Management of Mopane in Southern Africa

Proceedings of a workshop held at Ogongo Agricultural College, northern Namibia, 26th to 29th November 1996

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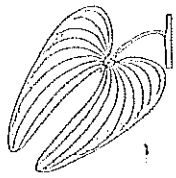
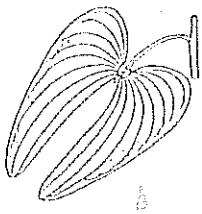
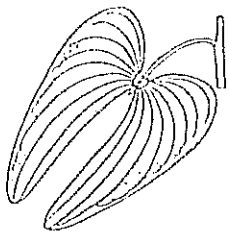




CHAPTER FOURTEEN

CASE STUDIES OF MOPANE MANAGEMENT IN OMUSATI REGION, NAMIBIA.



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ABSTRACT

A field trip on 27 November 1996 enabled participants of the Mopane Management Workshop to examine the range of mopane management activities in the Omusati Region. Mopane is being managed for many products by farmers within the region. Thus there is a need for researchers and other managers to understand the efforts that rural people are making to manage their own resources. This understanding will help to develop linkages and partnerships towards the sustainable management of mopane woodland. It may also contribute towards greater standardization of research across the region. Regardless, there is a need for greater involvement of local people in the research process. This will allow the more effective focus of research activities on appropriate management needs.

Keywords; *Colophospermum mopane*, mopane, management

INTRODUCTION

A field trip in the Omusati region of Namibia (Figure 14.1) was arranged for the 27 November 1996 as part of the Mopane Management Workshop. This fieldtrip enabled participants to examine the range of mopane habitats and local management strategies being implemented by the local people. Sites ranging from heavily degraded to managed woodland were examined. We also visited some of the research and community activities taking place in the region. The visits to three farmers in the Onanghalo village allowed the participants an insight into the importance of trees and in particular mopane, in the rural livelihoods of people in the area. We stopped for lunch at a site where there were fewer settlements and where the mopane existed as mature woodland.

CASE STUDIES

Case study 1: Ogongo College Farm

Osman Hamid, Forestry Lecturer at Ogongo College, introduced us to the forestry activities at the College. We visited the Game Farm area of the College farm, which forms 1,000 ha of the College's 4,300 ha estate. The College estate has been fenced since the 1970s. It therefore includes many areas of good quality mopane woodland that have not been intensively used for over 25 years. The College staff have been teaching Forestry to certificate level since 1993. As there has been very little wildlife in the area for about 20 years, the college decided to develop a 1,000 ha area of mopane woodland as a game farm for student use. The area is well fenced and includes many water points. The area presently supports three giraffes, provided by the Namibian Department of Nature Conservation.

As the area is protected, it has been used for setting up observational plots with the students. This allows students to learn how to carry out management practices, use the tools and to conduct field experiments. The first experiment examined the effects of thinning and pruning in a one hectare area of mopane shrubland. In this experiment, two plots were thinned and pruned, two others thinned and a fifth plot left as a control. There had been no record made of the number of trees removed in the thinning, but they had been thinned to a distance of 1.5 m between trees and further thinnings were planned to three to four metres between trees. In this area it had been observed that farmers tend to use one metre as a minimum distance between trees. They had measured 10 trees in each plot and after a year had noted an increase of 2.1 cm in diameter and 1.4 m in height in the thinned and pruned plots.

Discussion focused on the management of coppice regrowth. It was noted that pruning after the trees begin to flush is disadvantageous as the early flush draws reserves from the tree. If it is then pruned, the plant's ability to sprout again is weakened. The optimum time for pruning would thus be during winter, when there are no leaves. Osman Hamid stated that they did not know the age of the stumps, or their coppicing history. It is thought that if the stump and root are old, then their coppicing potential is reduced. However, the relationship between age of stump and coppicing ability has not been fully explored. It was noted that stumps of trees of fast growing *Eucalyptus* sp. in plantations in southern Africa and Australia are uprooted after two or three coppicing cycles and new stock planted. However, *Eucalyptus* and mopane are very different. Patrick Mushove suggested that since mopane has enormous potential to recoppice, concern might be directed to quantifying productivity.

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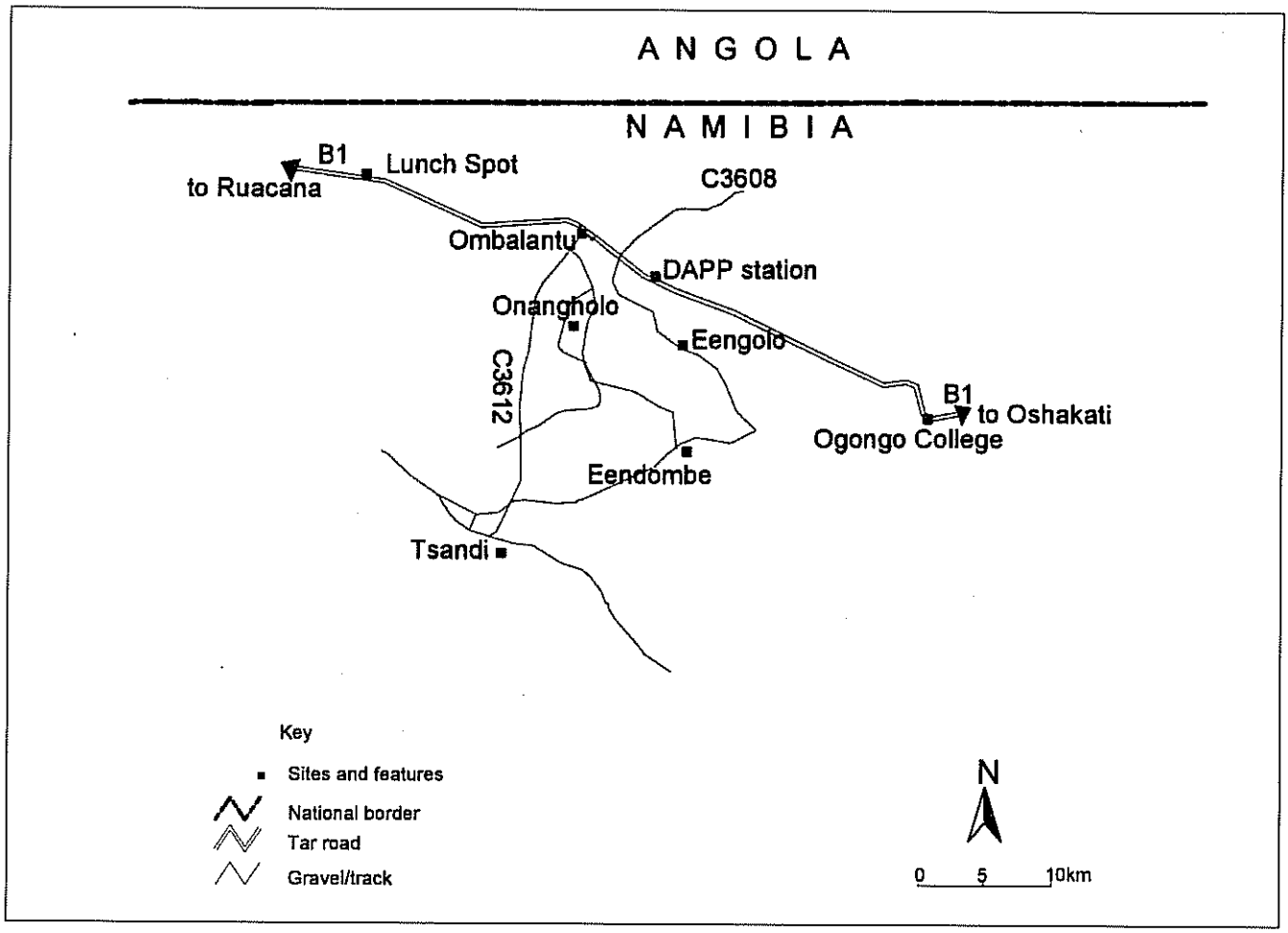
Fig. 14.1: Map showing sites visited during the field day of the Mopane Management Workshop



We then examined the coppicing experiment being implemented at the time of the visit. Isaak Kahalongo, the Forest Ranger in charge of the trial, explained that the aim of the experiment was to explore the dynamics of coppicing and pollarding mopane stumps. They were cutting trees of two different diameters (5 - 10 cm and 10 - 15 cm) at three different heights (at 20 cm, one metre and two metres). The diameter ranges were selected according to the range of diameters available at this particular site and the cutting heights chosen to reflect local practise (20 cm and two metres). It was also sought to compare results of the experiment with those of another in Zimbabwe (one metre). In the area, some farmers pollard the trees in their fields at two metres. This is done partly to keep regrowth above head height. However, it is also believed that regrowth is better after pollarding at that height rather than lower down. In the trial, at the time of cutting they are recording the diameters of softwood and hardwood, and in the future they intend to measure the number of coppice shoots per stump and their height and diameter. Although they had wanted to include a seasonal dimension in the treatments, they felt that its inclusion would complicate the trial. It was therefore not included.

Discussion focused on three main aspects; softwood / hardwood ratios, seasonality and tree size. It is thought by some that the more hardwood there is, then the better the coppicing ability, but by others that the more softwood there is the better the coppicing. Nico Smit reported that they found that if they coppice in winter, then all stumps will reshoot; however, when they cut in summer, not all will reshoot but those that do have a better coppicing ability. In Zimbabwe, it was reported that winter cutting gives the best results. Nico Smit also noted that they had found little difference between high and low rainfall seasons. In their work in South Africa, he noted that they have observed that larger trees have less vigorous coppicing when they are cut low. Patrick Mushove suggested that this might be connected to there being less surface area for bud activity in small trees and more in large. Nico Smit had observed that there was a high resilience amongst smaller, younger shoots to coppice, and wondered why this should be.

Osman Hamid went on to describe their plans for a nursery trial; they have had problems raising mopane in the nursery - it germinates and then dampens off. They wondered if the problem might be due to using purified water, which includes higher levels of chlorine. However, it was suggested that this is a universal problem. It was felt that only the use of a fungicide would help. Another suggestion was to increase air circulation around the seedlings by giving them more space.

Case study 2: Mopane management experiment at DAPP

Martinus Gelens introduced the experiment described in Chapter three. He explained how despite its appearance of uniformity, the site had not been thinned by the research team. The singling work had been carried out by farmers who were asked to leave the most promising shoot. There had been no pruning either, as they had not wanted to interfere with the coppicing pattern. It is possible that if you prune too early and remove too much photosynthetic material, then this will encourage the plants to coppice. It was suggested that goats would be a way of keeping down small coppicing material. In the mixed treatment, it was noted by the Green Namibia team[1], that the one year coppicing shoots would be very good in two to three years time for making baskets. This observation indicates the range of products available that can be managed and the need to involve different mopane product users at all stages of the research.

Case study 3: Pineas Aindongo, Onangholo Village

Mr Aindongo welcomed us to his farm (see Figure 14.1) and described how and why he was managing his mopane on the homestead. He came to the area in 1965 and cleared the forest to make his farm. There were large trees in the area at that time and many of them coppiced after he had cut them. He singled many of them and therefore many of the trees in the area where we were standing were 30 year-old coppice regrowth. He has many trees within the field and says that the effects of this on mahangu growth depends to a great extent on the rain. Sometimes if it is dry, the mahangu under the trees grows well and if there is too much manure under the trees (from cattle grazing in winter in the field and resting under the shade) the mahangu does not grow well. He will use the new poles grown from his managed trees for fencing and building.

He does have a problem with theft, with many people stealing branches. The area that he manages is not fenced and although a fence might help, people would still be able to steal. He walks around it occasionally to show that the area is still his and that he is doing something there. The border of this area is formed by the road and there are no other markings. The boundary was walked publically when he was given the land so that everyone knew it was his. He has noticed that many people are starting to manage their trees in a similar way to him, although he is not sure why they have started. Maybe they have seen many outsiders come to visit his homestead and begun to notice how nice the trees look.

If people need poles, etc., they just need to ask him. He was not sure how much a pole would fetch in the market; it was thought by others to be N$1 - 1.5 if collected, or N$2 if taken to a market. A pole would be 10 - 20 cm in diameter and 1.5 m long.

Case study 4: Lahja Taipopi, Onangholo Village

She came to her homestead in 1982 and at that time there were many trees. It took them four years to clear the area for the farm and they used the large poles to build their homestead. In 1987 they started to manage the mopane outside the present fenced area. They did it on purpose to help the trees grow faster, as they believed that once the trees were tall they would attract the rain. When they started to single and prune the trees, small shoots kept coming back at the base of the trees. They kept cutting all these off and they were used as firewood. The trees no longer shoot at the base and the main stem just grows higher. She does not have problems with other people stealing from her area. She does not have many trees in her crop fields, but where there are trees she only has problems with the *Acacia* species. These are left in the fields though, despite their negative effects on the crops, because they are useful for animal fodder.

Case study 5: Isaac Abraham, Onangholo Village

He moved to his present homestead in the 1950s; at that time there were many big trees, especially near the oshanas. When clearing his farm land he had to use fire to clear the stumps of large trees from his land. He had become interested in trees and had seen the plantations in South Africa when he was a contract labourer in the 1950s and 60s. He had also seen the *Eucalyptus* spp. plantation at Onankali. There is a traditional belief that trees harbour birds that then destroy the crops, but people also liked to plant fruit trees in the homestead. He observed that many trees were destroyed during the war and although this has stopped since Independence, the trees are already cut and gone. He used to make fences with poles and branches, but now uses fencing wire.

He started thinning the trees on his land during the war and he intends to produce poles and rope for building and fencing on his farm. He has observed that grass grows much better on the managed land than on the unmanaged. He has had little assistance from the Forestry Directorate, just some advice and moral support from the Research Division. He feels that other people are keen to learn how to protect, manage and plant trees.

ACKNOWLEDGEMENTS

We are indebted to the many people who helped us during the field day: Osman Hamid and Isaak Kahalongo at Ogongo, and Pineas Aindongo, Lahja Taipopi and Isaac Abraham at Onangholo village. Special thanks to Mrs Taipopi who generously invited the whole group into her homestead and treated us to Oshikundu and freshly baked rolls.

[1] Green Namibia team is a local NGO concerned with tree planting and management.