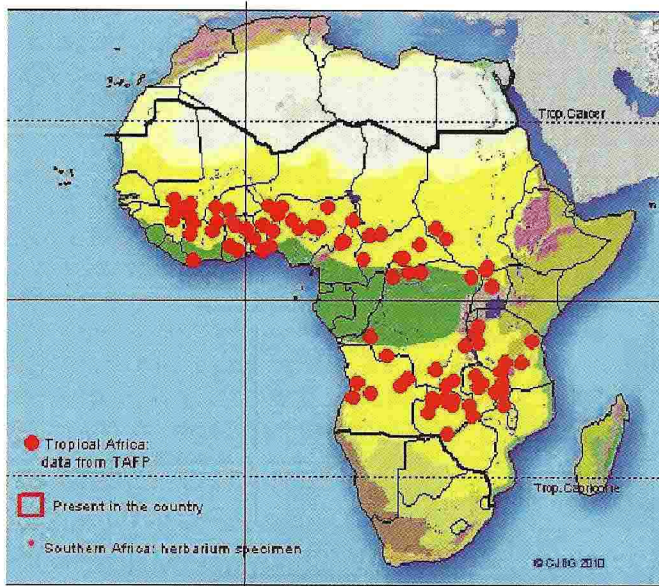


BERLINIA AND ISOBERLINIA IN ZAMBIA

By Mike Bingham



Map. The distribution of *Isoberlinia*. (The spot on Livingstone is misplaced.) From the African Plant Database: www.ville-ge.ch/cjb/bd/africa/index.php

Miombo woodland is defined by the presence, as dominants, of trees in the three genera, *Brachystegia*, *Julbernardia* and *Isoberlinia*. I would include a fourth, *Cryptosepalum*, but that is when things get complicated. *Berlinia*, while very close to *Isoberlinia*, is excluded as it is regarded as more a riverine forest tree.

These genera are all closely related, distinguished by minor differences in morphology. In *Berlinia* and *Isoberlinia* the leaflets have distinct petiolules (stalks), whereas in *Brachystegia* and *Julbernardia* the leaflets are sessile (without stalks). The leaflet bases are usually symmetric in the former, distinctly asymmetric in the latter. In Zambia the leaves and leaflets of *Berlinia* and *Isoberlinia* are generally much larger and of thicker texture than those of *Brachystegia* and *Julbernardia*. The pods and seeds are also much larger.

Berlinia is distinguished from *Isoberlinia* by the very large white dorsal petal, whereas in *Isoberlinia* the petals are small and subequal in size. This may simply mean that while *Isoberlinia* is adapted to bee pollination, *Berlinia* attracts hawkmoths. When not in flower the trees of these two genera are indistinguishable, except that some forms of *I. angolensis* have smaller, more rounded leaflets, not found in *Berlinia*. Throughout the range of *Berlinia giorgii* in Zambia, the northern parts of Luapula and Northern Provinces, the name MUTOBO is applied to both genera, remarkable as the Bemba rarely confuse the *Brachystegia* spp.

Frans Breteler, of Wageningen University, Netherlands, well known in botanical circles as a 'lumper', who directed research on the genera of the tribe Detarieae, to which these genera belong, once

suggested to me that *Berlinia* (15 spp.), *Isoberlinia* (5/6 spp.), *Brachystegia* (c. 21 spp.) and *Julbernardia* (c. 6 spp.) could all be sunk into a single genus. Indeed, there are numerous related genera in the Detarieae, in equatorial Africa and America, and one in southern India, with probably as little variation between them as is found for instance in the genera *Eucalyptus*, or *Albizia*, not to speak of *Acacia*. Only in Africa, however, have members of the group adapted to a long dry season. This has enabled them to escape the rainforest habitat and dominate the huge areas of Africa, on both sides of the equator, with moderate, highly seasonal rainfall, and the regular fires which are a feature of all tropical woodlands.

The areas dominated by *Brachystegia* and *Julbernardia*, and especially by *Isoberlinia*, are far greater than by any other tropical genus. *Isoberlinia* species dominate the northern African equivalent of miombo woodland, in the seasonally wet zone, extending across the continent from Guinea and Mali in the west to Southern Sudan in the east, the Sudanian ecoregion.

Two species of *Isoberlinia* are recognized in Zambia, *I. angolensis* and *I. tomentosa*, of which only the former is widespread in the country. Three varieties of *I. angolensis* are recognized, based on minor differences. The most widespread, *I. angolensis* var. *niembaensis*, reaches its southernmost limit on the crest of the Zambezi escarpment east of Lusaka (S15°40'88" E29°00'28" 1315m asl). Finding myself unable to tell the species apart using the key in Flora of Tropical East Africa, I asked the advice of the Forest Department's Denny Fanshawe. He replied: *tomentosa*

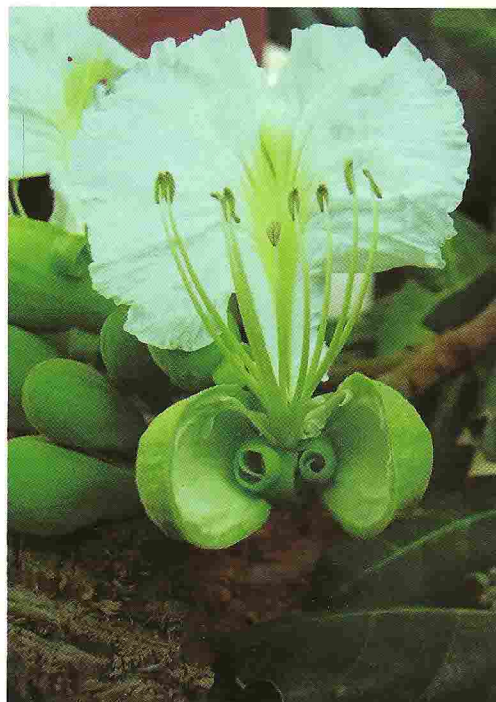


Figure 1. The flower of *Berlinia giorgii*, Luapula Valley, Chisale, 15 November 2007. The conspicuous white dorsal petal serves to attract crepuscular hawkmoth pollinators.

