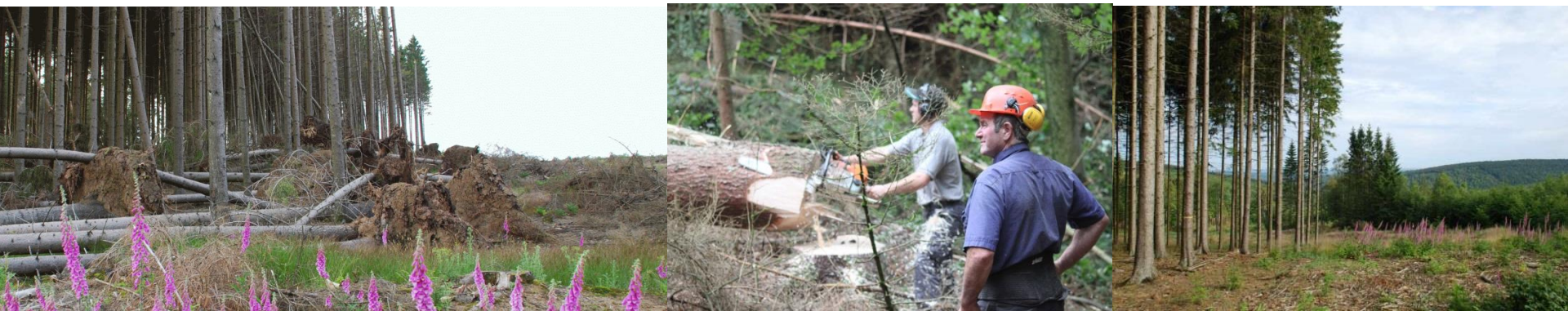


Analysis of the softwood resources evolution in the Walloon private forest (Belgium)

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« Support unit for small private forests »

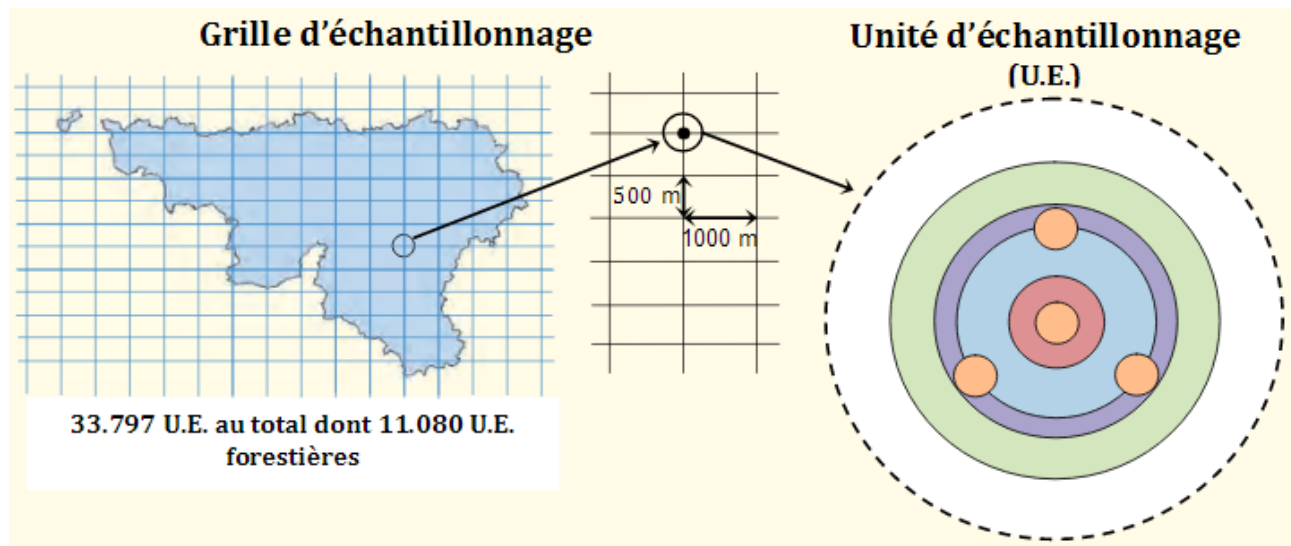
- A public organisation dedicated to small forest ownerships, created by the Walloon Government in 2012.
- A part of the Walloon Economic Office for Wood
- A desk of information for private owners (ownerships of less than 5 ha)
- Coordinator of projects of « forest management group » in scattered woodlands (*per year: 3,000 owners contacted, 250 ownerships visited, > 20 ha reforested, > 3,000m³ harvested*)
- + Monitoring of the small forest ownership





- Wildlife and Forestry Department implements forest policy (Forest law, 2008), the laws on nature conservation, the natural parks, hunting and fishing
- The Department provides information about forest through the regional forest inventory

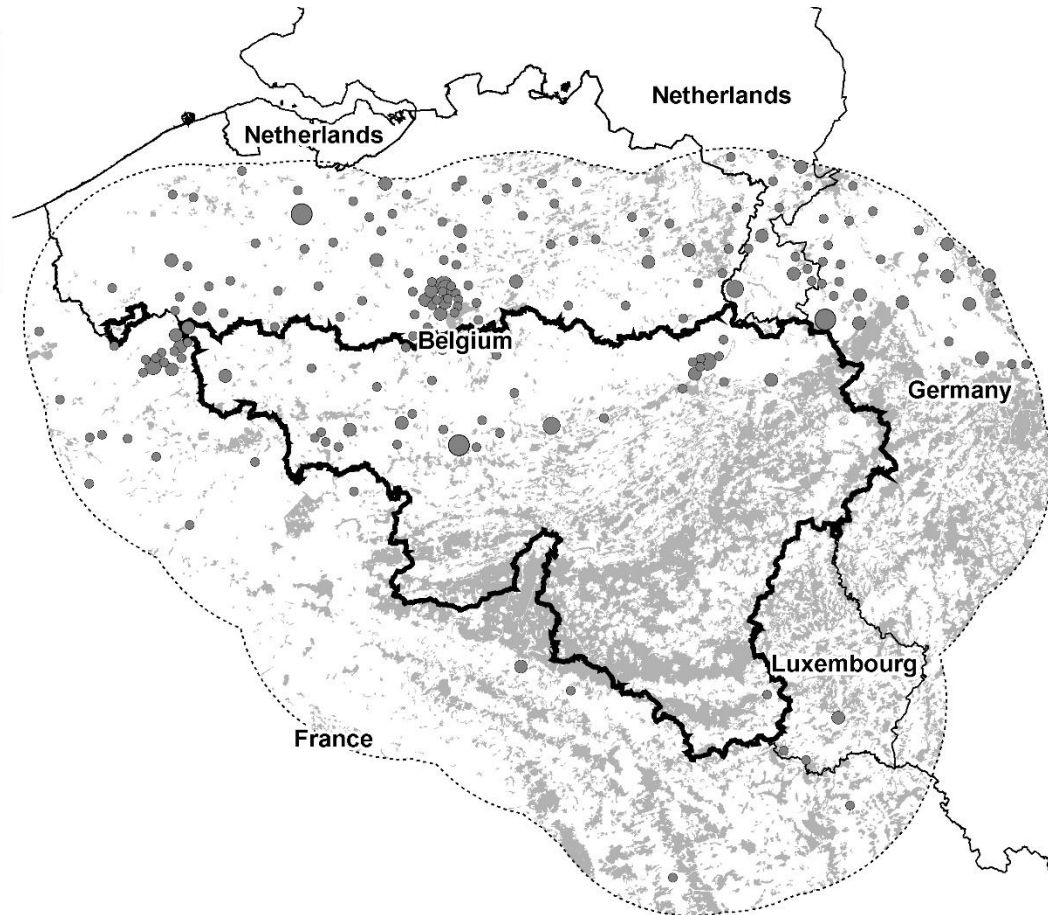
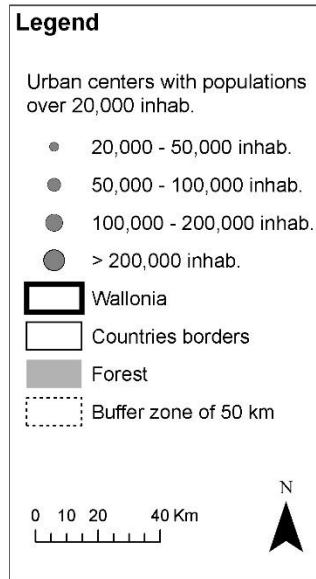
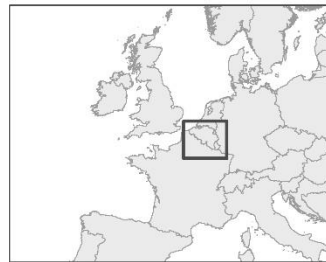
[<http://environnement.wallonie.be/dnf/Inventaire-forestier-wallon.pdf>]



INTRODUCTION



Introduction (1/3) – Forests in Wallonia (Southern part of Belgium)



Introduction (2/3) – Forests in Wallonia (Southern part of Belgium)

- forests cover 33% of the territory, namely 556 200 ha (volume : 113 millions m³, increment : 3.8 millions m³ / year, cutting : 4.1 millions m³ / year)
- private forests account for a little more than half (51%) of this area
- softwood species cover 43% (*more present in private forests (47%) than in public forests (39%)*)
- softwood species are predominantly spruce, managed in even-aged stands regenerated by clear cuttings
- forest management is based on the multifunctionality of the forest (biodiversity, wood production, tourism, landscape, ...)
- In private forest, none authorization is needed for harvesting (except for clear cuttings bigger than 5 ha in softwood stands and 3 ha in broadleaved stands)*

Introduction (3/3) – state of softwood resources

-specific observation for private forests :

- clear signs of overharvesting in softwood resources for several years
- slowdown in reforestation after clear cuttings

⇒ *potential economic impact of this overharvesting in softwood resources (forest and wood sector = 8,000 entrepreneurs, 18,400 jobs, 3.5 millions m³/year logs)*

⇒ *forest policy measures become necessary*

-a preliminary objective analysis is required



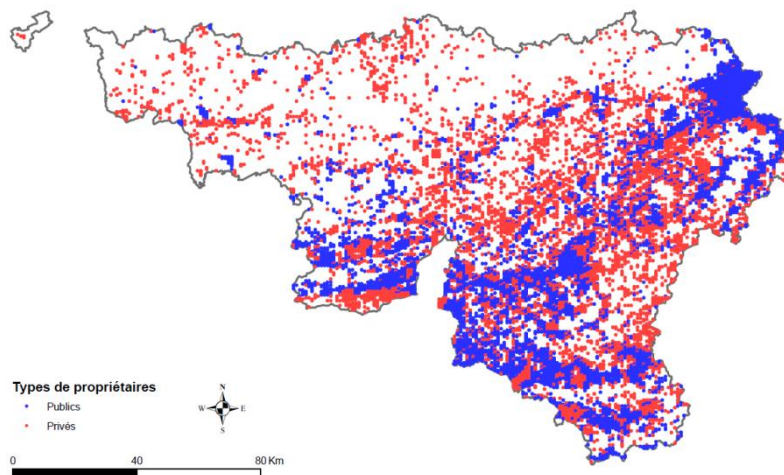
MATERIAL AND METHODS



Aim: take into account the size of the ownership in the analysis of the softwood overharvesting phenomenon

Data available:

- permanent regional forest inventory based upon a sampling design **BUT:**
 - The distinction in ownerships types is limited to public/private, without taking into account the size of the ownership.
 - Cadastral data (map) **BUT**
 - Data related to land use of cadastral parcels are outdated
 - Data related to owners are protected by a law dealing with the privacy
- => None data concerning the size of the forest ownerships



Methods

1. Elaboration of an innovative forest fragmentation map based on the cadastral parcel map and a land use map
=> structure of the private forest ownership
2. Crossing of this map with regional forest inventory data;
=> Attribution of a class of area to every sampling point of the regional inventory
3. Disaggregation of forest inventory data related to softwood resources according to the area of the ownerships ;
=> Analyse of the softwood overharvesting phenomenon more in details
4. Identification of the most appropriate potential forest policy measures.

RESULTS

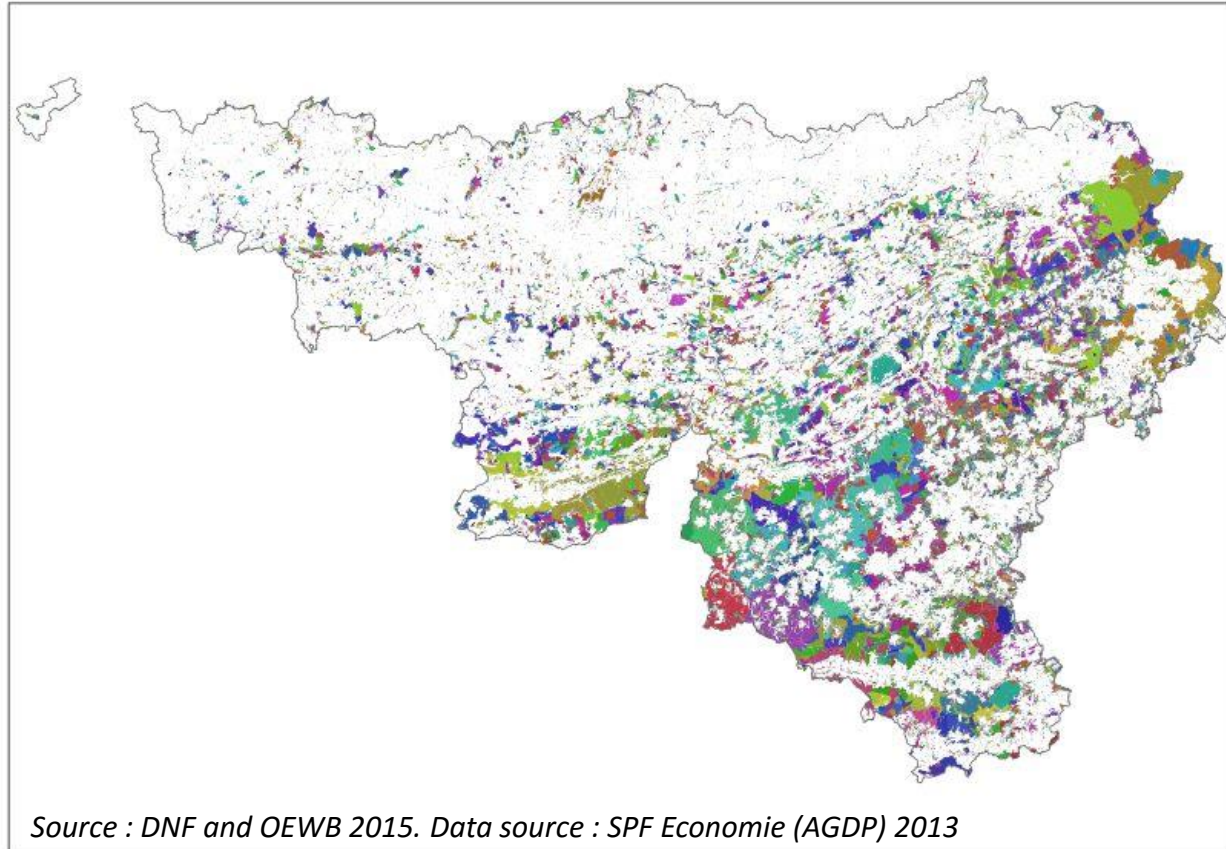


Results – Map of the forest fragmentation

=> carried out based on cadastral data and on the land use map.

1. Cadastral map with anonymous code by ownership
(=> size of every ownership, but without taking into account land use)
2. Crossing with a Land use map (forest cover based on cadastral parcels)

=> *Result:*
*map of **forest ownerships**,
total area by forest ownership*



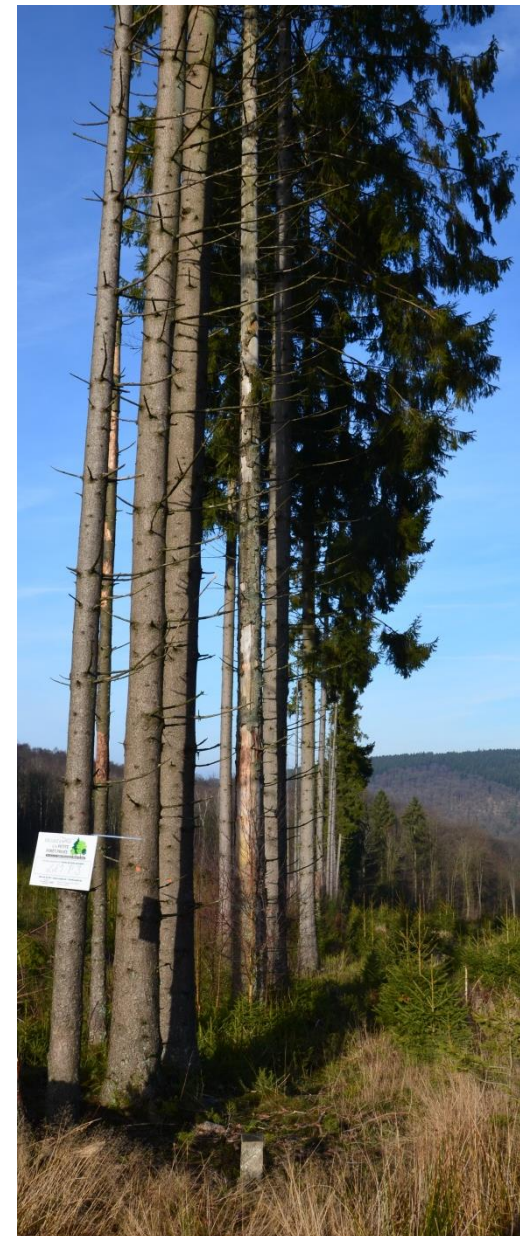
Results – Map of the forest fragmentation



*Cadastral map
(with anonymous code by ownership)*

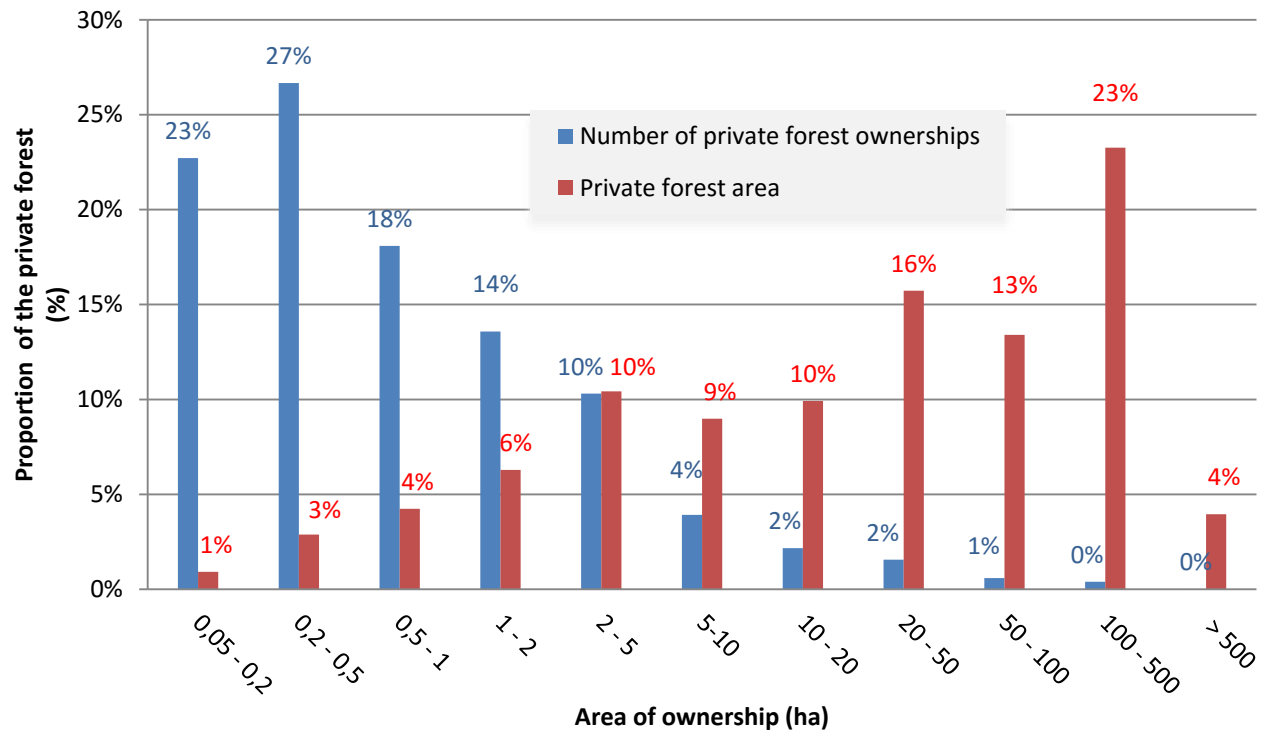


Land use map



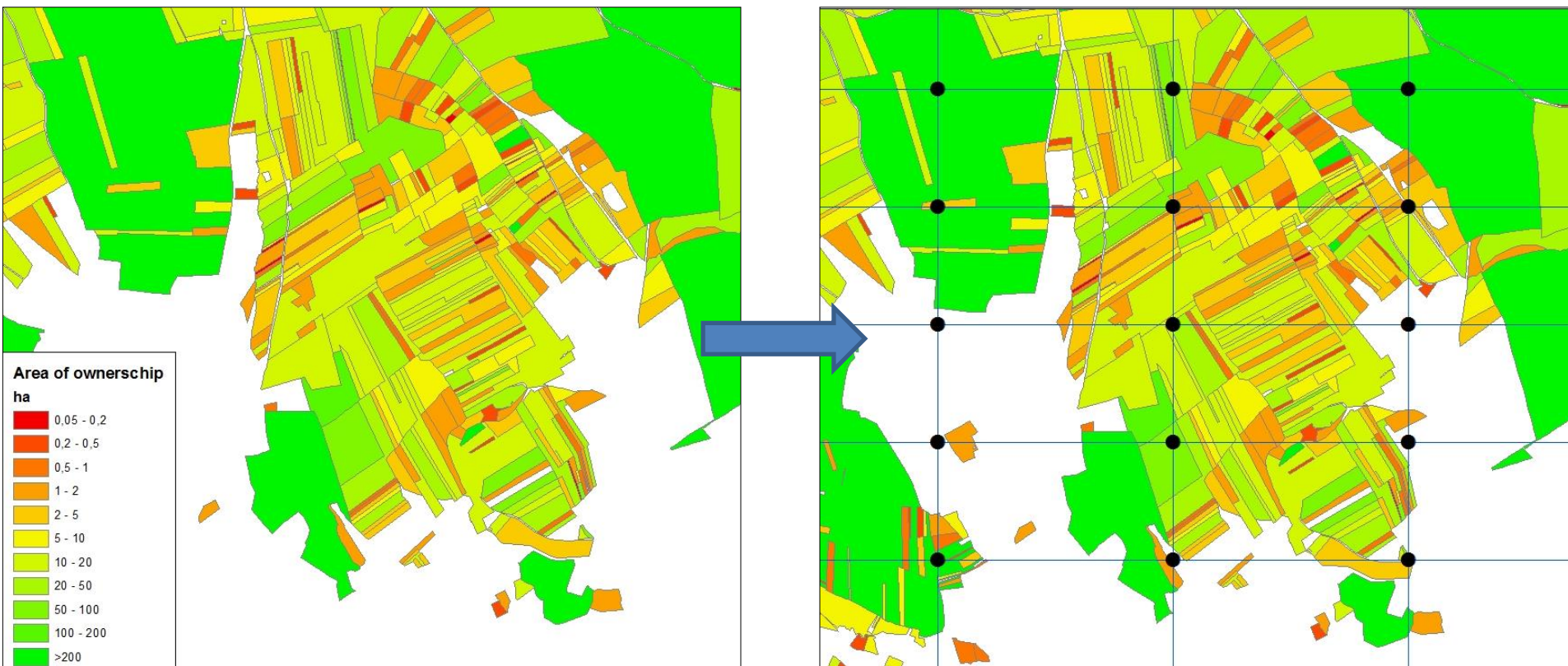
Results – Structure of the private forest ownership

- Obtaining of up-to-date data on the landholding structure of the private forest ownership in Wallonia.
- The Walloon private forest comprises 89 790 ownerships, amongst which 91% are smaller than 5 hectares.
- Small forest ownerships represent 25% of the Walloon private forest in terms of area



Results – Crossing with the regional inventory

- Attribution of a size of ownership to every sample points of the regional forest inventory;
- This new database has been analyzed to attempt an objective estimation of the softwood resources evolution, with a focus on the private forest.



Results – Crossing with the regional inventory

Three indicators have been used to this end:

- Harvest rate of wood resources (harvested volume in proportion to increment), which indirectly translates the current behavior of owners in terms of wood mobilization;
- Proportion of clear cuttings, distinguishing newer and older ones (> 3 years), the latter could be seen, in terms of owner behavior, as a non-reforestation;
- Previous land use, which can explain the more or less old origin of the wood production speculation and therefore also the profile of the owner.



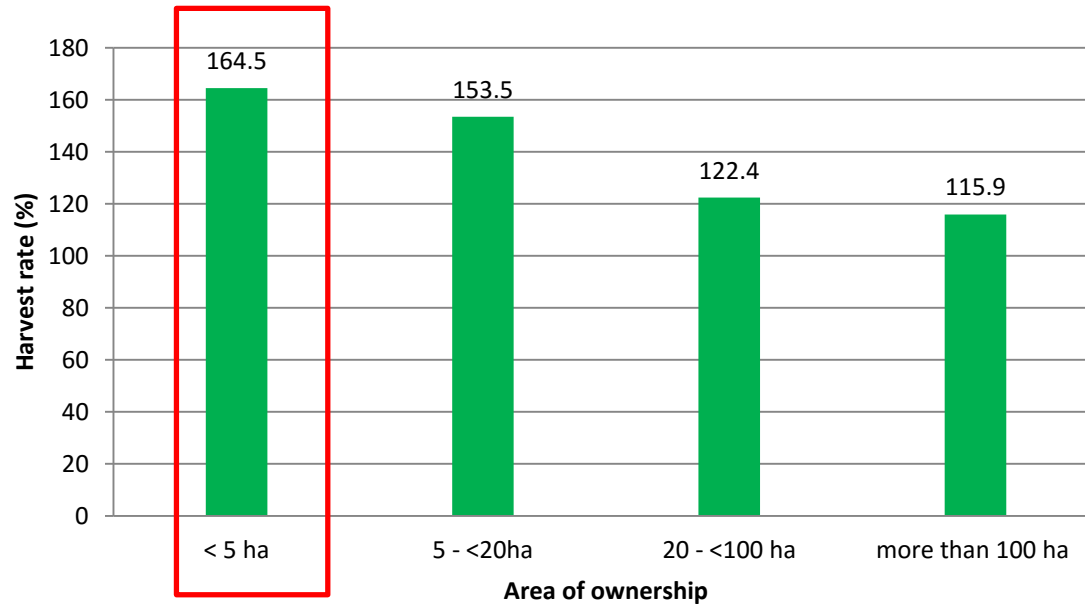
Results – Harvesting

Regarding harvesting (compared to increment and including clear cuttings in harvesting), the analysis shows :

-a rate of **135%** for softwood;

-it drops to **115%** in public forests, but reaches **152%** in private forests;

-a **more marked overharvesting in small private forests**, while the rate observed in ownerships over 100 ha is closer to that of public forests.



Harvest rate (%) of softwood resources in the Walloon private forest, by class of ownership area (ha)

Results – Proportion of clear cuttings

- a distinction being made between recent cuttings (less than 4 years) and older cuttings, which can often translate into non-reforestation.
- In both cases, clear cuttings were the most present in ownerships smaller than 5 ha.

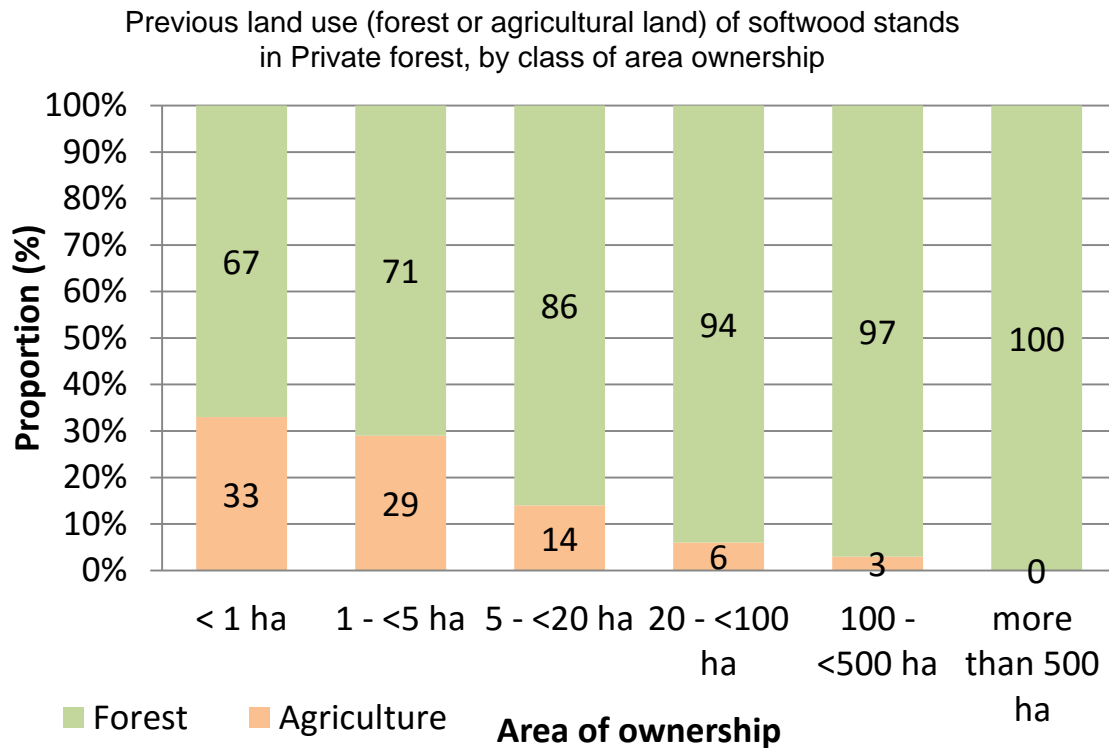
Area classes (ha)	Recent clear cuttings (less than 4 years)		Older clear cuttings (at least 4 years)	
	% (1)	% (2)	% (1)	% (2)
< 1 ha	4.6	9.9	6.6	10.4
1 - < 5 ha	4.4	22.5	6.9	26.0
5 - < 20 ha	3.9	23.9	4.4	19.8
20 - < 100 ha	1.8	18.3	3.2	24.0
100 - < 500 ha	2.8	23.9	1.7	10.4
More than 500 ha	0.9	1.4	8.2	9.4
Total	3.0	100.0	4.0	100.0

% (1) = % of the clear cutting area compared to the total area of that class,

% (2) = % distribution of the total area of clear cuttings in the different classes

Results – Previous land use

=> The proportion of softwood stands planted after an agricultural use of land amounts to around 30% in ownerships smaller than 5 ha and decreases sharply as the area of the ownerships increases.



Main results

The overharvesting of softwood resources in the Walloon private forest is very present and is ***more affecting small forest ownerships***

Close to 1/3 of these small softwood ownerships are ***young forests originating from reforestation of agricultural lands***

(large areas were indeed replanted with softwood in the 50's and 60's following the closing down of small farms)

=> policy measures to reduce the overharvesting and to promote reforestation have to be adapted to this profile of owners



DISCUSSION



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Which policy measures for this particular profile of owners who do not necessarily have technical knowledge?

1. awareness campaigns to avoid premature cuttings,
2. promotion of reforestation



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2. promotion of reforestation
3. Subsidies for reforestation
4. Development of forest management group
5. Development of certification (PEFC) in small forest ownership
6. Reflexion about new silvicultural models adapted to the profile of owner and to climate change



**Thanks for your
attention!**

