We discover that this inaccessible, steep-sided river gorge in the Kaokoveld is not named Slangkloof for nothing – and make some interesting botanical discoveries.

The Slangkloof expedition

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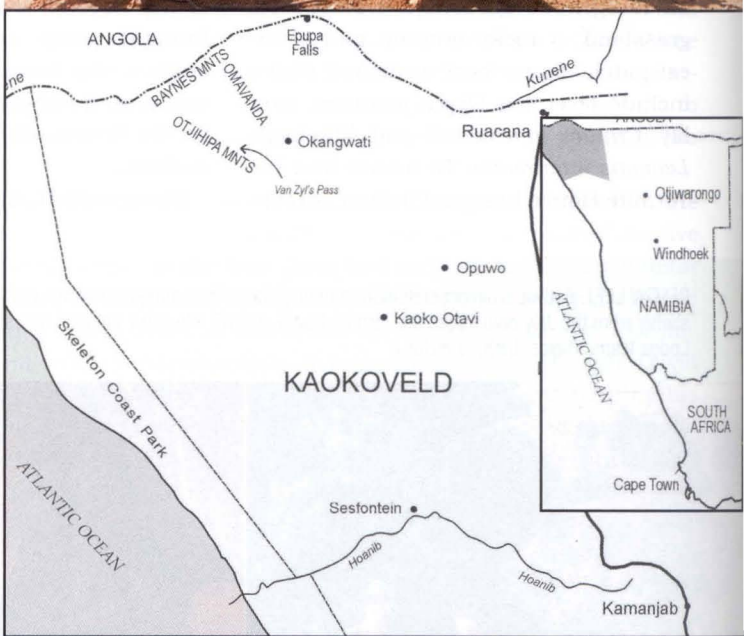
The quartzitic sandstone massif known as the Baynes Mountains is situated in north-western Namibia. Most of the vegetation there is dry savanna, with some afromontane remnants on the higher peaks (that reach 2 000 m) and semi-desert towards the Kunene River. I have been studying succulent plants that are adapted to growing on sheer cliff faces and on a previous expedition to the Baynes Mountains in the late nineties, several new species and new records for the sub-region were found, begging further botanical exploration.

The Slangkloof Expedition

On an earlier expedition to Kaokoveld we met a young British hiker at Opuwo who told us about a deep narrow gorge in the western Baynes Mountains with many cliff faces. My curiosity was immediately aroused at the possibility of exploring new cliff faces, especially when Garry said that he had had to swim some distance up this gorge, but was stopped by small waterfalls. He said that a rope would be necessary to get further up. So, back in Cape Town, I acquired the necessary maps and found the deep river gorge - the largest of the Baynes drainage lines. I worked out that we would be able to enter near Koakora Spring (Otjipemba) and follow a drainage line about 30 km from the Kunene that would lead us to the main river valley of Slangkloof. The latter joins the Kunene River to the north. From here if one followed the Kunene eastwards it would eventually bring us to an access road west of Epupa Falls.

I realized that we should preferably do the journey in mid-winter as flash floods in the gorge during the summer rainy season could be fatal. After arranging the necessary permits



TOP: Our party just before we started walking, from left to right Werner Voigt, Johan Hurter, Steven Carrs, Paul Ems and Wessel Swanepoel. Photo: Ernst van Jaarsveld. CENTRE: The Kaoko kobas *Cyphostemma uter* at a Himba dwelling. Photo: Ernst van Jaarsveld.
BELOW: Map of the Kaokoveld by Sally Adam, Technodraft.

from Nature Conservation in Windhoek we decided to plan our expedition for early July 2005.

The party would consist of myself (Ernst van Jaarsveld), Werner Voigt and Johan Hurter of SANBI and Paul Ems, a botany student from the University of the Western Cape, and we planned to collect Wessel Swanepoel and Steven Carrs in Windhoek. We usually plan our expeditions thoroughly, buying food, tents, mountaineering equipment and other necessary items, but this is not all one has to prepare. The most important part is spiritual preparation. You have a target, but first must 'digest' the idea, then plan and prepare for it in your mind, and then go for it, driven by a passion for your main object - in our case to discover more about the vegetation, especially the cliff vegetation, of our target area.

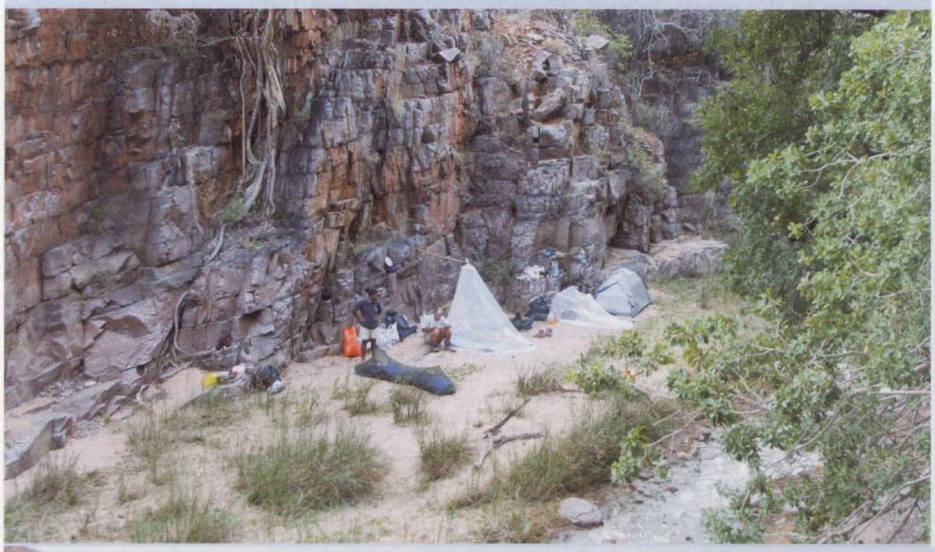
After packing our equipment and checking our 4x4 vehicle, we set off from Cape Town and stayed at our usual site that night - an old excavated ditch in southern Namibia. The next morning, *en route* to Windhoek, we stopped to inspect the groendoring, *Xerocladia viridiramis* an interesting thorny, *Acacia*-like shrublet common in drainage lines between Keetmanshoop and Helmeringshauzen belonging to a monotypic genus. *Acacia* specialist Johan Hurter pointed out various *Acacia* trees along the way.

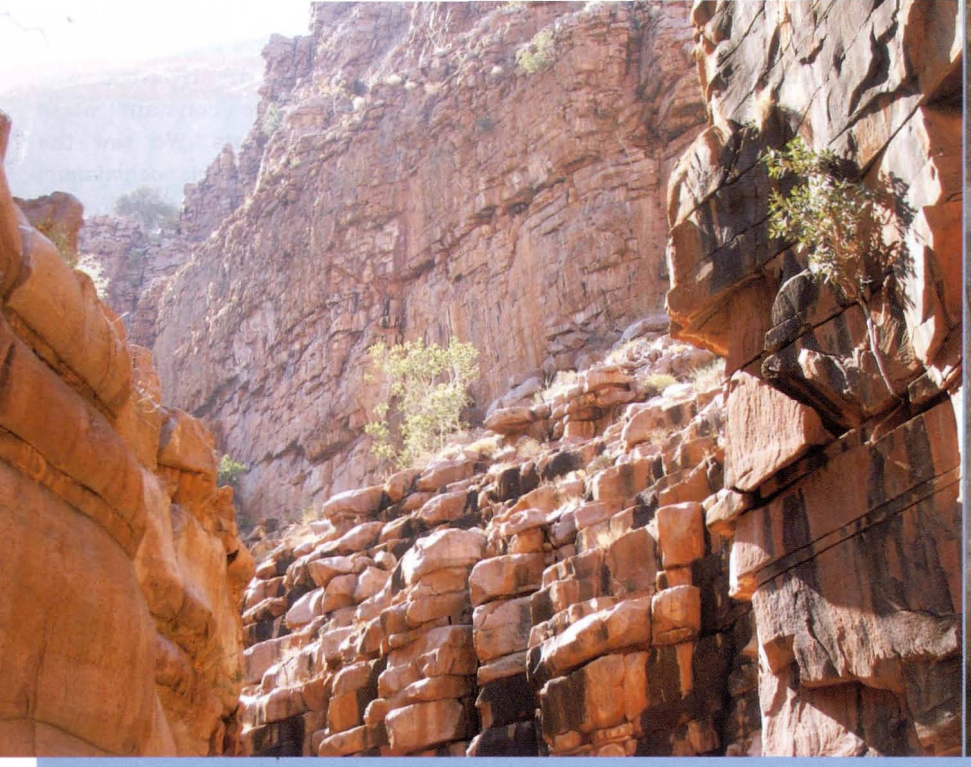
At Windhoek we were joined by Wessel Swanepoel, local tree and bird specialist and railway engineer, and Steven Carrs of the Botanical Research Institute in Windhoek. We reached the Kaokoveld late the following afternoon, camping between Opuwo and Okangwati in a dolomite region under a massive old mopane tree *Colophospermum mopane*. In spite of being very tired, for the first night or two one usually suffers from veldkoors (sleeplessness) - your built-in alert system while sleeping in a foreign environment.

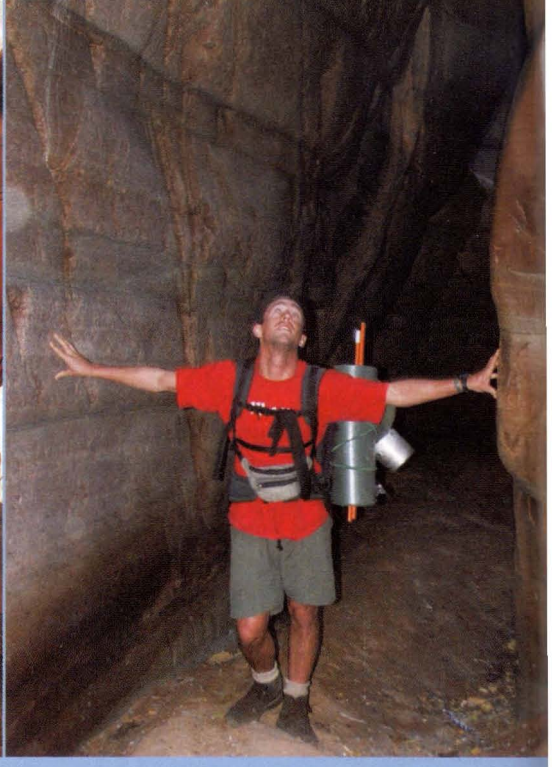
With plenty of food, mosquito nets, and water, we set out early on Monday morning. The 4x4 route was rather slow going and we reached Otjipemba, the start of our Slangkloof hike, in the afternoon. Johan dropped us near a huge baobab tree in a drainage line that connected with Slangrivier and Slangkloof. We tentively arranged with him to pick us up on Friday or Saturday along the road west of Epupa Falls, and started walking down the dry river-bed; our heavy packs quite unpleasant to carry but made a bit lighter with enthusiasm and adrenalin. The vegetation here mainly consists of mopane savanna dotted with members of the corkwood (*Commiphora*) genus as well as the occasional baobab tree (*Adansonia digitata*). The Afrikaans name for corkwood is kanniedood (cannot die) pertaining to its remarkable drought tolerating properties. If a branch is cut and planted, it simply roots. Species observed included the sand corkwood *Commiphora angolensis*, the blue-leaved corkwood *Commiphora glaucescens* and the purple-stem corkwood *Commiphora multijuga*. Our first surprise was the mopane orchid *Ansellia africana* that we found growing in a mopane tree. I have seen them before in Ovamboland but did not realize they occur so close to the Namib coastline, which was only about 100 km to the west.

Walking in the dry river-bed was pleasant, with the constant noise of rosyfaced lovebirds. We saw the beautiful pylgif *Adenium boehmianum* with its striking, light pink flowers, jackal-berry trees *Diospyros mespiliformis*, leadwoods *Combretum imberbe*, gemsbokhoring *Sansevieria pearsonii*, sterkbos *Terminalia prunioides*, luislangkambro *Fockea multiflora* and the bottle tree *Pachypodium lealii*. The small side stream eventually joined the main stream and it was not long before we spotted our second interesting plant. We noticed thickset succulent stemmed shrubs (3-5 m) or small trees on an exposed west-facing rocky embankment. These shrubs were in fruit with splitting capsules at the branch ends and remnants of old flowers. They were later identified as

BELOW: Camping in the sandy river-bed. To the left, just exposed, is the broom cluster fig *Ficus sur.* Photo: Ernst van Jaarsveld.
BOTTOM: Slangkloof was wide when we started but narrowed down considerably later on. Purple-stem corkwood *Commiphora multijuga* can be seen on the right. Photo: Ernst van Jaarsveld.







LEFT: The cliff face at Slangpoort, the quartzitic sandstone rocks on the left worn smooth by water action during floods. Photo: Ernst van Jaarsveld.
RIGHT: Paul Ems in the narrow, dark part of the gorge at Slangkloof, where it took us a full day to cover 5 km! Photo: Ernst van Jaarsveld.

belonging to the genus *Hymenodictyon*, commonly known as brandbos because of its fiery red autumn colour. These shrubs are deciduous, but our species still had remnants of old leaves. Apparently it had only once before been recorded from Namibia. Growing close by was the Kaoko-naboom *Euphorbia eduardoi*, a group of baobabs and the hairy rock fig *Ficus glumosa*. As it was late afternoon we decided to camp there as there was also a water-hole and here we realized that water was not going to be a problem. We could also now study the plants more carefully.

The second day we covered a huge distance, walking on Himba paths that saved us energy and time. We soon came across some Nguni cattle and then met the Himba cattle herders. They were very friendly and the younger of the two decided to join us for a while and show us the water. It was not far he explained, but we walked at least 12 km before we got to his site! Along the way we crossed another Himba village where the villagers all asked for pain relievers. Marula trees *Sclerocarya birrea* subsp. *caffra* and the beautiful Kaoko kobas *Cyphostemma uter* were growing here.

At last we reached the site of the flowing water and our Himba friend left us. The gorge was now becoming narrower and zigzagging its way through the Baynes Mountains. Shortly after another major side stream joined our gorge, it became very impressive. We now regularly encountered running water. It was getting late and as soon as we found a suitable site with soft sand adjacent to a cliff, next to running water and a group of *Ficus* trees we decided to set up camp. We were very surprised to find among these wild figs the broom cluster fig *Ficus sur* which had never been recorded from Namibia. It was growing alongside the sycamore fig *Ficus sycomorus*, bubu fig *Ficus bubu*, hairy rock fig *Ficus glumosa* and laurel rock fig or Namakwa klipvy *Ficus ilicina*. Other plants we encountered included the water nuxia or 'watervlier' *Nuxia oppositifolia*, tamboti *Spirostachys africana* and matjiesgoed *Cyperus textilis*. We immediately named our campsite Vyepoort (fig pass).

The deciduous propeller tree *Gyrocarpus americanus* on the cliffs above was in full fruit with gemsbokhoring *Sansevieria pearsonii* growing among them. We were not alone, as we saw fresh leopard spoor and were surrounded by the ever-present, noisy chacma baboons. The baboons kept us awake at night with their screams and the noise of rock falling as they moved along the loose scree. We were also entertained at times by the Kaoko dassies' (*Procavia welwitschii*) most distinctive call and Wessel Swanepoel pointed out the Cape eagle owl (recording the northernmost distribution record for them at the same time). Even during midwinter the nights were warm and fortunately we were never bothered by mosquitoes.

The next morning (Wednesday) we started early and the gorge got narrower with steeper and higher cliffs. For the first time we had to walk through water or along the higher ground to the side. Plants we came across included the knobbly climbing bushwillow *Combretum mossambicense*, wild pear *Dombeya rotundifolia* and the Angolan tree nettle *Obetia carruthersiana*. Steven Carrs decided to take a short cut up a short cliff where he found a snake in a rock crevice, which I immediately identified as the Angolan dwarf python (*Python anchietae*). I was very exited as it is a colourful snake that I have always wanted to see in habitat. It looks very like the normal python, but smaller, with slightly domed scales. Its colours vary from black, yellow, white and red. The snake hid its head within its coils just within the crevice. When I tried to get my fingers behind it to dislodge it, it puffed itself up, and I now understand how well it is adapted to living on cliffs. Like the girdle-tailed lizards, they hide in crevices and their dome-shaped scales help anchor them in when they puff themselves up, making it virtually impossible to dislodge them. Dassie-rats (*Petromus typicus*) and Kaoko dassies are common and would form part of the snake's diet as well as the rosyfaced lovebirds nesting in the rock crevices of the cliff face. Very

little is known about this small python that reaches about 1.5 m in length when fully grown. We took photographs and left the animal in peace.

The gorge became steeper and huge cliff faces stared to appear. The large-leaved star-chestnut *Sterculia quinqueloba* was common among the boulders and cliff face base. These are impressive large (winter deciduous) trees with a characteristic cream to pinkish bark. After a long narrow deep part the gorge suddenly opened out with a huge south facing cliff in front of us. It was midday and we decided to stop and camp here to enable us to explore the cliff that afternoon - our curiosity being greater than our tiredness at the thought of a new climb and cliff to explore.

Exploring the cliffs

Along the only access route up to the large south facing cliff face we found bushveld maiden hair fern *Adiantum incisum*, bospoeierkwas *Scadoxus multiflorus* and a yellow flowering species of *Jamesbrittenia* with the blue sweetberry *Bridelia cathartica*, Angolan tree nettle *Obetia carruthersiana*, blue sourplum *Ximenia americana*, Kaoko red bushwillow *Combretum oxystachyum* and shepherd trees *Boschia albitrunca* on the steep rocky slopes. Snakes were common everywhere. This was quite amazing as we usually see very few snakes. Werner was photographing a rosyfaced lovebird in a shepherd tree when, from the corner of his eye, he spotted a black mamba stalking the same bird. Black mambas are territorial but usually not aggressive and can often be found basking in the sun in the tree tops.

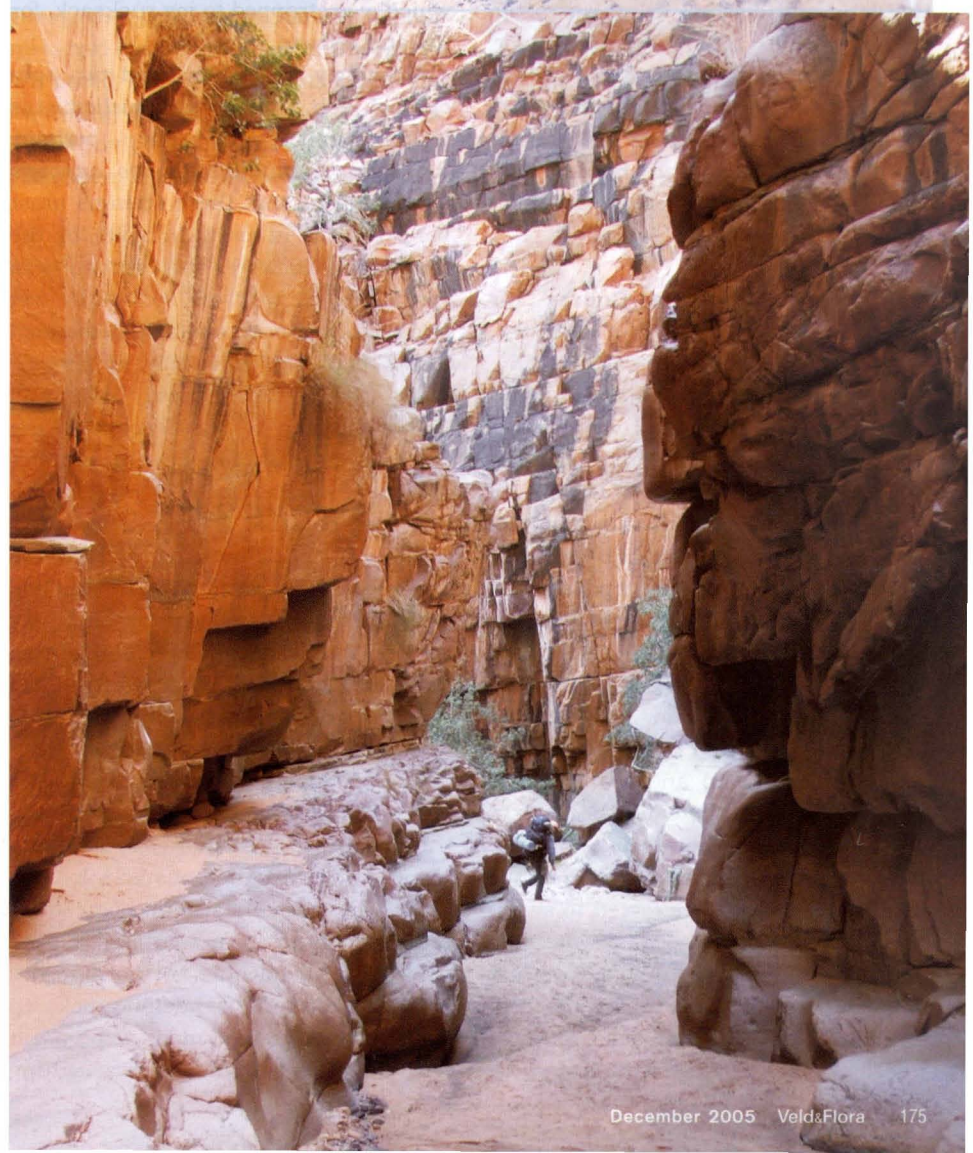
We made our way further up the steep slope to the base of the cliffs, seeing more and more snakes, including the fast sand or whip snakes (*Psamophilus*). Eventually we reached the base of the cliff. I couldn't believe my eyes - yet another surprise awaited! Some aloes we had seen from below and thought to be the Omavanda cliff aloe *Aloe omavandae*, were actually a different but related species. They were almost without leaf spines, with pendent, solitary heads bearing soft, flaccid, faintly spotted oblong leaves.

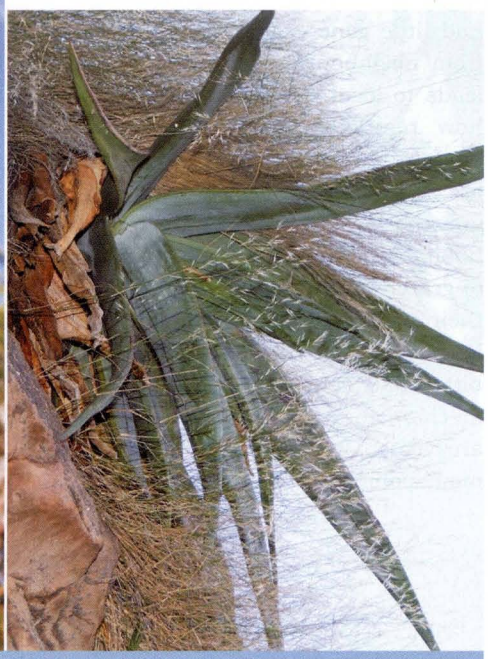
In spite of the hot dry climate of the Kunene Valley, the water run-off (especially on the cliffs) is great, but the plants manage to absorb sufficient moisture to survive. Also, the upper southern cliffs of the Baynes Mountains are cooler and retain moisture longer. There appears to be local in-breeding and little gene exchange (out-crossing) from neighbouring populations, which leads to local speciation. It is amazing how restricted in distribution some of these cliff aloes are. Although they are so well adapted with their pendent growth, they are 'exiles' on their cliff face habitat where they are out of the reach of grazers. Consequently they have lost their armaments and are almost spineless, nor have they the characteristic bitter aloe sap - a chemical defense mechanism. Aloe flowers in this region are visited by the dusky sunbird, the main pollinators. Although the seed is wind dispersed, chances of a successful landing in a rock crevice and establishment are small. In spite of this, they have survived for thousands of years, trapped in their specific habitat. If seed should germinate on an accessible site below (or above) the cliff it would surely be grazed by the klipspringer, dassies or baboons.

Also growing with it was a klipsalie *Aeollanthus* species from which we collected cuttings. The plants were without leaves so it was difficult to decide on its identity. At the base of the cliff we again also found *Scadoxus multi-*

RIGHT: The very rare dwarf Angolan python *(Python anchietae)* wedged in a crevice on a cliff face. Its dome-shaped scales help anchor it in making it virtually impossible to dislodge. Photo: Ernst van Jaarsveld.

BELOW: Slangkloof narrowing into the 'death trap' - with Werner in the background. Photo: Ernst van Jaarsveld.





LEFT: The vlambos *Combretum platypetalum*, a shrub with striking red flowers.
RIGHT: Our new species, the cliff-hanger aloe that we encountered at Slangpoort. Photos: Ernst van Jaarsveld.

florus. Among the loose rocks we saw a beautiful adder-like western-keeled snake (*Pythonodipsas carinata*) with its distinct keeled scales. It did not mind being handled and photographed. We did not reach the plateau as it was getting late, and decided to return to the campsite where we noticed the 'spoor' of a large African rock python (*Python sebae*) disappearing into some huge boulders. That night we were once again entertained by the characteristic sound of the Kaoko dassies, but slept like logs.

Slangpoort Obstacle Course (or death trap)

The next morning was most exciting, as the gorge was getting narrower and we did not know what we were in for. The map showed at least another 5 km before we reached the end of the mountain. The gorge became darker and narrower with less vegetation because of the lack of sunlight. We stood amazed at the natural rock sculptures, colours and amphitheatres - the quartzitic sandstone rocks often smoothly polished by the water action. We saw big tree trunks jammed high above our heads (up to 20 m) and realized how dangerous this gorge could become in the rainy season - there being no quick escape route. We came to long stretches of water where we were forced to swim, as well as small cliff faces (or waterfalls during the rainy season) where we had to use our ropes. We were surprised to see lots of skeletons of dead animals - dassies, snakes and birds – we were in a real death trap. Above we could hear and see the occasional rosyfaced lovebird where they nest in the cliffs. We came across a live (but also trapped) western keeled snake. I felt sorry for it and placed it in my sock inside my boot, which was strapped to my rucksack, for its later release.

Amazingly we also noticed two species of fish, the small ghieliemietjie (*Barbus*) and a larger one - perhaps the Kunene mudfish (*Labeo ansorgii*) - that told us that these streams must be perennial in part. In spite of the tremendous beauty, this section was very tiring as we were constantly wet and cold, and each obstacle demanded a new approach as to how to get our heavy gear safely across. There was little vegetation to see because of the intensity of the water flow in summer and the low light. One part was so dark and cave-like that we saw lots of bats fluttering around as they entered the crevices below a small cliff. On the cliffs high above, where light reaches, we noticed kranssporrie *Heliophila*, blue flowered Herero spursage *Plectranthus hereroensis*, wild figs *Ficus bubu* and *F. glumosa* and, occasionally, red and yellow tongklappers (species of *Petalidium*) and a yellow flowered *Jamesbrittenia*.

Every time we thought we were through, yet another obstacle loomed up but suddenly the cliffs become lower and opened up. We were out of the cold and wet, but into the hot and dry Kunene valley. The sandstone rocks on the dry river embankment were warm from the day's sun and as it was getting late we decided to camp at the mouth and dry our clothes, sleeping bags and equipment on the hot rocks. In spite of placing our rucksacks in huge survival plastic bags, water managed to infiltrate into everything (except our cameras which were in a special waterproof container). We also released our temporary captive western-keeled snake. Although this was the shortest part of our hike, it had taken us the whole day.

The Kunene walk

On Friday morning we started early as we still had to walk for two days to get to the road along the Kunene River where Johan was waiting for us. The vegetation was exposed, with the occasional mopane tree, and it was very hot and dry. The vegetation consists mainly of the Kunene granaat *Rhigozum virgatum*, Kunene black thorn *Acacia mellifera* subsp. *mellifera*, purple-stem corkwood *Commiphora multijuga*, rock corkwood *C. saxicola*, slender corkwood *C. virgata*, phantom tree *Moringa ovalifolia*, Kaoko shepherd's tree *Boschia microphylla* and gifnoors *Euphorbia virosa*. We followed our dry river-bed until it reached the Kunene. Here we went inland, always following Himba trails, and followed this route for about 18 km -up and down valleys and past breathtaking scenery and the occasional spring where we could re-fill with fresh water - until we crossed an old unused road which brought us again to the Kunene River where we camped that night under an ana tree *Faidherbia albida*.

On Saturday morning we walked until the late morning to the dry stream-bed where we had arranged that Johan would pick us up. He came late that afternoon and we left for Epupa Falls where we camped the night. The next morning we fetched Wessels' vehicle at Otjipemba where we had left it – which took us almost the whole day. That evening we reached Swartbooisdrif where we camped – now ready to start on the second part of our expedition - the Caprivi.

Ovambo, Kavango and Caprivi

The next part of our journey took us via Ruacana through Ovamboland to the Caprivi. Our objective was now to collect seed and plant material for Kirstenbosch and the Lowveld National Botanical Gardens. Or route through Ovamboland took us past dry shonas (pans), ever-present lala palms, scattered sycamore trees *Ficus syco-*

morus, large stands of gemsbokhoring *Sansevieria pearsonii*, Ovambo aloes *Aloe angolensis* (formerly *A. esculenta*), pan-noors *Euphorbia monteiri* and the occasional Karoo mother-in-laws-tongue *Sansevieria aethiopica*. Johan pointed out some flood-plain thorns *Acacia kirkii* with their distinctly knobbly fruit, and the sand thorn *Acacia arenaria* with long slender pods. Near Oshikango the area became sandier and the vegetation abruptly changed to tall, dense fabaceous woodland. We camped east of Eenana in dense vegetation consisting of the large false mopane *Guibourtia coleosperma*, kiaat *Pterocarpus angolensis*, Kalahari podberry *Dialium engleranum*, silver cluster-leaf *Terminalia sericea,* camel thorn *Acacia erioloba*, Zambezi teak *Baikiaea plurijuga, Burkea africana,* ordeal tree *Erythrophleum africanum,* purple leaved albizia *Albizia antunesiana,* blade thorn *Acacia fleckii* and the flame thorn *Acacia ataxacantha*. This vegetation remained with us until the Kavango River in the Caprivi.

Our first stop en route to Poppa Falls was for the beautiful pink bauhinia *Bauhinia urbaniana*. We collected some seed from this shrub that resembles the red bauhinia *Bauhinia galpinii* but has pink or white flowers. Another surprise was the sight of the striking red-flowered vlambos *Combretum platypetalum* flowering in midwinter when it should be deciduous! (Surely this shows it has tremendous horticultural potential?) We reached the Poppa Falls campsite late that afternoon. Now to find our target species - the Kavango spursage *Plectranthus mirabilis*. Fortunately we found many of them on the islands and embankments, often growing among *Cyperus papyrus* plants. It is a tall spindly shrub 2-3.5 m high with blue flowers This *Plectranthus* is unique among the southern African *Plectranthus* species in that it bears flat, winged seed that is clearly wind dispersed.

We explored the 'falls' (merely small rapids!) and islands. Growing in the riparian forests we noted safsaf willow *Salix mucronata*, coastal wild-medlar *Vangueria randii,* sausage trees *Kigelia africana*, northern dwaba berry *Friesodielsia obovata*, camel's foot *Piliostigma thonningii*, lance-leaved waxberry *Morella serrata*, pink tassel-berry *Antidesma venosum*, sandpaper-raisin *Grewia flavescens* and the candle-pod acacia *Acacia hebeclada* subsp. *chobiensis*.

Another of our target species was the Caprivi mother-in-law's tongue *Sansevieria longiflora,* which Willi Giess, the well known Namibian botanist, had earlier recorded in the region. We could not re-locate this plant and eventually had to return to Windhoek, after briefly stopping for *Guibourtia coleosperma* seed. The next day we spent waiting outside the South African embassy for an emergency passport for Werner. Werner's kit had been stolen near Epupa, and his rucksack stolen while we were having coffee in Rundu so he had nothing but the clothes he was wearing! The passport arrived by late afternoon. We returned very early on Friday, having achieved our main purpose - exploring the Slangkloof cliffs and obtaining some propagative material of *Plectranthus mirabilis*.

Acknowledgements

We are thankful to Dr Gillian Maggs Director of the Botanical Research Institute for providing the necessary permits, help and encouragement.

RIGHT: The Kavango spursage *Plectranthus mirabilis* was one of the main reasons for coming to Namibia.
BELOW: The pink bauhinia *Bauhinia urbaniana* resembles the red bauhinia *Bauhinia galpinii* but has pink or white flowers. Photos: Ernst van Jaarsveld.