!**

**Danube valley,**

**Romania**

**(Photo: Ulrich Mergner)**



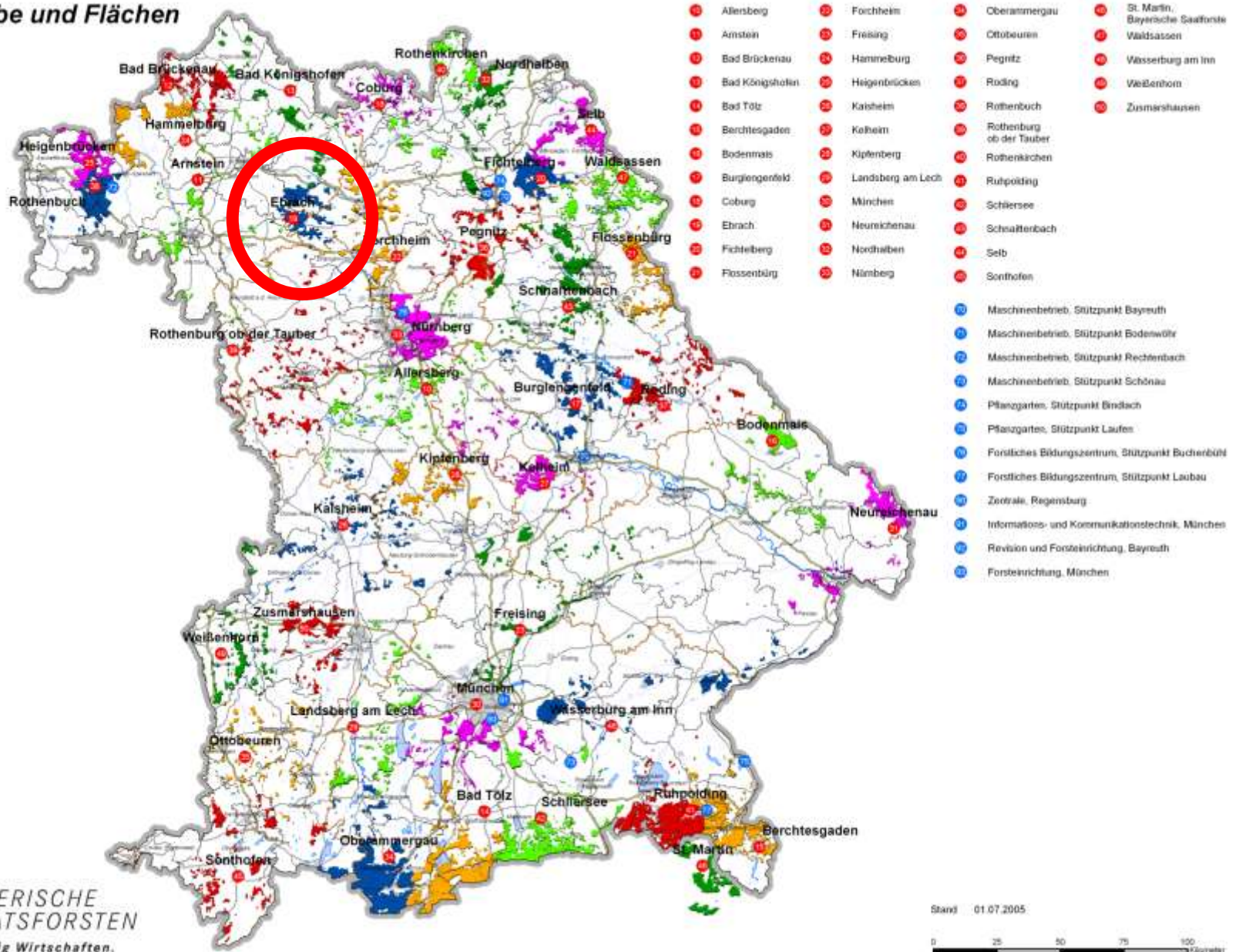
The background of the slide is a photograph of a forest with tall, thin trees and a dense canopy of green leaves. A semi-transparent green rectangular overlay covers the central portion of the image, serving as a background for the text.

**We urgently need examples for alternative  
concepts :**

**Timber harvesting in accordance with  
nature in Ebrach/Bayerische  
Staatsforsten**



# Forstbetriebe und Flächen





## Information Forest

### Enterprise Ebrach:

75% Broadleaves, 25% Conifers

Increment/year: 140.000 m<sup>3</sup>

17.000 ha total, 16. 500 ha forest

Harvest/year: 103.000 m<sup>3</sup>

Sale/year: 85.000 m<sup>3</sup>

Mean age: 90 years

Ancient cultural land – dense settlement

High demand for fuel wood

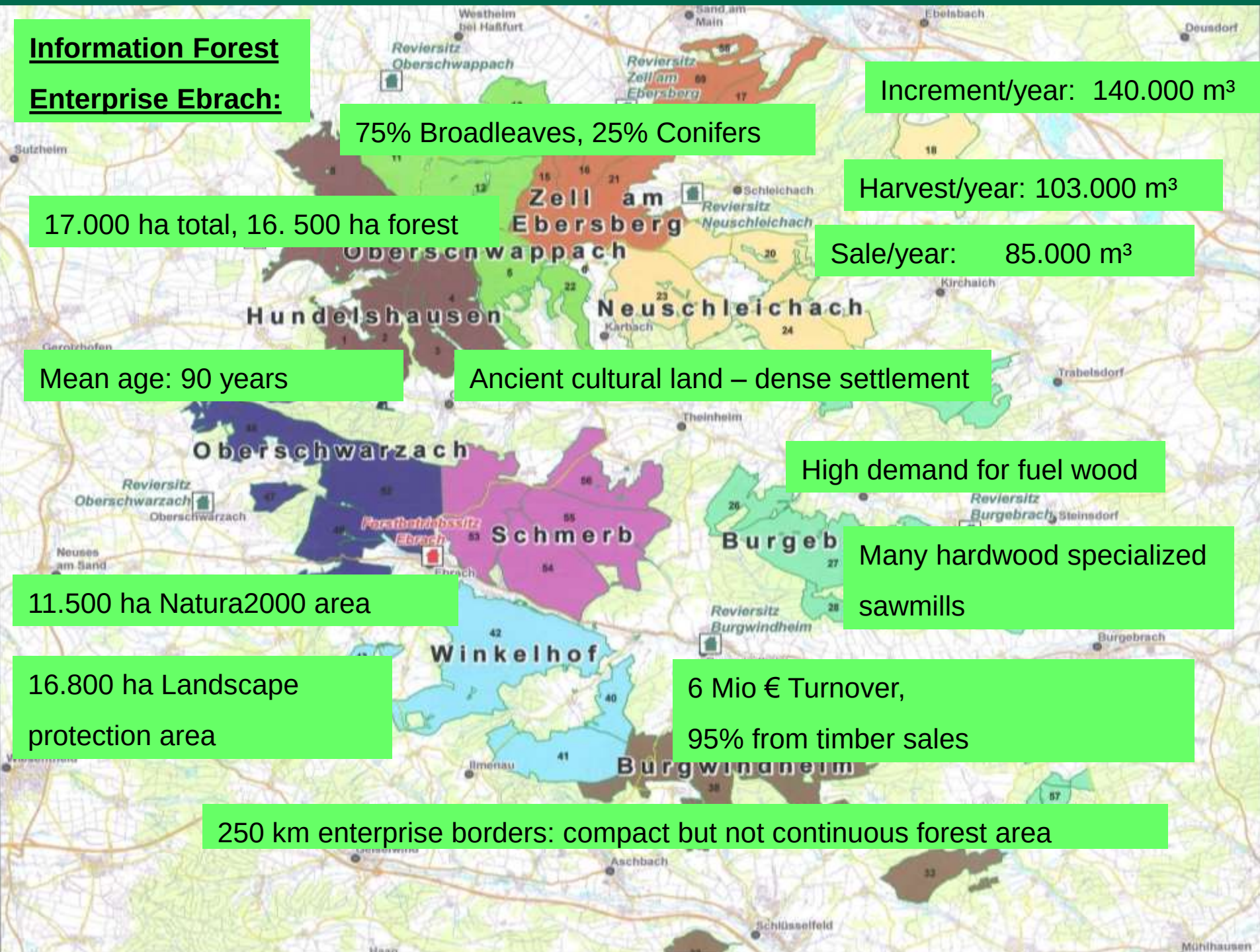
11.500 ha Natura2000 area

Many hardwood specialized sawmills

16.800 ha Landscape protection area

6 Mio € Turnover,  
95% from timber sales

250 km enterprise borders: compact but not continuous forest area





Demand: **Conservation**

Large beech forest area  
NGOs demand National Park

Demand : **Sawn timber**

nearly 25 Sawmills  
50.000 m<sup>3</sup>/year

Demand :

**Fibres**

ca. 10 customers, 7000 m<sup>3</sup>/year

Demand : **Drinking  
water**

600 springs, 241 ha Water  
protection areas

Demand : **Recreation**

Visitors, Locals, Communities  
125 hiking trails= 336km

**Mission:**  
**To deliver**  
**demands in**  
**optimal way**

Demand : **Fuel wood**

2000 customers  
15.000 m<sup>3</sup>/year

Demand : **Hunting**

ca. 60 – 70 hunters  
More than 1000 hunters during driven  
hunts

Demand : **Working place**

60 workers  
12 contractors  
30 Sawmills



A photograph of a forest with tall trees and green foliage, overlaid with a semi-transparent green rectangle containing text.

**Targets for state forest according to Art. 18 of Bavarian  
Forest Law:**

**Management aims for state forests is  
to optimize the total value of all  
ecosystem services**



Demand: **Conservation**

Large beech forest area  
NGOs demand National Park

Demand : **Sawn timber**

nearly 25 Sawmills  
50.000 m<sup>3</sup>/year

**The most  
difficult  
compromise**

Demand : **Fuel wood**

2000 customers  
15.000 m<sup>3</sup>/year

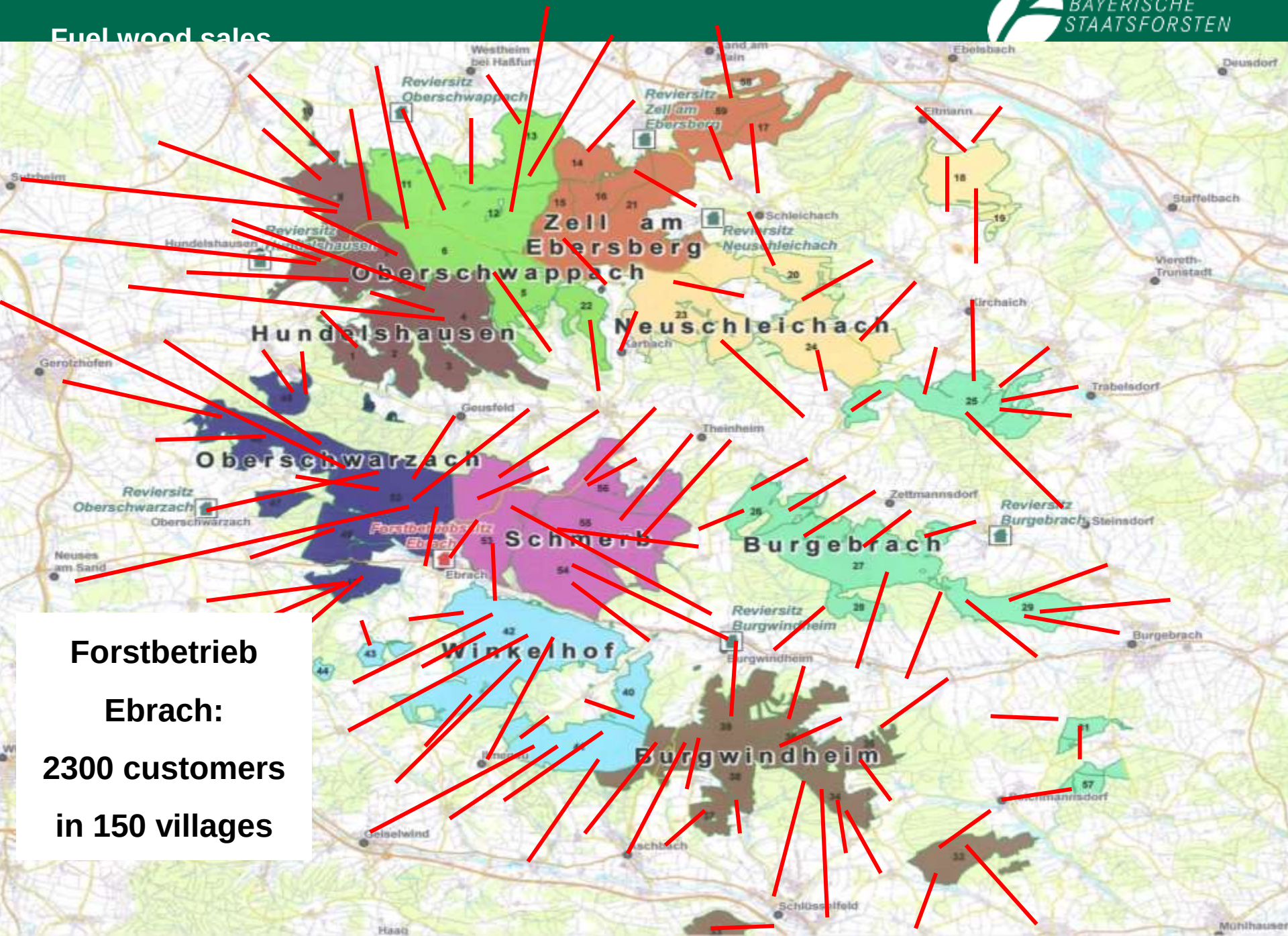
Demand : **Working place**

60 workers  
12 contractors  
30 Sawmills









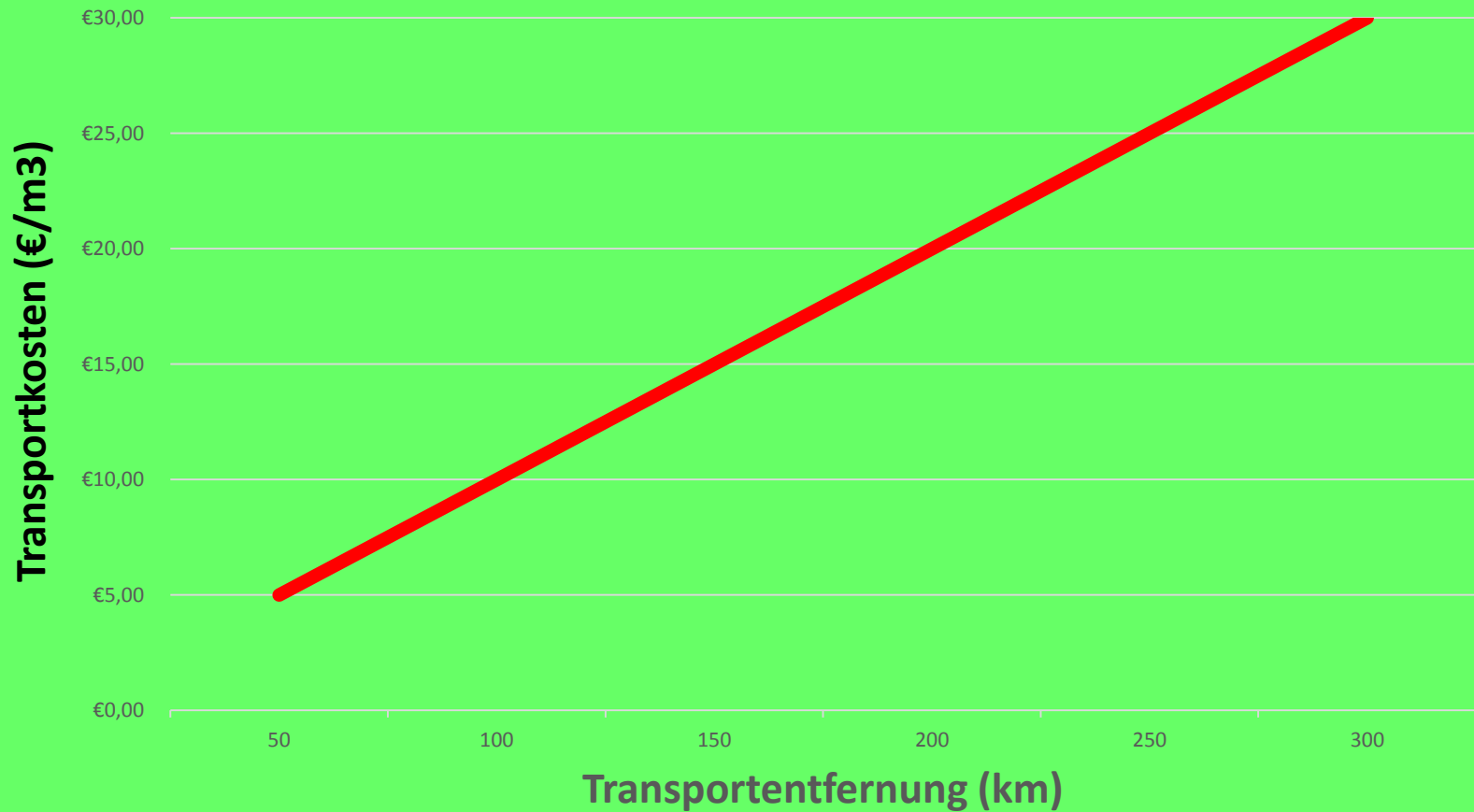
**Forstbetrieb  
Ebrach:  
2300 customers  
in 150 villages**







## Frachtkostenbelastung von Rundholz im Anhalt an die Tarife des Transportgewerbes





**Dezentralized timber demand  
requires decentralized biodiversity  
concepts**

**60 Sägewerke in  
der Region  
Steigerwald**

## Sägewerkskunden

### des Forstbetriebs Ebrach in der Region Steigerwald

#### Landkreis Bamberg

1. Brähm, Richard – Kemmern
2. Eberlein – Stadelhofen
3. Gunreben – Strullendorf
4. Jacob, Erich – Grub am Forst
5. Kröner – Bischberg
6. Lechner – Burgebrach
7. Moser – Burgwindheim
8. Naser – Burgebrach
9. Reinlein – Geiselwind
10. Schonath – Scheßlitz
11. Schug – Schönbrunn
12. Ziegelhöfer – Breitengüßbach

#### Landkreis Schweinfurt

13. Alt – Schwebheim
14. Barthel – Donnersdorf
15. Gleitsmann – Wipfeld

#### Landkreis Haßberge

16. Bauerschmitt – Eltmann
17. Gehrig – Oberaurach
18. Jäger, Ludwig – Rauenebrach
19. Jäger, Bernd – Rauenebrach
20. Reitz – Wonfurt
21. Wirth – Oberschleichach
22. Zipfel – Rauenebrach

#### Landkreis Erlangen-Höchst

23. Brähm, Wolfgang – Adelsdorf
24. Kugler – Vestenbergsgreuth

#### Landkreis Neustadt a. d. Aisch- Bad Windsheim

25. Nahrhaft – Markt Bibart



überwiegend Laubholz-Kunden



Nadel- und Laubholz-Kunden



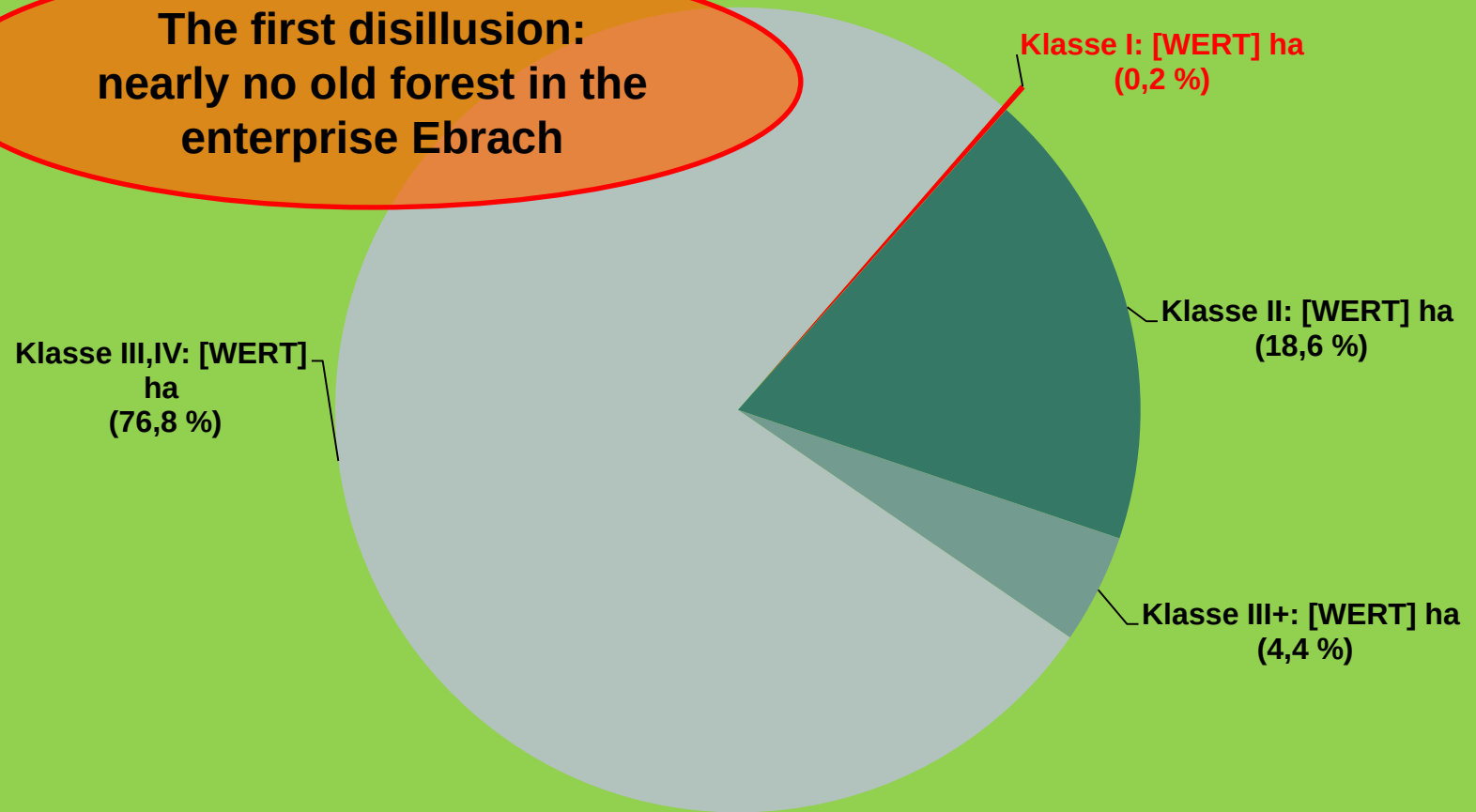
# Naturschutzkonzept der Bayerischen Staatsforsten

**Concept of Bavarian State  
Enterprise for  
conservation of nature and  
wood-species**



## Waldsituation Forstbetrieb Ebrach 2006: Flächenanteile von Naturschutz-Klassen

**The first disillusion:  
nearly no old forest in the  
enterprise Ebrach**



■ Klasse I: Wälder über 180 Jahre

■ Klasse II: Wälder von 140 bis 180 Jahre

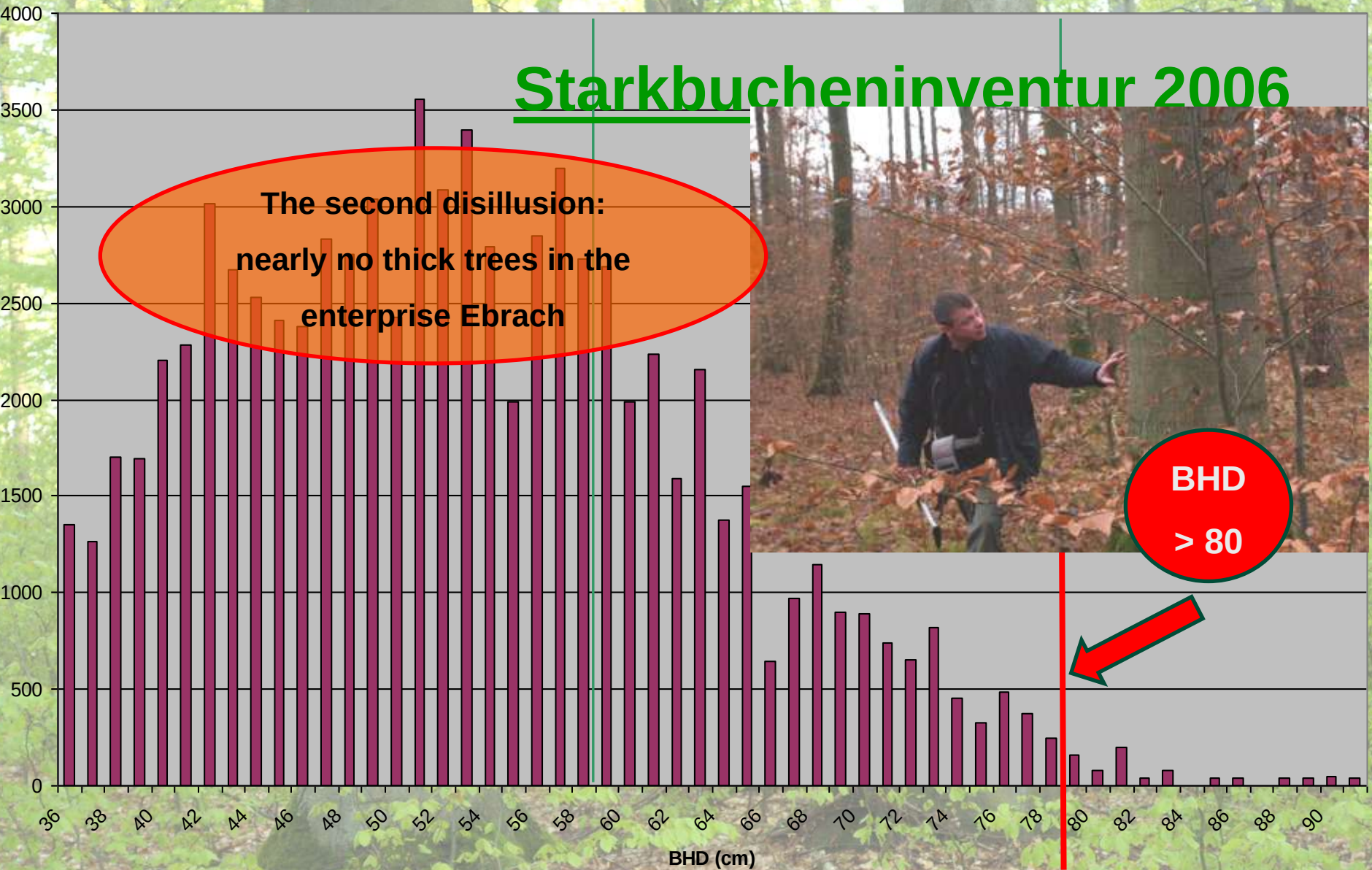
■ Klasse III+: Junge Wälder mit Altbäumen

■ Klasse III, IV: Jüngere Laubwälder und Nadelwälder

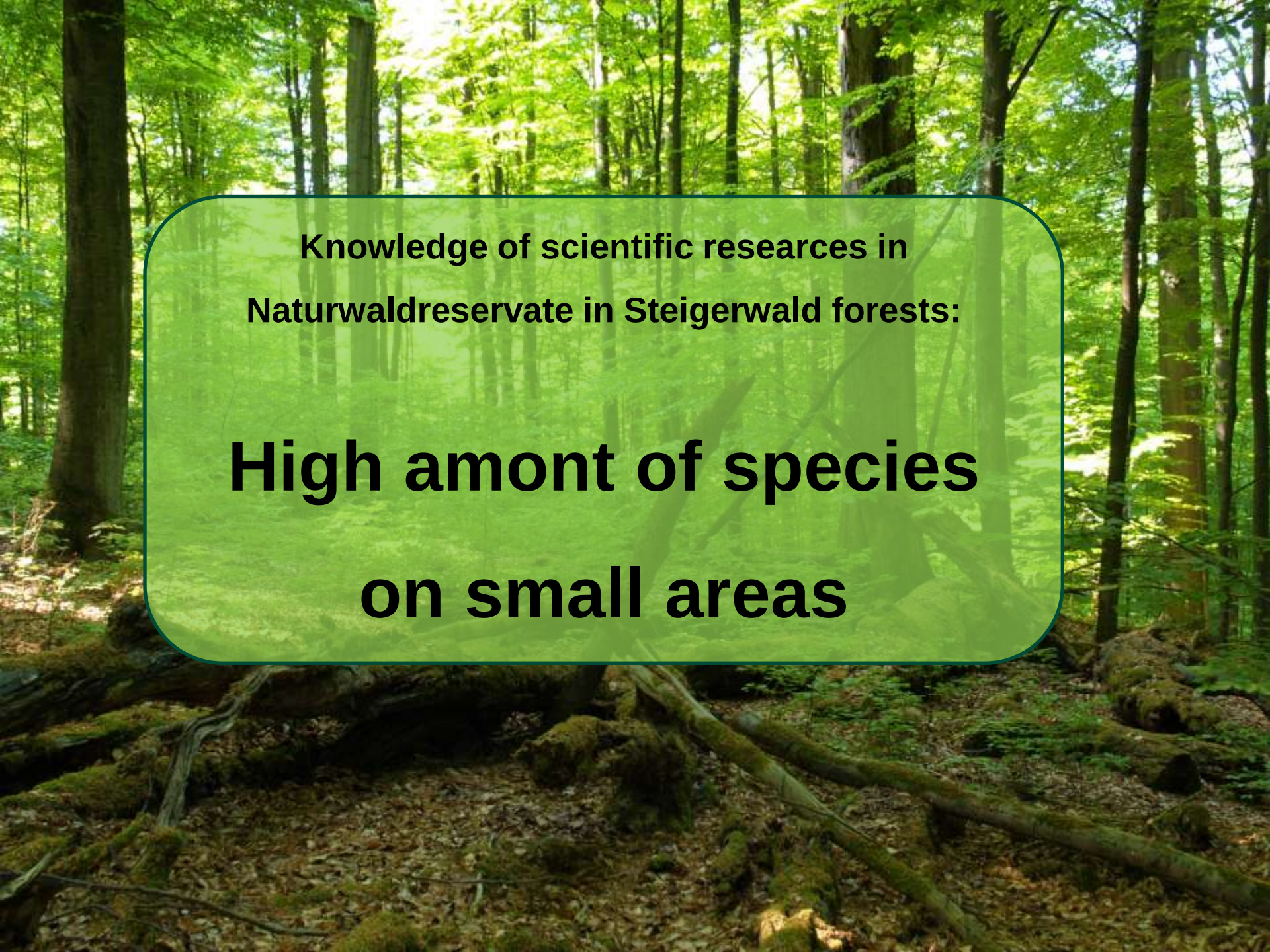


# Starkbucheninventur 2006

**The second disillusion:  
nearly no thick trees in the  
enterprise Ebrach**





A photograph of a dense forest with tall, slender trees and a forest floor covered in moss and fallen branches. A semi-transparent green box with rounded corners is overlaid on the image, containing text.

**Knowledge of scientific researches in  
Naturwaldreservate in Steigerwald forests:**

**High amount of species  
on small areas**





*Hesperus fulvipes* (Gyll., 1805)



*Dytiscus fenestralis* Stoll, 1776



*Rhysoderus brevis* (Gyll., 1791)



*Alnus flavipes* (Gyll., 1805)



*Dytiscus fenestralis* (Stoll, 1776)



*Rhysoderus brevis* (Gyll., 1791)



*Dytiscus fenestralis* (Stoll, 1776)



*Alnus flavipes* (Gyll., 1805)



*Anisotoma dorsalis* (Gyll., 1805)



*Dytiscus fenestralis* (Stoll, 1776)



*Rhysoderus brevis* (Gyll., 1791)



*Alnus flavipes* (Gyll., 1805)



*Dytiscus fenestralis* (Stoll, 1776)



*Rhysoderus brevis* (Gyll., 1791)



*Dytiscus fenestralis* (Stoll, 1776)



*Alnus flavipes* (Gyll., 1805)



*Dytiscus fenestralis* (Stoll, 1776)



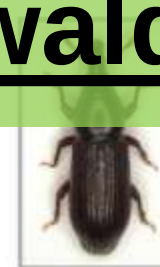
*Rhysoderus brevis* (Gyll., 1791)



*Alnus flavipes* (Gyll., 1805)



*Dytiscus fenestralis* (Stoll, 1776)



*Dytiscus fenestralis* (Stoll, 1776)



*Rhysoderus brevis* (Gyll., 1791)



*Dytiscus fenestralis* (Stoll, 1776)

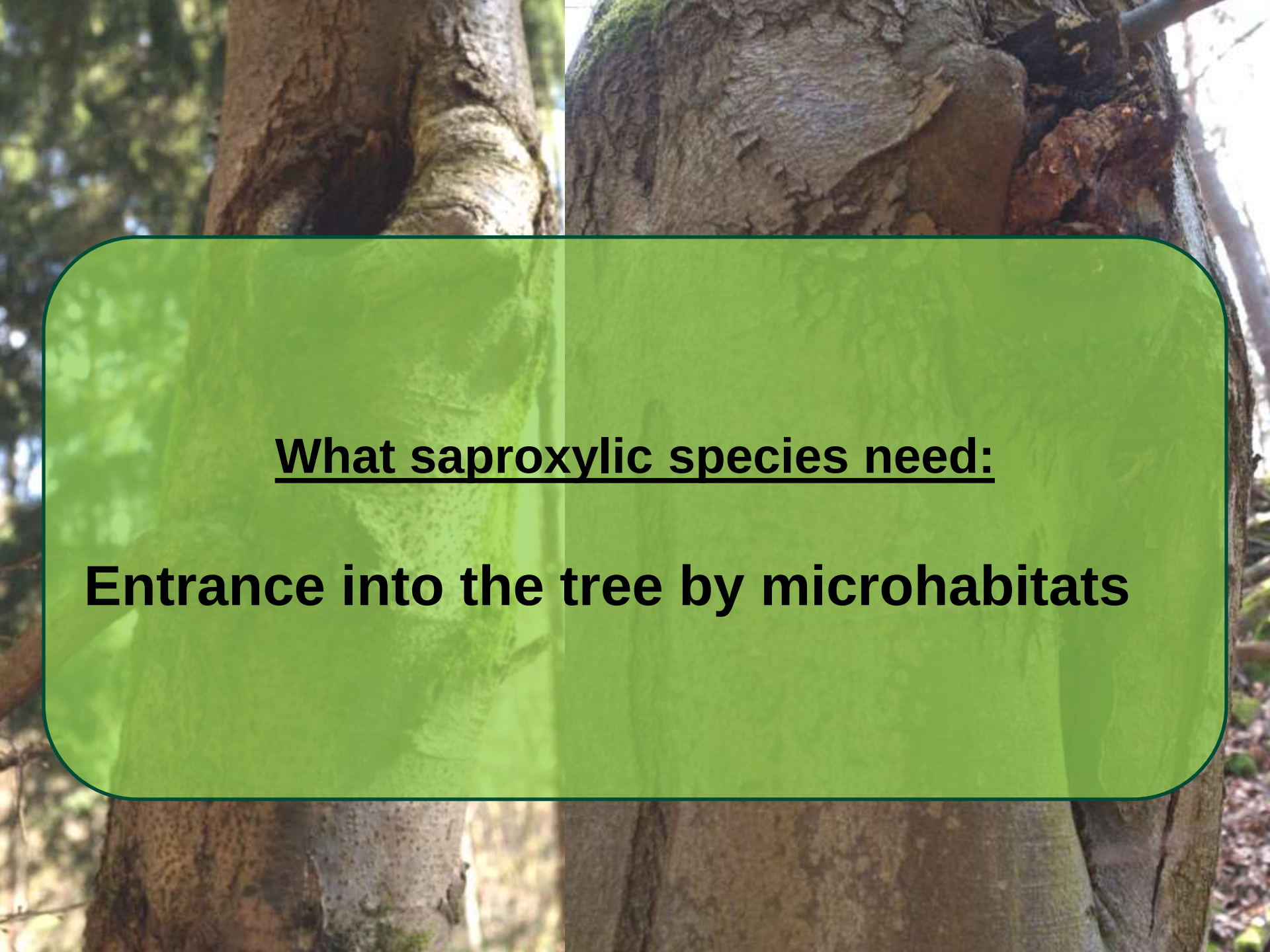


*Alnus flavipes* (Gyll., 1805)

Estimation of experts:

# 480 saproxylic beetles in Steigerwald



The background of the slide is a photograph of several tree trunks. The trunks are brown and show signs of decay and peeling bark, which are typical of deadwood (saproxylic) habitats. A large, semi-transparent green rectangle with rounded corners is overlaid in the center of the image, containing the text.

**What saproxylic species need:**

**Entrance into the tree by microhabitats**





## Integrative Ansätze als Chance für die Erhaltung der

Kraus und Frank Krumm (Hrsg.)



# Katalog der Baummikrohabitate

## Referenzliste für Feldaufnahmen

**European Forest Institut (EFI) provides  
valuable support for integrative management**





## Microhabitats in ABC-Grad-research area near Fabrikschleichach

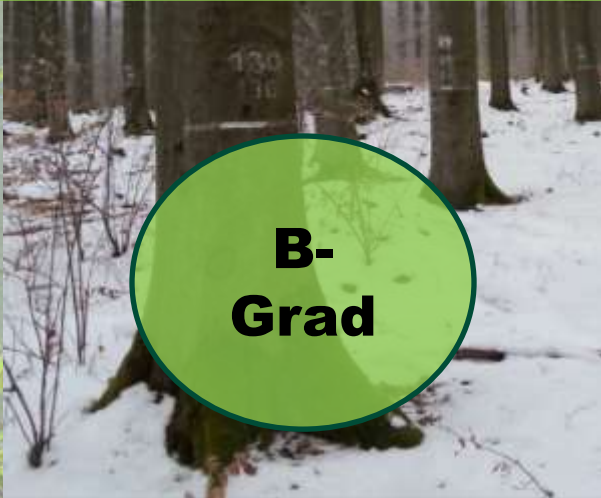
Waldort: Abteilung Kapelle, ehem. Forstamt Fabrikschleichach  
Durchforstungszeitraum: 145 Jahre (Versuchsflächen jeweils 0,7 ha)

|         |                                  |
|---------|----------------------------------|
| A-Grad: | schwache Niederdurchforstung     |
| B-Grad: | mittelstarke Niederdurchforstung |
| C-Grad: | starke Niederdurchforstung       |



**A-  
Grad**

A photograph of a forest floor in the A-Grad section, showing a dense layer of snow and fallen leaves, with tree trunks visible in the background.



**B-  
Grad**

A photograph of a forest floor in the B-Grad section, showing a layer of snow and fallen leaves, with tree trunks visible in the background.



**C-  
Grad**

A photograph of a forest floor in the C-Grad section, showing a layer of snow and fallen leaves, with tree trunks visible in the background.



The image is a collage of forest scenes. The top and bottom edges show green foliage. The central part features a researcher in an orange and green jacket and a white cap, looking up in a forest with brown autumn leaves on the ground. To the left, a snowy forest floor is visible. A green rounded rectangle with black text is in the upper left, and a green oval with black text is in the lower left. Another green oval with black text is on the right side, next to a tree trunk.

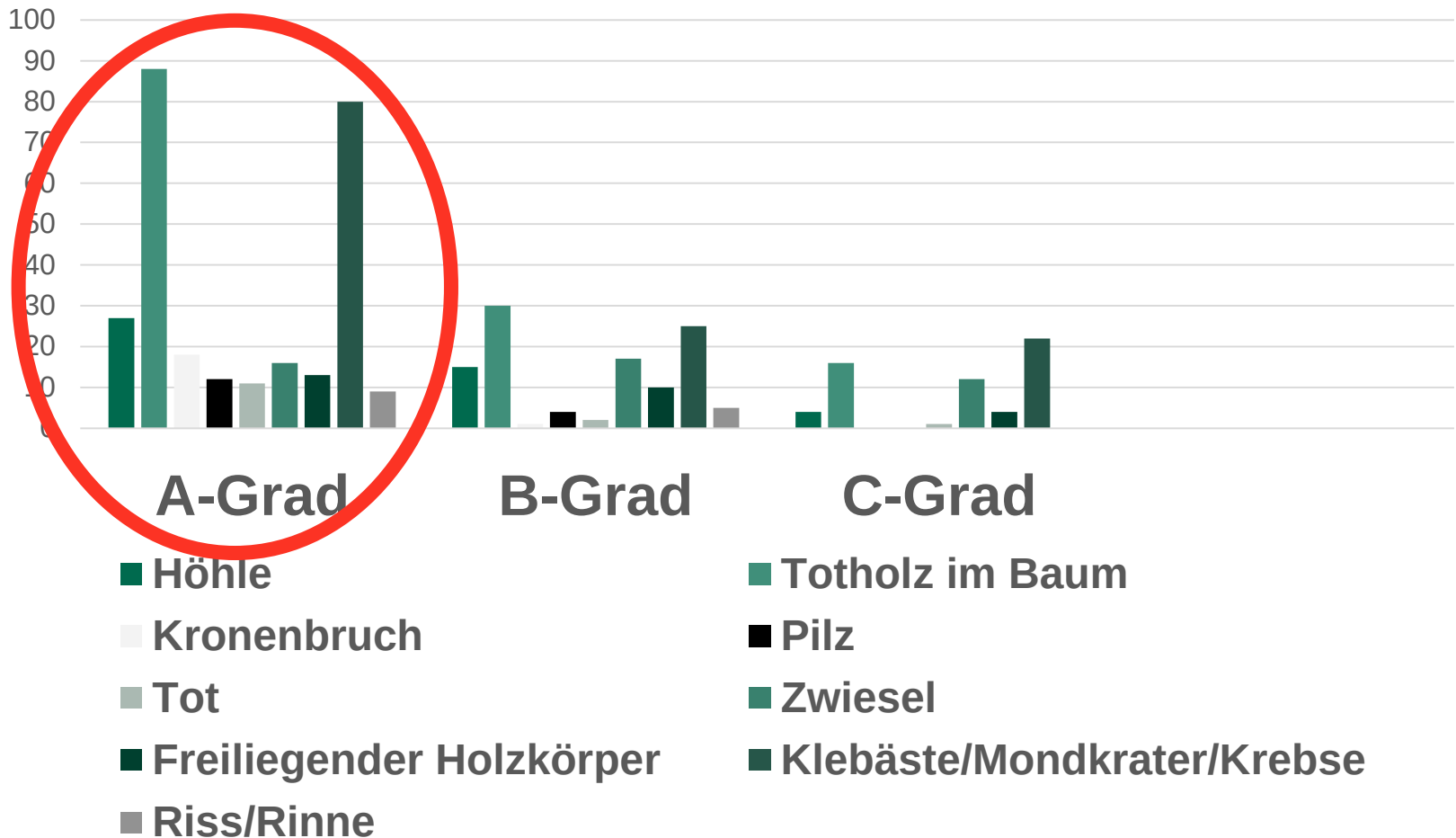
**Research in Autumn 2014  
by Ulrich Mergner und  
Jonathan Schäfer**

**A-  
Grad**

**C-  
Grad**



# Arten der Habitatstrukturarten



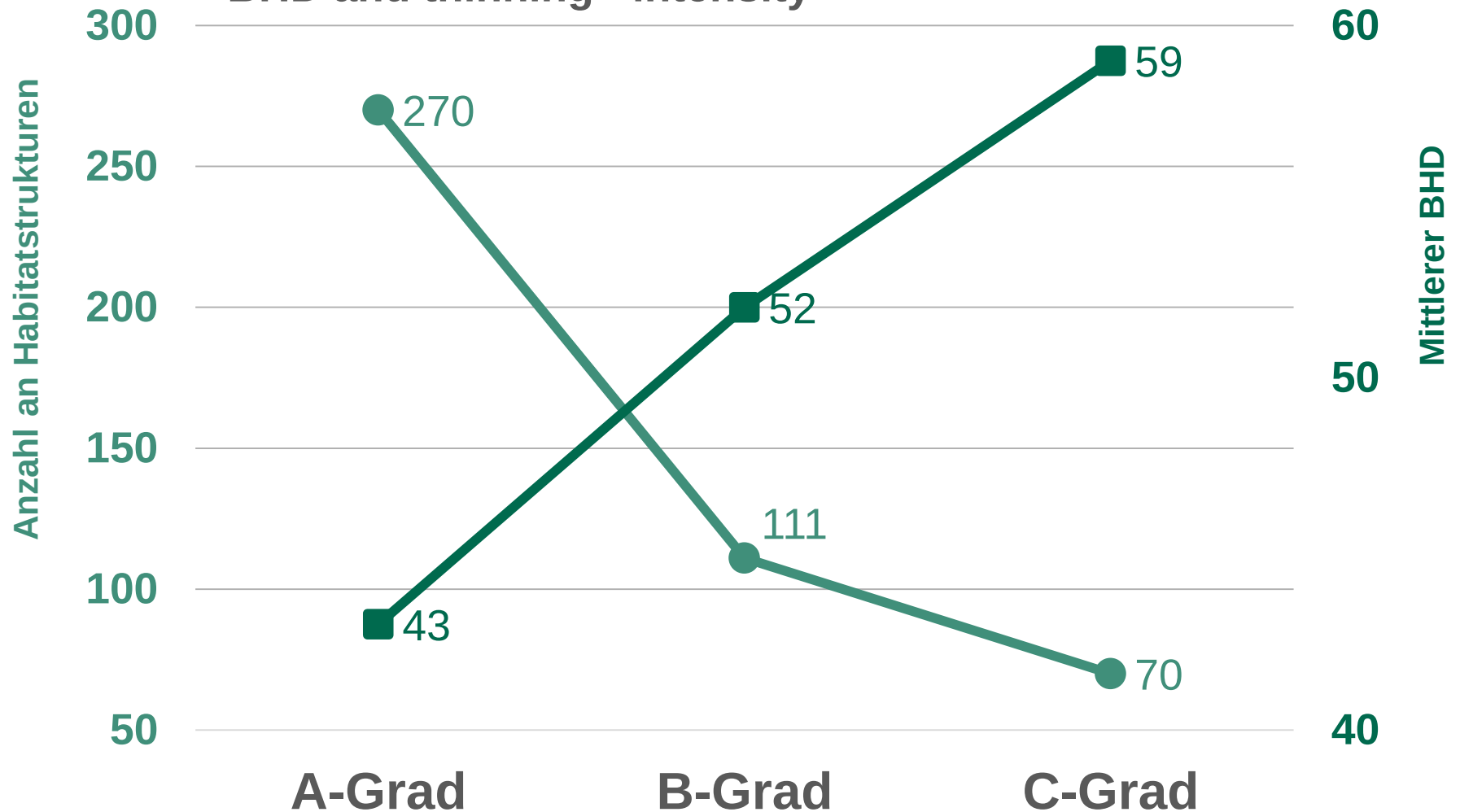


## Auftreten von Konsolenpilzen





## Microhabitat trees in relation to BHD and thinning - intensity





## **Consequences from the research in the ABC-Grad :**

- 1. In managed forest thick trees are  
not the ecological best trees**
- 2. While thinning we must strictly  
observe habitat-structures**





**We foresters had to change:  
from sign to cut .....**







**The reason:  
deat branch**

**.... to the wave of habitat-tree**



The background is a collage of various forest scenes. At the top, there are images of trees with vibrant yellow and green autumn foliage. Below this, the collage is split into two main vertical sections. The left section shows a winter forest with tall, slender tree trunks and a ground covered in a layer of snow. The right section shows a sunlit forest with a mix of tree species, including some with reddish-brown bark, and a ground covered in fallen leaves. In the center, a semi-transparent green rounded rectangle contains the text.

**We forster have to change  
our optic  
—  
what is a beautiful tree?**





**Marteloskop is an important support for  
recognize and value different microhabitats**



# **Naturschutzkonzept für den Forstbetrieb Ebrach**



**Regional Concept for  
conservation of nature and  
wood-species**

Stand: Dezember 2014



# Strategy for the safeguarding of biodiversity

## Our local concept

- Integrative model „Schützen und Nutzen“
- 1.200 ha **set-asides**:
  - 6 strict reserves
  - 200 „Trittstein“ habitats
  - 40 km edges
- 6.000 ha **minimal impact** in stands more than 100 y.
- Deadwood management:
  - 40 m<sup>3</sup>/ha from 140 years
  - 20 m<sup>3</sup>/ha from 100 years
- 10 habitat trees per ha

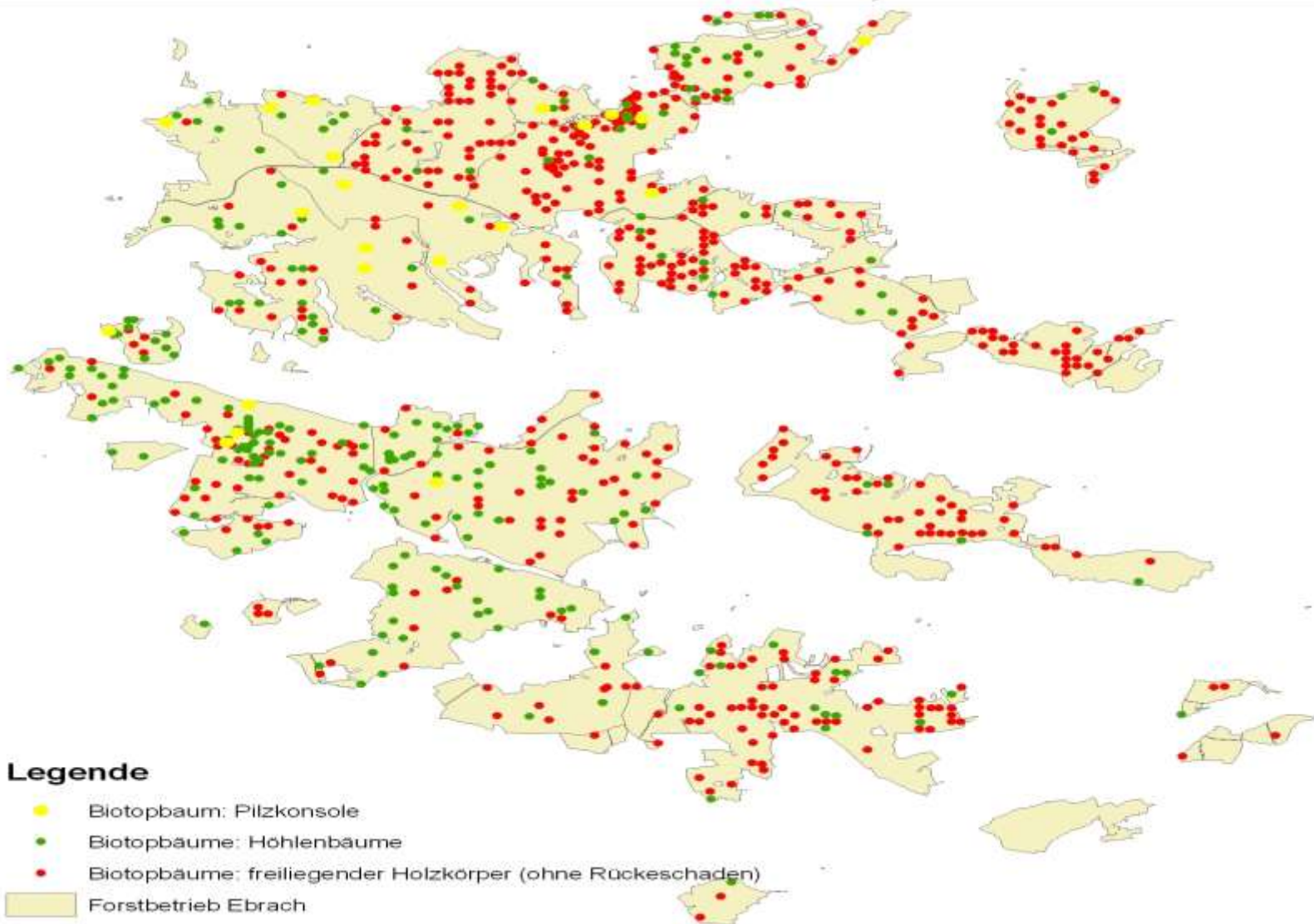


# Habitat trees – the backbone for species diversity

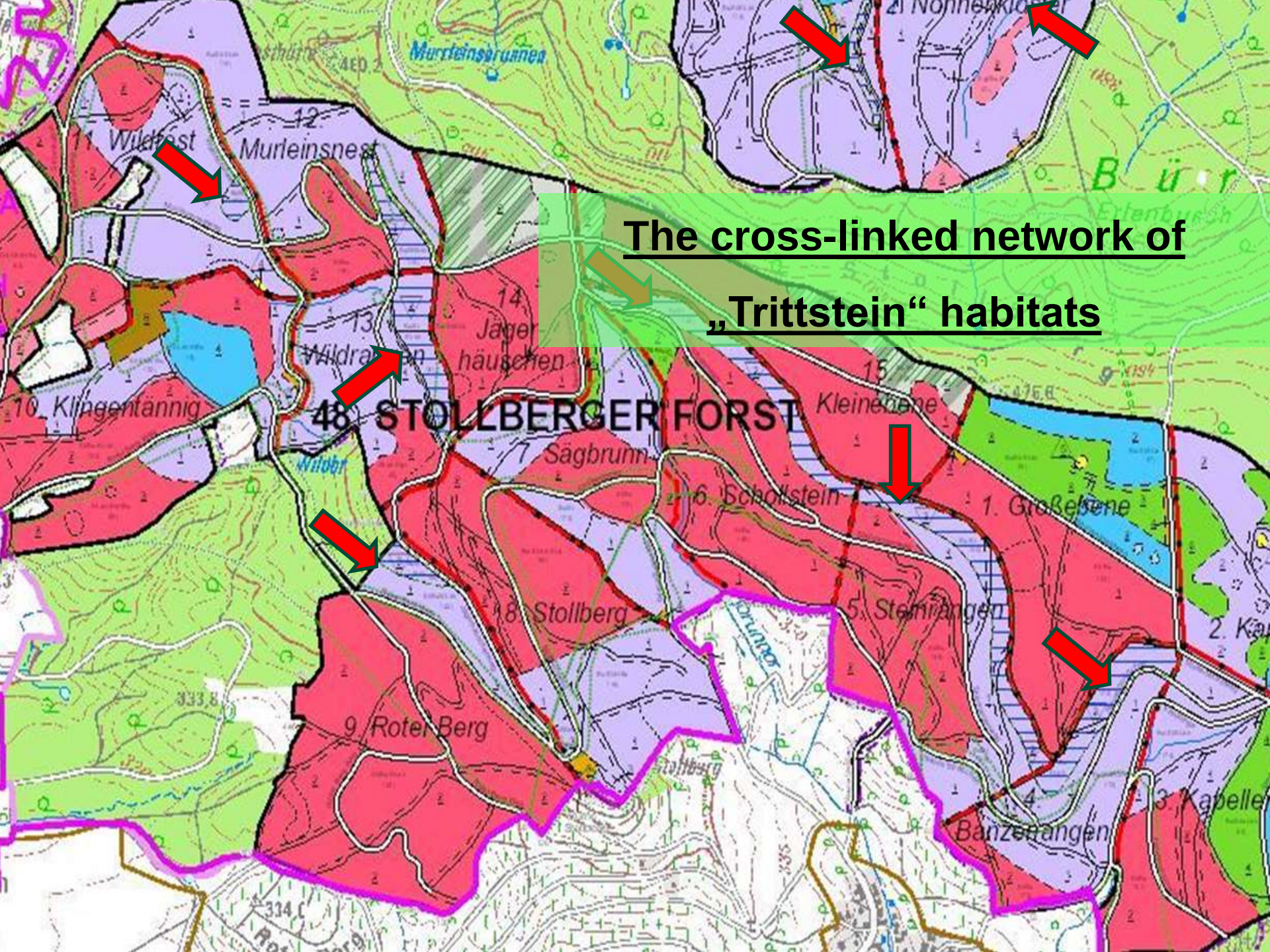




# Inventory 2010 including habitat trees







The cross-linked network of  
„Trittstein“ habitats



**Trittstein habitats are permanently marked**





# 52. EBRACHER FORST

11. Winterrangen

5. Kappe

1. Schlage

STEIN

2. Handthalergroben

Felsen-  
keller

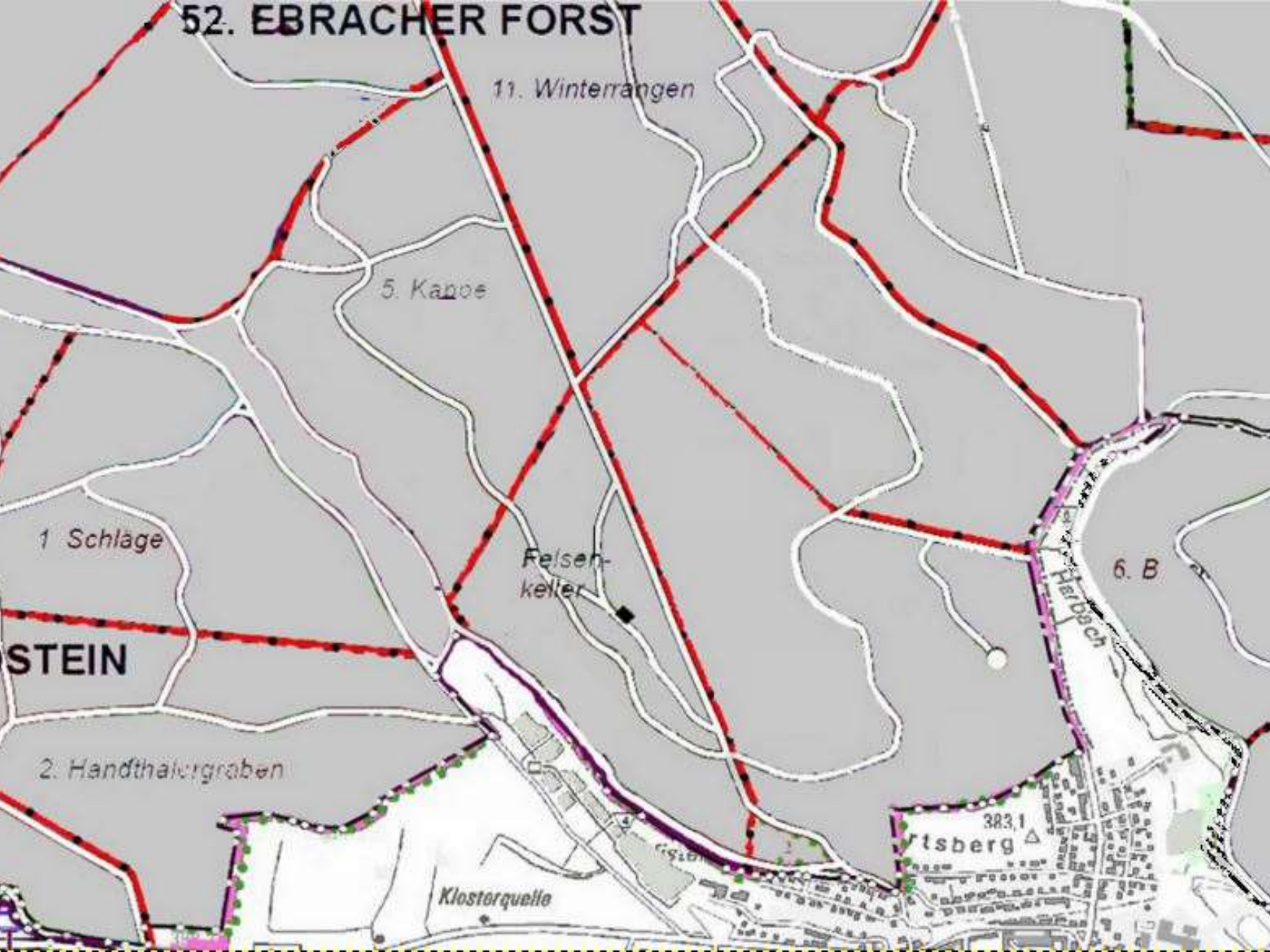
6. B

Herbach

Klosterquelle

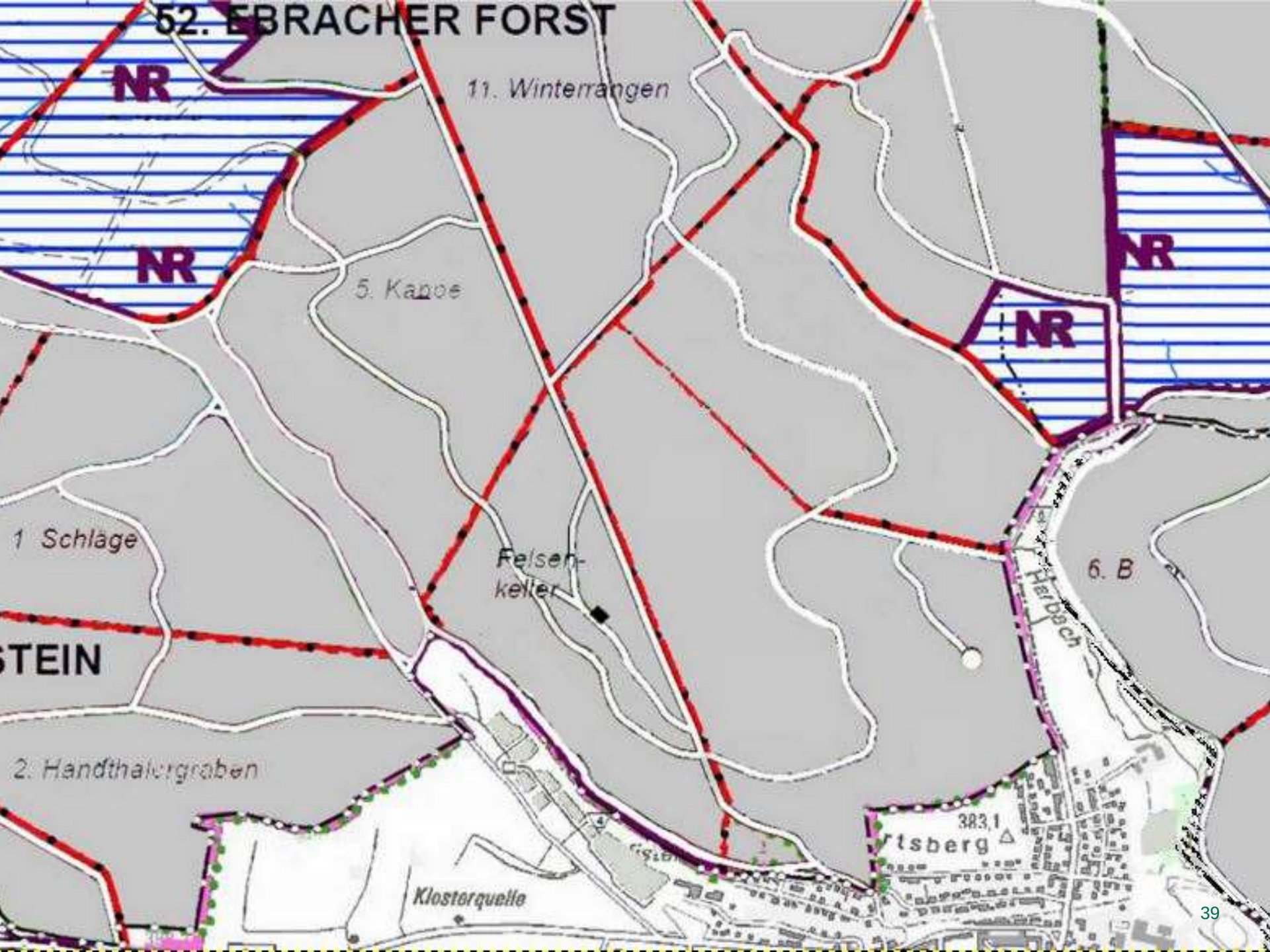
383.1

tsberg

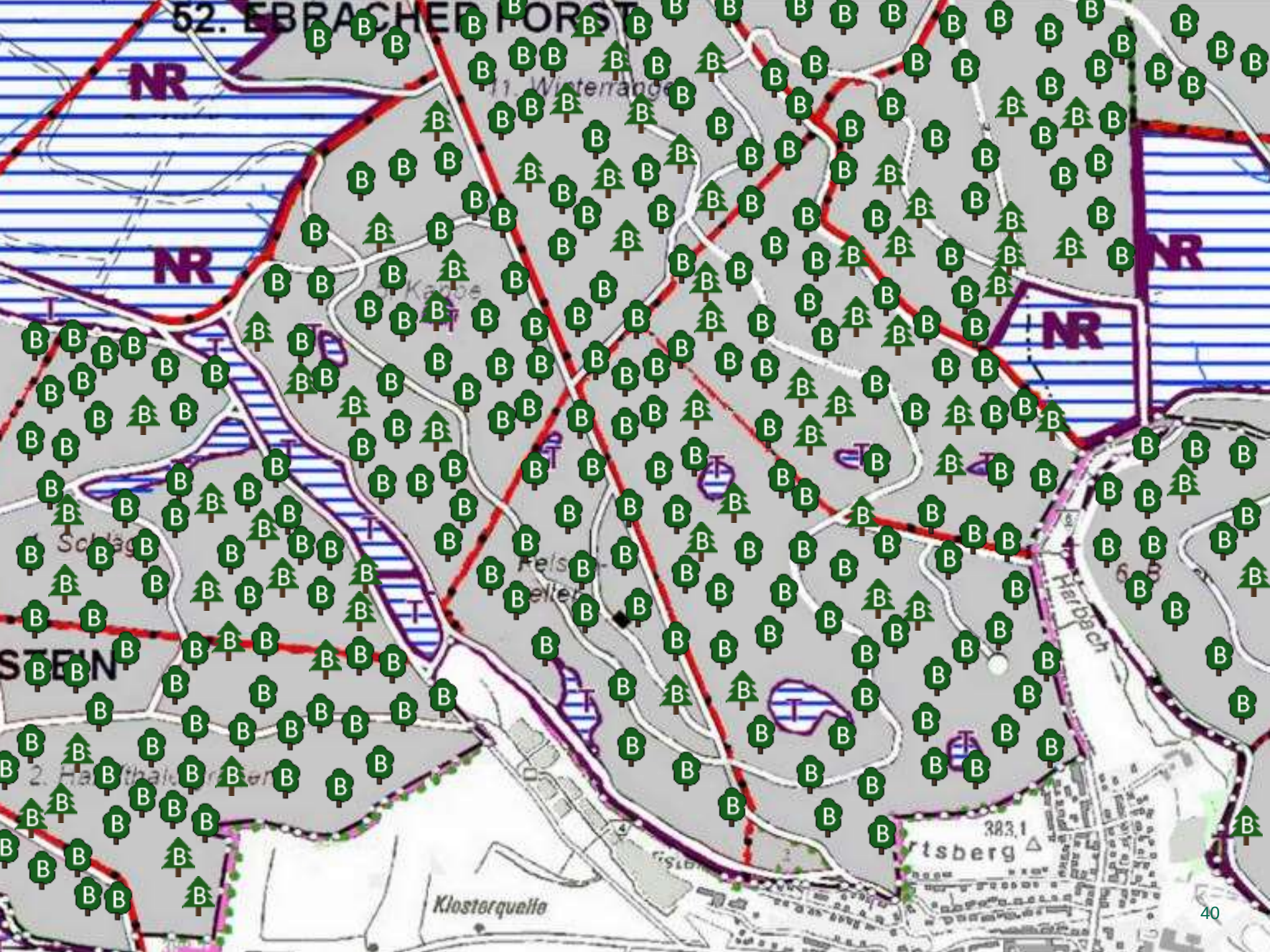




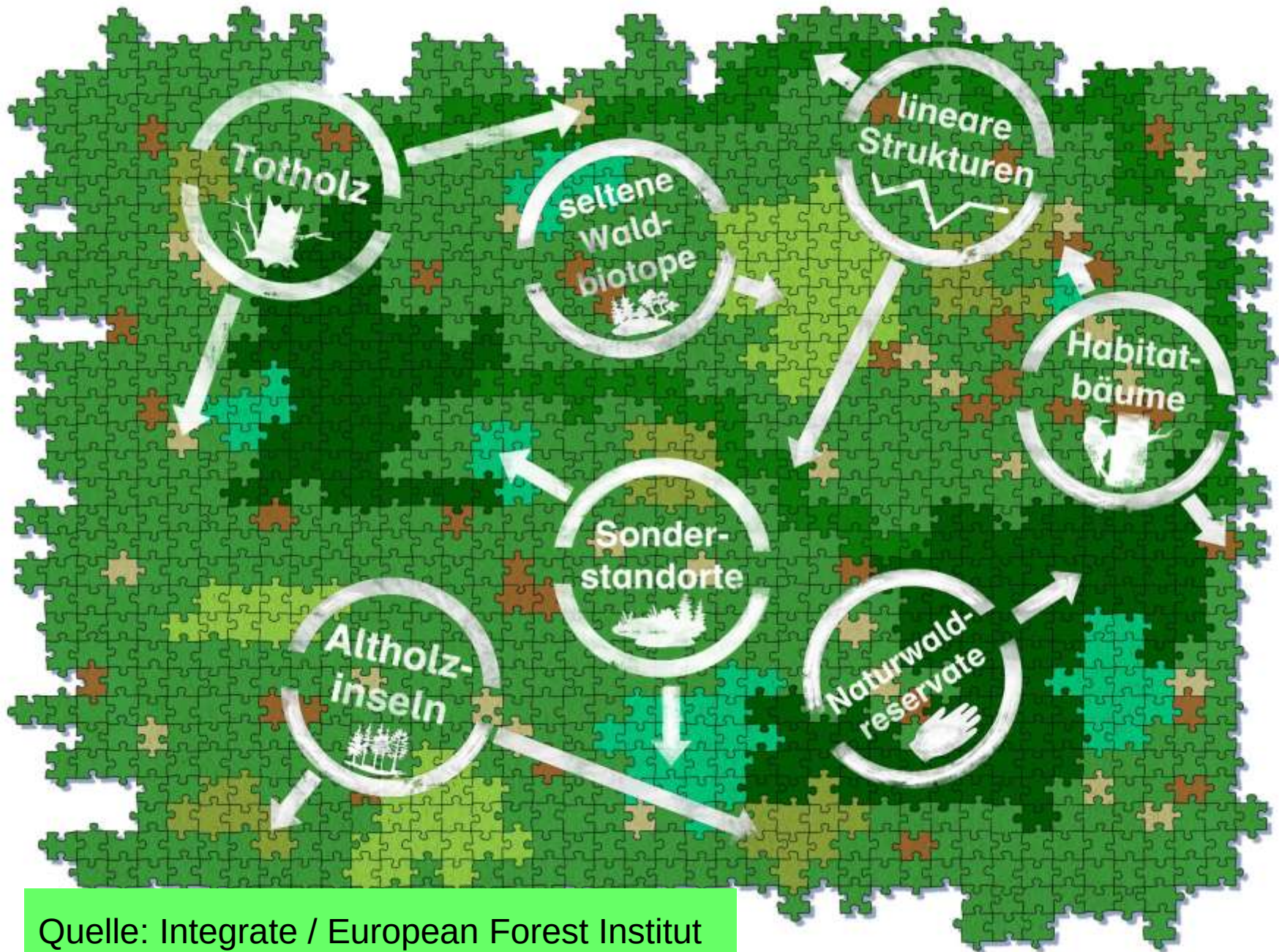
# 52. EBRACHER FORST











Quelle: Integrate / European Forest Institut





**Example: Black woodpecker (*Dryocopus martius*)**









**10 ha**

**Habitatbaumfläche**

**200 ha Revierfläche**

**= 1 Brutpaar**





200 ha

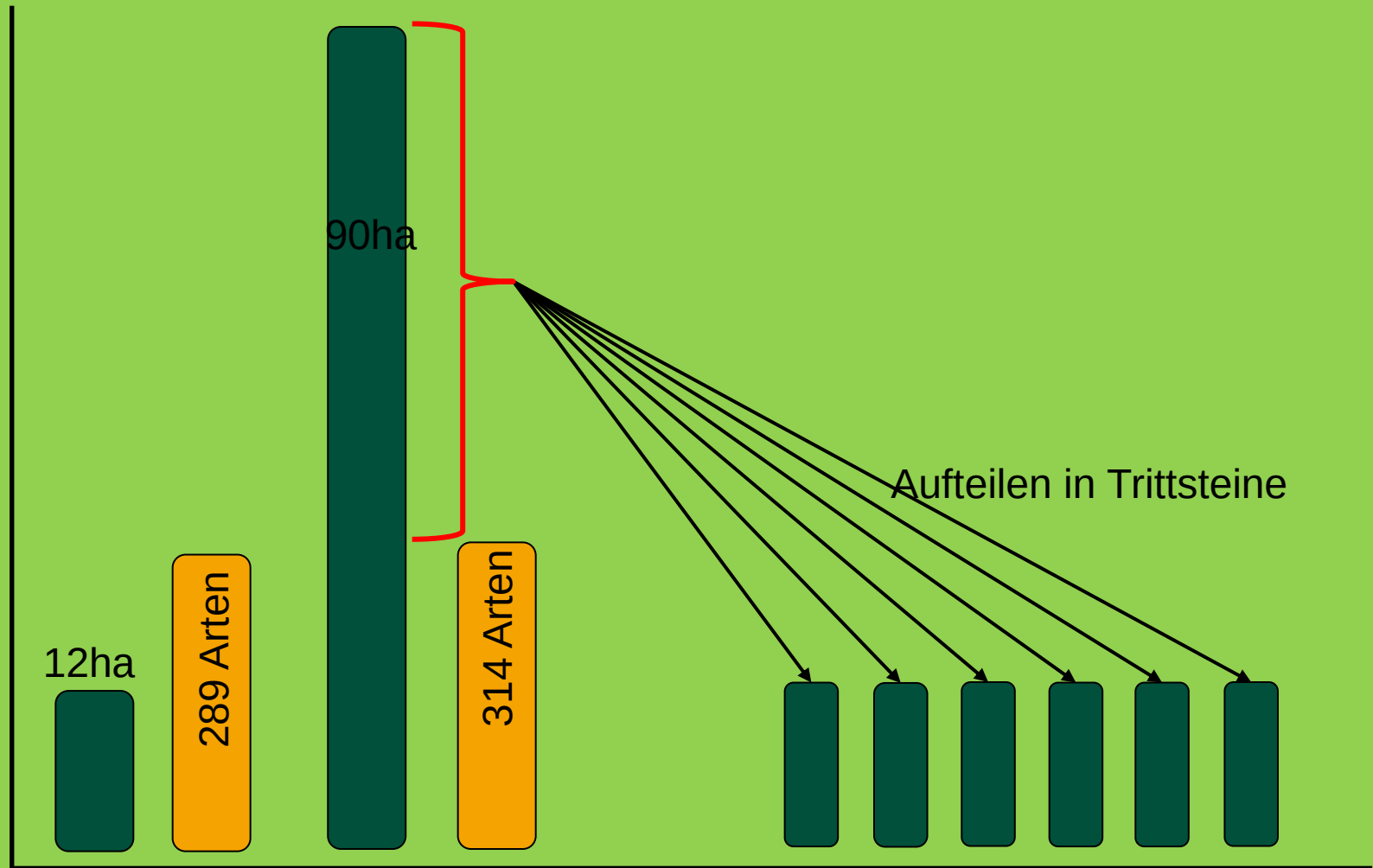
=

20 x 10 Hektar

= 20 Brutpaare



# Zunahme xylobionter Käferarten im Vergleich zur Flächenzunahme im Naturwaldresavat „Waldhaus“ bei Ebrach







**Example: Black beetle** (*Bolitophagus reticulatus*)







Karte Reviere Steigerwald.PNG

Legende:

Kreis mit Zahl bedeutet Anzahl an  
Vorkommen pro Distrikt

shausen

6-Neuschleichach

8-Burgebrach

warzach

12-Schmerb

Jörg Müller, 2004:

To date, 2016: is not occurring in managed forests

*Bolitophagus reticulatus* occurs all over the forest area

9-Burgwindheim

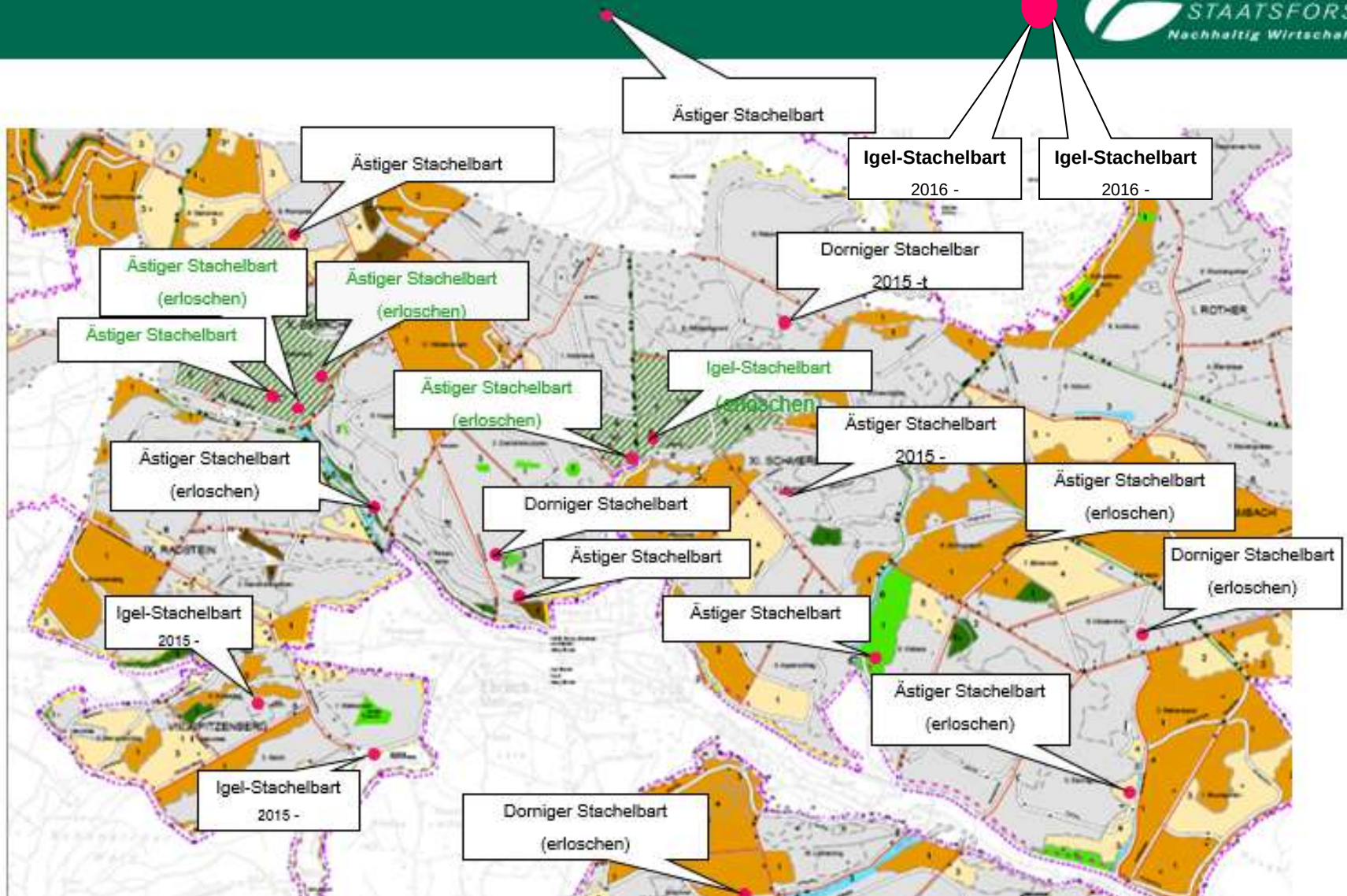




**Beispiel: *Hericium* spec. (*H. Coralloides*, *H. erinaceus*, *H. cirrhatum*)**

**Not a rarity anymore also in the  
managed forest**









**Found:**

**25 October 2016**







A large, white, coral-like fungus, likely a honey fungus (Auricularia), is growing on a dark, mossy log in a forest. The fungus has a dense, branching, and somewhat flattened appearance. In the background, other smaller similar fungi are visible on the log, and the forest floor is covered with fallen leaves and green vegetation.

**Found:**

**26 October 2016**





*Ficedula albicollis*, Collared flycatcher

**Occurs due to abundant small cavities all  
over the managed forest**





***Trox perrisii***

**2010 re-discovered in the  
managed forest**



**Deadwood volumes increased to 23 m<sup>3</sup>  
per ha (Inventory 2010)**

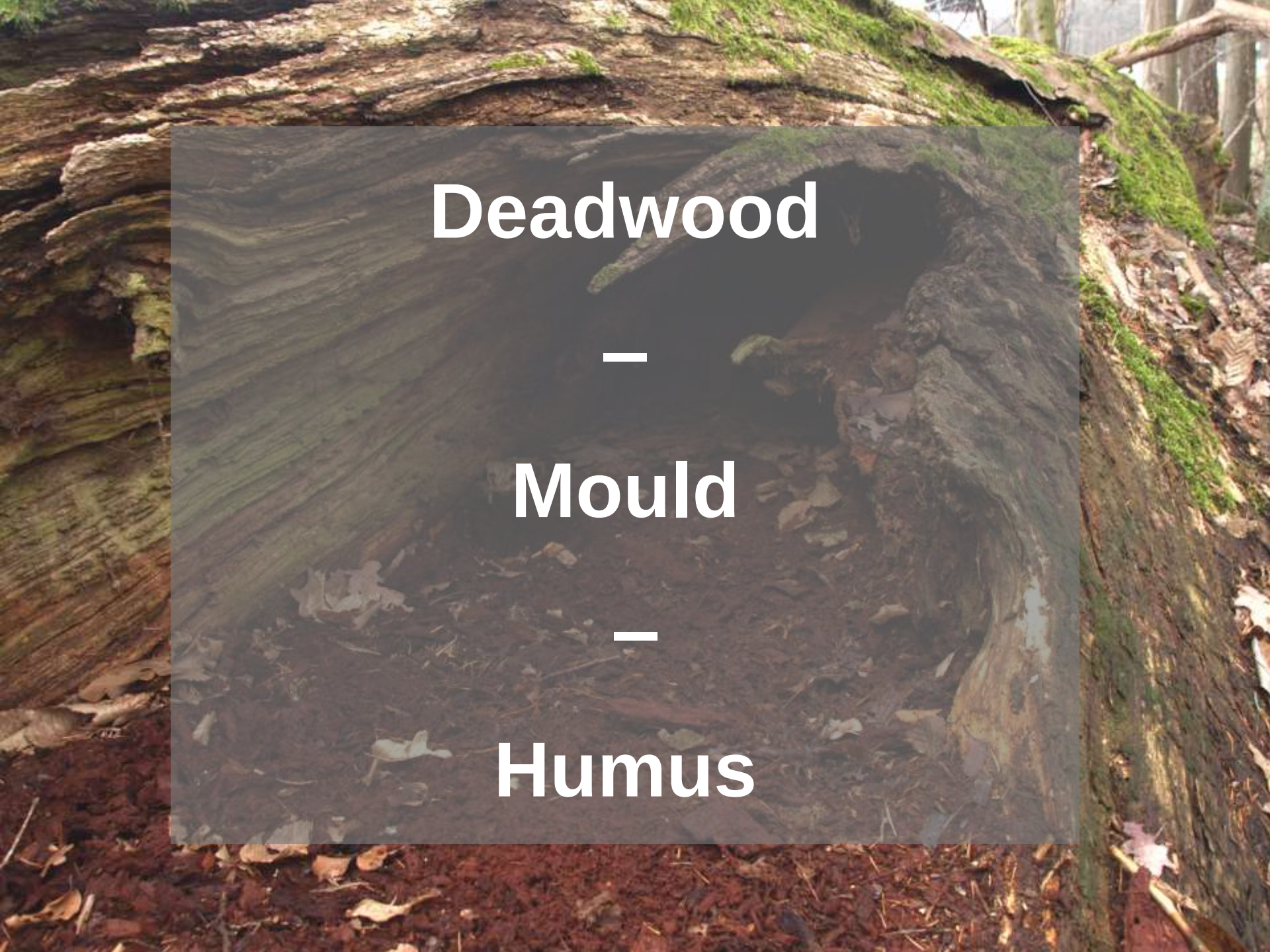






# Nutrient sustainability





**Deadwood**

—

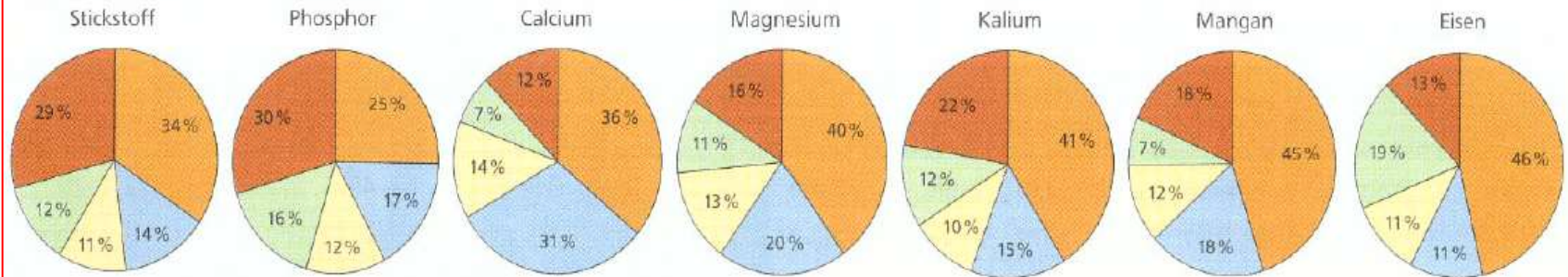
**Mould**

—

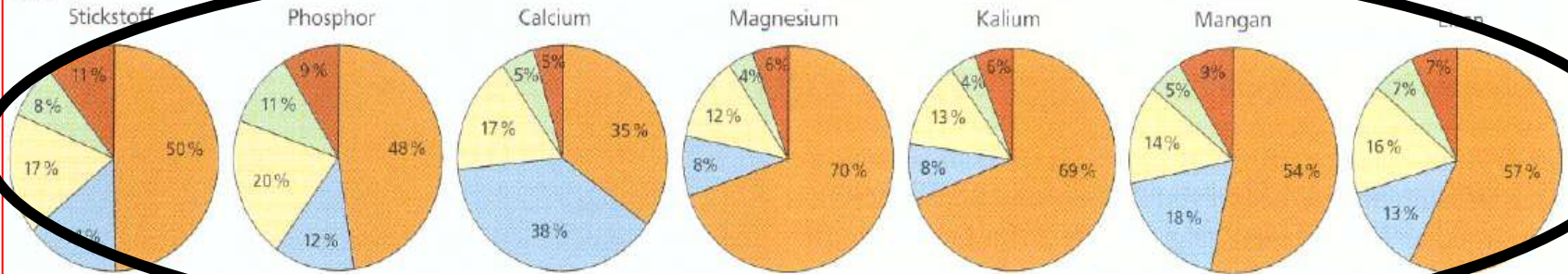
**Humus**



## Fichte



## Buche



■ Stammholz 
 ■ Stammrinde 
 ■ Äste 
 ■ Zweige 
 ■ Blätter

Abbildung 2: Mittlere Nährelementverteilung in der oberbayerischen Biomasse von Fichten- und Buchenaltbeständen

**Quelle: Weis/Göttlein: Nährstoffnachhaltige Biomassennutzung, LWF-aktuell 90-2012**





Deadwood

—

Mould

—

Water storage







### **Benefits of the concept:**

- 1. Compatibility of ecology and economy in the same forest**
- 2. Short distance timber sales**
- 3. Short distance wilderness experience**
- 4. Distribution of species over total forest area**
- 5. Applicable in nearly all forest enterprises**

### **Preconditions:**

- 1. Remnants of natural forest vegetation**
- 2. Waiving of maximal income from timber sales**
- 3. Acceptance of local population**



A photograph of a forest with tall, slender tree trunks and a dense canopy of green leaves. A semi-transparent green rectangular box is centered over the image, containing text.

The Ebrach concept shows:

**Biodiversity conservation is  
possible despite timber  
harvesting**



A photograph of three timber workers in a forest. Two workers in the foreground are wearing orange and green safety gear and are working on large, cut logs. One worker is using a chainsaw. A third worker is visible in the background. The logs have handwritten numbers and markings on them. A green banner with the text "Timber for people" is overlaid on the image.

**Timber for people**





**Deadwood for biodiversity**







**Thanks**



**Exchange visit of Czech-German dialogue partners to  
Ebrach in April 2016**

