Drivers of overuse and degradation of the important fodder tree Euphorbia stenoclada in southwest Madagascar and approaches for mitigation

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In dry, rural southwest Madagascar, livestock keeping contributes significantly to food security of the local people who mainly base their livelihood on subsistence agriculture. In the coastal zone of the Mahafaly region, the succulent evergreen tree *Euphorbia stenoclada* ("Samata") is the most important dry season fodder resource. Yet, increasing degradation of the wild stocks and thus growing fodder shortage makes livestock keeping in this region increasingly difficult.

Empiric evidence shows that the degradation of Samata is caused by increasing mismanagement and too intensive looping. For validating the severity of overuse, we quantified the standing biomass of Samata trees and their mortality rates on 70 sample plots in the study region. Additionally, we conducted 111 interviews with livestock keepers in order to understand the socio-economic reasons for and dynamics of the perceived mismanagement.

Our data show that the pressure of use varies strongly with the trees' distance to villages, and treemortality rates are up to 22%. The interviews revealed that livestock keepers react to increasing Samata scarcity by privatizing this formerly open access common pool resource. The unruly privatisation process is a main trigger of the overuse of the common pool stocks and leads to constant conflicts over the resource among the villagers. While owners of private stocks carefully utilise their trees, the open access situation on common stocks lacks coordinated management.

Another important factor contributing to overuse is a local lack of knowledge on proper multiplication techniques for Samata. Field experiments on low input multiplication by cuttings under local conditions show good results for tree instalment and growth. First tree nurseries established together with the local farmer communities and primary schools proofed the high potential of this technique for practical, large-scale application.

Thus, local capacity building on Samata multiplication by cuttings can be a prospective solution for mitigating the degradation of the fodder resource and thus to reduce conflicts and to indirectly enhance local food security.