

Wildlife Travel



Morocco 2017

Morocco species lists and trip report, 4th to 11th March 2017

#	DATE	LOCATIONS & NOTES
1	4 th March	Evening arrival at Agadir, transfer to Atlas Kasbah
2	5 th March	Atlas Kasbah and local area.
3	6 th March	Atlantic Coast: Oued Tamri & Cap Rhir
4	7 th March	Taroudant & Tioute Palmery
5	8 th March	Sous Massa National Park
6	9 th March	Anti Atlas: Ait Baha and agadir at Laatik
7	10 th March	Western High Atlas: Paradise Valley to the Cascades du Immouzer
8	11 th March	Atlas Kasbah and local area. Evening flight back to UK

Leaders

Philip Precey

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Euphorbia officinarum in the Anti Atlas Mountains

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Day 1: Saturday 4th March. Gatwick to Agadir

After a delay of a couple of hours at Gatwick, our at-times-rather-bumpy flight took us down across Iberia and along the coast of Morocco to Agadir. Once through passport control and the currency exchange offices we were whisked off to the wonderfully atmospheric Atlas Kasbah perched atop a small hill in the countryside outside Agadir in time for a late dinner of fish tagine.

Day 2: Sunday 5th March. Atlas Kasbah and Tighanimine El Baz

After a very welcome night's sleep, we awoke to the sound of Common Bulbul singing noisily in the garden, destined to become a major part of the soundtrack for the week.

After breakfast, and an introduction to the holiday, we set out to explore the surroundings of the Atlas Kasbah.

First things first: an introduction to probably the single most important plant of the region, one of the icons of this corner of Morocco, the Argan Tree *Argania spinosa*, a plant that would accompany us for much of our time over the next week. Argan belongs to the primarily tropical family the Sapotaceae, and today is confined to this corner of southern Morocco, centred on the Souss Valley, a relic from the time when this area had a tropical climate. The trees, their fruit and the oil which comes from the 'nut' are at the heart of much of the local culture and economy, being used for culinary and health purposes, for washing, for feeding animals and in much of the local traditional architecture: a very special plant.

The Atlas Kasbah has been developed with sustainability very much in mind, and one of the features of the garden is a filtration system for the 'grey water' from the hotel, which is used to irrigate the garden, an oasis of green in an often very dry area. Growing around the pools used in this filtration system was sweet potato, *Ipomaea batatus*, while a large North African Water Frog sat on the mossy wall, with others calling nearby.

Striking out along the road, and across into the fields, the effects of grazing were very evident with spiny plants such as the 'chicken-wire bush' *Launaea arborescens* and the thorny *Zizyphus lotus* used as dead hedges around the fields and poisonous plants including *Withania frutescens* with small green bell flowers, abundant *Asphodelus fistulosus* whose leaves are laced with sharp silica crystals, and the distasteful *Ononis natrix* with yellow flowers and sticky foliage all successful at deterring the nibbling of the goats.

But more noticeable than the effects of grazing, this year, were the effects of the recent rains. Where the hillsides would normally be dry and rocky, interspersed with argan trees, this year they were a riot of flowers, chief amongst them the lovely little purple toadflax *Linaria bipartita*, a Moroccan endemic which was forming carpets of purple. More colour came in the form of the red prickly bugloss *Echium horridum*; the blue 'knapweed'-like *Volutaria lippii*; *Cladanthus arabicus* with broad yellow flowers, sweet-smelling feathery foliage and branching directly beneath the flower head; the bright orange Field Marigold *Calendula arvensis*; the low-growing composite *Catananche arenaria*, with creamy white flower-heads with a maroon centre; and several good plants of the first of several lavenders we would come to know during the week, the ferny-leaved and large-flowered *Lavandula mutifida*.

With the blue skies and warm sun, butterflies were a feature of the morning. Alongside species familiar from home (Painted Lady, Red Admiral, Speckled Wood, Small Copper and Clouded Yellow, we also found several less familiar species: Greenish Black-tip, like a miniature version of Clouded Yellow; the big bright Cleopatra, the males yellow with orange patches on the forewing; and two species of copper-like hairstreak of the genus *Tomares*, the Provençal Hairstreak with its green hindwing and at least one Moroccan Hairstreak, with the mottled brown hindwing. On the walk back to the hotel, the large dragonfly hawking overhead was a Vagrant Emperor, freshly emerged from pools in the Sahara.

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After a delicious lunch back on the hotel terrace, with the sound of Bee-eaters bubbling high overhead, we set off again to explore the nearby village. Following Ahmed, our guide from the village (a man of few words), we passed through the village and crossed the dry riverbed up into the old village on the other side. Here there were large clumps of the prickly pear cactus *Opuntia ficus-barbarica*: a widely naturalised and even invasive species, a domesticated form thought to originate in Mexico, useful for its fruits and known locally as the Barbary Fig. A second cactus growing nearby, another introduction, this time from Peru but somewhat less invasive, was *Austrocylindropuntia subulata*.

Around the village, House Sparrows and House Buntings lived up to their name, a pair of Black Wheatears posed nicely on one of the rooftops, while a pair of Laughing Doves fly across the dry river, pausing briefly in a tree.

Day 3: Monday 6th March. Cap Rhir and Oued Tamri

This morning we set our sights northwards, skirting around the city of Agadir (pausing briefly to stock up on wine and water for the week) to reach the Atlantic coast. As we left the immediate surroundings of the city, the vegetation began to change, with a low-growing coastal 'steppe' vegetation on the flatter ground mixed in with areas of succulent Euphorbia scrub, and our first stop of the day was just beyond Cap Rhir to explore this interesting spikey habitat.

These succulent Euphorbia-dominated scrub communities are unique to the south-west Moroccan coastline down into the Sahara and across to the Canary Islands off shore (where closely-related species make up a very similar flora). They are a botanical link between this part of Morocco and the flora of the North Atlantic Islands, collectively termed the Macaronesian flora. In the geological past this flora would have been more widespread on the mainland, becoming confined to these climatically favourable areas during recent cycles of glaciation.

Here, the vegetation was dominated by a mixture of three succulent species: the dome-forming lime-green shrubby *Euphorbia regis-jubae* (found here and in the Canary Islands); the cactus-like *Euphorbia officinarum* (found in southern Morocco and down to Mauretania) and the bizarre succulent groundsel *Kleinia* (formerly *Senecio*) *anteuphorbium* (endemic to Morocco). Also making up a significant part of this vegetation were the large yellow-flowered composite *Nauplius imbricatus* (yet another Moroccan endemic); *Salsola oppositifolia* with its leathery spiky leaves; the semi woody, grey coloured *Polycarpha nivea* with its encrusted looking flower heads and miniscule leaves; the purple flowers and succulent leaves of *Lycium imbricatum*; and two lavenders growing side by side: the large-flowered *Lavandula multifida* (first seen yesterday) and *Lavandula dentata* var. *candicans*, with narrow velvety-grey leaves, much smaller flowers and a more medicinal scent.

Tiny colourful *Malcomia littorea* dotted the more open sandy areas, and we admired two types of sea heath, both *Frankenia laevis* with larger flowers and leaves bearing a whitish crust and *F. boissieri*, with its smaller flowers and thyme-like leaves, forming domed mini-shrubs. A duo of interesting parasitic plants were growing out of the sand: the startling large yellow spikes of the broomrape-relative *Cistanche phelypaea*, a parasite of the suaeda; and the bizarre deep maroon spikes of *Cynomorium coccineum*. A member of the mainly-tropical family Balanophoraceae, when fully in flower this plant smells of rotting flesh to attract flies which pollinate it.

Turning rocks revealed a fairly large, yellow scorpion feasting on a paralysed beetle larva. Around 20 people die from scorpion stings in Morocco each year, so we gave her the respect she was due. Less punchy, under the next rock we found a lovely little Moroccan Lizard-toed Gecko, while the much larger Moorish Gecko was seen by some of us hiding in one of the concrete culverts under the now-defunct road.

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Our next stop was at the mouth of the Oued Tamri, where a Southern Grey Shrike and a pair of Moroccan Wagtails welcomed us to our picnic spot.

Once we'd finished our lunch, we set off across the beach towards the estuary, passing a couple of Busack's Fringe-toed Lizards scuttling between the bushes, only to be halted in our tracks when Pat saw a squadron of five black birds fly in and land on the far side of the water: the bird we'd come looking for, the critically endangered Northern Bald Ibis.

Once widespread across southern Europe, North Africa and parts of the Middle East the decline of the Bald Ibis was due to various factors including pesticide poisoning, hunting, disturbance at their nest sites and, more recently, loss of their feeding habitat to coastal development, and they reached a low of only around 100 birds by the 1990s.

The last remaining Middle Eastern birds were a tiny colony near Palmyra in Syria, who migrated down to Somalia and Eritrea for the winter. Alas, these birds were doomed by the various conflict zones that make up their territory, and they are now almost certainly extinct. Thankfully the Moroccan population has been a conservation success story with the population now over 600 individuals, split between two nesting areas: here at Tamri and in the Souss Massa National Park.

As we got closer, three more individuals flew in to drink and wash in the fresh water, meaning we now had more than 1% of the total wild world population in view at once.

Elsewhere on the lagoon, a pair of Spoonbills were resting on a small island; hundreds of Lesser Black-backed Gull and beautiful silvery Audouin's Gulls were coming and going to wash and rest, along with a small number of Yellow-legged Gulls; single Grey Heron and Little Egrets stalked the shallows; and a lone Little Ringed Plover flew overhead before settling on a distant shore.

At the back of the beach, an area of encrusted sand and a partial skeleton were the last remains of a young Minke Whale that washed up here more than a year ago. Alas, the sand dunes and salt marsh that were once as a feature of this site have been much eroded by recent Atlantic storms, and amongst the plantlife we struggled to find much more than Sea Rocket *Cakile maritima*, Sea Spurge *Euphorbia paralias* and *Suaeda vera*.

The arrival of a group of local boys for an impromptu game of football on the beach sent the ibises flying back north to their nesting colony, and time for us to head back south again.

Just beyond Cap Rhir we stopped to explore one more area of Euphorbia scrub, where the dominant spiny *Euphorbia officinarum* was being parasitized by the pink spikes of *Striga barthlottii* (a plant we have previously named *Striga gesnerioides*, but told from that tropical species by the branching from half way up the stem). We also found the climbing yellow toadflax *Nanorrhinum heterophylla* and other shrubs including *Rhus tripartita* and the Mastic Tree *Pistacia lentiscus*, a plant common around the Mediterranean and found here at the very southern end of its distribution.

Here we found three species of sea lavender growing almost side by side: the common *Limonium sinuatum* with large blue and white flowers, also seen forming a carpet under some of the roadside argan groves; the endemic *Limonium mucronatum* with strongly winged stems and dense heads of smaller, mauvey-pink flowers; and near a random hole in the ground, the delicate little *Limonium lobatum*, a desert species found across to Israel and the Middle East, with white flowers emerging from a papery-blue calyx.

Our final stop was at the ruined Kasbah overlooking Agadir, which gave wonderful views down over the fishing port and across the city to the swathe of natural vegetation that is Souss Massa National Park on the far side of the bay, with the Anti Atlas Mountains visible in the distance

Tonight we feasted on a traditional celebratory Moroccan dish of chicken and almond pastilla.

The Atlantic Coast: Cap Rhir and Tamri



Top, l to r: *Nauplius imbricatus* and Moroccan Lizard-toed Gecko at Cap Rhir.
Bottom, *Cistanche phelypaea* and a scorpion at Cap Rhir, and Moroccan Wagtail at Oued Tamri

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Day 4: Tuesday 7th March. Taroudannt and Tioute

Heading east, our journey to Taroudannt took us through the Souss valley, an important area of agricultural production, particularly oranges and bananas and salad crops cultivated under polythene for export to northern Europe. A soaring Marsh Harrier and a couple of Black Kites showed nicely along the way, along with a very distant Short-toed Eagle (although more of a short-toed dot).

The town of Taroudannt is often described as a mini Marrakech, its mud plastered ramparts, dating back to the 16th century, an impressive sight on arrival. Tucked away inside the walls is the impressive Hotel Palais Salem, its impressive entrance taking us into a place of shade, shadow and tranquillity, a world away from the intense morning light and the hustle and bustle of a town at work. Once a Saadi palace, the hotel's courtyards embodied elements of traditional Islamic gardens as being places of rest and reflection alongside running water and, importantly, a reminder of the promised paradise. In the cool of the hotel's interior, surrounded by Berber tile mosaics and Arabic wall designs, Mohamed explained the fascinating history of Morocco's tribes turbulent and cultural past and its significance to Taroudannt's market town beginnings, situated on a major caravan route between the north and the Sahara.

The inner courtyard with its central babbling fountain and bathed in the dappled shade of ancient fig trees, flowering banana plants and loquats *Eriobotrya japonica*, led us into what was once the harem garden, complete with an immense rubber tree *Ficus elastica*, its buttress roots, snaking their way across the flower bed. The main garden, a mix of exotics, succulents, native trees and shrubs dwarfed the old building and we soon found our own shady piece of paradise as we sat by the pool drinking coffee, among the hibiscuses, more loquats and a magnificent flowering trumpet vine with chalice-like flowers *Solandra maxima*, whilst enjoying the antics of a newly-fledged Kestrel, calling noisily to its nearby parents. In a small pool nearby, five rather sad-looking Moorish Terrapins looked a little out of place...

A walk round onto the city walls gave views over the town and to the snow-capped High Atlas beyond, with plenty of zooming Pallid Swifts and eventually some close fly-by views of a trio of Little Swifts. A White Stork was standing on her nest at the top of a telecoms mast, while a large 'kettle' of others soared up in the distance.

Into the old Medina, where we sampled the retail opportunities offered by various coffee grinders, colourful piles of spices and dried fruits.

We left Taroudannt and headed south towards the edge of the Anti-Atlas, a much lower and older range of mountains than the High Atlas to the north. In the village of Tioute, we called in at the Kasbah Hotel to enjoy the view down on the palmery and the village, and out across the Souss plain to the snow-capped High Atlas in the distance.

Lunch was on the edge of the palmery, where the much-appreciated shade was provided by an amazing structure of metal and cables giving support to 17 wisterias, planted in a circle which over time had grown to create what could only be described as a huge circus tent.

After lunch we set off on a walk along the irrigation channels that are the life blood of the palmery. The Date Palms, *Phoenix dactylifera* require a constant source of water and hence are associated with springs in these arid environments. The dates produced by this palm are harvested from September and stored for later sale (in season at Christmas in the UK) or used as a source of food for the local people. Lining the irrigation channels was the familiar Maidenhair Fern, *Adiantum capillus-veneris*, along with the occasional Brookweed *Samolus valerandi*. Other water-demanding plants including White Poplar *Populus alba* and the Carob tree *Ceratonia siliqua*.

Amongst the palm trees, fields of alfafa, broad beans and barley were growing. Among the cultivated allotments we came across the delicate pink-flowered *Lathyrus clymenum* and the bright *Vicia benghalensis*, along with the sprawling *Convolvulus althaeoides*. The bizarre 'dutchman's pipe' flowers of the climbing birthwort *Aristolochia baetica* were found in bloom along the trackside. This is the foodplant

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of Spanish Festoon, and sure enough a couple of these beautifully-marked butterflies were found flying around the fields.

The day's floral highlight came in the form of a plant first seen on Wildlife Travel's first Morocco trip in 2011, and still flowering in the very same spot: *Linaria ventricosa*, a tall, multi-stalked endemic toadflax with exquisite yellow-ochre flowers tinged with maroon venation and with a mid-lip capped in fine golden hairs. Emerging from the palmery, we enjoyed good views of a soaring Bonelli's Eagle low over the hillside, being mobbed by a trio of Kestrels.

Our final stop was at the Argan oil co-operative in the village of Tioute, a mixture of both modern technology and the traditional, from the room of local women cracking the nuts by hand, through to the pressing machine and bottling process. This is the second oldest co-operative in Morocco founded in 2001, our purchases a direct way to return money to the local population.

Day 5: Wednesday 8th March. Souss Massa National Park

Today was something a little bit different. Instead of our trusty minibus, Mohammed arrived this morning at the head of a convoy of six 4-wheel drives, (four piloted by Mohammeds!) which whisked us off around the outskirts of Agadir to the Souss Massa National Park. After a short introduction to the Park, we entered the Rokein Special Reserve, a 2000 hectare enclosure within the National Park. The difference between 'inside' and 'outside' was immediately obvious: with grazing goats excluded, the ground vegetation was much more extensive and varied, and this year profusely flowering! And happily so, as this provides the necessary food for the browsing animals that make the reserve their home.

The 'Sahelo-Saharan megafauna' is one of the most endangered assemblages of large animals in the world, threatened by a combination of lack of grazing through competition with domestic livestock, primarily goats and camels, and overhunting, with increasing numbers of high powered weapons now freely available across large swathes of their former range (think countries like Libya and Tunisia, Mali and Chad, all countries now more familiar from the nightly news). Once widespread across the arid regions of North Africa, almost all the large mammals of the Sahara are now extremely rare in the wild: four important members of the 'Sahelo-Saharan megafauna' have been "re-wilded" here in the Souss Massa National Park.

First up, we found the handsome Addax, a large, ghostly pale antelope, a native of stony and sandy areas out in the Sahara proper, now down to as few as just three individuals in the wild but obviously doing very well here as we saw good numbers, including courting couples and a sparring pair of males.

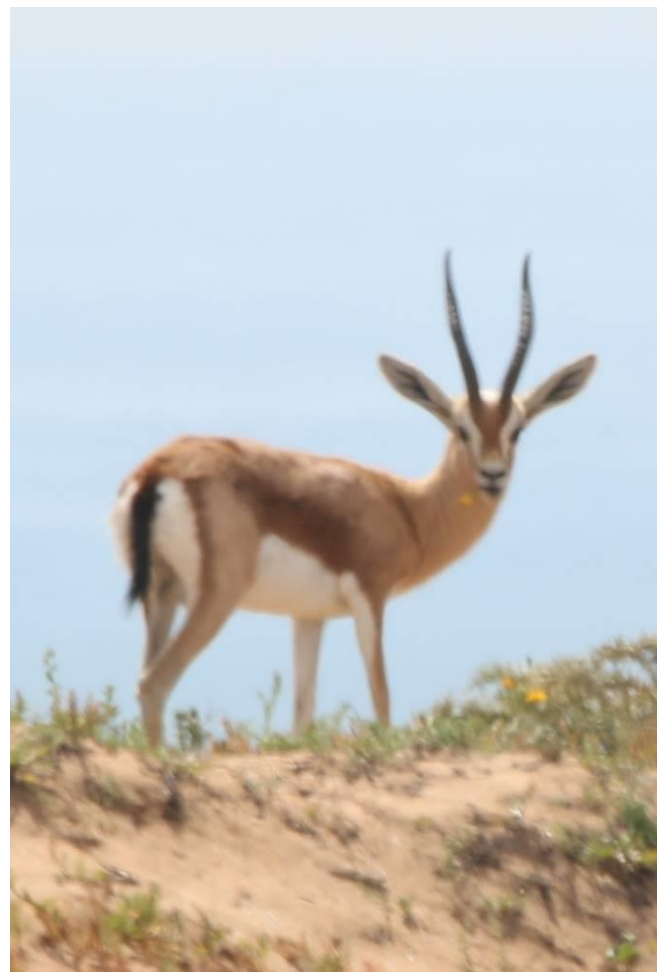
Also here, we enjoyed great views of the Red-necked Ostriches. This North African subspecies is the largest of the Ostriches, making it the largest bird in the world, and is noticeably more colourful than the sub-Saharan birds more familiar from East and Southern African safaris

Somewhat shy were the dainty Dorcas Gazelles, the one antelope still doing reasonably well in the wild.

And to finish off our 'mega-fauna' quartet, the third of the antelopes, and the largest, was the beautiful Scimitar-horned Oryx, with their ginger neck, tear-shaped face markings and swept back scimitar horns, found in the nearby 1200 hectare reserve of Arrouais. This species is now extinct in the wild, with the population here now the largest single herd left on the planet. Hopeful news comes from Chad, where last year a group of captive-born animals was released into a large fenced enclosure in the Ouadi Rime-Ouadi Achime Game Reserve, the last former-stronghold of the species in the wild. In August 2016, after the rainy season had begun, 21 animals were released into the wild, and in September 2016 a single calf was born, the first 'wild born' Scimitar-horned Oryx for over 30 years.

14 more animals were released early this year, and the ambitious target is to have a self-sustaining population of 500 animals within 5 years. Good news indeed, for an animal that really needs some!

Souss Massa National Park



Top: Addax. Left: Red-necked Ostrich. Right: Dorcas Gazelle

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Within the two enclosures, the vegetation consisted mostly of a mix of coastal steppe, planted eucalypt woodland with the Australian Golden Wattle *Acacia pycnantha* and blocks of *Retama monosperma* scrub over old and young sand dunes. The ground flora during the morning was a blaze of colour, with many annuals flowering after the recent rains, including the large pink flowers of *Erodium hesperium* (another species shared between coastal Morocco and the Canary Islands), large patches of *Volutaria lippii* in both blue and pink forms and the little blue borage *Mairetis microsperma* that we first saw near Cap Rhir. A low-growing dwarf shrub, dominating in much of the open steppe area of the first enclosure was *Helianthemum confertum*, with tiny yellow flowers. Once inside the second enclosure the surface was noticeably sandier and we found a second *Helianthemum*, the low-growing *Helianthemum lippii*.

Our final stop was the estuary at Oued Souss. The hot weather had attracted plenty of locals to cool off in the water, so birds were in shorter supply than we had expected, but a good variety of waders along the far side included Curlew, Oystercatcher, Redshank and Grey Plover, with a couple of Greenshank, two Black-tailed Godwits alongside one Bar-tailed Godwit, a few Black-winged Stilts and a scattering of 'little jobs', mostly Kentish Plover and Dunlin, along with Ringed Plover, Little Ringed Plover and one or two tiny Little Stints. A little bit further inland, an Osprey was perched on a pylon, while a single young Greater Flamingo was found amongst the gulls. Also here, a flock of Avocets flew overhead, followed soon after by four Spoonbills, spoons and all...

From here, it was a quick trip through the back streets of southern Agadir back to the Atlas Kasbah, where we were entertained (I think that's the right word...) by a local folk music troop, before a fly-by group of Bee-eaters heading up the valley, and a dinner of beef tagine.

Day 6: Thursday 9th March: Into the Anti-Atlas

Heading south-east we took the road to Ait Baha one of the larger towns in the western Anti Atlas to explore the plants and landscapes of this region. The Anti-Atlas contains some of the oldest rocks in the World, an ancient mountain range which started to form 300 million years ago and once rivalled the Himalayas in height. Today they are much eroded, the highest peaks between 2500—2700m. In comparison the more recent High Atlas only reached their maximum height within the last 10 million years: the tallest peak is Jbel Toubka at 4167m. A major feature of the Anti-Atlas is the highly folded rock strata, numerous valleys and rounded peaks, with many villages still living their traditional lifestyles.

As we approached across the river valley of the Souss we spotted large plants of a grey-leaved fleshy plant up to 3-4 metres tall, the primarily Saharan species, *Calotropis procera* in the Apocynaceae (now home to what was the Asclepidaceae). This highly poisonous plant, with the delightful English name of Sodom's Apple Milkweed, is the larval foodplant of the Plain Tiger, a butterfly related to the well-known Monarch. The caterpillars feed on the toxic plants and are able to tolerate and sequester the plant's steroidal heart poison as a form of defence, making them inedible to predators – alas, this time we couldn't find any caterpillars, and the only adult was seen being despatched by an over-ambitious Crested Lark, who obviously hadn't heard about the poison...

Nearby, an adult Spur-thighed Tortoise of the locally endemic *soussensis* subspecies was found sheltering in the bottom of the thorny 'dead hedge'.

After a coffee stop in Ait Baha, when we could see Ravens soaring along the ridge nearby, and some footwear-related retail opportunities at the famous local cobblers, we climbed further into the Anti-Atlas.

Onwards to our next stop at the tiny village of Laatik, to visit an ancient *agadir*, a fortified grain store dating from the time when local Berber tribes still fought each other (this particular *agadir* is some 770 years old). These buildings are typical of the Anti-Atlas and we saw a few others during the day perched on high ground with commanding views. It was a treat to be taken inside by the local custodian to see the wonderful old architecture, the prison, store rooms accessed by 'stepping stones', a well for freshwater to survive any siege and to get a chance to look inside the store rooms themselves.

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Within the walls of the *agadir* we could hear the now-familiar twittering of House Buntings, while a veritable flock of Spur-thighed Tortoises of varying sizes emerged from the shadows, each painted a fetching green to try and prevent them being trodden on.

Outside the walls, interesting plants included the sweetly-smelling yellow composite *Anvillea garcinii* growing alongside the now-familiar *Cladanthus arabicus* and *Pallenis spinosa* and more of the lovely mauve bindweed *Convolvulus althaeoides*.

Wandering into the nearby fields, we found a circular area of pavement, used for communal threshing of the crops, which was a riot of colour. Chief amongst the flowers were big blue spikes of *Scilla peruviana* along with plenty of *Dipcadi serotinum*, a single plant of *Gladiolus ilyricus*, some Tassel Hyacinths *Leopoldia commosa* and the lovely pink 'knapweed' *Volutaria muricata*.

From here we retraced our steps, stopping on an area of rocky hillside covered with a rock garden of *Euphorbia officinarum*, here growing in the beautifully tight cushions of the *echinarum* form (considered by some to be a distinct subspecies), along with plenty of beautiful purple Barbary Nut irises, the flowers opening out after lunch.

Heading back down towards Ait Baha, on the rocky roadsides some of us enjoyed sightings of the Barbary Ground Squirrels as they scampered about the rocks: better at posing were the Bibron's Agamas, with one particularly colourful male giving us all good looks at his breeding finery.

Our next roadside stop revealed the delicate blue flowers, centred yellow, of *Volutaria crupinoides*, very similar to the endemic *V. maroccana* (which is what we thought these plants were at the time) but told from that species by the saffron yellow (not pale cream) central florets.

Our final stop was a little lower down, where we found one last endemic for the day: the abundant yellow flowered gorse-like *Hesperolaburnum platycarpum*, its flowers smelling very sweetly, leading some to reminisce of Camay soap... This shrub was covering much of the hillside in places, along with Giant Fennel making the hillsides a blaze of yellow. The stems of *Hesperolaburnum* are used to weave baskets such as those seen in the cool anteroom of the agadir. Nearby we also found some amazing clumps of *Linaria ventricosa* in full flower, this Anti-Atlas endemic looking much more impressive here than as a single lonely plant on the edge of an arable field amongst the palm trees at Tioute.

And then it was back home, stopping briefly along the way to admire a migrating kettle of 120 or more Black Kites, and another pause to recharge the alcohol supplies...

Day 7: Friday 11th March. The Western High Atlas

Driving north on the coast road, our route cut inland to explore the foothills of the western High Atlas. Our first stop was within a narrow river gorge at around 200m, the vegetation still very much dominated by Argan trees, where we found some of the little white, low-growing lily *Androcymbium gramineum* flowering on the stony ground. An adult Bonelli's Eagle was displaying over the hillside opposite, swooping up and down in his 'sky dance'.

Our next stop at about 500m was an opportunity to explore the open woodland of *Tetraclinis articulata*, the 'Thuja of the Berbers'. This conifer is primarily found only in Morocco and Algeria, with two small relictual populations in Malta and Andalucia. Morocco holds 600,000ha of the 1Mha world population of the tree. Well-known for its unusual grain and rich colour, tetraclinis wood is handcrafted to produce ornaments and kitchen utensils; its large burrs or *lupias*, a result of 'self-coppicing', a way of coping with wildfires and overgrazing, are much prized by wood-carvers. Its resin, sandarac gum, is used to make a liquor taken as a remedy for cramps, insomnia and difficult childbirths. The name refers to the cones which are split into fours and its finely divided foliage. Also present here were more *Androcymbium* plants in full flower.

The High Atlas



Top: High Atlas shrub, with *Genista tricuspidata*, *Pistacia lentiscus* and *Chamaerops humilis*

Left (top to bottom): *Lavandula marocanna* and *Androcymbium gramineum*.

Centre (top to bottom): *Polygala balansae* and *Lavandula dentata*

Right (top to bottom): *Fritillaria lusitanica* and *Pardoqlossum cheirifolium ssp heterocarpum*

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Reaching the palmery at the start of Paradise Valley, we found nest-building House Martins on the cliff face, basking Moorish Terrapins along the water's edge, Grey Wagtail and a female Black Redstart flitting about the rocks, joined by a pair of Black Wheatears and a brief Blue Rock Thrush.

Unfortunately, the 'quiet side track' where we had planned to walk had recently been scoured out to widen the road for large lorries to collect gravels from further down the river, and we had to make do with a tiny bit of remaining verge to find our target plants: the large-flowered *Lavandula maroccana* found only in the High Atlas and the aromatic *Warionia saharae* bushes growing out of the cliff face, a plant very much of the Sahara that reaches its northerly limit here. Walking a little further along the river, a stand of *Hypericum aegyptiacum* was found growing down by the riverside, along with the Chaste Bush *Vitex agnus-castus*, looking for all the world like dried up buddleia.

Defeated by the heat, we re-boarded the bus and departed from Paradise, heading upwards (ever upwards) towards Immouzer.

As we climbed, the vegetation became increasingly dominated by Thuya, the Argan disappeared and Almonds, Carob and Wild Olive appeared, the windy road giving us some spectacular views back down towards Paradise.

Higher still, and the vegetation became a dwarf scrub community which we stopped to explore: dominated by the yellow-flowered *Genista tricuspidata*, with a new lavender *Lavendula dentata* of the 'standard' variety (not the *var candicans* that we met on the coast), scattered Dwarf Fan Palms and one of the stars of the High Atlas, *Polygala balansae*, a very prickly, glaucous shrubby milkwort, covered in beautiful maroon and yellow flowers. Until very recently this was thought to be a Moroccan endemic, but a small population has now been found in southern Spain, close to Granada.

A short way further on, and after a clamber up a goat track, we found the stunning *Fritillaria lusitanica* growing beneath the milkwort, with the beautiful 'leopard's-tongue' *Pardoglossum cheirifolium* ssp *heterocarpum* growing on the roadside nearby, both species of Iberia and north west Africa. Under foot we found fossil oyster shells, evidence of the submarine geological history of these mountains.

Our lunch stop was below the Cascades du Immouzer at a local restaurant from where we could look up at the 'cascades', which for only the second time in the history of Wildlife Travel's visits to Morocco was actually cascading!

A wander along to look up at the waterfall revealed Capers *Capparis spinosa* and a lovely little yellow Gagea growing on a shady wall, while a short walk into the surrounding olive groves revealed the 'Friar's Cowl' *Arisarum simorhinum* in flower, and a nearby Speckled Wood.

Our next stop was in a valley at about 1300m. Here the southern side was dominated by impressive stands of the Dwarf Fan Palm, *Chamaerops humilis* var. *cerasifera*, the variant with softer glaucous foliage, looking very different to the variety familiar from nurseries back home. On the northern side of the valley, a different vegetation was clearly present, dominated by Holm Oak, *Quercus ilex*, again another indicator of altitude. This is really a tree of the Mediterranean but growing this far south is only found in the cooler and more amenable climate found at altitude in the High Atlas, here forming only a shrub.

One final stop came after we'd crossed the ridge of the mountains at 1550m, where we found a steppe-like dwarf shrub vegetation growing on what was almost limestone pavement. New shrubs here included *Cistus crispus* and the Kermes Oak *Quercus coccifera*, giving the area a more Mediterranean feel. Amongst the rocks we found several plants of the pretty little *Ajuga iva* with deep cerise-pink flowers (unlike the yellow-flowered form seen earlier in the week growing near the Kasbah) and the miniscule daisy, *Bellis annua* subsp. *microcephala*.

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After taking our fill of the impressive views across to the snow-caps of the High Atlas, it was homewards bound, stopping along the way for a Barbary Ground Squirrel that, at last!, paused on the top of a rock for long enough for everyone to see, before heading down, down, down the quiet back lanes to return to the Atlas Kasbah. Friday's in Morocco means vegetable or meat couscous, a fitting meal to mark our last evening.

Day 8: Saturday 12th March. Atlas Kasbah and return home

One final morning wander took some of us back down to the goat track and the increasingly hot hillsides across the road from the hotel.

A party of Bee-eaters flew over, a Western Orphean Warbler appeared in the argan trees, both Corn and Cirl Buntings were singing, some of us glimpsed a Little Owl as it bounded away out of his favourite tree, a female Marsh Harrier flew slowly overhead, making her way north, as was a single Tree Pipit that paused on its journey to Europe to rest in one of the argan trees.

New for the butterfly list were a couple of African Babul Blues hanging around the dwarf *Acacia gummifera* bushes. Plenty of Small Copper, Greenish Black-tip, Cleopatra, Painted Ladies and whites of various kinds were on the wing, but in contrast to a week ago we couldn't find any hairstreaks, either Moroccan or Provencal.

The plants were similar to last weekend, although the purple carpet of *Linaria bipartita* was starting to fade as many of the petals had dropped. New for the list was a little stonecrop with marbled foliage and yellow flowers, *Sedum versicolor*, yet another species endemic to southern Morocco.

After yet another tasty tagine, we had a last couple of hours to relax and enjoy the Atlas Kasbah before mint tea on the terrace provided final refreshment and a chance to thank Mohammed and Rasheeda, M'bark, Hussein, Abderrahmane and the Atlas Kasbah team for our stay and their great hospitality.

Philip Precey and Charlie Rugeroni, Wildlife Travel, March 2017

A gallery of photos from this year's Morocco trips can be found online at
<https://www.flickr.com/photos/wildlifetravel/albums/72157678198458554>

All photos from previous Morocco trips are at
<https://www.flickr.com/photos/wildlifetravel/albums/72157663540671883>

For anyone interested, a useful website of the flora of south-west Morocco is at <http://www.teline.fr/en>

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	SCIENTIFIC NAME	NOTES	First seen
PTERIDOPHYTES			
	<i>Asplenium cf ceterach</i>	The woolly fern on the rocks, similar to Rustback	9 th
	<i>Adiantum capillus-veneris</i>	Maidenhair Fern Along the water channels in the palmery at Tioute	7 th
CONIFERS			
Cupressaceae			
	<i>Cupressus sempervirens</i>	Pencil Cypress In the garden	5 th
	<i>Tetraclinis articulata</i>	Thuja of the Berbers Common higher up in the High Atlas	10 th
Ephedraceae			
	<i>Ephedra fragilis</i>	Joint Pine Scrambling up through bushes: eg amongst the Opuntia in the old village	5 th
Pinaceae			
	<i>Pinus halepensis</i>	Aleppo Pine Planted around Immouzer	10 th
DICOTYLEDONS			
Aizoaceae			
	<i>Carpobrotus acinaciformis</i>	Hottentot Fig eg planted in the garden, along the roadsides around Agadir	5 th
	<i>Aizoon canariense</i>	On the road verge when watching the Black Kites	9 th
	<i>Aizoon (=Aizoanthemum) hispanicum</i>	The fleshy-leaved white flower near the cemetery	6 th
Amaranthaceae			
	<i>Salsola oppositifolia</i>	Papery flowers: thorny shrub around Cap Rhir	6 th
	<i>Chenopodium bonus-henricus</i>	Good King Henry in the Palmery	7 th
Anacardiaceae			
	<i>Pistacia lentiscus</i>	Higher up in the High Atlas	10 th
	<i>Searsia (=Rhus) tripartita</i>	Reddish fruit, three-lobed leaves, 'hawthorn-like' bush near the cemetery	6 th
Apiaceae			
	<i>Eryngium ilicifolium</i>	Along the goat track	5 th
E	<i>Sclerosciadium nodiflorum</i>	The low-growing umbellifer on sandy soil	8 th
	<i>Ferula vulgare</i>	Giant Fennel In the Oryx enclosure and common in the Anti Atlas (9 th)	8 th
Apocyanaceae (includes Asclepiaceae)			
	<i>Calotropis procera</i>	The large, Saharan scrub, food plant of the Plain Tiger	9 th
	<i>Nerium oleander</i>	Oleander In the dried river bed	5 th
	<i>Periploca angustifolia</i>	Clambering vine with bullhorn see pods	5 th
Araceae			
	<i>Arisarum simorhinum</i>	Flowering under the olives at Immouzer (leaves common elsewhere)	10 th
Aristolochiaceae			
	<i>Aristolochia baetica</i>	Abundant in the palmery: vine with 'dutchman's pipe' flowers, the food plant of Spanish Festoon	7 th
Asteraceae			
	<i>Bellis annua ssp microcephala</i>	At the highest point on the High Atlas drive	10 th
	<i>Calendula arvensis</i>	Field Marigold Common arable weed, eg in the garden	5 th
	<i>Catananche arenaria</i>	Creamy, with maroon centre	5 th
	<i>Chrysanthemum coronarium</i>	Crown Daisy	5 th
	<i>Cladanthus arabicus</i>	Large orangey composite with feathery aromatic leaves	5 th
	<i>Evax (=Filago) sp</i>	The tiny cudweed between the two enclosures	8 th
	<i>Ismelia versicolor (=Chrysanthemum carinatum)</i>	The three-coloured daisy between the two enclosures	8 th
E	<i>Kleinia (=Senecio) anteuphorbium</i>	Succulent shrubby 'groundsel' around Cap Rhir	6 th
	<i>Launaea arborescens</i>	Chicken wire bush	5 th
E	<i>Nauplius imbricatus</i>	Fragrant leaves, yellow flowers: bush around Cap Rhir	6 th

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	SCIENTIFIC NAME	NOTES	First seen
	<i>Onopordum cf macranthum</i>	The large thistle between the animal enclosures	8 th
	<i>Pallenis spinosa</i>	Spiny bracts	6 th
	<i>Phagnalon saxatile</i>		11 th
	<i>Phagnalon rupestre</i>		11 th
	<i>Volutaria lippii</i>	The common blue 'knapweed', a frequent annual in the garden and field edges	5 th
	<i>Volutaria mucronata</i>	The pinky 'knapweed' in the Anti Atlas	9 th
	<i>Volutaria crupinoides</i>	The blue and yellow 'knapweed' in the Anti Atlas, that we thought was maroccana	9 th
	<i>Warionia saharae</i>	The sweetly-scented desert shrub, growing high up on a cliff in Paradise Valley	10 th
Balanophoraceae			
	<i>Cynomorum coccineum</i>	Sandy soil near Cap Rhir	6 th
Boraginaceae			
	<i>Echium horridum</i>	The red 'bugloss' with long spines	5 th
	<i>Mairetis microsperma</i>	Little blue 'borage' on the roadside: endemic to Morocco and the Canaries	6 th
	<i>Nonea (=Elizaldia) calycina</i>	Yellow and brown flowers: the Saharan flower on the roadside	6 th
	<i>Pardoglossum (=Cynoglossum) cheirifolium ssp heterocarpum</i>	The lovely little 'hound's tongue' at the roadside when looking at the fritillaries	5 th
	<i>Heliotropium crispum</i>	The white heliotrope on the goat track	5 th
Brassicaceae			
	<i>Cakile maritime</i>	Sea Rocket	6 th
	<i>Biscutella didyma</i>	Weedy yellow brassica: at the highest stop in the High Atlas	10 th
	<i>Malcolmia littorea</i>	Sea Stock	6 th
	<i>Mattiola littorea</i>		6 th
	<i>Sinapis arvensis</i>	Charlock In the animal enclosures	8 th
Cactaceae			
	<i>Opuntia ficus-barbarica (=O ficus-indica)</i>	Fig of the Berbers An invasive, domesticated cactus, originating in Mexico, common around villages	5 th
	<i>Austrocylindropuntia subulata</i>	The cylindrical cactus, introduced from Peru	5 th
Cappariaceae			
	<i>Capparis spinosa</i>	Caper. In the shade near the lunch spot, Immouzer	10 th
Caryophyllaceae			
	<i>Paronychia argentea</i>	Papery white flowers	5 th
	<i>Polycarpaea nivea</i>	Encrusted grey semi-shrub, Cap Rhir	6 th
	<i>Silene virescens</i>	The tiny pink	5 th
	<i>Spergularia fimbriata</i>		5 th
	<i>Spergularia purpurea</i>		5 th
Casuarinaceae			
	<i>Casuarina equisetifolia</i>	Australian introduction, in the garden	5 th
Chenopodiaceae			
	<i>Suaeda vera</i>	Shrubs in the dunes at Oued Tamri	6 th
Cistaceae			
	<i>Cistus crispus</i>	In the High Atlas: not yet in flower	10 th
	<i>Helianthemum canariense</i>	Endemic to Morocco and the Canaries: near the cemetery at Cap Rhir	6 th
	<i>Helianthemum confertum</i>	In the first animal enclosure	8 th
	<i>Helianthemum lippi</i>	In the second animal enclosure	8 th
Convolvulaceae			
	<i>Convolvulus althaeoides</i>	Large pink flowered bindweed, eg around the garden, field margins etc	5 th
E	<i>Convolvulus glauorum</i>	The large white-flowered convolvulus with the leaves like althaeoides	10 th

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	SCIENTIFIC NAME	NOTES	First seen
Crassulaceae			
E	<i>Sedum versicolor</i>	Yellow-flowered stonecrop with marbled leaves, on the goat track: endemic to southern Morocco	11 th
	<i>Umbilicus rupestris</i>	Navelwort Amongst the rocks	9 th
Cucurbitaceae			
	<i>Bryonia dioica</i>	White Bryony	5 th
Cuscutaceae			
	<i>Cuscuta sp</i>	a Dodder	5 th
Euphorbiaceae			
	<i>Euphorbia helioscopia</i>	Sun Spurge Annual weed, in the barley fields amongst the palmery	7 th
	<i>Euphorbia peplus</i>	Petty Spurge Eg in the garden: ruderal weed	5 th
	<i>Euphorbia exigua</i>	Dwarf Spurge Annual weed, in the barley fields amongst the palmery	7 th
	<i>Euphorbia officinarum</i>	The 'cactus'-like succulent, around Cap Rhir (var officinarum, growing tall, columnar, endemic to Morocco) and in the Anti Atlas (var echinum, growing in dense cushions, also found in Mauretania)	6 th
	<i>Euphorbia paralias</i>	Sea Spurge On the beach at Oued Tamri	6 th
	<i>Euphorbia regis-jubae</i>	Lime green, shrub-forming Euphorbia around Cap Rhir. Endemic to Morocco and the Canary Islands	6 th
	<i>Ricinus communis</i>	Castor Bean Plant roadside weed	8 th
Fabaceae			
E	<i>Acacia gummifera</i>	Small bush, red stems, fine leaves	5 th
	<i>Acacia saligna</i>	Golden Wattle Australian, planted in the garden and common in the animal enclosures at Sous Massa	5 th
	<i>Ceratonia siliqua</i>	Carob Planted in the garden, and in the palmery at Tioute	5 th
	<i>Coronilla scorpioides</i>	Along the goat track	11 th
	<i>Chamaecytisus mollis</i>	White-flowered spiny shrub along the goat track	11 th
	<i>Genista tricuspidata</i>	The yellow 'gorse' all over the High Atlas hillsides	10 th
E	<i>Hesperolaburnum platycarpum</i>	The common yellow 'gorse' in the Anti Atlas: sweetly smelling flowers, stems used for basket weaving	9 th
	<i>Lathyrus clymenum</i>	Delicate pink pea flower, the pale-flowered form, amongst the barley in the palmery	7 th
	<i>Lotus creticus</i>	The yellow bird's foot trefoil	5 th
	<i>Ononis natrix</i>	Smelly, sticky leaves, yellow restharrow along roadsides	5 th
	<i>Retama monosperma</i>	The white-flowered broom	8 th
	<i>Tripodion tetraphylla</i>	Bladder Vetch Near the cemetery	6 th
	<i>Vicia benghalensis</i>	The deep maroon vetch amongst the barley, in the palmery	7 th
Fagaceae			
	<i>Quercus ilex</i>	Holm Oak The tree-forming oak in the High Atlas	10 th
	<i>Quercus coccifera</i>	Kermes Oak The spiky-leaved shrubby oak in the High Atlas	10 th
Frankeniaceae			
e	<i>Frankenia laevis ssp velutina</i>	Larger flowered, encrusted stems	6 th
	<i>Frankenia boissieri</i>	Smaller flowers, forming domed clumps	6 th
Geraniaceae			
	<i>Erodium hesperium</i>	Large-flowered pink stork's-bill Sous Massa. Endemic to Morocco and the Canaries	8 th
Hypericaceae			
	<i>Hypericum aegytiacum</i>	Along the river in Paradise Valley	10 th

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	SCIENTIFIC NAME	NOTES	First seen
Lamiaceae			
	<i>Ajuga iva</i>	Arable weed, in the palmery, with yellow flowers: pink flowered form in the High Atlas.	7 th
	<i>Lavandula dentata</i> var <i>candicans</i>	Around Cap Rhir: velvety grey leaves, small flowers	6 th
	<i>Lavandula dentata</i>	The 'standard' variety, in the High Atlas	10 th
E	<i>Lavandula maroccana</i>	Large blue flowers: on the cliff at Paradise Valley	10 th
	<i>Lavandula multifida</i>	Pinnate leaves, medium-large flowers. eg the goat track near the hotel; common in the palmery at Tioute	5 th
	<i>Marrubium vulgare</i>	White Horehound in the old village	5 th
	<i>Salvia aegyptiaca</i>	The little 'desert sage', common in dry, rocky places	5 th
E	<i>Thymus broussonnetii</i> ssp <i>hannonis</i>	The large-flowered thyme at Cap Rhir: the species is endemic to Morocco, and this subspecies is found only at Cap Rhir!	6 th
	<i>Teucrium capitatum</i>	Tiny deep-red flowers, grey leaves	6 th
Malvaceae			
	<i>Hibiscus rosa-sinensis</i>	Hibiscus in the garden	5 th
	<i>Hibiscus tileaceae</i>	Cotton Bush in the garden	5 th
	<i>Malva parviflora</i>	The small flowered mallow, a common weed during the trip	5 th
Moraceae			
	<i>Ficus carica</i>	Common Fig Common in the palmery at Tioute. Four massive ancient trees in the Palais Hotel grounds, Taroudant. Near the cascades at Immuouzer	7 th
	<i>Ficus elastic</i>	Rubber Fig A massive specimen in the harem courtyard, Palais Hotel ground, Taroudant	7 th
	<i>Ficus lyrata</i>	Fiddle-leaf Fig The third species of fig in the Palais Hotel grounds, Taroudant: commonly sold as a house plant (eg at Ikea!)	7 th
Myoporaceae			
	<i>Myoporum laetum</i>	The white-flowered plant planted as a hedge around the hotel garden: introduced from New Zealand	5 th
Neuralesae			
	<i>Dombeya cayeuxii</i>	The 'pom pom' tree outside the Hotel Palais, Taroudant	7 th
Nyctaginaceae			
	<i>Bougainvillea</i> sp	Common planted shrubs around towns, eg the hotel garden	5 th
Orobanchaceae			
	<i>Cistanche phelypaea</i>	Desert Hyacinth Big yellow spikes in sandy soil	6 th
	<i>Orobanche foetida</i>	The large, deep red broomrape, parasitizing Ononis, Sous Massa	8 th
	<i>Phelipanche</i> (=Orobanche) <i>mutellii</i>	The small lilac broomrape, Sous Massa	8 th
E	<i>Striga barthlottii</i>	Parasitic on Euphorbia officinarum	6 th
Oleaceae			
	<i>Olea europaea</i>	Olive Wild in the High Atlas, planted in the hotel grounds	10 th
Papaveraceae			
	<i>Glaucium corniculatum</i>	Long-horned Poppy Washed-out reddish flowers	5 th
Plantaginaceae (inc Globulariaceae and part of Scrophulariaceae)			
	<i>Globularia alypum</i>	Near the <i>Tetraclinis</i> in the lower High Atlas	10 th
E	<i>Linaria bipartita</i>	Carpets under the argan trees, purple annual	5 th
E	<i>Linaria ventricosa</i>	The tall, creamy yellow toadflax, striped with maroon. On the edge of the palmery at Tioute, and common at the roadside in the Anti Atlas	7 th
	<i>Misopates oronticum</i>	Weasel's Snout eg the garden	5 th
	<i>Nanorrhinum heterophylla</i>	Scrambling yellow 'snapdragon'	6 th
	<i>Plantago afra</i>	The branched plantain, eg the palmery	7 th

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	SCIENTIFIC NAME	NOTES	First seen
	<i>Plantago albicans</i>	The tall, silvery-leaved plantain , eg Cap Rhir	6 th
	<i>Plantago cf ovata</i>	A short, round-headed plantain with hairy, narrow leaves, eg Sous Massa	8 th
Plumbaginaceae			
	<i>Limonium sinuatum</i>	Winged stems, blue and white flowers	5 th
E	<i>Limonium mucronatum</i>	Very winged stems, small pink flowers	6 th
	<i>Limonium lobatum</i>	Small sea lavender near the cemetery: pale white flowers in soft blue calyx	6 th
Polygalaceae			
	<i>Polygala balansae</i>	The purple and yellow-flowered shrubby milkwort in the High Atlas. Near-endemic, with one other population near Granada in Spain	10 th
Polygonaceae			
	<i>Emex spinosa</i>	The spiny 'dock', common roadside weed	5 th
	<i>Rumex vesicarius</i>	Bladder Dock Pinkish-flushed inflated calyx	5 th
Primulaceae			
	<i>Anagallis arvensis</i>	Scarlet Pimpernel Common form with blue flowers	5 th
	<i>Samolus valerandi</i>	Brookweed Along the watercourse edges in the palmery	7 th
Ranunculaceae			
	<i>Adonis sp.</i>	A pheasant's-eye three-petalled, orangey flower, between the enclosures	8 th
	<i>Ranunculus spicatus</i>	The buttercup at the Fritillary stop	10 th
Resedaceae			
	<i>Reseda lutea</i>	Wild Mignonette	5 th
	<i>Reseda alba</i>	White Mignonette	5 th
Rhamnaceae			
	<i>Zizyphus lotus</i>	Very spiny hedging bush. Foodplant of the Common Tiger Blue	5 th
Rosaceae			
	<i>Prunus dulcis</i>	Almond In the High Atlas	10 th
Rubiaceae			
	<i>Rubia peregrina</i>	In the palmery: like a large goosegrass	7 th
Sapotaceae			
E	<i>Argania spinosa</i>	Argan	5 th
Scrophulariaceae			
	<i>Scrophularia peregrina</i>	Nettle-leaved Figwort in the old village	5 th
Solanaceae			
	<i>Hyoscyamus albus</i>	White Henbane outside the palmery	7 th
	<i>Lycium intricatum</i>	Purple tubular flowers, near Cap Rhir	6 th
	<i>Nicotiana glaucum</i>	South American weed in the village, at roadsides	5 th
	<i>Solandra maxima</i>	The big trumpet vine in the hotel gardens, Taroudant	7 th
	<i>Withania somnifera</i>	Hedges near the hotel	5 th
	<i>Withania frutescens</i>	In the palmery, with smaller flowers and furry leaves	7 th
Tamaricaceae			
	<i>Tamarix gallica</i>	French Tamarisk	6 th
Urticaceae			
	<i>Urtica pilulifera</i>	Roman Nettle pom-pom flowers	5 th
Verbenaceae			
	<i>Verbena officinalis</i>	Vervain Field edges, in the Palmery	7 th
	<i>Vitex agnus-castus</i>	Chaste Bush Along the river bank in Paradise Valley. Used to make a tea to control the urges of monks...	10 th
Zygophyllaceae			
	<i>Fagonia cretica</i>	Scrambling plant with purple flowers, seed heads turn downwards on fruiting.	5 th

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	SCIENTIFIC NAME	NOTES	First seen
MONOCOTYLEDONS			
Araceae			
	<i>Chamaerops humilis</i> var <i>cerifera</i>	Dwarf Fan Palm The glaucous form, in the High Atlas	10 th
	<i>Phoenix dactylifera</i>	Date Palm A common roadside tree. Some wonderful old trees in the palmery at Tioute.	7 th
	<i>Washingtonia filifera</i>	A common planted roadside tree.	7 th
Asparagaceae			
	<i>Asparagus acutifolius</i>	The scrambling wild asparagus in the Palmery	7 th
	<i>Asparagus albus</i>	The spiny, shrubby asparagus, with pale stems	9 th
	<i>Dipcadi serotinum</i>	The brown 'bluebell', in dry stony or sandy places: eg the goat track near the hotel; the threshing pavement near the village agadir	5 th
	<i>Leopoldia</i> (= <i>Muscari</i>) <i>comosa</i>	Tassell Hyacinth On the threshing pavement near the village agadir	9 th
	<i>Scilla peruviana</i>	The big blue Scilla growing on the threshing pavement, near the village agadir	9 th
Cyperaceae			
	<i>Cyperus capitatus</i>	The little sedge in the sand at Cap Rhir	6 th
Iridaceae			
	<i>Gladiolus ilyricus</i>	One flower near the agadir	9 th
	<i>Gynandris sisyinchium</i>	Barbary Nut The little purple iris, opened out in the afternoon sun	5 th
Colchicaceae			
	<i>Androcymbium gramineum</i>	The low-growing white lily, near the <i>Tetraclinis</i>	10 th
Liliaceae			
	<i>Gagea</i> sp.	The yellow Gagea at Immouzer	10 th
	<i>Fritillaria lusitanica</i>	Immouzer	10 th
Poaceae			
	<i>Arundo donax</i>	Giant Reed	5 th
	<i>Lamarckia aurea</i>	Feathery grass	5 th
Xanthorrhoeaceae			
	<i>Asphodelus ramosus</i> ssp <i>nervosus</i>	broad-leaved asphodel	5 th
	<i>Asphodelus fistulosus</i>	fine-leaved asphodel on grazed hillsides	5 th
	<i>Urginea maritima</i>	Sea Squill Tulip-like leaves on grazed hillsides	5 th

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	ENGLISH NAME	LATIN NAME	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th
	Family Ratidae (Ratites)									
	Red-necked Ostrich	<i>Struthio camelus camelus</i>					X			
		This sub-species is now Critically Endangered : once widespread across northern Africa, they now survive in the wild just in Cameroon, Chad and Central African Republic, as well as in a couple of National Parks in Tunisia where, like here, they have been reintroduced. This subspecies has also been introduced to a national park in Saudi Arabia and to Israel, within the range of the now-extinct <i>syriacus</i> subspecies.								
	Family Anatidae (Ducks, Geese & Swans)									
	Mallard	<i>Anas platyrhynchos</i>			X					
	Family Phasianidae (Pheasants and Partridges)									
	Barbary Partridge	<i>Alectoris barbara</i>		X					X	
	Family Sulidae (Gannets)									
	Gannet	<i>Morus bassanus</i>			X					
	Family Phalacrocoracidae (Cormorants)									
	Great Cormorant	<i>Phalacrocorax (carbo) carbo/sinensis</i>			X		X			
	Family Ardeidae (Hérons)									
	Western Cattle Egret	<i>Bubulcus ibis</i>				X	X	X		
	Little Egret	<i>Egretta garzetta</i>			X					
	Grey Heron	<i>Ardea cinerea</i>			X		X			
	Family Ciconiidae (Storks)									
	White Stork	<i>Ciconia ciconia</i>				X	X	X		
	Family Threskiornithidae (Spoonbills and Ibises)									
	Northern Bald Ibis	<i>Geronticus eremita</i>			8					
		Currently categorised as Critically Endangered , during the 2015 breeding season a record count of 116 nesting pairs was made, and by the end of 2015 the total wild population in Morocco was over 600 individuals, up from 433 at the end of 2013. Outside Morocco, around 100 birds live in semi-captivity at Birecik in Turkey. By 2015 just a single bird survived at the recently discovered but seemingly doomed colony near Palmyra in Syria, from where there has been no news since the civil war.								
		A recently reintroduced population in southern Spain now numbers around 80 released birds, and the first breeding took place in 2008.								
	Spoonbill	<i>Platalea leucorodia</i>			X		X			
	Family Phoenicopteridae (Flamingoes)									
	Greater Flamingo	<i>Phoenicopterus roseus</i>					X			
	Family Pandionidae (Ospreys)									
	Osprey	<i>Pandion haliaetus</i>					X			
	Family Accipitridae (Hawks and Eagles)									
	Bonelli's Eagle	<i>Aquila fasciata</i>				X			X	
	Booted Eagle	<i>Aquila pennata</i>						X		
	Short-toed Eagle	<i>Circaetus gallicus</i>				X				
	Black Kite	<i>Milvus migrans</i>				X		X		
	Black-winged Kite	<i>Elanus caeruleus</i>				X				
	Marsh Harrier	<i>Circus aeruginosus</i>				X		X		X
	Family Falconidae (Falcons)									
	Kestrel	<i>Falco tinnunculus</i>		X	X	X	X	X	X	X
	Family Recurvirostridae (Avocets and Stilts)									
	Avocet	<i>Recurvirostra avosetta</i>					X			
	Black-winged Stilt	<i>Himantopus himantopus</i>					X			

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Family Burhinidae (Stone curlews)										
	Stone Curlew	<i>Burhinus oediconemus</i>					X	X		
Family Haematopidae (Oystercatchers)										
	Oystercatcher	<i>Haematopus ostralegus</i>					X			
Family Scolopacidae (Sandpipers)										
	Dunlin	<i>Calidris alpina</i>					X			
	Little Stint	<i>Calidris minuta</i>					X			
	Curlew	<i>Numenius arquata</i>					X			
	Black-tailed Godwit	<i>Limosa limosa</i>					X			
	Bar-tailed Godwit	<i>Limosa lapponica</i>					X			
	Redshank	<i>Tringa totanus</i>					X			
	Greenshank	<i>Tringa nebularia</i>					X			
Family Charadriidae (Plovers)										
	Little Ringed Plover	<i>Charadrius dubius</i>			X		X			
	Ringed Plover	<i>Charadrius hiaticula</i>					X			
	Kentish Plover	<i>Charadrius alexandrinus</i>					X			
	Grey Plover	<i>Pluvialis squatarola</i>					X			
Family Laridae (Gulls)										
	Black-headed Gull	<i>Chroicocephalus ridibundus</i>					X			
	Audouin's Gull	<i>Ichthyaetus audouinii</i>			X					
	Yellow-legged Gull	<i>Larus michahellis</i>		X	X	X	X	X	X	X
	Lesser Black-backed Gull	<i>Larus fuscus</i>			X	X	X	X	X	X
Family Sternidae (Terns)										
	Sandwich Tern	<i>Sterna sandvicensis</i>					X			
Family Columbidae (Pigeons and Doves)										
	Rock Dove/Feral Pigeon	<i>Columba livia</i>		X	X	X	X	X	X	X
	Woodpigeon	<i>Columba palumbus</i>				X	X	X	X	
	Collared Dove	<i>Streptopelia decaocto</i>		X	X	X	X	X	X	X
	Turtle Dove	<i>Streptopelia turtur</i>							X	
	Laughing Dove	<i>Streptopelia senegalensis</i>		X						X
Family Cuculidae (Cuckoos)										
	Cuckoo	<i>Cuculus canorus</i>							H	H
Family Strigidae (Owls)										
	Little Owl	<i>Athene noctua</i>						X	X	X
		The paler races of Little Owl are split by some authorities as Lilith's Owl <i>Athene glaux</i> , found across North Africa and from southern Romania east across the Middle East and Central Asia.								
Family Apodidae (Swifts)										
	Swift	<i>Apus apus</i>						X		
	Pallid Swift	<i>Apus pallidus</i>		x	X	X	X	X	X	X
	Little Swift	<i>Apus affinis</i>				X			X	
Family Meropidae (Bee-eaters)										
	Bee-eater	<i>Merops apiaster</i>		X		X	X	X		X
Family Upupidae (Hoopoes)										
	Hoopoe	<i>Upupa epops</i>					X			
Family Alaudidae (Larks)										
	Crested Lark	<i>Galerida cristata</i>				X	X	X	X	
	Thekla Lark	<i>Galerida theklae</i>		X	X			X	X	X
		We identified our larks using the very un-rigorous logic that the birds in rocky areas, who frequently sang from tree tops and included a lot of mimicry in their songs were Thekla Larks, while those in the flat arable fields were Crested Larks.								

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Family Hirundinidae (Swallows and Martins)										
	House Martin	<i>Delichon urbica</i>							X	
	Red-rumped Swallow	<i>Hirundo daurica</i>				X			X	
	Swallow	<i>Hirundo rustica</i>		X	X	X	X	X	X	X
	Sand Martin	<i>Riparia riparia</i>							X	
Family Motacillidae (Pipits and Wagtails)										
	White Wagtail	<i>Motacilla (a.) alba</i>		X		X	X	X	X	
	Moroccan Wagtail	<i>Motacilla (a.) subpersonata</i>			X					
		The very-distinctive <i>subpersonata</i> form is endemic to Morocco, and split by some authorities from the White Wagtail as <i>Motacilla subpersonata</i>								
	Grey Wagtail	<i>Motacilla cinerea</i>							X	
	Meadow Pipit	<i>Anthus pratensis</i>					X			
	Tree Pipit	<i>Anthus trivialis</i>								X
Family Muscicapidae (Flycatchers and Chats)										
	Black Redstart	<i>Phoenicurus ochruros</i>			X				X	
	Moussier's Redstart	<i>Phoenicurus moussieri</i>		X	X	X	X	X		X
	Western Black-eared Wheatear	<i>Oenanthe (h.) hispanica</i>					X			
	Black Wheatear	<i>Oenanthe leucura</i>		X	X			X	X	
	Blue Rock Thrush	<i>Monticola solitarius</i>		X	X	X			X	
Family Turdidae (Thrushes)										
	Blackbird	<i>Turdus merula</i>		X	X	X	X	X	X	X
Family Sylviidae (Sylviid Warblers)										
	Blackcap	<i>Sylvia atricapilla</i>			X	X				
	Sardinian Warbler	<i>Sylvia melanocephala</i>		X	X	X	X			X
	Western Orphean Warbler	<i>Sylvia hortensis</i>								X
	Western Subalpine Warbler	<i>Sylvia cantillans</i>							X	
	Spectacled Warbler	<i>Sylvia conspicillata</i>			X					
Family Phylloscopidae (Leaf Warblers)										
	Common/Iberian Chiffchaff	<i>Phylloscopus collybita/ibericus</i>		X	X	X	X	X	X	X
		Both species pass through Morocco at this time of year: the only bird we heard singing (the easiest way to tell the two species apart without amazingly good views and close study) was a Common Chiffchaff.								
Family Cisticolidae (Cisticolas)										
	Zitting Cisticola	<i>Cisticola juncidis</i>			X		H			
Family Paridae (Tits)										
	Great Tit	<i>Parus major</i>		X	X	X	X	X	X	X
Family Laniidae (Shrikes)										
	Southern Grey Shrike	<i>Lanius elegans</i>			X	X	X	X	X	
	Woodchat Shrike	<i>Lanius senator</i>		X	X			X		X
Family Malaconotidae (Tchagras)										
	Black-crowned Tchagra	<i>Tchagra senegalus</i>			H					
Family Pycnonotidae (Bulbuls)										
	Common Bulbul	<i>Pycnonotus barbatus</i>		X	X	X	X	X	X	X
Family Corvidae (Crows)										
	Maghreb Magpie	<i>Pica (pica) mauritanica</i>		X	X	X	X	X	X	X
		The very-distinctive form from North Africa has bare blue skin around the eye, smaller white shoulder patches, a matt black (rather than oily glossy black) tail and seems smaller bodied and longer tailed than the European Magpie, from which it is split by some authorities as <i>Pica mauritanica</i> .								
	Raven	<i>Corvus corax</i>						X		

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Family Sturnidae (Starlings)										
	Spotless Starling	<i>Sturnus unicolor</i>			X	X	X	X	X	X
Family Passeridae (Sparrows)										
	House Sparrow	<i>Passer domesticus</i>		X	X	X	X	X	X	X
Family Fringillidae (Finches)										
	North African Chaffinch	<i>Fringilla coelebs africana</i>		X		X			X	X
	Greenfinch	<i>Carduelis chloris</i>				X	X	X	X	
	Linnet	<i>Carduelis cannabina</i>		X	X		X	X		X
	Serin	<i>Serinus serinus</i>		X		X	X			X
Family Emberizidae (Buntings)										
	Corn Bunting	<i>Miliaria calandra</i>				X		X	X	X
	House Bunting	<i>Emberiza sahari</i>		X	X	X	X	X	X	X
	Cirl Bunting	<i>Emberiza cirlus</i>						H		X



Top: House Bunting (female)
 Bottom left: Stone Curlew.
 Bottom Right: Maghreb Magpie

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	ENGLISH NAME	LATIN NAME	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th
AMPHIBIANS & REPTILES										
	North African Water Frog	<i>Pelophylax saharica</i>		X		X			X	X
	Spur-thighed Tortoise	<i>Testudo graeca soussensis</i>			X		X	X		
	Moorish Terrapin	<i>Mauremys leprosa saharica</i>				X			X	
	Moorish Gecko	<i>Tarentola mauretanica</i>			X			X		
E	Moroccan Lizard-toed Gecko	<i>Saurodactylus brosseti</i>			X			X		
E	Moroccan Day-Gecko	<i>Quedenfeldtia moerens</i>							X	
	Bibron's Agama	<i>Agama impalearis</i>		X	X			X	X	
	Busack's Fringe-toed Lizard	<i>Acanthodactylus (pardalis) busacki</i>			X		X			
MAMMALS										
	Dromedary	<i>Camelus dromedarius</i>				X	X			
	Dorcas Gazelle	<i>Gazella dorcas</i>					X			
		Currently categorised as Vulnerable by the IUCN, suffering a decline of more than 30% in the last 20 years. Found throughout the Sahel and Sahara, from Morocco to Djibouti and extending into Jordan, Syria and southern Israel. Threatened by over-hunting and loss of habitat through over-grazing.								
	Addax	<i>Addax nasomaculatus</i>					X			
		Currently categorised as Critically Endangered by the IUCN. Once found throughout the Sahel and Sahara, Addax have suffered from over-hunting and loss of habitat through over-grazing: the total wild population may now be as few as 3 individuals, in the deserts between northern Niger and Chad. 70 animals were introduced to the enclosure at Souss Massa NP in the mid-1990s, and the population here probably now numbers around 600 individuals. A second managed population is present in Bou Hedma NP in Tunisia. These two populations are now being used for a re-introduction programme in Tunisia, with others planned for Morocco and the Mali/Mauritanian border.								
	Scimitar-horned Oryx	<i>Oryx dammah</i>					X			
		Currently categorised as Extinct in the Wild by the IUCN. Once found throughout the Sahara and Sahel, the last wild populations were lost from Chad and Niger during the late 1980s: the last wild animals were seen in 1988. There are managed populations in fenced enclosures in Senegal and Tunisia, but the largest population is in Souss Massa NP, where around 250 animals can be found in the Arrouais enclosure. A reintroduction project is currently underway for the 78,000 km ² Ouadi Rimé-Ouadi Achim Game Reserve in central Chad, where the first wild calf for at least 30 years was born in late 2016. In common with the other antelopes, threatened by over-hunting and loss of habitat through over-grazing.								
	Minke Whale	<i>Balaenoptera acutorostrata</i>			X					
		The bones of a long-dead (washed up more than a year ago) animal were on the beach at Oued Tamri on 6 th .								
	Barbary Ground Squirrel	<i>Atlantoxerus getulus</i>						X	X	

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BUTTERFLIES									
Family Papilionidae (Swallowtails)									
Spanish Festoon	<i>Zerynthia rumina</i>				X				
Family Pieridae (Whites)									
Moroccan Orange Tip	<i>Anthocharis belia</i>		X	X	X	X		X	
Orange Tip	<i>Anthocharis cardamine</i>				X				
Greenish Black-tip	<i>Euchloe charltonia</i>		X	X		X	X	X	X
Large White	<i>Pieris brassicae</i>		X		X		X	X	X
Small White	<i>Pieris rapae mauretanica</i>		X		X		X	X	X
Bath White	<i>Pontia daplidice</i>		X					X	X
Clouded Yellow	<i>Colias croceus</i>		X	x	X	X	X	X	X
Cleopatra	<i>Gonopteryx cleopatra</i>		X					X	X
Family Nymphalidae (Admirals and Fritillaries)									
Painted Lady	<i>Vanessa cardui</i>		X	X	X	X	X	X	X
Red Admiral	<i>Vanessa atalanta</i>		X	X	X	X	X	X	X
Family Satyridae (Browns)									
Speckled Wood	<i>Pararge aegeria</i>		X		X			X	
Family Danaidae (Monarchs)									
Plain Tiger	<i>Danaus chrysippus</i>						X		
Family Lycaenidae (Blues & Coppers)									
Moroccan Hairstreak	<i>Tomares mauretanicus</i>		X						
Provencal Haistreak	<i>Tomares ballus</i>		X				X		
Small Copper	<i>Lycaena phlaeas</i>		X	X	X				X
Common Tiger Blue	<i>Tarucus theophrastus</i>		X						
African Babul Blue	<i>Azanus jesus</i>								X
False Baton Blue	<i>Pseudophilotes abencerragus</i>					X		X	
MISCELLANEOUS									
Vagrant Emperor	<i>Hemianax ephippiger</i>	The sandy-grey hawker butterfly, seen most days. This species is an irruptive breeder in temporary pools in the desert.							
Hummingbird Hawk-moth	<i>Macroglossum stellarum</i>	Seen once or twice in the garden							
Crimson Speckled	<i>Utetheisa pulchella</i>	The white moth with black and red spots							
a burnet moth	<i>Amata mogadorensis</i>	The black moth with white spots and red bands on the abdomen, seen in the palmery							
a scorpion	<i>Buthus sp</i>	The yellow scorpion found under rocks							