

October 2018

POLICY BRIEF

PRICKLY PEAR CACTUS INVASION: A MAJOR THREAT TO BIODIVERSITY AND FOOD SECURITY IN THE DRYLANDS OF KENYA



Prickly pear cactus growing in the rangelands

Key Messages

- Invasive cactus degrades rangelands and reduces availability and accessibility of pasture and other natural resources.
- Cactus invasion reduces biodiversity hence affecting ecosystem goods and services that are essential for human well-being.
- There is limited information and lack of public awareness on the harmful impacts caused by invasive cactus.
- Rural households lose between 50 and 100 thousand shillings a year because of cactus

Policy Recommendations

- Map and list threatened areas and species to improve biodiversity conservation.
- Increase awareness and understanding of the harmful effects of cactus invasions and their possible solutions and best practices.
- Rehabilitate and restore rangeland ecosystems through integrated management plan
- Develop and implement policy guidelines to prevent further invasion

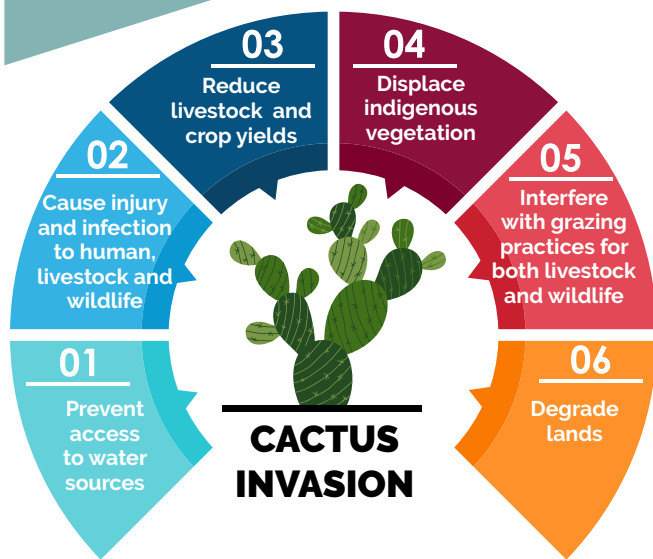


Figure 1. Overall negative impacts caused by cactus invasion



Figure 2. Prickly pear cactus growing in the rangelands

The prickly pear cactus has a negative impact on food security, biodiversity and human well-being (Figure 1).

Why is prickly pear cactus a huge concern in Kenya?

The cactus invades mostly arid and semi-arid lands (ASALs), which form more than 80% of Kenya's land mass. Livestock keeping is the main socio-economic activity in these areas. The plant is hardly appreciated due to presence of spines and glochids (small spines on fruits) that cause injuries to people and livestock. In Narok County, cactus invasion has increased rapidly over the last five years and has displaced people and pasture ^[1]. The plant has been present in Laikipia County for more than 10 years and has invaded grazing land, contributing to the death of livestock and wildlife ^[2]. Several conservancies and national parks have also been invaded by the plant. The plant is not only a serious threat to a wide range of wildlife but also to plant diversity. For example, in the Serengeti-Mara ecosystem, prickly pear cactus is among the intentionally introduced plants that have displaced

grass and other fodder plants ^[3]. It has also occupied more than 500km² in the Tsavo East National Park and its surrounding areas ^[4]. In Naibunga conservancy, the plant has occupied about 17000 acres of land and invades at least 2 km of habitat per year ^[5]. The potential costs associated with the invasion in natural pasture are based on reduced grazing land, replacement of natural pasture, negative impacts to livestock health and reduced mobility of livestock. Although the full cost of the impacts of cactus invasion in Kenya has not yet been quantified, rural households lose between 50 and 100 thousand shillings a year because of cactus ^[2]. With the current changes in climate, the plant is likely to be a growing problem to the rural livelihoods if appropriate measures to control its spread are not put into place.

What are prickly pear cactus plants?

Prickly pear cactus, is among the most common introduced invasive plant in Kenya. Originally from America, the plant is widespread in the arid and

semi-arid areas. Prickly pear is a spiny shrub with different shapes, which has attractive yellow flowers and purple-reddish fruits (Figure 2).

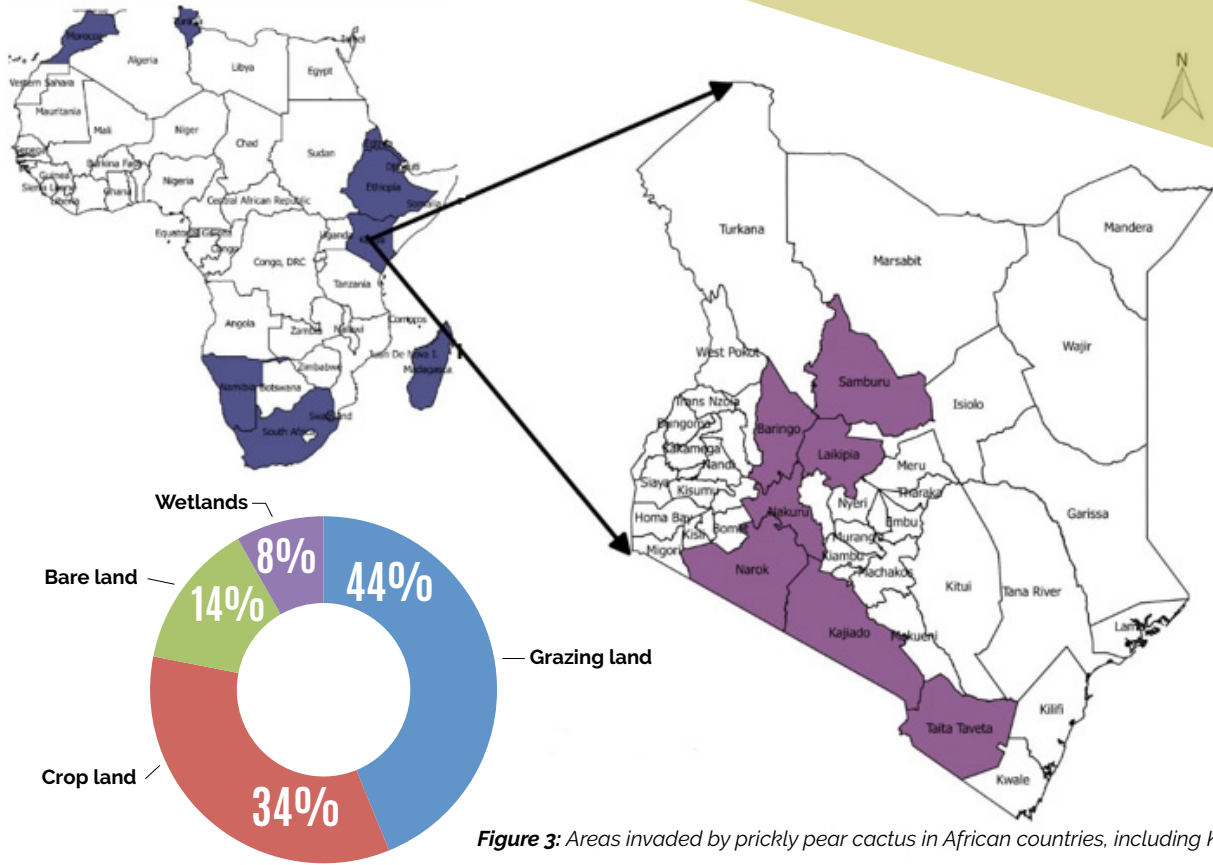


Figure 3: Areas invaded by prickly pear cactus in African countries, including Kenya

The seeds are dispersed by baboons, birds and elephants. Broken pieces are scattered by animals as they move from one place to another. The plant can survive well during prolonged drought and the seeds

can stay in the soil for almost two years as they wait to sprout during the rainy season. These characteristics enable it to be more aggressive than others.



(a)



(b)

Figure 4: Use of prickly pear cactus as (a) ornamental plants and (b) as live fence

How is cactus controlled and managed?

The most applied methods of controlling cactus are manual such as chopping, burying and burning. These are difficult, involve a lot of labour and cannot provide a lasting solution. Chemicals on the other hand are used after chopping but the plant regenerates after some time. The control of prickly pear cactus in other countries such as South Africa is entirely reliant on bio-control insect, which was introduced in a pilot project in Laikipia and showed

a positive result. However, local pastoralists reported that the insect was released in a few areas and the plant was spreading faster in the neighbouring areas where it had not invaded before especially in the mountains and valleys [5]. Complete removal of cactus plants also left bare grounds that could open spaces for further degradation. Successful management of the plant therefore requires an integrated management plan of the infested areas.

What can be done to prevent further spread?

There are several national strategies that have a focus on biodiversity conservation through control of invasive alien species. These include the National Wildlife Strategy 2030, the Kenya Vision 2030 and the National Strategy and Action Plan for the management of invasive species in protected areas in Kenya. Based on these, this brief suggests several

approaches to manage and reduce the negative impacts of cactus invasion (Figure 5) that can be applied by the Ministry of Environment, Water and Natural Resource, Ministry of Agriculture, Livestock and Fisheries, Ministry of Tourism and County governments that are affected by the invasion.

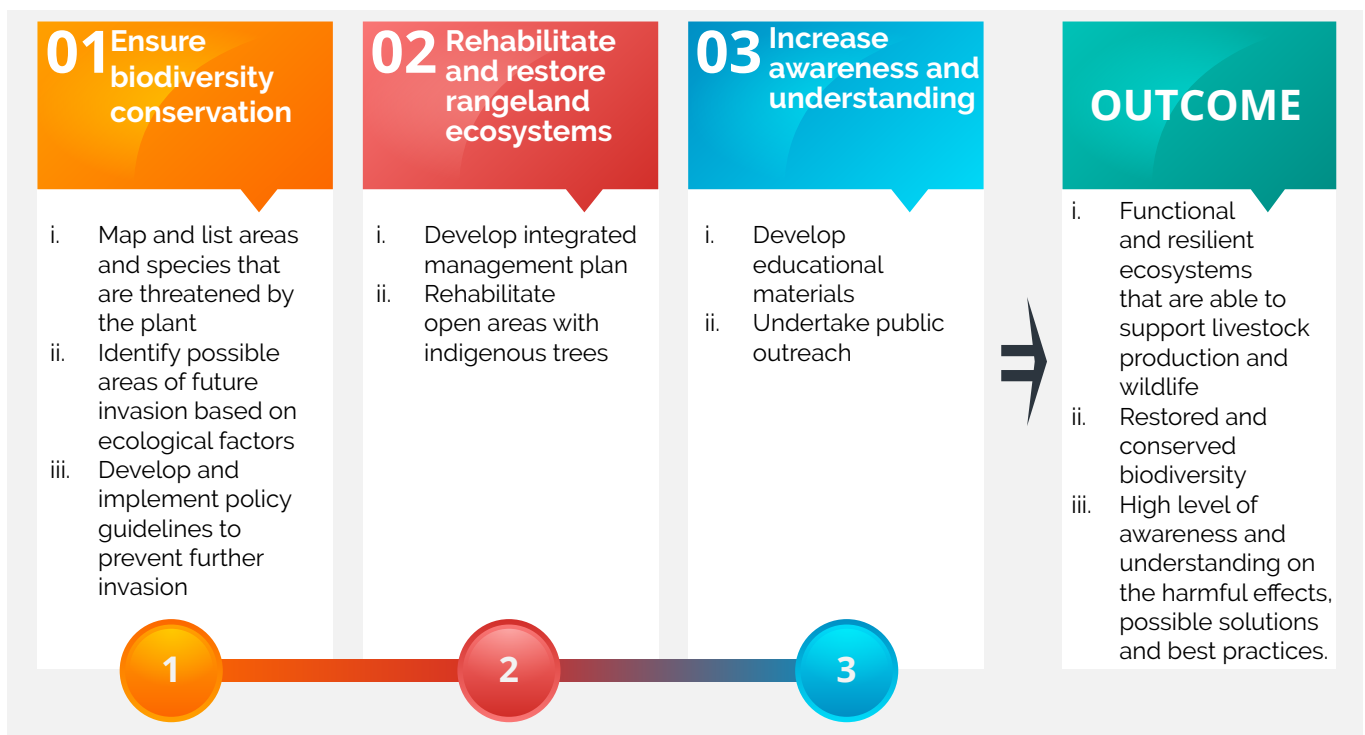


Figure 5: Approaches to manage and reduce the negative impacts of cactus invasion

Acknowledgments

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References

1. Githae E.W (2018) Status of Opuntia invasions in the arid and semi-arid lands of Kenya. CAB Reviews 2018 No. 003
2. Shackleton RT, Witt ABR, Piroris FM, van Wilgen BW (2017). Distribution and socio-ecological impacts of the invasive alien cactus Opuntia stricta in Eastern Africa. Biological Invasions 19 (8):2427-2441
3. Witt ABR, Kiambi S, Beale T, Van Wilgen BW (2017). A preliminary assessment of the extent and potential impacts of alien plant invasions in the Serengeti-Mara ecosystem, East Africa Koedoe, 59 (1): 1 – 16
4. CAB International (2018). CABI invasives factsheet (2018). <https://www.cabi.org/Uploads/CABI/news/Cactus-Factsheet.pdf>
5. Dairy Nation July 11 (2017). Killer cactus. <https://www.nation.co.ke/lifestyle/dn2/Killer-cactus/957860-4010324-n7hx7hz/index.html>

CONTACT ADDRESS
 Eunice Githae, Chuka University
 Email: egithae@chuka.ac.ke;
egithaeh@gmail.com



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