

# Tree species demographics and dynamics in the native forest at Wondo Genet College of Forestry and Natural Resource Management, central Ethiopia

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## Background:

The extent and ecological integrity of native forests in Ethiopia have been greatly diminished during the past century. Native forests continue to be threatened by conversion to agricultural fields or plantations of non-native tree species, by excessive harvesting and wood collection, and by climate change.

Due to a paucity of research, we know little about the ecology of most native forest species, about the overall dynamics of native forest communities, or about the capacity of individual native tree species to respond to current and future threats.



## Objectives and Methods:

A group of students and faculty at Wondo Genet College of Forestry and Natural Resource Management in central Ethiopia examined the demography of two common tree species in an 8-ha tract of native forest located on the College campus.

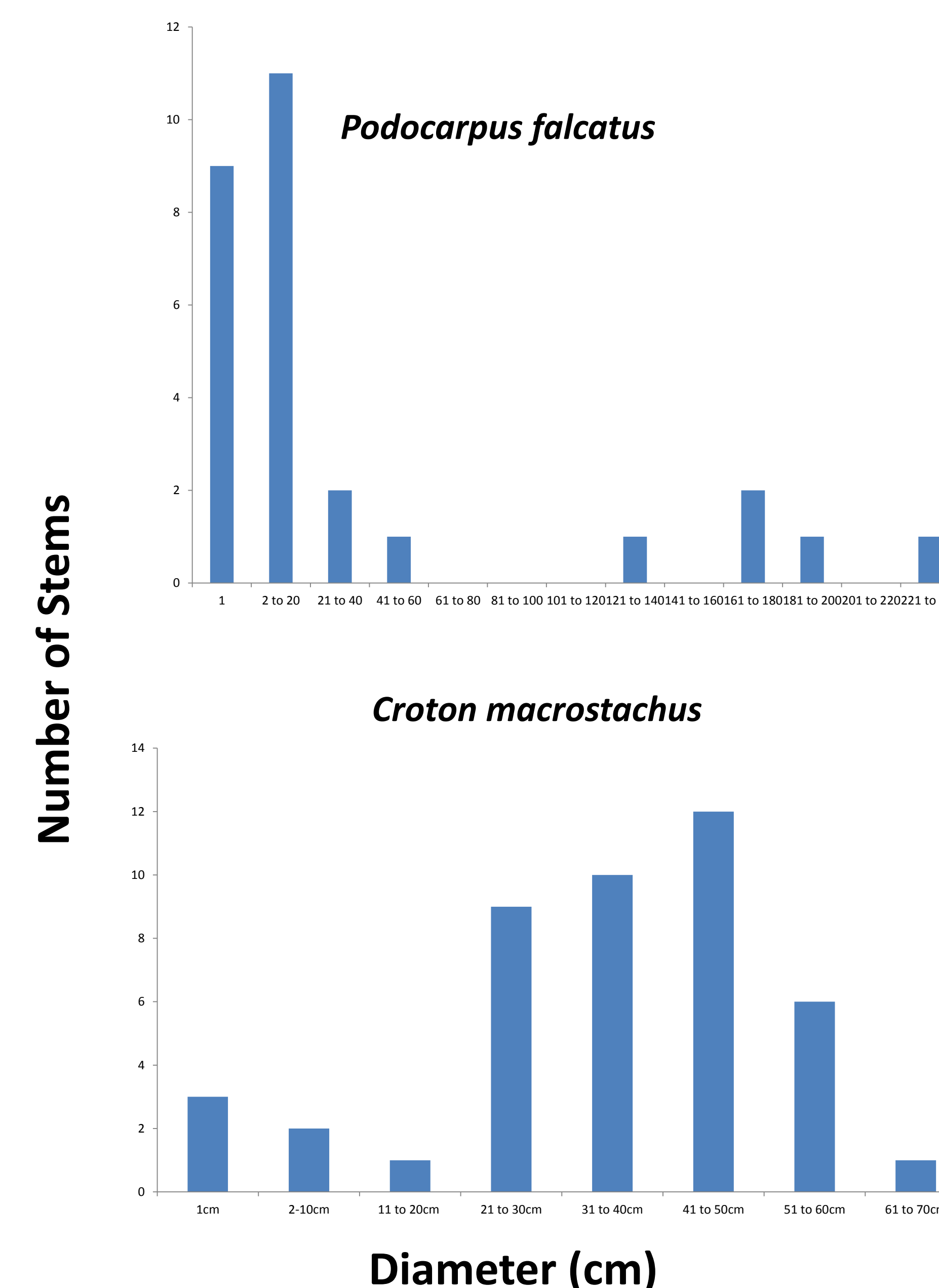
Numbers and diameters of *Afrocarpus falcatus* and *Croton macrostachus* were tallied in six 200-600 m<sup>2</sup> plots.



## Results & Interpretations:

The size class distribution of *Afrocarpus* resembled an inverse J form, with a preponderance of smaller stems but some large individuals up to 226 cm dbh--indicative of a relatively stable population capable of regenerating beneath the established forest canopy.

In contrast, most *Croton* were 20-50 cm dbh, with only a few larger or smaller individuals--reflecting a discrete pulse of regeneration, probably following a local disturbance that created gaps in the forest canopy.



## Conclusions:

These results suggest that the shade-intolerant *Croton* is more resilient to clearing or harvesting than is the shade-tolerant *Afrocarpus*. However, key questions remain, notably the date and nature of the disturbance that produced this documented pulse of *Croton* regeneration, the optimal and maximum size of opening can be colonized by *Croton*, and whether *Podocarpus* regeneration is restricted to intact canopy settings (as suggested by these findings) or if this species can regenerate in openings as well.

