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Guidelines for Namibia:

Regenerating the land and its users

In Bush encroached areas

Covering 45 million ha and thousands of livelihoods

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Bush Encroachment (BE) has occurred in living memory

From all over Namibia
‘We could see the livestock from the homestead all day’.
‘We rode on horseback through plains’

Gobabis - We caught gemsbok by chasing them in cars through the veld and could see game all the way to the horizon

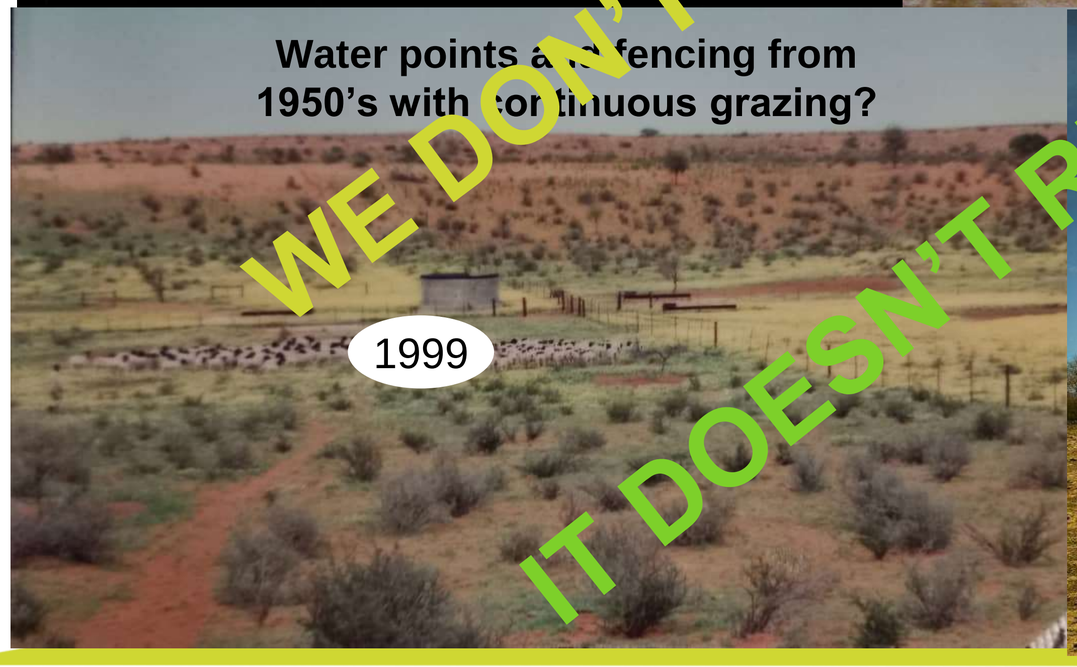
NONE OF THIS IS POSSIBLE TODAY – unless you have done bush control

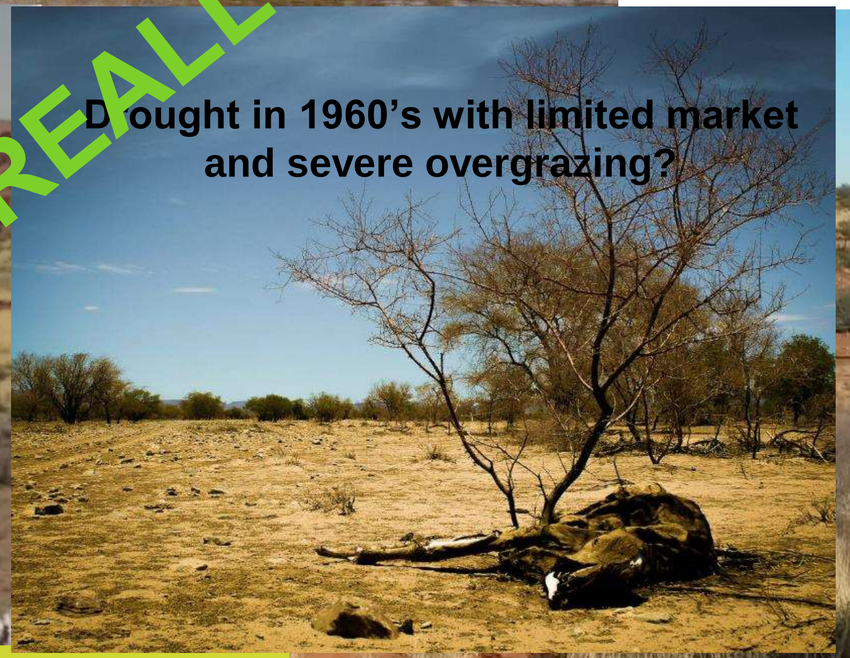
Bush encroachment – Why?

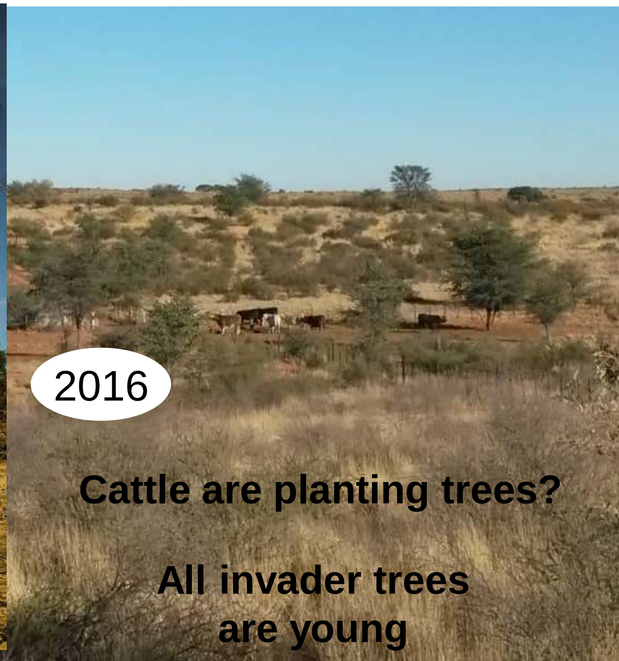
WE DON'T REALLY KNOW

IT DOESN'T REALLY MATTER

CO2 levels rising – favouring woody plants?







Q: How can we generate RESILIENT ECOSYSTEM SERVICES from Bush Encroached areas of Namibia

- **What is needed** to **restore /regenerate 45 million ha land and 100 000's of its users** increase resilient food/service provision, to enable wealth creation, to improve quality of life, to regulate the climate and to improve biodiversity and soil health
  - We have ID farmers and collected data from 30 sites in Namibia (22 title deed farms, 6 communal farms and 2 resettlement farms - that will help us to investigate the impacts of different bush harvesting and aftercare techniques.
  - We looked at 5 Biomes – Mopane, Karstveld, Thornveld, N and S Kalahari
  - We have a focus on livestock production with some / game and tourism enterprises

General findings

- Farmers regenerating themselves as well as the land is possible – numerous success stories
- Doing nothing about heavily encroached bush – will lead to bankruptcy
- You cannot regenerate the people and the land (long term) from bush harvesting alone
- Regenerative grazing planning after bush control – is a critical aftercare method
- Even the most successful farmers are still testing, trialling, learning and improving.
- There are different technical paths to achieving success within and between biomes
- We can design our landscape – shade, functional biodiversity (which results in increased production), clumps, windbreaks etc.
- We can in most cases recover from taking out ‘too much’ bush – by selective aftercare and even planting
- There are common factors preventing farmers from achieving success
- There are governance issues preventing most open communal farmers from achieving success
- There are common factors that all farmers need to plan for to achieve financial, environmental and social success.
    - All farmers will need assistance to achieve full success– some will need more than others
- DOF/GRN needs to make the big picture work by focusing on enabling the entire value chains, monitoring and taking corrective action where needed.

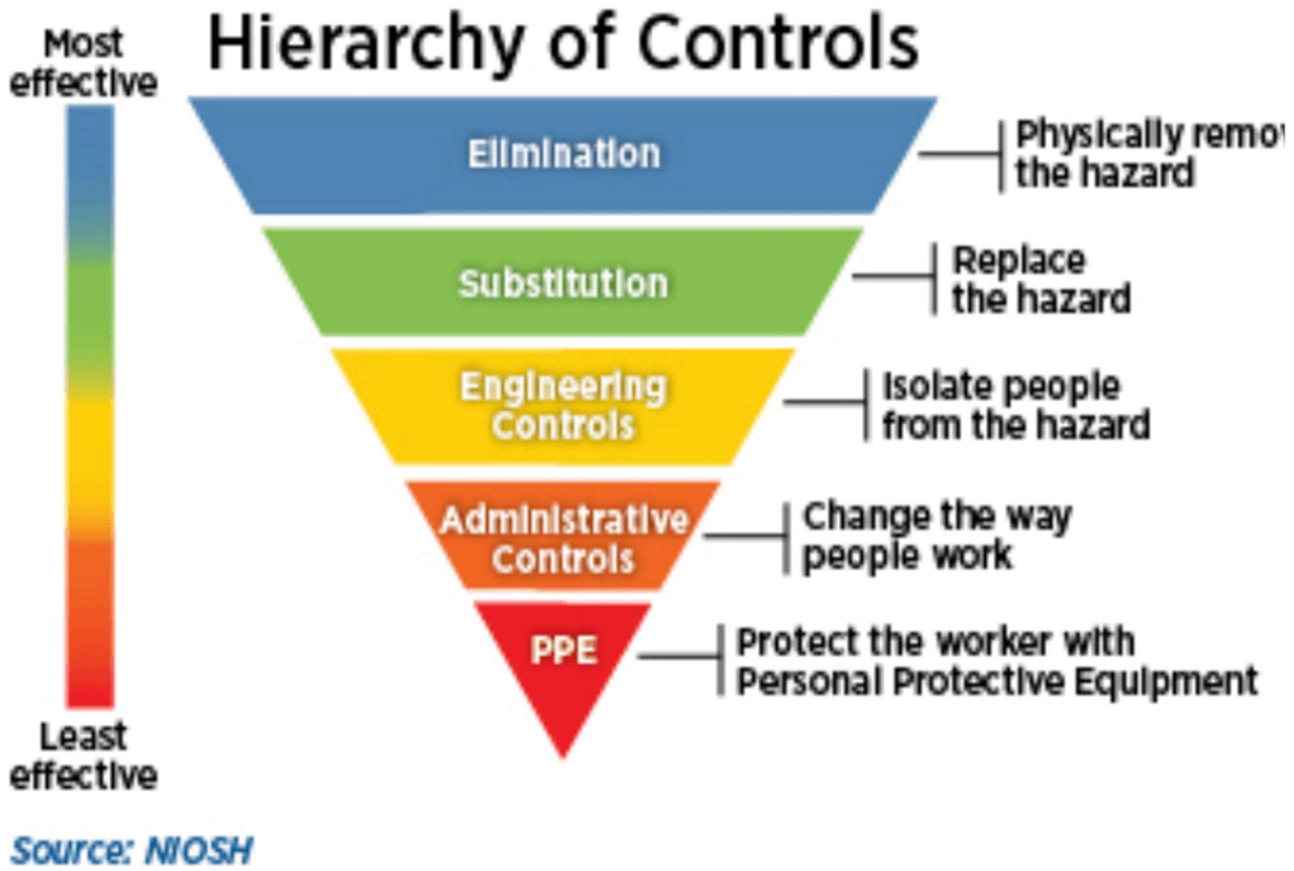
Core Issue

- Bush Encroachment is a recent issue caused by farmers management / Government extension advice / issues out of our control e.g CO2 levels.
- **We need to manage our FOREST resources using sustainable management principles**
- **We need to manage our ENCROACHER bushes to restore/ regenerate farmers and their land**
  - FORESTS and INVADERS require two completely different paths that must be pursued independently.
  - We can aim to remove almost all invaders and keep them at low levels
  - We can and must take significant measures to achieve this success at scale
  - Some invader trees/bushes are protected species and must be managed as invaders
  - Protected invader species that have high use value – will need special attention

Principles of success

- The farmer OR group of farmers needs a well thought through plan that describes:
  - What the landscape will look like in future (biodiverse, clumps of bush, windbreaks, savanna, healthy soil with no runoff etc.).
  - The choice of bush control and aftercare methods and scale (fast or slow)
  - How the Bush control and aftercare will be paid for – including regenerative rangeland mgmt
  - How the stocking plan will be dealt with to account for the increased grass production
  - The infrastructure needs and regenerative grazing plan to improve the resource base over time
  - How the GRAZING AND BUSH CONTROL and aftercare will be MANAGED AND ENFORCED AT THE SAME SCALE, BY THE SAME PEOPLE to ensure the ecosystem benefits are improved.
  - The financial plan and indicative annual budgets
  - How ‘The Spoon Effect’ will be managed (to ensure Cash flow to enable success).

We will develop a Hierarchy of avoidance and control to select best practices for various parts of the country



Source: NIOSH

Functional Classification of Namibian Bush Control Areas

1) No bush control required and bush is palatable– Many farms are doing bush control that only require regenerative grazing management

2) Non-aggressive regrowth (e.g. Black-thorn, Silver cluster-leaf) limited bush response after initial control (often with severe frost)

- Fast (aerial spray and mechanical) and slow approaches (selective chemical, mechanical or manual) will be investigated. Planned aftercare is easily manageable.

3) Aggressive regrowth (e.g. Sickle-bush, Mopane) bush response after initial bush control (often no or weak frost) and where charcoal or other means **can pay for the initial control and is regrowth palatable or not**

- Fast and slow approaches (chemical, mechanical and manual) will be investigated but extreme care and planning is required for initial control but aftercare planning is critical.

4) Aggressive regrowth (e.g. Three-thorn, Water-thorn) – where the bush value **cannot pay for the initial control and is regrowth palatable**

- Fast and slow approaches will be investigated and aftercare is needed

5) Sensitive areas – where extra care must be taken – e.g. river courses, hardpans, shallow kalk soils, lateral movement of water underground and where big tree roots extend very far.

- Selective mechanical and chemical treatments will be promoted

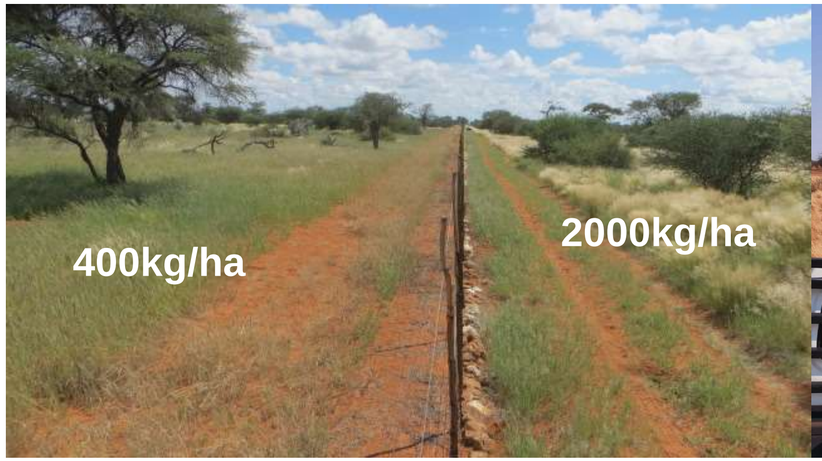
6) ALL MUST HAVE REGENERATIVE GRAZING PLANS to pay for ongoing aftercare and ensure ecosystem services are sustained

Preliminary results – strategic approach

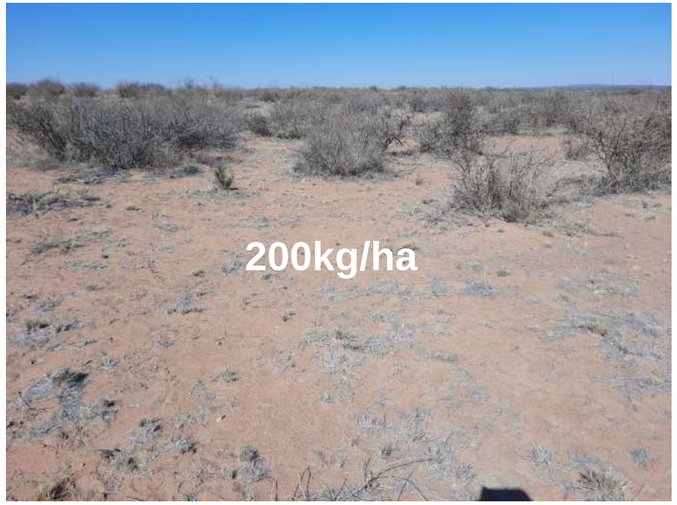
- We have included various bush control methods - aerial, bush rolling, selective manual and chemical, bulldozer, car spreader, etc
- We realise that aerial spraying is currently illegal – but this treatment has been included to asses its effectiveness and to inform the way forward.
- The Best Practices will wherever possible include the least intrusive initial control and aftercare method as possible for each setting
- However, the scale of the bush problem, number of farmers to be reached, practicality of the method, cost, safety (people, livestock and infrastructure) and logistics etc will also play a role in informing the best practice(s) that will be agreed upon per area.

No Bush control required – only regenerative rangeland management

- Pommernhagen – regenerative rangeland management only



- Hessen



Practices – Non aggressive regrowth – often severe frost areas

- Manual chemical selective: Donkerbos (selective and regen grazing only)

Aerial 2016: Dabis East (one fire and regenerative grazing as aftercare)

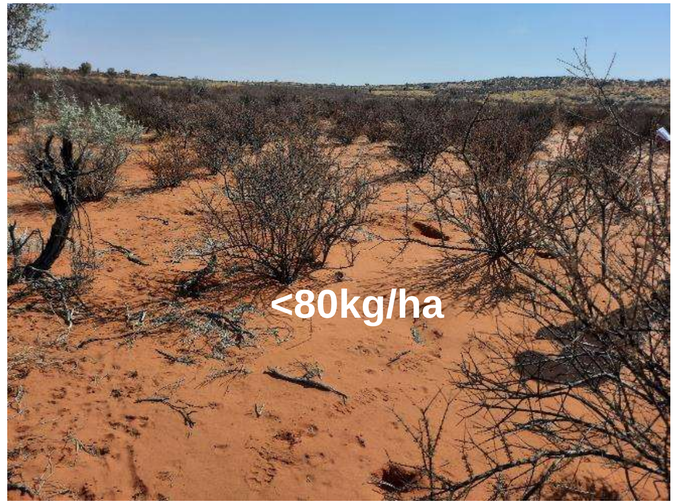
AGGRESSIVE REGOWTH – Charcoal possible and palatable but regrowth can PUT YOU OUT OF BUSINESS

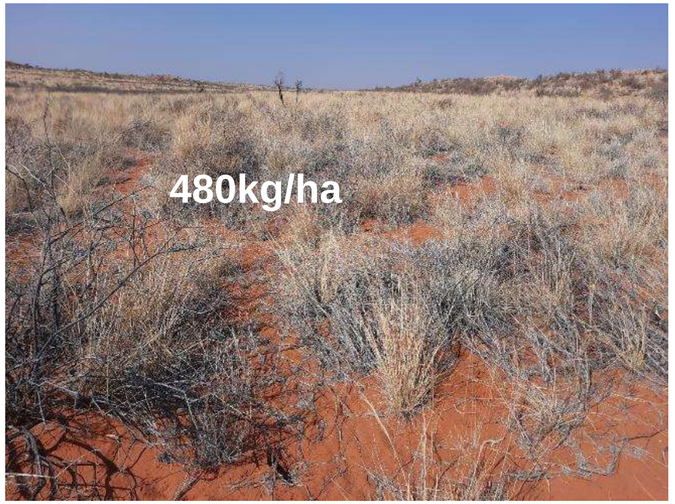
- Toppa – selective chopping and hand application (no regenerative grazing)


- Omuhona – aerial 2009 and chain 2019 (with regenerative grazing)

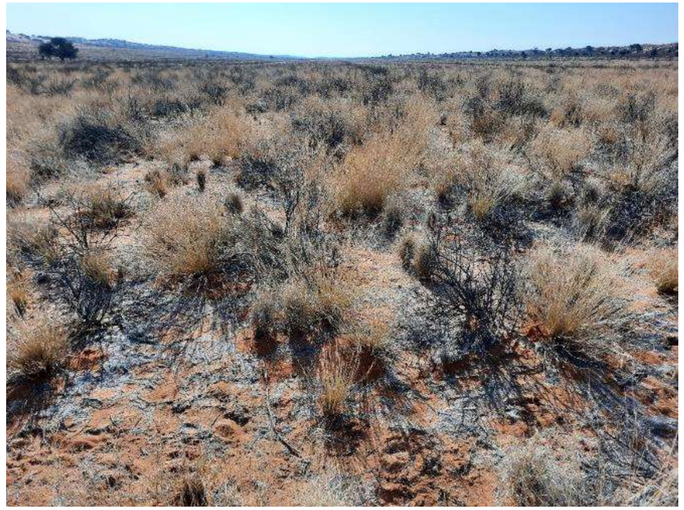

Practices – aggressive regrowth – not palatable and encroacher has no value

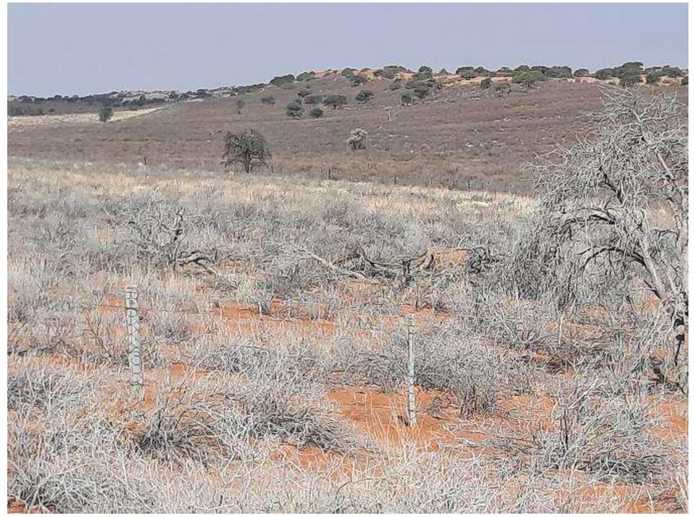
- Oerwoud





- Wegdraai – complete treatment of streets - but leaving camelthorn patches and planting camelthorn





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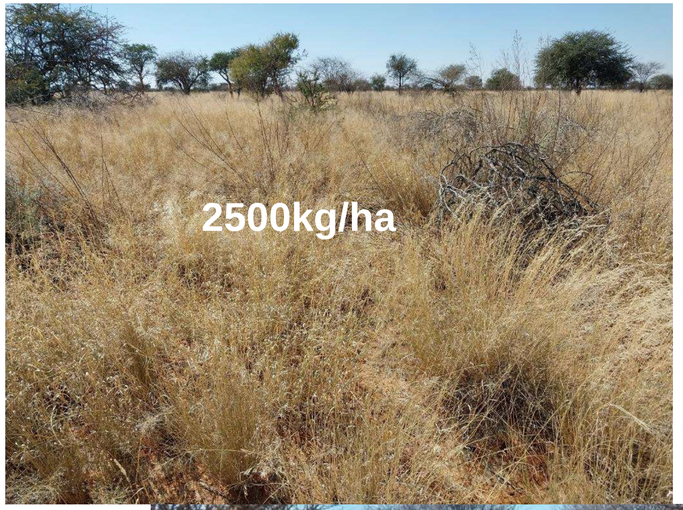
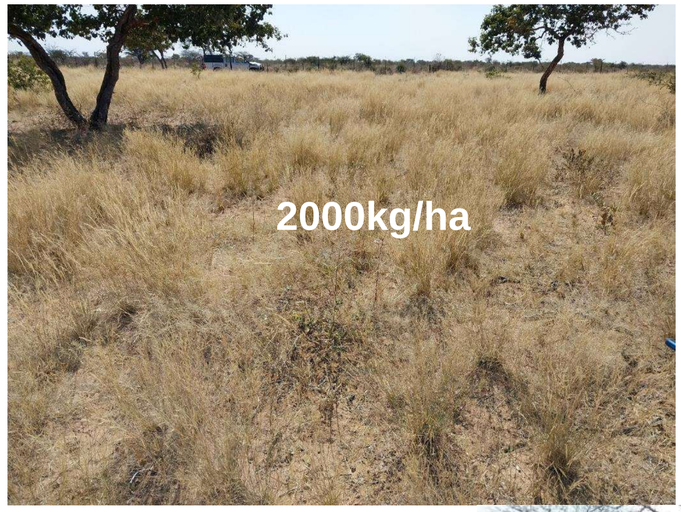
Sensitive areas

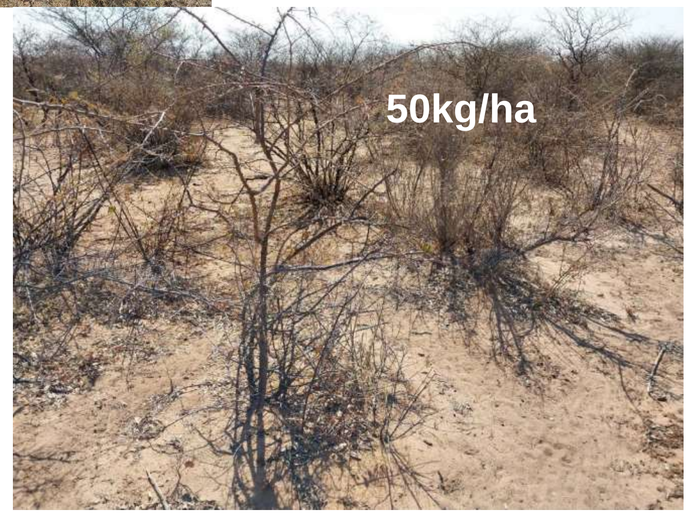
- Adrianople – hand, dig out roots and charcoal – risky area old Eriolobas (no pesticide used)

- Dabis riverine (hardpan) – Regen grazing management and hot fire

Communal contrasts







Way forward – Enable and incentivise

- Analyse the data further and combine data with SOC data and analyse further (PhD Student from MEFT)
- Follow up easing requirements for the treatment and aftercare of encroacher species (including protected species)
- Follow up communal area – rangeland management and bush control at the same scale and enabling environments
- Develop a hierarchy of avoidance and control for each area to identify Best Practice that is practical and doable at scale
- Align findings with the DOF Forest and Environmental Management Plan and DOF legislation
- Inform the need for support and incentives that encourage farmers do the right planning and execution - assist farmers to plan bush control and aftercare, regenerative rangeland management, restocking and finances, establish ‘environmental scorpions’ to investigate bad practice
- Inform parties of the scale of the task with roles and responsibilities of key players – high level enabling, Farmers Union implementation etc
- Support regional learning hubs through farmers unions to share lessons, experience, equipment and to do joint targeted on-farm research
- With the Oversight committees – take the process further and reach consensus
- Write up and finalise ‘Best Practice Guide’ by the end of Nov 2023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(Fig. 7a and b), while there is an unusually high frequency of young trees in the dunes (Fig. 7c).

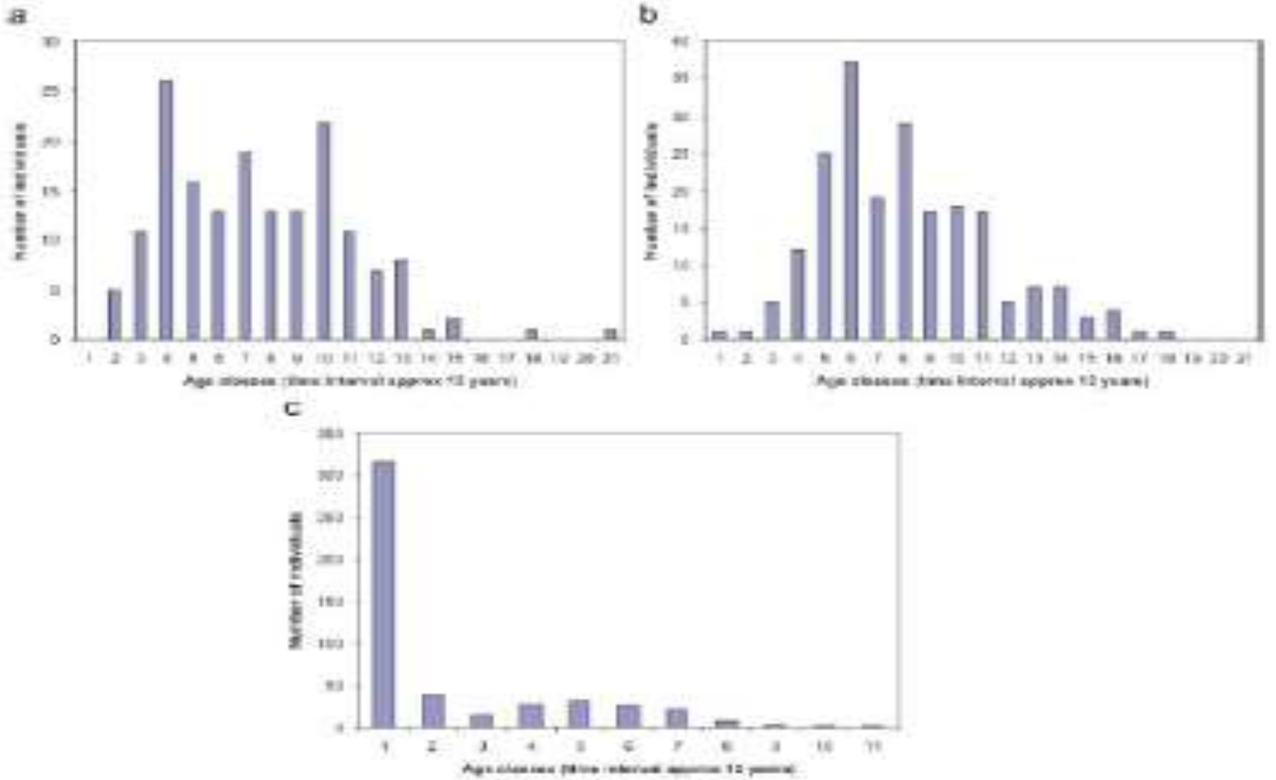

Fig. 7. Age structure of *Acacia erioloba* populations using the age–size regression: (a) away from the watering point, (b) at the watering point and (c) in the dune field.

The major determinants of vegetation dynamics in the Kalahari are the timing and amount of seasonal rainfall, the existence of relatively long-term rainfall/drought cycles (ca. 10–20 years) and the occurrence of sporadic flooding (Van Rooyen et al., 1996). Although floods are rare, they are important in that they sustain the relatively high water