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62 Rambla de las Amoladeras **Fossil Beaches** A series of Tyrrhenian fossil beaches

that stretch out to the right of the ravine. Mainly, the foreshore and shoreface structures of a series of prograding beaches can be seen, the

different parts of which date back to quite some time ago. In some parts, Strombus remains can be found which help us to understand the age of the beaches and suggest that the climate was warmer during the corresponding period than it is now.

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Arrecife de la Sirena reef Island or very rugged reef close to

the volcanic coastal Cliff. It is believed to be part of an old volcanic structure.



Morrón de los Genoveses The volcanic rocks that form this hump are a series of rhyolitic ignimbrites and andesitic lava flows and surges. The display of pyroclastic deposits on the cliff is spectacular. On

the volcanic substratum, penetrating initially through the cracks in the rocks, there are Pleistocene deposits of wind dunes with great sedimentary structures.

conditions and the sea level.



617 La Isleta-Los Escullos alluvial fans In the flat area of La Isleta-Los Escullos, several layers of sediment from different generations of alluvial fans can be seen, embedded within each other, with very flat surfaces slightly sloped towards the sea. They represent different stages in the formation of fans throughout the Quaternary

period, due to changes in climate and tectonic then cemented between more recent volcanic rocks (from the late Tortonian period).

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Las Negras Pebble Beach A Holocene beach formed by perfectly round volcanic pebbles

and gravel that come from the surrounding reliefs, carried by the Aguilas ravine and deposited there.



Cañada Mendez Marine **Sediments** Fragmented bioclastic carbonates, rich in remains of red algae, bivalves, bryozoans and benthic foraminifera. They are hardened water deposits.

They form exceptionally well preserved sedimentary structures, essentially a cross stratification with a tabular form at the bottom and a trough-shaped cross stratification at the top.

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Las Covaticas Paleo-Cliff The Pliocene sediments fill a small basin located on the south-eastern part of the Almería-Níjar basin at the foot of the old paleo-cliffs. In the centre of the basin, there is an abundance of barnacles. These are

very spectacular and consist of barnacles aggregates, preserved in their living form and of a large size (centimetres).

Geosites in the Cabo de Gata-Níjar Geopark



Dune system on the mouth of the Rambla **Morales (Pocic-Las Huertas** Dunes)

A system of present and sub-present quaternary beaches and wind dunes slightly withered due to the

vegetation. The stretch of beaches closes the mouth of the Rambla de Morales located to the east.



stones in small guarries that are no longer in use.

A group of coalescent domes consisting of dacitic rocks with large amphibole and biotite crystals. These are massive rocks in which lava flow layers and columnar jointing can be clearly seen. This columnar jointing was used to obtain paving

Los Frailes Volcano

Cala Carnaje enclave

Enclaves of carbonated rocks

in red algae, bryozoans and

Cerro de la Viuda

Andesites

striking.

bivalves, uprooted, dragged and

Formation of pyroxene andesite

cemented with volcanic rocks. They

are hardened carbonate platforms

from the early Tortonian period, rich

The two hills that comprise Los Frailes are two volcanic domes that are the exit points for the materials that compose the upper part of the hills (around over 200 m). The rocks are basaltic andesites that are about 8 million years old.



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Rambla Morales coastal lagoon

A small coastal lagoon formed at the mouth of the Morales ravine

where the spit closes in. Occasional breaks in the spit due to the ravine flooding causes the coastal lagoon to disappear temporarily until the spit is reconstructed by the sea.

> Arrecife del Dedo reef A protruding reef that has the shape of a finger, as its name suggests, that

> > retreating coastal cliff.

lies near to the coastal Cliff. It is a

remnant that was left behind by the





A coastal lagoon enclosed by a spit of dunes and beaches. Salt is extracted in salt mines that shape the landscape of the lagoon and, to a large extent, control its water system.



An andesitic dome and overlapping lavers of massive lava and pyroclastic flow on the northwest side of the dome. Each of the layers are visible due to their distinct colour and type

Los Escullos oolitic fossil

A formation of oolitic fossil dunes from the Pleistocene period located next to the present-day beach, composed of oolites. The sedimentary structures are spectacular.

Rodalguilar Gold Mines

Since the late 18th century, deposits

in the area of Cabo de Gata were

mined for minerals rich in lead and



Its sand covers in patches a magnificent formation of oolitic fossil dunes that are between 100,000 and 128,00 years old. The cliffs that border the beach to the

over one of the most representative formations of post-volcanic sedimentary materials of the Park, in this case consisting of bioclastic calcarenites with an abundance of marine fauna fossil remains that are about 6 million years old (from the Messinian

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Ricardillo Carbonates Hardened carbonate platforms and those from old underwater cliffs deposited on top of an old volcanic dome. On this dome, beautiful columnar jointing can be seen.



variety of lithologies formed due to the formation of gypsums, loams, bioclastic sands, etc. through the fault

Caballon





disconformities). Basal volcanic rocks are essentially volcanic agglomerates which have been radiometrically dated to around 8.7 million years.







An old Pliocene straight that joins the north-northeast of the Almería-Níjar basin to the Mediterranean Sea, through which intense currents were channelled through, mobilising limestone sands that formed large

dunes on the sea floor. The trough-shaped cross stratification is the internal structure shown by these dunes, resulting from their migration as they were displaced by the currents.



when the mine was closed.

Cerro Negro Andesites Pyroxene andesites that have a characteristic black colour that stands out against the landscape especially the Cliff to the north of Las Negras. These rocks erode and form pebbles that accumulate on Las Negras Beach

















Hardened carbonates and reefs from the late Miocene period which sit right on top of volcanic rocks. It included several carbonate blocks separated by gaps (paraconformities and





Pliocene sediments of the

Los Muertos Beach Pliocene carbonate platform prograding towards the south. It corresponds with the northern side of the old Carboneras Pliocene basin. Tempestites (storm deposits) can be

found on its slopes.





Cerro de Vela Blanca volcanic dome

of erosion they caused.

Morrón de Mateo **Bentonites**

Open-cast bentonite mine produced by volcanic as flows in an aquatic environment. These clays take the form of White powdery masses that are sticky and highly plastic.

El Playazo Beach in Rodalquilar

eodiversidad de Andalucía







Carboneras Fault in the

Sector of the Carboneras fault system. This structure is very visible due to the

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San Miguel de Cabo de Gata alluvial fans

Alluvial fans at the foot of the Sierra de Cabo de Gata mountains that stretch down to the Las Salinas coastal lagoon. These take the form of several diverging cones in which

we can clearly see their origin and the morphology of the sedimentary bodies.

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Monsul and El Barronal Beach volcanic deposits

Impressive hyaloclastite deposits that consist of volcanic rock made up of different sizes of andesitic rocks (with diameters ranging from millimetres to metres) cemented

together by a fine-grained matrix. These types of rocks were formed during underwater volcanic eruptions. We can also see columnar jointings on the Cliff itself which indicates where the source of the volcano is located.



Rellana de Majada Redonda

A geological formation that is formed on top of volcanic materials, mainly dacites and andesites in the structure and texture of breccias, flows and domes forming an

elliptical shape with a diameter of just over a kilometre, surrounded by more elevated volcanic reliefs that gives it the shape of an almost closed basin.

However, it forms an elaborate structure produced by the erosion of the volcanic massif caused by the elements, mainly rain, that is made more prominent over time by the water runoff from the hillsides.



Cerro de la Molata de Las **Negras Reef Platform**

A whole cross-cut of the carbonate platforms from the Tortonian-Messinian periods formed directly on top of volcanoes. At the bottom end, hardened open carbonate platforms

appear which are rich in bryozoans and bivalves. The first Messinian reef sits awkwardly on top (the first of the bioherms). The carbonates corresponding to the coastal reef, also from the Messinian period, appear above. In the carbonates, construction (corals, Porites, encrusted with microbial carbonates) and slope facies can be seen. At the top we can see the so-called Colmplejo Terminal, also from the Messinian period, consisting of carbonate platforms rich in oolites and microbial domes (stromatolites and thrombolites).

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Punta del Santo Dacites

An upwelling of dacites with abundant amphibole at the end of the road which is also located in a spectacular natural viewpoint over the Algarrobico and Carbonaras Beach

