Finding Fynbos

Of The Western Cape, Via Grootbos

A Professional & Personal Journey To South Africa
September 13th - 21st October 2018
By Victoria Ind

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1: ITINERARY

13th-15th September 2018: Travel from Dublin Ireland to Cape Town. x2 nights in Cape Town.

15th September 2018: Collection from Cape Town by Grootbos Foundation, transport to Grootbos staff accommodation, Gansbaai.

16th September-15th October 2018: Volunteer work with Green Futures, a division of the Grootbos Foundation. Mainly based on the Grootbos Nature Reserve & surrounding areas of Gansbaai & Masakhane township.

20-23rd September 2018: Weekend spent in Hermanus, attend Fernkloof Flower Festival.

15th October 2018: Leave Grootbos, travel to Cape Town.

16th October 2018: Visit to Vergelegen

17th October 2018: Visit to Lourensford & Stellenbosch

18th October 2018: Visit to Dylan Lewis Sculpture Garden

19th October 2018: Visit to Kirstenbosch Botanic Garden

20th October 2018: Visit to Green Point Diversity Garden & Company Gardens

21st October 2018: Return to Dublin Ireland.

Fig: (i)

2: INTRODUCTION

When asked as a teenager what I wanted to do with my life I'd have told you I wanted to be outdoors and I wanted to travel. Unfortunately, as life is wont to do, I never quite managed the latter. I did manage to live a life outdoors working with horses and dogs and gardening in my spare time. About six years ago I took a temporary position covering a gardener's sick leave in a local professional garden. Long story short, my position became full-time and I subsequently studied for my RHS qualifications 'on the job'. I'm now a Senior Gardener at Lismore Castle Gardens, Co Waterford, Ireland.

This year the dreams of travel that I had put to bed 20 years ago became a reality when my boss (the brilliant Head Gardener Darren Topps), suggested I plan a bursary trip to South Africa to study the fynbos floral kingdom, an area I have been interested in for many years. My primary aim was to try and gain some insight into propagation methods of this notoriously difficult plant material and also hopefully make some horticultural contacts for future seed sourcing and professional exchanges. As part of my trip I hoped to spend the last week of my five week stay viewing the xerophytic plant-life of the Karoo region. Unfortunately my planned trip to the Karoo was called off at the last minute. I was going to find my own way there but recent violent protest road closures, burning out of railway carriages and sporadic bus strikes made solo travel precarious at best. The fact I was unable to rent a car prompted the guys I was working with to strongly advise against traveling alone to remote areas at the risk of getting stranded.
As a result of this situation I decided to change the final part of my trip and base myself in Cape Town and plan garden visits to see how fynbos plants are being used in contemporary South African garden design.
The fact I had to tweak my final week was a bit of a disappointment, but the altered programme was probably more relevant to the job I do in the long run so was not wasted and was actually very informative and inspiring. This trip was both a personal and professional journey for me and would not have happened were it not for the wonderful profession that is, horticulture.

3: GROOTBOS

Things began with the Grootbos Nature Reserve when a tract of 123 hectares was purchased by the Lutzeyer family in 1991. Fairly quickly the family purchased surrounding properties bringing the total reserve area up to the 2,500 hectare protected reserve it is today. Grootbos Eco-lodges stand on the original part of the reserve overlooking Walker Bay and its breaching Southern Right Whales, with the nearest town of Gansbaai to the East, Hermanus scattering itself along the Western sweep of the bay and The Cape Of Good Hope just visible as a hazy pointed finger reaching out into the Atlantic beyond it. The Eco-lodges are the main hub of the Grootbos business providing high end Eco-tourists an opportunity to learn all about the natural beauty of the Western Cape while surrounding themselves with luxury.

The Grootbos *Foundation* was started by the Lutzeyer family in 2004 to provide training and jobs to members of the local 'community' (local township of Masakhane). The first project began as the Green Futures initiative, a horticultural school which trains 12-14 local young adults in horticulture and life skills. Some of the students are given full time jobs on the reserve after completion of the course, working as gardening staff in the indigenous plant nursery, or as part of the landscaping team that serve the surrounding towns or larger reserve. Funds generated from plant sales and landscaping jobs go back into funding the project as does some of the revenue generated from the Eco-lodge business and funds from various beneficiaries and sponsors. Green Futures has grown to include a whole conservation unit and formed a partnership with the Walker Bay Conservancy, a project that encourages local land owners to sign over areas of land to enable the ongoing survival and protection of the Walker Bay fynbos biome. Grootbos also has established links with the Eden Project in Cornwall who host three students from Green Futures every year.

My Accommodation at Grootbos

Volunteer Work At Green Futures. Plant Nursery.

Cilena Danisa, Grootbos Nursery Supervisor

The bulk of my time at Green Futures was spent working in the Indigenous Fynbos Plant Nursery with Cilena, the nursery supervisor. The nursery grows plants for sale to the public as well as ensuring an ongoing supply of material for the Eco-lodge gardens and landscaping business. Fynbos propagation methods turned out to be much the same as I'm used to, but the substrate and after-care are very different, the biggest difference being in the protected growing units. The insulating properties of a glasshouse aren't really required in the South African Med climate, but shade and wind-break is essential in the protection of vulnerable plants. This part of the Western Cape has almost constant windy conditions frequently becoming gale force and very strong intense summer sun, so most protected growing environments are constructed from heavy duty netting or mesh which acts as shade and wind-break. The nursery prop house is a well built structure with a fixed corrugate plastic roof with netting sides and ends, ventilation is excellent due to this. Benches are set at waist height and have bottom heat provided by heating cables set at about 15°C, adjusted accordingly and overhead misters are set to every ten minutes or so, again set depending on conditions though due to the nature of fynbos material, high humidity levels are not as vital for successful propagation.

Cuttings are taken from the surrounding fynbos fairly frequently to maintain the nursery supply. Cilena's selection of material follows a general rule of thumb, that is; to ensure the parent plant isn't over harvested and the material selected is not actively flowering. Many fynbos plants flower on a portion of the plant more or less throughout the whole year, so selection of fresh, green non-flowering tips and stems is preferable, if you can find them. A lot of fynbos material does not provide much root-hormone rich material due to its leggy, woody growth habit, so most of the cuttings taken at Grootbos are treated with hormone rooting gel or powders, particularly those containing 1- Napthylacetic. Once cuttings have rooted in the main prop house, they are hardened off in a shade house where they wait to be potted on. Time in the shade house varies depending on factors such as how well cuttings are rooted or simply, how urgently the new plants are needed. Some plants stay like this for some weeks before being moved on and seem to cope quite happily with this.

Most cuttings are rooted into a course and open mix of horticultural potting bark and polystyrene, not the most environmentally sound addition, but certainly the cheapest. For potting on, a mix of coir, bark and river sand in equal parts is used, particularly for Proteaceae. More robust fynbos material that can cope with varied pH such as *Polygala myrtifolia* and *Tecoma capensis* for instance, are potted into a sandy loam enriched with well rotted horse manure from the near-by stables. Much of the nursery weeding involves pulling Alfalfa grass seedlings from the pots as a result! I do not have precise measurement information as all mixes are measured by eye at a roughly equal parts ratio. Potting is carried out outside where huge piles of substrate is mixed in-situ, the nursery team then pull up crates and sit about the pile filling up flat-pack plastic bag pots. Plants are inserted into pots after filling, holes created with fat dibbers or strong fingers. This way of potting on was new to me but it is effective and quite efficient and good for practising squats.

Almost all the material at the nursery is the result of vegetative prop with attention being paid understandably, to species that propagate easily and quickly and have a rapid sales turnover as useful and attractive garden plants. *Proteaceae* present on the reserve are not propagated often due to their difficulty to get rooting vegetatively, though seed is collected and germinated of vulnerable species on the reserve or wider area. Many of the *Restio* stock is also grown from seed as it germinates and establishes relatively quickly and easily and only very mature clumps of *Restio* on the reserve can have divisions successfully taken.


Fig: (ii)

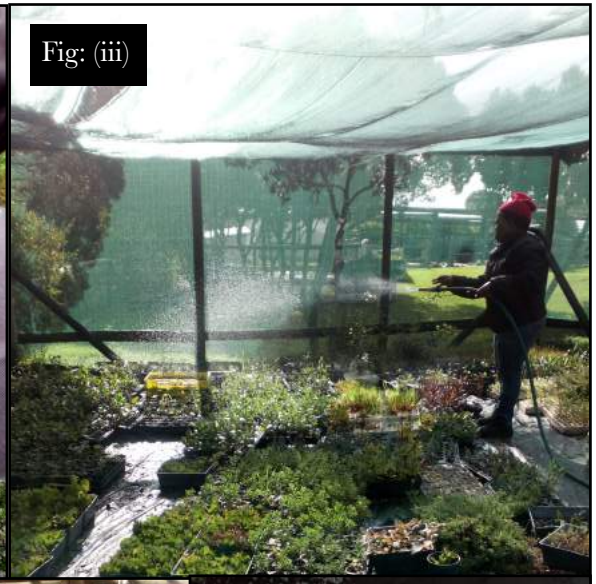


Fig: (iii)


Fig: (iv)


Fig: (v)


Fig: (vi)

A Bit More About Seed At Grootbos

As mentioned, some of the fynbos material on the reserve is not propagated for sale due to its difficulty. However, as part of the on-going conservation of local indigenous plants, seed of the rarer or slow to establish species are still collected and stored. Before storing, the cured fynbos seed is smoke treated to break germination inhibitors. The smoke treatment operation is very lo-fi, consisting of a pit filled with green fynbos material and a metal frame with a mesh grid that sits a meter or so over the pit. A fire is made in the pit with care taken to ensure the fire burns 'cool', that is to say, smokey. A smouldering fire is perfect as it is the smoke not heat that is required. The frame is placed over the pit and the bags of seed are placed on the mesh shelf then the whole thing is covered with sheeting to help keep the smoke contained and allow the seed to be fully permeated by smoke. For a good smoke treatment the set up is allowed to sit like this for a full 24 hours or more. I was told fynbos material must be the fuel for any smoke treatment of fynbos seed as it contains the correct levels of volatile compounds needed to break seed dormancy, I'm unsure of the scientific factuality of this, but it would be an interesting experiment.

Many fynbos genera set seed throughout the year and take many months to ripen particularly *Proteaceae* species, which have an amazing array of seed dispersal methods including 'myrmecochory', dispersal by ants, 'serotiny', retention of seeds in old flower heads until plant death or fire and 'cached seeds', use of rodents or other seed eaters to bury seeds. Sowing is always undertaken in the South African autumn when temperatures fall and the rains arrive. Fynbos seed once spurred on by smoke treatment, needs cooler temperatures and moisture to kick it into life with day temperatures no more than 20°C and nighttime no more than 10°C. The pyrophytic nature of the fynbos flora is incredibly interesting and fire is essential in its survival as a healthy and diverse biome. Seeds saved, primed and sown in the nursery are used to bolster up struggling communities of species in areas of the wider Walker Bay Conservancy where poor land management has led to slow re-establishment of fynbos and as a back up to preserve the reserve's own populations.

Growing The Futures & Masakhane Community Farms

My time with Green Futures meant I occasionally worked with the team at Growing The Futures Organic Farm and Masakhane Community Farm. The former is a well established site set within the Grootbos reserve and the latter is a charity/self funded venture based on the outskirts of the Masakhane township in Gansbaai. Growing The Futures Farm produces organic fruit, vegetables, eggs and pork for the Grootbos Eco lodge and fynbos honey is also produced and jarred here. The site homes a candle recycling and mineral water bottling initiative, both products being used by the lodges. Most of the workers here are graduates from the Green Futures horticulture course or from other land based training that is facilitated by The Grootbos Foundation. The farm consists of two recently donated industrial sized polytunnels growing the usual vegetable crops, two large areas of shade tunnel and outdoor plots given over to olive and pomegranate plantations, garlic beds, herb planters and communal spaces for visiting guests.

At both locations I was struck by how much work needed to be done in building up the soils for production gardening. Although very open alkaline or acid soils are excellent for fynbos biomes, they are practically useless for producing food. Growing The Futures Farm had the better soil, having a rich and plentiful supply of pig manure on site and mulches were added as a matter of routine whenever a batch was ready. Even so, the soil here was extremely sandy with only a thin humic layer. The gardeners were actively developing ways to increase production while reducing water use and hydroponics was just beginning to be utilised in the garden. A gravel bed system was already up and running, with another system being installed in the form of a gravity fed raised pvc pipe system. The plan was to grow strawberries in this and both systems were housed in the expansive shade/wind break tunnels. The whole Growing The Futures Farm was surrounded by baboon proof fencing. The local baboon troup is extraordinarily destructive and the idea of them rampaging through a plot put my western idea of pest problems into perspective.

Fig: (xi)

Fig: (xii)

The moments I got to spend at Masakhane Community Farm were extremely eye-opening. Masakhane is a fairly typical South African township its community mainly made up of Xhosa people. Most of the Xhosa in Masakhane migrated from the Eastern Cape and came to Gansbaai in the hope of employment. Sadly though, particularly for inhabitants of townships, unemployment and its accompanying social issues is a reality all over South Africa with unemployment rates at almost 30%. Projects like the Masakhane Community Farm at least go some way in trying to help people stand on their own with some pride. At the Community Farm Zokhanyo Bikani trains members of the community in food production and small business enterprise skills. After completion of the course the members are allocated a small plot of land where they may grow food for either themselves or for sale to the Grootbos lodge or local market. Even from small allotments the members of the Community Farm manage to scrape a bit of extra sustenance.

The soil here is basically just sand and is right on the coast so also suffers from harsh salt-laden winds. I was impressed by the resilience of the people here who manage to utilise everything to try and boost production. Native *Eriocephalus africanus, Salvia africana-lutea* and *Pelargonium tomentosum* are grown and harvested as culinary herbs and edible flowers and coastal conditions are exploited to grow edible succulents such as *Aptenia cordifolia* and *Carpobrotus edulis,* which are currently en-vogue as an ingredient. Pontscho Chiloane works as a manager at Masakhane along with Zokhanyo and the pair have just embarked on a venture growing oyster mushrooms in a small donated polytunnel. The spore was initially purchased and used to 'seed' straw that the guys had sterilised with boiled water and pushed into old buckets with holes punched in for the mushrooms to grow from. The buckets were suspended from the crop bars of the polytunnel and wrapped in black bin liners to create the damp, dark conditions mushrooms favour. This is potentially a lucrative enterprise for a relatively small outlay and is non-reliant on the rich soils required by traditional food crops. The Community Farm had also created a wormery to help them make as much feed as possible for the land. The fact that these guys get any produce at all from this sandy, bleak plot on the edge of an industrial estate is a testament to the hard graft, determination, good spirit and imagination of the community members.


Fig: (xiii)

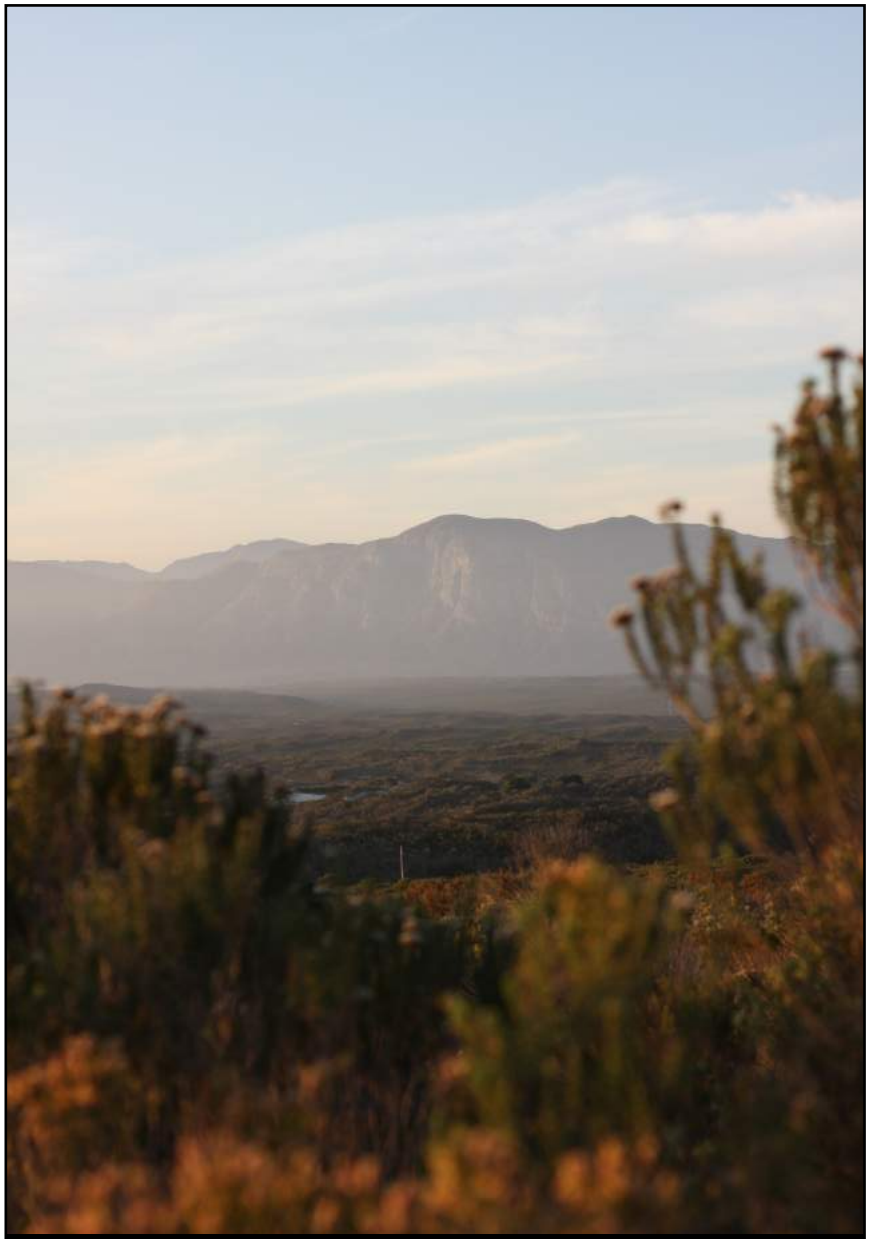

Fig: (xiv)


Fig: (xv)


Fig: (xvi)


Fig: (xvii)


Fig: (xviii)



The Klein Rivier Mountains flanking the western horizon of Grootbos

4: BOTANISING

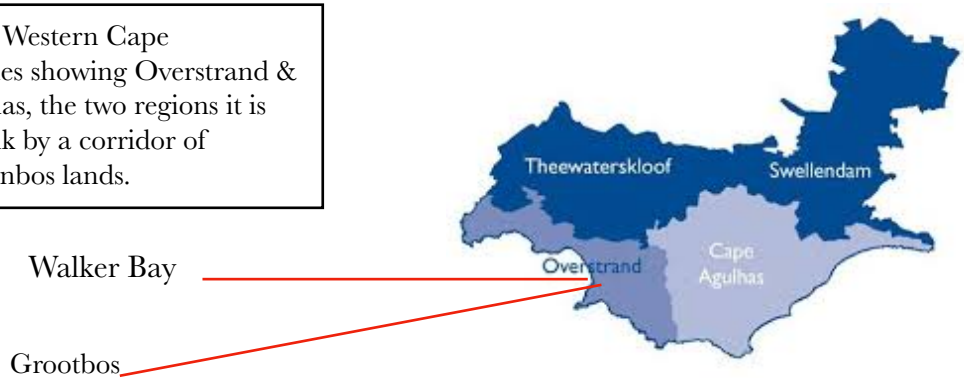
The majority of the Grootbos reserve is made up of Overberg dune strandveld, which is characterised by very deep, alkaline (6.5-8 pH) calcareous soils deposited when the ocean levels retreated during various ice-ages as ocean water became tied up at the Poles. The dune soils around Walker Bay are deposited over Table Mountain limestone and were laid down in the last several million to several thousand years ago. Also on the reserve are Bredasdorp limestone formations, areas where marine organisms were deposited in concentrated numbers during the retreat of the sea-level. Table Mountain Sandstone and ancient ferricrete soils are exposed on the higher slopes of the reserve, these soils are more acidic and provide more of the classic fynbos floral landscape than the dune flats, it's here where the majority of *Proteaceae* are found on the reserve thanks to pH levels of around 5.5. The higher altitude areas where natural seeps and wetland zones appear are the location of more organically rich soils and there are also several areas of healthy afromontane and milkwood forest on Grootbos.

Grootbos Conservation Team

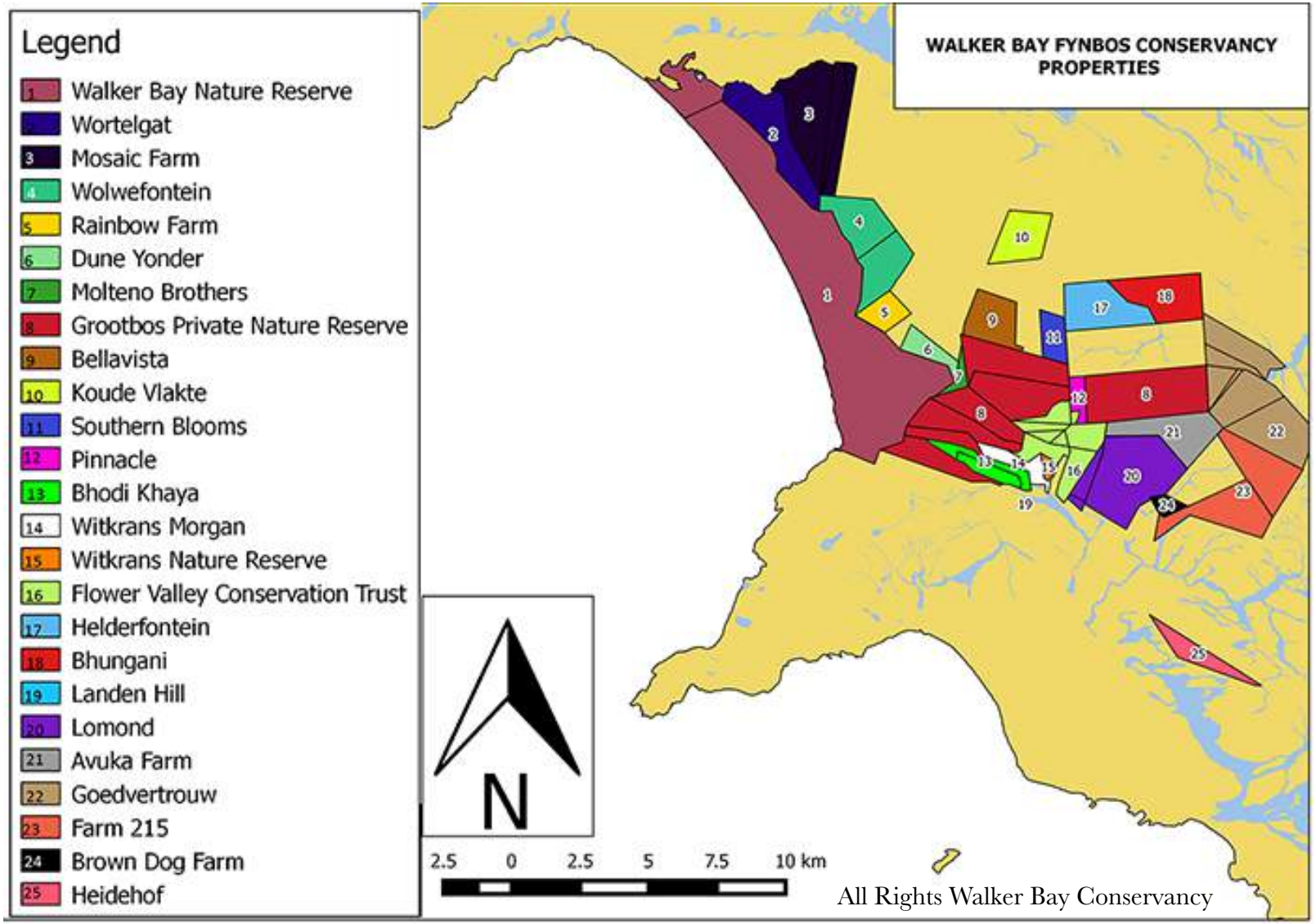
As a partner of The Walker Bay Conservancy, Grootbos plays a large role in helping to monitor species recovery on Conservancy land that has recently been signed into conservation servitude, land that has been cleared of alien vegetation, or areas that have experienced a burn. The Green Futures conservationists make regular field trips to record data of land recovery and scrutiny of the sites in this way is vital in building up a permanent record of plant and animal species on Conservancy lands. The Walker Bay Conservancy aims to create a permanently protected corridor linking the Overstrand and Walker Bay area with the Cape Aghulas region.

So far there are 25 members signed up to the Conservancy, protecting a total of 16,000 hectares of lowland fynbos and forest. The area includes many hectares of critically endangered Elim ferricrete fynbos, as well as some areas of renosterveld a fynbos veld-type possessing more nutrient rich soils than most, making it very scarce indeed! Most of the wine farms around the Western Cape once would have been renosterveld fynbos, now only around 5% of it exists in the Overstrand region.

Map of the Western Cape municipalities showing Overstrand & Cape Agulhas, the two regions it is hoped to link by a corridor of protected fynbos lands.



The diverse and beautiful fynbos recolonising site (A) after recent clearing of pasture land.


Legend
1 Walker Bay Nature Reserve
2 Wortelgat
3 Mosaic Farm
4 Wolwefontein
5 Rainbow Farm
6 Dune Yonder
7 Molteno Brothers
8 Grootbos Private Nature Reserve
9 Bellavista
10 Koude Vlakte
11 Southern Blooms
12 Pinnacle
13 Bhodi Khaya
14 Witkrans Morgan
15 Witkrans Nature Reserve
16 Flower Valley Conservation Trust
17 Helderfontein
18 Bhungani
19 Landen Hill
20 Lomond
21 Avuka Farm
22 Goedvertrouw
23 Farm 215
24 Brown Dog Farm
25 Heidehof
WALKER BAY FYNBOS CONSERVANCY PROPERTIES
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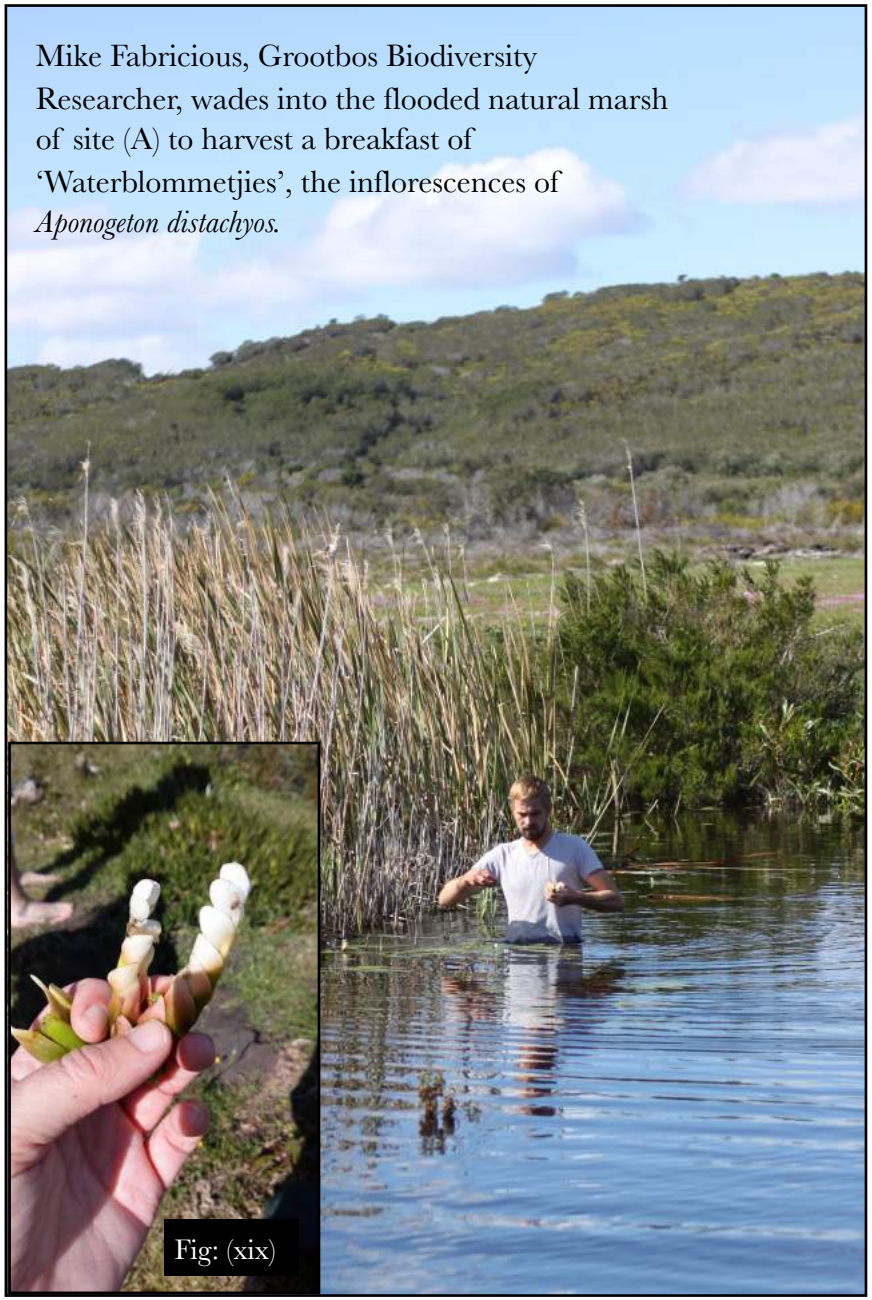
2.5 0 2.5 5 7.5 10 km
All Rights Walker Bay Conservancy



Mike Fabricious, Grootbos Biodiversity Researcher, wades into the flooded natural marsh of site (A) to harvest a breakfast of 'Waterblommetjies', the inflorescences of *Aponogeton distachyos.*

Fig: (xix)

I will refer to areas visited alphabetically in order of when seen to protect any information that may be deemed sensitive for land-owners such as location of endangered species or details of work being carried out.

Our first location (A) was based just off a main road and situated a short drive across cattle pasture to an area at the base of a small rise of hills. It was evident that the area was badly affected by the growth of invasive tree species namely *Acacia cyclops* and *Pinus*, with expansive stands of the trees flanking the edges of a recently flooded natural marsh area. The area was currently undergoing invasive alien clearing and a number of methods seemed to have been employed on the land. An area which previously would have been cattle pasture had been killed off and ploughed and other areas further into the land had been clear felled of alien vegetation and burned.

Advise given to landowners on best practise for reinstating fynbos depends on factors such as length of time and how lands have been cultivated and quantity, species and age of invasive species present on land. If it is thought there may still be an adequate fynbos seed-bank present in the topsoil, it is advised to clear off large material and burn at the end of summer to help break seed dormancy naturally. The area is left through autumn and winter to see what pops up by spring, in many cases a surprising variety of species are present particularly geophytes, which have good seed viability rates. Other genera may be introduced as over-sown seed or planted as actual seedlings, especially of endangered species that would have been endemic to the location.

The untouched, natural marshy area at location (A) is an important habitat within its fynbos biome providing essential habitat for many floral and faunal species. On this occasion it was flooded due to recent spring rains with ground water was evident bubbling up in places. The team had never seen this area so substantially flooded making passage across, even in the large off-road vehicle, quite a feat. After trying to access the desired location on foot minus boots and with rolled up trousers and being highly unsuccessful, it was eventually decided to chance it in the 'bakkie'. Slow and steady won the day and a good deal of hoping the air filter wouldn't saturate.

Once across the marsh, several hectares of acidic reclaimed veld opened itself up from the surrounding pastures as a beautiful patchwork of the greens and silver greys of low lying E*rica* and *Heliachrysum,* interspersed with young *Restio* and more geophytes and young *Proteaceae* than I could even begin to count. The team were surprised at the diversity evident in the location as the area had been bulldozed and ploughed to clear invasives, meaning substantial disturbance to the soil had occurred. This particular area had been left to see how recovery would go from existing seed-banks, reintroduction of genera only being undertaken if the area was lacking or needed more work in re-balancing the mix of plants. All of us immediately dropped to our knees to examine various beautiful specimens. Although quite scrubby and sparse, the vegetation was incredibly diverse and together created a seamless blend of texture and colour and the whole landscape exuded the potent scent typical of fynbos. The juvenile growth of the area really brought home to me how quickly the delicate fynbos biome could become overwhelmed by the fast growing, bulky invasive species, especially in its early years where sporadic areas of bare earth lay ripe for invasive seed to colonise. Closer to the invasive tree-line there was evidence of resprouting *Acacia* showing how essential it is to maintain a programme of clearing in reclaimed areas. Continued monitoring of lands is essential, removal of young invasive saplings being much easier and less demanding of resources than having to clear established stands. The conservation team put great emphasis on this fact in the hope that land-owners will keep up with alien clearing on a regular basis. There was still much work to be done removing the mature belt of *Acacia*, but it seemed that this land-owner was on course to successfully re-establish a healthy and diverse fynbos veld back to its former glory.

Bank of invasive species *Acacia cyclops* at site (A).

An invasive species of *Pinus* at site (A), showing the strong tap root that is so destructive

An area at site (A) of uncleared pasture, with an area of recently set aside land for fynbos recovery suffering from resprouting of invasives.

Some Plants at site (A)

Serruria fasciflora

Leucospermum hypophyllocarpodendron

Watsonia stenosiphon

Bobartia indica

Watsonia spectabilis

Leucospermum prostratum

Erica glabella


Site (A)
Moraea tripetala (a)


Moraea tripetala (b)

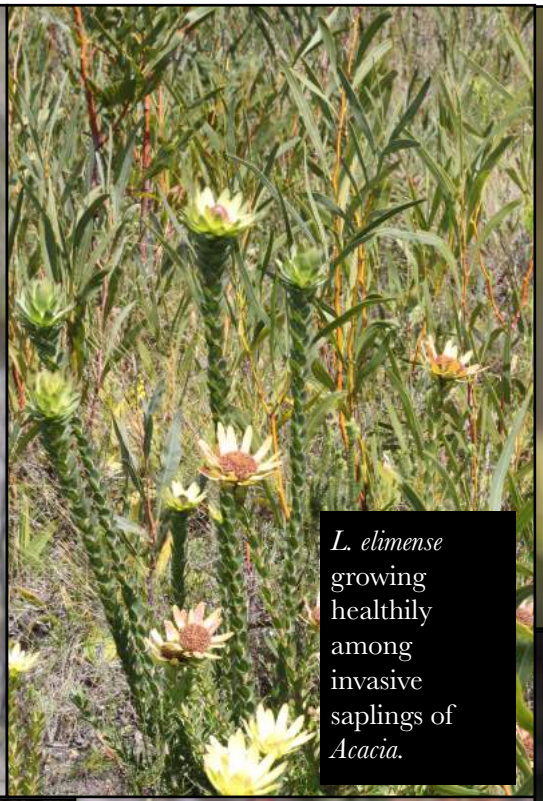

Wachendorfia paniculata

The team were keen to view the condition of site (B), another acidic site which had very recently undergone a planned clear of substantial alien growth in an area where the endangered *Leucadendron elimense* subsp. *elimense* grows and has been overwhelmed by invasives. In sensitive areas where healthy fynbos is still in active growth beneath the cover of aliens, it is advised that careful and sensitive clearing is undertaken, with invasives cut by hand to the ground and individual stumps treated with specific chemical controls. It is essential in these areas that after-care is maintained to prevent resprouting of aliens and an organised well planned regime of land maintenance is adhered to. It's important that felled alien wood is cleared from the site as piles of brash and trunks can remain a fire hazard, the wood burning at much higher temperatures than native material which can kill off pioneer species and seed reserves.

At site (B) it was clear that something had gone wrong. Where the team were hoping to find a clean area of healthy recovering fynbos, we arrived to a decimated waste-land with little growth. Large piles of wood and brash had been left laying about as were several open containers half full with weed killers. It appears the area had been clear-felled and then indiscriminately sprayed off with glyphosphate or similar non-specific chemical control. There was evidence of young *Leucadendron elimense* subsp. *elimense* completely burned off and well on the way to death. Invasive tree stumps had indeed been treated but the whole area in question had been obliterated. Mike of the conservation team, told me this sort of thing happens more frequently than they'd like, the problem being that individual land-owners are responsible for their own project management after receiving advice on the best clearing methods for the area by the conservation teams. It is then dependent on how well their staff are trained, over-seen and informed of best practice as to the sucess of the clear. Although it was disappointing to see such devastation there was hope, as a significant area had yet to be cleared. The fynbos within this stand of invasives was relatively healthy with large numbers of *L. elimense* subsp *elimense* happily growing with populations of *Drosera cistiflora* and termite mounds in the damaged areas was a positive sign, as termites act as groundsmen moving nutrients around the fynbos in healthy soils.

Mike Fabricious holds an open, half-full container of non-selective herbicide, that was discarded at the badly cleared site (B). *Note the poisoned *Leucadendron* to the left.


Site (B)
Leucadendron burned off from blanket spray of non-selective herbicide.


L. elimense growing healthily among invasive saplings of *Acacia.*


Female *Leucadendron elimense* subsp. *elimense*


Termite mound on badly cleared ground.


Drosera cistiflora


Male *L. elimense* subsp. *elimense*

Site (C) was found at the edge of a dirt road on one of the larger properties. It was only a relatively small plot of land that was brilliantly populated by *Satyrium coriifolium* and *Helichrysum patulum.* The area made an impressive scene and Rebecca Dames, Grootbos research botanist, noted that the area may benefit from over-sowing with a selection of fynbos wildflowers suitable for the area, such as *Nepeta, Zaluzianskya* and *Heliophila.* There was also a healthy splattering of (probable) *Ceratandra atrata* but it was decided to collect a whole plant of this orchid to bring back to scrutinise more closely and I.D, after first helping it along with a pollination. Site (C) was botanically showing signs of more neutral soil and the site also grew *Dicerothamnus rhinocerotis (*renosterbos), a good indication of renosterveld.


Satyrium coriifolium Fig: (xx)


Ceratandra atrata

Plant material at site (C). Neutral-slightly acid

I lost the notes on this particular one, but I think it was *Diosma oppositifolia.*

Pollen grains of *Ceratandra atrata.*

Helichrysum patulum

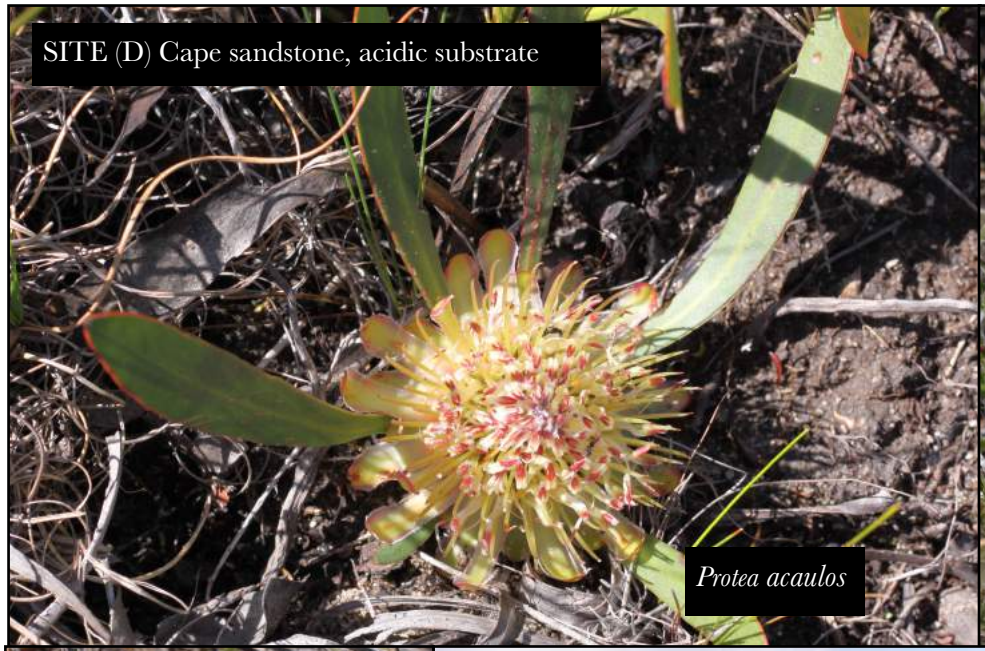
Rhynchosia caribaea

Mike Fabricious demonstrates ageing fynbos by counting inter-nodal spaces between branched stems. An incredibly precise way of telling how long it's been since a fire.

Site (D) was a typically acidic Cape sandstone based substrate featuring many *proteoids*, *erica* and *restio*, the classic three main feature genera that distinguish a floral kingdom as fynbos. This area was well established fynbos which last experienced a burn around sixteen years previously and was ripe for another. Members of The Walker Bay Conservancy work closely with each other and have created The Greater Overberg Fire Protection Association (GOFPA). Members are formally trained in fire management plans and drills and the group have managed to secure professional training and fire-fighting equipment. The Conservancy has drawn up detailed plans of scheduled managed burns as well as contingency plans should wild-fires strike. Controlled burns are essential in maintaining a healthy fynbos biome, as well as protecting valuable property belonging to conservancy members.

Fire season in the Overberg region falls between November and February (South Africa's high summer and autumn) and these are generally the months when controlled burns are undertaken. The timing of burning fynbos is important to the re-establishment of the biome. Many *Proteaceae* hold their seeds on the branch ready to be released in very hot dry conditions, or fire, which stimulates the opening of cones and release of seed (seritony). Also any seed that has been gathered and buried by rodents or insects, once stimulated by fire beneath the soil surface is primed for imminent cooler temperatures and rains for germination. Burning an area too soon in the season could be detrimental to seed viability and germination rates.
It is generally well recorded when the last fires in an area on the conservancy have occurred, but with a trained eye it will be obvious to most South African land-owners how old an area is depending on the genera of plants that are evident, with many geophytes being among the first plants to show up after a burn, along with resprouting species like some *Mimetes, Brunnia,* or *Leucadendron*. Many *Protea* sp. take at least three years before they are mature enough to produce flower and therefore seed, hence why too regular a burn can be catastrophic to the health of the fynbos. *Proteas* are one of the main players in reading the age of the fynbos, counting up a lead stem one year for each inter-nodal length before a branch and adding two years for the base stem.

SITE (D) Cape sandstone, acidic substrate



Protea acaulos

Protea scabra

Unopened *P. scabra*

Fynbos at site (D) overlooking a private wine estate with reservoir dug purely to provide water for vineyard. Wine Estate lands once would have been renosterveld.

Brunia laevis

Grootbos research botanist, Rebecca Dames.

Site (E) was a rocky, exposed environment of Overberg sandstone, which again is acidic in its pH. The area is the endemic home of *aloiampelos juddii,* a recently re-categorised branch of the *Aloe* family characterised by their sprawling, rambling habit. Wedged in between the rocks it was quite a special experience to meet and greet this succulent in person, so localised is its domain.
The area is typically very low in nutrient levels and gets extraordinarily dry in the summer season meaning the plants at this location, on the slopes of a small mountain, have to be incredibly tolerant to drought conditions.

The above photo shows a young *Protea cynaroides* growing from a tiny foothold between chunks of Overberg sandstone.

SITE (E)

A ragged boulder of Overberg sandstone protrudes from the exposed slopes of site (E).

Aloiampelos juddii growing from nothing in between two rocks.

Leucadendron tinctum

Botanist & fynbos expert, Sean Privett

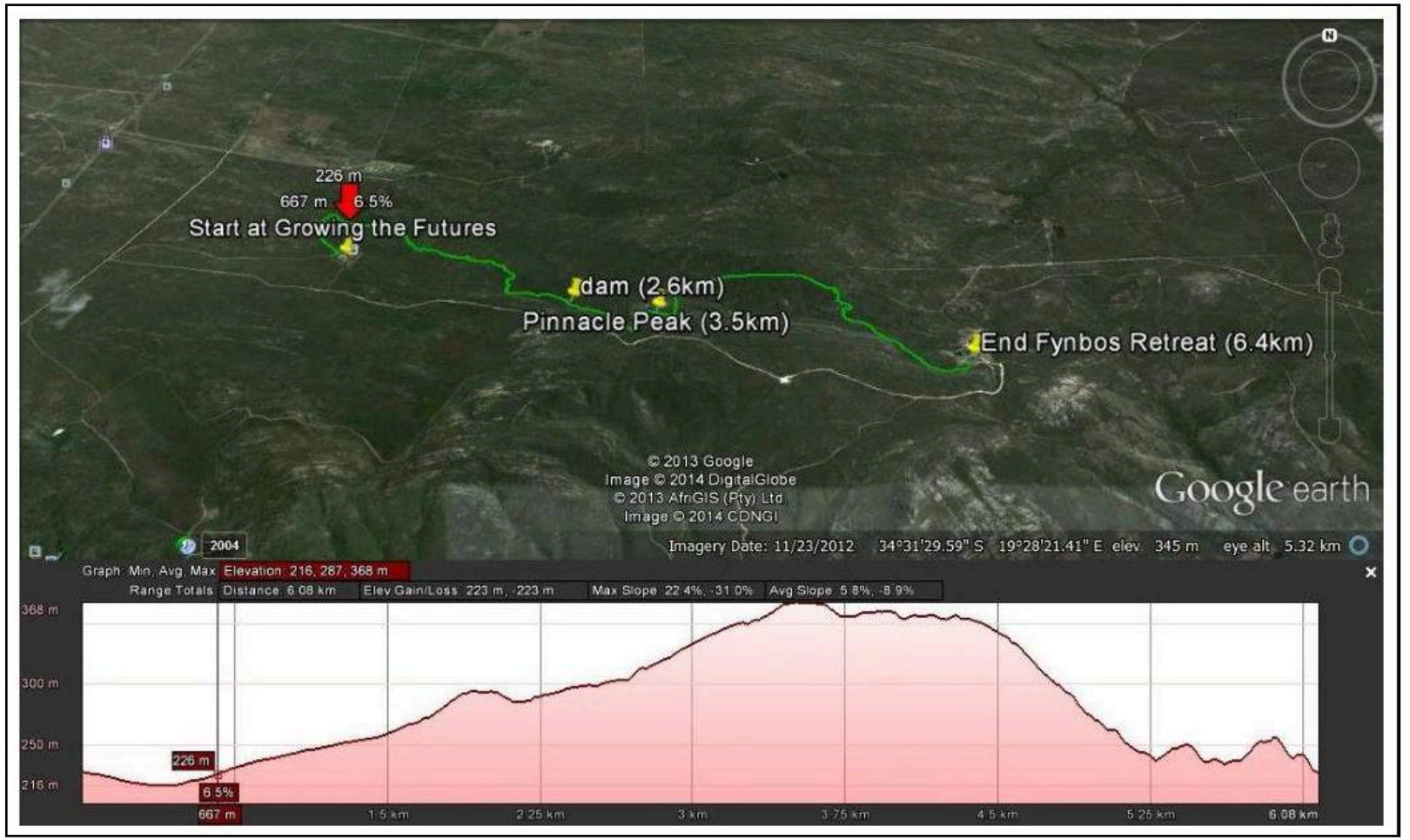
Hike With Sean Privett

It was my good fortune during my volunteering stay at Grootbos to be afforded the opportunity to jump in on a hike guided by Sean Privett, a bit of a fynbos conservation legend in South Africa who I'm sure pops up quite frequently in RHS bursary reports.

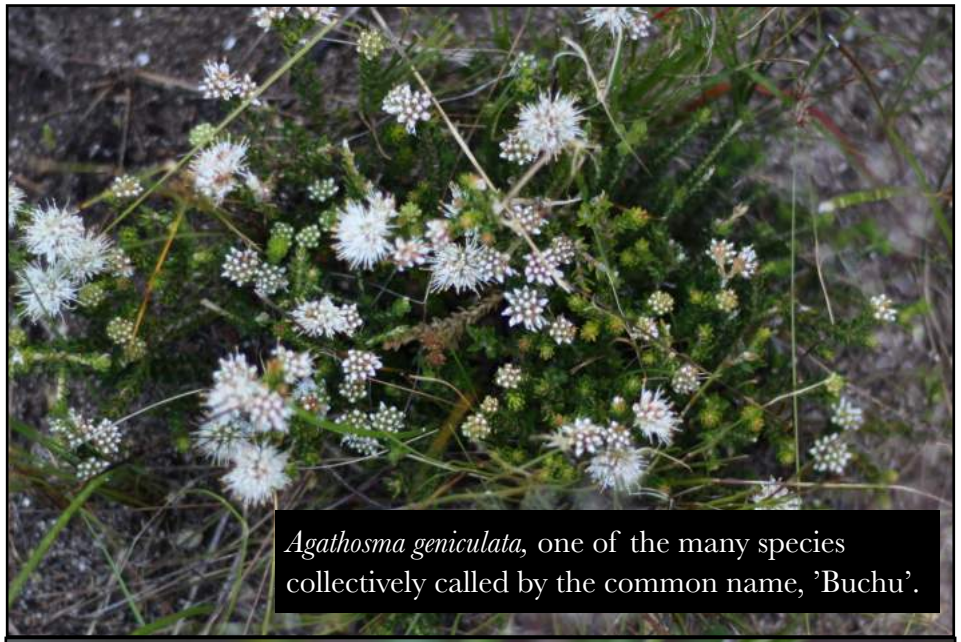
Sean met Micheal Lutzeyer, the owner and founder of Grootbos, in 2004 and was quickly employed as his head guide. Through the years Sean has become an integral part of the Grootbos empire helping to implement the Green Futures initiative and all the other conservation based programmes connected to the reserve and many more in the wider area of Walker Bay. He has helped identify six new species of plant on Grootbos and has found ten new species personally through his life. Sean's knowledge of the fynbos is incredible and he manages to impart it in a very personable, enthusiastic way. His passion for the botany of South Africa is infectious, not that I needed any persuading, but the other hikers on the trip were not plant enthusiasts particularly, but by the end of the hike were stooping every three feet or so to scrutinise details in morphology, or sticking their noses into bushes to check out what pollinators might be at work.

The 7 km hike passed too fleetingly and sadly I didn't get to ask as many questions as I'd have liked as I was quite aware that I was a guest hiker with a group who were paying for the privilege. I'm pretty sure I would still only be half way along the trail now had I started on my questions and Sean is such a nice guy, that he probably wouldn't mind.

Hiking Route



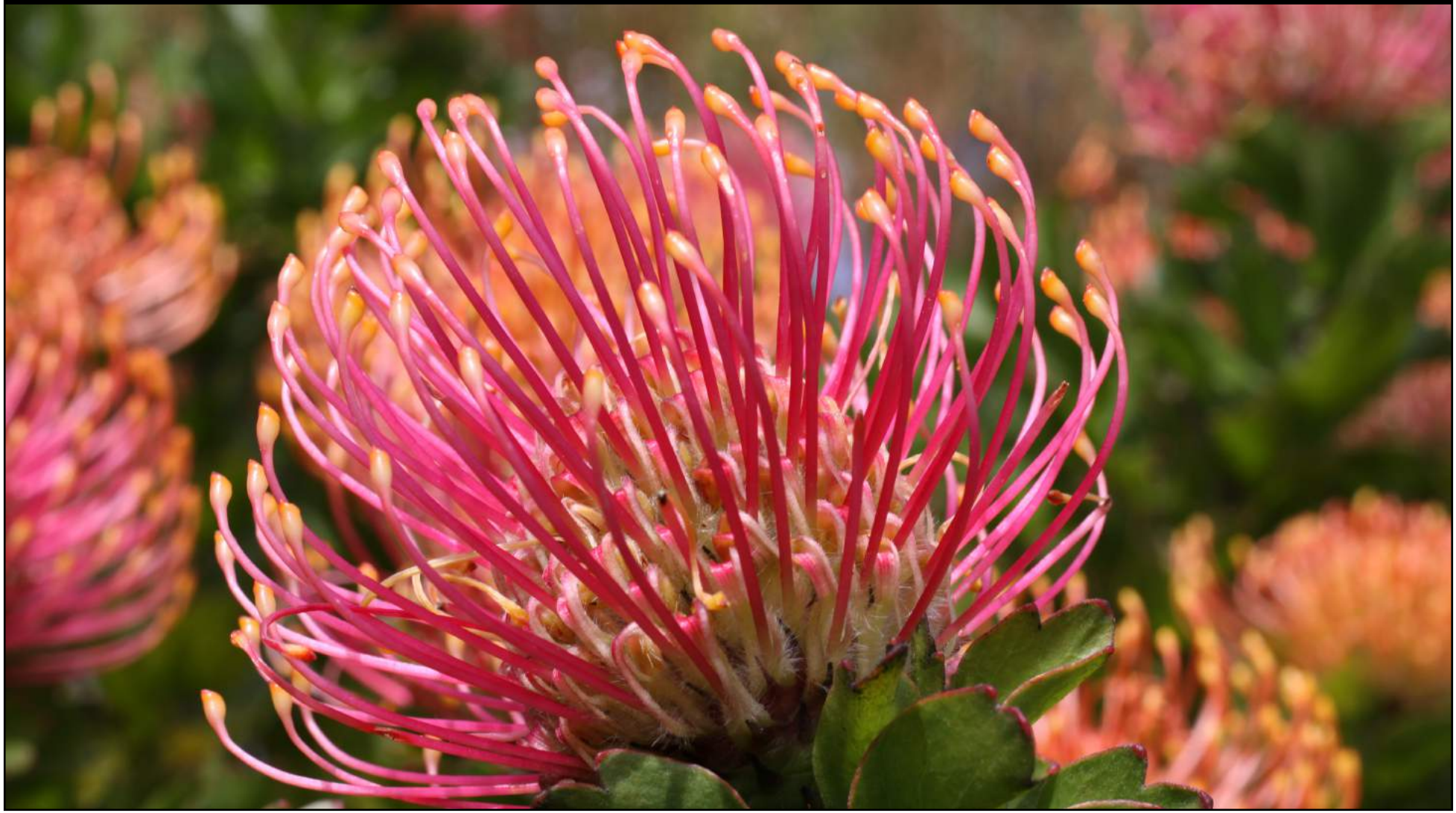
The day of the hike dawned over-cast and wet, the preceding night having had a downpour that seeped into my room and splattered my face prompting me to move my bed, normal weather for South African mid-spring apparently. The hike left from Growing The Futures Farm on Grootbos, a gathering point for the guided hiking groups who have a light lunch and refreshments before embarking on the trail. By the time we set off the weather had improved to a mild light gloom accompanied by the ever-present Cape wind. Occasional sunshine broke through the scudding low cloud spot-lighting circles of fynbos in a truly dramatic way. As we walked Sean would sporadically halt and draw our attention to a specific item of fynbos material where he would elaborate and bring the whole plant to life. The nice thing about Sean is that he is familiar with the colloquial names of his native plants, something that seems to be a South African tendency. Common names as well as Latin nomenclature are used in referencing plants, with the historical legacy of traditional names being well respected and honoured, many of the Afrikaans names having derived from the original Khoisan language. The high-brow snobbery of latin plant name knowledge found in the UK and Ireland is not present in South Africa. Of course there is such a diversity of plant material in the fynbos that most plants don't even have common names, those who do possess a common name however are almost always used in some way either as medicine or food or a way of identifying land. It delighted me to find that South Africans local to fynbos areas are knowledgeable about their native plants and actively use them. A plant known as 'Buchu', which seems to include a few species of *Agathosma,* is particularly well used, its medicinal qualities being heralded as the new wonder cure for just about everything. I had some in a Rooibos tea and baked into cookies where its unusual savoury camphorus oils taste amazing and I didn't catch the chesty cough that was doing the rounds, so I guess it probably works!



Agathosma geniculata, one of the many species collectively called by the common name, 'Buchu'.

Gomphocarpus fruticosus

The classically impressive *Proteaceae* flowers of *Leucospermum patersonii.* This shrub is the perfect example of how fynbos flora and fauna are interdependent on each other for survival. The flowers have evolved morphologically to provide a comfortable perch for sugarbirds who are encouraged to reach deep into the flower for their nectar reward. The prominent incurved styles dab their pollen onto the back of the bird's head, ready to be received during the next round of feeding. Seeds are produced sparingly and sporadically. Once ripe, they drop to the ground where ants swarm to collect and bring them back to their nests to feast on the energy rich elaisome, effectively planting the seed for when conditions are favourable for germination.



After moving through the milkwood forests stopping along the way frequently for botanical stories and amazements, we travelled toward Pinnacle Peak. Here the substrate began to change from the low lying alkaline sands to a slightly beefier and darker acidic sand of Overberg sandstone. From here the growth type significantly changed most notably in the sudden increase in P*roteaceae* species in the landscape. The area around Pinnacle Peak is over-due a burn with the fynbos having a substantial height and mass, with many dead or dying mature plants.

The fynbos biome has evolved to be reliant on a fire cycle of between every 15-20 years with fire being caused naturally in the past, by lightning strikes or in some areas rock falls. As mentioned previously though, fires tend to be managed by land-owners these days to help avoid destruction of inhabited areas. As a result of the reliance of fire for regeneration of fynbos, many species have a limited life-span of only between 15-25yrs after which time they begin to die off. If the fynbos never burned again it would quite rapidly become extinct. On the flip-side, if the fynbos was systematically poorly managed by too frequent fires (between 5-10 yrs), it would seriously damage the system as many species do not produce seed until their fifth year, so seed banks would soon be exhausted. So fine is the balance in fynbos regeneration and survival that within a lifetime or two of bad luck or bad management, it could all be gone. It was sobering to imagine the imminent inferno that would burn everything in the vicinity to the ground though it is through such destruction that so much diversity springs and I'm sure Sean will be relishing the day that he can come and explore this area post-fire to see what new botanical finds he can add to his list.

Hyobanche sanguinea Fig: (xxi)

Pelargonium tristis

Mimetes cucullatus Fig: (xxii)

Erica plukenetii subsp. *linearis* Fig: (xxiii)

Gymnosporia buxifolia Fig: (xxv)

Morella quercifolia

Leucadendron salignum Fig: (xxvi)

Ischyrolepsis leptoclados

Heliophila linearis var. *reticularis*

After lingering on Pinnacle Peak to take in views, we moved from slopes of acidic sandstone areas rich in *Leucospermum,* to rockier terrain of alkaline Agulhas limestone that lined the descending valley. Agulhas limestone was deposited as sediment in the form of shellfish and sands from the retreating ocean during previous ice-ages, hence its particularly calcareous make-up. The vegetation change is starkly evident with large *Proteaceae* making way for lower fine leaved shrubbery and herbaceous plants. There is one *Protea* in particular though who has learned to adapt to the alkaline conditions as well as being capable of thriving on acid soils in the area. *Protea obtusifolia* grows on the limestone fynbos on Grootbos and is an important source of food for Cape Sugar birds who are also its pollinators. It was in this last part of the hike that we also saw *Heliophila linearis* var. *reticularis,* a genus of particularly handsome *Brassicaceae* endemic to the Gansbaai area.

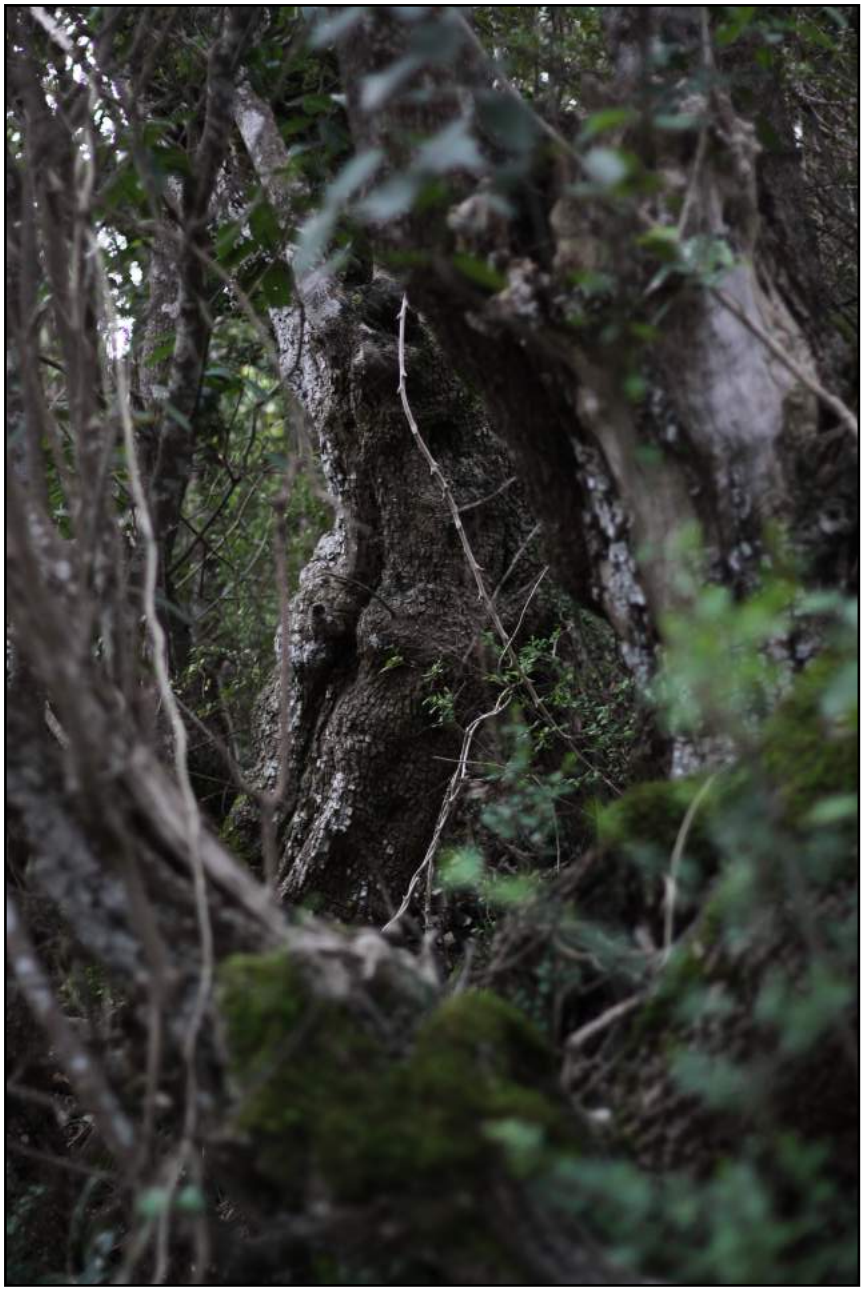
Protea obtusifolia

Milkwood Forests

The forests of the fynbos were one of the biggest surprises to me on this trip and I have to admit something I was completely ignorant of, my attention being pulled by the idea of all the amazing herbaceous, geophytic and shrub plants. Milkwood forests characteristically grow on colluvial soils with high mineral levels of phosphorous and calcium and as a result of the normal process of plant material laid down over time, soil fertility levels in the milkwood forests are increased. These impressive areas of the fynbos biome have become gradually more endangered due to the spread of alien invasives and historical clearing of sites for agriculture due to their increased fertility levels.

The milkwood forests on Grootbos cover an area of the reserve of around 60 ha and act as an important fire control on the reserve as well as being an ongoing conservation success. *Sideroxylon inerme* (milkwood), is the dominant species in the forest and is extremely slow growing and characterised by thick corky bark. *Sideroxylon* acts as a natural fire break due to its low flammability and the forests provide natural shelter belts from fire for fynbos fauna. Due to areas of milkwood forest, fires would have remained relatively localised, as with everything about nature though man's interference means areas of forest on the fynbos has become very much reduced, making the forests on Grootbos even more important.

The age of the forests on Grootbos is estimated to be between 500-800 years old. *Sideroxylon inerme* are difficult trees to age because of the nature of their growth. They resprout very easily from low-lying branches and destructive fires may kill off top growth entirely causing resprouting from the rootstock. Amazingly, areas of forest may only be made up of a few individuals that have suckered and resprouted over many hundreds of years.



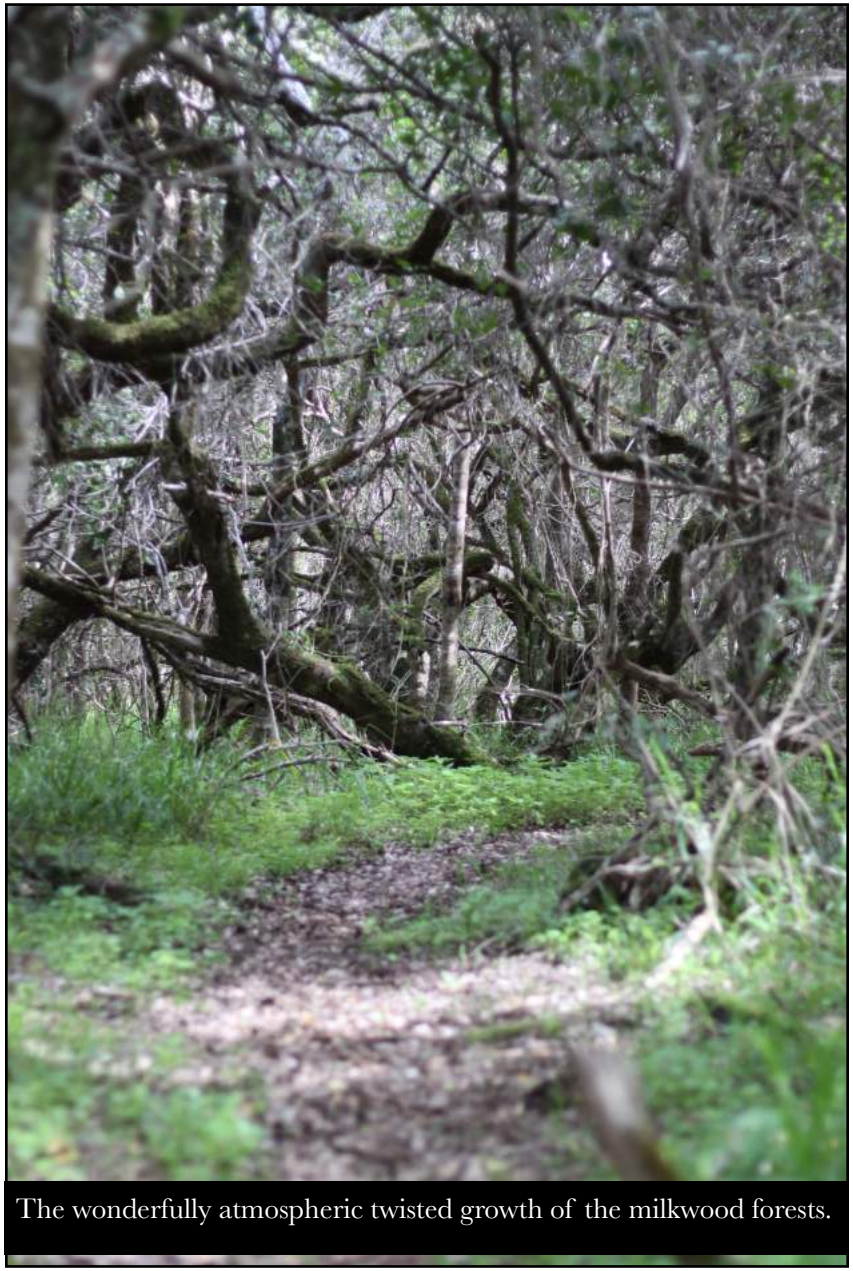
Droguetia iners & *Melasphaerula ramosa*

Two particularly ancient *Sideroxylon inerme.* Fig: (xxvii)

Although *Sideroxylon inerme* tends to be the dominant species in the milkwood forests healthy populations of *Euclea racemosa, Chionanthus faveolatus* and *Celtis africana* also make up the forest canopy. Obviously the forest floor tends to be low in species variety compared to the wider fynbos and is made up of a mixture of shade loving genera such as *Droguetia iners, Melasphaerula ramosa* and the grass *Ehrharta erecta*. Climbers are also common within the woods, species such as *Asparagus aethiopicus* are particularly obvious hanging in great swathes from the gnarly branches.

The forests on Grootbos are particularly characterful in their growth habit thanks to the frequent strong winds which limit the height of the tree canopy, prompting the tree to begin a downward growth of its branches once it hits the point of wind exposure. This naturally occurring training of the tree is how many of the milkwood forests expand, as branches touch earth again, layer themselves and eventually become another independent tree so the tree population increases. The height of the forest canopy on Grootbos is only around 6 m, making a very atmospheric, ancient dwarf-like forest environment.
On a hot day the milkwood forest provides a wonderful cool area of shade and peace, the cacophony of bird and insect sounds from the fynbos gently penetrating through the dense cover to provide a magical and dreamlike landscape to quietly walk and think in. Snakes also like taking cover from the heat in the woods though, I almost walked on top of a Cape Cobra, a snake whose bite requires medical attention within about 30 seconds, or your respiratory system starts shutting down!

The dead canopies of *sideroxylon inerme* damaged during the last big fire at Grootbos in 2006 which also destroyed one of the lodges. New growth from tree rootstocks can clearly be seen surrounding the dead-wood.



The wonderfully atmospheric twisted growth of the milkwood forests.

Indigofera incana & *Cotula sericea*
like confetti edges to the sandy tracks

Self-Guided Botanising

During my time in South Africa I did a great deal of hiking on my own, particularly while staying on the Grootbos reserve. It was a pleasure to have the chance to spend hours just wandering with none of the usual distractions or responsibilities. Most week-ends and evenings at Grootbos I was entirely free to please myself and due to my inability to stray from the reserve, I spent my time walking the many tracks that criss-cross the reserve. I took over a thousand photos of plants during my days here which I would endeavour to identify in the evenings using the excellent reference books on fynbos botany written by John Manning.
I was entirely enchanted and delighted by the delicate flowers of *Nemesia* and *Zaluzianskya* that scattered themselves along the margins of the tracks and never failed to be stunned at the diversity of species that could be counted while gazing into the dense tapestry of growth that filled the lands of Grootbos.

Due to the proximity of inhabited buildings to the fynbos the lands immediately around the lodges were occasionally cut through by regularly mown fire breaks which snaked around the perimeter of the lodge site. It was in these short mown swathes that beautiful areas of meadow grew with many of the same wildflowers, geophytes and delicate grasses as the path margins. Although not strictly actual wild fynbos due to their man-managed nature, they were none-the less beautiful areas within it.

One of the biggest discoveries for me was the way in which fynbos plants grow with each other, their interactions and growth habits. For instance, the geophytes I came across were few and far between with only one or two bulbs in an area with a large space between the next occurrence. I realise this is possibly due to the age of this particular patch of fynbos and the fact that there are cleared areas within it for paths and roads which expose areas of fynbos floor which normally wouldn't occur without fire, but it was worth noting in case I ever get the chance to create a fynbos garden, as it made the discovery of geophytes like finding precious jewels in all the gold.

Some Plant Photos From My Time At Grootbos

Scabiosa incisa

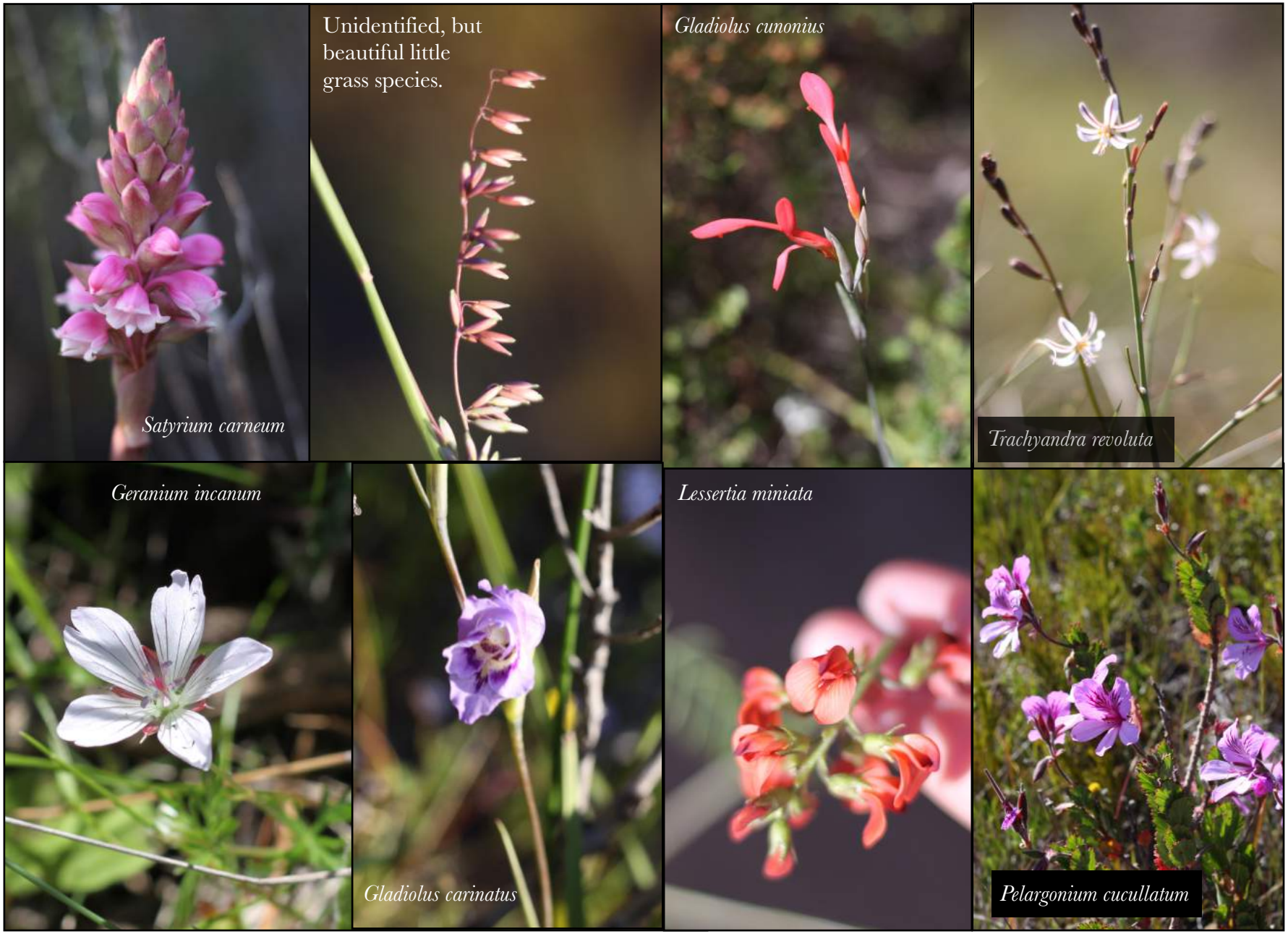
Felicia echinata

Zaluzianskya villosa

Massonia pustulata

Anemone anemonoides

Erica irregularis just after flowering.
Fig: (xxviii)


Satyrium carneum
Unidentified, but beautiful little grass species.
Gladiolus cunonius
Trachyandra revoluta
Geranium incanum
Gladiolus carinatus
Lessertia miniata
Pelargonium cucullatum


Albuca juncifolia
Heliophila africana
Elegia tectorum
Lobelia coronopifolia
Gnidia squarrosa
Nemesia affinis
Psoralea arborea

A jaw-dropping selection of geophytes flowering on the Fernkloof Nature Reserve.

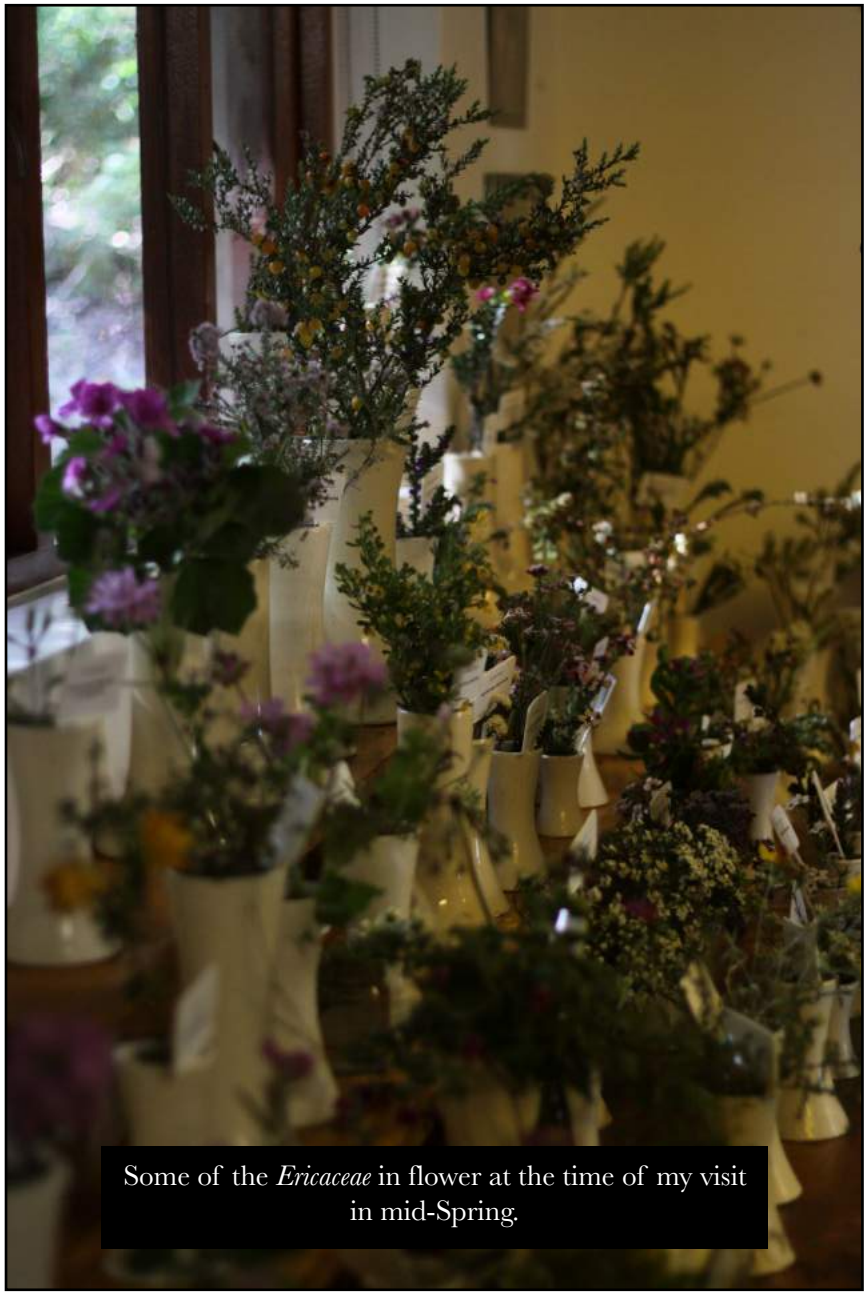
5: FERNKLOOF FLOWER FESTIVAL

My first free weekend at Grootbos I travelled to the near-by town of Hermanus and stayed for a couple of nights. The town is known as the world's best land based whale watching spot so I couldn't miss the opportunity to see some whales. I did see some, loads in fact, but the amount of humans clamouring for a view along the cliff walks was tedious in the extreme, so I concentrated on getting out of town a bit. Quite by accident I discovered my visit coincided with a local flower festival on the near-by Fernkloof Nature Reserve.

Fernkloof is an incredible reserve open to the public with hiking and cycling paths and is home to the very pro-active, knowledgeable and passionate Hermanus Botanical Society, the members of which maintain the Fernkloof website, education programmes, reserve maintenance and species identification and monitoring. They are also responsible for the creation of the annual flower festival which celebrates the incredible diversity of plant species on Fernkloof. Also as part of the festival there are displays about water use and conservation, promoting water-wise native flora and raising awareness of invasive species which are hugely demanding on soil water content, essentially draining it of moisture before native plants even get a look in. There are a number of talks held over the weekend, all of which I had unfortunately missed.

Fernkloof nature reserve covers only 18 square kilometers yet contains 18% of fynbos species. There is nowhere else that has such a concentrated number of plant species with more than 1,520 recorded so far. There were over 600 plant specimens from the reserve collected by the Society for display at the flower festival and these were only the plants that were in flower at the time, late September, South Africa's mid spring. The plant display really brought home just how incredibly diverse the fynbos of the Western Cape really is. It was also refreshing to meet a group of people who are so passionate about preserving, protecting and promoting their indigenous flora.

A selection of *Protea* from the reserve, beautifully arranged by members of the Hermanus Botanical Society



Some of the *Ericaceae* in flower at the time of my visit in mid-Spring.

Rorridula gorgonias with its symbiotic beetle host visible among the leaves.

Fernkloof reserve is home to one of the most fascinating plants of the fynbos biome. The fynbos has many sundew, carnivorous type plant species and also has more than its fair share of freaks, mimics and just plain mad plants that have evolved such complex symbiotic relationships with other species that it makes, my mind at least, boggle.

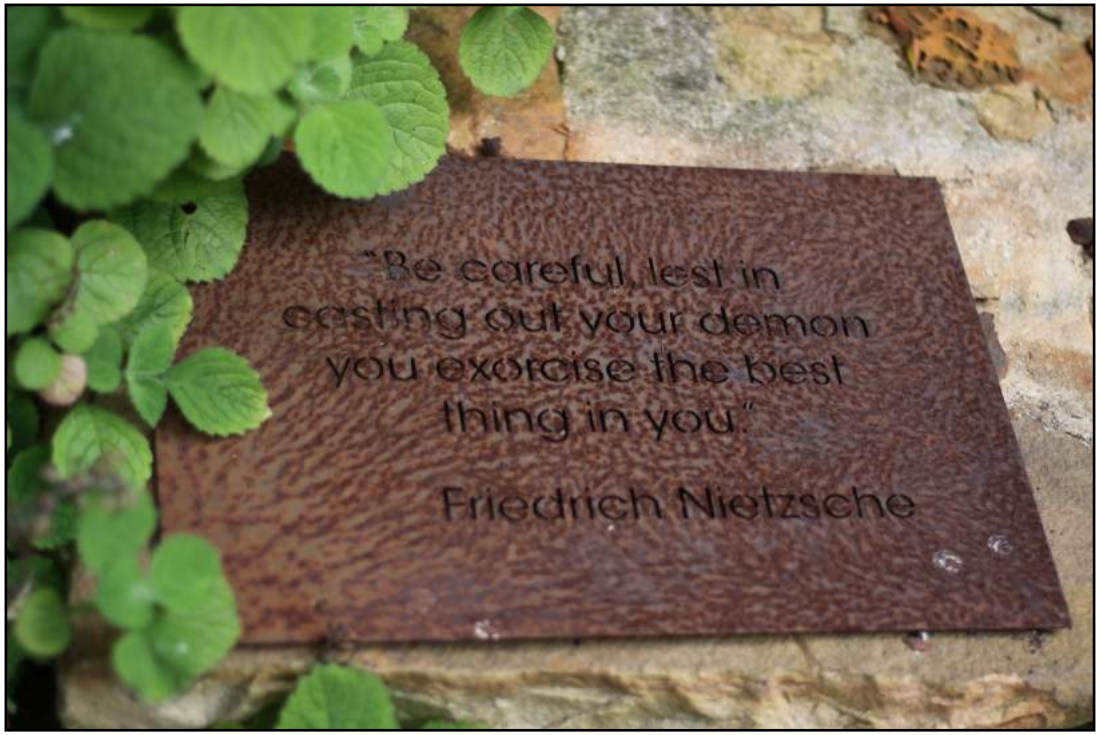
Roridula gorgonias is one such plant. On first appearance it seems to be yet another sundew type carnivore producing sticky blobs of a foul smelling resinous substance to trap insects. Unlike other carnivorous plants though, it was discovered that the plant itself does not contain the enzymes needed to break down insect proteins. However, the plant is the home of choice to the *Pameridea* beetle which only lives on *Roridula* genera. The beetle is the one who processes the trapped insects on the plant's behalf, later excreting the nutrients onto its host presumably doing all the hard work of digestion and giving the plant a direct hit of nourishment. This sort of stuff brings joy to my soul and makes me ever more in love with the fynbos!

Selection of carnivorous plants on Fernkloof

More geophytes!

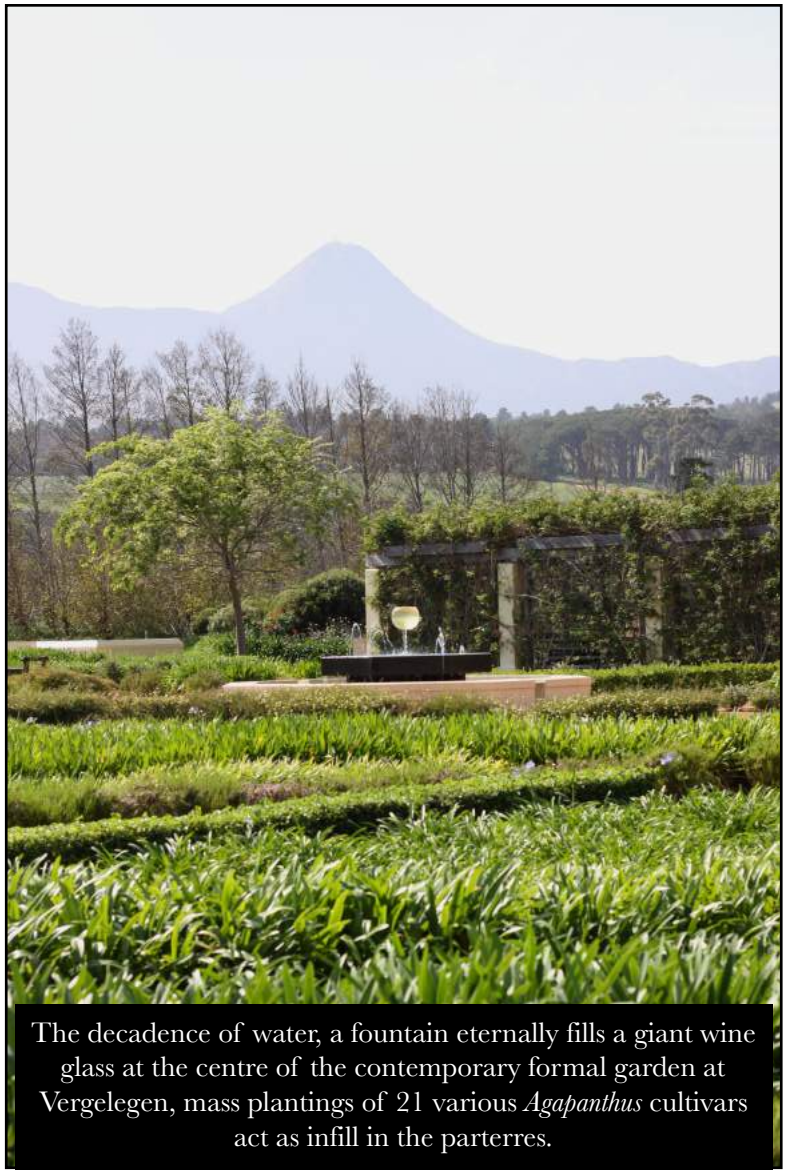
Unfortunately I didn't get a chance to go back to Fernkloof though it deserved at least a weekend hiking the paths, as I'd imagine it would take so long to appreciate the myriad of species growing on the reserve. If I ever get back to South Africa, Fernkloof will definitely be at the top of my list for a revisit and a proper day of botanising, hopefully with a member or two of the Hermanus Botanical Society to show me round.

6: GARDEN VISITS



As mentioned in my introduction, it was intended that I travel to the Karoo region during my fifth week in South Africa to see xerophytic plants, but due to a last minute cancellation and the logistical difficulties and potential dangers of solo travel, I decided to base myself in Cape Town and travel the surrounding areas to visit gardens, the intention being to see how fynbos plants are being used in garden settings. Although a last minute plan I found it to be quite rewarding and happened across the most exciting and beautiful garden I've ever visited. Such is the joy of last minute plans, sometimes they lead to unexpected inspiration and let you discover things that you didn't know you needed to discover.

Vergelegen



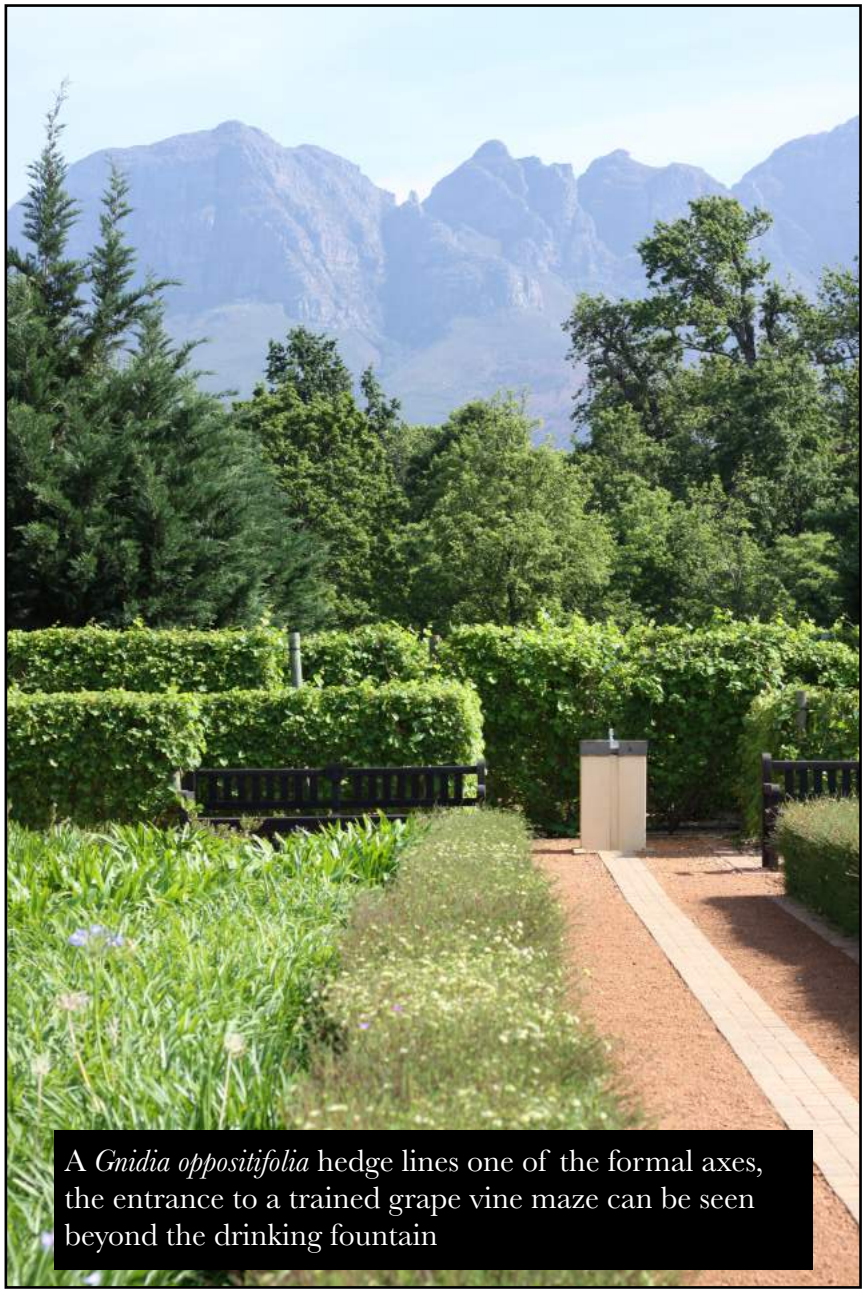
The decadence of water, a fountain eternally fills a giant wine glass at the centre of the contemporary formal garden at Vergelegen, mass plantings of 21 various *Agapanthus* cultivars act as infill in the parterres.

Vergelegen (meaning 'far away') is one of the oldest wine farms in South Africa founded in 1700 by the, then Governor of the Cape, Willem Adriaan. Situated at the feet of the Hottentots Holland Mountain range the garden and larger estate exploits the breath-taking views with many tree-lined avenues and sweeping vistas.
Vergelegen is laid out in a series of 17 gardened areas close to and around the original Dutch homestead, with a more contemporary parterre garden in and around the wine tasting venue and restaurant, The Stables. The estate has a few restaurants on the grounds each serving differing menus and surrounded by their own distinct garden. All the gardens are laid out in a formal Dutch style with canal work, simple parterres and efficient lines on level ground. The edges of the garden are gradually phased out into the wider estate using informal woodland plantings, areas of meadow and meandering paths, including a walk along a river which houses the national *Camellia* collection.The garden also has some incredibly beautiful ancient tree specimens planted by its original owner including the oldest living oak tree in South Africa, a Mulberry tree dating back to 1700 and five incredible Camphor trees that have been declared South African national monuments. A small museum of the Vergelegen Estate history is displayed in the old homestead building, a saddening collection of documents and tools used in the procurement and management of the many slaves who passed through, or away here.

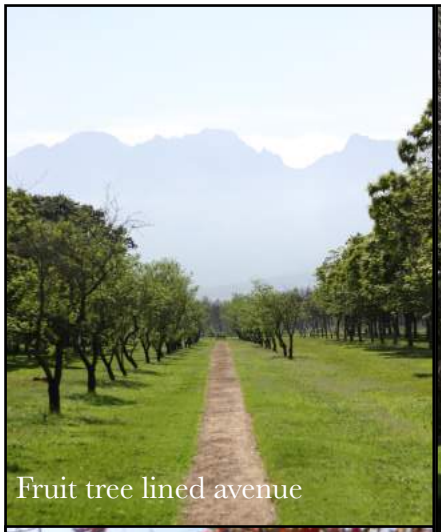
The first thing that struck me about Vergelegen was the incredible show of wealth it displayed. There was nothing shy or humble about this wine estate which is one of South Africa's big boys in the industry. The cultivation of roses in the two rose gardens, *Camellia* and traditional European style cottage garden plants seemed to be making a point about wealth, these species needing water, time, labour and skill to grow well. Water is also used lavishly in the form of fountains and canal work features and within the grounds are also naturally occurring 'dams' and rivers and I presume these are the source of water for the man-made features.

The entrance to Vergelegen is the most contemporary area of the garden re-designed in 2010 after the appointment of Head Gardener, Richard Arm. This part of the formal gardens uses native water-wise plants and it is interesting to see native material being used in the way of a traditional Dutch parterre, mass plantings of *Felicia* & *Agapanthus* used as infill and indigenous fynbos shrubs such as *Gnidia oppositifolia, Coleonema pulchellum* and even *Polygala myrtifolia* used as formal hedging. There are also large herb beds as part of the parterre which have been filled with South African traditional medicinal herbs such as *Salvia aurea afrikaans, Leonotis leonurus, Tulbaghia violacea* and *Pelargonium tormentosum*, among others. There are also some areas of vegetable garden, the earth of Vergelegen being kept fertile and well cultivated for hundreds of years.
The garden houses an octagonal maze, the 'hedges' of which are constructed from trained vines, a fitting design touch for a wine estate and a feature which is quite attractive for a maze. A large canal water feature grows the brilliantly textured *Cyperus papyrus* which contrasts beautifully with the wide vista that leads the eye away to the Hottentot Holland Mountains beyond.
Other avenues on the estate have been lined with fruit trees and meadow grasses have been allowed to grow helping create a more relaxed feel to the disciplined lines of the garden. A stunning *Erythrina lysistemon* sits just at the gate of one of the colonial houses and was fully in flower at the time of my visit. Seeing plant-life growing in its perfect climatic conditions and in perfect health within a garden setting was one of the best things to note on my garden visits. In the case of Vergelegen, to walk through a spring garden and see blossoming *Camellias, Digitalis* and *Azalea* next to, in flower, *Salvias, Hemerocallis* and *Lavandula* was eye-opening for me as a working gardener in a country where displays are very seasonal.

There are so many elements to Vergelegen and so much history, the garden having influences from many successive owners who have added to the property. As a result I found the whole garden a little disjointed if viewed as a whole and it is best to approach Vergelelgen as a series of individual gardens each with their own character and historical context.



A *Gnidia oppositifolia* hedge lines one of the formal axes, the entrance to a trained grape vine maze can be seen beyond the drinking fountain



Fruit tree lined avenue

One of the Dutch colonial buildings with enclosed formal garden

Propped up original gable end of one of the slave lodges from the 1700s

Cyperus papyrus growing in canal water feature

Erythrina lysistemon

Vines, tree-tops and Hottentots & Holland

Interesting use of peach pits as a mulch, refuse from a Capetonian fruit canning facility

Lourensford

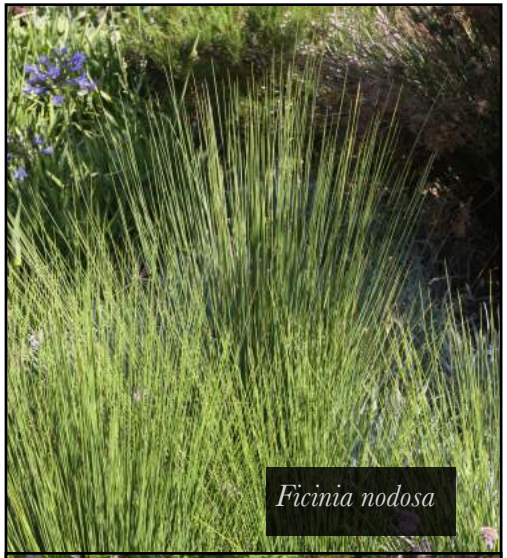
Coleonema pulchellum 'Sunset Gold' and *Limonium perezzi* are two of a number of key plants used in the planting design at Lourensford.

Lourensford Wine Estate was bought as part of near-by Vergelegen back in 1700 but in the intervening years parted company with it, sold off as its own productive wine lands and farm. The acres within the greater estate are some of the most archaeologically significant land in South Africa having sites that hold some of the earliest traces of human activity, including one of the first examples of primitive art. Lourensford land is so rich in ancient archaeology, stone-age artefacts are regularly washed from soils during heavy rains.

The gardens at Lourensford are focused around the main public hub of the wine tasting, event, retail and restaurant buildings and were completely re-designed in 2010 by South African garden designers Kieth Kirsten and Raymond Hudson, known in the UK for collaborating with Kirstenbosch on the South African exhibit at Chelsea Flower Show. The Head Gardener maintaining the garden now is Johan West.

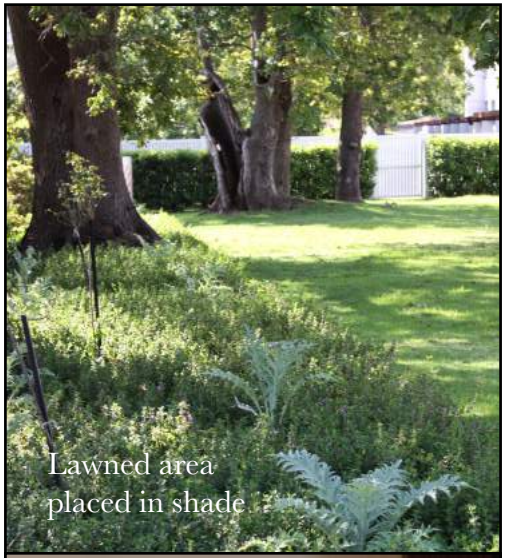
The bones of the garden space is one of sleek utility, with soft landscaping used to soften path edges and buildings and provide some outdoor leisure space in the form of lawns shaded by mature trees. The garden is built in a very contemporary style using new brick paving for paths and occasional raised beds and walls. There is an effort to be as environmentally aware as possible particularly with water, with large storm drains in the car-parks and drive-way edge planted with natives and presumably used to harvest water run off and prevent flash flooding. The garden has a definite corporate feel and is suitably pressed and dressed for a high-end elite beverage business.

The garden uses South African and other antipodean plants in the soft landscaping in a very designed way and using many cultivars of species. The colour palate of the planting concentrates on purples, soft pinks and acid greens and greys, with repeat planting used to tie the whole thing together. Areas around outdoor dining spaces are planted with more showy displays of *Proteaceae*, *Aloes* and *Strelitzia* making for a pleasant if very contrived, definitively South African back-drop for wine-tasting, coffee and cake.



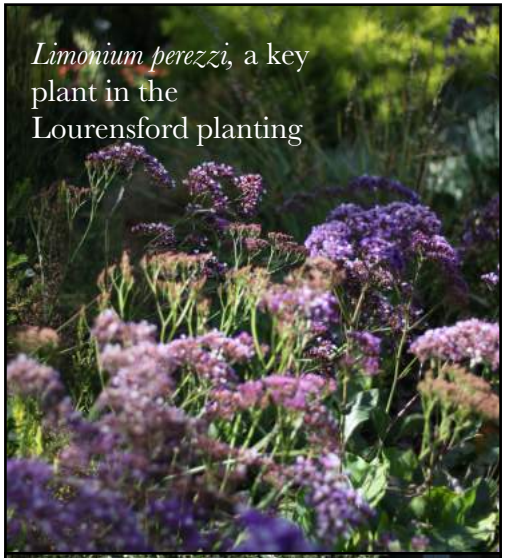
Ficinia nodosa

Texture, form & colour used to create unity & rhythm

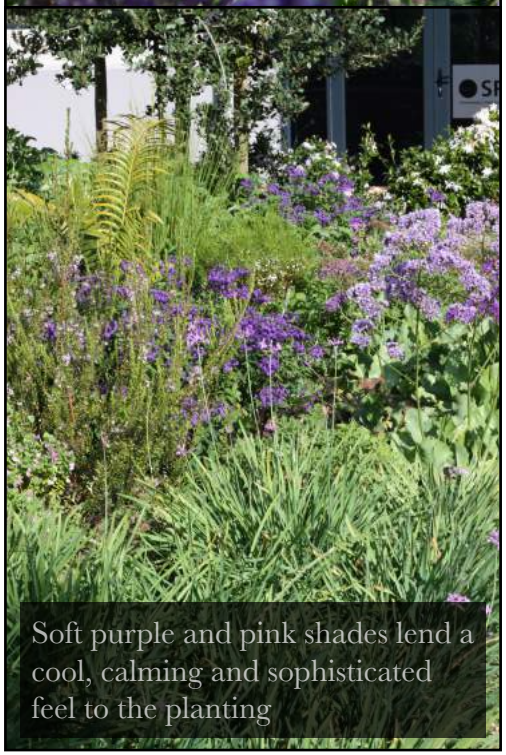


Lawned area placed in shade

Lourensford soil, fertile alluvial, relatively young soils known in viticulture as 'Tukulu' soils.



Limonium perezzi, a key plant in the Lourensford planting



Soft purple and pink shades lend a cool, calming and sophisticated feel to the planting

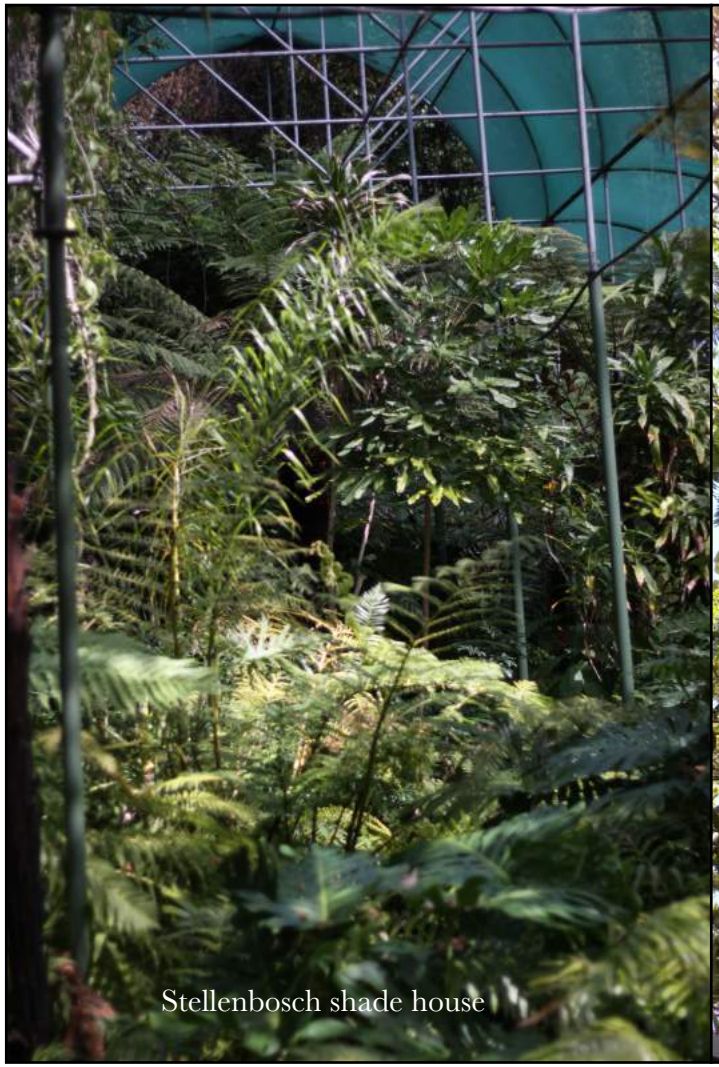
Stellenbosch Botanic Garden

Stellenbosch Garden is situated on the grounds of Stellenbosch University and was originally created in 1902 by Dr Augusta Vera Duthie as a place to study plants on campus. Vera Duthie was a lecturer in cryptogamic botany which is possibly why the main part of the garden has a strong fern collection. The garden developed over the years to include more collections and structures and includes plants both South African and exotic. The current curator of Stellenbosch is Dr Donovan Kirkwood.

I visited Stellenbosch with the knowledge that it was a botanic garden which in themselves usually mean a certain type of garden design-wise. My first impression was at how small the garden is, nestled in the middle of Stellenbosch town, an affluent wine-land town still reeking of its colonial past. I didn't get to spend as much time here as I'd have liked as it was quite late in the day by the time I arrived and I still had to figure out my journey back to Cape-Town. My short visit here though was enough to see that it wasn't really the sort of garden I was looking for in my study of fynbos plants in a design setting, with only a small number of *Protea, Restio* and *Erica* planted at the free public edges of the garden, a pleasant space of enclosed lawns, dappled shade and full of students cramming notes and debating the weekend.

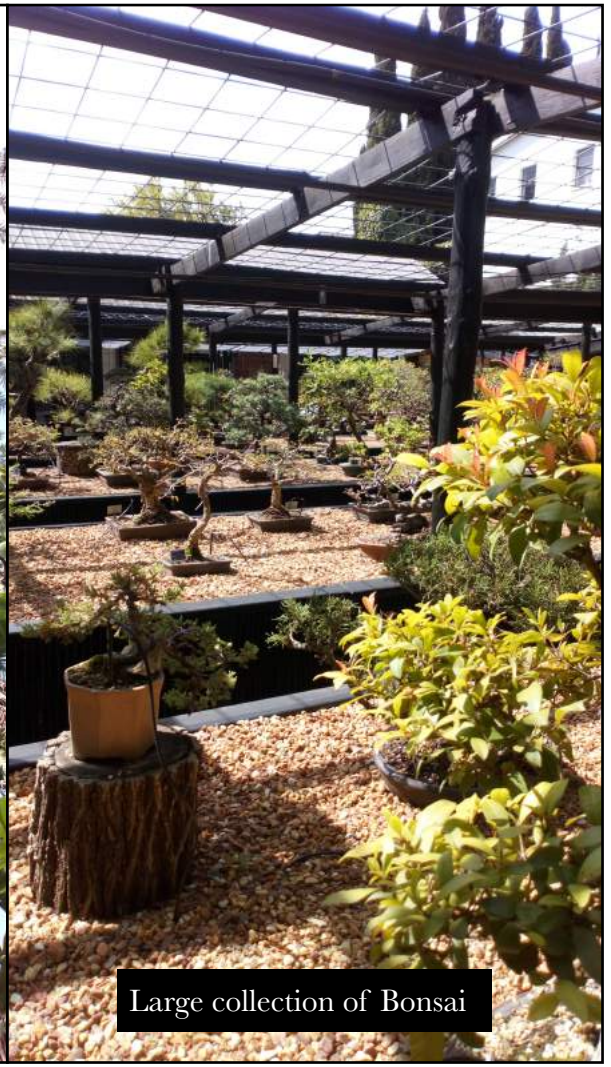
The garden sits meticulously crammed into its plot, again with nods to Dutch influence with a central canal style waterlily pond and a lofty shade tunnel a few stories high to accommodate the large tree-fern collection and in an elegant Dutch barn style shape. It was strange to see such a framework draped in green plastic shade netting and not bright with hand-made colonial era glasshouse panes. Four glass houses house arid and tropical plants and there is a substantial collection of Bonsai trees, some with impressive age.

The garden seems to provide a quality relaxation space for students and faculty members of the University as well as the general public, the on-site restaurant and utility spaces carrying the sort of atmosphere of high academia that seems to exude from the orifices of old University grounds. I envied the students here and imagined another life studying botanical science in such a charismatic place, and in such an incredibly diverse country.



Stellenbosch shade house

One of the many impressive tree ferns



Large collection of Bonsai

Dylan Lewis Sculpture Garden

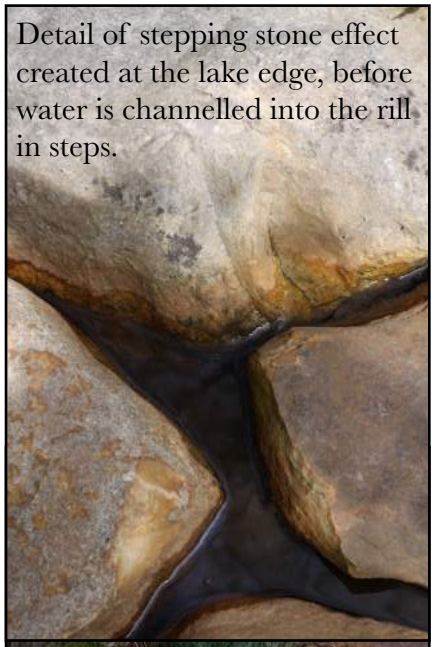
I had been told in vague passing about the Dylan Lewis Sculpture Garden before leaving Ireland by a South African living here. I was told to try and get there if I was in the vicinity as I wouldn't regret it. When my plans changed I straight away looked up the garden. Visits are strictly by appointment only as the garden is only open certain days and contains valuable artwork. Dylan Lewis is one of the South Africas' most renowned sculptures and his art-work has been sold and exhibited all over the world. The garden is located at the site of his original studio and bronze casting facility which you can now visit as part of the garden.

The seven hectare garden is located between Cape Town and Stellenbosch and is nestled among farmland and vineyards directly at the foot of Stellenbosch Mountain, which acts as a breathtakingly dramatic backdrop to the garden, ever changing in light and texture. The garden was created a mere twelve years ago when Dylan hired an excavator to play with the contours of the land, essentially turning relatively flat farmland into the undulating landscape it is today. Garden designer Franchesca Watson helped to design a planting plan to Dylan's artistic vision for the blank canvas, with the help of Fiona Powrie formally of Kirstenbosch. The garden almost exclusively uses fynbos species in the planting which have been carefully selected and planted in a designed, naturalistic style. Dylan placed his sculptures within the new landscape allowing the artwork to dictate their places within it and plotting a route around the garden which allows the visitor to follow the development of his sculptural process and career, each phase of his work inhabiting different areas within the space. Spaces are defined only by clever use of contour, water and planting, giving each area within the garden its own atmosphere. The garden layout is organic and flowing with paths sweeping and curling into and against each other to create pockets of planting that give the impression the garden is never ending. There appears to be no defined boundary to the garden either, fynbos flora reaching out ever deeper into the slopes of the mountain and spilling down onto the fall of surrounding farmland.


Just


Look

Leucospermum cordifolium create a natural frame around a sculpture of water buffalo at the lake edge



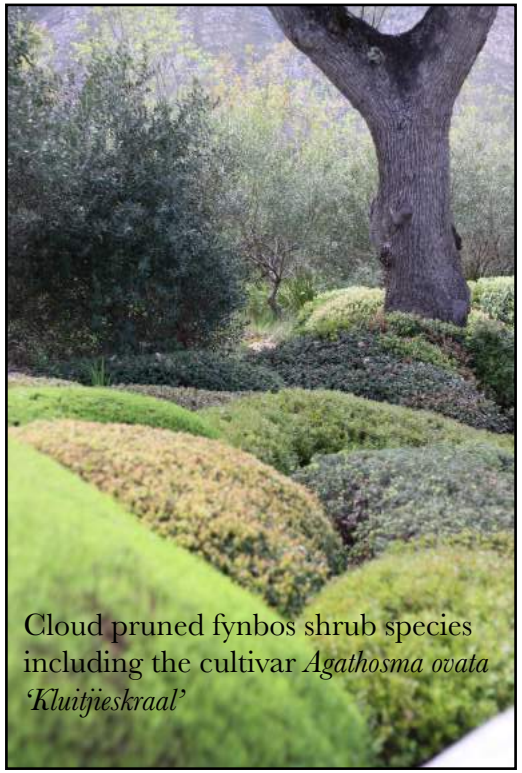
Detail of stepping stone effect created at the lake edge, before water is channelled into the rill in steps.

A rustic rill allows a trickle feed of water down a flight of stone steps, to feed the existing areas of wetland within the garden.

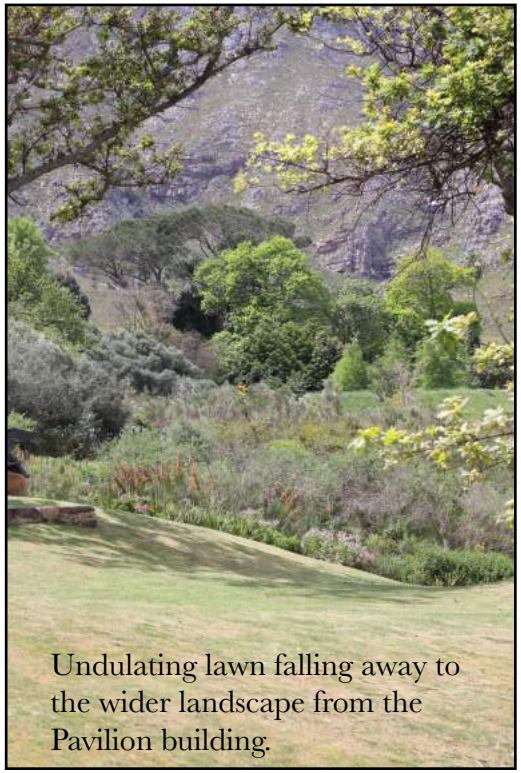
Water plays an important role in the sculpture garden, the naturally occurring 'seeps' and 'dams' guided into desired behaviours during the landscaping process. The centre of the garden is dominated by a large lake which acts as a beautiful mirror to the African sky when viewed from the higher areas of garden, a dramatic centrepiece that compliments the dynamic landscape. From lake-side angles planting and sculpture is reflected, playing with views and perspectives. Flanking one entire edge of the lake, is planted a collection of *Erica verticillata (*not in flower during my visit), a plant now extinct in the wild and only kept going through cultivation at Kirstenbosch Botanic Garden and private collections. There is beautiful attention to detail in the hard landscaping that play with water too, a flight of steps between levels that sit at the edge of the lake are used as a chance to create a simple rill with water flowing between the stones via a narrow channel and flooding down into naturally boggy areas which have been shaped and planted accordingly with *Ischyrolepsis subverticillata, Cliffortia odorata* and a stand of the native tree, *Morella serrata.*

The planting in this garden is extremely well considered, the naturally wild fynbos effect controlled and 'gardened' just enough to maintain a level of order needed in a garden setting. I'm unsure if there is incredible horticultural gardening and design skill going on, or if the results are the extraordinarily happy accident that happens when indigenous plants in a South African garden are allowed to re-seed and travel at will with minimal interference.

The striking steel and concrete lines of The Pavilion.



Cloud pruned fynbos shrub species including the cultivar *Agathosma ovata 'Kluitjieskraal'*



Undulating lawn falling away to the wider landscape from the Pavilion building.

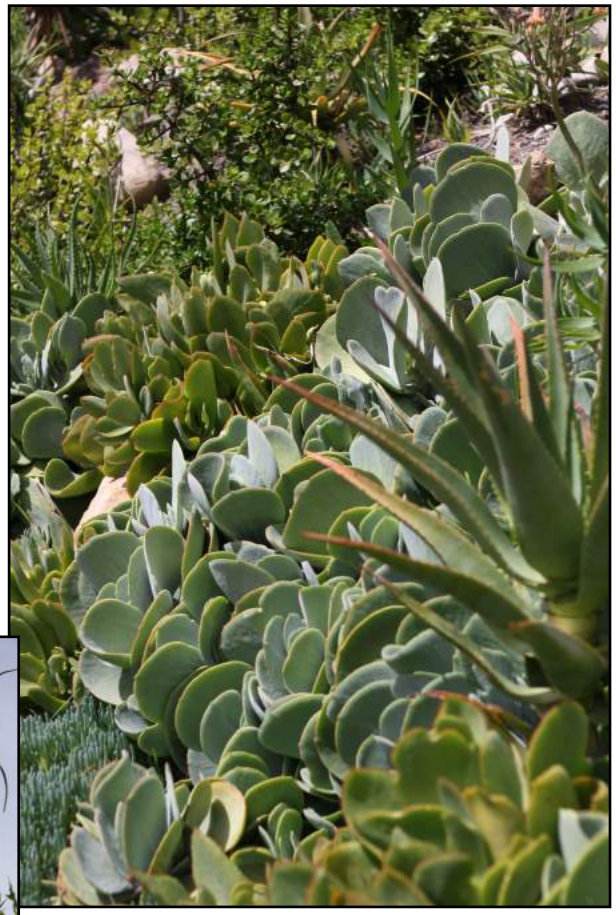
The garden is not all inclined to wildness though, fynbos plants have been used in the upper areas of the garden in a traditionally managed way. Fynbos shrubs have been cloud pruned and plant forms exploited to create controlled spaces around the old studio and 'The Pavilion', a contemporary building contructed of steel and concrete that sits on its own undulating lawns overlooking the lake and surrounding views. The area around the upper regions of the garden have a definite contemplative and reflective atmosphere and has a strong element of Japanese garden design, with strategically placed boulders and minimal, deliberate and considered placement and control of trees and shrubs. Use of *Restionaceae* like *Thamnochortus insignis* create a clever, or accidentally beautiful, complimentary contrast of texture around the hard lines and materials of The Pavilion building and the rusty steel tones of the build material are picked up by the dried heads of the plants. Use of *Restio* is extensive throughout the garden and ensures the tones of oxidised metal is always complimented by and absorbed into the planting.

Plectranthus, Asparagus & *Iridaceae* species harmonise together as ground cover in a shady grove.

Possible *Arctotheca calendula* grows with possible *Otholobium virgatum.* I'm open to corrections!

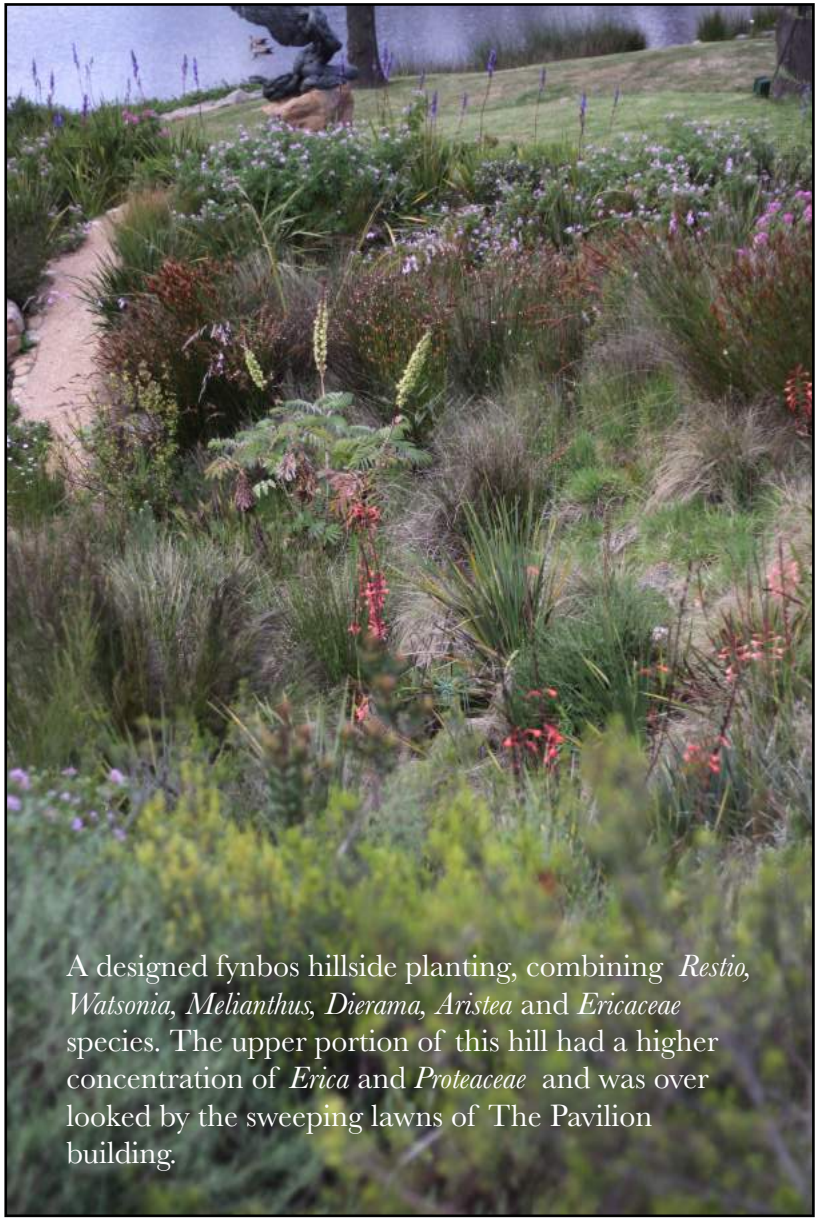
A particularly tall form of *Plantago* mingles with grasses and an elegant *Trifolium.*

Areas around the foot of sculptures or in difficult and awkward corners between plantings are populated by simple collections of ground covers, annual grasses and South African wild flowers. I suspect these areas occur by design rather than by those happy accidents, as on close inspection the mix of plants seems to be meticulously chosen and maintained with no sign of pernicious weeds, or at least, any pernicious weeds are embraced and added to with a complementary companion or two. There was not an ugly area in this whole garden.



Aloidendron dichotomum

An impressive Aloe garden is tucked away in one of the corners of the property planted with a stunning selection of succulents including the quiver tree, *Aloidendron dichotomum,* as well as *Aloe marlothii, A. barberea, A. ferox* and *A. arborescens.* The apparent health of the succulents on display was a pleasure to see and really did emphasise to me the actual requirements for growing succulents successfully. That being, a perfect Med climate and actual quality light levels, something we badly lack in Ireland which is why our succulent collection looks akin to a kennel full of wet dogs on rainy days, which are many.



A designed fynbos hillside planting, combining *Restio, Watsonia, Melianthus, Dierama, Aristea* and *Ericaceae* species. The upper portion of this hill had a higher concentration of *Erica* and *Proteaceae* and was over looked by the sweeping lawns of The Pavilion building.

I found The Dylan Lewis Sculpture Garden absolutely inspiring, going so far as to say it is the best property I've ever visited, the whole garden a triumph of design in hard and soft landscaping. Of course it is helped by its location within the landscape its backdrop and views already setting an impressive tone, but the level of fine detail within it displays the fact that this garden doesn't need mountains to shine as an inspired labour of love. Dylan's garden was built to display his sculptures and tell the story of his art both on a physical and spiritual level, his art speaking of human nature and our place within the animal kingdom. He speaks of the existential struggle between our animal nature and our struggle for enlightenment and he also speaks directly about the fragmentation and destruction of nature and ourselves. The garden as a set for these stories excels itself in backing up the artist's visions, with planting leading the eye to and between sculptures and helping ground and submerge them into the landscape, or occasionally raise up from it.

I have no information about who the Head Gardener is here, or how large the horticultural team may be, but I have great admiration for them as the garden is evidently managed with a deft and knowledgeable hand and an eye for detail.
It's not often I'm moved deeply by a garden environment, but I wandered the meandering paths in a silent reverie as clouds rampaged across the accompanying mountain top and caused the landscape to blacken and brighten like moods. The space provoked in me a deep meditative reflection and feeling of being fully present and engaged in the narrative of the garden and its art. Visiting near the end of my time in South Africa was perfect timing as I had already stepped out of any previous anxieties of feeling isolated and far from home and was now in the liberating state of mind of inhabiting the world as a solitary stranger and being open to its stories and this garden, is full of stories.

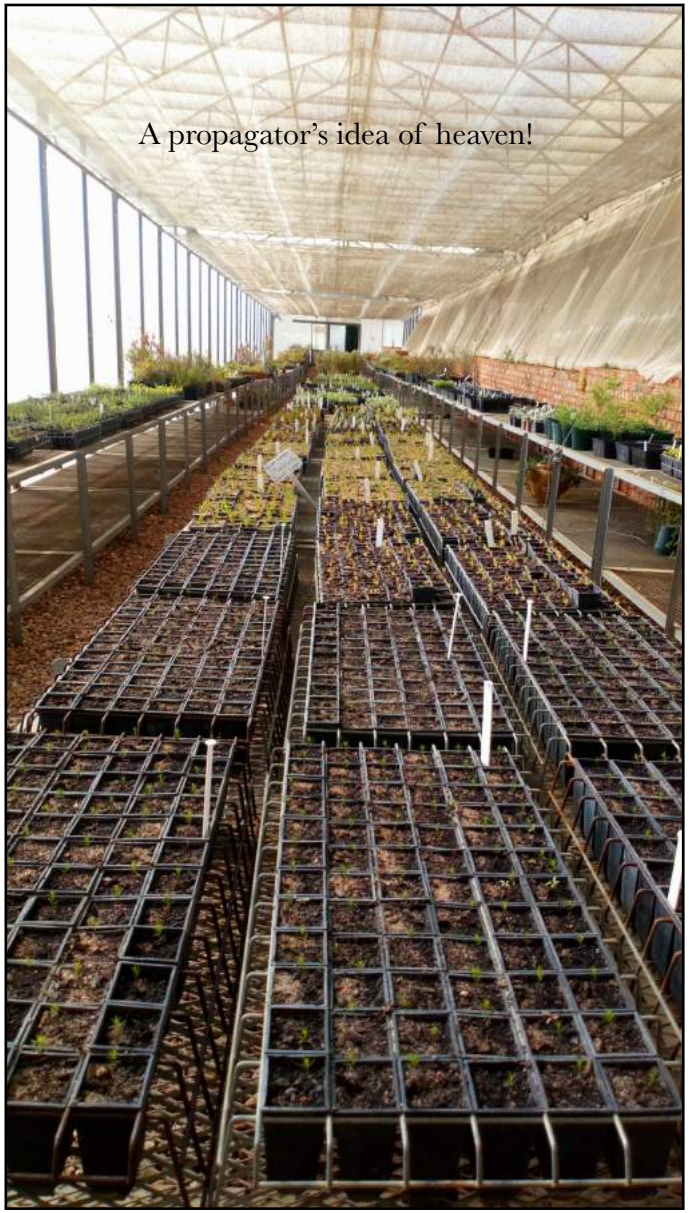
Kirstenbosch Botanic Garden

Protea cynaroides blooms over The Mother City

Kirstenbosch is exactly how you've heard. Probably the world's best botanic garden, but then why wouldn't it be when it is in the same country as the world's best floral kingdom. It is very much a botanical garden though, with plants gathered together according to their genera or geographic locations and educational gardens that display ancient food and utility crops and medicinal plants. The garden is stunning because of its placement in the landscape and because of the nature of the plant material at is core, not because of any cutting edge or soulful planting design. Kirstenbosch must prioritise the functional space of the garden, with close to 200,000 visitors a year walking about which must take a huge toll on paths and lawns. Kirstenbosch is also primarily a research and conservation garden, so displays serve more than just an aesthetic purpose. Many genera in the garden require specific nutrient levels and/or root environments, so planting that ensures efficient monitoring and care of the plants on display is just common sense.

The garden is vast and informal with great sweeping lawns, woodlands and gardens that gradually raise you up to the lower eastern slopes of Table Mountain where you can enter the afromontain forests and join various hiking trails. Just not on your own. The glorious city of Cape Town falls away behind you and expansive views extend to the horizon. Although a busy garden, it has a safe and relaxed feel to it, many visitors stretching out with picnics by the central lake and school children rolling down the hilly lawns.

The history of Kirstenbosch, as with most land in South Africa, is complex, varied and involves its fair share of violence and injustice. The garden as it stands today began formally in 1913 with the help of Harold Pearson, the chair of Botany at the South African College in Cape Town. The land resided in the hands of the government and had fallen into wildness, but thanks to Harold who saw the potential in it, an effort was made to create a Botanical Society and a board of governors to oversee work on restoration and plant procurement. The government in the form of SANBI, the South African National Biodiversity Institute, still owns the land and many more botanic gardens in South Africa, with Kirstenbosch as its figurehead.



Thanks to Paula one of the entomologists at Grootbos, I managed to get a contact behind the scenes at Kirstenbosch. Nomama Mai works as manager of the propagation areas and she gave me a quick hour tour first thing in the morning around the Kirstenbosch prop facilities. Each main Kirstenbosch plant display area has a team responsible for sourcing, researching and propagating material and plants are being constantly renewed within the garden. There is extensive behind the scenes growing-on of rarer material as parent plants to build up collection stocks or for research purposes. There were more secure glass-houses which housed particularly valuable collections and I got a chance to look around the *Pelargonium* house which contained some incredible, extremely rare species.

I didn't get anyway near enough time to avail of Nomama's extensive propagation knowledge, though I would have loved the chance to sit for hours with her and my notebook over rooibos tea. She did say that in her experience, it is root disturbance over pH issues that will kill *Proteaceae,* so all cuttings are repotted as little as possible and planted straight out asap. Mixes of equal parts river sand, an acidic potting-grade bark, coir and perlite is used in *Protea* potting mixes.


Strelitzia regineae

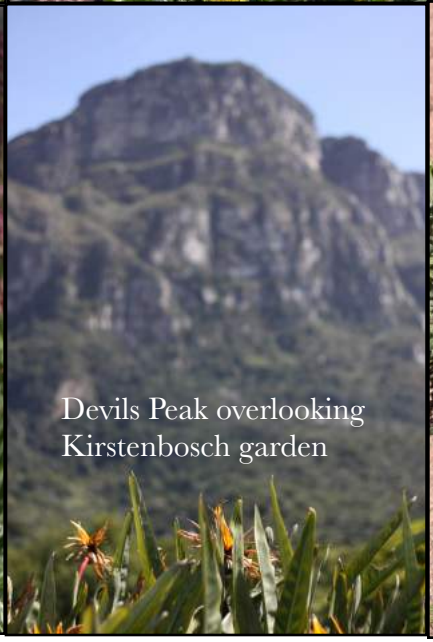

Merwilla plumbea


Leucadendron argenteum
& Leucospermum


Adansonia digitata in the
Kirstenbosch conservatory.


Syncarpa vestita & Pelargonium


Melianthus & Watsonia


Devils Peak overlooking
Kirstenbosch garden


Leucospermum oleifolium

Views over tree-tops and Cape Town from the Boomslang tree-top walk at Kirstenbosch.

The earliest parts of the garden constructed at the beginning of Kirstenbosches' formal garden beginnings are known as 'The Dell' and 'Cycad Amphitheatre'. They are tucked up in their own little valley and consist of a natural spring water feature suitably fashioned into a hard-landscaped grotto behind which sit an impressive collection of *Cycadaceae.* One of the world's few remaining *Encephalartos woodii,* planted in 1916 as a basal offset from the last wild material sourced before it became extinct in its natural habitat can be seen here. This particular plant is now protected by a reinforced metal cage surrounding the lower portion of its trunk in an effort to protect it from poachers who in recent years have targeted the Kirstenbosch *Cycad* collection and removed some valuable plants and along with them some of their last genetic material and chance of survival.

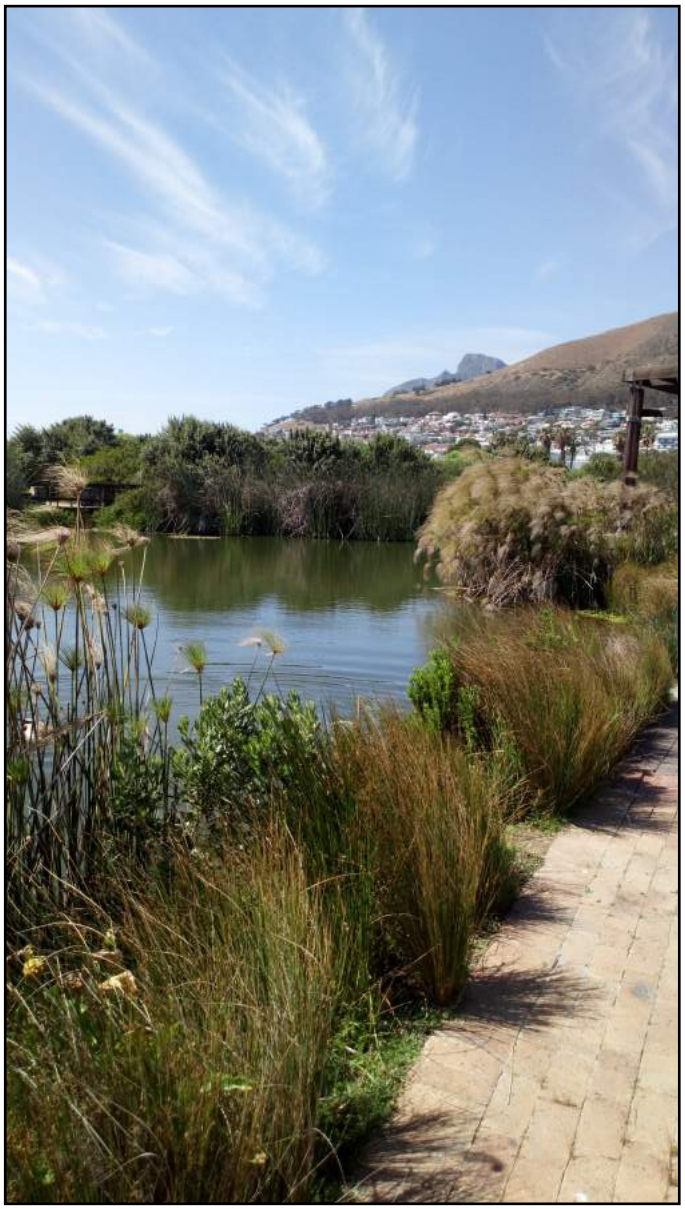
The entrance to Kirstenbosch is the location of a large conservatory which has small displays of African arid specialists from areas such as Namaqualand, Namibia, Namib Karoo and the Eastern Cape. An impressive central *Adansonia digitata* is planted around which a raised path guides visitors through displays of *Welwitschia,* arid geophytes and stone plants.

The most recent hard landscaping feature to be added to the garden is a beautifully sinuous raised treetop walkway, incredible in that it is 130 meters long, yet only touches the ground in two places. It is known locally as 'The Boomslang', a Boomslang being a South African tree snake. It enables the visitor to really get up close to the foliage and stem of the mature tree collection.Trees in the arboretum include mature specimens of *Celtis africana, Olea emariginata* and incredible *Strelitzia nicolai.*

Kirstenbosch is a must visit if in South Africa and entire days can easily be lost scrutinising the plants. Indigenous plants are laid out in a succinct and easy to follow way and provide an essential resource when learning about and creating awareness of the fynbos and its importance.

Southern Double Collared Sunbird at Kirstenbosch drinking nectar from *Melianthus.*
One of the many beautiful and important pollinator birds of fynbos flora

Green Point Biodiversity Garden

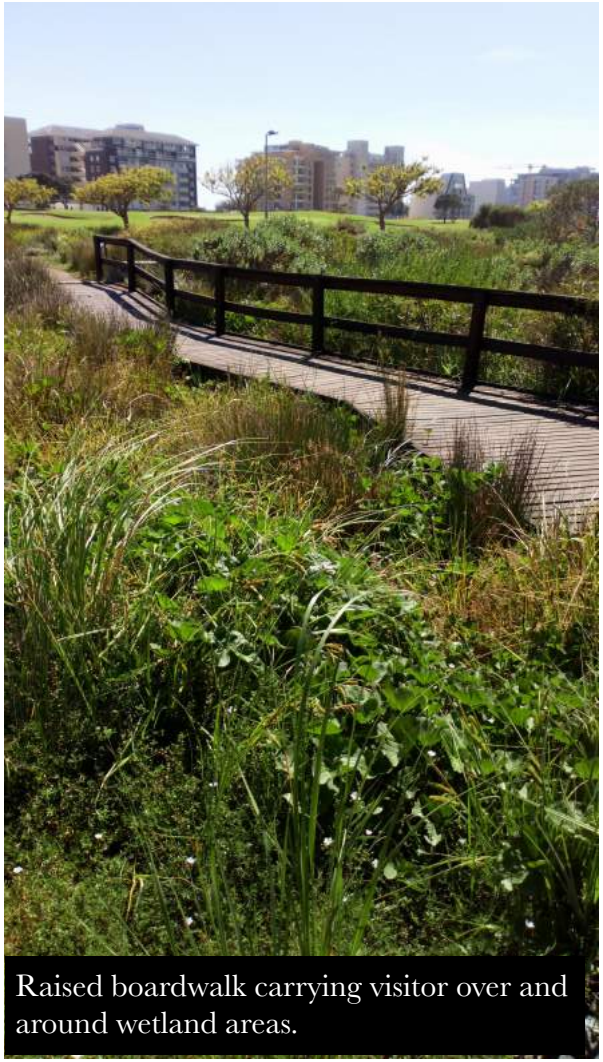


Situated in an urban area just outside of Cape Town City Centre called Green Point, the Biodiversity Garden was conceived in tandem with the rebuilding of Cape Town Stadium for the Football World Cup in 2010. The 12 hectare garden build began in 2010 and was undertaken by the landscaping company OvP Associates, with soft landscaping and interactive signage design by Marijke Honig, a Capetonian garden designer.
The site at Green Point was previously a jumble of sports-grounds and public communal areas which had become run-down and dangerous, part of the site is also the location of a historic 18 hole golf course which was reincorporated into the final updated plan with added enriching features to the course. The golf course stretches along one side of the park with Cape Town Stadium and communal sports grounds beyond. The garden comprises of public utility and recreational spaces, as well as acting as a green education source with information boards on environmental issues, water preservation and the value of the indigenous fynbos biome.

The garden has many ponds and watercourses which have been reinstated since historically, the land at Green Point was made up of a system of marshes and wetlands that acted as a soak-away for the run off from Table Mountain. These areas now act as water catchment reservoirs for run off from the hard landscaped areas around the stadium and gardens and allow the garden to be watered year round without needing to dip into Cape Town's City water supplies. Impressively the Diversity gardens areas of water are also topped up by Cape Towns early source of water, fed by those original streams and seeps from Table Mountain. This source had been disconnected many decades earlier and was re-tapped during the garden build. A water wheel has been designed to sit at the point of the water's entry to the garden and generates power for the various pumps and garden lighting.

Communal spaces including a central circular lawn, play-parks and small amphitheatre with circular paved cycling and walking paths and a wide central axis connecting the two residential areas of Green Point ensures the space is very practical. The garden uses three main themes in the design; People and Plants, Discover Biodiversity, and Wetland Walk.

Cyperus mingle with other wetland species



Raised boardwalk carrying visitor over and around wetland areas.

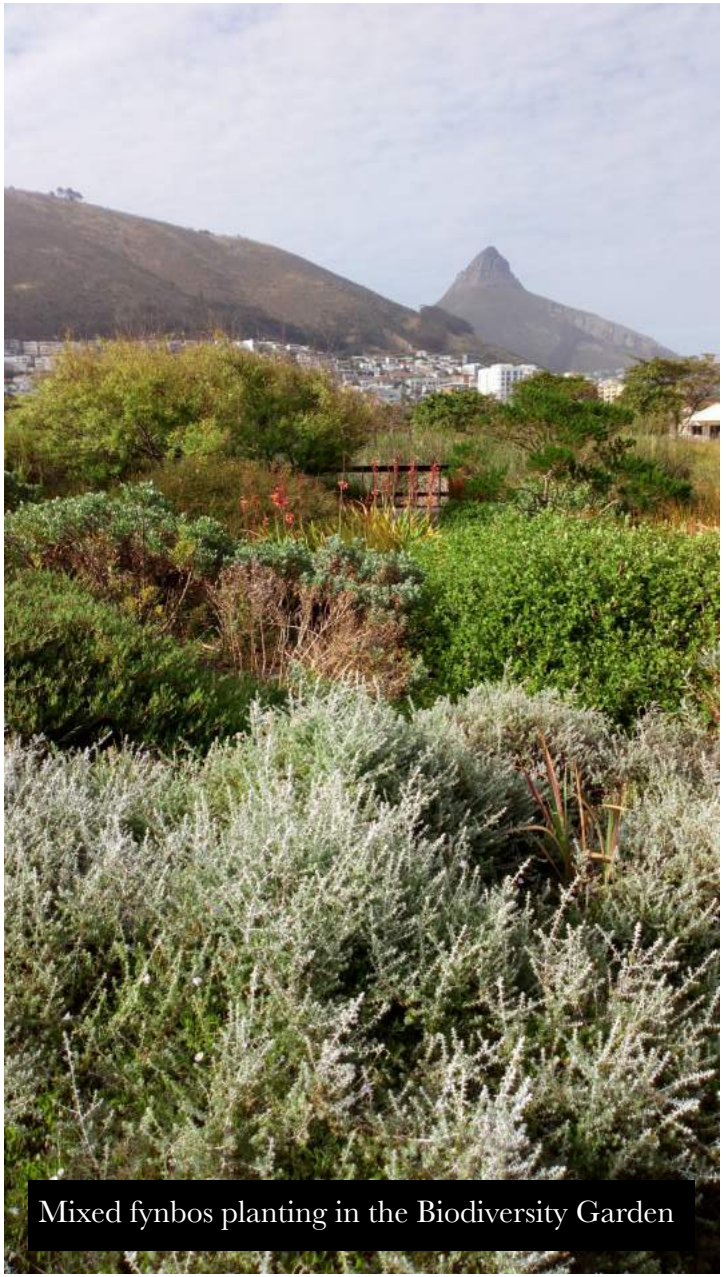
Khoikhoi 'settlement' linking the story of people, history and plants of South Africa.

Green Point Biodiversity Garden is a wonderful example of good public garden design, managing to incorporate well maintained communal space with an environmentally sound approach. The gardened areas around the larger park are planted with natives using plants such as *Coleonema alba, Grewia robusta* and *Rhus glauca* as hedging features and having naturalistic plantings of *Erica, Watsonia, Heliachrysum, Osteospermum, Gazania, Euryops, Kniphofia* and *Polygala* species, among many others. Plants historically endemic to the area are few, as the site substrate has been radically changed over the last Century with the addition of heavy clay soils to allow the creation of sports fields and park-lands.

The areas I found most compelling were the wetland areas, given their historical context and story behind their water source. The wetland areas were planted with a variety of indigenous plants, including *Restio, Aponogeton* and *Cyperus* and the ponds themselves were teeming with life with shoals of small fish and evidence of amphibians and native water fowl, a sure sign of a healthy eco-system. To see such pristine waters practically in the heart of a capital city in such a public space was a pleasure and really showed the standard of the character of the city and her people. There seems to be a genuine pride in their green spaces among the people of South Africa .

A portion of the garden also had an example of an original Khoikhoi settlement. The Khoikhoi were the very original inhabitants of the lands now known as Cape Town, during their time known as Camissa, meaning 'place of sweet waters'. The 'settlement' includes a traditional hut frame-work and central communal fire ring with signage telling the story of the Khoikhoi and how they traditionally used fynbos plants for food and medicine.
The signage throughout the garden is very informative and engaging ,encouraging children (and adults) to interact with the plants and landscape and bringing attention to the human part in biodiversity.

Green Point Biodiversity Garden is an impressive example of what can be achieved with green social garden landscaping and the park is light years ahead of anything I've seen in Ireland, both in the thoughtful provision of garden space and the sustainability of its management. Its educational element is an added bonus.



Mixed fynbos planting in the Biodiversity Garden

The Company's Garden

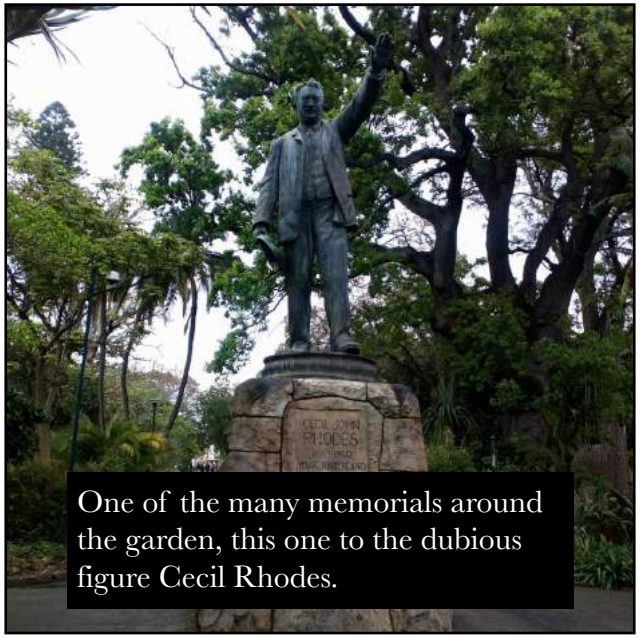
The Company's Garden was established by The Dutch East India Company during the 1650s and was originally created to grow crops so that visiting merchants and crew had fresh produce to eat when they landed. The remains of the garden now lie in the heart of Cape Town City centre and still retains a vegetable garden and a number of mature tree specimens planted by the settlers. A number of Colonial buildings remain in the grounds which now house an art museum, natural history museum and government buildings. The garden has wide avenues dissecting the grounds and there are the bones of the original Dutch style parterre layout. Some informal areas are also laid out which contain meandering paths and groups of planting and features such as memorials, benches and rock gardens, along with an aviary. The garden has many historic and impressive trees such as an ancient *Pyrus communis.* The Saffron Pear was planted by the founder of Cape Town, Jan Van Riebeeck almost 400 years ago. There are also mature *Grevillea robusta, Quercus robur* a massive *Ficus elastica* and other non-natives, including a *Morus nigra* which was imported in 1800 in an attempt to start silk production in the Cape. It was unsuccessful though due to the worms having a dislike to the species, preferring as they do, *Morus alba.* It is thought the wrong species was deliberately sent in order to preserve the silk trade in the East. Other accounts say the climate was too harsh for the moth eggs, either way the industry never took off and a handful of the Mulberry trees still remain, one from the time also at Vergelegen.

Wonderful selection of canopy seen in The Company's Garden

There are also many striking palms and succulent trees planted such as *Aloidendron dichotomom* and *Pheonix dactylifera.* Unfortunately I did not get a chance to take extensive photos to research the plants in this garden as I only had my phone (which died) and was advised to not use my decent camera alone in the garden, which in hindsight was nonsense! I can't find any information other than details on the very old significant trees and there doesn't even seem to be a book about the horticulture of the garden, a project for my retirement maybe!

Although much of the garden contained non-native specimens, there was a large portion of the garden which had been planted with fynbos plants set out in one of the old parterres. Many were traditional medicinal plants such as *Agathosma* species, *Leonotis leonurus, Salvia africana caerulea, Pelargonium* species and *Eriocephalus africanus.*

Area of herbaceous and shrub planting containing *Edgeworthia chrysantha, Hibiscus rosa-chinenesis, Crocosmia* and *Salvia leucantha*

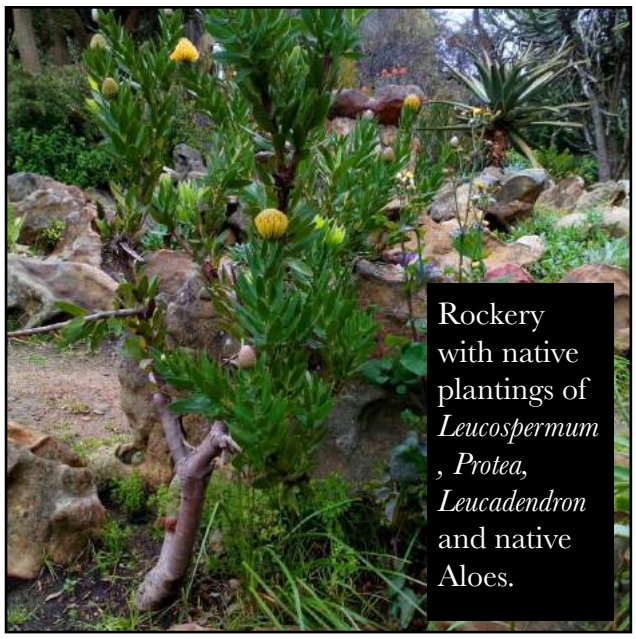


One of the many memorials around the garden, this one to the dubious figure Cecil Rhodes.

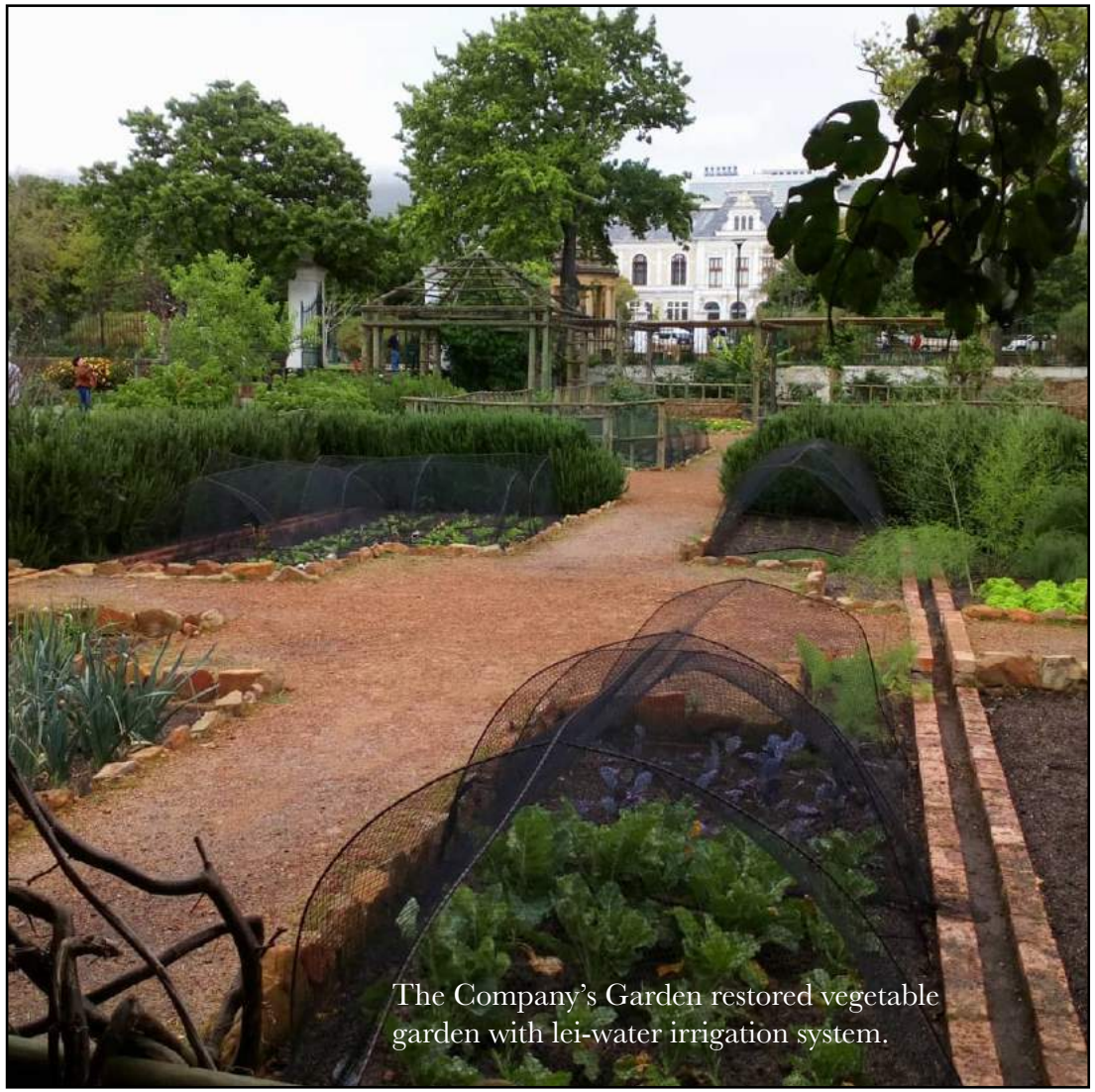
One of the many mature trees in The Company's Gardens.

Textures of trunks.

More herbaceous and shrub planting



Rockery with native plantings of *Leucospermum, Protea, Leucadendron* and native Aloes.



The Company's Garden restored vegetable garden with lei-water irrigation system.

The vegetable garden area was restored recently, the design being copied faithfully from old etchings and documents of the original Dutch production garden. A particularly nice feature of the vegetable garden is the restoration of the original Lei-water system, an irrigation system that uses channels which are periodically flooded to water crops or top up wells. Lei-water systems in South Africa were generally systems used by communities who took turns in irrigating crops from a shared water source. The produce from the garden is now used in the on-site restaurant. *Rosmarinus offcinalis* hedges help divide the parterre style layout.

As part of the community centred nature of the redesign, free horticultural training is given in basic food crop production and the garden itself provides jobs for many members of the Cape Town Community. As well as providing pleasant recreational space, the Company's Gardens carries with it the immense gravitas of history and is the point at which all of modern South Africa developed. The garden reverberates with stories of oppression, violence, sacrifice and hope. It is beautiful and strangely sketchy, being as it is, located in the heart of the City and all that that brings. I would recommend the Company's Gardens to be the first place to visit on arrival to South Africa, as it holds within its boundaries the entire story of South Africa, past and present. The gardens directly link to the establishment of white colonialism, yet walking about the garden now you feel only acceptance and positivity. Nothing is nicer than having a coffee in the on-site cafe surrounded by Capetonian families of all colours, their children playing in the roots of ancient trees, the old beings remaining passive and non-judgemental witnesses to everything gone before.

7: CONCLUSION

This trip didn't go entirely according to plan, but it all turned out ok. The journey still meant a great deal to me both on a professional level and a personal one. On a professional level it allowed me to witness the South African fynbos first hand giving me a greater understanding of its habits, requirements, delicacies and diversity and fanned an already burning flame I hold for South African flora. On a personal level the trip signified a turning point in my forty years on the planet, lifting my head up to look outside my self-made box and has encouraged me to stay looking outward. The planet is a beautiful, complex and massive place that deserves to be experienced first hand.

On my immediate arrival home I felt a great sense of relief, my time at Grootbos not entirely living up to my expectations and leaving me feeling quite frustrated on occasions. The social situation in South Africa was quite a shock to me too, it depressed me that society is still very divided between cultures and I found that difficult. The realisation that I wouldn't be able to implement my Karoo plans was also disappointing.

Since being home for a few months though and in writing this report I've realised actually just how much I gained from the whole experience and how much I yearn to get back and finish what I went for! I did make a few relevant contacts during my time there whom I have stayed in contact with and will be helpful to know regarding any future trips. Next time round I would do things much differently. Although volunteering is probably a good (and cost effective) place to start a journey, it had its limitations and frustrations for me. Reflecting on my time in South Africa I have a better idea of how things work now. Although staying for five weeks was amazing, I feel a lot of it was wasted and I was not actively learning or sharing as much knowledge as I'd have liked. If I was to return I feel two or three weeks would be ample to cover a lot of ground independently through the information given by my contacts. I would also ensure I had a credit card so that I could rent a car, if my bank ever changes its mind about giving me one! Solo travel is very difficult in South Africa without a vehicle and even with your own transport still comes with its limitations. If I visit again I would endeavour to go with a colleague or at the very least, ensure I had people to hook with up as much as possible, whether that be other gardeners, hiking groups or other solo travellers. If/when I return, I would love to focus on more garden/nature reserve visits and my original planned trip to the Karoo and perhaps a weeks' work placement in a more specialist nursery. I feel I have unfinished business in South Africa, she has wiggled herself under my skin and there is so very, very much of her to get to know.

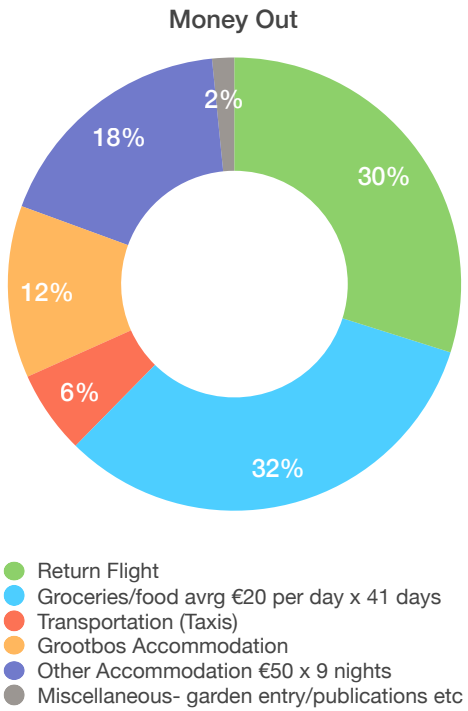
8: BREAKDOWN OF EXPENSES

Budget

SIGNED:

MONEY IN	
RHS COKE TRUST BURSARY	€1,000
KENNETH BLACK HPS BURSARY	€200
LISMORE ESTATES	€754
OWN MONEY	€500
TOTAL INCOME	**€2,454**
MONEY OUT	
Return Flight	€754
Groceries/food avrg €20 per day x 41 days	€820
Transportation (Taxis)	€150
Grootbos Accommodation	€310
Other Accommodation €50 x 9 nights	€450
Miscellaneous- garden entry/publications etc	€40
TOTAL EXPENSES	**€2,524**

MONEY LEFT OVER	
Income minus expenses	-€70



*Excess covered by own funds.

9: APPENDIX & BIBLIOGRAPHY

Appendix

Page 3:
(i) Adderly Street Flower Market in Cape Town selling many varieties of *Proteaceae.* Fynbos flower poaching is a huge problem in South Africa because of the high cost and high demand of stems. Organisations such as Flower Valley in the Walker Bay area work with communities towards maintaining a healthy cut flower industry, by offering training in small business skills and jobs in sustainable fynbos flower harvesting.

Page 8:
(ii) Harvesting *Metalasia muricata* material for cuttings. Cuttings are taken as 3-4 inch semi-ripe, non flowering stems & the bottom third stripped (carefully) of the many leaves. I asked Cilena if it was important to cut just below the node. She looked at me like I was completely stupid, then looked at the stems, which were basically just nothing but leaf nodes. Once stripped, distal end is dipped in hormone rooting powder containing 1-Napthylacetic before iserting into coarse rooting mix. Cilena placed most of her cuttings into cell trays.
(iii) Cilena watering rooted cuttings in the growing on shade area.
(iv) Green Futures Indigenous Plant Nursery and school building.
(v) The heated bench area in the covered propagation area.
(vi) Equal parts potting grade bark and polystyrene for cutting mix.

Page 9:
(vii) Sacks of *Proteaceae* in storage after smoke treatment.
(viii) *Leucadendron* cones curing in a warm spot to retrieve seed.
(ix) Fire pit for smoke treatment.
(x) Metal frame used for placing seed over fire for smoke treatment.

Page 10:
(xi) Pontscho finishes a home built gravity fed, pvc pipe hydroponics system, eventually used to grow strawberry crops.
(xii) The gravel bed hydroponics system, set on a slight incline with underground water collection tanks at the low point to collect and then redistribute water. Nutrients are added to the tanks. The system was hit and miss in its effectiveness with evaporation of water in the hot summers leading to concentrated nutrient levels in the tanks and subsequent health problems in crops, so external water is constantly needed to top up tanks during hot dry spells.

Page 11:
(xiii) Ladies who have completed training with Zokhanyo tend their plots.
(xiv) View down the Masakhane Community Garden towards the township.
(xv) Zokhanyo (zo'zo) smiling as always with one of the Masakhane Oyster Mushroom buckets.
(xvi) Siyabonga, one of the regular Community Farm Workers employed by Grootbos who also has his own plot. Siyabonga told me his life story of growing up in a township in Johannesburg before being sent to live with his father in Cape Town (on a township). He fell into gang-life for many years before deciding to try and leave it behind him after witnessing the murder of most of his friends. He moved to relatives in Gansbaai and started training at the Community Garden. On completing the course, Grootbos kept him on as a farm worker. Siyabonga is a truly inspirational human, bursting with joy, warmth and enthusiasm but also obviously carrying the mental wounds of his past, which he seems to bury in his vegetable plot, the beds of which he designed into the shape of a butterfly. His wish is to travel to Germany, a wish that is as likely to happen for a man in his position in South Africa, as a visit to the moon.
(xvii) A meagre mid-spring harvest from the community members. Individual's contribution to the harvest is logged and weighed by Zokhanyo every Thursday and money raised from sales is distributed accordingly.
(xiii) Helping Siyabonga and Pontscho string a supporting wire for newly planted Blueberry bushes. The bushes belong to the farm, which makes its own money to help support wages and rental of land and were bought from funds raised from sales of other farm owned produce. The Blueberry bushes were a large investment and a precious addition, the hope being on the production of good crops with high value. The plants were left in their containers to ensure the maintenance of their acid pH requirements and half buried into the sand to help support them from the strong coastal winds. They were also housed in a low shade netting tunnel to protect them from the harsh summer sun, with the netting also acting as a windbreak.

Page 14:
(xix) The flowers of *Aponogeton distachyos* known in Afrikaans as 'waterblommetjies'. A traditional and ancient dish called 'waterblommetjiebredie' was copied by the Dutch settlers, from the original inhabitants of the Cape the Khoikhoi. Still popular today, the dish is a stew made using the main ingredient 'waterblommetjies' and other traditional stew ingredients, typically mutton, seasonal vegetables and sorrel leaves.

Page 20:
(xx) Growing with the orchids at site C was a young version of *Dicerothamnus rhinocerotis* known in Afrikaans as 'Renosterbos', which means, 'Rhino bush. This genus is particular is indicative of renoserveld, which was cleared extensively for agriculture and viticulture due to its more fertile properties than other fynbos veld-types. When the first settlers arrived in the Cape, large numbers of South African rhino grazed these shrubs and of course, these were subsequently hunted to extinction. *Dicerothamnus* is one of the stronger growing plants on the fynbos and grows extensively and in some situations, now it has nothing to eat it, can out compete other plants leading to an imbalance in species.

Page 30:
(xxi) *Hyobanche sanguinea* is one of the weird fynbos plants. It is a parasitic plant whose hosts are species of *Aspalanthus, Metalasia,* and *Protea* species. White curved anthers protrude from the tips of the strange flowers giving it the common name 'catclaws'. The plant is pollinated by sunbirds and goes on to produce minute seed which is washed through the soil in and around the roots of its host, where chemicals secreted by the host roots stimulate germination.

Page 31:
(xxii) *Mimetes cucullatus* is known as a pioneer plant of fynbos landscape. It is a prolific resprouter from its woody base after fires, a tendency that is exploited and makes it a valuable and viable cut flower. *M.cucullatus* is the only *Mimetes* that has this resprouting ability which goes some way to explaining why it is classed as 'of least concern' on the SANBI list of endangered species, where most other species are threatened or even endangered and some, recently extinct.

(xxiii) *Erica pluckenetii.* There are an estimated 860 species of *Ericaceae* in South Africa and the genera is an integral part of the fynbos biome. Many *Ericaceae* establish close ties to mycorrhiza in order to help absorb nutrients, *E. pluckenetii* is slightly unusual for the genera in that it holds its seeds in capsules on the plant and doesn't scatter them straight away on the wind.

(xxv) *Gymnosporia buxifolia.* A shrub that tends to grow at the margins of the milkwood forests as part of a plant line that has been shown to help slow the path of approaching fires before they hit the tree line. It is also one of the few truely spiney plants on the fynbos. The production of spines is quite demanding of the plant's resources and in the nutrient low fynbos soils is a risky growth strategy. Most plants on the fynbos are rich in volatile oils which act as protection against predation, as well as serving to limit water loss in the harsh conditions.

Page 32:
(xxvi) *Leucadendron salignum* is another resprouting *Proteaceae* species and is arguably one of the easiest of the genus to grow. The fact that it grows extensively throughout the many terrains of South Africa and shows resilience to many variations of climatic conditions, made it a candidate for breeding. *L. salignum* is the parent plant of many *Leucadendron* hybrid cultivars including the very successful *L.* x 'Safari Sunset', a hybrid of *L laurifolium* and *L. salignum*. The plant is also used extensively in the sustainable cut flower trade, where its generous beauty and easy going nature make it a valuable product.

Page 35:
(xxvii) 'The Sisters', two conjoined *Sideroxylon inerme* trees, are thought to be the oldest trees in the milkwood Forests at Grootbos. Probably emanating from the same trunk, the two remain the biggest trees in the vicinity. It's unsure why these two were not logged with the rest of the surrounding wood at this particular location early last Century. One theory is that the woodsmen had made their camp beneath these trees to provide shelter from the heat and winds, hence saving the two sisters from being felled.

Page 38:
(xxviii) The lands at Grootbos remain one of the final strongholds of the critically endangered *Erica irregularis.* In order to preserve the population, seed was recently sent to the millennium seed-bank at Wakehurst Place in the UK. The population at Grootbos is strong and honey is harvested from when the *Erica* is in flower at Grootbos. Grootbos is currently in the process of having the product formally analysed for its properties, a complex process that involved precisely timed honey and pollen gathering by the various departments at Green Futures. *E. irregularis* flowers during the South African winter, so is a valuable source of food for many other species on the fynbos.

- All Photos in the report are my own. Any external sources (maps/diagrams) are credited where possible.

Bonus: Among the parasitic plants of the fynbos is *Cassytha ciliolata.* It is by far one of the more common plants to see, draping and twining itself around the other plants like strewn ginger string. The plant lives purely by tapping into the host plant's resources above ground, stealing nutrients through the minute pads it uses to cling on. *Cassytha ciliolata* produces flowers and berry fruits throughout the year, which are pollinated and eaten by birds. Droppings from the birds help distribute the plant to fresh hosts. The conservationists didn't seem to think it was detrimental to the fynbos and there did seem to be a balance, visually, on its distribution. Also, get this! *Cassytha ciliolata* is in the *Lauraceae* family!

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