

# Plants of The Eastern Mediterranean Jordan

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Mediterranean Garden Society  
RHS & Merlin Trust Bursary Report

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# Contents

Aims and Objectives .....	3.
Itinerary .....	4
Introduction .....	5
Map of Jordan .....	6
<u>Main Report:</u>	
Tues 10 <sup>th</sup> March	
<u>Madaba City: The City of Mosaics</u> .....	7
Wednesday 11 <sup>th</sup> March:	
<u>Madaba, Wadi Shu'eib to Jerash</u> .....	8-11
Thursday 12 <sup>th</sup> March:	
<u>Jerash, Ajloun and Dibeen Forest</u> .....	12-16
Friday 13 <sup>th</sup> March:	
<u>Jordan Valley to The Dead Sea</u> .....	17-19
Saturday 14 <sup>th</sup> March:	
<u>Little Petra and Shobak</u> .....	20-21
Concluding Thoughts .....	22-23
Budget Breakdown .....	24
Acknowledgements .....	25
References .....	26-28

## Aims and Objectives

My aims for this trip to Jordan were:

- To gain insight into plants of the Eastern Mediterranean, expanding upon a personal interest in Mediterranean plants, by observing the flora of Jordan including widespread species such as *Anemone coronaria* and *Ranunculus asiaticus* as well as rare and endemic species such as *Orchis galilea* and the rare *Oncocyclus lris*.
- To gain a better understanding of the harsh, native conditions in which Mediterranean and desert plants thrive in order to select site appropriate plants when designing planting schemes.
- To inform and inspire my selection of plants for clients, when choosing plants for hot, dry seemingly inhospitable sites such as sun-baked banks, rockeries and some coastal sites which necessitate tough and resilient plants.
- To learn about the cultivation of exotic fruit in the desert and to share this experience with the productive and curatorial team at Rosemoor in which I previously worked.
- To produce a written report to document the experience and to share the flora of Jordan with the RHS and Merlin Trust as well as with members of the Mediterranean Garden Society, clients, colleagues and friends.
- Writing to fulfil bursary guidelines, I have aimed to write a report which is hopefully accessible, readable and interesting not only to those in professional horticulture but hopefully to a wider audience as well. I hope to share this report with MGS members, colleagues and clients. So, whilst I have focused on horticultural aspects, in endeavouring to write an authentic report, I felt that it was relevant to include certain cultural and historical content which was an integral part of the experience.

## Itinerary

<u>Day 1:</u> Tuesday 10 March 2020:	Arrive Amman Airport, transfer to Delilah Hotel, Madaba (approx 45-minute journey)
<u>Day 2:</u> Wednesday 11 March:	Visit nearby St George's church to see the 6th-century Byzantine mosaic map (earliest known map of Near East, with Bible landmarks especially Jerusalem). We then go via Mount Nebo to Wadi Shweb, having a picnic lunch on the way, and end our day with dinner at the Olive Branch Hotel in Jerash.
<u>Day 3:</u> Thursday 12 March:	12 <sup>th</sup> -century Ajlun Castle, Wadi Orjan with its lush fruit orchards; restaurant lunch in Jerash, then a choice of visiting either Jerash Graeco-Roman site or Dibbin Forest nature reserve. Dinner at Olive Branch Hotel.
<u>Day 4:</u> Friday 13th March	Down out of the Mediterranean-climate area through the Jordan Valley to the Dead Sea; restaurant lunch at Amman Beach where there may be the opportunity for a swim with its excellent facilities, showers, etc; drive on south along the Dead Sea, via Karak with its huge 12th-century Crusader castle, to dinner and stay at the Hyatt Zaman or Old Village Hotel at Petra.
<u>Day 5:</u> Saturday 14th March	A whole day in Petra, one of the world's most amazing archaeological sites that also has a good selection of plants and wildlife. A tour of the ancient site, lunch at the restaurant within the site; maybe an 800-metre horse ride; afternoon plant-hunting and bird-watching. Dinner back at the nearby hotel for a second night.
<u>Day 6:</u> Sunday 15th March	Little Petra (similar, smaller but beautiful, ancient site), then up into the mountains through Shobak with its Crusader castle, and Dana a beautiful old village on the edge of the Wadi Dana canyon. Then from Ras al Naqab we will drive down into Wadi Rum with the fantastic sandstone pinnacles standing in this tableland - still 900 metres altitude at the bottom of this "valley". Dinner and stay at Bait Ali camp (chalets).
<u>Day 7:</u> Monday 16th March	Exploring the southern part of Wadi Rum for 4 hours, a couple of hours rest in the hotel, before going out again for another 3 hours in its northern part to end with watching the sunset in the desert. The vehicles to be used are old 4x4s transformed by the Bedouins into "Safari Vehicles". Dinner and stay at Bait Ali again
<u>Day 8:</u> Tuesday 17 <sup>th</sup> March	Drive back north with more stops for flowers mainly the stunning, black <i>Iris nigricans</i> , lunch stop at a restaurant overlooking huge Wadi Mujib, before driving down to cross it at the reservoir's dam, then driving up the east side. Dinner and stay at Delilah Hotel, Madaba.
<u>Day 9:</u> Wednesday 18th March	Transfer to airport and depart.

## Introduction

The Kingdom of Jordan is situated to the North of the Arabian Peninsula; once part of the Ottoman Empire, the country has been independent since 1946, but is an ancient land bearing witness to early civilisations, particularly prominent in Biblical history. Slightly smaller in size than Portugal, Jordan neighbours many countries; with Syria to the North, Iraq to the East, Saudi Arabia in the South and Israel to the west; separated from Palestine to the West by the Jordan River. It is considered to be the most liberal country of the Middle East with a commitment to peace and stability from its rulers, but is nonetheless affected by the complex issues of the region (Irvine *et al* 2020).

Consisting of 3 phytogeographical regions; Saharo- Arabic, Irano- Turanian and Mediterranean, the habitats of Jordan are typically desert, semi-desert and Jordanian Steppe known as 'Badia'. Plant communities within these habitats commonly exhibit high species diversity within complex plant ecosystems. The number of plants species found across Jordan is estimated between 2500- 2900 species and reflects the wide range of climatic and topographic conditions across the country (Kherissat, F & Al-Esawi, D. 2109)

Jordan's diverse range of flora, includes rare and endemic species, the most celebrated of which is the Black Iris; *Iris nigricans* endemic to Moab and Edom regions in the west of Jordan and disappearing rapidly as a result of development. Many plant species throughout are dependent on the winter rains; flowering in spring before the dry season arrives which can last up to 8 months from March to November. (Peri, O. 2015)

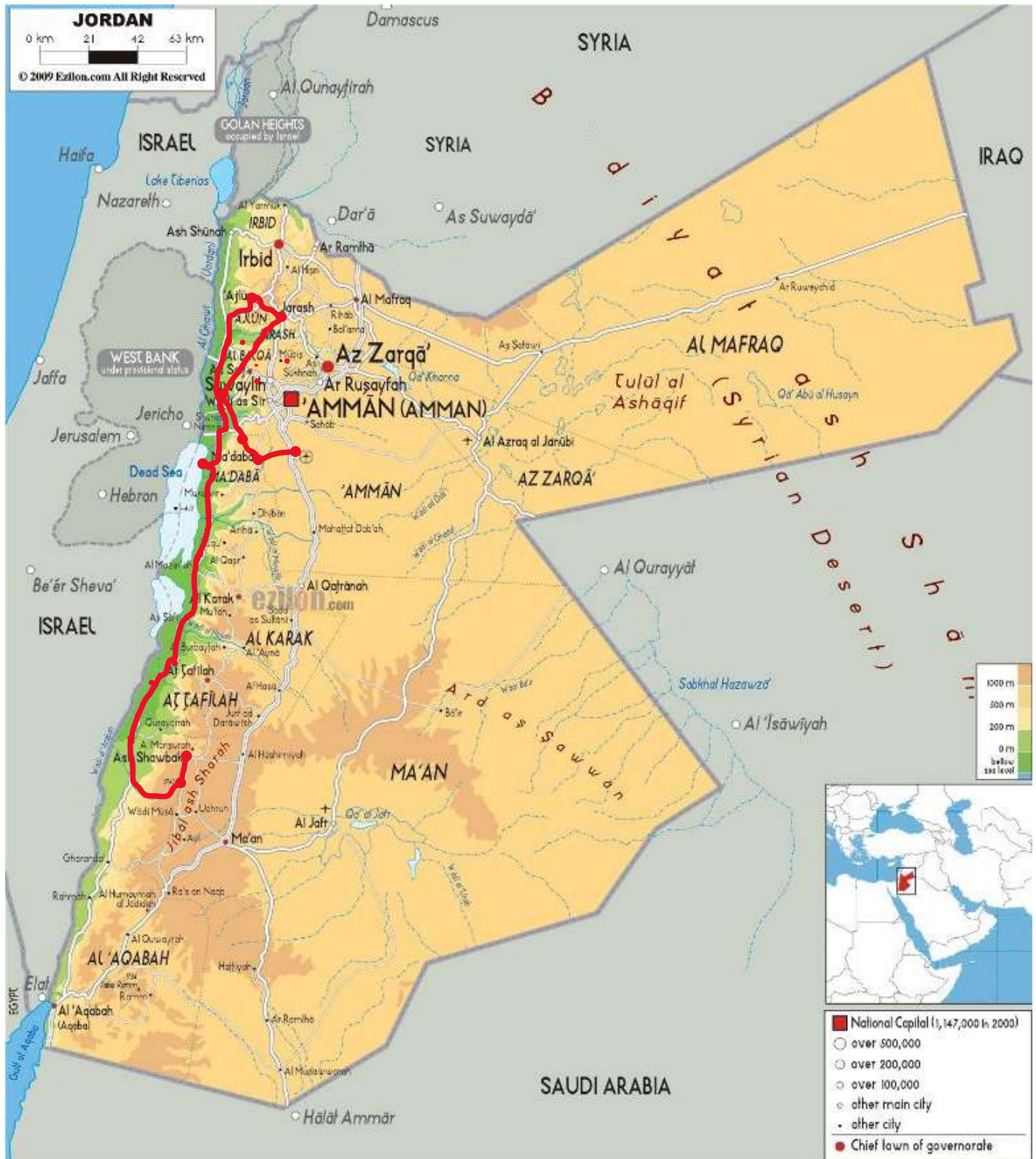
The country's 3 main physiographic regions are:

- Desert: Comprising four fifths of Jordan's territory the desert occupies the eastern and southern areas of Jordan, mostly within the Syrian Desert.
- The Uplands: East of the Jordan River the uplands form an escarpment above the Rift Valley with average elevations between 6-900 metres rising to 1,754 metres at the highest elevation.
- The Jordan Valley: Descending to 430m below sea level at its lowest point where the Jordan River meets the Dead Sea forming the lowest natural land on the Earth's surface. Soils of the Jordan Valley are the most fertile with alluvium topsoils deposited by the Jordan River and washed from the uplands. (Irvine *et al* 2020)

Our expedition would initially take us north west of Madaba to Jerash and Ajloun where conditions are predominantly Mediterranean; in this region steppe vegetation dominates with scrubby dense bushes and small trees. We then descended along the Jordan River down to the Dead Sea where conditions become more arid turning to desert. South of the Dead Sea we would visit Little Petra and Shobak in the desert. Our itinerary was due to include visits to the ancient city of Petra and the orchards of Wadi Rum but due to the outbreak of Corona virus the trip was cut short and we would ultimately miss these ancient wonders.



## Map of Jordan



Our route (marked in red): Travelling north of Madaba to Jerash and Ajloun, before following the Jordan Valley south to the Dead Sea, and beyond into the desert to Little Petra and Shobak,

Tues 10<sup>th</sup> March

## Madaba City: The City of Mosaics

On our first day we explored the city of Madaba whilst other MGS members transferred from Amman airport. This ancient city, referred to in the Old Testament as 'Medeba', is known as 'The City of Mosaics' and as this name suggests is home to the world's finest collection of early Christian art and mosaics which date from the 4<sup>th</sup> to 6<sup>th</sup> century AD (Visit Jordan 2020).

Immersed into this busy urban jungle, with the call to prayer echoing gently in the background, several plant species jumped out as we explored this city and its ancient art. In St John's Church we clambered up the tower just before the midday bells rang out to enjoy expansive and breath-taking views across the city before descending to scramble through the crypt corridors beneath the building. Back at ground level in the Church courtyard a striking variegated *Schefflera* presumably *S. arboricola* stood out with handsome, dense, showy, palmate leaves. Another church visit took us to a mosaic workshop in the centre of Madaba; a project funded by a French charity working to equip Iraqi refugees with creative skills to forge a living. Outside the workshop I was curious to find a tree with graceful pendent grey foliage, studded with small pink berries which John Joyce kindly introduced to me as *Schinus molle*, a pink peppercorn tree, and as its name suggests its fruit is a more colourful alternative to black pepper. Later, an early evening amble revealed a substantial Carob tree, *Ceratonia siliqua*, fabulously spilling out into a restaurant courtyard creating a warm welcoming atmosphere.



View of Madaba from the tower of St John's Church



*Schefflera arboricola*



*Schinus molle*



*Ceratonia siliqua*



Wednesday 12th March

## Madaba, Wadi Shu'eib to Jerash

First thing, before leaving Madaba, a cultural city stop took us to the Greek Orthodox Church of St George in the centre of Madaba to see a Byzantine mosaic map crafted in the 6th century depicting biblical sites and representing the oldest map of the Near East in existence.

### Aleppo Pine Forest

Leaving Madaba our first botanical stop was just a few miles outside the city on the way to Mount Nebo. Alighting at the roadside we scrambled up an open bank to discover a carpet of wildflowers beneath *Pinus halepensis* trees. Aleppo pine vegetation constitutes one of 13 habitat vegetation types identified in Jordan; occurring at altitudes above 700m above seas level (Royal Botanic Garden 2020). Soil in this area is the fertile, red, terra rossa over limestone. One of the most striking plants here was *Asphodeline lutea* punctuating the hillside which was dotted throughout with the scarlet red of *Anemone coronaria*. Other species here included *Anchusa azurea*, stunning to see this in the wild having noticed its cultivar 'Loddon Royalist' become increasingly popular in the UK. Soft cushions of *Euphorbia hierosolymitana* dotted the landscape contrasting with spiny florets of *Echium rauwolfii* and looking more closely at ground level we discovered *Geranium tuberosum*, with her campion-like flowers and delicately divided foliage and nearby the yellow star shaped pointed flowers of *Gagea comutata*.





## Littering and Land Degradation in Jordan

Littering is an all too evident issue in Jordan in spite of numerous campaigns led by NGOs and independently in attempts to improve the situation. Wherever we went in Jordan litter lined city streets, roadsides, and sadly country side. I remember looking out of the bus window to catch a glimpse of a wire fence with so many plastic bags stranded hanging off it that it appeared like a washing line. In some photos if you look closely you may notice flowers with a plastic bottle background. The problem seems to stem from a multitude of causes including inadequate municipal waste infrastructure, rising levels of poverty and a growing population with refugees fleeing to Jordan from neighbouring countries including Syria, Iraq and Palestine (Plasteurope 2018). EconMENA, a voluntary organisation raising awareness of environmental issues, suggests that there is a disconnection between the theoretical and practical application of environmental awareness in Jordanian culture and that by encouraging environmental stewardship and a feeling of ownership then things might begin to change. Highlighting the role of cleanliness in the media is thought to be another potential route towards positive change as littering is viewed as an act of haram (forbidden) in Islamic culture and considered a careless act (Abboud, N. 2018).

## Mount Nebo to The Jordan Valley

A brief stop at Mount Nebo gave us chance to take in impressive views stretching across to the Dead Sea, Jordan River Valley, Jericho and Jerusalem in the distance. An historical site, Mount Nebo is where Moses was believed to have caught sight of The Promised Land and has long since been a place of Christian pilgrimage. Some of the stones of the original Church, built in the 4<sup>th</sup> Century, still remain. (Visit Jordan 2020).



Leaving Mount Nebo we descended to Wadi Shu'eib in the Jordan Valley, where conditions became dryer as habitat starts to turn to desert; indicated by the presence of dry tropical plants which have migrated north from the desert in Sudan, along the Great Rift to Jordan (Greentours 2015). Examples of such species include *Ziziphus spina-christi*, *Acacia tortilis* and *Calotropis procera*. We also discovered *Anagallis arvensis*, an indigo scarlet pimpernel and the striking flowers and fern-like foliage of *Adonis dentata*.



## *Allium palestinum* & *Ranunculus asiaticus*



Our next roadside stop was adjacent to a wadi or stream, and crossing over the road to a steep limestone embankment we grappled to find footholds; clambering into the rocky bank with the drone of speeding lorries flying by and beeping a little disconcertingly in the background. Against the rocky outcrop stood the tall stems and flowers of *Allium palestinum* and below our feet lush carpets of wildflowers punctuated with *Salvia viridis*, *Ranunculus asiaticus*, *Calendula arvensis*, and the broad, edible leaves of the annual *Malva parviflora*. What a treat!



## Mejool Date Industry

On our way through the Jordan Valley we caught glimpses of date palms *Phoenix dactylifera* en masse. The cultivation of dates is a growing industry in Jordan with over 30,000 date palms planted in the past decade. King of the dates is considered the 'Medjool' and some 10,000 tonnes of this sticky, heavenly fruit are grown each year in Jordan with half exported to high end markets. The Valley's hot summers and mild winters combined with fertile soil provide optimum growing conditions for the cultivation of dates but fierce international competition within the industry makes it difficult for small scale farmers to compete. (Holland Horti Support Jordan 2019). I admit I savoured every moment of these mouth-watering sweet treats shared by my fellow traveller and friend Renate who happily purchased them from the road-side vendors selling mountains of fresh dates as well as parsley from the back of their pick-up trucks.





## Iris haynei

Our final botanical stop on Wednesday took us to another rocky steppe habitat on a hillside, overlaid with fertile terra rossa soil. This location was our first introduction to one of the many species of Iris found in Jordan; *Iris haynei*. Impressive and beautiful clumps of this ink black Iris subtly emerged from the hillside. This more robust species of Iris is found from the Great Rift along the Jordan River to the Dead Sea, extending into the mountains where it meets populations of *I. atrofusca* and *I. nigricans*. The colouration of the falls varies from violet to black bearing a prominent black velvety signal patch and is found in South West Syria, Israel and Palestine. As one of the rare Oncocyclus Iris, *I. haynei* offers little nectar and no pollen but lures in, at dusk, its only pollinator the male Eucerine bee. Tempted into the enclosed space within the flower, where it is a few degrees warmer, the offer of a cosy night lures in the Eucerine bee who's visit pays off by pollinating the flower as they scuttle over stamen and stigma before emerging at dawn (Sapi, Y 2005)

We came across many incredible plant species at this location including the crimson, red pointed petals of *Tulipa argenensis* and the bright yellow gorse-like flowers of *Calicotome villosa* or Spiny Broom, typical of batha vegetation. Other species included the soft aromatic foliage of *Artimisia santolina* and showy flowers of *Anacamptis papilionaceae* commonly known as the Pink Butterfly Orchid; a Mediterranean species found on limestone scrubland (Peri, O 2015). *Salvia viridis* and wild rocket formed purple-white swathes on the banks whilst at ground level emerging from the red soil were the white, sessile rosettes of *Androcymbium palestinum*. The flowers of which last up to several weeks, also called 'Cup and Saucer' or 'Men-in-a-boat' this member of the Colchicaceae family is widely distributed in Israel, Palestine, Egypt, Jordan and South Syria, typically found in steppe shrubland, Mediterranean woodland, batha, phrygana and desert habitats (Danin, A. 2020. Pacific Bulb Society 2018)



Thursday 12th March

## Jerash, Ajloun and Dibeen Forest Reserve

An early morning stroll around the Olive Branch Hotel, situated 5km from the ancient city of Jerash, revealed a view across the valley as the morning cloud began to lift after heavy rain in the night.

I found a nearby carob tree, *Ceratonia siliqua*, glistening; its leaves sparkling from the rain and embryonic fruitlets dangling from bright pink petioles, like miniature bananas whilst last year's woody seed pods were still evident scattered beneath the tree.

Carob, *Ceratonia siliqua*, is a leguminous, evergreen tree originating in the Eastern Mediterranean between Turkey and Syria. Cultivated for over 4000 years it is known as the Locust Bean or St John's bread; thought to be the locust that sustained John the Baptist in the desert. The Latin *Ceratina siliqua* translates from the Greek for 'wooden horn' or in Turkish 'Goat's horn' referring to the leathery pods. When dried and ground these woody seed pods produce a popular alternative to cocoa powder and provide a rich source of energy. Carob has multiple applications, containing three times more calcium than milk and constituting a good source of Iron, phosphorous and fibre. Aside from an alternative to chocolate it is used as a natural sweetener, source of fodder for livestock and popular in many countries in the form of liquor! (Victoriana Nursery 2020). In the past carob seeds, thanks to their consistency in size, were used as weights for measuring gold; the word 'carat' originates from the Arabic 'qirat' and referring to the seeds. In many coastal parts of the Mediterranean Carob, *Ceratonia siliqua* has become an important tree species as it withstands long periods of summer drought and poor calcareous soils whilst appreciating milder Mediterranean winters (Feedipedia 2019).



*Ceratonia siliqua*: Embryonic fruitlets and last years dispersed seed pods



## Treasures on the Doorstep

Dotted further along below the grounds of the hotel on a grassy bank, the flowers of *Cyclamen persicum* and *Muscari neglecta* poked up between grass and stones accompanied by dew covered *Anacamptis papilionacea* and *Ophrys umbilicata*. After breakfast our guide and botanist Oron took us to a spot within walking distance to show us a rambling *Clematis cirrhosa*, cloaked in pendant cream bell-flowers and contrasting next to it were the prickly seed heads of last year's *Echinops rauwolfii*.



*Muscari neglectum*



*Cyclamen persicum*



*Clematis cirrhosa*



*Echinops rauwolfii*



*Ophrys umbilicata*



*Anacamptis papilionacea*



*Clematis cirrhosa*



*Cyclamen persicum*

## Ajloun Castle

Our next stop took us to Ajloun Castle 1,250m above Sea level in North west Jordan; looking out over a terraced landscape of olive groves with pale pink carpets of *Silene aegyptiaca* beneath. This mountainous region is a well-known popular destination for its olive oil and many Jordanian families come here each year to purchase oil direct from the presses. As the world's 8<sup>th</sup> largest producer of olive oil Jordan presses 24,000 tonnes of olive oil annually (Family in Jordan 2019).

Ajloun castle, constructed in the late 12<sup>th</sup> century is one of six crusader castles in the country built as a fortress to protect trade routes during the Crusades. Its strategic location affords views across the Jordan Valley and this prominent position made it an effective beacon for pigeon post in the 13<sup>th</sup> century when messages could be transferred between Damascus and Cairo in a single day by pigeons (New Day Tours 2020 Lonely Planet 2020).



Ajloun Castle

## Olives and Iris

Travelling west of Ajloun, we stopped in a rural village, where despite our skilled driver's best attempts and some hair-raising manoeuvres, a devilish hairpin bend proved impassable and so we alighted and happily descended into a valley of ancient olive trees by foot. The initial soundscape of this area encompassed the distant chiming of the call to prayer (adhan) and the tinkle and chatter of man and horse ploughing the fertile red terra rossa soil beneath the olive trees, with a young, tethered foal grazing nearby.

The ancient olive trees in this area are thousands of years old and are underplanted with a fava bean crop to nourish them. The wide girths of their warped, gnarled and sometimes hollowed trunks testify to the years that they have weathered. Home to some of the world's oldest living olive trees, parts of Jordan have unearthed olive stones dating back to Natufian settlements over 10,000 years ago (Dautricourt, M. 2010).

Of significant value to both Jordan's economy and heritage, the country's olive industry attracts huge sums of investment, annually generating around 100 million dinars for the economy as well as forming an important source of income for the many Jordanian

families who cultivate them. There are over 30 different species of olive grown in Jordan but the main three in cultivation are the native Nebali and Rasie, and the Syrian, Souri Olive ((Al Hairy, M. 2018 Dautricourt, M. 2010).



Local man ploughing land with horse





Descending further down the hillside, rustic drystone walls lined the road; their sandy colour evidence of the limestone laid beneath the calcareous soils in this area. Dried seed heads of *Daucus carota* silhouetted precariously against the sky, and amongst the roadside banks *Prasium majus* and the illuminating blue flowers of *Alkanna tinctoria* popped up. We came across orchid species spotting *Ophrys umbilicata* and *Anacamptis papilionacea*. Arguably the highlight of this location was discovering the rare and endemic Oncocyclus Iris; *I. bismarckiana* in flower! This endangered Iris is now limited to only a few locations in the Middle East and is threatened by human activity as well as competition from the invasive *Sarcopoterium spinosum* and caterpillars which feed on the flower buds. The Nazareth Iris as it is commonly called grows in batha and phrygana habitats, Mediterranean wooded shrubland and montane vegetation on a wide range of soils from heavy limestone clays, basalt rocks, tera rossa and soft chalky clay stone in altitudes between 350-1,300m above sea level. (Peri, O. 2015). At the same spot I noticed the tiny scarlet red pea flowers of *Lathyrus cicera*, chickling vetch, the seed of which if ingested in large quantities can cause an alarming condition known as 'lathyrism' due to a toxic amino acid which can cause paralysis of the lower limbs! (PFAF 2020).

Ascending back up the hillside to the village large *Ficus* and apricot trees spilled over from domestic gardens, figs already swelling to walnut size on the branches whilst the apricot flowers were bourne as promising colourful buds.



## Dibeen Forest

On a rather damp, drizzly afternoon our optional botanical stop took us to visit Dibeen forest, whilst other MGS members visited the ancient historic city of Jerash.

Dibeen forest covers 8km<sup>2</sup>, and has been a conservation area managed by the Royal Society for the Conservation of Nature (RSCN) since 2004. The woodland represents the wild forests once common in Northern Jordan but which today are sadly reduced to cover only a scant 1% of Jordan's land. The reserve serves to protect several rare species of orchid as well as 17 endangered species of animal. Dominant tree species include *Arbutus andrachne*, *Pinus halepensis* and *Quercus sp.* (RSCN 2015).

We were lucky enough to come across several species of orchid in Dibben including *Orchis galilea*, *Orchis anatolica*, *Ophrys mamosa* and *Ophrys fusca*, the Sombre Bee Orchid. Interestingly we also stumbled upon the curious dark purple stems of saprophytic *Limodora arbotivum* which relies upon associations with mycorrhizal fungi. 'Arbotivum' refers to the orchid's aborted leaves which sheath the stem. Chlorophyll in the stem carries out limited photosynthesis; its green colour masked by the presence of purple anthocyanins. Sometimes referred to as the Violet Bird's Nest Orchid it is widespread, predominantly found in the Southern Mediterranean on calcareous soils associated with pine forests (Orchids of Britain and Europe 2020, First Nature 2020)





Friday 13<sup>th</sup> March

## Jordan Valley to The Dead Sea

Friday was spent travelling south from Jerash along the Jordan valley to The Dead Sea, with a couple of botanical stops en route.

Originating from the Sea of Galilee in the North, 200metres below sea level, the Jordan Valley River meanders over some 360km flanked by fertile flood plains on either side until it reaches the Dead Sea 400m below sea level, marking the lowest point of land on the Earth's surface. The valley supports a rich diversity of plant and animal species as a result of its wide range of climatological and physical conditions. Sub humid and semi-arid conditions in the northern part of the valley constitute a Mediterranean climate with hot dry summers and mild wet winters, receiving over 350mm of annual rainfall. The valley transitions from a Mediterranean zone in the north west to desert further south where average annual rainfall is reduced to less than 100mm. Fertile alluvial soil is present throughout, with dominant soil types regosols, rendzinas and serozems supporting a booming agricultural industry that supplies most of Jordan's fresh produce as well produce for export. This combination of fertile soils and good growing conditions enables Jordan to cultivate crops 2 months ahead of other middle eastern countries apparently achieving an incredible 3rd annual growing season (Kool, J 2016, Rough Guides 2020).

Stopping in the Jordan Valley again we scrambled happily over rocky hillside where dominant species included the widespread *Drimia aphylla*, *Retama retam* and the giant acid yellow umbels of *Ferrula communis* which stood billowing gently overhead. We came across large well-established clumps of *Iris haynei*, covered in numerous grass hoppers, presumably not locusts, but they were certainly having a good time devouring the flowers. Curious spikes of woolly flower buds appeared to be covered in webbing, turned out to belong to *Eremostachys lacinata*. The name derives from the Greek for desert: '*eremia*'; and '*stachys*' describes the inflorescence literally translating as 'ear of corn'. This curious perennial known as the 'Desert Spike' flowers in spring after winter rains before retreating into summer dormancy. Traditionally its roots and flowers have been made into a decoction to treat allergies, headaches and inflammation (Mosquin, D 2008, Delazar, A *et al* 2013).

Later on, we arrived at the Dead Sea, stopping at Amman beach we took the chance to float in the salty water with the option of being covered head to toe in mud afterwards. A little further along these saline shores we stopped to find the rare orchid *Epipactis veratrifolia*; the Scarce Marsh Helleborine at the side of the road.



*Epipactis veratrifolia*



View of The Dead Sea



*Ferrula communis*



*Drimia aphylla*



*Retama retam*



*Iris haynei*



*Eremostachys laciniata*



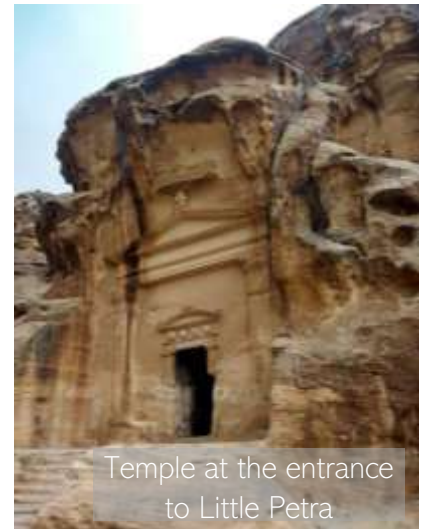


Saturday 14<sup>th</sup> March

## Little Petra and Shobak

Our Saturday visit to Petra was rescheduled due to heavy rainfall which creates a severe risk of flooding in Petra, where it seems that the sandstone gorge can act as a rainwater funnel. Instead we headed off the beaten track to the ancient Nabatean settlement of Siq-al-Barid known as 'Little Petra'. The Nabateans, who carved both Petra and Little Petra out of sandstone, were Arabic nomads, cave dwellers from the Negev Desert, who amassed their wealth as traders on the incense routes. Their civilisation flourished from the 4<sup>th</sup> century BC up until the 2<sup>nd</sup> century AD when the Nabatean Kingdom was annexed by the Roman Empire. Little Petra was used in long distance trade, as a stop for caravans and its name 'Sid-al-Barid' translates as 'Cold Canyon' as the 350m long gorge escapes the heat of the desert remaining cool and shaded (Universes in Universe 2020).

At the entrance to Sid-al-Barid is an open plaza and beautiful ancient temple carved into the sandstone, beyond which one is funnelled into a narrow gorge, which opens out again to reveal a series of caves and staircases carved into the stone. Climbing up a worn away staircase to a temple above we glimpsed the remains of ancient Nabatean frescos dating back to 450BC on the temple ceiling. In this seemingly hostile, stony environment we found *Bellevaeria steporum* growing out of the sand along with a little neighbouring *Frittilaria persica*. As we continued to wind our way deeper into this mysterious gorge Bedouin vendors drew us in to admire beautiful displays of their traditional wares. An affectionate cat greeted us along with the smell of woodsmoke from stoves tucked under makeshift stalls, embellishing the sensory experience. Towards the end of the gorge the towering sandstone faces narrowed to a steep and quickly diminishing gap. Undeterred we scrambled up and beyond, wriggling through tight squeezes, and pulling ourselves up over lengthening steps which became boulders. In a somewhat precarious position Jean-Pierre made me hoot with laughter as he announced that he was between a rock and a hard place. Eventually the tight gully levelled and opened out to a terrace complete with Bedouin stall and a very timid Bedouin dog. Breathtaking views across this other worldly landscape rewarded our efforts.



Temple at the entrance to Little Petra



Bedouin Lady in Little Petra



*Bellevaeria steporum*



A narrow section of the gorge with a mature Carob Tree



View from the terrace at the end of Little Petra overlooking the landscape beyond.

## Shobak

Later on, a stop at Shobak, which sadly unbeknown to us would be our last botanical stop of the trip and was surprisingly chilly and muddy considering we were in the desert. But this claggy, sandy soil yielded some delightful and interesting surprises. Some of the species here were quite different to the flora we had encountered elsewhere not to mention the delight of meeting a wild tortoise who also seemed rather cold. Plentiful clumps of the rare *Iris regis-uzziae* emerged out of the sand amongst almost equally plentiful plastic bottles. This pale little Iris, with its lilac coloured falls streaked with yellow, is found only in South Jordan and Southern Israel, usually distributed at altitudes above 850m. *I. regis-uzziae* grows in the desert on open rocky, loess soils flowering between January to March. (Peri, O 2015)

Undulating grey-green leaves which spiralled out from a central flower bud belonged to *Allium rothii*; a desert species found in sandy, loess plains across the Middle East. These curly leaves will give way to a single hemispherical umbel; white tepals with deep purple midvein and stamens make this inflorescence as interesting as its leaves, flowering between February to March. (Peri, O 2015). The yellow inflorescence of *Leontice leontopetalum* hovered above divided grey leaves. Widespread throughout the Middle East in sandy, loess desert soils and fields, this bulb is surprisingly a member of the *Berberidaceae* family. Later in the season, once dried, the flowers will break off and roll across the desert to distribute the seeds, which when germinating can bury themselves up to 30cm below the soil surface. (Peri, O 2015)



Another surprising member of the *Berberidaceae* family in flower here was the widespread tuber *Bongardia chrysogonum*, bearing long whorls of distinctive pinnate leaves each with a red blotch and with loftily bourne small, bright yellow flowers on long pedicels (Peri, O 2015). Many leaves of *Geranium tuberosum*; carefully emerged out of the sand, and the soft grey foliage of *Biebersteinia multifida* appeared, whose root extract has interestingly been used in traditional medicine as an anti-inflammatory and analgesic (Farsam *et al* 2020).





## News from the Government

Back in the hotel lobby on Saturday evening, indulging in a black Turkish coffee flavoured with cardamom, I met up with friend and fellow traveller to excitedly pour over notes and exchange plant info and cross reference idents. When news arrived, that Jordan was imminently planning to close their borders and had issued notice for tourists to return home as soon as possible due to the Corona virus outbreak which was sweeping like wildfire across the globe. My mind instantly conjured up wildly excited ideas of an extended sojourn in this exotic and fascinating country where people seemed friendly and hospitable in a culture so vastly different from our own. However, this was not to be and sadly Saturday evening was spent, in a hotel room frantically trying to book flights back to Europe with friends and fellow MGS travellers, by any means possible at whatever cost! I contemplated booking a flight to Istanbul alone en route back to Europe but fortunately was generously booked onto a flight with friends travelling back to the UK and so it was that we were to fly to Brussels via Doha on Monday evening just hours before Jordan closed its borders at midnight.

Needless to say, sadly, we made it to neither Petra nor Wadi rum as Sunday was spent speeding back to Madaba on the coach to drop off members of our group at Amman airport and subsequently Monday was spent in the Delilah Hotel in Madaba printing off tickets and eating as much as possible in preparation for a very long journey back to a world that had changed beyond all recognition within only 7 days.



*Young Sheikh with falcon waiting for flight to Qatar*

## Concluding Thoughts

For me this trip has been an eye-opening introduction into a whole new collection of botanical treasures, and the chance to experience the Eastern Mediterranean and the desert conditions in which they thrive. Encountering this (usually) arid climate with its beautiful, unusual plant species and the complex ecosystems in which they thrive is of significant value and I plan to share this enriching experience with my clients, members of the Mediterranean Garden Society and others who have expressed an interest in reading this written report.

Plant species I have encountered on this trip such as *Iris*, *Alliums*, *Anemone coronaria*, *Anchusa azurea*, *Ferrula communis* will inform and inspire my own selection of plants for clients in the future. By incorporating some of these plant species I hope to compose stimulating and sensory planting palettes; making reference to the Mediterranean in sun-baked pockets, coastal gardens and on impoverished soil such as planting into south facing walls and stony banks.

As the UK climate is set to change so summers are increasingly likely to become hotter and dryer, with summer temperatures estimated to rise by up to 5.2°C by 2070 and UK winters likely to become milder (BBC 2020) With this in mind it seems that Mediterranean plants could find themselves a lot more at home in parts of the UK and already many are a suitable, relevant and welcome addition to gardens across the country. Additionally, in seeking to create ecological gardens for the future Mediterranean plants will have a much lighter carbon footprint with a much lower requirement for resources in terms of watering, feeding and pesticides (Fillipi, O. 2020).

Recently planting up a bed for some Palestinian clients gave me the opportunity to draw inspiration from plants of the Middle East by incorporating *Irises*, *Lupins* and *Anchusa azurea* into the planting design. Admittedly the Iris and Lupin cultivars were not the authentic forms we found in the wild, but whilst I was planting up the bed, my clients were celebrating the end of Ramadan in their garden and I was treated to some traditional flatbreads or 'manakeesh' freshly baked in their outdoor bread oven flavoured with Za'atar spice and sweet mint tea, a delicious classic of the Middle East.



Plan and Planting in Barnstable taking influence from plants of the Middle east. Manakeesh flatbreads with mint tea.

## Issues Encountered

We encountered only a couple of problems on holiday which would have a significant impact. Firstly, the risk of flooding caused by heavy rainfall led us to reschedule and essentially miss our trip to the ancient Nabataean city of Petra and of course the global outbreak of Corona virus would send us all back early via unusual routes through unexpected countries. Both issues were the result of natural causes, totally outside of anyone's control but did prevent us reaching the much-anticipated orchards of Wadi Rum as well as Petra. So as such I was unable to fulfil my aim to experience and learn about the cultivation of exotic fruit in the orchards of Wadi Rum.

To summarise, I feel that this expedition has been enriching, to both my horticultural career and in terms of the cultural experience and the new friends and folk I have met. If circumstances and funds allow, I would love to travel again with the Mediterranean Garden Society, particularly if there is the chance to do the second half of this trip in the future. Meanwhile I plan to continue pursuing my interest in plants of the Mediterranean and the East through online masterclasses and recorded lectures delivered by designers and botanist such as Olivier Filippi and Oron Peri amongst others. I am sure that this is just the beginning of a hopefully lifelong interest.

## Budget Breakdown

<u>Item</u>	<u>Cost</u>	<u>Date</u>
Annual Membership Mediterranean Garden Society	£38.59	16 <sup>th</sup> March 2019
Cost of Organised Tour (Accommodation, food, transport)	£1,720.74	March 2019/
<b>Transport Costs</b>		
<u>Return Flights</u> London Heathrow – Amman 09/03/2020-18/03/20	£511.92	27 <sup>th</sup> August 2019
National Express Return Fare	£25	11 <sup>th</sup> Feb 2020
<b>Insurance and Spending Money</b>		
Insurance coverwise.co.uk	£37.06	19 <sup>th</sup> Feb 2020
Spending Money Jordanian Dinar (TUI)	£147.06	March 2020
Victoria Coach Station London Underground ticket Food	£15.29	17 <sup>th</sup> March 2020
<b><u>Additional Transport Costs</u></b>		
<u>Single Flight</u> Amman – Doha- Brussels	£1,071.24	16 <sup>th</sup> March 2020
Eurostar Brussels- London St Pancreas	£200	17 <sup>th</sup> March 2020
National Express Single Fare	£28	17 <sup>th</sup> March 2020
Total Cost	£3,794.90	
<b>Bursary Funding Received</b>		
RHS Bursary	£900.00	
Merlin Trust Bursary	£900.00	
Signed	8 <sup>th</sup> June 2020	R. Treharne 



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