

# The Flora of the Sneeuuberg

## Fulfilling Carl Thunberg's desire to visit the 'Sneeuwbergen'

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The Great Escarpment in South Africa is known for its plant diversity and endemism. A spectacular example of this is the KwaZulu-Natal Drakensberg. In fact, South African mountain ranges in general appear to be nodes of endemism from the Magaliesberg, with its few endemics, to the 'mega-endemism' of the mountains in the south-western Cape.

Carl Thunberg, dubbed the 'Father of South African botany', travelled extensively in the Cape in the 1700s. However, he never achieved his desire to visit the 'Sneeuwbergen' as his horses died and the 'field assistants' deserted. Situated in the vicinity of Graaff-Reinet, the Sneeuuberg forms an interesting component of the Great Escarpment. Together with its ancillary ranges, the Onder-Sneeuuberge, the Koueveldberge, the Tandjiesberg, the Bankberg and the Renosterberg, it forms a continuous, dolerite-dominated massif stretching 200 km from Murraysburg in the west to Cradock in the east. Most of the range exceeds 1 800 m in altitude, and much of it exceeds 2 000 m. The range includes the relatively well-known 'Matterhorn of the Karoo', the Compassberg, which is the highest peak in the Great Karoo at 2 503 m above sea level, and the lesser-known Nardousberg, which at 2 429 m is the second highest peak in the Great Karoo. Not inappropriately named, snow can fall on the range in nine months of the year, and 'white-outs' have been known to occur even in January.

Situated in an otherwise arid area (precipitation for the surrounding plains is less than 400 mm per annum, decreasing from east to west), the Sneeuuberg receives precipitation in the form of convection storms, snow and mist that is unavailable to the surrounding plains. This, together with the moderating effect of altitude, has resulted in a relatively cool montane grassland vegetation markedly different from the lower altitude, surrounding Nama Karoo. Cool, moist mountains in arid areas are known to be rich in endemics.

The Sneeuuberg is physically disjunct from other sections of the Great Escarpment, and is climatically distinct from



ABOVE: The red lily, *Cyrtanthus macowanii* on the Sneeuuberg, in the Asante Sana Private Game Reserve. The species occurs from the Ouberg north of Graaff-Reinet to the Boschberg behind Somerset East, and flowers in July and August. Photo: R. Clark.

the surrounding plains. As most of the range is botanically under-collected, and occurs in a region of several converging veld types (including fynbos, grassland, Nama Karoo and thicket), it has been necessary to have a closer look at the flora of the Sneeuuberg.

Several endemics are known to occur on the range, and its geographic position suggests a link between the floras of the Cape Fold Mountains and the KwaZulu-Natal Drakensberg. Although situated near the arbitrarily defined Albany Centre of Endemism that dominates the Eastern Cape, the absence of thicket vegetation on the range suggests that the Sneeuuberg is not part of that centre, but part of the Great Escarpment suite of centres: the Soutpansberg Centre, the Wolkberg Centre and the Eastern Mountain Region (the KwaZulu-Natal Drakensberg and Lesotho). An investigation into highly restricted endemic species may provide important clues to the biogeographic history of a region, and research on the flora of the Sneeuuberg is being undertaken as an M.Sc. through Rhodes University. We hope to compile a flora for the range and to compare it to the flora of other ranges in the Eastern and Western Cape (the Katberg-Winterberg-Amatole complex, the Stormberg, the Nuweveldberge, the Cockscomb-Groot Winterhoekberge and the Zuurburg) to ascertain whether the



Sneeuberg is a centre of endemism on the Great Escarpment. As floristic surveys are considered to be of benefit to conservation, the research project may also be helpful for local conservation initiatives.

### Sneeuberg vegetation

The vegetation of the Sneeuberg includes several vegetation types. The lower slopes are dominated by shrubby Nama Karoo elements such as renosterbos *Elytropappus rhinocerotis*, *Euryops annae*, *Rhus dregeana*, *Dodonaea thunbergiana*, *Melolobium* species and *Lessertia frutescens* (formerly *Sutherlandia frutescens*), whilst the south-facing kloofs and ravines are characterized by dense bushveld and incipient forest dominated by trees and shrubs like dogwood *Rhamnus prinoides*, cheesewood *Pittosporum*

*viridiflorum*, glossy current *Rhus lucida* forma *lucida*, the common spike-thorn *Gymnosporia buxifolia*, wild olive *Olea europaea* subsp. *africana*, white stinkwood *Celtis africana* and sweet thorn *Acacia karroo*. The Nama Karoo and bushveld elements give way to dense *Merxmuellera*-dominated grassland at approximately 1 700 m above sea level, while ouhout *Leucosidea sericea* – sage-wood *Buddleja salviifolia* communities dominate the high altitude drainage lines and scree slopes. High altitude Drakensberg elements on the range include *Guthriea capensis*, a spinach-like plant that grows in rock crevices and cliffs above 2 000 m and which reaches its western limit in the Sneeuberg. ‘Alpine meadows’ of yellow buttercup *Ranunculus multifidus* and blue forget-me-not *Myosotis* occur along the bases of the moist, cool, south-facing cliffs, as do a variety of soft grasses and other herbaceous species incongruent with the generally harsh Karoo environment. Fynbos elements are evident in the form of almost pure stands of the restio *Ischyrolepis distracta* below the Nardousberg summit. Two families endemic to the Cape Floristic Region, Grubbiaceae (one species on the Sneeuberg) and Penaeaceae (two species on the Sneeuberg), occur

on the range. Additional fynbos elements include at least five *Erica* species and three or four *Cliffortia* species.

### A centre of endemism?

My initial look at the Sneeuberg’s vegetation suggests that it may well be a centre of endemism. Together with the Amatole-Katberg complex and the Stormberg, it has been described as a general centre of diversity for the daisy family (Asteraceae) and several other genera also have species endemic to the range, including *Selago*, *Lessertia*, *Erica*, *Kniphofia* and *Cliffortia*. Interestingly, the range also has several faunal endemics that include the Compassberg skolly butterfly *Thestor compassbergae* that is endemic to the Compassberg, and the plain mountain adder *Bitis inornata* that is endemic to the Sneeuberg.

So it would appear that the Sneeuberg has weak evolutionary links to the Cape Floristic Region from the south and west, with Drakensberg elements from the east dominating the flora. This is possibly because of an ‘altitude bridge’ linking the Sneeuberg to the Stormberg-Drakensberg system north of the Fish River basin.

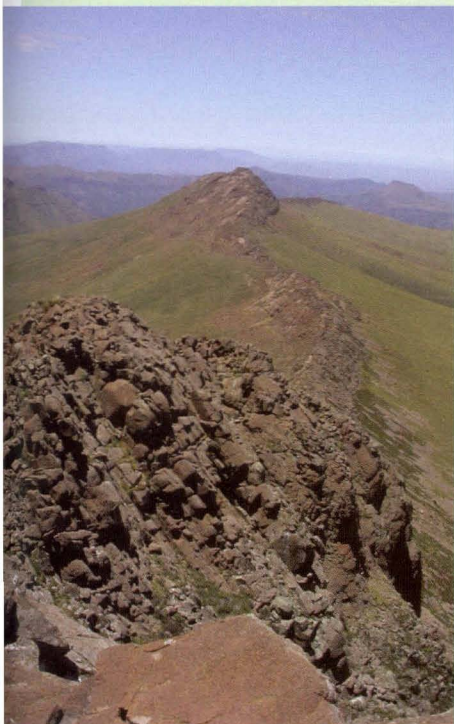
Some interesting research results to date include a possible new spe-



ABOVE: An ‘alpine meadow’ of buttercups (*Ranunculus multifidus*) and forget-me-nots (*Myosotis*) below south-facing cliffs on the Sneeuberg, some 2 000 m above sea level in the Asante Sana Private Game Reserve. Cool, shady south-facing cliffs host many soft plants that are out of place in the otherwise harsh Karoo environment. Photo: R. Clark.

BELOW LEFT: The igneous nature of the Sneeuberg can be seen in this easterly view from the Nardousberg summit. At 2 249 m above sea level, the Nardousberg is the second highest peak in the Sneeuberg. Photo: R. Clark.

BELOW RIGHT: An *Ischyrolepis distracta* community below the Nardousberg summit. This is a common restio on the Sneeuberg. Photo: R. Clark.







LEFT: The Tandjiesberg summit near Groot Suurkop, Asante Sana Private Game Reserve. The altitude here is just below 2 000 m above sea level. The boulder piles were 'haunted' by several Drakensberg rockjumpers! Photo: R. Clark.

BELOW LEFT: *Brunsvigia radulosa* occurs occasionally on the Sneeuberg, flowering in summer. Photo: R. Clark.

BELOW CENTRE: *Kniphofia stricta* on the Compassberg. With *Kniphofia triangularis* subsp. *triangularis*, it is common in the Sneeuberg. Photo: R. Clark.

BELOW RIGHT: *Brunsvigia grandiflora* along Swaershoek Pass in the Bankberg. Photo: P. Weston.

BOTTOM: At 2 504 m above sea level, the Compassberg is the highest peak in the Great Karoo. Its distinctive shape has led to it being called the 'Matterhorn of the Karoo'. Photo: R. Clark.



“Cool, moist mountains in arid areas are known to be rich in endemics.”







ABOVE LEFT: The Great Escarpment of the Sneeuwberg, looking east from Waterkloof in the Asante Sana Private Game Reserve. Exceptional rains in the second half of summer 2005/2006 rendered the landscape almost as green as the KwaZulu-Natal Drakensberg. Photo: P. Weston.

ABOVE CENTRE: The Great Karoo from the summit of the Compassberg. Photo: R. Clark.

ABOVE RIGHT: The ink plant *Harveya cf. pumila* on the Compassberg. Photo: R. Clark.

RIGHT: *Kniphofia acraea* is restricted to the Bankberg near the Mountain Zebra National Park. This is only the third time it has been recorded. Photo: P. Weston.

cies of *Hermannia*, and the third-ever encountered population of the red-hot poker *Kniphofia acraea*. Since October 2005 some 1 400 plant specimens have been collected with at least one significant range extension (*Zaluzianskya pulvinata*, from the Stormberg to the Compassberg).

The project is also proving enjoyable in terms of the abundant wildlife that includes cheetah and kori bustard, and Drakensberg rockjumpers on the summit plateaus. Private landowners have re-introduced several of the Big Five, including white rhino, African elephant

and Cape buffalo. Photographic opportunities of the phenomenal mountain and floral scenery abound, and there are great opportunities for climbing. The three highest points in the range, the Compassberg, Nardousberg and an unnamed peak in the Renosterberg, have all been happily climbed, not to mention a side-trip up Cockscomb which resulted in some vertigo-stress and more ericas than I know what to do with. Overall, I am sure the project will contribute to further botanical knowledge of our amazing Eastern Cape flora. 🌿



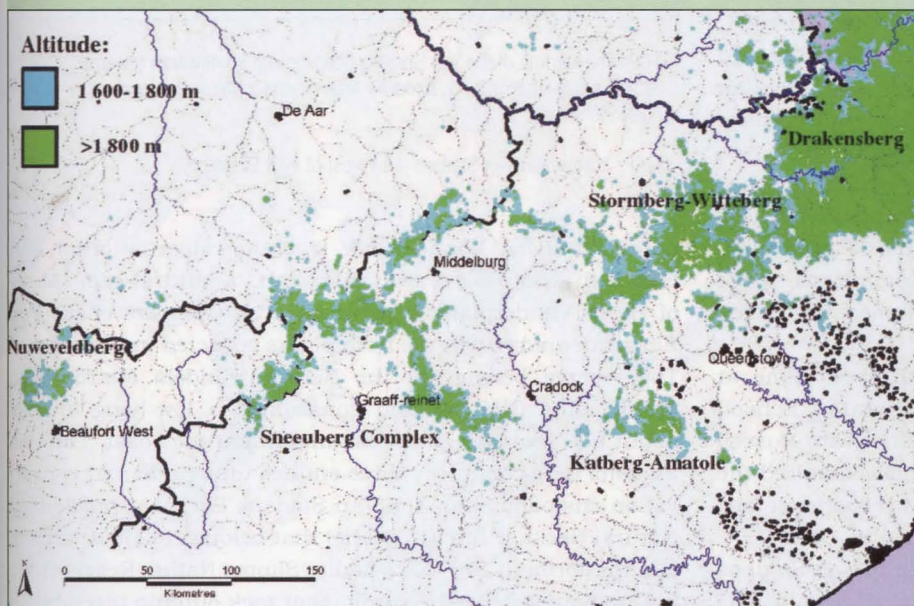
### Acknowledgements

The financial assistance of the National Research Foundation (NRF) towards this research is acknowledged. Opinions expressed are those of the authors and are not necessarily to be attributed to the NRF. Grateful thanks are made to the various landowners for access and permission to collect, as well as to the Selmar Schonland Herbarium and the various specialists and taxonomists who have assisted in plant identification.

RIGHT: *Guthriea capensis* (Achariaceae family) reaches its western limits in the Sneeuwberg. The plant is a high altitude species that confirms the Sneeuwberg's links with the Drakensberg. Photo: P. Weston.



BELOW: Map showing the altitudinal links and disjunctions along the Great Escarpment, south-east South Africa. (Thanks to Ms G. McGregor, Department of Geography, Rhodes University.)



### What does that mean?

**ancillary** Subordinate.

**disjunct** This describes plant species, usually endemic, that are found in two or more widely separated regions but nowhere in between. This implies that they represent the relicts of once widespread species.

**The Great Escarpment** The central plateau or high lying land that forms most of the interior of South Africa.

**montane** Occurring in mountainous country.

**endemic** A species occurring in one particular area only and nowhere else.

**biogeography** The study of geographical aspects of the distribution of plant and animal life.

**incipient forest** The early stages of forest growth.