

1 August 2011; revised 13 December 2012

RESTORING NATURAL VEGETATION Part 1 30 years' experience on an 8 hectare Lusaka smallholding

By Mike Bingham



Figure 1 – The 1967-68 airphoto survey. Plot 487a D/4 is the undeveloped plot outlined in yellow. The straight cut line (green) marks the common boundary with the Local Forest PFA26. The rectangular blocks of woodland (bottom of picture) alternate with blocks (coops) leased out for charcoal production, a system devised by the Forest Department for sustainable use.

A garden of indigenous trees has always had a strong appeal to me. Our move to a 20-acre smallholding on the southeastern outskirts of Lusaka in 1983 gave me the opportunity to indulge my passion to grow the trees I found on trips around Zambia. Two years earlier I had decided not to renew my contract with the Ministry of Agriculture, where I held the position of Conservation Biologist in the Land Use Services Division, in order to earn my living as a small scale farmer. In 1977, my wife Trish, with a small group of friends, established a marketing cooperative (Maluwa) producing cut flowers and a variety of farm produce.

Farm No. 487a subdivision 4 of subdivision D, was purchased by Trevor and Carol Coombe in 1970, and they moved into their new house the following year. The Coombes were also founding members of Maluwa Co-operative, but in 1983, when Trevor landed a job in London, they offered to rent their farm to us until we had the resources to buy it. We named the farm Protea Hill for the numerous Protea trees and the low ridge which is straddled by the farm.

The southern boundary of Protea Hill bordered on the Lusaka South Local Forest (Protected Forest Area No. 26). The Local Forests were intended for use by the local urban communities, for fuelwood and other forest products. The 1967-68 airphoto (Figure 1) shows the northern sector of Protected Forest Area No. 26, adjacent to our plot, partly cleared. The Forest Department divided the PFA into

rectangular blocks (coops), leasing out the alternate blocks for charcoal production. The remaining areas, half of the total, were to be left intact until the first half was depleted. In a 40-year cycle the whole area would be cut, but at any time only half could be exploited. This was an interesting plan for sustainable use, but even before independence in 1964, the system had broken down, and the area to the south of us was completely cut over. Subsequently PFA No. 26 was 'de-gazetted', and a 2km-wide strip turned over to residential plots.

The land to the north and south of the farm is on carbonate rock, commonly referred to as limestone, but more correctly as marble or dolomite. The ground surface over the limestone is flat with occasional dolines (sinkholes) where the roof of a cave has collapsed, but there are no surface drainage features, as drainage is through a system of underground fissures.

Only the lower lying northern and southern extremities of Protea Hill are on limestone, the major part is occupied by the schist ridge. Brown lines on Figure 2 show the approximate positions of the geological boundaries between schist, which forms the ridge, and the limestone. From the crest of the ridge the ground falls away 16 m. to the northern boundary and 9 m. to the southern boundary (according to a land use plan). The steepest slope, of about 1 in 10, is a stretch of about 100 m. northward from the house. The crest of the slope, where the house is built, is marked by large quartz boulders, the largest more than a tonne in weight. These boulders rest on soil, and have no connection with the underlying schist, apparent remnants of a stratum which has eroded away beneath them.

The soil is fairly uniform in colour (red) and texture (sandy clay loam) over the whole area, and mostly less than 1 m. in depth. Under the soil of the ridge is rubble, consisting of quartz (small boulders to sand), hematite, fragments of lateritic ironstone and rotten schist. The soil over carbonate rock is of variable depth as a result of dissolution by percolating rainwater containing dissolved carbon dioxide. The rock is exposed in places, and dolines (sinkholes) occur on neighbouring farms. A borehole drilled on the contact between the schist and the northern carbonate has a potential yield of 31.5 l/s.

There might have been a time when the whole of the estate (Farm No. 487 'Namobiro'), of which Protea Hill was part, was covered with woodland, but pot shards and remains of iron smelters are evidence of settlement over a period before it became state land, taken up by white settler farmers for extensive grazing. My perception is of a mosaic of mature miombo on the deeper soils, and munga woodland, the latter characterized by large *Albizia amara* and *Ficus sycomorus*, but mostly of scrub, perpetuated by regular fires and local overgrazing.

Apart from a block of cultivation along the northern boundary, the only use to which the 8 ha area might have been put by previous owners was extensive grazing and fuelwood collection. By 1983 Carol had brought about 1/4 of the area of the farm under cultivation. An area of about 1 ha around the house was cleared and planted to lawn and exotic trees and shrubs, and another c. 1 ha at the southern end was cleared for cultivation by another member of the co-operative. The remaining areas were protected from tree cutting and fires.

At first glance there would appear that nothing of the flora of 1968 remains. Careful comparison enables some features to be identified, notably termite mound complexes and longer-lived trees. These will be the subject of subsequent contributions to this series.

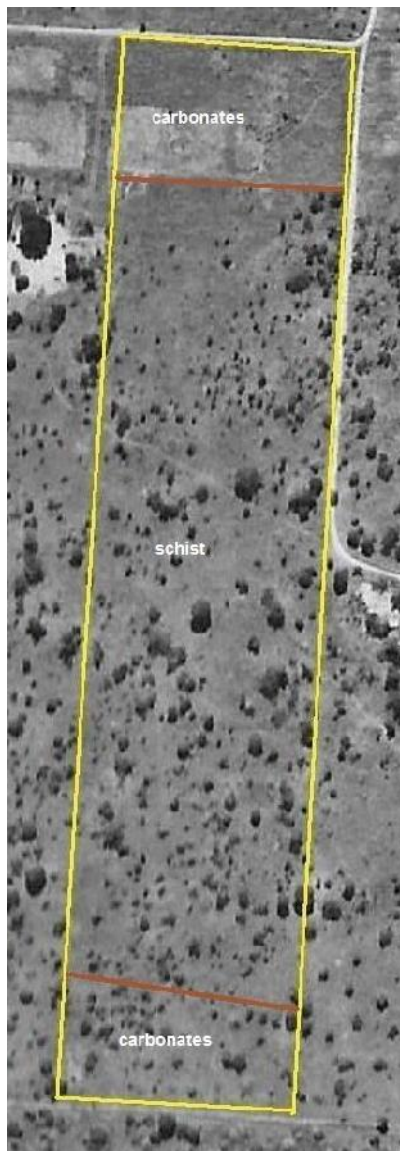


Figure 2 – Airphoto Survey 1967-68. The brown lines mark the approximate contacts between the schist and limestone.



Figure 3 – Google Earth, September 2004

