

Area Exclosure as a Government Strategy to Restore Woody Plant Species Diversity: Case Study in Southern Ethiopia

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Abstract : Land degradation is one of a serious environmental challenge in Ethiopia and is one of the major underlying causes for declining agricultural productivity. The Ethiopia government realized the significance of environmental restoration specifically on deforested and degraded land after the 1973 and 1984/85 major famines that struck the country. Among the various conservation strategies, the establishment of area exclosures have been regarded as an effective response to halt and reverse the problems of land degradation. There are limited studies in Ethiopia dealing how the conversion of free grazing lands and degraded lands by closures increase biomass accumulation. However, these studies are not sufficient to conclude about the strength of area closures to restore degraded vegetations at the diverse agro-ecological condition. The overall objective of this study was, therefore, to assess and evaluate the usefulness of area closure technique in enhancing rehabilitation of degraded ecosystem and thereby increase the natural capital in the study site (southern Ethiopia). Woody plant species were collected from area exclosure for eight year and adjacent degraded land with similar landscape positions using systematic sampling plot design technique. Woody species diversity was determined by Shannon diversity. Comparative assessment result of woody plant species analysis showed that the density of woody species in the exclosure and degraded site were 778 and 222 individuals per hectare, respectively. A total of 16 woody species, representing 12 families were recorded in the study site. Out of the 12 families, all were recorded in the exclosure while 5 were recorded in the degraded site. Out of the 16 species, 15 were recorded in the exclosure while six were in the degraded site. A total of 10 species were recorded in the exclosure, which were absent in the degraded site. Similarly, one species was recorded in the degraded site which was not present in the exclosure. The results showed that protecting of degraded site from human and animal disturbances promotes woody plant species regenerations and productivity. Apart from increasing woody plant species, the local communities have benefited from the exclosure in the form of both products (grass harvesting) and services (ecological). Due to this reason the local communities have positive attitudes and contribute a lot for the success of enclosures in the study site. The present study clearly showed that area closure interventions should be oriented towards managing and improving the productivity of the degraded land, in such a way that both the need for conservation of biodiversity and environmental sustainability, and the demands of the local people for biomass resources can be achieved.

Keywords : degraded land, exclosure, land restoration, woody vegetation

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