TANZANIA NATIONAL PARKS

REPORT ON INVASIVE ALIEN ORGANISMS

FEBRUARY, 2019

INTRODUCTION

- Invasive alien organisms constitute the second largest cause of biodiversity loss, after the destruction of natural habitats.

- Tanzania is among 15 countries in the world with the largest number of organisms that are threatened with extinction, having at least 900 species in the IUCN Red List, 2013 (National Biodiversity Strategic Action Plan-NBSAP, 2015).

- Animal species that are threatened with extinction and which are found in Tanzania National Parks include Black rhinoceros, Wild dog, Chimpanzee, Elephant, Cheetah and Green turtle.

- Plant species include Mninga (Pterocarpus angolensis), Mpingo (Dalbergia melanoxylon).

BIODIVERSITY AND INVASIVE ORGANISMS

- Tanzania is the fourth richest country in Africa in terms of biodiversity. 2 of the National Parks in Tanzania are World Heritage sites (Serengeti and Kilimanjaro NPs) and 2 more are Biosphere Reserves (Lake Manyara and Serengeti NPs).

- Our National Parks harbour different kinds of animals, birds and scenery beauty, which have proven to be economically, socially and culturally very important to our nation.

- Through the National Biodiversity Strategy and Action Plan (NBSAP) of 2015, Tanzania intends to have identified all invasive alien organisms and their respective ways of introduction and spread into the country by the year 2020.

- Tanzania also aspires in the same year to have controlled or eradicated the priority invasive/alien species and putting in place preventive measures against their reintroductions.

WHAT ARE INVASIVE ALIEN ORGANISMS?

- Invasive alien are organisms that colonize areas beyond their normal geographical distribution.
- Are capable of tolerating significant fluctuations in environmental and climatic conditions e.g. drought, water quality etc.
- Plants produce many seeds/branches to facilitate their rapid spread.
- Some of the invasive alien plants can have usefulness to human beings by providing timber, chemicals to preserve crops, ornaments, shade etc.
- However, any use of the plants needs to be undertaken with caution as they may have inherent negative effects to man and the environment , which are yet to be discovered.

IMPACTS OF INVASIVE ALIEN PLANTS TO NATIONAL PARKS

- They do change the ecology of a particular area leading to local extinctions of some species. For instance changing the pH of water would cause many aquatic organisms to disappear and changing the pH of soil would result into deaths of other plants hence facilitating its own colonization of the area.
- Invasive plants are rarely favored by wild animals options for fodder or habitat and can be poisonous when consumed accidentally and/or in large quantities.
- Invasive plants can have detrimental effects to human health when touched, smelled or consumed in large quantities.
- Researches have shown invasive plants to have negative impacts to food availability of rare species (e.g. Senna spectabilis Vs Chimps in Mahale).

IMPACTS (Cont....2)

- Affects availability of water for the environment, wildlife and the human communities adjacent to National Parks (e.g. Eucalyptus, Cypress etc.)
- Interfering with normal circulations of water and air hence affecting water quality (e.g. water lettuce at Mikumi, Saadani, Arusha NPs)
- Interfering with waterways (e.g. Water hyacinth in Rubondo Island NP)
- Invasive alien plants do reduce the area available for conservation (in essence, they work against conservation the same way wildfires and poachers do).

HISTORY OF INTRODUCTION OF INVASIVE ORGANISMS INTO NATIONAL PARKS (1)

- Research show that invasive plants were planted in areas that later became National Parks before 1920s by people who were inhabiting the areas by then. These plants were mostly trees for shade and ornaments in farm areas (e.g. Senna spectabilis in Mahale, Rubondo Island and Mikumi NPs).

- By the time these areas were gazetted as National Parks, the seedlings for invasive species had became huge trees that had already spread over extensive areas (e.g. Senna spectabilis, Jacaranda mimesfolia).

HISTORY (Cont…2)

- Areas that were later annexed into National Parks were already infested with invasive plants such as the Half-mile strip (Kilimanjaro NP), Arusha Olmotonyi area (Arusha NP), Usangu Basin (Ruaha NP) and part of the Marang' forest (Lake Manyara NP)

- Areas that faced of the National Parks that were exposed to frequent cattle incursions (parts of Mkomazi, Saadani and Serengeti NPs) were noted to host invasive plant species. Besides causing disturbance to land hence favoring invasive alien over indigenous species, cattle have the potential to carry invasive plants' seeds in their skins and dung.

- Also roadside areas and construction sites the victims of infestations by invasive alien plants as seeds can easily be transported through gravel, soil and even vehicle tires.

HISTORY (Cont…3)

- Areas frequented by wildfires, especially those to the periphery of the parks are among areas significantly affected by invasive plants.

- Areas frequented by visitors including researchers have shown significant infestations of invasive plants most likely through vehicle tires, fruits, seeds etc. Roadsides in National Parks in the Northern circuits are more affected by invasive alien plants than their counterparts in the Southern circuit.

- Parks that are located on the lower parts receive invasive alien species on yearly basis during rain season through surface runoff from upper areas (e.g. Lake Manyara NP and Ruaha NP – Usangu Basin).

HISTORY (Cont….4)

- Invasive alien species have also been blown by wind into parks from adjacent areas.

- Climate change has influenced the behavior of some of the native plants species, making them invasive.
- Some of the alien plant species are not exhibiting invasive tendencies (e.g. Mango, Orange, Pineapple, Lemon, Cassava;); this is probably due to these species being consumed as food by wildlife.

Gugumaji; *Wate hyacinth*- Rubondo

Pistia; *Pistia stratiotes* - Mikumi, Katavi, Kitulo, Serengeti, Ruaha

Status of invasion into National Parks - Photos (1)

Mjohoro; *Senna spectabilis*- Mahale, Rubondo, *Manyara*, *Udzungwa*

Lantana; *Lantana camara*- Arusha, Manyara,Tarangire, Mkomazi, Serengeti,Saadani, Udzungwa.

Datura; *Datura stranomium* – *Arusha*, *Manyara*, *Serengeti*, Mikumi

Mbono; *Jatropha curcas* – Katavi, Ruaha

Pinus; *Pinus patula* – Arusha, Kilimanjaro, Kitulo

Status of invasion into National Parks - Photos (cont…2)

Opuntia monocantha - Serengeti

Opuntia vulgaris- Serengeti, Ruaha, Mkomazi

Chromolaena odorata – Serengeti

Argomone Mexicana – Serengeti, Manyara, Arusha,

Camphor wood (*Cinnamomum comphora)* - Kilimanjaro

Sodom apple (*Calotropis procera)* -

Ricinus communis – Manyara, Tarangire,

Misonobari; *Eucalyptus spp*, - Arusha, Kilimanjaro, Kitulo, Manyara

Senna; *Senna siamea, Mikumi*

Mauritius thorns; Arusha

Bidens pilosa; Manyara, Mkomazi, Serengeti

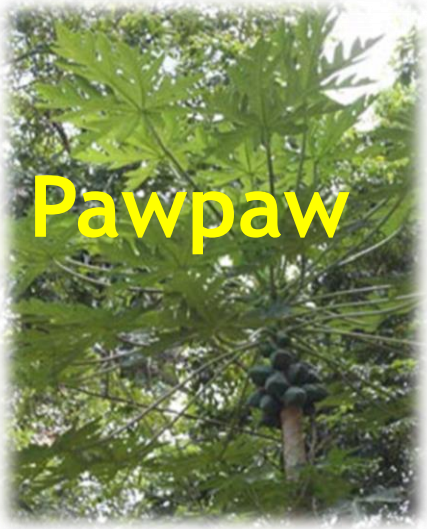
Status of invasion into National Parks - Photos (cont…3)

Agave sisalana - Mikumi, Mkomazi, Saadani

Acacia zanzibarica - Saadani

Acacia mearsnii - Kilimanjaro

Bangi-pori (Tegetes minuta) - Manyara, Serengeti



Some of the alien plants consumed as food by wildlife in National Parks

EFFORTS TO DEAL WITH INVASIVE ALIEN SPP.

"The National Policies for Tanzania National Parks" of 2011 Section 3.7, subsection 3.7.7 provides for;

- The meaning of invasive alien organisms.
- Prohibitions to introduce invasive alien organisms in the parks.
- Instructions to remove invasive alien organisms from National Parks whenever such an act is feasible. This applies to any other organisms that threaten or negatively impact on the park resources or human health.

EFFORTS TO CONTROL INVASIVE/ALIEN SPP – POLICY IMPLEMENTATION

- Awareness raising programs on invasive alien organisms are conducted frequently to all residents of the parks

- A culture has been induced to residents of Parks to treat invasive organisms as garbage. This has been helpful in controlling especially the spread of the plants such as tomatoes, onions, chili-pepper, pawpaw etc, which would otherwise be a common sight in areas adjacent to staff residences.

- An Environmental Committee in each park is charged with the responsibility to undertake inspections on park areas including staff residences to ensure cleanliness and absence of invasive alien organisms.

- Some Parks have set by-laws to enforce cleanliness and control of invasive alien organisms, violation of the by-laws is punishable by fines, which in turn serve as payment to casual laborers who are deployed to control garbage and invasive alien organisms.

EFFORTS TO CONTROL (Cont…)

- TANAPA Invasive Alien Species Management Guidelines are in place to guide the efforts (Preparation of the Guidelines began in 2015 and was completed in 2017).

- Each of the 16 existing National Parks and the 3 more in the pipeline, have all been affected to varying degrees by invasive alien plants.

- As a result, TANAPA sets funds annually between TSHs. 200 and 300 to fight against invasive organisms in the parks.

EFFORTS TO CONTROL (Cont…)

- As a result, TANAPA sets funds annually between TSHs. 200 and 300 to fight against invasive organisms in the parks.

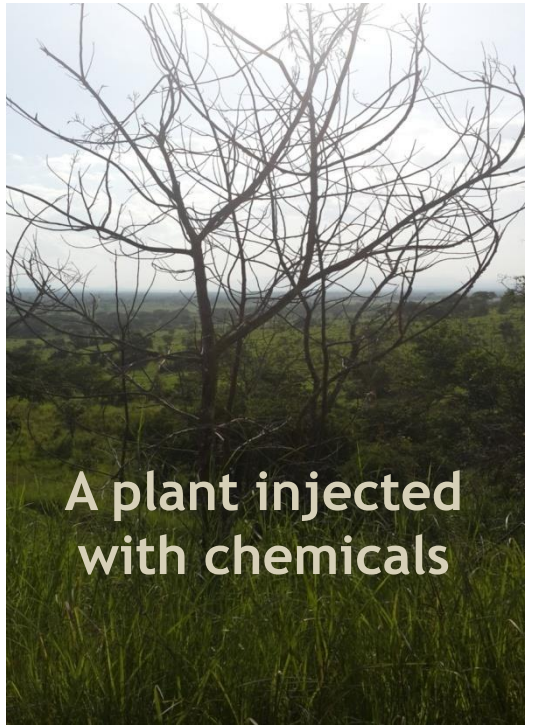
- Control of invasive and alien organisms in National Parks features as a permanent agenda item in the annual meetings for TANAPA ecologists, to review status of the problem and to exchange information and experience in order to tackle the problem more effectively.

- Moreover, several researches has so far been conducted on the subject matter (e.g. Acacia zanzibarica – Saadani NP, Cesalpinia decapitala – Arusha NP, Senna spectabilis – Mahale NP, Mitiki/Tectona grandis – Udzungwa NP etc.)

Different approaches to removing invasive alien plants from parks; including research to compare efficiency between approaches both economically and environmentally


Ring-barking


13 months after ring-barking


A plant injected with chemicals


Invasive plants which have been burnt


Removal by uprooting

Future Plans

- Through the department of Ecological Monitoring TANAPA has put a plan in place to enhance capacity of the staff to deal with issues related to invasive alien organisms.

- The department of Ecological Monitoring has a well functioning task-force “Invasive Alien Species (IAS) Thematic Team” whose responsibilities include the following:

  - Reviewing all reports relevant to IAS and advising the organization accordingly.

Future Plans

- Overseeing the implementation of Invasive Alien Species Management Guidelines in all parks.
- To advise the organization on researches about IAS and ways to enhance habitats for wildlife within National Parks.
- To identify potential areas for staff capacity building in relation to IAS advise the Management accordingly.

Successes

- There is a general awareness from each member of all staff families to all different levels of management within the organization that invasive alien organisms are not acceptable in our National Parks.

- Surveys have been conducted in National Parks and data relevant to invasive alien plant species collected. The database on the plant species has continued being updated with every invasive plant species discovered or eradicated. Current records show that there 70 invasive species in our parks. Despite all the efforts exerted and successes recorded with regard to dealing with IAS, the problem is still big

- New introductions and reintroductions of Invasive alien organisms have significantly been controlled through new infestations management by constantly inspecting roadsides and staff residences.

CHALLENGES IN DEALING WITH INVASIVE ALIEN PLANTS IN NATIONAL PARKS

- Absence of a National System to control invasive alien organisms hence causing invasive alien plants to continue entering our parks as well.

- Lack of common understanding and strategy between Parks and their respective adjacent communities on dealing with invasive alien organisms.

- Inadequate resources (funds, expertise, machinery) to effectively and efficiently deal with the problem.

The removal of big invasive trees of plants such as Sena, Eucaryptus and Pine if is not accompanied with planting indigenous trees in the area from where the trees have been removed, results into thousands of tree seedlings sprouting within short time.

WAY FORWARD

- TANAPA shall continue taking keen interest and actively getting involved in National level initiatives to strategies and implementing the guidelines for IAS.

- TANAPA shall continue striving to ensure that issues related to IAS are well addressed in all relevant guiding documents within the organization.

- TANAPA shall continue exploring and implementing opportunities to enhance the capacity of its staff to identify, control and prevent entry of invasive alien organisms into parks.

WAY FORWARD (Cont..)

- TANAPA shall continue to strengthen inspection at all entry gates in order to ensure security and non-entry of invasive alien organisms in the parks.

- TANAPA shall continue to strengthen surveys in areas prone to invasive alien species infestations especially at park boundaries, roadsides and water catchment areas such as basins, valleys and rivers.

- TANAPA is considering to start the approach of projects to control invasive alien organisms instead of the current approach which is mainly through annual budgets. The project approach shall ensure concentration of work in one park until eradication is complete.

WAY FORWARD (Cont..)

- TANAPA shall continue to ensure that investors inside National Parks do not in anyway, bring in or spread invasive alien organisms in the parks by enforcing the guidelines.

- TANAPA is set to continue preventing entry and removing invasive alien organisms.

- TANAPA shall continue rehabilitating all areas within parks where invasive alien plants have been removed, by planting indigenous plants in the areas (For instance, currently in Kilimanjaro National park there is ongoing work involving removal of pines, eucalyptus and replanting the areas with indigenous plant species).

WAY FORWARD (Cont..)

- TANAPA shall continue prioritizing efforts in dealing with invasive alien organisms by ensuring those with the severest impacts are removed first.

- To continue encouraging researches especially on; the ecology of invasive alien species and the proper timing for their removal, impacts of invasive alien species and different approaches to remove/control invasive alien species.

These flowers look beautiful and attractive, but they are probably alien to Tanzania and could therefore be very detrimental to our natural habitats if proper handling is not exercised

THANK YOU FOR LISTENING