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The economics of landscape restoration: Benefits of controlling bush encroachment and invasive plant species in South Africa and Namibia

Stafford, William, Birch C, Etter H, Blanchard, Ryan, Mudavanhu S, Angelstam P, Blignaut J, Ferreira L, Marais C

ABSTRACT:

Bush encroachment and alien plant invasions alter the composition and/or balance of species in natural ecosystems and impact biodiversity, land productivity and water availability. Therefore, the appropriate control and management of bush encroachment and alien plant invasions can restore ecosystems services and enhance the provision of timber and non-timber products to society. To understand the economics of land impacted by bush encroachment and alien plant invasions, we valued a selected number of ecosystem services from landscape restoration in South Africa and Namibia. In Namibia, the estimated value of ecosystem services from the restoration of bush encroachment was US$5.8 billion. In South Africa, the estimated value of ecosystem services from the restoration of bush encroachment was US$2.1 billion, and US$6.6 billion from the restoration of alien plant invasions. The most valued ecosystem service benefit assessed was water, followed by timber products and wood-fuels such as biomass to electricity, and then grazing. The value of these ecosystem services are considerable compared to the direct costs involved to clear invasive alien plants and control bush encroachment. This clearly illustrates that the management of invasive alien plants and bush encroachment can deliver significant ecosystem services benefits whose value outweighs the costs of restoration.