

Spotlight on Agriculture

Ministry of Agriculture, Water and Forestry, Directorate of Agricultural Research and Training, Private Bag 13184, Windhoek

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Survey to determine botanical composition of the vegetation at Oshaambelo Livestock Development Centre (LDC)

INTRODUCTION

This paper provides a brief synopsis of the botanical composition of Oshaambelo Livestock Development Centre (LDC), situated in the Omusati region, approximately 20 km from Tsandi. The vegetation type is described as Mopane Savannah by Giess (1971). The LDC comprises of 5 600 ha and is divided into 22 camps. Sixteen of these are 210 ha in size while six are 400 ha each.

To determine botanical composition, point surveys, consisting of 1 000 points per camp in camps 3, 6, 7, 11, 13 and 20 were carried out from the 11–15 August 2008. An 800 m² quadrat (to determine shrub/tree composition, density and height structure) was carried out in each of these camps and at the same time. These camps were chosen after consensus was reached amongst the surveyors that they were representative of the variation in vegetation that exists on the LDC.

BOTANICAL COMPOSITION

This survey describes the frequency of grass and weed species on the LDC, shown in Figures 1 and 2.

The annual grasses as well as the weeds have been identified and ranked in terms of their frequency of appearance and are presented in Table 1. All grass recordings were either nearest plant or crown. No basal strikes were recorded. Perennial grasses recorded do not contribute significantly to the botanical composition. Annual grasses and weeds dominated the herbaceous layer, while *Colophospermum mopane* dominated the tree layer throughout the sampling area.

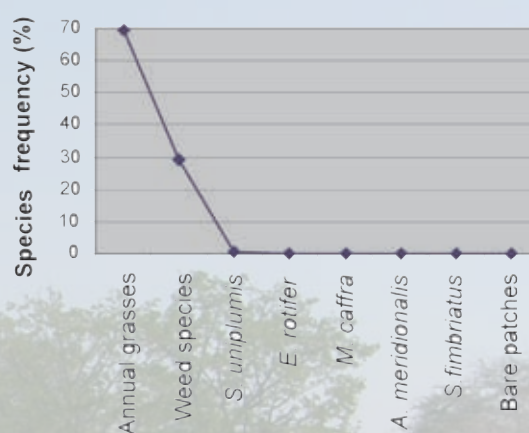


Figure 1. Percentage frequency of dominant grass/weed species.

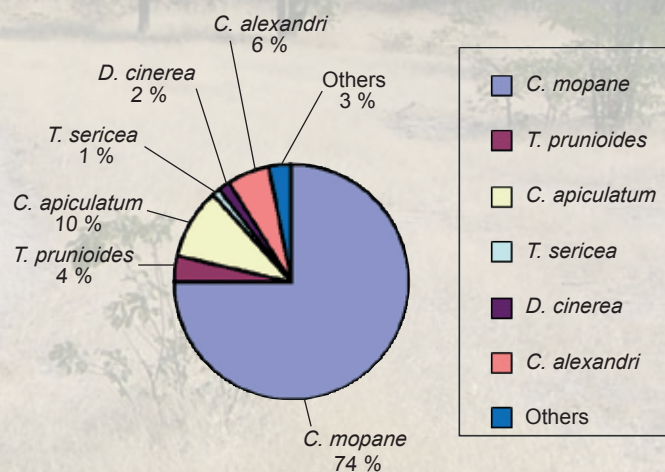


Figure 2. Percentage frequencies of dominant bush/shrub species.

Table 1. Annual grasses and weeds present

Grass species ranked in order of frequency of appearance				Most dominant weeds	
Abundant	Distributed	Scarce	Very scarce		
<i>Schmidtia kalahariensis</i>	<i>Melinis repens</i>	<i>Brachiaria poaeoides</i>	<i>Eragrostis</i> spp.		<i>Acrotome flecki</i>
<i>Triraphis schinzii</i>	<i>Aristida congesta</i>	<i>Enneapogon cenchroides</i>			<i>Blumea garipinum</i>
<i>Aristida stipitata</i>	<i>Eragrostis dinteri</i>				<i>Indigofera</i> spp.
				<i>Vernonia poskeana</i>	

VEGETATION STRATA

The structure of the plant community plays an important role in the availability of fodder for grazing/browsing animals. The vertical structure of the vegetation consists of different layers or strata. Figure 3 shows that the farm is dominated by trees and bushes falling in the lower strata (< 1 m) with 55 % of the bushes/shrubs below one metre and 41 % exceeding a height of one metre. Only about 4 % exceeds a height of 4 metres.

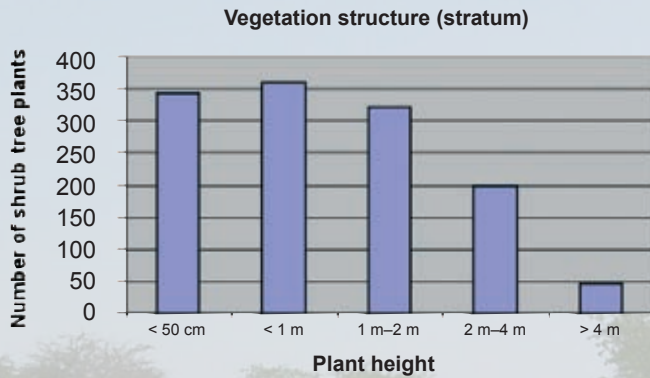


Figure 3. Relative heights of shrubs and trees.

The species area curve in Figure 4 provides a descriptive ecology of the area surveyed. The species area curve is used to determine whether the sample areas that were surveyed were representative of the larger area of interest. It shows the cumulative increase in new bush/shrub species that were identified each time a new camp (or a different sample) was surveyed. The number of new species encountered started to level out after the 6th camp was surveyed. This indicates that the total area surveyed was of sufficient size. Twenty one shrub/tree species were recorded in the 4 800 m² surveyed.

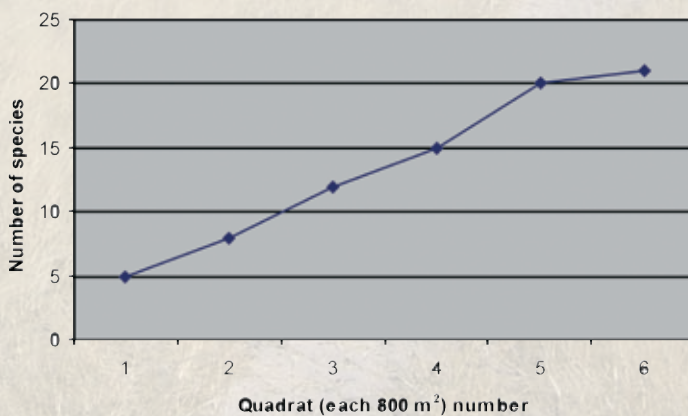


Figure 4. Species area curve.



Oshaambelo Livestock Development Centre.

REMARKS

During the time of the survey the boundary fence of Oshaambelo LDC had been badly damaged by elephants, which made the control of community cattle into this area impossible. During the time of the survey “Non-government” cattle were seen grazing at various points on the LDC. There seemed to be a perception amongst members of the surrounding community that the grazing on the farm was in a very good condition. However, the results of the botanical survey carried out during August of 2008 show that the perception was false. The fact that virtually 100 % of the herbaceous layer consisted of annual grasses and weeds indicated that the condition of the rangeland, if evaluated as a grazing resource, was extremely poor. It also showed that a large proportion of the tree/shrub component was below one metre in height, which rendered it accessible to cattle.

However, since the LDC was not yet operational, the farm manager was urged to take a long, hard look at future grazing management practices that would ensure a more productive and stable rangeland. Major management practices that were recommended were conservative stocking rates and adequate rest periods, which would enable perennial grasses to recover.

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