Deutscher Tropentag, October 9-11, 2002, Witzenhausen

"Challenges to Organic Farming and Sustainable Land Use in the Tropics and Subtropics"

Comparison of Flora Development of Area Enclosures and 'Undisturbed' Forest in Tigray, Ethiopia

Sarah Tewolde-Berhan[1], Ralph Mitlöhner[1], B. Muys[2], Mitiku Haile[3]

[1] *Georg-August University Göttingen, Institute of Tropical Silviculture, Germany*
[2] *KU-Leuven Vital, Belgium*
[3] *Mekelle University, Ethiopia*

Abstract

The environmental degradation in the Northern part of Ethiopia, Tigray is a well-established fact. To tackle this problem several interventions have been tried, one of which is the area enclosure. Area enclosure is a method, by which an area is protected from human and livestock interference. This methodology of environmental improvement appears to be successful, but no substantive investigation to quantify the improvement has been attempted. This study tries to quantify the improvement of the vegetation in the degraded sites of a Juniper-Olea afromountain forest. This is done by comparing the vegetation of different aged area enclosures, of 25 years, 5 years, 0 years, and a forest that has not been disturbed for at least 500 years. To achieve the intended objective, samples of 0.19635 ha were taken from the above four sites. In the samples the number of trees, shrubs, grasses and herbs was counted, and their species was identified. Based on the information gathered the following will be presented: a species area curve; mean and standard deviation of the basal area for trees, in the different area and for the different species; number of species and species diversity for the different areas; frequency of trees, shrubs, grass or herbs per hectare, based on area and species. Based on these, the natural progress of developement can be determined. This will help in developing a strategy towards managing and improving the productivity of the enclosed areas in such a way, that the conservation of biodiversity, environmental sustainability, and some of the demands of the local people can be met.

Keywords: Area enclosure, Ethiopia, forest

Contact Address: Sarah Tewolde-Berhan, Georg-August University Göttingen, Institute of Tropical Silviculture, Büsgenweg 1, 37077 Göttingen, Germany, e-mail: saratbge@hotmail.com