

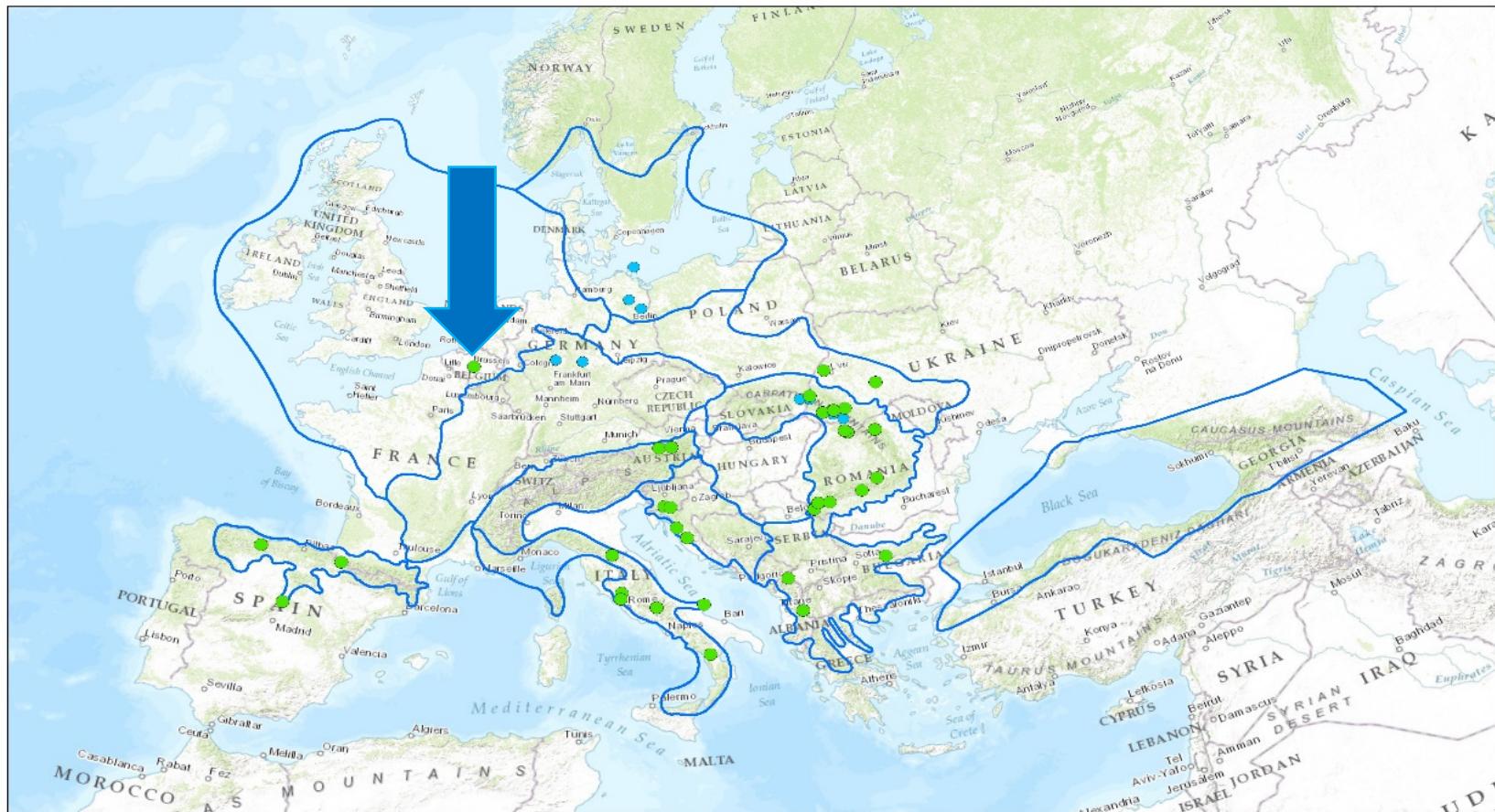
Management of 160 year old beech stands

Beech Power 24-25/03/2021 Sonian Forest
Brussels

Single Tree Selection

Frederik Vaes

Forestry Department Brussels



Beech Forests of the Carpathians and other regions of Europe

Background: ESRI Topographic Baselayer

Projection: WGS 84

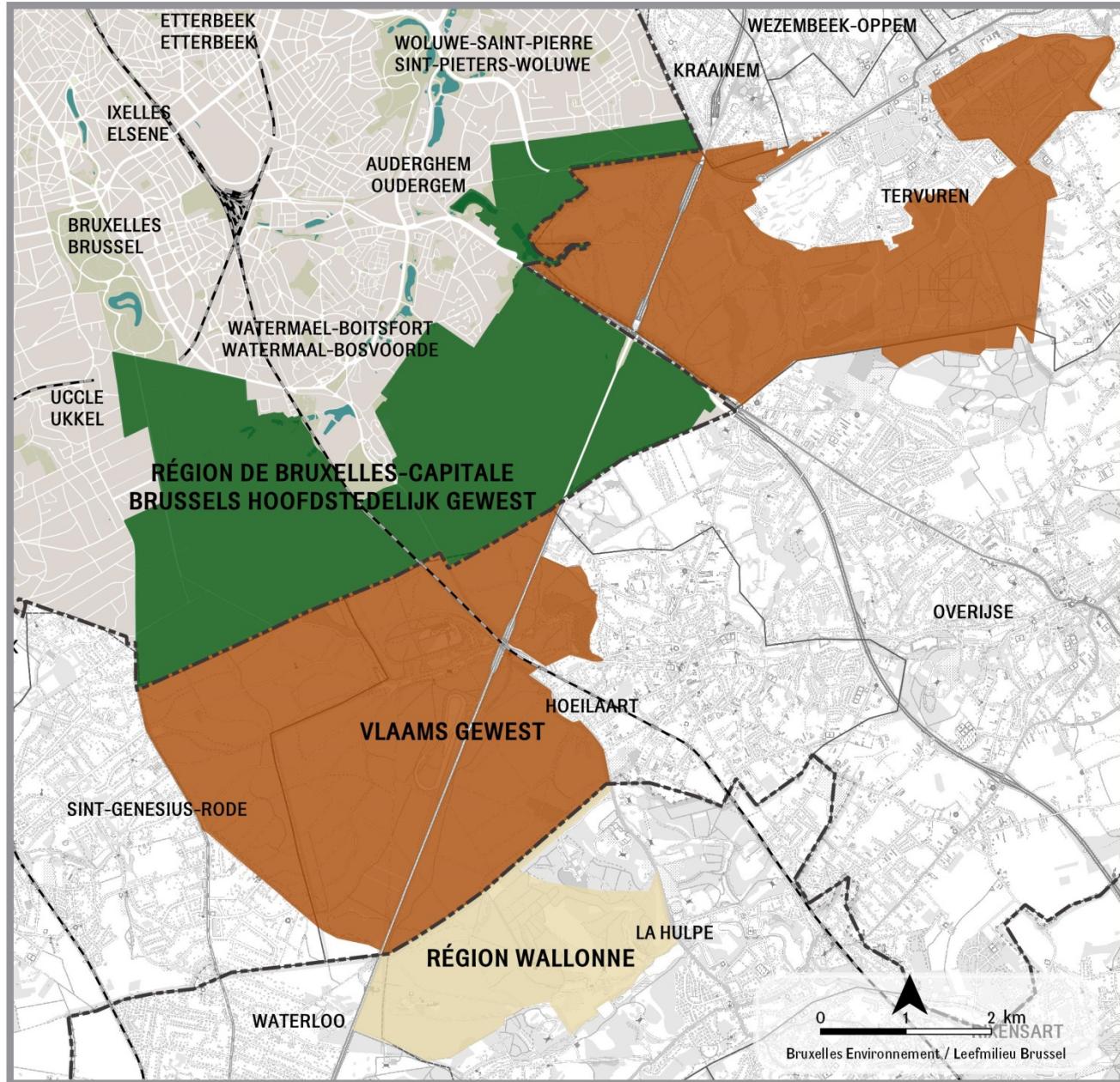
0 165 330 660 Kilometer

Scale: 1:15.000.000



- Nominated World Heritage component parts
- Beech forest regions
- Existing World Heritage component parts

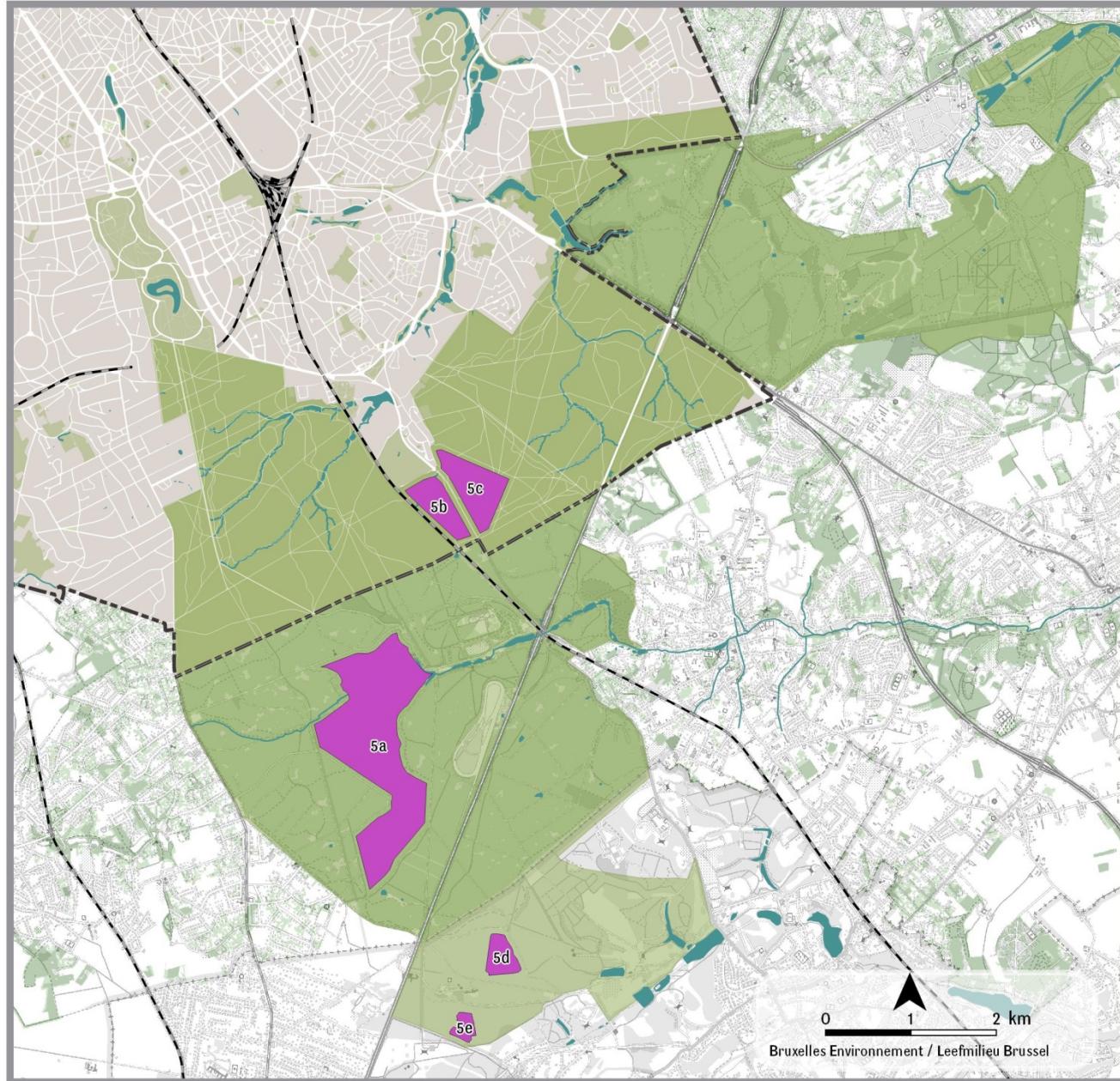
ZONIËNWOUDE
FORÊT DE SOIGNES



Découpage régional de la forêt de Soignes

Gewestelijke verdeling van het Zoniënwoud

- Forêt de Soignes bruxelloise
Brussels deel van het Zoniënwoud
- Forêt de Soignes flamande
Vlaams deel van het Zoniënwoud
- Forêt de Soignes wallonne
Waals deel van het Zoniënwoud
- Limites régionales
Gewestelijke grenzen



Zones forestières candidates au Patrimoine mondial de l'Unesco
Boszones die kandidaat zijn voor Unesco-werelderfgoed

■ Les 5 zones en Forêt de Soignes (Candidature 2016)
De 5 zones in het Zoniënwoud (Kandidatuur 2016)



Brussels UrbIS ®©
Fond de plan / Achtergrond : © IGN-NGI, © ANB, 2013

Welcome to the Sonian .Forest

ZONIËNWOUDE
FORÊT DE SOIGNES

What's so special?

- .4400 ha beech dominated forest
- .Beech dominated stands: 65% or 2650 ha
- .6 big old beeches and oaks(dbh>80cm)/ha!

Site indices and a bit of history

.10,5°C

.852 mm

.Acid loam developed in leached loess since last ice Age

.Always under forest cover

.Massive beech plantings since 1780s

It's not a primeval beech forest

ZONIËNWOUW
FORÊT DE SOIGNES





ZONIËNWOUDE
FORÊT de SOIGNES

What's the recent news?

- .Beech stands heavily impacted by storms the '80s and in 1990
- .Massive natural regeneration of beech since 2005
- .Seed years every 2-3 years since 2000
- .Climate change effects

Local metamorphosis

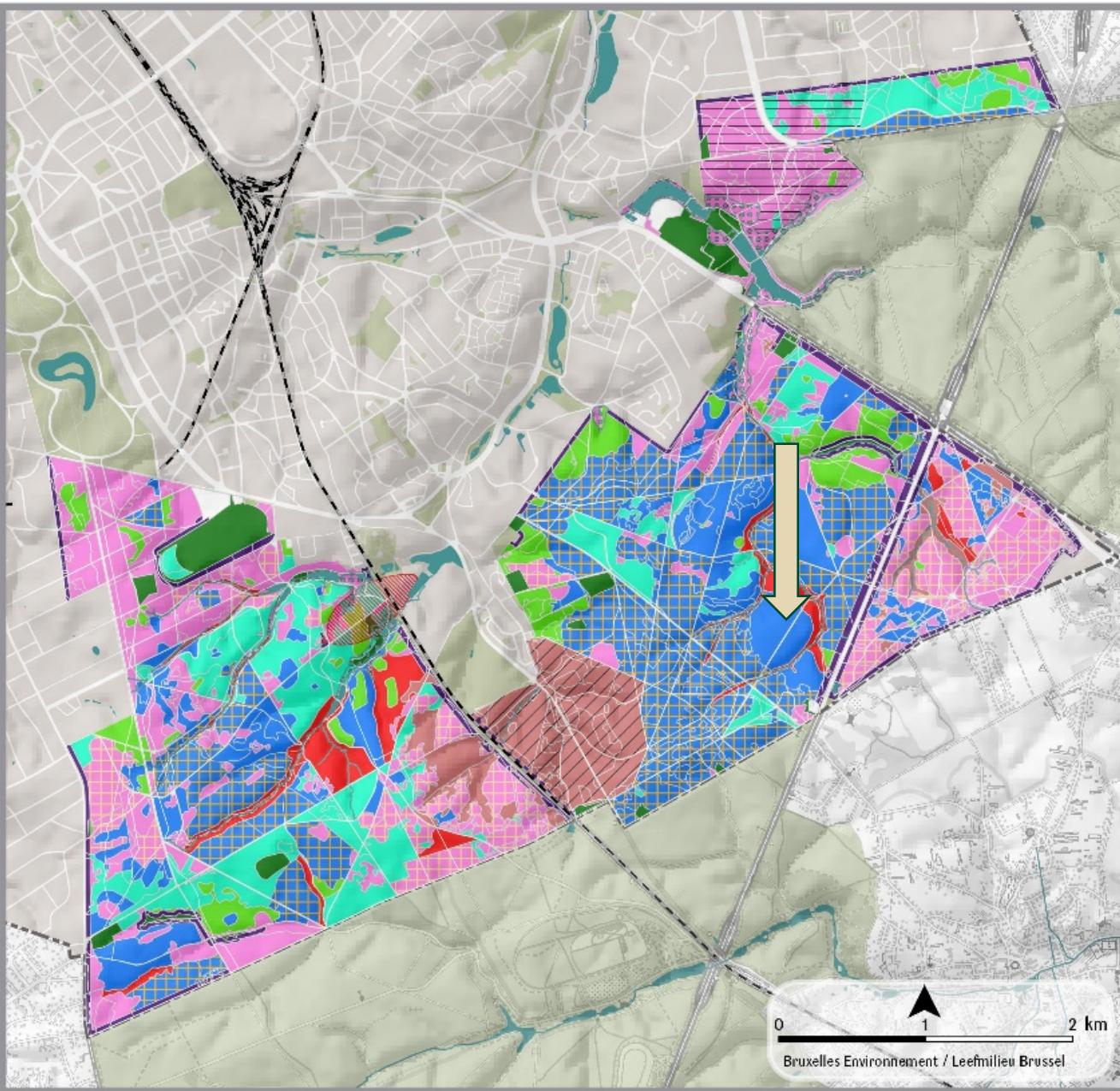
From cathedral grove...

ZONIËNWOUDE
FORÊT DE SOIGNES

...a crowded house

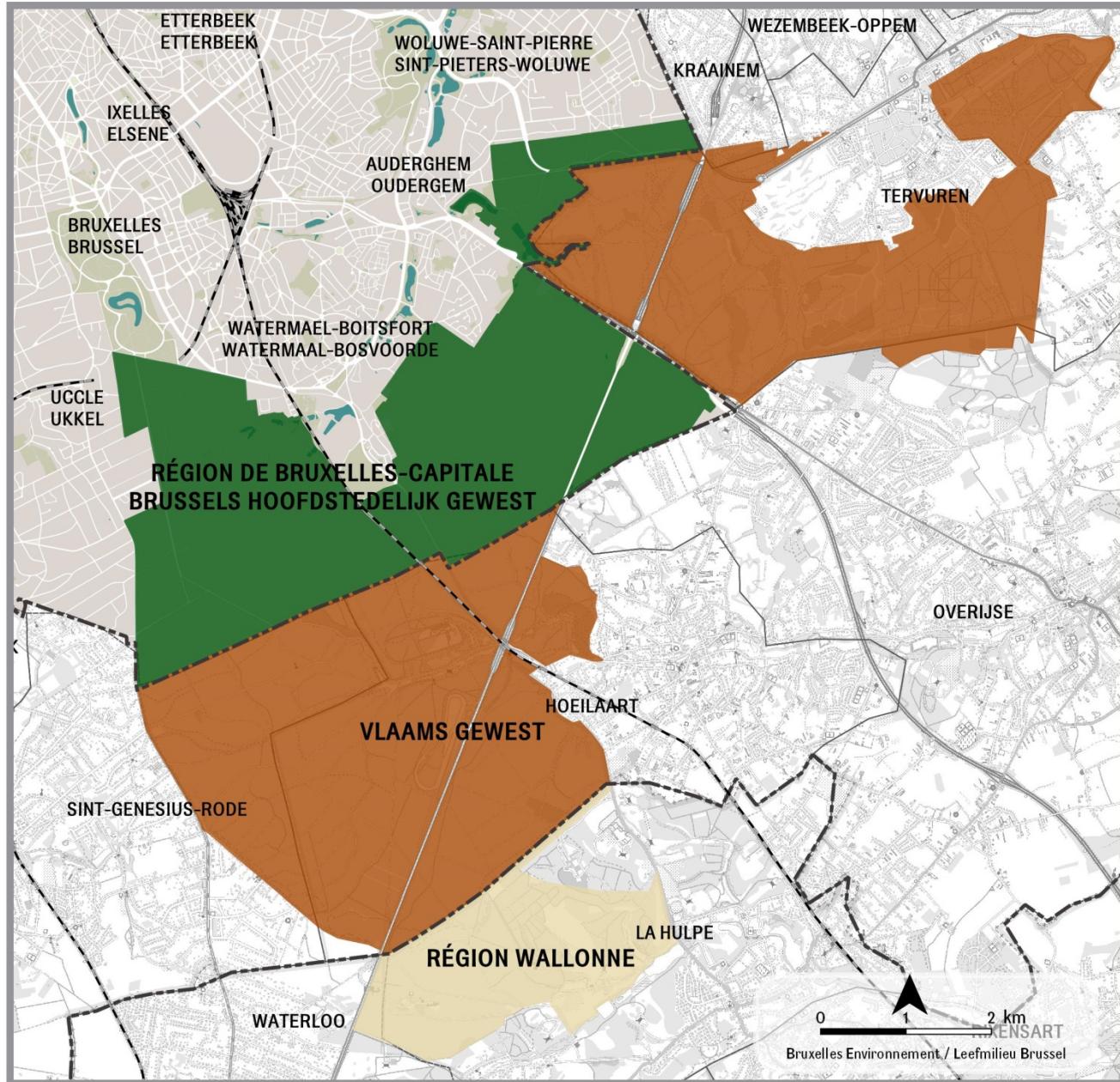
ZONIËNWOUDE
FORÊT DE SOIGNES

Typologie des objectifs de gestion



- Type 1a - Hêtraie cathédrale
- Type 1b - Chênaie cathédrale
- Type 2 - Hêtraie irrégulière
- Type 3 - Hêtraie en cours de conversion en peuplement mélangé
- Type 4 - Forêt alluviale et chênaie mélangée
- Type 5 - Peuplement de résineux
- Type 6 - Îlot de vieillissement
- Type 7a - Îlot de sénescence
- Type 7b - Réserve forestière intégrale
- Type 8 - Lisière
- Types 7b et 8 - Lisière en réserve forestière intégrale
- Prairie ou clairière
- Autres
- Eau
- Réserve forestière dirigée
- Réserve naturelle
- Réserve archéologique





Découpage régional de la forêt de Soignes

Gewestelijke verdeling van het Zoniënwoud

- Forêt de Soignes bruxelloise
Brussels deel van het Zoniënwoud
- Forêt de Soignes flamande
Vlaams deel van het Zoniënwoud
- Forêt de Soignes wallonne
Waals deel van het Zoniënwoud
- Limites régionales
Gewestelijke grenzen

What do we have in a typical stand

- Basal area of about 30m²/ha
- Standing volume: 600m³/ha
- Mix of 20% oak with beech
- Natural regeneration of beech
- Inventory of habitat trees
- Inventory of future high value trees

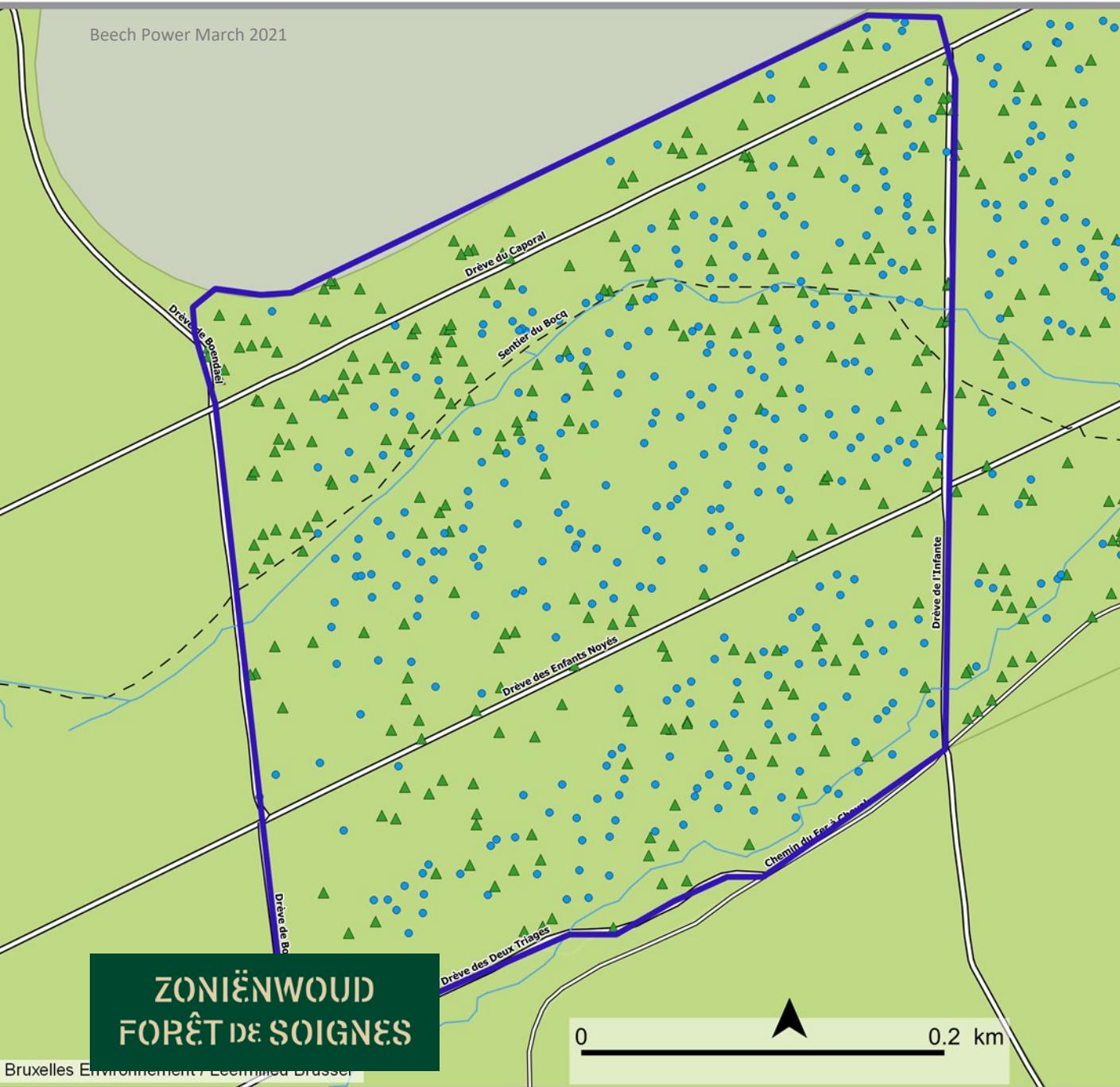
What do we have in a typical stand ?

ZONIËNWOUDE
FORÊT DE SOIGNES

160 year old stand and it's management

Inventory

- 18 big oaks/ha dbh>50cm
- 117 beeches/ha dbh 15-100 cm
- 39 harvestable beeches/ha dbh>60cm
- 17 habitat trees/ha
- 21 futur high value trees/ha dbh<60cm



Toekomstbomen & Habitatbomen

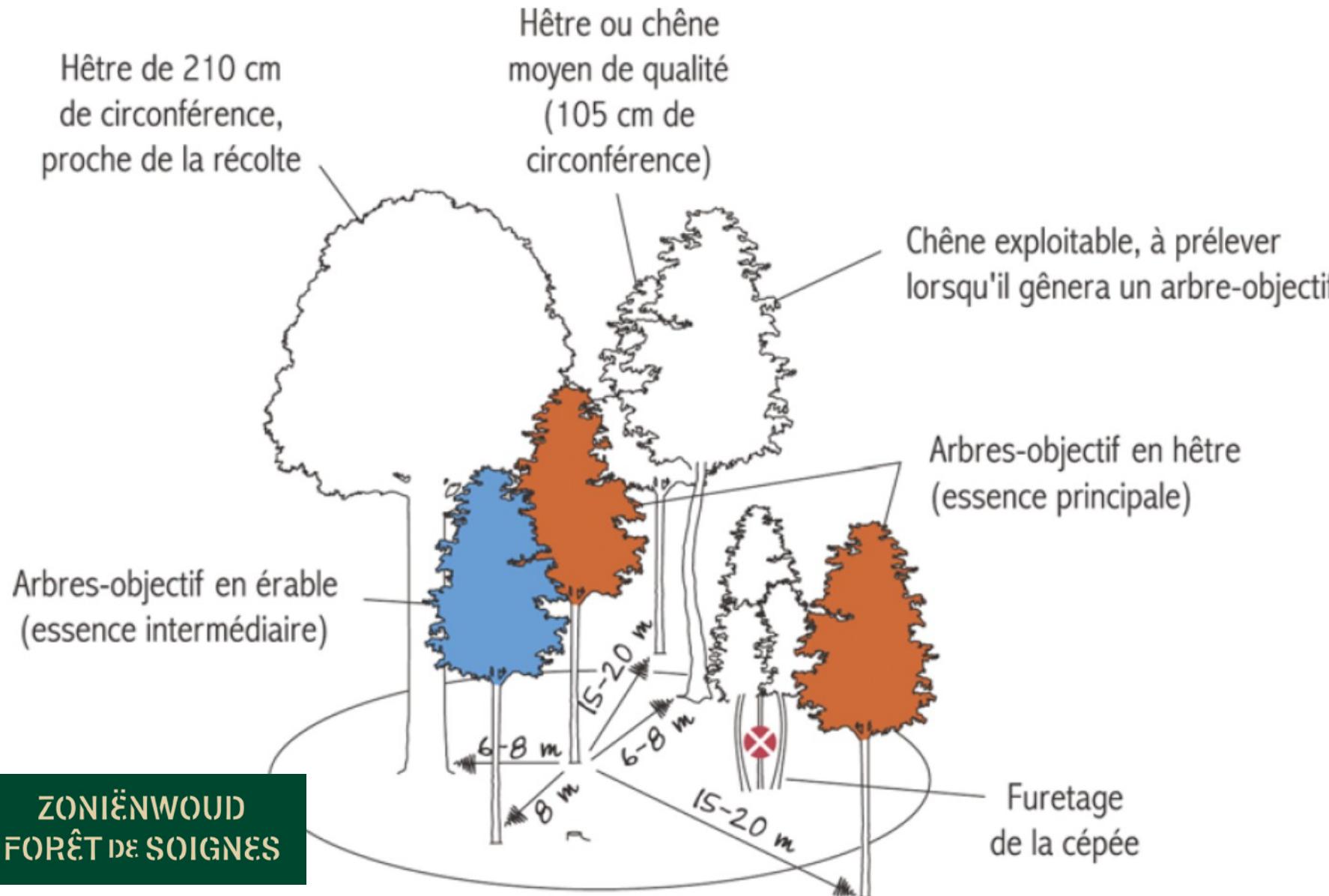
Parcelle 9 - Perceel 9



What do we want?

- .Aiming a BA of 18-22m²/ha (optimal light quality)
- .Multi layered stands
- .Mixed stands: 50% beech, 50% other species
- .Maintaining continuous forest cover
- .Favouring *Q.petraea*, *Carpinus betulus* and *Tilia cordata*

et le reste du peuplement



How getting there?

Lowering Basal Area

- . Not more than 20% in each intervention (ca. $5-6\text{m}^2/\text{ha}$)
- . Maximum 10 big trees (dbh 80cm)/ha
- . In a 8 year rotation

ZONIËNWOUDE
FORÊT DE SOIGNES

How getting there

Mixing

- . No harvest (yet) of other species than beech
- . Harvesting/thinning beeches near other species
- . Introducing missing species

ZONIËNWOUDE
FORÊT DE SOIGNES

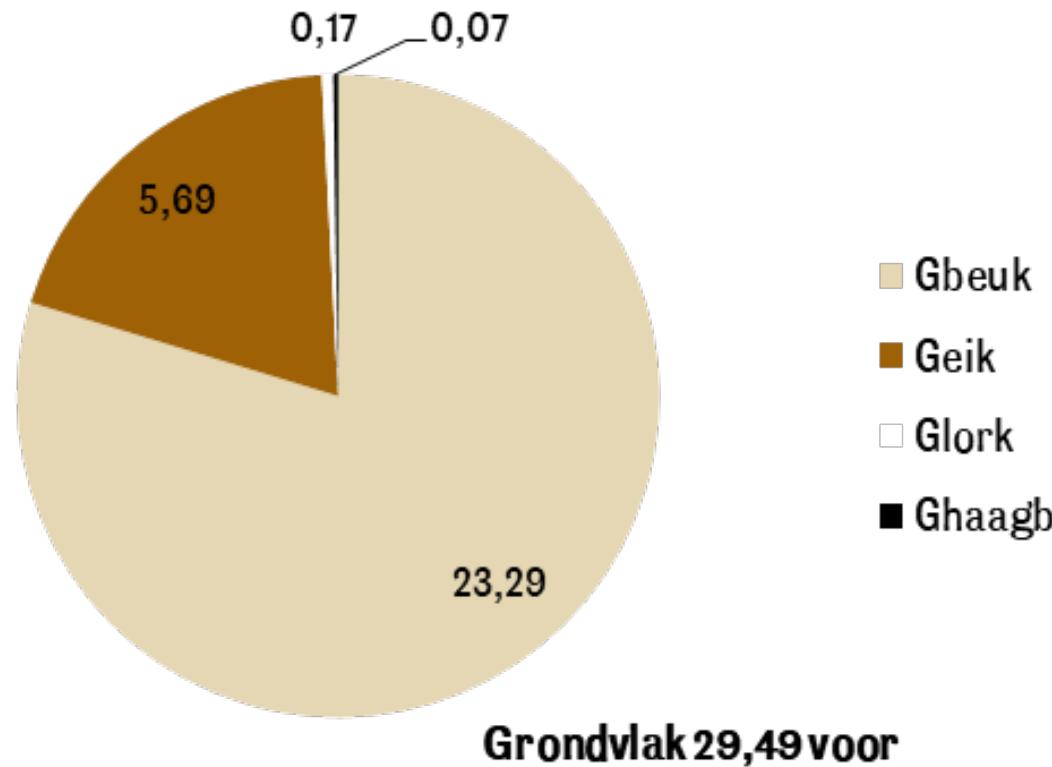
How getting there?

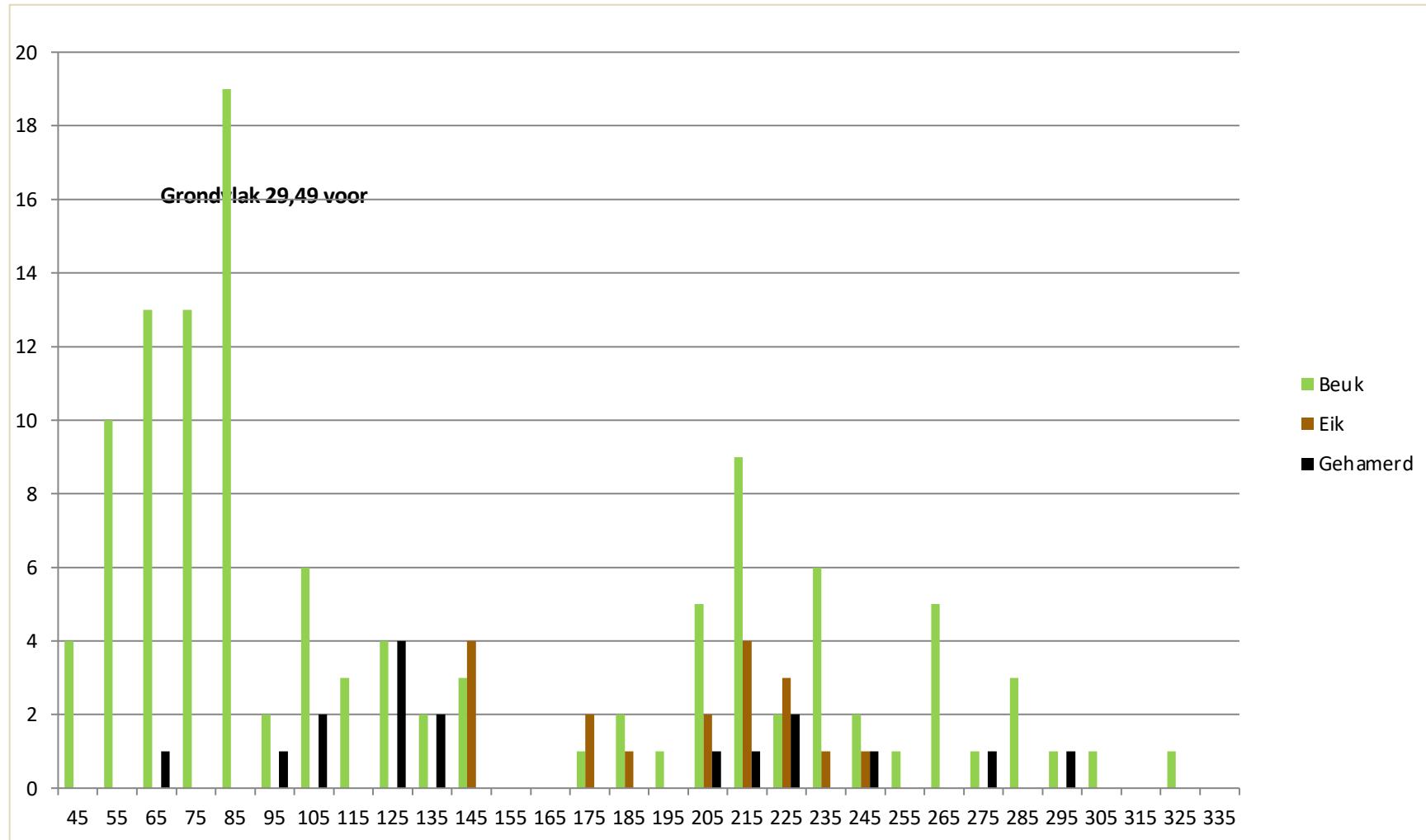
.Continuous cover (plentering)

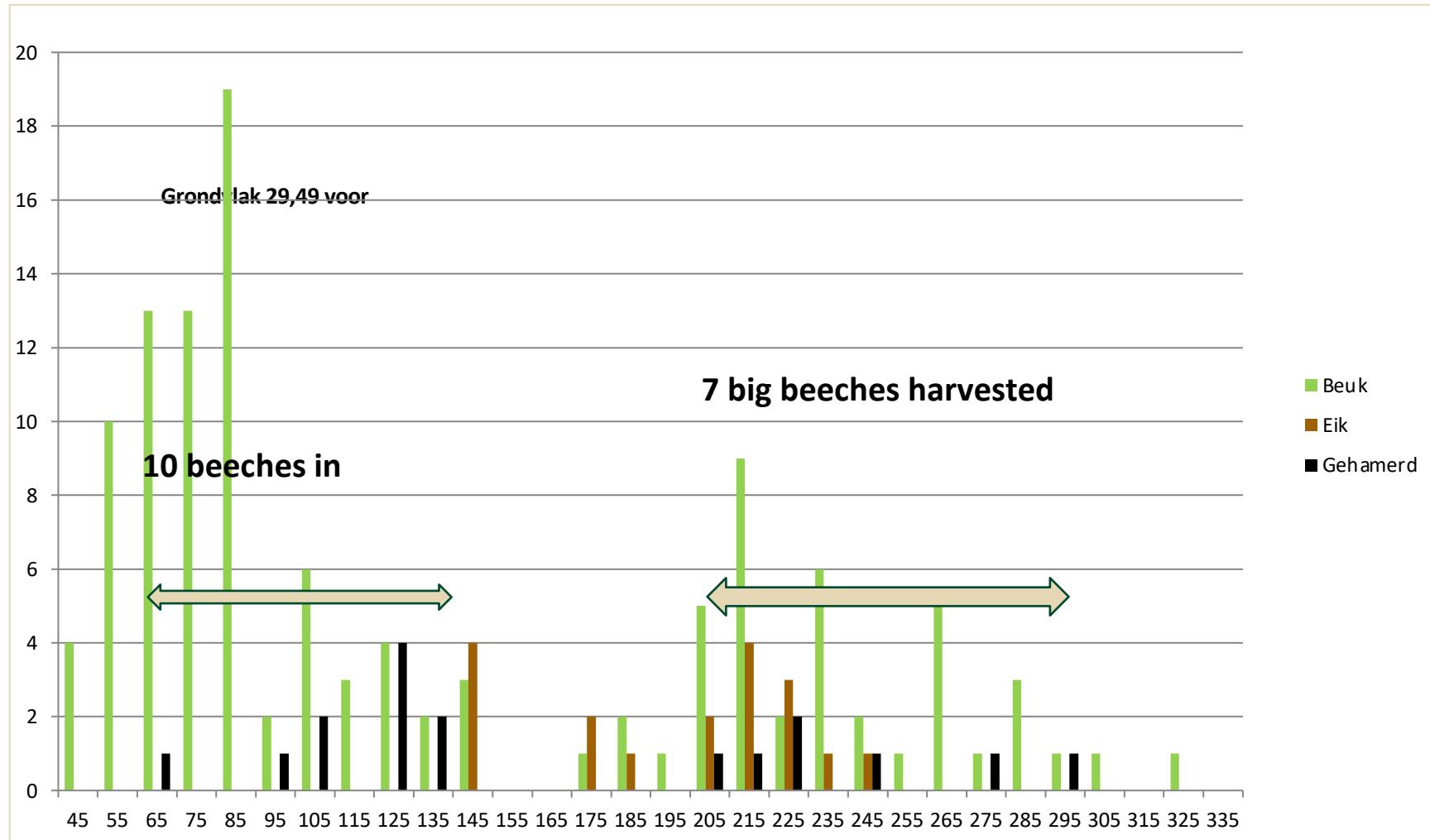
.<20% harvest of BA

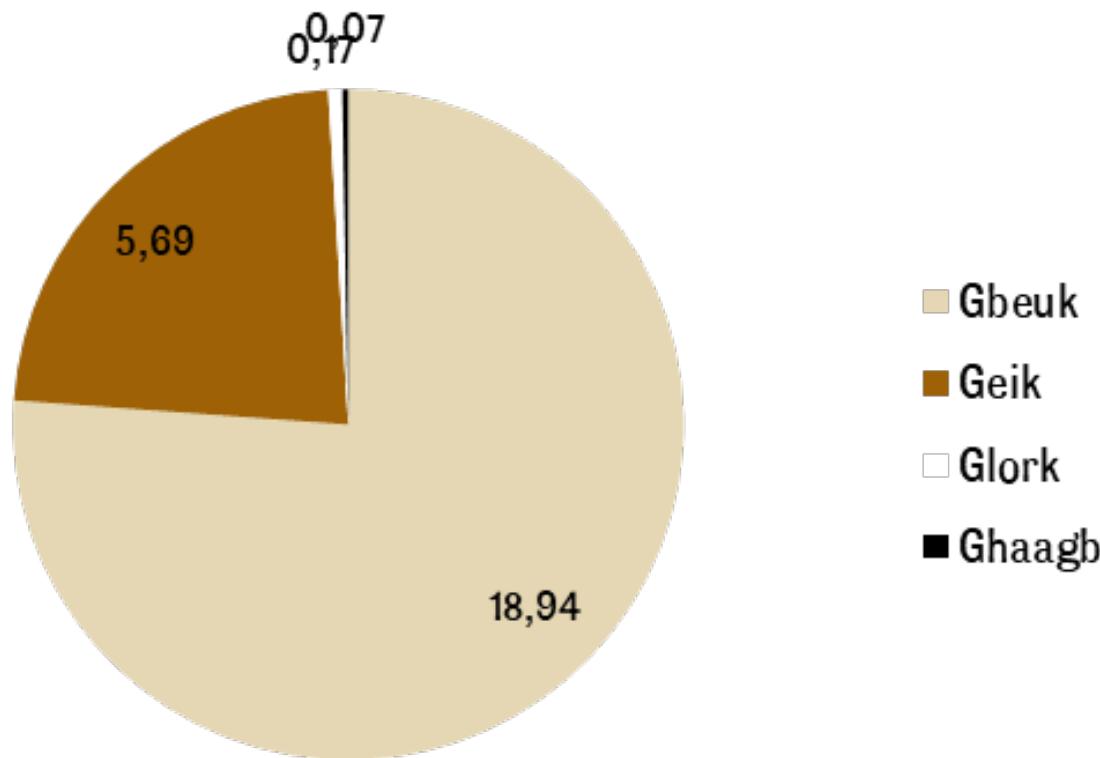
.Never harvest two neighbouring trees!!!

High basal area











ZONIËNWOUDE
FORÊT de SOIGNES



ZONIËNWOUDE
FORÊT DE SOIGNES

Extra bonuses

- .Reaching Natura2000 goals
- .Less shocking management
- .Good bufferzone management (microclimate)
- .Challenging forest management
- .Based on facts and reflexions
- Triggered by good observation

Disadvantages?

- .More complex management
- .Less predictable
- .More difficulties in harvesting big trees
- .Forester has to be more in his forest
- .Three dimensional thinking in time



. Beech is the perfect companion for the sessile oak

ZONIËNWOUDE
FORÊT DE SOIGNES

A wide-angle photograph of a forest in autumn. The trees are tall with thin trunks, and their leaves are a vibrant yellow and orange. In the lower-left foreground, a group of about seven people are standing in a circle, facing each other. They are dressed in outdoor gear, including jackets and hats. The ground is covered with fallen leaves.

.Educate your foresters!

ZONIËNWOUDE
FORÊT DE SOIGNES



ZONIËNWOUDE
FORÊT de SOIGNES

A large, mossy beech tree trunk dominates the center of the image, its base spreading wide and covered in bright green moss. The surrounding forest floor is covered in fallen leaves and smaller trees. The background shows more of the forest.

Thanks...

...to the beech ...and its power!

ZONIËNWOUDE
FORÊT DE SOIGNES