A Horticultural Study Trip To South Africa

A Month At Kirstenbosch National Botanical Garden and in The Northern Drakensberg Mountains

October 2011

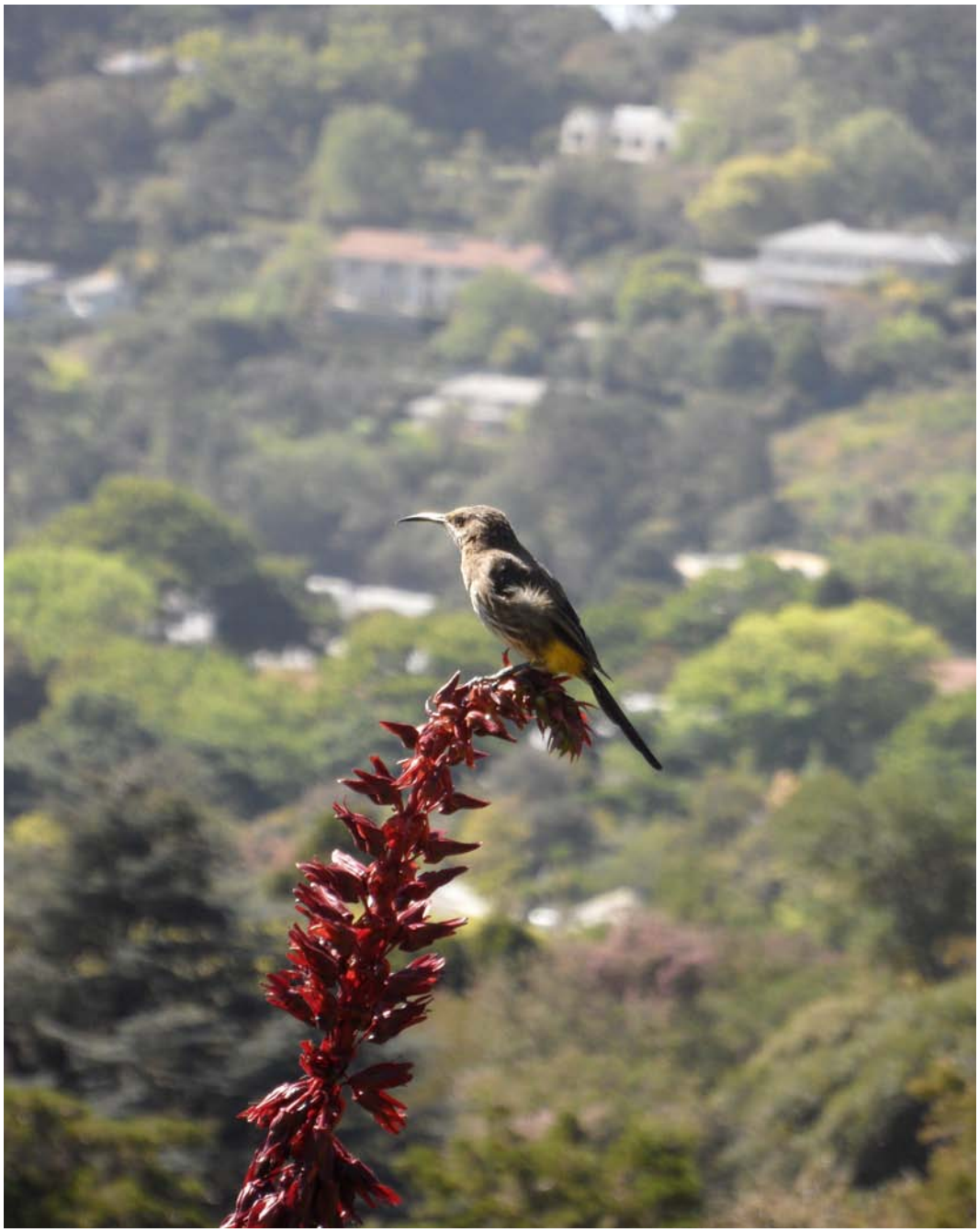

Fig 1: Female Sunbird on *Melianthus* flower

By

Ned Lomax

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Introduction

I have worked as a gardener for the National Trust at Glendurgan Garden for approximately three and a half years. Having had no formal training before accepting the temporary position of Seasonal Gardener, I have largely learned my trade through the practical application of my work. My Head Gardener and Garden Manager have been incredibly generous, both with their time and their knowledge, and I have enjoyed learning from them. On the whole though, I have learned about the plants I work with through self lead research and by asking questions of those around me. Generally, if a plant interests me I will look it up in a book, study it, and hopefully understand how to grow it.

Glendurgan Garden is a Cornish woodland garden, situated in three valleys running down to the village of Durgan on the Helford river. It was planted in the early nineteenth century by Alfred Fox, and tended and developed by his descendants until the mid nineteen sixties when it was donated to The National Trust. Enjoying the mild climate of South-Western Cornwall, as well as the protection of the secluded valleys in which it sits, Glendurgan has long been home to exotic and tender plants from around the world. The garden has a tradition of experimentation in its planting, and it is therefore an exciting and stimulating place to both work and learn.

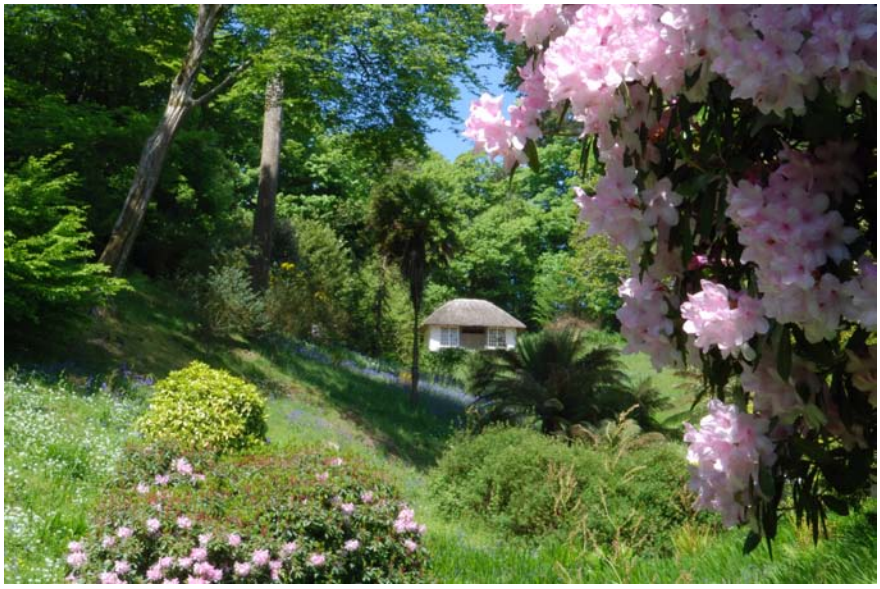

Fig 2: The School Room at Glendurgan Garden

After accepting a permanent position at Glendurgan Garden, I was encouraged to broaden my experience through study trips and work placements. The particular interest I had developed in South African flora led me to organise a week-long work placement at Tresco Abbey Gardens in the Summer of 2010. Tresco Abbey Gardens are situated on the island of Tresco, in The Isles of Scilly. Benefiting from an even milder climate than Cornwall, Tresco Abbey Gardens are home to a wide range of South African plants, including extensive collections of Proteas and Ericas. Seeing these

plants growing healthily, only a few miles from Glendurgan excited me and encouraged me to introduce more South African flora at Glendurgan. My week on Tresco really impressed on me that when growing plants right on the edge of their cultivation needs, understanding the way in which they grow and site positioning are key. I was already well aware that the majority of plants from South Africa cannot survive on mainland Britain unless under glass, but I struggled to understand exactly what conditions each plant would experience in its natural environment. For example, why might one plant from the Western Cape region thrive in Cornwall, whilst another didn't stand a chance? I therefore began the process of planning a study trip to South Africa.

Fig 3: Tresco Abbey Gardens

Fig 4: *Protea burchellii* growing at Tresco Abbey Gardens

Fig 5: *Erica verticillata* growing at Tresco Abbey Gardens

Aims and Objectives

My main objectives during my visit to South Africa were to gain a better understanding of the native flora, the varying habitats in which it grows and how it can be cultivated, and to investigate the plants best suited to introduction to British horticulture. Further to this, I also hoped to observe species already established in British gardens, both cultivated and in the wild. Through these observations I hope to improve the way in which I use these plants in my work, and to learn skills which should continue to serve me throughout my career.

Through my preliminary research I identified The Drakensberg mountain range, in the east of the country, as an area where a reasonably high proportion of the flora might be suitable for cultivation in Britain. I also wanted to gain a more general overview of plant life in South Africa though, and therefore decided to visit Kirstenbosch National Botanical Garden in Cape Town.

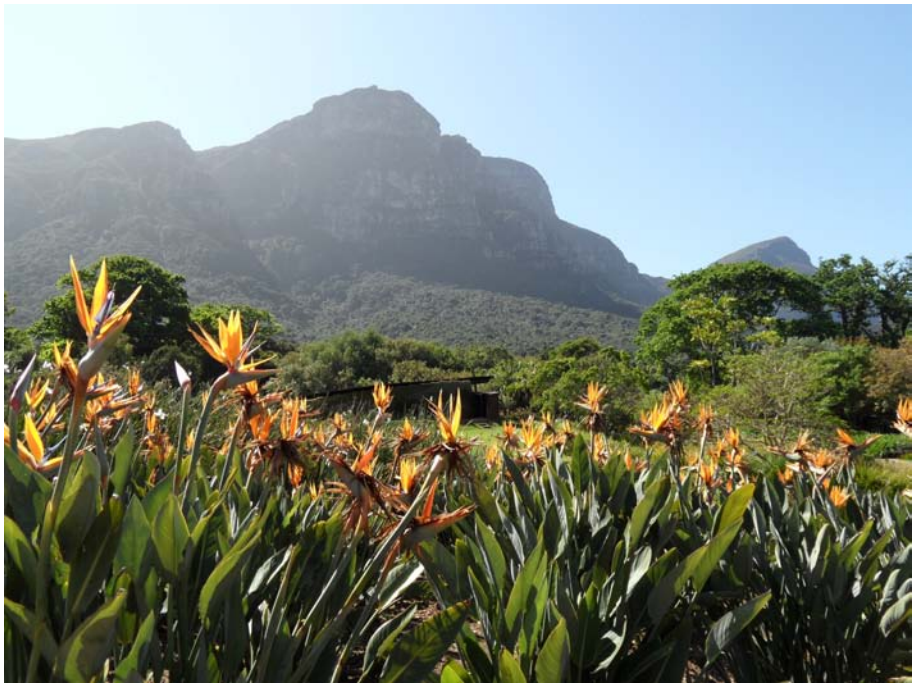

Fig 6: *Stelitzia regia* at Kirstenbosch National Botanical Garden, Cape Town

The National Trust had kindly agreed to allow me a month long leave of absence in which to complete my trip. During this period I spent two weeks working as an International Student Volunteer at Kirstenbosch, and a further two weeks hiking and studying plants in the Royal Natal National Park, in the northern Drakensberg Mountains. Whilst at Kirstenbosch I was introduced to each of the Horticulturalists, and the areas of the garden in which they were in charge. I spent time in the nursery, learning various specialist propagation techniques, observing the different equipment used, and assisting the staff in their work. I was also fortunate enough to be able to accompany Louise Nurrish, head of the Protea and Restio collections, on a collecting trip to a nature reserve

within the Cloof Wine Estate, about 80km north of Kirstenbosch. Further to this, I explored the wider estate around the garden and climbed Table Mountain on two occasions in order to observe some of the Cape flora in its natural habitat.

I then travelled to the Northern Drakensberg by means of a flight to Durban, before catching a bus up into the mountains where I stayed in a backpackers' hostel near the entrance to the Royal Natal National Park. From here I was able to explore different areas of the park, observing the Protea grasslands and indigenous forests of the Little Berg, as well as the alpine plants of the Upper Berg, and in particular those growing on the summit of the Amphitheatre.

Fig 7: The Amphitheatre, Royal Natal National Park

Kirstenbosch National Botanic Garden

Kirstenbosch National Botanical Garden is situated in Cape Town, on the eastern slopes of Table Mountain. Founded in 1913 by Harold Pearson, Professor of Botany at the South African College, Kirstenbosch is the oldest botanic garden in the country.[1] Governed by the mission statement, "...to promote the sustainable use, conservation, appreciation and enjoyment of the exceptionally rich plant life of South Africa, for the benefit of all people"[2], the garden focuses exclusively on indigenous flora. The 528 hectare estate includes a cultivated garden of 36 hectares, as well as an extensive, carefully managed nature reserve which is home to many rare and endangered species.[3] Enjoying a mediterranean climate, the summers at Kirstenbosch tend to be long, hot and dry. Winters on the other hand are cool and rainy, but much shorter than those experienced in Britain.

1 SANBI, *History of Kirstenbosch NBG.* Web Address: http://www.sanbi.org/gardens/kirstenbosch/history-kirstenbosch-nbg (Accessed: 28/11/2011)
2 SANBI, *Kirstenbosch National Botanical Garden*
3 SANBI, *Kirstenbosch National Botanical Garden*

The garden's position at the base of Table Mountain is in the lee of the prevailing weather systems. As a result the annual rainfall of 52 inches (not far short of the levels found in Cornwall) is the highest in the Cape Peninsular. Just over half of the annual rainfall occurs in the winter months, with the majority of the rest falling in the fringe months. The Cape Peninsular is therefore referred to as a 'winter rainfall' area. Average temperatures during the summer are around 25°c, although they may reach 35°c. Crucially though with regard to British horticulture, the average winter temperature is 17°c, dropping to a minimum of 7°c overnight.[4] Only specialised Cape plants therefore, which have adapted to extreme conditions, may be considered for cultivation in the UK.

Fig 8: View of Table Mountain from The Cycad Amphitheatre, KBG

I arrived at Kirstenbosch in the late afternoon of Sunday 2nd October. Having spent the past day and a half on transport of one form or another, I was keen to get into the garden and have a good look round. My expectations were high, but I wasn't disappointed. It really is a stunning place! The imposing backdrop of Table Mountain only helped to enforce my impression that here was a botanical garden which not only fulfilled its scientific and conservation objectives, but was also beautiful and appealing to anybody, regardless of their level of horticultural interest. I set about a quick tour of the estate before the gates closed, in order to take in the layout of the garden. Centred around 'The Dell', the oldest part of the garden, the areas which particularly interested me, and where I later spent the majority of my time were: the Protea garden, the Erica garden, the Restio garden, the Cycad Amphitheatre and Matthew's Rockery.

4 SANBI, *Kirstenbosch Through The Seasons.* Web Address: http://www.sanbi.org/gardens/kirstenbosch/kirstenbosch-through-seasons (Accessed: 01/12/2011)

The Restio Garden

One of the first areas in which I worked was the Restio Garden. Restios, or members of the Restionaceae family, are one of "the three major families defining Fynbos, the characteristic vegetation type of the Cape Floristic Region".[5] Whilst members of the Proteaceae and Ericaceae families (the other two major families) have, at least in South Africa, been in cultivation for a number of years, the horticultural merits of restios have only relatively recently begun to be appreciated. The Restio Garden at Kirstenbosch was designed to raise public awareness and interest, as well as to act as a trial area for species with horticultural potential. I was very impressed by the variety of colours, textures and forms in this group of plants. When seen planted en masse, as they are at Kirstenbosch, one can really appreciate the differences between the generas and species. Yet more surprising though, was the beauty of some of the restios in flower. Restios are diecious, meaning male and female flowers are found on separate plants. In addition, the male and female plants of each species may be quite different in appearance, making identification very difficult! Some of the genera I observed in the garden included Cannomois, Chondropetalum, Elegia, Ischyrolepsis, Rhodocoma, Thamnochortus and Willdenowia.

Fig 9: *Rhodocoma capensis* female flower

Fig 10: *Rhodocoma capensis* male flower

Fynbos plants are characterised by their ability to thrive in relatively nutrient poor, and often very dry conditions. Restios are however, generally more robust growers than most fynbos plants. They tend to be less affected by disease and are able to tolerate a wider range of conditions. Many restios

5 Brown et al, *Grow Restios*. p.5

naturally occur along stream edges and in other damp areas. They will therefore respond well to regular watering and even feeding. Crucially though, they require a well drained soil in order to avoid stagnation. They also require full sun and plenty of air movement.[6]

Fig 11: *Ischyrolepsis subverticillata.* A restio which thrives in moist conditions.

Fig 12: Thamnochortus sp. If growing conditions are too rich, some restios will produce large amounts of sterile growth in order to process and use up surplus nutrients. This sterile growth does not flower.

Fig 13: *Elegia ebracteata*. Sand collected from the restio's natural environment is added to the compost, improving both germination rates and growth.

Restios appear to be a group of plants which show a great deal of potential for cultivation in the UK. Specimens of *Ischyrolepsis subverticillata* have grown successfully at Glendurgan Garden for a number of years and have easily survived winter temperatures of around -8°c. *Elegia capensis* is also relatively common in Cornish gardens and is notable for its ability to reshoot after growth is

6 Brown et al, *Grow Restios*. p.17

cut to the ground by heavy frosts. I was particularly encouraged however, by the apparent suitability of *Cannomois virgata,* a montane species with a widespread distribution range. I observed plants at Kirstenbosch which were in excess of 3m tall! A small specimen of *Cannomois virgata* was recently introduced to Glendurgan and is so far showing promise.

Fig 14: *Cannomois virgata* growing in the Restio Garden, KBG

The Protea Garden

Whilst planning my trip to South Africa, the group of plants I was perhaps most looking forward to studying was those of the family Proteaceae. Of the 329 South African species of Proteaceae just over 300, or 92% are only found on a narrow, mountainous belt along the South and South-Western coasts of the country.[7] Due to the climatic nature of this limited distribution area, there are very few which might be considered for cultivation in Britain. However, some growers have found success with species such as *Protea eximia, P. grandiceps, P. cynaroides* and *Leucadendron argenteum*. I was therefore keen to learn how to replicate the best conditions for these plants, as well as hopefully research other suitable species to try.

The Protea Garden at Kirstenbosch covers a large area at the top of the estate. This area is quite dry and relatively exposed, providing good air circulation and a suitable habitat for the numerous winter rainfall species which Kirstenbosch understandably specialises in. As one of the key plant groups grown in the garden, there are simply too many species to list here. However, I did observe species from the genera *Aulax, Brabejum, Diastella, Leucadendron, Leucaspermum, Mimetes, Paranomus, Protea* and *Serruria*.

7 Vogts, M. *Proteaceae, Know Them And Grow Them.* p.11

Fig 15: Cultivar of *Leucospermum cordifolium*

Fig 16: Silver Tree*, Leucadendron argenteum*

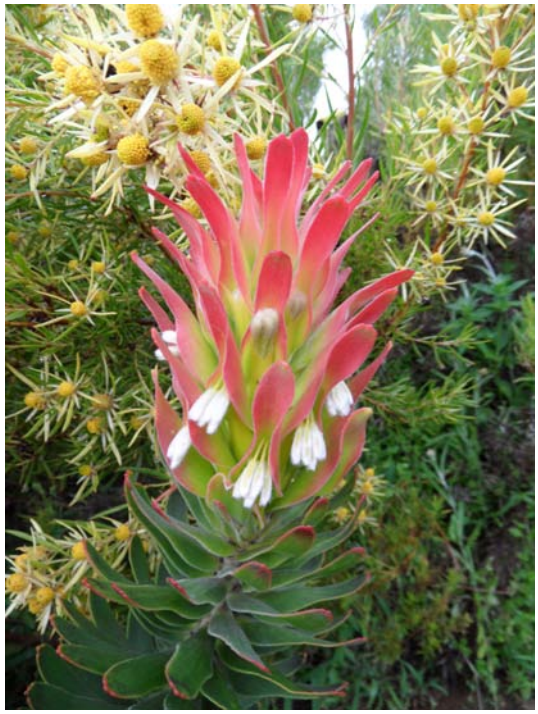

Fig 17: *Mimetes cucullatus*

Kirstenbosch's fantastic collection of Proteas was built largely on the back of advances in the study of Fynbos propagation made at the garden. Germination of Protea, Erica and Restio seed is often erratic, or sometimes impossible without very specific conditions. In the wild, Protea seed is often held on the plant, or lies dormant in the ground until a bush fire clears the land. By waiting for natural fire to destroy the surrounding scrub before germination, not only does the parent plant ensure the survival of the species in the event of its own death, but it also ensures that the seed

germinates in conditions in which there is less competition for water and light. By replicating these conditions by means of treatment with smoke derived from burning plant material, the Kirstenbosch horticulturalists dramatically increase germination rates, particularly with the more challenging species.

Fig 18: Nut-like seed of *Leucadendron argenteum*. Dormancy is broken when water is absorbed and the seed is subjected to low temperatures. Fluctuating day and night temperatures of 15°c - 20°c and then 4°c - 10°c, replicate a cool, wet, winter period. The hard seed coat can also be broken down by soaking in a 1% solution of hydrogen peroxide for 24 hours. Proteaceae seed with a hard coating require treatment with a smoke primer to initiate germination.

Fig 19: Serotinous seed of *Protea roupelliae*. Serotiny is an adaptation by which seed is held and protected on the plant until the seedhead is burned by wild fires. These seed also require low temperatures of 4°c - 10°c for germination, ensuring that germination is delayed until the first winter period after a fire. These seeds do not require treatment with a smoke primer to initiate germination.

Fig 21: Flower bud of *Protea rubropillosa*, a summer rainfall species from the Drakensberg escarpment in the Transvaal.

Fig 20: Open flower of *Protea rubropillosa*.

Winter rainfall proteas such as *Protea cynaroides* and *P. grandiceps*, are relatively widely available in British nurseries, most likely due to their flamboyant flowers. However, they struggle with the low temperatures and high rainfall experienced in Britain during their naturally dormant summer period. Summer rainfall species such as *Protea caffra*, *P. roupelliae* and *P. rubropillosa* therefore seem better suited to cultivation in the UK.

The Erica Garden

The genus *Erica* occurs only in Europe and Africa. 14 species are found in Europe, a further 11 species are found through Eastern Africa, and the remaining 600 or so species are endemic to South Africa.[8] The majority of species occur on the South Western Cape, close to the coast and in areas of relatively high rainfall. Further inland where conditions tend to be drier, species are restricted to mountainous areas and then mainly on southern faces.[9] Many Erica species are not only endemic to South Africa, but may also have tiny distribution ranges, in some cases limited to a single site.

Fig 22: *Erica urna-viridis* only occurs on the Muizenberg and Kalk Bay Mountains, on the Cape Peninsular.

Fig 23: *Erica cerinthoides* is the only species to occur across the whole distribution range of the genus in Southern Africa. Seen here growing in the Sigibud Valley, RNNP.

The specialised needs of many Ericas, reflected by the often limited distribution of many species, means that they are a particularly challenging group of plants to grow in cultivation. However, apart from an almost universal requirement for acidic soil conditions, “Ericas grow in most of the types

8 Baker, H.A. & Oliver, E.G.H. *Ericas in Southern Africa,* p. xxxv
9 Baker, H.A. & Oliver, E.G.H. *Ericas in Southern Africa,* p. xxxvi

of habitat found in the South-Western Cape."[10] It is therefore possible that some species may prove hardy in the UK. With the help of Anthony Hitchcock, head of the Erica collection at Kirstenbosch, I identified a number of species which would be worth attempting to grow at Glendurgan:

Erica annectens
Erica baurei subsp. baurei
Erica baurei subsp. gouriquae
Erica caterviflora
Erica cerinthoides
Erica discolor 'Varient B'
Erica glandulosa subsp. fourcadei
Erica haematosiphon
Erica halicacaba
Erica mammosa
Erica nana
Erica quadrangularis
Erica scabriscula
Erica shannonii
Erica tumida
Erica verticillata

Fig 24: *Erica curviflora*

Fig 25: *Erica glandulosa*

Fig 27: *Erica discolor subsp. speciosa*

Fig 26: *Erica oatesii var. oatesii*

10 Baker, H.A. & Oliver, E.G.H. *Ericas in Southern Africa,* p. xxxvii

The Cycad Amphitheatre

Fig 28: The Cycad Amphitheatre, KBG

The Cycad Amphitheatre at Kirstenbosch is home to an extensive collection of South African cycad species. 76 species of cycad occur on the African continent. Of these species, 74 belong to the genus *Encephalatos*, with the other two species being single representatives of the genus *Strangeri* and *Cycas.* Today the Kirstenbosch cycad collection contains 38 of the 40 species found in South Africa, with 29 of these species growing in the Amphitheatre.[11] I observed *Encephalatos woodii*, *E. friderici-guilielmi*, *E. horridus* and *E. villosus* to name just a few. From an evolutionary point of view, cycads have remained relatively unchanged for millions of years and are therefore considered to be a horticultural oddity. These very desirable plants are mostly rare and endangered in their natural habitats, and are constantly under threat from collectors. Kirstenbosch is involved in a major cycad conservation programme, through protection of plants in the wild, propagation of endangered species and controlled distribution and sale of plants to the collectors' market. I was introduced to some of the garden's most precious plants by Phakamani Xaba, head of the cycad collection. He told me of the plight of *Encephalatos woodii*, an example of the conservation work in which Kirstenbosch and the other SANBI botanical gardens are involved.

Encephalatos woodii is extinct in the wild. Only a single clump of male plants was ever found - in Kwa-Zulu Natal, in 1895. This clump was subsequently removed and the original plants are believed to have died. However, thanks to propagation from basal suckers it is now thought that

11 SANBI, *Kirstenbosch NBG: Cycad Amphitheatre.* Web Address: www.sanbi.org/gardens/kirstenbosch/virtualtour/kirstenbosch-nbg-cycad-amphitheatre (Accessed 18/12/2011)

over 500 plants of *Encephalatos woodii* exist in botanical gardens around the world.[12] It is hoped that further exploration of the species' original distribution area may reveal a female plant, allowing pollination and production of viable seed. Sex reversal has been observed in other *Encephalatos* species, and it is also hoped that once this phenomenon is understood, it may be possible to induce it in *Encephalatos woodii* in order to produce a female plant.

Fig 29: *Encephalatos woodii*. This is one of the most sought after species of South African cycad. This plant alone is valued at over R1,000,000 (£120,000)!

Fig 30: Germination of Cycad seed

Fig 31: Male cones of *Encephalartos friderici-guilielmi*. *Encephalatos* are pollinated by weevils. The cones emit an odour in order to attract pollinating insects. Once fertilisation has been achieved, cones heat themselves in order to prevent further interference .

12 PlantZAfrica.com, *Encephalatos woodii*. Web Address: www.plantzafrica.com/frames/plantsfram.htm (Accessed 18/12/2011)

The biggest threat to cycads in the wild is illegal removal by collectors and dealers. Under South African law, cycads are protected and a permit is required in order to move plants in or out of the country. Furthermore, wild plants are micro-chipped in order to make their resale more difficult. In order to help alleviate the demand for illegally collected plants, Kirstenbosch has a programme of propagation of rare cycads for sale into the commercial market.

Table Mountain Nature Reserve

Fig 32: View from the summit of Table Mountain

Table Mountain forms an imposing backdrop to the gardens at Kirstenbosch. Managed as a nature reserve, it is home to a number of rare indigenous flora and fauna. I climbed the mountain on two occasions during my stay in Cape Town. On the day of the first hike, our group followed the India-Venster route, up India ravine and around Venster buttress, before finally reaching the summit. We then descended by way of Smut's Track, back down to Kirstenbosch. Temperatures peaked at around 30°c and the north slopes of the mountain seemed an inhospitable environment for any plant to grow in. My second trek up Table Mountain was very different! We climbed to the summit through indigenous forest, up Skeleton Gorge, into thick cloud and later freezing rain. The contrast in climate on these two occasions was quite shocking, and really highlighted the unusual conditions which this particular group of plants are used to.

The lower slopes of Table Mountain are home to populations of indigenous forest. This Afromontane forest occurs in small, isolated pockets on mountains from the Western Cape, up the east coast and through the Drakensberg Mountains to Limpopo.[13] Occurring up to an altitude of

13 SANBI, *Kirstenbosch Walks and Trails*

around 800m and requiring high rainfall and nutrient rich soil, Afromontane Forest is usually found in 'Kloofs' on the sides of mountains.[14] Due to deforestation by early settlers of Cape Town, the huge mature trees which I later saw in the Royal Natal National Park were conspicuously absent at Kirstenbosch. However, thanks to an extensive programme of conservation and removal of alien plants, I was able to observe typical Afromontane trees such as Real Yellowwood (*Podocarpus latifolius*), Red Alder (*Cunonia capensis*), Hard Pear (*Olinia ventosa*), Stinkwood (*Ocotea bullata*), Assegai (*Curtisia dentata*) and Cape Beech (*Rapanea melanophloeos*).

Fig 33: Red Alder, *Cunonia capensis*

Fig 34: Real Yellowwood, P*odocarpus latifolius*

Fig 35: *Protea cynaroides*, growing near the summit of Table Mountain

14 South African National Parks, *Table Mountain National Park.* Web Address: http://www.sanparks.org/parks/table_mountain/conservation/flora.php (Accessed 22/12/2011)

Collecting Trip to Cloof Wine Estate, Darling

During my stay at Kirstenbosch I was able to join a collecting trip to a nature reserve, about 80km north of Cape Town. Located within the Cloof Wine Estate, the reserve included areas which had previously been cleared for use as vineyards and to graze cattle. The estate's Conservation Manager, Jacques van der Merwe, explained to us that the reserve contains two critically endangered veld types: Atlantis Sand Fynbos on the lowlands, and Swartland Granite Renosterveld higher up the slopes. 73 red data list plants had so far been found on the estate, and more new plants were being discovered as further areas of alien Acacias were cleared.

Fig 36: *Adenandera cf. multiflora*. An as yet undescribed species or form of *Adenandera*.

Fig 37: *Protea scolymocephala*

Fig 39: *Diastella proteoides*

Fig 38: *Serruria decipiens*

Fig 40: Cloof Wine Estate, Darling

Fig 41: *Serruria fasciflora*

Fig 42: *Gladiolus meliusculus*

Kirstenbosch works in association with reserves such as that at Cloof, on various reintroduction programmes. The seed and cuttings we collected during our visit will be propagated at Kirstenbosch before being reintroduced to the site. This method allows sites to be replanted, whilst preserving the genetic integrity of an area. The species we collected were:

Protea repens
Protea scolymocephala
Protea burchellii
Leucadendron lanigerum subsp. lanigerum
Diastella proteoides
Diosma aspalathoides
Agathosma imbricatum
Leucospermum hypophyllocarpodendron
Leucospermum parile
Serruria fasciflora
Serruria linearis
Serruria decipiens
Adenandera cf. multiflora
Erica abietina subsp. aurantiaca

Royal Natal National Park

Fig 43: The Policeman's Helmet, Royal Natal National Park

The Royal Natal National Park in the northern Drakensberg Mountains, has been a protected area since 1916. The park is dominated by a sheer basalt wall, about 5km long, and over 1000m (3,280ft) in height, known as 'The Amphitheatre'. Emerging from the summit of the Amphitheatre is the source of the Thukela river. Dropping from the plateau in a series of five leaps, with a total height of 948m (3,110 ft), the Thukela Falls are recognised as the second highest waterfall in the world. The Alpine Belt of the Amphitheatre is home to a number of *Erica* and *Helichrysum* species, as well as populations of bulbs such as *Moraea*. Below the basalt cliffs of the Upper Berg is found the Sub-alpine belt. This grassland vegetation, which covers the lower peaks, is characterised by swathes of *Festuca*, pockets of woody vegetation such as *Leucosidea sericea*, and *Protea roupelliae*, and the occasional Drakensberg cycad, *Encephalatos ghellinckii*. Once down onto the sandstone Little Berg the vegetation becomes more diverse, with large populations of *Protea caffra*, *Greyia sutherlandii* and *Cussonia paniculata*, as well as masses of *Merwilla plumbea*, *Anemone flanninii* and various *Watsonias*. Dispersed throughout this Montane Belt, are areas of Afromontane forest much like those I encountered around Kirstenbosch.

Fig 44: *Protea caffra* growing on The Little Berg

The Upper Berg

Fig 45: *Cyrtanthus flanaganii*

Fig 46: *Dierama dracomontana*

Fig 48: *Moraea spathulata*

Fig 47: *Helichrysum retortoides*

As with Table Mountain, I climbed to the Amphitheatre plateau on two occasions. On the day of my first climb, the whole area was shrouded in cold, damp cloud. Visibility was very poor, but I still gained a good impression of the native flora. The area was dominated by low growing *Helichrysums*, *Erica dominans* and *Erica figida*. Every now and then I came across a delicate *Moraea spathulata* being battered by the strong winds, and also large colonies of *Moraea alticola*,

unfortunately not in flower, but obviously thriving in the very exposed conditions. A week later I made the same climb on a perfect, sunny day. This time I was really able to appreciate the beauty of the panoramic views around every bend in the path, as well as the terrifying 1km drop from the top of the Amphitheatre! The flora I encountered on these trips above 2500m (8,200ft) was sparse and not particularly flamboyant. However, some of the *Moraea* species I found, specifically *Moraea alticola, M. huttonii* and *M. spathulata,* as well as other bulbs such as *Cyrtanthus flanaganii*, show great promise as plants for British gardens.

Fig 49: *Aloe polyphylla*. The national flower of the mountain kingdom of Lesotho.

Fig 50: Moraea huttonii growing beside a stream in Lesotho.

Fig 51: The 1km drop from the top of the Amphitheatre into the Thukela George below.

The Little Berg

The majority of my time in the Royal Natal National Park was spent exploring the foothills and lower peaks of the Little Berg. At these altitudes (between 1400m and 2000m) there was great diversity in the natural flora, as well as a number of differing habitat types. The park contains a number of small peaks and many steep sided valleys. Although the temperatures were reasonably high during my visit - around 25ºc - they were by no means consistently so. The average temperature for the warmest month is in fact 22ºc.[15] Rain is also not uncommon, and the valley streams are well supplied by powerful afternoon thunderstorms, bringing with them heavy, cold downpours.

Fig 52: *Greyia sutherlandii*

Fig 53: *Anemone flanninii*

Fig 54: *Protea roupelliae* (left) and *Protea caffra* (right) growing together on the summit of The Camel's Hump.

15 Pooley, E. *Mountain Flowers,* p. 13

My visit to the Drakensberg coincided with early Spring in South Africa. Whilst I certainly saw a good number of bulbs in flower, I may have been a couple of weeks too early for the main display. Having said this, the grassland slopes of the Royal Natal National Park, and particularly the lower marshy areas were covered in large numbers of fantastic, blue flower spikes of *Merwilla plumbea.* In the wettest areas I found groups of *Anemone flanninii* with large, white flower heads, on stems up to 1m tall. As I climbed to drier slopes, I came across carpets of *Barleria monticola* and *Ocimum obovatum*, as well as the occasional *Aristea sp.* Most notable though throughout this area, were the extensive colonies of *Protea caffra*, just starting to flower towards the end of my stay.

Fig 55: *Merwilla plumbea*, the former *Scilla natalensis.*

Fig 56: *Aristea sp.*

Across the whole of the Royal Natal National Park it was evident that wild fires are commonplace, and it was interesting to note the different manners in which plants survived them. The majority of plants simply regenerated from seed contained within the soil. I observed that the large *Merwilla* bulbs which sat half submerged in the ground, whilst charred by the flames, did not seem to have suffered at all. Other plants survived by growing in areas less susceptible to fire. I had already noticed that *Protea caffra* and *Protea roupelliae*, the two dominant Protea species in the park, grew in differing locations. I tended to encounter *P. roupelliae* at higher altitudes, at first leading me to think that it benefited from lower temperatures. However, after observing colonies of *P. caffra*, blackened by fire, but reshooting strongly, and comparing them to scorched plants of *P. roupelliae*, in most cases dead, I noticed that the exposed higher altitude locations in which *P. roupelliae* occurred were also by their nature less prone to wild fires.

Fig 57: Red new growth of *Protea caffra,* reshooting after a wild fire.

Fig 58: Flower of *Protea roupelliae*

Fig 59: Flower of *Protea caffra*

Having seen the conditions in which both *Protea caffra* and *Protea roupelliae* grow, I am very keen to attempt to cultivate them at Glendurgan. I am particularly heartened by the corky bark of *P. caffra* and its ability to reshoot, suggesting that it may be capable of regeneration after an uncommonly harsh Cornish winter.

Conclusion

Although a month seemed like a long time to be away from both home and work, I feel that I only scratched the surface of my objectives. I learned a huge amount from my trip and I came back to Britain inspired and keen to implement my new found knowledge of South African flora. However, one could easily return to the Royal Natal National Park each month of the year and be faced with a

completely new group of plants to study. Furthermore, although I feel that it was right to focus my attentions on a restricted area, in order to make the most of my limited time, I am conscious that I explored only a tiny part of the Northern Drakensberg. I would love therefore, to travel back to South Africa someday in order to visit Cathedral Peak, Monk's Cowl, Cathkin Peak and Champagne Castle, as well as the Southern Drakensberg. There is certainly plenty of scope for a return study trip to the area! The same could be said for my visit to Kirstenbosch. I was somewhat overwhelmed by the variety of plants on show in the garden, and one could easily return day after day in order to study different aspects of it. Although I by no means saw the whole of Kirstenbosch, I do feel that I gained a good understanding of how the garden operates, and the important conservation work it does in the wider community. Most importantly for me though, I was able to talk to some of the leading authorities on South African flora, learn from them, and draw on their knowledge for my studies. These contacts may well prove to be an invaluable source, not only for information, but also for their assistance in selecting and locating supplies of seed and propagation material. Furthermore, I was able to work with and learn from the groundsmen at Kirstenbosch, some of whom have a lifetime of experience behind them. Some of the specialised propagation techniques I was shown may well prove to be essential to the success of my own cultivation attempts here in Britain.

I would certainly classify my study trip to South Africa as 'life changing', not only for the experience I gained there, but also for the way in which it has opened my eyes to the possibilities of horticultural study in the wild, both at home and abroad. Whilst I am keen to build on the knowledge I gained in South Africa and use it in my work, I would also love to plan similar study trips to other locations, in order to further broaden my experience. New Zealand for example has a fascinating native flora, a lot of which is used already in horticulture, particularly in Cornwall. It would also be fantastic to travel to China, northern India and Bhutan, in order to see first hand some of the Himalayan plants which have made such a dramatic impact on British gardens over the past two hundred years.

I would like to thank the National Trust, the RHS and the Merlin Trust for their generosity, without which I could never have organised this trip, and also my colleagues at Glendurgan for keeping the grass cut in my absence, and for patiently sitting through my slide shows on my return!

Summary of Costs

Travel		
	International Flights	£723.23
	Internal Flights	£202.70
	Buses & Trains	£180.00
Administration		
	Travel Insurance	£35.00
Subsistence		
	Accommodation	£396.00
	Food	£380.00
Other Costs		
	Guided Tours	£172.00
	TOTAL	**£2,088.93**
Grants		
	RHS	£785.00
	Merlin Trust	£785.00
Personal Contribution		£518.93

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