

Breaking News: Statistical Proof that Cows Eat Outplanted Seedlings!

by Thomas D. Landis

The following is an expanded discussion on this article from the New Nursery Literature section: # 165 - Renison D, Chartier MP, Menghi M, Marcora PI, Torres RC, Giorgis M, Hensen I, Cingolani AM. 2015. Spatial variation in tree demography associated to domestic herbivores and topography: Insights from a seeding and planting experiment. *Forest Ecology and Management* 335: 139-146.

I come across all kinds of articles in my literature reviews for FNN, but this one made me chuckle. The research question was why tropical and subtropical high mountains forests are mainly situated within ravines. This condition is called “the Polylepis problem” (Kessler 2002) because the genus *Polylepis* is most prevalent in the high mountain forests of South America. The accepted explanation for this phenomenon is that abiotic environmental conditions such as climate, fire, soil moisture, soil depth and other site factors are responsible. To test this hypothesis, the authors seeded and planted seedlings and saplings at three topographic locations: ravines, valleys and ridges and then monitored survival and growth at 5 and 12 years afterwards. Their data was subjected to intensive statistical analysis and their conclusion was that “there could be a strong influence of grazing in restricting high montane forests to sites like ravines where large herbivores are less frequent”. A casual glance at one of

their bar charts makes statistics unnecessary (Figure 1). The authors also concluded that if the experiments would have been terminated after 5 years, they would have come to a different conclusion - although I have a hard time seeing that from the bar chart.

References

Kessler M. 2002. The “Polylepis problem”: where do we stand? *Ecotropica* 8: 97–110.

Renison D, Chartier MP, Menghi M, Marcora PI, Torres RC, Giorgis M, Hensen I, Cingolani AM. 2015. Spatial variation in tree demography associated to domestic herbivores and topography: Insights from a seeding and planting experiment. *Forest Ecology and Management* 335: 139–146.

Figure 1 - Survival and height of Polylepis australis saplings 5 and 12 years after outplanting as a function of topographic position and livestock presence. Different letters above the bars indicate significant differences at the P = 0.05 level. (modified from Renison and others 2015).

