

Merlin Trust

PGG Study Tour 2019

How Portuguese Gardens Are Managed for Tourism As Well As Wildlife
And Cultural Conservation.



Between the 23rd of March to the 5th of April, four Professional Gardeners Guild Trainees (PGG Trainees) embarked on a plant expedition to Portugal. This trip is made available to second year trainees to gain work experience from Portuguese gardens and to gain knowledge of Mediterranean type plants in the Algarve. I received a bursary of £400 for the Merlin trust to fund the second part to my trip. In this report, I have chosen to write about both halves of my journey because of the relevance of the information that I learned from each location. I have reported with a general overview of what I learned over the two weeks. More specifically, I have been looking into the way each area is managed for tourist attraction vs a site of conservation for both wildlife and the cultural landscape.

Parque de Sintra

Parque de Sintra-Monte de Luó (PMSL) is a non-profit company aiming to protect and build upon the cultural landscape of Sintra. In 1995 Sintra became Europe's first UNESCO world heritage site (the fourth in the world). PMSL was formed in 2000 to unite the existing separate Portuguese entities running different areas of the parks. It was a necessity to create harmony between the sectors as the previous model of miscommunication was leading monuments into disrepair and risking the UNESCO cultural landscape status.

PMSL does not receive any government funding. They are responsible for looking after 14,000 hectares of nature reserve, a landscape littered with castles, palaces and historical gardens. They now receive 3.5M visitors in a year across all the sites. With Lisbon only 30 minutes away by car Sintra becomes the weekend playground for the city dwellers. How do they handle such an immense pull of tourists? Truthfully, with great difficulty. What can be done, however, is maintain the safety of the guests. For example, some pathways can be walked for 8hrs a day so all the trees over the paths are frequently checked for signs of damage or risk. Any money generated from visitors is returned to further regeneration projects around the park. This means more historical artefacts are protected and the knock-on effect is the visitor load is lightened from the hotspots to the newly restored projects. The income of visitors is also benefiting the village itself. Tourists are staying in hotels, visiting markets and eating in restaurants.

Parque de Pena

Pena park is the flagship property out of all PMSL's sites. It houses the iconic Palace of Pena; a multi-colour, pastel painted palace in one of the rocky peaks of Sintra. There is a view from the piers towards Lisbon and the Atlantic Ocean which give you a real representation of PMSL's scale and the amount of land they manage. There is a gradient of green tree that flitters out as you gaze out to the next town and further still to Lisbon. Immediately around the palace is planted with a pallet of different tropical plants. The planting taste is the perfect balance of luxury and bizarre, something typically sought after by any affluent monarch.

The extended surrounding park is managed woodland made up of mainly exotic species including different *Araucaria*, *Cedrus* and infamous *Acacia*. In the dappled light of the wood, you could imagine the royals lolloping around their romantic paradise. The map shows clearly the tree cover, approximately 80% is green canopy cover apart from an area of new plantation of native *Cupressus sempervirens*. The tree shelter and valleys of running water made for impressive forests of tree ferns, some reaching more than 20 feet. The word 'naturalistic' simply comes to mind. You can easily forget that you are in a manmade woodland.

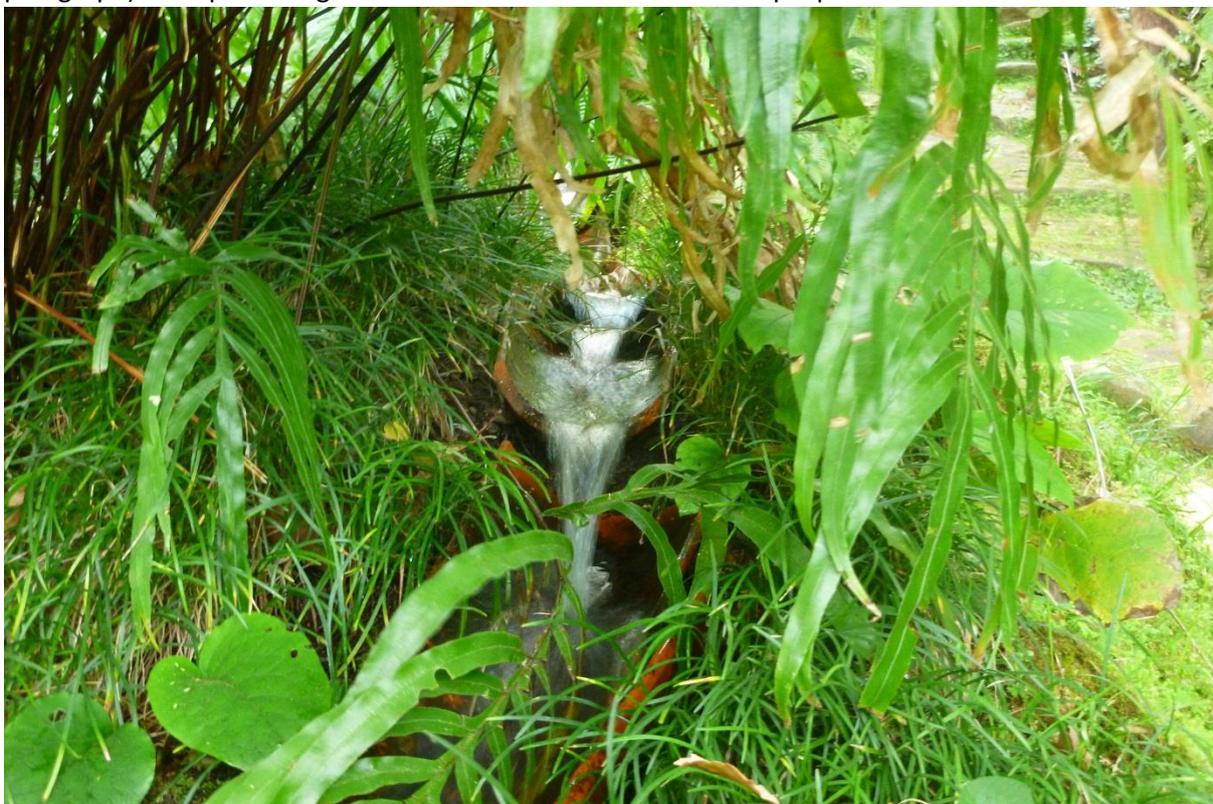


View from Pena palace representing the scale of PMSL Typical woodland style of Pena park

Monserrate

We had the privilege of working for one week in Monserrate park. Our original introduction to the garden was with Nuno Oliveira (the director of the gardens) and Gerald Luckhurst (a landscape architect who had moved from the UK some years ago). Gerald was one of the key characters in the restoration of Monserrate.

Like the rest of Sintra, Monserrate sits in a special microclimate. The hills catch the morning moisture that rolls in from the Atlantic. The cold air rolls downhill meaning the gardens of Monserrate are protected from frosts. With the frequent moisture and the guarantee of no frosts means some interesting tropical plants typical of warmer climates can be grown. The rainfall in Sintra is higher than in other areas of Portugal but still lower than in other parts of Europe. The hills are able to generate a constant flow of water through the park (more in the native woodlands paragraph). The park has grand waterfalls which feed into multiple ponds.



Water being channelled around Monserrate with clay roof tiles

Gerald had set us with a task to replant a bank which sat in the fern valley next to a waterfall. Similar to the rice fields of China, planting beds in Monserrate are built into terraces. This is so the water is used more efficiently from the environment. The water moves slower which allows plants to catch it more easily.

How to terrace at Monserrate:

1. The bank was cleared of weeds. This included typical culprits like Bramble (Silvas in Portuguese tongue) but more interesting was the colossal chunks of *Hedychium* (Himalayan ginger).
2. The bank was chiselled into terraces. Large amounts of soil were terra formed to make the steps that will slow the water. Their tool of choice, in the garden and across Portugal, is an enxada. It translates to hoe in English, but it resembles more of a pickaxe spade combination. The flat face set at 90° to the handle is excellent for hacking, digging and pulling lots of material.
3. Each terrace was compacted and planted with *Ophiopogon*. This grass-like plant binds the soil and prevents erosion. It duplicates itself vegetatively by sending out runners. As the plant multiplies, surplus can be used for the next terracing project.
4. Plants were placed and planted. Monserrate is almost a botanical garden; with plantings done in geographical zones, a strong connection to Kew gardens and botanically quizzical plants (for example, *Begonia fuchsoides*, the woody Begonia). By instruction of Sergio, the head gardener, the plants grouped in large numbers to give the biggest impact. It's possible that the many different Bromeliads would be lost in a naturalistic planting scheme.



Some *Ophiopogon* has been planted into the terraces. The water is setting the soil.



The bank has been fully planted with different Ferns, Bromeliads and unusual tropical plants.

Native Woodlands

Much of Parque de Sintra's 14,000 hectares is woodland. A portion is used as forestry. A conscious effort is made to use only native tree species. A real issue in Portugal is the highly invasive *Acacia*. There is a range of species that were once planted ornamentally or used as forestry trees. Now in woodland soils you see thick mats of *Acacia* seedlings which quickly outcompete the native ground vegetation. If cut, the *Acacia* easily regenerates from the base. PMSL control methods include girdling mature trees to prevent the spread of seed. One current technique using *Cupressus* (not native) in the forestry woodlands to form a dense canopy and stop the rapid growth so that seedlings can be cleared by hand. On a brighter note, Parque de Sintra process all their wood selling it as a commercial and sustainable product. They also use the timber in projects around the parks. We saw an example of a church ruin at the Moorish Castle which had the walls and ceiling built from the purple *Acacia* wood. The original stone work was still at the foot of the church and the timber finished the frame. This is an excellent showcase on how a problem can have a very economical and environmentally friendly solution. The wood is actually very valuable and using it in projects locks carbon instead of burning it which is the easy fix.

The felled forestry trees are extracted using working horses. They are trained specifically not to be spooked at the sound of a chainsaw. They are extremely powerful yet far lighter and less destructive than large machines. They minimize compaction and get to places where vehicles would struggle. They also create a nice attraction and preserve an old cultural practice.

The woodlands are being strategized to prevent forest fires and to harvest water. On our visit we were told that it hadn't rained this year. There were abnormally high temperatures during our trip and without the spring rain the area was on wildfire alert. The hillsides are also scattered with *Eucalyptus* trees, native to Australia. These trees have a low burning point and highly flammable oils.

The native flora for example the cork oak (*Quercus suber*) is adapted for forest fires. Its thick cork bark is impenetrable to fires. Using native trees in forestry plantations takes advantage of their natural fire resistance protecting Sintra from wildfires. Using natives is also better for the biodiversity of the fauna. Monserrate park held some of the last fragments of true forest, the rest is now mostly younger plantations.

The woodlands listed as hunting grounds on the map, although instances of hunting are low now, are also preserved for their ability to fill the water table. Despite the drought, the hills of Sintra have a steady stream of water. Lateral mines run into the mountain which were historically used to harvest water. These mines, in a way, are still used today. The woodlands are essential if the water is to penetrate and refill the stores.

Lastly, there were multiple locations where fallen trees had been left. It was never clear if this was done on purpose or it just hadn't been dealt with yet. It made for majestic garden features. It gave the woodland garden of Pena extra depth all while being an ideal habitat of many species.



Map of Sintra, zonation of 'hunting grounds'

Fallen tree in Pena kept as a feature.



Interpretation for girdled mature *Acacias*, Pena

Historic lateral water mine

Salamander crossings

There is something to be said about the population of newts and salamanders within Sintra. The flow of water through Monserrate and Pena park creates an excellent habitat of the moisture-loving amphibians. In the spring rainfall, salamanders use the damp opportunity to move around. The parks are highly active areas meaning the slow salamanders are at risk of being hit by moving vehicles. Within Monserrate and around some other more main roads in Parque de Sintra, salamander crossings signs had been erected anticipating the rain. This is the balance needed when

working within a lush national park; wildlife will find its way in and it should be encouraged and protected in the right areas.



Salamander crossing sign at the vehicle entrance of Monserrate

MGAP

Week 2 of our travels were in the Algarve with MGAP, the Mediterranean Association of Portugal. The following weekend was the Spring Conference for the MGAP in Evora; the conference was titled 'Bringing the Mediterranean landscape into your garden'. It was a very important conference because the horticultural and landscaping students of Evora university were allowed free entry. This may be an outlet to some more modern, alternative ideas of gardening compared to the standard, 'old-school' outlooks from the older generations. Keynote speakers included Olivier Filippi and James and Helen Basson.

The PGG students were only attending the pre-conference tour, 3 days of garden visits, ecological wildflower walks and substantial Portuguese lunches... Moreover, a week of sharing expertise and knowledge of Mediterranean plants with gardeners from across the globe. In our group, we had gardeners from Scotland, France, Chile, South Africa and California. Our tour was organised by Robert and Maryrose Peddle. Rosie is the MGAP representative for the Algarve. Having lived in Portugal for some years she had acquired an incredible bank of knowledge and her passion for plants is inspiring. At our first meeting, she rattled off fascinating information about the Portuguese natives' motives about gardening and some great fact files on invasive species. For instance, there is a plague of red palm weevil moving through Portugal. The larvae feed inside which is not visible on the exterior. After reaching 5cm, the grub pupates and bores out of the palms. The whole process frequently kills the palms. "Cowboy" companies have been established offering to eradicate the weevil. The plumes of insecticides they use are not registered and do not have any scientific backing.

Quinta Da Figueirinha

Quinta Da Figueirinha was the setting of the MPAG Botanical garden. There is opportunity for ecotourists to experience the tranquil setting and the Mediterranean vegetation. There are multiple apartments that tourists can stay in; the Quinta is even equipped with its own bar. The rest 40-hectare farm hosts other demonstration gardens, market food trials and scientific plant studies.

The site is a forerunner for sustainable practices in the local area. The traditional crops are farmed in an organic and low input way: Almond, Olive, Fig and Carob trees are suited for Portugal due to their drought tolerance. At the Quinta, they are grown further still without any chemical fertilizers or pesticides. Multiple tenants make for a range of quirky demonstration projects. A display of 50 tropical fruit trees shows the range of what can be grown in the area: Mangos, Avocadoes and Neems (a medicinal tree from India) to name a few. The project that shone brightest to me was the Prickly Pear plantation. A highly drought tolerant plant which produces a succulent red fruit. Small plantations are usually found in households in Mexico. In Portugal, it is uncommon giving it great potential as a market fruit.



Stand of prickly pears

Barrocal Botanic Garden MGAP

The Barrocal refers to one of the three ecological areas in the Algarve. Barrocal translates to clay-chalk, the soil type that defines the distinct plant group. Maryrose Peddle has curated the Barrocal Botanical Garden within Quinta da Figueirinha. The intention of the botanic garden is so the people of the Barrocal area can look to this garden and see what they could potentially recreate in their own space.

The garden uses exclusively native plants (excluding the one Carob tree at the back of the garden). The Carob is a historical agricultural tree introduced from Northern Africa. The location is ideal, land that has never been tilled for agriculture. The natural seedbed is still unharmed and a large

percentage of plants in the garden are volunteer plants and were never planted. Any naturally occurring plants are highlighted with a leaf symbol on their label and any species deemed missing from the landscape have been introduced. All the planted plants are given the tough love treatment. Plants only receive one dose of water per month and it is strictly to establish them. “You kill more Mediterranean plants by overwatering than underwatering” says Rosie. A dish of earth surrounds the plant to catch hose water and to channel it downwards This simulates the infrequent but deep penetrating rains and guides the roots down. This system is to first produce naturally resilient plants but also to prove the possibility to the native Portuguese that a beautiful garden can be created using native plants with low energy inputs. As previously mentioned, there were drought conditions on my trip and there is very little rainfall through the year. A system without frequent watering saves lots of money and is much more environmentally friendly.

Interestingly, the botanical garden has been split into 3 zones. Each zone represents a different climatic condition. Zone 1 being the most exposed with full sun and the low growing plants to go with it. Zone 2 is the woodland edge species, slightly more sheltered with shrubs and subshrubs. Finally, zone 3 is the shadiest; a large Carob tree sweetly called ‘grandma’ which shelters shade-loving ground cover. The idea behind the zoning is so people can look to what the conditions in their own garden are and easily replicate that zone.



Barrocal botanic garden, mostly volunteer plants



Native stone used for the edge pathways



Volunteer plant marked with a leaf symbol
(also a pyramid orchid)

Water Wise Gardens

Marilyn is running Water Wise Gardens in the Algarve. Water Wise is a garden design company in the Algarve specialising in naturalistic landscaping using drought-tolerant plants. Plants are carefully selected for a client's particular climate and soil from a pallet of mainly native plants or other Mediterranean plants that will fit the bill and be tough enough.

To create a Water Wise garden Marilyn sticks to a strict regime of no fertiliser and no watering to create her climate proof plants. The addition of fertiliser makes plants green and leggy. In the high temperatures, lush plants lose water much quicker. The only maintenance needed is some seasonal pruning to keep the plants compact, often cushion shaped typical of Mediterranean plants.

We visited three of Marilyn's projects, the first was owned by a UK couple. The garden was a mosaic of drought-tolerant plants. The *Echiums* stood tall and the prostrate Rosemary flowed down the brickwork all in a bed of crushed white grit. The grit assists with sending the plant roots deeper. It also creates a mulch, trapping moisture, repelling heat from the sun and making weeds easy to pull.

I was most attracted to the wildflower meadow on the adjacent property. The owner had bought this property next to their home knowing full well the potential of building a million-euro house on the land. Instead, they allowed Marilyn to create a micro haven for native plants. Lots of the plants were volunteers but Marilyn told us some were added where there were gaps. Some of the bulbs, for example, needed to be sourced from a native plant nursery. There is a popular method of transplanting mature Olives trees from orchards, the Olives handle transplanting very well and quickly form a secondary root system which then creates an instant effect on a newly landscaped garden. Marilyn intends on having a path mown through the meadow. This attracts visitors to wander through the path and serves the dual purpose of protecting the wildflowers. She seems to be having difficulties with the contracted gardeners though. Their methods do not necessarily match waterwise. There have been multiple occasions where fertiliser has been unnecessarily added to the plants and therefore weakening them. We also saw evidence of spraying in the meadow for plants that could have been pulled out. There was collateral damage and the herbicide was dangerously close to some orchids.



Waterwise meadow in the first garden we visited. Mature transplanted Olive trees.

Next was Quinta Vale Da Lama, a 43-hectare eco-paradise in western Algarve. The site was a blend of eco-tourism and regenerative agriculture. The farm was equipped with everything from a bed and breakfast, a river and permaculture food forest. Water Wise created a garden for the Vale Da Lama owners. The garden encapsulated the rest of the theme, 'humans living in harmony with nature'. The planting scaled up from lowest at the front to highest at the back with a central Thyme lawn and a scattering of fruit trees around the outer perimeter. The Thyme lawn is a happy Water Wise alternative to a grass lawn. Thyme is naturally found in the Mediterranean climate, so they boast natural resilience to low rainfall. Marilyn did explain watering once a month will generate best results but in comparison to a fine grass lawn, this is an easy compromise. The purpose of the lawn is really to frame the rest of the beds; the central point being the green lawn looking out on to the meandering white chip stone paths. The plants themselves were, of course, hardy drought-tolerant natives, distributed in a colour complimenting formula. The beds were still evolving to their final forms.

An interesting feature was the climbers around the pillars of the house. Passionflower vines and Jasmines that were being watered from the wastewater of the washing machine. The leaves showed slight discolouration, it is unclear if this is due to the detergent, but it was flowering profusely anyway. This is truly a Water Wise solution, being able to use water twice.

Our third garden of the day was owned by another UK couple. An ex-employee of Shell who had moved to Portugal permanently. The garden overlooks the hillside of the Monchique mountains; the steep slopes meant the gardens needed to be deeply terraced. The owners were trialling growing Avocados, a newly popular crop in Portugal. The new growth seemed to be happy, red and healthy. Marilyn's project has inspired the owner to continue learning and experimenting with plants. The clients designed a quirky gecko succulent sculpture and also converted an old satellite dish into a planter. The contrast from the neighbour's garden showed more traditional Portuguese gardening;

rotavated land with straight rows of vegetables. There are more frequently people growing food rather than ornamental gardening.



Typical Water Wise Gardens planting. White chip stone acts as a mulch. It supresses weeds and make the plant roots grow deep like they typically would in the wild.



Neighbouring garden at the third property with formal rows of vegetable crops.

Piscinas Bioloicas

Udo and Claudia have a dynamic business relationship. Udo is a biologist and Claudia is a landscape architect. Together, with their great bank of knowledge, they create a range of natural style garden installations.

Their property in Aljezur is an impressive spectacle. Previously, the land was used as *Eucalyptus* plantation. After the first harvest of *Eucalyptus* the soil had degraded. The second crop would never yield to its previous potential. Between harvests, a number of native Oaks had established themselves, although there were quickly drowned out by the *Eucalyptus*. When purchasing the

property, Udo and Claudia identified these oaks and were able to predict the climax community solely by these few remaining natives. Each oak was marked, the *Eucalyptus* was felled, and the stumps removed all while being extremely careful to not damage the oaks. After 25 years, the couple of Oak species has now risen to 320 recorded species, all with no human intervention (excluding cutting back branches for pathways). This is all within a 2-hectare site.

A significant portion of *Cistus* is forming many different hybrid species. Udo explained that because the genus is so young on the evolutionary timeline they can very freely hybridise. However, hybrids often have a much shorter lifespan. What is so intriguing about this site is how nothing has been introduced by man. Despite being totally surrounded by dense plantations, species have nestled themselves in. The most extraordinary being the single *Euphorbia monchiquensis* which has found its way into their garden regardless of being isolated for miles around; the next closest stand being 5 miles away near the coast.

Piscinas Biologicas offer a range of products, most iconic maybe being their natural swimming ponds. Freshwater, banded in on all sides, to create pockets for a mix of native aquatic plants which act as the filtration system. The installation makes for both an escape from the relentless Portuguese heat, but all another layer in their ecosystem. A water source brings a plethora of life and the more diverse an ecosystem, the more stable it will be. This product is being fitted in numerous hotels across the country. This means there is now a large number of pools with dramatically lowered energy inputs, no additional chemicals and higher biodiversity. The ponds are truly sanctuaries for aquatic plants and amphibians especially. Fittingly, a frog was basking on a Lily pad on our visit.



Udo Schwarzer amongst 320+ species that have grown without human intervention.



Natural swimming pond with aquatic plants

Rabit of Arrifana

Udo and Claudia led us on a 4.5km hike of possibly the most diverse landscape you have ever seen. In true Olivier Filippi style, tussocks of flowering cousins were dotted across the coastal horizon. We walked along the most western part of Europe, the coast had been protected over a geographical time period from multiple ice ages. Because of this, the landscape has matured slowly and become incredibly complex.

The coast that we walked along was technically a woodland, Udo explained. You could see the squat Junipers and Pine in the most exposed areas, then as you moved into the more sheltered areas they grew to a whopping 12 feet. The constant wind pulls away water making photosynthesis more difficult. On the side of the shrub not facing the prevailing wind, there was far more green growth as it is sheltered.

It was magical to see a wild boar had been rooting around some Pine trees getting at the fungi growing at the roots. This makes a seedbed for new plants to move in, increasing biodiversity and balancing the ecosystem. However, there were some invasive species. 'Invasoras' is a great resource for listing all the invasive plant in each region of Portugal. A small stand of our friend the *Acacia* has invaded the area, we all had a go at pulling young seedlings from the coastline. One significant plant *Carpobrotus edulis*, a succulent plant from North Africa, is found creeping along all Portuguese coastlines. In this scenario, it is particularly bad as it is blanketing the delicate plants and prohibiting them from growing. It seemed that even the boar didn't have a taste for it and Claudia explain feats of removal need organisation from a government that isn't that interested and that it is 10 years too late.



Tussocks of plants on the Rabbit of Arrifana landscape

Jardim Correnteza and abandoned spaces

I took great interest in some of the 'abandoned' spaces found around Portugal. From what I can gather, areas of land have been inherited by the offspring of the landowners only to be left fallow because they are uninterested. The land often cannot be sold for housing development because it is categorised as agricultural land.

One area I was particularly transfixed by was Jardim Correnteza in Sintra's old town. A high wall looked down on to the deep terraced valley. The remnants of a garden could be seen in the degraded walls and large cultivated trees. More garden was probably hidden under the lush jungle that had invaded. Carla, our driver for the week, explained the property had been inherited by two brothers after their parents had passed. Neither brother was interested in looking after the property, so the garden had gone wild. The only entrance that seemed a link to the garden was locked and had a red and white sign that probably read no entry but in Portuguese. Now it is only a paradise for birds, snakes and wildflowers. The walk around the perimeter still makes for a tranquil and romantic setting, with the best arch of *Wisteria* that I saw all weekend and a picturesque sunset scenery behind the Moorish castle on the hill.

There were many other sites like this, one being in the first Water Wise garden Marilyn took us to. Behind the property was a large expanse of fallow land. The beautiful scrub land made for a dreamy backdrop for the house and garden. Just beyond the fence, wildlife roared, and giant bumblebees

hummed. A fragment of a biodiverse paradise saved from the claws of housing development.



Jardim Correnteza, valley with degraded walls and untamed trees within the town of Sintra

Summary

To summarise, my two weeks in Portugal has been very inspirational and influential to my horticultural career. It has been a in depth introduction to Mediterranean plants and how different gardens are managed in different climatic conditions.

I was able to learn from some very knowledgeable people. An interesting point is, a lot of these people are not actually native to Portugal. Gerald Luckhurst was a British landscape architect who saw the potential in Monserrate and moved to Portugal. Gerhart was a German who has been leading new sustainable agricultural projects. Rose, Rob and Marylin have moved to the country had created multiple gardens. Udo and Claudia have made a biodiversity sceptical and their projects are featured across the country. All are now influencing schools, councils and even the government. The native Portuguese seems to show some resistance or maybe are just slow moving out of their old ways. Marylin expressed some difficulties with Portuguese clients that do not fully grasp the concept or lose enthusiasm with the project over time. Portuguese gardeners seem it be more allotmenters than ornamental gardeners. Areas that are not vegetable plots are usually thirsty grass lawn. There is however rising hope in the younger generation. University students are keen to break free from the old resumes. The MGAP conference might be a platform from them to see what is possible and with their native plants specifically.

In terms conservation of wildlife and culture through gardens, I have seen some perfect examples. On both halves of my trip I have seen a showcase of plant diversity, the development of new and old landscapes and all while creating a visitor experience. Water wise is making use of the natural resilience of native plants to create low input gorgeous gardens. Barrcal Botanical Garden is displaying what beauty can be created from what is already around you. They have formed a sanctuary for the local native plants as well as an educational tool for people to learn from. Piscinas Bioicas follows this trend exhibiting the biodiversity possible with zero human intervention. Their swimming pond products creating habitat and leisure across the country where normally a chemical

filled pool would take its place. Udo and Claudia work has also assisted with the preservation of rare coastal habitat. The unbelievable diversity can be experience by anyone. Nuno’s work with PMSL is also pushing for a reduction in non-native plantations upping diversity and protecting the landscape from wildfire. The culture of non-native ornamental plants is still preserved, encapsulated in the many parks. There is much to be learned from all these sites and it is information I will carry with me for the rest of my gardening and conservation journey.

This trip has all been made possible by the funding from the Merlin Trust and the Professional Gardeners Guild, I am very grateful. A big thank you to PMSL and MGAP for organising both halves of the journey.

Plant of Interest	Description	Significant feature
 <p><i>Vinca difformis</i></p>	<p><i>Apocynaceae</i> - Azores, W. & Central Medi. Commonly known as the intermediate periwinkle. Subshrub, single pale blue flowers.</p>	<p>On our visit, the woodland understories were blanketed with <i>V. difformis</i>, the banks hosted countless pops of pale blue flowers</p>
 <p><i>Wisteria sinensis</i></p>	<p><i>Fabaceae</i> – China. Twining climber. Large purple panicles of fragrant flowers. Mature can form thick, woody self-supporting trunks.</p>	<p>Naturalised/ invasive. Growing on native trees like ivy, on our visit trees in the hillside were light up purple with wisteria flowers. Invasive but beautiful.</p>
 <p><i>Loropetalum chinense var. rubrum</i></p>	<p><i>Hamamelidaceae</i> – China. Chinese fringe flower. Lateral ovate leaves which come to a sharp point. Mottled purple leaves with strap petaled flowers very resembling Hamamelis (witch hazel).</p>	<p>On of the most botanically quizzical plants of the week. The flowers instantly linked to <i>Hamamelis</i> but the leave where completely wrong, very similar to <i>Cotoneaster</i>. One of our team members was able to I.D it when we were home.</p>
 <p><i>Jasminum polyanthum</i></p>	<p><i>Oleaceae</i> – SW China. Twining evergreen climber. Pink and white flowers are extremely fragrant.</p>	<p>This is the smell of the trip. Obviously growing very happily in this country, the intense perfume could be detected from great distances and it was always obvious what plant it was.</p>
 <p><i>Araucaria heterophylla</i></p>	<p><i>Araucariaceae</i> – Norfolk Island Pine. Endemic to the small island in the south west of the Pacific Ocean. A conical tree with thick needles that point almost vertically upwards. The branches make clear tiered layers.</p>	<p>The first tree that we tried to identify as a group in the taxi ride from the airport. A tree heavily featured in the landscape. I made for the largest tree in Monserrate park and also makes for an excellent tree silhouette.</p>
 <p><i>Begonia fuchsiodies</i></p>	<p><i>Begoniaceae</i> - Colombia and Venezuela. A shrubby begonia that grows to 1m tall. The flowers hang down like a Fuchsia hence</p>	<p>An interesting botanical plant. The form looks so similar to Fuchsias it is easy to mistake. The soft stems appear that it will not over winter in the UK.</p>

	the name. The stems are succulent.	
<p><i>Sonchus fruticosus</i></p> 	Asteraceae – Madeira. Woody stems with rosettes of lanceolate leaves. Fluffy dandelion flowers. Not frost hardy.	Its obvious dandelion characteristics would be a deterrent for most. It is redeemed by the woody branches on which the leaves are held. A real oddity.
<p><i>Davallia canariensis</i></p> 	Davalliaceae – North Africa, Cannery Islands, West Mediterranean. Epiphyte living forming a mat on the surface of rocks or in knocks of tree.	An interesting species that can be seen in most tree canopies. The semi-climbing habit makes it almost an equivalent to ivy but with more delicate leaves. The fleshy stems are apparently easy to take stem cuttings, I have tried to delicately transport some home.
<p><i>Monstera deliciosa</i></p> 	Araceae – south Mexico, Panama. Climbing plant with large slotted leaves. Name relates to the edible fruits.	This 'swiss cheese plant' was a sceptical. Normally considered a house plant, it was very interesting to see what they can potential grow into. These specimens also had fruit although they were not ripe.
<p><i>Ophrys speculum</i></p> 	Orchidaceae – Mediterranean. Mirror orchid. Grows in open area with a lot of light. The central 'speculum' is said to reflect light.	The first orchid we found on our trip and probably my favourite. The flower mimics a female wasp. The male tries to copulate and pollinates it in the process
<p><i>Prangos trifida</i></p> 	Apiaceae – Mediterranean. Fine foliage with umbels of tiny yellow flowers. Growing in very open sites.	Found in abundance at the BBG. Rob told us the anecdote that when the plant sets seed, it dries into a ball and tumbles away in the wind like tumble weed. An interesting fact for not the most interesting plant.
<p><i>Pistacia lentiscus</i></p> 	Anacardiaceae – Mediterranean. Low growing evergreen shrub. Separate male and female plants. Pioneer in open ground.	Interesting to me because of its ecological value. The female plants produce berries for birds. The body of the plants creates shade pockets and traps the moisture for new plants to move in.
<p><i>Asphodelus aestivus</i></p> 	Asphodelaceae - Western Mediterranean. Grassy strap leaves with a central inflorescence spike of pink and white flowers.	A beautiful mega weed/ wildflower that has found its way onto a few grass verges. It has impressive stature with the flower spike growing to 4ft.
	Arecaceae - Southwest Europe. Stubby clumping palm. The most cold hardy palm which makes it great for use in landscaping.	Spotted on the coast of Rabit of Arrifana, <i>Chamaerops humilis</i> is one of the only to palm species native to Europe. The coast line had protected the species in the ice ages.

<i>Chamaerops humilis</i> <i>var. humilis</i>		
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I was awarded £400 by the Merlin Trust.

Receipt no	Date	Item	Currency	Amount	Conversion
1	03/03/19	MGAP tour and accommodation	GBP	373.56	373.56
2	03/03/19	Train from Lisboa – Oriente	EUR	20.90	18.02
				Total cost:	391.58
				IOU:	8.42