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## Degradation of the Important Fodder Tree *Euphorbia stenoclada* in Southwest Madagascar and Approaches for Improved Management

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### Abstract

In dry, rural southwest Madagascar, livestock keeping contributes significantly to food security of local people. The locals frequently buffer food shortages from failures of subsistence crop production by selling animals for the purchase of staple food. However, livestock keeping in this region is increasingly difficult due to fodder shortages. In the coastal zone of the Mahafaly region, the succulent evergreen tree *Euphorbia stenoclada* (“Samata”) is a very important dry season fodder resource. Yet, it is heavily affected by increasing degradation of stocks of juvenile as well as adult trees, which is aggravating fodder scarcity. Empiric evidence shows that the degradation of Samata is caused by increasing mismanagement and too intensive logging. 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 did 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 use of trees leads to mortality rates of up to 22 %, which vary strongly with the trees’ distance to villages and thus pressure of use. Interviews revealed that livestock keepers react to increasing Samata scarcity by privatizing this formerly open access common pool resource. Private Samata plantations showed considerably higher biomass yield per tree than open access stocks. This indicates that owners of private stocks carefully utilise their trees, while the open access situation on common stocks lacks coordinated management by the community and leads to degradation. On the other hand, this unruly privatisation process is a main trigger of overuse of the common pool stocks and leads to constant conflicts over the resource among the villagers. 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. Thus, local capacity building on Samata multiplication by cuttings can be a potential solution for mitigating the degradation of the fodder resource and thus reducing conflicts and enhancing local food security.

**Keywords:** Common pool resource, privatisation, resource degradation, succulent tree, vegetative propagation

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