ONLY FOR LOW IMPACT ACTIVITIES
(Up to 5000ha and Semi-Mechanised Harvesting)

Forest and Environmental Management Plan (FEMP)

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM

NAMIBIA DIRECTORATE OF FORESTRY

PURPOSE of the FEMP

The purpose of this FEMP is to facilitate sustainable management, conservation and utilisation of forest resources while promoting socio-economic development and environmental protection. This FEMP will enable the Directorate of Forestry (DoF), landowners and forest resource users to have a clear vision of what needs to be in place, which wood harvesting activities are planned, and when the activities will take place. It will further assist DoF in providing permits based on well-planned and documented management processes.

OBJECTIVES of the FEMP

1. To guide the restoration of farm during bush thinning operations
2. To give guidance towards compliance to permit conditions
3. To sustainable use bush resources
4. To facilitate compliance to FSC Namibia's Standard

The following legislative instruments, policies and guidelines are inter alia applicable and considered in compiling this plan:

- Environmental Management Act (Act 7 of 2007)
- Forest Act (Act 12 of 2001) and Regulations (2015)
- Soil Conservation Act (Act 76 of 1969) & the Soil Conservation Amendment Act (Act 38 of 1971)
- Labour Act (Act 11 of 2007)
- Import and Export Control Act (Act 30 of 1994)
- National Forest Policy (1992)
- Namibia Agriculture Policy (2015)
- National Guidelines on Fires and Fire Management (2001)
- National Drought Policy and Strategy (1997)
- National Rangeland Management Policy and Strategy (NRMPS, 2012)
- National Strategy on the Sustainable Management of Bush Resources (2022-2027)

The following documents to be attached to the FEMP (Depending on land ownership and tenure agreements):

- ☑ Proof of ownership (Title Deed) for harvesting on own property
- ☑ Lease Agreement if the producer is not the owner of the land
- ☐ Written permission from the Traditional Authority for harvesting on ungazetted communal land
- ☐ Written permission from the chairperson if the land is part of a Gazetted Conservancy or Community Forest
- ☐ Consent and Allotment letters from the Ministry responsible for lands and resettlement
- ☑ Complete Farm / Land Map with farm name, owner (+ tenant), camps, camp numbers & -sizes @ hectares, water points, farm- and official roads, location of homestead and charcoal village (if possible, GPS coordinates), current- (if any) and planned harvesting & exclusions (latter being all excluded areas like environmental sensitive habitats, fields, irrigation areas, cattle corridors, areas not planned to be harvested).

Date of Submission of FEMP	10/11/24
Prepared and Submitted by	Don Muroua and Robyn Smit

1. GENERAL INFORMATION

Name and Contact Details of Farmer / Land Legal Custodian / Manager	Lukas Holtzhausen P.O. Box 229 Outjo 0811272571
Farm Name / Land Legal Name	Deurslag No. 136

2. FARM/AREA DISCRIPTION

Legal Status of the Land (Select all that apply)

- Private Farm ✓
- Resettlement Farm
- Gazetted Conservancy
- Gazetted Community Forest
- Gazetted Small-scale Farm
- Land with Leasehold
- Land with Customary Land Rights
- Open Ungazetted Land
- Fenced-off Ungazetted Land
- Other (Specify)

Farm Number / Area Name	No. 136, Outjo District
Region and Constituency	Kunene Region, Outjo Constituency

Current Land Use (Select all that apply)

- Livestock Farming ✓
- Crop Production ✓
- Homestead ✓
- Irrigation Scheme ✓
- Wildlife Conservation ✓
- Hunting Tourism ✓
- Eco-tourism
- Mining
- Other (Specify)

Name and Contact Details of Immediate Neighbouring Farmers / Land Custodians / Managers *Please attach proof that you informed the neigbours about your intended bush control/ harvesting operations)*	D Weakley - Munsterland 113 - 0811491273 D. J. Holtzhausen - 0811242044 Chris Feiger - Bausmwasser 149 - 0813023008 C. Bondenstein - Klein Omburo 148 - 0811292613 K. Swart - Oszema 138 - 0815737807 Ulie Strauss - Senheim 134 - 0813022377

List the various infrastructure on the farm or land, such as number of dwellings, camps, water points, waterlines, powerlines, etc. Information must be included on the farm map as well.

Houses
Workers Accommodation
Water points
Powerline

Description of the General Ecology of the Farm / Land (e.g. topography, soil type, flora, fauna)

The farm is part of the Tree-and-shrub Savanna, dominated by S. erubescence, V. reficience, C. alexandri, D. cinerea, S. mellifera and Grewia spp. The farm is mountainous in the north and undulating towards the south. The dominant soils are Petric Calcisols. The average annual rainfall is about 300mm, temperatures ranging between 4-6 oC in winter to 32-34 oC in summer

Is the land considered bush thickened / bush encroached?

Yes ✓ No

List the problematic plant species

S. erubescence,
V. reficience,
C. mopane
C. alexandri,
D. cinerea,
S. mellifera and Grewia spp.

List the plant species you intend to harvest or control

S. erubescence
V. reficience
D. cinerea
S. mellifera
C. mopane

What is the purpose of the biomass harvesting operations? (Select all that apply)

Land clearing for crops Animal feed

Land clearing for infrastructure development

Clearing undesirable plants Rangeland management ✓

Timber harvesting Woodchips

Charcoal production ✓ Biochar production

Other (Specify)

Will the biomass harvesting operations reduce the plant cover or density by more than 80%?

Yes No ✓

If Yes (Specify)

Block 2:require 4km long 200m wide thinning for game viewing

Was the biomass in the area to be harvested determined?

Yes ✓ No *If yes, please attach documentation*

Date when biomass was assessed 9/20/24

Was the Biomass Quantification Tool (BQT) used?

Yes ✓ No

If no, what other methods were used:

By: Don Muroua from CMO

Describe the bush control/ harvesting methods, tools and equipment to be used

1. Manual cutting of bush and and stacking in heaps, 2. collecting the stacks to a central burning site, 3. producing charcoal and packaging, 4. Marketing to buyers.
IMPORTANT:
1. Tree Equivalent to kept must not be below 450TE/ha or 550 plant stems/ha. This must include various species of all sizes.
2. Species richness should remain similar after bush control.
3. Namibia FSC Standard and risk assessment will apply

Name of camp(s) / area(s) to be harvested

NAME OF CAMP OR AREA	GPS COORDINATES (DECIMAL DEGREES)	SIZE (HECTARES)	YEAR TO BE HARVESTED	TOTAL BIOMASS (TONNES)	SUSTAINABLE BIOMASS OR ALLOWABLE CUT
Block 1/Camp 1	-20.28629, 15.95967	170	2024-2025	179.86	90,90
Block 2/Camp 2	-20.26125, 15.95564	80	2024-2025	618.78	448.06
Block3/Camp 3	-20.23851, 15.92179	160	2024-205	690.2	522.61

Training to be provided to workers (Select all that apply)	First Aid to at least the site supervisor ✓
	Fire prevention and firefighting ✓
	Sustainable harvesting of biomass ✓
	Other (Specify)
At minimum, the following laws, policies and guidelines will be adhered to (Select all that apply)	Forest Act (Act 12 of 2001) and Regulations (2015) ✓
	Labour Act (Act 11 of 2007) ✓
	Environmental Management Act (Act 7 of 2007) ✓
	Import and Export Control Act (Act 30 of 1994) ✓
	All Permit Conditions ✓
	Industry Best Practices and Standards ✓

3. FARM/LAND MAP

Farm map requirements
Please attach farm / land map

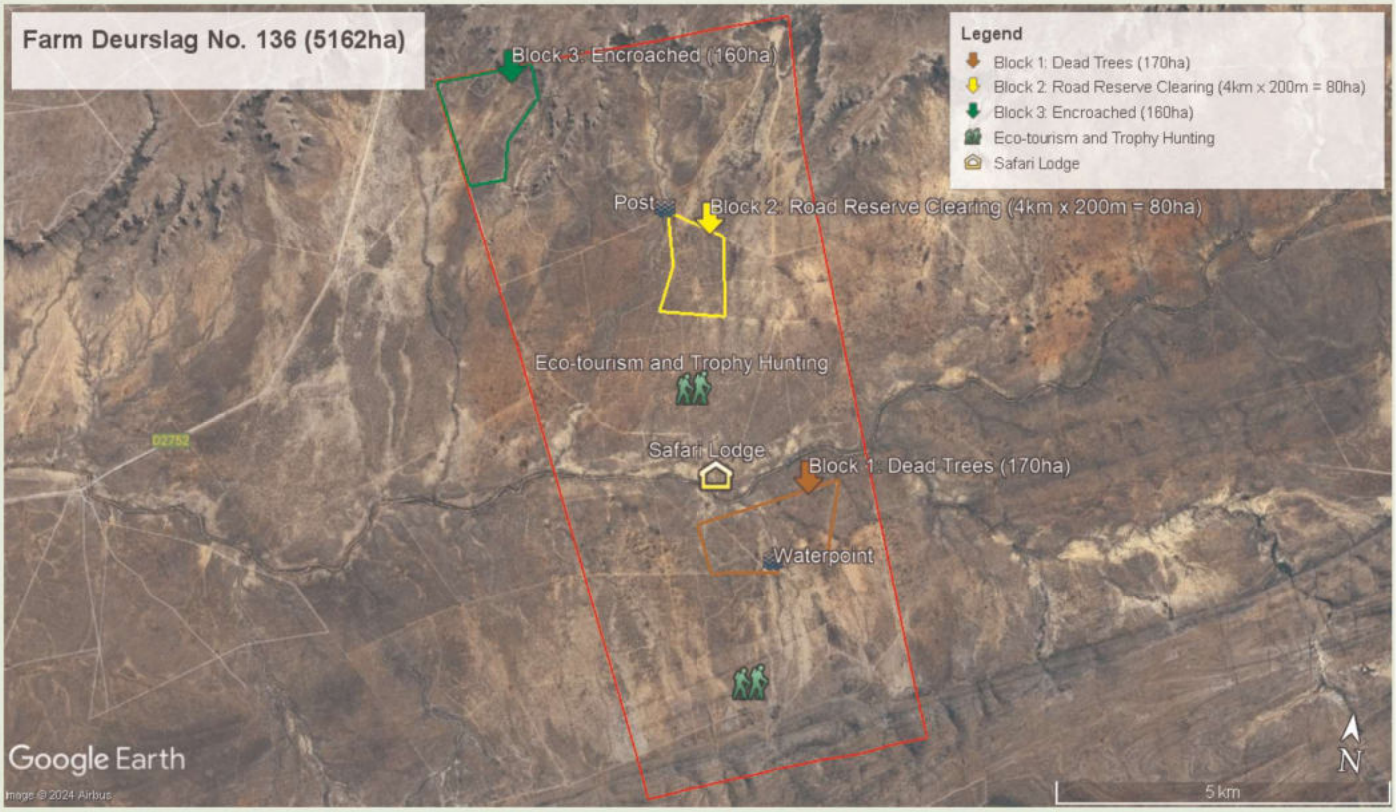
GPS coordinates
(Decimal Degrees)

-20.281776°S, 15.958497°E

The following information must be available on the map:

- Current (if any) and planned harvesting & exclusions areas (latter being all excluded areas like environmental sensitive habitats, fields, irrigation areas, cattle corridors, areas not planned to be harvested)
- Each camp must be indicated
- Camps must be numbered for reference purposes
- Size of each camp (ha)
- Available biomass per camp vs what is allowed to be harvested
- Houses, dwellings, staff quarters
- All roads
- Fire breaks
- Biomass production areas
- Water points
- Rivers and mountains
- Etc.

Attach the map below:



4. IMPACT MANAGEMENT AND MITIGATION

Land owner, legal custodian and/or manager operating and/or responsible for Small and Medium size, low impact bush harvesting/control projects and operations commits to adhere to the following conditions and standards as described below:

4.1. HEALTH AND SAFETY

IMPACT DESCRIPTION	GENERIC MITIGATION MEASURE (SELECT ALL THAT APPLY)	RESPONSIBILITY	INDICATORS
HIV/AIDS infection due to risky sexual behaviour	☑ Provide awareness information to workers ☐ Do not allow visitors to the project area ☐ Provide free condoms ☐ Provide recreation facilities (games/TV etc.)	The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP. VERY IMPORTANT – the proponent must provide the names and contact numbers of the persons responsible.	• Evidence of a training event, • written instructions regarding visitors, • facilities visible.
Bites / stings from snakes, scorpions and insects	☐ Staff may not to catch or kill snakes or scorpions – back away. ☑ Staff must wear protective glasses, gloves, closed shoes, hard hat and overalls while working. ☑ A first aid kit, which includes an aspivenom pump, must be accessible for all staff. ☑ Accommodation / eating areas kept clean at all times, garbage placed in closed containers to avoid attracting vermin, insects. ☑ All staff must be informed in writing about the consequences of breaking these rules, and it must be clear that the rules are understood.	The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.	• Evidence of a first aid training event, • written instructions regarding non-handling of wildlife, • First aid kits accessible • facilities clean • protective gear being worn.
Harm to face, eyes, skin and other parts of the body from thorns, dust, etc	☑ Staff must wear protective glasses, gloves, closed shoes, hard hat and overalls while working.	The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.	• Protective gear being worn.
Loss of life/ injury from traffic accidents	☑ Vehicles roadworthy and properly maintained ☑ Drivers comply with all Roads Ordinances, including avoiding overloading, speeding, safety belts, yellow line driving. ☐ Vehicles travel with lights on whether using tar or gravel roads. ☐ No driving at night. ☐ No conveying of hitch-hikers or non-project staff ☑ Instruction in road safety must be given and repeated periodically amongst all drivers. ☑ All staff must be informed in writing about the consequences of breaking these rules, and it must be clear that the rules are understood.	The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.	• Vehicles roadworthy • Zero traffic fines or accidents • Evidence of drivers receiving instruction/ training in road safety. • All drivers licensed

IMPACT DESCRIPTION	GENERIC MITIGATION MEASURE (SELECT ALL THAT APPLY)	RESPONSIBILITY	INDICATORS
Loss of life/injury from machinery accidents	☑ Machines properly maintained ☑ Operators know and comply with machine instruction manuals. ☑ Instruction in machine operating safety must be given periodically to operators.	The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.	• Machines well maintained • Zero machine-related accidents • Evidence of operators receiving instruction/ training in operating safety.
Loss of life/ injury from fire accidents	☑ Fire-fighting equipment (rubber beaters and/or backpack spray) must be accessible at key points during controlled burning. ☑ Deploy beaters/backpack spray immediately when a fire starts. ☑ A fire cart must be available at each work station with water supply and pumps to deal with fire. ☑ Regular training for site staff on fire prevention and control, especially in the dry season. ☑ If a fire starts, notify the farm owner/ manager immediately. ☑ Open fires only permitted in a designated facility at the site camp. Campfire must be extinguished when staff go to bed, or leave the camp. ☑ No cigarette butts, matches or any other burning object may be thrown into the veld. ☑ An area of at least 3 metres must be cleared of grass around active charcoal kilns. ☑ Combustible refuse must be burnt in a drum. An area of 3 metres must be cleared of grass around such a drum. The drum may not be left unattended until the fire is extinguished and a lid has been placed on the drum. ☑ All staff must be informed in writing about the consequences of breaking these rules, and it must be clear that the rules are understood.	The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.	• No fire incidents • Evidence of a fire-fighting training event, • Written instructions regarding fire prevention, • Fire-fighting equipment available at base camp, on vehicles and at charcoal kilns. • Suitable drum available for combustible refuse, and located in cleared area. • Suitable cleared area designated for campfire at base camp.

4.2. DISTURBANCE OF WILDLIFE AND LIVESTOCK

IMPACT DESCRIPTION	GENERIC MITIGATION MEASURE (SELECT ALL THAT APPLY)	RESPONSIBILITY	INDICATORS
Loss of wildlife and livestock from poaching	☑ Killing of wildlife and setting of snares is prohibited. Anyone caught involved in such activities will be fired immediately. ☑ Possession of a firearm or snare is prohibited. Such items will be confiscated if detected, and the offender issued a warning. ☑ All staff must be informed in writing about the consequences of breaking these rules, and it must be clear that the rules are understood.	The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.	• No snares present in the camp or veld • No firearms on site • No incidences of poaching

IMPACT DESCRIPTION	GENERIC MITIGATION MEASURE (SELECT ALL THAT APPLY)	RESPONSIBILITY	INDICATORS
Escape of wildlife and livestock due to fences damages/ gates left open	☑ Fences may not be damaged and gates may not be left open. ☑ All staff must be informed in writing about the consequences of breaking these rules, and it must be clear that the rules are understood.	The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.	• No wildlife or livestock escape from the property due to fences damages/ gates left open by project staff.
Loss of wildlife/ livestock because of fires	See section on fires in "Health and Safety"	The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.	• See section on fires in "Health and Safety"
Disturbance of sensitive animal species	☑ Permanent nests of large raptors such as eagles or vultures, must be avoided by at least 100m. ☑ Some reptiles such as tortoises and pythons move very slowly when cold. Site staff, drivers, and the machine guide in particular, shall look out for any slow moving animals and avoid causing any harm to such animals.		

4.3. DAMAGE TO PLANTS AND RANGELANDS

IMPACT DESCRIPTION	GENERIC MITIGATION MEASURE (SELECT ALL THAT APPLY)	RESPONSIBILITY	INDICATORS
Loss of protected tree species	☑ Avoid cutting protected trees, whether large or small ones. Many of the protected species are frequently found amongst dense encroacher bush, so they are at risk of being destroyed by bush management practices e.g. harvesting machines, arboricides, and even hand labour, if not adequately supervised. ☑ Protected trees must be marked (e.g. with hazard tape) and all staff must know that marked trees are out of bounds. ☑ All staff must be informed in writing about the consequences of breaking this rule, and it must be clear that the rule is understood.	The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.	• No protected trees are cut

IMPACT DESCRIPTION	GENERIC MITIGATION MEASURE (SELECT ALL THAT APPLY)	RESPONSIBILITY	INDICATORS
Ecological imbalance due to over-harvesting	☑ In order to maintain soil fertility and provide habitat and browse for wildlife and birds, the following measures shall be carried out within each and every target area: ☑ Leave bush clumps (or 'islands') totaling at least 10% of the target area. ☐ If any slopes with gradients of 5 – 12.5% are included in the target area, then the islands must be increased to 20% on those slopes ☐ Within areas that are cut, all large trees (over 4m tall), including dead trees, shall be retained. The only exception is if the vegetation consists entirely of encroachers that are all over 4m. In that case, leave 300 - 500 per hectare in any case. ☑ The TE – rainfall formula includes all sizes and species, including Protected species. The result a year after cutting should be grasslands with many large trees providing shade in a park-like landscape, with some islands of bush as mentioned above. ☑ In addition to small bush islands, also leave at least one large area exceeding 1 ha as a representative sample of the original habitat. ☑ All 'islands' envisaged above should include browser species of bush, Protected species of trees, and even encroacher species as they also have benefits for soil fertility. ☑ Seek to create an environment with a matrix of grass, large trees and bush.	The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.	• Correct level of harvesting, adequate numbers of trees, amd islands, remain. Area has a "park-land" appearance after bush thinning.

4.4. SOIL EROSION

IMPACT DESCRIPTION	GENERIC MITIGATION MEASURE (SELECT ALL THAT APPLY)	RESPONSIBILITY	INDICATORS
Loss of topsoil as a result of bush thinning.	☐ No bush cutting permitted on slopes steeper than 12.5% gradient (i.e. 1 in 8). ☐ Bush cutting is also not recommended on slopes of 5 - 12.5% (i.e. between 1 in 20 and 1 in 8). ☑ On all slopes of 5 – 12.5%, machinery should move approximately along the contours (not up and down slopes). ☑ If such slopes are significantly bush encroached it is recommended that they be set aside as part of the 50% of bush encroached areas per farm that will not be cut even in the medium to long term. ☐ Sandy and silty soils are prone to erosion and loss of soil fertility following bush cutting. Where Terminalia sericea is dominant it is an indicator of deep sand. All sites where this species is dominant should be harvested at the TE – rainfall formula for woodland i.e. TE per hectare = 3 x rainfall.	The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.	• No bush thinning in steep areas • Bush cutting by machines must be done along the contour.

IMPACT DESCRIPTION	GENERIC MITIGATION MEASURE (SELECT ALL THAT APPLY)	RESPONSIBILITY	INDICATORS
Erosion or destabilisation of river banks as a result of bush thinning	☐ No bush cutting permitted within 100 metres of a watercourse (see Forest Act). This includes small watercourses and 'blind valleys' found in karst areas, and also springs. ☑ Two exceptions only are permissible ☑ where bush has encroached into ephemeral (seasonal) pans – it is acceptable to clear the bush within the floor of the pan but not around the outside margins. ☑ Prosopis and black wattle may be removed from within a watercourse and from the riverbank.	As above	• Apart for the exceptions of black wattle and Prosopis, no tree cutting in riverbeds, riverbanks or within 100 metres thereof.

4.5. POLLUTION OF GROUNDWATER

IMPACT DESCRIPTION	GENERIC MITIGATION MEASURE (SELECT ALL THAT APPLY)	RESPONSIBILITY	INDICATORS
Pollution of soil and water from waste products (e.g. tars, ash, brine) generated in bush-to-energy plants or factories for wood products	☑ Where appropriate, the waste should be re-used. E.g. i) ash should be redistributed in the harvested areas, so that nutrients are returned to the soil. ii) Some of the tars produced in a wood gasifier, might be re-useable as fuel in the plant. ☑ Where re-use is not feasible, appropriate disposal must be considered e.g. in a site equipped for hazardous waste disposal, with measures to prevent seapage into soil and groundwater. ☐ Brine and contaminated water should be collected and stored in sealed evaporation ponds. The residue should be regularly scraped up and disposed of in an appropriate site.	The person/company that has the Environmental Clearance is responsible for implementing. Composition of effluents should be specified by the proponent, and measures for safe disposal put in place. Water quality inspectors from MAWLR and/or MoHSS need to exercise control over disposal of effluents.	• Sporadic sampling of local soil and water, to test for contaminants.
Small-scale, local pollution patches caused by spillages and servicing of machinery used in bush harvesting operations. (e.g. fuels, oils, greases)	☑ Regular maintenance and servicing of vehicles and machinery, to prevent breakdowns and the need for on-site repairs.	The person/company that has the Environmental Clearance is responsible for implementing.	• Sporadic sampling of local soil and water, to test for contaminants.

4.6. POLLUTION OF AIR

IMPACT DESCRIPTION	GENERIC MITIGATION MEASURE (SELECT ALL THAT APPLY)	RESPONSIBILITY	INDICATORS
Smoke given off from charcoal kilns can, under certain conditions, accumulate to harmful levels.	☑ Training and supervision of charcoal producers can improve the efficiency of the process, so less smoke is produced. ☐ Retort kilns, operated efficiently, produce almost no smoke.	Charcoal producer	• Complaints from neighbours / local people.
Wood utilisation factories may generate air pollution e.g. smoke, soot.	☐ Air emission control measures e.g. scrubbers installed in chimneys.	Proponent is responsible for minimising air emissions.	• Complaints from neighbours / local people.

4.7. PREVENTION OF REGROWTH THROUGH AFTERCARE

IMPACT DESCRIPTION	GENERIC MITIGATION MEASURE (SELECT ALL THAT APPLY)	RESPONSIBILITY	INDICATORS
The original encroacher species, or more aggressive colonizers, will quickly establish themselves in the thinned-out areas.	Preventing bush regrowth following harvesting can be achieved through: ☐ Hand application of arboricides, ☐ mechanical removal of problematic single plants ☐ stem burning, ☐ judicious use of fire, and ☐ intensive browsing by goats or antelope, especially when regrown plants are still small.	Farmer/land owner/land custodian	• Thinned areas remain at the required tree density, or within defined limits of acceptable change.
Aftercare burning and/or stem burning generates air pollution e.g. smoke, soot, and fires may "get away", threatening other rangeland and neighbours.	☐ No burning when the day temperature exceeds 25oC or wind exceeds 20kph or in combination thereof during the months of April to July. ☑ Notify neighbours a day or two before the controlled burning. ☐ Remove livestock from the area prior to burning. ☑ Ensure there are escape routes for larger forms of wildlife so that they do not succumb to the fire. ☑ Avoid burning in areas where there are active nests of endangered bird species (e.g. vultures, eagles) – wait until chicks have fledged. ☑ Fire-fighting equipment (fire-cart, rubber beaters and/or backpack spray) must be accessible and in working condition. ☑ Prepare firebreaks that are at least 3 metres wide, around the area on 3 sides, prior to the controlled burn, or define an area bordered by roads which are wide enough to prevent a fire "jumping". ☑ Monitor the area after the burn is over, in case a smouldering coal or dung is blown into an unburnt area.	Farmer/land owner/land custodian	• Fire is fit for purpose and it is contained as planned.
Illness to workers through exposure to chemicals	☑ Staff must wear the necessary protective gear while working with chemicals. ☑ Staff must know and comply with instruction manuals for the particular chemical. ☑ Instruction in chemical application must be given periodically to staff.	Farmer/land owner/land custodian	• No injury to workers.

APPENDIX 1: REPORTING TEMPLATE

An annual report is required, as well as a 3-year report. The 3-year report must include updated farm / land map to clearly indicate harvesting activities and reference to rangeland restoration as well as possible increase in biodiversity (fauna and flora).

The following section is a structure that can be used to compile the report.

Introduction

Provide a summary of past and current activities, and level progress towards complying to the FEMP.

Farm / land map

Include the map and indicate the areas that were harvested. Provide detail on total tonnage of biomass removed and how much e.g. charcoal was produced. Provide percentages on the map to indicate how much was harvested in a specific camp / area.

Harvesting and production feedback

Include photos of the areas that were harvested.

Provide feedback on your aftercare that was and will be implemented.

Give the total of the permits that were issued, e.g. 3 harvesting permits with a total of 300 tonne of wood biomass, etc include all marketing and transport permit summaries.

Provide info on inspections that were conducted by relevant competent authorities such Forestry Officials and other law enforcement officials.

Future harvesting

Provide info for the camps / areas that will be harvested in the next year. Include the total size (ha) as well as biomass (obtained from bush quantification tools or similar info that was verified by Forestry officials).

Fauna and Flora

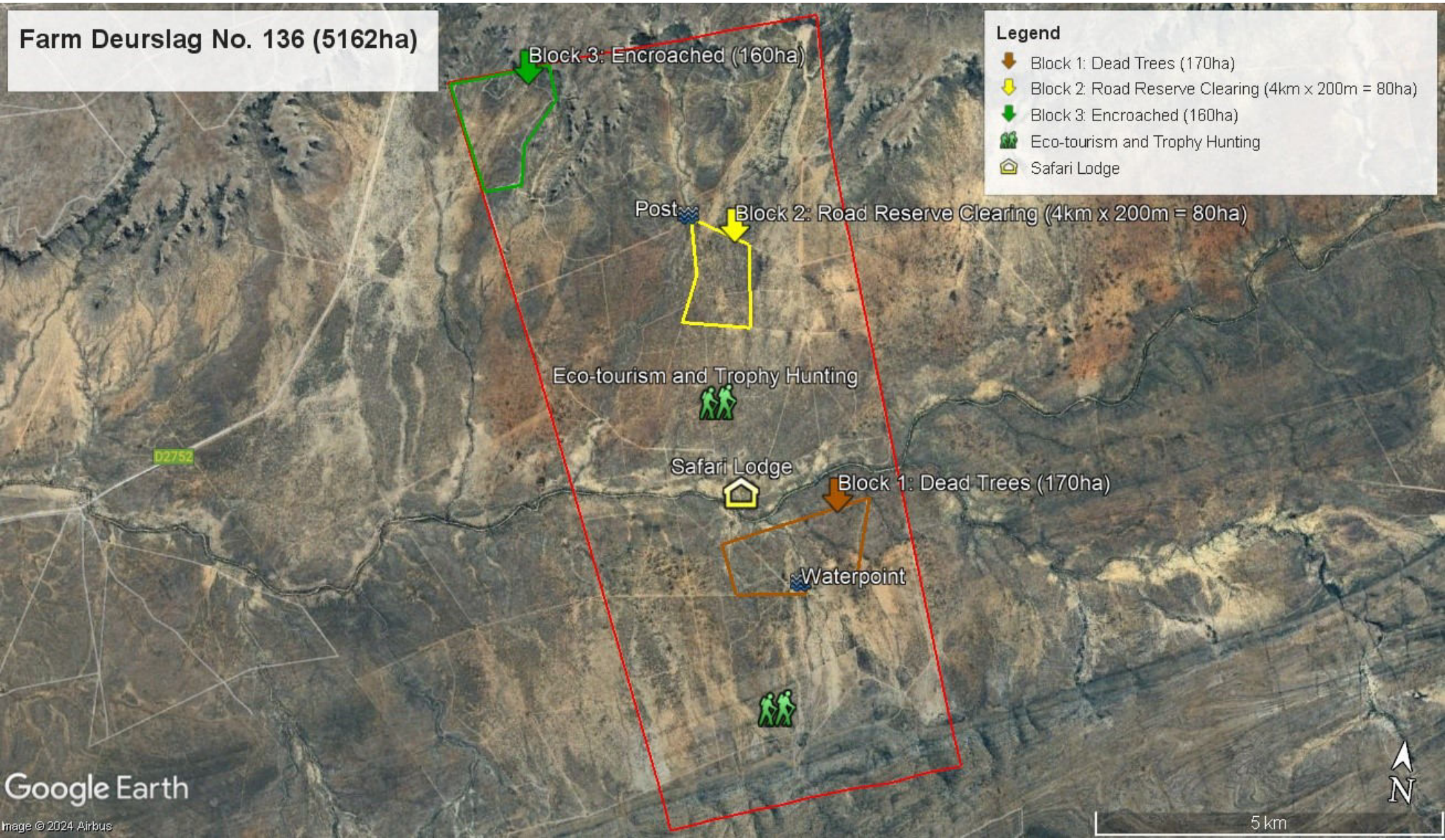
This might be more applicable to the 3-year report, as it is sometimes difficult to measure the impact after the first year. If possible, include the increase of rangeland, animal wildlife and any other positive impact on the rangeland.

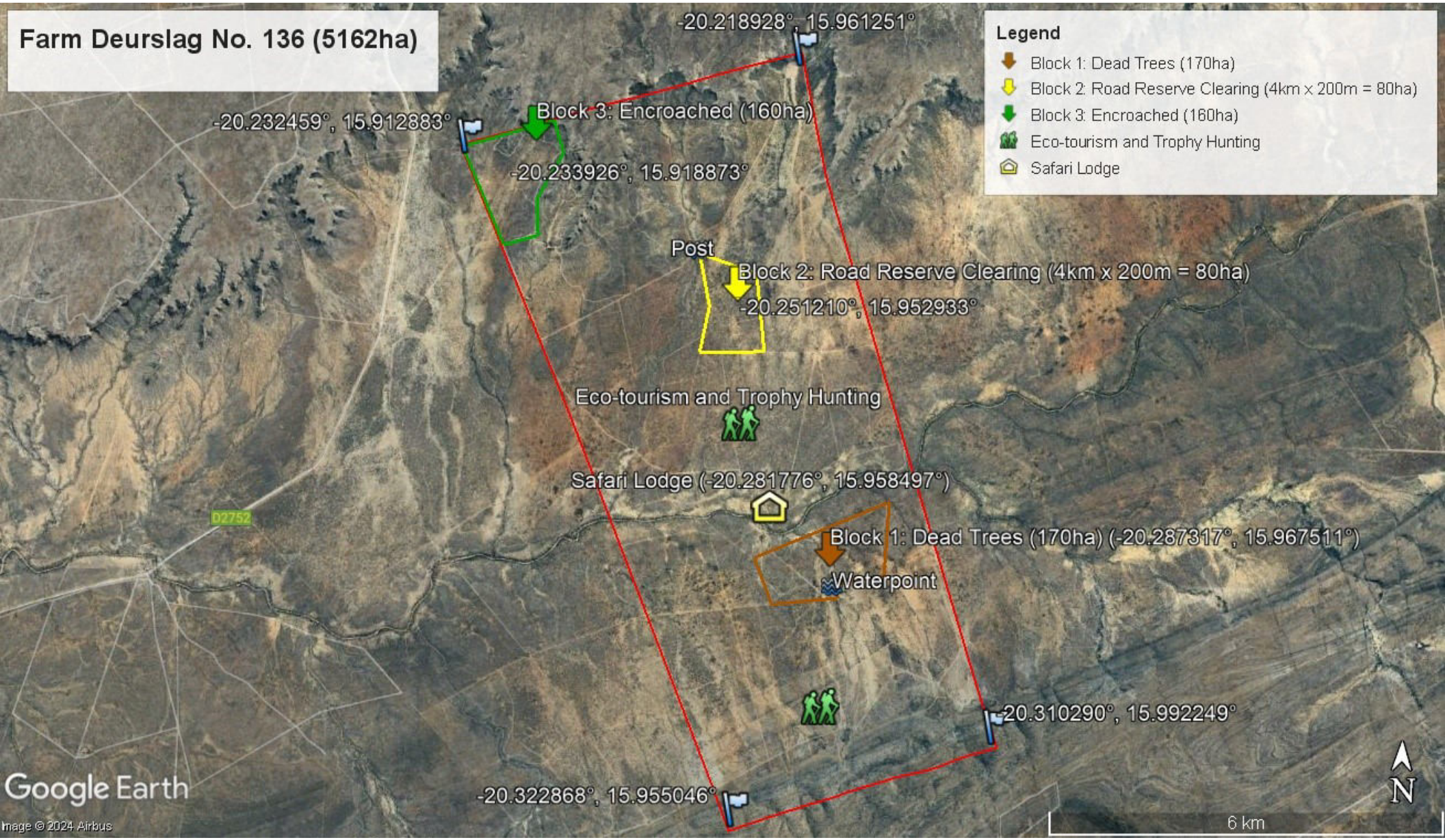
You should also include anything that had a negative impact on the rangeland, e.g. veld fires, drought conditions, erosion, etc.

Summary

Provide information on a summary level of high-level actions that are planned for the next year. If possible add planned training activities, awareness campaigns for workers.


Deurslag No. 136
5162 ha
Legend
Outjo
Deurslag No. 136
Hartseer
Otjiwarongo
C39
C39
D2773
D2773
D2775
M63
D2427
D2505
B1
B1
D2430
D2440
C33
D2515
30 km
N
Google Earth
Image Landsat / Copernicus


Farm Deurslag No. 136 (5162ha)
Legend
Block 1: Dead Trees (170ha)
Block 2: Road Reserve Clearing (4km x 200m = 80ha)
Block 3: Encroached (160ha)
Eco-tourism and Trophy Hunting
Safari Lodge
Block 3: Encroached (160ha)
Post
Block 2: Road Reserve Clearing (4km x 200m = 80ha)
Eco-tourism and Trophy Hunting
D2752
Safari Lodge
Block 1: Dead Trees (170ha)
Waterpoint
Google Earth
Image © 2024 Airbus
N
5 km


Farm Deurslag No. 136 (5162ha)
-20.218928°, 15.961251°
Legend
Block 1: Dead Trees (170ha)
Block 2: Road Reserve Clearing (4km x 200m = 80ha)
Block 3: Encroached (160ha)
Eco-tourism and Trophy Hunting
Safari Lodge
-20.232459°, 15.912883°
Block 3: Encroached (160ha)
-20.233926°, 15.918873°
Post
Block 2: Road Reserve Clearing (4km x 200m = 80ha)
-20.251210°, 15.952933°
Eco-tourism and Trophy Hunting
Safari Lodge (-20.281776°, 15.958497°)
D2752
Block 1: Dead Trees (170ha) (-20.287317°, 15.967511°)
Waterpoint
-20.310290°, 15.992249°
-20.322868°, 15.955046°
Google Earth
Image © 2024 Airbus
N
6 km

Appendix 1: Pictures of bush thickening

Figure 1: Dead trees due to fire and draught

Figure 2: Extent of bush thickening

Nick Van Zyl (Magdalena)

Bertie Opperman – Hofnung #173

Jaco Liebenberg – Pietersburg

Danjan Weakly – Munsterland Sued

Kobus Swart – Ozema

Strausenheim from Uli Shorcoff its between Sophienhof and Dornveld

C1S1 Dead tree sites Tree counts and ENP _BQT-Deurslag 20 Sep 24

Data input				TH & CD	
No.	Species Name			TH (m)	CD (m)
1	V. reficience			2.20	3.70
2	V. reficience			3.00	4.00
3	Catophractes alexandri			1.10	0.10
4	Boscia foetida			0.50	0.10
5	Grewia flava			0.80	0.10
6	Grewia flava			0.80	0.10
7	V. reficience			1.10	0.10
8	Catophractes alexandri			0.60	0.10
9	Catophractes alexandri			0.60	0.10
10	Catophractes alexandri			0.80	0.10
11					
12					
13					

C1S2 Dead tree sites Tree counts and ENP _BQT-Deurslag 20 Sep 24

Data input			TH & CD	
No.	Species Name		TH (m)	CD (m)
1	Terminalia pruniodes		2.90	1.80
2	S. erubescens		3.40	3.00
3	S. erubescens		4.00	3.30
4	S. erubescens		3.00	3.10
5	Boscia foetida		0.50	0.10
6	Grewia flava		0.60	0.10
7				
8				
9				
10				
11				

C1S3 Dead tree sites Tree counts and ENP _BQT-Deurslag 20 Sep 24

Data input			TH & CD	
No.	Species Name			TH (m)	CD (m)
1	Catophractes alexandri			0.50	0.50
2	Grewia flava			1.60	1.60
3	Catophractes alexandri			1.10	0.50
4	Catophractes alexandri			0.80	0.50
5	S. erubescens			3.80	3.50
6	Catophractes alexandri			1.00	0.50
7	S. erubescens			1.30	0.50
8	Catophractes alexandri			0.60	0.10
9	Catophractes alexandri			0.60	0.10
10	Catophractes alexandri			0.60	0.10
11	Catophractes alexandri			0.80	0.50
12	Boscia foetida			0.50	0.80
13	Grewia flava			0.60	0.50
14	S. erubescens			4.00	2.90
15	V. reficience			3.00	4.00
16	S. erubescens			4.50	2.10
17	S. erubescens			4.50	2.10
18	S. erubescens			4.50	3.10
19	V. reficience			2.30	2.00
20					
21					
22					
23					
24					
25					
26					
27					
28					

C2S1 Road Reserve Tree counts and ENP _BQT-Deurslag 20 Sep 24

Data input			TH & CD	
No.	Species Name		TH (m)	CD (m)
1	Boscia foetida		2.30	1.20
2	Grewia flava		1.00	0.80
3	Grewia flava		1.00	0.80
4	S. mellifera		4.20	3.70
5	Terminalia pruniodes		2.80	2.00
6	S. mellifera		3.70	4.00
7	S. mellifera		3.20	2.50
8	Boscia foetida		2.20	1.80
9	Boscia foetida		2.10	2.00
10	S. mellifera		4.20	5.00
11	S. mellifera		1.20	2.40
12				
13				
14				
15				
16				

C2S2 Road Reserve Tree counts and ENP _BQT-Deurslag 20 Sep 24

Data input			TH & CD	
No.	Species Name			TH (m)	CD (m)
1	Grewia flava			1.00	1.00
2	Ximenia caffra			0.70	0.60
3	Ximenia caffra			0.90	0.80
4	Dichrostachys cinerea			2.60	3.40
5	Grewia flava			0.60	0.50
6	S. erubescens			3.90	5.00
7	Grewia flava			0.50	0.10
8	Grewia flava			0.50	0.10
9	Grewia flava			0.50	0.10
10	Grewia flava			1.10	1.40
11	Terminalia pruniodes			3.40	3.40
12	S. erubescens			4.50	6.00
13	Dichrostachys cinerea			1.60	0.80
14	Species 1			3.50	1.50
15	Dichrostachys cinerea			1.60	1.00
16	Dichrostachys cinerea			1.70	1.20
17	Ximenia americana			1.00	0.50
18	Dichrostachys cinerea			1.70	1.20
19	S. mellifera			1.80	2.40
20					
21					
22					
23					

C2S3 Road Reserve Tree counts and ENP _BQT-Deurslag 20 Sep 24

Data input			TH & CD	
No.	Species Name		TH (m)	CD (m)
1	Dichrostachys cinerea		0.60	0.50
2	Catophractes alexandri		1.80	0.50
3	Catophractes alexandri		1.50	1.30
4	Catophractes alexandri		1.50	0.80
5	Albizia anthelmintica		1.00	0.50
6	S. mellifera		2.50	2.20
7	S. mellifera		2.50	3.20
8	S. mellifera		1.20	0.50
9	S. mellifera		2.50	2.00
10	S. mellifera		3.00	1.80
11	S. mellifera		3.70	3.00
12	S. mellifera		3.00	1.40
13	Boscia foetida		1.00	0.90
14	S. mellifera		5.00	6.00
15	S. mellifera		3.50	3.00
16	Catophractes alexandri		1.00	0.50
17				
18				
19				
20				
21				

C2S4 Road Reserve Tree counts and ENP _BQT-Deurslag 20 Sep 24

Data input			TH & CD	
No.	**Species Name**		**TH (m)**	**CD (m)**
1	Dichrostachys cinerea		**1.70**	**1.00**
2	Dichrostachys cinerea		**0.60**	**0.10**
3	Dichrostachys cinerea		**0.50**	**0.10**
4	Dichrostachys cinerea		**3.30**	**3.00**
5	V. reficience		**1.60**	**1.30**
6	Grewia flava		**0.90**	**0.30**
7	Colophospermum mopane		**0.60**	**0.10**
8	Dichrostachys cinerea		**0.30**	**0.80**
9	S. mellifera		**2.70**	**1.80**
10	V. reficience		**2.70**	**2.60**
11	S. mellifera		**2.10**	**1.60**
12	S. mellifera		**2.10**	**1.60**
13	Grewia flava		**0.70**	**0.10**
14	S. mellifera		**3.80**	**4.10**
15				
16				

C3S1 Charcoal Camp Tree counts and ENP _BQT-Deurslag 20 Sep 24

Data input			TH & CD	
No.	Species Name		TH (m)	CD (m)
1	Grewia flava		0.60	0.10
2	S. mellifera		2.30	1.50
3	S. mellifera		2.50	1.20
4	S. mellifera		2.50	2.10
5	S. mellifera		2.40	3.20
6	Terminalia pruniodes		3.20	5.20
7	S. mellifera		2.10	1.10
8	S. mellifera		2.30	2.00
9	Croton gratissimus		1.40	0.20
10	Dichrostachys cinerea		2.10	1.70
11	Croton gratissimus		1.30	0.30
12	S. mellifera		1.90	0.90
13	Croton gratissimus		1.00	0.10
14	Grewia flava		1.10	0.10
15	Grewia flava		1.20	0.20
16	Grewia flava		1.50	0.10
17	S. mellifera		2.10	0.70
18	S. mellifera		1.50	0.60
19	Grewia flava		1.20	0.30
20	Grewia flava		0.90	0.40
21	Grewia flava		0.50	0.10
22	Grewia flava		0.50	0.10
23	S. mellifera		1.90	1.10
24	S. mellifera		3.20	1.60
25	S. mellifera		3.20	1.50
26	S. mellifera		2.50	1.70
27	S. mellifera		2.40	1.20
28	S. mellifera		1.90	1.10
29	Colophospermum mopane		3.30	3.20
30	S. mellifera		1.50	0.40
31				
32				
33				
34				
35				
36				
37				
38				

C3S2 Charcoal Camp Tree counts and ENP _BQT-Deurslag 20 Sep 24

Data input			TH & CD	
No.	Species Name		TH (m)	CD (m)
1	Colophospermum mopane		2.70	3.00
2	Colophospermum mopane		1.90	1.70
3	S. mellifera		3.40	3.90
4	Grewia flava		1.30	0.70
5	Boscia foetida		0.60	0.30
6	S. mellifera		2.90	1.90
7	S. mellifera		3.10	4.50
8	Colophospermum mopane		1.20	0.80
9	Colophospermum mopane		1.70	0.90
10	Colophospermum mopane		2.10	1.10
11	Colophospermum mopane		0.90	0.30
12	Dichrostachys cinerea		1.30	0.80
13	Colophospermum mopane		2.20	1.70
14	Colophospermum mopane		3.00	1.90
15				
16				

C3S3 Charcoal Camp Tree counts and ENP _BQT-Deurslag 20 Sep 24

Data input			TH & CD	
No.	Species Name		TH (m)	CD (m)
1	Colophospermum mopane		1.10	0.80
2	Grewia flava		1.40	1.00
3	Colophospermum mopane		1.90	1.00
4	Colophospermum mopane		1.30	0.80
5	Colophospermum mopane		1.70	1.00
6	Colophospermum mopane		0.70	0.40
7	Colophospermum mopane		2.60	1.40
8	Colophospermum mopane		1.10	0.90
9	Colophospermum mopane		0.80	0.30
10	Colophospermum mopane		1.40	0.30
11	Colophospermum mopane		0.90	0.60
12	Colophospermum mopane		4.70	3.20
13	Dichrostachys cinerea		2.40	2.50
14	Dichrostachys cinerea		0.80	0.10
15	Colophospermum mopane		2.30	1.50
16	S. mellifera		4.50	5.90
17	Catophractes alexandri		1.40	1.10
18	Colophospermum mopane		1.50	0.80
19				

C3S4 Charcoal Camp Tree counts and ENP _BQT-Deurslag 20 Sep 24

Data input

No.	Species Name			TH (m)	CD (m)
1	Colophospermum mopane			1.70	0.70
2	Colophospermum mopane			1.50	0.80
3	Colophospermum mopane			4.00	1.20
4	Colophospermum mopane			4.00	3.60
5	Terminalia pruniodes			1.50	0.40
6	Colophospermum mopane			3.70	1.10
7	Colophospermum mopane			4.70	2.50
8	Grewia flava			1.30	0.70
9	Dichrostachys cinerea			2.00	1.80
10	Dichrostachys cinerea			2.30	2.50
11	Colophospermum mopane			2.70	1.90
12	Dichrostachys cinerea			1.60	1.20
13	Colophospermum mopane			1.70	0.90
14	Dichrostachys cinerea			1.30	2.10
15	Colophospermum mopane			1.50	0.80
16	Colophospermum mopane			1.60	1.20
17					