

# **Vegetation ecology of the Soutpansberg and Blouberg Area in the Limpopo Province**

by

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*“Applied ecology is difficult, but not impossible. Action has to be taken, but the problems cannot be solved by off-the-shelf answers. Solutions will require intellectual and empirical depth well beyond what is now available, as well as commitment, money, organization and work. Most significantly, applied ecology requires rethinking the basis of how ecological problems and their solutions are approached. It is almost too late to start, but tomorrow is even later.”*

**(L.B. Slobodkin & D.E. Dykhuizen 1991)**

I dedicate this thesis to my Creator for granting me the opportunities to study the splendour of His creation, to my wife for her endless patience, understanding and comradeship as a fellow nature conservationist, my parents for ever becoming less in order for me to become more, and to the people who have guided and moulded me on the journey of scientific discovery.

## **ABSTRACT**

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The fast growing local human population, especially through immigration from countries north of South Africa, is placing the Soutpansberg and Blouberg areas under increasing pressure. The insatiable demand for more arable land within these agriculturally marginal and semi-arid areas is leading to severe degradation of the remaining natural resources. The Soutpansberg–Blouberg region has been recognized as a Centre of Endemism and is regarded as a region of exceptionally high biological diversity. The Soutpansberg Conservancy and the Blouberg Nature Reserve reveal extremely rich diversities of plant communities relative to the sizes of these conservation areas.

The Major Vegetation Types and plant communities of the Soutpansberg Centre of Endemism are described in detail with special reference to the Soutpansberg Conservancy and the Blouberg Nature Reserve. Phytosociological data from 466 sample plots were ordinated using a Detrended Correspondence Analysis

(DECORANA) and classified using Two-way Indicator Species Analysis (TWINSPAN). The resulting classification was further refined with table-sorting procedures based on the Braun-Blanquet floristic-sociological approach of vegetation classification using MEGATAB. Eight Major Vegetation Types were identified and described as *Eragrostis lehmanniana* var. *lehmanniana*-*Sclerocarya birrea* subsp. *caffra* BNR Northern Plains Bushveld, *Euclea divinorum*-*Acacia tortilis* BNR Southern Plains Bushveld, *Englerophytum magalismontanum*-*Combretum molle* BNR Mountain Bushveld, *Adansonia digitata*-*Acacia nigrescens* Soutpansberg Arid Northern Bushveld, *Catha edulis*-*Flueggia virosa* Soutpansberg Moist Mountain Thickets, *Diplorhynchus condylocarpon*-*Burkea africana* Soutpansberg Leached Sandveld, *Rhus rigida* var. *rigida*-*Rhus magalismontanum* subsp. *coddii* Soutpansberg Mistbelt Vegetation and *Xymalos monospora*-*Rhus chirendensis* Soutpansberg Forest Vegetation. Plant communities of each of the Major Vegetation Types are described. The primary ecological drivers of the event-driven and the classic climax vegetation types are discussed and management recommendations are made for effective conservation of these last remaining pockets of wilderness. The available data supports the recognition of the region as an important Centre of Plant Endemism and Biological Diversity requiring conservation attention.

**Keywords:** Soutpansberg Conservancy, Blouberg Nature Reserve, vegetation classification, phytosociology, syntaxonomy, TWINSPAN, ecology, semi-arid event-driven ecosystems, mistbelt vegetation, Afromontane Forest, Centre of Biological Diversity, Limpopo Province.

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