



## Morphometrics of *Pinus patula* crown and its effect on cone characteristics and seed yield in Kenya

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### Scope and main objectives

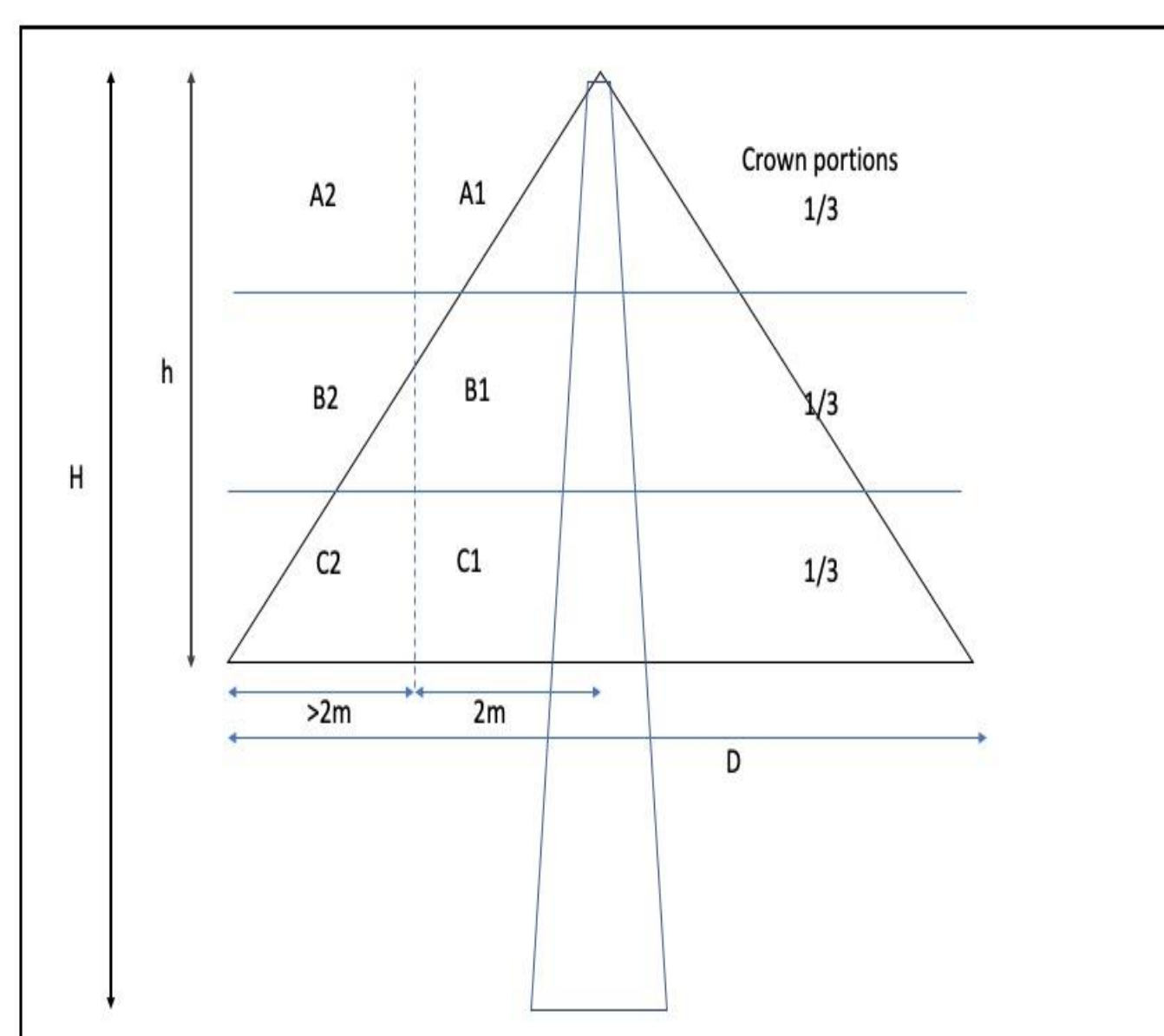
*Pinus patula* is one of the key commercial tree species grown for the production of sawn wood and pulp wood. It covers 27% of plantation forest in Kenya.

The scope was a comparison of *Pinus patula* crown morphometry and seed yield for improved seed availability to support sustainable forest management. The specific objectives were

- (i) to determine cone characteristics in different crown compartments,
- (ii) to estimate percent opening and seed yield from cones of different crown compartments, and
- (iii) To determine the most suitable crown compartment for seed collection

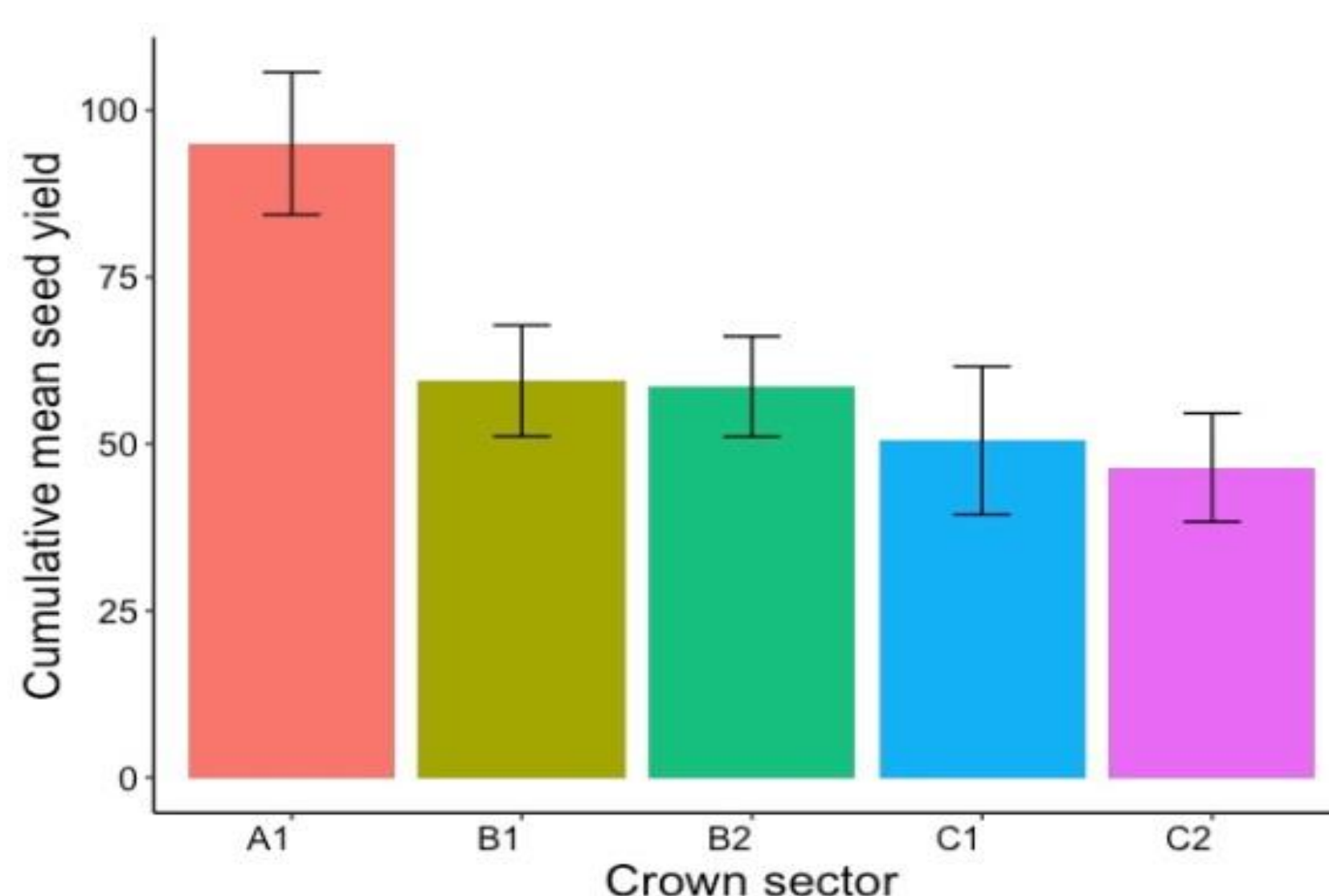
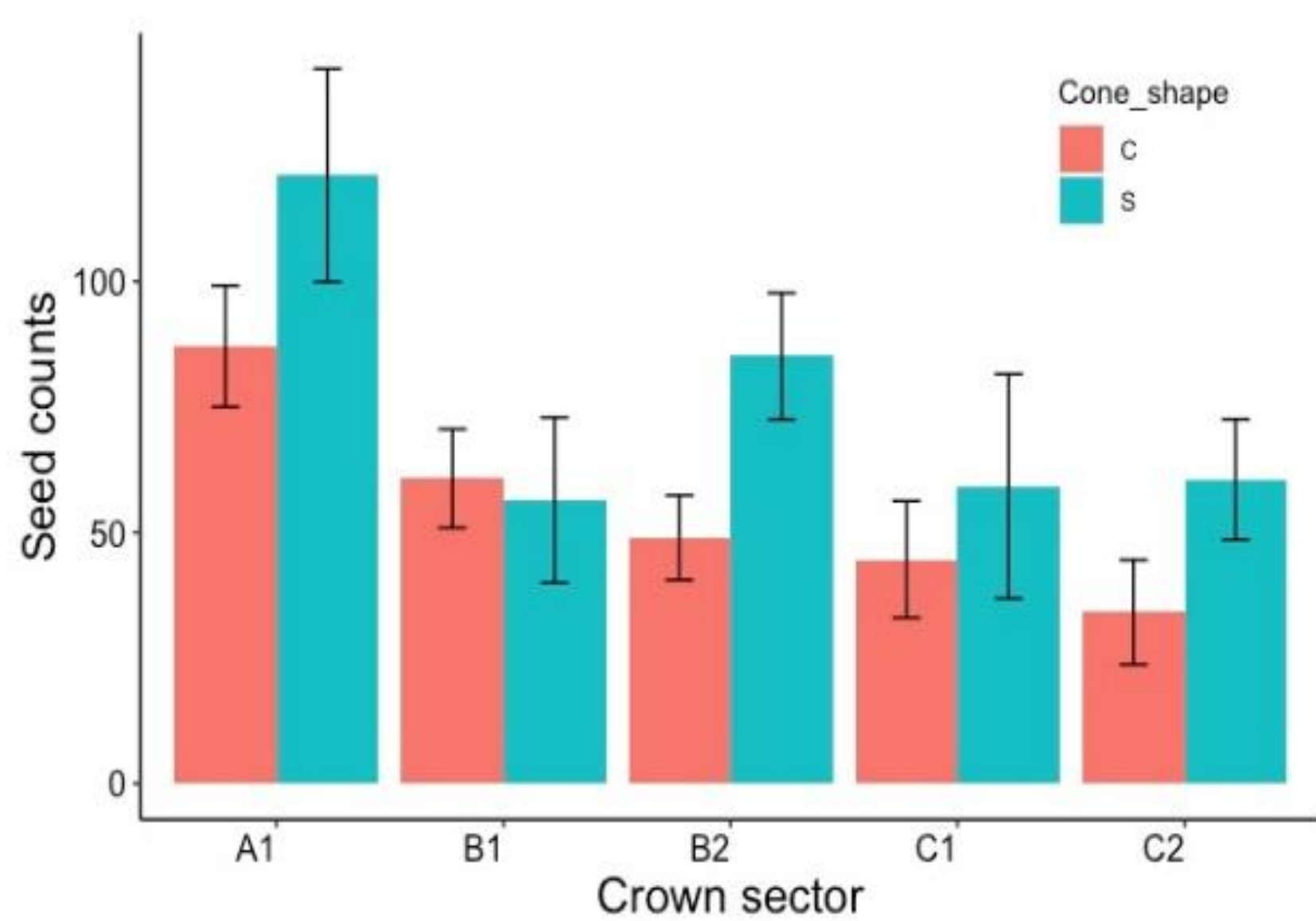
### Innovative approach/results

The study took place in March, 2020 at Londiani, Kenya. Cones were collected from a clonal seed orchard. The orchard was divided into three equal plots with ten sample trees from each plot.



- i. From the sampled trees, the following parameters were measured dbh (cm), H-tree height (m), h-crown height (m), and crown radius (m).
- ii. The crown height was subdivided into 3 equal portions; top (A), middle (B), and bottom (C).
- iii. A further subdivision was done for each of the portions into two sections based on distance from the stem. Sections comprised A1, A2, B1, B2, C1 and C2.
- iv. Cones were categorized as straight or curved and their weights and lengths measured
- v. Cones were artificially dried at 65°C for 24 hours
- vi. Seed counts were taken and the length of cone opening recorded.

Cone analysis showed that the upper crown produces the heaviest cones. This observation could be attributed to light exposure and space for cone development.



### Conclusions/lessons learned/way forward/why it matters/recommendations

1. We observed the upper crown compartments (A and B) outperforming the bottom compartment (C) in seed yield.
2. In areas where seed collection is not from clonal seed orchards seed collection for *P. patula* should focus on top (A) and middle (B) parts of the crown compartments for improved seed yield.
3. The study recommends cone collection from the upper and middle parts of the crown. Further studies should be conducted focusing on the influence of crown management on cone production and seed yield.