



CROSSBILL NATURE GUIDES

# Southern Morocco



KNNV Publishing





**CROSSBILL GUIDES**

**Southern Morocco**

Crossbill Guide: Southern Morocco

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# CROSSBILL GUIDES FOUNDATION

This guidebook is a product of the non-profit foundation Crossbill Guides. By publishing these books we want to introduce more people to the joys of our beautiful natural heritage and to increase the understanding of the ecological values that underlie conservation efforts. Most of this heritage is protected for ecological reasons and we want to provide insight into these reasons to the public at large. By doing so we hope that more people support the ideas behind nature conservation.

For more information about us and our guides you can visit our website at:

[WWW.CROSSBILLGUIDES.ORG](http://WWW.CROSSBILLGUIDES.ORG)

## Highlights of Southern Morocco



**1** Visit Souss-Massa National Park for the iconic and endangered Northern Bald Ibis.

**2** Head for the snow-capped peaks of the High Atlas Mountains around Imlil or Oukaïmeden for the dramatic scenery and endemic species.



**3** Explore the atmospheric sand seas on the edge of the Sahara at Erg Chebbi or M'hamid in the Drâa and walk the palmeries at Rissani, Merzouga or in the Drâa to experience traditional life on the desert edge.

**4** See hundreds of pink Greater Flamingos and other waterbirds in the ephemeral desert lake of Dayet Srij.





**5** Scour the high gravel plains around Boumalne Dades for the charismatic Fat Sand Rat and a plethora of wheatears and larks.

**6** Visit the Souss Valley for its endemic Argan forests and their organic produce and the source of 'our' Painted Lady butterflies and the start of their wondrous migration.



**7** Wander the Souks and Medinas of historic Marrakech and seek Barbary Partridge, Barbary Ground Squirrel, Maghreb Magpie and Moussier's Redstarts just outside the city walls.

**8** Cross the barren hillsides of the Anti-Atlas Mountains, wondering at the stark landscapes and the tectonic folds that formed them.





boat trip or  
ferry crossing



car route



bicycle route



walking route



beautiful  
scenery



interesting  
history



interesting  
geology

## About this guide

This guide is meant for all those who enjoy being in and learning about nature, whether you already know all about it or not. It is set up a little differently from most guides. We focus on explaining the natural and ecological features of an area rather than merely describing the site. We choose this approach because the nature of an area is more interesting, enjoyable and valuable when seen in the context of its complex relationships. The interplay of different species with each other and with their environment is astonishing. The clever tricks and gimmicks that are put to use to beat life's challenges are as fascinating as they are countless.

Take our namesake the Crossbill: at first glance it's just a big finch with an awkward bill. But there is more to the Crossbill than meets the eye. This bill is beautifully adapted for life in coniferous forests. It is used like scissors to cut open pinecones and eat the seeds that are unobtainable for other birds. In the Scandinavian countries where Pine and Spruce take up the greater part of the forests, several Crossbill species have each managed to answer two of life's most pressing questions: how to get food and avoid direct competition. By evolving crossed bills, each differing subtly, they have secured a monopoly of the seeds produced by cones of varying sizes. So complex is this relationship that scientists are still debating exactly how many different species of Crossbill actually exist. Now this should heighten the appreciation of what at first glance was merely a plump bird with a beak that doesn't close properly. Once its interrelationships are seen, nature comes alive, wherever you are.

To some, impressed by the virtual familiarity that television has granted to the wilderness of the Amazon, the vastness of the Serengeti or the sublimity of Yellowstone, our nature may seem a puny surrogate, good merely for the casual stroll. In short, the argument seems to be that if you haven't seen a Jaguar, Lion or Grizzly Bear, then you haven't seen the "real thing". Nonsense, of course.

But where to go? And how? What is there to see? That is where this guide comes in. We describe the how, the why, the when, the where and the how come of Europe and North Africa's most beautiful areas. In clear and accessible language, we explain the nature of Southern Morocco and refer extensively to routes where the area's features can be observed best. We try to make Southern Morocco come alive. We hope that we succeed.

## How to use this guide

This guidebook contains a descriptive and a practical section. The descriptive part comes first and gives you insight into the most striking and interesting natural features of the area. It provides an understanding of what you will see when you go out exploring. The descriptive part consists of a landscape section (marked with a red bar), describing the habitats, the history and the landscape in general, and of a flora and fauna section (marked with a green bar), which discusses the plants and animals that occur in the region.

The second part offers the practical information (marked with a purple bar). A series of sites and routes (walks and car drives) are carefully selected to give you a good flavour of all the habitats, flora and fauna that Southern Morocco has to offer. At the start of each route description, a number of icons give a quick overview of the characteristics of each route. These icons are explained in the margin of this page. The final part of the book (marked with blue squares) provides some basic tourist information and some tips on finding plants, birds and other animals.

There is no need to read the book from cover to cover. Instead, each small chapter stands on its own and refers to the routes most suitable for viewing the particular features described in it. Conversely, descriptions of each route refer to the chapters that explain more in depth the most typical features that can be seen along the way.

In the back of the guide we have included a list of all the mentioned plant and animal species, with their scientific names and translations into German and Dutch. Some species names have an asterisk (\*) following them. This indicates that there is no official English name for this species and that we have taken the liberty of coining one. We realise this will meet with some reservations by those who are familiar with scientific names. For the sake of readability however, we have decided to translate the scientific name, or, when this made no sense, we gave a name that best describes the species' appearance or distribution. Please note that we do not want to claim these as the official names. We merely want to make the text easier to follow for those not familiar with scientific names. An overview of the area described in this book is given on the map on page 15. For your convenience we have also turned the inner side of the back flap into a map of the area indicating all the described routes. Descriptions in the explanatory text refer to these routes.



interesting  
flora



interesting  
invertebrate  
life



interesting  
reptile and  
amphibian life



interesting  
mammals



interesting  
birdlife



site for  
snorkelling



interesting for  
whales and  
dolphins



visualising  
the ecological  
contexts  
described in  
this guide

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# LANDSCAPE

Regardless of the point of entry, from your first steps in Morocco it is clear that this country is very different from any part of Europe. As soon as you step out the airport you are thrown into a melee of unfamiliar sights and sounds. There are men in flowing Djellaba robes, Arabic script and unfamiliar languages surround you. Everything appears hectic. If there is a system, it is not clear to the first-time visitor. However, the noise and bustle on the streets hide a rich culture of tolerance and hospitality.

Move on from here and you'll soon notice points of familiarity. The European influence, a hang-over from the colonial era firstly under Spain and then France, is still just under the surface. Latin script on road signs, advertisements and businesses are all commonplace.

Morocco has a history that matches any of the dynasties at home. This is a thriving and internationally focused country and the infrastructure is improving year on year.

Although it is wonderful to immerse yourself in the colourful city life, most naturalists will soon want to look beyond. Only exceptionally do any of the towns hold any attraction to the nature lover, and although visits are unavoidable for amenities and supplies, it is the countryside where it all happens. Not far outside the busy urban centres, you will find yourself amidst a wonderful mix of orchards, palmeries and arable fields, the latter grown either for fodder or directly for food. Fields are always close to water sources or in river valleys. In fact, nearly all valleys have been modified, their rich alluvial soils put to best use. Where valleys are not 'used' for agriculture, they are often flooded to hold water for irrigation or water supply. The barrages range from simple weirs and cisterns providing small pools up to modern day high concrete dams holding back massive reservoirs, and everything in between.

In the cultivated valleys, trees are plentiful. They provide the shade needed to prevent desiccation of the arable crops. This managed shade is particularly important on south facing slopes and away from the mountains. Often these trees are crops in themselves, such as pistachios, almonds, and south of the High Atlas Mountains, date palms. The latter are clustered into palmeries. For centuries, the fruits provided the ideal food for the desert crossing camel trains, thereby supporting the trans-Saharan trade routes. Away from human habitation, the hillsides and steppes are almost barren. Natural vegetation is concentrated in small pockets but wherever it can be found it provides the vital home and food for wildlife. Despite the

Erg Chebbi, one of two sand ergs near the Algerian border.

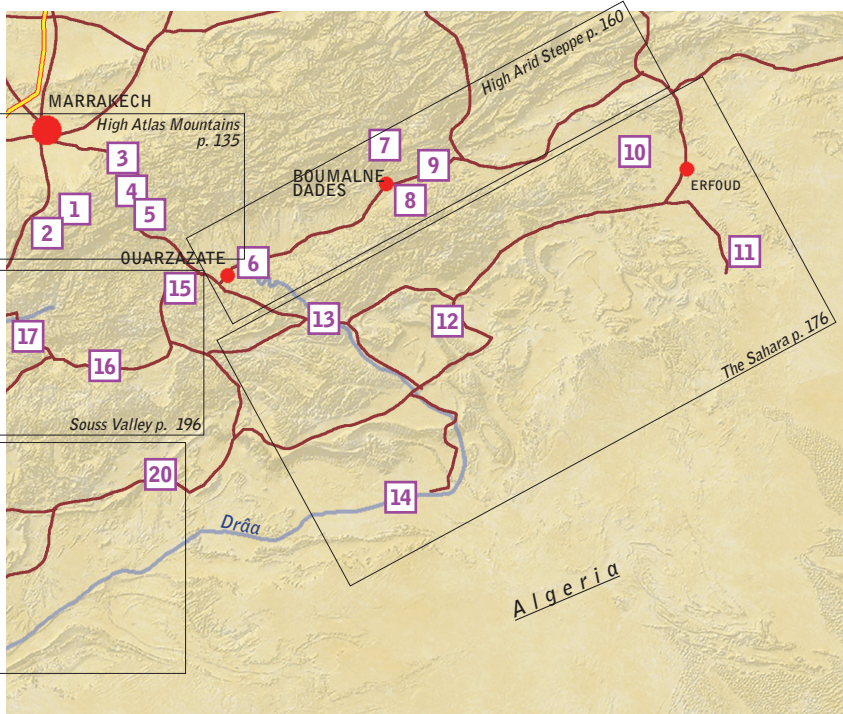
After the confluence of the two tributaries near Ouarzazate, the Drâa runs south of Anti-Atlas Mountains down to the sand sea at M'hamid. This is the ancient route to the Sahara, and travelling it takes you back to a time of caravans and palm-filled oases, when the trade was by camels and the journey was a perilous adventure. Even today the journey is one of adventure and the human impact becomes lighter as you travel south into the desert itself. It is only at the far south, close to the Algerian border that the classic image of desert becomes a reality. Rolling sand dunes are relatively rare in this area, but a visit to Erg Chigaga, 40km beyond the end of the road will get you to an area that provides or even surpasses that vision. Most visitors access similar desert landscapes via Erfoud, 200km to the east, where the dunes of Erg Chebbi feature on many tour itineraries, both of naturalists and other travellers. In either location, the remoteness and stark beauty makes these areas the highlight of any trip and give access to species that are the things of dreams. Birders have been making this pilgrimage for a few decades and a network of guides has become established with the knowledge (and the 4x4s) needed to find the special birds around Erg Chebbi, and more recently also M'hamid. Other animal groups are not yet as well provided for, but things are changing quickly. The Souss is both a river and a district and the term is used interchangeably in Morocco. The triangle of relatively low-lying land formed between the High Atlas, the Anti-Atlas and the High Arid Steppe is collectively known as the Souss Valley, even if much of it is actually some way away from the river. This triangle of fertile land is bounded by the Atlantic to the west and has a subtly different climate





from that of the rest of the country. On the one hand, the Souss valley has been heavily settled and adopted for high intensity agriculture (this is the premier agricultural zone for exported fruit and vegetables), but on the other, it supports a unique ecosystem – the Argan forest. This is an open park-like habitat dominated by the endemic Argan tree – a species that is ecologically, socially and economically important (see box on page 92). The coastal strip is a distinctive ecosystem in its own right. Within our region, it changes character as you move from the north to south. Classic, Mediterranean-style maquis covers the northern zone, whilst heading south from Essaouira to Agadir and beyond, the coast becomes warmer and succulents typical of the Canary Islands join the mix. Further south the coast becomes truly Saharan in character.

River estuaries punctuate the coastline and form the majority of Southern Morocco's small but important wetlands. These are sensitive habitats and fortunately three are protected as part of the Souss-Massa National Park.



The numbers refer to the routes described on page 138 and further.

## Habitats

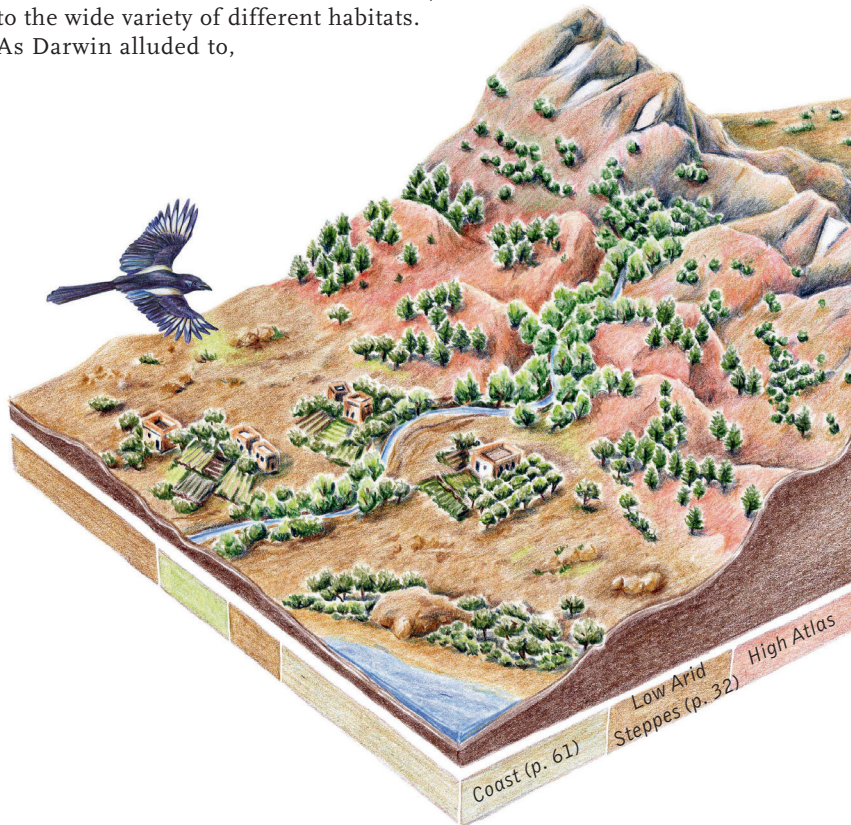
*“a plant on the edge of a desert is said to struggle for life against the drought, though more properly it should be said to be dependent upon the moisture.”*

Charles Darwin, *On the Origin of Species*

Habitat is defined as the intersection of flora and fauna with the geology, hydrology, climate, topography of any given place. This latter group is the landscape and by understanding the landscape a biologist can understand what species can thrive there.

Nearly all of Morocco's habitats are Mediterranean; in fact, this is considered the second most diverse country within the Mediterranean basin in terms of flora and fauna. This biodiversity is due to the wide variety of different habitats.

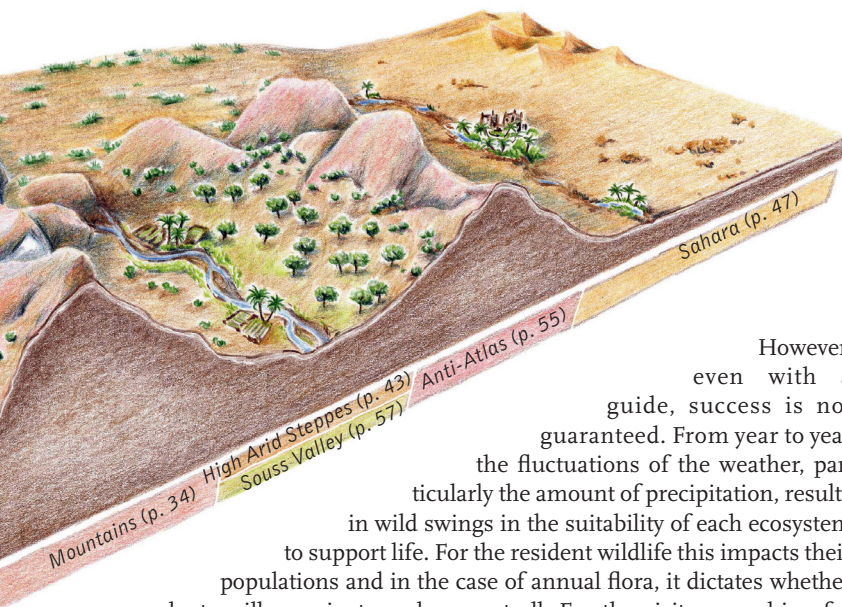
As Darwin alluded to,



Schematic cross-section of the habitats of Southern Morocco.

the key to understanding the biodiversity in this parched land is to follow the water. The relative scarcity of it defines what can, and cannot, survive. Climate, combined with the permeability of the underlying rock and the altitude creates a mosaic of micro-climates and with each comes a different mix of flora and fauna adapted to surviving the particular challenges of their environs.

In an attempt to categorise this diversity, scientists have recognised and categorised 29 different biological ecosystems within Morocco as a whole. Although this is the result of an attempt to more accurately guide the expert, it is confusing to the visitor. We have taken a simpler approach with seven areas that, although not necessarily totally honouring the scientific definitions and a little simplistic, does form a practical guide to the variety of landscapes and the species likely to be found in each habitat.



However, even with a guide, success is not guaranteed. From year to year the fluctuations of the weather, particularly the amount of precipitation, results in wild swings in the suitability of each ecosystem to support life. For the resident wildlife this impacts their populations and in the case of annual flora, it dictates whether plants will germinate and grow at all. For the visitor searching for wildlife, an element of flexibility and opportunism is needed. Stopping where conditions seem right, especially where there have been recent rains, can be more effective than blindly following site guides. The most comprehensible introduction to the habitats is to follow the sequence of the round-trip route described above.



## The High Atlas Mountains

Routes 1-5 and the sites on pages 156-159 visit the High Atlas Mountains.

The High Atlas is a formidable mountain range. With peaks over 4,000m it is almost as high as the peaks of the Alps. Ascending brings you past several distinct vegetation zones, which are very different on the northern slope from those on the southern slope due to the shadowing effect of the mountains themselves.

Heading south from Marrakech and leaving the steppe, the zone up to 1,800m is covered in natural woodland and areas of scrub of distinctly Mediterranean character. Above that lies the Sub-alpine zone, between 1,800m and approximately 2,400m. Here the woodland is more open,

interspersed by meadows with cold-adapted species. The treeline lies at roughly 2,400m, which is, perhaps surprisingly, not much higher than the treeline in the central European mountains. In the High Atlas, it is not only the low temperature that sets the treeline. Rather it is the temperature in combination with drought that make tree growth impossible.

The treeless areas above 2,400m are in the Alpine zone where the slopes are covered in scree, dry grasslands and, for much of the year, snow fields. Needless to say, each of these vegetation zones has its own particular flora and fauna.

After crossing the pass, the southern face of the mountains has a distinctly different flavour. Here the direct rays of the sun desiccate the soil and the vegetation is much reduced except in the river valleys. There are few trees and the scrubby maquis type vegetation survives only in a narrow band just below the snow line.

Snow regularly falls down to 2000m in the High Atlas Mountains.





### The low slopes (up to 1,800 metres)

The main roads up to the cols (tizis) that give access to the southern slopes each follow deeply carved river valleys. They thread between the houses of mountain villages keeping above the riverbeds that flood regularly. Nearly all of the valleys are inhabited and worked for a range of arable crops, meaning that finding undisturbed natural vegetation is very difficult.

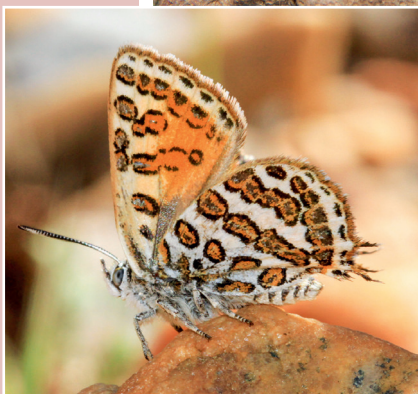
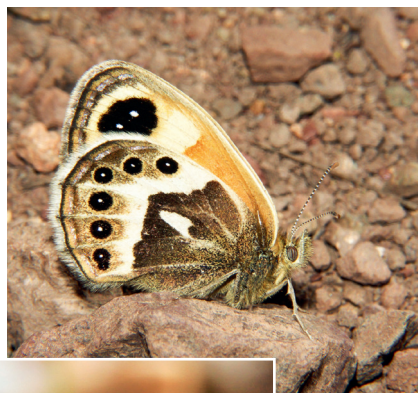
The lower north facing slopes themselves are covered in coniferous woods (route 3), where the predominant tree is the Aleppo Pine. Although this is the native tree here, most of the forest is man-made to some extent, and planting continues today as part of the concerted effort to manage the water catchments. Within the natural stands, the pine is frequently accompanied by Barbary Thuja, a species endemic to the western Mediterranean basin. The iconic Atlas Cedar grows in isolated stands in the eastern High Atlas, but to find the full ecosystem associated with the majestic cedar forests you need to head further north out of our region into the Middle Atlas.

The woods are a resource for the villages and are extensively grazed by herds of goats and sheep. These are so prolific that except in the fenced areas the natural understory of herbs and shrubs is rarely visible. Where the grazing is controlled, there is a spring flush of wildflowers, including Yellow Bee and Mirror Orchids. Often more noticeable are the plants that can withstand the ravages of the livestock, especially the unpalatable white-flowered Branched Asphodels, which, together with a number of other species, have a second flowering season in the autumn when the first of the rains brings a 'second spring'.

Although the components of the ecosystem are familiar from the Mediterranean basin there is a twist. Many of the common species have evolved into distinct local forms. With birds, this includes the endemic



Yellow Bee Orchid (top) and Portuguese Squill (bottom) are two Mediterranean species that occur locally on the lower slopes.



Vaucher's Heath (top) and Allard's Silver-line (bottom) are two Maghreb endemics limited to the sub-alpine zone of the High Atlas and Anti-Atlas.

Opposite page:  
The heavily grazed slopes of the alpine zone at Oukaimeden.

From March well into summer the Sub-alpine slopes attract a good number of butterflies, many of which are endemic to the Maghreb countries. Of particular interest are the Vogel's Blue and Vaucher's Heath. Reptiles are also adapted to survive these areas. The endemic Vaucher's Wall Lizard is the most likely to be seen, especially in more rocky patches. The Moroccan Ocellated Lizard and the

Common Chameleon can also be found as high as the Sub-alpine zone. Although much scarcer than the Vaucher's Wall Lizard, they can be easier to see here than lower down the slopes where the vegetation is thicker and the reptiles need less time to bask.

The valleys are steeper and the beds of the streams are strewn with boulders. Villages still cling to the mountain sides, but are less frequent and smaller. Surprisingly, small arable plots are still carved out from the valley floor and Almonds and Pistachios

provide shade to the Barley and other low intensity arable crops. However, at this elevation the agricultural focus shifts to livestock. Sheep and goats are kept and move seasonally between the open forest here and the Alpine meadows higher on the slopes.

The water management, including the digging of pools and cisterns has created good habitat for dragonflies and amphibians. A surprising number of species are able to find suitable habitat high into this zone. Dragonflies are largely those that can cope with the seasonal torrents and rocky streambeds such as the Atlas Goldenring and various pincertails. These streams also hold birds more typically thought of as being from Europe. Grey Wagtail and Dipper both occur, the latter of the Maghreb endemic subspecies minor. Along the banks the large trees are an attraction to the endemic Levaillant's Woodpecker. Its ringing call is a familiar sound in the High Atlas Mountains in the spring.

### Alpine zone (above 2,400 metres)

True Alpine habitat is treeless and covered in snow during the winter, which holds well into spring. The mountains are barren and stark with sharp eroded edges and with a heavily incised topography.

Accessing the Alpine zone is usually tricky and time consuming. There are only seasonal villages connected by rough tracks and even the highest roads only cross into the lowest hundred metres or so of this altitude zone. To go higher you need to walk from one of the mountain passes or walk upwards from one of the main trekking centres such as Imlil (route 2). Those interested in exploring the Alpine zone of the Toubkal Massif should hire a guide, who can ensure that both the route is safe and support is at hand (see page 259).

The easily accessible Ouikaïmeden (route 1) is by far the best way to explore the Alpine zone. A tarmacked road goes up to over 2,600m to Ouikaïmeden, which is just over an 80 km drive from





When the acacias are in flower, their nectar provides for a whole web of life including this Plain Tiger.

### Ephemeral lakes

Before leaving this section, a final word needs to be said regarding the ephemeral lakes that can form in the desert. Where gypsum occurs, this can bind the sand and create an impermeable layer that can result in lakes forming after rain. These can be surprisingly large and long-lasting. The most famous is Dayet Srij, a few kilometres to the west of Erg Chebbi (route 11). It is often over 1km long and can hold water over many summers, being replenished by autumn rains, although it does dry out periodically. Its size and location attract a substantial range of water-dependent species that can opportunistically take advantage of this resource. Dragonflies can appear in enormous numbers. Red-veined Darters and both Blue and Vagrant Emperors patrol the shallows and other species can be searched for. But it is the birds that dominate. Flocks of up to 5,000 Greater Flamingos and hundreds of Ruddy Shelduck feed on the lake, but anything can turn up. Migrant waders including Temminck's Stint and Grey Phalarope show that these 'coastal' species actually migrate on a broad front. American vagrants such as Franklin's Gull and Blue-winged Teal also indicate that wandering birds can arrive from almost anywhere.

palms themselves are valued as a nesting site for Desert Sparrow, and the rocky bluffs attract African Rock Martin and Blue-cheeked Bee-eaters to stay and nest. They are reliant on the insect life supported by the oases and can often be seen hawking for insects over the trees.

Butterflies are few in these arid lands, but the oases provide both food plants and respite from the sun. A number of whites hang on and have obviously followed the cultivated crops to these areas but some other butterflies are native to the desert edge. Plain Tigers are plentiful (as across most habitats), while Desert Swallowtail and Desert Babul Blue are Sahara specialists and should be sought out in these areas.



## The Anti-Atlas Mountains

Routes 19 to 21 the sites on pages 222-224 visit the Anti-Atlas.

Between the Moroccan Sahara and the coast lies the Anti-Atlas. When you travel from the desert to the coast you will likely cross this range, although as the chain is both shorter and fragmented it is possible to by-pass them entirely. At first glance, it does not seem radically different from the High Atlas. It rises up impressively from the plains and is deeply incised. Even in its geology it resembles its bigger brother, with a mix of volcanic and sedimentary rocks. The big difference is the vegetation, or lack thereof. The Anti-Atlas is more barren, lying between the Sahara to the south and the arid steppe to the north. The range is not high enough to create rain clouds, nor hold snow in winter. but at higher altitudes the colder temperatures and intense sunlight bring their own unique challenges.

As a result, the Anti-Atlas Mountains do host a surprisingly high level of endemic plants and animals. It is interesting to see how various plants must have common ancestors with the species in the High Atlas and show a progress of adaptation to increasing heat and aridity. In the Anti-Atlas Mountains some unique species evolved and the entire vegetation can be seen as a bridge from the dry Mediterranean flora of High Atlas the Saharan species of lowlands further south.

The stark landscape of the Anti-Atlas still provides a home to people and a wide range of species.



Most of the plants are either bulbs or annuals as they must survive periods of desiccation and drought. Drought-adapted scrub, (mainly wormwoods; *Artemisia*) is concentrated on the more shaded northern slopes and wadi beds and is stunted and able to be dormant during the scorching summer months. As with the higher mountains to the north, the underlying geology is important, again with the predominant sedimentary rocks leading to very dry surface conditions, but enable irrigation through the khetaras system (see page 23). The volcanic outcrops are less permeable, so water remains closer to the surface, but the range is too dry to feed rivers, except immediately after rain. With the unique flora comes a unique series of butterflies, including the Allard's Silver-line and Allard's Blue.

The section of the Anti-Atlas that is closest to the coast has its own special character. Here the humidity is higher due to the proximity of the ocean. Within sight of the Atlantic, Jebel Imzi is a high point that at first glance looks very similar to the deeply incised dry mountains inland. However, that slight increase in moisture brought in from the ocean has allowed a unique blend of mountain and coastal vegetation to evolve with several species that are found only here and on the Canary Islands. Within the cliffs and gorges, there are Dragon Trees, shrubby spurges and even laurels. Unfortunately, it is a remote region that is not easy to visit.

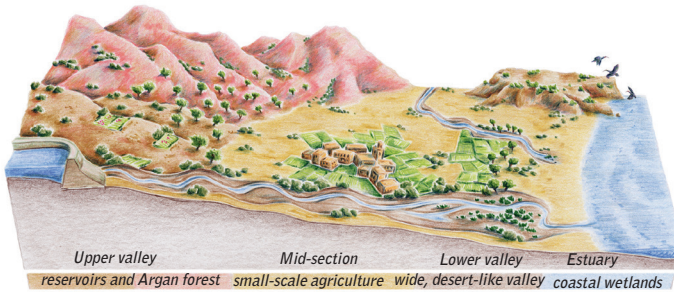
The Anti-Atlas mountains are known for their rich mammalian wildlife, which is the main target for the few naturalist travellers that make it all the way out to this remote region (see page 95).



Gorges indicate a wetter past, and provide some shelter from the dessicating rays of the sun.

## The Souss Valley

Routes 15 to 18. and the sites on pages 208-211 visit the Souss valley.



The different sections of the Souss Valley and their main attractions for naturalists.

North of the Anti-Atlas and west of the High Arid Steppe, the terrain drops into the Souss valley. Confusingly, the same name is given to the main river in this area as well as to the large depression between the High Atlas to the north, the Anti-Atlas to the south and the Atlantic to the west. The overall landscape is that of a flat-bottomed valley which is primarily formed from sedimentary rocks. This is a tectonically active zone and some areas are of volcanic origin. There are inselbergs of volcanic rock (see page 18) and the plateau inland of Sidi Ifni does not hide its volcanic origins.

Again, at first glance, there is nothing very different from the areas already described. The main exception is that there are more villages and there is more agricultural land. However, from an evolutionary perspective the Souss valley is radically different. It is an important and unique relict zone, a place where species found refuge from the last ice-age or reached during the last African Humid Period (see page 81) and have since been able to ride out the desertification and expansion of the Sahara.

The key relict species is the Argan Tree (see page 92). Originally a species from the Horn of Africa, it spread here during the African Humid Periods. The Argan forest is typically 25% of tree cover leaving an open park like habitat. It supports a wide range of flora and fauna that are either unique to this area or a relict from the other side of the continent.

The landscape style and use are typical of silvopasture – a dual land use of forestry and grazing. Historically, the understorey was used for low





# FLORA AND FAUNA

Southern Morocco has a surprisingly high diversity of flora and an even richer fauna. Many naturalists come here for the birds, which form an attractive mix of Mediterranean and desert species. In addition, the reptiles, the butterflies and even the dragonflies are also excellent. Many, however, are not so easy to track down.

Many species moved into Morocco and subsequently became isolated from their original population, either due to the growth of the Saharan desert or as a result of a warming climate in Europe (see page 81 for details). This isolation has been a driver for speciation. DNA-led research, especially since the millennium, has had a profound effect on our understanding of local evolution and in some instances has created no less than a landslide in the taxonomy of species groups. So much in fact, that the current list of species is unrecognisable compared with guidebooks published even as recently as just before the millennium. That is not to say that the dust has settled in the taxonomy of various groups. No doubt there will be further analysis that is likely to result in even more different species being recognised. Although further changes are to be expected what will not change is that every habitat zone has its own specialities, often restricted to just a few square kilometres, to which conditions it is optimally adapted.

The key issue for any visiting naturalist is to understand the habitat requirements of the local flora and fauna; in other words, how to 'read' the habitat in order to understand for which range of species it may be suitable. In Southern Morocco this 'reading the landscape' is not just about the 'where', but just as much about the 'when'. Seasonality is key in the distribution of plants and animals, but it is something very different from the seasonality you know from Europe. For many South Moroccan species, the habitat suitability very much depends on the weather, or more precisely, on the weather in the days, weeks or months prior to your arrival. To complicate things even more, this is relative to places elsewhere, especially for mobile species. Did it rain recently? Then a certain site can be great. But did it rain more, or earlier, somewhere else, then even great-looking sites can be deserted. In short, searching for flora and fauna can be super-rewarding, but sometimes also frustrating.

The species that inhabit Southern Morocco are not evenly spread.

Northern Bald Ibis at Souss-Mass National Park, where the last remaining wild population still thrives.

Jerboas are strictly nocturnal and have kangaroo-like legs.



small mouse-like animals that feature long hind legs and comparatively short forelegs. This is most extreme in the jerboas, which have such large hind legs that they hop in a manner akin to mini-kangaroos. Jirds are the most mouse-like, and gerbils are somewhat intermediate between jerboas and jirds. All of them are nocturnal and although their numerous tracks in sandy areas suggest that they are common, it is difficult to actually see them unless a specific trip out is made after dark.

True mice, in contrast, are represented by relatively few species and are limited to the more humid area of the coast, the Souss and High Atlas. The Barbary Striped Grass Mouse is one of them. It is the sole representative north of the Sahara of a widespread African genus.

Three species of mouse-like rodents are both larger and, since they are active during the day, they are more likely to be encountered. All three are relatively large and slow moving, spending a large proportion of their time out of their burrows and often basking in full view. Two of them are gundis –large almost tail-less rodents, endemic to this area and the other countries of the Maghreb. The Common (or Atlas) Gundi is present in the eastern area of region on the edge of the High Atlas Mountains. The closely related Val's Gundi is a desert specialist found in the rocky area close to the Algerian border in the far east of the country. The third day-active rodent goes by the unflattering name of Fat Sand Rat, which is a literal translation of its scientific name *Psammomys obesus*. This is not a true rat, but a charming colonial rodent that looks superficially like an enormous jird, to which it is more closely related than to rats. It is an inhabitant of the High Arid Steppes and can be common in the sandy

wash out zones on the edges of gravel plains where it feeds almost exclusively on Goosefoot plants. It lives in an extensive social burrow system and uses its long black-tipped tail as a signalling flag to communicate amongst the colony and warn of danger. It is specifically adapted to alternating periods of famine and then plenty. It can pile on fat reserves that carry it through the next famine. This adaptation has brought it to the attention of medical researchers as the species is susceptible to diabetes, but is somehow able to withstand the impact of the disease.

There are no arboreal squirrels in Morocco, but there are two species of ground squirrel. The Barbary Ground Squirrel is the most common one and easy to find as it is diurnal and tolerant of people. They are found along the coast, in the steppes and lower reaches of the High Atlas Mountains, preferring rocky areas where they feed on seeds and other vegetable matter. You will typically find them hanging around car parks and stealing food in some tourist hotspots. In the Souss Valley, it was only recently realised that the ground squirrels in the Argan forest are actually of a different species, the African Ground Squirrel, which is widespread south of the Sahara. This is an isolated population and, no doubt, one that followed the Argan trees on their evolutionary route to the area (see page 81). Two further large species can also be sought, both being almost exclusively nocturnal. The Crested Porcupine is associated with the edge of cultivations and needs the more humid ecosystems north of the High Atlas Mountains and the Souss Valley. The Cape Hare prefers the high Arid Steppes and edge of the Sahara, especially where there is good scrub cover. It may be flushed from its daytime resting places.

## Insectivores

One surprising insectivorous animal of Morocco is the Sengi, sometimes called Elephant-Shrew. Sengis are a widespread group of sub-Saharan species that are not closely related to shrews, although superficially they look like a large version of one. They have long legs and a long mobile snout that has led to them being dubbed 'elephant'. This is the only member of the family north of the Sahara and like many other Moroccan species got isolated by the expansion of the desert (see page 83). Sengis are crepuscular and best searched for in the early morning in the rocky hillsides around the Anti-Atlas (see route 19). They are very active hunters and incredibly quick, often quoted as being the fastest small mammal in the world.

There are around 20 species of bat to be found in this part of Morocco, yet there is very little information regarding them. Some are very difficult



### Crest to the test

If you have been birdwatching on the Iberian Peninsula, you may have faced a classic identification challenge – the separation of Thekla's and Crested Larks. Here in Morocco this challenge is brought to the next level, with a third species with a pointy crest, the Maghreb Lark. To confuse things further, across our region there are five subspecies of Thekla's Lark and a minimum of two differing Crested Larks, that means that physical features need to be considered with care. Habitat is often cited as a key feature, and to an extent this can help, but care is needed as this is rarely diagnostic.

Maghreb Lark is a species of the Saharan edge. Its longer bill is a feature evolved to probe deeper into sandy roots. However, Maghreb Lark has been found in the High Arid Steppes which hold the other two species as well. With care you can



identify the birds with the mix of features that aligns to each of the species, but it is the song that makes this simpler. Crested Lark has a song that drops at the end, making it sound mournful. Thekla's tone rises at the end and therefore is a happy song. Maghreb is neither happy nor sad and is intermediate to the other two species.

The three 'crested larks' are not easy to tell apart. This is the Maghreb Lark.

The high sand dunes are almost birdless, only a Brown-necked Raven or two being present.

Where sand and gravel meet, a different mix of species is found, which includes Cream-colored Courser and Hoopoe Larks. Both use their long, curved beaks to dig in the bases of grass and bushes.

In the stony plains the premier prize for any visitor is the Houbara Bustard. This large and beautiful bird is extremely rare and its demise has been driven by both habitat loss and hunting. (see box on page 110).

Two species of sandgrouse occur in the desert – the aforementioned Crowned Sandgrouse and the Spotted Sandgrouse. These rarely form mixed flocks but can be seen in large numbers together when they come to drink as long as there is not much choice in drinking places. Both species like to collect water around two hours after dawn and will often congregate close to the water hole before heading to the drinking spot en-masse.



In winter, the stony desert also attracts species from the High Arid Steppe to the north, and flocks of larks can be found. It is interesting to note that the Maghreb Lark seems to move the other way, and in winter can be found spread more widely, including moving north to the higher stony plains.

The rocky bluffs should not be ignored. These are important nesting and roosting sites for African Rock Martin, Lanner Falcon, Pharaoh Eagle Owl and Brown-necked Raven, but with the exception of the last, it is unlikely that you will find one without assistance. Desert Larks can be found at the foot of the bluffs and in winter it is possible to find Scrub Warblers here.

The oases are generally close to towns and can be extensive. They are dominated by palms that are grown for shade, and often surrounded by Tamarisks that provide shelter from both wind and sand storms. Irrigation of the fields means that these are often full of insects and are attractive as re-fueling places for migrants. Flycatchers, warblers, bee-eaters, chats and other species can be found finding shelter. A few hours of birding can bring a wide range of species especially in March-April and September-October.

The tamarisks are also popular wintering areas for the Tristram's Warblers, and they can be easier to find here than in the more natural habitat of acacias in the wadi edges. In summer, the palmeries provide the main

Spotted Sandgrouse (top) and Trumpeter Finch (bottom) are adapted to life in arid regions.



Typical desert species include the Crowned Sandgrouse of the gravel plains, whilst Bar-tailed Larks prefer the sandy areas.

habitat for Blue-cheeked Bee-eater. This beautiful bird nests particularly in the large palmeries around Erfoud and in the Drâa valley. The Tamarisks are a favoured breeding habitat for Eastern Olivaceous Warblers of the subspecies *reiseri*, also dubbed the Desert Olivaceous Warbler and another favourite for being recognised as a full species in the future.

### Coastal Birds

The network of estuaries along the coast provides an important habitat for the 'East Atlantic flyway' – one of world's great migratory routes for birds. The East Atlantic Flyway is part of the Eurasian-African flyway, which is used by birds that breed in the western and central part of Europe as far north as the polar tundra between Greenland and Siberia. Although many species continue southwards to sub-Saharan Africa, a fair number spend the winter in Morocco.

Although the migration is most visible along the coast, many species of wildfowl and wader can be found many hundreds of kilometres inland. It is clear that much remains to be understood about the routes taken to the Gulf of Guinea and the Southern Cape.

Flamingos, Spoonbills, Glossy Ibis and a mix of herons that are familiar from the Mediterranean are all present in Southern Morocco although few stay to breed. Yellow-legged Gull and Lesser Black-backed Gulls are plentiful. In addition scarcer Mediterranean species including Slender-billed and



### **The plight of the Houbara**

The Houbara is one of two large bustards that were once present in the stony steppes on the northern edge of the Sahara. The other, namely the Arabian Bustard, is now extinct in the country. The Houbara is critically endangered and is represented by the North African endemic subspecies *undulata*. Morocco holds an important population, however little is known of the movements of the birds in the remaining habitat, except that they are non-migratory and are assumed to move based upon the rains and local availability of food.

The Houbara is endangered due to a combination of disturbance, habitat loss and hunting with falcons. UNESCO has recognised Arabian falconry as an Intangible Cultural Heritage of Humanity. This has not only led to efforts to preserve the art, but also the traditional prey – Stone Curlews and bustards.

The modern version of this tradition has attracted wealthy Arabs to Morocco in their ongoing attempts to secure continuing traditional prey for their pastime. This came with enormous local prestige and funds – paradoxically, the interests of the hunters and conservation groups aligned.

Conservation action was started in the last millennium, with the rearing of birds in captivity, using the expertise developed by Sheik bin Zayed from the UAE. His group gained its experience from a captive breeding programme for the closely related McQueen's Bustard in Abu Dhabi. The Moroccan breeding centre for the Houbara lies north of our area. It was run firstly by Saudi Arabians and now Qatari groups. It is estimated that over 18,000 birds were released in the first 10 years and increasingly more since. Although many stay close to the release site, some wander widely.

Much of the Houbara population now resides close to the Algerian border, which is relatively untouched as it is mainly a 'no-go zone' given the tensions between both countries. For the Houbara this is a plus, as it means that there are few people around and they are not disturbed. However, even here, they are very scarce and rarely seen except by seeking the assistance of a local guide.

an important proportion of the world's Audouin's Gulls winter in Southern Morocco, especially around Agadir. Sandwich, Common, Arctic, Little and Caspian Terns are often seen, and Lesser Crested Terns are relatively widespread in the autumn. They are believed to originate from Mediterranean breeding colonies in Libya, and they pause on their migration to their winter sites in West Africa. In addition, immature birds can be found at any season during their first year, as they wander the coasts without need to reach their breeding grounds. A few West African Crested Terns (until recently considered to be the western population of the Royal Tern) have

cold). In the lowlands the daytime temperatures are too high and therefore most species are active in the evening and even in the night. In winter and at higher elevations, the temperature can drop to freezing by dawn, meaning it is the dusk and early hours of the night that are the best to look for them. The dawn has the advantage that the reptiles are sluggish and often will be basking for a short time to get their body temperature up to the requisite level. However, it can be difficult to spot these inactive reptiles and in any event this 'window of opportunity' is pretty short.

A number of species have adapted to survive the challenges of the Alpine zone in the High Atlas Mountains. Reptiles have been found up to an astonishing 4,000m, way above the tree line and in areas where snow is often found for half the year or so. Atlas Dwarf Lizard, High Atlas Day Gecko and Moroccan Rock Lizard have all evolved to survive at these high altitudes. Another, the Vaucher's Wall Lizard is interesting not only in its own abilities to survive here but also, as mentioned previously, that a relict population of the Southern Smooth Snake has evolved to almost exclusively predate on the lizard here in the High Atlas. The Lataste's Viper is another Mediterranean relict species that has adapted to life in the high mountains. It is the steppes and the Sahara which are the centres of diversity for the reptiles. The majority of species belong to four groups of closely related lizards. The *Mesalina* (desert racers) and *Acanthodactylus* (fringe-fingered) lizards are specifically adapted to life in the sandy soils around the tussock grasses and in the dunes. A visit during the day will show their plentiful tracks. There are five species of desert racer and eight species of fringe-fingered lizard in southern Morocco and they are each subtly different in size, appearance and habitat preference.



Moroccan Spiny-tailed Lizard is a species of the High Arid Steppes.

Even more diverse is the group of skinks, which can be found in all the habitat zones. No less than 10 species of these shiny, smooth-bodied lizards occur. Many of them have reduced limbs and slither rather than walk. The most highly evolved is the Western Sandfish, which is an almost limbless skink that 'swims' through the sand of the Saharan dunes (hence the name fish). It is probably not a rare species but since it is mostly buried deep in the sand, it is hard to find.

Twelve species of gecko are present, the majority of which are nocturnal. Two of these are sand geckos, namely Moorish and Petrie's, that occur in the same habitat as the Desert Fringe-fingered Lizards, but are active later in the night, after the lizards have sought shelter. The remainder of the geckos are found in rocky habitat, and in the case of the Moorish Gecko they have adapted to live in and around houses. Most geckos are able to climb vertical walls and even ceilings due to highly adapted pads on the ends of the toes – a feature that reaches its zenith with Oudri's Fan-footed Gecko. However, there are a number of geckos that have normal toes. One such species, South Morocco Lizard-fingered Gecko, has some spectacular colour morphs in the Anti-Atlas, with bright spots and stripes and bright orangey tails (see photo on this page).

These rockier areas are also home to the robust agamid lizards. There are three species in the area, the largest being the Moroccan Spiny-tailed Lizard which can grow to a length of over 40 cms. Spiny-tailed Lizards vary enormously in appearance, but many specimens are strongly coloured with sometimes spectacularly bright and unnatural looking yellows, oranges, blues and greens. They live socially in burrows in the rocky steppes, both on flat areas and on slopes, and can be seen warming themselves on cooler mornings. Although ultimately harmless, they will hiss and try to bite if you get too close. Unfortunately, they are also caught by locals and used to attract curious tourists to photograph them (and part with a few Dirhams). In comparison, both Boheme's and Bibron's Agama are relatively



South Morocco lizard-fingered Gecko comes in variety of different colour morphs, some highly patterned.



Striped Hawkmoth is a migrant, that in some years occurs in its thousands as part of its journey north.

As the season progresses, a wider range of species emerges in the Sub-alpine zone and subsequently in the Alpine zone. For the latter, the main season is from late May onwards. Moroccan High Brown, Moroccan Dusky Heath, Vaucher's Heath, Moroccan Meadow Brown, Spotted Adonis, Atlas and Vogel Blues are all species that are best looked for in the Sub-alpine zone later in the spring. In the Alpine zone, and especially in the Toubkal

massif species such as Aetherie's Fritillary, Moroccan Wall Brown, Moroccan Sooty Satyr, False Grayling and Amanda's Blue can be searched for.

The most challenging group is undoubtedly that of the Graylings, which are both hard to find and hard to identify once found. In the High Atlas there are ten or so species and include the endemic Moroccan Grayling and Moroccan Rock Grayling. Furthermore, the Giant Grayling and Dark Giant Grayling are especially important as they are the sole representatives of the genus *Berberia* that is unique to this High Atlas range. They occur only on the Sub-alpine and Alpine scree and are most easily seen where access is possible around the Toubkal massif. All the Graylings are species of arid, rocky terrain. In late summer Austaut's Grayling is the often the commonest butterfly on the wing across the desiccated slopes.

The Anti-Atlas are more difficult to hunt for butterflies, as the habitat is more extreme. Most of the High Atlas species have outposts in the Anti-Atlas, where they are difficult to find once the food plants have desiccated, which they do all too quickly in this arid land. Only Aden and Moroccan Red Underwing Skipper are perhaps easier to see here than elsewhere. Allard's Blue is limited to the central part of the range.

The high steppes and desert edge have few nectar sources and therefore it is not surprising that butterflies are relatively few. Around palmeries, some of the less specialised species can survive, but it is of course the handful of true desert butterflies that make the journey worthwhile. The most likely butterfly to be found is Greenish Black-tip, but with searching, Desert Swallowtail, Desert Fritillary and Desert Babel Blue can also be found.

## Dragonflies

As can be expected of a group of species that are dependent upon water for part of their life-cycle, dragonflies are at a premium in this the driest part of the country. However, wherever there is water, they can be plentiful. Up to 50 species have been found in the region. Most have specific flying seasons, although there are some that are present throughout the year.

The majority of the dragonflies are of European origin and therefore perhaps not as exciting as could be expected from a first trip to the African mainland. However, in common with all other groups, there are a few endemic species and some of African origin that add a touch of the exotic to the dragonfly fauna.

The most widespread of the Moroccan dragonflies is the Vagrant Emperor. It is often seen a long way from water and is particularly common on the Haouz plain and the Saharan edge. Close to water they are often joined by the Lesser Emperor and this latter species appears to have adapted to the reservoirs and other irrigation dams across the region. Where there are small pools or irrigation ditches, Violet and Orange-winged Dropwings are invariably present, both impressively coloured with intense purple and orange colours respectively. If your hotel has a swimming pool or some ornamental water, these dragonflies are often present and they may be joined by the Epaulet Skimmer, another widespread species.

Most other species and especially the endemics are a little more specific in their habitat requirements. This is where the difficulty in finding them arises. Their presence depends on the state of the watercourses, both in terms of water flow and river-side vegetation – two conditions that are highly variable from year to year and also subject to disturbance. Even at well-known sites, the numbers of dragonflies fluctuate wildly.



The Oued al Maleh near Tissint (route 20) is a good site for dragonflies such as Faded Pincertail.

## Routes in the High Atlas Mountains

Since most travellers start their journey in Marrakech at the base of the High Atlas, the mountains are the first logical destination. Many of the better-known sites can be visited on day trips from Marrakech.

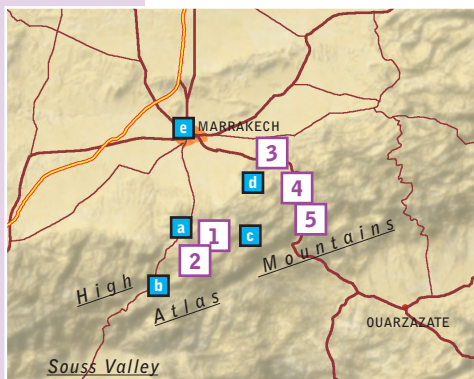
The scenery and wildlife of the High Atlas are stunning, but much of the range is hard to explore. There are few roads and little in the way of tourist infrastructure except around particular hotspots. The north face is more accessible than the southern side. From Marrakech there are several roads up from the city that take you directly to the highest part of the range, which is the area around the Toubkal massif. This means that it is possible to explore all habitat zones including, most importantly, to go all the way up into the Alpine zone.

As most travellers will see the mountains not solely as a destination but also as the gateway to the Sahara beyond, the routes here are concentrated loosely around the main trans-mountain road, the N9, which is the road to Ouarzazate. Not surprisingly, some of the best areas are a bit off this main route and there is no alternative but to embark on the adventure of the small roads.

In the winter, snow can make travel treacherous. Away from the N9 snow ploughing is not usually done and roads can be blocked. With the rock faces being very friable, mud and rock falls are commonplace, so be prepared for slower journeys.

With forests, scrublands, scree, Alpine meadows, juniper stands, streams and even bogs, the diversity of the ecosystems of the High Atlas Mountains is unmatched anywhere else in this region. The ecosystems break

down into numerous smaller habitat types, due to the series of microclimates that form here, primarily on the northern slopes. This means that a number of stops is needed to see the range of species on offer. As the season's advancement changes with altitude, you need to be prepared to cross between the north and south slopes and in elevation to find the optimum conditions for your targets. It is worth it as all the flora and fauna groups have a number of fully and regional endemic species that can be found only here.





## Route 1: Oukaïmeden

**3-5 HOURS, 5-8 KM**  
**MODERATE-STRENUOUS**



Simplest place to access the Alpine zone, even in the depths of winter.

Rich birdlife in winter and early spring.

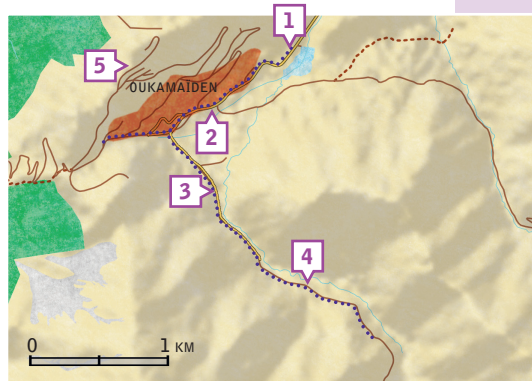
Attractive flora, butterflies and reptiles in May-June.

**Habitats:** Alpine grassland, scree and high mountains

**Selected species:** *Fritillaria macrocarpa*, *Narcissus watieri*, Broad-leaved Marsh Orchid, African Crimson winged Finch, Horned Lark, Atlas Wheatear, Alpine Chough, Red-billed Chough, Vaucher's Wall Lizard, Atlas Dwarf Lizard, Atlas Blue, *Berberia* Graylings, Vaucher's Heath

Much of the High Atlas is a daunting place to visit. There are only few roads that get you as high as the Alpine zone. Oukaïmeden is one exception, and a visit is therefore highly recommended even if it is not as pristine as the remoter parts of the mountains. Oukaïmeden was developed as a ski station in the 1950s, but increasingly suffers from a lack of snow. The ski-runs still function when there is sufficient snow cover, and a few cafes operate when there are visitors about, but the hotels and apartments have a distinctly run-down feel.

This is long regarded as the place to find high altitude species like African Crimson-winged Finch and various plants, reptiles and butterflies are readily found in season. Oukaïmeden is a hub of the grazing of the alpine meadows by sheep and goats, and herders' summer huts are dotted around the hillside. Cattle also graze the meadow in the main valley to the south of the main lake.







Lac d'Oukaïmeden marks your arrival in the Alpine zone.

**Starting point** Layby at Lac d'Oukaïmeden by the barrage. (GPS: 31.2086, -7.8526)

**Getting there** Most visitors reach this area either by self-drive car or by Grand Taxi from Marrakech (see page 247). The direct route is to Ourika, and then it is signposted from there.

**I** Just across the road from the layby to the north-west are petroglyphs (rock carvings) dating from the mid-3rd millennium BC. The rock strata are horizontal and the images of animals and people were hammered into the surface. These come from a time when the Sahara was becoming drier and therefore mountain grazing was becoming more important. Although there is an interpretive board it is likely that a local 'guide' will appear to show you the details of these images in return for a few Dirhams.

Take a moment to look back down the road from where you have come. This is often the best place to look for Crag Martin, Grey Wagtail and Black Redstart. It is also worth looking across the lake itself as it can attract some species dependent on the season.

The way forward is along the valley to the main ski-lift car park at point 2

about 1 km away. If visiting in winter, walking along the road may yield Serins, Rock Sparrows and Bramblings that are attracted to the cafes and hotels that line the road. If there is no snow in spring and summer, a more pleasant walk is to cross the barrage and walk along the southerly edge of the Lac to the flat grazing lawns. A stream follows the easterly edge of the lawns and along its route can be a good place search for flora including Broad-leaved Marsh-orchids and both butterflies and dragonflies in season. The vegetation here can also be home to Stripeless Tree Frogs.

**2** The main ski-lift car parking area gives a good view of the valley floor and informs you about the snow conditions around the head of the valley. In both winter and early spring, it is best to consider the plan of action based upon the extent of the snow and scan the areas from here. In these seasons it is likely that the road is the only clear way to continue. Most birds are attracted to the snow edge, particularly where it is melting and this should be your target. If no snow is present, then look for activity and follow the birds. Often large flocks of Rock Sparrows are present, and these may be joined by Horned Larks and both choughs. Note that when skiing is possible the road is often barriered here and you will be charged for parking.

**3** The road continues through a sharp left-hand turn and to a car parking and market area another kilometre along the valley floor area. If there is no activity at the first parking area this second area can be the place to focus attention. It is most likely that this will be the first area in which African Crimson-winged Finches are present and they are especially fond of the baskets of almonds if the nut vendors are present.

The first of the ski-lifts have their base stations here, and most of the higher slopes can be scanned to establish where the activity is, both human and avian. Mules are often also found here, as they will take visitors up the track towards the Toubkal National Park for a fee. This area is one of the best to find the various finches that inhabit the valley. In recent years, the Crimson-winged Finches appear to have adopted the last,



'Atlas' Horned Lark is common in the areas of short turf.

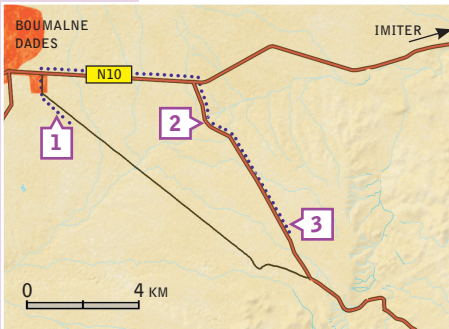
## Route 8: Plains of Boumalne Dades

2-4 HOURS, 40 KM



The classic location to access the High Arid Steppes.  
Great for birdwatching, within easy access of Boumalne Dades.

**Habitats:** High Arid Steppe, stony plain with scattered dwarf shrubs  
**Selected species:** Fat Sand Rat, Temminck's Lark, Thick-billed Lark, Hoopoe Lark, Thekla's Lark, Cream-coloured Courser, Black-bellied Sandgrouse, Red-rumped Wheatear, Desert Wheatear, Boehme's Agama, Moroccan Spiny-tailed Agama



This is the area of the legendary 'Tagdilt Track', a route that had previously been the only 'road' heading south towards the easterly spur of the Anti-Atlas Mountains. Since the construction of the tarmac road to Ikniouen, this is not an access road, and the northern end of the track has progressively been built over but remains accessible. As it is now largely unused the



The gravel plains stretch for as far as the eye can see.

old track is in poor condition and especially in the sandy areas, driving along it risks bogging down. Early spring is the best for the widest range of species, however, it is worthy of a visit in any season. As always, this area close to town is a tipping ground for both building waste and ordinary rubbish, and the whole area is strewn with plastic, although arguably less than it has been historically. It still gives the odd juxtaposition of great species next to human detritus. Only by moving further east and south can you escape the rubbish. It must be said, though, that many species appear not to mind the rubbish!

Along the new road, the access is simpler and in reality, the best way of finding species is simply to wander the steppe or scan for movement. Although often appearing lifeless, with patience there is often plenty to see. Of course, it is possible to walk out from the edge of town and follow the line of the old track, however, distances are quite large and there is no protection from the sun. Most visitors drive and then after stopping walk short loops to find the available species. Most species range widely over the whole plain and, therefore, there are not specific areas for particular species.

Burrows of Fat Sand Rats and Moroccan Spiny-tailed Lizard dot the steppe. Care should be exercised not to collapse their burrows not only for the sake of these animals but for the Red-rumped Wheatears which nest in them. Long-legged Buzzard, Trumpeter Finch, Red-rumped Wheatear, Desert Wheatear, Black-bellied Sandgrouse, Greater Short-toed and Thekla's Larks can be found almost anywhere.

**Starting point** Park on side of the track off the N10 after leaving Boumalne Dades to the east (GPS: 31.359, -5.962)

**Getting there** Self-drive car or Petit Taxi from Boumalne Dades. It is possible to walk to the first stop, however, note that it would be a walk of c.20km to cover all of the stops here.



Red-rumped Wheatear (top) and Temminck's Lark (bottom) are typical High Arid Steppe birds found in the plains of Boumalne Dades.

**1** The first area is around where the old track hits the N10. This used to be marked by the Inov Petrol Station, but further building work has pushed this further east. Follow any track heading south into the steppe, heading to the vicinity of the walled area. This gives you a good introduction to what is around. The wall itself offers an elevated vigil location for hunting shrikes and wheatears.



The typical view of Black bellied Sandgrouse - when you flush a family party.

**2** Returning to the N10, the turning onto the road to Ikniouen is 5 km from Boumalne Dades (4km from the turn off to Stop 1) and a further 1 km along the new road there is a depression on the left-hand side. This natural bowl attracts whatever moisture there is and also is normally covered in ground-hugging herbs. This 'different' area appears to be particularly attractive to the birds. Temminck's Larks are normally the most common species, but wheatears, both Desert and Red-rumped, are also present. If there's any water, then this can attract waders. Although Little Ringed Plover and Green Sandpiper are the most regular, other waders have been seen.

**3** A further 4.8km along the road, there is a track to the right which heads WSW. This passes over a short rise before dropping down to a dry river bed. Park up and repeat the approach used elsewhere. This is normally a good area for both Cream-colored Courser and Thick-billed Lark. The area toward the Anti-Atlas to the south is the most likely area to find Crowned Sandgrouse. Their morning drinking flights are the simplest way of seeing them, but care is needed to distinguish them from Black-bellied and Pin-tailed Sandgrouse both of which may also be present. In the sandy stream bed, there is a large colony of Fat Sand Rats. These charming rodents can be seen changing bedding and interacting around their many burrows.



## Route 9: Gorges near Imiter

**1 HOUR  
EASY**

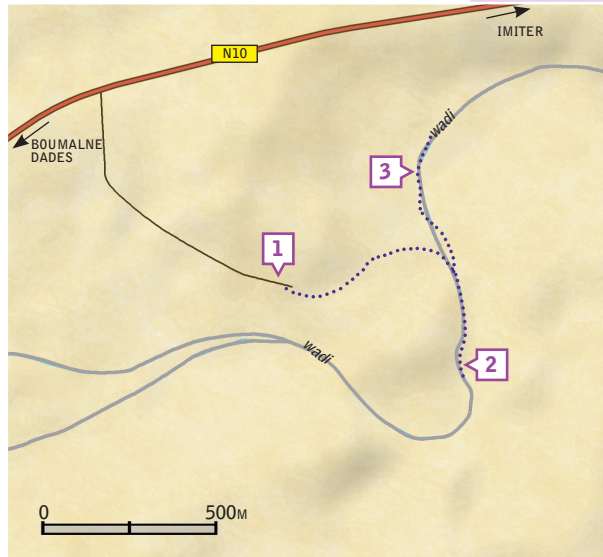


Gorges with birds not found elsewhere in the flat steppe.

**Habitats:** High Arid Steppe gorge and wadi

**Selected species:** Maghreb Wheatear, Black Wheatear, Pharaoh Eagle Owl, Lanner Falcon, Long-legged Buzzard, Bosk's Fringe-fingered Lizard, Böhme's Agama

The gorges near Imiter are probably not very different from many other incised wadis or gorges in the High Arid Steppe zone. What makes them stand out is not the habitat, but their proximity to the N10, offering easy access to a habitat where many sought-after bird species live, hence its inclusion in this itinerary. Early spring is the best for the widest range of species as there is likely to be vegetation in the wadi and the local nests will be active.



### Starting point

The turning to the location is 16.5km east of Boumalne Dades, a further 8.8km from the Iknouen turning or 4.5km west of Imiter. Park at GPS 31.370, -5.826 and then walk over the crest of the 'col' to the north-east to access the 'gorge' itself.

**Getting there** Most visitors visit this area either by self-drive car or by Grand Taxi from Boumalne Dades.

## ROUTE 9: GORGES NEAR IMITER

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**1** Before leaving the parking area, scan the old gravel workings and wadi below. This area normally has parties of Trumpeter Finches and breeding White-crowned Wheatears.

Follow the track to the north-east over the ridge until you can see into the valley with the gorge cliffs in front of you.

**2** Continue into the wadi bed and head south. Search the gorge for cliff loving species. Long-legged Buzzards are nearly always present. Lanners or Pharaoh Eagle Owl may be present as well, but as they do not tolerate each other's company, it is either one or the other. Cliff-loving wheatears can be present including Black and White-crowned, but the prize here could be Maghreb Wheatear. This is a species that is becoming scarce in recent years and although the route east of Boumalne Dades has always been a good place to look, pairs tend to move around the available habitat.

**3** After searching return to the entrance of the wadi and follow it north, back towards the N10. The valley bottom can have local resident species such as Cream-colored Courser or Desert Lark. The vegetated runnels attract migrants, such as redstarts, warblers and chats. The route back can be either to return to the original parking spot or head up the wadi side to a parking spot on the edge of the N10 which is the alternative location to stop.



View of the wadi near Imiter (right). The nearby cliffs attract species such as Lanner Falcon to roost and sometimes nest (top).

## Additional sites in the High Arid Steppes

For the locations of the sites described below, see map on page 160.

### A – Amerzgane



GPS: 31.037, -7.217. The main N9 passes through the village of Amerzgane after crossing the High Atlas Mountains via the Tiz n' Tichka, 35km northwest of Ouarzazate. In the centre of the village is an obvious junction with the P1505 road that heads south. Stop on the roadside just south of the wadi crossing. The habitat is typical of the High Arid Steppe in close proximity to a wadi and rocky bluffs. And the small fields



and unaltered gravel plains should be searched in addition to the cliffs and the wadi edges. This is one of the most reliable places to find Maghreb Wheatear, which is otherwise increasingly hard to find. In addition, other wheatears, Trumpeter Finch and a whole mix of migrants can be found in the area especially if poor weather higher up is delaying the passage of birds.

The unprepossessing cliffs at Amerzgane are one of the few hotspots for the Maghreb Wheatear.

### B – Ait Ben Haddou



GPS: 31.047, -7.132. Overall 30km north-west of Ouarzazate, the world heritage site of the former Ksar of Ait Ben Haddou, is well sign-posted along the P1506, which turns off from the N9 at Tazentout. The Ksar used to protect the trade routes from the Sahara that crossed to High Atlas Mountains via the Tiz n'Tichka pass.

It is a picturesque setting and has been widely used in many Hollywood blockbusters, including Time Bandits and Gladiator. It sits in an area of high arid steppe with both bluffs and the Ounila river, meaning that it is a good location for exploration. Parking is well marked and there are plenty of paths along the river, whilst most visitors limit themselves to the Ksar itself.

Although the village of Ait Ben Haddou attracts the crowds, it the surrounding wadi and cliffs that are interesting to the naturalist.





Greater Flamingos are common in the Souss estuary.

elsewhere on this coast. Look out for Slender-billed, and more rarely Little Gulls which sometimes mix in with the commoner species. Also scan the pylons around this part of the estuary as two or three Ospreys are normally present, except during the summer months. Don't forget to look at the golf courses to the north. The well-watered fairways and greens can attract a number of birds and butterflies although they can disappear behind the walls into the complex. Large flocks of Maghreb Magpies can loiter around here.

**2** Return to the car park. If the tide is either very high or very low, it is normally more productive to head west towards the coast itself. The bend of the river here holds most of the waders and the numbers are impressive. The birds can be quite distant and a telescope is an advantage. One species that doesn't need a telescope is the Greater Flamingo; the large flock of up to 500 birds couldn't be more obvious.

**3** It is not necessary to walk the whole way to the ocean, but certainly walk to the last bay before the coastal sand dunes. This area is popular with terns and waders. It is the best location to look for Lesser Crested Terns that are regular during the year but most plentiful in the autumn.

**4** The maquis between the river and the Royal Palace attracts migrants, especially warblers and shrikes. The sandy soils are home to Golden Fringe-fingered Lizard and Helmet-head Gecko. It is also a renowned site for Red-necked Nightjar, although they can be elusive and getting close to the Palace boundary (where they are best seen) cannot be recommended for reasons as noted above.

## Route 25: Oued Massa

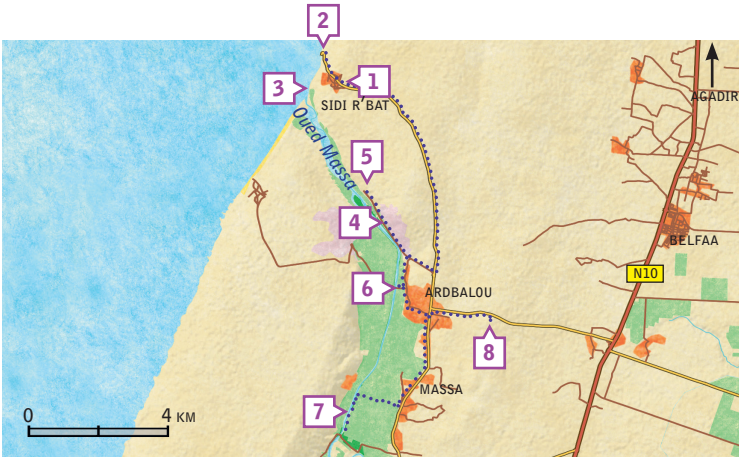
**6 HOURS-FULL DAY**  
**MODERATE**



Estuary, surrounded by desert, scrub and agricultural habitats.  
One of top birding sites in the country.

**Habitats:** Estuary, coastal scrub, sandy steppe, fields, riverine woodland

**Selected species:** Desert Thumb, Egyptian Mongoose, Marbled Duck, Northern Bald Ibis, Mediterranean Short-toed Lark, Brown-throated Martin, Black-crowned Tchagra, Golden Fringe-fingered Lizard, Forskal's Sand Snake, False Mallow Skipper, Vagrant Emperor



Oued Massa National Park is a collection of sites around the Oued Massa estuary and agricultural fields. Historically, it held some real desert species, but these have become scarcer as the extent of the agriculture has increased. Nevertheless, the National Park remains a really interesting location as there is a good mix of habitats within a relatively small area. This route contains several such locations where you can sample the variety of the whole area. The main focus of this route is the estuary, but it is worth exploring a wider area, including the extensive coastal maquis, where interesting flora and fauna can be found throughout. Note that the locations





Oued Massa runs through agricultural fields (top) where Zitting Cisticola is a constant companion (bottom).

of this route are mostly widely spaced and really requires a car to travel between them and potentially visit other interesting areas to achieve full coverage of habitats around the river valley.

**Starting point** Sidi Rabat village (GPS 30.086, -9.664).

**Getting there** Self-drive; grand taxi or bus from Agadir.

**I** Sidi R'bat is a small village on the Atlantic coast (but one with a hotel and café). You reach it via the town of Ardbalou. The road between the latter and Sidi R'bat crosses coastal maquis, most of which is unfenced and overgrazed by goats to the point that in places no vegetation remains. This is nevertheless attractive to Lesser (or Mediterranean) Short-toed Larks and a few pairs breed here. Just before the village, there are some fenced areas that give a good impression of what this would look like if the plants were allowed to regenerate.

Drive through Sidi R'bat and park just past the hotel where the road overlooks the sea (GPS: 30.086, -9.664).

**2** Wander the area between here and the sea cliffs. The last maquis before the cliffs hosts Stone Curlew. After the breeding season, the birds gather here and the flock often totals more than 50 birds.

The Northern Bald Ibis breeding cliff is north of this point, but access is restricted beyond the caves of 'les grottes ifrane' and you mustn't go further for risk of disturbing this endangered species. Flocks of birds can be seen in this area, generally flying between foraging areas or to the nest colony. Gannets and shearwaters may be found offshore in the autumn.

**3** It is possible to walk south from here, down the cliffs to the river mouth and then to the western end of the National Park where there are a couple of bird hides over-looking the pools behind the sand bar that cuts the Oued Massa from the sea. These pools can have Flamingos, herons, waders and ducks (including Marbled Duck). This is a minimum of 5 km walk (return) and you need to decide whether it is worth the effort.

Return to Sidi R'bat and follow the road back Ardbalou and turn right at the roundabout on the edge of town.

**4** The formal National Park entrance is on the northern edge of Ardbalou (GPS Point 30.043, -9.644), although there is little to say you have arrived, just a simple archway and a faded sign. The road continues on for 3km to the car park at the museum (GPS point 30.057217, -9.654734). Although it is possible to drive to the museum, it is the riverside vegetation here that is productive and it is best to walk at least some of the way. The road follows the right-hand bank of the river and heads northwest towards the sea.

**5** Walking along with the river, the view to your left is the riverine cliffs that run to the coast. The area of natural vegetation at this part of the coast is one of transition between Mediterranean and a more 'Canary-type' maquis, where cactoid spurge *Euphorbia officinarum* and the succulent *Kleinia anteuophorbium* join the cistus. The main target here is the Black-crowned Tchagra. This bird is not uncommon along the coast and you will hear them soon enough. However, its skulking





# TOURIST INFORMATION & OBSERVATION TIPS

## Travelling to and in Southern Morocco

**Via air** As a visitor it is most likely that you will arrive in Southern Morocco by air via Marrakech, Agadir or perhaps Essaouira. There is a wide selection of flights often by low-cost carriers that have reduced the cost and increased the flexibility of visiting this part of Morocco. Recently a service has been offered to Ouarzazate from limited locations in Europe, enabling access to the desert without needing to drive over the High Atlas Mountains.

Other international airports in central and northern Morocco are in Casablanca, Rabat, Fez and Tangier. These are all a long drive away from the area described in this book and are only suited as an in or outbound destination when you have sufficient time and plan to visit other parts of Morocco as well.

**Overland** The distance and challenge of reaching this area overland should not be underestimated, although an increasing number of people do choose this route. They are generally of two types. There are those who are going on to cross the Sahara itself (and this is a comparatively simple first step) and there are those who are spending the winter in warmer climes usually in their own mobile home. The most popular route for drivers is via Algeciras-Tangier ferry (see [www.frs.es](http://www.frs.es)), although there are other crossings, including from Genoa and Barcelona (see [www.gnv.it](http://www.gnv.it)). Even after reaching the African side of the Mediterranean, it is over 600km before you reach Marrakech which is in the northern part of the area considered here. This may not sound as a lot, but with average road journey speeds around 60km/h (except on the very few motorways), it is a long trip. In the mountains where it is difficult to drive, you won't be able to do more than 40km/h. In short, travelling overland really only works if your visit here is part of a prolonged trip.

The borders to Algeria have been closed since 1994 and no land crossing is possible. The border to Mauritania is only open near Nouadhibou on the main route to the capital Nouakchott. Even this border crossing can be suddenly shut, and you often need to hire a 'fixer' for the Mauritanian section. The best way of crossing is to buy a bus ticket between cross-border towns.

**Trains** Marrakech is the southern terminal of the Moroccan rail network run by the state rail provider ONCF (see [www.oncf.ma](http://www.oncf.ma)). Trains can be used to get to southern Morocco from all the northern cities (including linking with the ferries from Europe), but no other places within our area are connected. There has been a plan to extend the network to Agadir via Marrakech, but no date has been set for delivery. Potentially confusingly, Moroccan railways offer tickets for the journey from Marrakech to Agadir, but this part of any journey will be done in a bus.

**Coaches and Buses** There is a good network of intercity coaches and buses connecting the main towns and cities in Morocco and every town has a bus station. It is possible to travel to many points here from the northern cities and this can be a way of travelling into southern Morocco once you are in the country.

The main three companies are Supratours, CTM, and SATA. Supratours is part of ONCF (the Moroccan railways and share the same website as above). CTM operates its sales fully online (see [www.ctm.ma](http://www.ctm.ma)), so booking is relatively simple. SATA has the best network into the more remote areas in the south, but has a poorer reputation and no direct website, although apparently all routes can be booked via a third-party website (see [www.lagare.ma](http://www.lagare.ma)).

### Travelling in Southern Morocco

By far the simplest and most flexible way to travel is by hire car. Hiring a car is straightforward and there is a wide selection of providers from which to choose. It is likely that you will be offered a package deal with your flight, or even with your train ticket. Note however that most of the routes in this book are in remote areas and the majority are to the south of the High Atlas Mountains. Very few of the hire companies have offices in this area, and it is worth researching the network of support and recovery offices prior to finally selecting your rental company.

Once you have your car it is important to realise that distances are great, and the roads are few. They attract every kind of traveller from cars to bicycles, donkey drawn carts and livestock. Roads go from town to town and there are few bypasses, so although the open roads are often free from traffic, navigating villages and towns can be slow and nerve-racking. Expect to average no more than 40km per hour when travelling, even though the open stretches may allow speeds up to 100km/h.

It is also better to avoid driving at night. Many car drivers consider the use of headlights to be an optional extra whilst other road users will often be found going against the flow of traffic on the wrong side of the road and may not have any lights at all. In contrast, the very early morning is much easier as the roads are quieter.

The main routes are generally in good condition. The only issue is that roadworks are often done with little attempt to manage the flow of existing traffic. This often leads to delays. Side roads can be in poor condition, and many are not tarmacked. Note that most car companies' insurances do not cover driving off the tarmacked roads



and therefore careful consideration is needed to drive on the tracks and minor roads here. The car routes in this book are therefore on tarmac roads, unless specifically stated otherwise.

## **Grand and Petit Taxis**

Despite their name, Grand Taxis, (or G-Taxis for short) are not really taxis in a European model. As is typical across the whole of Africa they are shared transportation that supplements bus network in more remote areas. Grand Taxis used to be almost exclusively of old E-class Mercedes saloons, but nearly all have been replaced except in the far south. Dacia Lodgy seems to be the most popular make and model being adopted now and they are a familiar sight everywhere. They do not run to a fixed timetable but will leave when sufficient people want to go to the destination, linking towns and places along the route. These are often by far the most economical way of getting from place to place but is not for the faint hearted as they will not leave until they are stuffed full of people and goods, even livestock

As Grand Taxis will not go at regular intervals and may even stop running if there is no perceived demand, they are not best suited to reach the remote sites described in this guide.

However, they will be prepared to set down along their normal route and will also pick up if there is space. You can simply ask to be dropped off close to the needed location but note that fares are fixed for the whole route and this flat fare does not allow for discounts if you are going part way. Most Grand Taxi routes are from town to town via villages, which means that you need to ask if they go to where you want to before getting in. Once there, there is no guarantee when another Grand Taxi will be along to pick you up.

Some Grand Taxis will agree to do an exclusive trip for you alone, but you must negotiate the fee in advance. Also, if you want to be picked up from your drop off point later, ask the driver if there are limits on timings and if you can confirm when any others will be running that way. You may need to wait, or try to 'pre-book' your return trip.

Petit taxis are small hatchbacks and are exclusive to the hirer and usually reserved for travel within the town or host district, i.e. short journeys. Therefore, they are like 'real' taxis. They are often but not always metered and it is simplest to agree a charge for a journey. Expect them to be relatively expensive (but still cheap in European terms). They are limited by licence to 3 passengers.

Both Petit Taxis and older style Grand Taxis sport a distinctive colour or two-tone colour scheme. The colours used denote their host location and differ from district to district. Most of the colour schemes are chosen so they stand out and would not be selected by a normal car buyer – at least not in Morocco, making it is simple enough to tell the difference from normal cars. Petit Taxis will often use the same stands in the towns, so it is best to ask for the taxi stand if you want to hire one.



# CROSSBILL GUIDES FOUNDATION



Southern Morocco has a stunning and diverse landscape ranging from the snow-capped peaks of the High Atlas down to sand dunes of the Sahara. The ecological diversity here is unparalleled. There are unique species, ranging from the iconic Bald Ibis to the many endemics in all branches of flora and fauna. It is not surprising that this region is high on the must-visit list of naturalists, birdwatchers and everyone who loves nature and exotic scenery.

- **The guide that covers the wildflowers, birds and all other wildlife**
- **Routes, where-to-watch-birds information and other observation tips**
- **Insightful information on landscape and ecology**

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