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The Role of Exclosures for Biodiversity Conservation - the Biyo-Kelala Exclosures in Central Ethiopia

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Excluding livestock grazing and other human activities is a frequently used technique for restoration of degraded land in Ethiopia. In order to assess the role of exclosures for biodiversity conservation, we collected vegetation data from a young and an older exclosure using a systematic sampling design and contrasted the results with those obtained from an adjacent open grazing land. The stand density of all woody plants in the young exclosure was 587 ha-1 and 1022 ha-1 in the old exclosure, while it was only 180 ha-1 in the open area. Sorensen's similarity coefficient indicated considerable dissimilarity in the species composition of vegetations between the exclosures and open area. As exclosures mature, woody plant cover and species richness increased while herbaceous plant cover decreased. A total of 133 species representing 107 genera and 45 families were recorded from the study area where twenty species were recorded common to the exclosures and open grazing land. The Shannon diversity index was highest (3.66) in the old exclosure and lowest (2.03) in the grazing land. In general, the result revealed that management influenced the vegetation density richness and diversity. The study showed that area exclosures play potential role in enhancing the recovery of vegetation diversity of degraded areas.

Key words: Free grazing, Vegetation diversity, Exclosure ages