

A short insight into the ecology of *Pericopsis elata* (Harms) Meeuwen (Fabaceae) in southeastern Cameroon

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- **Pericopsis elata, why and where?**
- ***(Natural) population structure***
- ***Growth and phenology patterns***
- ***Management of P. elata forest stands in a context of selective logging***
- ***Take-home messages***



Pericopsis elata, a well known species... yet to be discovered!



Pericopsis elata, a flagship species

- Deciduous species
- Moist semi-deciduous African forests



Pericopsis elata, a flagship species



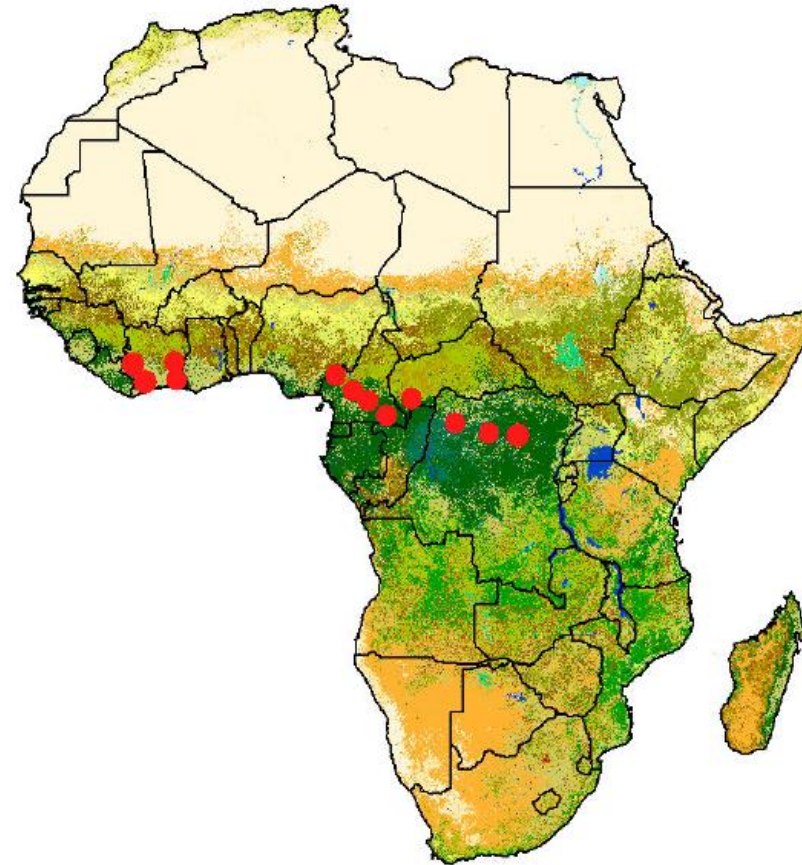
Pericopsis elata, a flagship species

- Severe lack of regeneration + logging = considered as threatened

Listed on the IUCN Red (« En A1cd ») List and CITES Appendix II



Pericopsis elata, a flagship species

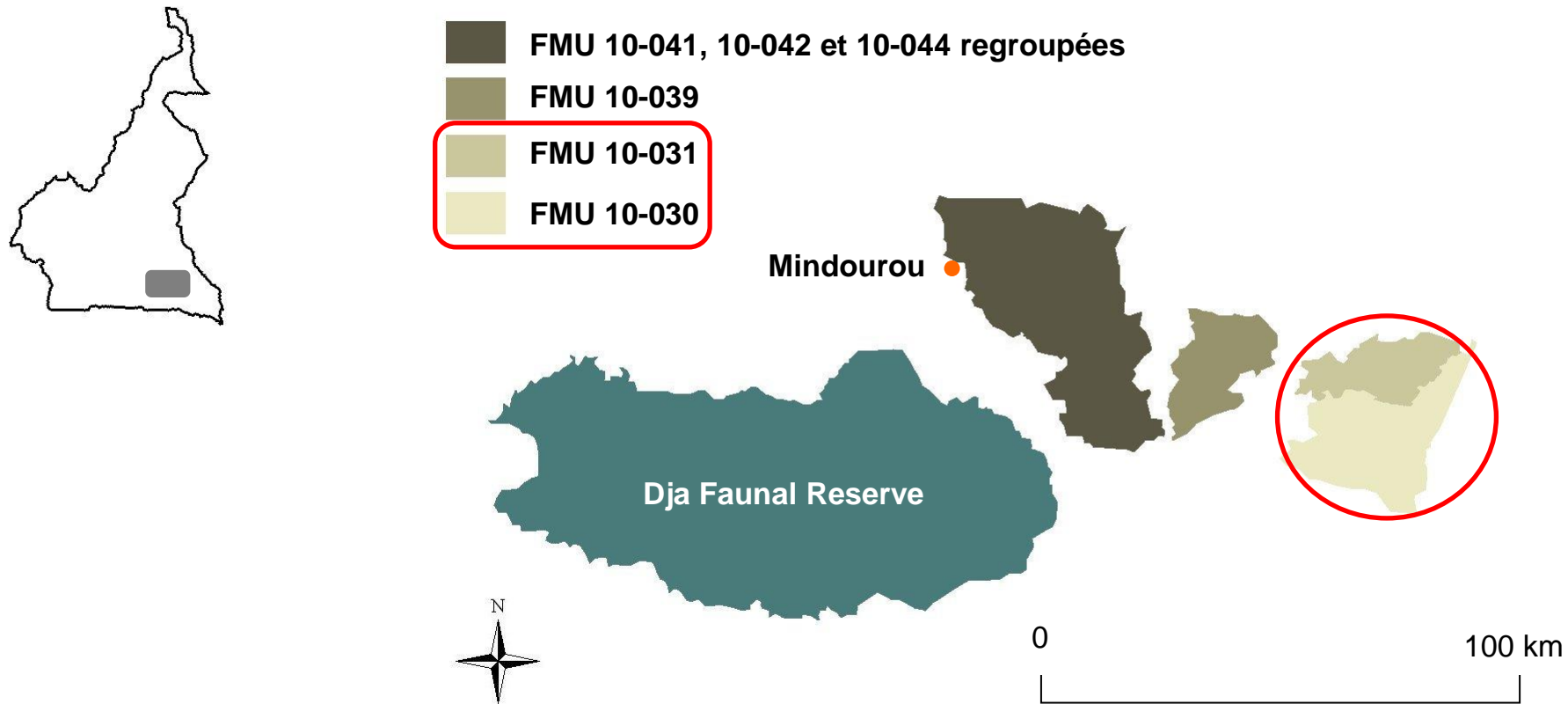


After Mayaux et al. (2003) and African Plants Database
(<http://www.ville-ge.ch/musinfo/bd/cjb/africa>)



The southeastern part of Cameroon

- Central Africa – Cameroon – « Région de l'Est » – Pallisco company



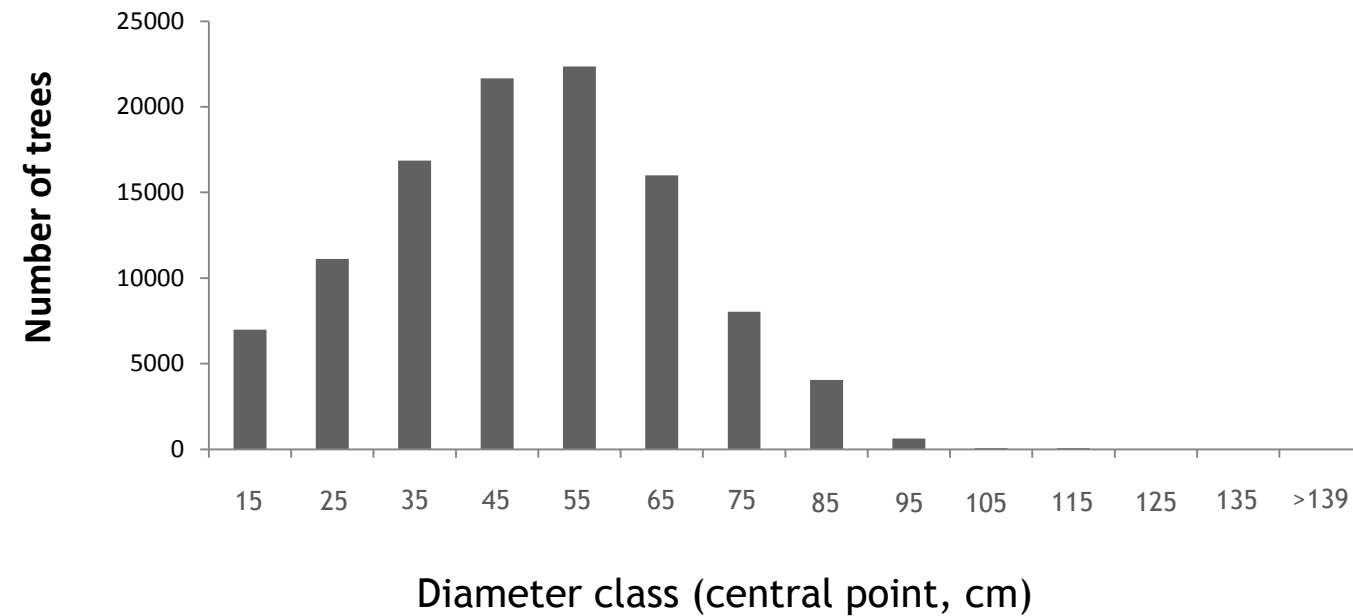
Methodology

- Logged (monitoring over a 2-yr period) vs. unlogged (5-yr)
- Observations made at:
 - monthly intervals, 149 trees, phenology
 - yearly basis, 92 trees, growth
- Management inventories, dbh ≥ 20 cm
population structure



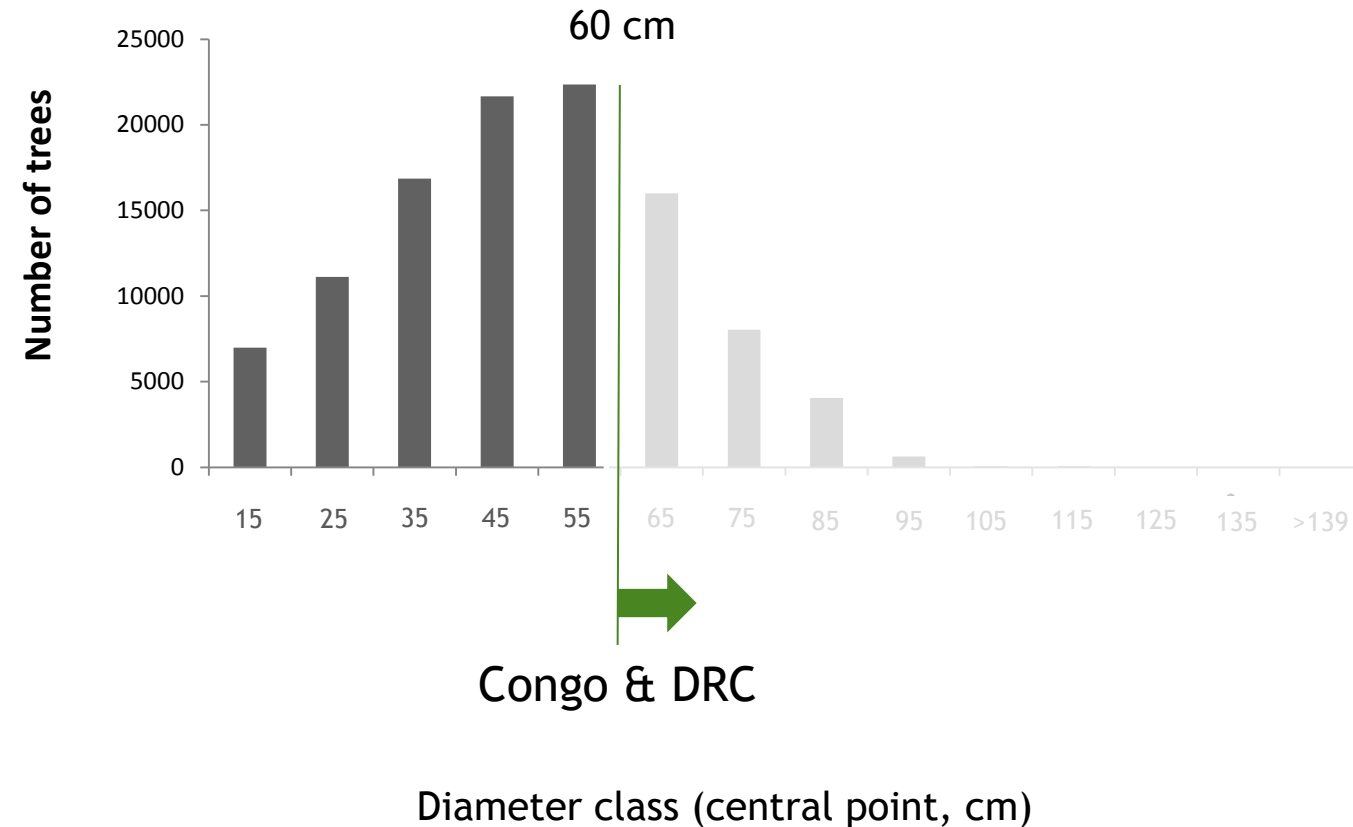
Results: population structure

- 120,000 ha ($\approx 1.5\%$)



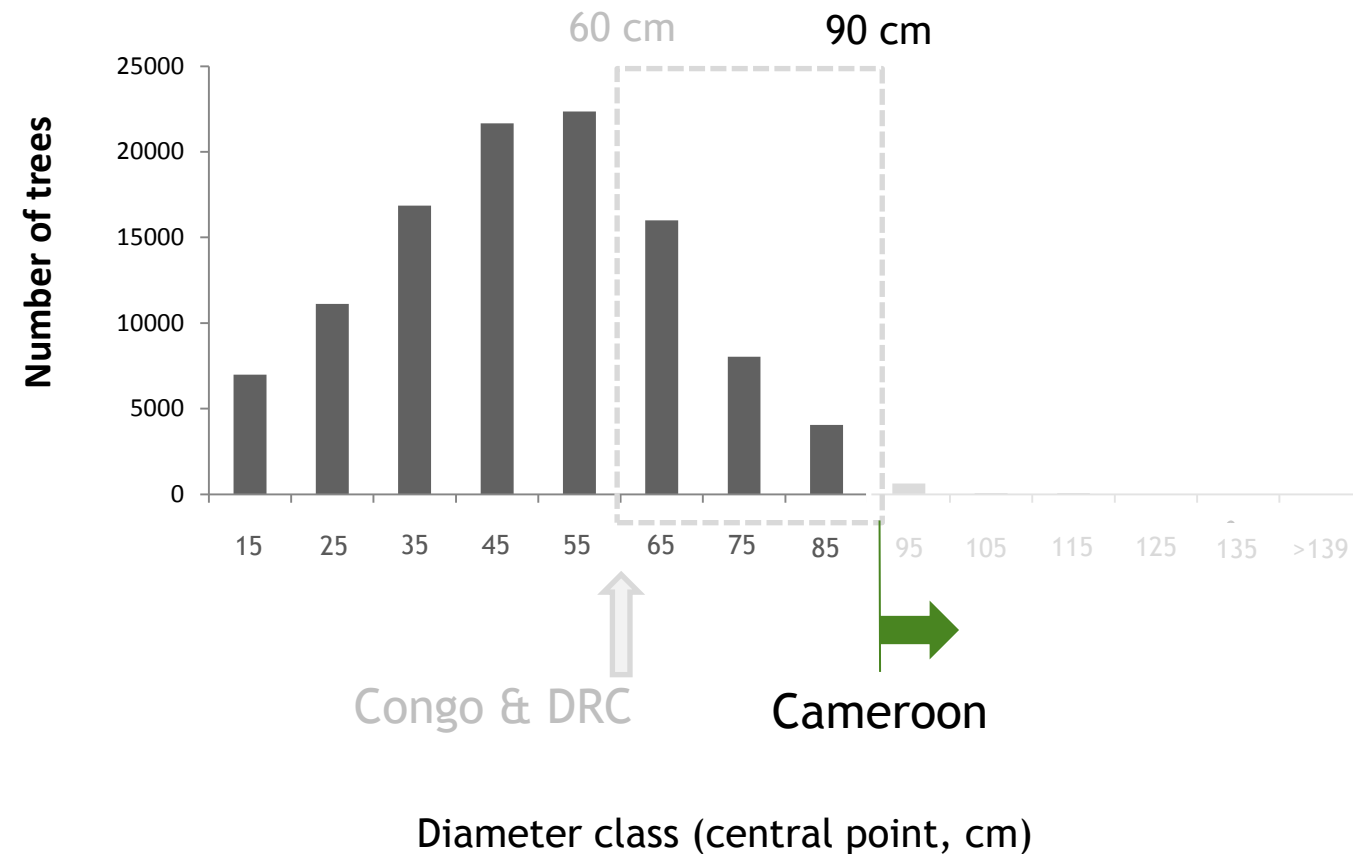
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Official minimum logging diameter



Results: growth and natural mortality rate



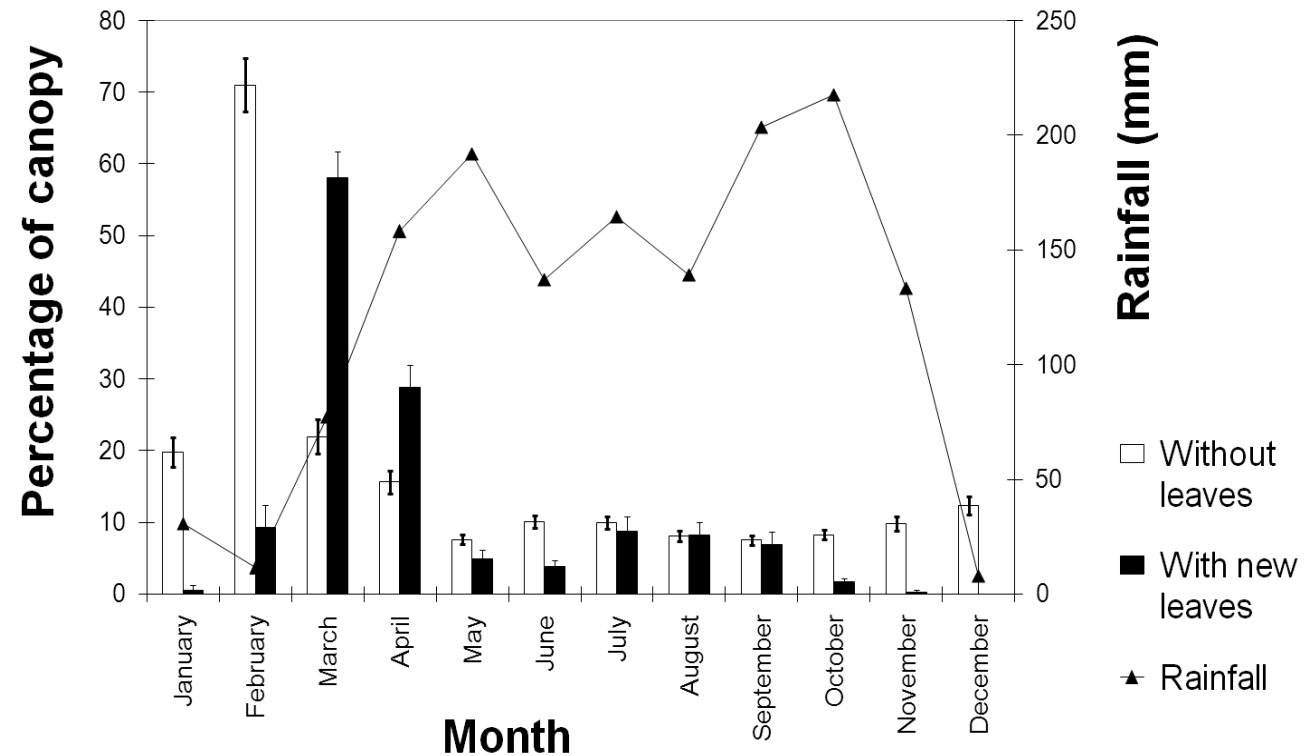
- Selective logging has no impact on diameter growth
- Crown exposure to light has no impact on diameter growth

	Logged		Unlogged	
Period of reference	2007-2009	2007-2009	2004-2009	
Total number of trees	92	51	51	
Mean annual diameter increment \pm CI (cm)	0.31 \pm 0.06	0.29 \pm 0.06	0.31 \pm 0.05	
Number of dead trees	2	1	1	
Annualized mortality rate (%)	1.01	0.98	0.39	



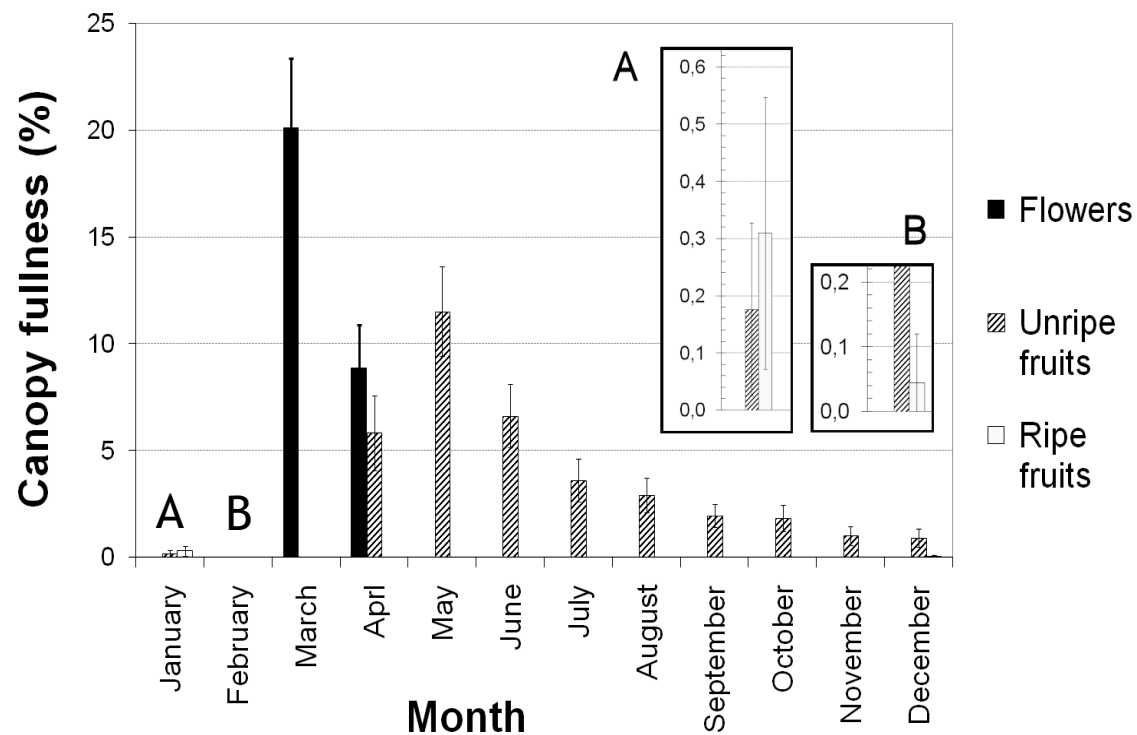
Results: phenology (leaves)

- Leaf fall, budding & new leaf maturation: deciduous species (2-3 wk leafless)



Results: phenology (flowers & fruits)

■ Flowering & fruiting



- Minimum fertility diameter (MFD) = **37 cm** (32,3 cm)
- A tree \geq MFD yields **ripe fruits 1 yr out of 5**
- **No ripe fruits years 1, 3 and 4**



Results: post-logging recovery

■ Forest recovery

Mean annual diameter increment = 0.31 cm

Annualized mortality rate = 1.01%

MFD = 37 cm



	90 (Cameroun)	60 (Congo et RDC)
Minimum logging diameter (MLD, cm)		
Recovery rate (%) ^(*)	104.6	27.9
Seed trees reduction (%)	12.2	55.4
Rate (%) N with dbh ≥ MLD / N with dbh ≥ 60 cm	9.5	100.0

^(*) Durrieu de Madron et al. (1998)

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Take-home messages



Bourland N., Kouadio Y. L., Fétéké F., Lejeune P., Doucet J.-L. (2012). Ecology and management of *Pericopsis elata* (Harms) Meeuwen (Fabaceae) populations: a review. *Biotechnologie, Agronomie, Société et Environnement* 16: 486-498.

Bourland N., Kouadio Y. L., Lejeune P., Sonké B., Philippart J., Daïnou K., Fétéké F., Doucet J.-L. (2012). Ecology of *Pericopsis elata* (Fabaceae), a Timber Species Considered as Endangered, in Southeastern Cameroon. *Biotropica* 44: 840-847.

Take-home messages

- **No impact of selective logging** (Central Africa) on diameter growth and natural mortality rate
- **Low MFD** (37 cm vs. 70 and 90 cm for moabi and ayous, respectively)
- In Cameroon, seed trees potentially **yield ripe fruits 30 to 40 times** before being harvested
- Logging at the **MLD of 60 cm** (Congo and RDC) **may accelerate the natural decline of *P. elata***
- **Reforestation programs should be set up**

