

Description and Ecology of *Schinziophyton rautanenii* (Schinz) Radcl.-Sm. in Namibia

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Abstract

The Manketti, Mongongo or Mangetti, Schinziophyton rautanenii (Schinz) Radcl.-Sm. is an indigenous tree in Namibia, the fruit of which are of significant socio-economic value. The tree occurs in what appears to be even aged groves on deep sand, as part of the dry savanna woodlands. Natural regeneration in the woodland areas seems to be scarce, although some success has been achieved by planting truncheons.

Introduction

Schinziophyton rautanenii (Schinz) Radcl.-Sm. (initially classified as *Ricinodendron rautanenii* by Dinter in 1885) is a deciduous, dioecious tree (Peters 1987), which belongs to the family *Euphorbiaceae* together with other genera like *Euphorbia* (Candelabra trees), *Spirostachys* (Tamboti) and *Croton* (Coates Palgrave 1983).

Although the tree is generally considered as rapid growing (Peters 1987), it has been declared a protected species in Namibia in terms of the existing forest legislation since 1952 (Erkkilä & Siiskonen 1992), probably because of its socio-economic importance.

In recent years the commercial exploitation of the nuts of the tree was investigated. Little information is available, however, on the ecology of the species and its management requirements so that the implications of such commercialisation are uncertain, and management is difficult to plan or implement.

This paper aims to review the information available for a detailed description of the species in Namibia. This description may in turn provide indications for policy development on suitable management or research activities and priorities.

Distribution and Occurrence

Distribution

Peters (1987) identifies a core area where trees are characteristically found in large groves or extensive stands as co-dominant or dominant tree. This core area is a relatively narrow belt across the subtropical latitudes of southern Africa. The northern border runs through Angola, Zambia and Mozambique, while the southern range limit runs through Northern Namibia (the Ohangwena, Okavango and Caprivi regions), Botswana, Zimbabwe and the Transvaal in South Africa (Lee 1973, Peters 1987).

Within the core area the species is densely grouped, few trees occurring more than 100m apart (Lee 1973). Where it becomes dominant the trees are usually spaced about 20m apart (Keegan 1982). Outside of the core area the tree appears to occur more or less occasionally or in small, localised stands (Peters 1987).

During their survey in Caprivi, Chakanga *et al.* (1998) found no co-dominant tree species where *Manketti* was recorded. Büschel (1999), on the other hand, reports that the species is found in mixed stands, i.e. mixed with other species and uneven in tree age and density. Büschel did not indicate associated species, however.

According to Keegan (1982), *S. rautanenii* is often associated with *Terminalia sericea*, *Baikiaea plurijuga*, *Burkea africana*, *Pterocarpus angolensis*, *Guibourtia coleosperma*, *Strychnos coculoides* and *Azelia quanzensis* and members of the genus *Combretum*.

In accordance with its growth requirements (see later in text) *S. rautanenii* occurs in linear groves of a few hundred meters across and several kilometres long on the crest of fixed dunes in the Dobe and /Du/da areas of Namibia where the soils are sandy (Lee 1973; Helgren 1982). In other areas within its range the species may occur in irregular groves (Botelle 1999). The distribution of the species in Namibia is given in Figure 1.

Growth Requirements and Preferences

Soil Requirements

S. rautanenii is always found on deep sands of the Kalahari Sand Plateau (Palmer & Pitman 1972), never on calcrete or compacted soils, on clay or on areas subject to flooding (Lee 1973; Chimbelu 1983). The surveys reported on by Helgren (1982) found very high sand contents (around 94%) with clay around 1%. The organic matter content was less than 1%. The soils on which the species is found near Dobe are very poor in nutrients.

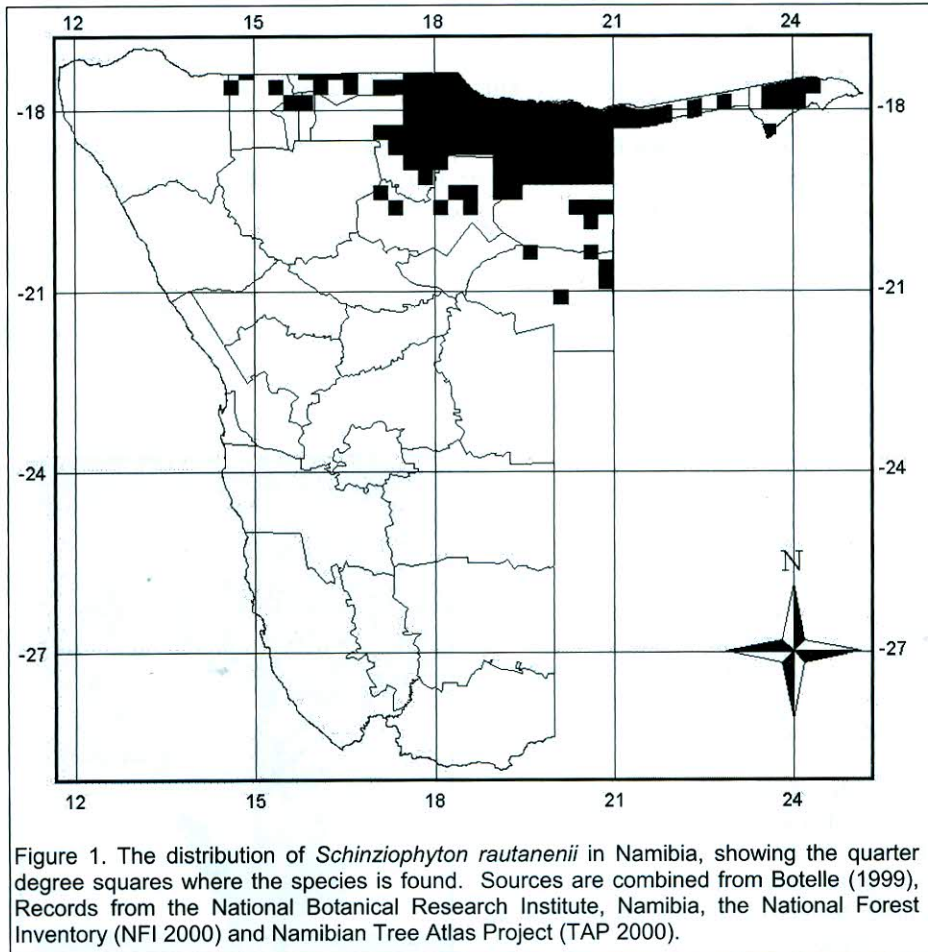


Figure 1. The distribution of *Schinziophyton rautanenii* in Namibia, showing the quarter degree squares where the species is found. Sources are combined from Botelle (1999), Records from the National Botanical Research Institute, Namibia, the National Forest Inventory (NFI 2000) and Namibian Tree Atlas Project (TAP 2000).

The distribution of *Manketti* groves in the Okavango region of Namibia as identified by Botelle (1999) very closely follows the fossil dunes and higher lying sandy plains identified by Graz (1999).

Climatic Conditions

The core area of the *Manketti* falls into the summer rainfall area. Keegan (1982) notes an average precipitation approximately 520mm per annum while Helgren (1982) cites 400mm per annum and Peters (1987) 200mm to 1000mm. Biesele *et al.* (1979) state that the species tolerates drought. It is evident from these sources that the species occurs in an extremely wide rainfall range and variability.

