LIÈGE université
Gembloux
Agro-Bio Tech

SUSTAINABILITY CRITERIA FOR TIMBER NON-DETRIMENT FINDINGS

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Why is the recovery rate not a robust indicator for assessing the threat to species?

Reason 1: national standards

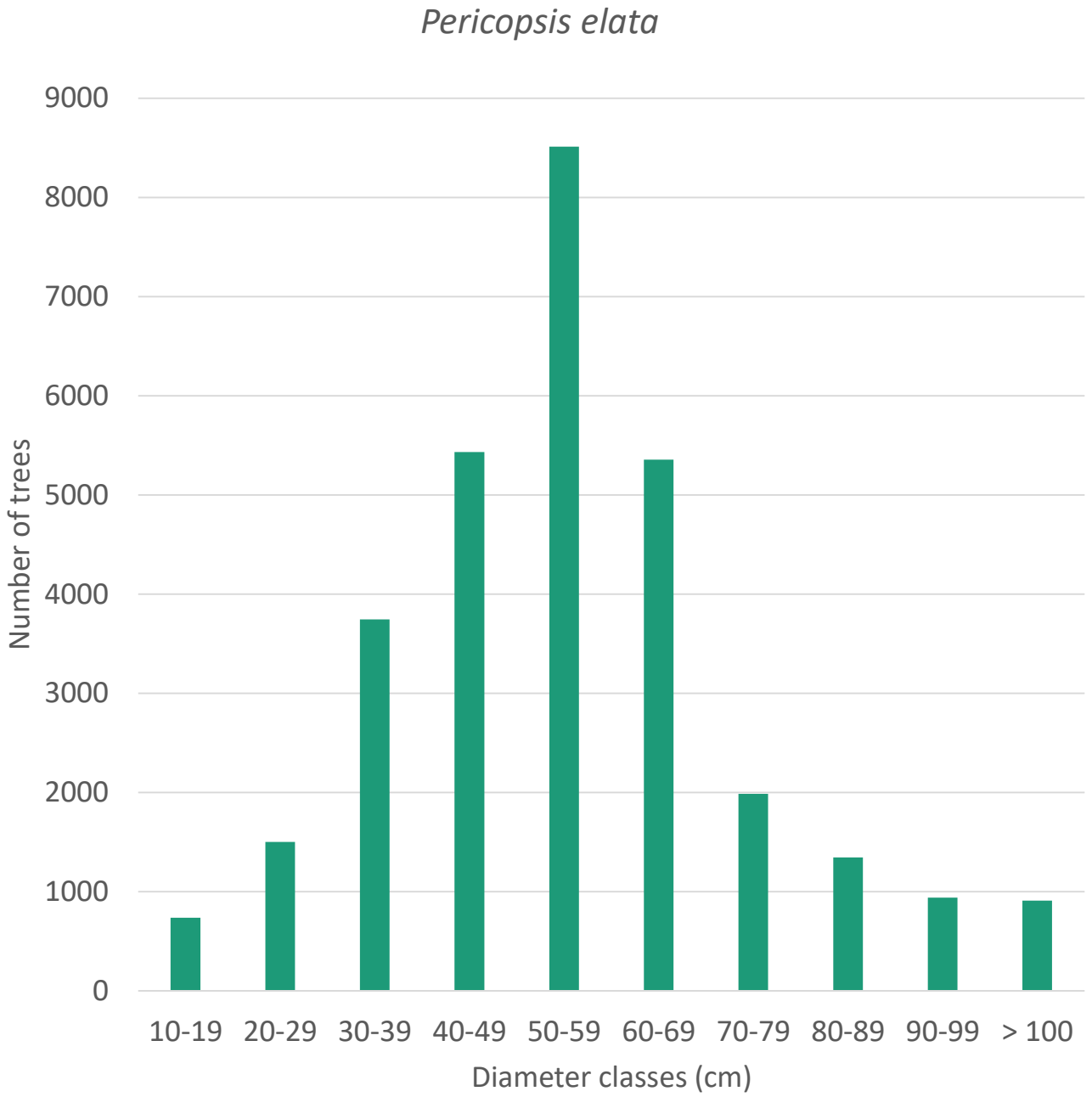
In the management plans, recovery rates (RR) are computed using **national standards**, including minimum cutting diameters (MCD)

Standards vary from one country to another, making the use of RR (calculated in the mamangement plans) inappropriate

Example: populations of Pericopsis elata in two 200,000 ha forest management units, in Congo and Cameroun

- *P. elata* is a light-demanding species that mainly regenerated around 1850 when local human populations abandoned their fields in the forest following colonization (Morint-Rivat et al., 2017).
- It has a bell-shaped population in old-growth forests

Diameter classes	N
10-19	738
20-29	1500
30-39	3745
40-49	5433
50-59	8510
60-69	5356
70-79	1985
80-89	1345
90-99	940
> 100	910
TOTAL	30462



In this example, for the **same RR**, the impact of logging will be **six times greater** in Congo than in Cameroon

	Congo	Cameroon
MCD (cm)	**60**	**90**
N_trees_logged	10536	1850
Annual_growth_rate (cm/year)	0,3	0,3
Cutting cycle (years)	30	30
Annual_mortality	0,01	0,01
Logging_impact	0,07	0,07
Recovery_rate	**50,0**	**50,0**
%_population_logged	**34,6**	**6,1**
%_population_seed_trees_logged	37,3	6,6

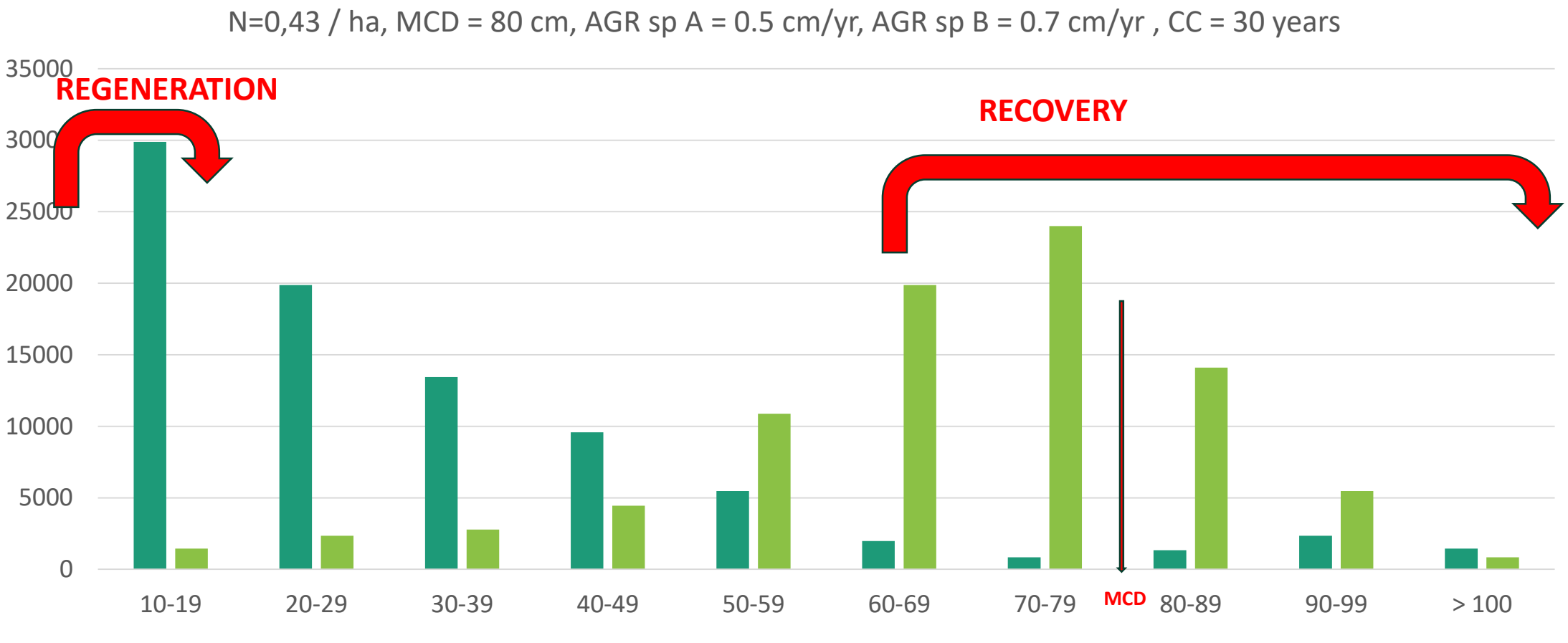
Reason 2: species ecology

The recovery rate is an **economic concept**, **not an ecological one**:

It only concerns the exploitable stems, not the total population

For the same recovery rates, regeneration rates can be high or low

Example: in a 200,000 ha forest management unit, two populations of two species : A non-pioneer species and B pioneer species



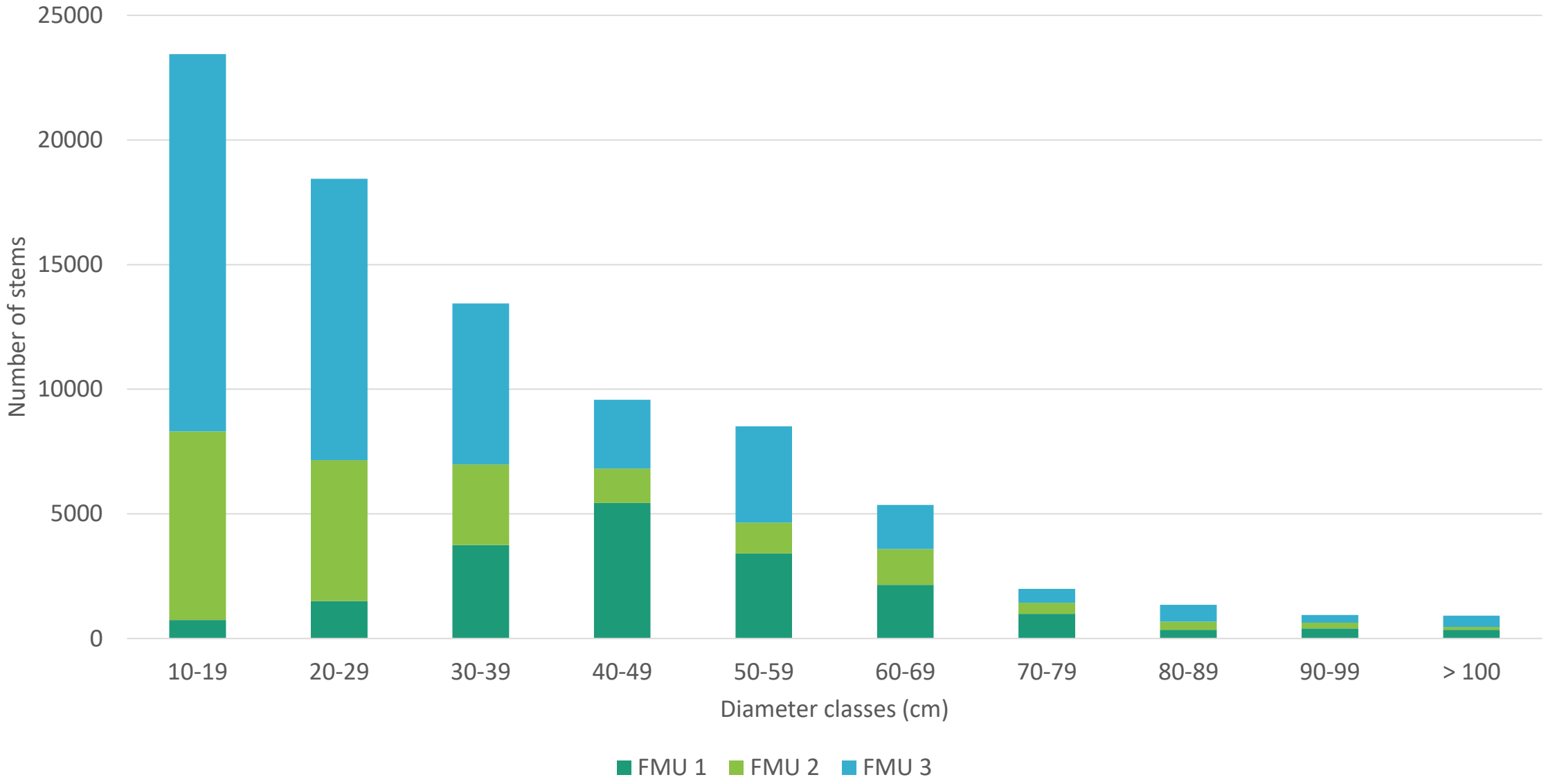
Sp A : High Regeneration rate but low Recovery rate (**25** %)

Sp B : Low Regeneration rate but high Recovery rate (**151** %)

Reason 3: forest types and scales

Recovery and regeneration rates vary according to forest type and scale

They can be high in some FMUs and low in others, without endangering the species


25000
20000
15000
10000
5000
0
Number of stems
10-19
20-29
30-39
40-49
50-59
60-69
70-79
80-89
90-99
> 100
Diameter classes (cm)
FMU 1
FMU 2
FMU 3

Which criteria to use?
Our proposals

At the global(regional) scale: identification of threatened species

- **Specific approach** dedicated to timber species
- **IUCN** Libreville Workshop, December 2023
- **Reduction of populations over the next century**, taking into account:
  - % species range by countries
  - legal logging according to the standards specific to each country
  - illegal logging rates (FRM, 2018)
  - deforestation linked to agriculture (Vancussem et al., 2021)

Reliable recent assessments:

EN
Guibourtia pellegriniana
Guibourtia tessmannii
Autranella congolensis
Pericopsis elata
Microberlinia spp.

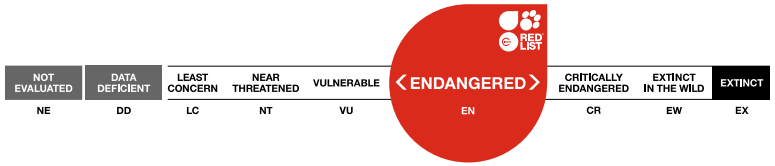
NT :
Guibourtia demeusii
Nauclea diderrichii

LC :
Guibourtia ehie

The IUCN Red List of Threatened Species™
ISSN 2307-8235 (online)
IUCN 2021: T62026149A62026151
Scope(s): Global
Language: English

***Guibourtia tessmannii*, Kévazingo**

Assessment by: Barstow, M., Tosso, F. & Doucet, J.



Will be soon published:

NT :
Prioria balsamifera

LC :
Afzelia bipindensis
Aucoumea klaineana
Dacryodes igaganga
Milicia excelsa
Pterocarpus soyauxii
Testulea gabonensis

At local level
(national or concession):
a focus on threatened species (CR, EN, VU)

For species with a **good regeneration**:

- **Adapted MCDs:** compatible with maintaining a sufficient number of seed trees by considering gene flows
- List of MCDs published by a group of specialists for Central Africa: DYNAFAC (**www.dynafac.org**)

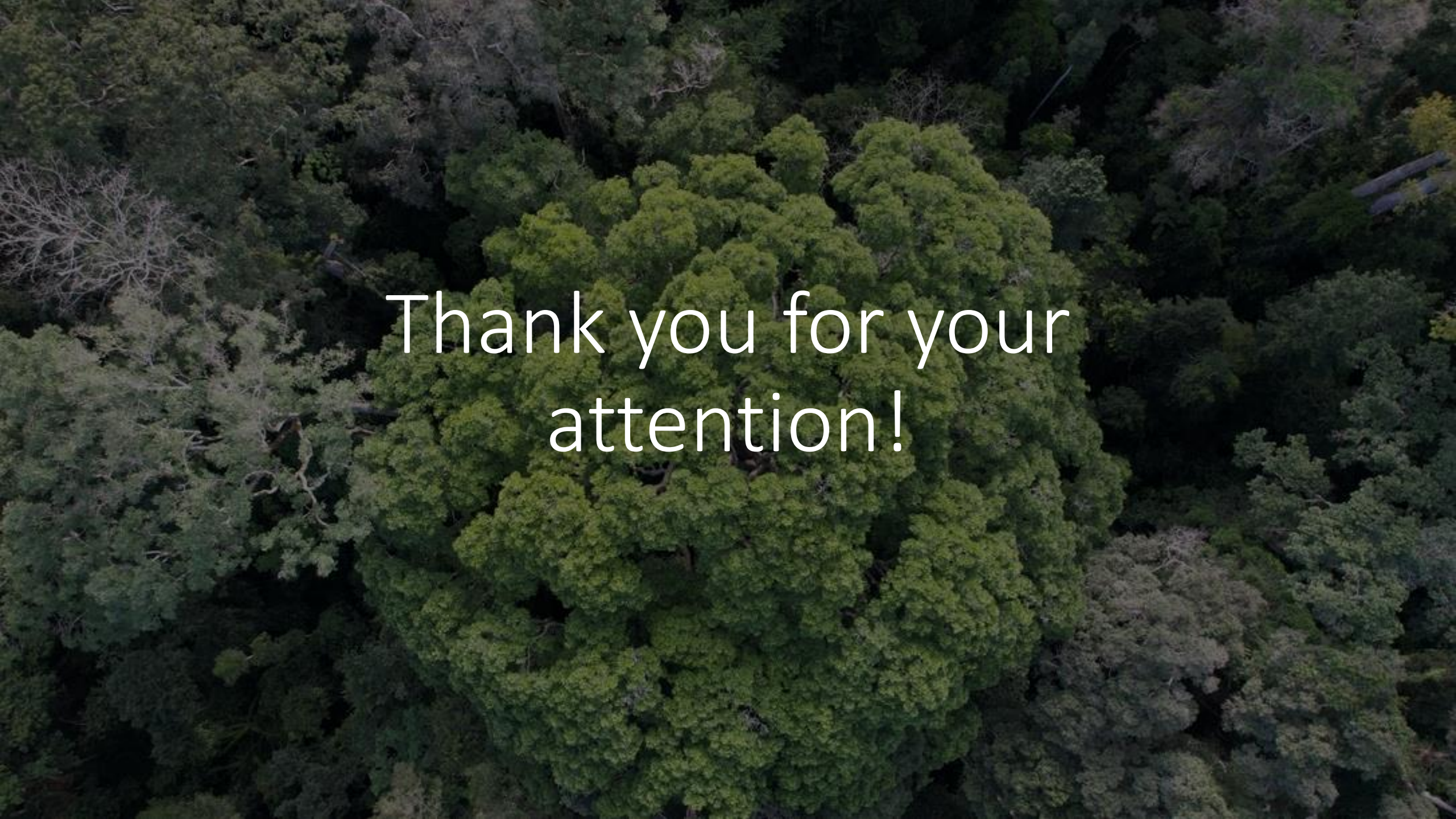
- 50 cm : Ebène noir, Eyong, Niové ;
- 60 cm : Bété, Fraké (Limba), Lotofa, Ossabel, Ozigo, Padouk, Wengé ;
- 70 cm : Aniégré, Azobé, Bossé clair, Ilomba, Iroko, Movingui, Okoumé, Ovengkol, Sorro ;
- 80 cm : Acajou d'Afrique, Afrormosia (Assamela), Niangon, Okan, Tali, Tiama, Tola ;
- 90 cm : Sapelli ;
- 100 cm : Ayous, Kosipo, Moabi, Sipo.

For species with a **bad regeneration**:

- **Adapted MCDs**
- **Enrichment planting**: N planted/N logged

Example : UFA-reforest:

https://www.gembloux.uliege.be/cms/c_8655583/fr/demarrage-du-projet-rufac-au-cameroun


Thank you for your attention!

References

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