

# Wildlife Travel



## Morocco species lists and trip report, 11<sup>th</sup> to 18<sup>th</sup> March 2017

#	DATE	LOCATIONS & NOTES
1	11 <sup>th</sup> March	Evening arrival at Agadir, transfer to Atlas Kasbah
2	12 <sup>th</sup> March	Atlas Kasbah and local area.
3	13 <sup>th</sup> March	Atlantic Coast: Oued Tamri & Cap Rhir
4	14 <sup>th</sup> March	Taroudant & Tioute Palmery
5	15 <sup>th</sup> March	Sous Massa National Park
6	16 <sup>th</sup> March	Anti Atlas: Ait Baha and agadir at Laatik
7	17 <sup>th</sup> March	Western High Atlas: Paradise Valley to the Cascades du Immouzer
8	18 <sup>th</sup> March	Atlas Kasbah and local area. Evening flight back to UK

### Leaders

Philip Precey  
Jess Hatchett

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### Day 1: Saturday 11<sup>th</sup> March. Gatwick to Agadir

After a delay of a couple of hours at Gatwick waiting for Portuguese air traffic control to find us a spot, our 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 12<sup>th</sup> March. Atlas Kasbah and Tighanimine El Baz

This morning, 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 posing very frog-like on a lily pad, 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, 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. Colour came in the form of the lovely little purple toadflax *Linaria bipartita*, a Moroccan endemic; the red prickly bugloss *Echium horridum*; the blue cornflower-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; the star-like yellow flowers and succulent marbled leaves of the little *Sedum versicolor*, a stonecrop endemic to southern Morocco; 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 multifida*.

With the blue skies and warm sun, butterflies were a feature of the morning. Alongside species familiar from home (Painted Lady, Red Admiral, both Large and Small Whites, 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 the mottled Bath White.

For the birders, highlights came in the form of our first Moussier's Redstart, a smart little male of this most beautiful of North African specialities; a male Woodchat Shrike perched at the top of an Argan bush; a lumbering Western Orphean Warbler (the jumbo Lesser Whitethroat) showing well as he moved quietly through the bushes, at one point posing handily close to a Sardinian Warbler helping us to compare and contrast; a kettle of soaring White Storks, making their way slowly north; we puzzled over the first of many

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'Thekla Crested' Larks, deciding that habitat was a better clue than any plumage features; and we got some good views of the Maghreb Magpies, close enough to see the blue skin around the eye and the smaller shoulder patch.

After a delicious lunch back on the hotel terrace, with Red-rumped Swallows swooping over the pool and a couple of Little Swifts speeding by, we set off again to explore the nearby village. Following Ahmed, our guide from the village, we passed through Tighanimine El Baz and crossed the dry riverbed up into the old, now mostly abandoned village on the other side. Here there were large clumps of the prickly pear cactus *Opuntia ficus-barbarica*: a widely naturalised and often 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 buildings, House Sparrows and House Buntings lived up to their name, a pair of Laughing Doves flew by, a Little Owl calling noisily from down in the valley popped up onto a wall, and a very bright Blue Rock Thrush put in an appearance.

Walking back to the Atlas Kasbah, we found a Corn Bunting singing from the cemetery, with a Kestrel circling nearby. With the heat of the afternoon, all the lovely Barbary Nut irises *Gynandiris sisyrinchium* had opened on the hillside near to the hotel, where we also found Tassel Hyacinth *Leopoldia commosa* and the low-growing white lily *Androcymbium gramineum*, a winter flowering species which was going over.

### Day 3: Monday 13<sup>th</sup> March. Cap Rhir and Oued Tamri

After a night during which some of us could hear the mournful calls of Stone Curlew from the fields around the hotel, this morning we set our sights northwards, skirting around the city of Agadir (pausing briefly to stock up on wine 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 coastal Mauretania and across to the Canary Islands off shore. 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 umbrella-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 *Polycarpea 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.

Here we admired the endemic large-flowered thyme *Thymus broussonnetii* ssp *hannonis* found only here on Cap Rhir, and two types of sea heath, both *Frankenia laevis* with larger flowers and leaves bearing a whitish crust and *F. boissieri*, with its smaller flowers, forming domed mini-shrubs. Annuals growing from the sand included two interesting borages: the little blue *Mairetis microsperma*, endemic to Morocco and the Canaries, and the pretty *Nonea calycina*. A trio 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, the little lilac broomrape *Phelipanche mutelii* (part of the *ramosa* group) and the bizarre deep

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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 couple of fairly large, yellow *Buthus* scorpions. Around 20 people die from scorpion stings in Morocco each year, so we gave these the respect they were due. Less punchy, but a lot more active, we also found a couple of lovely little Moroccan Lizard-toed Geckos, but these swiftly skittered away, while the much larger Moorish Gecko was seen hiding in one of the concrete culverts under the now-defunct road.

Luckily our attention wasn't entirely focussed downwards, as a shout of 'Ibis!' had us all watching as a group of five large black birds came flapping low along the coast from the south, eventually flying right in front of us, showing their metallic plumage, shaggy crest and red heads off perfectly. A great bonus! This is the bird we'd come to the coast to look 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 via the Yemen 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.

Very happy with our sightings, we made our way back to the bus, and the little way north to our picnic spot at the mouth of the Oued Tamri. Here the wind had picked up, and we found ourselves being sand blasted as we ate our lunch.

Having fed, we first watched a pair of the endemic Moroccan Wagtail as they picked around the car park, and then we headed across the beach to view the lagoon in the increasingly windy conditions. A pair of Ruddy Shelduck flew in as we arrived, and posed on the opposite bank; hundreds of Lesser Black-backed Gulls and beautiful silvery Audouin's Gulls were coming and going to wash and rest, along with a small number of Yellow-legged Gulls and three Black-headed Gulls; a small flock of Common Redshank flew in from the south, pausing to rest here before continuing their journey back to northern Europe.

Best of all, we found more Northern Bald Ibis feeding on the hillside behind the lagoon, two groups totalling 24 birds picking through the Ononis bushes for beetles and other prey.

At the back of the beach, an area of encrusted sand and a few bones were the last remains of a 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 storms, and amongst the plantlife we struggled to find much more than Sea Rocket *Cakile maritima*, Sea Spurge *Euphorbia paralias* and *Suaeda vera*.

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*. We also found the climbing yellow toadflax *Nanorrhinum heterophyllum* and other shrubs including the 'hawthorn-like' *Searsia 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 carpets of blue along the roadsides further south); the endemic *Limonium mucronatum* with strongly winged stems and dense heads of smaller, mauvey-pink flowers; and 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. Tonight we feasted on a traditional celebratory Moroccan dish of chicken and almond pastille, celebrating our success with the ibis.



## The Atlantic Coast: Cap Rhir and Tamri



Top, l to r: the landscapes around Cap Rhir, with *Euphorbia regis-jubae* in the foreground; *Kleinia anteuphorbium*  
Bottomleft: *Cistanche phelypaea*, the Desert Hyacinth. Bottom right: three species of sea-lavender: *Limonium sinuatum* (left), *Limonium lobatum* (right) and the endemic *Limonium mucronatum* (bottom)

### Day 4: Tuesday 14th 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.

The town of Taroudannt is often described as a mini Marrakech, its mud plastered ramparts, dating back to the 16<sup>th</sup> century, an impressive sight on arrival. Tucked away inside the walls is the peaceful Hotel Palais Salem, its impressive entrance taking us into a place of shade, shadow and tranquillity, a world away from 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 Taroudant'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 and palm trees, whilst enjoying the antics of a newly-fledged Kestrel, calling noisily to its nearby parents, and a pair of African Blue Tits who briefly took up residence at the top of one of the *Washingtonia* palms.

After a short walk round onto the city walls, we headed into the souk, where we sampled the retail opportunities offered by various spice merchants, dried fruit sellers and apothecaries, as well as a couple of very persuasive scarf salesmen.

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 cloud-capped High Atlas in the distance. From here Mohammed caught the fluting song of a Black-crowned Tchagra, coming from the argan trees below.

After a quick stop to appreciate the white-flowered *Convolvulus trabutianus*, growing as a spiny shrub instead of the more familiar bindweed, we staked out the area of bushes from where the tchagra had been singing, and after a short wait (and a little bit of persuading), he appeared perched right out in the open, on the top of his favoured bush, and proceeded to give spectacular views to everyone. A very handsome bird, and much appreciated. A nearby Spur-thighed Tortoise also posed for photos, before our rumbling stomachs got the better of us and we got back on the bus.

Lunch was on the edge of the palmery, where the 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* and several North African Water Frogs. Other water-demanding plants including White Poplar *Populus alba* and the Carob tree *Ceratonia siliqua*.

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Amongst the palm trees, fields of alfalfa, broad beans and barley were growing. Among the cultivated allotments we came across the bright *Vicia benghalensis*, along with the stunning pink *Convolvulus althaeoides* and the more familiar Field Bindweed *Convolvulus arvensis*. The bizarre 'dutchman's pipe' flowers of the climbing birthwort *Aristolochia baetica* were found in bloom along the trackside. This is the foodplant of Spanish Festoon, and sure enough a festoon caterpillar was munching away at one of the blooms!

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 15<sup>th</sup> 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 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. We saw good numbers, including courting couples, a couple of bachelor herds, and a lovely family group with several inquisitive young calves.

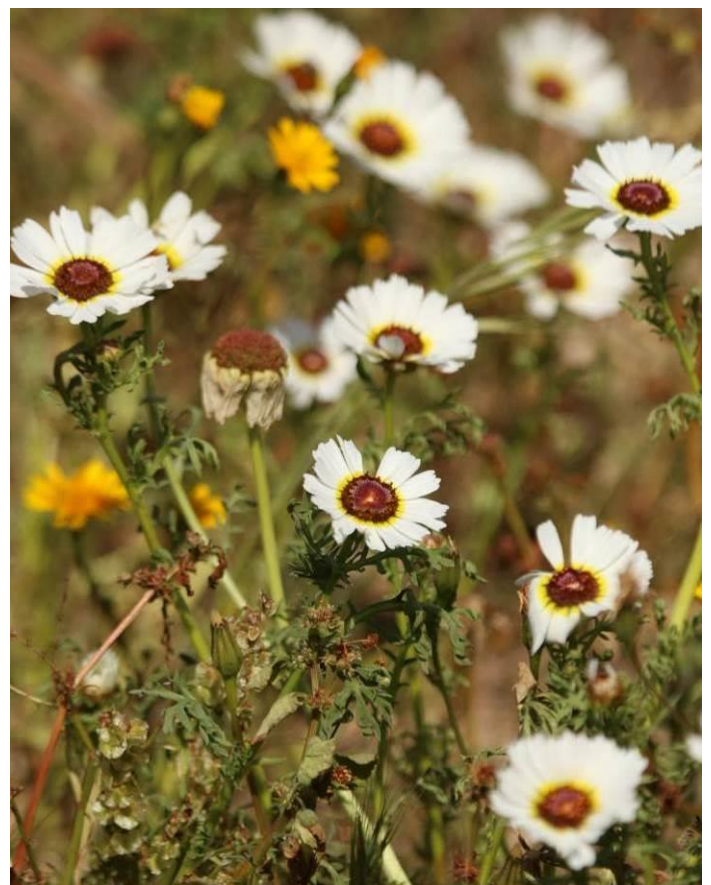
Also here, we enjoyed great views of the Red-necked Ostriches. This North African subspecies is the largest of the ostriches, making it the largest bird in the world, and is noticeably more colourful than the sub-Saharan birds more familiar from East and Southern African safaris. The males were looking particularly red-flushed, as this is apparently courting season: indeed, we came across one couple busy making a new generation of ostriches.

Somewhat shyer were the dainty Dorcas Gazelles, the one antelope still doing reasonably well in the wild. We enjoyed good views of several lone males, showing the beautiful lyre-shaped horns and intricate markings in their ears, before finding a great herd of 114 females and youngsters in the second enclosure

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.



## Souss Massa National Park



Top: Scimitar-horned Oryx. Bottom left: male Dorcas Gazelle. Bottom Right: *Ismelia carinata*

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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!

Between the two enclosures, a pair of Stone Curlews posed wonderfully for us and one or two Southern Grey Shrikes decorated the goat-topiary-ed argan bushes.

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, the lower-growing pink knapweed *Centaurea aspera ssp gentilii* (a subspecies of the more widespread Rough Star Thistle, this form endemic to Morocco and the Isles of Scilly) and the little blue borage *Mairetis microsperma* that we first saw near Cap Rhir, as well as great carpets of *Calendula marigolds*, and drifts of the spectacular daisy *Ismelia versicolor*, with its tri-coloured flowers. 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 more sprawling *Helianthemum lippii*. Out in the arable areas, we saw a few impressive spikes of the deep red broomrape *Orobanche foetida* and the flaming scarlet *Adonis annua*.

After lunch, and a pause along the way for ice cream, civilised facilities and an irresistible Aladdin's cave of pottery, our final stop was the estuary at Oued Souss. Here the gull flock (primarily Black-headed and Lesser Black-backed Gulls) contained a handful each of Slender-billed and Mediterranean Gulls, along with good numbers of Sandwich Terns. A handful of Little Egrets and Grey Herons stalked around, a pair of noisy Stone Curlews were calling from the saltmarsh, and a little party of Redshank along with a larger group of Avocets stood at the water's edge.

Out in the middle of the water, a flock of around 10 Marbled Ducks were great to see, albeit a little distant. But even more appreciated was the Osprey which flew in from upstream, carrying a fish to his favourite perch on a nearby pylon, where he proceeded to tuck into his Friday dinner.

Further out towards the river mouth, we found a group of 8 Greater Flamingos, posing nicely on the opposite bank, with Grey Plover and Curlew added to our growing bird list. A flock of seven Maghreb Magpies were discussing their secrets as we packed up and headed back to the vehicles.

From here, it was a quick trip through the back streets of southern Agadir back to the Atlas Kasbah, where we feasted on beef tagine and then enjoyed some great mint tea prepared for us by Hassan, who explained more about the significance of tea and tea drinking for Moroccan culture.

### Day 6: Thursday 16<sup>th</sup> 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, the milkweeds). 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

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steroidal heart poison as a form of defence, making them inedible to predators – alas, this time we couldn't find any caterpillars, but a Busack's Fringe-toed Lizard posed nicely for photos. Also here, some of us learned a little more than they might have liked about the defence mechanisms of the prickly pear.

After a coffee stop in Ait Baha, where we had Red-rumped Swallows overhead and a pair of Ravens on the ridge in the distance, we climbed further into the Anti-Atlas, taking what would normally have been a very quiet, country road but today seemed to be a highway, with a constant line of traffic (including the local governor and various other bigwigs in their shiny black Mercedes) heading to a religious celebration at a nearby madrassa.

Our destination today was 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.

Within the walls of the *agadir* we could hear the now-familiar twittering of House Buntings, while a whole herd of Spur-thighed Tortoises of varying sizes emerged from the shadows, each painted a fetching green to try and prevent them being trodden on. Here we were told about the slightly strange belief that tortoises protect your home from scorpions, as well as the local myth of Aisha Kandisha, the seductive demoness who comes in the night, and from whom the local people are protected by drawing a cross on their door.

Outside the walls, 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*, the Rough Poppy *Papaver hybridum* in flower, with four black-centred red petals and blue anthers, and two pretty 'knapweeds', the chunky pink *Volutaria mucronata* and the delicate blue *Volutaria crupinoides* with contrasting saffron-yellow centres. In bud was *Centaurea maroccana*, an endemic star thistle with very spiky bracts.

Satisfied with our lot from Laatik, 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). While we were here, an enormous herd of sheep trooped past, along with their nomadic sheep herders and a handful of donkeys.

Heading back down towards Ait Baha, on the rocky roadsides we all eventually enjoyed sightings of the Barbary Ground Squirrels as they scampered about the rocks or paused, meerkat-like, to survey the surroundings.

A little further down, another roadside stop was for one of the star plants of the Anti-Atlas, the tall *Linaria ventricosa* in full flower, forming elegant waving clumps, with beautiful creamy yellow flowers finely striped with maroon, and with a velvety lip. The sight of great clumps of this flower, with the blue skies and a hill-top *agadir* in the background perfectly sums up the Anti Atlas mountains.

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.

And then it was back home, where we were 'entertained' (I think that's the right word) by a troop of local folk musicians, while after dinner M'bark gave a lesson in the berber script.



## The Anti Atlas



Top: the agadir at Laatik. Left: *Linaria ventricosa*.  
Right: *Calotropis procera*, *Echium horridum* and *Scilla peruviana*

### Day 7: Friday 17<sup>th</sup> 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, with *Euphorbia officinarum* on the dry slopes and fossilised oyster shells everywhere we looked.

Our next stop 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 Andalusia. 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 was the shrubby *Globularia alypum*, the hawthorn-like *Searsia pentaphylla* (just like the *Searsia tripartita* we had seen at the coast, but with five-lobed leaves instead of three-lobed) and a rather menacing-looking big black scorpion, while a Short-toed Eagle soared in the distance.

Reaching the palmery at the start of Paradise Valley, we found a couple of basking Moorish Terrapins along the water's edge, Grey Wagtail and a brief pair of Moroccan Wagtails on the feeding along the river bed. Further along a male Blue Rock Thrush put in an appearance, North African Water Frogs were calling from the water, and a handful of rather bold Barbary Ground Squirrels finally gave everyone great views out in the open.

Unfortunately, the 'quiet side track' where we had planned to walk had recently been scoured out to widen the way for large lorries building a new route across the mountains, 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. Tucked amongst the Euphorbia growing up on the cliff we could just make out two spikes of the bizarre succulent *Apteranthes europaea*. 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.

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.

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, as well as giving some of us the opportunity to haggle for boxes and bowls.

Heading off after lunch, we stopped on the hillside above the cascades to explore the dwarf scrub community: dominated by the yellow-flowered *Genista tricuspidata*, with a new lavender *Lavandula dentata* of the 'standard' variety (not the *var candicans* that we met on the coast, greener and with a spicier smell), scattered Dwarf Fan Palms, almond and Holm Oak trees 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.



## The High Atlas



Top: *Genista tricuspidata*

Left (top to bottom): *Gagea sp* and *Cistus crispus*. Centre (top to bottom): *Polygala balansae* and *Lavandula dentata*

Right (top to bottom): *Fritillaria lusitanica* and *Convolvulus glauorum*

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Also here, a clamber up a goat track took us to a patch of the stunning *Fritillaria lusitanica* growing in the shade of 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.

Heading higher again, we drove along a valley at about 1300m where the south-facing 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 cooler north-facing side of the valley, a different vegetation was clearly present, dominated by Kermes Oak, *Quercus coccifera*, again another indicator of altitude: this is really a plant 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.

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 plants here included *Cistus crispus* in flower, the little pink *Silene virescens* and the equally tiny daisy, *Bellis annua* subsp. *microcephala*. 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).

After taking our fill of the impressive views across to the snow-caps of the High Atlas, it was homewards bound: 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 18<sup>th</sup> March. Atlas Kasbah and return home**

Varied attractions held our attention for our final morning around the Atlas Kasbah, including the pool, cookery lessons and the local bee hives.

For the rest of us, we took one last wander back down to the goat track and the hillsides across the road from the hotel.

Things were pretty similar to last weekend, with one plant 'new for the list' in the form of Slender Centaury *Centaureum tenuiflorum*, while a couple of Bee-eaters finally paused long enough for us to get our binoculars on them and a female Western Subalpine Warbler was moving through the bushes.

Meanwhile, Bill's adventures in Berber apiary meant that those of us still out and about had to find a new route home, across the fields, to avoid the angry bees.

After yet one final tasty tagine, and a re-cap of the sightings of the past couple of days, one last mint tea on the terrace provided final refreshment and a chance to thank Mohammed for his wonderful driving over the week and Rasheeda, M'bark, Hussein, Abderrahmane and the Atlas Kasbah team for our stay and their great hospitality.

Philip Precey & Jess Hatchett, Wildlife Travel, March 2017

A gallery of Jess and Philip's 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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E = endemic species, e = endemic subspecies, P = planted

	SCIENTIFIC NAME	NOTES	First seen
<b>PTERIDOPHYTES</b>			
	<i>Asplenium cf ceterach</i>	The woolly fern on the rocks, similar to Rustback	16 <sup>th</sup>
	<i>Adiantum capillus-veneris</i>	<b>Maidenhair Fern</b> Along the water channels in the palmery at Tioute	14 <sup>th</sup>
<b>CONIFERS</b>			
<b>Cupressaceae</b>			
P	<i>Cupressus sempervirens</i>	<b>Pencil Cypress</b> eg in the garden, around Immouzer	11 <sup>th</sup>
	<i>Tetraclinis articulata</i>	<b>Thuya of the Berbers</b> Common higher up in the High Atlas.	17 <sup>th</sup>
<b>Ephedraceae</b>			
	<i>Ephedra fragilis</i>	<b>Joint Pine</b> Scrambling up through bushes: eg amongst the Opuntia in the old village	12 <sup>th</sup>
<b>Pinaceae</b>			
P	<i>Pinus halepensis</i>	<b>Aleppo Pine</b> Planted around Immouzer	17 <sup>th</sup>
<b>DICOTYLEDONS</b>			
<b>Aizoaceae</b>			
P	<i>Carpobrotus acinaciformis</i>	<b>Hottentot Fig</b> eg planted in the garden, along the roadsides around Agadir	11 <sup>th</sup>
	<i>Aizoon canariense</i>	On the edge of the car park at Tioute, when getting back on the bus. Low growing, tiny flowers.	14 <sup>th</sup>
	<i>Aizoon (=Aizoanthemum) hispanicum</i>	The fleshy-leaved white flower outside the agadir	16 <sup>th</sup>
<b>Anacardiaceae</b>			
P	<i>Pistacia atlantica</i>	The tree at the end of the café garden, Immouzer	17 <sup>th</sup>
	<i>Pistacia lentiscus</i>	By the ocean near Cap Rhir, and higher up in the High Atlas	13 <sup>th</sup>
	<i>Searsia (=Rhus) tripartita</i>	Reddish fruit, three-lobed leaves, 'hawthorn-like' bush near the cemetery	13 <sup>th</sup>
	<i>Searsia (=Rhus) pentaphylla</i>	Reddish fruit, five-lobed leaves, 'hawthorn-like' bush near the Tetraclinis	17 <sup>th</sup>
<b>Apiaceae</b>			
	<i>Eryngium ilicifolium</i>	Along the goat track, just starting to flower	11 <sup>th</sup>
E	<i>Sclerosciadium nodiflorum</i>	The low-growing umbellifer on sandy soil	13 <sup>th</sup>
	<i>Ferula vulgare</i>	<b>Giant Fennel</b> In the Oryx enclosure and common in the Anti Atlas	15 <sup>th</sup>
<b>Apocyanaceae (includes Asclepiaceae)</b>			
	<i>Calotropis procera</i>	The large, Saharan scrub, food plant of the Plain Tiger	16 <sup>th</sup>
	<i>Nerium oleander</i>	<b>Oleander</b> In the dried river bed	12 <sup>th</sup>
	<i>Periploca angustifolia</i>	Clambering vine/bush with bullhorn seed pods	12 <sup>th</sup>
	<i>Apteranthes (=Caralumma) europaea</i>	The purple succulent on the cliff in Paradise Valley	17 <sup>th</sup>
<b>Araceae</b>			
	<i>Arisarum simorhinum</i>	Flowering under the olives at Immouzer (leaves common elsewhere)	17 <sup>th</sup>
<b>Aristolochiaceae</b>			
	<i>Aristolochia baetica</i>	Abundant in the palmery: vine with 'dutchman's pipe' flowers, the food plant of Spanish Festoon	14 <sup>th</sup>
<b>Asteraceae</b>			
	<i>Bellis annua ssp microcephala</i>	At the highest point on the High Atlas drive	17 <sup>th</sup>
	<i>Calendula arvensis</i>	<b>Field Marigold</b> Common arable weed, eg in the garden	12 <sup>th</sup>
	<i>Catananche arenaria</i>	Creamy, with maroon centre	12 <sup>th</sup>
	<i>Centaurea aspera ssp gentilis</i>	<b>Rough Star Thistle</b> the pinky 'knapweed' at Sous Massa, this subspecies endemic to Morocco and the Canaries	15 <sup>th</sup>
E	<i>Centaurea maroccana</i>	A very spiky star-thistle, in bud at Laatik	16 <sup>th</sup>

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	SCIENTIFIC NAME	NOTES	First seen
	<i>Chrysanthemum coronarium</i>	<b>Crown Daisy</b>	12 <sup>th</sup>
	<i>Cladanthus arabicus</i>	Large orangey composite with feathery aromatic leaves	12 <sup>th</sup>
	<i>Evax</i> (= <i>Filago</i> ) <i>sp</i>	The tiny cudweed	17 <sup>th</sup>
	<i>Ismelia versicolor</i> (= <i>Chrysanthemum carinatum</i> )	The three-coloured daisy flowering in great drifts at Sous Massa	15 <sup>th</sup>
E	<i>Kleinia</i> (= <i>Senecio</i> ) <i>anteuphorbium</i>	Succulent shrubby 'groundsel' around Cap Rhir	13 <sup>th</sup>
	<i>Launaea arborescens</i>	Chicken wire bush	13 <sup>th</sup>
E	<i>Nauplius</i> (= <i>Asteriscus</i> ) <i>imbricatus</i>	Fragrant leaves, yellow flowers: bush around Cap Rhir	13 <sup>th</sup>
	<i>Onopordum cf macranthum</i>	The 'donkey fart' thistle, Sous Massa	15 <sup>th</sup>
	<i>Pallenis spinosa</i>	Pale yellow flowers, spiny bracts, eg outside the agadir	16 <sup>th</sup>
	<i>Phagnalon saxatile</i>	High Atlas	17 <sup>th</sup>
	<i>Volutaria crupinoides</i>	The blue and yellow 'knapweed' in the Anti Atlas	16 <sup>th</sup>
	<i>Volutaria lippii</i>	The common blue 'knapweed', a frequent annual in the garden and field edge. Pink form at Sous Massa	12 <sup>th</sup>
E	<i>Volutaria marocanna</i>	Blue volutaria with white centre, roadside in the High Atlas	17 <sup>th</sup>
	<i>Volutaria mucronata</i>	The pinky 'knapweed' at Laatik	16 <sup>th</sup>
	<i>Warionia saharae</i>	The sweetly-scented desert shrub, high up on a cliff in Paradise Valley. Endemic to Morocco and Algeria	17 <sup>th</sup>
<b>Balanophoraceae</b>			
	<i>Cynomorum coccineum</i>	Sandy soil near Cap Rhir	13 <sup>th</sup>
<b>Boraginaceae</b>			
	<i>Echium arenarium</i>	The small blue-flowered 'bugloss' on sandy roadside	13 <sup>th</sup>
	<i>Echium horridum</i>	The red 'bugloss' with long spines	12 <sup>th</sup>
	<i>Mairetis microsperma</i>	Little blue 'borage' on the sandy soils around Cap Rhir: endemic to Morocco and the Canaries	13 <sup>th</sup>
	<i>Nonea</i> (= <i>Elizaldia</i> ) <i>calycina</i>	Yellow and brown flowers: the Saharan flower on the roadside at Cap Rhir	13 <sup>th</sup>
	<i>Pardoglossum</i> (= <i>Cynoglossum</i> ) <i>cheirifolium ssp heterocarpum</i>	The lovely little 'hound's tongue' at the roadside when looking at the fritillaries	17 <sup>th</sup>
	<i>Heliotropium crispum</i>	The white heliotrope eg near the cemetery	13 <sup>th</sup>
<b>Brassicaceae</b>			
	<i>Cakile maritime</i>	<b>Sea Rocket</b>	13 <sup>th</sup>
	<i>Malcolmia littorea</i>	<b>Sea Stock</b>	13 <sup>th</sup>
	<i>Sinapis arvensis</i>	<b>Charlock</b> In the animal enclosures	15 <sup>th</sup>
<b>Cactaceae</b>			
	<i>Opuntia ficus-barbarica</i> (= <i>O ficus-indica</i> )	<b>Fig of the Berbers</b> An invasive, domesticated cactus, originating in Mexico, common around villages	12 <sup>th</sup>
P	<i>Austrocylindropuntia subulata</i>	The cylindrical cactus, introduced from Peru	12 <sup>th</sup>
<b>Cappariaceae</b>			
	<i>Capparis spinosa</i>	<b>Caper.</b> In the shade near the lunch spot, Immouzer	17 <sup>th</sup>
<b>Caryophyllaceae</b>			
	<i>Paronychia argentea</i>	Papery white flowers	12 <sup>th</sup>
	<i>Polycarpaea nivea</i>	Encrusted grey semi-shrub, Cap Rhir	13 <sup>th</sup>
	<i>Silene virescens</i>	The tiny pink	17 <sup>th</sup>
	<i>Spergularia fimbriata</i>		12 <sup>th</sup>
<b>Casuarinaceae</b>			
P	<i>Casuarina equisetifolia</i>	Australian introduction, in the garden	12 <sup>th</sup>
<b>Chenopodiaceae</b>			
	<i>Suaeda vera</i>	Shrubs in the dunes at Oued Tamri	13 <sup>th</sup>
<b>Cistaceae</b>			
	<i>Cistus crispus</i>	In the High Atlas	17 <sup>th</sup>
	<i>Helianthemum canariense</i>	Endemic to Morocco and the Canaries: eg at Cap Rhir	13 <sup>th</sup>
	<i>Helianthemum confertum</i>	In the addax enclosure	15 <sup>th</sup>
	<i>Helianthemum lippii</i>	In the oryx enclosure	15 <sup>th</sup>
	<i>Helianthemum apenninum</i>	The white rock-rose in the High Atlas	17 <sup>th</sup>

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	SCIENTIFIC NAME	NOTES	First seen
<b>Convolvulaceae</b>			
	<i>Convolvulus althaeoides</i>	Large pink flowered bindweed, eg around the garden, field margins etc	12 <sup>th</sup>
E	<i>Convolvulus glauorum</i>	The large white-flowered convolvulus with the leaves like althaeoides, in the High Atlas	17 <sup>th</sup>
	<i>Convolvulus trabutianus</i>	The white-flowered, spiny shrub on the hillside above the palmery. Native to Morocco, Algeria and Mauritania	14 <sup>th</sup>
	<i>Convolvulus arvensis</i>	<b>Field Bindweed</b> eg the palmery	14 <sup>th</sup>
	<i>Convolvulus siculus</i>	The small-flowered bindweed in the agadir	16 <sup>th</sup>
P	<i>Ipomaea batata</i>	<b>Sweet Potato</b> planted in the garden	12 <sup>th</sup>
<b>Crassulaceae</b>			
E	<i>Sedum versicolor</i>	Yellow-flowered stonecrop with marbled leaves, on the goat track: endemic to southern Morocco	12 <sup>th</sup>
	<i>Umbilicus rupestris</i>	<b>Navelwort</b>	16 <sup>th</sup>
<b>Cucurbitaceae</b>			
	<i>Bryonia dioica</i>	<b>White Bryony</b>	16 <sup>th</sup>
<b>Cuscutaceae</b>			
	<i>Cuscuta cf planiflora</i>	The yellow-stemmed dodder, with flowers in dense little clusters	13 <sup>th</sup>
<b>Euphorbiaceae</b>			
	<i>Euphorbia helioscopia</i>	<b>Sun Spurge</b> Annual weed, in the barley fields amongst the palmery	14 <sup>th</sup>
P	<i>Euphorbia ingens</i>	<b>Candelabra Tree</b> Very tall, tree-like succulent Euphorbia, eg in the garden of the Hotel Palais Salem, Taroudannt. Native to southern Africa	14 <sup>th</sup>
	<i>Euphorbia peplus</i>	<b>Petty Spurge</b> eg in the palmery: ruderal weed	14 <sup>th</sup>
	<i>Euphorbia exigua</i>	<b>Dwarf Spurge</b> Annual weed, in the barley fields amongst the palmery	14 <sup>th</sup>
	<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)	13 <sup>th</sup>
	<i>Euphorbia paralias</i>	<b>Sea Spurge</b> On the beach at Oued Tamri	13 <sup>th</sup>
	<i>Euphorbia regis-jubae</i>	Lime green, shrub-forming Euphorbia around Cap Rhir. Endemic to Morocco and the Canary Islands	13 <sup>th</sup>
	<i>Mercurialis annua</i>	<b>Annual Mercury</b> eg in the olive grove at Immouzer	17 <sup>th</sup>
	<i>Ricinus communis</i>	<b>Castor Bean Plant</b> roadside weed	13 <sup>th</sup>
<b>Fabaceae</b>			
	<i>Acacia ehrenbergiana</i>	The spiny bush around the edges of Sous Massa	15 <sup>th</sup>
E	<i>Acacia gummifera</i>	Small bush, red stems, fine leaves	12 <sup>th</sup>
P	<i>Acacia saligna</i>	<b>Golden Wattle</b> Australian, planted in the garden and common in the animal enclosures at Sous Massa	12 <sup>th</sup>
	<i>Ceratonia siliqua</i>	<b>Carob</b> Planted in the garden, and in the palmery at Tioute	12 <sup>th</sup>
	<i>Coronilla scorpioides</i>	Along the goat track	12 <sup>th</sup>
	<i>Chamaecytisus mollis</i>	White-flowered spiny shrub along the goat track	12 <sup>th</sup>
	<i>Genista tricuspidata</i>	The yellow 'gorse' all over the High Atlas hillsides	17 <sup>th</sup>
E	<i>Hesperolaburnum platycarpum</i>	The common yellow 'gorse' in the Anti Atlas: sweetly smelling flowers, stems used for basket weaving	16 <sup>th</sup>
	<i>Lathyrus clymenum</i>	Delicate pink pea flower, along the goat track	12 <sup>th</sup>
	<i>Lotus creticus</i>	The yellow bird's foot trefoil	12 <sup>th</sup>
	<i>Ononis natrix</i>	Smelly, sticky leaves, yellow restharrow along roadsides	12 <sup>th</sup>
	<i>Retama monosperma</i>	The white-flowered broom	15 <sup>th</sup>
	<i>Tripodion tetraphylla</i>	<b>Bladder Vetch</b> Near the cemetery	13 <sup>th</sup>
	<i>Vicia benghalensis</i>	The deep maroon vetch eg in the barley in the Palmery	12 <sup>th</sup>



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	SCIENTIFIC NAME	NOTES	First seen
<b>Fagaceae</b>			
	<i>Quercus ilex</i>	<b>Holm Oak</b> The shrubby oak in the High Atlas	17 <sup>th</sup>
	<i>Quercus coccifera</i>	<b>Kermes Oak</b> The spiky-leaved shrubby oak in the High Atlas	17 <sup>th</sup>
<b>Frankeniaceae</b>			
E	<i>Frankenia laevis ssp velutina</i>	Larger flowered, encrusted stems	13 <sup>th</sup>
	<i>Frankenia boissieri</i>	Smaller flowers, forming domed clumps	13 <sup>th</sup>
<b>Gentianaceae</b>			
	<i>Centaurium tenuiflorum</i>	<b>Slender Centaury</b> along the goat track	18 <sup>th</sup>
<b>Geraniaceae</b>			
	<i>Erodium hesperium</i>	Large-flowered pink stork's-bill Sous Massa. Endemic to Morocco and the Canaries	15 <sup>th</sup>
<b>Hypericaceae</b>			
	<i>Hypericum aegytiacum</i>	Along the river in Paradise Valley	17 <sup>th</sup>
<b>Lamiaceae</b>			
	<i>Ajuga iva</i>	Arable weed: with yellow flowers in the lowlands: pink flowered form in the High Atlas.	12 <sup>th</sup>
	<i>Lavandula dentata var candicans</i>	Around Cap Rhir: velvety grey leaves, small flowers	13 <sup>th</sup>
	<i>Lavandula dentata</i>	The 'standard' variety, in the High Atlas	17 <sup>th</sup>
E	<i>Lavandula maroccana</i>	Large blue flowers: on the cliff at Paradise Valley	17 <sup>th</sup>
	<i>Lavandula multifida</i>	Pinnate leaves, medium-large flowers. eg the goat track near the hotel; common in the palmery at Tioute	12 <sup>th</sup>
	<i>Marrubium vulgare</i>	<b>White Horehound</b> in the old village	12 <sup>th</sup>
	<i>Salvia aegyptiaca</i>	The little 'desert sage', common in dry, rocky places	12 <sup>th</sup>
E	<i>Thymus broussonnetii ssp hannonis</i>	The large-flowered thyme at Cap Rhir: the species is endemic to Morocco, and this subspecies is found only at Cap Rhir!	13 <sup>th</sup>
	<i>Teucrium capitatum</i>	Tiny deep-red flowers, grey leaves	13 <sup>th</sup>
<b>Malvaceae</b>			
P	<i>Hibiscus rosa-sinensis</i>	<b>Hibiscus</b> in the garden	12 <sup>th</sup>
P	<i>Hibiscus tileaceae</i>	<b>Cotton Bush</b> in the garden	12 <sup>th</sup>
	<i>Malva parviflora</i>	The small flowered mallow, a common weed during the trip	12 <sup>th</sup>
<b>Moraceae</b>			
	<i>Ficus carica</i>	<b>Common Fig</b> Common in the palmery at Tioute. Four massive ancient trees in the Palais Hotel grounds, Taroudant. Near the cascades at Immouzer	14 <sup>th</sup>
P	<i>Ficus elastic</i>	<b>Rubber Fig</b> A massive specimen in the harem courtyard, Palais Hotel ground, Taroudant	14 <sup>th</sup>
P	<i>Ficus lyrata</i>	<b>Fiddle-leaf Fig</b> The third species of fig in the Palais Hotel grounds, Taroudant: commonly sold as a house plant (eg at Ikea!)	14 <sup>th</sup>
<b>Myoporaceae</b>			
P	<i>Myoporum laetum</i>	The white-flowered plant planted as a hedge around the hotel garden: introduced from New Zealand	12 <sup>th</sup>
<b>Neuralesae</b>			
P	<i>Dombeya cayeuxii</i>	The 'pom pom' tree outside the Hotel Palais, Taroudant	14 <sup>th</sup>
<b>Nyctaginaceae</b>			
P	<i>Bougainvillea sp</i>	Common planted shrubs around towns, eg the hotel garden	12 <sup>th</sup>
<b>Orobanchaceae</b>			
	<i>Cistanche phelypaea</i>	<b>Desert Hyacinth</b> Big yellow spikes in sandy soil	13 <sup>th</sup>
	<i>Orobanche foetida</i>	The large, deep red broomrape, parasitizing Ononis, Sous Massa	15 <sup>th</sup>
	<i>Phelipanche (=Orobanche) mutellii</i>	The small lilac broomrape, Cap Rhir	13 <sup>th</sup>
E	<i>Striga barthlottii</i>	Parasitic on Euphorbia officinarum	13 <sup>th</sup>

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	SCIENTIFIC NAME	NOTES	First seen
<b>Oleaceae</b>			
	<i>Olea europaea</i>	<b>Olive</b> Wild in the High Atlas, planted in the hotel grounds	12 <sup>th</sup>
<b>Papaveraceae</b>			
	<i>Fumaria sp.</i>	At least one species of fumitory eg in the palmery	14 <sup>th</sup>
	<i>Glaucium corniculatum</i>	<b>Long-horned Poppy</b> Washed-out reddish flowers	18 <sup>th</sup>
	<i>Papaver hybridum</i>	<b>Rough Poppy</b> The small red poppy with four petals, black bases to the petals and blue anthers, on the threshing platform, Laatik	16 <sup>th</sup>
<b>Plantaginaceae (inc Globulariaceae and part of Scrophulariaceae)</b>			
	<i>Globularia alypum</i>	Near the <i>Tetraclinis</i> in the lower High Atlas	17 <sup>th</sup>
E	<i>Linaria bipartita</i>	Carpets under the argan trees, purple annual	12 <sup>th</sup>
E	<i>Linaria ventricosa</i>	The tall, creamy yellow toadflax, striped with maroon. On the roadside in the Anti Atlas	16 <sup>th</sup>
	<i>Misopates oronticum</i>	<b>Weasel's Snout</b> eg the garden, near the Agadir etc	16 <sup>th</sup>
	<i>Nanorrhinum heterophylla</i>	Scrambling yellow 'snapdragon'	13 <sup>th</sup>
	<i>Plantago afra</i>	The branched plantain, eg the palmery	14 <sup>th</sup>
	<i>Plantago albicans</i>	The tall, silvery-leaved plantain , eg Cap Rhir	13 <sup>th</sup>
	<i>Plantago cf ovata</i>	A short, round-headed plantain with hairy, narrow leaves, Sous Massa	15 <sup>th</sup>
<b>Plumbaginaceae</b>			
	<i>Limonium sinuatum</i>	Winged stems, blue and white flowers	12 <sup>th</sup>
E	<i>Limonium mucronatum</i>	Very winged stems, small pink flowers	13 <sup>th</sup>
	<i>Limonium lobatum</i>	Small sea lavender near the cemetery: pale white flowers in soft blue calyx	13 <sup>th</sup>
<b>Polygalaceae</b>			
	<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	17 <sup>th</sup>
<b>Polygonaceae</b>			
	<i>Emex spinosa</i>	The spiny 'dock', common roadside weed	12 <sup>th</sup>
	<i>Rumex vesicarius</i>	<b>Bladder Dock</b> Pinkish-flushed inflated calyx	12 <sup>th</sup>
<b>Primulaceae</b>			
	<i>Anagallis arvensis</i>	<b>Scarlet Pimpernel</b> Common form with blue flowers	12 <sup>th</sup>
	<i>Samolus valerandi</i>	<b>Brookweed</b> Along the watercourse edges in the palmery	14 <sup>th</sup>
<b>Ranunculaceae</b>			
	<i>Adonis annua</i>	<b>Pheasant's-eye</b> the 'standard', crimson-red form, and a three-petalled, orangey flowered form, both between the enclosures at Souss Massa	15 <sup>th</sup>
	<i>Ranunculus spicatus</i>	The buttercup at the Fritillary stop	17 <sup>th</sup>
<b>Resedaceae</b>			
	<i>Reseda lutea</i>	<b>Wild Mignonette</b>	12 <sup>th</sup>
	<i>Reseda alba</i>	<b>White Mignonette</b>	12 <sup>th</sup>
<b>Rhamnaceae</b>			
	<i>Zizyphus lotus</i>	Very spiny hedging bush. Foodplant of the Common Tiger Blue	12 <sup>th</sup>
<b>Rosaceae</b>			
	<i>Prunus dulcis</i>	<b>Almond</b> near the agadir in the Anti Atlas, and higher up in the High Atlas	16 <sup>th</sup>
<b>Rubiaceae</b>			
	<i>Rubia peregrina</i>	In the palmery: like a large goosegrass	14 <sup>th</sup>
<b>Sapotaceae</b>			
E	<i>Argania spinosa</i>	<b>Argan</b>	12 <sup>th</sup>
<b>Scrophulariaceae</b>			
	<i>Scrophularia peregrina</i>	<b>Nettle-leaved Figwort</b> in the old village	12 <sup>th</sup>

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	SCIENTIFIC NAME	NOTES	First seen
<b>Solanaceae</b>			
	<i>Hyoscyamus albus</i>	<b>White Henbane</b> outside the agadir	16 <sup>th</sup>
	<i>Lycium intricatum</i>	Purple tubular flowers, red 'Goji' berries, near Cap Rhir	13 <sup>th</sup>
	<i>Nicotiana glaucum</i>	South American weed in the village, at roadsides	12 <sup>th</sup>
P	<i>Solandra maxima</i>	The big trumpet vine in the hotel gardens, Taroudant	14 <sup>th</sup>
	<i>Solanum nigraum</i>	<b>Black Nightshade</b> in the old Agadir	16 <sup>th</sup>
	<i>Withania somnifera</i>	Poisonous bush with glossy leaves and yellow bell-shaped flowers. Eg hedges near the hotel	12 <sup>th</sup>
	<i>Withania frutescens</i>	In the palmery, with smaller flowers and furry leaves	14 <sup>th</sup>
<b>Tamaricaceae</b>			
	<i>Tamarix gallica</i>	French Tamarisk	13 <sup>th</sup>
<b>Urticaceae</b>			
	<i>Urtica pilulifera</i>	<b>Roman Nettle</b> pom-pom flowers	12 <sup>th</sup>
<b>Verbenaceae</b>			
	<i>Vitex agnus-castus</i>	<b>Chaste Bush</b> Along the river bank in Paradise Valley. Used to make a tea to control the urges of monks...	17 <sup>th</sup>
<b>Zygophyllaceae</b>			
	<i>Fagonia cretica</i>	Scrambling plant with purple flowers, seed heads turn downwards on fruiting.	12 <sup>th</sup>
<b>MONOCOTYLEDONS</b>			
<b>Aracaceae</b>			
	<i>Chamaerops humilis var cerifera</i>	<b>Dwarf Fan Palm</b> The glaucous form, in the High Atlas	17 <sup>th</sup>
	<i>Phoenix dactylifera</i>	<b>Date Palm</b> A common roadside tree. Some wonderful old trees in the palmery at Tioute.	14 <sup>th</sup>
P	<i>Washingtonia filifera</i>	A common planted roadside tree: native to S America	14 <sup>th</sup>
<b>Asparagaceae</b>			
	<i>Asparagus albus</i>	The spiny, shrubby asparagus, with pale stems	13 <sup>th</sup>
	<i>Scilla (=Oncostema) peruviana</i>	The threshing pavement, Laatik, and in Paradise Valley	16 <sup>th</sup>
	<i>Scilla (=Autonoe) latifolia</i>	The broad leaves on the cliffs in Paradise Valley, with one or two dead flower heads. Endemic to Morocco and the Canaries	17 <sup>th</sup>
	<i>Leopoldia (=Muscari) comosa</i>	<b>Tassell Hyacinth</b> eg on the dry hillside near the hotel	12 <sup>th</sup>
	<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	12 <sup>th</sup>
<b>Cyperaceae</b>			
	<i>Cyperus capitatus</i>	The dense-headed sedge in the sand at Souss Massa	15 <sup>th</sup>
<b>Iridaceae</b>			
	<i>Gladiolus ilyricus</i>	One flower near the agadir	16 <sup>th</sup>
	<i>Gynandris sisyrrinchium</i>	<b>Barbary Nut</b> The little purple iris, opened out in the afternoon sun	12 <sup>th</sup>
<b>Colchicaceae</b>			
	<i>Androcymbium gramineum</i>	The low-growing white lily, going/gone over, on the dry hillside near the hotel	12 <sup>th</sup>
<b>Liliaceae</b>			
	<i>Gagea sp.</i>	The yellow Gagea at Immouzer	17 <sup>th</sup>
	<i>Fritillaria lusitanica</i>	Immouzer	17 <sup>th</sup>
<b>Poaceae</b>			
	<i>Arundo donax</i>	<b>Giant Reed.</b> Eg the dry river bed in the village	12 <sup>th</sup>
	<i>Lamarckia aurea</i>	The feathery grass eg along the goat track	12 <sup>th</sup>
<b>Xanthorrhoeaceae</b>			
	<i>Asphodelus ramosus ssp nervosus</i>	broad-leaved asphodel	12 <sup>th</sup>
	<i>Asphodelus fistulosus</i>	fine-leaved asphodel on grazed hillsides	12 <sup>th</sup>
	<i>Urginea maritima</i>	<b>Sea Squill</b> Tulip-like leaves on grazed hillsides	12 <sup>th</sup>

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	ENGLISH NAME	LATIN NAME	11 <sup>th</sup>	12 <sup>th</sup>	13 <sup>th</sup>	14 <sup>th</sup>	15 <sup>th</sup>	16 <sup>th</sup>	17 <sup>th</sup>	18 <sup>th</sup>
Family Ratidae (Ratites)										
	Red-necked Ostrich	<i>Struthio camelus camelus</i>					X			
		This sub-species is now <b>Critically Endangered</b> : 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)										
	Ruddy Shelduck	<i>Tadorna ferruginea</i>			X					
	Marbled Duck	<i>Marmaronetta anguistrostris</i>					X			
	Mallard	<i>Anas platyrhynchos</i>			X					
Family Phasianidae (Pheasants and Partridges)										
	Barbary Partridge	<i>Alectoris barbara</i>							X	
Family Podicipedidae (Grebes)										
	Great Crested Grebe	<i>Podiceps cristatus</i>					X			
Family Phalacrocoracidae (Cormorants)										
	Great Cormorant	<i>Phalacrocorax (carbo) carbo/sinensis</i>			X		X			
	White-breasted Cormorant	<i>Phalacrocorax (carbo) maroccanus</i>			X					
Family Ardeidae (Hérons)										
	Western Cattle Egret	<i>Bubulcus ibis</i>				X	X	X		
	Little Egret	<i>Egretta garzetta</i>			X		X			
	Grey Heron	<i>Ardea cinerea</i>					X			
Family Ciconiidae (Storks)										
	White Stork	<i>Ciconia ciconia</i>		X	X	X	X	X		
Family Threskiornithidae (Spoonbills and Ibises)										
	Northern Bald Ibis	<i>Geronticus eremita</i>			30					
		Currently categorised as <b>Critically Endangered</b> , 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.								
Family Phoenicopteridae (Flamingoes)										
	Greater Flamingo	<i>Phoenicopterus roseus</i>					8			
Family Pandionidae (Ospreys)										
	Osprey	<i>Pandion haliaetus</i>					X			
Family Accipitridae (Hawks and Eagles)										
	Short-toed Eagle	<i>Circaetus gallicus</i>							X	
	Marsh Harrier	<i>Circus aeruginosus</i>				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			
Family Burhinidae (Stone curlews)										
	Stone Curlew	<i>Burhinus oedicnemus</i>		H	H		X			
Family Haematopidae (Oystercatchers)										
	Oysterdatcher	<i>Hametopus ostralegus</i>					X			

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Family Scolopacidae (Sandpipers)										
	Curlew	<i>Numenius arquata</i>					X			
	Redshank	<i>Tringa totanus</i>			X		X			
Family Charadriidae (Plovers)										
	Kentish Plover	<i>Charadrius alexandrinus</i>			X		X			
	Grey Plover	<i>Pluvialis squatarola</i>					X			
Family Laridae (Gulls)										
	Black-headed Gull	<i>Chroicocephalus ridibundus</i>			X		X			
	Slender-billed Gull	<i>Chroicocephalus genei</i>					X			
	Mediterranean Gull	<i>Ichthyaeus melanocephalus</i>					X			
	Audouin's Gull	<i>Ichthyaeus audouinii</i>			X					
	Yellow-legged Gull	<i>Larus michahellis</i>			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		
	Collared Dove	<i>Streptopelia decaocto</i>		X	X	X	X	X	X	X
	Turtle Dove	<i>Streptopelia turtur</i>		H						H
	Laughing Dove	<i>Streptopelia senegalensis</i>		X						X
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 Caprimulgidae (Nightjars)										
	Red-necked Nightjar					H	H		H	
Family Apodidae (Swifts)										
	Swift	<i>Apus apus</i>				X	X	X		X
	Pallid Swift	<i>Apus pallidus</i>		X	X	X	X	X	X	X
	Little Swift	<i>Apus affinis</i>		X		X		X		
	Alpine Swift	<i>Apus melba</i>		X						
Family Meropidae (Bee-eaters)										
	Bee-eater	<i>Merops apiaster</i>		X					X	X
Family Alaudidae (Larks)										
	Crested Lark	<i>Galerida cristata</i>				X	X	X		
	Thekla Lark	<i>Galerida theklae</i>		X	X			X	X	X
		We identified our larks using the very un-rigorous and no doubt flawed 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.								
Family Hirundinidae (Swallows and Martins)										
	House Martin	<i>Delichon urbica</i>				X			X	
	Red-rumped Swallow	<i>Hirundo daurica</i>		X		X		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)										
	Meadow Pipit	<i>Anthus pratensis</i>					X			
	Grey Wagtail	<i>Motacilla cinerea</i>							X	
	White Wagtail	<i>Motacilla (a.) alba</i>				X	X	X		



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	Moroccan Wagtail	<i>Motacilla (a.) subpersonata</i>			X				X	
		The very-distinctive <i>subpersonata</i> form is endemic to Morocco, and is split by some authorities from the White Wagtail as <i>Motacilla subpersonata</i>								
Family Muscicapidae (Flycatchers and Chats)										
	Common Redstart	<i>Phoenicurus phoenicurus</i>		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	
	Blue Rock Thrush	<i>Monticola solitarius</i>		X				X	X	
Family Turdidae (Thrushes)										
	Blackbird	<i>Turdus merula</i>		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
Family Phylloscopidae (Leaf Warblers)										
	Common Chiffchaff	<i>Phylloscopus collybita</i>				X				X
Family Cisticolidae (Cisticolas)										
	Zitting Cisticola	<i>Cisticola juncidis</i>					X			
Family Paridae ( Tits)										
	Great Tit	<i>Parus major</i>		X		X	X	X	X	X
	African Blue Tit	<i>Cyanistes tenerifae</i>				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	X	X
Family Malaconotidae (Tchagras)										
	Black-crowned Tchagra	<i>Tchagra senegalus</i>				X				
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
		The distinctive <i>mauritanica</i> 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			X		
Family Sturnidae (Starlings)										
	Spotless Starling	<i>Sturnus unicolor</i>		X	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	X
	Greenfinch	<i>Carduelis chloris</i>		X	X	X	X	X	X	
	Linnet	<i>Carduelis cannabina</i>		X			X	X		
	Serin	<i>Serinus serinus</i>		X		X	X	X	X	
Family Emberizidae (Buntings)										
	Corn Bunting	<i>Miliaria calandra</i>		X						X
	House Bunting	<i>Emberiza sahari</i>		X	X	X	X	X	X	X
	Cirl Bunting	<i>Emberiza cirlus</i>		X		X		X	H	H

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<b>AMPHIBIANS &amp; REPTILES</b>										
	North African Water Frog	<i>Pelophylax saharica</i>		X		X			X	X
	Spur-thighed Tortoise	<i>Testudo graeca soussensis</i>				X		X		
	Moorish Terrapin	<i>Mauremys leprosa saharica</i>							X	
	Moorish Gecko	<i>Tarentola mauritanica</i>			X			D		
E	Moroccan Lizard-toed Gecko	<i>Saurodactylus brosseti</i>			X			X		
	Bibron's Agama	<i>Agama impalearis</i>						X		
	Busack's Fringe-toed Lizard	<i>Acanthodactylus (pardalis) busacki</i>			X		X	X		
<b>MAMMALS</b>										
	Dromedary	<i>Camelus dromedarius</i>			X	X	X			
	Dorcas Gazelle	<i>Gazella dorcas</i>					X			
		<p>Currently categorised as <b>Vulnerable</b> by the IUCN, suffering a decline of more than 30% in the last 20 years.</p> <p>Found throughout the Sahel and Sahara, from Morocco to Djibouti and extending up the Red Sea coast into southern Israel. Threatened by over-hunting and loss of habitat through over-grazing.</p>								
	Addax	<i>Addax nasomaculatus</i>					X			
		<p>Currently categorised as <b>Critically Endangered</b> 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.</p> <p>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.</p>								
	Scimitar-horned Oryx	<i>Oryx dammah</i>					X			
		<p>Currently categorised as <b>Extinct in the Wild</b> 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.</p> <p>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<sup>2</sup> Ouadi Rimé-Ouadi Achim Game Reserve in central Chad, where the first wild calf for at least 30 years was born in late 2016.</p> <p>In common with the other antelopes, threatened by over-hunting and loss of habitat through over-grazing.</p>								
	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 13 <sup>th</sup> .								
	Barbary Ground Squirrel	<i>Atlantoxerus getulus</i>						X	X	

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<b>BUTTERFLIES</b>										
<b>Family Papilionidae (Swallowtails)</b>										
	Spanish Festoon	<i>Zerynthia rumina</i>				X				
<b>Family Pieridae (Whites)</b>										
	Moroccan Orange Tip	<i>Anthocharis belia</i>		X		X	X		X	X
	Greenish Black-tip	<i>Euchloe charlonia</i>		X		X	X		X	X
	Large White	<i>Pieris brassicae</i>		X		X	X	X		
	Small White	<i>Pieris rapae mauretanica</i>		X	X	X	X	X	X	X
	Bath White	<i>Pontia daplidice</i>		X		X	X			X
	Clouded Yellow	<i>Colias croceus</i>		X	X	X	X	X		X
	Cleopatra	<i>Gonopteryx cleopatra</i>		X					X	X
<b>Family Nymphalidae (Admirals and Fritillaries)</b>										
	Painted Lady	<i>Vanessa cardui</i>		X		X	X	X	X	X
	Red Admiral	<i>Vanessa atalanta</i>		X		X	X	X	X	X
	Desert Fritillary	<i>Melitaea deserticola</i>		X						
	African Knapweed Fritillary	<i>Melitaea punica</i>								X
<b>Family Lycaenidae (Blues &amp; Coppers)</b>										
	Small Copper	<i>Lycaena phlaeas</i>		X				X	X	X
	Common Tiger Blue	<i>Tarucus theophrastus</i>								X
	Common Blue	<i>Polyommatus icarus</i>								X
	Lang's Short-tailed Blue	<i>Leptotes pirithous</i>		X						
	False Baton Blue	<i>Pseudophilotes abencerragus</i>					X			
	Common Tiger Blue	<i>Tarucus theophrastus</i>								X
<b>Family Hesperidae (Skippers)</b>										
	False Mallow Skipper	<i>Carcharodus tripolinus</i>		X	X					
<b>MISCELLANEOUS</b>										
	Striped Hawk-moth	<i>Hyles livornica</i>	18 <sup>th</sup>							
	Hummingbird Hawk-moth	<i>Macroglossum stellarum</i>	14 <sup>th</sup>							
	Crimson Speckled	<i>Utetheisa pulchella</i>	15 <sup>th</sup>							
	Vestal	<i>Rhodometra sacraria</i>	15 <sup>th</sup>							
	Southern Skimmer	<i>Orthetrum brunneum</i>	14 <sup>th</sup>							
We found at least three species of <b>Scorpion</b> during the week:										
the smaller, yellow <i>Buthus sp.</i> under rocks along the coast (13 <sup>th</sup> ), the fat-clawed, very active black scorpion <i>Scorpio maurus</i> near to the cemetery on the coast (13 <sup>th</sup> )and the large black <i>Hottentotta gentili</i> (photo below) in the agadir at Laatik (16 <sup>th</sup> ) and in the High Atlas (17 <sup>th</sup> )										
