

OPERATION CAMELTHORN

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Operation Camelthorn, undertaken by pupils of Mmabatho High School in Bophuthatswana, aimed at modifying school management proposals for sportsfields in order to save a large number of camelthorn trees (*Acacia erioloba*). The project involved pupils in a wide variety of skills and eventually all but four out of 46 trees were saved.

The first step was to negotiate with all the authorities concerned, to allow us to alter the proposed plans of the sportsfields. Our main aim was to develop a new plan in which the minimum number of these trees would have to be removed.

INTRODUCTION

Operation Camelthorn is based on the role of the conservationist in development. When the Mmabatho High School Conservation Club discovered that there were plans to develop new sportsfields on an area of 20 hectares of school grounds we went to investigate. This is an area consisting of a number of Camelthorn trees (*Acacia erioloba*), a species indigenous to the Mafikeng/Mmabatho area. Already an estimated 9 000 000 trees of this species have been removed since the late 19th century (Campion C. June 1986 pers. comm.) so we cannot afford to see any more destroyed.

WHY THE CAMELTHORN TREE?

Description

Camelthorn trees grow very slowly, some specimens reaching up to 10m in height in this area, and they usually have wide and spreading crowns. The flowers, which are bright yellow balls, appear during August and September and the fruit consists of thick, ear-shaped pods. The trees have strongly developed spines of which the bases are whitish and are often swollen or inflated. Camelthorns are protected in South Africa.

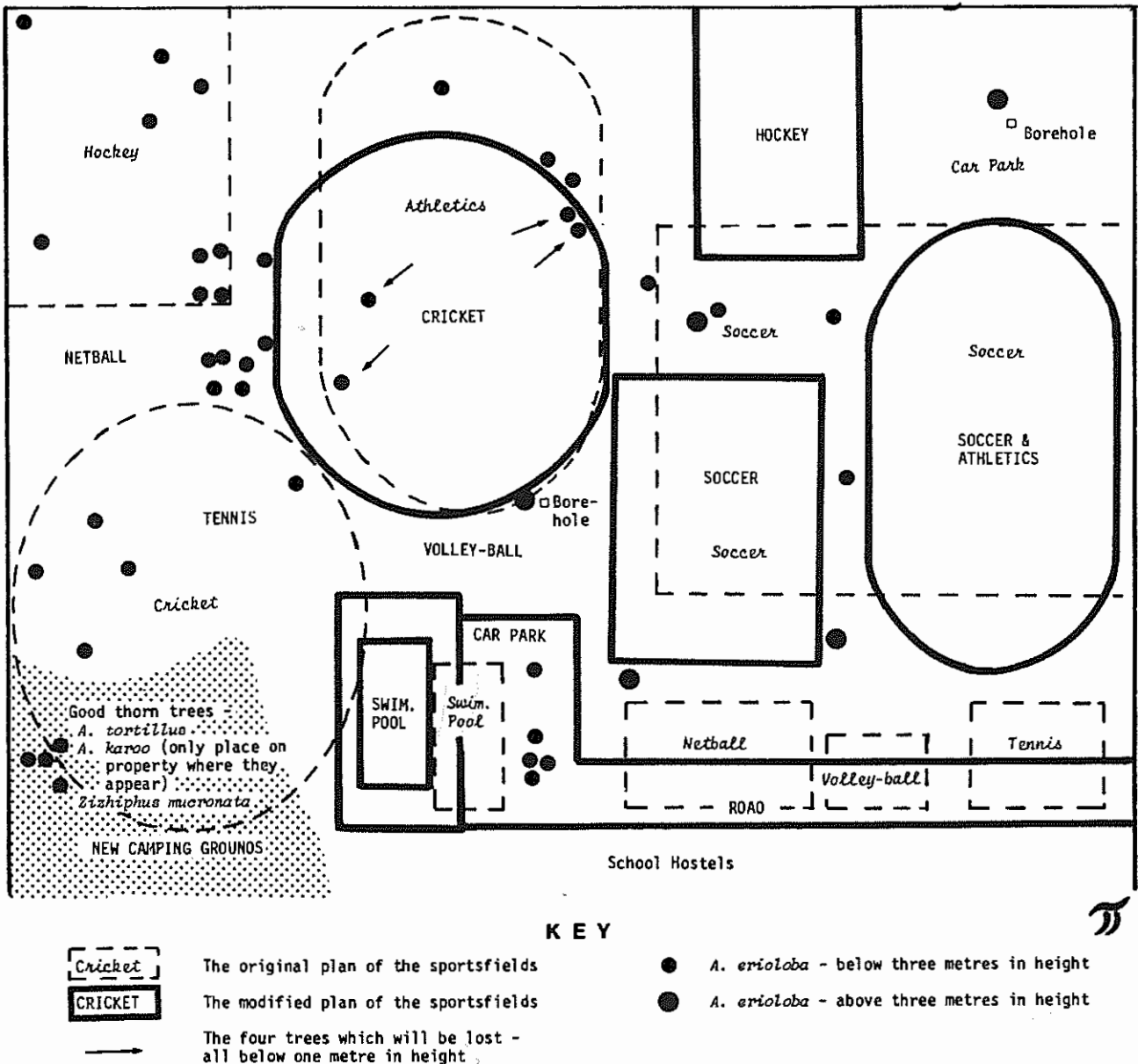


FIGURE 1 The project area.

Uses to man

The wood is strong and very resistant to borers and termites. In the past it was used for mine props, railway sleepers and wagon building. It is also an excellent firewood. The pods form excellent fodder for stock; the milk yield of cows that eat the pods apparently increases noticeably. The immense value of the shade which these trees provide in arid areas cannot be overestimated. The Camelthorn trees also produce gum which is eaten by people as well as by a variety of animals. The bark can be burnt and ground to produce a remedy for headaches, while infected ears may be treated with powder from dried crushed pods.

EXECUTION OF PLAN

Using the description, we compared *A. erioloba* with the *A. tortillus* and *A. hebeclyda* until we knew exactly what *A. erioloba* looked like. We then marked all the Camelthorns with red plastic tags. It was amazing to see how many there really were and how quickly we were able to differentiate between the various types of thorn trees.

After marking all the Camelthorns we measured base lines along the boundary fence in order to determine accurately the site of the trees and to plot them on the map. (Refer to Figure 1). To do this we used the following instruments:

- Measuring tape.
- Two big protractors with aiming devices and one small protractor, all of which we made ourselves.
- A long iron bar with a flag on top and with marked measurements to measure the heights of the trees.

We had to find a suitable, cheap method of plotting all the trees onto the existing map. We therefore used a grid system with co-ordinates to plot and number the trees on the map. We took our positions by using our own big protractors with aiming devices. First we measured the baseline on the ground, filled it in on the map and aimed our big protractors at the trees. Next to the chosen tree, a long pole with a

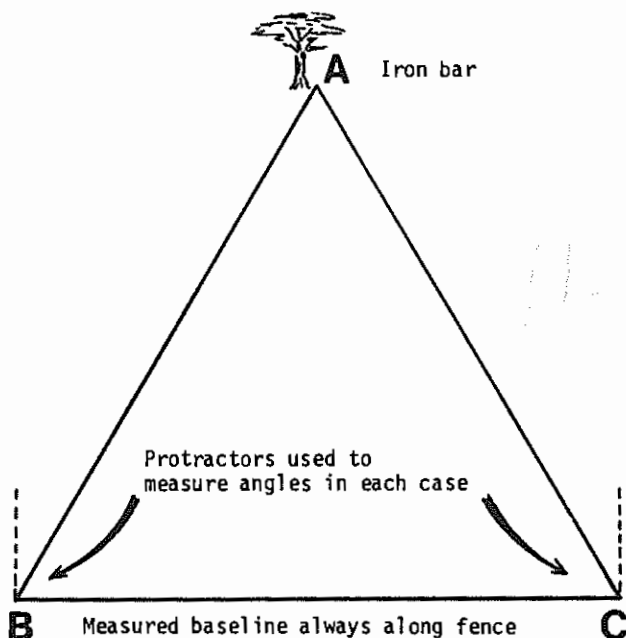


FIGURE 2 Method of plotting tree positions.

flag on top was held up to ensure better visibility. (Refer to Figures 2 and 3). These measurements were filled in on the map and the tree was numbered. A list with numbers, co-ordinates and heights was kept as well as special notes. We did not make use of theodolites because they were not available and we wanted to use our own instruments.

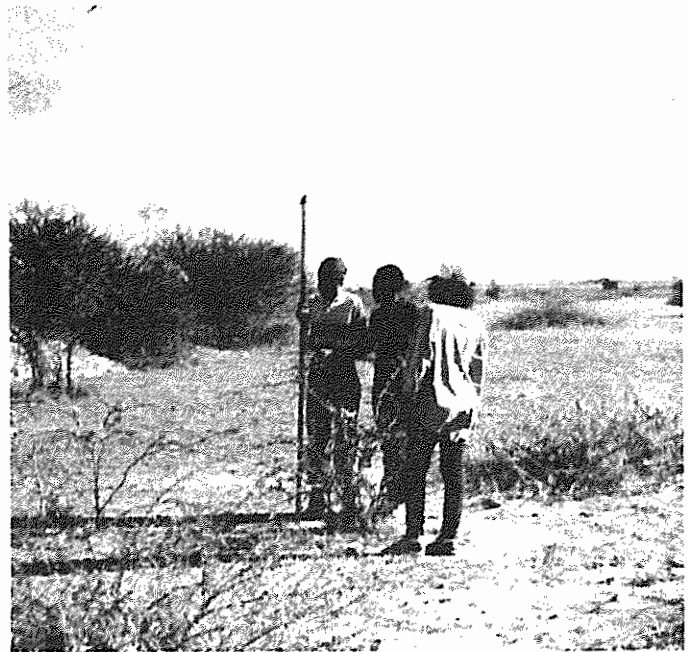


FIGURE 3 Plotting tree positions with iron bar.

Several factors had to be taken into consideration when redesigning the sportsfields namely:

- We had to fit in all the big sportsfields in a way which would not destroy too many Camelthorns.
- The sportsfields had to fit into the plan in a north-south position, due to the movement of the sun.
- All the grass-covered sportsfields had to be located near the water sources in order to make irrigation easier and reduce costs.

We saved space by putting a summer sportsfield - an athletic track - around a winter sportsfield. We also went one step further and planned a road, parking area, possible changing rooms and pathways. This was done by fitting the different sportsfields like a jigsaw puzzle, until we were satisfied that we had destroyed the minimum number of Camelthorns.

PROBLEMS FACED

- The main problem with which we were faced was convincing people that our project was worthwhile. These included professional staff, gardening staff and government officials.
- The second problem was that we were not professionals in this field. We accordingly had to investigate and research appropriate methods for the project both in terms of our limited skills and lack of sophisticated instruments. We constructed our own instruments under the supervision of an experienced mathematician. These however did not prove to be very accurate and we had to take great care not to make mistakes. We often had to re-measure angles and ask for second opinions. We had to be especially careful about forming right angles when using the big protractors. Using the sun to find north and then marking it on the protractors helped us a great deal.

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