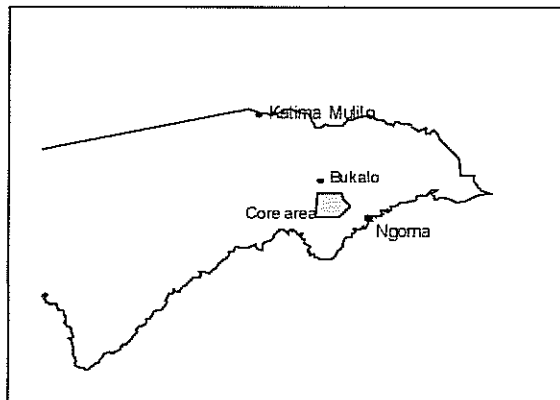


**Ministry of Environment and Tourism
Directorate of Forestry**



**Inventory Report on the Woody Resources
in
the Salambala Conservancy Core Area**



Namibia-Finland Forestry Programme

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Windhoek, March 2002

Inventory Report on the Woody Resources in the Salambala Conservancy Core Area

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Summary

An inventory of the woody resources of the Salambala Conservancy core area was carried out in year 2000. The inventory area has an area of 8362 hectares. The objective of the inventory was to collect data for forest management planning of the core area. A total of 18 clusters with 4 plots in each cluster (total of 72 plots) were measured. The radius of one sample plot was 15 meters. Regeneration was recorded on a sub-plot with a 4 meters radius.

Altogether 16 species were identified in the inventory. All species included, there are an average of 160 trees growing per hectare. *Colophospermum mopane* is the dominant species in the area. It has 107 trees per hectare. Most of the mopane trees are small; 65 % of the stems have a diameter less than 15 cm at breast height. The second most frequent species is *Terminalia sericea* with 22 stems per hectare and the third most frequent species is *Combretum collinum* with 11 stems per hectare.

According to the inventory, there are a total of about 400 000 mopane poles suitable for fencing, 200 000 poles for making houses and about 70 000 poles suitable for making kraals. Respectively, there are about 17 000 *Terminalia* poles suitable for construction, about 74 000 poles suitable for fencing and 17 000 poles suitable for kraals.

The average volume of all species is 34 m³ per hectare. *Colophospermum mopane* has 18 m³ per hectare and *Combretum collinum* 6 m³ per hectare. *Terminalia sericea* has 4 m³ per hectare.

Regeneration of *Colophospermum mopane* is very good with 840 shrubs or saplings per hectare. *Terminalia sericea* has 135 shrubs or saplings per hectare. All species included, there are 1346 shrubs or saplings growing per hectare.

1. Introduction

The Directorate of Forestry carries out forest inventories at several scales. It has been conducting a region level inventory (National Forest Inventory, NFI) of Namibia for several years now. The focus on this inventory has been on the potential timber resources on the communal lands in Northern Namibia. The inventory has been completed in most of the northern regions now (Angombe and Laamanen, 2002). Due to security reasons, it has not been possible to carry out the work in Ohangwena and Kavango regions.

Recently more focus has been put on local level forest inventories. These inventories have been carried out mainly for forest management planning purposes. A list of inventory reports by the Directorate of Forestry has been attached in the Appendix 5.

A forest inventory in the Salambala core area was carried out in year 2000 as a co-operation between the Conservancy and the District Forestry Office (supported by the Namibia-Finland Forestry Programme). The inventory was supervised by Mr. Jussi Viitanen (Technical Advisor of NFFP Phase I) and the inventory field work was carried out jointly by the District Forestry Office staff and Salambala Conservancy staff. The objective of the inventory was to collect data for forest management planning of the core area.

2. Inventory design and data analysis

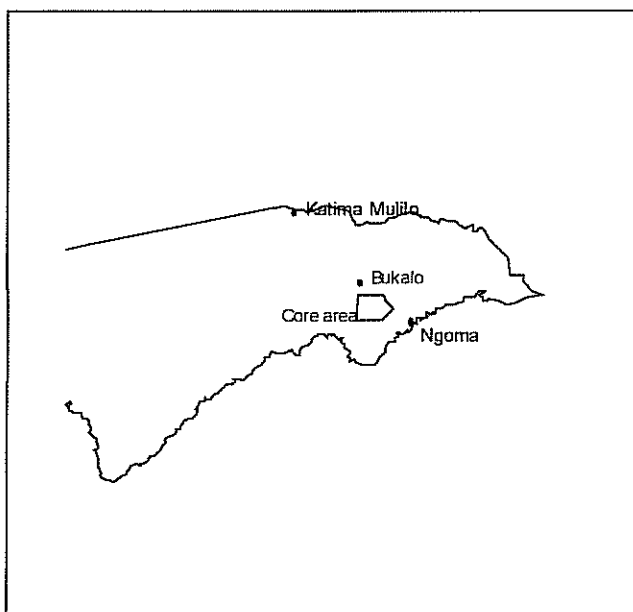
For the inventory purposes, specific forests were defined inside the core area. The inventory area was formed of these forests. Then, inventory clusters were randomly placed over this area. Altogether 18 clusters with a total of 72 sample plots were located in the field (see Appendix 1). The cluster and plot locations were determined with a gps-device. The coordinates of the sample plots have been attached in Appendix 3.

Each cluster consisted of four sample plots. The radius of a sample plot was 15 metres. All trees with diameter at breast height (dbh) more than 5 cm were enumerated within a sample plot and every 1st and 6th tree of each species was measured as a sample tree (dbh and height). Shrubs, bushes and trees with dbh less than 5 cm were enumerated on a sub-plot with a radius of 4 metres. The 1st and then every 10th shrub was a sample (height, nr of coppices/shoots). See detailed description of the inventory methodology in "Assessment of Forest Resources" by Marja Ojanen-Jarlin and Carlos Salinas (available at the Directorate of Forestry).

The inventory data was entered in Excel-worksheets and also analysed using Excel. Area calculations were done using ArcView GIS software. The main results of the inventory have been reported in the following chapter. Specific results have been given to *Colophospermum mopane* as the management proposals based on this inventory will be dealing mainly with this species.

3. Inventory area

The core area of the Salambala Conservancy is located in eastern Caprivi Region near Bukalo (see Map 1. below). The core area covers an area of approximately 14 000 hectares. It has been fenced from three sides. From the south the access is open.



Map 1. Location of the Core area.

The inventory area was defined jointly with the Salambala conservancy. The area consists of 10 forests named by the Conservancy:

- Salambala woodland
- Mazibabili forest
- Nyete forest
- Itebe forest
- Satwa forest
- Chizungwe forest
- Sanga forest
- Mugubashe forest
- Sizuma forest
- Mabaya forest

The inventory area does not cover all forested areas within the core area (see Appendix 1). The inventory area covers a total of 8362 hectares. All total figures (nr of stems and volumes) in the following report of inventory results refer to this area of 8362 ha.

4. Inventory results

4.1. Number of stems by species

Altogether 18 tree species were identified in the inventory with a total of 162 stems per hectare. The most frequent species is *Colophospermum mopane* with 107 trees growing per hectare in the core area. The second most frequent species is *Terminalia sericea*, however, with only 22 stems growing per hectare. The third most frequent species is *Combretum collinum* with not more than 11 trees per hectare (see Table 1. and Figure 1. below).

Table 1. Number of stems per hectare of all species in diameter classes.

Species / Diameter class	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	>50	All
<i>Colophospermum mopane</i>	43.2	21.6	14.4	7.2	8.1	2.7	3.6	4.5		1.8	107.0
<i>Terminalia sericea</i>	8.3	4.1	3.4	2.1	1.4	1.4	1.4				22.0
<i>Combretum collinum</i>	0.6	1.0		1.8	2.2	2.6	3.0				11.0
<i>Acacia nigrescens</i>	0.9		1.7	0.9	0.9						4.3
<i>Lonchocarpus nelsii</i>		1.0			1.0			1.0			3.0
<i>Acacia erioloba</i>		1.3	0.9			0.4					2.6
<i>Albizia harveyi</i>	1.2	0.6	0.6								2.4
<i>Burkea africana</i>	0.3				1.0	0.3	0.3				2.0
<i>Combretum imberbe</i>	2.0										2.0
<i>Combretum hereorense</i>	2.0										2.0
<i>Ochna pulchra</i>	0.4	0.8		0.2							1.4
<i>Baughinia thonninga</i>		0.8									0.8
<i>Garcinia livingstonei</i>				0.4							0.4
<i>Pterocarpus angolensis</i>	0.2										0.2
<i>Diospyros mespiliformis</i>								0.2			0.2
<i>Commiphora angolensis</i>	0.2										0.2
<i>Manilkara mochisia</i>		0.2									0.2
<i>Amblygonocarpus andongensis</i>										0.2	0.2
Total	58.7	31.3	21.0	12.5	14.5	7.4	8.3	5.7	0.0	1.8	161.8

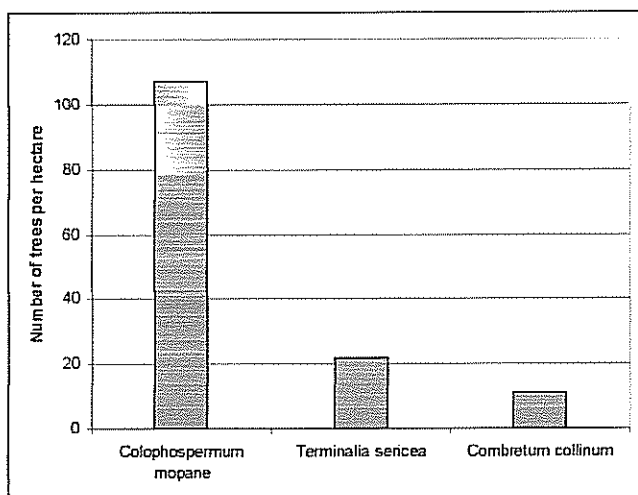


Figure 1. Number of trees per hectare of the three most common tree species.

The diameter distribution of these three most common species is illustrated in Figure 2.

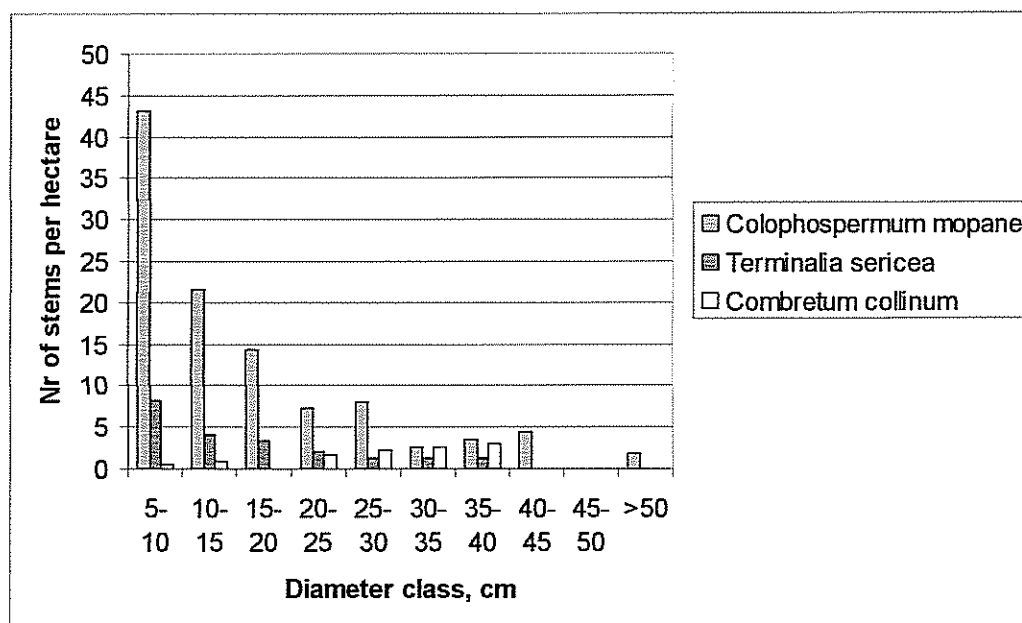


Figure 2. Diameter distribution of the three most frequent tree species.

The diameter distribution of mopane is very good, there is a big number of small trees and some, however not many, big trees too. About 65 % of all mopane stems are less than 15 cm at breast height. This gives a potential for harvesting some poles without risking the future of the forest. The distribution of *Terminalia* is not as good even though it has got more small trees than big ones. The distribution of *Combretum* is very different: there are more big trees than small trees.

The other species found in the core area have very few trees and therefore they do not have a proper diameter distribution. The number of stems per hectare of species with more than one stem per hectare has been illustrated in Figure 3.

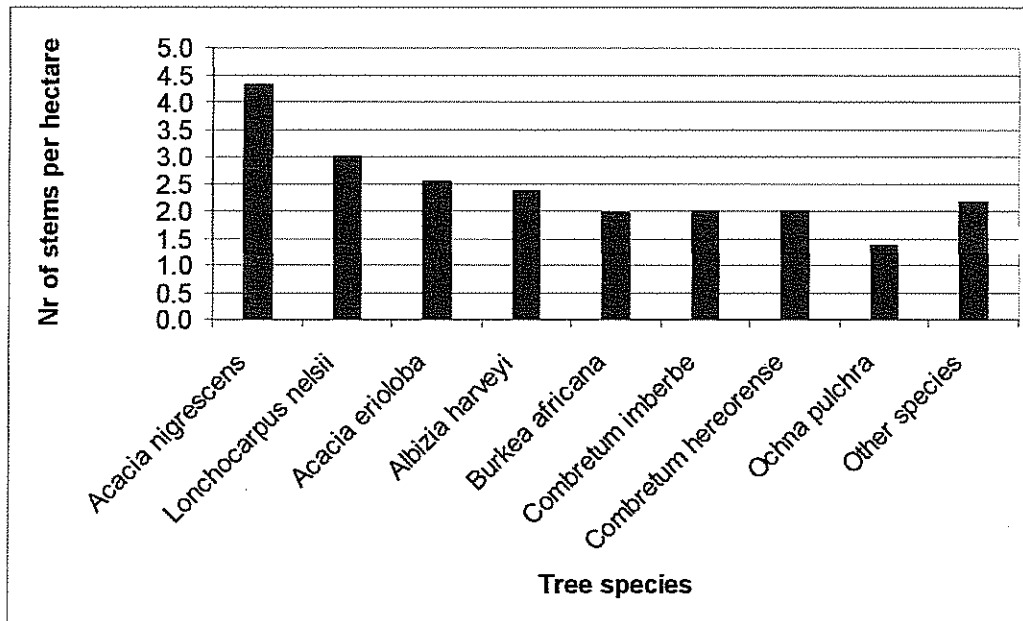


Figure 3. Number of stems per hectare of the less common species

These species all have only 1-4 stems per hectare. The trees in the group “Other species” have an average of less than 1 stem per hectare. The species belonging to this group are: *Baughinia thonninga*, *Garcinia livingstonei*, *Pterocarpus angolensis*, *Diospyros mespiliformis* and *Commiphora angolensis*.

The total number of *Colophospermum mopane* trees in the inventory area (8362 hectares) is estimated to be about 895 000 stems. About 360 000 of these are less than 10 cm diameter at breast height. The total number of *Terminalia sericea* trees is about 184 000 of which about 67 000 are smaller than 10 cm at breast height. The total number of *Combretum collinum* trees is estimated to be about 92 000, most of them bigger than 20 cm at breast height.

The height of all sample trees was measured. The height against the diameter at breast height of all mopane sample trees has been illustrated in Figure 4.

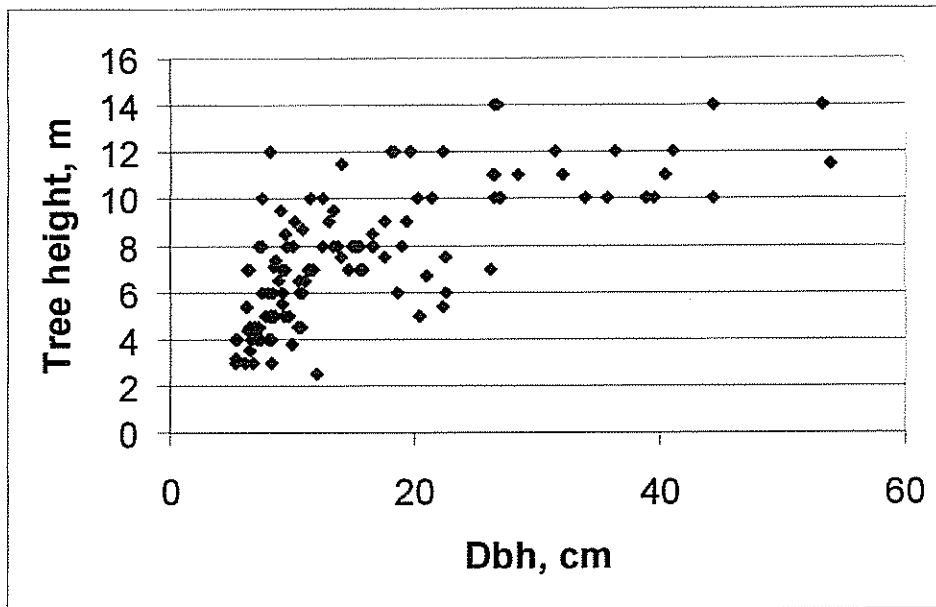


Figure 4. Height of *Colophospermum mopane* sample trees against diameter at breast height.

Altogether 119 mopane sample trees were measured. The tallest mopane tree was 14 meters of height and the biggest diameter 54 cm at breast height. Young mopane trees grow very fast. Already at dbh 10 cm they can reach a height of 10-12 metres. It seems that the height growth of mopane stops gradually when the tree reaches a diameter 30 cm at breast height.

4.2. Volume of trees

The volume of all tree species is 34 m³ per hectare. *Colophospermum mopane* has got the highest volume, 18 m³/ha. Other tree species have far less volume, the next highest volumes being with *Combretum collinum* (6 m³ per hectare) and *Terminalia sericea* (4 m³ per hectare). The volumes of the six most common species are illustrated in Figure 5.

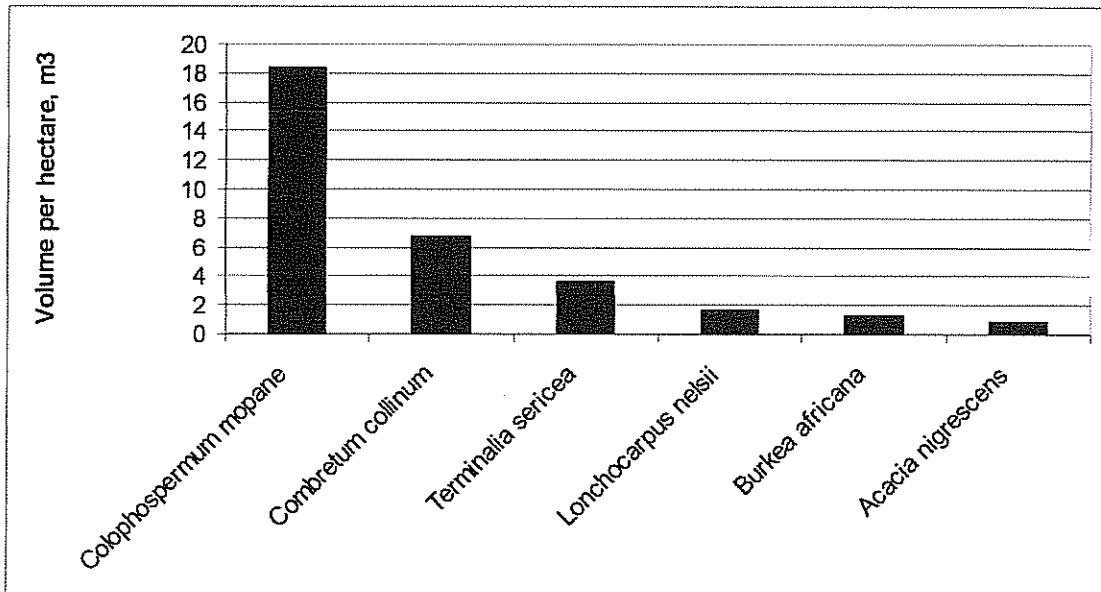


Figure 5. Volume per hectare of the six most common species.

From the Figure 6 below we can see that the biggest share of the volume of *Colophospermum mopane* is in the big trees. The big trees, however, are relatively few in numbers. The same applies to other species too. See complete list of volumes in diameter classes in Appendix 2.

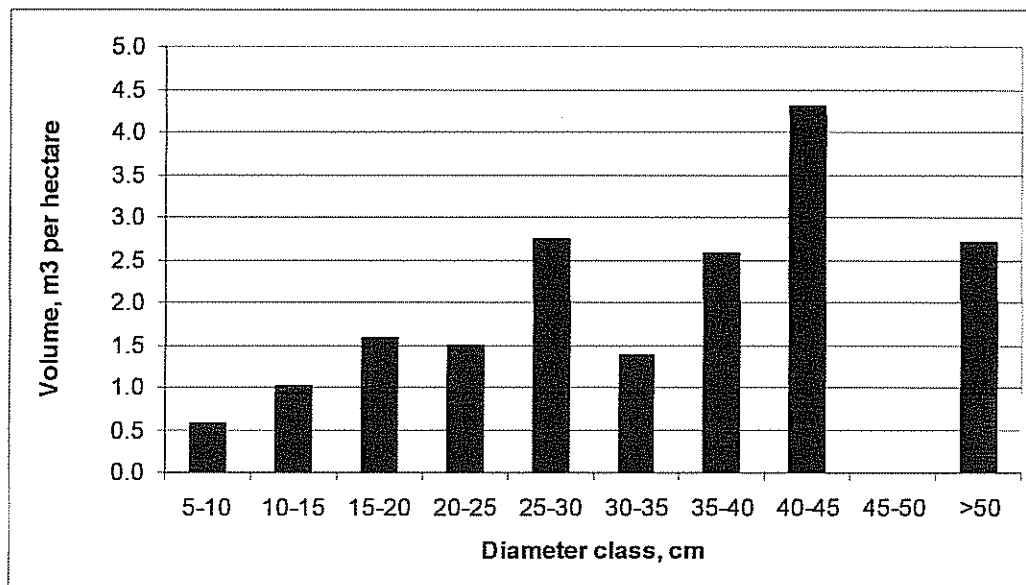


Figure 6. Volume of mopane trees in diameter classes, m³ per hectare

The total volume of *Colophospermum mopane* trees in the inventory area (8362 hectares) is about 150 000 m³. The total volume of *Terminalia sericea* respectively is about 50 000 m³ and the volume of *Combretum collinum* is about 33 000 m³. The total volume of all species is about 280 000 m³.

4.3. Usable *Colophospermum mopane* and *Terminalia sericea* trees

The sample trees were classified according to the possible use of each tree. In addition the length of the usable part of the stem was estimated and the diameter in the middle of the log. The distribution of the sample trees in different use classes can be found in Table 2.

Table 2. *Colophospermum mopane* sample trees according to use classes.

Use of the stem	Nr of sample trees	% of all sample trees	Average volume of log, dm ³
Construction pole	4	3	86
Pole for house	28	24	32
Fencing pole	54	45	19
Pole for kraal	9	8	19
Firewood	24	20	600 (whole tree volume)
Total	119	100	

Using this distribution for the whole inventory data it can be estimated that there are about 400 000 mopane poles suitable for fencing, 200 000 poles for making houses and about 70 000 poles suitable for making kraals.

Respectively the sample trees of *Terminalia sericea* have been classified in use classes in Table 3. Using this distribution it can be estimated that there are about 17 000 *Terminalia* poles suitable for construction, about 74 000 poles suitable for fencing and 17 000 poles suitable for kraals.

Table 3. *Terminalia sericea* sample trees according to use classes.

Use of the stem	Nr of sample trees	% of all sample trees	Average volume of log, dm ³
Construction pole	3	9	11
Fencing pole	13	40	30
Pole for kraal	3	9	32
Firewood	14	42	295 (whole tree volume)
Total	33	100	

4.4. Shrubs and regeneration

The results of the measurements of shrubs and regeneration on sub-plot have been listed in Table 4 below.

Table 4. Number of shrubs and saplings per hectare.

SPECIES	LOCAL NAME	Shrubs per Hectare	Average nr of coppices in one shrub	Average height
<i>Colophospermum mopane</i>	Mopani	840	5.3	0.8
<i>Terminalia sericea</i>	Muhonono	135	5.1	0.4
<i>Grewia bicolor</i>	Mupundu	130	3.8	1.0
<i>Combretum imberbe</i>	Muzwili	47	5.0	0.5
<i>Combretum collinum</i>	Mububu	47	3.9	0.9
<i>Euclea divinorum</i>	Mutakula	30	3.7	0.9
<i>Dichrostachys cinerea</i>	Muselesele	30	4.2	1.5
<i>Markemia obtusifolia</i>	Mupondopondo	25	3.5	2.4
<i>Albizia amara</i>	Munungulushiba	19	4.9	1.1
<i>Burkea africana</i>	Musheshe	17	3.0	0.8
<i>Ochna pulchra</i>	Munyi	11	3.3	0.1
<i>Commiphora africana</i>	Mubobo	6	6.0	0.1
<i>Zimania Americana</i>	Muntete	6	2.0	0.1
<i>Acacia nigrescens</i>	Mukotoko	3	1.0	0.1
All species		1346	3.9	0.8

Altogether 1346 shrubs and saplings per hectare were recorded growing in the Core area. *Colophospermum mopane* has got a very vigorous regeneration with 840 shrubs or saplings per hectare. Part of these shrubs or saplings will grow to become trees first in the smaller diameter classes and replacing trees which will grow into bigger classes or which might be harvested. There is also a relatively good number of small *Terminalia sericea* saplings coming up. The numbers of *Combretum* and other tree species are already much smaller and for example no saplings of *Lonchocarpus nelsii* were found at all.

The heights of mopane shrubs/saplings have been plotted in Figure 7 below. Altogether 61 mopane sample shrubs were measured. Almost 1/3 of these have already reached a height of 1.3 metres (breast height). This confirms that there is a good number of young mopane trees securing the future of the tree species.

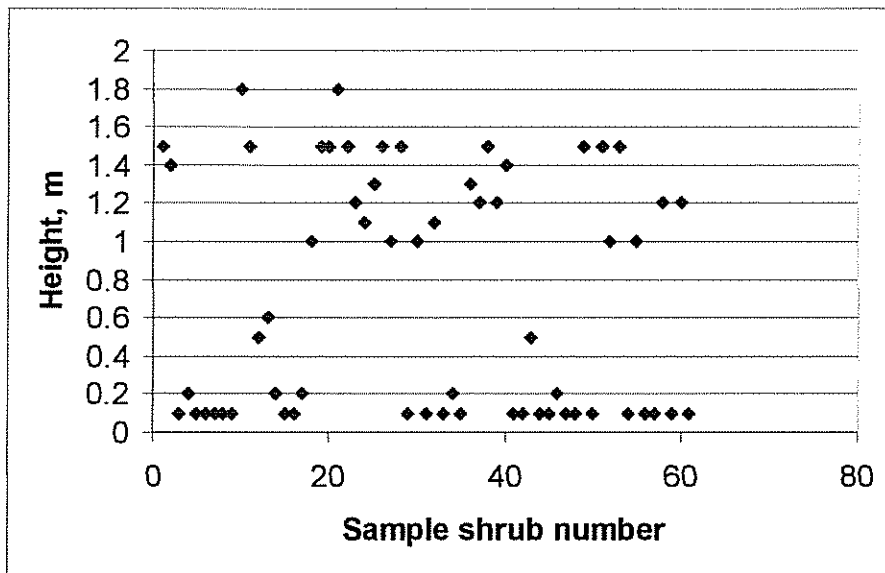


Figure 7. Height of *Colophospermum mopane* sample shrubs and saplings

4.5. Dead trees

Dead trees were not included in the inventory of 2000. Therefore, the inventory of year 1996 was used to estimate the number of dead trees in the core area. The 1996 inventory has also been discussed in chapter 4.6.

Only 6 dead trees per hectare were found in the core area. The six stems are of the following species: two of *Combretum imberbe* per hectare and one of each of the following per hectare: *Burkea africana*, *Acacia erioloba*, *Colophospermum mopane* and *Terminalia sericea*. The dead *Combretums*, *Acacias* and *Colophospermums* were found in small diameter classes, less than 25 cm. The *Burkeas* and *Terminalias* were bigger ones, up to 52 centimetres. The total number of dead trees in the inventory areas is estimated to be about 50 000.

The volume of all tree species among dead trees is 2 m³ per hectare, *Burkea africana* having half of this alone. The total volume of dead trees (all species) is about 16 700 m³.

4.6. Reliability of the results

A sampling always gives only an estimate of the actual characteristics of the forest. Therefore the results given by the inventory contain a certain error – sampling error. The sampling error in Salambala inventory for the number of *Colophospermum mopane* stems per hectare was estimated using the formula of random sampling. The standard error was 16 %. This means that as the number of mopane stems per hectare was estimated to be 107, the true value with 95 % probability is somewhere between 80 and 140 stems per hectare.

A forest inventory was carried out in 1996 in the Salambala area before the area was declared as a conservancy. The objective of this inventory was to give information of the forest resources for a larger area in general, not just for the core area. This inventory was done together with a compartment mapping of the larger area. The data of the field plots were linked with the compartment delineations and results for different compartments were derived.

A brief comparison was made with the data of the 1996 plots that were located inside the current core area. The 1996 inventory shows a clearly bigger number of especially small *Colophospermum mopane* trees compared to the inventory of year 2000. Comparing the results in detail is however not very useful as the inventory areas were different and the inventory designs and objectives were different. Nevertheless, it seems that the estimates of 2000 inventory may be conservative and there should not be any risk of overestimating the resources and possibilities for utilising them.

5. Conclusion

The inventory shows that there is a good potential of utilizing *Colophospermum mopane* and *Terminalia sericea* trees from the core area. There is a good number of small sized mopane trees available for construction poles. Also, the regeneration of especially mopane-trees is good and makes it possible to utilize the resources. The core area is managed primarily for wildlife and tourism. Harvesting of any trees must be based on a forest management plan that takes into the multiple management objectives of the area.

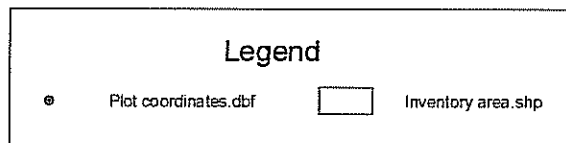
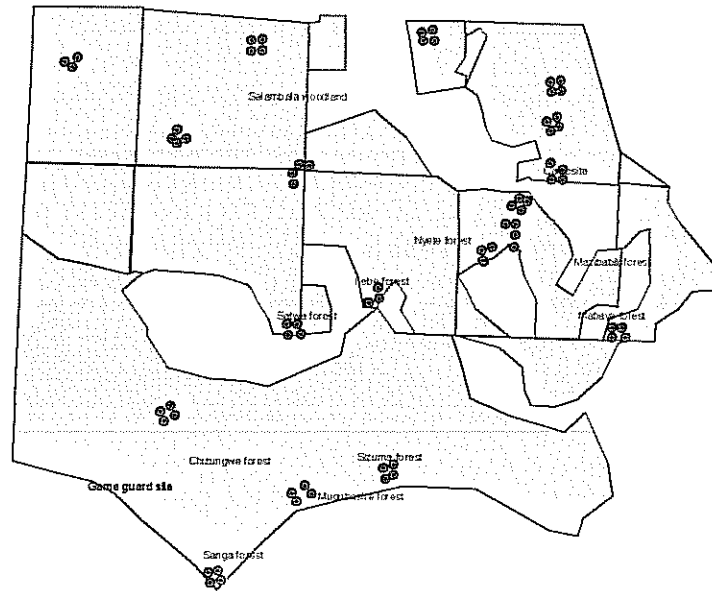
It is proposed that in the future the inventories in the conservancy are carried out using the so called NFI inventory methodology (modified to community forest inventories). This methodology has been well established in the Directorate of Forestry and has been successfully used for a number of years. Participation of District Forestry Office staff and community members in the inventory work is strongly recommended too.

References

Angombe S. and Laamanen R. 2002. Inventory Report on the Woody Resources in Oshikoto Region. Ministry of Environment and Tourism, Directorate of Forestry, Namibia-Finland Forestry Programme, Windhoek.

Ojanen-Jarlind, M., Salinas, C. 2000, Assessment of Forest Resources, Field Manual. Directorate of Forestry, Namibia-Finland Forestry Programme, Windhoek.

Appendix 1. Inventory design in the Salambala core area



Appendix 2. Volume of trees per hectare in diameter classes.

Species	Diameter class										Total
	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	>50	
<i>Colophospermum mopane</i>	0.6	1.0	1.6	1.5	2.8	1.4	2.6	4.3	0.0	2.7	18.4
<i>Combretum collinum</i>	0.0	0.1	0.0	0.5	1.1	1.9	3.2	0.0	0.0	0.0	6.8
<i>Terminalia sericea</i>	0.0	0.2	0.4	0.5	0.5	0.8	1.2	0.0	0.0	0.0	3.7
<i>Lonchocarpus nelsii</i>	0.0	0.1	0.0	0.0	0.5	0.0	0.0	1.2	0.0	0.0	1.8
<i>Burkea africana</i>	0.0	0.0	0.0	0.0	0.6	0.3	0.4	0.0	0.0	0.0	1.3
<i>Acacia nigrescens</i>	0.0	0.0	0.3	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.9
<i>Acacia erioloba</i>	0.0	0.1	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.4
<i>Diospyros mespiliformis</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3
<i>Amblygonocarpus andongensis</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
<i>Albizia harveyi</i>	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
<i>Ochna pulchra</i>	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
<i>Garcinia livingstonei</i>	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
<i>Baughinia thonninga</i>	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
<i>Combretum imberbe</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Combretum hereorense</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Pterocarpus angolensis</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Commiphora angolensis</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Manilkara mochisia</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All species	0.8	1.6	2.5	2.8	5.8	4.7	7.4	5.8	0.0	3.0	34.4

Appendix 3. Sample plot coordinates in Salambala core area

Cluster	Plot no	Plot name	Latitude	Longitude	Cluster	Plot no	Plot name	Latitude	Longitude
1	1	chifp1	-17.877100	24.539938	10	37	sal018	-17.811517	24.583767
	2	chifp2	-17.875384	24.539418		38	sal019	-17.811283	24.585683
	3	chifp3	-17.874531	24.541118		39	sal020	-17.813100	24.585917
	4	chifp4	-17.876086	24.541853		40	sal021	-17.813083	24.583983
2	5	ifp001	-17.856780	24.575011	11	41	sal022	-17.827233	24.607683
	6	ifp004	-17.856796	24.575354		42	sal023	-17.825467	24.607283
	7	ifp002	-17.854382	24.576856		43	sal024	-17.826283	24.605583
	8	ifp003	-17.856115	24.577076		44	sal025	-17.827950	24.606383
3	9	mabfp1	-17.862262	24.617566	12	45	sal026	-17.821183	24.608167
	10	mabfp2	-17.860481	24.617507		46	sal027	-17.819400	24.607950
	11	mabfp3	-17.860308	24.619299		47	sal028	-17.819617	24.606167
	12	mabfp4	-17.862166	24.619948		48	sal029	-17.821350	24.606400
4	13	mazfp1	-17.843583	24.598662	13	49	sal030	-17.834000	24.564667
	14	mazfp2	-17.843551	24.600534		50	sal031	-17.833800	24.562833
	15	mazfp3	-17.845375	24.600545		51	sal032	-17.835267	24.561767
	16	mazfp4	-17.847387	24.600282		52	sal033	-17.837133	24.561967
5	17	mugfp1	-17.890307	24.563364	14	53	sal034	-17.813217	24.554033
	18	mugfp2	-17.888778	24.562458		54	sal035	-17.813067	24.556067
	19	mugfp3	-17.887518	24.564695		55	sal036	-17.814850	24.555983
	20	mugfp4	-17.888961	24.565902		56	sal037	-17.815183	24.554117
6	21	nsafp3	-17.901850	24.549883	15	57	salfp1	-17.839683	24.602503
	22	nsafp1	-17.903955	24.548548		58	salfp2	-17.841159	24.601505
	23	nsafp2	-17.902254	24.548087		59	salfp3	-17.840311	24.599880
	24	nsafp4	-17.903488	24.550399		60	salfp4	-17.839050	24.601253
7	25	nyfp1	-17.847917	24.594733	16	61	satfp1	17.862400	24.561383
	26	nyfp2	-17.847400	24.596533		62	satfp2	-17.860540	24.561219
	27	nyfp3	-17.849717	24.595050		63	satfp3	-17.860669	24.562973
	28	nyfp4	-17.849550	24.594900		64	satfp4	-17.862252	24.563724
8	29	sal010	-17.817083	24.521650	17	65	sfp001	-17.833203	24.606392
	30	sal011	-17.829883	24.540733		66	sfp002	-17.834217	24.608560
	31	sal012	-17.816500	24.523883		67	sfp003	-17.835891	24.608624
	32	sal013	-17.818067	24.523050		68	sfp004	-17.835850	24.606750
9	33	sal014	-17.829883	24.540733	18	69	sizfp1	-17.886257	24.578680
	34	sal015	-17.828383	24.541633		70	sizfp2	-17.884573	24.578186
	35	sal016	-17.829883	24.543150		71	sizfp3	-17.883940	24.579871
	36	sal017	-17.830650	24.541733		72	sizfp4	-17.885656	24.580032

Appendix 4. Local names of the trees found in the inventory.

Species	Local name
<i>Colophospermum mopane</i>	Mopani
<i>Terminalia sericea</i>	Muhonono
<i>Combretum collinum</i>	Mububu
<i>Acacia nigrescens</i>	Mukotoko
<i>Lonchocarpus nelsii</i>	Mupanda
<i>Acacia erioloba</i>	Muhoto
<i>Albizia harveyi</i>	Mulakanga
<i>Burkea africana</i>	Mushese
<i>Combretum imberbe</i>	Muzwili
<i>Combretum hereorense</i>	Mukabi
<i>Ochna pulchra</i>	Munyerenyere
<i>Baughinia thonninga</i>	Mutukutu
<i>Garcinia livingstonei</i>	Mukononga
<i>Pterocarpus angolensis</i>	Mulombe
<i>Diospyros mespiliformis</i>	Mucenje
<i>Commiphora angolensis</i>	Mubobo
<i>Manilkara mochisia</i>	Manilkara
<i>Amblygonocarpus andongensis</i>	Mupapati

Appendix 5: List of inventory reports by the Directorate of Forestry.

Below is the list of resource reports produced earlier by the Directorate of Forestry and the Namibia-Finland Forestry Programme. The reports are all available at the Directorate of Forestry.

The previous reports are:

- Woody Resources of Western Tsumkwe (1997)
- Woody Resources of East and South Tsumkwe, Otjinene and Okakarara Districts (1997)
- Forest Inventory Report of Caprivi Region (1998)
- Forest Inventory Report on Ongandjera Community Forest (1998)
- Forest Inventory Report on Nkurenkuru Concession Area (1998)
- Inventory of the Directorate of Forestry Eucalyptus Plantations in Kavango Region
- Forest Inventory Report on Uukwaludhi Community Forest (1999)
- Forest Inventory Report on Caprivi State Forest (1999)
- Inventory Report on the Woody Resources in the Okongo Community Forest (2000)
- Inventory Report on the Woody Resources in the Omusati Region (2000)
- Inventory Report on the Woody Resources in the Oshana Region (2000)
- Wood Resources Report of M'kata Pilot Forest Area (2001)
- Bukalo Pilot Forest Areas – an inventory report (2001)
- Inventory Report on the Woody Resources in Oshikoto Region (2002)