

Wildlife Travel



Morocco 2019

Morocco species lists and trip report, 2nd to 9th March 2019

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A gallery of photos from this year's Morocco trips can be found online at
<https://www.flickr.com/photos/wildlifetravel/albums/72157679263798678>

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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Day 1: Saturday 2nd March. Gatwick to Agadir

Our afternoon flight took us down from Gatwick, across the Bay of Biscay down through Portugal, and along the coast of Morocco to Agadir. Once through passport control and the currency exchange offices we met up with Marge, who was patiently waiting for us after her earlier flight from Manchester, and with Mohammed, our driver and guide for the week, who soon had us skirting the edge of Agadir and out to the wonderfully atmospheric Atlas Kasbah perched atop a small hill in the countryside outside Agadir in time for a late dinner of fish and stuffed aubergine.

Day 2: Sunday 3rd 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 handful of North African Water Frogs were posing amongst the lily pads.

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.

The hillsides beneath the Argan trees was pretty parched, this area of Morocco not having had any rains since mid-December, and so flowers were quite few and far between, but some 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 low-growing composite *Catananche arenaria*, with creamy white flower-heads with a maroon centre; and several plants of the first of several lavenders we would come to know during the week, the ferny-leaved and large-flowered *Lavandula multifida*.

Along the goat track, a pair of Southern Grey Shrikes were courting, while a little further on a female Woodchat Shrike popped up onto the top of an Argan bush. A little further on, we found a barley field, albeit with a rather sorry looking crop, but the weeds seemed to be doing just fine, in turn attracting quite a few butterflies, with Small Copper, Bath White, Clouded Yellow and Lang's Short-tailed Blue all on the wing. Amongst the plants, Dom spotted a superb (and rarely seen) adult Ant Lion, while an old Argan tree nearby was home to a Little Owl.

Elsewhere, the butterfly list was increased with the tiny African Babul Blue flitting about the dwarf *Vachelia gummifera* bushes, Long-tailed Blue feeding nearer to the hotel on the Myoporum hedge, and a male Cleopatra flitting past in the gardens, flashing his orange forewings.

After a delicious lunch back on the hotel terrace, with a pair of Kestrels in the valley and a very distant kettle of White Storks doing their best to distract us from our food, we set off again to explore the nearby

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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.

The hillside was very dry, with very few flowers out, the notable exception being a handful of the lovely Barbary Nut, a small purple iris, while the bright pink flowers of Oleander were out down in the dry riverbed itself.

Around the village, House Sparrows and House Buntings lived up to their name, Moussier's Redstarts were very showy, hopping about the Argan bushes, including a recently fledged juvenile bird, and a single male Black Redstart also appeared. In the village itself, several Black Wheatears posed nicely on the rooftops, while a single Laughing Dove flew across the dry river, pausing briefly in a palm tree. Turning over some rocks revealed the tiny, endemic Moroccan Lizard-toed Gecko, a pretty little thing who posed nicely for photos on the top of a rock, convincing himself that we couldn't see him.

As we climbed up from the river into the old village, we heard the beautiful fluting song of a Black-crowned Tchagra from within the tangle of cactus and Argan bushes nearby. Not long after he flitted across the path, and into a closer patch of decrepit *Opuntia*, where he put on a fine show hopping about on the floor, flashing his long tail, rusty wings and handsome black and white striped head, before slipping back into the depths of the bushes. As we carried on up the hill, he made a break for it and flew across to a single Argan bush, making his way up to sing right from the top of the bush, out in the open! A very impressive show from a (usually) notoriously skulking bird, and good to get this local speciality 'under the belt' so early in our trip.

Up on the hillside, around the 'old village', 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*, while a nearby Argan bush was draped with the scrambling 'Joint Pine', *Ephedra fragilis*.

Back down to the river bed and then we walked back through the village, finding a large Moorish Gecko posing on an old door, and a patch of the birthwort *Aristolochia baetica* trailing through the dead hedge. This poisonous plant is the foodplant of the Spanish Festoon butterfly, and we found a little batch of tiny, newly-hatched caterpillars starting to nibble at one or two of the leaves.

Back at the Kasbah, and before dinner Hassan introduced us to Moroccan tea, and its importance as a social ritual in Moroccan culture.

Day 3: Monday 4th March. Cap Rhir and Oued Tamri

This morning we set our sights northwards, skirting around the city of Agadir, with Pallid Swifts scything over the rooftops and Spotless Starlings singing from the wires, to reach the Atlantic coast, where the big waves were obviously attractive to the numerous surfers. 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 spiny 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 offshore (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*

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officinatum (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 *Polycarpaea nivea* with its encrusted looking flower heads and miniscule leaves; the purple flowers and succulent leaves of *Lycium imbricatum*; and a new lavender for our list, *Lavandula dentata* var. *candicans*, with narrow velvety-grey leaves, much smaller flowers and a more medicinal scent.

Two types of sea heath were in flower in the sandy areas, both *Frankenia laevis* with larger, paler pink flowers and leaves bearing a whitish crust and *Frankenia boissieri*, with its smaller flowers and dark, 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, woody 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. Unfortunately, today's specimens were all somewhat over.

Turning rocks revealed a small yellow scorpion, dozing the morning away. Around 20 people die from scorpion stings in Morocco each year, so we gave her the respect she was due. Also worthy of a little wariness, with a venomous bite that would certainly hurt, was a single Scolopendra centipede, although she soon disappeared into her burrow. Quite a few butterflies were again on the wing, with Lang's Short-tailed Blue, Bath White, Painted Lady and Clouded Yellow all pausing long enough for us to get good looks. Best of them all was the handsome little Allard's Silver Line, a copper-like butterfly with lovely brown spots on the underwing, with glistening silver centres. Restricted to the Atlas Mountains of Algeria and Morocco, it reaches its lowest altitude here on the very western edge of its range.

Reptiles included a Busack's Fringe-toed Lizard, posing nicely on some bare sand, the lovely little Moroccan Lizard-toed Gecko, and a Moorish Gecko hiding in one of the concrete culverts under the now-defunct road. Around the piles of rubble by the collapsed road, a Black Redstart and Black Wheatear had a short face off, while Moussier's Redstarts were common amongst the scrub, and Thekla Larks sang from the rocks.

Back on the bus, and we continued heading northwards along the coast, heading towards our lunch stop at the mouth of the Oued Tamri. But before we could get there, we spotted a group of black birds hunched at the cliff top. All quickly out of the bus and up onto the bank, and there in the telescope was the bird we'd come hoping to see, the 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 Sous Massa National Park.

After all enjoying great views of the 18 birds as they preened and sunned themselves, a passing fisherman walking along the clifftop flushed the flock round the corner and out of sight, our cue to leave and head off for lunch...

After our seaside picnic, with some local dogs cleaning up the uneaten meat ball sandwiches, we regrouped and headed through the dunes to the lagoon.

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Walking across the shingle, a small flock of Kentish Plovers flew up in front of us, while behind them the large flock of wintering gulls roosting on the beach suddenly took off, flushed by a fishing Osprey. An impressive bird, he proceeded to make several hunting passes over the water, finally making a proper dive, albeit unfortunately unsuccessful, before perching on the shore for a preen. Along the nearby shore, a single Moroccan Wagtail, the local form of White Wagtail, was feeding.

Elsewhere on the lagoon, a handful of Little Egrets were resting on the far bank, several Coot were diving in the deeper water, and a pair of lovely russet Ruddy Shelduck swam past across the back. On the beach, hundreds of Lesser Black-backed Gulls were gathered, together with smaller numbers of Yellow-legged Gulls and a few beautiful silvery Audouin's Gulls were coming and going to wash and rest.

At the back of the beach, an area of encrusted sand and a couple of barely-visible bones were the last remains of a young Minke Whale that washed up here more than three years ago. Amongst the sand dunes, Sea Rocket *Cakile maritima*, Sea Spurge *Euphorbia paralias* and *Suaeda vera* were all found, along with some very impressive spikes of the yellow *Cistanche phelypaea*. One of these flowering Desert Hyacinths was being visited by a nectaring Striped Hawkmoth, an impressive moth itself. Even better was to come, however, when a sudden lunge saw a previously-unnoticed praying mantis reach out and grab the moth! An impressive struggle ensued, with the hawkmoth flailing about and the mantis doing its very best to get a better grip on its prey, certainly a heavier animal than the predator. Fortunately for the moth, the mantis lost its grip, and the moth escaped. With our attention now firmly on the beautiful, silvery-spotted green mantis, with the superb English name of Devil's Flower Mantis *Bletharopsis mendica* we were amazed to find another individual nearby, and then a third, all on the same Suaeda bush!

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). Beyond the Euphorbias, we spent some time contemplating the impressive power of the Atlantic breakers, with spectacular waves rolling onto the rocks chased by plumes of spray, before getting back on board and making our way back southwards.

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, disappearing into the haze.

The Atlantic Coast: Cap Rhir and Tamri



Clockwise from top left: *Blepharops mendica* and Striped Hawkmoth; *Gynandiris sisyrinchium*; Moroccan Lizard-toed Gecko; Bald Ibises; *Striga barthlottii* on *Euphorbia officinarum*

Day 4: Tuesday 5th March. Taroudant and Tioute

The day dawned with a cloak of mist covering the valleys around the hotel, and as we set off east, our journey to Taroudant took us through the foggy Souss valley, an important area of agricultural production, particularly oranges, bananas and salad crops cultivated under polythene for export to northern Europe.

The town of Taroudant 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 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 some of the hotel's history.

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*, while several Little Swifts flew overhead.

A walk round onto the city walls gave views over the town and to the High Atlas beyond, surprisingly devoid of snow on this occasion. From this vantage point we had great views of a handful of Pallid Swifts, zooming beneath us through the gateway, while Little Swifts, normally the rarer of the two species here, was noticeably numerous, with their more whirring flight and white rumps easy to see. A White Stork was standing on her nest at the top of a telecoms mast, while a 'kettle' of others soared up in the distance, and a whole squadron of Cattle Egrets were resting on a nearby roof, before being flushed by a passing Booted Eagle.

Into the old Medina, where we sampled the retail opportunities offered by various purveyors of dates and figs, herbs and spices.

We left Taroudant 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 took our lunch on the edge of the palmery, where the much-appreciated shade on what was becoming an increasingly warm day, 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. A pair of semi-captive White Storks was patrolling the garden, occasionally popping into the gents' toilets for some unknown reason, while the local cats begged for fishy scraps from our sandwiches.

A pair of Red-rumped Swallows was flitting about overhead, while Moroccan Orange-tip and Cleopatra added some colour to the garden, and a pair of Grey Wagtails fed around the water reservoir.

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*. Numerous North African Water Frogs were found along the channels, some posing for photos while others swam away in a panic.

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Amongst the palm trees, fields of alfalfa, broad beans and barley were growing, as well as recently planted groves of olives and oranges. Among the cultivated allotments we came across the bright maroon flowers of *Vicia benghalensis*. 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 Fестoon, and sure enough a couple of these beautifully-marked butterflies were found flying around the fields, one of which found its way into Laurie's butterfly net, giving us the rare chance to have a good close-up look at this stunning butterfly.

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 community.

Day 5: Wednesday 6th 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 four 4-wheel drives, which whisked us off around the outskirts of Agadir to the Souss Massa National Park. Here we had a short introduction to the Park and the beasts that make it home, as well as the chance to use the facilities, and to dig out an Ant Lion larva from one of the many pits in the sandy soil.

Back on board the cars, and 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, with plenty of flowering plants. 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 Niger, 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 Sous 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 a handful of young calves, as well as some sparring males around the water hole.

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 a group of captive-born animals was released into the Ouadi Rime-Ouadi Achime Game Reserve, the last former-stronghold of the species in the wild. Initially introduced to a fenced enclosure in the reserve, in August 2016, after the rainy season had begun, 21 animals were released back into the wild, and in September 2016 a single calf was born, the first 'wild born' Scimitar-horned Oryx for over 30 years.

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14 more animals were released early in 2017, and another 75 in February 2018. By the end of March 2018 there had been 27 wild births, with the wild population now around 110 animals, and an ambitious target to have a self-sustaining population of 500 animals within 5 years. Good news indeed, for an animal that really needs some!

Birds during the morning included a brief juvenile Bonelli's Eagle, a winter visitor to the park in search of Woodpigeons, of which we saw plenty. Equally numerous were Kestrels, Maghreb Magpie, Goldfinches and Linnets. Between the two enclosures we found a small group of Short-toed Larks, singing with their lovely rolling song, and a stop in the second enclosure revealed a pair of wonderfully confiding Stone Curlews. Busack's Fringe-toed Lizards were quite common in the enclosures, another Moroccan Lizard-toed Gecko was found under a rock, and a lively Spur-thighed Tortoise was spotted at the roadside.

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 included the large pink flowers of *Erodium hesperium* and the pinky knapweed *Centaurea aspera ssp gentilis*, two plants shared between coastal Morocco and the Canary Islands, and the little blue borage *Mairetis microsperma*. 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 lippi*.

Leaving the National Park behind, we had a coffee and commerce stop at a local pottery, before continuing northwards again, for our final stop at the rivermouth at Oued Souss. The tide was right in, and the muddy banks all underwater, so birds were in shorter supply than we had expected, but we were more than pleased to find a group of 95 Greater Flamingos roosting right opposite the car park. We all enjoyed watching the flamingos, as well as nearby Avocets and Curlew, while the small group of gulls included a single first-winter Mediterranean Gull and a handful of Sandwich Terns. A real surprise, out over the sea, was a large 'skein' of Spoonbills, maybe 100 or more, migrating northwards.

From here, it was a quick trip through the back streets of southern Agadir back to the Atlas Kasbah, where we had some poolside relaxation time before dinner.



Souss Massa National Park



Top: Stone Curlew. Left: Addax. Right: Dorcas Gazelle.
Page 10: Scimitar-horned Oryx

Day 6: Thursday 7th 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 Toubkal 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 – we found several large caterpillars, with their black and yellow striped warning colours, as well as an adult Spur-thighed Tortoise of the locally endemic *soussensis* subspecies hiding in the bottom of the thorny 'dead hedge'.

After a coffee stop in Ait Baha, when an Atlas Long-legged Buzzard soared briefly over the distant ridge, and a visit to the famous local cobblers, we climbed further into the Anti-Atlas.

Onwards into the arid mountains, with Barbary Ground Squirrels posing particularly nicely on the roadside rocks, as well as at least one large male Bibron's Agama and a brief Little Owl.

Our next roadside stop introduced us to one of the star plants of the Anti Atlas, the tall, clump-forming toadflax *Linaria ventricosa*, a particularly handsome plant with slightly glaucous foliage and a long spike of beautiful creamy yellow flowers, striped with maroon. This is a plant, almost restricted to the Anti-Atlas, but which just slips into the southern lower slopes of the High Atlas. The same area was home to the delicate blue flowers, centred yellow, of *Volutaria crupinoides*, and two very delicate looking Tassel Hyacinths *Leopoldia comosa*.

Back on the bus, and on 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.

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*.

After another tasty lunch, taken in the shade of the *agadir*, under the watchful eyes of a quartet of local children, we wandered into the nearby fields, checking out the circular pavements, used for communal threshing of the crops.

From here we retraced our steps, stopping on an area of rocky hillside covered with *Euphorbia officinarum*, here growing in the beautifully tight cushions of the *echinarum* form (considered by some to be a distinct subspecies). Amongst the rock garden of Euphorbia and Argan, we each found our quiet spot to contemplate the view, while Wall Brown butterflies patrolled and Moussier's Redstarts flitted about, feeding their young and buzzing at the intruders.

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Our final stop was a little lower down, where we found one last endemic for the day: the abundant yellow flowered broom-like *Hesperolaburnum platycarpum*, with sweetly-smelling flowers. This shrub was covering much of the hillside in places, a blaze of yellow. The stems of *Hesperolaburnum* are used to weave baskets such as those seen in the cool anteroom of the agadir.

Day 7: Friday 8th 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 and *Euphorbia officinarum*. A pool in the otherwise-dry river bed was attracting a constant stream of birds, with numerous Blackcaps and Chaffinches coming to drink, as well as a single Woodpigeon and Robin. On the opposite slope, a herd of Dromedaries was grazing, with one or two very small youngsters among them.

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 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*, although the flowers were all just over.

Reaching the palmery at the start of Paradise Valley, we found some large heaps of basking Moorish Terrapins along the water's edge, with Grey Wagtail, Black Wheatears and a lovely male Blue Rock Thrush all flitting about the rocks. 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. A real treat came in the form of a large, fresh Two-tailed Pasha, cruising past us a couple of times, before flying up over the hillside.

Unfortunately, the combination of two winters of heavy rain storms, and the subsequent construction of a new road through the valley meant that 'paradise' had pretty much been paved over and is not anything paradisiacal, and we re-boarded the bus and departed, heading upwards (ever upwards) towards Immouzer, through some superb geological scenery.

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'. A Southern Scarce Swallowtail spent quite some time nectaring at the garden flowers, and a Rock Bunting put in a much shorter appearance before disappearing behind the building.

Lunch out of the way, and a wander along the road revealed Capers *Capparis spinosa* growing on a shady wall, while a short walk into the surrounding olive groves revealed the 'Friar's Cowl' *Arisarum vulgare*, with at least three found in flower, and both Speckled Wood and Wall Brown flying in the dappled shade.

The High Atlas



Top: High Atlas scenery

Left (top to bottom): *Genista tricuspidata* and *Aristolochia baetica*.

Centre (top to bottom): Moroccan Day Gecko and *Polygala balansae*

Right (top to bottom): *Fritillaria lusitanica* and Moussier's Redstart

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Heading back up to Immouzer after lunch, 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 for the more fleet of foot amongst us, we found the stunning *Fritillaria lusitanica* growing beneath the milkwort, a species of Iberia and north west Africa.

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 Kermes Oak, *Quercus coccifera*, 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. This valley also held one of the star birds of the trip, with two singing male Tristram's Warblers amongst the shrubby oaks and a quiet female keeping a much lower profile. This beautiful bird is endemic to the mountains of North Africa, normally found much higher than this but perhaps moving down to this lower altitude for the winter.

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*, the pretty little *Ajuga iva* with deep cerise-pink flowers (unlike the yellow-flowered form seen earlier in the week growing near the Kasbah), the endemic white-flowered bindweed *Convolvulus glauorum* and the miniscule daisy, *Bellis annua* subsp. *microcephala*. The rocks were home to several Moroccan Day Geckos, whilst also giving us the perfect location for a group photo, with the stunning backdrop of the High Atlas

After taking our fill of the impressive views across to the snow-caps of the High Atlas, it was homewards bound, 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 9th March. Atlas Kasbah and return home

One final morning wander took some of us back down to the goat track and the increasingly dry hillsides where we enjoyed excellent views of two very confiding Little Owls, and we finally caught up with Western Orphean Warbler in the Argan trees.

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 Rasheeda, Hussein, and the Atlas Kasbah team for our stay and their great hospitality.

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	SCIENTIFIC NAME	NOTES	First seen
PTERIDOPHYTES			
	<i>Adiantum capillus-veneris</i>	Maidenhair Fern Along the water channels in the palmery at Tioute	5 th
CONIFERS			
Cupressaceae			
	<i>Cupressus sempervirens</i>	Pencil Cypress In the garden & around Immouzer	8 th
	<i>Tetraclinis articulata</i>	Thuya of the Berbers Common higher up in the High Atlas	8 th
Ephedraceae			
	<i>Ephedra fragilis</i>	Joint Pine Scrambling up through bushes: eg amongst the Opuntia in the old village	3 rd
Pinaceae			
	<i>Pinus halepensis</i>	Aleppo Pine Planted around Immouzer	8 th
DICOTYLEDONS			
Acanthaceae			
	<i>Justicia adhatoda</i>	Malabar Nut the white-flowered 'shrimp flower' tree, in the gardens of the Palais Salem, Taroudant	5 th
Aizoaceae			
	<i>Carpobrotus acinaciformis</i>	Hottentot Fig eg planted in the garden, along the roadsides around Agadir	3 rd
	<i>Aizoon canariense</i>	A very low-growing Mesemb, flat to the ground with tiny flowers, eg the start of the goat track	3 rd
	<i>Aizoon (=Aizoanthemum) hispanicum</i>	The Mesemb with succulent, sausage-shaped leaves, on the trackside at Cap Rhir	4 th
	<i>Mesembryanthemum crystallinum</i>	The Mesemb, with broad, reddish leaves covered in 'jewels' of dew, white flower, eg Cap Rhir	4 th
Amaranthaceae			
	<i>Salsola oppositifolia</i>	thorny shrub with succulent, hook-tipped leaves, eg Cap Rhir	4 th
Anacardiaceae			
	<i>Pistacia lentiscus</i>	Higher up in the High Atlas	8 th
	<i>Schinus molle</i>	Peruvian Pepper Tree by the bus at the end of the Tioute palmery walk: pink pepper corns	5 th
	<i>Searsia (=Rhus) tripartita</i>	three-lobed leaves, 'hawthorn-like' bush, Cap Rhir	4 th
Apiaceae			
	<i>Eryngium ilicifolium</i>	Along the goat track	3 rd
E	<i>Sclerosciadium nodiflorum</i>	The low-growing umbellifer on sandy soil	4 th
	<i>Ferula vulgare</i>	Giant Fennel In the Oryx enclosure and the Anti Atlas	6 th
Apocyanaceae (includes Asclepiaceae)			
	<i>Calotropis procera</i>	The large, Saharan scrub, food plant of the Plain Tiger	7 th
	<i>Nerium oleander</i>	Oleander In the dried river bed	3 rd
	<i>Periploca angustifolia</i>	Clambering vine with bullhorn seed pods	3 rd
	<i>Orbea decaisneana</i> var. <i>herpsiderum</i>	Fleshy, purple-spotted succulent, growing at the base of the dead hedge outside the hotel gates	3 rd
	<i>Apteranthes (=Caraluma) europaea</i>	Squarer stemmed, purplish, fleshy succulent, on the cliffs in Paradise Valley	8 th
Araceae			
	<i>Arisarum vulgare</i>	Flowering under the olives at Immouzer (leaves common elsewhere)	8 th
Aristolochiaceae			
	<i>Aristolochia baetica</i>	One patch in the old village. Abundant in the palmery, and in flower at Immouzer.: vine with 'dutchman's pipe' flowers, the food plant of Spanish Festoon	3 rd
Asteraceae			
	<i>Andryala pinnatifida</i>	The 'DYD' (damned yellow daisy) with 'furry balls', Cap Rhir	4 th
	<i>Anvillea garcinii</i>	The yellow composite with minty-lemon scented foliage, eg outside the agadir	7 th

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	SCIENTIFIC NAME	NOTES	First seen
	<i>Bellis annua ssp microcephala</i>	At the highest point on the High Atlas drive	8 th
	<i>Calendula arvensis</i>	Field Marigold Common arable weed, eg in the palmery	5 th
	<i>Catananche arenaria</i>	Creamy, with maroon centre	3 rd
	<i>Centaurea aspera ssp gentilis</i>	The pinky knapweed at eg Cap Rhir and Sous Massa. Restricted to Morocco and the Canary Islands	4 th
	<i>Chrysanthemum coronarium</i>	Crown Daisy	3 rd
	<i>Cladanthus arabicus</i>	Large orangey composite with feathery aromatic leaves	3 rd
	<i>Evax (=Filago) aff pygmaea</i>	The tiny cudweed at the highest stop in the High Atlas	8 th
	<i>Ismelia versicolor</i> (= <i>Chrysanthemum carinatum</i>)	The three-coloured daisy between the two enclosures	6 th
E	<i>Kleinia (=Senecio) anteuphorbium</i>	Succulent shrubby 'groundsel' around Cap Rhir	4 th
	<i>Launaea arborescens</i>	Chicken wire bush	3 rd
E	<i>Nauplius imbricatus</i>	Fragrant leaves, yellow flowers: bush around Cap Rhir	4 th
	<i>Onopordum cf macranthum</i>	The large thistle between the animal enclosures	6 th
	<i>Pallenis spinosa</i>	Spiny bracts	3 rd
	<i>Phagnalon saxatile</i>	'shaving brush' flower, in the High Atlas	8 th
	<i>Volutaria lippii</i>	The common blue 'knapweed', a frequent annual in the garden and field edges	3 rd
	<i>Volutaria mucronata</i>	The pinky 'knapweed' in the Anti Atlas	7 th
	<i>Volutaria crupinoides</i>	The blue and yellow 'knapweed' in the Anti Atlas	7 th
	<i>Warionia saharae</i>	The sweetly-scented desert shrub, growing beneath the Agadir kasbah, and high up on a cliff in Paradise Valley	4 th
Balanophoraceae			
	<i>Cynomorum coccineum</i>	Maroon coloured parasite, on sandy soil near Cap Rhir	4 th
Boraginaceae			
	<i>Echium horridum</i>	The red 'bugloss' with long spines	3 rd
	<i>Mairetis microsperma</i>	Little blue 'borage' on the roadside, Cap Rhir: endemic to Morocco and the Canaries	4 th
	<i>Heliotropium crispum</i>	The white heliotrope eg on the goat track and at Tamri	3 rd
Brassicaceae			
	<i>Cakile maritime</i>	Sea Rocket	4 th
	<i>Biscutella didyma</i>	Weedy yellow brassica: at the highest stop in the High Atlas	8 th
Cactaceae			
	<i>Opuntia ficus-barbarica (=O major)</i>	Fig of the Berbers An invasive, domesticated cactus, originating in Mexico, common around villages	3 rd
	<i>Austrocylindropuntia subulata</i>	The cylindrical cactus, introduced from Peru	3 rd
Cappariaceae			
	<i>Capparis spinosa</i>	Caper. In the shade near the lunch spot, Immouzer	8 th
Caryophyllaceae			
	<i>Paronychia argentea</i>	Papery white flowers	3 rd
	<i>Polycarpaea nivea</i>	Encrusted grey semi-shrub, Cap Rhir	4 th
	<i>Silene colorata</i>	Mediterranean Catchfly red-flowered campion in the flower beds at Immouzer	8 th
	<i>Vaccaria hispanica</i>	Cow Soapwort The pink-flowered 'campion' in the barley field on the first day	3 rd
Casuarinaceae			
	<i>Casuarina equisetifolia</i>	Australian introduction, in the garden	3 rd
Chenopodiaceae			
	<i>Suaeda vera</i>	Shrubs in the dunes at Oued Tamri	4 th
Cistaceae			
	<i>Cistus crispus</i>	In the High Atlas	8 th
	<i>Helianthemum confertum</i>	In the first animal enclosure	6 th
	<i>Helianthemum lippii</i>	In the second animal enclosure	6 th
Convolvulaceae (includes Cuscutaceae)			
	<i>Convolvulus althaeoides</i>	Large pink flowered bindweed, eg around the garden, field margins etc	3 rd

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	SCIENTIFIC NAME	NOTES	First seen
E	<i>Convolvulus glauorum</i>	The white-flowered convolvulus with the leaves like althaeoides, at the last High Atlas stop	8 th
	<i>Cuscuta sp</i>	a Dodder. At least two species, one yellow stemmed and one pink stemmed, sprawling over roadside shrubs on the way to Tioute	5 th
	<i>Ipomaea batatus</i>	Sweet Potato. Purple-flowered 'morning glory' around the grey-water ponds in the garden	5 th
Crassulaceae			
	<i>Umbilicus rupestris</i>	Navelwort Amongst the rocks at Immouzer	8 th
Euphorbiaceae			
	<i>Euphorbia peplus</i>	Petty Spurge Eg in the garden: ruderal weed	3 rd
	<i>Euphorbia exigua</i>	Dwarf Spurge Annual weed, in the flower beds at Immouzer	8 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)	4 th
	<i>Euphorbia ingens</i>	Candelabra Tree The tree spurge, eg in the Palace hotel gardens	5 th
	<i>Euphorbia paralias</i>	Sea Spurge On the beach at Oued Tamri	4 th
	<i>Euphorbia regis-jubae</i>	Lime green, shrub-forming Euphorbia around Cap Rhir. Endemic to Morocco and the Canary Islands	4 th
	<i>Ricinus communis</i>	Castor Oil Plant roadside weed	5 th
	<i>Mercurialis annua</i>	Annual Mercury arable weed in the palmery	5 th
Fabaceae			
E	<i>Vachelia (=Acacia) gummifera</i>	Small bush, red stems, fine leaves	3 rd
	<i>Vachelia (=Acacia) ehrenbergiana</i>	Very thorny shrub on the drive into Sous Massa NP	6 th
	<i>Acacia saligna</i>	Golden Wattle Australian, planted in the garden and common in the animal enclosures at Sous Massa	3 rd
	<i>Ceratonia siliqua</i>	Carob Planted in the garden, and in the palmery at Tioute	3 rd
	<i>Coronilla scorpioides</i>	The tiny yellow-flowered pea in the High Atlas	8 th
	<i>Chamaecytisus mollis</i>	White-flowered spiny shrub along the goat track	9 th
	<i>Genista tricuspidata</i>	The yellow 'gorse' all over the High Atlas hillsides	8 th
E	<i>Hesperolaburnum platycarpum</i>	The common yellow 'gorse' in the Anti Atlas: sweetly smelling flowers, stems used for basket weaving	7 th
	<i>Lotus creticus</i>	The yellow bird's foot trefoil	3 rd
E	<i>Lotus assakensis</i>	The glaucous-leaved bird's foot trefoil in the sand at Tamri	4 th
	<i>Ononis tournefortii</i>	The tiny, pink-flowered restharrow in the sand at Tamri	4 th
	<i>Ononis natrix</i>	Smelly, sticky leaves, yellow restharrow along roadsides	3 rd
	<i>Retama monosperma</i>	The white-flowered broom around Sous Massa	6 th
	<i>Vicia benghalensis</i>	The deep maroon vetch amongst the barley, in the palmery	5 th
Fagaceae			
	<i>Quercus coccifera</i>	Kermes Oak The spiky-leaved shrubby oak in the High Atlas	8 th
Frankeniaceae			
e	<i>Frankenia laevis ssp velutina</i>	Larger flowered, encrusted stems	4 th
	<i>Frankenia boissieri</i>	Smaller flowers, forming domed clumps	4 th
Geraniaceae			
	<i>Erodium hesperium</i>	Large-flowered pink stork's-bill Sous Massa. restricted to Morocco and the Canaries	6 th
	<i>Erodium botrys</i>	Mediterranean Stork's-bill Arable weed in the palmery	5 th
Hypericaceae			
	<i>Hypericum aegytiacum</i>	Along the river in Paradise Valley	8 th
Lamiaceae			
	<i>Ajuga iva</i>	Arable weed, in the garden, with yellow flowers: pink flowered form in the High Atlas.	3 rd
	<i>Lavandula dentata var candicans</i>	Around Cap Rhir: velvety grey leaves, small flowers	4 th
	<i>Lavandula dentata</i>	The 'standard' variety, in the High Atlas	8 th

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	SCIENTIFIC NAME	NOTES	First seen
	<i>Lavandula multifida</i>	Pinnate leaves, medium-large flowers. eg the goat track near the hotel; common in the palmery at Tioute	3 rd
	<i>Marrubium vulgare</i>	White Horehound in the old village	3 rd
	<i>Salvia aegyptiaca</i>	The little 'desert sage', common in dry, rocky places	3 rd
	<i>Prasium majus</i>	White-flowered shrub on the walls beneath the lunch spot at Immouzer	8 th
	<i>Teucrium capitatum</i>	Tiny deep-red flowers, grey leaves	3 rd
Malvaceae			
	<i>Hibiscus rosa-sinensis</i>	Hibiscus in the garden	3 rd
	<i>Hibiscus tileaceae</i>	Cotton Bush in the garden	3 rd
	<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 Immouzer	5 th
	<i>Ficus elastic</i>	Rubber Fig A massive specimen in the harem courtyard, Palais Hotel ground, Taroudant	5 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	5 th
Myoporaceae			
	<i>Myoporum laetum</i>	The white-flowered plant planted as a hedge around the hotel garden: introduced from New Zealand	3 rd
Neuralesaceae			
	<i>Dombeya cayeuxii</i>	The 'pom pom' tree outside the Hotel Palais, Taroudant	5 th
Nyctaginaceae			
	<i>Bougainvillea sp</i>	Common planted shrubs around towns, eg the hotel garden	3 rd
Orobanchaceae			
	<i>Cistanche phelypaea</i>	Desert Hyacinth Big yellow spikes in sandy soil	4 th
E	<i>Striga barthlottii</i>	Parasitic on Euphorbia officinarum	4 th
Oleaceae			
	<i>Olea europaea</i>	Olive Wild in the High Atlas, planted in the hotel grounds	8 th
Papaveraceae			
	<i>Glaucium corniculatum</i>	Long-horned Poppy Washed-out reddish flowers	3 rd
	<i>Papaver rhoeas</i>	Common Poppy High Atlas	8 th
Plantaginaceae (inc Globulariaceae and part of Scrophulariaceae)			
	<i>Globularia alypum</i>	Near the <i>Tetraclinis</i> in the lower High Atlas	8 th
E	<i>Linaria ventricosa</i>	The tall, creamy yellow toadflax, striped with maroon. At the roadside in the Anti Atlas	7 th
	<i>Nanorrhinum heterophylla</i>	Scrambling yellow 'snapdragon'	3 rd
	<i>Plantago afra</i>	The branched plantain, eg the palmery	5 th
Plumbaginaceae			
	<i>Limonium sinuatum</i>	Winged stems, blue and white flowers	3 rd
E	<i>Limonium mucronatum</i>	Very winged stems, small pink flowers: Cap Rhir, Sous Massa	4 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	8 th
Polygonaceae			
	<i>Emex spinosa</i>	The spiny 'dock', common roadside weed	3 rd
	<i>Rumex vesicarius</i>	Bladder Dock Pinkish-flushed inflated calyx	3 rd
Primulaceae			
	<i>Anagallis arvensis</i>	Scarlet Pimpernel Common form with blue flowers	3 rd
	<i>Samolus valerandi</i>	Brookweed Along the watercourse edges in the palmery	5 th
Ranunculaceae			
	<i>Ranunculus spicatus</i>	The buttercup at the Fritillary stop	8 th

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	SCIENTIFIC NAME	NOTES	First seen
	Resedaceae		
	<i>Reseda lutea</i>	Wild Mignonette	3 rd
	<i>Reseda alba</i>	White Mignonette	3 rd
	Rhamnaceae		
	<i>Zizyphus lotus</i>	Very spiny hedging bush.	3 rd
	Rosaceae		
	<i>Prunus dulcis</i>	Almond In the High Atlas	8 th
	Rubiaceae		
	<i>Rubia peregrina</i>	In the palmery: like a large goosegrass	5 th
	Sapotaceae		
E	<i>Argania spinosa</i>	Argan	3 rd
	Scrophulariaceae		
	<i>Scrophularia peregrina</i>	Nettle-leaved Figwort in the old village	3 rd
	<i>Scrophularia canina</i>	French Figwort Finely-branched leaves, eg High Atlas	8 th
	Solanaceae		
	<i>Hyoscyamus niger</i>	Black Henbane in the agadir at Laatik	7 th
	<i>Lycium intricatum</i>	Purple tubular flowers, near Cap Rhir	4 th
	<i>Nicotiana glaucum</i>	South American weed in the village, at roadsides	3 rd
	<i>Solandra maxima</i>	The big trumpet vine in the hotel gardens, Taroudant	5 th
	<i>Withania somnifera</i>	Hedges near the hotel	3 rd
	Tamaricaceae		
	<i>Tamarix gallica</i>	French Tamarisk around the wetlands at Tamri	4 th
	Verbenaceae		
	<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...	8 th
	Zygophyllaceae		
	<i>Fagonia cretica</i>	Scrambling plant with purple flowers, seed heads turn downwards on fruiting.	3 rd

MONOCOTYLEDONS			
	Amaryllidaceae		
	<i>Narcissus cantabricus</i>	White Hoop-Petticoat gone to seed, at the Fritillaria stop	8 th
	Aracaceae		
	<i>Chamaerops humilis var cerifera</i>	Dwarf Fan Palm The glaucous form, in the High Atlas	8 th
	<i>Phoenix dactylifera</i>	Date Palm A common roadside tree. Some wonderful old trees in the palmery at Tioute.	5 th
	<i>Washingtonia filifera</i>	A common planted roadside tree.	3 rd
	Asparagaceae		
	<i>Asparagus acutifolius</i>	The scrambling wild asparagus, eg in the old village	3 rd
	<i>Asparagus albus</i>	The shrubby asparagus, with pale stems	5 th
	<i>Leopoldia (=Muscari) comosa</i>	Tassell Hyacinth in the Anti Atlas	7 th
	Iridaceae		
	<i>Gynandris sisyrinchium</i>	Barbary Nut The little purple iris	3 rd
	Colchicaceae		
	<i>Androcymbium gramineum</i>	Very common, but all gone over, on dry hillsides	3 rd
	Liliaceae		
	<i>Fritillaria lusitanica</i>	Immouzer	8 th
	Poaceae		
	<i>Arundo donax</i>	Giant Reed eg in the garden	3 rd
	<i>Lamarckia aurea</i>	Feathery grass	3 rd
	Xanthorrhoeaceae		
	<i>Asphodelus ramosus ssp nervosus</i>	broad-leaved asphodel	3 rd
	<i>Asphodelus fistulosus</i>	fine-leaved asphodel on grazed hillsides	3 rd
	<i>Urginea maritima</i>	Sea Squill Tulip-like leaves on grazed hillsides	3 rd

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ENGLISH NAME	LATIN NAME	2nd	3rd	4th	5th	6th	7th	8th	9th
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)									
Ruddy Shelduck	<i>Tadorna ferruginea</i>			X					
Mallard	<i>Anas platyrhnhchos</i>					X			
Family Phasianidae (Pheasants and Partridges)									
Barbary Partridge	<i>Alectoris barbara</i>					X			
Family Sulidae (Gannets)									
Gannet	<i>Morus bassanus</i>			X					
Family Phalacrocoracidae (Cormorants)									
Great Cormorant	<i>Phalacrocorax (carbo) carbo/sinensis</i>					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	X		
Family Threskiornithidae (Spoonbills and Ibises)									
Northern Bald Ibis	<i>Geronticus eremita</i>			18		2			
	Currently categorised as Endangered , during the 2018 breeding season a record count of 147 nesting pairs was made, and by the start of 2019 the total wild population in Morocco was 708 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			
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			
Booted Eagle	<i>Aquila pennata</i>				X				
Marsh Harrier	<i>Circus aeruginosus</i>			X					
Atlas Long-legged Buzzard	<i>Buteo (rufinus) cirtensis</i>						X		X
	Recent genetic studies have shown that the <i>cirtensis</i> buzzards of North Africa are not related to the Long-legged Buzzard of the Balkans and further east, but are most similar to the Common Buzzard.								
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			

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	Family Burhinidae (Stone curlews)									
	Stone Curlew	<i>Burhinus oedicnemus</i>					X			
	Family Haematopidae (Oystercatchers)									
	Oystercatcher	<i>Haematopus ostralegus</i>					X			
	Family Scolopacidae (Sandpipers)									
	Curlew	<i>Numenius arquata</i>					X			
	Family Charadriidae (Plovers)									
	Kentish Plover	<i>Charadrius alexandrinus</i>			X					
	Family Laridae (Gulls)									
	Black-headed Gull	<i>Chroicocephalus ridibundus</i>					X			
	Mediterranean Gull	<i>Ichthyæetus melanocephalus</i>					X			
	Audouin's Gull	<i>Ichthyæetus audouinii</i>			X					
	Yellow-legged Gull	<i>Larus michahellis</i>			X		X	X	X	X
	Lesser Black-backed Gull	<i>Larus fuscus</i>			X		X	X	X	X
	Family Sternidae (Terns)									
	Sandwich Tern	<i>Sterna sandvicensis</i>			X		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	
	Collared Dove	<i>Streptopelia decaocto</i>		X	X	X	X	X	X	X
	Laughing Dove	<i>Streptopelia senegalensis</i>		X		X	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>Athena glaux</i> , found across North Africa and from southern Romania east across the Middle East and Central Asia.								
	Family Apodidae (Swifts)									
	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
	Family Alaudidae (Larks)									
	Short-toed Lark	<i>Calandrella brachydactyla</i>					X			
	Crested Lark	<i>Galerida cristata</i>				X		X		
	Thekla Lark	<i>Galerida theklae</i>		X	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.								
	Family Hirundinidae (Swallows and Martins)									
	Red-rumped Swallow	<i>Hirundo daurica</i>				X			X	
	Swallow	<i>Hirundo rustica</i>		X	X	X	X	X	X	X
	Family Motacillidae (Pipits and Wagtails)									
	White Wagtail	<i>Motacilla (a.) alba</i>		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			X	
	Tree Pipit	<i>Anthus trivialis</i>				X				X
	Family Muscicapidae (Flycatchers and Chats)									
	Black Redstart	<i>Phoenicurus ochruros</i>		X	X				X	

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Moussier's Redstart	<i>Phoenicurus moussieri</i>		X	X	X	X	X	X	X
Black Wheatear	<i>Oenanthe leucura</i>		X	X			X	X	X
Robin	<i>Erithacus rubecula</i>							X	
Blue Rock Thrush	<i>Monticola solitarius</i>							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	X	X
Western Orphean Warbler	<i>Sylvia hortensis</i>						X		X
Western Subalpine Warbler	<i>Sylvia cantillans</i>		X			X		H	X
Tristram's Warbler	<i>Sylvia deserticola</i>							X	
Family Phylloscopidae (Leaf Warblers)									
Common Chiffchaff	<i>Phylloscopus collybita</i>		X	X	X	X	X	X	X
Family Cettiidae (Bush Warblers)									
Cetti's Warbler	<i>Cettia cetti</i>				H				
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
African Blue Tit	<i>Cyanistes tenerifae</i>				X				
Family Laniidae (Shrikes)									
Southern Grey Shrike	<i>Lanius elegans</i>		X	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				H	H	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	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			X		
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
Spanish Sparrow	<i>Passer hispaniolensis</i>		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
Goldfinch	<i>Carduelis carduelis</i>		X		X	X	X	X	X
Linnet	<i>Carduelis cannabina</i>		X	X	X	X	X		
Serin	<i>Serinus serinus</i>		X	X	X	X	X	X	X
Family Emberizidae (Buntings)									
House Bunting	<i>Emberiza sahari</i>		X	X	X	X	X	X	X
Cirl Bunting	<i>Emberiza cirlus</i>				X			X	X
Rock Bunting	<i>Emberiza cia</i>							X	

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	ENGLISH NAME	LATIN NAME	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th
AMPHIBIANS & REPTILES										
	North African Water Frog	<i>Pelophylax saharica</i>		X	X	X	X	X	X	X
	Berber Toad	<i>Bufo mauretanicus</i>			X			H	H	
	Spur-thighed Tortoise	<i>Testudo graeca soussensis</i>					X	X		
	Moorish Terrapin	<i>Mauremys leprosa saharica</i>				X			X	
	Moorish Gecko	<i>Tarentola mauretanicus</i>		X	X	X		X		
	Mediterranean Chameleon	<i>Chameleo chameleon</i>								
E	Moroccan Lizard-toed Gecko	<i>Saurodactylus brosseti</i>		X	X		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	
	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.								
	Wild Boar	<i>Sus scrofa</i>					X			
	Red Fox	<i>Vulpes vulpes</i>								X
	Minke Whale	<i>Balaenoptera acutorostrata</i>			X					
		The remains of a long-dead (washed up more than three years ago) animal were on the beach at Oued Tamri on 6 th .								
	Barbary Ground Squirrel	<i>Atlantoxerus getulus</i>						X	X	X

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BUTTERFLIES										
Family Papilionidae (Swallowtails)										
	Spanish Festoon	<i>Zerynthia rumina</i>		X		X				
	Southern Scarce Swallowtail	<i>Iphiclides (podarius) feisthamelii</i>							X	
Family Pieridae (Whites)										
	Moroccan Orange Tip	<i>Anthocharis belia</i>				X				
	Greenish Black-tip	<i>Euchloe charltonia</i>		X						
	Large White	<i>Pieris brassicae</i>		X		X	X	X	X	X
	Small White	<i>Pieris rapae mauretanica</i>		X		X	X	X	X	X
	Bath White	<i>Pontia daplidice</i>		X	X	X	X	X	X	X
	Clouded Yellow	<i>Colias croceus</i>		X	x	X	X	X	X	X
	Cleopatra	<i>Gonopteryx cleopatra</i>		X	X	X	X		X	X
Family Nymphalidae (Admirals and Fritillaries)										
	Painted Lady	<i>Vanessa cardui</i>		X	X	X	X	X	X	X
	Two-tailed Pasha	<i>Charaxes jasius</i>							X	
Family Satyridae (Browns)										
	Speckled Wood	<i>Pararge aegeria</i>		X		X			X	X
	Wall Brown	<i>Lasiommata megera</i>						X	X	X
Family Danaide (Monarchs)										
	Plain Tiger	<i>Danaus chrysippus</i>						X		
Family Lycaenidae (Blues & Coppers)										
	Allard's Silver Lines	<i>Cigaritis allardi</i>			X					
	Moroccan Hairstreak	<i>Tomares mauretanicus</i>		X						
	Provençal Haistreak	<i>Tomares ballus</i>		X				X		
	Small Copper	<i>Lycaena phlaeas</i>		X	X	X	X	X	X	X
	African Babul Blue	<i>Azanus jesus</i>		X						
	False Baton Blue	<i>Pseudophilotes abencerragus</i>					X			
	Lang's Short-tailed Blue	<i>Leptotes pirithous</i>		X	X		X	X		X
	Long-tailed Blue	<i>Lampides boeticus</i>		X		X				X



Allard's Silver Line (left) and Lang's Short-tailed Blue (right). Devil's Flower Mantis (page 26)

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MISCELLANEOUS		
Epaulet Skimmer	<i>Orthetrum chrysostiga</i>	1 male along the 'stream' through the palmery, 5 th
Orange-winged Dropwing	<i>Trithemis kirbyi</i>	3 males around the 'reservoir' at the palmery, 5 th
Sahara Blue-tailed Damselfly	<i>Ischnura saharensis</i>	In the reeds at Tamri, 3 rd
Striped Hawk-moth	<i>Hyles livornica</i>	One feeding on Cistanche (and avoiding being eaten by the mantis) at Tamri, 3 rd
Hummingbird Hawk-moth	<i>Macroglossum stellarum</i>	One feeding on Bougainvillea, Tioute, 5 th , and on the periwinkle at Immouzer, 8 th
Yellow Underwing Pearl	<i>Uresiphita gilvata</i>	The caterpillars feeding on Retama in the car park at Sous Massa NP, 6 th . A rare migrant to the UK in the autumn
Crimson Speckled	<i>Utethesia pulchella</i>	The white moth with black and red spots, Sous Massa NP, 6 th . Another rare migrant to the UK, with around 100 records in the last century
a blister beetle	<i>Mylabris sp.</i>	The large red and black beetles seen near the Kasbah and in the Anti-Atlas
Devil's Flower Mantis	<i>Blepharops mendica</i>	Three beautiful green mantises, spotted with cream, in one bush at Oued Tamri, 3 rd
'big black scorpion'	<i>Hottentotta gentili</i>	Under a stone in the Anti-Atlas, 7 th
'small yellow scorpion'	<i>Buthus sp.</i>	Several under stones during the week
Giant Centipede	<i>Scolopendra sp</i>	Cap Rhir, 3 rd
European Ant Lion	<i>Euroleon nostras</i>	A big adult in the barley field on 3 rd , and a larva extracted from the bottom of one of the many pits at Sous Massa, 6 th
a mason bee	<i>Megachile sicula</i>	The orange and black bee at Oued Tamri
a wasp	<i>Megascolia bidens</i>	The giant wasp, male black with two yellow dots, seen near the Kasbah on 3 rd and in the garden on 8 th

