South Africa: Drakensberg, Cape Town and Kirstenbosch

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Report for RHS Bursaries and the Merlin Trust

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All photography used in this report is by Becky Cross, unless otherwise stated

Front cover: *Disa uniflora*

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Figure 1: View of Sani Pass

Part I
Introduction

1 Personal Introduction

I have always had a particular interest in plants from Mediterranean regions of the world, especially South African flora; since working professionally in various botanical gardens this passion has increased. Although there are gardens in the UK with spectacular collections of Mediterranean flora, nothing gives the same sense of understanding than seeing plants *in situ*. What really drives my enthusiasm for Mediterranean plants is the fact many species can be grown in the UK; I grew up in Devon and was astonished when I first learnt many of the plants which grow in the South West come from countries like South Africa and New Zealand.

2 South Africa: Drakensberg, Cape Town and Kirstenbosch

The first part of this trip was a guided tour of the Drakensberg and Cape Town regions of South Africa, organised by Mediterranean Plants and Gardens (MPG) and led by Elsa Pooley. I arranged to extend the trip and stayed on in Cape Town for a two week work placement at the Kirstenbosch National Botanical Garden, to make the most of the opportunity. Our time in the Drakensberg was spent botanising, exploring the rich plant life in the wild. The following days were spent in Cape Town, where we visited private and botanical gardens. In Kirstenbosch I worked with Adam Harrower and his team, in the Conservatory, private glasshouses with extensive succulent collections, the Mesem beds and Mathews' Rockery.

Our guide in the Drakensberg, Elsa Pooley, specialises in conducting small groups of plant enthusiasts on botanical tours in South Africa; she has an intimate knowledge of the flora and has written the definitive book on the flora of the region. In Cape Town Elsa was joined by

Figure 2: The Drakensberg

Charlie Ratcliffe, an accredited guide for the area. He grew up in Cape Town and was incredibly knowledgeable about its history and geography, with a keen interest in indigenous flora and fauna of the Cape.

3 Mediterranean Plants and Gardens: MPG

Mediterranean Plants and Gardens is an association for people with a particular interest in the flora and gardens of Mediterranean climates. It embraces concepts of sustainable gardening such as matching plant species intelligently to their environment and giving particular attention to economical use of water. Members enjoy visits to gardens in the Mediterranean and UK, many of which are rarely open to the public, as well as botanising trips abroad.

I have been a member of MPG since 2015 and a committee member since 2017. The committee of volunteers includes a Tours Committee which organises visits in the UK and abroad and a Bursary Committee for the running of the MPG Bursary Fund.

4 Aims and Objectives

- To increase knowledge of South African flora
- To increase knowledge of South African species suitable for cultivation in the UK
- To increase understanding of conservation projects abroad
- To increase understanding of how botanical gardens are managed abroad
- To learn propagation techniques for a variety of plants
- To share knowledge with the wider world of horticulture

My main aims during this trip are to gain a better understanding of the native South African flora, the varying habitats in which it grows and how it can be cultivated. I also hope to observe species already established in UK gardens and develop my overall plant knowledge and identification skills, recognising and researching species I am familiar with as well as discovering new plants. Trips like this are valuable to gain an understanding of where certain species grow and their required habitats, as well as to distinguish the differences between similar species.

During my work placement at Kirstenbosch I am hoping to gain a good understanding of how the garden operates on a daily basis, and the important conservation work it does in the wider community. Working alongside some of the leading horticulturists on South African flora will allow me to absorb their knowledge and learn about the Cape's famous, unique flora (fynbos).

Part II
South Africa

5 Drakensberg

5.1 Flora

The Eastern Mountain Range is centred on the mountains of Lesotho including the Maloti and Thaba Putsoa ranges. It includes the southern and northern Drakensberg in KwaZulu-Natal. The dramatic broken landscape of the escarpment and the harsh climatic conditions on the highlands of Lesotho account for the remarkably diverse plant life with about 2,200 species and almost 400 endemics. The flora of these high mountains is a centre of plant diversity of global botanical importance.

The summit of the Drakensberg, which averages an altitude of 3,000 metres, forms an almost inaccessible boundary between Lesotho and South Africa, with sheer cliffs falling 1,200 metres in places. This beautiful area can be very bleak until the plants respond to rain and warm summer temperatures with a burst of colour, flowers carpeting the sheet rock and marshy ground on the summit. The grasslands can be transformed into fields of flowers in response to fires, often started as a result of rock falls or lightning as the area has the highest lightning strike rate in southern Africa.

Many of the Drakensberg and Lesotho plants are already well known to gardeners in the northern hemisphere. Some were introduced to horticulture in Britain and Europe by intrepid explorers and collectors as long ago as the late 1800s. Although mostly unknown in gardens of southern Africa, many plants such as *Rhodohypoxis* species, *Euryops acraeus* and *Delosperma nubigenum* are popular and available to gardeners in Europe, Britain and the USA.

5.2 Climate

The region is alpine in terms of climate rather than vegetation. The average annual rainfall ranges from 635mm in parts of Lesotho to 2,000mm on the escarpment. The average temperature of the warmest month is below 22 **°C**. The alpine belt, above 2,800 metres, is cool to hot in summer and cold to freezing in winter. Snow can lie on the ground for three months or more and there are daily frosts in winter with mist occurring throughout the year.

Winds are extreme on the summit and on the face of the escarpment, this accounts for the summit vegetation - cushion forming dwarf shrubs. Larger woody plants are restricted to sheltered places at lower altitudes. Storms are severe.

Figure 3: *Kniphofia linearifolia*

5.3 Geology

The region was formed by massive volcanic activity in the Jurassic period resulting in basalt lavas covering most of the Lesotho plateau and the upper face of the escarpment with dolerite intrusions. It overlays the softer Cave Sandstone (Clarens Formation) which is exposed as cliffs and overhangs below the escarpment and in great wind-sculpted boulders in the south.

The soils are black, very rich; thin on the summit plateau, deeper on the foothills. In summer the soils on the summit are often waterlogged and in winter they freeze every night. The freeze and thaw heaves the soil and stones making it an unstable habitat for plants. This activity also causes the crescent-shaped scars on mountain slopes lower down.

6 Western Cape

6.1 Flora

Fynbos is famous not only for the diversity and unusual composition of its plant species but also for the sheer beauty of many of its wildflowers. This unique vegetation is synonymous with the southern tip of Africa, where it occupies a crescent of country at the toe of the continent, reaching from the plateau above Vanrhynsdorp in the northwest to the city of Port Elizabeth in the southeast. Long recognised as the smallest of the six floral kingdoms of the world, this region is now more properly known as the Cape Floristic Region and is home to one of the world's richest floras.

Fynbos is the dominant vegetation of the southwestern Cape, occurring in several bands along the west and southern Cape coasts. Although generally easy to recognise, fynbos is not as readily defined. Not only does it contain a diversity of plant communities itself, but fynbos also shares the Cape Floristic Region with several other vegetation types, including renosterveld, karroid shrubland, various thicket types and forest.

As a whole, fynbos is most inclusively defined as an evergreen, hard-leafed shrubland oc-

Figure 4: Our drivers up Sani Pass

curring on nutrient-poor soils, especially those derived from heavily leached sandstones or limestones; dominated by small and leathery-leaved shrubs associated with evergreen, grass-like perennials; and comprising essentially members of plant groups that are characteristic of the Cape Floristic Region. The five largest fynbos families are *Erica, Protea, Restio, Citrus* and *Phylica*.

6.2 Climate

The climate in the southwestern Cape is moderated by its proximity to the ocean, and is predominantly maritime, with mild winters and moderate summers. The average midwinter temperature throughout the region varies between 7 and 15 **°C** in July, increasing to midsummer highs between 15 and 25 **°C** in January, except for the inland valleys where temperatures can soar into the late 30s or early 40s in summer.

There is little chance of frost in winter, although the flanking mountains are usually dusted with snow in winter, this is of short duration. Rainfall is highest in the mountains of the south-west and southern Cape, where it averages more than 1000mm per year, but varies between 250 and 650mm over most of the region. Persistent, strong south easterly winds in summer are important not only in cooling the coastal areas but also in bringing moisture, in the form of clouds.

6.3 Fire

Fynbos is a fire-adapted vegetation and evidence suggests that, in the absence of regular fires, all but the drier fynbos types would become dominated by trees. Fynbos can thus be viewed as a fire-dependent vegetation type, along with grasslands and savannas. The infertility of fynbos soils means that the recycling of nutrients is essential for fynbos survival, fire is the motor that drives this cycle. Fires rejuvenate the vegetation by removing moribund growth and recycling previous nutrients back into the soil.

Figure 5: Members botanising in Sani Pass

They also remove the choking canopy that has grown up during the intervening years, allowing light to reach the soil surface. Sunlight that reaches the soil surface after a fire stimulates the germination of a flush of annuals and short-lived perennials, whose seeds have often been primed by chemicals in the smoke itself. Fynbos regrowth is largely through the germination of seeds, plants with this strategy are known as "reseeders", and their prevalence in fynbos distinguishes it from other fire-regulated vegetation types.

Fires are more common in fynbos that in any of the other heathlands around the world, occurring optimally every 10-14 years. This is a result of the extreme flammability of the dried, often intricately branched shrubs and restios, and it is rare to find strands of fynbos vegetation that are more than 20 years old.

7 SANBI: South African National Biodiversity Institute

SANBI plays a leadership role in generating, coordinating and interpreting the knowledge and evidence required to support policies and decisions relating to all aspects of biodiversity. Biodiversity richness is one of South Africa's greatest assets in terms of landscapes, ecosystems and species for human wellbeing and survival of the planet.

The institute's mission is to explore, reveal, celebrate and champion biodiversity, and is the only institution in South Africa mandated through the National Environmental Management: Biodiversity Act (NEMBA) to establish, manage, maintain and develop national botanical gardens in the country. So far, SANBI has successfully managed 10 national botanical gardens as windows to South Africa's biodiversity for education and enjoyment of all people.

8 Kirstenbosch National Botanical Garden

Kirstenbosch, flagship of SANBI, was established in 1913 to conserve and promote the indigenous flora of southern Africa. It is internationally acclaimed as one of the greatest botanical

gardens of the world. Situated on the eastern slopes of Cape Town's magnificent Table Mountain, the estate, covering 528 hectares, includes a cultivated garden and a nature reserve. The developed garden (36 hectares) displays collections of southern African plants including many rare and endangered species.

Jan van Riebeeck, commander of the Dutch East India Company, surveyed the forests here in October 1652, and appointed the first forester Leendert Cornelissen, in 1657, to protect the forests and to supply the Company with timber. Van Riebeeck planted the hedge of Wild Almond trees in 1660 to mark the boundary to the settlement. He also established many fruit trees, wheat lands, and trees like oaks and chestnuts. During the 1700s the land was owned and used for timber by the Dutch East India Company.

After the 2nd British Occupation (1806) the land was bought by the Colonial Secretary Henry Alexander and his deputy Colonel Christopher Bird, who built a brick bath at the spring in the Dell. During the 1800s Kirstenbosch was a farm, owned by the Cloete family; very good wine was produced by their vineyards. The last private owner of the land was Cecil John Rhodes, who bought it in 1895 for £9,000 to protect the eastern slopes of Table Mountain from urban development; he planted the avenue of Camphor trees.

Figure 6: *Protea dracomontana*

Kirstenbosch was left to the nation in 1902 when Rhodes died, and on 1st July 1913 it became a botanical garden dedicated to the cultivation and study of the indigenous plants of South Africa. Professor Harold Pearson, a Cambridge botany graduate, was appointed first Director and established the Cycad collection at Kirstenbosch. Mr J. W. Mathews, who trained at the Royal Botanic Gardens Kew, was the first Curator and he was responsible for the layout of much of the Garden, including the Dell, Koppie, Cycads, Main Lawn, Vygie beds, and Mathews Rockery.

8.1 Name

The origin of the name Kirstenbosch is a mystery. It was first called Leendertsbosch in 1657, when granted to Leendert Cornelissen for 15 years. By the time the British drew up an inventory of all the former Dutch East India Company land in 1795, it was called Kirstenbosch. The name suggests a link to the Kirsten family, meaning Kirsten Forest, and although there were a number of Kirsten families in the Cape at that time, no records of a Kirsten leasing or living at Kirstenbosch have been traced.

Another possible explanation is that it is a corruption of the Dutch for cherry orchard (kersen bosch) referring to a plantation of cherry trees near the old Company caretaker's house, shown on the first survey map drawn in 1802-3.

Part III
The Drakensberg

9 Arrival: Cedar Gardens B&B, Underberg

Weather: Sunny, 25 °C

Altitude: 1,700 metres

After a long overnight journey followed by a domestic flight from Cape Town to Durban, our group arrived at the airport in time for lunch, met by our guide for the trip, Elsa Pooley. After a well-deserved lunch we set off to Underberg in the Southern Drakensberg, a village on the edge of the Maloti Drakensberg World Heritage Park, where we would spend a couple of nights at the Cedar Gardens B&B.

I enjoyed taking in the surroundings as we drove to Underberg, it reminded me of the Scottish Cairngorms in a strange way. Green, fertile grasslands and forests with undulating mountains around every corner. Seeing the landscape for the first time cemented the translation of Drakensberg, which comes from the Afrikaans word "dragons" meaning dragonous mountains. After a pleasant drive we arrived at Cedar Gardens and had time to freshen up before dinner in a local restaurant just down the road, which served all kinds of dishes, including delicious seafood. We each had individual lodges, dotted around the lovely gardens - I was fortunate enough to have a great room-mate for the entire trip, Gilly.

10 Sani Pass

Weather: Sunny, 28 °C

Altitude: 2,874 metres

We set off promptly in the morning after meeting our drivers - Stuart, Neil and Mondli - who would be taking us safely up Sani Pass to Lesotho, in 4x4 vehicles. Sani Pass is world famous, the mother of all South African mountain passes, photos do not do it justice - the higher we climbed up the snaking gravel tracks, zigzagging through the awe-inspiring mountains, made the first full day of the trip one of the most memorable. I can see why the Zulus call the jagged peaks of the Drakensberg uKhahlamba, meaning "a barrier of spears".

The Sani Pass road connects the KwaZulu-Natal town of Underberg with Mokhotlong in Lesotho.The beginning of our drive was slow as there were roadworks at the start of the Pass; it is being tarred completely, going from dirt tracks to tarmac. This process will take five to ten years to complete and will open up Sani Pass to a vast new audience, hopefully boosting local tourism. The roads were narrow with no guardrails, even though we were driving on the edge of the mountain we never felt unsafe, our group had unanimous faith in our drivers - they were unbelievably careful and intuitive of the road conditions.

Our ascent was full of plant stops, there was a plethora of flora to see. Even though I wasn't familiar with most species in the Drakensberg, most of the plants we encountered are parents to many plants found in northern hemisphere gardens. Seeing proteas growing wild was a highlight throughout the trip, even more prevalent on our first day. *Protea dracomontana* was a firm favourite, a dwarf protea very common on grassy slopes over sandstone.

It was interesting to observe how the flora changed with the geology as we gained altitude, the sandstone was replaced with basalt the further we climbed. *Buddleja salviifolia* was a very tactile plant, with woolly leaves that were velvety white underneath. *Cussonia paniculata* grew amongst the cliffs and contrasted with the proteas, its blue-grey foliage accentuating the vivid

Figure 7: *Disa cephalotes* ssp. *cephalotes*

green landscape.

We came across marshy ground overflowing with *Kniphofia linearifolia* and *Gunnera perpensa*. Elsa said we were very fortunate to see this area at its peak as it is only in flower for about a week, when the water is at a certain level. Seeing *Kniphofia linearifolia* in such a large colony was stunning, a sea of orangey-yellow amidst green green mountains. Our halfway point was the South African border control post; this was an experience, in two days I acquired more stamps in my passport than I have in two years.

From this control post to the summit at the Lesotho border control was where the serious ascent happened - at times it was like being in scenes from an action film. Very steep gradients with loose rocks were waiting for us, but the 4x4s coped easily. Residents from Lesotho still use donkeys extensively as their primary mode of transport, although we didn't see any we did spot one determined local carrying a stack of firewood on his back up the Pass; if we'd had room in the vehicles we would have offered him a lift.

Figure 8: *Gladiolus flanaganii*

The most daring plant we saw was *Gladiolus flanaganii*, also known as the "suicide gladioli" - referring to the difficulties of getting close to this species. It has deep red flowers, and is

Figure 9: Jeanette with *Helichrysum adenocarpum*

only found hanging horizontally from crevices of wet basalt cliffs. It has adapted itself for pollination by the malachite sunbird. Due to its inaccessibility binoculars were very handy! *Eucomis schijffii*, a miniature eucomis found in wet rock faces, also enjoyed the company of cliffs - again we used binoculars to appreciate its dark red-purple flowers.

Dierama dracomontanum dominated a particular area of grassland, its habit very care-free in the harsh surroundings. This species is a good garden plant, with pink-coral flowers. *Brownleea macroceras* was a striking orchid, growing on damp rocky grass cliffs. I straddled a stream to get a good close-up, it seemed familiar and I later found out it is cultivated as an alpine species. Its sweetly scented white-lilac flowers have an attractive long spur and are pollinated by the long-tongued fly *Prosoeca ganglbaueri*.

Moraea brevistyla was very delicate, also found in damp grassland areas. Its flowers were tiny, white-lilac blue above with purple beneath and striking yellow with brown spots on the inner tepals. *Zaluzianskya microsiphon* was a gorgeous member of Scrophulariaceae, microsiphon meaning "small tube". It is a perennial herb, found in rocky grassland, with a long dense inflorescence - pink-red outside and white inside. *Disa cephalotes* ssp. *cephalotes* was an orchid which had a scabious-like appearance, with a round, compact inflorescence bearing white flowers with purple-red spots on the hood. It was one of my favourite disas of the whole trip.

Jamesbrittenia breviflora was an unusual sprawling herb, found in grassy rocky places. Its stems and leaves had sticky hairs, its leaves were also aromatic. The solitary flowers were bright red with a vivid yellow centre. *Pterygodium cooperi* was another orchid, found at higher altitudes below cliffs and on steep wet grass slopes. Its flowers were white, flushed pink with age, with a band of dark speckling within the hood. Its flowers had a sharp scent, an unexpected surprise when crouching down to sniff the inflorescence.

I have always been fascinated by plants living at altitude. Their ability to survive extreme conditions like intense UV rays, buffeting winds and fluctuating temperatures never ceases to fill me with awe and respect. I wasn't disappointed with the species we saw on the Pass, it blew my mind seeing such a diversity of flora in one area, in one day.

As we neared the summit the hairpin bends gave way to spectacular views, we were blessed with beautiful sunshine and scenery to match. A series of distinctive pinnacles on the main escarpment named the "Twelve Apostles" were iconic, this image instantly springs to mind whenever I reminisce of the Drakensberg. More passport stamps were required at the Lesotho border control post, which meant we had reached the summit, before we made our way to our accommodation for the night at the highest pub in Africa - Sani Mountain Lodge.

It is situated on the edge of the escarpment and has breathtaking views of the Pass and mountains below - the atmosphere was amazing, quirky history and graffiti adorned the interior walls. It isn't a cheap place to stay because it is the only proper accommodation at the summit, but for one night it was affordable. Elsa said we were lucky having such clear weather as the previous plant group she brought here had mist for the whole trip and could barely see the lodges let alone the view.

Figure 10: *Brownleea macroceras*

Just after we arrived at the Lodge a group of bikers turned up, which pleased me - I am a biker and as soon as I saw Sani Pass I had an itch to hop on a motorbike and ride to the top... A storm arrived as we were having dinner, thunder, lightning and monsoon rain for most of the night - a complete contrast to the days' sunshine, classic mountainous weather to end our first day.

11 Lesotho (pronounced Le-soo-too)

Weather: Sunny and cloudy, 25 °C

Unfortunately the morning after our first day I awoke feeling very grotty, with virus symptoms - sore throat, headache, blocked ears and nose. Apparently the change in altitude can affect people badly and if a virus is lingering in your body chances are it will break out when the immune system is low and adjusting to altitude. Elsa said I wouldn't feel better until we left Lesotho and went down the mountains but I pressed on and enjoyed the day still - it just meant listening and talking were a challenge!

Almost all the plants on the summit in Lesotho are endemic to the mountain kingdom, we saw different species compared to yesterday, spending the morning exploring the summit and beyond. *Massonia echinata* was growing flush to the ground, peeking above the gravel - it is found in gravel patches over rock sheets, often at summit plateaus. The leaves are covered in soft prickles, green above and purple below.

Helichrysum adenocarpum had attractive flowers with glossy red-pink bracts, a good garden plant found naturally in grassland on moist slopes. One of the group members, Jeanette, was perfectly poised resting on a rock with hoards of *H. adenocarpum* round her feet. *Cotyledon orbiculata* was another inaccessible beauty, a succulent shrublet found on steep cliffs. It was

Figure 11: *Gladiolus saundersii* - photo by Jorun Tharaldsen

only easy to spot thanks to its branched orange inflorescence, visited by sunbirds; another popular garden plant.

Figure 12: Elsa with local children in Lesotho

Helichrysum pagophilum was a fantastic compact, cushion-forming dwarf shrub, pagophilum meaning "lover of crags". Its leaves were overlapping, a huge rosette of grey silky-woolly foliage. I could see it colonising every crack and crevice in my garden. *Berkheya cirsiifolia* was a glowing example of Asteraceae, a stout perennial herb growing up to 1.5 metres tall. Found on moist grassy slopes, with soft hairy stems and leaves, very thistle like in appearance. The flowerheads were white-yellow, with very leaf like bracts bearing spines.

Crassula setulosa var. *setulosa* had small mats of leaf rosettes, found on damp cliffs and rocks. The flowers were in small terminal clusters, white petals with a distinct appendage and pink buds. *Papaver aculeatum* was first seen up Sani Pass but a particularly good clump was seen today. It is found in rocky places, in scrub and among boulders in riverbeds, widespread in South Africa. It is covered in stiff yellow spines and hairs, orange-red flowers were especially eye-catching amongst the beige rocks.

Gladiolus saundersii is always found in extremely inaccessible places, the specimen seen at

Figure 13: View from Giants Castle

Lesotho required crossing a fast-flowing riverbed which I had to avoid - blocked ears and balance don't go well together! A few members made the crossing and returned with successful photos which the rest of us enjoyed. The flowers of *G. saundersii* are large, downward facing and bright red with white speckling on the lower tepals. They are also edible and eaten raw in salads, alas we didn't have a taste-test.

Phygelius capensis was found near a stream but much easier to see thankfully. Its scarlet, tubular flowers were a welcome splash of colour in the stream gully where it was growing. Nearby was *Cuscuta campestris*, an annual parasitic plant also known as golden dodder. It consists mainly of leafless, smooth, yellow twining stems and was a tangle of tendrils smothering its host.

We made our way back to Sani Mountain Lodge for a quick lunch before our descent down Sani Pass - going down was more of a white-knuckle experience than going up, at times it felt like we were on the edge of the world. *Helichrysum aureum* was the highlight going down, its bracts shining golden-yellow in the sunshine.

By the time we reached lower altitude my ears were cracking like popcorn with my chest sounding like I smoked 50 cigarettes a day! I declined the dinner invitation and chose to rest in my room instead, sleep and plenty of fluids were the best remedy.

11.1 Birds seen at Sani Pass and Lesotho

- Greater Double-collared sugarbird
- Cape Rock Thrush
- Bush Blackcap
- Malachite sunbird (green)
- Cape Vulture

- Bearded vulture

12 Travel day: Cedar Gardens to Giants Castle

Weather: Cloudy and humid, 26 °C

I wasn't feeling my perkiest but with a day of driving from Cedar Gardens in Underberg to our next two-night stay at Giants Castle Game Reserve in the Northern Drakensberg, I could relax and doze off in the bus… waking up for plant stops of course. We saw many roadside beauties, our first stop included *Kniphofia gracilis* and *Kniphofia laxiflora* growing en masse, the latter had an elongated inflorescence tapering gradually to the tip, with various shades of flowers: orange, yellow and salmon pink. It was wonderful to see such an array of colour in this kniphofia colony.

Figure 14: Myself with *Dierama latifolium* - photo by Celia Jones

Watsonia confusa was in the same area, a tall robust plant growing in clumps just at the edge of the road, in moist grass. Its bright pink flowers cheered up the roadside no end, a great garden plant. Two *Brunsvigia* species were seen, the first *B. undulata*: a large inflorescence held on a tall erect stalk, covered in deep red flowers, was unlike anything we had seen on the trip so far. A world away from the alpine plants at higher altitude.

B. radulosa was very similar in habit, except its flowers were pink and leaves thicker and rougher, more prominent than *B.undulata* - both marvellous examples of Amaryllidaceae. We stopped for lunch in a shopping village, Elsa uses its cafe regularly for her plant group tours as it is very friendly with a good menu choice and books for sale.

I hadn't had much of an appetite over the past few days however I saw something on the menu which truly delighted me - a gluten free pizza! I'm coeliac and the gluten-free diet has become popular in the past couple of years which is great for me as it makes eating out easier and more enjoyable. It was definitely one of the best pizzas I've ever tasted.

Before we reached Giants Castle we had one last stop, for *Dierama latifolium*. It was growing in clumps in the open grassland, hard to spot the waving stems at first but the closer we went the more plants we saw. Its habit has a very lyrical quality, the pale pink flowers moving to the tune of the breeze. Giant's Castle is situated on a grassy plateaux on the ridge of a deep valley below the sheer face of the high Drakensberg. The reserve was established in 1903 and is 34,638 hectares in extent, forming part of the uKhahlamba-Drakensberg Park World Heritage Site.

Figure 15: *Brunsvigia radulosa*

We arrived in good time and freshened up in our individual thatched chalets before dinner in the main building. The surroundings were very peaceful, with views of the 3,000 metre escarpment around us however we were warned to keep our doors and windows shut at all times because the local baboons were very territorial… luckily they didn't disturb us.

13 Giants Castle

Weather: Warm and cloudy, 24 °C

Altitude: 1,600 metres

I was feeling much more myself today, apart from the phlegmy cough the rest of my symptoms had gone thankfully. We had a fabulous walk to the Main Caves and back, it was only a few kilometres but we stopped frequently for plants and had a guided tour at the Caves of the Bushman rock art. *Protea caffra* was the dominant vegetation, decorating the valleys the deeper we went into the wooded areas - it is the most widespread *Protea* species in South Africa. Some specimens were flowering, with bright pink or cream bracts. On some of the older trees the bark was very thick and fissured, almost like cork oak (*Quercus suber*).

Elsa told us of a traditional African remedy to cure blocked sinuses: stuffing the leaves of *Artemisia afra* up the nose, I had to be the guinea pig and try it. My nose streamed after having the leaves up my nostrils for ten minutes, so it did work! One particular helichrysum we saw, *Helichrysum hypoleucum*, is grown successfully at the Royal Botanic Garden, Edinburgh. It's bizarre to think I saw it in the wild before seeing it in cultivation - usually it is the opposite. Its bright yellow flowers were similar to *Helichrysum umbraculigerum*, however the inflorescence of the latter looks umbrella like when turned upside down - a fun identification tip.

Once we entered the montane forest around the caves we came across hoards of *Streptocarpus gardenii*, much to my delight. *Streptocarpus* were one of the first houseplants I started growing and still grow to this day - my plants at home paled in comparison to their wild cousins however. They mainly colonised the mossy damp rocks, pale violet flowers complementing

Figure 17: Myself using *Artemisia afra* to cure blocked sinuses - photo by Jorun Tharaldsen

those of the orchid *Stenoglottis fimbriata*, which were lilac-pink. A winning combination, an idea to take away and replicate in a miniature stumpery at home maybe…

Figure 16: *Streptocarpus gardenii* with *Stenoglottis fimbriata*

Kiggelaria africana, the wild peach, was in the forest area near the caves. Its fruits were on the ground, rough and knobbly with shiny black seed in a red coating. Another tree in the same area was *Olinia emarginata*, with striking brown-yellow bark, flaky and tactile. The guided tour of the caves and Bushman art was a great insight into this otherwise lost culture.

It was hard to comprehend how old the paintings were yet so well preserved. No one knows exactly how old the paintings are, but the oldest are probably more than 500 years old. The Drakensberg is one of the richest rock painting areas in the world, with spectacular images. Most of the artists were hunter-gatherers who are often called Bushmen or San. Archaeological excavations of this shelter at Giants Castle show that hunter-gatherers lived here from at least 5,000 years ago until the 19th century.

The materials used in the paintings are all local; blood, rock or soil rich in rust (ferric

Figure 18: Local guide with cave art

oxide) provide reddish brown. Charcoal provides the black, while white is created with bird droppings or clay. Melted beeswax or egg-white was used to mix with the pigment to make the paint but the Bushmen must have had a secret ingredient that made the paint last so long! They probably used the hair of the black wildebeest mane or tail attached to a reed as a paintbrush and pointed bones when they needed fine definition.

The paintings gave us a sort of picture-book of the past history and told a lot about how these people lived and what they considered important - most of the paintings were of animals. The eland were drawn big and important, signifying how much they meant to the Bushmen - it was the most important food source and there were more pictures of eland than any other animal.

Some researchers once thought that the art was simply decorative and a record of daily life. Today we know that hunter-gatherers did not separate their religious and everyday beliefs and activities rigidly, and the art shows these beliefs in a complex way. I enjoyed seeing the cave art immensely, a good cultural excursion to break up the botanising walk.

The walk was circular and we returned along the bottom of the valley, at the same level as the rushing mountain river. We noticed a plant growing in the middle of the water, *Gomphostigma virgatum*, a silvery looking shrub with white flowers which is often found in fast-flowing water. Another orchid we spotted had a ghostly appearance, *Disperis fanniniae*; its flowers were white and deeply hooded, resembling a skull from certain angles. It is pollinated by oil-collecting bees, *Rediviva colorata*.

On our return we went past the famous "Rock 75": from June to September 1874, troopers of the 75th regiment under the command of Colonel A.W. Durnford camped at this site. During their four month stay, various attempts were made to blow up the Bushman's river pass and other mountain passes in the area, to prevent the movement of the Amahlubi tribe and their cattle from Natal into Basutoland. The regimental cook carved the figures "75" into this rock as a reminder of this regiment's occupancy of the valley and it remains well known to this day.

Figure 19: *Gomphostigma virgatum*

My favourite grass we saw during the trip was prevalent at Giants Castle, *Harpochloa falx* also known as the toothbrush grass because it looks remarkably like a little toothbrush! It's architectural and not too large, we all admired it. We spent a few hours before dinner completing our "plant homework". This is an activity which Elsa does with all her plant groups, if the members are also inclined to do so of course.

It involves sitting down together and going through a printed list of all the plants mentioned in Elsa's Mountain Flowers book and marking down which plants we saw on which day, which was tremendously helpful. It saved getting my notebook out every minute during our walks as I knew we would identify the plants we saw each day later on and thus making identifying photos easier too.

The plant homework happened most evenings, even though I have only mentioned it today; the full list can be viewed at the end of this report. I will finish with a saying found on one of the rocks during the mornings' walk:

"Climb the mountains and get their good tidings. Nature's peace will flow into you as sunshine flows into the trees. the winds will blow their freshness into you, and the storms will give you their energy; while cares will drop off like autumn leaves." by John Muir

14 Travel day: Giants Castle to the Cavern

Weather: Sunny, 32 °C

We left Giants Castle and journeyed to the Cavern, about two hours drive away nestled into the foothills of the northern Drakensberg, in the Amphitheatre World Heritage Site (adjacent to the Royal Natal National Park). Just before we left Elsa showed us a fantastic clump of *Xerophyta viscosa*, growing at the top of a steep rocky area at the back of one of the chalets. Some of the group scrambled up to get a closer look, myself included - the deep mauve-magenta flowers, lightly speckled black, were worth the early-morning exercise.

Once on the road we had some memorable plant stops, including a short trek to the bottom

Figure 20: View of the Drakensberg

of a river valley to see *Hesperantha coccinea* growing by the waters' edge. Seeing a very familiar garden plant in its natural setting was a joy to behold. *Persicaria lapathifolia* grew alongside the hesperantha, a widespread annual herb. *Salix mucronata* ssp. *woodii* had short yellow flower spikes, a pretty willow.

Berkheya setifera was as cheerful as a sunflower in the sunshine, bright golden-yellow flowers looking picturesque against the clear blue sky. Our second stop was shorter, mainly to see the colony of *Eulophia welwitschii*, a lovely yellow orchid found in marshy areas. Its flowers were large, some a pale-lemon, others a brighter yellow, with a red-purple lip. *Xysmalobium undulatum* had fun, large inflated fruits covered in long soft hairs, you couldn't miss it. *Schizoglossum atropurpureum* ssp. *atropurpureum* had rich chocolate-brown flowers which aptly smelt of caramel.

We arrived at the Cavern with enough time to settle in and look round the beautiful gardens. It is a resort and spa, the most luxurious accommodation we had in the Drakensberg - we even had WiFi which everyone made the most of! The Cavern is nationally recognised by KwaZulu Wildlife as a Site of Conservation Significance for conserving rare, endangered and endemic species.

Figure 21: *Eulophia welwitschii*

Figure 22: *Pellaea calomelanos*

It has many walks and trails through nearly 3,000 hectares of natural mountains.

Figure 23: *Begonia sutherlandii*

It has been run since 1941 by three generations of the same family, hence the whole set up was well organised. Some notable plants in the gardens included *Podocarpus falcatus*, a huge tree which gave splendid shade: *Kniphofia northiae*, named after Marianne North: and an iconic cycad, *Encephalartos ghellinckii*, which is endemic to South Africa.

15 Royal Natal National Park

Weather: Sunny then storms and rain, 24 °C
Altitude: 1,700 metres

The plan was to explore the Royal Natal National Park, and trek up to the Amphitheatre, seeing plants en route. The park has an interesting history dating back many years: in 1836 while exploring Basutoland, two French missionaries first discovered Mont-Aux-Sources, literally the mountain of sources (of the rivers). In 1908 the idea of establishing a National Park in this

Figure 24: Exploring the Royal Natal National Park

area was conceived, and the territory was explored by Senator Frank Churchill, General Wylie, Colonel Dick and Mr W. O. Coventry.

Recommendations were put forward but it was not until 1916 that the Secretary of Lands authorised the reservation of five farms and certain Crown Lands, totalling approximately 8,160 acres, and entrusted it to the Executive Committee of the Natal Province - in September 1916 the National Park came into being and an advisory committee was appointed to control the park.

Once the Amphitheatre lay at the centre of the supercontinent Gondwana. Then, 140 million years ago, the greatest lava flow of all time erupted here, solidifying into basalt. This same volcanism fractured Gondwana, and continental drift carried Antarctica and Australia away, leaving Africa with brand new coastline only 100 kilometres from the Amphitheatre. Since then, erosion has cut back into the Drakensberg, where the last of the Gondwana landscape remains. The "dragon's teeth" appearance of the Drakensberg from below is due to the different speeds with which the rivers cut back into the Amphitheatre face - the actual top is relatively flat.

The local weather forecast predicted a storm at midday so we felt confident in trekking a short part of the Tugela Gorge, within the Royal Natal National Park, to see the views and flora, however the rain started earlier than anticipated.... Then came the thunder and lightning! It was a total contrast to how it had been just an hour or so before. We had been very fortunate up to this point, as the previous storms had arrived in the night and cleared by the morning.

We saw *Ilex mitis*, the only African holly and a particularly huge *Protea caffra* which also had near-perfect flowers. The proteas are larger in the Drakensberg than in the fynbos, due to summer rainfall - in the Western Cape they have winter rains, hence smaller shrubs. *Helichrysum cymosum* was seen everywhere on the slopes, a silver ground-cover. Africans burn it to keep the spirits of ancestors safe.

A cute fern was *Pellaea calomelanos*, common in South Africa. It had eye-catching, grey-

green foliage, found in rock crevices. *Monsonia attenuata* was in tight bud as there was no sun but this meant its distinctive purple net-veined marks on the underneath petals were visible, contrasting with the white flowers. Clumps of pure white *Galtonia candicans* rose straight out of the bracken vegetation, it can grow up to 1.5 metres tall. Galtonias are endemic to South Africa, and have been cultivated in Britain since 1862 - an excellent garden plant.

The surroundings became more atmospheric, with the mountains shrouded in mist, and the rain getting heavier and more dramatic by the minute. We did get very wet but I enjoyed it; seeing and feeling the rains in the humid wilderness made me appreciate the sensational flora which grows in these conditions even more. We had shelter for a short while in the forest, it was here we saw *Begonia sutherlandii* and *Streptocarpus pentherianus*.

The latter had flowers smaller than my fingernail, absolutely adorable! *B. sutherlandii* had several red-orange flowers, it's easy to see why it's such a popular container and garden plant. *Ledebouria cooperi* was strewn over some of the pathway, the debris was most likely caused by baboons as they like to eat the bulbs. Unfortunately we didn't make it to the Ampitheatre as the monsoon rain made the pathways too slippery to continue. Alas the weather was beyond our control.

Figure 25: *Streptocarpus pentherianus*

An early arrival at the Cavern meant the afternoon was free for us to relax, I was tempted to try out the swimming pool but I'd already had an outdoor shower that day! The rain eased off by 4.00pm, meaning I could enjoy the gardens again and explore the vast interior of the resort, which included a Games Room and Wine Cellar. One of the group members, Cathy, celebrated her birthday yesterday and we only found out today - she didn't get away with it however! The staff at the Cavern danced and sang happy birthday around the table at dinner, it was a joyous performance.

16 Travel day: the Cavern to Witsieshoek via Golden Gate Highlands National Park

Weather: Cloudy, humid 20 °C

We said goodbye to the Cavern and set off for Witsieshoek (pronounced vit-see-hook) Mountain Lodge, a small inn run by the local community in collaboration with a Peace Parks (trans-frontier) company. We passed the impressive Sterkfontein Dam (third largest dam in South Africa) before entering the Golden Gate Highlands National Park, currently the only grassland National Park in South Africa. The name 'golden gate' originates from the two cliffs that face each other on either side of the road: at sunset, the yellow sandstone becomes a rich gold colour.

It was a sparse day for flora but a rich one for fauna, including our first zebras and ostriches of the trip - it felt like we were on safari. Other wildlife included black wildebeest, springbok,

Figure 26: Beautiful cliffs in Golden Gate Highlands National Park

Figure 27: *Hibiscus trionum*

Figure 28: *Eucomis bicolor*

blesbok and eland antelope, as well as many birds we couldn't identify. We saw the wildlife from a distance, however binoculars turned the dots into detailed creatures. I enjoyed seeing the eland the most as it made me connect to the cave art seen at Giants Castle and gave the paintings new meaning.

We stopped at a shopping village for lunch, at a place called the Highlander - it had very good food, with big portions and tasty Illy coffee. I didn't buy anything in the shops but it was fun to wander around and be a tourist for a bit. Plant highlights were a hibiscus and pelargonium, both seen in the same grassland area. *Pelargonium luridum* had one solitary inflorescence, with pale pink-cream flowers. *Hibiscus trionum* is an annual, widespread in scrub grassland, with creamy yellow flowers bearing a deep red centre.

All around the park we saw black stripes on the rocks, which are areas where water seeps out of the rocks. Minerals from the top basalt layer (manganese dioxide) are carried in the water and these stain the rocks black. The water enables organisms like algae and moss to live there as well. We arrived at Witsieshoek in the evening, which has spectacular views of the mountains apparently but we never saw them - we brought the mist and rain with us instead. After dinner I had an early night, as I wanted to be alert and enjoy our last hike in the Drakensberg tomorrow.

17 Witsieshoek and Sentinel Peak

Weather: Wet, windy, humid 20 °C

Altitude: 2,400 metres

I awoke early and had a short botanise in the meadow at the back of our lodge before breakfast - the sky was almost clear at 6.00 am but within fifteen minutes the cloud had come in again. I managed to spot a lovely little gladioli covered in raindrops - *Gladiolus crassifolius*. Its flowers were small and turned to one side, a soft pink colour.

Two 4x4s took us to our starting point, the Sentinel car park, thirteen kilometres from Wit-

Figure 29: Members battling the weather at Witsiehoek

sieshoek. We spotted plants on the way, particularly nice specimens of *Leonotis intermedia*, common on the ascent up the rocky hillside, with fabulous orange flowers in compact clusters. *Satyrium parviflorum* had a spiked inflorescence of yellow-green flowers, only seen once before on our first day.

Many of the plants seen today were also seen last week up Sani Pass and/or Lesotho, due to the similarities in altitude. It put our memories to the test, trying to remember the plants we had previously seen. The views still eluded us, the higher we climbed the deeper the cloud became… we had all brought waterproofs, which came to good use because as soon as we stopped in the car park the rain came down.

It was light drizzle at first and we were still enthusiastic enough at this point to persevere, however half an hour into the trek the rain became heavier and the winds stronger. There was a lot to see on the pathway towards Sentinel Peak, we weren't heading to the summit as there was plenty to see en route. We followed the narrow path along the cliff, not seeing more than five feet in front of us. It was a quicker trek than normal as we didn't stop as often because it was impossible to photograph anything well in the adverse weather.

Figure 30: *Nerine bowdenii*

Figure 32: Views clearing up on the descent

Elsa really wanted us to get higher so we could see the nerines - we had lusted after them from the beginning of the trip, we were so close now it seemed foolish to turn back.

Figure 31: *Gladiolus microcarpus*

We blindly followed her and were immensely glad we carried on because ten minutes later we found *Nerine bowdenii* in full glory! A great specimen was on the edge of the path with more clumps colonising the base of the cliffs. The beautiful pink flowers were battered in the winds and rain but we didn't care.

A group of *Eucomis bicolor* was glorious, growing en masse below the basalt cliffs, bobbing their wonderful densely packed "pineapple" shaped heads in the wind. *Eucomis humilis* was also spotted, tiny in comparison to *E. bicolor* which can get to a metre tall. It had a dwarf, tufty inflorescence but still attractive. Ironically as we made our way back to the car park the wind and rain eased slightly, enabling us to take in the surroundings better - still the views were just cloud.

We had seen *Zantedeschia albomaculata* previously but not in such good condition as today. Its classic arrow-shaped leaves had one creamy-white cylindrical spathe emerging. We had a picnic lunch in the shelter of

Figure 33: *Gladiolus ecklonii*

one of the buildings in the car park and started walking down the path until the drivers of the 4x4s met us on the descent. It was pretty cramped in the vehicles as only one driver turned up at first, so three of us were in the back and I was the fourth hanging on the tailgate - perfectly safe of course, we only went slowly over the gravel track.

It was a surprisingly good position as my clothes dried in the breeze and I could see the upcoming views and plants better perfectly. Once we got further down the mountain the mist started clearing and the skies brightening, like walking out of armaggeddon into heaven. We were rewarded with some amazing views and plant life, *Gladiolus microcarpus* was a great find; hanging from a moist crevice in the cliffs, with a pendulous inflorescence bearing pink-mauve flowers.

Lobelia flaccida was a pop of colour on the rocks, blue flowers holding the raindrops well. *Crassula sarcocaulis* ssp. *rupicola* was a succulent shrublet found in damp rock outcrops at the base of the cliffs. Its branches had peeling bark, with needle like leaves and terminal heads of white flowers. *Hebenstretia dura* had a slender, elongated inflorescence with white and orange flowers, good clumps in the damp grassland.

Our final find was *Gladiolus ecklonii*, we initially stopped to take in the view then saw it around our feet in the grass. It had silvery-white flowers densely speckled red-brown; they close at night to re-open in warm sunlight, lucky for us the sun had burnt its way through the cloud otherwise the flowers would not have been open. It hybridises with *G. crassifolius*, which I saw earlier this morning.

A hot shower was well received when we arrived back at Witsieshoek, dinner was the last time we would all be together as a few members were flying home tomorrow and not staying for the Cape Town part of the trip. Afterwards I reflected on the past ten days, the time had slipped away so quickly… tomorrow would be the next stage of my South African adventure.

Figure 34: *Agapanthus inapertus* subsp. *pendulus* 'Graskop'

Part IV
Cape Town

18 Arrival: The Vineyard Hotel

Weather: Cloudy and sunny, 25 °C

We were on the road by 7.00 am and had a clear drive to Johannesburg airport, which was unusual - normally the traffic is very congested hence the need for us to leave early as there is no worse feeling when travelling than being late for your flight. We arrived in good time and had lunch before boarding. The flight was two hours, it put into perspective how large South Africa is compared to the UK - driving from the Drakensberg to Cape Town takes about three days.

We gave a money tip of gratitude to our driver, Praveer, as we would have a different driver and tour helper in Cape Town. He was very grateful and so were we, not just for his driving skills but for his excellent company and sense of humour. Blazing sunshine greeted us when we stepped off the plane, much hotter than what we had been used to for the past ten days. It was a welcome warmth, the summer in the Western Cape is a world away from the Drakensberg.

Charlie Ratcliffe, an accredited guide for the area, greeted us and drove us to our hotel, which is five minutes from Kirstenbosch. On route we saw the local townships and shack houses, before entering the "other half" of Cape Town; it was upsetting seeing how real the racial segregation was, even twenty five years after the Apartheid regime ended. Charlie said things are changing slowly but there are still racial disparities in landownership and social effects of the regime which continue to this day.

The Vineyard Hotel is a seriously plush restaurant, when we arrived we felt like refugees... sweaty, with backpacks and walking boots, with other residents looking glamorous in dresses, suits and heels. The interior was immaculate, with chandeliers in most rooms; my favourite

Figure 35: *Calodendrum capense*

soft furnishing were the cushion and chair covers with a ginkgo leaf print.

For me the accommodation was over the top, I would have been happier with somewhere more basic (especially after seeing the townships driving from the airport), but, it was all paid for, so we made the most of it. I had time to wander round the gardens before dinner, which are a good size for an urban hotel, and very well laid out - having Table Mountain as a backdrop was exquisite.

The restaurant was pleasant, meals other than breakfast weren't included in this part of the trip and there was talk of trying out a restaurant in town instead of staying at the hotel to eat every night but, for our first evening, we were all happy to relax at the Vineyard. Elsa stayed with her brother who lives in Cape Town, as I was the only MPG committee member on the tour I handled enquiries from group members and relayed messages to the group from Elsa, like morning meeting times.

19 Kirstenbosch National Botanical Garden

Weather: Sunny, 26 °C

I had been waiting for this day since we arrived in South Africa; visiting Kirstenbosch has been on my bucket list since being aware of the garden as a teenager. We had the whole day to explore, the original itinerary included an afternoon at Kirstenbosch but I'm glad Elsa revised the timings as half a day would not have been long enough to explore.

Kirstenbosch truly is an incredible garden, my first impressions of walking through Camphor Avenue into the open lawn area and seeing Table Mountain was unforgettable. *Ceratotheca triloba*, a wild foxglove, was beautiful flowering with kniphofias near the main lawn. I was excited to see the garden from a visitor's point of view and also to check out the areas I would be working in for my two week work placement - it didn't disappoint in any way.

Our group split up upon arrival, those happy for a leisurely walk and golf-buggy ride to the steeper areas stayed with Elsa and those of us more keen for a quick walk to get our bearings

Figure 36: First view of Kirstenbosch

went with Charlie for an hour, then explored by ourselves. I wasn't expecting the topography to be so varied, it was a good workout from the bottom of the Dell through the Cycad section up to the top Proteaceae and Fynbos beds.

It was another sunny, clear day and the views were stunning from the top of the garden. There was a good balance between shaded areas and open spaces, with lots of seating available.

19.1 Colonel Bird's Bath

This "cuddle puddle" is found in the Dell, its proper name is Colonel Bird's Path. In 1811, a few years after the British took control at the Cape, the southern half of Kirstenbosch was bought by Colonel Christopher Bird, who was then Deputy Colonial Secretary. He built this bird-shaped pool to collect the spring water and let it stand and clarify before being piped to the house. The water bubbles up from an underground spring at an average of seventy two litres per minute, all year round - it's good enough to drink.

Kirstenbosch didn't feel like a cultivated garden as much as other gardens I've visited because it blends into the surroundings of Table Mountain National Park seamlessly. As it was a Sunday it was busy with families and couples but as the garden is so large it didn't feel like you were on top of people. I didn't have trouble finding a free bench or quiet spot to sit and soak up the views and plants.

A plant I really want to try and source in the UK is *Agapanthus inapertus* ssp. *pendulus* 'Graskop', which is deciduous and more hardy in cold climates, making them ideal for cold frosty gardens that struggle to grow the "normal" evergreen agapanthus. It is a sought-after garden plant but not often available for sale, unfortunately. The cultivar 'Graskop' is named after the town in Mpumalanga nearby where it was collected by Kirstenbosch horticulturists in 1937. It can be seen growing wild in the grasslands in this area.

I had a random but lovely meeting with a couple near Mathew's Rockery who just became engaged a few minutes before I walked past. We shared details about where we were from and what we were up to while drinking champagne for a good half hour, another memorable moment. *Euphorbia ingens* was a huge euphorbia in this area, towering over the intricate maze of pathways. Nearby *Calodendrum capense* was a show-stopper, a tree with extraordinary blooms similar to *Cleome* flowers.

There were loads of small pathways leading to different sections, off the main path; it was fun to forget the visitors map and just wander on my own, discovering the Pelargonium garden and Braille Trail on the way to the cafe where we met up for a late lunch.

Figure 37: *Euphorbia ingens*

19.2 Pelargoniums and the Koppie

90% of all pelargoniums are indigenous to South Africa, many of them are tuberous plants (eg. *Pelargonium longifolium*), while others are deciduous succulents (eg. *Pelargonium crithmifolium*) which survive in the arid regions of the country. In the early days the Koppie, a natural sandstone outcrop, was called the Aloe Koppie, intended to grow and display aloes. In 1915 the paths were laid out, the ground prepared and the first plants planted. However the aloes failed to thrive here and were moved to Mathews' Rockery. *Arctotis venusta* was a pretty member of Asteraceae in this area.

I ate far too much for lunch, a traditional South African dish of bobotie, consisting of curried minced meat baked with an egg-based topping - scrumptious! This was followed by a gluten-free chocolate mousse cake, I actually skipped dinner that night because I wasn't hungry. There was time for another hour or so in the garden before going back to the hotel. I enjoyed wandering through the Peninsula garden down to the Conservatory, and into the Gondwana Garden where there was a large *Ginkgo biloba* tree.

Information regarding water use was interesting: the water at Kirstenbosch is not supplied by the City of Cape Town, the garden is irrigated by non-potable water from a 110 megalitre dam situated on the southern mountain slopes. Water comes from surface runoff and streams in Window Gorge and Nursery Ravine, most water is collected during the winter rainy season.

Although the dam is full at the start of the summer dry season, the water supply is limited and it is a constant challenge to make sure the water lasts through the summer. All drinking water is extracted from boreholes on the Estate that tap into the Table Mountain Aquifer, sixty metres below ground level. The water is stored in reservoirs where it is sanitized with Ozone to control randomly occurring biological activity, no chlorine or other chemicals are used.

There were frequent water fountains around the garden, I refilled my water bottle several times during the day. Some facts which opened my eyes included:

- A loo flush uses 12-15 litres of water

Figure 38: Inside the Conservatory

Figure 39: *Welwitschia mirabilis*

Figure 40: Robbie Thomas in his garden

- A tap uses 20-30 litres of water per minute
- A shower uses 15-18 litres of water per minute
- A bath uses 159-200 litres of water

Baths weren't allowed in the Vineyard, due to the current water crisis in Cape Town; when we had showers we put a bucket of water underneath to catch the excess water, it was shocking how quickly the bucket filled up. I grew up in a rural environment with a borehole so am used to being mindful of water usage but staying in Cape Town made me even more aware of it. I will finish with a saying seen today at Kirstenbosch:

"Humankind has not woven the web of life. We are but one thread within it. Whatever we do to the web, we do to ourselves. All things are bound together. All things connect." by Chief Seattle

20 Vicki & Robbie Thomas and the Harold Porter National Botanical Garden

Weather: Sunny, 28 °C

Today we met Elsa's brother, William Bond (professor), who is an ecological botanist. It was easy to tell they were related, with a very similar sense of humour and way of looking at plants and the environment - he was brilliant company for the day. We drove along the coast to Betty's Bay, going past False Bay and the Cape Flats until we arrived at the Harold Porter gardens.

A short walk from the gardens is the garden of Robbie and Vicki Thomas, which we visited for the morning. Robbie is a plantsman, Vicki a botanical artist, hence Elsa knows her through artist connections. We were warmly welcomed with tea and cake before Robbie gave us a guided tour of the garden and his nursery facilities.

We were told of a devastating fire which happened New Year's Eve in the Betty's Bay area, started by a person who had too much to drink. They let off a flare which went sideways instead of upwards and, due to the extremely strong winds that night, the fire took hold and raged for a week. Thirty homes were burnt and one person died from smoke inhalation. The fire stopped just before reaching Vicki and Robbie's garden, it was incredibly lucky as the wind suddenly changed direction and their garden was unharmed - no plants were damaged, a real miracle.

Figure 41: *Mimetes stokoei*

The garden is dominated by a staggering collection of *Mimetes; Mimetes stokoei* was my favourite plant by far. It has been classified extinct twice since its discovery in 1922, only to be found in the wild again after an intense fynbos fire that burned through the Kogelberg in 1999 - just like a phoenix rising from the ashes.

Robbie's modest but functional nursery area is where he raises plants from both cuttings and seed; everything has a purpose in the small but practical space. Most of the plants are grown in white pots (recycled yoghurt pots), which minimises the detrimental effects of heat on their roots. There is roughly a 5 **°C** difference in temperature compared with black pots. Robbie's mother was a propagator at Kirstenbosch, hence propagating is a family trait.

Robbie is very focused on grafting *Mimetes* species and experiments with methods all the time; he's never been successful germinating *Mimetes* seeds, so he sticks to grafting. The rootstock Robbie uses for *Mimetes* grafts is *Leucospermum*, as they're closely related. The rootstock for proteas is *Protea* 'Pink Ice'. Robbie's oldest grafted *Mimetes* in the garden is about eight years old, a big specimen. He doesn't water at all, there is no irrigation in the garden.

Other Proteaceae included:

- *Leucospermum hypophyllocarpodendron*
- *Mimetes arboreus*
- *Mimetes capitulatus*
- *Mimetes chrysanthus*
- *Mimetes hottentoticus*
- *Mimetes saxatilis*
- *Protea aristata*
- *Protea nana*

Figure 42: Fire damage in the Harold Porter National Botanical Garden

Robbie's wonderful collection and passion for his plants was infectious, it was a real highlight of the trip. Afterwards Vicki showed us her indoor art gallery, where she had artwork for sale. I bought a few small prints and cards, they were exquisite.

Harold Porter National Botanical Garden

The Harold Porter Botanical Garden is located within the Kogelberg Biosphere Reserve, a floral hotspot in the heart of the fynbos region dominated by the high sandstone peaks of the Kogelberg Mountain Range, with the blue waters of the Atlantic Ocean at its feet. Remarkably, a whole river system, including waterfalls, streams and amber pools, forms a chain from the mountain tops right down to the ocean, providing a wide variety of plant and animal habitats.

The garden, consisting of ten hectares of cultivated grounds and 190 hectares of natural fynbos, plays a vital role in the conservation of the fynbos, containing collections of plants that are used for display purposes, scientific research and education. We had lunch at the garden and spent the afternoon exploring.

I enjoyed the atmosphere of the place, compared to Kirstenbosch; the latter is very grand and almost dauntingly beautiful whereas Harold Porter is smaller and has a more raw, rough and ready feel to it. Unfortunately the damage from the New Year's Eve fire was evident on the outskirts of the garden. The smell of smoke was still in the air, with wood ash covering beds and borders.

We walked through the gardens and part of the Disa Kloof walk, a 950 metre trail winding from the garden into the Disa Kloof, under shady trees to a waterfall where the disas bloom in summer. Due to the fire damage there were no disas in sight which was a real shame but you can't have miracles everywhere. The trees and shrubs were charcoaled sticks, underneath green bracken had sprung up - the first plant to appear after fire damage.

The surrounding mountains were grey mounds, with a few succulents in the garden like *Kumara plicatilis* severely blackened but still alive. Natural fires happen every fourteen to fifteen years and is needed for germination purposes for some species; it will be interesting to see what emerges after this fire, as it raged for so long and got to incredibly high temperatures.

Figure 43: *Berzelia stokoei*

Other plants noted:

- *Berzelia stokoei*
- *Helichrysum foetidum*

I dined outside the hotel this evening, with a few other members of the group. The Vineyard kindly gave us a complimentary ride into town and back, it's safe to walk there in daylight but not when it gets dark. We ate in a fun Italian restaurant where I had another gluten-free pizza, I am a sucker for them!

21 Dylan Lewis Sculpture Garden and Babylonstoren

Weather: Sunny, 30 °C

Another sensational day of garden visits, with weather to match. Our first visit was the Dylan Lewis Sculpture Garden, Dylan himself is widely recognised as one of the world's foremost sculptors of the animal form, with an international career spanning two decades. The garden is located between two worlds; one wild and one tamed, bordering the manicured suburbs of Stellenbosch and a rugged mountain wilderness. In his garden, Dylan can explore the Jungian notion of "the wilderness within".

More than sixty sculptures constituting a comprehensive record of his artistic development have been carefully sited along four kilometres of paths. The project began in 2009 when Dylan hired an excavator and began creating the contours of what would become a seven hectare sculpture garden. During almost two years of earthworks, the artist shaped a disused tract of farmland into dynamic hills, valleys and water features. In face, the garden can be considered his largest sculpture to date.

The planting is focused on indigenous plants, particularly fynbos, incorporating many buchu species and ericas, of which a large selection of unusual varieties have been sourced

Figure 44: Dylan Lewis Sculpture Garden

from Kirstenbosch. The garden's four sources of water include a natural perennial spring, a seasonal mountain river, as well as a borehole and agricultural water.

Dylan has grouped the sculptures within the garden not as a response to a conscious plan but rather through a process that unfolded intuitively over many years, in which certain sculptures seemed to "gather" in distinct areas. It was a ridiculously hot day, our guide, Hanley, was very good and stopped in the shade when talking about certain areas of the garden. We were given parasols to use while walking around the garden which was welcomed by the group.

I felt the garden blended well with the landscape, and the sculptures of wild animals appeared extraordinarily alive, their expressions captured perfectly. Seeing leopards in an authentic setting with native planting made them come alive for me. Dylan is always adding sculptures so the garden constantly evolves; he also showcases other sculptors work in the garden too.

Coleonema pulchellum, the confetti bush, was expertly cloud-pruned into vast mounds. A vivid, lush green when most of the planting was more subdued colours. Dylan was heavily inspired by the poet and writer Ian McCallum, there were several poems by him throughout the garden which I enjoyed. The large bronze sculptures weren't bronze at all, they were made from a type of foam material encased in fibreglass then covered with oxide paint. This stopped them from being too heavy to move and place in the garden and are weighted down on display stones to stop them blowing away.

Other plants noted:

- *Celtis africana*
- *Olea europaea ssp. africana*
- *Scabiosa africana*
- *Pelargonium sidoides*
- *Vachellia sieberiana*

Figure 45: Babylonstoren

A saying which rings true with me was seen in the visitor building: "My starting point is always drawing from nature; it is also the place to which I return time and again when I lose my way." by Dylan Lewis

Babylonstoren

We spent the afternoon at Babylonstoren, one of the oldest Cape Dutch farms. Set within eight acres, the garden of cultivated fruit and vegetables is the heart of the farm. The gardens were inspired by the historic Company's Garden in Cape Town, which supplied sailing ships of the Dutch East India Company with fresh vegetables and fruit during the days when the Cape was a halfway station between Europe and Asia. There is also a link back to the mythological hanging gardens of Babylon.

Lunch was an experience in itself, the quirky menu wasn't cheap but they had a farm-to-fork philosophy which meant everything served was seasonal and grown in the garden. All of the 300+ varieties of plants in the garden are edible or have medicinal value and are grown as organically as possible.

We had an hour or so to explore by ourselves, the sun was still beating down so I walked through the shaded areas where *Clivia miniata* was growing en masse, underneath extensive trained vines, and through a large section of prickly pears, *Opuntia ficus-indica*. *Carissa macrocarpa* had sweet-tasting fruits, *Buddleja auriculata* made a good hedge in between the various fruit and vegetable areas.

The Cycad collection was chosen by Lourens Eales for Babylonstoren from existing plant collections and was impressively terraced, leading out into one of the huge vineyard areas. I'm very glad I visited Babylonstoren, it's a unique place which was different to the other gardens we visited.

Favourite sayings from Babylonstoren:

"Gardening offers a considerable amount of freedom, the refining influences of poetry and beauty, contact with intelligent and interesting people, and health and happiness to mind and body."

Figure 46: *Opuntia ficus-indica*

"I don't know how one can walk by a tree and not be happy at the sight of it?" - Prince Myshkin in The Idiot by Fyodor Dostoyevsky.

22 Table Mountain and Stellenberg Gardens

Weather: Sunny, 28 °C

Altitude at Table Mountain: 1,085 metres

We had an early start today, departing the hotel at 6.30 am to beat the queues for the Table Mountain cable car. Even though we had pre booked our tickets for the 8.00 am slot it's still a first come, first serve basis according to who fits in the first cable car. The cableway was officially opened to the public in October 1929, the first cable car with a tin roof and wooden sides carried only twenty passengers. In 1997 a major upgrade and redesign took place and reopened with new revolving cars carrying sixty five passengers. Famous passengers include King George VI and the Queen Mother.

Consisting of layers of Table Mountain sandstone and Cape granite formed by igneous and glacial action 520 million years ago, Table Mountain is at least six times older than the Himalayas, making it one of the oldest mountains in the world. The indigenous inhabitants of the Cape, the Khoekhoe, called Table Mountain "Hoerikwaggo" meaning "mountain of the sea".

When we first arrived it was cloudy but the sun rose quickly. This was the first time we had been at the right angle to see the true meaning of Table Mountain - the summit was as flat as a table. The mountain's famous cloud "tablecloth" is a meteorological phenomenon that causes cloud to tumble down the mountain slopes like billowing fabric. This phenomena is known as "Kaggen's Karos" after the San tale of how Kaggen, the mantis god, pulls a white karos (animal pelt) from his mountain cave to quench fires on the mountain.

Moisture-laden air rises and cools as it is drawn in from the sea and over the mountains of the peninsula - often condensing into cloud. On Table Mountain this creates the familiar

Figure 47: View of the cable cars from Table Mountain

Figure 48: View from Table Mountain summit

Figure 50: Members botanising on Table Mountain

"tablecloth"; in fact a huge dew cloud - from which more than twice as much water in the form of mist is deposited on the mountain than falls as rain each year.

Of particular importance is the fact that much of this precipitation takes place during the months of summer drought at the Cape. Percolating down through the highly fractured Table Mountain sandstone, this input recharges the water-table with the result that springs and streams issue from the mountain year round.

Figure 49: *Disa graminifolia*

The cable car ride was very quick, less than five minutes to the summit. I was surprised to see a shop and cafe at the top, it was a bit too commercialised for my liking. The Vineyard made us a packed breakfast which we enjoyed on the edge of the mountain, looking at the unbelievable views - not a bad place for a picnic. The weather gods were smiling on us again, the skies were clear meaning we had uninterrupted views of Cape Town, the beaches, ocean and beyond.

One side of the mountain became covered in cloud shortly after we arrived, but sometimes there are no views whatsoever so we felt very blessed. We spent a few hours botanising around the summit, there was a varied amount of flora to see in a fairly small area. We used binoculars to identify some species

over the cliff edge, including *Watsonia borbonica* with funnel-shaped magenta flowers and *Crassula coccinea*, bearing flat-topped heads of scarlet flowers. My favourite finds were the two disa species: *Disa graminifolia* had striking blue-violet flowers, with the tips of petals lime green. *Disa ferruginea* was disparate in comparison, with bright red-orange flowers clustered on one spike.

We spotted some wildlife too, the Table Mountain beauty butterfly (*Aeropetes tulbaghia*), a red-winged starling and, only very briefly, a rock dassie (*Procavia capensis*) - a strange little mammal. *Salvia africana-lutea* had aromatic foliage, with pairs of golden-brown flowers. *Chrysocoma coma-aurea*, was a shrublet laden with yellow flowers which had a button-like appearance.

Figure 51: *Erica abietina* ssp. *abietina*

Lampranthus falciformis was a very cheery member of Aizoaceae, carpeting the rocky ground with lilac-mauve daisy flowers. A noteworthy erica was *Erica abietina* ssp. *abietina*, with large, sticky tubular red flowers. We also saw many king proteas, *Protea cynaroides*, from a distance, dotted along the side of the mountain. We caught the cable car down, it was just as much fun as going up!

Stellenberg

We drove to Stellenberg in good time, only a ten minute drive from the Vineyard. We had an hours guided tour then broke off for a picnic in the garden and continued with the tour after lunch. Athol McLaggan, the head gardener, showed us round, giving us a very informative tour. Stellenberg is one of the Cape's most important historic houses, unique in that it has remained largely unaltered since it was built in the 1740s.

The same family has lived here since 1953, they have endeavoured to preserve and enhance its classic beauty. Simple whitewashed walls, set against the eastern crags of Table Mountain, give the garden its sense of place, despite the property's once rural setting having been replaced by city and suburbia more than a century ago. The old garden of mature trees, lawns and traditional borders have become inward rather than outward looking.

The intimate garden rooms have evolved over the past thirty years, and, although different in design and mood, the gardens relate to one another to form a harmonious whole. The gardens are four acres, with one full-time gardener per acre. The white border was inspired by Sissinghurst, only off-whites and creams were used in the planting as pure white colours are too harsh in Cape Town due to the high light levels.

Zephyranthes alba worked well at the front of the borders, flowers similar to species tulips. The herb and vegetable garden were relaxing areas, with fragrant plants like *Murraya koenigii*, the curry leaf tree, and ornamental plants like *Hibiscus* 'Canary Island' and *Pelargonium tomentosum*. The Cape cannot produce barrels of wine as the climate is too warm for English oaks (*Quercus robur*) to survive - they grow too quickly and the wood becomes unusable for timber.

Turkey oak (*Quercus cerris*), pin oak (*Quercus palustris*) and water oak (*Quercus nigra*) are much happier here, hence the young plantings of these species at Stellenberg. Two roses were especially pretty, *Rosa* 'Madame Alfred Carrière' and 'New Dawn', the latter covering a pergola

Figure 52: Stellenberg house

wonderfully. Apparently roses used to be planted at the end of a line in vineyards, as the colour of the rose indicated whether the grapes were red or white, helpful when dealing with unskilled labour.

Hydrangeas do very well in Cape Town as the cool moisture from the ocean suits them; at Stellenberg they are also fed with nitrogen followed by a rose feed once the growing season starts. Hydrangeas are known as the Christmas Rose because they flower in December and are used in seasonal, festive displays. Once the leaves start to fall from the deciduous trees they are blown straight onto the hydrangea beds, to act as a natural leaf mould. It also saves time picking up tons of leaves.

In 1989 the old tennis court was replaced with the formal Walled Garden, with a cool colour palette of blues and purples. Two plants I admired were *Ruellia simplex* and *Solanum wendlandii*, the low hedging was *Myrtus communis*, very similar looking to box. I really enjoyed the wild jungle area, full of ferns and huge, ethereal *Phoenix canariensis* palms with stems snaking over the pathways and water rills.

The garden has an extremely good groundwater supply, hence they can sustain such a rich, water-hungry flora in the garden. I fell in love with a little *Ginkgo biloba*; it was grown from seed at Kirstenbosch, from the same plant that survived the Hiroshima bombing. We arrived at the Vineyard by 3.00pm, plenty of time for me to grab some groceries before it got dark.

The accommodation I would be staying in at Kirstenbosch is self-catering and after tomorrow I wouldn't have easy access to the supermarket so it made sense to get some food shopping while I could. Elsa was on her way to Woolworths, South Africa's equivalent to the UK's Marks and Spencers, so she gave me a lift which was fortunate.

As it was our last full day of the trip for everyone apart from myself, I organised a farewell meal for us at the Vineyard and invited Elsa, her brother William and his wife Winifred to join us - the rest of the group thought it was a great idea, the hotel were very accommodating and even gave us a private room upstairs to dine in.

It was a great way to say goodbye and thank you to the whole group for their brilliant

Figure 53: Members in herb garden

Figure 54: *Phoenix canariensis*

company over the past few weeks. Being a small group meant we had bonded very well, it was going to be strange being without them for the rest of the trip.

23 Goodbyes and Hellos

Weather: Sunny, 27 °C

I had a big last breakfast at the hotel and said a few final goodbyes before Elsa came to pick up myself and another group member, Jorun. Their flights were early in the afternoon and everyone else's flights were late in the evening so the rest of the group went with Charlie to explore the Waterfront for most of the day. We had time for a coffee with Elsa down on the Waterfront, it's a very picturesque place but also very busy - it is peak tourist season for Cape Town after all.

The historical clock tower was a good feature, three storeys high with red bricks and pointed Gothic windows. The clock itself was imported from Edinburgh and became a landmark as soon as it was completed in 1882 as the first Port Captain's office. I was dropped off at Kirstenbosch by midday and met Felicity, Rochelle and Nawaal - we had communicated via email so it was nice to meet them in person.

They showed me to my accommodation, I would be living within the grounds of Kirstenbosch at the foot of Table Mountain - not a bad place to call home! My annex was cosy with a super comfy bed, there was no WiFi which was a shame but WiFi was available in one of the cafes in the garden. I was due to be at the Garden Office at 8.00 am tomorrow so I had a leisurely afternoon of unpacking and settling in before an early night, ready for the next part of the adventure to begin.

Figure 55: Playing with sculptures at Kirstenbosch... - photo by Nezzi

Part V
Kirstenbosch

As some days were spent conducting similar jobs, I have written about experiences and tasks based in different areas on a weekly basis, as opposed to a standard daily diary.

24 Introductions

The overall horticultural team at Kirstenbosch is split into smaller teams who look after different sections of the garden. My work placement was with Adam Harrower and his team, who

Figure 56: Adam and his team

look after the Conservatory, Mesembryanthemum Beds, Mathews' Rockery and Collections Houses (not open to the public).

Adam Harrower - Senior Horticulturist
Neziswa Soka (Nezzi) - Supervisor, looks after Collections Houses
Jermaine Christoffels - Horticulturist, looks after the Conservatory
Nandipha Ngaba (Nandi) - Horticulturist, looks after the Mesembryanthemum Beds
Anathi Ncume - Horticulturist, looks after Mathews' Rockery
Thembisile Sikova (Thembi) - Horticulturist, helps look after every area

25 Conservatory

The Botanical Society Conservatory displays native succulent species from the different arid regions within South Africa. These arid regions are defined as the Namaqualand, Richtersveld, Namib Desert, Knersvlakte, Little Karoo, Eastern Cape, Bushveld and Nama Karoo. Kirstenbosch is very wet when compared to the habitats of arid-adapted floras, particularly in winter, and many arid plants cannot be grown outdoors. The Conservatory was built to keep these plants dry, and not warm, as most glasshouses do. It is thus essentially just a large roof!

A special feature of the Conservatory is that it is designed to be naturally ventilated. The open sides and pitched roof allows for cross and vertical ventilation - this is as effective and more energy-efficient than full climate-control. The angle of the roof allows for maximum solar penetration in the winter months. The mountain backdrop of the eastern side of Table Mountain was one of the formative factors in the design of the distinctive triple-pitched roof.

Inside, the hard landscaping is set out in the shape of a spiral; at the centre stands the baobab tree and stone walls radiate out to form the display beds. The spiral is a recurring pattern in nature - think of the whorl of a shell, an aloe rosette or the arrangement of flowers in a composite flowerhead. The natural geometry of the spiral was used to structure the landscape of the glasshouse.

Figure 57: *Welwitschia mirabilis*

A unique feature of the Conservatory is that plants have been landscaped with natural rock, typical of their habitat. Rocks and soil were collected from all over the country, including Fraserburg, Springbok and as far north as Musina. The stone walls were built by Kirstenbosch staff, made of local sandstone, which has been entirely shaped by hand.

25.1 Favourite Plants in the Conservatory

Quiver Tree

Aloidendron dichotomum, aka the quiver tree, earned its name not because it trembles or quivers in the wind but because in the old days Bushmen hunters used branches from this tree to make quivers to carry their arrows. They hollowed out the branch and covered the open end with a piece of leather. The quiver tree is Red Listed as Vulnerable, it faces a high risk of extinction in the wild in the near future.

Stone plants

Popular genera of stone plants include *Argyroderma, Conophytum, Gibbaeum, Pleiospilos* and *Lithops*. Conophytums are especially well camouflaged in summer when they are dormant - the old leaves form a papery coat, which also helps to prevent water loss. Some stone plants have transparent "windows" through which light enters the plant.

This enables them to live underground, where it is cooler than at the soil surface. Light enters through the windows and travels through transparent tissue until it hits a layer of chlorophyll, where photosynthesis takes place. Plants with these windows live underground, with only the top of the leaf showing. This reduces water loss from the leaves and keeps the lower part of the plant a few degrees cooler than the soil surface.

Adansonia digitata

The baobab in the Conservatory had an epic journey from De Beers Venetia Diamond Mine, near Musina, in June 1996. It was eight metres tall and estimated to be 100 years old. An eighty tonne crane was used to lift the baobab onto a truck - it weighed about seven tonnes. Unfortunately it had to be severely pruned during this process. Two days and 2,000 kilometres

Figure 58: *Lithops optica* 'Rubra'

later, the baobab arrived at Kirstenbosch. About twenty men pushed and pulled the baobab tree along a custom built railway track into the Conservatory!

Cliff plants

This area has been specially built to display plants that are adapted to growing on vertical cliff faces. The plants that live in this extreme habitat have to overcome some peculiar challenges in order to survive and many of them are found only on cliffs.

Welwitschia mirabilis

Welwitschia mirabilis is a very unusual plant from the Namib Desert. There is no other plant like it! It is made up of just two leaves, a stem base and roots. It does not fit neatly into any plant group because it bears cones like a gymnosperm, yet contains modified flower-like structures that are more like those found in the flowering plants (angiosperms). The "flowers" produce nectar, which attracts small insects like flies and wasps, which pollinate them.

It is found growing wild only in the Namib, from Swakopmund in northern Namibia to Namibe in south-west Angola. Unlike most other desert plants, Welwitchias do not store water in their stems or leaves so they are not a true succulent. They have many stomata in their large, broad, thin leathery leaves, more than most desert plants do, and they are found on the upper and lower surfaces.

26 Mesembryanthemum Beds

Vygies (pronounced fay-gh-ease) are easy to recognise by their brightly coloured flowers and succulent leaves. They are also known as Mesems because they used to belong in the Mesembryanthemaceae family but recent DNA studies show that the plants that were grouped in this family belong in a broader group, which includes plants from other related genera - this new family is Aizoaceae.

Most Mesems flower in spring (September to October) and are found all over southern Africa. 95% of them come from the south-western tip of southern Africa - the semi-arid, winter-

Figure 59: Collection of conophytums

rainfall region called the Karoo. The types growing in the Mesem beds are mainly *Lampranthus, Drosanthemum* and *Ruschia*.

Most vygies have interesting seed capsules; they open in wet weather and the seeds are splashed out by heavy drops of rain. And, the capsules have special membranes that stop all the seeds from being washed out at one time. When it is dry again, the capsules close up around the remaining seeds, keeping them safe until the next rainy day. In this way, small amounts of seed are released over several rainfall events - a clever survival strategy in areas where rain is unpredictable. The scientific term for the opening and closing of a fruit or flower in response to moisture is hygrochasy; the seed capsules are thus hygrochastic.

27 Mathews' Rockery

Mathews' Rockery was one of the earliest developments in the garden; when the aloes failed to thrive in the poor sandstone soils of the Koppie, these warm, north-facing slopes with granite-derived soil were chosen as the new site for the succulent garden. Every rock was brought here by sledge and mules, and manoeuvred into place by hand.

Mathews Rockery was laid out and partly planted in the 1920s, construction went on as and when funding from the Botanical Society was available. In 1950 it was named after J.W. Mathews, the first Curator, who was responsible for the elaborate and imaginative construction work.

28 Week 1

Over the coming weeks I shadowed Nezzi with her daily routine, it was a great insight into how the plant collections are managed. There is a comprehensive *Gasteria* and succulent collection within the Collections Houses, there were many species I had never heard of as well as some

Figure 61: Inside the Collections Houses

very rare and endangered plants. Most of the succulents are grown in asbestos trays, forming small communities, instead of growing plants in individual pots.

Figure 60: Pollinating *Aloe liliputana*

Adam gave me a tour of the areas in the garden his team look after, as well as the Nursery which is vast. Some sections are quite broad, like the Restio and Proteaceae areas and some are very specialist, like the cycad and strelitzia areas. The Nursery team consists of one person concentrating on propagation plants from certain areas from the garden, eg someone focusing on Proteaceae, another pelargoniums.

Kirstenbosch have a problem with *Phytophthora cinnamomi* and honey fungus (*Armillaria mellea*) which is killing off a lot of Proteaceae. The former has always been around but the latter is relatively new, however Adam believes it has been present in the gardens for a while but wasn't correctly diagnosed. These issues are ongoing problems and constantly monitored. *Cryptolaemus montrouzieri* is a biological control used for mealybug infestations in the Conservatory and Collections Houses. They also use a fungus, *Metarhizium*, which kills bad insects with a low death effect on beneficial insects.

Figure 63: The nursery area

28.1 Watering

In summer watering happens twice a week, on Mondays and Fridays. Plants are "drench watered", given a good long soak instead of little and often.

A shower-head lance attached to a hose pipe is used, pots in trays were also plunged into buckets of water if very dry. Some species in the Collections Houses were in their dormant season so didn't need water. During my work placement I mainly watered in the Collections Houses and the collection of cremnophytes in the Cliff Plant Display area within the Conservatory.

Figure 62: *Jamesbrittenia microphylla*

28.2 Propagation

I was pleased to do some propagation work and other tasks not of the daily norm. I worked with Nezzi and took cuttings of *Othonna dentata*, and potted on *Crassula multicava* cuttings. Leca (Light Expanded Clay Aggregate) is used frequently for succulent cuttings; cuttings are dipped in Seradix rooting hormone powder and popped straight into a tray of Leca then given to the Nursery team to look after.

I found it a novelty to use dessert spoons to pot on the crassula cuttings; the growing

Figure 64: Removing abnormal growth from an aloe - photo by Nezzi

media was a gritty mix which fell apart easily, hence the spoons were perfect for easing them out of the plug trays and into 7cm pots. The growing media they were potted into was a mixture of soil, bark and compost, all of these materials are recycled from the Kirstenbosch estate.

The pots were filled with growing media with a centimetre gap at the top of the pot, so when drench watering the pots can be filled to the top and left to drain without the growing media spilling out. New seedlings are watered with a mixture of two products which prevent diseases; Terminator and Kelpak (the latter has extracts from kelp species), which are diluted in water. Terminator is also used undiluted to clean pots.

Another interesting job was removing abnormal growth from two aloes - these growths are caused by aloe mites feeding on plant tissues, causing warty, tumorous-looking growths, known as aloe cancer. These growths appear around the mites, protecting them while they feed on the rapidly-growing tissues and lay eggs. Until these strange growths show up on aloes, it is impossible to know that the mites are present.

I used tweezers and a scalpel to cut out the growths then dusted the wounds with sulphur. The tools were disinfected afterwards with Terminator. I also pollinated a rare aloe, *Aloe liliputana*, which was collected by Adam from Mkweni Gorge. I used the dried part of a protea flower to transfer pollen from one flower to another, by inserting the flower part gently into the open aloe flowers, removing it and inserting it into a different aloe flower.

28.3 Opslag Removal

Opslag is a South African term for a plant in the wrong place - aka a weed. There was always weeding to do in the Collections Houses, whenever there was a spare moment the tweezers and bucket came out and I would weed through an area of succulents or the Gasteria House, removing weeds from the pots. *Albuca bracteata* (aka the pregnant onion) was one of the worst weeds, its bulbs often became lodged amongst plant roots and were very tricky to remove

Figure 65: Mulching the Mesem beds - photo by Jermaine

properly. I enjoyed the opslag removal as it was a good opportunity to look at the plants closely, read their labels and get familiar with their names as there were many new species and genera I had never heard of in the Collections Houses. Two interesting plants in particular were *Jamesbrittenia microphylla* with beautiful purple flowers and *Eriospermum aphyllum* which uses its old inflorescence to photosynthesise as it has no leaves.

28.4 Mulching

A great team job to get involved with was mulching the Mesem Beds. This was the first time I worked together with most of the team (Nezzi, Jermaine, Nandi and Thembi), getting to know everyone's characters and have some banter was a good ice-breaker and made the task fly by. We worked in pairs, one person shovelling the mulch into wheelbarrows and the other taking the wheelbarrows to the bed and unloading it; one person then spread the mulch out evenly in between the plants.

We swapped every few hours so no one was continually doing the same job all day. The Mesem beds are huge and terraced in places, in some areas it was impossible to bump the wheelbarrow over the rocks and two people were needed to manoeuvre the mulch in place. At one point we filled trugs with mulch and spread those around instead as it was easier instead of lifting heavy wheelbarrows into the beds.

The mulch is very good compost made at Kirstenbosch, the composting area is at the upper end of the garden on the edge of the Estate. All of the debris from the Garden and Estate is composted and eventually incorporated back into the garden in the form of mulch, including woody material which is chipped on site. When a large job needs doing the whole team helps, for example the mulching was done in Nandi's area but it would be the same if a lot of pruning needed doing in the Conservatory - everyone would then help Jermaine.

Figure 66: Working in the stone plant display area - photo by Jermaine

28.5 Ernst van Jaarsveld Talk

I was fortunate enough to attend a talk given by Ernst van Jaarsveld, who used to manage the Conservatory before Adam; he is now in charge of Babylonstoren, which was the subject of the talk. Ernst is a local celebrity in Cape Town, a highly renown plantsman and a walking encyclopaedia of knowledge. He has written many books on South African flora, what he doesn't know isn't worth knowing. He was very enthusiastic and passionate during his talk, often not pausing for breath!

Ernst has been at Babylonstoren for three years now, I was pleased to hear Babylonstoren is 100% organic and conserves indigenous animals and reptiles. The entry fee for the garden is a very reasonable price, so people from all backgrounds can enjoy the garden; the entry fee is donated to the children of the farm workers. The ethos at Babylonstoren is to stimulate and share the love of gardening, which is what Ernst shared in abundance.

He has many ongoing projects in the garden, including developing a comprehensive succulent collection and creating a succulent house, designing and making a Spice Garden, a Healing Garden (with medicinal plants) and a San Garden (to honour the San bushmen). The Garden of Four Biomes was one of my favourite ideas, having plants from the Karoo, Hantam, Simonsberg, and Eastern Cape regions.

Ernst is also eager to create a cliff face area to display cliff plants and is working with Robbie Thomas on a conservation project to conserve endangered *Widdringtonia schwarzii*. For someone to be in their sixties and still have the same zeal and excitement as a teenager is infectious and admirable, I was extremely glad to have had the opportunity to hear Ernst speak.

Veld & Flora Article on Vertical Horticulture and Cliff Plant Displays I was inspired after Ernst's talk to discover more about cliff plant species and found this useful article from Veld & Flora. It was also relevant to the Conservatory at Kirstenbosch as they are renovating an area which used to display ferns to create a space to display cliff plants:

South Africa has many indigenous species that are suited to vertical gardening, of which

Figure 67: Adam and Nezzi planting the rescued *Ferraria*

many are adapted to the generally arid conditions pertaining to the Northern and Western Cape. To use succulents primarily makes the most sense, since South Africa is home to perhaps the greatest variety of succulent species of any region worldwide and also since many species are natural cremnophytes (cliff-growing plants).

A wall provides a novel opportunity to display and propagate many species whose horticultural potential would otherwise be neglected. Plant families with species that are well-adapted to vertical gardening include: Asphodelaceae (*Aloe, Gasteria*): Apocynaceae (*Stapelia, Huernia*): Asteraceae (*Senecio, Othonna*): Crassulaceae (*Crassula, Adromischus*): and Aizoaceae (*Conophytum, Oscularia*).

Many bulbous plants (geophytes) also adapt well to a vertical habitat. Particular plants include: *Crassula exilis, Aloinopsis malherbei, Gasteria batesiana, Crassula muscosa, Haworthia pygmaea, Adromischus cooperi, Babiana rubrocyanea, Bulbine lagopus, Senecio rowleyanus, Crassothonna capensis* and *Crassula perforata*.

Two specific examples of naturally well-adapted cremnophyllic species are *Aloe nubigena*, which grows on vertical misty (nubigena translates as "cloud born") quartzitic sandstone cliffs near Graskop in Mpumalanga, and *Aloe soutpansbergensis*, a Soutpansberg endemic. Both these species have pendant leaves, with small or no spines along them and no bitter taste if the broken leaf is tasted, displaying how species can lose their physical and chemical protective attributes if the selection pressure falls away.

28.6 Stone Plant Display Project

The stone plant display area in the Conservatory was closed for renovation during my time at Kirstenbosch, as it had been neglected for a few years and had lost its original concept due to lack of people to take care of the area. It needed some tender loving care to bring it back to where it was when it was first created and, although this project wasn't finished during my work placement, we still made good headway and Adam was pleased with the progress.

Removing unwanted plants (opslag) was the main job, two species of *Tylecodon* had taken

Figure 68: Stone plant display project - mess is progress!

over and smothered the more delicate stone plants - we found several clumps of *Lithops* species after we removed large specimens of *Tylecodon paniculatus* and *Tylecodon wallichii*. A screwdriver was the best tool for removing the tylecodon plants as you could dig down through the gravelly soil and get the roots out from around rocks - a trowel was pretty useless!

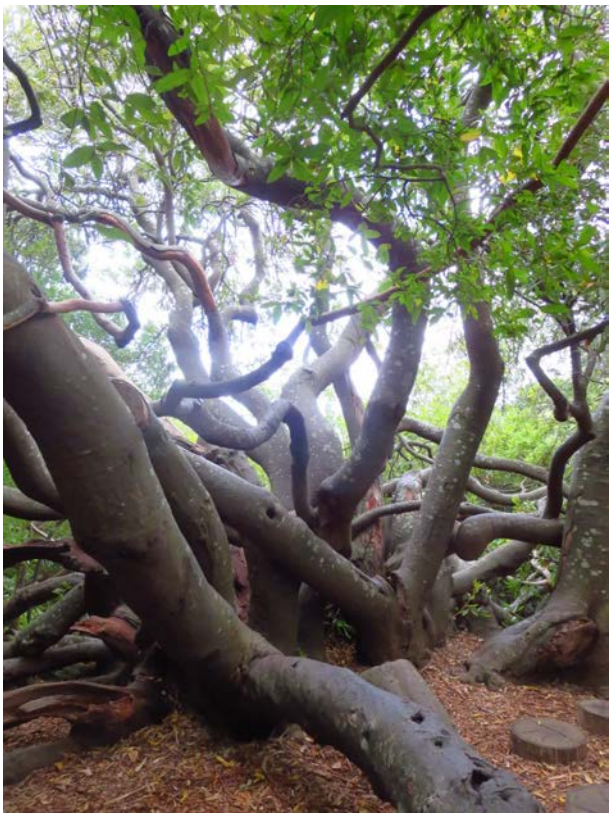

Figure 69: *Brabejum stellatifolium*

We were trying to save as many plants as possible, hence we didn't want to yank them out and damage the root systems. *Pelargonium crassicaule* was another invader, these plants were being saved to take to Karoo Desert Botanical Gardens at the end of next week. *Pelargonium carnosum* was another tuberous pelargonium, with white starry flowers. There were less specimens of this species so these were kept in the stone plant area.

Myself and Nezzi spent a good half day sifting soil in one area which had become overrun with a species of *Ferraria*. We separated the corms from the soil and stones and potted them up in a large terracotta pot so they could be used as a temporary display in the Conservatory, when in flower. I also tidied up plants which were remaining in the stone plant area, such as removing dead growth from conophytums and crassulas.

Two favourite plants were *Pachypodium succulentum*, with a swollen, turnip-shaped

Figure 70: Tree Canopy Walkway

stem and *Crassula muscosa*, which looks like lizard's tails.

28.7 Guided Garden Tour

Kirstenbosch have free guided tours of the garden three times a day, led by volunteer guides. Adam encouraged me to attend one of these tours as most of the guides have been at Kirstenbosch for a number of years and have a very good knowledge of its history. I enjoyed spending time seeing the garden through visitors eyes, aftering having a "work head" on for my first week.

The guide showed us around the upper areas of the garden, walking through the Dell and Arboretum to the Proteaceae and Restio beds. The weather had been changeable as the transition of seasons from summer to autumn was upon us and a few days had been very overcast and humid with drizzle. This recent moisture caused the plectranthus in the shaded parts of the garden to spring to life, everywhere suddenly seemed much greener and lusher.

Some particularly noteworthy plectranthus were:

- *Plectranthus eriopus*
- *Plectranthus saccatus*
- *Plectranthus zuluensis*

Arboretum

The arboretum at Kirstenbosch is a planted and gardened forest of over 450 tree species from all over southern Africa. It was developed recently in Kirstenbosch's history, and was planted with trees and shrubs from the mid 1980s. Some of the trees here are old specimens and are natural on this site but most of them are relative youngsters.

Aloidendron barberae was an impressive tree aloe in the Arboretum. It is South Africa's tallest aloe, reaching up to twenty two metres tall. The tallest specimens are found in the foothills of

Figure 71: *Plectranthus* in Arboretum

the Lebombo Mountains, on the KwaZulu-Natal-Mozambique-Swaziland border. The trunk looks like a dinosaur's leg, with distinctive rosettes of aloe leaves silhouetted against the sky - a real beauty.

Figure 72: *Aloidendron barberae*

Centenary Tree Canopy Walkway

The walkway was built in 2013-2014 to celebrate the centenary of Kirstenbosch National Botanical Garden and the 100-year partnership between Kirstenbosch and the Botanical Society of South Africa. Like the tree snake (boomslang in Afrikaans, sounds like bw-om-slung) that inspired its design and nickname, this raised walkway winds and dips its way through and over the trees. It is a steel and timber structure, 130 metres long.

Adam created a mini Stumpery in the Arboretum near the canopy walkway, planted with ferns, *Streptocarpus* and epiphytes, including the orchid *Stenoglottis fimbriata*. Another tree that caught my eye was the ethereal wild almond, *Brabejum stellatifolium*, which has huge limbs stretching over the ground. It's a very popular play area for children.

Restio and Proteaceae Beds

The Restio area is designed to raise public awareness and interest, and acts as a trial area for restio species with horticultural potential.

Figure 74: View of Table Mountain from Restio area

The variety of colours, textures and forms was really impressive, when restios are planted en masse the effect is very striking. Some of my favourite genera were: *Thamnochortus, Willdenowia, Elegia and Cannomois*.

The Proteaceae beds cover a large area at the top of the garden which is quite dry and relatively exposed, providing good air circulation and a suitable habitat for the plentiful winter rainfall species which Kirstenbosch specialises in. Proteaceae are one of the main plant groups grown in the garden, there were so many species! My favourites included: *Aulax, Brabejum, Leucadendron, Mimetes, Protea* and *Serruria*.

Figure 73: *Mimetes chrysanthus*

Winter rainfall proteas such as *Protea cynaroides* are relatively available to buy in the UK, but do struggle with the low temperatures and high rainfall during their naturally dormant summer period. It would be interesting to try growing summer rainfall species, such as *Protea caffra*, to see if they were more suited to cultivation in the UK.

Mimetes chrysanthus was flowering and looking stunning - it was only discovered in 1987, by Willie Julies, a mountain ranger in the Gamka Mountain Reserve. A specimen was sent to Jan Vlok at the Saasveld Herbarium, who immediately recognised it to be a

Figure 75: Cycad area

new species; this was confirmed by Dr. John Rourke of the Compton Herbarium, Kirstenbosch, who named it. It is only found at two sites, fifty kilometres apart, hence is listed as Rare and Vulnerable.

The marsh rose, *Orothamnus zeyheri*, is the only species in the genus. Listed as Vulnerable because it was popular as a cut flower and many were harvested, which markedly reduced the number of wild plants, even wiping out whole populations.

Leucadendron argenteum looked beautiful in the evening sunshine, found only on the cool east and south-facing slopes of the Table Mountain chain. In the 1700s they were widely planted for firewood, hence the ones that grow in Paarl, Somerset West and Stellenbosch are not natural. It is classified as Rare, due to its small wild population and small distribution range.

The Buchu garden was near the Proteaceae beds, filled with scented foliage plants. Buchu is a group of small-leaved, aromatic shrubs that are found in the fynbos, each kind has its own fragrance. Genera include *Acmadenia, Adenandra, Agathosma, Coleonema, Diosma* and *Euchaetis*. A few special buchus are valuable medicinal plants that have been used since ancient times and are still used today. The most famous is Buchu Brandy, taken to stimulate the appetite and to treat nausea, vomiting, and the flu.

29 Weekends

I tried to make the most of my spare time by exploring the gardens and Table Mountain estate during the weekends. Adam helped me organise a lift into Cape Town by utilising the staff bus one day, which enabled me to visit the park and waterfront.

Figure 76: *Phylica pubescens*

Figure 77: Green Point Park and Biodiversity Garden

29.1 Green Point Park and Biodiversity Garden

Green Point Park is a biodiversity area built next to Cape Town's football stadium, as part of the Green Goals 2010 scheme, which aimed to ensure an environmentally friendly world cup in South Africa by supporting initiatives that addressed waste minimisation, emissions reduction, energy efficiency and water conservation. I spent a good few hours in the Park, enjoying the change of scenery and taking in the plants and other surroundings.

I was impressed with how well laid out the biodiversity garden was, with interpretative signage and useful information about the Cape, its biodiversity and how urbanisation and invasive species is threatening endemic flora and fauna. The garden was full of plants that were thought to have originally thrived here, and that the San used to eat or had medicinal uses for, such as:

Figure 78: *Thamnochortus fraternus*

Thamnochortus fraternus, a small neat restio with ornamental brown inflorescences: *Elegia fenestrata*, listed as Vulnerable, a coastal species found in marshes. It is threatened by coastal development and invasive alien species: and *Cyperus textilis*, the leaves and stems are woven into baskets or made into mats. A map of veld types helped reinforce the information I had been learning at Kirstenbosch. In Cape Town there is a patchwork of twenty different vegetation types, six of which are found nowhere else in the world - four are renosterveld, strandveld, lowland fynbos and mountain fynbos.

Renosterveld means "rhinoceros scrub" - in the past, rhinos and other game used to roam in this veld. Nowadays, most renosterveld has been used for agriculture, it has a reddish-brown soil. Strandveld means "beach veld" - it's usually found near the sea or on old dunes, with a white sandy soil. Lowland fynbos occurs on deep sandy soils on the coastal plain, away from any dunes.

One area in the garden was planted with *Haemanthus coccineus* bulbs, which had been rescued by The City of Cape Town Biodiversity Management Branch from a housing development site on the Cape Flats. The Wetland walk was interesting, it was fairly dry as it was summer but the lowlands of Cape Town used to be a spiderweb of vleis and seasonal wetlands - with urbanisation this changed dramatically: many vleis were drained and rivers were canalised.

I learnt a new Xhosa word, *vukani* - meaning to wake up, for example wake up the senses; I connected with the concept of this. There was information about local biodiversity projects, such as: the Beyond Expectation Environmental Project (BEEP), started by Lindela Mjenxane, which aims to help township youths connect with the environment:

Greenpop, a movement which recently popped onto the scene, their first goal was to plant 1,000 trees in under-greened schools and creches of the Cape Flats during September 2010. They bring South Africans together by mobilising volunteers, community members and sponsors to create fun, educational tree-planting events: and CREW, the Custodians of Rare and

Figure 79: Green structure

Endangered Wildflowers, a programme that involves the public in the monitoring and conservation of South Africa's threatened plants.

29.2 V&A Waterfront

I walked from the park to the waterfront, the morning was misty but by midday the sun came out and the views of the sea were beautiful. I enjoyed espresso at a nearby cafe and took in the surroundings of the waterfront, including the Cape Wheel. I'm not really one for retail therapy so I walked around the large shopping mall and along the seafront to the lighthouse, where I strolled along the promenade for a while before returning to the mall for lunch.

In one section of the sea there was a structure rising out of it like a periscope above the waves - according to an information board this is part of the engine block of the Royal Mail Ship (RMS) Athens, wrecked in 1865. After lunch I bought more food for the coming week and rang the Kirstenbosch bus driver, Mr Green, for a lift back to the garden. It had been fun being a tourist for the day.

29.3 Table Mountain

Altitude: 1,086 metres

I explored Table Mountain on two occasions; the first time it was cloudy and the summit wasn't visible, I enjoyed a wander around the lower pathways rather than a full excursion to the top. The second time the weather was perfect and I climbed to the summit - it was magical, the cloudless skies ensured a birds eye view from every angle.

Due to the very exposed flat terrain on the top of Table Mountain it could be dangerous if bad weather suddenly swept in; I was itching to climb the mountain but only if the weather allowed me to do so, I felt very fortunate to have a truly beautiful day to enjoy the climb. It is always best to have a partner to climb with you but I took precautions by purchasing a map of

Figure 80: View of the lighthouse

Figure 81: The waterfront

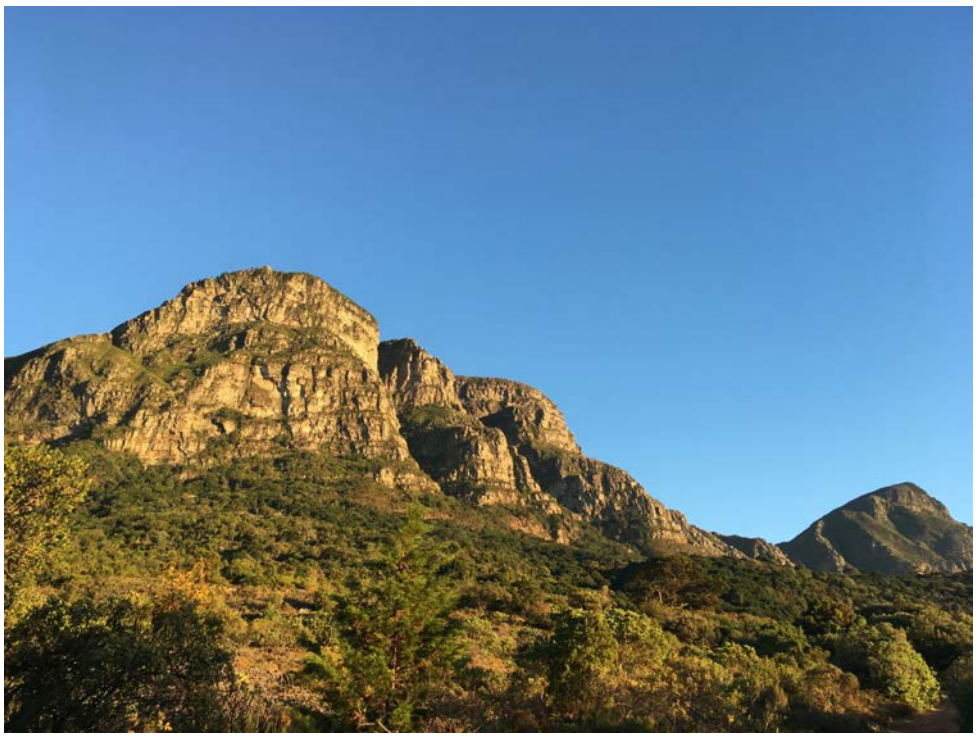

Figure 82: Table Mountain, the day of the climb

Table Mountain, taking plenty of food, water and waterproofs and having emergency numbers handy.

As it was a sunny Sunday there were plenty of people out and about at various points on the mountain, meaning if I had encountered a problem help wouldn't have been far away. I ascended via Skeleton Gorge, a steep climb which involved scrambling over boulders and using fixed ladders in sections near the summit.

Figure 83: Ladders up Skeleton Gorge

It was cool at the beginning of the climb, trekking through the low mountain slopes allowed me to appreciate the temperate habitat of Afromontane forest and noticing *Podocarpus latifolius*, *Olinia ventosa* and *Rapanea melanophloeos*. The forest suddenly opened out, exposing breathtaking, sunny views and a very different flora to what I had just witnessed. Restionaceae and Ericaceae were now the dominant species, interspersed with Proteaceae members *Protea cynaroides* and *Leucadendron strobalinum*.

Just before I arrived at Breakfast Rock I spotted my first *Disa uniflora*, aka Pride of Table Mountain... it was a moment I will never forget. A flash of red averted my eyes from the path and I clambered a short distance through rocks and vegetation to the edge of the cliffs.

Figure 85: View on hike to Maclear's Beacon

The disas were growing in clumps in the shady outcrop of the cliff, near a running supply of water. I had read they prefer cool, moist conditions hence this habitat was ideal for them.

Figure 84: *Crassula coccinea*

Some flowers were over, some just peaking, the scent was exquisite - a fragrance like chocolate. *Disa uniflora* is easily the most recognised and celebrated orchid on Table Mountain, the most flamboyant disa I have seen - to see it flowering was the icing on the cake. This orchid has an ingenious method of pollination, needing help from its sole pollinator, the Table Mountain Pride Butterfly (*Aeropetes tulbaghia*). It doesn't produce nectar but mimics the flowering time of *Crassula coccinea* which do give the butterfly the nectar feed it requires; because of this the butterfly is tricked into landing on *Disa uniflora*.

After a break for food I hiked an hour or so to Maclear's Beacon, the highest point on Table Mountain. The terrain was relatively flat and the habitat opened out into true Table Mountain fynbos, I saw a variety of fynbos species and how they dramatically changed from one area to the next. Many species of flora is found only on Table Mountain; the main reason for this abundance of flora is down to the broad range of soils found in close proximity to each other.

Figure 86: *Disa uniflora*

Figure 87: View of Kirstenbosch and beyond

Figure 89: Pathway to Maclear's Beacon

The soil fertility is pretty poor in some areas, as nutrient leaching from the shallow substrate and rocky terrain is common. On route to the summit I spotted carnivorous sundews (*Drosera* sp.), dotted around in damp areas carpeted with moss, further highlighting the issue of poor nutrition.

Figure 88: Fynbos vegetation

The summit is unusual because it is not a classic mountain peak but an eerily flat shelf. A kind couple took a photo of me at Maclear's Beacon, a picture I will treasure.

I soaked up the surroundings, trying not to be too snap-happy with the camera and just absorb the sensational views and plants. *Disa ferruginea* was prevalent during my hike, cheeky dots of red amongst the rocks, as was *Crassula coccinea*. I decided to walk a loop through Echo Valley via the water reservoir back to my descending point at Nursery Ravine. The map I bought was very handy, there were also several sign-posts at crucial crossings in the pathways, meaning I didn't get lost once. Along the route to the reservoirs I saw a whole bank of *Disa uniflora* near a stream, it was unbelievable to see them growing en masse. The large water reservoir supplies the majority of Cape Town's water, it was strange seeing what looked like a vast lake on top of the mountain. There was a small museum near the dam, it was only

Figure 91: *Drosera*

Climbing down Nursery Ravine was easier than going back via Skeleton Gorge, it felt like a longer route but there were no ladders or scrambling involved, just a lot of steps. The views were almost better on the descent than the ascent, because I was facing the right way coming down. The slopes down the ravine were littered with *Protea cynaroides*, seeing large populations of King Protea thriving on the mountain was another unforgettable moment.

"Tree artichoke from Table Mountain" was how *Protea cynaroides* was first described by botanists in the 1700s, its Latin species name *cynaroides* means "like the Globe Artichoke, *Cynara scolymus*". They may look a bit alike but are not related! The flowers are rich in nectar, people used to collect the nectar, boil it until it turned syrupy and use it like sugar - this is why proteas are also known as *suikerbos*, meaning sugar bush.

Figure 90: *Protea cynaroides*

I spent the rest of the day relaxing at my accommodation, letting the sights, sounds and smells of the day sink in. I felt triumphant to look back at Table Mountain on the days that followed and think to myself "I was up there, as high as the clouds..."

Figure 92: Myself at Maclear's Beacon - photo taken by fellow hikers

30 Week 2

Figure 93: *Disa ferruginea*

My second and final week! The time had come round quickly, with two wonderful garden visits as well as more tasks completed at Kirstenbosch.

30.1 Arderne Gardens

Adam has been heavily involved with Arderne since he was a teenager; he mapped and labelled most of the trees and started the Friends of the Arderne Gardens scheme fifteen years ago. He was giving the Kirstenbosch volunteer garden guides a tour of Arderne and invited me to come too as he knew I was keen to see the sensational tree specimens.

Arderne Gardens were established in 1845 by Ralph Henry Arderne, a successful timber merchant and cabinet maker who hailed from Cheshire, England. He started to collect plants from all over the world and plant them in his estate, and, in time, the garden became famous. Development of Arderne was continued by his son, Henry Mathew Arderne, into the early part of the twentieth century.

Figure 94: Water reservoirs

Figure 95: Tour of Arderne Gardens

The father and son duo got in touch with Sir William and Sir Joseph Hooker, the father and son Directors at the Royal Botanic Gardens Kew, and the Ardernes sent newly discovered plants from South Africa to Kew (as well as other botanic gardens in the world). When the Arderne family passed away in the 1920s, the City of Cape Town purchased the land and the council looked after it but the gardens fell into a state of neglect in the late 1980's.

Figure 96: *Ficus macrophylla*

In 2004, the Friends of the Arderne Gardens (FOTAG) was established as a public benefit organisation with the objective of working with the City of Cape Town to protect, preserve and promote the garden. The heavens decided to open just as the tour started, it was hard to write notes or take photos in the monsoon! It soon stopped and by midday the sun was shining.

There were many rare and unusual tree species, some very old. One of the largest trees in South Africa is at Arderne, a *Ficus macrophylla* with an incredible canopy and ethereal, octopus-like branches. Five other trees have Champion status, as follows:

- *Agathis robusta*
- *Araucaria heterophylla*
- *Pinus halepensis*
- *Quercus cerris*
- *Quercus suber*

The cork oak tree (*Quercus suber*) was astonishing, with its leathery bark and vast trunk - easily the biggest cork oak I have ever seen. The website is very detailed, with a comprehensive tree list for the garden (see Bibliography section for link).

A few years ago the municipal water supply for irrigating the gardens was removed by the council so Arderne had to rethink how to water the garden. A borehole was installed to trap the surface run-off which is then pumped into huge water tanks which hold about 70,000 litres collectively. Native planting is now used frequently, species which are naturally drought-tolerant.

The Hiroshima area was one of my favourites, filled with specimens which are descendents from the original plants that survived the horrific bombings. These species were propagated at Kirstenbosch, a *Ginkgo biloba* tree was tiny but beautiful. Arderne is famous for its collection of monkey puzzles, with many stunning species of *Araucaria* (no *Araucaria araucana* however).

Araucaria bidwillii was especially stunning, its cones can weight up to ten kilograms. Chicken wire is wrapped around the base of some of the older trees, to prevent people from etching graffiti into the trunks - it does the trick and is hardly noticeable from a distance. Other noteworthy trees included:

- *Araucaria columnaris*

- *Araucaria angustifolia*
- *Araucaria cunninghamii*
- *Araucaria rulei*
- *Caesalpinia ferrea*
- *Cephalotaxus fortunei*
- *Corynocarpus laevigata*
- *Liquidambar formosana*
- *Magnolia figo*
- *Phyllocladus aspleniifolius*
- *Pseudobombax ellipticum*
- *Stenocarpus sinuatus*

30.2 Pot Cleaning

Sterilising pots is essential, a repetitive but necessary task. At Kirstenbosch there is no need to scrub pots clean (as I have experienced in other gardens); a dustbin is filled with water and Terminator is added, one litre per ten of water, then the pots are drenched in the water for a few minutes and left to drain.

Figure 97: *Araucaria bidwillii*

30.3 Tool Inventory

I helped Nezzi update the tool inventory, which is normally done once every few months. We noted which tools were present in the store cupboard and updated the Excel sheet on the works' computer with this new information.

30.4 Bed Clearance behind the Collections Houses

Another team job was tackling the beds behind the Collections Houses, they hadn't been tidied for a while and were in a mess. It was the hottest day of the week so far and we were sweating buckets by the end of the day! I helped the team weed out invasive plants, remove dead foliage from aloes and agapanthus, and prune plants which were overhanging the pathways.

Figure 98: Meeting Nelson Mandela! - photo by Nezzi

Figure 99: Myself and Nezzi planting behind the Collections Houses - photo by Thembi

The bed closest to the succulent house was home to precious rocks, such as rare sandstone which Adam had personally collected from the top of the Table Mountain range. Most of the plants were cleared completely from this bed, in order for the rocks to be seen and not buried. This area will now be used to trial succulents before they are planted elsewhere in the garden, more of a demonstration bed than an ornamental one.

By clearing the beds we must have disturbed a snake, myself and Nezzi were walking down the path towards the Conservatory when we saw a huge black snake across the pathway, half clinging to a *Cussonia* branch - Nezzi is not a fan of snakes and fled, I wasn't far behind her. The snake moved pretty sharpish too, I think we disturbed his sleeping pattern! It was most likely a boomslang (*Dispholidus typus*), the one and only snake I saw in South Africa was a memorable moment!

Figure 100: First view of Karoo Desert National Botanical Garden

30.5 Karoo Desert National Botanical Garden

My last day was a work's outing to the Karoo Desert gardens in Worcester - a couple of hours drive from Kirstenbosch. We loaded the small trailer with some of the pelargoniums we removed from the stone plant area in the Conservatory, and set off. The route to Karoo was beautiful, with views of the Hottentots Holland mountain range. We drove through the Huguenot Tunnel and continued to Worcester along the Du Toitskloof Pass.

Adam pointed out areas he had explored with other botanists on field trips, including Du Toits Peak. I'd love to climb some of those mountains one day. From a distance we saw *Kumara disticha*, silhouetted against the sky; they grow wild on the mountains here and are cultivated at Kirstenbosch.

Before our visit Adam warned us how the weather is dramatically different in Karoo compared to Kirstenbosch - it is a desert after all. However we were somewhat hysterical when we arrived and were greeted with cloud and drizzle, not the 40 **°C** we had prepared for! Although the sun didn't appear it was still a fantastic visit.

Ricardo Riddles, a horticulturist at Karoo, gave us a brief tour of the gardens before lunch. The garden is situated at the foot of the Hex River Mountain range, and was established in 1921. It is 145 hectares in size, only eleven hectares of the garden is cultivated. The remaining landscape is left for natural vegetation, which has several trails leading through the estate, offering dramatic views of the mountainous surroundings.

The garden conserves and displays plants from the arid and semi-arid regions of southern Africa, with the main focus on succulents. Municipal water is used hence irrigating is challenging in summer for the lawn areas, but the rest of the garden survives well with minimal irrigation. The Heritage Garden focuses on plants used by the Khoisan for various purposes. Two traditional huts, the *matjieshut* 'reed house' and the Nama *kookskerm*, which is used for cooking and socialising, are displayed here.

Figure 101: Nandi and Nezzi with traditional huts

Figure 102: *Aloidendron dichotomum*

The cycad area was recently developed with cycads used from the Eastern Cape. The rocks for the also newly developed Little and Great Karoo area were locally sourced to maintain authenticity. On the lower sections near the Restaurant, the beds are ordered according to family, for example Euphorbiaceae, Mesembryanthemaceae and Asteraceae - I can imagine this area is a showstopper in spring.

Themed beds and displays containing plants found growing in the Namaqualand, Richtersveld and the Karoo make up most of the garden. Some of the pathways were framed by towering specimens of *Portulacaria afra*, a succulent shrub. My plant highlight was seeing the modest forest of quiver trees, *Aloidendron dichotomum*; the species name means "forked" and refers to multiple stem branching, which gives it a more rounded shape. To see them on a scale like this was extraordinary, it was the perfect spot for a team photo.

Ricardo gave us his blessing to take as many cuttings and/or seeds of plants we fancied trying at Kirstenbosch, Adam prepared us beforehand with secateurs and paper bags. *Melianthus* seed, *Crassula* and *Othonna* cuttings were collected to name a few, soon our bags were full! After a picnic lunch we had a tour of the

Figure 104: In the Collections Houses with Shireen

Collections Houses in the nursery area, from Shireen Harris.

The collections mainly consisted of members from Euphorbiaceae, Crassulaceae, Aizoaceae, Asphodelaceae and Apocynaceae. The labelling system for the succulent collection is colour-coded to distinguish the rainfall areas that the plants inhabit and whether their wild existence is threatened. This helps ensure water is provided at the correct time of year for each plant.

There was debate as to whether it's best to group plants together in this way or not, as when they are in groups it's easy to water them without thinking whereas when you have to look and see which individual plant needs watering it gives you chance to notice other things such as its state of health, etc. The collections were immaculately kept with gorgeous specimens of stapelias, aloes, tylecodons and stone plants, particularly lithops and conophytums.

Conophytum burgeri was a bizarre being, with an appearance like a swollen jelly baby! Other interesting plants noted were:

Figure 103: *Conophytum burgeri*

- *Ammocharis longifolia*
- *Brunsvigia josephinae*

- *Crassula deltoidea*
- *Crassula rupestris* ssp. *rupestris*
- *Euphorbia mauritanica* var. *mauritanica*
- *Haworthia mutica*
- *Othonna arbuscula*
- *Othonna obtusiloba*
- *Sceletium tortuosum*

I could have spent all day at Karoo but we left in time to drop Adam's team home for 5.00pm, afterwards Adam dropped me off at the airport. The day had gone by in a blur and suddenly saying farewells and ending the day at the airport made it reality that my South Africa adventure was over.

Part VI
Summary

31 Conclusion

I feel the following aims and objectives were not just met but exceeded:

- To increase knowledge of South African flora
- To increase knowledge of South African species suitable for cultivation in the UK
- To increase understanding of conservation projects abroad
- To increase understanding of how botanical gardens are managed abroad
- To learn propagation techniques for a variety of plants
- To share knowledge with the wider world of horticulture

During this trip I gained a greater understanding of the native flora and its ecology, including the varying habitats in which it grows and its cultivation requirements. I also observed species already established in UK gardens and improved my overall plant identification skills. The chance to listen, observe and interact with different botanists, garden owners, and horticulturists as well as the other trip participants gave me a significant amount of knowledge to implement in my horticultural career.

It was thrilling seeing plants in their native habitat, my highlights were the various *Protea* species, the plethora of plants in Sani Pass, *Streptocarpus* species, *Nerine bowdenii*, *Disa uniflora* and the flora on Table Mountain, and the contrast of gardens visited in Cape Town. Working at Kirstenbosch was a fantastic opportunity, I learnt a huge amount in two weeks including valuable insight into how the botanical garden operates on a daily basis as well as the conservation work it does in the wider community and new practical skills such as propagation and watering methods, particularly for succulent species.

I will build on the knowledge and skills I gained in South Africa and share my experience with others at every appropriate opportunity. Although a month seemed like a long time to be

Figure 105: Team photo at Karoo - photo by Nandi

away from both home and work, I feel that I only scratched the surface of what this country has to offer. My personal interest in South African flora increased dramatically, especially with plants-people like Elsa Pooley and Adam Harrower sharing their vast knowledge with such generosity - their presence enhanced my ability to grasp the truly unique flora of South Africa.

A discussion with Adam in regards to funding opportunities available in the UK for horticultural-related studies compared to South Africa made me realise even more how fortunate we are to have organisations such as the RHS, Merlin Trust and plant and garden societies like the MPG and PGG to support and encourage the horticultural industry.

Being away from home makes me appreciate the outstanding flora and world-renown gardens we have in the UK. What is on our doorstep is often the most breath-taking; it is only when we leave this behind we realise what we're missing. Travelling in any context is always rewarding; as a horticulturist I am fortunate enough to link travel with work, but it never feels that way. What I do for a living is also what I do in my spare time, horticulture is more than my career - it is my identify.

Overall this trip was an incredible, life-changing experience. South African plants have been a lifelong passion and to find plants in their natural habitat, (whether I had seen them before or not) from wildflowers to trees and bulbs, gave me goosebumps. To see firsthand the richness and diversity of the flora was a truly unforgettable experience.

32 Return Plans

I would return to South Africa without hesitation, in particular for the stunning spectacle of spring flowering annuals in Namaqua National Park. Visiting the same areas is highly desirable, I was overwhelmed by the variety and contrast in species from the Drakensberg to Cape Town - I could return day after day throughout the seasons in order to study different aspects

of the flora. Two places in particular to visit again would be the Royal Natal National Park and the Karoo regions in the Western Cape.

33 Budget Breakdown

Description	**Amount (£)**
Total cost of the MPG trip in the Drakensberg and Cape Town (including accommodation and food whilst in the Drakensberg, guides and drivers, transport and entrance fees for cultural excursions)	2,880.00
Air flight: return from London to Cape Town	563.52
Air flight: single from Cape Town to Durban	42.15
Train: return from home address to London	58.85
Evening meals & lunches whilst in Cape Town	59.33
Accommodation at Kirstenbosch for two weeks	338.97
Food whilst at Kirstenbosch	113.06
Travel insurance	22.00
Field guides	29.75
Miscellaneous: souvenirs, travel adaptor, sun cream, laundry at hotels, gratitudes for drivers	88.37
Total cost	4,196.00
RHS Coke Trust Bursary Fund	1,200.00
Merlin Trust Award	1,000.00
Mediterranean Plants and Gardens Bursary	500.00
Personal contribution	1,496.00

Signature.....

Figure 106: Group photo at Dylan Lewis Sculpture Garden - photo by garden guide

34 Acknowledgements

I would like to thank the RHS Coke Trust Bursary Fund, the Merlin Trust and Mediterranean Plants and Gardens Bursary Committee for granting me the funding which enabled me to go on this trip. Without this generous assistance being part of the trip would not have been possible, for which I am extremely grateful.

I would also like to express my great appreciation to Elsa Pooley for organising and leading a truly amazing trip and for her indispensable help and advice.

A huge thank you goes to Adam Harrower and his team, in particular Nezzi, for welcoming me so wonderfully to the Kirstenbosch family and making me feel like a valuable member of the team.

My heartfelt thanks go to everyone else in South Africa who helped make the trip run smoothly, including our Cape Town tour guide Charlie Ratcliffe, our coach driver Praveer and drivers for Sani pass, local garden guides and B&B owners. The trip would not have been as enjoyable without their warm welcome, generosity and enthusiasm.

A final message of thanks goes to the other trip participants, for being joyous, engaging and humorous company. Special thanks go to Jorun Tharaldsen and Celia Jones for being unofficial tour photographers and providing photos of me for this report.

35 Bibliography

35.1 Books

Manning, John. *Field Guide to Fynbos*. Struik Publishers. 2018.

Pooley, Elsa. Mountain Flowers: *A Field Guide to the Flora of the Drakensberg and Lesotho*. Flora Publications Trust. 2013.

35.2 Websites

Mediterranean Plants and Gardens (MPG)

http://www.medpag.org

Arderne Gardens Champion Trees

https://www.ardernegardens.org.za/champion-trees

Plantz Africa

http://pza.sanbi.org/

36 List of Drakensberg Flora

Full list of plants (flowering and non-flowering) seen during the Drakensberg part of the trip:

Acanthaceae

Hypoestes triflora

Achariaceae

Kiggelaria africana

Agapanthaceae

Agapanthus campanulatus

Amaryllidaceae

Brunsvigia radulosa
- *Brunsvigia undulata*
- *Crinum bulbispermum*
- *Cyrtanthus epiphyticus*
- *Haemanthus humilis*
- *Haemanthus humilis* ssp. *hirsutus*
- *Nerine bowdenii*
- *Scadoxus puniceus*

Anacardiaceae

Rhus dentata
- *Rhus discolor*
- *Rhus pyroides*

Anthericaceae

Chlorophytum bowkeri
- *Chlorophytum cooperi*
- *Chlorophytum krookianum*

Apiaceae

Alepidea natalensis
- *Alepidea thodei*
- *Heteromorpha arborescens*
- *Pimpinella caffra*

Apocynaceae

Gomphocarpus fruticosus

Aquifoliaceae

Ilex mitis

Araceae

Zantedeschia aethiopica
Zantedeschia albomaculata

Araliaceae

Cussonia paniculata

Asclepiadaceae

Schizoglossum atropurpureum ssp. *atropurpureum*
Schizoglossum bidens ssp. *pachyglossum*
Xysmalobium parviflorum
Xysmalobium undulatum

Asparagaceae

Asparagus microraphis
Asparagus ramosissimus
Eucomis autumnalis ssp. *clavata*
Eucomis bicolor
Eucomis humilis
Eucomis schijffii
Massonia echinata

Asphodelaceae

Aloe striatula
Bulbine abyssinica
Bulbine narcissifolia
Kniphofia breviflora
Kniphofia caulescens
Kniphofia gracilis
Kniphofia laxiflora
Kniphofia linearifolia
Kniphofia ritualis
Kniphofia thodei
Kniphofia triangularis
Trachyandra asperata
Trachyandra saltii

Asteraceae

Achillea millefolium
Arctotis arctotoides
Artemisia afra

Aster erucifolius
Athrixia angustissima
Athrixia fontana
Berkheya cirsiifolia
Berkheya multijuga
Berkheya rhapontica
Berkheya rosulata
Berkheya setifera
Berkheya speciosa
Bidens formosa
Chrysanthemoides monilifera
Chrysocoma ciliata
Cineraria dieterlenii
Cotula paludosa
Cotula socialis
Dicoma anomala
Dimorphotheca jucunda
Eumorphia prostrata
Euryops acraeus
Euryops annii
Euryops decumbens
Euryops evansii
Felicia filifolia
Felicia uliginosa
Gazania krebsiana
Haplocarpha nervosa
Helichrysum adenocarpum
Helichrysum albo-brunneum
Helichrysum appendiculatum
Helichrysum aureum
Helichrysum auriceps
Helichrysum basalticum
Helichrysum cymosum
Helichrysum drakensbergense
Helichrysum evansii
Helichrysum glomeratum
Helichrysum herbaceum
Helichrysum hypoleucum
Helichrysum lineatum
Helichrysum milfordiae
Helichrysum montanum
Helichrysum pagophilum
Helichrysum pilosellum
Helichrysum sessilioides
Helichrysum spiralepis
Helichrysum splendidum
Helichrysum subglomeratum
Helichrysum sutherlandii
Helichrysum trilineatum

Helichrysum umbraculigerum
Helichrysum witbergense
Hirpicium armerioides
Inulanthera thodei
Nidorella undulata
Osteospermum thodei
Pentzia cooperi
Schistostephium crataegifolium
Senecio macrospermus
Senecio oxyriifolius
Senecio polyodon
Senecio seminiveus

Balsaminaceae

Impatiens hochstetteri

Begoniaceae

Begonia sutherlandii

Boraginaceae

Afrotysonia glochidiata
Cynoglossum austroafricanum
Lithospermum afromontanum
Myosotis semiamplexicaulis

Brassicaceae

Heliophila formosa

Buddlejaceae

Buddleja loricata
Buddleja salviifolia
Gomphostigma virgatum

Campanulaceae

Wahlenbergia cuspidata
Wahlenbergia huttonii
Wahlenbergia krebsii
Wahlenbergia polytrichifolia ssp. *dracomontana*

Cannabaceae

Cannabis sativa

Caryophyllaceae

Cerastium arabidis
- *Dianthus basuticus* ssp. *basuticus*
- *Silene bellidioides*
- *Silene undulata*

Clusiaceae

Hypericum aethiopicum

Colchicaceae

Sandersonia aurantiaca

Commelinaceae

Commelina africana

Convolvulaceae

Cuscuta campestris

Crassulaceae

Cotyledon orbiculata
- *Crassula brachypetala*
- *Crassula dependens*
- *Crassula papillosa*
- *Crassula peploides*
- *Crassula sarcocaulis* ssp. *rupicola*
- *Crassula setulosa* var. *setulosa*
- *Crassula vaginata*

Cucurbitaceae

Momordica foetida

Cupressaceae

Widdringtonia nodiflora

Cyperaceae

Mariscus congestus
- *Carex zululensis*

Dipsacaceae

Cephalaria galpiniana ssp. *simplicior*
- *Cephalaria natalensis*
- *Scabiosa columbaria*
- *Scabiosa drakensbergensis*

Droseraceae

Drosera natalensis

Ebenaceae

Diospyros austro-africana
Diospyros whyteana

Ericaceae

Erica caffrorum
Erica thodei
Erica woodii

Eriospermaceae

Eriospermum cooperi
Eriospermum ornithogaloides

Euphorbiaceae

Acalypha punctata
Euphorbia epicyparissias

Fabaceae

Argyrolobium marginatum
Calpurnia sericea
Indigofera hedyantha
Lessertia perennans
Lotononis eriantha
Lotononis foliosa
Lotononis galpinii
Lotononis laxa
Lotononis lotononoides
Lotononis pulchella
Lotononis sericophylla
Otholobium polystictum
Psoralea sp.
Rhynchosia harmsiana
Trifolium burchellianum
Zornia linearis

Fumariaceae

Cysticapnos pruinosa

Gentianaceae

Chironia krebsii
Sebaea sedoides

Geraniaceae

Geranium drakensbergensis
- *Geranium magniflorum*
- *Geranium multisectum*
- *Geranium pulchrum*
- *Geranium schlechteri*
- *Geranium wakkerstroomianum*
- *Monsonia attenuata*
- *Pelargonium luridum*

Gesneriaceae

Streptocarpus gardenii
- *Streptocarpus pentherianus*
- *Streptocarpus pusillus*

Greyiaceae

Greyia sutherlandii

Gunneraceae

Gunnera perpensa

Hyacinthaceae

Albuca fastigiata var. *floribunda*
- *Galtonia candicans*
- *Galtonia regalis*
- *Ledebouria cooperi*
- *Ledebouria ovatifolia*
- *Litanthus pusillus*
- *Ornithogalum graminifolium*
- *Scilla natalensis*

Hypoxidaceae

Hypoxis filiformis
- *Hypoxis iridifolia*
- *Rhodohypoxis baurii*
- *Rhodohypoxis baurii* var. *platypetala*

Iridaceae

Aristea cognata
- *Aristea grandis*
- *Crocosmia paniculata*
- *Dierama dracomontanum*
- *Dierama latifolium*
- *Dierama pictum*

Dietes iridioides
Gladiolus crassifolius
Gladiolus dalenii
Gladiolus ecklonii
Gladiolus flanaganii
Gladiolus microcarpus
Gladiolus saundersii
Hesperantha baurii
Hesperantha coccinea
Hesperantha crocopsis
Moraea albicuspa
Moraea brevistyla
Moraea inclinata
Moraea trifida
Watsonia confusa

Lamiaceae

Leonotis dubia
Leonotis intermedia
Mentha aquatica
Mentha longifolia
Plectranthus calycinus
Plectranthus grallatus
Satureja compacta
Stachys kuntzei

Lobeliaceae

Cyphia tysonii
Lobelia flaccida
Lobelia galpinii
Lobelia preslii
Lobelia vanreenensus
Monopsis decipiens

Malvaceae

Anisodontea julii
Hibiscus trionum

Melianthaceae

Melianthus villosus

Mesembryanthemaceae

Delosperma hirtum
Delosperma obtusum

Molluginaceae

Psammotropha obtusa

Moraceae

Ficus ingens

Myrsinaceae

Myrsine africana

Oliniaceae

Olinia emarginata

Onagraceae

Epilobium salignum
Oenothera rosea

Orchidaceae

Brownleea galpinii ssp. *major*
Brownleea macroceras
Corycium dracomontanum
Disa brevicornis
Disa cephalotes ssp. *cephalotes*
Disa patula
Disa stachyoides
Disa versicolor
Disperis cardiophora
Disperis fanniniae
Disperis wealii
Eulophia welwitschii
Eulophia zeyheriana
Habenaria dives
Habenaria dregeana
Habenaria laevigata
Habenaria lithophila
Huttonaea oreophila
Pterygodium cooperi
Satyrium cristatum var. *cristatum*
Satyrium longicauda var. *longicauda*
Satyrium neglectum
Satyrium parviflorum
Schizochilus flexuosus
Stenoglottis fimbriata

Oxalidaceae

Oxalis depressa
- *Oxalis obliquifolia*
- *Oxalis semuloba*

Papaveraceae

Papaver aculeatum

Piperaceae

Peperomia retusa

Poaceae

Harpochloa falx
- *Merxmuellera macowanii*
- *Monocymbium ceresliforme*
- *Thamnocalamus tessellatus*

Podocarpaceae

Podocarpus falcatus
- *Podocarpus henkelii*
- *Podocarpus latifolius*

Polygalaceae

Polygala gracilenta
- *Polygala hottentotta*
- *Polygala ohlendorfiana*
- *Polygala rhinostigma*
- *Polygala virgata*

Polygonaceae

Persicaria lapathifolia

Proteaceae

Protea caffra
- *Protea dracomontana*
- *Protea roupelliae*
- *Protea subvestita*

Pteridaceae

Pellaea calomelanos

Ranunculaceae

Anemone fanninii
- *Clematis brachiata*
- *Ranunculus meyeri*
- *Ranunculus multifidus*
- *Thalictrum rhynchocarpum*

Rhamnaceae

Rhamnus prinoides

Rosaceae

Alchemilla colura
- *Cliffortia nitidula* ssp. *pilosa*
- *Leucosidea sericea*
- *Rubus ludwigii*

Rubiaceae

Conostomium natalense
- *Galium capense*
- *Pentanisia angustifolia*

Salicaceae

Salix mucronata ssp. *woodii*

Santalaceae

Osyris lanceolata

Scrophulariaceae

Bowkeria verticillata
- *Buchnera simplex*
- *Cycnium racemosum*
- *Diascia anastrepta*
- *Diascia cordata*
- *Diascia integerrima*
- *Diascia purpurea*
- *Diclis rotundifolia*
- *Glumicalyx flanaganii*
- *Glumicalyx goseloides*
- *Harveya speciosa*
- *Hebenstretia dura*
- *Jamesbrittenia breviflora*
- *Jamesbrittenia lesutica*
- *Jamesbrittenia pristisepala*
- *Limosella vesiculosa*

Nemesia caerulea
Nemesia rupicola
Phygelius aequalis
Phygelius capensis
Selago melliodora
Selago monticola
Sopubia cana
Striga bilabiata
Sutera floribunda
Sutera patriotica
Selago galpinii
Zaluzianskya elongata
Zaluzianskya microsiphon
Zaluzianskya pulvinata

Sterculiaceae

Hermannia malvifolia
Hermannia woodii

Thymelaeaceae

Dais cotinifolia

Valerianaceae

Valeriana capensis var. *capensis*

Velloziaceae

Xerophyta viscosa

Vitaceae

Rhoicissus tridentata

Zamiaceae

Encephalartos ghellinckii