

## Oral presentation

### Is commercialization of *Colophospermum mopane* seeds from Namibia ecologically justified?

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**Introduction.** A group of non-profit entities in Namibia is interested in providing an additional income opportunity for rural citizens in the country through commercialization of local plant resources. The pleasingly aromatic and resinous seed of *Colophospermum mopane* (Benth.) J. Léonard (Fabaceae) has been targeted for production of a new natural product due to the apparent abundance of the woody plant. The phenology in this species is quite poorly understood however, and the species exhibits high phenotypic plasticity due to environmental conditions and human management.

**Objectives.** In order to understand the potential impact on this southern Africa-endemic species of a large-scale and sustained seed harvest and assess the seed supply for market, this study strives to characterize key factors affecting fruit production and to estimate annual fruit yield at study sites targeted for seed sourcing.

**Methods.** After determining that the project was acceptable to local people, individual plants and environmental conditions were characterized and fruit was counted and collected at five different sites, interviews and participatory exercises with local people were conducted, and principle components analysis and regression were performed on the data.

**Results.** Preliminary results indicate that there were three main principal components with eigenvalues >1.0 that cumulatively described 74.3% of the variation in the data set. These were labeled plant size (37.1%), anthropogenic plant damage (20.7%), and non-anthropogenic plant damage (16.4%). Biplots demonstrated that patterns of growth and damage to plants varied between sites. Regression analysis showed that height of the mopane tree significantly predicts the amount of fruit produced ( $P < 0.001$ ,  $R^2 = 30.4\%$ ).

**Conclusion.** Long-term data collection is ongoing and future findings will be used to assess sustainability through matrix modeling, annual variability in fruit production, and to estimate expected seed biomass production. Results of this study will be integrated into a seed sourcing plan and an adaptive management strategy for *C. mopane* in villages from which seeds are sourced.

Keywords: Non timber forest product, sustainable development, adaptive management, phenology, phenotypic plasticity

#### Selected References

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