

# Containing desertification in arid northern Kunene region, Namibia

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## Do something about desertification symptoms

- ❖ Community-friendly soil erosion works
- ❖ Drought-tolerant fodder shrubs stabilize soil & feed goats
- ❖ Train communities by exposure & doing
  - ❖ Advocate for Soil Conservation Act
  - ❖ Raise awareness regionally & nationally





Opuwo

Opuwo Badlands

C43

Otjaitimo floodplain  
Hoarusib catchment

Sesfontein

© 2014 Google  
Image © 2014 DigitalGlobe

Google earth

Imagery Date: 7/2/2012 18°10'10.63" S 13°50'23.38" E elev 4170 ft eye alt 6210 ft





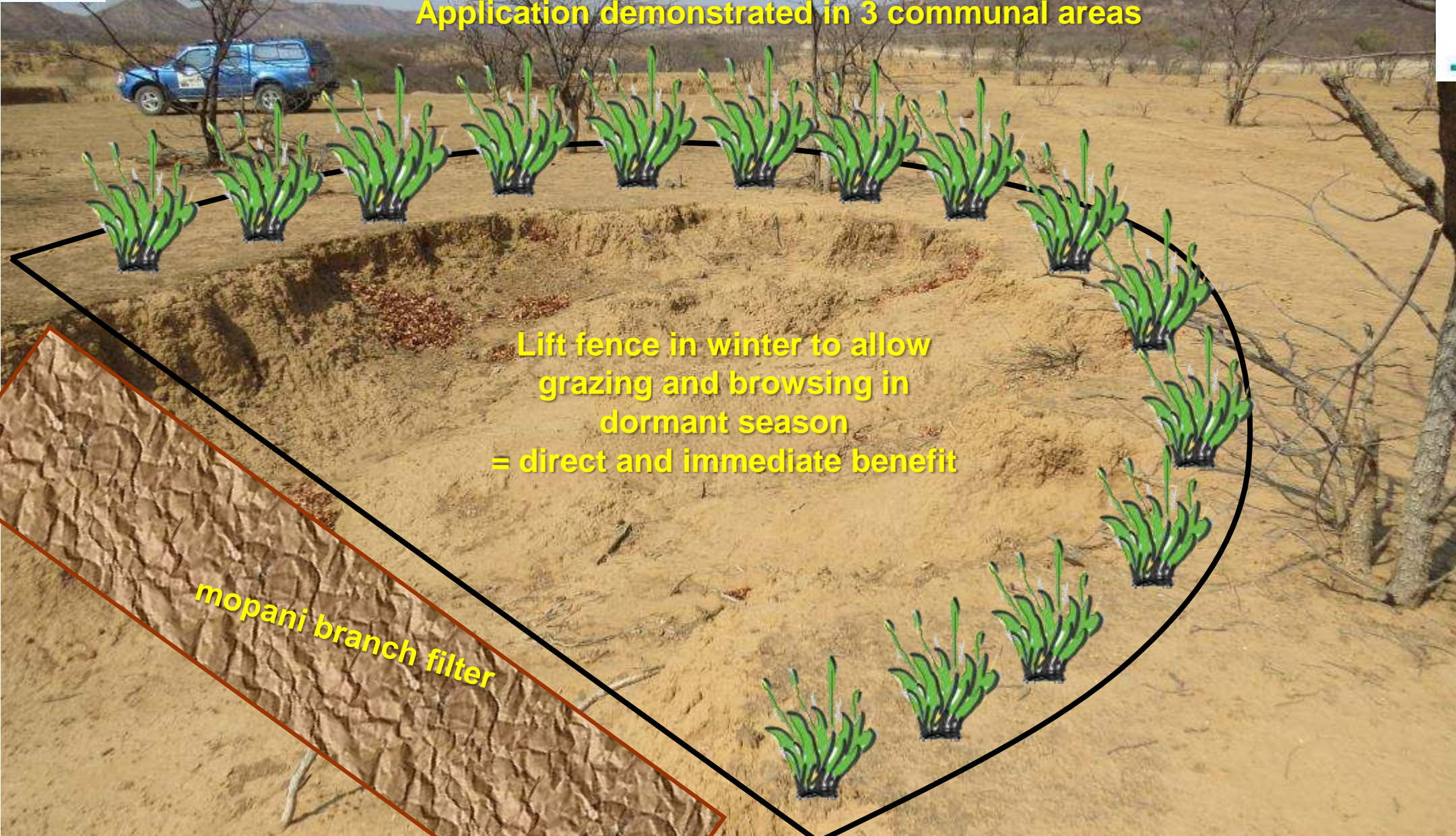


**Locally-extinct indigenous drought-tolerant fodder shrubs re-established:  
5,500 individuals of 20 species in 3 field and 2 research plantations  
Adaptability, browse yield, nutritive value, goat preference researched  
Application demonstrated in 3 communal areas**



**FNB**  
First Nations of Botswana

how can we help you?

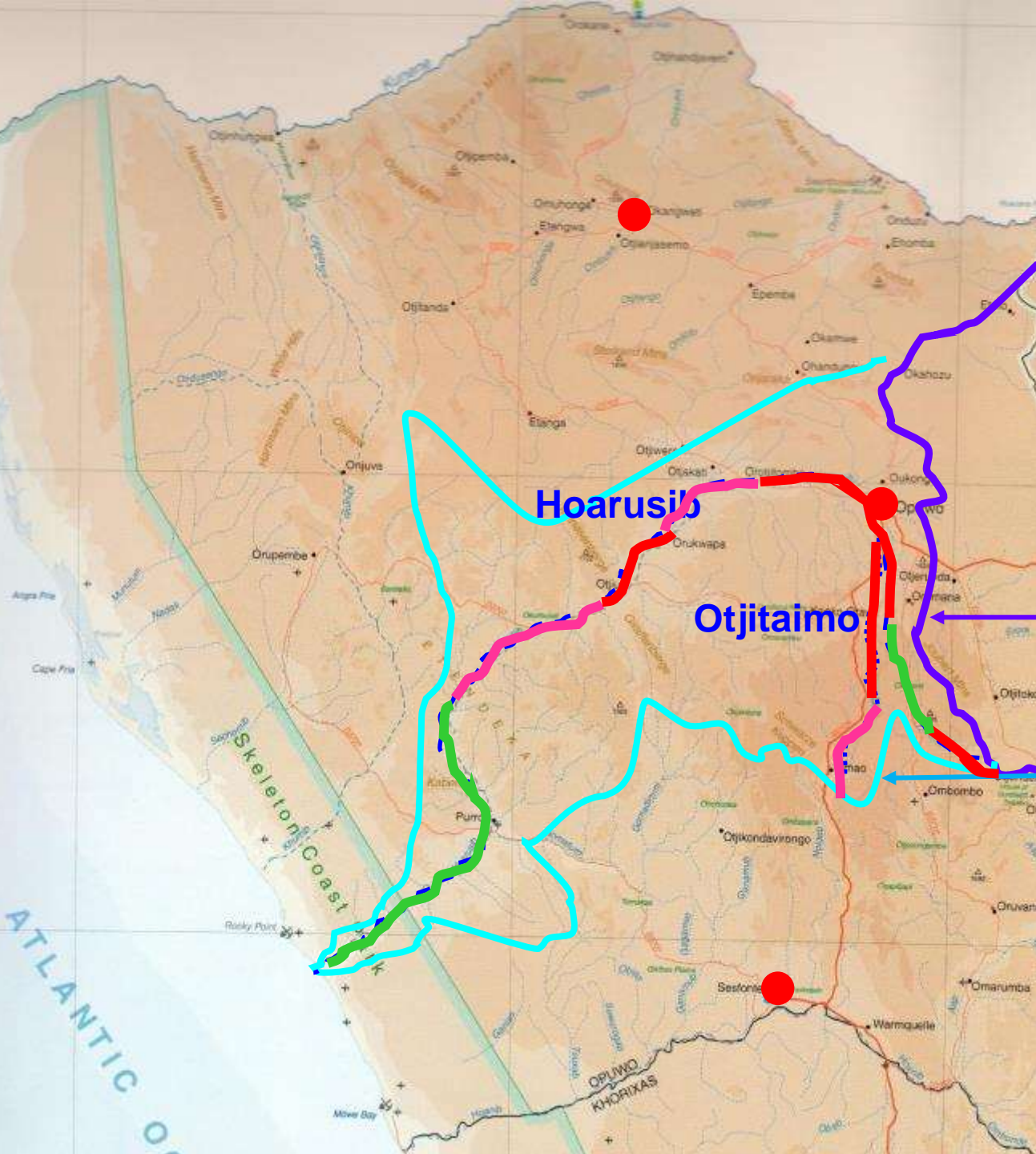


**Lift fence in winter to allow  
grazing and browsing in  
dormant season  
= direct and immediate benefit**

**mopani branch filter**







- Seek complementarity with other projects (CAN, CBLRM planned grazing & directed herding)
- For regional policy makers:  
1:250,000 map with graded erosion areas
- Awareness and advocacy to strengthen group (grazing) rights in communal areas, prevent pasture poaching, re-ignite desertification issues

**Hoarusib**

**Otjitaime**

watershed

Hoarusib catchment







# Using the waste of civilization to contain soil erosion







25 t river sand, 5 t kraal manure



3 x 2,500 potted plants (26 species of indigenous DTFS)



Saplings hardened-off











Transport 2,500 pots Okahandja – Opuwo (850 km) x 3













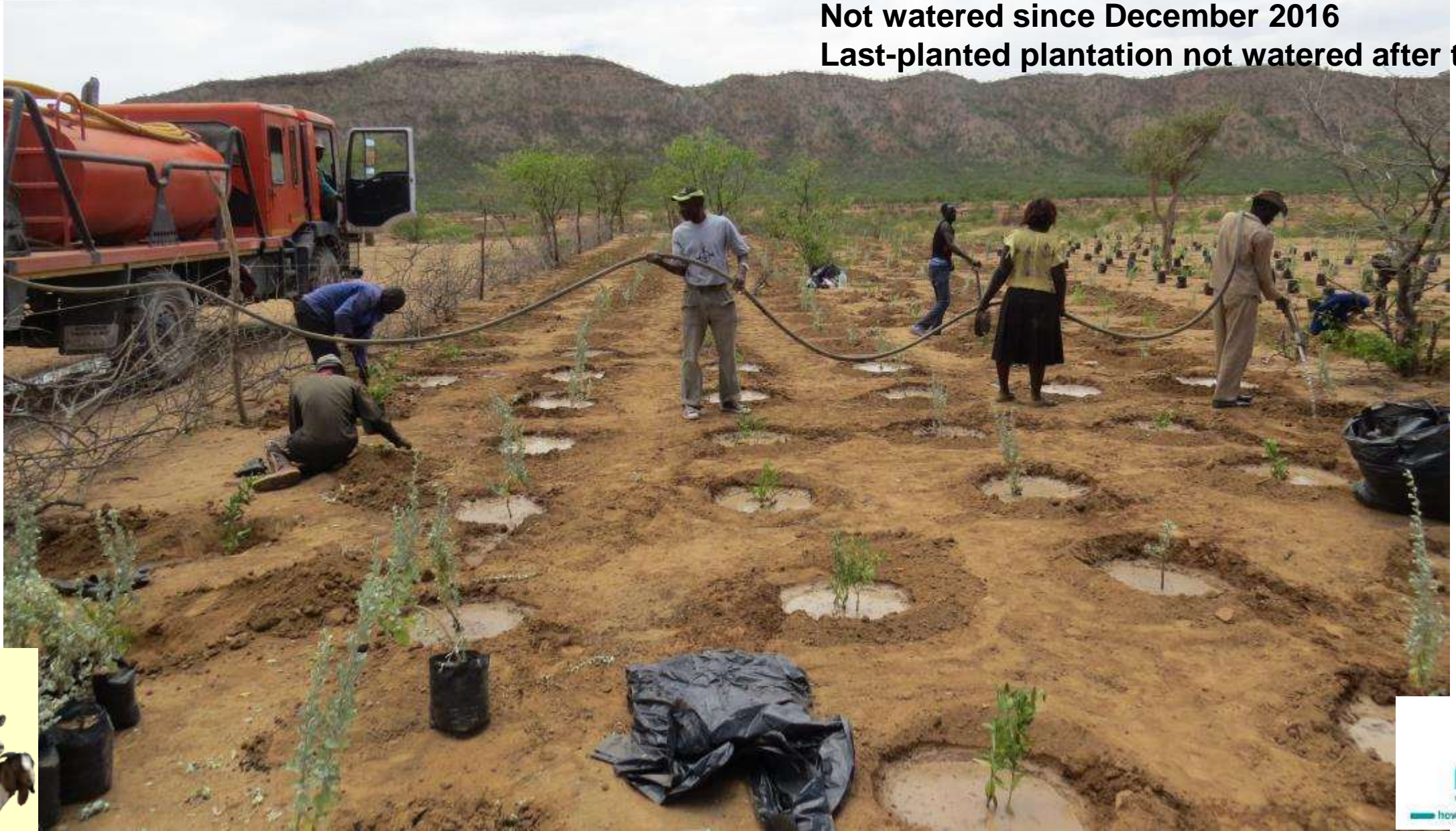
**Video of transplanting**







**Watered at transplanting and monthly thereafter:  
May 2015-December 2015  
May 2016-December 2016  
Not watered since December 2016  
Last-planted plantation not watered after t/plntng**







May 2017







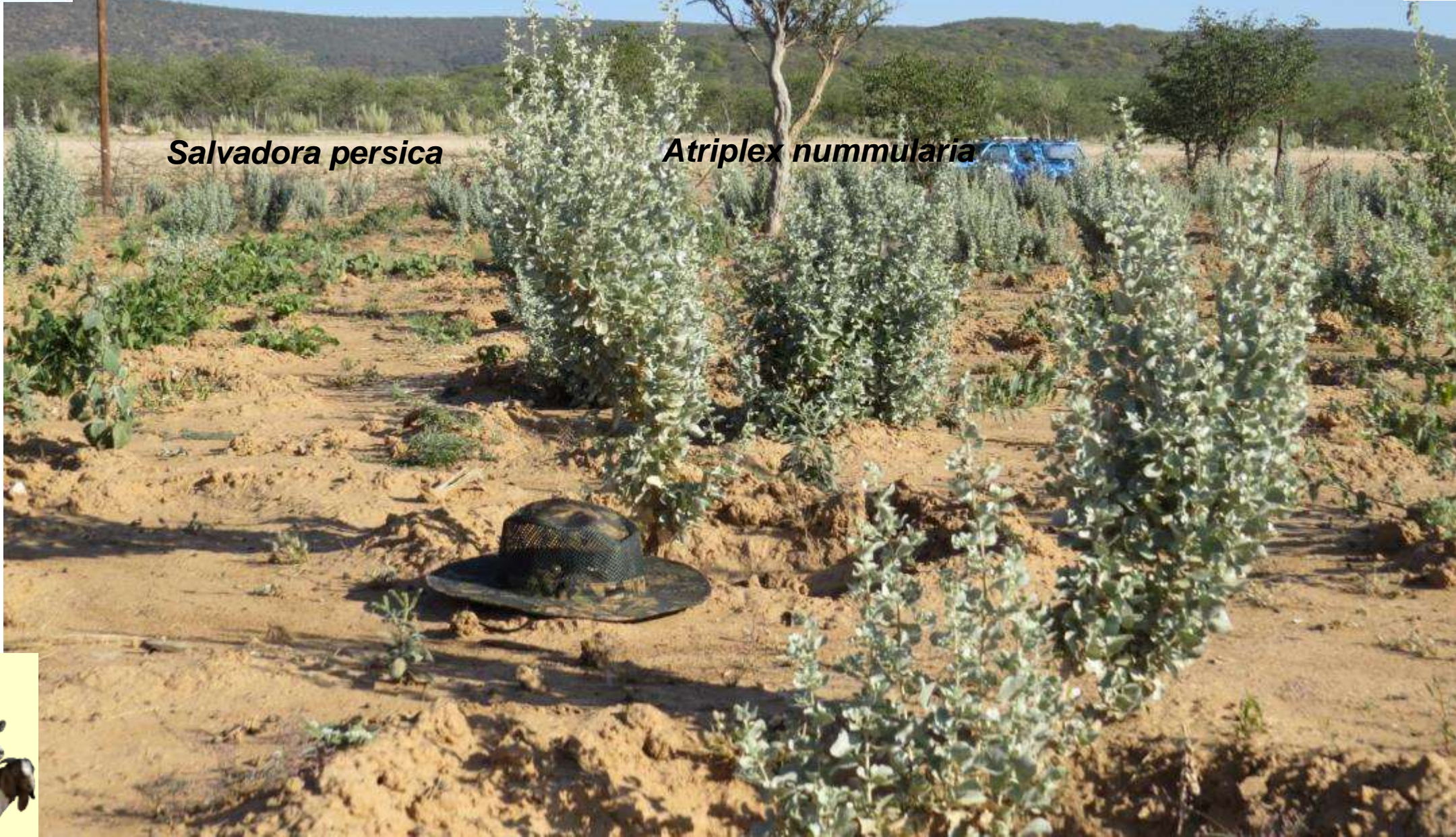
May 2017







May 2017



*Salvadora persica*

*Atriplex nummularia*







May 2017



**Effect of transplanted DTFS on soil erosion:**

- Erosion traps filled equally with sediment inside and outside, but...
- ... no caving-in of erosion heads inside plantations and...
- ... plentiful fresh cavings just next to plantations







May 2017

Rainfall:  
2014/15: 132.1 mm  
2015/16: 196.3 mm  
2016/17: 350.4 mm

**Mortality of transplanted DTFS in field plantations (May 2016-May 2017):**

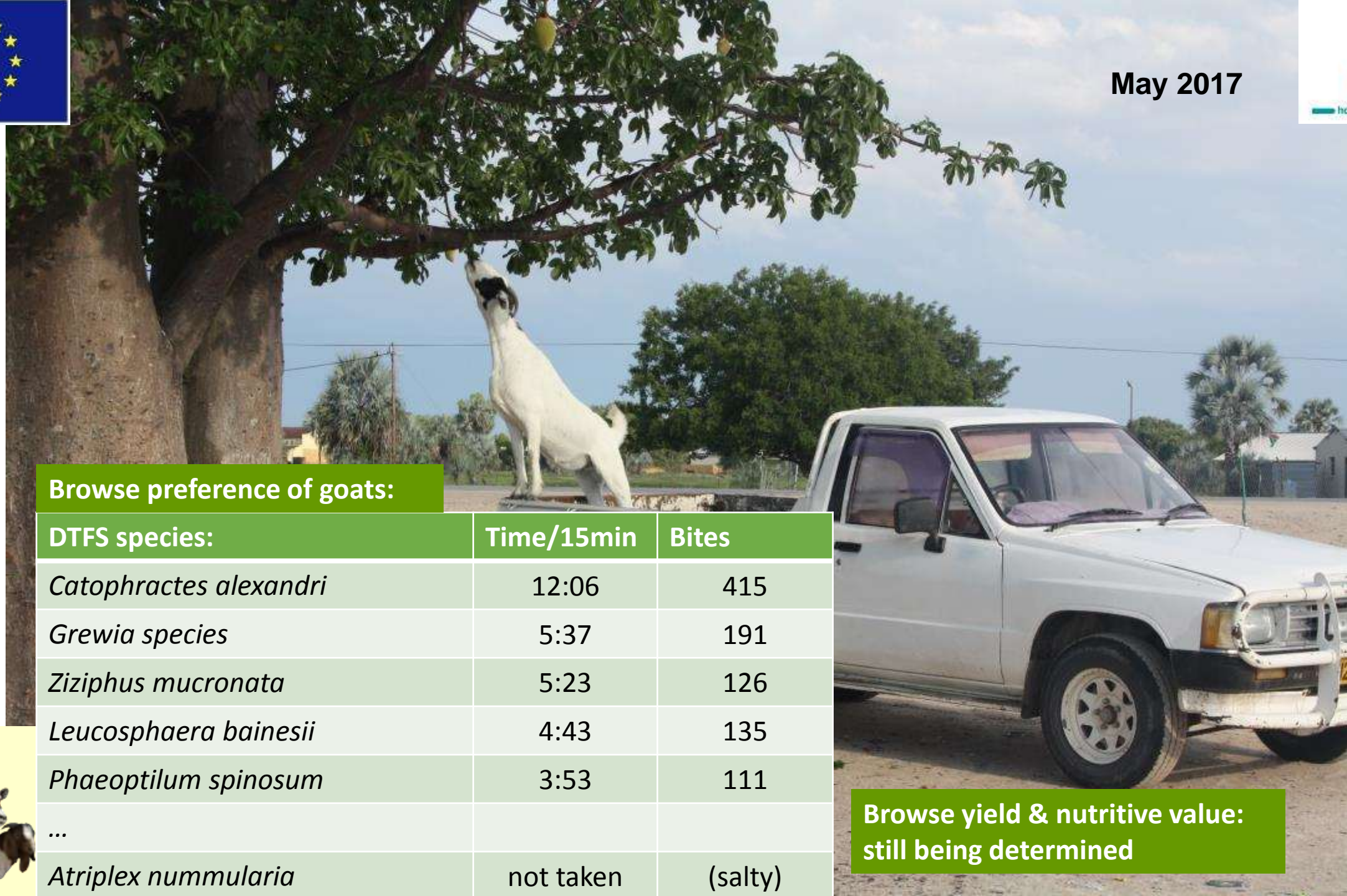
- Across all species: 22.6% of which 4.9% unidentifiable
- *Sesbania pachycarpa* (weak bi-annual): 60%
- Rabbit-induced: *Otoptera burchelli* 36.4%, *Leucosphaera bainesii* 29.0%
- 20-30%: *Mundulea sericea*, *Ziziphus mucronata* (small number)
- 10-20%: *Catophractes alexandri*, *Combretum apiculatum*, *Salvadora persica*
- 0-10%: *Adenolobus garipeensis*, *Atriplex nummularia*, *Calicorema capitata*, *Grewia flava*, *Grewia flavescens*, *Grewia tenax*, *Phaeoptilum spinosum*, *Polichia campestris*, *Salsola hoanibica*







May 2017



**Browse preference of goats:**

DTFS species:	Time/15min	Bites
<i>Catophractes alexandri</i>	12:06	415
<i>Grewia species</i>	5:37	191
<i>Ziziphus mucronata</i>	5:23	126
<i>Leucosphaera bainesii</i>	4:43	135
<i>Phaeoptilum spinosum</i>	3:53	111
...		
<i>Atriplex nummularia</i>	not taken	(salty)



**Browse yield & nutritive value:  
still being determined**



Capacity building:



FNB

First National Bank

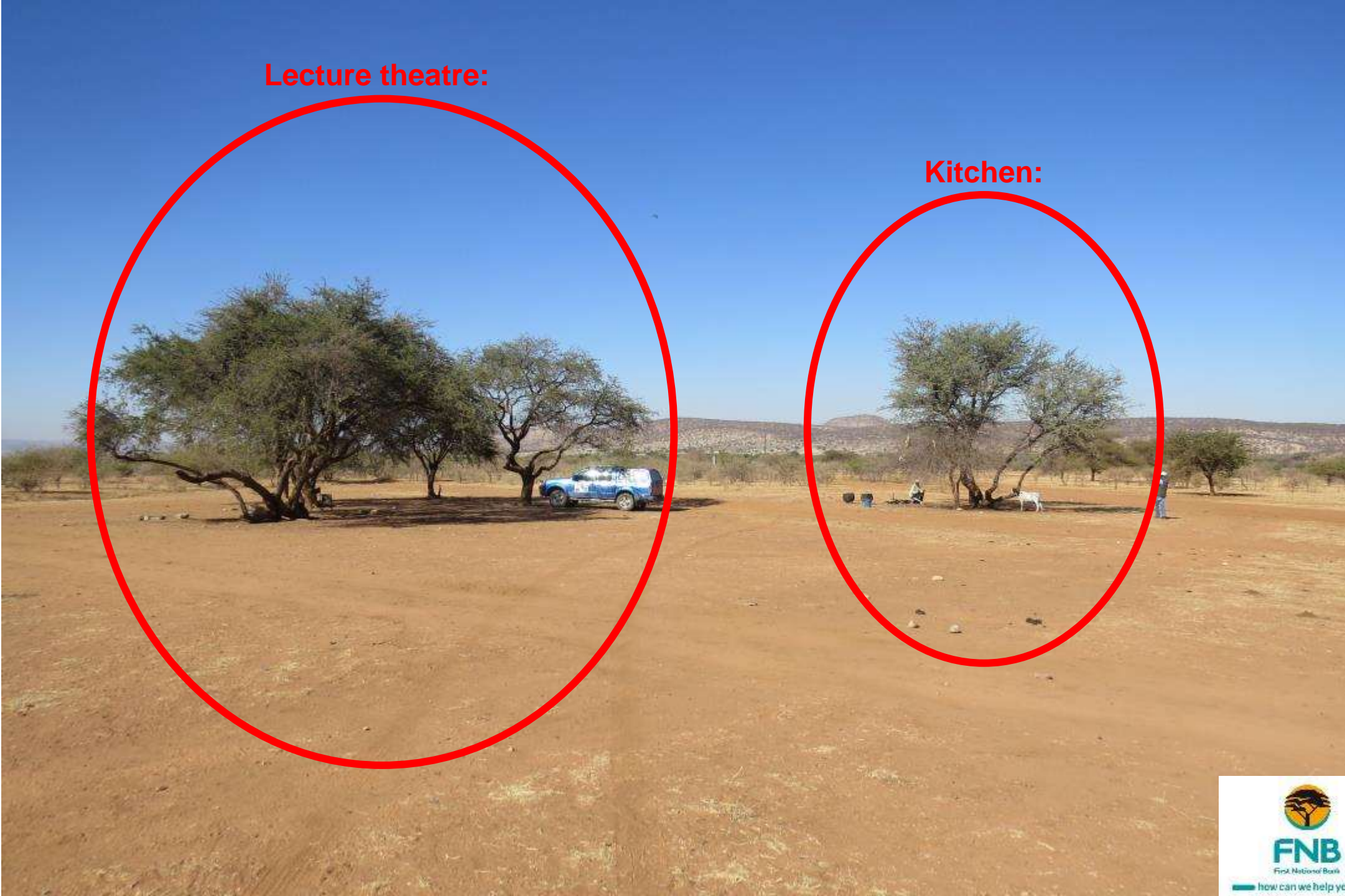
how can we help you?



Capacity building:

Lecture theatre:

Kitchen:





Capacity building:





Capacity building:





## Conclusions:



- **Desertification can be contained by protecting the soil...**
- **... and forage resource:**
- **Strengthen group rights, revive Soil Conservation Act**
- **Small trial successfully demonstrated re-introduction of locally-extinct DTFS**
- **Awareness raised in Namibia**
- **Next step: rehabilitate fertile erosion hotspots**
- **Bigger picture: human population explosion, rural electrification, link borehole drilling to rld mgt training**





Thanks! 😊

