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# Reforestation in the forest management units of Cameroon (UFA - Reforest) project

## Scientific aspects

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# Outline of the presentation

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- Background and justification
- Scientific aims of the **UFA-Reforest** project
- Preliminary results



# Scientific aims

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- Modeling the growth of species in plantations with different environments: **Degraded areas, Logging gaps** and **Log yards** (UFA-Reforest, RESSAC)
- Quantifying the carbon balance of plantations (RESSAC, UFA-Reforest)
- Quantifying the economic balance for reforestation operations (RESSAC, UFA-Reforest)



# Scientific aims

## Complementary projects

- Studies of Seed conservation methods and the lifting of dormancy (RESSAC)
- Study of light requirements for seedling growth (RESSAC)
- Assessment of the value-added potential of monumental trees (ARM+)
- Test of Assamela provenance (TREE GENOME)



## Performances of native tree species in plantations: a synthesis for the Guineo-Congolian region

In Press, Journal of Forestry Research

# Objectives

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- To synthesize the survival and growth performance of native tree species planted in moist forests of the Guineo-Congolian region
- To test whether the performance metrics depended on environmental conditions, planting methods and species traits



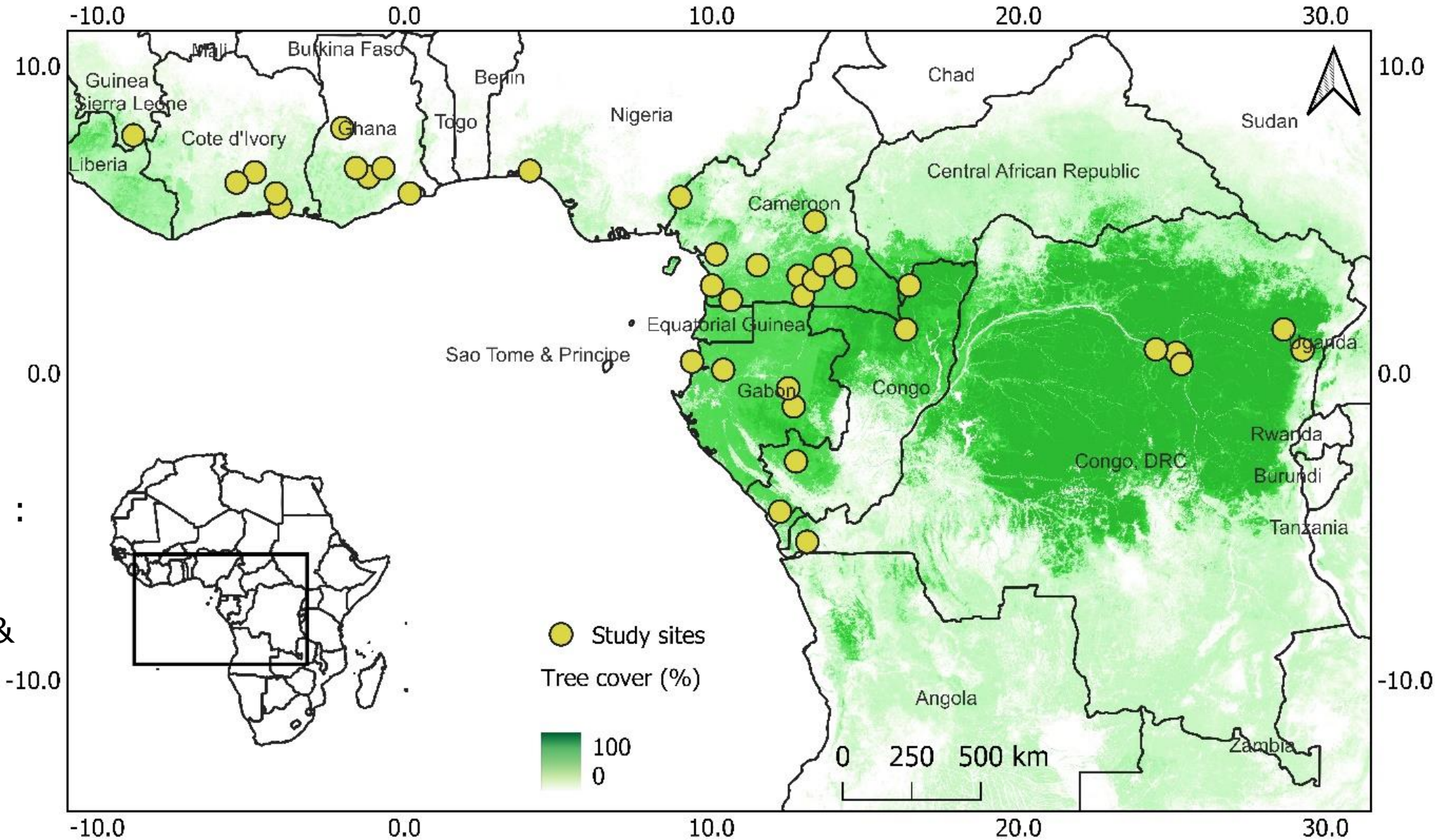
# Methods

## Review

## Meta-analysis

✓ 45 Studies

- 38 sites
- 89 tree species
- 687 observations :
  - P = 269;
  - NPLD = 338 &
  - SB = 80



Understorey



Line planting



Gap



Degraded area



Regrowth



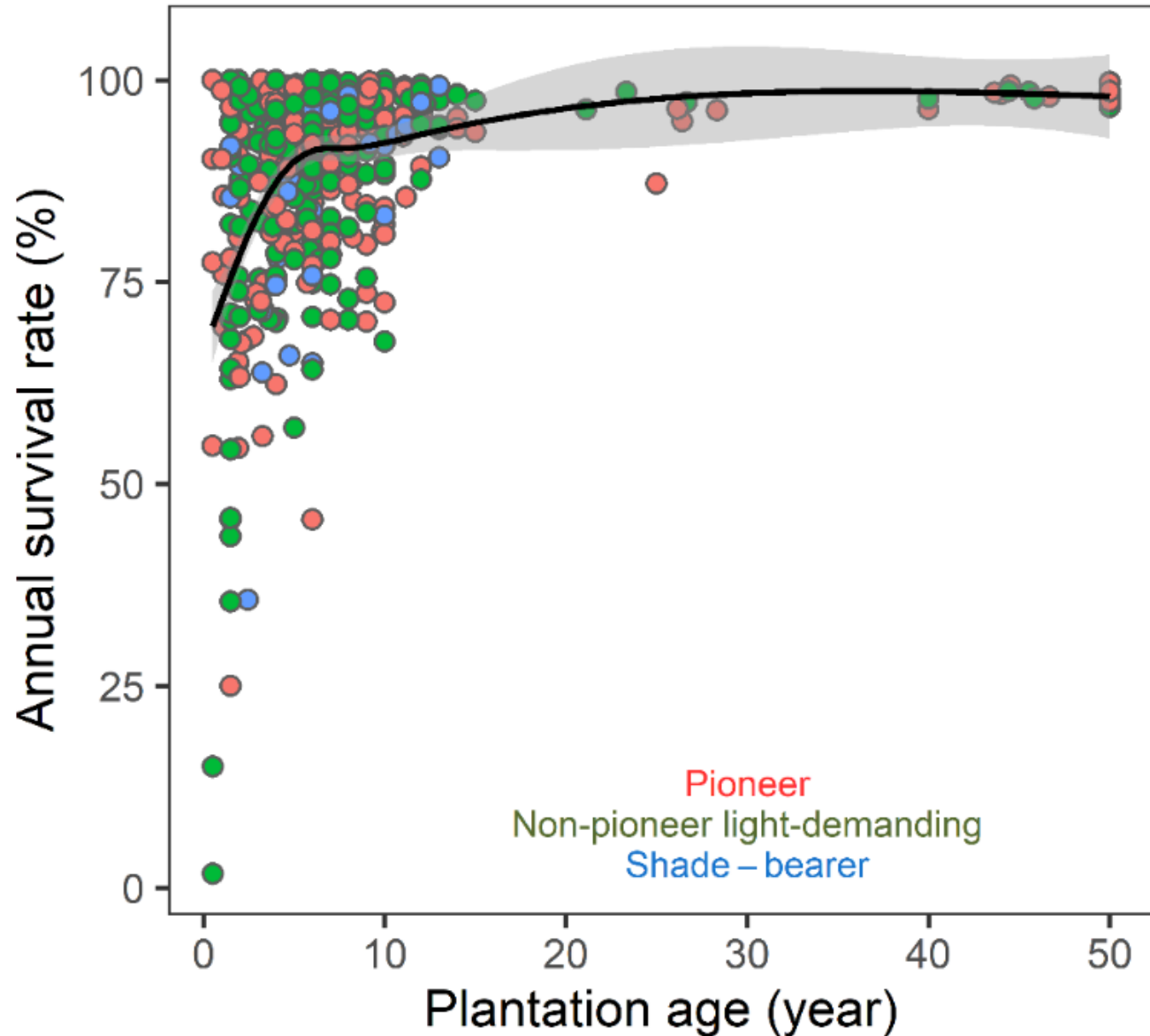
Clear-cutting



# Results

## Planting tree Survival

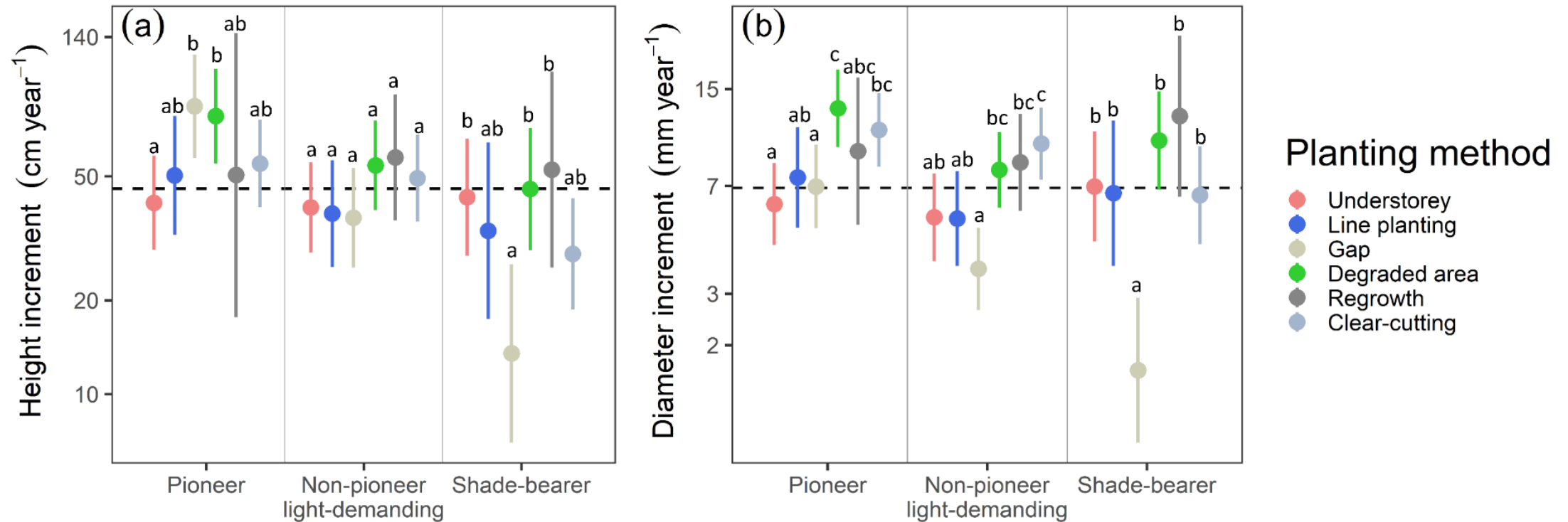
Tree mortality was highest in the first seven years and became negligible after that



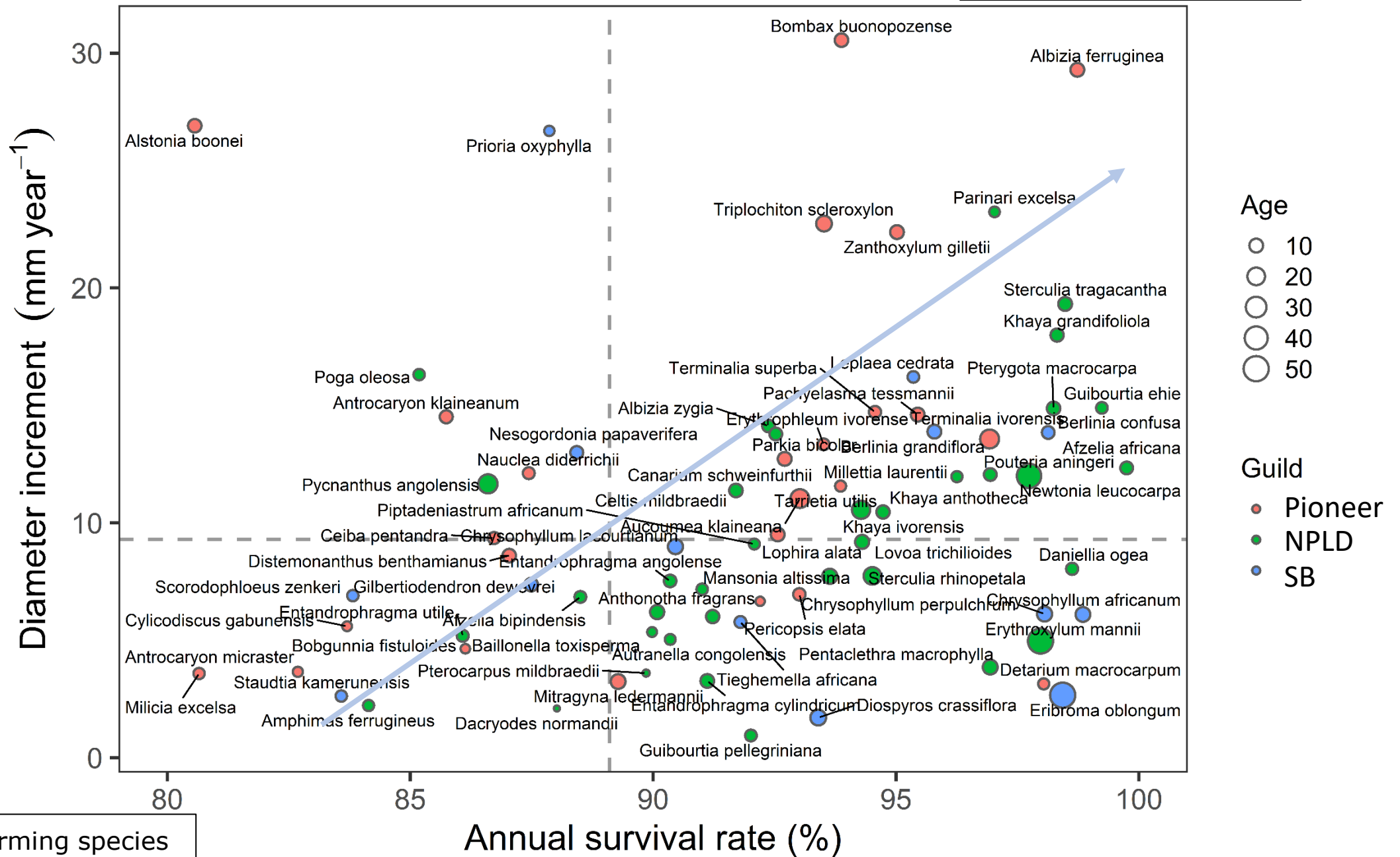
# Results

## Height and diameter growth

- Degraded areas, regrowth and clear-cut showed higher growth for P, NPLD and SB
- The gap showed poor results, except for height growth for pioneer trees



# Results



# Research perspectives

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Verify the validity of these literature-based results by modelling the survival and growth of species planted in gaps (logging gaps & log yards) and degraded areas of south-east Cameroon.

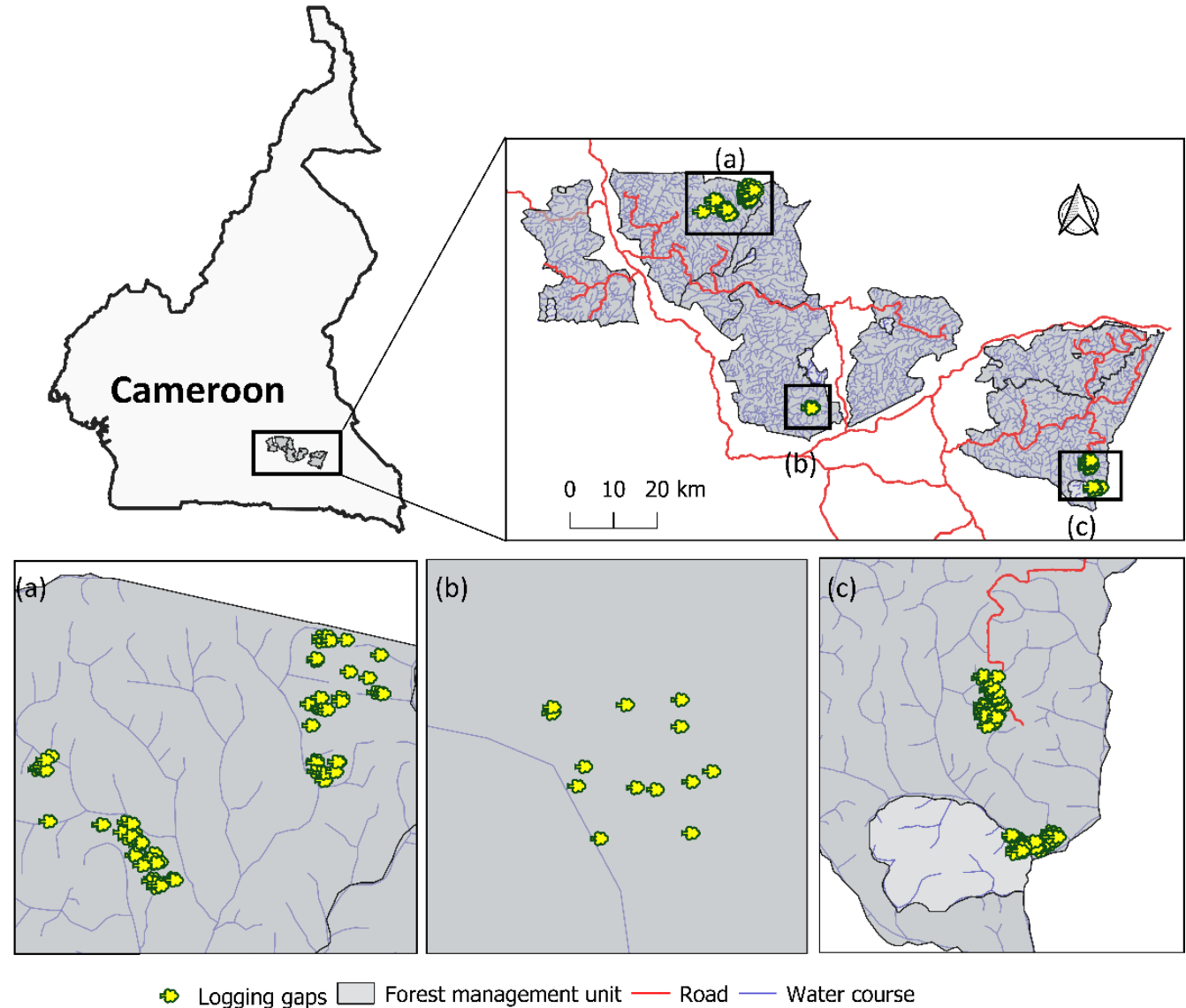


## Long-term monitoring of logging gaps enriched with high-value timber species in South-Eastern Cameroon

# Methods

## Monitoring mortality, diameter and height growth of planted trees:

- 177 trouées d'abattages
- Enrichies en 15 espèces
- Sur 14 à 19 ans
- UFA gérées par la société Pallisco (Certifiée FSC)

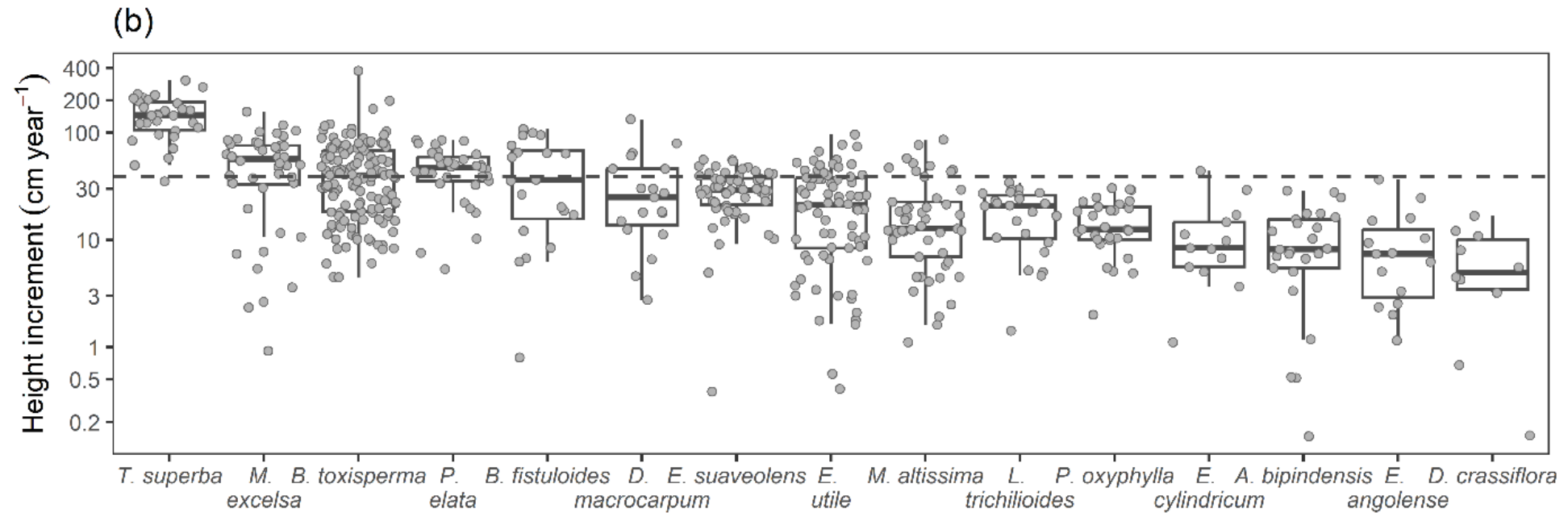
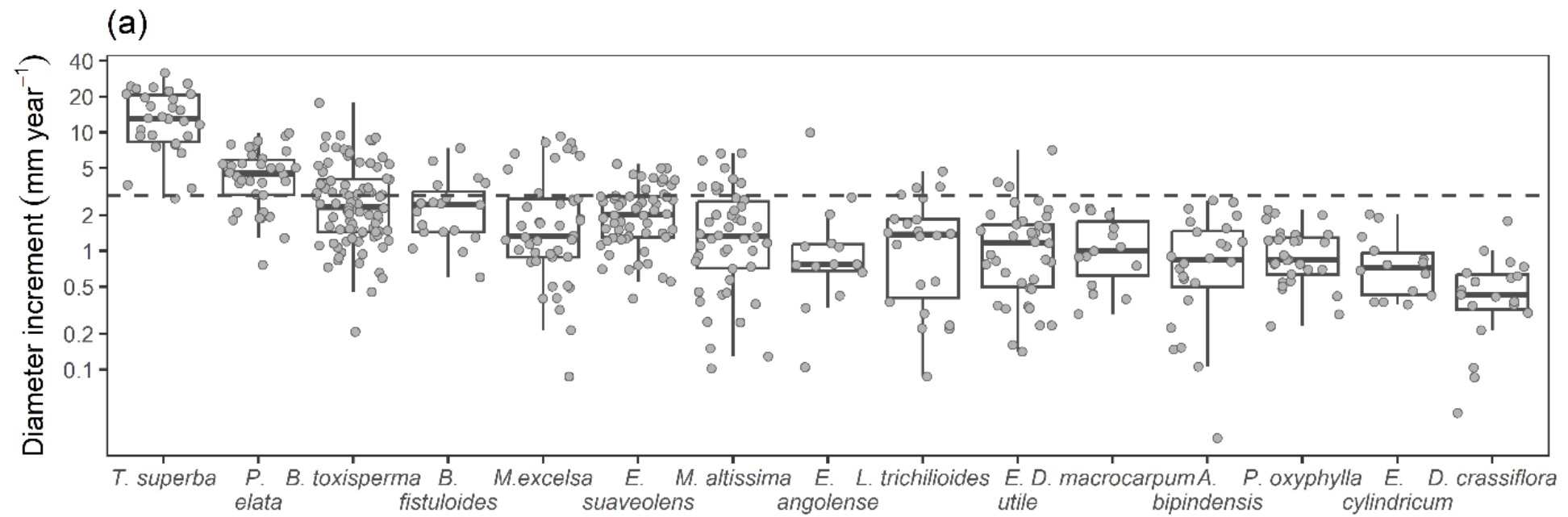


# Methods

Species	Pilot names	Family	Guild
<i>Afzelia bipindensis</i>	Doussié	Fabaceae	NPLD
<i>Baillonella toxisperma</i>	Moabi	Sapotaceae	NPLD
<i>Bobgunnia fistuloides</i>	Pao rosa	Fabaceae	P
<i>Detarium macrocarpum</i>	Mambodé	Fabaceae	P
<i>Diospyros crassiflora</i>	Ebèned'Afrique	Ebenaceae	SB
<i>Entandrophragma angolense</i>	Tiama	Meliaceae	NPLD
<i>Entandrophragma cylindricum</i>	Sapelli	Meliaceae	NPLD
<i>Entandrophragma utile</i>	Sipo	Meliaceae	NPLD
<i>Erythrophleum suaveolens</i>	Tali	Fabaceae	P
<i>Lovoa trichilioides</i>	Dibétou	Meliaceae	NPLD
<i>Mansonia altissima</i>	Bété	Sterculiaceae	NPLD
<i>Milicia excelsa</i>	Iroko	Moraceae	P
<i>Pericopsis elata</i>	Afrormosia (Assaméla)	Fabaceae	P
<i>Prioria oxyphylla</i>	Tchitola	Fabaceae	SB
<i>Terminalia superba</i>	Limba (Fraké)	Combretaceae	P

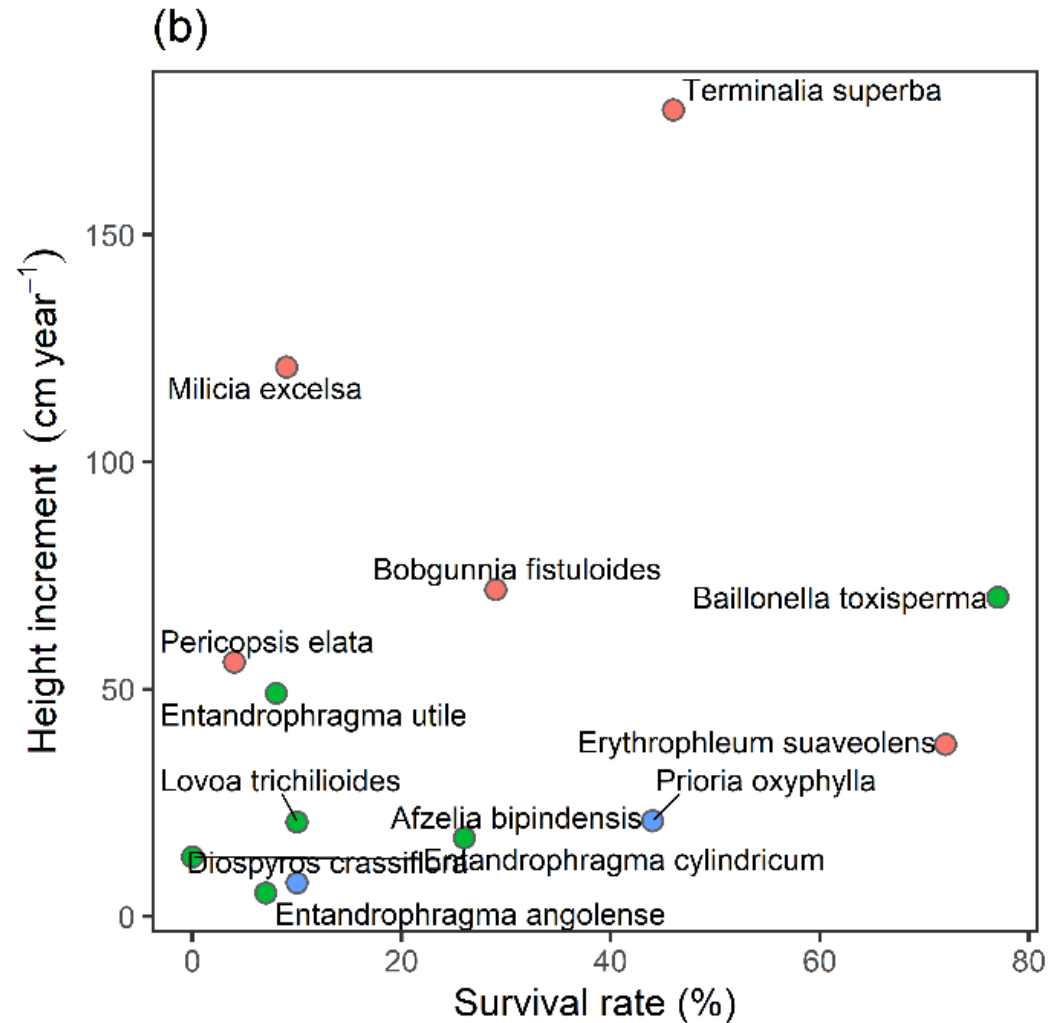
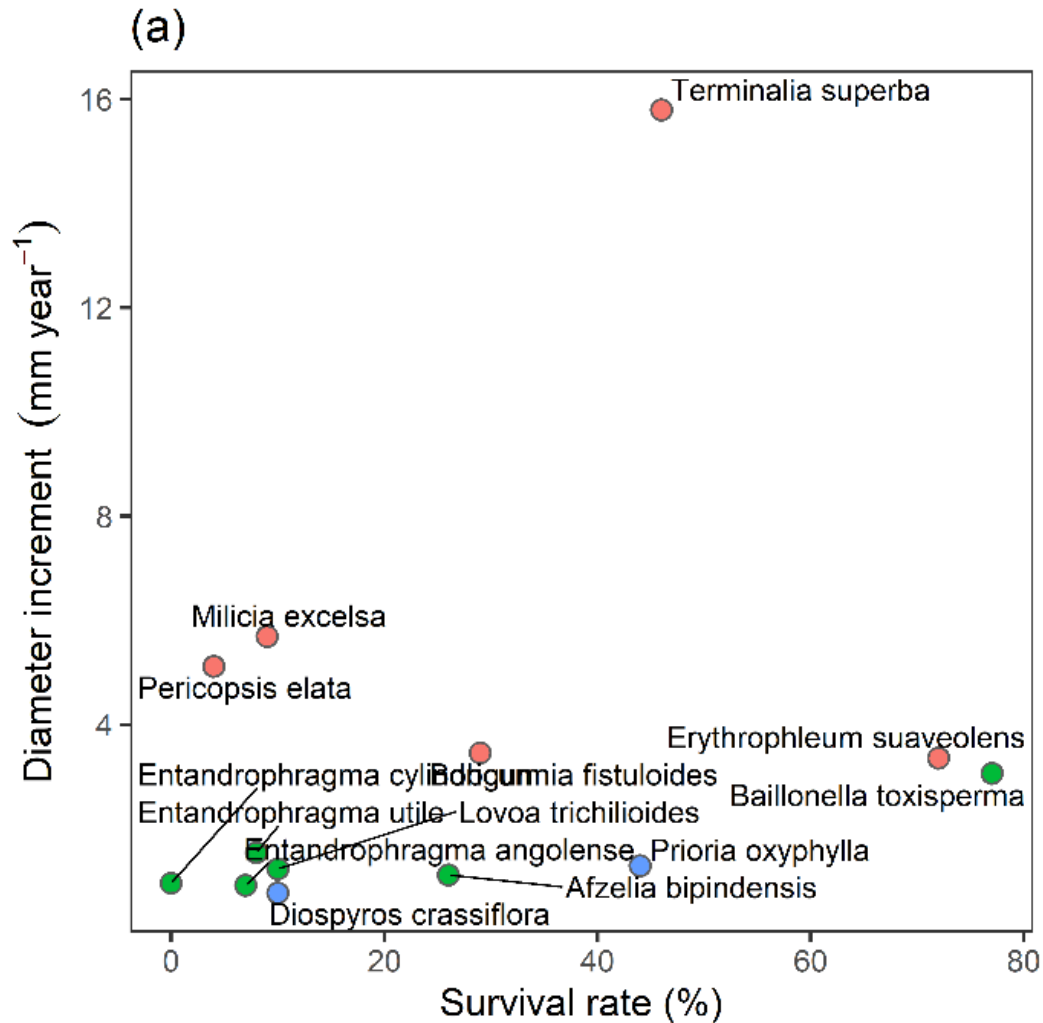
# Results

## Diameter and height increments



# Results

## Diameter and height increments and tree survival



# Recommandations

- Reforest the gaps with **fraké**, **moabi**, **tali** and **mambodé**.

- Maintain the gaps 3 times in the first year, 2 times in the second year and once from year 3 to 5.
- Do not use species with a survival rate of less than 25% in gap enrichment.





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