



ESTABLISHMENT OF A MINIMAL IRRIGATION GARDEN IN CENTRAL PORTUGAL

A record of voluntary work by Hana Váňová
November 2019 – January 2020

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Cover photo: The author with Dr. Noel Kingsbury in Central Portugal at the start of his minimum irrigation garden project.

Introduction

As a student working towards the RHS level 3 Diploma in the Principles and Practices of Horticulture, I have been seeking voluntary work opportunities to compliment my learning and bank some practical horticulture experience. At the end of 2019, I travelled to the Coimbra district of Portugal with the aid of bursaries from the RHS Coke Trust Bursary Fund, MPG Society and the HPS to take part in a minimal irrigation garden project led by Dr. Noel Kingsbury (Map ref. ①).



Outside of the weeks spent working on this project I was free to travel across Portugal and visited various botanical gardens in the Coimbra and Porto regions, where I could learn more about hardy Mediterranean plants. And through Noel's connections I was invited to work on three short voluntary placements at diverse gardens in central and north Portugal. These were the private garden of Marion and Arnold Ter Horst in Barril de Alva (Map ref. ②), the gardens of the Mosteiro de Santa Maria de Landim (Map ref. ③) and the gardens of the Quinta das Mil Flores in Pedrógão Grande (Map ref. ④). It was a wonderful way for me to meet some very interesting people, understand their garden philosophy and apply some of my practical gardening skills.

A full itinerary of my time in Portugal is reported in Appendix 1.

As Dr. Kingsbury's minimum irrigation project was in the first stage of development, much of the garden work involved basic ground clearance, surveying and bed preparation. We started seed propagation and planting out small plants that Dr. Kingsbury brought from England, purchased online or sourced from local nurseries as well as from friends. I had many opportunities to see a variety of hardy Mediterranean plants through visits to private and botanical gardens and my volunteer work at the three established gardens.

My activities on this trip centred on two different areas of Portugal; Coimbra, 60 km inland in Central Portugal, and Porto on the Atlantic coast in North Portugal. This allowed me to experience something of both the Temperate Rainforest biome of the north and the drier Mediterranean Forests, Woodlands, and Scrub biome further south and build up my knowledge of the flora of Portugal.

After 10 years living in the UK working in healthcare, two seasons of travelling independently across South America in 2017 and 2018 created opportunities to volunteer on a variety of garden and farm projects, and this inspired me to start a horticulture career, beginning with RHS Level 2 Diploma studies at Bicton College in Devon in 2018/9. Having grown up on a family farmstead in the Czech Republic, helping from an early age with growing cycles, livestock, beekeeping and orchard and woodland management, this return to horticulture is something of a homecoming for me.



The author harvesting artichoke at Bicton College, Devon. 2019

It was on my travels across South America and Asia, as well as observing the changes in weather patterns on my occasional visits back home, that I began to realise the urgent need for water conservation. I do believe that finding ways of using plants which do not require large quantities of water will become essential for successful garden design.

Aims of the project

The objectives of my visit to Portugal were to:

- gain practical experience
- work in different garden settings
- learn about drought-tolerant flora
- understand Noel's approach to his large-scale project
- get close to plants of the Mediterranean / Steppe
- meet some interesting people

Over my nine weeks in Portugal I hoped to achieve these objectives through my

- voluntary work with Dr. Kingsbury on his minimum irrigation project
- voluntary work at three established gardens
- visits to private, public and botanical gardens

Noel's minimum irrigation garden project

Situation

In 2019 Noel acquired a house with a garden of approximately 1 ha situated in the western foothills of Serra da Estrela Natural Park, some 40 km north east of Coimbra and 75 km from the Atlantic coast. The site, in a village near Oliveira do Hospital, sits at an elevation of 415 m ASL and the topographic effect of the 700 to 1,993 m Serra de Estrela massif, rising just 15 km to the east, explains in part higher rainfall and lower mean temperatures here than on the coastal plain.

The plot lies 40 km or so north of the 40°N line of latitude that in very crude terms divides the hot, dry plains of southern Iberia from a cooler and wetter region to the north. In this east-west zone across central Portugal there is interplay between hot and dry air pushing up from the south and warm and wet air pushing down from the north. So, while the climate here is "Mediterranean warm/cool summer" (Csb in the Köppen-Geiger classification, with the warmest month



Noel and Jo Kingsbury deciding about the layout

averaging below 22°C but at least four months averaging above 10°C), there is potential for extended hot and dry periods during the summer.

Typically, there is regular rainfall during autumn and winter and a long, hot, dry summer, when plants become dormant. This means there are two seasons of growth, spring and autumn, separated by a cool, wet winter and hot summer drought.

In terms of recent climate change, the last 30 years have been particularly dry in mainland Portugal. 2005 was the driest in over 70 years, followed by 2007 and 2004. Records of annual maximum and minimum temperature, between 1976 and 2006, show a temperature increase of 0.49°C per decade and 0.54°C per decade, respectively (Climate Change Post), and The European Environment Agency reports several extreme heat waves in Europe since 2000 (in 2003, 2006, 2007, 2010, 2014, 2015, 2017 and 2018), associated with widespread wild fires in many cases. An extensive area around Coimbra was very badly affected by wildfires in July and October 2017, and north of Coimbra in August 2018.

In his website blog of January 24, 2020 (noel.kingsbury.com/noelsgarden-blog), Noel discusses how this belt of climate transition marks the northern or southern limit of a number of plant zones corresponding to either minimum temperature or water stress. For example, olive trees are not found too far north of this zone where there are too many cool days, while camelia and box, which are prevalent to the north, do not tolerate dryness much further south of this zone.

The plot

Noel's land is fairly level and broadly rectangular with a 100 m long axis running north west-south east and variable width up to 90 m, approximately. The soil (pH 6.0-6.5, high P, K, low N) is light, free-draining and a delight to work with.

Adjacent to the buildings and high wall there are some low stone bordered raised beds in a geometric layout with some plants already present (e.g. *Punica Granatum* and *Solanum rantonnetti*) and an area where these beds may be extended to create a nursery for bringing seedlings on and space for a small kitchen garden for Jo, Noel's wife.

But in the main the plot is a grassy expanse with an olive grove that was fire-damaged in wildfires of October 2017 and is recovering well, but in need of attention, as well as fruit trees and *Quercus sp.*. This is a blank canvas that gives Noel scope to develop a large ornamental space.

Proposed planting

Noel seems to have a "fluid" approach to his new garden. There is not a masterplan as such and the whole project is evolving as the understanding of the place grows. I do like this approach as it allows for better ideas to be adopted as one gains a deeper understanding of the conditions.



The raised beds and plant nursery area.
Photo: Noel Kingsbury



Part of the 1 Ha grassy terrain – looking north west.
Photo: Noel Kingsbury

The German mixed planting style that does not favour an exclusive use of native plants is to be implemented. Seven to nine plants per square metre from similar habitats all around the world (e.g. Mediterranean, North American prairies or Central Asian) are intermingled in a randomised mix. This sort of planting works very well for Central and Northern European conditions and the assumption is that it should work well in Portugal too. Most of these plants will die back around June when the dormant season starts and come back in October.



The author working with the fine sandy soil in the “nursery” planting area. Photo: Noel Kingsbury

Therefore to provide interest in summer there will be sub-shrubs (e.g. *Cistus* ‘Pink Silk’, *Ruta graveolens* and *Pistacia lentiscus*) and grasses with their attractive seed heads. *Stipa gigantea* as a native species has been propagated and is to be planted as a theme plant for its strong visual properties. The ultimate aim is to create a meadow-like look.

Flammability is an important consideration. Generally, native deciduous trees are far less

flammable than conifers (e.g. popular designers’ choice *Cupressus sp.*), so there will be an emphasis on planting those. *Liquidambar* saplings were put in for autumn colour as well as *Arbutus unedo* and *Pinus pinea*. Citrus species were introduced to provide greater variety of edibles (Noel’s wife Jo is very keen on vegetable growing). *Quercus robur*, already present in the garden as a native species, survived the fires quite well and there are plenty of new saplings too. *Prunus lusitanica*, which is, ironically, not used much in Portugal planting, has been planted as an axial feature.

Lawn in its ‘English’ sense will not be present. Most grasses in the current garden seem to be annually re-seeding rather than perennial. Noel’s aim is to use the concept promoted by the pioneer of water-wise gardening Olivier Filippi. Classic grass mixtures are substituted by a more hardy and resilient type of planting (e.g. *Trifolium sp.*) and as an interesting alternative, hardy, foot traffic tolerant plants such as *Thymus spp.* will be used on the edges of gravelled paths.

Part of the garden is used as a trial site where all new plants are to be tested and, if successful, propagated. The challenges are expected to be competing weeds and tolerance of very dry summers and rather wet and cold winters.

Gardening work undertaken

As the garden is in its initial stage I was mostly involved with propagation, preparation of borders (measuring and cultivation) followed by planting and pruning. Noel's plan is to mimic nature and plant things out in spring which is the time when the plants



Preparation of formal borders

germinate and start to grow. The ones which are not ready to be planted will be put into a nursery part of the garden and replanted in their positions when ready.

I also did some excavation of old roses and uprooting of an old and very invasive wisteria, which was something I would like to avoid doing again. This hard work was usually balanced out by propagation or, my favourite task, olive tree pruning. The orchard was badly

damaged in the widespread fires of October 2017 and almost all of the olive trees were burnt down. However, there was already plenty of new growth coming from the charred trunks which needed to be pruned out to 3 or 4 healthy and straight suckers. I tried to improve on the local practice when tying these trees together so they would not break in strong winds, by using little loops for each individual tree to prevent damage of cambium.

In January on sunny days, I planted *Arbutus* and *Quercus spp.* saplings and also plants that Noel brought from his trip to Spain and France when he visited his friend and fellow garden designer Olivier Filippi, who runs a successful nursery focused on drought-tolerant species such as *spp./cvs.* of *Cistus*, *Phlomis*, *Rosmarinus* and *Euphorbia*. The intention is to use *Pelargonium* and *Salvia spp./cvs.* in the garden near the house.



Author with Dr. Kingsbury, planting trees on the last day

Dr. Kingsbury stated that the ecological value should be enhanced by a build-up of permanent plant structure in the form of shrubs. The current ground layer of arable weeds and lush annual grasses is not particularly wildlife friendly. Increasing floristic biodiversity and a wider range of growth forms will provide better habitat.

Volunteer work placements

Barril de Alva

I was kindly invited by Marion and Arnold ter Horst to spend a few days working in their garden in Barril de Alva under the supervision of their expert head gardener Karen Muggeridge. Projects included pruning and clearing of herbaceous shrubs, weeding beds of ornamental grasses, mulching and trimming back asparagus beds and reclaiming a grassy bank from the clutches of pervasive *Acacia dealbata*. Working with Karen was most instructive, and I am truly grateful for the warm generosity of the hosts.



Karen Muggeridge, Head Gardener



Forest road parting the burnt forest, with spreading *Acacia*

This assignment made me realise the problems relating to invasive species and the ongoing conflict between commercial plantation and the loss of endemic habitat and ecological diversity. The prevalence of *Eucalyptus sp.* was something I previously came across while working in Chile, where the success of invasive gum trees comes at the expense of local species and increased occurrence of wildfire. I was fascinated to read the history of commercial forestation of non-

native *Eucalyptus globulus* within Portugal. The dominance of *Acacia* and *Eucalyptus sp.* contributed greatly to the devastating wildfires of June 2017. This is why it is heartening to see the efforts being made by conservation groups such as Wildlings Portugal, who I joined along with the extended Kingsbury family on a planting day to help reintroduce *Quercus robur*, *Arbutus unedo* and other native species.

Volunteer work placements

Mosteiro de Santa Maria de Landim

At the beginning of January, I worked at Mosteiro De Santa Maria de Landim, a beautiful 12th century monastery with extensive vineyards, orchards, woodlands and formal gardens, 40 km north-east of Porto.

The ornamental gardens have been left to their own devices, which has created an enchanted feel to the place. The owner of the property, Maria Henriqueta Sampaio da N6voa, who is a lecturer at Porto University, is trying to restore the place to its former glory and the garden is used for wedding and social events during the year, which helps to raise funds for ongoing restoration.

Henriqueta loves the gardens but has not been able to give them as much attention as she would like to. As her volunteer I was free to tackle areas where I could make a difference.



The geometric Arrival Garden and the church tower of Santa Maria de Landim



Stone walkway with vine arbor in the C19 garden

In addition to linear surveying I did quite a lot of hazard assessments and some practical gardening. For a while I have been interested in the therapeutic benefits of gardening for people with disability, so I welcomed the eager assistance of a local man, who despite cognitive impairments, enjoyed all the measuring, pruning and planting. And although my Portuguese is very limited, and he did not speak any English we somehow managed to understand each other and cooperate successfully.



One of the water reservoirs and vineyards.

There are several reservoirs and interesting stone channels that distribute water and feed the fountains. Sadly, the formal garden has lost its glory and the greenhouse also needs renovation. The gardens include spectacularly large Camellias that tower above shady paths and stone walkways and produce a rich carpet of petals. Part of the Camellia garden is used as a reception area for the social events. The owner recently became a member of the Camellia

Society in Porto therefore more development in this part of the garden is to be expected.

In places the soil was in a rather poor state and the light levels there were very low. As the funds for garden work are limited, and I am personally inclined towards low resource solutions that are easy on the planet, I suggested lifting some of the ground cover plants found around the property and replanting them (e.g. variegated *Lamium maculatum*, *Hedera helix* and *Nephrolepis exaltata*). Noel suggested additional plants that could be purchased locally e.g. *Adiantum venustum* and *Liriope muscari*. At this point I realised that horticultural knowledge and the range of plants on offer in Portuguese nurseries is far less than I have become used to in Britain.



Part of the monastery garden waiting for my design.

To me the monastery garden was a very exciting place - like a secret garden waiting to be discovered and returned to its former glory. The family of ground staff were very welcoming and to have accommodation on the site and traditional Portuguese food provided was a lovely bonus. I was delighted to be asked by Henriqueta to produce some designs for part of the garden that is currently undeveloped.

Link: <https://www.mosteirodelandim.com/>

Volunteer work placements

La Quinta das Mil Flores

My final assignment at the end of January took me to Pedrógão Grande, the region most affected by catastrophic fires in July 2017 to work in The Gardens of the Quinta das Mil Flores owned by the Countess de La Panouse.

Given the freedom to develop the garden as she wished, the Countess has produced distinct garden areas always with ecological criteria at heart. Later in the year many visitors are attracted by the extensive rose garden but at the time of my stay it was the spiral citrus garden that stole the show.

I was most impressed by the sophisticated organic kitchen garden and the ongoing project to manage water resources intelligently.



Part of the Citrus spiral. The fruit is covered in 'Japanese socks' for different time of ripening.



The vegetable garden with an intricate water system

At La Quinta da Mil Flores I experienced what gardening can be like when the weather turns... English – the rain did not stop for the whole of my stay which gave me a fine taste of what the hard side of gardening can be like.



Camellia 'Kick Off' and busy bees



The sleeping rose garden

I was instructed to work on the Lavandula patch and to prune the *Hydrangea* and *Salvia* species around the guest house. Rejuvenation of the herbal garden after its winter rest and taking cuttings of herbaceous plants were my last Portuguese tasks.



Marble heads and Chinese pavilion

Link: <https://www.quintadasmilflores.com/>

Visits to gardens



My activity in Portugal was focused on both the wider Coimbra region of Central Portugal and Porto in the north, and in my free time I was able to visit some botanical gardens and private gardens in these areas. Noel and I were treated to a very illuminating tour of a private garden near to Noel's property by Helder, one of the owners, (Map ref. ⑤) and in Coimbra I explored the Botanical Garden of the University of Coimbra (⑥) and the 18 ha Jardins da Quinta das Lágrimas (⑦). In Porto, North Portugal, I visited the famous Serralves Park at the Museum of Contemporary Art (⑧) and the renowned camellia gardens of Quinta de Villar D'Allen (⑨). And at the Porto Botanical Garden (⑩) I was enchanted by the infectious enthusiasm of two young gardeners there who gave me a private tour.

Helder's garden

I consider myself very lucky to have met Helder and his family for a tour around their private garden located north east of Coimbra. It was a bright, windy and very cold January day when Noel and I were shown around the ambitious 4-hectare project that has been developed in the main by Helder and his brother along with their families. Helder explained that the garden today is the result of understanding the nature of the space over fifteen years of development.



Blending the formal and traditional

It took many years simply to enrich the very poor soil with organic matter, but there is now an extensive, fertile potager garden. Helder said "It took us a while to figure out which plants would suit, which ones

wouldn't survive. It was a trial and error process”, and “work continues to organize the garden, forest and open field, produce perspectives, introduce trees, plants and build rhythms”.

Helder explained that there is regular rainfall during autumn and winter, while summers are hot and several months can go by without rain, when water is drawn from traditional wells on the site. There is the perennial risk of wildfire. “It is a mountain area (about 500 meters above sea level) and there are a few really cold days and nights throughout the year,” so “the plantation must be compatible with those frost nights”.

The families are bringing together two gardening styles, an elegant Italian Renaissance influence freely blended with traditional aspects of Portuguese gardens (from the distant Arab heritage to the tradition of the sixteenth to eighteenth centuries that saw the introduction of exotic species, such as palm trees, aloes, etc.).



Testing the firmness of *Olea oleaster* hedge

In terms of structure, intricate patterns with *Buxus sempervirens* were planted together with wild olive trees, the zambujeiro (*Olea oleaster*). Paths are defined by *Cupressus sempervirens*, *Pinus pinea*, *Olea europaea*, *Citrus sinensis*, *Prunus dulcis*, *Magnolia x soulangeana* and *Aesculus hippocastanum*.

Mediterranean plants were favoured in the planting scheme. This was partly by choice and partly to suit the site conditions in terms of soil, humidity and temperature.

However, the gardens being situated in a climatic transition zone allows for Mediterranean species and exotic plants to coexist; for example there is an alley of linden trees (*Tilia x europaea*) and paths lined with *Cupressus sempervirens* mixed with exotic species such as palms (*Chamaerops humilis*, *Jubea chilensis*, *Phoenix canariensis*, *Trachycarpus fortunei*, *Brahea armata*, *Butia capitata*, etc.).

In terms of shrub elements, in addition to conserving existing native species (especially varieties of *Cistus* and *Salvias*), Helder introduced a set of native species collected from different Portuguese regions, particularly from Alentejo to the south and Alto Douro to the north. Among these, the best performing plants include different varieties of *Iris sp.*, asparagus (*Asparagus albus*), blackthorn (*Rhamus lycioides, subsp. oleoides*), aderno (*Phillyrea angustifolia*), grasses (*Stipa gigantea*) and oleanders (*Nerium oleander*).

The mature trees which were already present on the site that Helder and his brother decided to keep include *Quercus pyrenaica*, *Quercus robur*, *Quercus suber*; *Pinus pinea*, *Pinus pinaster* and *Arbutus unedo*. On the other hand, invasive species such as *Eucalyptus* and *Acacia spp.* had to be eradicated.

While there are many Mediterranean plants well-adapted to the soil and climate conditions, some represent a serious fire hazard. The region was hit by a violent forest fire in October 2017 and much of the garden was damaged. Plants such as *Buxus sempervirens* showed a remarkable resistance to flames, while *Lavandula*, *Phlomis* and *Santolina spp.* proved to be highly flammable and did not get replanted.



Walking around the potager garden

There is a lot to be said for people doing things out of enthusiasm and ambition when paired with humbleness and a desire to understand. Somehow the crisp cold weather contrasted nicely with the warmth and hospitality of our hosts. Needless to say, I would love to come again to see how their hard work and inventiveness progresses.

Porto Botanical Garden

João Junqueira and his partner were my guides around the four-hectare Porto Botanical Garden. The team of employees and volunteers here are trying to establish a collection of plant species with three samples of each. I was impressed by the drive and interest of these young gentlemen. João admits that he very much enjoys the calmness of the place as well as working with plants. “There are some interesting plants that we've been working on to stabilize and to understand how to use them. One of the latest is the headed thyme (*Thymus lothocephalus*) that I brought from Algarve. It is really difficult to talk about all the rarities although one of the surprises I had when I first started working in the BG was to find one awesome specimen of *Paphiopedilum exul*, with over 30 years! “

The Botanical Garden is trying to establish a collection of species which would help with conservation of the Iberian autochthonous flora. The *Quercus* sp. and tall scrub vegetation have been selected as the most important elements. Several botanical expeditions across the whole country have been done to collect acorns from all biogeographic regions and were added to the contribution from institutions, conservation groups and private bodies from Portugal as well as around the world.



The *Quercus* sp. collection

The acorn collection covers all biogeographic regions and involves thorough georeferencing of mother trees and geobotanical framework. Among many *Quercus pyrenaica* and *Q. canariensis*, both endangered species, from the southern part of the region are being grown. Foreign contribution is represented by, for example, *Q. frainetto* (Albania), *Q. humboldtii* (Colombia) and *Q. boissieri* (Israel).

João's work in the gardens complements his studies of biology and landscape architecture: “I can perceive how many different plants behave at the Oporto climate, how a garden like this one is managed, and its challenges, and how to take care of specific sensible plants.” I especially liked the Mediterranean part of the garden which is currently being developed and the very well-kept Cactus and Succulent Greenhouses.



Handing over seeds from the HPS to João and Lúri

João also introduced me to Lúri Frias, a horticulturist with the garden. I was amused to notice a little bit of plantsman snobbery when listening to the two plant geeks.

On becoming a member of the HPS I received a welcome package with seeds. As I do not have a garden of my own at the moment, I offered the seeds to Lúri and João who were more than happy to add them to their collection. Free guided tours of the Botanic Gardens with highly knowledgeable volunteers can be pre-booked and I would highly recommend a visit should you find yourself in the area of Porto.

Link: <https://mhnc.up.pt/jardim-botanico-do-porto/>

Other gardens visited

Sarralves Park at the Museum of Contemporary Arts in Porto



Links: <https://www.serralves.pt/en/park/the-park/history/>

<http://europeanhistoricgardens.eu/en/portfolio-item/park-of-pena-2/>

Botanical Garden of The University of Coimbra



Link: <https://www.uc.pt/en/jardimbotanico>

Jardins da Quinta das Lágrimas in Coimbra:



Links:

<http://europeanhistoricgardens.eu/en/portfolio-item/gardens-of-lagrimas-estate/>

https://pt.wikipedia.org/wiki/Quinta_das_L%C3%A1grimas

Quinta de Villar D'Allen in Porto:

Links:

<https://www.facebook.com/pages/category/Historical-Tour-Agency/Villar-d-Allen-188959008855/>

<http://portoenvolto.com/2018/12/20/villar-d-allen-where-camellias-tell-a-story-onde-as-camellias-contam-uma-historia/>

Conclusions

My time in Portugal has been illuminating in so many ways and met most of my varied objectives. It has been instructive to be part of the early stages of a water-wise garden project and particularly to benefit from the guidance of a renowned plant specialist, Dr. Noel Kingsbury. I am keen to revisit Dr. Kingsbury's project and see how it develops.

I have also valued the opportunity to work in different garden settings in different parts of Portugal and perform a range of practical tasks, putting some of my RHS training into action. I love the way that people involved in horticulture are so generous in their support and encouragement of others.

Staying at Dr. Kingsbury's place, as well as meeting other people who are trying to gain deeper understanding of gardening, has hugely widened my perspective about the depth of the subject. It has been enormously beneficial for me to follow the suggestions made and discover more thought-provoking concepts on the way.

I am also very pleased to have been invited to produce a design and planting plan for an open space at the Mosteiro de Santa Maria de Landim garden. This will encourage me to learn more about the autochthonous flora of Portugal as well as how this knowledge could be implemented. It is my intention to create a design which would be cohesive with the genius loci while being environmentally conscious.

Seeing the monocultural plantations of *Eucalyptus globulus* and reading about socioeconomic and climate factors, which together contributed to the devastating fires of 2017 and 2018, made me realise the seriousness of the situation in Portugal today. As much as it is empowering to be part of conservation groups which are beacons pointing towards the right direction, changes at governmental level are needed in order to bring about a real improvement on a national scale.

My slight regret on this journey is not immersing myself more in the Portuguese culture and language, as I was working and interacting mostly with the expatriated English-speaking community. It is only now, when writing this report, that I have become aware of how many interesting plants and realities I managed not to notice. I would like to come back to Portugal to make up for this – maybe at different time of the year. It will be a different story, I am sure.

Financial summary

Summary of funds received and project expenditures

Bursary income			Received
RHS Coke Trust Bursary Fund	37.50%	£ 600.00	€ 700.14
MPGS	31.25%	£ 500.00	€ 583.45
HPS Kenneth Black Bursary Scheme	31.25%	£ 500.00	€ 583.45
Total income	100.0%	£1,600.00	€ 1,867.04

Expenditure		
TRAVEL		-€ 430.18
SUBSISTANCE		-€ 541.18
ACCOMMODATION		-€ 107.79
ENTRANCE FEES		-€ 30.00
SUNDRIES	-£ 54.00	-€ 63.01
Total expenditure		-€ 1,172.16

Balance	Unspent	€ 694.88
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Bursary reimbursed	Returned		
RHS Coke Trust Bursary Fund	-€ 260.58	-£ 220.58	37.50%
MPGS	-€ 217.15	-£ 183.82	31.25%
HPS Kenneth Black Bursary Scheme	-€ 217.15	-£ 183.82	31.25%
Total reimbursed	-€ 694.88	-£ 588.20	100.0%

Balance after reimbursements	€ 0.00
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GBP/EUR Conversion Table History

British Pounds into Euros
Date
1 GBP = 1.1669 EUR on 19/11/2019

Euros into British Pound
Date
0.8465 GBP = 1 EUR on 05/02/2020

<https://www.exchangerates.org.uk/EUR-GBP-spot-exchange-rates-history-2020.html>

I, Hana Vanova, confirm this is a true record of my project expenditure:



Acknowledgements

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My deep gratitude also goes to the garden owners who allowed me to stay and work in their well-established gardens and most of all to Dr. Noel Kingsbury for giving me this wonderful opportunity and coordinating such a wide-ranging programme of work in Central Portugal.

This report would not be produced without help and encouragement from Graham Anderson.

All photographs belong to the author unless otherwise credited.

References

Olivier Filippi. (2016) *Planting Design for Dry Gardens: Beautiful, Resilient Groundcovers for Terraces, Paved Areas, Gravel and Other Alternatives to the Lawn* ISBN: 978-0993389207. Filbert Press (Translation edition)

Piet Oudolf, Noel Kingsbury. (2013) *Planting: A New Perspective* ISBN: 978-1604693706 Timber Press.

James Parry ed. (1999) *Rooted in History: A Garden Conservation Manual*. ISBN: 978-0707802992. The National Trust.

Noel Kingsbury blog: January 24, 2020. <https://www.noelkingsbury.com/noelsgarden-blog/2020/1/21/creating-a-new-garden-in-portugal->

Noel Kingsbury blog: March 31, 2020. <https://www.noelkingsbury.com/noelsgarden-blog/2020/3/31/first-spring-in-our-portuguese-garden>

Adam Baroš, Jiří Martínek, (2011). *Trvalkové výsadby s vyšším stupněm autoregulace a extenzivní údržbou*. ISBN: 978-80-85116-88-5. Průhonice: Výzkumný ústav Silva Taroucy pro krajinu a okrasné zahradnictví.

Noel Kingsbury and Tim Richardson, (2005). *Vista: The Culture and Politics of Gardens*. ISBN: 978-0711225756. Frances Lincoln.

Andrés Chazarra, et al. (2011) *Iberian Climate Atlas Air Temperature and precipitation (1971-2000)*. ISBN: 978-84-7837-079-5. State Meteorological Agency of Spain and the Institute of Meteorology, Portugal.

Links

Conservation of Quercus species at the Botanical Garden of Porto:
<https://www.internationaloaksociety.org/content/starting-oak-collection-porto-botanical-garden-portugal/>

Wildlings

<https://wildlings.pt/>

<https://www.facebook.com/wildlingspt/videos/2601575483243646/>

Appendix 1 Itinerary

Date(s)	Activity	Location
Friday 15 Nov 2019	Travel to Lisbon	
16-17 Nov 2019	Travel to meet Noel & settle in	Oliveira do Hospital area
18 Nov - 6 Dec 2019	Gardening for Noel	Oliveira do Hospital area
28 Nov 2019	Visit Coimbra Botanical Garden	Coimbra
30 Nov 2019	Planting day with Wildlings	Benfeita
9 - 13 Dec 2019	Gardening at the ter Horsts	Barril de Alva
19 Dec 2019	Visit Quinta de Vilar d'Allen	Porto
19 Dec 2019 – 2 Jan 2020	Christmas / New Year break	
3 Jan 2020	Visit Botanical Garden of Porto	Porto
4 Jan 2020	Visit Mosteiro de Landim gardens	Landim
5 - 8 Jan 2020	Gardening for Noel	Oliveira do Hospital area
9 - 17 Jan 2020	Gardening at Mosteiro de Landim	Landim
18 Jan 2020	Visit Parque de Serralves	Porto
19 Jan 2020	Visit of Helder's garden with Noel	Oliveira do Hospital area
20 – 24 Jan 2020	Gardening for Noel	Oliveira do Hospital area
25 – 31 Jan 2020	Gardening at Quinta das Mil Flores	Pedrógão Grande
1-2 Feb 2020	Return to UK	via Coimbra

Appendix 2 Plant list

Supplier: Fibrex

Pelargonium

P. 'Rapture'

P. 'Prince of Orange'

P. 'The Mole'

P. unknown 'Angel'

Supplier: Fox

Salvia:

S. africana

S. barrelieri

S. 'Black Knight'

S. chamaedryoides

S. chionophylla

S. curviflora

S. darcy 'J. Compton'

S. 'Dyson's Crimson'

S. greggii 'Peach'

S. guaranitica 'Black and Blue'

S. leucantha

S. microphylla 'Bordeaux'

S. regia

S. roemeriana 'Red Dwarf'

S. sagittata

S. spathacea

S. 'Waverly'

Supplier: Hill House

Abutilon:

A. 'Patrick Syngé'

A. 'Nabob'

A. 'Canary Bird'

Clerodendron ugandense

Passiflora x exoniensis

Solanum wendlandii

Supplier: Barnhaven

Open-Pollinated Hellebore Seed Mix

Primula:

P. 'Garnet Cowichan'

P. 'Muted Victorians'

P. acaulis 'Osiered Amber'

Supplier: Peter Nyssen

Allium stipitatum

Galanthus elwesii

Iris x hollandica 'Miss Saigon'

Ixia 'Giant'

Lilium candidum

Muscari armeniacum

Narcissus:

N. poeticus var. *recurvus*

N. 'MartINETTE'

N. 'Conspicuous'

N. 'Falconet'

N. 'Jack Snipe'

N. 'Mother Duck'

Tulipa dasystemon

Tulipa kolpakowskiana

Tulipa praestans

Urginea maritima

Appendix 3 Seed list

Seed supplier: JELITTO

Alcea (Althaea) ficifolia-Hybr.
Allium carinatum ssp. *pulchellum*
Allium ursinum
Ampelodesmos mauritanicus
Anthemis carpatica 'Karpatschnee'
Arum italicum ssp. *italicum*
Asphodeline lutea
Baptisia pendula
Centranthus ruber var. *coccineus*
Convolvulus cantabricus
Eriogonum fasciculatum
Eriogonum umbellatum
Festuca mairei
Gaura lindheimeri
Gladiolus illyricus
Goniolimon tataricum
Gypsophila repens 'Rosea'
Helichrysum bellidioides
Jurinea mollis
Lavandula angustifolia 'Munstead-Strain'
Limonium perezii
Linaria genistifolia ssp. *dalmatica*
Linaria vulgaris
Lychnis chalcedonica
Lychnis viscaria wild form
Marrubium incanum
Mirabilis jalapa Mixture
Nepeta racemosa 'Felix'
Origanum vulgare wild form
Papaver 'Königin Alexandra'
Penstemon barbatus ssp. *coccineus*
Perovskia atriplicifolia
Pulsatilla vulgaris 'Rote Glocke'
Ruta graveolens
Salvia cyanescens
Salvia nemorosa

Satureja montana
Sedum spurium var. *coccineum*
Sedum stoloniferum
Teucrium chamaedrys hort.
Teucrium montanum
Thymus comosus
Thymus longiflorus
Thymus serpyllum 'Magic Carpet'

Seed supplier: PLANT WORLD

Agapanthus africanus 'Big Blue'
Antirrhinum 'Angel Towers'
Brugmansia 'Ecuador Pink'
Aquilegia "Cottage garden mix"
Bupleurum fruitcosum
Cerinthe major 'Yellow Gem'
Cistus 'Pink Silk'
Cistus sintenisii
Eryngium x oliverianum
Eryngium mixed
Geranium endressii
Geranium macrorrhizum 'Czakor'
Geranium sanguineum
Iberis umbellata
Lilium regale
Mala 'Gibbortello'
Musa 'Tiger Stripes'
Muscari leucostomum
Muscari neglectum
Phlomis russeliana
Oenothera odorata
Phlomis tuberosa
Verbascum thapsus