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ECOLOGY AND MANAGEMENT OF A REMNANT *BRACHYSTEGIA SPICIFORMIS* (MIOMBO) WOODLAND IN NORTH EASTERN SOUTPANSBERG, LIMPOPO POVINCE

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ABSTRACT

The paper reports some of the findings of a three-year research study on the ecology and management of South Africa's own *miombo* woodland whose existence was only confirmed to the scientific community in 2002. It indicates that this *miombo* woodland patch has characteristics that are different from those of the extensive wetter *miombo* woodland of central and south eastern Africa. The woodland, however, shares many of the characteristics of the less extensive drier *miombo* woodland of southern Zimbabwe and Mozambique. These characteristics include an open structure, medium canopy height, poorly developed lower strata, less diversity in respect of *Fabaceae* family and *Caesalpinioidae* subfamily members, and high dependence on root suckering and coppicing for regeneration.

The woodland is considered as an important part of the natural heritage of the local clan and has therefore been under a traditional woodland management regime. The involvement of the Department of Water Affairs and Forestry, with its emphasis on woodland management practices that focus more on economic gains and less on cultural value poses a challenge. Studies in the region have confirmed that traditional management of natural resources fail to guarantee their sustainability when economic value of such resources is emphasised more than their cultural value. The paper therefore recommends that in the interest of sustainability of the woodland, the traditional management regime should be maintained and supported to make it more effective.

Introduction

Miombo is the most extensive type of woodland vegetation in Africa, covering about 12% of the continent (Gumbo and Pearce, 1992). It dominates the landscape in Angola, Democratic Republic of Congo, Malawi, Mozambique, Tanzania, Zambia and Zimbabwe (Botha, 2002; Chidumayo, 1996; Lawton, 1982). It comprises of trees belonging to the *Brachystegia*, *Julbernadia* and *Isoberlina* species of the *Fabaceae* family, and *Caesalpinioidae* subfamily (Campbell *et al.*, 1996).

Miombo woodland is a multi-purpose resource base, directly supporting the livelihoods of 40 million people on the African continent. Resources obtainable from it include food, browse and grazing, general purpose timber, wood for carving and furniture, honey, and traditional medicine (Campbell *et al.*, 1996; Clark *et al.*, 1996; Chidumayo, 1987, 1997; van Wyk and van Wyk, 1997). It also has significant influence on climatic and hydrological systems, and the headwaters of several major African rivers such as Zambezi and Congo occur in the *miombo* belt. Similarly, most of the continent's inland wetlands, commonly known as *dambos*, are closely associated with *miombo* (Desanker *et al.*, 1996; Mackel, 1985).

Given its ecological and socio-economic significance on the continent, the conservation and sustainable utilisation of this woodland type constitute an important theme of natural resource management in Africa. Extensive work on the management of *miombo* has been undertaken in countries such as Malawi, Tanzania, Zambia and Zimbabwe (Campbell *et al.*, 1996; Chidumayo, 1997; Desanker *et al.*, 1996; Gumbo and Pearce, 1992; Lawton, 1982). However, there are no known studies on the management of *miombo* in South Africa. This is possibly because, until recently, it was presumed that there was no *miombo* woodland in South Africa. Palmer and Pitman (1972) and van Wyk and Wyk (1997) observed that there was no evidence of the existence of this type of woodland in South Africa, and that the furthest extent of *miombo* could have been south of Mozambique. But Botha (2002) confirmed to the scientific community that there is a 15 hectare *Brachystegia spiciformis*-dominated *miombo* woodland patch in north eastern Soutpansberg region of Limpopo Province in South Africa.

The paper reports some of the findings of a three-year research study on the ecology and management of this South African own *miombo* woodland. It analyses the ecological characteristics of the woodland, and assesses how these characteristics compare with those of the extensive *miombo* vegetation communities found in central and south eastern Africa. It also analyses challenges pertaining to the management of the woodland.

Study area

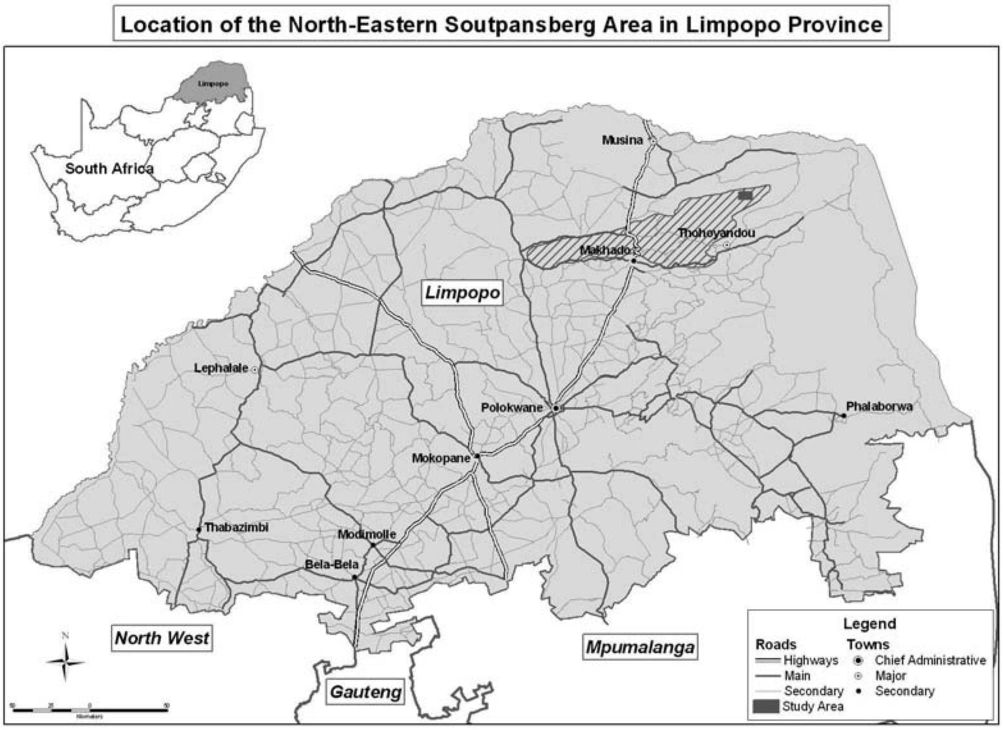
The study area, shown in Figure 1, is situated between 22˚54' and 22˚51' south, and between 30˚24' and 30˚27' east. It falls within the territory of the former homeland of Venda, and now part of Vhembe District of Limpopo province. It is a section of the Soutpansberg, a chain of hills and plateaus that stretch east-west on the southern edges of the Limpopo river basin. The area lies north east of the regional administrative town of Thohoyandou, south east of the border town of Musina, and west of the northern section of the Kruger National Park. The closest settlements are those of Gundani and Mavhode.

Materials and methods

Landscape characteristics

Campbell *et al.* (1996) and Chidumayo (1997) observe that

Figure 1: Location of the north-eastern Soutpansberg area, Limpopo



miombo occur mostly on gentle land facets of plateaus in central and south eastern Africa. It was necessary to establish whether this was true in the study area as well. The standard land systems approach as described by Davidson (1992) and Dent and Young (1981) was employed in this regard. Analysis of aerial photographs and topographic maps of the area was undertaken to identify major landscape features as well as their smaller components, the land facets. Each land facet was then traversed along pre-planned traverse routes. A clinometer was used to measure slope angles along the traverse lines, whereas a compass was used to determine aspect (the direction in which each land facet faces). The scheme developed by Young (1976) was used to classify the landscape slopes along with their associated land facets.

Sampling

The information on landscape characteristics was used as the basis for a stratified sampling. Two permanent sampling plots (PSPs), each 50 m x 50 m in dimensions, were established in each of the three main landscape zones identified: gentle slope zone, moderate slope zone, and steep slope zone. In total, there were six PSPs. The actual sites of the PSPs were determined using spatial random sampling procedures. Various surveys were undertaken in each of the six PSPs.

Soil properties

Elsewhere in central and south eastern Africa, *miombo* vegetation develops on sandy to sandy clay soils with a pH value of 4 – 6 (Chidumayo, 1992; Desanker *et al.*, 1996; Jones, 1989). It was essential in this study to find out if the soils in north eastern Soutpansberg share similar properties. The visual assessment approach (Landon, 1991) was used to determine soil colour and soil type. An intermediate soil profile analysis as described by Dent and Young (1981) was carried out on several points within each PSP. Soil analysis was undertaken in each PSP following procedures outlined in Soulsby (1994). These include the description of site characteristics; and the determination of profile horizon depth and clarity, colour, mottles, texture, structure, reaction, organic matter content, and presence of roots. The conventional soil textural triangle presented in Strahler and Strahler (1997) was used to classify the soil based on the content proportions of clay, sand and silt.

Physiognomic characteristics, density and performance

The physiognomy of vegetation is the outward structural appearance of a vegetation community (Pears, 1995), and is widely used in inventorying forest resources as an indicator that synthesises forest characteristics such as density, age and growth conditions (Perry and Amaranthus, 1997). The study of physiognomic characteristics therefore forms an essential component of any ecological investigation of vegetation communities (Randall, 1978). The conventional unit of analysis employed in such studies is the stand, formally defined as an assemblage of trees that is uniform in species composition, structure and other characteristics (Goldsmith, 1991; Packham and Harding, 1982; Spies, 1997). It is the smallest homogenous phytosociological unit within a particular vegetation community (Shimwell, 1971), and it has a more precise meaning than other units of analysis such as releve and plot (Goldsmith, 1991).

The forestry inventory approach (Packham and Harding, 1982) was employed in the field to identify *miombo* stands, and the visual assessment approach described by Kershaw and Looney (1985) was used to obtain a picture of the structural characteristics of the *miombo* woodland. This was followed by a field-based identification of the components of each vegetation stratum as well as the measuring of the actual maximum height of each stratum. Phenological changes were also monitored over the four different seasons in a year and recorded in a form of photographs taken during each period of field observation.

It was also necessary to assess whether there was a relationship between the density and performance of

Brachystegia spiciformis in relation to environmental characteristics such as slope. The average distances between individual trees within, and between stands were determined using a measuring tape. Trees in each PSP were counted, and the thickness of their trunks at breast height was measured using a Diameter- Breast-Height (DBH) meter. The height of the trees was also measured using clinometers.

Diversity of woody plants

This part of the study was undertaken to find out the extent to which *miombo* in the study area allows the growth of other woody plant species. The ecological survey approach described by Kershaw and Looney (1985), and Kent and Coker (1992) was followed. Woody plants occurring in each PSP were identified in the field, sometimes with the assistance of floral atlases and vegetation field guides such as that of van Wyk and van Wyk (1997). For those that could not be identified in the field, sample plant structures, including fruits and flowers where possible, were taken for identification at the Thohoyandou Botanical garden and herbarium.

Propagation mechanisms

Three possible mechanisms of propagation of *Brachystegia spiciformis* were investigated. One was root suckering. Thorough checking of evidence of growths from roots was undertaken around the mature trees in each PSP.

An experiment was also conducted to find out if *Brachystegia spiciformis* could also grow from seeds. Two plots measuring 4m x 4m each, and having ample mature seeds of *Brachystegia spiciformis* on the ground were identified. One was used as a control site, and the other as an experimental site. A thin layer of good top soil was spread over the seeds in the experimental site. Similarly, the experimental site was watered on a regular basis over a period of six months. This was done to stimulate the process of seed germination in the experimental plot. The control plot was not treated in any way. Both plots were monitored regularly every seven days for the six months' period to see whether there would be germination of seeds.

Field observation was also undertaken to check on cut stumps of *Brachystegia spiciformis* to establish whether there could be any evidence of vegetative regeneration through coppicing. An analysis of the possible variation in intensity of coppicing in relation to heights at which the stumps were cut was also undertaken.

Management practices and challenges

Sets of information on past, present and future management practices and challenges were obtained through questionnaire survey and focused group discussions. Two semi-structured questionnaires were administered in the study. One was administered to 30 heads of households from the community surrounding the woodland. The respondents were randomly selected from the 300 heads of households available in the area. This therefore constituted a 10% sample. The questionnaire sought to gauge the views of the community on the significance of the woodland, traditional management practices, and woodland management challenges. The researchers had to translate the questions into the local language (*Tshivenda*) and record the answers on behalf of those respondents who were illiterate and could not communicate in English.

The second questionnaire was administered to Department of Water Affairs and Forestry personnel responsible for indigenous forest management in Vhembe District. This questionnaire sought information on short- and long-term management plans for the woodland.

Focused group discussions were held with the traditional leadership of the community in the area, as well as with representatives of the youth, women and the aged members of the local community. These were undertaken to gauge the views of the people as regards significance of the woodland, roles and responsibilities in the traditional management, as well as resources and other potential opportunities provided by the woodland. The discussions were captured on video cassette tape, and the information was analysed qualitatively.

Results and discussions

The results are presented and discussed under the following headings: landscape characteristics; soil properties; physiognomic characteristics, density and performance; diversity of woody plants; propagation mechanisms; and management practices and challenges.

Landscape characteristics

Table 1 presents the results of the analysis of landscape and slope characteristics in the area. Four landscape zones were identified in the plateau region of the north eastern Soutpansberg. These are the gently sloping terrace at the foot of the plateau; the moderately sloping ridge tops; fairly steep crags and rocky

Table 1: Terrain and Slope Characteristics in North Eastern Soutpansberg (Terrain and Slope classification scheme adopted from Young, 1976)

Slope Angle (˚)	Description	Land Facet	Slope Aspect
2 - 5 ˚	Gentle to undulating	"Bench" at the foot of plateau	West and east facing
5 - 6 ˚	Moderate	Ridge tops, convex in cross section, and occasionally irregular	West and east facing
11 - 18 ˚	Moderately steep	Crags and rocky slopes, irregular or rugged	West and east facing
19 - 30 ˚	Steep	Ridge sides, steep and mainly straight with convex margins	West and east facing

Table 2: Stratification Pattern of miombo in North Eastern Soutpansberg

Stratum	**Height Range**	**Components**
1. Ground layer	<1m	Creeping plants, herbs, grass and tree saplings
2. Lower layer	1 – 5m	Trees in their development phase, predominantly *Brachystegia spiciformis, Vangueria infausta,* and *Syzigium cordatum*
3. Middle layer	6 – 10m	Trees in the mature stage, predominantly *Brachystegia speciformis*
4. Upper layer	11m +	Trees in senile stage, almost exclusively *Brachystegia spiciformis*

Table 3: Miombo Stand and Tree Performance Characteristics in north eastern Soutpansberg

DBH* = Diameter at breast-height: a standard measure of a tree's diameter, usually taken at 1.35 m above the ground.

Sample Plot	**Slope Angle**	**Mean Stand Size**	**Mean Distance Between Stands**	**Mean Height**	**Mean DBH***
PSP 1	2 – 5˚	4 trees	16 metres	9 metres	84 cm
PSP 2	11 – 18˚	20 trees	6 metres	13 metres	37 cm
PSP 3	19 – 30˚	12 trees	9 metres	9 metres	70 cm
PSP 4	6 – 10˚	7 trees	12 metres	15 metres	60 cm
PSP 5	19 – 30˚	11 trees	9 metres	10 metres	68 cm
PSP 6	2 – 5˚	3 trees	17 metres	10 metres	95 cm

surfaces; and the steep ridge sides. All these are either facing west or east. They all support stands of *Brachystegia spiciformis*.

These slope and landscape characteristics are not very different from that of the regions that support *Brachystegia* woodland elsewhere on the continent. Campbell *et al*., (1996) observes that *miombo* largely occur in plateau regions of Africa, developing very well on gentle and undulating landscape zones of such plateaus.

Soil properties

The soil in the area is largely sandy loam. *Miombo* ecologists such as Campbell *et al*., (1996) and Chidumayo (1997) observed that the characteristic soil types under *miombo* in central and south eastern Africa is sandy loam, sandy clay loam and sandy clay. Thus, the soil in the study area compares favourably with the soils in regions of the continent where *Brachystegia* species dominate.

The soil in the area has pH values of between 4 and 6, representing moderate to slightly acidic conditions. Chidumayo (1996), Desanker *et al*. (1996), and Jones (1989) similarly found out that, by and large, soils under *miombo* in central and south eastern Africa are acidic with normal pH ranges of between 4.5 and 5.6. They further observed that on alkaline areas, *miombo* tends to give way to *Colophospermum mopane* (mopane) woodland.

Physiognomic characteristics, density and performance

One important variable considered was that of stratification whereby it was found that *Brachystegia spiciformis* community in the study area is stratified with four canopy layers presented in Table 2. The ground layer of up to 1 m comprise creeping plants, herbs, grass, shrubs and tree saplings. The lower layer of between 1 m and 5 m comprises young trees in their development phase. The tree species represented in this layer include *Brachystegia spiciformis*, *Vangueria infausta*, and *Ficus capensis*. The middle layer lying at between 6 m and 10 m comprises trees, predominantly *Brachystegia spiciformis*, in the mature stage. The upper layer, at 11m and above, comprise of trees that are very mature to senile. These are exclusively *Brachystegia spiciformis*.

The stratification pattern of *miombo* in the study area is generally in line with what prevails in the *miombo* woodlands elsewhere on the continent. Mafuta (2000) describe *miombo* woodland in southern Africa as comprising mostly of 10-20 m tall trees with flat-topped crowns, and a sparse herbaceous layer. He further observes that woody climbers and ferns are absent, except on fire-protected sites. Mafuta (2000) also states that a distinction is usually made between wetter and drier *miombo*. The former is found mostly in areas with annual rainfall of over 1000 mm, tends to be rich in flora, and has a more closed canopy of at least 15 m high. The drier *miombo* is found in areas with annual rainfall of less than 1000 mm, has poorly developed lower strata, and a more open upper canopy layer standing at less than 15 m. Based on its characteristics, the *miombo* woodland in the study area can be placed into the drier *miombo* category.

As for phenology, the results of the analysis revealed that the woodland in the study area goes through four distinctive changes that correspond with the four seasons in a year. In summer, *Brachystegia spiciformis* is in full green canopy. Flowering starts towards end of summer. Autumn is the main flowering and fruition period. At the end of autumn, leaves start to turn yellow, and droop ready to fall. Winter is the period of massive leaf fall and the canopy displays an open structure. Spring is the season for re-sprouting. Fresh-brown to pink leaves start to grow. The fruit pods also dry and start to burst open to release the seeds. These seasonal changes are in line with what happens in *miombo* woodlands elsewhere on the continent. Mafuta (2000) describes *miombo* woodlands as deciduous, losing leaves in winter and developing full foliage in summer. Palmer and Pitman (1972), describe similar seasonal changes, and further observe that pink and purple new foliage of *miombo* woodlands presents a great spring sight in central and southern Africa.

The results of the analysis as presented in Table 3 suggest that there is a relationship between the density and performance of *Brachystegia spiciformis* on one hand, and environmental factors, notably slope, on the other. The gently undulating foothill zones with slope angles of 2-5 have less dense populations of *Brachystegia spiciformis* with average stands of three to four trees. The stands are also relatively far apart, on average 16-17 m. The trees are relatively shorter with an average height of 9-10 m. A possible explanation for this would be that with enough space around each tree and each stand, trees tend to develop laterally, by branching profusely, rather than vertically. Similarly, the trees in this landscape zone have the largest thickness values at breast-height, averaging 84-95 cm. This is a further confirmation that with ample space around trees, not all resources are marshalled up to effect vertical elongation. Instead, a substantial amount is used to thicken the trunks.

The moderately sloping ridge tops support slightly more *Brachystegia spiciformis* populations than the gently sloping zone. The average stand size is also higher, at seven trees per stand. However, the average distance between stands is lower, standing at 12 m. The trees are taller with an average height of 15 m; but are less thick, with an average thickness of 60 cm at breast-height.

The fairly steep slope zone comprising mainly of crags and rocky surfaces support more populations of *Brachystegia spiciformis* than all other zones. The average stand size is the largest, at 20 trees per stand. However, the average distance between stands is the lowest, standing at 6 m only. The trees are tall, on average 13 m in height, and are very lean with an average thickness of only 37 m at breast-height. Competition for resources including space and light could be the plausible explanation for this pattern. With dense population of *Brachystegia spiciformis*, there is stiff competition for space and light, and the only direction in which the trees can grow to maximise their own space and access to light is vertically upwards rather than growing branches laterally or thickening their trunks.

The steep zone supports the least population size of *Brachystegia spiciformis*. The stand size is the smallest, at only seven trees per stand. The distance between stands is also relatively low, at 9 m; and so is the average height which stands at 9 m. The mean trunk thickness is slightly larger, and stands at 70 cm.

To generalize, it is the moderate steep slopes of the plateau that support more, tall but lean *Brachystegia spiciformis* trees; whereas the gentle and steep slopes support less, shorter and relatively thicker trees. The resource use and intra-species competition factors have been given as the possible explanations for this observed distribution pattern and tree performance.

Diversity of woody plants

The data collected on diversity of woody plant species in the *miombo* woodland in north eastern Soutpansberg as presented in Table 4 indicate that there is significant diversity of woody plant species in the woodland. 19 other woody plant species exist as associates to *Brachystegia spiciformis*. Most of these are common savanna woodland species including *Syzigium cordatum*, *Combretum molle*, *Aphloia theiformis*, *Vangueria infausta*, *Albizia adianthifolia,* and *Afzelia quanzensis.* The significant diversity of plant species in the *Brachystegia spiciformis* woodland makes it of high ecological and conservation value.

Propagation mechanisms

The field-based analysis revealed that the principal mechanism is vegetative propagation through root suckering and coppicing. As regards root suckering, the statistics presented in Table 5 show that it is a common reproductive mechanism observed in all PSPs. The average number of suckers per mature *Brachystegia spiciformis* tree ranges from four in PSP5 to 11 in PSP4. Suckering seems to be intense around the main trunk, and drops as the distance from a tree increases.

Coppicing is considered to be a common means of regeneration among many woodland tree species (Mathews, 1989; Champion and Griffiths, 1948). Coppicing was observed on many cut stumps of *Brachystegia spiciformis*. Coppice shoots are produced along the stems and branches. Stumps that are cut close to the ground (<50cm) produce less coppice growths than those that cut higher up at 1.5m.

The experiment that was undertaken to find out about *Brachystegia spiciformis*' ability to regenerate through seeds did not yield results. There was no germination of seeds in either the experimental or the control site. These findings suggest that *miombo* in this specific area do not grow from seeds. This is in line with the findings of Gumbo and Pearce (1992) that discount the significance of propagation through seeds. They observe that *miombo* woodland species regenerate principally *via* stump coppicing and root suckering. However, Chidumayo (1993) observes that under conditions of sustained high rainfall, *Brachystegia* species can grow from seeds. This could be the case in wetter *miombo* of central Africa.

Management practices and challenges

The woodland is part of a system of indigenous natural forest areas in the Limpopo province that are under the control of tribal authorities. The woodland is seen as part of the natural heritage of the Gundani clan, and is therefore considered the

Table 4: Other Woody Plants in *miombo* woodland in north eastern Soutpansberg

TshiVenda Name	English Name	Scientific Name	Combined Frequency in all 6 PSPs
Muzwilu	Wild meddler	*Vangueria infausta*	702
Tshituku	Sericanthe	*Nicorosea endongensis*	697
Muhatu	Toad tree	*Paddaboom spp*	644
Mueneene	Forest fever tree	*Anthocleista grandiflora*	632
Mumbumbulu	Red milk-wood	*Mimusops zeyheri*	585
Mutu	Water berry	*Syzigium cordatum*	555
Munombelo	Fluted Mick-wood	*Chryphyllum viridifolium*	580
Mokopokopo	Combretum	*Combretum psidioides*	545
Mugwiti	Velvet bush willow	*Combretum molle*	537
Muvhambangoma	Governor's plum	*Flacourtia indica*	506
Mufhefhera	Mountain peach	*Aphloia theiformis*	505
Mukundubesi	Kudu-berry	*Pseudolachnostylis maprouneifolia*	308
Muningu	Sand knob-wood	*Zanthoxytum leprieuri*	255
Munembenembe	Monkey pod	*Cassia petersiana*	213
Mutokota	Pod mahogany	*Afzelia quanzensis*	207
Murenzhe	Sickle bush	*Dichrostaphylus africana*	190
Musuma	Jackal berry	*Diospyros mespiliform*	180
Muelela	Flat crown	*Albizia adianthifolia*	148

Table 5: Statistics on Root Suckering on Mature miombo Trees in North Eastern Soutpansberg

Sample plot	Mean number of root suckers per mature *B. spiciformis* tree	Mean furthest distance of suckers from trunk
PSP 1	6	3.0 m
PSP 2	9	3.0 m
PSP 3	5	2.6 m
PSP 4	11	2.3 m
PSP 5	4	1.8 m
PSP 6	7	2.8 m

clan's responsibility to properly look after it so that it is bequeathed to future generations. The clan's chief and a "council of elders" are the effective managers of the woodland. Their traditional woodland management regime includes a system of controlled access to, and use of the woodland resources. Another measure is a total ban on burning which is enforced religiously.

Human pressure on the woodland has so far remained less intense. This is ascribed to the effectiveness of the traditional woodland management regime. Easy availability of alternative land for cultivation, pasture for grazing, and wood for fuel and construction purposes in the more accessible parts of the area could have also contributed towards keeping human pressure on the woodland benign. Unlike in the *miombo* belt on the continent, where *miombo* offers a wide range of products that support approximately 40 million people (Campbell *et al*., 1996; Clark *et al.*, 1996; Chidumayo, 1987, 1997; van Wyk and van Wyk, 1997), the people in the study area attach less resource use value to the remnant *miombo* woodland. Thus it has more of cultural, and less of utilitarian, significance to the people.

The officials of the Department of Water Affairs and Forestry in the area are of the view that traditional woodland management does still have a role to play in the area just because the woodland falls under communal land. However, they also see the need to expand the scope of management from the current simple focus on controlling access and use, to include silvicultural practices such as coppicing, pollarding, seasonal burning, and regular removal of weeds. Such practices improve the rates of woodland regeneration and growth of trees. The plan of the Department is therefore to get actively involved in a "co-management" partnership with the tribal authorities.

The Department has since launched an apiculture project, to maintain bee hives and keep bees in the woodland in order to collect honey and beeswax for commercial purposes. The project, which has been welcomed by the communities and clan authorities, has had the effect of bringing together the traditional and scientific woodland managers. But it might have as well created a woodland management challenge because, in essence, it encourages people to start attaching more economic and less cultural value to the woodland. There is some empirical evidence that whenever economic value of natural resources carry more weight than cultural value, traditional management of such resources fail to guarantee their sustainability (Saidi, 1999). To cite an example from within Vhembe District, the royal household in the neighbouring Thengwe area are the traditional custodians of the important miracle plant species, *Brackenridgea zanguebarica* whose economic significance currently far outweigh its cultural value. Recent studies by Ndou (1999) and Mungoni (2003) found that people, motivated by the need to make money, are increasingly violating the traditional customs that regulate access to, and use of, the plant species. Even the proclamation of a strict nature reserve status over the area has not had the desired effect of curbing over-exploitation of the plant.

Conclusion

The *Brachystegia spiciformis* woodland patch in the study area has characteristics of the drier *miombo* woodland of southern Zimbabwe and Mozambique. It occurs on moderately to slightly acidic sandy loam soils on the slopes of the Soutpansberg upland area. It has an open structure, and propagates mainly through root-suckering and coppicing. It is different in many respects from the wetter *miombo* of Angola, the Democratic Republic of Congo, Malawi, Tanzania and Zambia.

The woodland is considered as an important part of the natural heritage for the Gundani clan. Traditional woodland management, coupled with the availability of alternative sources of wood, pasture and arable land resources, have kept human pressure on the woodland to minimum levels.

The Department of Water Affairs and Forestry plans an infusion of silvicultural practices into the traditional woodland management regime in order to increase rates of woodland regeneration, and therefore chances of attaining sustainability for the woodland. However, the involvement of the Department of Water Affairs and Forestry runs the risk of re-focusing the minds of local people on the potential economic rather than the cultural significance of the woodland. When this happens, traditional woodland management would be less successful in guaranteeing sustainability of the woodland. The study therefore recommends that the Department of Water Affairs and Forestry should re-consider its plans for the woodland. It should concentrate on strengthening the capabilities of the traditional woodland management which has ensured survival of the woodland thus far. Given the small size of the woodland, projects that focus on economic benefits can only speed up the process of over-exploitation and eventual destruction of this woodland which is not only a natural heritage of the community, but also the only "specimen" of *miombo* woodlands in South Africa.

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