

3.0 Awareness Creation on Invasive woody species

To achieve the overall goal of management and control of invasive woody plants in forests KEFRI and KFS have held several public awareness meetings through in house and outreach programmes. The targeted groups included community groups, conservation groups, CFAs, KFS staff and some institutions (schools, universities and colleges) among others. The groups were given oral lessons on how to identify and control invasive species and to gain practical experience the participants took part in the actual control.



Sensitizing Kedowa and Likia CFAs on management of some common invasive woody species

MANAGEMENT OF INVASIVE WOODY SPECIES IN WATER TOWERS



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1.0 Overview of Invasive woody species

Invasive species are plants that were introduced into our forests that have a tendency to spread and cause damage to environment, human economy or human health. Invasive species in forest areas are heavy seeders and have the ability to spread over several life cycles and to considerable distance from their site of introduction. They tend to outcompete and displace indigenous plants hence are classified as some of the most important drivers of degradation in the water towers in the country such as Mau Forests Complex. To understand the dynamics of invasive species and potential control procedures KEFRI undertook a study in Mau Forests Complex in the years 2013-2015.

1.1 Why the studies ?

The study was necessary because exotic invasive woody species are known to inhibit the recruitment of indigenous plant species by preventing seedlings from germination, establishment and growth. Therefore in the long run invasive species may displace indigenous species through competition for resources, such as space, water, nutrients, and light.

1.2 Main Characteristics of exotic invasive woody species

- Spread and proliferate faster than local plant species in disturbed forest areas
- Can survive in most environments
- Out competes local species

1.3 Invasive species in Mau Forests Complex

There are many recorded invasive species in Mau forests that have had different levels of impacts on the forest ecosystems. Most of the invasive species found in forest were deliberately or accidentally introduced in forest adjacent farms for ornamental or forestry purposes many years ago. Since then they have spread to forest areas with serious negative consequences. Some of the recorded invasive species in the two forest ecosystems included *Cestrum aurantiacum* (a), *Acacia mearnsii* (b), *Fraxinus pennsylvanica*(c), *Lantana camara* and *Acacia malanoxylon*.



a: *Cestrum aurantiacum* invading a cypress plantation in Sorget Forest b: *Acacia mearnsii* invasion of abandoned fallow in Masaita forest block c: *Fraxinus pennsylvanica* invading a cedar plantation in MajiMazuri forest.

1.4 Modes of Seed Dispersal

The seeds of invasive woody species can be dispersed through: wind, water, animals, moving vehicles, tools and machinery, agricultural produce and people.

1.5 Negative impacts of invasive woody species on the forest ecosystem

- Replacement of the local plant communities
- Changes ecological functioning of ecosystems
- Reduction in forage resources for animals
- Changes forest structure and quality
- Creates imbalance in ecological processes
- Contributes to forest degradation associated with habitat change and species modification

2.0 Management of woody invasive species in water catchments

Several methods can be used to control the spread and potential impacts of invasive species in forests that include: chemical, mechanical, biological and a combination of them. Mechanical control method involves manual removal by hand and other tools such as jembes or pangas. The method was used in the removal of *Fraxinus pennsylvanica* (Mexican green ash) and *Acacia melanoxylon* (Kanunga) in Kedowa and Sorget forest blocks respectively. In the case of *Cestrum aurantiacum* farmers contracted under the Plantation Establishment and Livelihoods Improvement Scheme (PELIS) cut down and uproot all trees found on their plots in Maji Mazuri. The removed plants were collected and disposed off through burning in designated sites or used as dead fences to demarcate the plots. In Sorget Forest *A. melanoxylon* trees were allocated to firewood licensees to supply to tea factories as firewood. Removal of *A. melanoxylon* facilitates regeneration of indigenous tree species as shown below.

