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Encroachment of *Acacia brevispica* and *Acacia drepanolobium* in Semi-Arid Rangelands of Ethiopia and their Influence on Sub-Canopy Grasses

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Abstract: This study was conducted in the semi-arid Borana rangelands of Ethiopia and focused on the distribution pattern of *Acacia brevispica* and *Acacia drepanolobium* and their influence on sub-canopy grasses. Both species had significantly greater total densities on communal lands than on a government ranch and on the nearest site than on the furthest site from water points. A total of 23 grass species were identified in the sub-canopy and open habitats surrounding *A. brevispica* and *A. drepanolobium*. *Cenchrus ciliaris* and *Chrysopogon aucheri* were dominant species surrounding *A. drepanolobium* in both habitats. For grasslands surrounding *A. brevispica*, *Themeda triandra* was the dominant sub-canopy grass species, while *C. aucheri*, *Panicum turgidum* and *Loudetia flavida* dominated open habitats. Sub-canopy habitats in both species had significantly higher yields of total, highly and intermediately desirable grasses than open habitats. Although *A. brevispica* and *A. drepanolobium* have encroached due to prolonged heavy grazing, they did not negatively impact on sub-canopy grass productivity and, therefore, their control should be considered with caution. Future research is required to examine if changes in total tree density or cover may alter results of this study. Research is also needed on determinants of changes in sub-canopy grass productivity.

Key words: Borana, *Bush encroachment*, grass layer, grazing, rangelands, savanna