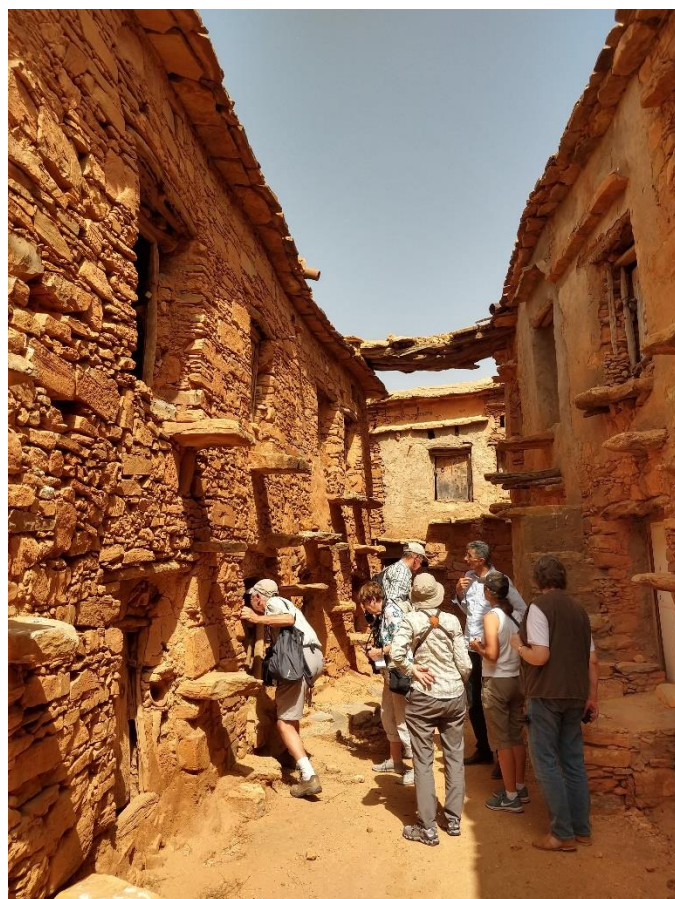
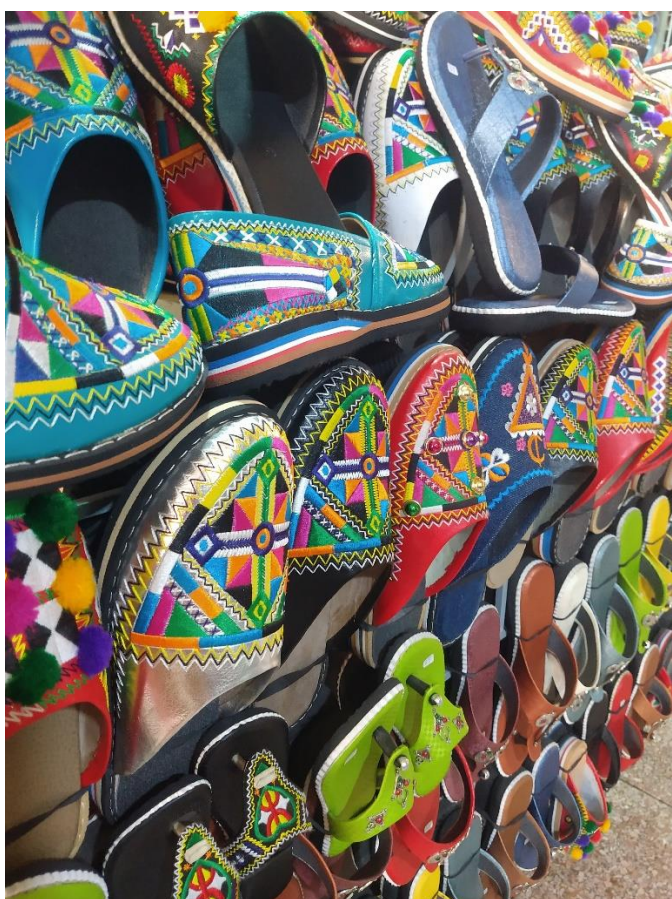


WILDLIFE TRAVEL



Morocco 2022



A gallery of photos from the trip is at
<https://www.flickr.com/photos/wildlifetravel/albums/72177720302701240>

Day One: 1st October. Evening arrival in Agadir, transfer to Atlas Kasbah.

Our afternoon flight took us down from London Gatwick, across the Bay of Biscay, crossing north-western Spain and Portugal, to reach the coast of Morocco, before finally we passed over the foothills of the High Atlas in to Agadir; a city of almost a million. With bags reclaimed we met up with our driver who whisked us through the Moroccan night, around the outskirts of Agadir and into the countryside, for our first views of the Atlas Kasbah, softly-lit on a hill top in the foothills of the Anti-Atlas. There was time for a late dinner of goat tagine, before we made a welcome retreat to our rooms.

Day Two: 2nd October. Atlas Kasbah and Tighanimine El Baz area.

The rising sun roused the first of the Common Bulbuls that fill the hotel's gardens, and their simple, jerky notes soon filled the air as they sang to the morning, a song that would become familiar during our week. It was then time to try our first Moroccan breakfast, with a selection of fresh bread, *jben* (fresh cheese), beetroot and watermelon jams, *amlou* (made from ground almonds, honey and argan oil) and *dchicha* (cracked barley soup), washed down with coffee and mint tea.

Philip gave us an introduction to the week: the Atlas Kasbah's location just inland of Agadir and the Atlantic coast, along with the proximity to the High Atlas to the north and the Anti-Atlas to the south giving us lots of options to explore. Today was the time to familiarise ourselves with the local area, including the gardens of the Atlas Kasbah.

First stop was one of the many large Argan *Argania spinosa* trees growing in the hotel's grounds. Argan is endemic to south-western Morocco, and belongs to a primarily tropical family, Sapotaceae; a relic of the time when this area had a tropical climate. Argan is at the heart of much of the local culture and economy, being used for culinary and health purposes, washing, feeding animals, fuel, and in much of the traditional architecture. The area of Argan forest has decreased by around half over the last century due to agriculture intensification. It now covers around 828,000ha, and the Argan forest, and its surrounding area were declared a UNESCO Biosphere Reserve in 1998, as a means of promoting the protection and sustainable development of this area. This was a plant that was to feature heavily in our wildlife watching, and our meals, during the week.

The Atlas Kasbah was built with the objective of promoting responsible travel, both in terms of sustainable use of resources and environmental protection, but also in showcasing Berber culture, and supporting the local communities. In line with this, a phyto-purification water filtration system, uses a series of pools containing gravels and plants to treat the 'grey water' from the hotel, which is then used to irrigate the garden: an oasis of green in an otherwise dry area. Several North African Water Frogs were bobbing in the pools or lounging at their edges as we passed, the spotted lower lip of one giving the impression of a grinning mouth!

Our visit fell during the autumn bird migration window, a time when almost anything can turn up, and the garden held a mix of resident birds with birds that were on passage. As we made our way through the Argan, Olive *Olea europaea* and Lemon *Citrus limon* trees we spotted chattering groups of House Sparrows, Great Tit, Chiffchaff, and Sardinian Warblers scolding from deep in cover. Near the bottom of the garden, we found a Pied Flycatcher flitting between perches: this was a bird on the

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move, with many miles still to go to reach its wintering grounds in tropical Africa. There was also a Spotted Flycatcher sitting on a wire here, a species also heading south at this time of year.

Turning out along the lane two spiny shrubs lined the way: the 'chicken-wire bush' *Launaea arborescens* and *Ziziphus lotus*, often used as dead hedging around fields. One *Ziziphus* was covered in the white-flowered, pink-stemmed scramble of dodder *Cuscuta* sp., a parasitic plant that produces special root-like haustoria that infiltrate the vascular system of its host. Feeding among the flowers we spotted the beautiful Crimson Speckled moth, liberally sprinkled with bold black and red spots.

Smaller flowers included *Heliotropium crispum*, tiny *Aizoon canariense*, the ferny-leaved Egyptian Lavender *Lavandula multifida*, and the unfairly-named bugloss *Echium horridum*. Walking along a track through the Argan forest our attention was drawn by small birds including Sardinian Warbler, Cirl Bunting and Chiffchaff, whilst Thekla Larks dashed across the ground or parachuted through the air with their melodious whistle. We soon found a flush of the slender white bulb *Hannonia hesperidum* carpeting the ground, accompanied in places by the larger flowers of *Vagaría ollivieri*. Both species are endemic to Morocco, and considered to be vulnerable, with *Hannonia hesperidum* recorded from seven areas and *Vagaría ollivieri* five.

Carrying on, we stopped to watch a Spur-thighed Tortoise slowly trundle away, before we found one of the area's star birds, Moussier's Redstart, a species endemic to dry and rocky areas of north-west Africa (Morocco eastwards to Tunisia). Around a small farm a noisy group of Maghreb Magpies chattered, a patch of electric blue skin behind their eyes setting them apart from their European cousins.

A series of trilling calls drifted towards us, revealing the presence of a group of Fulvous Babblers. These birds move through the undergrowth in noisy groups, and try as we might, we could not spot them before they moved on.

With the heat catching up with us, we made our way back to the hotel for lunch on the terrace before choosing between an afternoon walk, and some time in the pool. A slightly smaller group took a walk to the local village Tighanimine El Baz (Valley of the Eagle), accompanied by local resident Ahmed, a man of few words.

House Sparrows, Greenfinch and North African Chaffinch flitted through the trees, as we headed down to the dry river valley where clumps of Oleander *Nerium oleander* and the purple-flowered Chaste Bush *Vitex agnus-castus* grew. A Bibron's Agama sunbathed on a rock, whilst a pair of Barbary Ground-squirrels eyed us suspiciously before bounding away. Overhead, Laughing Doves flew between the crumbling buildings of the old village, and Southern Grey Shrike, Black Wheatear and Spotless Starling were all spotted around the village. There was then time to relax at the hotel before a dinner of *charria b'djaj* angel hair pasta.

Day Three: 3rd October. Cap Rhir, Oued Tamri and Agadir Oufella.

Another sunny day saw us setting off north, towards Agadir, and onwards along the Atlantic coast. The vegetation quickly began to change, with low-growing coastal steppe vegetation growing alongside areas of succulent *Euphorbia* scrub.

We made our first stop close to Cap Rhir to explore this interesting plant community, which is unique to the south-west Morocco coastline, down into coastal Mauritania, and across to the Canary Islands (where closely-related species make up a very similar flora). These communities 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.

The vegetation was dominated by a mixture of three succulent species: the umbrella-forming, lime-green shrubby *Euphorbia regis-jubae* (found here and in the Canary Islands), the cactus-like *Euphorbia officinarum* (found in southern Morocco and down to Mauritania), its flowers humming with Honey Bees, and the succulent groundsel *Kleinia anteuphorbium* (endemic to Morocco), favoured by Painted Lady butterflies. Amongst the Euphorbias were patches of flowering *Launea arborescens*, the thorny succulent shrub *Salsola oppositifolia* with pink papery flowers, and *Lycium intricatum* with its delicate purple tubular flowers.

We had a few tantalising glimpses of Black-crowned Tchagra, before it finally flew into an open bush, allowing us to see its colourful chestnut wings, and bold black and white head pattern. A type of bush-shrike, the tchagra is found in open habitats across much of Africa.

Several large Tenebrionid beetles were wandering amongst the vegetation, their long legs giving them a swaying-gait, whilst Lang's Short-tailed Blues flitted close to the *Launea*. Around a concrete bridge we found three spiny-looking Moorish Geckos, one of which was in the early stages of regrowing a lost tail, with the much smaller Moroccan Lizard-toed Gecko, a species endemic to western Morocco, found sheltering under a rock.

We carried on our journey north towards Oued Tamri, quickly finding a spot to pull over as we spotted some birds on the cliff edge. Set off against the blue sky and orange earth were three of the area's specialities: Northern Bald Ibis, their glossy plumage shimmering in the light, with their bald heads surrounded by longer neck feathers. Once widespread across southern Europe, North Africa and part of the Middle East, they were lost from most of their range as a result of poisoning from pesticides, hunting, disturbance at nesting sites, and more recently, loss of their foraging habitats to coastal development. Northern Bald Ibis reached a low of only around 100 birds by the 1990s, with the last remaining Middle Eastern birds, a tiny colony near Palmyra in Syria, who migrated down via the Yemen to Somalia and Eritrea for the winter. These birds are almost certainly extinct: doomed by the various conflict zones that make up their territory. There is positive news from the Moroccan population, with at least 708 individuals at the most recent count, and 170 chicks fledged in 2019. An introduced population in southern Spain now numbers around 80 birds, with further small, managed colonies introduced to Germany and Austria. The Northern Bald Ibis was down-listed to Endangered in November 2018, after more than three decades categorised as Critically Endangered.

At the roadside here we found Common Ice Plant *Mesebryanthemum nodiflorum*, the glistening bladder cells within its red leaves giving it its common name, a small scrambling bird's-foot trefoil *Lotus assakensis* and the pink-flowered sea heath *Frankenia laevis* ssp. *velutina*, with the Moroccan endemic Margarita's Fringe-toed Lizard basking surreptitiously in the vegetation.

Continuing a short way down the road, we reached Oued Tamri, a usually quiet beach, which the tides that day had turned in to a surfers paradise! Immediately within the car park we spotted Common Redstart, Turtle Dove and Moroccan Wagtail, the local form of White Wagtail with a distinctive, darker head pattern. There were plenty of Yellow Wagtails, of at least two races (Blue-headed and Grey-headed), around the car park, and flitting amongst the low-growing shrubs Sardinian Warblers were joined by both Western Subalpine and Spectacled Warblers.

Making our way along the sandy beach, passing small patches of Sea Spurge *Euphorbia paralias*, it was clear that Morocco's long, hot summer had impacted the water levels in the river mouth. The reduced pool held a handful of Grey Herons and Little Egrets, along with three Greater Flamingoes, two Ruddy Shelducks, and a lone Dunlin, with Swallows and Sand Martins feeding over the water, and two Marsh Harriers patrolling over the Giant Reed *Arundo donax*.

It was then time to retrace our steps to Agadir, for a final stop at Agadir Oufella (translated from Berber to "the fortress at the top"), perched on a promontory close to the fishing port. The fortress dates back to the 16th Century and housed the old city of Agadir, much of which was destroyed in the 5.8 magnitude earthquake that struck the city on 29 February 1960. There is now a project underway to restore Agadir Oufella, as well as studying the archaeology of the site.

Day Four: 4th October. Taroudant and Tioute palmery.

We set off east this morning, headed for the town of Taroudant. Our journey took us through the important agricultural area of the Souss Valley, where crops such as oranges, bananas and salad are grown (often under polythene), much destined for export to northern Europe. Taroudant is often described as a mini-Marrakech, with its mud-plastered ramparts dating back to the 16th Century. Taroudant has almost 6km of town walls, with nine gates: an imposing and impressive sight on arrival.

Following a welcome drink stop in the quiet garden of a local hotel, we headed out into Taroudant's bustling streets, headed for the Berber souk, where stalls heaved with dried fruits and nuts, mountains of spices and teas, local crafts, and more. A selection of spices sniffed and purchases made, we continued south-east towards the edge of the Anti-Atlas and the village of Tioute.

We had our lunch at Tioute palmery, overlooked by the ruins of the 16th Century Kasbah of Tioute, as an ongoing dispute between a group of cats and a White Stork played out around us. A mountain spring feeds the palmery via a network of irrigation pools and channels, allowing the local villagers to grow wheat, corn and barley, alongside the many Date Palms *Phoenix dactylifera* and Carobs *Ceratonia siliqua* here.

Along the channels we found both Epaulet Skimmer and Ringed Cascader, a predominantly African species (but also found in parts of Spain and Sicily) with striking golden markings, breaking from tireless patrolling only to come closer and inspect us. North African Water Frogs dived into the water as we passed, and along the margins we found Maidenhair Fern *Adiantum capillus-veneris*, Lesser Water Parsnip *Berula erecta* and Vervain *Verbena officinalis*.

Patches of the 'dutchman's pipe' *Aristolochia baetica* var. *bicolor* and *Asparagus albus* scrambled along the path, and among fields of Alfalfa *Medicago sativa* were plenty of tiny African Grass Blue butterflies, joined briefly by a single Clouded Yellow.

The Date Palms are harvested at this time of year, when they are at their peak level of sugar content and flavour, and there were plenty of birds lurking around the fruits including the ubiquitous Common Bulbul, House Sparrows, Great Tits and North African Chaffinches. The star bird however was a Wryneck, flying back and forth between several Date Palm stems, stopping occasionally to afford us views of its mottled brown feathers.

Our final stop was at the Argan oil cooperative 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 cooperative in Morocco, founded in 2001, with a membership of around 40 women. It takes some 30kg of Argan nuts and 15 hours of work to produce around 1 litre of pure Argan oil, and our purchases were a direct way to support women's development, and return money to the local community.

Day Five: 5th October. Souss Massa National Park.

Following breakfast, we were met by a fleet of 4-wheel drive vehicles, setting off south for our first visit to Souss-Massa National Park. The Park was established in 1991, and covers an area of almost 34,000 hectares of sand dunes, steppe, wetlands and Argan forest. Souss-Massa has particular significance for its colonies of Northern Bald Ibis, as well as being an important site for many other breeding and wintering birds. We were of course also here for the mammals: 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 over-hunting, with increasing numbers of high-powered weapons freely available across large swathes of their former range (which includes Libya, Tunisia, Mali and Chad). Once widespread across the arid regions of North Africa, almost all the large mammals of the Sahara are now extremely rare in the wild, and four important members of this megafauna have been 're-wilded' in Souss-Massa National Park.

There was time to admire a group of North African Chaffinches coming down to drink and bathe alongside a handsome male Cirl Bunting, before we headed in to the first of the two large enclosures that form part of the captive-breeding programme here. In the 2,000ha Rokein reserve we soon spotted our first Addax, a large and ghostly pale antelope with long, twisted horns. Addax are native to arid stony and sandy areas out in the Sahara proper, where they graze on a range of vegetation. In the wild they are critically endangered, with some last individuals possibly clinging on in Mauritania, Chad and Niger; a survey in 2016 of key habitat identified just three wild Addax. Fortunately, captive populations, including these in Morocco, mean the Addax still persists as a species, but its future in the wild at present is far from secure.

Sharing the enclosure, were the much smaller and more timid Dorcas Gazelle, with their beautiful lyre-shaped horns and intricately marked faces and ears. These antelope too have declined across their North African range, but are still doing reasonably well in the wild.

Joining the antelope, was the Red-necked Ostrich: this North African subspecies, the largest of the ostriches, making it the largest bird in the world. The Red-necked Ostrich is noticeably more colourful than sub-Saharan birds and several of the males were assuming the bright pink-flush of the breeding season.

Amongst the rocks we spotted the occasional Spur-thighed Tortoise and plentiful Thekla Larks, with Woodpigeons and Kestrels aplenty, and an adult Bonelli's Eagle in a distant dead tree. There was an opportunity to stretch our legs, and although the wild flowers are more plentiful here in the spring, the marked difference from excluding heavy goat-grazing could be seen in the vegetation, with the rock roses *Helianthemum confertum* and *Helianthemum lippi* both seen in flower.

Between the enclosures, a stretch of goat-herded agricultural land provided a stark comparison before we entered the 1,200ha Arrouais reserve, almost immediately spotting a group of three Cream-coloured Coursers. It was then time to meet the third of our antelopes, and the largest, the beautiful Scimitar-horned Oryx with their ginger neck, tear-shaped face markings and swept back, scimitar horns. Like the Addax, the Scimitar-horned Oryx has not fared well, and was declared extinct in the wild in 2000. The population here at Souss-Massa is now the largest single herd left on the planet. The Scimitar-horned Oryx once grazed extensively across North Africa, migrating seasonally with the rains. There are now ambitious plans from Chad to re-establish this species in the wild, at its former stronghold in Ouadi Rimé-Ouadi Achim Game Reserve. In late summer 2016, the first individuals were released into the wild, with a calf born in September 2016 considered the first 'wild-born' Scimitar-horned Oryx for over 30 years. The project aims to have a self-sustaining population of 500 animals within five years.

Following a lunch stop that offered views over the dunes to the Atlantic Ocean beyond, we had close views of a young Bonelli's Eagle as it took off from near a watering hole and gradually spiralled its way into the sky, a rufous colour rather than the pale feathers of the adult we had seen earlier.

There was then time to stop at a local ceramic producer's bazaar to see the sheer volume of pots, tagines and bowls, seemingly produced on just two potter's wheels in the back, before we made our way back to the Atlas Kasbah for a delicious dinner of chicken or vegetable pastilla.

Day Six: 6th October. Imi Mquorn, Ait Baha and Laatik.

This morning we took the road south-east towards Ait Baha, one of the larger towns in the western Anti-Atlas, to explore this region. The Anti-Atlas contain some of the oldest rocks in the world: an ancient mountain range that started to form 300 million years ago, and once rivalled the Himalayas in height. Today, they are much eroded, the highest peaks reaching between 2,500m and 2,700m.

Crossing the valley of the Souss River, our first stop was an unassuming field near the town of Imi Mquorn filled with tall, glaucous Apple of Sodom Milkweed *Calotropis procera* plants, their mishapen green fruits beginning to burst open to reveal the flattened seeds inside. Several Moussier's Redstarts flitted from bush to ground in the adjacent field, joined briefly by a Northern Wheatear and a Stonechat, whilst a Little Owl glared from a nearby tree. Alongside the milkweed, we found a small Joint Pine *Ephedra fragilis* with the aggressively spiny *Asparagus horridus* growing in a scramble at its base, along with a large patch of sprawling Bitter Apple *Citrillus colocynthis*, adorning the earth with

tiny melon-like fruits. As small groups of Swallows streamed overhead, a sandy-coloured bird scuttling over the ground revealed itself as a Tawny Pipit, yet another bird on the move.

After a quick coffee stop in Ait Baha, spotting Spur-thighed Tortoises and Ravens from the balcony, there was time for a visit to the town's famous local cobblers, before we climbed further into the Anti-Atlas. The rocky hillsides were cloaked in Argan, with *Euphorbia officinarum* making another appearance, here in its beautifully tight-cushioned *echinarum* form (considered by some to be a distinct subspecies). We kept watch for Barbary Ground-squirrels and Biron's Agamas on rocks as we passed, the former invariably dashing for safety, whilst the latter held their nerve as they continued to sun themselves.

Reaching the tiny village of Laatik, we paid a visit to its ancient *agadir*, a fortified grain store dating from the time when local Berber tribes still fought one another (this particular *agadir* is some 770 years old). These buildings are typical of the Anti-Atlas and others could be spotted during the day, in various states of (dis)repair, perched on high ground. We were shown around by the local trusted custodian to see the structure of the *agadir* with its storage roos accessed by stepping stones, a well with fresh water and water storage tanks for seeing out any siege, and a chance to look inside one of the storage rooms. The *agadir* came complete with its own 'jail', with some doors protected by more than one lock (security against less-trustworthy relatives), whilst others bore the black cross to fend off the advances of the beautiful but dangerous *Aisha Kandicha* of Moroccan folklore. Several Spur-thighed Tortoises had free-range within the *agadir*, daubed with paint to increase their visibility: it is a belief here that tortoises will protect your homes from scorpions. Exploring the communal circular pavements nearby, used by a team of donkeys to thresh the barley, we found several scorpions amongst the stones, suggesting the tortoises have their work cut out.

Under an increasingly intense sun we had a further stop to explore an Anti-Atlas hillside, where we found the deep-red flowers of the strange fleshy succulent *Orbea decaisneana* alongside the remains of *Asphodelus fistulosus*, with time for a quick drink in Ait Baha, before we returned back home.

Day Seven: 7th October. Oued Souss and Oued Massa.

We travelled south again today, back to Souss-Massa National Park, to visit its two namesake rivers. Our first stop was at Oued Souss, where we were greeted by an estuary cloaked in mist. Fortunately, this began to clear soon after our arrival, revealing a selection of waders. In the muddy margins were Redshank, Ringed Plover, Dunlin, Greenshank, Bar-tailed Godwit and Ruff, and among them we found two Marsh Sandpipers, a rare bird in Morocco. Out in the water 300 or so Greater Flamingos shuffled and murmured as Spoonbills flew overhead, along with a single Black-winged Stilt, before a group of Glossy Ibis came down to feed. On the far shore amongst a mass of gulls and terns, we found five Lesser Crested Terns, including two juveniles that were still begging from their parents, with Ospreys appearing periodically to unsettle the waders before diving for fish.

The Shrubby Sea-blite *Suaeda vera* lining the estuary was also full of small birds, many of which were only part way through their voyage south. Here we found a single Western Orphean Warbler and Whinchat, along with Zitting Cisticolas and a large roving flock of Serin.

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We continued southwards to the other end of the national park and the Oued Massa, finding a shady spot among the trees for lunch before exploring the area. Our path overlooking the river held a different vegetation, and we found several interesting plants here, including *Launea fragilis* the more slender relative of the 'chicken wire bush' we had grown accustomed to seeing, the endemic sea lavender *Limonium mucronatum*, the purple-flowered sea-spurrey *Spergularia fimbriata* and two interesting bulbs: Stinking Sea Daffodil *Pancratium foetidum* and *Drimia fugax*.

The birds were again active here, and whilst we were further from the water we could make out a group of Ruddy Shelduck and more flamingos, whilst closer at hand we enjoyed a great view of a Woodchat Shrike, along with a singing Black-crowned Tchagra before self-consciousness took hold and it flew out of sight.

There were plentiful Painted Ladys, and a fleeting glimpse of a Scarce Green-striped White, along with a velvet ant: this densely-furry insect was actually a flightless female wasp, and we gave her a wide berth, with this group's reputation of possessing extremely painful stings.

As we left Oued Massa, a stop on a bridge over the river added Spotted Redshank to our tally, before we made our way back to the Atlas Kasbah for couscous (it was Friday night after all).

Day Eight: 8th October. Atlas Kasbah, evening flight back to UK.

Our last day in Morocco dawned bright and sunny, heralded in by the ever-enthusiastic Common Bulbuls. Today was a free day with an opportunity to relax with a book, enjoy the pool, explore the gardens or revisit the local goat track.

All too soon it was time for our final lunch on the sunny terrace, with one last mint tea, and the opportunity to thank Helene, Hassan and their team for their hospitality, before we began our return journey to the UK.

Thank you to all the travellers for joining us on our long overdue return to Morocco.

Laurie Jackson and Philip Precey, Wildlife Travel. October 2022.





Photos (clockwise, from top left): *Orbea decaisneana* subsp *hesperidum*, *Echinops spinosissimus* subsp *spinosus*, *Vagaria ollivieri*, *Hannonia hesperidum*



Photos (clockwise, from top left): Cream-coloured Courser, Bibron's Agama, Crimson Speckled, Red-necked Ostrich

MOROCCO 2022: some highlights

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 (although for orchids, popular names are sometimes also given).

D: dead, E: endemic, H: heard only, I: introduced, P: planted

	SCIENTIFIC NAME	NOTES	FIRST SEEN
PTERIDOPHYTES			
Aspleniaceae			
	<i>Asplenium cf ceterach</i>	Rustyback Fern in the Anti-Atlas	6 th
Pteridaceae			
	<i>Adiantum capillus-veneris</i>	Maidenhair Fern along the water channels in Tioute palmery	4 th
CONIFERS			
Cupressaceae			
P	<i>Cupressus sempervirens</i>	Pencil Cypress in the Atlas Kasbah garden	2 nd
Ephedraceae			
	<i>Ephedra fragilis</i>	Joint Pine	6 th
DICOTYLEDONS			
Aizoaceae			
I	<i>Carpobrotus acinaciformis</i>	Hottentot Fig in the garden of Atlas Kasbah	2 nd
	<i>Aizoon canariense</i>	The low-growing plant with tiny flowers on the goat track	2 nd
	<i>Mesembryanthemum nodiflorum</i>	Common Ice Plant with broad, red leaves and white petalled flowers, covered with glistening bladder cells	3 rd
Amaranthaceae			
	<i>Salsola oppositifolia</i>	Pink Saltbush succulent thorny shrub with pink papery flowers and hook-tipped leaves at Cap Rhir and Oued Massa	3 rd
	<i>Suaeda vera</i>	Shrubby Sea-blite fleshy shrub at Oued Tamri, Oued Souss and Oued Massa	3 rd
Apiaceae			
	<i>Berula erecta</i>	Lesser Water Parsnip along the water channels at Tioute palmery	4 th

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	SCIENTIFIC NAME	NOTES	FIRST SEEN
Apocyanaceae			
	<i>Calotropis procera</i>	Apple of Sodom Milkweed the large, Saharan shrub, food plant of the Plain Tiger	6 th
	<i>Nerium oleander</i>	Oleander Atlas Kasbah garden and dry river bed	2 nd
	<i>Orbea decaisneana</i>	Carrion Plant fleshy succulent with deep-red flower in the Anti-Atlas	6 th
	<i>Periploca angustifolia</i>	Clambering vine with bullhorn seed pods (starting to open), and flowering in Atlas Kasbah garden	2 nd
Aristolochiaceae			
	<i>Aristolochia baetica</i> var. <i>bicolor</i>	The vine with the 'dutchman's pipe' flowers in Tioute palmery: foodplant of Spanish Festoon	4 th
Asteraceae			
	<i>Echinops spinosissimus</i> ssp. <i>spinosus</i>	Thistle with a spherical flower head with lots of white florets	7 th
E	<i>Kleinia</i> (= <i>Senecio</i>) <i>anteuphorbium</i>	Succulent shrubby 'groundsel' around Cap Rhir	3 rd
	<i>Launaea arborescens</i>	Chicken wire bush	2 nd
	<i>Launea fragilis</i>	Low-growing plant at Oued Massa	7 th
E	<i>Nauplius</i> (= <i>Asteriscus</i>) <i>imbricatus</i>	Bush with fragrant leaves around Cap Rhir and Oued Massa	3 rd
I	<i>Verbesina encelioides</i>	Mexican species, the yellow-flowered daisy growing along the roadsides	6 th
Boraginaceae			
	<i>Echium horridum</i>	The red 'bugloss'	2 nd
	<i>Heliotropium crispum</i>	The white heliotrope on the goat track, Cap Rhir and Oued Massa	2 nd
Cactaceae			
I	<i>Opuntia maxima</i> (= <i>O ficus-barbarica</i>)	Fig of the Berbers (native to SW Mexico) around the village and in Tioute Palmery	2 nd
I	<i>Austrocylindropuntia subulata</i> (was <i>Opuntia cylindrica</i>)	(native to Colombia-Peru)	7 th
Caryophyllaceae			
	<i>Spergularia fimbriata</i>	The purple-flowered sea-spurrey at Oued Massa	7 th
Cistaceae			
	<i>Helianthemum confertum</i>	Souss Massa NP, in the first animal enclosure	5 th
	<i>Helianthemum lippi</i>	Souss Massa NP, in the second animal enclosure	5 th
Convolvulaceae			
	<i>Convolvulus althaeoides</i>	Along the goat track (not flowering)	2 nd
	<i>Cuscuta</i> sp.	Dodder the white-flowered, pink-stemmed parasitic plant sprawling over the <i>Ziziphus</i> near the hotel	2 nd

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	SCIENTIFIC NAME	NOTES	FIRST SEEN
Cucurbitaceae			
	<i>Citrullus colocynthis</i>	Bitter Apple the vine with the round fruits	6 th
Euphorbiaceae			
	<i>Euphorbia officinarum</i>	Succulent with the cactus-like growth form, in Cap Rhir appearing as tall, columns	3 rd
	<i>Euphorbia paralias</i>	Sea Spurge on the beach at Oued Tamri	3 rd
	<i>Euphorbia regis-jubae</i>	Succulent with the lime-green tree-like growth form	3 rd
I	<i>Ricinus communis</i>	Castor Oil Plant along roadsides and in Tioute palmery	3 rd
Fabaceae			
I	<i>Acacia saligna</i>	Golden Wattle Australian species planted at Souss Massa National Park	5 th
	<i>Ceratonia siliqua</i>	Carob Atlas Kasbah garden and Tioute palmery	2 nd
E	<i>Hesperolaburnum platycarpum</i>	The broom in the Anti-Atlas	6 th
E	<i>Lotus assakensis</i>	The roadside bird's-foot trefoil at Cap Rhir	3 rd
	<i>Medicago sativa</i>	Alfalfa in the fields at Tioute palmery	4 th
	<i>Ononis natrix</i>	Smelly, sticky leaves, yellow flowers, along the goat track and at Cap Rhir	2 nd
	<i>Retama monosperma</i>	Souss Massa National Park the broom in the animal enclosures	5 th
Frankeniaceae			
E	<i>Frankenia laevis ssp velutina</i>	Sea Heath pink flowers at Cap Rhir	3 rd
Lamiaceae			
	<i>Lavandula multifida</i>	Pinnate leaves, medium-large flowers along the goat track	2 nd
	<i>Salvia aegyptiaca</i>	The small, white flowered sage along the goat track	2 nd
Lythraceae			
P	<i>Punica granatum</i>	Pomegranate	2 nd
Malvaceae			
P	<i>Hibiscus rosa-sinensis</i>	Hibiscus Atlas Kasbah garden	2 nd
P	<i>Hibiscus tileaceae</i>	Cotton Bush Atlas Kasbah garden	2 nd
Moraceae			
P	<i>Ficus carica</i>	Common Fig in Tioute palmery	4 th
Moringaceae			
P	<i>Moringa oleifera</i>	Horseradish Tree on the terrace at Atlas Kasbah	2 nd
Myoporaceae			
P	<i>Myoporum laetum</i>	Atlas Kasbah garden	2 nd
Myrtaceae			
P	<i>Eucalyptus cf. globulus</i>	Planted in Souss Massa National Park	5 th
Nyctaginaceae			
P	<i>Bougainvillea sp</i>	Atlas Kasbah garden	2 nd

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	SCIENTIFIC NAME	NOTES	FIRST SEEN
Oleaceae			
	<i>Olea europaea</i>	Olive	2 nd
Plumbaginaceae			
E	<i>Limonium mucronatum</i>	The sea lavender with pale-pink flowers and winged stems at Oued Massa	7 th
Rhamnaceae			
	<i>Ziziphus lotus</i>	Jujube very spiny hedge bush	2 nd
Sapotaceae			
E	<i>Argania spinosa</i>	Argan	2 nd
Solanaceae			
	<i>Hyoscyamus niger</i>	Black Henbane in the agadir at Laatik	6 th
	<i>Lycium intricatum</i>	Small, purple tubular flowers near Cap Rhir and at Oued Massa	3 rd
I	<i>Nicotiana glaucum</i>	South American invasive with yellow flowers	2 nd
Tamaricaceae			
	<i>Tamarix gallica</i>	French Tamarisk	3 rd
Verbenaceae			
	<i>Verbena officinalis</i>	Vervain	4 th
	<i>Vitex agnus-castus</i>	Chaste Bush purple flowered shrub in the dry river bed	2 nd
MONOCOTYLEDONS			
Amaryllidaceae			
E	<i>Hannonia herspiridum</i>	Delicate white flowered bulb along the goat track	2 nd
	<i>Pancratium foetidum</i>	Stinking Sea Daffodil the bulb at Oued Massa	7 th
E	<i>Vagarria ollivieri</i>	Larger white flowered bulb along the goat track	2 nd
Aracaceae			
	<i>Phoenix dactylifera</i>	Date Palm a common roadside tree, some wonderful old trees in Tioute palmery	2 nd
Asparagaceae			
	<i>Asparagus albus</i>	Shrubby asparagus with pale stems in Tioute palmery	4 th
	<i>Asparagus horridus</i>	Spiny asparagus at Imi Mqourn	6 th
	<i>Drimea fugax</i>	Oued Massa	7 th
	<i>Drimia maritima</i>	Sea Squill along the goat track and in the Anti-Atlas	2 nd
Asphodelaceae			
	<i>Asphodelus ramosus ssp nervosus</i>	The broad-leaved asphodel growing between the enclosures in Souss Massa National Park	5 th
	<i>Asphodelus fistulosus</i>	A fine-leaved asphodel, gone to seed in the Anti-Atlas	6 th
Cyperaceae			
	<i>Cyperus capitatus</i>	Souss Massa National Park in the second animal enclosure	5 th
Poaceae			
	<i>Arundo donax</i>	Giant Reed	2 nd

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Family Ratidae (Ratites)									
Red-necked Ostrich	<i>Struthio camelus camelus</i>					◆			
Family Anatidae (Ducks, Geese & Swans)									
Ruddy Shelduck	<i>Tadorna ferruginea</i>			◆				◆	
Mallard	<i>Anas platyrhynchos</i>							◆	
Family Phasianidae (Pheasants and Partridges)									
Barbary Partridge	<i>Alectoris barbara</i>							◆	◆
Family Sulidae (Gannets)									
Gannet	<i>Morus bassanus</i>		◆			◆			
Family Phalacrocoracidae (Cormorants)									
Great Cormorant	<i>Phalacrocorax (carbo) carbo/sinensis</i>							◆	
Family Ardeidae (Hérons)									
Western Cattle Egret	<i>Bubulcus ibis</i>			◆			◆	◆	
Little Egret	<i>Egretta garzetta</i>			◆				◆	
Grey Heron	<i>Ardea cinerea</i>			◆				◆	
Family Ciconiidae (Storks)									
White Stork	<i>Ciconia ciconia</i>				◆			◆	
Family Threskiornithidae (Spoonbills and Ibises)									
Glossy Ibis	<i>Plegadis falcinellus</i>							◆	
Northern Bald Ibis	<i>Geronticus eremita</i>			◆		◆			
Spoonbill	<i>Platalea leucorodia</i>							◆	
Family Phoenicopteridae (Flamingoes)									
Greater Flamingo	<i>Phoenicopterus roseus</i>			◆				◆	
Family Pandionidae (Ospreys)									
Osprey	<i>Pandion haliaetus</i>							◆	
Family Accipitridae (Hawks and Eagles)									
Bonelli's Eagle	<i>Aquila fasciata</i>					◆	◆	◆	
Marsh Harrier	<i>Circus aeruginosus</i>			◆		◆		◆	
Common Buzzard	<i>Buteo buteo</i>			◆					
Sparrowhawk	<i>Accipiter nisus</i>		◆		◆	◆			
Family Falconidae (Falcons)									
Peregrine	<i>Falco peregrinus</i>							◆	
Kestrel	<i>Falco tinnunculus</i>		◆	◆	◆	◆	◆	◆	◆
Family Recurvirostridae (Avocets and Stilts)									
Black-winged Stilt	<i>Himantopus himantopus</i>							◆	
Family Haematopodidae (Oystercatchers)									
Oystercatcher	<i>Haematopus ostralegus</i>							◆	
Family Glareolidae (Coursers and Pratincoles)									
Cream-coloured Courser	<i>Cursorius cursor</i>					◆			
Family Scolopacidae (Sandpipers)									
Dunlin	<i>Calidris alpina</i>			◆				◆	

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	Ruff	<i>Calidris pugnax</i>							◆	
	Curlew	<i>Numenius arquata</i>							◆	
	Black-tailed Godwit	<i>Limosa limosa</i>							◆	
	Bar-tailed Godwit	<i>Limosa lapponica</i>							◆	
	Redshank	<i>Tringa totanus</i>							◆	
	Spotted Redshank	<i>Tringa erythropus</i>							◆	
	Greenshank	<i>Tringa nebularia</i>							◆	
	Marsh Sandpiper	<i>Tringa stagnatilis</i>							◆	
	Green Sandpiper	<i>Tringa ochropus</i>					◆			
	Common Sandpiper	<i>Actitis hypoleucos</i>							◆	
Family Charadriidae (Plovers)										
	Ringed Plover	<i>Charadrius hiaticula</i>							◆	
	Kentish Plover	<i>Charadrius alexandrinus</i>							◆	
	Grey Plover	<i>Pluvialis squatarola</i>							◆	
Family Laridae (Gulls)										
	Black-headed Gull	<i>Chroicocephalus ridibundus</i>							◆	
	Slender-billed Gull	<i>Chroicocephalus genei</i>							◆	
	Yellow-legged Gull	<i>Larus michahellis</i>			◆		◆		◆	◆
	Lesser Black-backed Gull	<i>Larus fuscus</i>			◆	◆	◆		◆	
Family Sternidae (Terns)										
	Little Tern	<i>Sternula albifrons</i>							◆	
	Lesser Crested Tern	<i>Thalasseus bengalensis</i>							◆	
	Sandwich Tern	<i>Thalasseus sandvicensis</i>							◆	
Family Columbidae (Pigeons and Doves)										
	Rock Dove/Feral Pigeon	<i>Columba livia</i>		◆	◆	◆	◆	◆	◆	◆
	Woodpigeon	<i>Columba palumbus</i>		◆			◆	◆	◆	
	Collared Dove	<i>Streptopelia decaocto</i>		◆	◆	◆	◆	◆	◆	◆
	Turtle Dove	<i>Streptopelia turtur</i>			◆					
	Laughing Dove	<i>Streptopelia senegalensis</i>		◆	◆	◆		◆		
Family Strigidae (Owls)										
	Little Owl	<i>Athene noctua</i>						◆	◆	
Family Apodidae (Swifts)										
	Swift	<i>Apus apus</i>		◆		◆				
	Pallid Swift	<i>Apus pallidus</i>					◆			
Family Picidae (Woodpeckers)										
	Wryneck	<i>Jynx torquilla</i>				◆				◆
Family Alaudidae (Larks)										
	Thekla Lark	<i>Galerida theklae</i>		◆	◆	◆	◆	◆	◆	◆
Family Hirundinidae (Swallows and Martins)										
	House Martin	<i>Delichon urbica</i>			◆	◆	◆	◆	◆	
	Red-rumped Swallow	<i>Hirundo daurica</i>		◆						
	Swallow	<i>Hirundo rustica</i>		◆	◆	◆	◆	◆	◆	◆

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Sand Martin	<i>Riparia riparia</i>			◆		◆		◆	
Family Motacillidae (Pipits and Wagtails)									
Blue-headed Wagtail	<i>Motacilla (f.) flava</i>			◆		◆			
Grey-headed Wagtail	<i>Motacilla flava thunbergi</i>			◆					
White Wagtail	<i>Motacilla (a.) alba</i>		◆	◆			◆	◆	
Moroccan Wagtail	<i>Motacilla (a.) subpersonata</i>			◆					
Grey Wagtail	<i>Motacilla cinerea</i>		◆			◆			
Tawny Pipit	<i>Anthus campestris</i>						◆		
Family Muscicapidae (Flycatchers and Chats)									
Common Redstart	<i>Phoenicurus phoenicurus</i>		◆	◆		◆		◆	
Moussier's Redstart	<i>Phoenicurus moussieri</i>		◆	◆		◆	◆	◆	◆
Stonechat	<i>Saxicola torquata</i>			◆			◆	◆	
Whinchat	<i>Saxicola rubetra</i>							◆	
Western Black-eared Wheatear	<i>Oenanthe hispanica</i>						◆		
Black Wheatear	<i>Oenanthe leucura</i>		◆	◆	◆	◆			
Northern Wheatear	<i>Oenanthe oenanthe</i>		◆	◆			◆		
Robin	<i>Erithacus rubecula</i>								◆
Blue Rock Thrush	<i>Monticola solitarius</i>						◆		
Spotted Flycatcher	<i>Muscicapa striata</i>		◆			◆		◆	◆
Pied Flycatcher	<i>Ficedula hypoleuca</i>		◆			◆			
Atlas/Iberian Flycatcher	<i>F. speculigera/hypoleuca iberiae</i>				◆				
Family Turdidae (Thrushes)									
Blackbird	<i>Turdus merula</i>		◆	◆	◆	◆	◆	◆	◆
Family Sylviidae (Sylviid Warblers)									
Garden Warbler	<i>Sylvia borin</i>					◆			
Blackcap	<i>Sylvia atricapilla</i>		◆				◆	◆	◆
Sardinian Warbler	<i>Sylvia melanocephala</i>		◆	◆	◆	◆	◆	◆	
Western Orphean Warbler	<i>Sylvia hortensis</i>							◆	
Western Subalpine Warbler	<i>Sylvia cantillans</i>			◆		◆			
Spectacled Warbler	<i>Sylvia conspicillata</i>			◆		◆			
Family Phylloscopidae (Leaf Warblers)									
Common Chiffchaff	<i>Phylloscopus collybita</i>		◆	◆			◆		
Iberian Chiffchaff	<i>Phylloscopus ibericus</i>			◆					
Family Acrocephalidae (Reed Warblers)									
Reed Warbler	<i>Acrocephalus scirpaceus</i>		◆						
Family Cisticolidae (Cisticolas)									
Zitting Cisticola	<i>Cisticola juncidis</i>							◆	
Family Paridae (Tits)									
Great Tit	<i>Parus major</i>		◆	◆	◆	◆			
Family Laniidae (Shrikes)									
Southern Grey Shrike	<i>Lanius elegans</i>		◆	◆	◆	◆	◆	◆	◆
Woodchat Shrike	<i>Lanius senator</i>							◆	

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Family Malaconotidae (Tchagras)									
Black-crowned Tchagra	<i>Tchagra senegalus</i>			◆				◆	
Family Pycnonotidae (Bulbuls)									
Common Bulbul	<i>Pycnonotus barbatus</i>		◆	◆	◆	◆	◆	◆	◆
Family Leiothrichidae (Laughing Thrushes)									
Fulvous Babbler	<i>Argya fulva</i>		H						
Family Corvidae (Crows)									
Maghreb Magpie	<i>Pica mauritanica</i>		◆	◆	◆	◆	◆	◆	◆
Raven	<i>Corvus corax</i>			◆		◆	◆		
Family Sturnidae (Starlings)									
Spotless Starling	<i>Sturnus unicolor</i>		◆	◆	◆	◆	◆	◆	◆
Family Passeridae (Sparrows)									
House Sparrow	<i>Passer domesticus</i>		◆	◆	◆	◆	◆	◆	◆
Family Fringillidae (Finches)									
North African Chaffinch	<i>Fringilla coelebs africana</i>		◆		◆	◆			
Greenfinch	<i>Carduelis chloris</i>		◆	◆		◆			
Goldfinch	<i>Carduelis carduelis</i>							◆	
Linnet	<i>Carduelis cannabina</i>		◆	◆		◆	◆	◆	
Serin	<i>Serinus serinus</i>			◆		◆		◆	
Family Emberizidae (Buntings)									
House Bunting	<i>Emberiza sahari</i>		◆	◆	◆	◆	◆	◆	◆
Cirl Bunting	<i>Emberiza cirlus</i>		◆			◆			
Ortolan Bunting	<i>Emberiza hortulana</i>		◆						

AMPHIBIANS									
North African Water Frog	<i>Pelophylax saharica</i>		◆		◆	◆			◆
Berber Toad	<i>Sclerophrys mauretanicus</i>		D						
MAMMALS									
Dromedary	<i>Camelus dromedarius</i>			◆	◆				
Dorcas Gazelle	<i>Gazella dorcas</i>					◆			
Addax	<i>Addax nasomaculatus</i>					◆			
Scimitar-horned Oryx	<i>Oryx dammah</i>					◆			
Barbary Ground Squirrel	<i>Atlantoxerus getulus</i>		◆				◆	◆	◆
Algerian Hedgehog	<i>Atelerix algirus</i>		D	D					
REPTILES									
Spur-thighed Tortoise	<i>Testudo graeca soussensis</i>		◆		◆	◆	◆		
Moorish Gecko	<i>Tarentola mauretanicus</i>			◆				◆	
Moroccan Lizard-toed Gecko	<i>Saurodactylus brosetti</i>			◆				◆	
Bibron's Agama	<i>Agama impalearis</i>		◆				◆		
Margarita's Fringe-toed Lizard	<i>Acanthodactylus margaritae</i>			◆		◆			

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LEPIDOPTERA - butterflies									
Family Papilionidae (Swallowtails)									
Swallowtail	<i>Papilio machaon</i>								◆
Family Pieridae (Whites)									
Greenish Black-tip	<i>Euchloe charlonia</i>		◆	◆		◆	◆	◆	
Scarce Green-striped White	<i>Euchloe falloui</i>							◆	
Large White	<i>Pieris brassicae</i>				◆				
Clouded Yellow	<i>Colias croceus</i>				◆				
Family Nymphalidae (Admirals and Fritillaries)									
Painted Lady	<i>Vanessa cardui</i>			◆	◆	◆	◆	◆	
Family Lycaenidae (Blues & Coppers)									
Lang's Short-tailed Blue	<i>Leptotes pirthous</i>		◆	◆	◆			◆	◆
African Grass Blue	<i>Zizeeria knysna</i>				◆			◆	◆
African Babul Blue	<i>Azanus jesous</i>		◆						
Long-tailed Blue	<i>Lampides boeticus</i>			◆					
LEPIDOPTERA - moths									
Crimson Speckled	<i>Utethesia pulchella</i>	Moth with black and crimson spots: rare migrant in the UK							
COLEOPTERA - beetles									
a darkling beetle	<i>Blaps sp.</i>								
ODONATA - damselflies and dragonflies									
Vagrant Emperor	<i>Hemianax ephippiger</i>	eg near Atlas Kasbah							
Sahara Blue-tailed Damselfly	<i>Ischnura saharensis</i>	Atlas Kasbah garden							
Epaulet Skimmer	<i>Orthetrum chrysostiga</i>	eg Tioute Palmery							
Ringed Cascader	<i>Zygonyx torridus</i>	Tioute Palmery							
ORTHOPTERA - crickets and grasshoppers									
a short-horned grasshopper	<i>Acrida ungarica</i>	along the goat track							
SCORPIONES - scorpions									
a scorpion	<i>Buthus sp.</i>	The small yellow scorpions found under rocks							