

Farmers seek high tree diversity in the semi-arid and sub-humid areas of Ethiopia

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Background

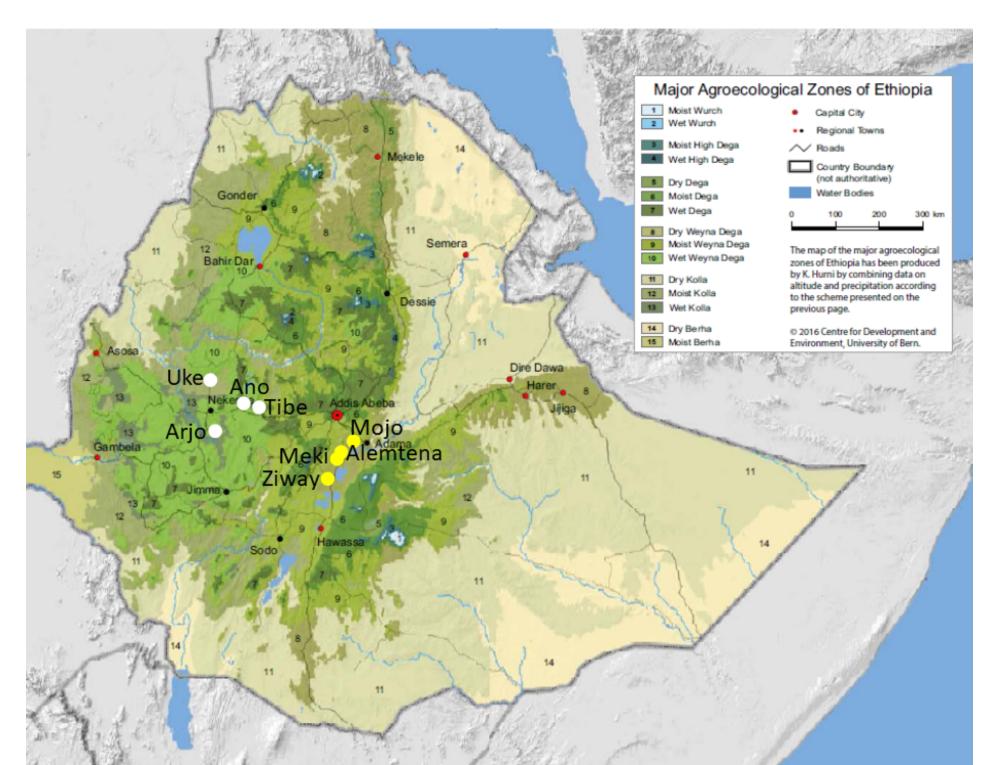
Increasing tree cover on farms in Ethiopia supports livelihoods and the environment. Most tree-planting schemes rely on a few species.

Aim

To understand farmers' priorities for tree planting in semi-arid and sub-humid conditions in selected sites in Oromia, Ethiopia, and the constraints they face.

Materials and methods

Increasing tree cover on farms in Ethiopia supports livelihoods and the environment. Most tree-planting schemes rely on a few species.



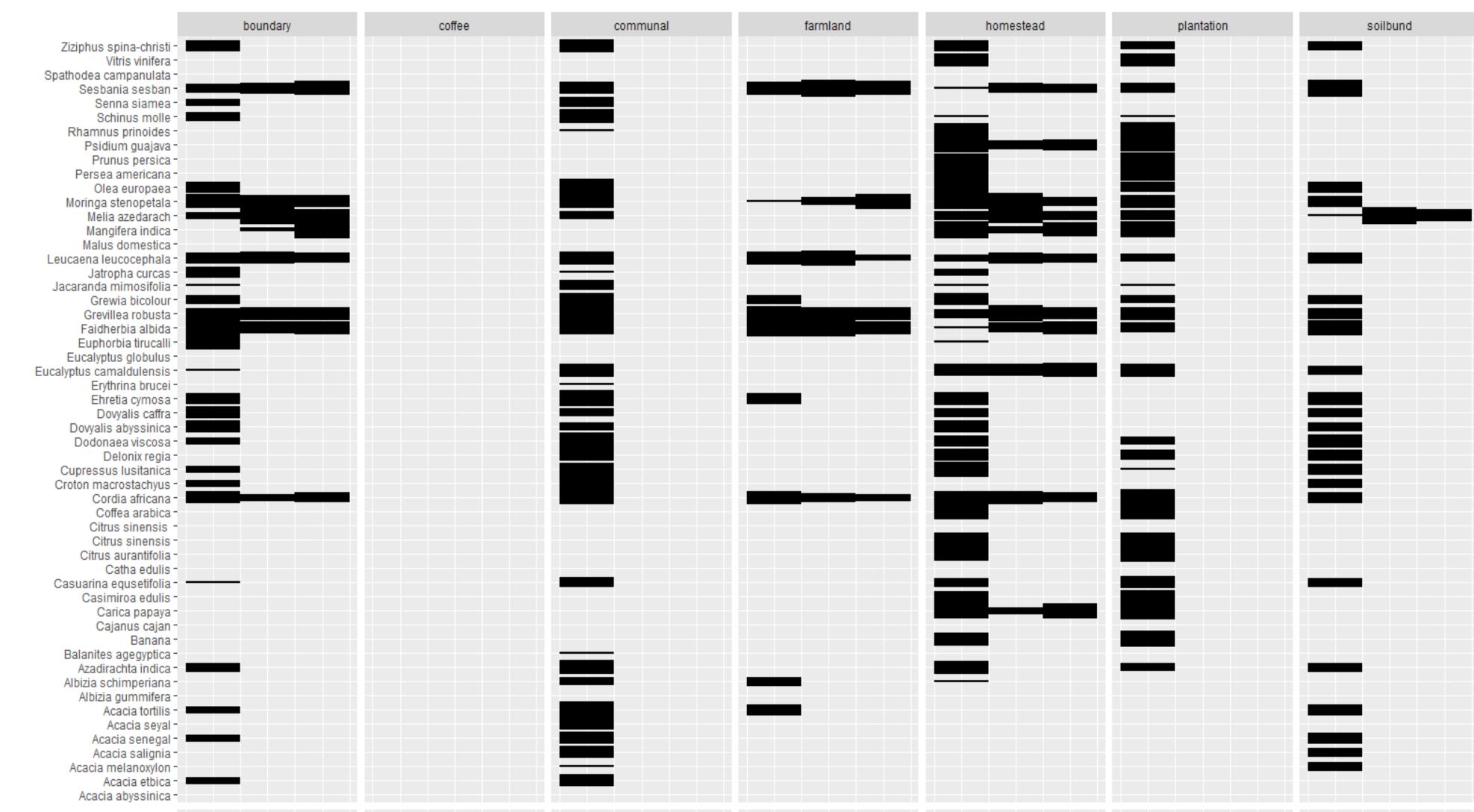
Approximate locations of participatory trial sites shown on agroecological map of Ethiopia (Hurni et al. 2016)



Tree species such as the native Millettia ferruginea are integrated into crop lands



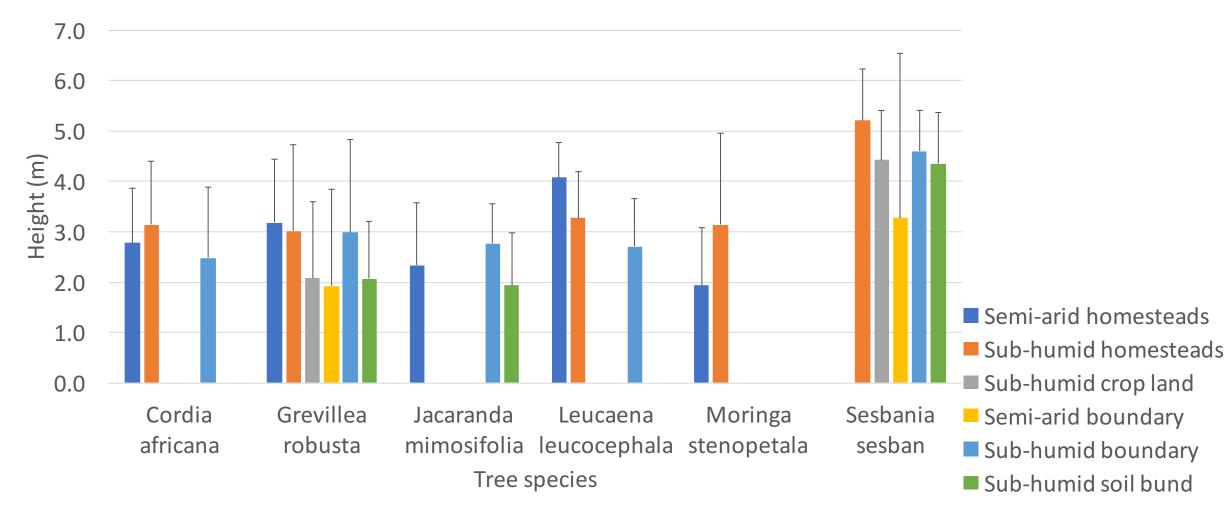
Tree height measurement of planted Moringa trees in a homestead boundary in a semi-arid site, Meki



Species priorities, trees planted and surviving in on-farm niches in semi-arid Oromia, Ethiopia. Line width is proportional to priority, numbers planted and survival rate, respectively. An ideal situation would have planting and survival matching priorities, giving horizontal lines of equal width across the three phases; same is done for the sub-humid sites (figure not shown). Meeting the demand for diversity and achieving effective establishment are challenges in large-scale tree planting.

Results

Farmers identified a high diversity of tree species for each niche. Most of these are logical, but some need to be explored further. Fruit tree species were mainly selected for homesteads. The diversity of desired tree species is much higher than that typically available in nurseries or promoted by projects. Meeting planting demands proved difficult as seedling supply does not support diversity. Evaluation of tree survival showed striking differences among species, farms, agroecologies and niches. There was also a high variation in survival rate among farmers, meaning that local-level risk factors are still not properly understood.



Mean height attained by the shared species in the sub-humid and semi-arid sites under different niches during the third year after planting

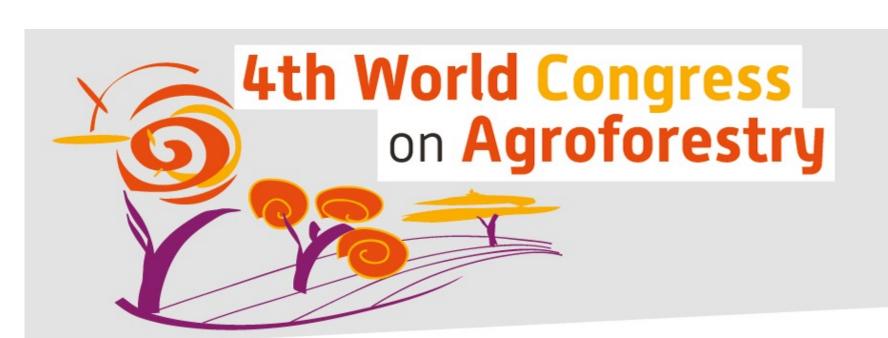


Tree diversity in nurseries needs to be increased and seedling quality improved

Conclusions

Understanding farmers' tree species priorities for different niches, and designing and implementing participatory trials reveal the diversity needed and should be part of tree supply and planting action. Better understanding of survival risk factors could promote improved management.

Reference: Hurni H, Berhe WA, Chadhokar P, Daniel D, Gete Z, Grunder M, Kassaye G. 2016. *Soil and Water Conservation in Ethiopia: Guidelines for Development Agents.* Second revised edition. Bern, Switzerland: Centre for Development and Environment (CDE), University of Bern, with Bern Open Publishing (BOP). 134 pp.



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