

THE DECIDUOUS THICKETS OF THE ZAMBEZI VALLEY.

BY Mike Bingham

**Freshwater species are becoming extinct six times faster than marine species.
News item, BBC, 12 October 2009**

Deciduous thicket occupies the well-drained high terraces of the alluvial deposits of the Zambezi Valley floor. The fine sand, leached of its clay content, is underlain by impervious gravel or clay. It is efficient at absorbing rainfall and provides an ideal medium for shallow rooting trees and shrubs. Rapid transpiration from the very dense foliage soon depletes the water stored in the soil, after which the leaves are shed, and the thicket remains leafless until the start of the next rainy season.

In contrast to the woodlands and savannas the thickets do not burn, as grass when present, is scanty. Even when tinder dry the leaf litter burns only sporadically, without doing any damage. This does not mean that the thickets cannot be destroyed by fire, for when the canopy is opened dense stands of tall annual grasses and creepers fill the gaps, and when these burn the fires can eat away at the thicket margins. Describing the Itigi thicket of central Tanzania, B.D. Burt (1942) observed that elephants, buffalo and other large herbivores do not venture into the dense core, although they do use the peripheral zone intensively. This situation prevails in the Zambian Itigi, between Lakes Mweru and Tanganyika, and also in the Zambezi Valley thickets. The distinction between core and peripheral thicket is clearly visible on Google Earth imagery.

Without the intervention of large herbivores and of fire, the thickets are exceptionally stable, which accounts for the common presence of local endemics, which may not have survived in less stable environments. Species which have evolved in the protective environment of thickets include *Baikiaea plurijuga* (Zambezi teak or mukusi) in the mutemwa thickets of the Kalahari Sands of south-western Zambia and in neighbouring countries; *Bussea massaiensis* and *Pseudoprosopis fischeri* in the Zambian Itigi-like thickets of Kaputa and Mbala Districts; and *Xylia torreana* in the Zambezi Valley thickets. These are all leguminous trees employing a method of seed dispersal, explosive dehiscence, by which the woody valves separate and twist with great force expelling the seeds. This dispersal strategy is very efficient for saturating the area around the mother tree with seedlings, but the seeds cannot travel any great distance, or cross barriers, and thus migration is slow, or restricted.

The leaves of thicket species are thin and soft in



Figure 1. Extensive areas bare of vegetation 60 years after they were abandoned by the Mburuma people.

texture, and have low concentrations of tannins, making them palatable to herbivores, in contrast to the foliage of the woodland species. An abundance of caterpillars feeding on the foliage attracts great numbers of migratory birds of a variety of species. As many as 9 species of cuckoo can be heard in the Zambezi Valley thickets in January. Particularly abundant are willow warblers which come from as far as the Baltic region on their annual migrations.

It requires no stretch of the imagination to appreciate the impact of the destruction of the thickets. Vast areas were lost by the construction of the Kariba and Cabora Bassa dams, and more are now being lost to agriculture, both large commercial and subsistence. Whether these farms are viable is questionable. Large stretches of bare ground remain in the Lower Zambezi National Park from which the Mburuma people were evacuated in the early 1950s. After 60 years they remain bare (**Figure 1**).

Intensive logging of *Baikiaea* has destroyed the core thickets, where the best timber trees occurred, and annual fires which followed the opening of the thickets by the loggers prevent the recovery of the thicket. Attempts to keep out the fires have proved very difficult, and when they succeed, aggressive invasive species take over.

A more recent threat to the biodiversity of the Zambezi Valley is pollution, mostly from commercial agriculture along the course of the Zambezi and its tributaries. There was a time when the lagoons had waterlilies, and bullfrogs spawned in shallow seasonal pools. The pools which remain after most have filled with

