CLIMBING CLIFFS IN THE KAOKOVELD

Botanical exploration in northern Namibia

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Botanical exploration is an integral part of our work at Kirstenbosch National Botanical Gardens. It connects us to remote and little known parts of southern Africa where we bring back herbarium specimens and material for cultivation. The collections are documented and each plant receives a dedicated number, the reference to all its details. They are then classified, studied and propagated for ornamental, conservation, educational, display or research purposes. Did you know that most ornamental garden plants today were first introduced from botanical gardens?

The Kaokoveld (in the Kunene Region) is situated in the north-western corner of Namibia where the Baynes Mountains are perhaps the most conspicuous feature. In the west the Kaokoveld is bordered by the cold Atlantic Ocean, in the north the mighty Kunene River, to the east the Ruacana-Kamanjab road and in the south the Hoanib River at Sesfontein. Inhabited by the Otjivahimba people, it is one of the last wilderness areas in southern Africa. No fences restrict the elephants and other wild animals that still walk free.

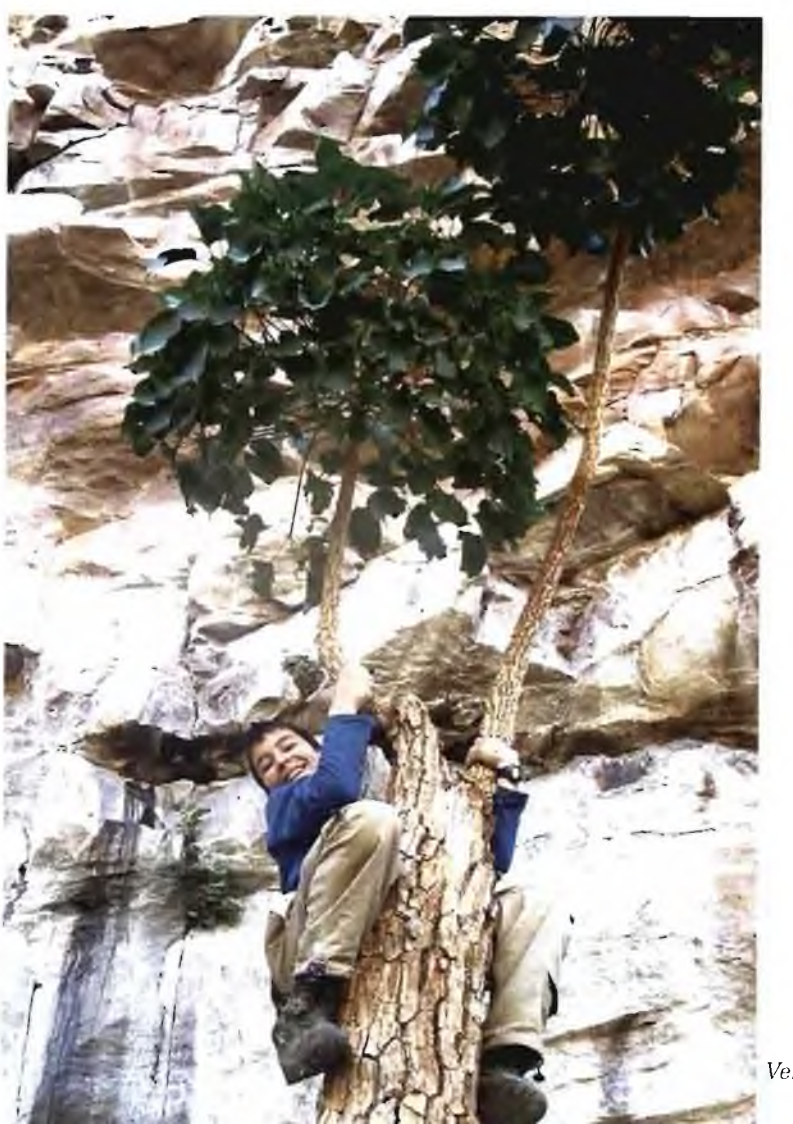
The vegetation

Generally, the vegetation of the Kaokoveld consists of arid savanna and desert vegetation. In southern African terms we would call it 'dry bushveld' and in this case 'mopane bushveld' or 'kanniedood veld' as there is an overwhelming predominance of *Colophospermum mopane* and species of kanniedood or *Commiphora*. To the west of the inland escarpment the area becomes increasingly arid with desert shrublands and the famous *Welwitschia mirabilis* also called 'tweeblaar-kanniedood' in its descriptive Afrikaans name that translates as 'two-leafed cannot die plant'!

The flora of the Baynes Mountains has been poorly explored, as it is seriously inaccessible. This mountain range continues northwards into Angola but is deeply dissected by the Kunene River so that it forms a deep, fairly straight gorge before entering the Atlantic Ocean. The upper plateau, with an average height of about 2 000 m, consists of hard quartzitic sandstone massifs fringed with impressive cliff faces. On the plateau, bushwillow (*Combretum)* and kanniedood or corkwood (*Commiphora*) woodland predominates.

Rainfall in the region occurs in summer and ranges between 50 and 500 mm, mainly as thundershowers, and increases with altitude. The western margin of the Baynes Mountains is occasionally subjected to coastal fog from the cold Benguela Current.

Roads in the Kaokoveld are not good and many parts are only accessible by 4x4 and lots of patience and endurance. Just getting to Epupa Falls on the Kunene River from Cape Town takes over three days. The Kunene is one of the largest rivers in southern Africa and the vegetation along its banks is literally a green belt of spectacular lala-palms *Hyphaene coriacea*, ana trees *Faidherbia albida*, sycamore fig *Ficus sycomorus*, jackal-berry trees *Diospyros mespiliformis*, various reeds and marginal aquatics. The Epupa Falls in the north-east is the most visited spot in Kaokoveld (yet astonishingly, it is threatened with submersion under a hydro-electric power scheme). It is a truly magnificent oasis with wild parakeets noisily visiting the campsite to feed on the palm nuts, and the most spectacular waterfalls.



Henk van Jaarsveld climbing an Angola cabbage tree *Cussonia angolensis* for herbarium specimens. This is the first cabbage tree (or kiepersol) record collected for Namibia.
Photo: Ernst van Jaarsveld.

The Expedition

During an earlier expedition to the Kaokoveld in July 2001, we (Ernst, Dr Carl Haumann and

Dr Anton Cilliers) inspected the upper cliff faces of the north-eastern corner of the Baynes Mountains near Epupa Falls. The only access to this impressive mountain range is by foot and on that occasion, we reached the lower cliffs but could get no further. However the cliffs were thoroughly inspected with binoculars revealing, amongst other things, an aloe that looked like *Aloe corallina*, which is commonly found elsewhere on cliffs but usually only on dolomite, not sandstone. As we had not brought climbing gear, we immediately set about planning another expedition to inspect this aloe, as well as to collect a specimen of the Kaoko spoorsalie or spur-sage (*Plectranthus unguentarius*) which, since its naming by Dr L. E. Codd, has never been re-collected. Ernst wanted to include an illustration of it in his latest book on *Plectranthus* which is being illustrated by Vicky Thomas. Ernst is also studying plants that grow on cliff faces, many of which support a uniquely adapted flora with great horticultural potential, and so another purpose of this new expedition was to study and document the cliff dwelling succulent plant flora of the little known Baynes Mountains and also to collect plants for the Botanical Society Conservatory in Kirstenbosch.

The expedition was to consist of the authors, with Anton Cilliers and Tobias Angula (National Herbarium Windhoek), Freddie van Wyk (Kirstenbosch) and Ernst's son Henk van Jaarsveld. We discussed our plans with Brummer Olivier, a local tour guide and terrain specialist from Epupa Camp, and he suggested a 4x4 track leading to Omavanda, the south-eastern outlier of the Baynes Mountains, and about 6 km from the cliffs. So, after arranging permits from the Namibian authorities, we left Cape Town and arrived in Windhoek where we stayed with Johan Wentzel from Wilde End Nursery. We left Windhoek on Monday morning for Opuwo where we stayed in a tent town and on Tuesday morning early, we departed for Epupa Falls where we camped below the northern lala palms trees *Hyphaene petersiana*. Once again we were struck by Epupa Falls - it is one of the most impressive spots in Namibia. The arid mopane bushveld ends in a conspicuous green belt of ana trees *Faidherbia albida*, brown ivory *Berchemia discolor*, river sandpaper fig *Ficus capreifolia* and baobabs *Adansonia digitata*. Flocks of rosy-faced lovebirds are ever present – busily eating the nutritious fruits of the lala palm trees. After briefly visiting Brummer Olivier, we departed the next morning for Omavanda.

Omavanda treasures

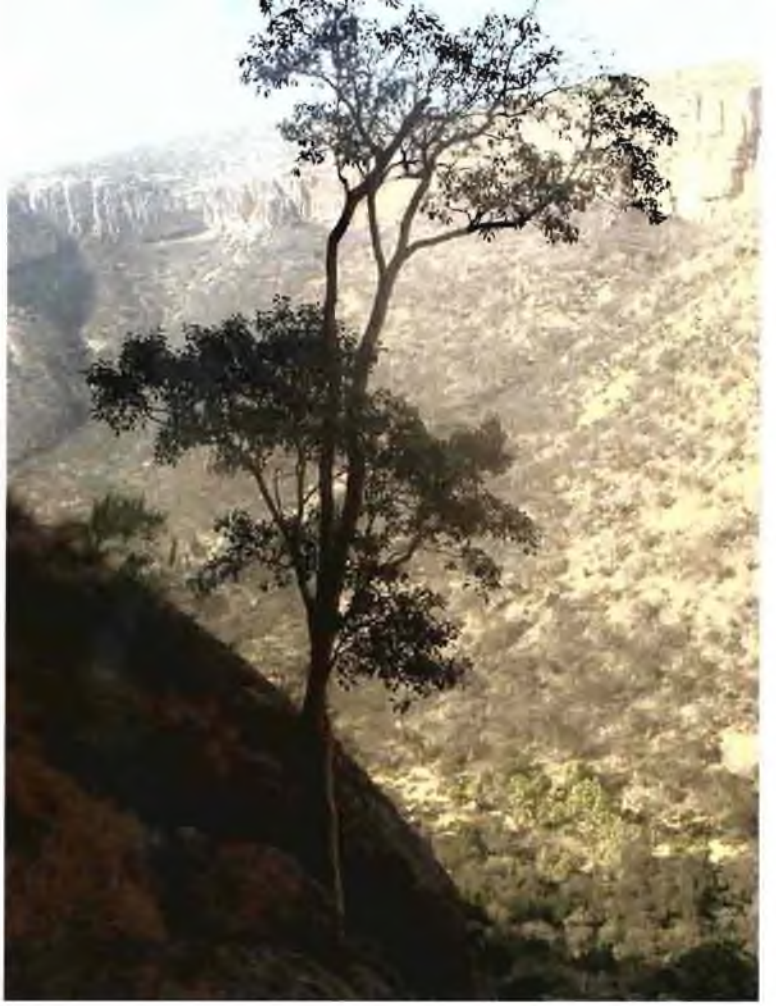
The 4x4 track passed impressive baobab *Adansonia digitata* trees, the giant ghaap *Hoodia parviflora*, pylgif (arrow poison) *Adenium boehmianum*, trumpet-thorn *Catophractes alexandri* and lots of cork bark or kanniedood (*Commiphora*) species. We reached the end of our track at midday and set up camp under a group of huge leadwood *Combretum imberbe* trees. Freddie and Tobias decided to stay at the campsite, and the rest of us departed at three 'o clock, when the intense midday winter heat had subsided a bit, walking into the west towards a valley surrounded by cliffs. Our aim was to set up camp just below the mountain and try to locate an access route early the next morning. Rainfall the previous season had been good and the dry grass was a soft yellowish colour - so typical of the region. We entered the dry riverbed at the base of the mountain and headed upstream, setting up our small tents below some hairy bushwillow *Combretum collinum* subsp. *gazense*

Above **The spectacular Epupa Falls.** Photo: Ernst van Jaarsveld.

Above **The giant ghaap *Hoodia parviflora*, growing in typical mopane veld, is occasionally encountered in the northern Kaokoveld.**
Below **The cliffs at Omavanda looking out from the hidden cave.**
Photos: Ernst van Jaarsveld.

trees. The valley was well watered and wooded with bushveld trees like the kanniedood *Commiphora edulis*. At various points we passed *Commiphora edulis* trees that had freshly chopped holes in their stems, with stones placed inside by the local Otjivahimba. Kaoko day geckos (*Phelsuma*) were ever-present.

Early next morning we headed up towards to the south-facing cliffs and worked our way up a small gully on the north-western side of the valley which brought us to the zone just below the cliffs. The cliffs had many hanging aloes (now we could see they were not *Aloe corallina*, but a similar one that might be a new species), spantou *Sarcostemma viminale*, *Kalanchoe lanceolata* and the pig's ear *Cotyledon orbiculata* var. *orbiculata* all well out of reach. We identified a possible route up the cliff face, our attention being drawn by a curious kiepersol-like tree growing on a south facing rock ledge. We walked closer and saw a possible access ledge to follow, which to our astonishment, led us to a huge cave partly hidden by the cliff. We also discovered a pool of fresh water neatly covered with branches by local Otjivahimba to protect their valuable source of water. We jumped with joy as water is so scarce during this time of year and has to be carried. At the cave, to our amazement, we were surrounded by all sorts of plant novelties and we soon realized that we had discovered a hotspot of plants not previously recorded for Namibia – further corroborating the fact that cliffs are the least-explored territories in the world.

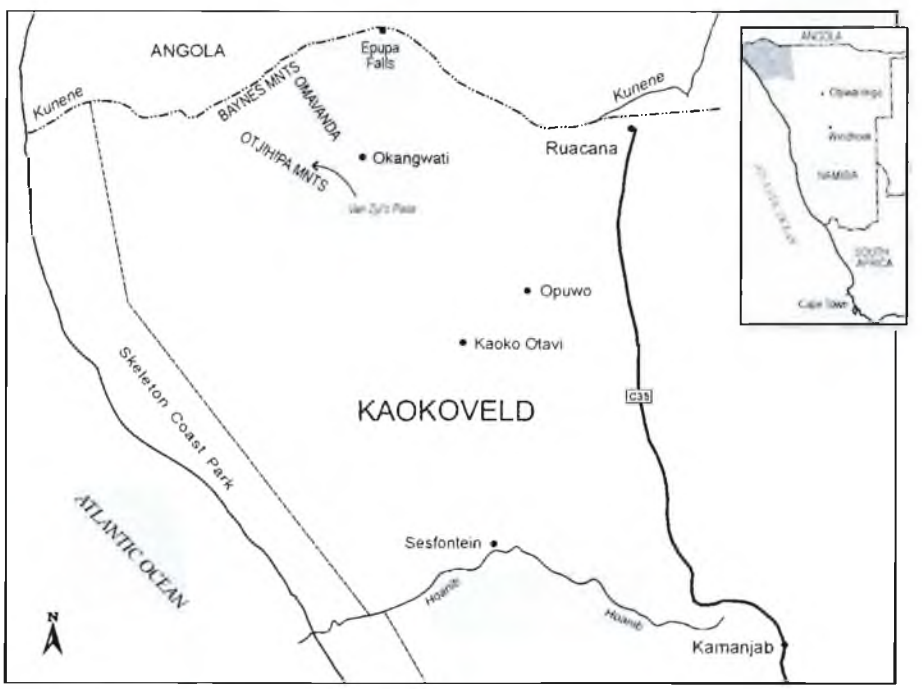


The bubu fig *Ficus bubu*, a large fig tree growing on the cliff face. This is the first time one has been recorded for Namibia. Photo: Ernst van Jaarsveld.

Growing from above the cave wall was a large leaved fig that I later realized was the bubu fig *Ficus bubu*. We first rushed to the *Cussonia* and identified it as the Angola kiepersol *Cussonia angolensis* - the first kiepersol record collected for Namibia. Near it was a strongly aromatic, softly succulent herbaceous plant resembling a *Plectranthus* which later turned out to be the Kaoko boulder-sage or Kaoko klipsalie *Aeollanthus elscholzioides* (illustrated opposite) previously known only from Angola. The Angola cabbage tree leaves could not be reached but with the help of the youngest and lightest member of our party (fourteen year old Henk) we got our specimens for the herbarium. Near the cabbage tree we noticed huge fig trees of the same type found near the cave wall. It was unmistakably the bubu fig, also never previously recorded for Namibia. These huge wild figs have characteristic yellow powdery bark and roots that wander along the rock face. Their leaves are large and conspicuous.

Also growing here were tobacco plants *Nicotiana tabacum*, probably planted by the Otjivahimba. Other interesting plants that we collected here included wild elder *Nuxia congesta*, *Manuleopsis dinteri*, *Plectranthus welwitschii* and a species of *Selago*, all in flower. Where water was dripping from the rock face, we found a maidenhair fern *Adiantum capillus-veneris*, as well as *Christella dentata* and *Pteris dentata*, the latter two being first records for Nambia. After photographing and collecting specimens and cuttings of various plants we started up the route to the top of the escarpment.

We discovered two safe routes that the Otjivahimba must have been using for ages in order to reach their water holes from above. The



route up the cliff face we took was safe but the aloes were still tantalizingly out of reach and we decided to first explore the escarpment and return for our aloe. The escarpment vegetation resembled the Magaliesberg and Waterberg flora of Gauteng and the Limpopo Province: rocky and sandy in parts and consisting of sour bushveld. We observed the round-leaved teak or bloodwood *Pterocarpus rotundifolius*, kudu-berry *Pseudolachnostylis maprouneifolia*, common wild fig *Ficus burkei*, tamboti *Spirostachys africana*, red bushwillow *Combretum apiculatum*, wait a bit tree *Ziziphus mucronata*, carrot tree *Steganotaenia araliacea*, cork bush *Mundulea sericea*, silver cluster-leaf *Terminalia sericea*, kudu berry *Cassine aethiopica*, purple-stemmed corkwood *Commiphora multijuga*, blue-leaved corkwood *C. glaucescens*, large-fruited bushwillow *Combretum zeyheri*, tall common corkwood *Commiphora glandulosa* and the wooden banana *Entandrophragma caudatum*. Succulent plants we observed included the milky spantou *Sarcostemma viminale* and Kaoko noors *Euphorbia subsalsa*. On the edge of the escarpment we also photographed a *Parkia* species also previously not known from Namibia, which resembles the wild syringa *Burkea africana*.

On our way back we stopped where we had spotted the aloes. I put on my climbing harness and with the help of my colleagues was able to collect the type specimen of the plant that was later named *Aloe omavandae* after the region where it was collected. We then headed back, packed up camp and met up with Freddie and Tobias by dusk. Freddie had prepared some food and after eating that, we headed toward Okangwati where we camped.

Our trip continued (some more about it in another article soon) westwards down Van Zyl's Pass. We also climbed a high peak in the Otjihipa Mountains looking for the Kaoko spur-sage *Plectranthus unguentarius*. Here we collected a large and interesting form of the zebra corkwood *Commiphora merkeri*. We also met up with Koos Verwey, a local tour guide, who helped us in our search for *Plectranthus unguentarius*. We went to Kaoko-Oktavi next, where we continued our search for our elusive *Plectranthus* but were unsuccessful. On our way back to Windhoek we visited Carl Hilker's Cheetah Research Station at Osananga, on the northern foothills of the Waterberg near Otjiwarongo. Here he showed us a huge leadwood tree *Combretum imberbe* and the Osananga lily *Lindneria clavata*.

We then left for Cape Town via Windhoek (to arrange permits) where we gave a talk on cliff dwellers to the local botanical society. As with most expeditions not all our goals were achieved (we never did find a specimen of *Plectranthus unguentarius*), but each trip brings other treasures and surprises (a new species in *Aloe omavandae* which has the same range as the dolomite endemic *Aloe corallina* but grows in a sandstone substrate), making it all most worthwhile.

Acknowledgements
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The Omavanda aloe *Aloe omavandae* our new species found on the cliff at Omavanda.

Right
The Kaoko klipsalie (boulder-sage) *Aeollanthus elscholzioides* is a beautiful *Plectranthus*-like plant with strongly aromatic leaves, previously known only from Angola.

Below
Pylgif (arrow poison) *Adenium boehmianum* encountered along the way.

Photos: Ernst van Jaarsveld.