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Major Pressures Driving Changes in Rangeland Biodiversity and Ecosystem Services

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Abstract

It is important to understand drivers of rangeland biodiversity and ecosystem change in order to contribute to informed decision making about managing the causes of negative changes in rangeland biodiversity and ecosystem. Ethiopian rangelands are endowed with adapted flora and fauna that contribute to the good life of its inhabitants. Grazing, fire, invasive plants, weather and climate and human influences are major factors that cause rangeland biodiversity and ecosystem services to change over time. Identifying driving factors is important to understand the impact of climate variation and human activities on rangeland degradation. This paper assessed different direct and indirect pressures that are driving changes on the status of the biodiversity and ecosystem services in rangeland of Ethiopia. Furthermore, the positive and negative impacts of lifestyle changes and development activities on the biodiversity and ecosystem services were assessed in this ecosystem. Biodiversity and ecosystem services are sensitive to the way we utilise and manage their resources and landscapes. Identification of rangeland biodiversity and ecosystem services drivers is a significant first step in understanding more about the ongoing changes that are happening. Drivers represent the underlying causes of rangeland biodiversity and ecosystem services change, and dictate the ways in which people's lifestyle, including socially, economically, politically factors, affect the world around us. Existing knowledge about the direct and indirect pressures driving changes in the Ethiopian rangeland biodiversity and ecosystem services were reviewed. The review result indicated that rangelands have been suffering losses of soil organic carbon because of soil disturbance, vegetation degradation, fire, erosion, nutrient shortage, and water deficit. Bush encroachment, overgrazing, recurrent drought, land use change and ban of rangeland fire were among the major factors that caused rangeland biodiversity and ecosystem services change. Therefore, rangeland restorations, re-vitalisation of use of fire as a rangeland management tool, appropriate land use policy, improved grazing management and selective clearing of woody plants should be the directives to be followed.

Keywords: Bush encroachment, fire, grazing management, land use, policy, restorations