

HERMANUSDOORNS

Grazing assessment

June 2016



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1. INTRODUCTION

Hermanusdoorns game farm was visited on 24 May 2016 on request to do a grazing assessment. This assessment was specifically requested to evaluate the availability of grazing fodder, in light of the current drought, in order to determine the need for supplement feeding during the coming dry season.

2. METHODS

The assessment was done by collecting data on grass biomass production on the property. For this the property was divided into five different vegetation units (see map below). Vegetation units were identified using my current knowledge of the property and Google Earth imagery. A more detailed study would be needed for a more detailed map.

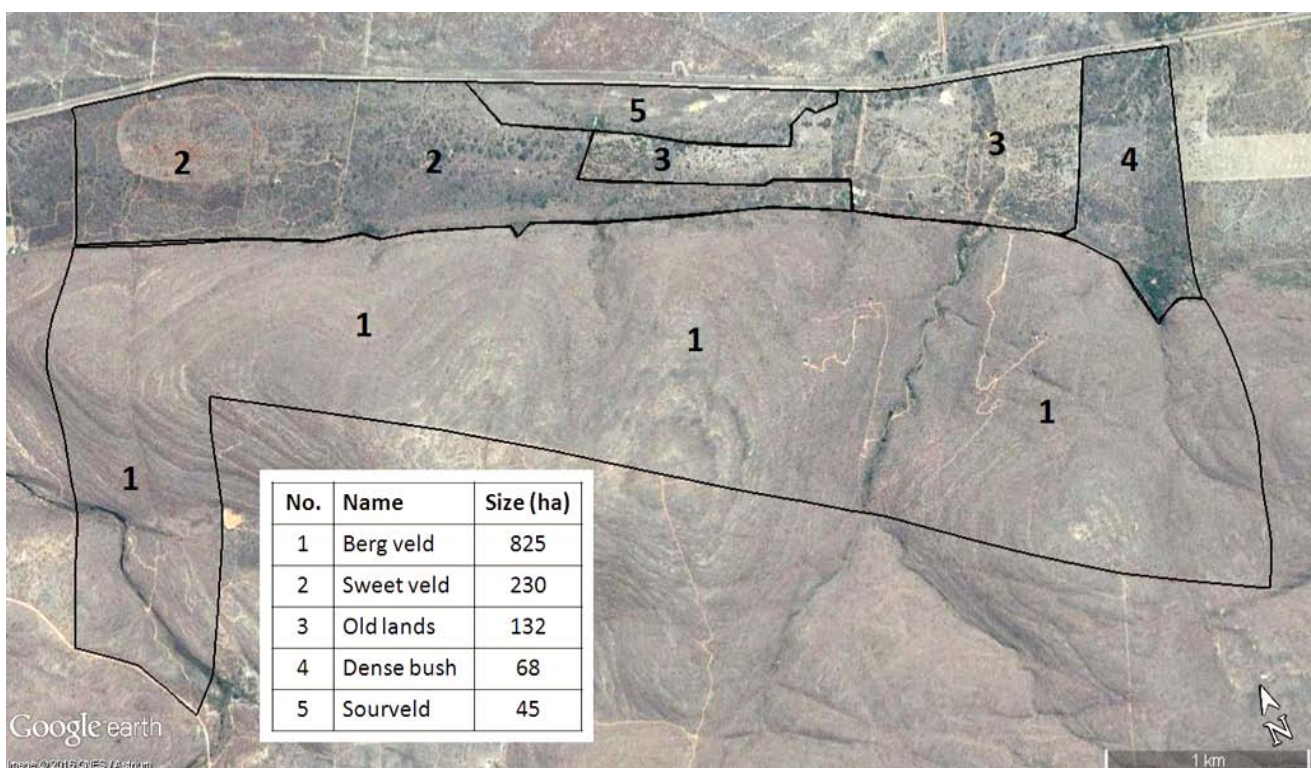


Figure 1: Vegetation units identified on the farm.

Assessments were then done in each vegetation unit spread out over the farm. A total of 15 assessments were done. The size of each vegetation unit was considered to determine the grass forage contribution of each unit and the total amount of grass biomass on the property. The amount of biomass in the Berg veld was reduced by 50% to offset for the high degree of rock cover. Furthermore an utilisation factor between 20% and 45% were used for each unit based on the quality of the grazing.

To measure the grass biomass production a calibrated Disc Pasture Meter was used. To convert the data (in cm) to kg/ha, suitable equations developed for the Kruger National Park were used (Trollope & Potgieter, Zimbatis *et al*).

To estimate the grass forage biomass needed for the dry season the utilisation requirements for the game animals currently on the property from June to December were considered. The estimated number of game animals was provided by management and is as follows;

Table 1: The current (May 2016) estimated number of game animals on the property.

| Name | Number | Name | Number |
|-----------------|--------|-------------------|--------|
| Blesbok | 21 | Kudu | 180 |
| Blue wildebeest | 41 | Mountain reedbuck | 18 |
| Bushbuck | 40 | Nyala | 18 |
| Common duiker | 5 | Red hartebeest | 15 |
| Eland | 10 | Sable antelope | 3 |
| Gemsbok | 8 | Warthog | 40 |
| Giraffe | 25 | Waterbuck | 15 |
| Impala ewes | 164 | Zebra | 30 |
| Impala rams | 73 | | |

2. FINDINGS

2.1. Grass production

The results from the study indicates that the total amount of available and consumable grass on the property is estimated at 295 880 kg, with the Berg veld and Sweet veld units contributing the most to the total. The table below shows a summary of results.

Table 2: Summary of grass biomass assessment results for the vegetation units and whole property. An utilisation factor was used for each unit based on the quality of grazing. The size, in percentage, of each unit was used to determine the contribution to the total available grass forage on the property.

| Unit | Biomass kg/ha | Utilisation % | Forage available | Unit size | % of unit size | Contribution kg/ha |
|--------------|---------------|---------------|----------------------------------|---------------|----------------|--------------------|
| Dense bush | 592.6 | 35.0 | 207.0 | 68.0 | 5.2 | 10.8 |
| Old land | 400.5 | 40.0 | 160.0 | 132.0 | 10.2 | 16.3 |
| Sour veld | 2 541.0 | 20.0 | 508.0 | 45.0 | 3.5 | 17.7 |
| Sweet veld | 869.5 | 45.0 | 391.0 | 230.0 | 17.7 | 69.2 |
| Berg veld | 893.0 | 20.0 | 179.0 | 825.0 | 63.5 | 113.6 |
| Total | | | | 1300.0 | 100.0 | 227.6 |
| | | | Total for farm (1 300 ha) | | | 295 880 kg |

2.2. Forage requirements

To estimate the forage requirements for the coming dry season the total number of animals on the property, and their feed requirements, were considered. The estimation shows that a total of 30.5 tons of dry grass forage and 48.8 tons of brows (leaves) are needed per month to sustain the current number of animals. Grasses are more affected by drought than trees and shrubs and will more likely be needed to supplement in the form of grass hay. Brows (trees and shrubs) are typically supplemented by Lucerne hay. Lucerne hay is however higher in protein and should therefore also be included when purchasing supplement fodder. The table below shows the results. Animals are arranged from most common to least common.

Table 3: The feed requirements for the current number of game animals on the farm.

| Animal information | | Feed requirements per animal | | | | | Feed requirements for Hermanusdoorns 2016 | | | | |
|--------------------|-------------------|------------------------------|---------|--------------|--------------|---------------------|---|-----------------------|-----------------------|-------------------------|-------------------------|
| Animal name | Average weight kg | Graze % | Brows % | Grass kg/day | Brows kg/day | Total forage kg/day | Animal numbers | Grass required kg/day | Brows required kg/day | Grass required kg/month | Brows required kg/month |
| Common impala | 41 | 50 | 50 | 0.6 | 0.6 | 1.2 | 237 | 142.2 | 142.2 | 4 266.00 | 4 266.00 |
| Kudu | 140 | 15 | 85 | 0.6 | 3.6 | 4.2 | 180 | 108 | 648 | 3 240.00 | 19 440.00 |
| Blue wildebeest | 180 | 90 | 10 | 4.9 | 0.5 | 5.4 | 41 | 200.9 | 20.5 | 6 027.00 | 615.00 |
| Bushbuck | 30 | 10 | 90 | 0.1 | 0.8 | 0.9 | 40 | 4 | 32 | 120.00 | 960.00 |
| Warthog | 30 | 50 | 50 | 0.5 | 0.5 | 0.9 | 40 | 20 | 20 | 600.00 | 600.00 |
| Zebra | 260 | 95 | 5 | 7.4 | 0.4 | 7.8 | 30 | 222 | 12 | 6 660.00 | 360.00 |
| Giraffe | 830 | 1 | 99 | 0.2 | 24.7 | 24.9 | 25 | 5 | 617.5 | 150.00 | 18 525.00 |
| Blesbok | 65 | 95 | 5 | 1.9 | 0.1 | 2 | 21 | 39.9 | 2.1 | 1 197.00 | 63.00 |
| Mountain reedbuck | 23 | 95 | 5 | 0.7 | 0 | 0.7 | 18 | 12.6 | 0 | 378.00 | 0.00 |
| Nyala | 73 | 30 | 70 | 0.7 | 1.5 | 2.2 | 18 | 12.6 | 27 | 378.00 | 810.00 |
| Red hartebeest | 120 | 75 | 25 | 2.7 | 0.9 | 3.6 | 15 | 40.5 | 13.5 | 1 215.00 | 405.00 |

| | | | | | | | | | | | |
|------------------|------|-----|----|------|-----|------|------------|-------------|-----------------|------------------|------------------|
| Waterbuck | 205 | 90 | 10 | 5.5 | 0.6 | 6.2 | 15 | 82.5 | 9 | 2 475.00 | 270.00 |
| Eland | 460 | 50 | 50 | 6.9 | 6.9 | 13.8 | 10 | 69 | 69 | 2 070.00 | 2 070.00 |
| Gemsbok | 210 | 80 | 20 | 5 | 1.3 | 6.3 | 8 | 40 | 10.4 | 1 200.00 | 312.00 |
| Common duiker | 19 | 5 | 95 | 0 | 0.5 | 0.6 | 5 | 0 | 2.5 | 0.00 | 75.00 |
| Sable | 220 | 85 | 15 | 5.6 | 1 | 6.6 | 3 | 16.8 | 3 | 504.00 | 90.00 |
| Blue duiker | 5 | 1 | 99 | 0 | 0.1 | 0.1 | 0 | 0 | 0 | 0.00 | 0.00 |
| Buffalo | 520 | 90 | 10 | 14 | 1.6 | 15.6 | 0 | 0 | 0 | 0 | 0.00 |
| Bushpig | 55 | 50 | 50 | 0.8 | 0.8 | 1.7 | 0 | 0 | 0 | 0 | 0 |
| Klipspringer | 13 | 10 | 90 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| Ostrich | 69 | 80 | 20 | 1.7 | 0.4 | 2.1 | 0 | 0 | 0 | 0 | 0 |
| Reedbuck | 55 | 95 | 5 | 1.6 | 0.1 | 1.7 | 0 | 0 | 0 | 0 | 0 |
| Roan | 240 | 90 | 10 | 6.5 | 0.7 | 7.2 | 0 | 0 | 0 | 0 | 0 |
| Steenbok | 10 | 25 | 75 | 0.1 | 0.2 | 0.3 | 0 | 0 | 0 | 0 | 0 |
| Tsessebe | 126 | 90 | 10 | 3.4 | 0.4 | 3.8 | 0 | 0 | 0 | 0 | 0 |
| White rhinoceros | 1727 | 100 | 0 | 51.8 | 0 | 51.8 | 0 | 0 | 0 | 0 | 0 |
| Total | | | | | | | 646 | 1016 | 1 628.70 | 30 480.00 | 48 861.00 |

2.3. Lucerne feeding

To maintain optimal levels of animal condition and reproduction the feeding of Lucerne is recommended. Based on the condition of animals, a feeding rate of 1% - 1.5% of the bodyweight per day is normally recommended for game ranches (see table below). The feeding rate should start at a low rate and increase gradually as animal condition deteriorates.

This supplement feeding will enable grazers to utilise sourveld grasses and browsers, such as Kudu and Giraffe, to retain condition during the late dry season when browse material is little in quantity. Feeding areas should preferably include Berg veld in order to attract animals to areas where grass is still abundant.

For more advice on animal feeding contact the following person;

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Table 4: Feeding of Lucerne is normally recommended by animal nutritionists at a rate of 1% - 1.5% of bodyweight per day depending on animal condition. The table below shows the estimated weight of animals currently on the property and Lucerne requirements per day based on 1% of bodyweight.

| Animal information | | | Lucerne | |
|--------------------|-------------------|----------------|--------------|---------------------------------|
| Animal name | Average weight kg | Animal numbers | Total weight | 1% of weight |
| Common impala | 41 | 237 | 9717 | 97.17 |
| Kudu | 140 | 180 | 25200 | 252 |
| Blue wildebeest | 180 | 41 | 7380 | 73.8 |
| Bushbuck | 30 | 40 | 1200 | 12 |
| Warthog | 30 | 40 | 1200 | 12 |
| Burchell's zebra | 260 | 30 | 7800 | 78 |
| Giraffe | 830 | 25 | 20750 | 207.5 |
| Blesbok | 65 | 21 | 1365 | 13.65 |
| Mountain reedbuck | 23 | 18 | 414 | 4.14 |
| Nyala | 73 | 18 | 1314 | 13.14 |
| Red hartebeest | 120 | 15 | 1800 | 18 |
| Waterbuck | 205 | 15 | 3075 | 30.75 |
| Eland | 460 | 10 | 4600 | 46 |
| Gemsbok | 210 | 8 | 1680 | 16.8 |
| Common duiker | 19 | 5 | 95 | 0.95 |
| Sable | 220 | 3 | 660 | 6.6 |
| Total | | 646 | | 882.5 kg Lucerne/day |

Conclusion

The study indicates that a total amount of 295 000 kg grass forage is available for grazing on the date of assessment (24 May 2016). The grass forage requirements of the current number of game animals on the property is 30 500 kg per month. If the assumption is made that the current available veld forage will be required up to the end of 2016 (6 months), a total of 183 000 kg grass forage will be needed to feed the animals. The total quantity of available forage is therefore enough to fulfil in the feeding requirements of the current game stock under the condition that animals will venture into the Berg veld in search of grazing. Close monitoring of the extent to which animals utilise Berg veld should be done for future reference.

Supplement feeding in the form of Lucerne will be needed. The normal recommendation to maintain good animal condition and reproduction is 1% to 1.5% of bodyweight per day. Close monitoring of animal condition need to be done and Lucerne feeding should be done accordingly.

References

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THE END

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