

Morocco, species list and trip report, 29th February to 7th March 2020

WILDLIFE TRAVEL



Morocco 2020



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#	DATE	LOCATIONS AND NOTES
1	29 th February	Outbound from Manchester and Gatwick to Agadir Al-Massira Airport; transfer to Atlas Kasbah.
2	1 st March	Atlas Kasbah. Tighanimine El Baz (Valley of the Eagle).
3	2 nd March	Atlantic coast: Oued Tamri and Cap Rhir.
4	3 rd March	Taroudant, Tioute Palmery and women's argan oil co-operative.
5	4 th March	Souss Massa National Park; Sahelo-Saharan megafauna.
6	5 th March	Anti-Atlas: Ait Baha and Agadir at Laatik.
7	6 th March	Western High Atlas: Cascades du Imouzzet.
8	7 th March	Atlas Kasbah and local area; evening return flights to UK.

LIST OF TRAVELLERS

Leaders

Charlie Rugeroni
Chris Kirby-Lambert

A useful website for the flora of south-west Morocco is found at <http://www.teline.fr/en> and <http://www.floramaroccana.fr/apiaceae>.



Front: *Linaria bipartita* (Chris Kirby-Lambert). **Above:** the group at the Atlas Kasbah (Charlie Rugeroni).

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Day One: Saturday 29th February - Outbound from Manchester and Gatwick to Agadir Al-Massira Airport; transfer to Atlas Kasbah

It's fair to say that we all looked forward to leaving 'Jorge' and his rain behind at UK-on-Sea. It was a good flight with an early arrival at Al-Massira Airport. A little dispiriting though to realise that where once there had been a long form to complete and recently done away with, we now came face to face with a new one - courtesy of a COVID-19 Public Health Form. As we lined up to have our passports stamped some of us wondered where the completed forms, armfuls of which were being collected from each passport control cabinet, would end up.

Once through passport control and currency exchange, we met up with Mohamed, our local guide and driver for most of the week and Yusef our driver for Monday. We made our way into a warm evening and quickening darkness and to our home range for the week - the fine Atlas Kasbah. On arrival, Hassan, M'bark and Ibrahim met and welcomed us to the Kasbah with the first of our delightful 'little teas': tonight's Basil. Luggage was left in the night reception area and we were whisked off to supper and to a lasting rapport with our serviettes and their pigeon holes.

Moroccan bread and black olives, then a delightful tagine, followed by a typical Moroccan dessert, and the second of our 'little teas', thyme, and we were ready for bed.

Day Two: Sunday 1st March - Atlas Kasbah and Tighanimine El Baz (Valley of the Eagle)

We awoke to low cloud, semi-darkness and the bubbling and stuttering song of Common Bulbuls on the Horseradish tree and Hibiscus shrubs. The bulbuls could be heard and then seen from the terrace, competing for attention with the Tighanimine cockerels and dogs; all ushering us to a breakfast of omelettes, amlou, jams and yoghurts, and a selection of breads and hot drinks. At a briefing, we learned of our itinerary for the week and appreciated why this area had been chosen by Wildlife Travel. Here on the south-western slopes of the High Atlas we had access to a diverse and interesting flora and wildlife generally. The mix of coastal and semi-desert habitats was sprinkled with western Mediterranean, North African and Macaronesian influences. Over the next few days we would encounter endemic plant species, birds and other wildlife that would illustrate the character and special distinctiveness of this area.

The Atlas Kasbah had been developed with sustainability in mind and one of the features of the garden was a filtration system for the 'grey water' from the hotel, which was used to irrigate the garden: an oasis of green in an otherwise dry landscape. Growing around the pools used in the filtration system was Sweet Potato, *Ipomaea batatus*, while a couple of Sahara Pool Frogs sat on the lips of the terraced pools. As we wound our way through the garden, some of the plants spotted at the top included: *Acalypha*, Pokeweed *Phytolacca*, Cotton Bush *Hibiscus tiliaceus*, *Plumbago* and *Gazania*. The whole garden being delineated by a *Myoporum tenuifolium* hedge planted to act as an evergreen wind break. Earlier, we had seen our first butterfly of the trip, a Long-tailed Blue catching the morning light. In the oasis that was the garden, we added the North African subspecies of Small White, Moroccan Orange Tip, Lang's Short-tailed Blue and Small Copper, spotted by Jude, to the trip list. We were also surprised to find a Spur-thighed Tortoise, a species not seen at the Kasbah on previous trips, browsing on garden weeds.

We were introduced to arguably the single most important plant of the region, one of the specialities of this corner of Morocco, the Argan Tree *Argania spinosa*, an endemic tree that would accompany us for much of our time over the next week. Argan belongs to the family Sapotaceae and today Argan forests are confined to this corner of southern Morocco, centred in the Sous 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 feeding animals and in much traditional architecture. The area of Argan forest had shrunk by some 50% over the last 100 years, owing to charcoal-making, grazing, and increasingly intensive cultivation. The best hope for the conservation of the trees lay in the recent development of a thriving export market for argan oil. Argan forests now covered some 8,000 km² and were designated a UNESCO Biosphere Reserve. There were several examples of this hermaphrodite flowered tree in the garden, in fruit in various stages of development and in flower. By the gates to the car-park several Painted Lady butterflies were seen nectaring on *Bougainvillea*.

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We took a right turn out of the Kasbah along the road and into a field with limestone bedrock for a track. Spiny plants such as the 'chicken-wire bush' *Launaea arborescens* (with its tiny yellow composite flowers), the thorny *Zizyphus lotus* (regarded as the lotus tree of Greek mythology) were used as hedges around the fields. *Periploca angustifolia*, an interesting coastal shrub of Morocco and Spain with fleshy narrow leaves, horn-like fruits (not on show) and wine-red and green stellate flowers with an unusual morphology grew opposite the Kasbah gates. *Withania frutescens* with small green bell flowers was also present here as was *Asphodelus fistulosus*, whose leaves are laced with silica crystals, and the sticky, smelly *Ononis natrix*, with yellow flowers. Here we encountered some of trip's specialities, like *Cladanthus arabicus*, beginning to flower. This North African annual produces large, scented, orange flowers in a mound of fragrant, feathery foliage; a superb plant that could grace any front of border at home. *Fagonia cretica* was also seen scrambling on the dusty ground. Another superb plant was the 'knapweed-like' *Volutaria lippii*, with bright violet/pink flower heads.

As we made our way to the drier and less forgiving environment of the agricultural fields and Argan forest we were greeted by several Greenish Black-tip butterflies, flitting delicately along the roadside, and several striking red and black spotted blister beetles, a species of dry sub-Mediterranean steppe habitats whose larvae are voracious predators of grasshopper eggs and juveniles, and here seen feeding on *Asphodelus fistulosus* in the roadside ditch.

The hillsides beneath the Argan trees were pretty parched and so flowers were few and far between. Nevertheless plants like: the low-growing *Catananche arenaria*, with creamy white flower-heads with a maroon centre; the frilly, stiff green leaves of *Urginea* (= *Drymia*) *maritima*; the delightful little purple toadflax *Linaria bipartita* a Moroccan endemic, and the dwarf iris *Moraea sisyrinchium*, too early in the day for its flower to be open, were around. *Dipcadi serotinum* (the 'brown bluebell'), *Emex spinosa*, *Eruca sativa* (the Brassica), *Plantago afra*, the ferny-leaved *Lavandula multifida*, and the tiny enchanting grass *Lamarckia aurea* and well camouflaged stone grasshoppers, kept us going till we reached a farm where sheep grazed on oranges. Another fine example of camouflage was the elegant little leatherbug, looking for all the world like it had been spun out of glass and lace. The species feeds on the plant *Paronychia argentea*, seen here, and blends in surprisingly well with the colour and texture of the plant.

As well as the ever-present bulbuls, bird highlights included Serin (heard), with their bright tinkling song, Corn Bunting, Sardinian Warbler, Kestrel, Sparrowhawk flying between the Argans, and North African Chaffinch feeding under them. Running around on the limestone pavements we spotted Crested Larks and then saw a Moussier's Redstart on an Argan shrub - a smartly coloured typical bird of the area. We also saw the local subspecies of Magpie, the Maghreb Magpie, with its blue eye patch and a smaller white shoulder marking than the nominate form we are used to back home; and a Great-spotted Cuckoo too. A fresh sulphur-coloured Clouded Yellow danced past us up the track. A black caterpillar covered with red and yellow bobbles, was spotted crossing the track, a Desert Fritillary caterpillar. We also caught a brief glimpse of a Bath White (*Pontia daplidice*) at the edge of a ploughed field.

On our return some of the *Moraea* (Barbary Nut) flowers were open and the endemic *Vachellia gummifera*, associated with Argan, and an invaluable shrub/tree for the nomads of southern Morocco was noted.

After a delicious lunch back at the hotel terrace, consisting of a salad selection including 'zaalouk', a warm aubergine salad followed by a white bean stew with hotel-made bread and a little Sage tea, taken with full views of the valley below, we set off to explore the nearby village of Tighanimine with Ahmed, our guide for the afternoon. A man of few (English) words, much gravitas and a welcoming smile, quick to point out a bird or two. As we wandered past a bank of earth, there, picked out by afternoon sun were more *Moraea* growing in greater abundance and in full backlit flower. We followed the path that led along the top of a dry river bed and it was here that we heard what sounded like an alarm call of a Little Owl. We picked out Crested Lark on one of the buildings, another house had a Black Wheatear and yet another held a House Bunting. Spotless Starlings posed nicely on the semi-finished rooftops.

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Crossing the dry river, we strolled up into the old section of the village, the hillside very dry, with few flowers out, the notable exception were the Oleanders in the river-bed (some covered in the Oleander Seed Bugs - nymphs as well as adults) and *Ricinus* the Castor Oil shrub. Several blister beetles, tentatively identified as *Mylabris* cf. *abdelkaderi*, were also found on the Oleander. Close by, a Fringed Spurrey *Spergularia fimbriata* covered in Oleander seeds kept us thinking as to its ID!

We climbed, and on some boulders to our left sun-bathed a Moorish Gecko near its refuge. We continued past stands of Prickly Pear/Barbary Fig *Opuntia ficus-barbarica* in yellow flower, a widely naturalised and invasive species, with *Ephedra fragilis* sprawled over it, and a second cactus growing by a building in the old village, largely depopulated now, *Austrocylindropuntia subulata*, also in flower – a light Ferrari-red. We stopped at a view-point and took in the scene: a valley, allotments, a cane crop, the edge of the village with palm trees, rolling hills into the distance with a braying donkey and the asthmatic coughing alarm calls of guinea fowl - mostly that of a classic Moroccan scene. Behind us more Black Wheatears posed on walls of buildings with Collared Doves on telephone posts.

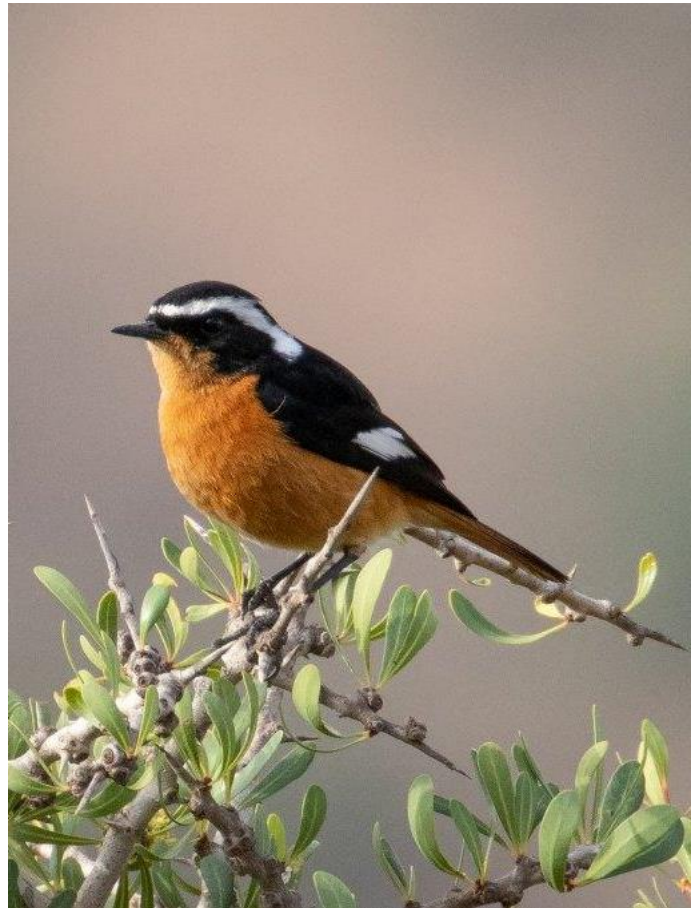
Making our way back, a small bird, silhouetted in the late afternoon sun turned out to be a Cirl Bunting and approaching the village we came across a lot of dead Dodder, *Cuscuta*, and a Cotton Thistle, *Onopordum*. Perhaps the most interesting plant seen as we entered the village was the scrambling birthwort, *Aristolochia baetica* var *bicolour*, with its saxophone shaped flowers. The foodplant of the Spanish Festoon butterfly - its caterpillars seen resting and feeding on its leaves.

Back at the Kasbah, and after reliving the day via the species lists we sat down to a supper of poached egg on an 'agadir' of lentils and the thinnest belt of cucumber with a dill flag. Delicious goat and vegetable tagines followed and we ended it all with the sweetest Moroccan honey and almond cakes.



Above: Argan (Charlie Rugeroni)

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Top: a blister beetle and *Aristolochia baetica* (Chris Kirby-Lambert). **Bottom:** *Dipcadi serotinum* and Moussier's Redstart (Chris Kirby-Lambert)

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Day Three: Monday 2nd March - Atlantic coast: Oued Tamri and Cap Rhir

Slightly overcast at first then bright sunshine, mid-twenties, and blustery at the coast.

We hoped for sunshine today as we headed north, skirting the city of Agadir, and duly got it. As we left the immediate surroundings of the city, Yusef at the wheel, Pallid Swifts slalomed above the bus and Spotless Starlings were recorded on rooftops. The vegetation began to change, with low-growing coastal steppe on the flatter ground mixing with areas of succulent *Euphorbia* scrub. Before hitting the bypass at Taghazout we drove through some road cuttings which beautifully exposed the underlying geology of sedimentary rocks, exhibiting plenty of folding and crumbling. Surfers took to the waves at Plage d'Imourane and at Plage Abouda a large gathering of gulls turned out to be mostly Yellow-legged and Lesser Black-backed, unperturbed by the camel riders; further north, wind sculpted Argan shrubs topped the coastal cliffs and camel herds grazed to our right.

On arrival at the Atlantic coast stop, just beyond Cap Rhir we were impressed by the strikingly spikey habitat. These succulent chiefly *Euphorbia*-dominated scrub communities are unique to the south-west Moroccan coastline down into the Sahara and across to the Canary Islands. They are a botanical link between this part of Morocco and the flora of the North Atlantic islands - 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 glaciations.

Here the vegetation comprised a mix of three succulent species: the dome-forming lime-green shrubby *Euphorbia regis-jubae* (found here and in the Canary Islands); the cactus-like *Euphorbia officinarum* (found in Southern Morocco and down to Mauretania); and the bizarre succulent groundsel *Kleinia anteuphobium* (endemic to Morocco) - last year's flowers giving away its family. Also making up parts of this habitat were the yellow endemic composite *Nauplius imbricatus*, *Salsola oppositifolia* with its leathery leaves and close by, the tiny purple flowered *Lycium imbricatum*.

The sands between the succulents was criss-crossed by the tracks of black darkling beetles *Pimelia* sp. and the smaller *Scaurus* sp. Beeflies darted manically about in search of their hosts, solitary bees; the species here was bedecked in a striking silver and gold fur coat. The Milk Snail shells were scattered all around and eventually we found some live specimens in a drain pipe. The invertebrate highlights were undoubtedly the scorpions. The delicately built yellow species (*Buthus* sp.) was more numerous, but the star was the black fat-tailed scorpion, the deadliest species of scorpion in Morocco, whose scientific name translates to Moorish man-killer. Chris spotted our first lizard of the day basking on a rock - Olivier's Small Lizard and shortly afterwards we came across a Moroccan Lizard-toed Gecko. A delicate and very attractive endemic species.

Two lavenders had been known to grow near each other here: the 'fern-leaved' *Lavandula multifida* and *Lavandula dentata* var. *candicans*, but the latter was unfortunately not seen. Other plants spotted included the endemic sea lavender, *Limonium mucronatum*, with the wonderfully wavy-crinkly stems and *Mesembryanthemum crystallinum*. Two types of sea-heath, *Frankaenia laevis* with the larger, paler flowers and leaves bearing a whitish crust and *Frankaenia boissieri*, with its smaller flowers and dark thyme-like leaves, forming domed mini-shrubs. *Eryngium maritimum* was also present, though not in flower.

We continued north when suddenly, 'Arrêtez!....non, désolé c'était pigeon!', then moments later, 'Arrêtez!' This time we'd spotted them, to our left on a sandy hillock just before Tamri beach. Fortunately there was a good place to stop where some mussel pickers had created a suitable flat parking spot. Once out with scopes up we were able to observe and enjoy the sight of c20 Northern Bald Ibis going about their business, feeding, sunning and preening, around 100m or so away from us. Excellent views of the ibis and a Black Redstart seen by John. Once widespread across southern and central Europe, North Africa and parts of the Middle East, this Ibis species is now considered Endangered. 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 feeding habitat to coastal development, and they reached a low of only around 100 birds by the mid-1990s. Thankfully the Moroccan population has been a conservation success story with the population now numbering 708 individuals split between two nesting areas: at Tamri and in the Sous

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Massa National Park (NP). 170 chicks fledged in 2019. As of November 2018 the Ibis has been downgraded to Endangered after over 30 years categorised as Critically Endangered by IUCN.

With the excitement of seeing the ibis we barely noticed the beautifully marked Margarita's Fringe-toed Lizards basking on the sand around us. This species is endemic to a small stretch of the Atlantic coast of Morocco between Tamri in the North and Tiznit in the South. A beautiful and very special reptile.

As we watched, the ibis slowly left their hillock, walking or flying south, big-winged and iridescent, and we moved on too. At Tamri sands we took lunch and birded under a brilliant sun and the hungry, watchful eyes of a family of friendly local dogs who enjoyed the scraps that were given them. A Cattle Egret and a Zitting Cisticola were seen in flight and then we were able to admire a Moroccan Wagtail (the local form of the White Wagtail) on the ground and then on a wall. A fleeting glimpse of a Marsh Harrier quartering the river-bank Tamarisks and shallows of the Oued Tamri was our first raptor of the day. Lunch finished, we headed for the back of the beach dunes to the river mouth lagoons, where things were a little quiet today. Flocks of Lesser Black-backed Gulls were behaving much like gannets fishing; a flock of about a dozen Coots loafed about on the river; Little Egrets were here too as was a Grey Heron. Along the dunes, Sea Rocket *Cakile maritima*, Sea Spurge *Euphorbia paralias*, the semi-woody grey coloured *Polycarpha nivea* with its encrusted looking flower heads and small leaves, the glaucous-leaved endemic *Lotus assakensis* and sandy 'uplifted' islands of *Suaeda vera*, left high and dry by Atlantic winds in a sea of sand, were all found here along with some impressive rubber-like spikes of the yellow *Cistanche phelypaea*, Desert Hyacinth, which was emerging in various places.

The smell and roar of the Atlantic breakers to the west and above the shoreline two Ravens flew south. We began to retrace our steps southwards, stopping briefly at Cap Rhir lighthouse to run after a windblown, hat surfing 300m down the road, and to see the semi-endemic (Morocco/Algeria) aromatic shrub *Warionia saharae*. The plant is said to have healing properties due to the essential oils it contains; local women use it as a perfume. We then stopped near an old cemetery to explore some *Euphorbia*-scrub. We found the climbing yellow toadflax, *Nanorrhinum heterophylla*, which appeared to hang in midair, on thread-like stems and shrubs including *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. Just as we were leaving Judy spotted a new plant for the group which turned out to be *Convolvulus trabutianus*, a small, shrubby, thorny bindweed. Some of us sat and admired the waves breaking with a windblown white hair day.

Our final stop was up at the ruined Kasbah Agadir Oufia overlooking the city and down the sweep of coastline, past Oued Sous and continuing south following the Sous Massa NP's western boundary adjoining the Atlantic coast. We also had good views of Agadir's fishing port all bathed in the late afternoon light. The site of the 1960 Agadir earthquake was seen from this vantage point.

On arrival at the Kasbah we were treated to a little refreshing Thyme tea. Hassan kindly enacted a tea ceremony with mint and wormwood and tales of his family and Berber culture. Our supper consisted of mini flatbreads filled with coleslaw and olives followed by a superb chicken tagine with fennel, lemon, peas and beans and accompanied with thyme-flavoured mash; a fruit salad for dessert - wonderful.

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Top: Northern Bald Ibis (Chris Kirby-Lambert). **Bottom:** Allard's Silver Lines and *Cistanche phelypaea* (Chris Kirby-Lambert)

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Day Four: Tuesday 3rd March - Taroudant, Tioute Palmery and women's argan oil co-operative

The day dawned bright and sunny, windless and hot, with the local bulbuls' utterances stumbling obtrusively into our early morning. We struck out east for Taroudant at 0900 along the RN11. Hedges of *Vachellia ehrenbergiana* besieged orange groves. This, the Sous valley, is an important area for agriculture, with oranges, bananas and salad crops grown under polythene for home consumption and export to northern Europe.

Taroudant, with its mud plastered walls and ramparts dating back to the 16th Century were an impressive sight on arrival. Just outside the city walls a shout of raptors stopped the vehicle and out we trooped to spot Black Kites along with soaring White Storks beyond a rubbish tip where a flock of around 30+ storks and 15+ Cattle Egrets were picking their way among the rubbish accompanied by the ubiquitous feral dogs. On a post in the mid distance we picked out an Atlas Long-legged Buzzard (or North African Buzzard or Atlas Buzzard) with its saddle-brown belly and trousers. House Buntings posed for all and a Kestrel flew past - here we got an aperitif to the Moroccan smells to come.

The impressive camel-coloured and crenelated city walls contrasted with a pure blue sky. Pulling up at the Hotel Palais Salam de Taroudant, tucked away inside the city walls, we came face to face with an impressive flowering Tropical Hydrangea/Pink Ball Tree *Dombeya wallichii* from East Africa and Asia. This fabulous hotel was a place of shade and tranquillity (coach parties having left), a world away from the hustle and bustle of the town at work. A large yellow and black carpenter bee was spotted feeding on palm flowers outside the Palais Salam and a Vagrant Emperor dragonfly patrolled the street leading towards the old city gates.

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 colonial 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 fountain was bathed in the dappled shade of immense and ancient fig trees, flowering banana plants and Loquats *Eriobotrya japonica*, and led us into what was once the harem garden, complete with a monumental Rubber Tree *Ficus elastica*, its buttress roots snaking their way across the flower bed and onto the patio. The main garden, a mix of exotics, succulents, native trees and shrubs, dwarfed the old building. Here we found a piece of paradise as we sat by the pool drinking coffee, orange juice or mint tea among the hibiscus and a magnificent flowering trumpet vine Hawaiian Lily *Solandra maxima*, with its chalice-like flowers in full bloom and the white flowering Malabar Nut *Justicia adhatoda* outside the swimming pool loos. Up above us Kestrels flew and called noisily. House Buntings sang from the garden walls, whilst in a nearby pool five Moorish Terrapins sat disconsolately.

A walk round the city walls gave us other views of the town and the High Atlas beyond to the east, with a few zooming Pallid Swifts around. A group of at least six Kestrels causing commotion flew in and out of the city's ramparts. We watched one noisy Kestrel at nest in a (scaffolding?) hole in the rampart outside wall.

Within the Taroudant medina we visited the Berber souk, where we sampled fresh dates, walnuts and embarked on retail opportunities offered by various stalls offering spices, soaps, dry fennel toothpicks, table cloths and leather goods. A cocktail of smells wafted from the city as we walked through to the other market: ground coffee, sardines and spices, marinated olives and freshly planed wood, mint and just baked flat breads, with a hint of oranges and strawberries, and the indolic smell of fresh dung. It was all there.

Leaving the intoxicating behind, 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. We reached the village of Tioute where we stopped at the palmery to eat our picnic rice salad lunch under more dappled shade, alongside more running water. There was an inquisitive White Stork walking, dignified, between the tables,

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hunting lizards and a bat which flew down for a drink. A Spanish Festoon was spotted here and in the reservoir outside some of us caught sight of a Grey Wagtail.

After lunch we set off on a walk along the irrigation channels which abounded with freshwater snails, Saharan Water Frogs and recently emerged gold and pastel blue-coloured male Epaulet Skimmers. These channels are the life blood of the palmery, which shaded numerous small and not so small allotments. A donkey's bray ricocheted from Date Palm to Date Palm *Phoenix dactylifera*. Lining the irrigation channels was the familiar Maidenhair Fern *Adiantum capillus-veneris*, along with the occasional Brookweed *Samolus valerandi*. Other water demanding plants included White Poplar *Populus alba* complete with Laughing Dove, and Carob *Cerotina siliqua*. The Lepidopteran highlight was a stunning male Cleopatra butterfly, clearly showing the vibrant orange patches on its forewings. An Egyptian Grasshopper came crashing onto a palm frond.

The bright maroon flower of a *Vicia benghalensis* held a Long-tailed Blue butterfly; Wild Madder *Rubia peregrina* was spotted by Erika here and there was also a sprawling Field Bindweed *Convolvulus arvensis* and the wonderfully bizarre Dutchman's Pipe in flower and with seed pods in green and brown purple – all in a small corner of an allotment. Moroccan Orange-tips and Cleopatras flew around fields of Alfalfa, broad beans and possibly awned wheat, looking very advanced for this time of year according to Richard W. The place had the air of a slightly unkempt yet paradisiacal Islamic garden. Bob had a Kestrel on a denuded palm-tree and we saw Hoopoe here too, with Crested and Thekla Larks.

As we left the Palmery some careful lifting or turning of stones produced a wonderful specimen – a striking (as in looks!!) young Moorish Viper, with a large head well differentiated from the body (c30cm long); certainly one of the highlights of the trip. It is classified as Near Threatened according to IUCN Red List of Threatened Species because the species is likely in significant decline due to persecution accidental mortality and over-harvesting. It can grow to over 1.3 m. The vipers feed mainly on lizards, birds and small mammals like ground squirrels.

Our final stop was at the Argan cooperative in the village; a mixture of both modern and the traditional, from the room of local Berber women cracking the nuts by hand, through to the pressing machine and bottling process. This is the second oldest cooperative in Morocco, founded in 2001, and our purchases here represented a direct way to return money to the community.

We drove back to the Atlas Kasbah after a stop for supplies and cheddar cheese. The evening meal comprised a starter of a filo pastry case filled with cheese and vegetable, drizzled with yoghurt and a touch of mint; our main dish was fish on Rosemary skewers with rice and salad and a dessert of fresh fruit-cocktail smoothie and a lemon grass little tea.



Above: Moorish Viper (Chris Kirby-Lambert)

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Day Five: Wednesday 4 March - Souss Massa National Park; Sahelo-Saharan megafauna

Mohamed arrived this morning at the head of a convoy of five 4-wheel drive vehicles which would take us to the Souss Massa NP sandwiched between the N1 and the blue Atlantic Sea on a sea misty morning. As we approached the NP entrance all cars stopped one after each other. Eventually we all understood the reason for this, for there, under an Argan Tree stood a Stone Curlew, unmoving, cryptic in camouflage and extremely close to us. It was an excellent start. After an introduction to the NP, outside the centre, as this was closed for refurbishment, we boarded the cars and entered the Rokein Special Reserve, a 2,000ha enclosure within the NP.

The 'Sahelo-Saharan megafauna' is one of the most endangered assemblages of large animals in the world; threatened by a lack of grazing through competition with domestic livestock, primarily goats and camels, and overhunting. 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 NP.

The first of these was the Addax, a large sandy to almost ghostly white 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 couples showing some courting behaviour, calves and some sparring males.

We also enjoyed great views of Red-necked Ostriches just as we entered the enclosure and later seen feeding on *Retama* flowers and walking singly or in pairs - a bit like passing ships in the morning sea mist. This North African subspecies is the largest of the Ostriches, making it the largest bird in the world and was noticeably more colourful than their sub-Saharan counterparts. The males' necks were looking particularly red-flushed, in breeding garb. Somewhat shyer were the Dorcas Gazelles, the only antelope still doing reasonably well in the wild here. At our first stop, mist had given way to bright sunshine, and at this observation mound a golf-ball sized Dung Beetle buzzed several of us before escaping capture; probably a Sacred Scarab. Linnets were on the wing as were Kestrels, Tawny Pipit, Short-toed and Crested Larks. Here too we had half-decent views of an Atlas (North African) Buzzard on the ground behind a water-hole.

Within the two enclosures, the vegetation consisted of a mix of coastal steppe, planted Eucalyptus woodland with the Australian Golden Wattle *Acacia pycnantha* and blocks of *Retama monosperma* scrub over old and not so old sand dunes. The ground flora consisted of many annuals, not all in flower, such as *Erodium hesperium* (another species shared between coastal Morocco and the Canary Islands), patches of *Volutaria lippii*, in flower and once again the little blue borage *Mairetis microsperma*, the small dandelion-like annual *Hedypnois cretica* (the most visible yellow composite in the reserve). A low-growing dwarf shrub, in much of the open steppe area of the first enclosure was *Helianthemum confertum*, with lemon yellow flowers, and inside the second enclosure we found a second *Helianthemum*, the low growing *Helianthemum lippii*, and a little sedge *Cyperus capitatus*.

Butterflies in this area included Moroccan Small Whites and a pair of small but very attractive blues, African Babul Blue and False Eros Blue. We were also treated to prolonged views of a majestic Swallowtail butterfly of the local subspecies ssp. *mauretanicus*, which is smaller and deeper yellow than the British subspecies.

It was in the buffer zone, an area stonier and flatter than inside the two enclosures that we saw several interesting birds, including Crested Lark, Short-toed Lark, Swallows, Southern Grey Shrike and Northern Wheatear. Perhaps the most exciting was the Cream Coloured Coursers, at least seven on the seaward side of the park; alarm and contact calls could be heard. There were more behind us. Once we had them in our scopes we could more easily appreciate their subtle colouration: cream and buff pastels colours, on an erect standing bird on long legs; possessing a small down-curving bill, from a head with a black eye-stripe, white supercilium and a slaty sky-blue back of head and nape. They are particularly beautiful birds, characteristic of flat, barren semi-desert areas, and are more often encountered further south and east in Morocco, on the edge of the Sahara, so it was a treat to see them. A noticeably dominant sub-shrub in the

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buffer zone was the strong sweet smelling endemic *Nauplius imbricatus* seen earlier in the week at Cap Rhir.

Within this area, an especially green patch in an otherwise adusted earth, outside some shade clothed and wind protected area held, *Dipcadi*, *Asphodel*, *Emex spinosa*, *Reseda*, a pinky knapweed *Centaurea aspera* ssp *gentilis* and *Ononis* among other low growing plants all looking especially green. Just as we were about to enter the Arrouais enclosure, Mohamed's car pulled up and some of us followed him to a position opposite a collection of rocks to the left of which stood a Little Owl.

The third of the antelopes and the largest was the elegant Scimitar-horned Oryx, with its ginger neck, tear-shaped face markings and swept back scimitar horns, found in the second enclosure within the Arrouais reserve, with an area of 1,200ha. This species is now extinct in the wild, with the population in the Souss Massa NP now the largest single herd left on the planet. In August 2016, 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. Fourteen more animals were released early in 2017 and the ambitious target is to have a self-sustaining population of 500 animals within five years. Hopeful news comes from the Chad, where last year a group of captive-born animals was released into a large fenced enclosure in the Ouadi Rimé-Ouadi Achim Game Reserve, the last former stronghold of the species in the wild.

We stopped for lunch within this enclosure atop an observation mound overlooking coastal sand cliffs and dunes. An attractively striped leaf beetle (*Galeruca* sp.) also decided to join Richard for lunch. After lunch we looked at samples of plants we had seen on the way and present here around us, such as *Erodium hesperium*. A rather fine looking flightless Darkling Beetle *Blaps* sp., well adapted to arid and semi-arid environments, was picked up at this observation mound. Oryx, Dorca's Gazelle and a Kestrel were seen too.

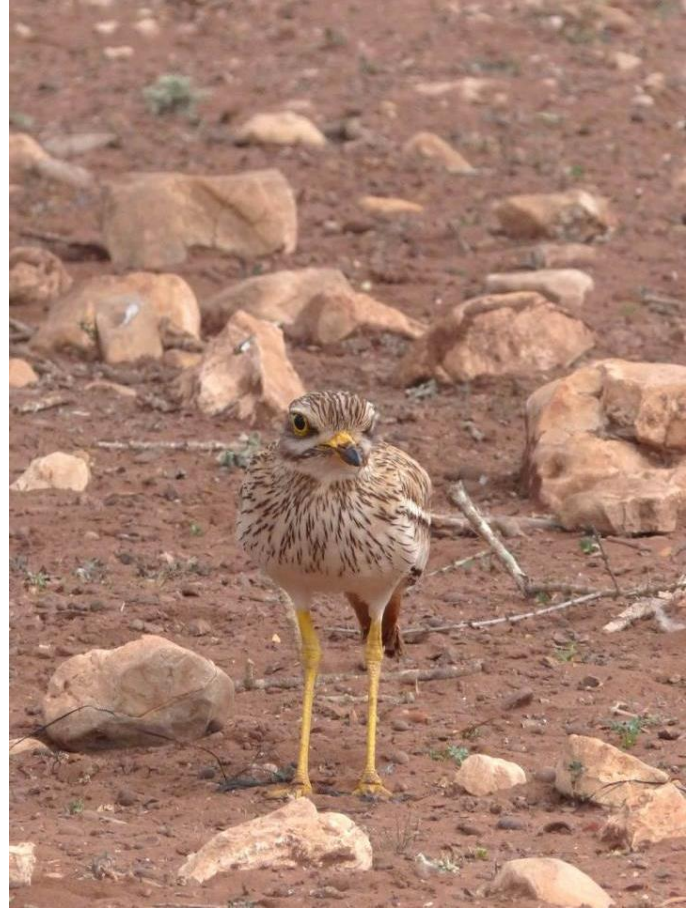
Just before we left the Arrouais enclosure a couple of the tail-end cars came upon a beautiful Moroccan Atlantic coast endemic, *Glebionis carinata* (= *Ismelia versicolor*), the tricolour chrysanthemum and the remains of an Algerian Hedgehog. The upright stems and fading flower-heads of Giant fennel *Ferula communis* stood in good numbers by the exit gate of the National Park.

On our way back, we stopped for a coffee and an ice cream, and a visit to a veritable Aladdin's ceramic cave, and then we were off once more for some bird-watching on the banks of the Oued Souss estuary, which conspired to make this our best birding day of the week. We approached from Ksima on the south bank and stopped on a new bridge to scan the various flocks of birds on or near the few isolated surface water shallows on the river bed. Just before this we had seen great numbers of soaring White Storks with Black Kites over Tarrast. There must have been over 400 White Storks, with Spoonbills, Black-winged Stilts, Redshanks, Curlews, Little Ringed Plovers, Cattle Egrets, Moroccan Cormorants, Lesser Black-backed Gulls and interestingly a large flock of Grey Herons on the river. Serins flew above us as we got back on board and headed west to a place on the northern bank, south of one of the King's Palace and Royal Mosque.

The sun was acting against us, nevertheless we enjoyed the sight and sound of 200+ grunting Greater Flamingos, the largest and most widely distributed. 50+ Avocet, Black-headed Gulls, Greenshank, Mallard and a Laughing Dove were all noted, and as we were leaving an Osprey was spotted silhouetted on a tower across the water.

On arrival at the hotel there was no little tea. This came as we reviewed our day's sightings - a mint tea, most welcome on the terrace. A most spectacular day was ended with another superb evening meal of bean soup, a filo pastry wrapped packet of chicken, vegetables and ground almonds and a brandy snap-like dessert dredged in honey and sandwiching sweet pears and hotel-made confectioner's custard; a wonderful endpoint, delightfully 'musacked' by Ahmed our guide to Tighanimine playing his sintir guitar.

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Top: Scimitar-horned Oryx and Stone-curlew (Charlie Rugeroni). **Bottom:** Dorcas Gazelle (Chris Kirby-Lambert)

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Day Six: Thursday 5th March - Anti Atlas: Ait Baha and Agadir at Laatik

Misty low cloud turned to fine drizzle as we drove south east to Ait Baha to explore the wildlife in this region of the Anti-Atlas. This dissipated mid-morning.

The feathery *Retama monosperma*, with its white flowers lined the road in many places. At Biougra centre for agriculture it was the palm tree *Washingtonia* which replaced *Retama* along the streets and square. A rubbish tip provided a good spot to see some grubby-looking White Storks.

Shortly after this, as we approached the Oued Souss we stopped at an innocuous looking field where we spotted lanky-stemmed, grey-leaved, fleshy shrubs, up to 3-4 metres tall of a predominantly Saharan species, *Calotropis procera*, in the Apocynaceae (was 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 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. It was in bud and flower. There were lupins *Lupinus* sp and the small blue flowered Macaronesian *Mairetis microsperma* (Echium-like) growing over the thorny hedge. Investigation of some rocks by the roadside produced a particularly intimidating ground beetle (*Scarites* sp.), understandably greeting us with a threat display of its oversized mandibles.

Birds here included Thekla Lark, Grey and Pied Wagtail and Black Redstart. The *Opuntia* cactus growing here was infested with a species of mealybug.

We arrived at Ait Baha around mid-morning and our stop here was at the Hotel Al Adarissa for a coffee/tea and some bird watching from its terrace: House Bunting, Chiffchaff and a fleeting view of Short-toed Eagle were all noted. The town, the last main settlement before the Anti-Atlas proper, seemed well-off and Mohamed explained how many of the Berbers here had made their money working in mining in France. After a spot of Berber shoe shopping at the traditional local cobblers, Bob, Richard R and Jenny came away with loafers, slippers or sandals - all very trans-shoe. We then headed further up into the Anti-Atlas to around 1,300m high. We stopped a couple of times to see goats climbing Argan trees, rock loving Barbary Ground Squirrels, the impressive basking Bibron's Agamas, *Lavandula*, *Plantago afra*, *Cladanthus* and a Spectacled Warbler. The roadside was brightened by blister beetles, the numbers in the area suggesting a recent mass emergence, and several *Buthus* sp. scorpions.

The region contained some of the oldest rocks in the world: a very ancient mountain range, which began its genesis around 300 million years ago and once rivalled the Himalayas in height. Today it was eroded, the highest peaks between 2,500-2,700m. In comparison, the more recent High Atlas only reached their maximum height within the last 10 million years: Jbel Toubkal was 4,167m. A major feature of the Anti-Atlas was the highly folded rock strata, numerous valleys and rounded peaks pockmarked with Argan trees, with many villages still living their traditional lifestyles. At Laatik we were met at the village agadir (fortified grain store; this one c770 years old built when local Berber tribes still fought each other) by Lemine, who had been chosen by his community to look after the agadir. Before entering the agadir, a male False Baton-blue settled briefly on a flower of *Anvillea garcinii*. We walked through the impressive Argan wood doors and in the cool shade of the ante room, Mohamed explained how the agadir was used in the past and how it was still in use today.

The double-decker store rooms were reached, intriguingly, by 'stepping stone-like steps' built into the side of the building. The 'fort', typical of the Anti-Atlas, others were seen during the day perched on outcrops with commanding views, came with its own freshwater well. After lunch we strolled around the 'patio' and outside and came across a flowering *Verbascum sinuatum*, the yellow composite with scented foliage *Asteriscus graveolans* (a Buphtalmum), *Ballota hirsuta* and the spiny *Pallenis spinosa*. There was also a Spur-thighed tortoise loitering around the place.

We wandered into a nearby field and onto the circular communal threshing pavements and here we happened upon a well camouflaged, one back-legged, Splendid Cone-headed Grasshopper, resembling a stick insect, and spotted by Erika. As we left, most of us got a view of a Woodchat Shrike.

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On our return drive down the mountain we stopped at an area of rocky hillside peppered with Argan trees and *Euphorbia officinarum*, here growing in the beautifully tight cushions of the *echinarum* form (considered by some to be a distinct subspecies). This was an impressive, well-built plant. In the small limestone rock crevices *Arisarum vulgare* and *Evax pygmaea*. The yellow flowered *Hesperolaburnum platycarpum* (its stems used to make Berber baskets such as those seen in the agadir), was around but unfortunately not in flower and neither was *Linaria ventricosa*.

There was time to freshen up before reconvening to go through the day's sightings before dinner. Supper tonight comprised a starter of mashed aubergine with herbs and olives followed by delicious Conger Eel and vegetable tagine with a dessert of layers of apple and confectioner's custard with langue de chat style biscuits, putting a delicious full stop to a great day. Oh, and a little lemon grass tea.



Top: *Calotropis procera* (Chris Kirby-Lambert). **Bottom:** Splendid Cone-headed Grasshopper (Chris Kirby-Lambert)

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Day Seven: Friday 7th March - Western High Atlas: Cascades du Imouzzer

A cool start to the morning with a promise of sunshine as we drove north along the coast road and then turned east at Aourir, well known for its bananas, the small-sized sweet ones, Madeiran bananas grown along the Tanraght valley near here. The variety was Dwarf Cavendish. The Souss Massa valley produces 60-70% of its total production.

The first stop was within a gorge at around 200m where the vegetation was dominated by Argan trees and *Euphorbia officinarum*. Here in the peace and quiet of a Moroccan morning on the lower slopes of the High Atlas we heard Barbary Partridge and the mournful call of the Black Crowned Tchagra - too far however to discern precisely where it was.

Our second stop at about 400m was an opportunity to scan the landscape and listen out once more for Tchagras. None were forthcoming but we picked up a male Blue Rock Thrush, House Bunting, Black Redstart and Thekla Lark. At about 500m we got down to explore an open woodland of *Tetraclinis articulata*, (national tree of Malta) the 'Thuja of the Berbers'. This conifer is primarily found in Morocco and Algeria, with two small relict populations in Malta and Andalucía. It had a distinct Cedar-like smell. Morocco holds 600,000ha of the 1million ha total world area 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 its ability to 'self-coppice', 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. Its name refers to the cones, which we found, split into four. Also here, though wilting and flowerless, was the low shrubby *Globularia alypum*.

Reaching the start of Paradise Valley, we alighted from the bus yet again and walked to the river's edge where we spotted basking Moorish Terrapins as an Emperor Dragonfly patrolled aggressively over us. A swooping Sparrowhawk was observed near here. We continued along the road by the river and saw displaying male Black Wheatears. The Buddleia-like rangy tall shrub Chaste Tree *Vitus agnus-castus* grew here with Mediterranean Smilax *Smilax aspera*.

Mohamed picked us up and we continued through the gorge. Unfortunately, a combination of a winter two years ago of heavy rains and the washing away of the road and the subsequent construction of a new one through the valley meant that several typical plants of this place had been paved over, making it less paradisiacal than it ever was. As we climbed we marvelled at the geology and the breath-taking landscape and noted the vegetation now dominated by Thuja, Almond, Carob, Wild Olive trees and the yellow flowering *Genista tricuspidata*. We turned left and down to Imouzzer and Aleppo Pines *Pinus halepensis* were evident here.

Our lunch stop was below the Cascades du Imouzzer at a local Hotel Restaurant Amalou, from where we could admire the 'cascades'. After a tasty lunch in the cool shade of the restaurant awning, and a coffee/mint tea, and the purchasing of some beautifully worked Thuja wood pieces and of some honey, we sprauchled onto the dry river bed. A pale morph Booted Eagle was spotted just before it drifted out of sight behind the mountain above us. And then a larger winged bird of prey, a Bonelli's Eagle did much the same thing.

The river bed had a number of plants looking very green. For instance there was a Caper Bush *Cappari spinosa* growing here in full eye-catching flower; one holding a mating pair of spotted chafers, *Oxythyrea pantherina*. This is a xerophytic shrub with a remarkable adaptability to harsh environments; noted for its medicinal properties and its culinary uses. While native to the Mediterranean, it is not clear if it is indigenous to the area. On the river bed we also found two new plants for this trip: one was Hairy or Woolly Nightshade *Solanum villosum* and this specimen certainly was with its characteristic flower and orange-red globular berries and shallowly lobed leaves; the other was *Marrubium vulgare*, white stemmed crinkly leaves and 'woolly'. *Lavandula dentata* was also seen.

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The river bed turned out to be something of a hotspot for butterflies with ten species: Moroccan Orange-tip, a particularly tattered Orange-tip, Greenish Black-tip, Large White, Small White, Clouded Yellow, Painted Lady, Red Admiral, Common Blue and Long-tailed Blue, spotted by the group.

A short walk to an Olive grove revealed Friar's Cowl *Arisarum vulgare* all seemingly in leaf, however, after much searching we came across one or two of its small intriguing hood-shaped purply-brown flowers. We boarded the bus and climbed out of the valley to the first of two stops before we got back to Imouzzer village. The vegetation was dominated by the yellow-flowered *Genista tricuspidata*, and one of the stars of the High Atlas, *Polygala balansae*, a prickly, glaucous shrubby milkwort, covered in beautiful maroon and yellow tipped flowers - a true highlight of the trip. Until recently this was thought to be a Moroccan endemic, but a small population has now been found in southern Spain near Granada. We admired the numerous shrubs with the sun backlighting the plant and bringing out the flower colours even more vividly. There were also good numbers of last year's antennae-like flowering spikes of Pale Stonecrop (sedum), also *Dipcadi serotinum*, a wilting carpet of *Androcymbium gramineum* and a few Wild Clary *Salvia verbenaca* in leaf by the roadside. *Searsia tripartita* was observed in flower but not the *Linaria ventricosa*.

Our second stop was to a path, of sorts, leading up a rocky outcrop above the road and it meant a bit of a scramble to get to some special bulbs. However, those intrepid and sure footed among us were able to enjoy hundreds of Hoop Petticoat-Daffodil *Narcissus cantabricus*, most just going over, others in fruit and several in almost fine white flower. The name '*cantabricus*' refers to the area of Cantabria in Northern Spain where the species was incorrectly thought to originate. In fact it is a plant of southern Spain, Morocco, Algeria and the Balearics. But this was not all that was found here. There were 100s too of the fritillary *Fritillaria oranense* (= *F. lusitanica* ssp *oranense*), a plant of open woodland and rocky places, which this was; last year's seeds split open, this year's plants either just coming through the earth or, some a little higher up, in full beautiful flower – brownish with a green-tinged haphazard chequered pattern on the outside of the petals. Inside it was green with a red-to-brown pattern. A species of Iberia and North West Africa.

Further on, at around 1,300m, the southern side of the valley was dominated by impressive stands of the Dwarf Fan Palm *Chamaerops humilis* var *cerasifera* the glaucous form of that found at home in garden centres. On the northern side of the valley, different vegetation was clearly present, dominated by Holm Oak *Quercus ilex* possibly subsp. *rotundifolia* (= *Q. rotundifolia*; it seems that this requires more checking in the field. Kermes Oak *Quercus coccifera* is not found in this area). We tried hard to spot a Tristram's Warbler which did sing but refused to come down to us from the upper slopes. This bird is endemic to the mountains of North Africa, normally seen much higher than this but perhaps moving down to this lower altitude for the winter. Sardinian Warblers were seen.

On reaching our highest point for the day at around 1,550m, we stepped out onto a steppe-like dwarf shrub habitat growing on what was almost limestone pavement. New shrubs here included *Cistus crispus* some bushes with a couple of pink to purple flowers and Holm Oak, giving the area a Mediterranean feel, while the clear backdrop was of the High Atlas peaks. Way in the distance, down in the Souss valley, crops under cover appeared to form a huge inland sea.

A perfect finale to the day was an Atlas Day Gecko, an attractively marked endemic of the Atlas Mountains of Morocco, which was spotted on the rocks below our final viewpoint. Other birds seen during the day included House Martin, Red-rumped Swallow, Kestrel, Sparrowhawk, Blackcap, Greenfinch, Pallid Swift and Karen saw another two Blue Rock Thrush.

We then began our descent 'chasing' Barbary Ground Squirrels and Bibron's Agamas for one last special photograph. A little Basil tea was ready and waiting for us on arrival at the Atlas Kasbah. Fridays in Morocco means vegetable or meat couscous, and so it was for us, with a Moroccan salad and a pastry case filled with fresh fruit cocktail and custard cream - a fitting meal to mark our last evening and another full day... in the sun. Ahmed plucked his three string instrument once more, leaving, with a wry smile, at the end of our meal just before we sipped our Thyme tea.

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Top: Barbary Ground Squirrel. **Middle:** Paradise Valley **Bottom:** *Polygala balansae* (Chris Kirby-Lambert)

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Day Eight: Saturday 7th March - Atlas Kasbah and local area; evening return flights to UK

After the last of our wonderfully eclectic and scrumptious breakfasts, Helene talked to us in the salon about Berber culture and social norms, natural cosmetics and family life - an illuminating talk. Today was free to do much as we pleased: some wandered around the garden; others swam or had a massage, while others watched the making of bread and others took themselves back to the goat track to see if anything else could be spotted before our departure. House Buntings had made their way down into the central covered courtyard.

Flocks of Bee-eaters flew high overhead never quite coming low enough to land yet revealed themselves with their liquid and summery calls. Lunch was taken on the top terrace with its commanding views to the west and south: exquisite chicken or vegetable tagines, with the just-baked flatbreads in the traditional wood oven, and olives. An orange, carrot and banana smoothie for dessert and herbal tea brought our meals at the Kasbah to a close. We had a couple of hours to relax and enjoy the place before a last 'little tea' of thyme this time, and a chance to thank Mohamed, M'bark, Hussein, Ibrahim and the Atlas Kasbah team for our stay, delicious food and great hospitality. Helene and her staff came out to wave goodbye and we drove off to the airport. Along the way, White Storks were seen

'Little Teas' at the Atlas Kasbah: Lavender, Sage, herb mix, Absinthe, Mint, Lemon Grass, Basil, Thyme and Rosemary, all served poured from a height into their small glasses.

Some abiding memories:

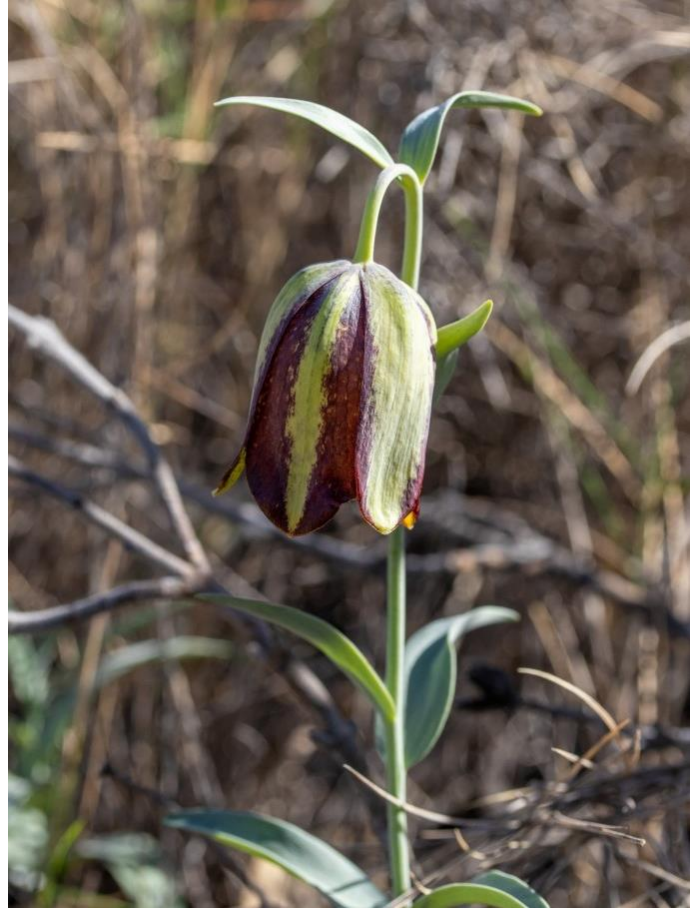
The Tighanimine cockerel at 05.00; the 16.10 call to prayers; the burbling bulbul call to breakfast; the surprise that came in each tagine; the smiling Atlas Kasbah staff; the softly spoken Mohamed; the rabbit warren full of colour and smell that was Taroudant's Berber souk; the space to splash about in the hotel room shower; Ahmed's three-string-guitar songs; the endemics, the viper and the wonderful lizards; Moussier's Redstart's colours; the surprises under every turned-stone; the young happy faces at Tioute's Women's Argan Oil Co-operative; the glossy black of Northern Bald Ibis and the glossy yellow of Desert Hyacinths rising like periscopes from the sands at Tamri; the backlit *Polygala* flowers; the serviettes and their pigeon holes; the cheddar cheese.

Charlie Rugeroni with Chris Kirby-Lambert
Wildlife Travel
March 2020.



Above: Moroccan Lizard-toed Gecko (Chris Kirby-Lambert)

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Top: Cirl Bunting and *Fritillaria oranense* (Chris Kirby-Lambert). **Bottom:** *Glebionis carinata* (Charlie Rugeroni) and a stone grasshopper (Chris Kirby-Lambert)

Morocco February/March 2020: some highlights

E - endemic species; e - endemic subspecies; I – introduced; G/P – primarily found in gardens and planted
H - heard not seen (Birds)

Selected Plant Species

Some plant species do not have English names and English names vary according to author. A common name is given as a guide to help those who are not familiar with the scientific name. The Scientific name consists of the Genus (the first name starting with a capital) and the species (the second name, without a capital). Families are in alphabetical order (not in the order found in many plant books - which now changes frequently as the systematic order of families is changing rapidly due to clarification by genetic research). The English name of a family member is also given so you can relate the family to plants you may know. Some species have recently been transferred to different families and the names of species also change occasionally. Orchid names are always problematic as many people split them into a number of species. For families and species, the list follows the (up to date as much as possible) Plant List (Kew) and INPI classification.

	SCIENTIFIC NAME	NOTES	First seen/day
1	PTERIDOPHYTES		
	<i>Adiantum capillus-veneris</i>	Maidenhair Fern along water channels in palmery at Tioute	2nd
2	CONIFERS		
	Cupressaceae		
G	<i>Cupressus sempervirens</i>	Pencil Cypress in garden and Imouzzar	1st
	<i>Juniperus phoenicea</i>	Juniper Western High Atlas day.	6th
	<i>Tetraclinis articulata</i>	Thuya of the Berbers Common higher up in the High Atlas	6th
3	Ephedraceae		
	<i>Ephedra fragilis</i>	Joint Pine Scrambling up through bushes: eg amongst the Opuntia in the old village and elsewhere.	1st
4	Pinaceae		
G/P	<i>Pinus halepensis</i>	Aleppo Pine Planted around Immouzer	6th
5	DICOTYLEDONS		
	Acanthaceae		
G/P	<i>Justicia adhatoda</i>	Malabar Nut white flowered outside pool loo in Hotel Palais Salem Taroudant	3rd
6	Aizoaceae		
I	<i>Carpobrotus acinaciformis</i>	Hottentot Fig planted in the garden, along the roadsides around Agadir	1st
	<i>Mesembryanthemum crystallinum</i>	At Cap Rhir and Tamri beach, with reddish leaves and covered in dew, white flower	2nd
7	Amaranthaceae (inc Chenopodiaceae)		
	<i>Salsola oppositifolia</i>	Thorny shrub around Cap Rhir, nr gully	2nd
8	Anacardiaceae		
	<i>Pistacia lentiscus</i>	Higher up in the High Atlas and Cap Rhir	
I	<i>Schinus molle</i>	Peruvian Pepper Tree along roadsides and towns, feathery leaves, weeping appearance.	2nd
	<i>Searsia (=Rhus) tripartita</i>	Reddish fruit, three-lobed leaves, 'hawthorn-like' bush near the cemetery	2nd
9	Apiaceae		
	<i>Eryngium ilicifolium</i>	Along goat track	1st
	<i>Eryngium maritimum</i>	First stop along coast	2nd
	<i>Ferula communis</i>	Giant Fennel Sous Massa NP exit	4th
E	<i>Sclerosciadium nodiflorum</i>	Sodom's Apple sandy field	5th
10	Apocyanaceae (includes Asclepiaceae)		
	<i>Calotropis procera</i>	Sodom's Apple, Saharan shrub, food plant Plain Tiger	5th
	<i>Nerium oleander</i>	Oleander in the dried river bed Tighanimine	1st

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	SCIENTIFIC NAME	NOTES	First seen/day
	<i>Periploca angustifolia</i>	Clambering vine/shrub outside Atlas Kasbah	1st
G/P	<i>Asclepias curassavica</i>	Orange and yellow flowered plant in Kasbah garden	1st
11	Araceae		
	<i>Arisarum vulgare</i>	Flowering under the olives at Imouzzar (leaves seen elsewhere)	6th
12	Aristolochiaceae		
	<i>Aristolochia baetica</i> var. <i>bicolor</i>	Seen first in Tighanimine and abundant in the palmery: vine with 'dutchman's pipe' flowers, food plant of Spanish Festoon	1st
13	Asteraceae		
	<i>Anvillea garcinii</i>	Yellow composite with scented leaves outside the Laatik agadir	5th
	<i>Asteriscus graveolans</i>	Orange-yellow flowered composite outside Laatik agadir	5th
	<i>Calendula arvensis</i>	Field Marigold along goat track	1st
	<i>Catananche arenaria</i>	Creamy, with maroon centre on goat track	1st
	<i>Centaurea aspera</i> ssp <i>gentilis</i>	Pinky knapweed at Souss Massa.	4th
	<i>Chrysanthemum</i> (= <i>Glebionis</i>) <i>coronarium</i>	Crown Daisy	1st
	<i>Cladanthus arabicus</i>	Large orangey composite with feathery aromatic leaves	1st
	<i>Evax pygmaea</i> (= <i>Filago pygmaea</i>)	Pygmy Cudweed rockery Anti Atlas, tiny and hairy	6th
E	<i>Glebionis carinata</i> (= <i>Ismelia versicolor</i>)	Near lunch spot on sandy earth, three-coloured daisy	4th
E	<i>Kleinia</i> (= <i>Senecio</i>) <i>anteuphorbium</i>	Succulent shrubby groundsel around Cap Rhir	2nd
	<i>Launaea arborescens</i>	'Chicken wire bush' by Kasbah etc	1st
E	<i>Nauplius</i> (= <i>Asteriscus</i>) <i>imbricatus</i>	Fragrant leaves, yellow flowers: bush around Cap Rhir	2nd
	<i>Onopordum</i> cf <i>macranthum</i>	Large thistle between animal enclosures and in village	1st
	<i>Pallenis spinosa</i>	Spiny bracts – several places eg Anti Atlas	5th
	<i>Phagnalon saxatile</i>	Shaving brush like flower in river bed at Imouzzar	6th
	<i>Reichardia tingitana</i>	Outside Kasbah and at Cap Rhir	1st
	<i>Volutaria lippii</i>	The common blue 'knapweed', a frequent annual in the garden and field edges	1st
	<i>Warionia saharae</i>	The sweetly-scented desert shrub, growing at the lighthouse	2nd
14	Boraginaceae		
	<i>Mairetis microsperma</i>	Little blue 'borage' at Cap Rhir & and Souss Massa, endemic to Morocco and the Canaries	2nd
	<i>Heliotropium crispum</i>	The white heliotrope on the goat track	1st
15	Brassicaceae		
	<i>Cakile maritime</i>	Sea Rocket	2nd
	<i>Biscutella didyma</i>	Weedy yellow brassica: at the highest stop in the High Atlas	6th
	<i>Malcolmia littorea</i>	Sea Stock (and not <i>M parviflora</i>) Cap Rhir	2nd
	<i>Sinapis arvensis</i>	Charlock	
16	Cactaceae		
I	<i>Austrocylindropuntia subulata</i> (was <i>Opuntia cylindrica</i>)	The cylindrical cactus, introduced from Peru top of village; red flowers	1st
I	<i>Opuntia maxima</i> (= <i>O ficus-barbarica</i>)	Fig of the Berbers An invasive, domesticated cactus, originating in Mexico, common around villages	1st
	<i>Austrocylindropuntia subulata</i> (was <i>Opuntia cylindrica</i>)	(native to Colombia-Peru)	
17	Capparaceae		
	<i>Capparis spinosa</i>	Caper river bed at Imouzzar	6th
18	Caryophyllaceae		

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	SCIENTIFIC NAME	NOTES	First seen/day
	<i>Spergularia fimbriata</i>	Fringed Spurrey covered in Oleander seeds on river bed in Tighanimine village	1st
	<i>Paronychia argentea</i>	Along goat path	1st
	<i>Polycarpaea nivea</i>	Encrusted grey semi-shrub, Cap Rhir and Tamri	2nd
19	Casuarinaceae		
G/P	<i>Casuarina equisetifolia</i>	Australian introduction, in the garden	1st
	Chenopodiaceae		
	<i>Suaeda vera</i>	Shrubs in the dunes at Oued Tamri	2nd
20	Cistaceae		
	<i>Cistus crispus</i>	In the High Atlas: not yet in flower	6th
	<i>Helianthemum canariense</i>	Endemic to Morocco and the Canaries: near the cemetery at Cap Rhir amongst euphorbia	2nd
	<i>Helianthemum confertum</i>	In the first animal enclosure	4 th
	<i>Helianthemum lippi</i>	In the second animal enclosure	4th
21	Convolvulaceae (includes Cuscutaceae)		
	<i>Convolvulus althaeoides</i>	Large pink flowered bindweed, eg around the garden, field margins etc	1st
	<i>Convolvulus arvensis</i>	At the Palmery edge of allotment	3rd
	<i>Convolvulus trabutianus</i>	Thorny white flowers at Cap Rhir cemetery	2nd
	<i>Cuscuta sp</i>	Dodder sprawling over shrubs and cacti, Tighanimine	1st
P	<i>Ipomaea batatus</i>	Sweet Potato at Kasbah garden pools	1st
22	Crassulaceae		
	<i>Sedum sediforme</i>	Pale Stonecrop at Polygala stop with antenna-like dead flower-heads from last last year; roadside	6th
	<i>Umbilicus rupestris</i>	Navelwort among rocks at Imouzzar under car-park	6th
23	Cucurbitaceae		
	<i>Bryonia dioica</i>	White Bryony at Laatik agadir	5th
25	Euphorbiaceae		
	<i>Euphorbia ingens</i>	Candelabra Tree spurge in the Salam Palais Hotel in Taroudant	3rd
	<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)	2nd
	<i>Euphorbia paralias</i>	Sea Spurge on the beach dunes at Tamri	2nd
	<i>Euphorbia peplus</i>	Petty Spurge in the Kasbah garden as a weed.	1st
	<i>Euphorbia regis-jubae</i>	Lime green, shrub-forming Euphorbia around Cap Rhir. Endemic to Morocco and the Canary Islands	
	<i>Ricinus communis</i>	Castor Oil Plant at Tighanimine river bed	1st
26	Fabaceae		
	<i>Vachelia (=Acacia) ehrenbergiana</i>	Large thorns on way to enclosure, Sous Massa	4th
E	<i>Vachelia (=Acacia) gummifera</i>	Small bush, red stems, fine leaves, goat track	1st
I	<i>Acacia saligna</i>	Golden Wattle Australian, planted in the garden and common in the animal enclosures at Sous Massa	4th
	<i>Ceratonia siliqua</i>	Carob Planted in the Kasbah garden, and in the palmery at Tioute	1st
	<i>Chamaecytisus mollis</i>	Not in flower - spiny shrub along the goat track	1st
	<i>Genista tricuspidata</i>	The yellow 'gorse' all over the High Atlas hillsides	6th
E	<i>Hesperolaburnum platycarpum</i>	The yellow flowered large labiate in the Anti Atlas: sweetly smelling flowers, stems used for basket weaving – not in flower! Along roadside.	5th
	<i>Lotus creticus</i>	The yellow bird's foot trefoil	1st
E	<i>Lotus assakensis</i>	The glaucous-leaved bird's foot trefoil in the sands at Tamri	2nd
	<i>Ononis tournefortii</i>	A restharrow. The serrated leaves in a rosette coming	2nd

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	SCIENTIFIC NAME	NOTES	First seen/day
		out of the sands at Tamri – just coming through with no flowers	
	<i>Ononis natrix</i>	Smelly, sticky leaves, yellow restharrow along roadsides	1st
	<i>Retama monosperma</i>	The white-flowered broom in several places and at Souss Massa	4th
	<i>Vicia benghalensis</i>	The deep maroon vetch amongst the barley, in the palmery	3rd
27	Fagaceae		
	<i>Quercus ilex</i>	Holm Oak The spiky-leaved shrubby oak in the High Atlas possibly ssp <i>rotundifolia</i> , similar to Kermes Oak	6th
28	Frankeniaceae		
	<i>Frankenia boissieri</i>	Smaller flowers, forming domed clumps, coast, Rhir	2nd
E	<i>Frankenia laevis ssp velutina</i>	Larger flowered, encrusted stems, coast, Rhir	2nd
30	Geraniaceae		
	<i>Erodium hesperium</i>	Large-flowered pink stork's-bill Sous Massa. Endemic to Morocco and the Canaries	4th
	<i>Erodium botrys</i>	Mediterranean Stork's-bill in various places & Palmery	1st
32	Lamiaceae		
	<i>Ajuga iva</i>	Rockery in Anti-Atlas, no flowers	5th
	<i>Ballota hirsuta</i>	The hairy plant outside the Laatik agadir, no flowers	5th
	<i>Lavandula dentata</i>	The lavender in the High Atlas	6th
	<i>Lavandula multifida</i>	The plant seen along goat track, in flower, ferny leaved	1st
	<i>Marrubium vulgare</i>	White Horehound white stemmed, woolly, crinkly leaves in river bed Imouzzar	6th
	<i>Prasium majus</i>	Over the wall at the first restaurant Imouzzar	6th
33	Lythraceae		
G/P	<i>Punica granatum</i>	Pomegranate in Kasbah gardens and Laatik agadir	1st
34	Malvaceae		
G/P	<i>Hibiscus rosa-sinensis</i>	Hibiscus in the Kasbah gardens	1st
G/P	<i>Hibiscus tileaceae</i>	Cotton Bush in the Kasbah gardens	1st
35	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 Imouzzar	3rd
G/P	<i>Ficus elastic</i>	Rubber Fig A massive specimen in the harem courtyard, Palais Hotel ground, Taroudant	3rd
G/P	<i>Ficus lyrata</i>	Fiddle-leaf Fig The third species of fig in the Palais Hotel grounds, Taroudant: commonly sold as a house plant (eg at Ikea!)	3rd
36	Moringaceae		
G/P	<i>Moringa oleifera</i>	Horseradish tree, with long fruits in patio at hotel	1st
37	Myoporaceae		
G/P	<i>Myoporum laetum</i>	Hedge around Kasbah gardens	1st
38	Neuraceae		
G/P	<i>Dombeya cayeuxii</i>	The 'pom pom' tree outside the Hotel Palais, Taroudant	3rd
40	Nyctaginaceae		
G/P	<i>Bougainvillea sp</i>	In the Kasbah gardens	1st
41	Orobanchaceae		
	<i>Cistanche phelypaea</i>	Desert Hyacinth Big yellow spikes in sandy soil	2nd
42	Oleaceae		
	<i>Olea europaea</i>	Olive in the High Atlas	7th

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43	Papaveraceae		
	<i>Glaucium corniculatum</i>	Red-horned glaucous leaves – in the Kasbah gardens	1st
	<i>Papaver rhoeas</i>	Common Poppy in the Kasbah gardens	1st
44	Plantaginaceae (inc Globulariaceae and part of Scrophulariaceae)		
	<i>Globularia alypum</i>	Under the Tetractinis in High Atlas	7th
E	<i>Linaria bipartita</i>	Single plants along goat track, purple pink, small	1st
E	<i>Linaria ventricosa</i>	The tall toadflax, no flowers common along roadside in the Anti Atlas and High Atlas	5th
	<i>Nanorrhinum heterophylla</i>	Scrambling yellow 'snapdragon' near coast cemetery	2nd
	<i>Plantago afra</i>	The branched plantain, eg the palmery and Imouzzer river bed	3rd
45	Plumbaginaceae		
E	<i>Limonium mucronatum</i>	Very winged stems, small pink flowers, Cap Rhir	2nd
	<i>Limonium sinuatum</i>	Winged stems, blue and white flowers Souss Massa	4th
46	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	6th
47	Polygonaceae		
	<i>Emex spinosa</i>	The spiny 'dock', common roadside weed and at Souss Massa	4th
	<i>Rumex vesicarius</i>	Bladder Dock red-pink inflated cayx; Tighanimine	1st
48	Primulaceae		
	<i>Anagallis arvensis</i>	Scarlet Pimpernel Common form with blue flowers and red	1st
	<i>Samolus valerandi</i>	Brookweed Along the watercourse edges in the palmery	3rd
	Resedaceae		
	<i>Reseda alba</i>	White Mignonette various places	1st
	<i>Reseda lutea</i>	Wild Mignonette various places	5th
	Rhamnaceae		
	<i>Zizyphus lotus</i>	Very spiny hedging bush. Foodplant of the Common Tiger Blue	1st
	Rosaceae		
G/P	<i>Eriobotrya japonica</i>	Loquat in the Palais Salam Hotel Taroudant garden	3rd
	<i>Prunus dulcis</i>	Almond In the High Atlas	6th
53	Rubiaceae		
	<i>Rubia peregrina</i>	In the Palmery: like a large goose-grass, robust	3rd
54	Salicaceae		
	<i>Populus alba</i>	White Poplar white-grey barked trees at entrance to Palmery	3rd
55	Sapotaceae		
E	<i>Argania spinosa</i>	Argan	1st
56	Scrophulariaceae		
	<i>Scrophularia peregrina</i>	Nettle-leaved Figwort on rockery Anti Atlas & village	1stth
	<i>Scrophularia canina</i>	French Figwort in the High Atlas	6th
	<i>Verbsacum sinuatum</i>	Inside the Laatik agadir in flower, crinkly edged leaves	5th
57	Solanaceae		
	<i>Hyoscyamus niger</i>	Black Henbane in the Laatik agadir	5th
	<i>Lycium intricatum</i>	Purple tubular flowers, near Cap Rhir at cemetery in flower	2nd
I	<i>Nicotiana glaucum</i>	All over the place	1st
G/P	<i>Solandra maxima</i>	The big trumpet vine in the hotel gardens, Taroudant	3rd
	<i>Solanum villosum</i>	Hairy Nightshade with flowers and orange berries;	6th

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	SCIENTIFIC NAME	NOTES	First seen/day
		in river bed at Imouzzar	
	<i>Withania somnifera</i>	Hedges near the hotel	1st
58	Tamaricaceae		
	<i>Tamarix gallica</i>	French Tamarisk at Oued Tamri banks and beach	2nd
59	Urticaceae		
	<i>Urtica pilulifera</i>	Roman Nettle pom-pom flowers around old Tighanimine village	1st
60	Verbenaceae		
	<i>Vitex agnus-castus</i>	Chaste Tree Along road at Paradise valley with Smilax creeper	6th
61	Zygophyllaceae		
	<i>Fagonia cretica</i>	Scrambling plant with purple flowers, seed heads turn downwards on fruiting. Outside Kasbah Hotel	1st

MONOCOTYLEDONS			
62	Amaryllidaceae		
	<i>Narcissus cantabricus</i>	White Hoop-Petticoat High Atlas with the Fritillaria above Imouzzar	6th
63	Aracaceae		
	<i>Chamaerops humilis var cerifera</i>	Dwarf Fan Palm the glaucous form, in the High Atlas	6th
	<i>Phoenix dactylifera</i>	Date Palm at palmery and Paradise valley	6th
G/P	<i>Washingtonia filifera</i>	Washingtonia Palm a common planted roadside tree	2nd
64	Asparagaceae		
	<i>Asparagus acutifolius</i>	The scrambling wild asparagus in the village and Palmery	1st
	<i>Asparagus albus</i>	The spiny, shrubby asparagus, with pale stems	3rd
	<i>Dipcadi serotinum</i>	The brown 'bluebell', in dry stony or sandy places: eg the goat track near the hotel; the High Atlas near Polygala stop	1st
65	Cyperaceae		
	<i>Cyperus capitatus</i>	The little sedge in the sand at Cap Rhir	4th
66	Iridaceae		
	<i>Moraea sisyrinchium</i>	Barbary Nut along goat track, iris	1st
67	Colchicaceae		
	<i>Androcymbium gramineum</i>	The low-growing white lily at High Atlas at Polygala stop	6th
68	Liliaceae		
	<i>Fritillaria oranensis</i> (= <i>F lusitanica</i> ssp <i>oranensis</i>)	With the Narcissi in flower; the scramble above Imouzzar	6th
69	Poaceae		
	<i>Arundo donax</i>	Giant Reed scene from end of village walk	1st
	<i>Lamarckia aurea</i>	Feathery grass along goat track	1st
70	Xanthorrhoeaceae		
	<i>Asphodelus ramosus</i> ssp <i>nervosus</i>	Broad-leaved Asphodel	1st
	<i>Asphodelus fistulosus</i>	Fine-leaved Asphodel	1st
	<i>Urginea maritima</i>	Sea Squill Tulip-like frilly leaves on grazed hillsides	1st

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Family Ratidae (Ratites)									
Red-necked Ostrich	<i>Struthio camelus camelus</i>					X			
Family Anatidae (Ducks, Geese & Swans)									
Mallard	<i>Anas platyrhynchos</i>					X			
Family Phasianidae (Pheasants and Partridges)									
Barbary Partridge	<i>Alectoris barbara</i>			H				H	
Family Sulidae (Gannets)									
Gannet	<i>Morus bassanus</i>			X					
Family Phalacrocoracidae (Cormorants)									
Great Cormorant	<i>Phalacrocorax (carbo) carbo/sinensis</i>			X		X			
Moroccan Cormorant	<i>Phalacrocorax (lucidus/carbo) maroccanus</i>					X			
Family Ardeidae (Hérons)									
Western Cattle Egret	<i>Bubulcus ibis</i>			X	X	X	X		
Little Egret	<i>Egretta garzetta</i>			X		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>			X20					
Spoonbill	<i>Platalea leucorodia</i>					X			
Family Phoenicopteridae (Flamingoes)									
Greater Flamingo	<i>Phoenicopeterus roseus</i>					X			
Family Pandionidae (Ospreys)									
Osprey	<i>Pandion haliaetus</i>					X			
Family Accipitridae (Hawks and Eagles)									
Bonelli's Eagle	<i>Aquila fasciata</i>					X		X	
Booted Eagle	<i>Aquila pennata</i>							X	
Short-toed Eagle	<i>Circaetus gallicus</i>						X		
Black Kite	<i>Milvus migrans</i>				X				
Black-winged Kite	<i>Elanus caeruleus</i>								
Marsh Harrier	<i>Circus aeruginosus</i>			X					
Atlas Buzzard	<i>Buteo (buteo) cirtensis</i>				X	X			
Sparrowhawk	<i>Accipiter nisus</i>		X					X	
Family Falconidae (Falcons)									
Kestrel	<i>Falco tinnunculus</i>		X	X	X	X	X	X	
Family Rallidae (Rails and Crakes)									
Coot	<i>Fulica atra</i>			X					
Family Recurvirostridae (Avocets and Stilts)									
Avocet	<i>Recurvirostra avosetta</i>					X			
Black-winged Stilt	<i>Himantopus himantopus</i>					X			
Family Haematopodidae (Oystercatchers)									
Oystercatcher	<i>Haematopus ostralegus</i>					X			
Family Burhinidae (Stone curlews)									
Stone Curlew	<i>Burhinus oediconemus</i>					X			
Family Glareolidae (Coursers and Pratincoles)									
Cream-coloured Courser	<i>Cursorius cursor</i>					X			
Family Scolopacidae (Sandpipers)									
Curlew	<i>Numenius arquata</i>					X			
Black-tailed Godwit	<i>Limosa limosa</i>					X			
Redshank	<i>Tringa totanus</i>					X			
Greenshank	<i>Tringa nebularia</i>					X			
Family Charadriidae (Plovers)									

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	Little Ringed Plover	<i>Charadrius dubius</i>					X			
Family Laridae (Gulls)										
	Black-headed Gull	<i>Chroicocephalus ridibundus</i>					X			
	Yellow-legged Gull	<i>Larus michahellis</i>			X		X		X	
	Lesser Black-backed Gull	<i>Larus fuscus</i>			X		X		X	
Family Columbidae (Pigeons and Doves)										
	Rock Dove/Feral Pigeon	<i>Columba livia</i>		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			
Family Cuculidae (Cuckoos)										
	Great Spotted Cuckoo	<i>Clamator glandarius</i>		X						
Family Strigidae (Owls)										
	Little Owl	<i>Athene noctua</i>		H			X			
Family Apodidae (Swifts)										
	Pallid Swift	<i>Apus pallidus</i>			X	X	X		X	
Family Meropidae (Bee-eaters)										
	Bee-eater	<i>Merops apiaster</i>		X				H		
Family Upupidae (Hoopoes)										
	Hoopoe	<i>Upupa epops</i>				X		X		
Family Alaudidae (Larks)										
	Short-toed Lark	<i>Calandrella brachydactyla</i>					X			
	Crested Lark	<i>Galerida cristata</i>		X	X	X	X	X	X	
	Thekla Lark	<i>Galerida theklae</i>				X	X		X	
Family Hirundinidae (Swallows and Martins)										
	House Martin	<i>Delichon urbica</i>							X	
	Red-rumped Swallow	<i>Hirundo daurica</i>		X					X	
	Swallow	<i>Hirundo rustica</i>		X	X	X	X	X	X	
Family Motacillidae (Pipits and Wagtails)										
	Yellow Wagtail	<i>Motacilla (f.) flavisimma</i>						X	X	
	White Wagtail	<i>Motacilla (a.) alba</i>		X		X	X	X		
	Moroccan Wagtail	<i>Motacilla (a.) subpersonata</i>			X					
	Grey Wagtail	<i>Motacilla cinerea</i>				X			X	
	Tawny Pipit	<i>Anthus campestris</i>					X			
Family Muscicapidae (Flycatchers and Chats)										
	Black Redstart	<i>Phoenicurus ochruros</i>			X		X	X	X	
	Moussier's Redstart	<i>Phoenicurus moussieri</i>		X	X	X		X	X	
	Black Wheatear	<i>Oenanthe leucura</i>		X	X			X	X	
	Northern Wheatear	<i>Oenanthe oenanthe</i>					X	X		
	Blue Rock Thrush	<i>Monticola solitarius</i>							X	
Family Turdidae (Thrushes)										
	Blackbird	<i>Turdus merula</i>		X	X	X	X	X	X	
Family Sylviidae (Sylviid Warblers)										
	Blackcap	<i>Sylvia atricapilla</i>		X		X			X	
	Sardinian Warbler	<i>Sylvia melanocephala</i>		X	X	X		X	X	
	Tristram's Warbler	<i>Sylvia deserticola</i>							H	
	Spectacled Warbler	<i>Sylvia conspicillata</i>						X		
Family Phylloscopidae (Leaf Warblers)										
	Common Chiffchaff	<i>Phylloscopus collybita</i>		X						
Family Cisticolidae (Cisticolas)										
	Zitting Cisticola	<i>Cisticola juncidis</i>			H		H			
Family Paridae (Tits)										
	Great Tit	<i>Parus major</i>		X		X	X		X	
Family Laniidae (Shrikes)										

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	Southern Grey Shrike	<i>Lanius elegans</i>			X	X	X	X		
	Woodchat Shrike	<i>Lanius senator</i>				X		X	X	
Family Malaconotidae (Tchagras)										
	Black-crowned Tchagra	<i>Tchagra senegalus</i>							H	
Family Pycnonotidae (Bulbuls)										
	Common Bulbul	<i>Pycnonotus barbatus</i>		X	X	X	X	X	X	X
Family Corvidae (Crows)										
	Maghreb Magpie	<i>Pica mauritanica</i>		X	X	X	X	X	X	
Family Sturnidae (Starlings)										
	Spotless Starling	<i>Sturnus unicolor</i>		X	X	X	X	X	X	X
Family Passeridae (Sparrows)										
	Spanish Sparrow	<i>Passer hispaniolensis</i>		X						
	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	
	Greenfinch	<i>Carduelis chloris</i>		X			X		X	
	Linnet	<i>Carduelis cannabina</i>					X			
	Serin	<i>Serinus serinus</i>		H			H	X	H	
Family Emberizidae (Buntings)										
	Corn Bunting	<i>Miliaria calandra</i>		X		H	H			
	House Bunting	<i>Emberiza sahari</i>		X					X	
	Cirl Bunting	<i>Emberiza cirlus</i>		X						

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AMPHIBIANS & REPTILES									
Sahara Pool Frog	<i>Pelophylax saharae</i>		X		X			X	
Spur-thighed Tortoise	<i>Testudo graeca sousensis</i>		X		X		X		
Moorish Terrapin	<i>Mauremys leprosa</i>				X			X	
Moroccan Day Gecko	<i>Tarentola mauretanica</i>		X						
South Morocco Lizard-toed Gecko	<i>Saurodactylus brosseti</i>			X			X		
Atlas Day-Gecko	<i>Quedenfeldtia moerens</i> endemic to Atlas Mts							X	
Bibron's Agama	<i>Agama impalearis</i>						X		
Margarita's Fringe-toed Lizard	<i>Acanthodactylus margaritae</i> endemic to coast			X		X			
Olivier's Desert Racer	<i>Mesalina olivieri</i>			X					
Moorish Viper	<i>Daboia mauretanica</i>				X				
MAMMALS									
Dromedary	<i>Camelus dromedarius</i>		X	X	X	X	X		
Dorcas Gazelle	<i>Gazella dorcas</i>					X			
Addax	<i>Addax nasomaculatus</i>					X			
Scimitar-horned Oryx	<i>Oryx dammah</i>					X			
Barbary Ground Squirrel	<i>Atlantoxerus getulus</i>						X	X	
Algerian Hedgehog	<i>Atelerix algirus</i>					X RIP			
Red Fox	<i>Vulpes vulpes</i>					X			

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BUTTERFLIES									
Family Papilionidae (Swallowtails)									
Spanish Festoon	<i>Zerynthia rumina</i> caterpillar		X						
Swallowtail	<i>Papilio machaon</i> ssp. <i>mauretanicus</i>					X			
Family Pieridae (Whites)									
Moroccan Orange Tip	<i>Anthocharis belia</i>		X		X			X	
Orange Tip	<i>Anthocharis cardamine</i>							X	
Greenish Black-tip	<i>Euchloe charlonia</i>		X	X	X		X	X	
Bath White	<i>Pontia daplidice</i>		X						
Large White	<i>Pieris brassicae</i>							X	
Small White	<i>Pieris rapae mauretanica</i>		X		X	X		X	
Clouded Yellow	<i>Colias croceus</i>		X					X	
Cleopatra	<i>Gonopteryx cleopatra</i>				X				
Family Nymphalidae (Admirals and Fritillaries)									
Painted Lady	<i>Vanessa cardui</i>		X			X		X	
Red Admiral	<i>Vanessa atalanta</i>							X	
Desert Fritillary	<i>Melitaea deserticola</i> caterpillar on D2		X						
Family Satyridae (Browns)									
Wall Brown	<i>Lassiomata megera</i>							X	
Family Lycaenidae (Blues & Coppers)									
Allard's Silver Lines	<i>Cigaritis allardi</i>			X					
Small Copper	<i>Lycaena phlaeas</i>		X						
Common Blue	<i>Polyommatus icarus</i>							X	
Lang's Short-tailed Blue	<i>Leptotes pirithous</i>		X		X				
African Babul Blue	<i>Azanus jesus</i>					X			
False Baton Blue	<i>Pseudophilotes abencerragus</i>						X		
Long-tailed Blue	<i>Lampides boeticus</i>		X		X			X	
False Eros Blue	<i>Pseudophilotes abencerragus</i>					X			
MISCELLANEOUS									
Emperor Dragonfly	<i>Anax imperator</i>	D7 in Paradise Valley over the river							
Vagrant Emperor	<i>Anax ephippiger</i>	D4 at Hotel Palais Salam							
Epaulet Skimmer	<i>Orthetrum chrysostiga</i>	D4 hawking the drainage channels at the Palmery							
Milk Snail	<i>Otalia lacteal</i>	D3 Cap Rhir, with Euphorbia							
Stone Grasshopper	<i>Pamphigidae</i> sp.	D2 on goat track, well camouflaged							
Green Grasshopper	<i>Pyrgomorpha</i> sp.	D2 on goat track, not well camouflaged							
Egyptian Grasshopper	<i>Anacridium aegypticum</i>	D4 crash banging onto palm frond at Palmery, large brown							
Splendid Cone-headed Grasshopper	<i>Truxalis nasuta</i>	D6 like a dead twig at threshing circle, Laatik agadir							
Bee-fly	<i>Bombylius</i> sp.	D3 Cap Rhir with Euphorbia							
Carpenter Bee	<i>Xylocopa pubescens</i>	D4 feeding on palm flowers by Hotel PS Taroudant							
Oleander Seed Bug	<i>Caenocoris nerii</i>	D2 on Oleander, river bed in village, red & black							
Leatherbug	<i>Phyllomorpha laciniata</i>	D2 on goat track, like a woolly extraterrestrial							
A bark (yellow) Scorpion	<i>Buthus</i> sp.	D3 Cap Rhir							

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	Moorish Fat-tailed (black) Scorpion	<i>Androctonus mauretanicus</i>	D3 Cap Rhir,	'man-killer'						
	Blister Beetle	<i>Mylabris cf. hemprichi</i>	D2 roadside before goat track,	red & black						
	Blister Beetle	<i>Mylabris cf. abdelkaderi</i>	D2 on Oleander,	river bed,	village,					
	Darkling Beetle	<i>Pimelia sp.</i>	D3 round body,	tracks on sand	Cap Rhir					
	Darkling Beetle	<i>Scaurus sp.</i>	D3 more streamlined,	Cap Rhir						
	Darkling Beetle	<i>Blaps sp.</i>	D5 SM NP,	1 st enclosure						
	Sacred Beetle	<i>Scarabus sacer</i>	D5 golf-ball size,	zooming into the group						
	Leaf Beetle	<i>Galeruca sp.</i>	D5 striped,	@ lunch spot	SM NP					
	Ground Beetle	<i>Scarites sp.</i>	D6 @ Saharan poisonous plant field,	large mandibles						
	Rose Chafer	<i>Oxythyrea pantherina</i>	D7 pair mating on Caper flower,	spotty beetle,	@ Imouzzer river bed					