BOTANICAL DIVERSITY

N. Hahn
Institute of Conservation and Natural History of the Soutpansberg, Herbarium Soutpansbergensis (ZPB)

Sources of information

As a biologist involved with documenting the botanical diversity of the Soutpansberg and as an active conservationist, I realized the need to record the unique flora of this region.

For millennia man has had an influence upon the region. The presence of hominoids within the area can be traced back to approximately 3,64 million years ago (Truswell 1977). From the beginning, man's influence irreversibly changed the world. This was a relatively slow process compared with the modern mass eradication of the area. As a result, it is becoming urgent to document the Soutpansberg's rich biodiversity so that informed choices on its management can be made.

Economically, the Limpopo Province is one of the poorest provinces in South Africa supporting a large rural population that has one of the highest population growth rates in the country. To support these increasing masses, virgin habitat is being eradicated at an unprecedented rate.

In the past, large tracts of grassland were exploited for the cultivation of exotic monocultures. These have depleted water resources and have destroyed most of this unique habitat. Water is a scarce commodity within the region, which is renowned for its severe periodic droughts. Agriculture is usually the first to suffer, resulting in increased pressure on the land.

There is a pressing need to conserve and properly manage the unique biodiversity of the Soutpansberg.

Summary statistics

Of the 38 known endemic plant taxa the in the Soutpansberg, approximately 52% occur within the mist belt region and no fewer than 26% are restricted to it. In times of drought a large percentage of the high altitude mountain flora survives on the mist (Hahn 2002).

Approximately 2 500–3 000 vascular plant taxa, comprising 1 066 genera and 240 families are known to occur in the mountain (Hahn 1997). This is a significant number if one compares it to other regions. Arnold and De Wet (ed.)(1993) recorded 2 604 genera and 353 families for the entire flora of the southern Africa region (South Africa, Namibia, Botswana, Swaziland and Lesotho). The Soutpansberg therefore contains 41% of all plant genera and 68% of all plant families of the flora of the southern Africa region. Van Wyk & Smith (2001) noted that among the 18 recognized centres of endemism for southern Africa, the Soutpansberg has the highest generic and family diversity. Altogether, 38 plant taxa are known to be endemic to the Soutpansberg, comprising 27 genera and 17 families.

Altogether, 594 tree taxa are known in the Soutpansberg, one of the highest counts for southern Africa, and approximately one third of all known trees of southern Africa (Hahn 1994). This is a significant number representing 18–22% of the known flora of the mountain range. It is therefore no wonder that most vegetation types within the area are predominantly woodland.

Approximately 10% of the plants occurring within the Soutpansberg can be considered succulent. 32% of the endemic flora of the mountain can be regarded as succulents.

A succulent can be defined as a plant which has the ability to store water in one or more of its morphologic components. This water is used when the plant is unable to absorb moisture through its normal means, namely its roots. Nonetheless the plant will need a period where it must replenish its reserves.

From this we can deduce that whatever conditions contributed towards their evolution had to be related to periods of water stress. This would suggest that succulent endemics are the prodigies of a far distant relative that inhabited the area in times of lower than average moisture precipitation. They became isolated as the climactic situations improved. It therefore becomes clear that the Soutpansberg, throughout its history, has undergone periods of drought leading to the isolation of biological entities.

Floristic Elements

The Soutpansberg's immense floristic diversity can be attributed to several distinct floristic elements acting on it (Hahn 1994).

- Tropical
- Moçambique coastal
- Lowveld
- Afro-montane
- Bushveld (= central Transvaal)
- Waterberg
- Kalahari
- Limpopo Valley

Conservation

Habitat loss is seen as the greatest threat leading to a diminishing of biotic diversity! No era has seen as much degradation of habitat as the past 150 years. The most feasible conservation strategy to safeguard this immense di-

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versity would be through the proclamation of the Soutpansberg as a biosphere reserve.

Recommendations for priority studies required to fill any gaps identified

- Compile an inventory of our floristic diversity, which should be stored and maintained in a regional depository of biological information.
- Find funding to help maintain central depositors of biological information such as the Institute of Conservation and Natural History of the Soutpansberg. This institute was established and is maintained privately by N. Hahn. A component of its activities is the Herbarium Soutpansbergensis (ZPB) (Internationally Accredited). The Herbarium Soutpansbergensis one of only two functional herbaria in the Limpopo Province. It is also the only fully-computerised facility of its kind in three of our northern provinces. The herbarium is also the only one presently full integrated with a regional GIS (Arc).
- Integrate our floristic data with other studies such as ethno botany, vegetative studies, environmental education etc.
- Numerical comparison of the Soutpansberg biodiversity with other centres of endemism. This study would need international collaboration and funding to facilitate data acquisition.
- Paleoclimatic model of the Soutpansberg; the influences of both short and long term cycles. The Soutpansberg has undergone quite dramatic habitat changes over time. These changes are driven by both long term cycles as postulated by the Milankovitch theory of orbital variation and short term cycles such as the El Nino — La Nina.

Conclusion

- The Soutpansberg is a centre of biological diversity.
- The high biotic diversity of the Soutpansberg can possibly be attributed to the fact that the mountain range acts as a refugium in times of environmental flux.
- The evolutionary processes that brought forth its biological uniqueness are still poorly understood.
- The Soutpansberg Floristic diversity is mirrored by its immense Faunal, Cultural and Scenic diversity.

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