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LANDSCAPE

Mention a visit to eastern Andalucía to an average group of people and the reactions are predictable: it is far too hot in summer and too built up on the coast, but be sure to visit the Mezquita in Córdoba and the Alhambra of Granada. Responses of those more aware of nature are likely to include references to the Alpujarras (what a lovely region!) and the Sierra Nevada (splendid hiking!).

None of these reactions are wrong, but they do not do justice to what eastern Andalucía has to offer. The entire region has exciting wildlife to discover, with markedly different sub-regions each distinct from the next, reflecting the strong variation in climate, altitude, rainfall and geology that is such a salient characteristic of this region.

The region is easily accessed from the airports of Málaga or, better still, Almería. Hop into your rental car and exciting discoveries start already on the coastal marshes right outside the airport. Here you can 'bag' your first Purple Gallinules, Booted Eagles and Long Skimmers (an essentially African dragonfly species) a mere hour after touch-down! Beyond that, you're spoilt for choice – head out into the desert-like south-east of Andalucía or go northwest to explore the Sierra Nevada – the highest mountain of the Iberian Peninsula. Many visitors opt for the latter, connecting the sun-soaked beach and the ski pistes of the Nevada in a single day! Beyond the Nevada, there are superb woodlands and scrublands, vast steppe plains, barren karst plateaux and picturesque oak and olive groves. In short – options are endless and the extent of fine and wildlife-rich habitat is far too great to cover all in great detail.

Therefore, in this Crossbill Guide we've chosen to divide the region into geomorphological unities: the semi-deserts of the south-east, the Alpujarras and Sierra Nevada, limestone mountains to the north and west and the mountain-locked plains or Hoyas that separate them. The northwestern part of our area includes the upper Guadalquivir basin and the Sierra de Andújar, part of the Sierra Morena. Each has its own ecological story to tell, with different species of flora and fauna playing the lead role.

These areas are covered in two ways. First, in a descriptive section that explains the landscape, geology, flora and fauna and second, from page 113 onwards, in 20 beautiful routes and 19 sites which cover the most attractive habitats and host the most remarkable flora and fauna. In passing, we'll introduce you to the rich cultural history of the East-Andalucían landscape as well.

Dry, open pinewoods, gorges, steppe plains and deserts are the main ingredients of the little populated ' Wild East' of Andalucía. This is a view from the little visited Sierra de Baza.

Geographical overview

Andalucía is Spain's largest autonomous region and the one with the most diverse habitats and wildlife. Therefore, we decided to cover the the region in two separate guidebooks. The volume on the west focuses on the provinces of Huelva, Sevilla, Cádiz and most of Málaga, while this volume covers the provinces of Córdoba, Granada and Almería – roughly everything east of the line Málaga – Córdoba.

Andalucía is with 8.3 million inhabitants sparsely populated, especially when you consider that the majority of the population lives in the large cities of Sevilla, Málaga, Huelva, Córdoba, Granada, Jaen and Almería.

The most prominent feature of eastern Andalucía is the Sierra Baetica – a rugged mountain range that runs from the southwest to northeast, separating the arid southeast from the fertile basin of the Guadalquivir River. Several of the largest cities of East Andalucía (Córdoba, Andújar and Jaen) are situated in the Guadalquivir basin.

North of the Guadalquivir lies the Sierra Morena. Politically it is part of Andalucía, but geologically it belongs to central Spain. This wild region is basically a string of nature reserves, the easternmost of

Overview of eastern Andalucía

which, Sierra de Andújar and Despeñaperros, lie within the scope of this book.

The Sierra Baetica reaches its highest point at the Sierra Nevada, southeast of Granada. Further northeast, the Sierra Baetica disintegrates into a complex of smaller mountain ranges, like the Sierra de Huétor, Sierra de Baza, Sierra de María, Sierra Mágina and Sierra de Cazorla y Segura. Each of them sport large areas of woodland and scrub and wild cliffs and karst plateaux , which all are destinations well worth a visit.

These sierras are separated from one another by plains, known as *depresiones* or *hoyas*. Some of them are fertile and lovely, like the Granada basin (in which the second-largest city of East Andalucía, Granada, is situated). Others, like the Hoya de Baza, Hoya de Guadix and Desierto de Tabernas, are impressively wild, empty, steppe-like in character and rich in birds and other wildlife.

The motorway through the Desierto de Tabernas. Empty landscapes and few but excellent roads characterise Eastern Andalucía.

The Sierra Baetica and the *hoyas*, with the exception of the Granada basin, are sparsely populated. It becomes more crowded as you approach Almería, which is, after Córdoba and Granada, the third largest city in the area, with almost 200,000 inhabitants in 2014.

The Sierra Nevada with the Alpujarras form a formidable barrier between Granada and the sea to the south.

As the main towns are situated either northwest or southeast of the Sierra Baetica, the road network follows the mountain passes that connect the *depresiones* between the ranges of the Sierra Baetica. The main north-south connections are the A-45 Córdoba – Antequera – Málaga road and the E-902 Jaén-Granada-Motril. From west to east, there is really only one main connection: the A-92 that runs from Antequera (and further west, Sevilla) to Granada, where it crosses the pass between the Sierra de Huétor and Sierra Nevada to the Hoya de Guadix. At the town of Guadix, it splits. The north-east branch (N-342) crosses over to the Hoya de Baza and on to the Sierra María, while the A-92 bends south to Tabernas and Almería.

The N340 and E15 coastal motorway follows the mountainous south coast, connecting Almería with Motril and, further west, Málaga. Several small wetlands and rivers on the coast boast a distinctly African-influenced flora and fauna. It is also the gateway to the lovely Alpujarras, an attractive area for hikers.

Spaghetti westerns – no more than a fist full of dollars

The badlands of Almería are more famous than you may have thought. They are, in fact, world-famous. Few people realise that when one is watching classic movies like The Good, the Bad and the Ugly, a Fistful of Dollars or Indiana Jones and the Last Crusade, that the desert scenes were all filmed in the Desierto de Tabernas.

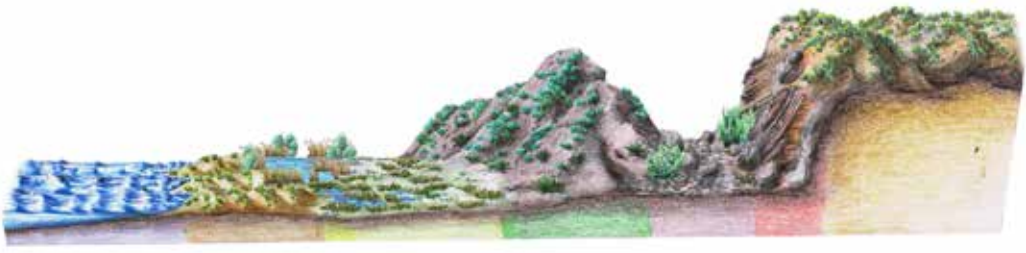
The authentic looking 'Western' landscape has drawn European film makers to the Desierto to use it as a substitute for the real thing. However, it was not the landscape alone that drew directors of spaghetti westerns (so called as most were Italian productions). Since wages were so low here during the Franco years, it was above all an economic choice to shoot the film here on location.

Spaghetti Western in mini Hollywood (route 5).

Rich diversity of semi-desert habitats

The desert conjures up images of uniform landscapes where the absence rather than presence of life is conspicuous. Nevertheless, many deserts are remarkably rich in wildlife and the semi-deserts of Almería are actually extremely biodiverse. There are two reasons for this. First, there is a large variety of habitats in a relatively small area – plains, slopes, cliffs, dry river beds (*ramblas* in Spanish or *wadis* in Arabic), dunes and saltmarsh at the coast. Second, most of these habitats reappear on very different substrates. In this geologically diverse region, there are sandstones, limestones, ultra-basic gypsums, basalt rock and

Cross section of the semi-desert and its habitats.



sediment beds. The botanic diversity, in particular, profits from this variety – a *rambla* in the sandstone *desierto* hosts quite a different set of plants than one in a basalt substrate, while life on a plateaux consisting of loose sediments is quite different from that on the gypsum soils. The birdlife is less influenced by soil conditions. The relatively small area of semi-desert in Spain, in combination with the isolation from the main African populations, means that only a relatively small number of African desert birds makes it to Almería. The most notable species are Dupont's Lark, Black-bellied Sandgrouse and Trumpeter Finch.

Dunes and saltmarsh

Today's coastal plains were once submerged in shallow bays of the Mediterranean. They gradually filled up with marine and river sediments. The marine origin of the plains is responsible for the fact that many of the soils in these lowlands have a high level of salinity. This in turn explains why the area is still in such pristine condition – in spite of the fertile soil, the salinity makes for unattractive conditions for crops.

On the coast, the lowlands are fringed with a line of dunes, In comparison to the dunes of west Andalucía, those of Almería are very modest in size. The limited tidal range (between 20 and 60 centimetres) and the prevailing off-shore winds form about the worst possible conditions for the formation of large dunes, hence they are no more than small sandy bumps along the beach (see routes 1 and 2).

This is enough, though, to change the conditions that govern the surrounding plains radically. A thin layer of freshwater underneath the sand allows a rich flora of both shallow-rooting freshwater plants and deeper-rooting saline species to develop. Curry Plant, Sea Medick, Sea Daffodil, Cottonweed, masses of Winged Sea-lavender, Coastal Reichardia* (*Reichardia gaditana*) and Pink Catchfly* *(Silene colorata)* are just a few of the wildflowers that brush the dunes with all imaginable colours in spring. The Tamarisk bushes usually house a few Common Chameleons and Stone Curlew also feels at home here.

Modest as they may be, the dunes have a striking impact on the hydrology. The dunes form a sufficiently resistant obstacle to block the feeble water flow of the ramblas into the sea, thereby creating shallow fresh and brackish lagoons just behind the narrow row of dunes. An example of such a lagoon is the Rambla de Morales (route 1). In some places, these lagoons have been put to use by humans as saltpans – e.g. at Cabo de Gata and the saltpans of Punta Entinas-Sabinar (routes 1 and 4). Both saltpans and natural lagoons are of great importance for marshland birds. The fertile soils

8 plant species to look out for

< Caralluma

Caralluma europaea

This curious plant is native to North Africa and the Middle East and has its only European sites in the semi-deserts of Almería and in southern Sicily. It is the only native plant in Europe with a cactus-like growth form – no leaves and a succulent stem. Rare on dry, volcanic rock in Cabo de Gata (route 2; site A and B on page 130). The closely related *Caralluma munbyana* is found in northern Murcia.

Maltese Fungus >

Cynomorium coccineum)

The Maltese Fungus is another strange plant without leaves. The dark, dense-flowered parasitic species is more reminiscent of a fungus than a plant. It is widespread in the southern Mediterranean but usually absent or very rare. In eastern Andalucía it is locally common in sandy areas (route 1 and 5).

< Almeria Sea-lavender*

Limonium insigne)

One of several sea-lavenders in the region. Almeria Sea-lavender is endemic to south-east Spain, growing in dry barrancos (route 1, 2, 5).

< Cistanche

Cistanche pelyphea

Another parasitic plant, stout and with bright yellow flowers. It is quite common in saline soils along the Andalucían coast (route 4, 5).

< Hedgehog Broom
Erinacea anthyllis
A rounded, spiny bush of the broom family, flowering spectacularly in May-June. It is confined to the east and south of Spain and is very typical of the hedgehog broom zone (see page 41). Dry, limestone mountain slopes above 1,000 metres (routes 5, 6, 7, 10 and 11).

Cazorla orchid >
Orchis cazorlensis)
A robust orchid, closely related to Spitzel's Orchid of the mountains of central Europe, but this species is restricted to the Sierra Cazorla and a few other sites in Spain with snow cover in winter. Open mountain woodlands (route 8).

< Eelgrass-leaved Butterwort*
(*Pinguicula vallisneriifolia*): A pretty butterwort species, endemic to the Cazorla mountains, where it grows on permanently wet limestone cliffs (route 9).

< Cazorla Violet
Viola cazorlensis
An atypical-looking but pretty pink violet that forms (in contrast to other violets) a small bush. It is confined to the mountains of south-east Spain where it grows on dry limestone cliffs (route 8; site A on page 167).

forests, while the Algerian Hedgehog prefers dry places below 600 m, both cultivated and natural.

Both Rabbit and Iberian Hare are quite common. Rabbits occur up to 1,500m. The highest densities are found in relatively flat lands with scrub and grasslands. The Rabbit population has seen enormous fluctuations in recent years due to the outbreak of a series of rabbit diseases (see text box on Lynx). As it is such an important prey species for vulnerable predators like Iberian Lynx, Spanish Imperial and Bonelli's Eagles, conservationists follow the fortunes of the Rabbit population carefully. Finally, the Iberian Hare, an inhabitant of open country, is endemic to Spain and Portugal.

Due to mild winters, bats are active almost throughout the year. There are many species, of which Lesser and Greater Horse-shoe Bats, Grey Long-eared and Lesser-mouse-eared Bat and Schreiber´s Bat are most numerous. The small bats that flutter around in villages are most likely Soprano Pipistrelles, a species that is smaller than the Common Pipistrelle that takes its place in temperate Europe.

The Brown Hare of northern Europe is replaced here by a different species, the Iberian Hare, which is smaller and has a white belly.
Wild Boar is common in some mountain ranges such as Cazorla. It is a much appreciated game animal.

Birds

Birds of semi-deserts, steppes and arid plains are found on routes 1, 2, 3, 5, 6, and sites A and B on page 130. Birds of limestone mountains and cliffs are best tracked down on routes 7, 8, 10, 11, 14 and site A on page 167 and site A on page 212. These are generally also good for raptors, as are the dehesa routes (13, 14 and site A and B on page 178), which are very rewarding for finding Mediterranean birds in general. The numerous birds of marshes are found scattered throughout the region. The best routes 1 and 4, and site D and E on page 132-134, site D, E and F on page 180-182, sites B and C on page 205-206 and site C on page 213. The area's limited number of seabirds are best viewed around the cape of Cabo de Gata (routes 1 and 2) and los Escullos (site B on page 130). The Acantilados de Maro Cerro (page 212) also offers chances on viewing seabirds. Birds of high altitudes should be looked for in routes 17 and 19, and site A on page 204.
The where-to-watch-birds-list with locations for each species is given on page 229.

Andalucía was amongst the first European destinations to become famous among birdwatchers. From the mid-19th century onwards British ornithologists explored Coto Doñana, Grazalema, Cádiz and Gibraltar, all in western Andalucía. In the east Córdoba, Granada, the Sierra Nevada and Alpujarras were favourite tourist destinations, but mostly for their architecture, scenic beauty and walking. The full potential of birding sites like the Almería saltpans and Desierto de Tabernas was only realised in the 1970s and 1980s. The descriptions of the British birdwatcher Andy Paterson who is based in the Costa del Sol, kindled the interest for these areas, while the birdlife of Cazorla, Laguna de Zoñar, Andújar and Despeñaperros was discovered even later.
This difference in popularity between western and eastern Andalucía continues to this day, yet is not entirely justified. Eastern Andalucía has a number of brilliant sites (with species that are absent from or very scarce in the west!) that deserve a greater interest than they receive today.
Eastern Andalucía as a birdwatching destination typically has a high diversity of breeding birds, but many of the 'goodies' are restricted to specific areas. For Azure-winged Magpies, the north-western sierras and Sierra de Huétor are the places to be, while Roller and Great Spotted Cuckoo are more numerous in the Hoyas. A steppe bird like Little Bustard is found in the Hoyas, but is absent or scarce in Almería,

Route 1: Cabo de Gata

6 HOURS, 25 KM
EASY

The essential Cabo de Gata route. Wonderful landscape, superb birdlife and rich flora.

Habitats semi-deserts, salt pans, saltwater marsh, dunes, sea cliffs
Selected species Maltese Fungus, Almería Rockrose*, Small-leaved Iceplant, Greater Flamingo, White-headed Duck, Trumpeter Finch, Black-bellied Sandgrouse, Black Wheatear, Dupont's Lark, Rufous Bush Robin, Spanish Terrapin, Chameleon, Common Tiger Blue, Black Pennant, Black Percher

Best season
Feb-May
Of interest
Year-round

Of the many routes you can take in the Cabo de Gata, this one is the absolute must. It takes you through the various habitat types Cabo de Gata has to offer. From the salt pans, dunes and lagoons to the impressive volcanic basalt formations of the Sierra de Cabo de Gata, it offers good chances of observing the most sought-after birdlife of the region like Trumpeter Finch, White-headed Duck and Black Wheatear. Apart from birds, the scenery is wonderful and there is a very good range of reptiles, insects and wildflowers to be found.

Starting point Los Amoladeras visitors' centre (on the AL-3115 between Retamar and Cabo de Gata).

A signposted trail called *Los Amoladeras* departs behind the visitors' centre. Bear in mind that when the centre is closed, so too are the gates to the car park so park just outside the gates if you want to avoid the risk of your car being locked in.

1 This trail takes you through an abandoned sisal plantation and a fairly intact stretch of semi-desert habitat. It is the best spot along

the route for Black-bellied Sandgrouse, which is most easily found in the early morning. Iberian Grey Shrikes and Little Owls use the tall stems of the sisal flower as perches. All of the region's larks may be found here, including the rare, declining and highly elusive Dupont's Lark. The best way to locate the latter is by its peculiar song. Thymelaea is the most characteristic native plant of this landscape. Wild Jujube bush* (*Ziziphus lotus*) can also be found. This is a good example of an African plant that also occurs in the southeast corner of Spain. Butterfly enthusiasts will want to scan these bushes carefully as they are home to the diminutive Common Tiger Blue, which has its European stronghold here on the Almería coast. Long-nosed Grasshopper is fairly common, as is the graceful Thread-winged Lacewing. Small-leaved Iceplant grows on the dry dunes along with its larger cousin, the Common Iceplant (native to South-Africa).

The dunes of Cabo de Gata support a great flora (top), with masses of Gold-coin and Winged Sea-lavender in spring and in late winter the pearly-white flowers of Sea Daffodil (the leaves in the foreground). This is also a great site for Common Tiger Blue, one of the butterflies that are restricted to the arid south-east of Spain.

Take the car and follow the AL-3115 towards Cabo the Gata. Some 500 metres beyond the roundabout, go right (signposted *camping Cabo de Gata*). At the camp site, the tarmac ends. Proceed along the dirt track and take the first track on the left, which skirts the bank of a dry river bed. Find a suitable place to park the car and explore the riverbed.

2 This is the Rambla Morales, an atypical rambla in the sense that its river mouth never dries up completely, making this a very attractive site for aquatic species in the midst of all this drought. The star species here is without a doubt the White-headed Duck, which occurs in good numbers and is not hard to see. Marbled Duck and Purple Gallinule also occur, but are more elusive. Other birds to be seen here include Black-winged Stilt, Kentish Plover, Little Tern, Gull-billed Tern, Slender-billed Gull and

Black-necked Grebe whilst on passage, almost anything can turn up! The Maltese Fungus, a strange parasitic plant (page 68), can be found along the edges of the rambla and Yellow Horned-poppy grows in the dunes. Spanish Terrapins can be seen basking on the banks or peeking out of the water. The tamarisk bushes support a good population of Common Chameleon. In summer near the water, Lesser Emperor and Black-tailed Skimmer are easy to spot. Black Pennant and Black Percher are occasional visitors. A typical butterfly of this area is the Mediterranean Skipper, a truly coastal species.

The Rambla Morales is among of the best places in the whole of Spain to see the endangered White-headed Duck.

Return to the AL-3115 and turn right towards Cabo de Gata village. Before the road enters the village, visit the bird hide on the left hand side.

3 This hide overlooks the north-western corner of the famous *Salinas de Cabo de Gata*. This is a good spot for waders like Avocet, Kentish Plover and Black-winged Stilt. Many others are possible during migration, as are many species of tern. Slender-billed Gull is also frequent on the *salinas*. Zitting Cisticola frequents grassy terrain.

Continue into the village of Cabo de Gata and go left on the first roundabout. This road leads to the lighthouse of Cabo de Gata with the beach on your right and the *salinas* on your left.

4 Three more bird hides can be found on the edge of the Salinas along this road. All offer more or less the same species, yet we recommend visiting all three. In addition to the birds that may also be seen at the first hide, Flamingos are the most obvious attraction, with dozens or at times even hundreds of birds present. The strip of low dunes between the beach and the salt pans is of great botanical interest, with both iceplants, masses of Winged Sea-lavender, Sea-heath, the catchflies *Silene litorrea* and *S. ramosissima*, Dune Galingale and Pedunculate Toadflax* (*Linaria pedunculata*), all putting on a great show in spring. The 'dandelion' with the black centre of the flowerhead is Coastal Reichardia* (*Reichardia gaditana*), another African-Iberian species. Birds include large numbers of Thekla and the occasional Short-toed,

View over the cliffs of Cabo de Gata.

Lesser Short-toed and Calandra Larks. Trumpeter Finch is also seen here fairly regularly and Spectacled Warbler frequents the scrub, along with the more common Sardinian Warbler. Spiny-footed Lizard is easily observed on and around the sandy trails. At the coast, Sea Daffodil flowers in August to October, while in mid-winter, this is the location of the rare Almeria Sand-crocus* (*Androcymbium europeum*).

5 The road climbs up towards the Sierra de Cabo de Gata, where Dwarf Fan Palm dominates the vegetation. Black Wheatear is frequent and Dartford Warbler is also possible. This is also one of the best places for Trumpeter Finch, although this highly mobile species is hard to pin down to a specific location. Butterflies you may encounter include Green-striped White, Spanish Marbled White, Bath White, Mallow Skipper, Long-tailed Blue and Spanish Gatekeeper. The endemic flora of Cabo de Gata is represented by *Sideritis osteoxylla* and Almería Rockrose* (*Helianthemum almeriense*). The large, yellow flowers of Goldcoin are conspicuous.

6 The main road leads to the lighthouse, while a tarmac road branches off to the left some 500 m before the cape (signposted *Aula del Mar*) leads to an ancient watch tower. The viewpoint near the lighthouse provides views over the famous *Arrecife de las Sirenas* (Siren's Reef). This is an excellent spot for watching seabirds like Shag, Cory's and Yelkouan Shearwaters and Audouin's Gull.
The road to the guard tower crosses more likely Black Wheatear and Trumpeter Finch territory.

Return via the same way.