

Abstract:

The invasive coloniser *Ipomoea hildebrandtii* aggravates the problem of inadequate grass forage in Kajiado district, Kenya. To test its impact on grass biomass, nitrogen (N) mineralisation and seedling establishment, grazing and coloniser density were controlled using experimental exclosures and weeding treatments separately in a factorial design. Grass biomass increased 47% in weeding treatments and 117% with protection from grazing. *Ipomoea hildebrandtii* removal also led to decline in soil moisture at a depth of 5 cm and an increase at 30 cm, and lower soil compaction. Grazing lowered soil moisture and increased soil compaction. Mineralisation of N was highest under the dominant grass *Chloris roxburghiana* followed by *I. hildebrandtii* and bare ground. Weeding increased N mineralisation whereas grazing lowered it. Multiple regression showed that *I. hildebrandtii* seedling establishment was significantly higher with low grass biomass, high soil moisture at a depth of 30 cm and higher soil N nitrification. Thus weeding, which caused an increase in the latter two factors, led to increased seedling establishment. Grazing, which lowered soil moisture and mineralisation, led to lower seedling establishment despite reduced competition from lowered grass biomass. This shows invasibility by *I. hildebrandtii* in rangelands increases when lowered competition is accompanied by an increase in soil resources such as moisture and nitrogen, thus supporting the resource fluctuation theory.