

CENTRE D'INTERPRETACIÓ
DEL CAP DE CAVALLERIA
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CONSELL INSULAR
DE MENORCA



AJUNTAMENT
DES MERCADAL



PROYECTO
leader
ISLA DE MENORCA



Ports de Balears

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Cap de Cavalleria, a land scarred by the buffeting of wind and battering of waves; a lighthouse, the oldest in Menorca, 15 metres in height and standing no less than 94 metres above sea level. And here, in this most imposing landscape, is the Centre d'Interpretació del Cap de Cavalleria interpretation centre, which brings us up close to the island's uniqueness, its rich natural environment, geology and history, and provides us with the keys to understanding why we find ourselves in a biosphere reserve.

"Cap de Cavalleria, The Very North" is a space for interpretation promoted by the Town Hall of Es Mercadal with the support of Ports de Balears, the Consell Insular de Menorca and financing from the Leader Project of the European Commission.

The opening of this space has resulted in the recovery of the interior of the Cavalleria lighthouse for public visitation, with a project by the architect Jesús Cardona. The idea and the content of the Centre were designed by the Menorcan studio Mediterraneum, cultura, turisme i medi ambient, s.l.

The Centre's goal, as well as that of this publication, is to make the basic aspects that define this most singular location that is Cavalleria, readily available for both Menorcan residents as well as visitors; both from a geological point of view as well as that of biodiversity or history. A brief but intense journey through one of the most emblematic landscapes of all of Menorca and an explanation of the ins and outs of the oldest lighthouse on the island. Welcome to the very north!

CAP DE CAVALLERIA

THE VERY NORTH



MENORCA
BIOSPHERE RESERVE



Mediterraneum, cultura, turisme i medi ambient, s.l.

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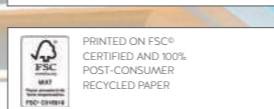
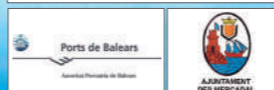
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ALSO IN THIS COLLECTION

00. *Menorca, the Biosphere
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01. *Geology of Menorca*
02. *Cap de Cavalleria:
the very north*



CAP DE CAVALLERIA THE VERY NORTH

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THE NORTH AND THE SOUTH, TWO ISLANDS IN ONE



STORM ON THE NORTHERN COAST

Menorca is divided into two large geological areas. Migjorn, the southern region, is of relatively flat terrain and predominated by Miocene sandstone, or *marès*. The area is marked by its slicing ravines, authentic natural gardens, and is home to the island's most important water reserves. Tramuntana, the northern region, is far more rough and rugged, made up of more ancient materials that have undergone greater alterations. The geological composition, the harsh northern wind and extreme salinity make for very challenging environmental conditions in this area, especially near the coastline.



THE NORTHERN COAST IS HOME TO THE OLDEST ROCKS ON THE ISLAND © Agustí Rodríguez



MACARELLA, ON THE SOUTHERN COAST © Antoni Cutiller

The oldest materials found on the island, which are also the oldest in all of the Balearic Islands, can be found between Tirant and Macar Gran, and were formed 410 million years ago.

The southern coves are rounded in shape, with fine white sand, while the northern coast has more jagged coves, darker in colour, with larger grains of sand.

GEOLOGICAL AREAS

THE DARK MENORCA

The oldest rocks, formed around 300 million years ago at great sea depths, occupy virtually half of the Tramuntana region.

THE RED MENORCA

Sedimentary rocks on dry land caused by the effects of great rivers approximately 250 million years ago. They make up a large portion of the remaining half of the island's north.

THE GREY MENORCA

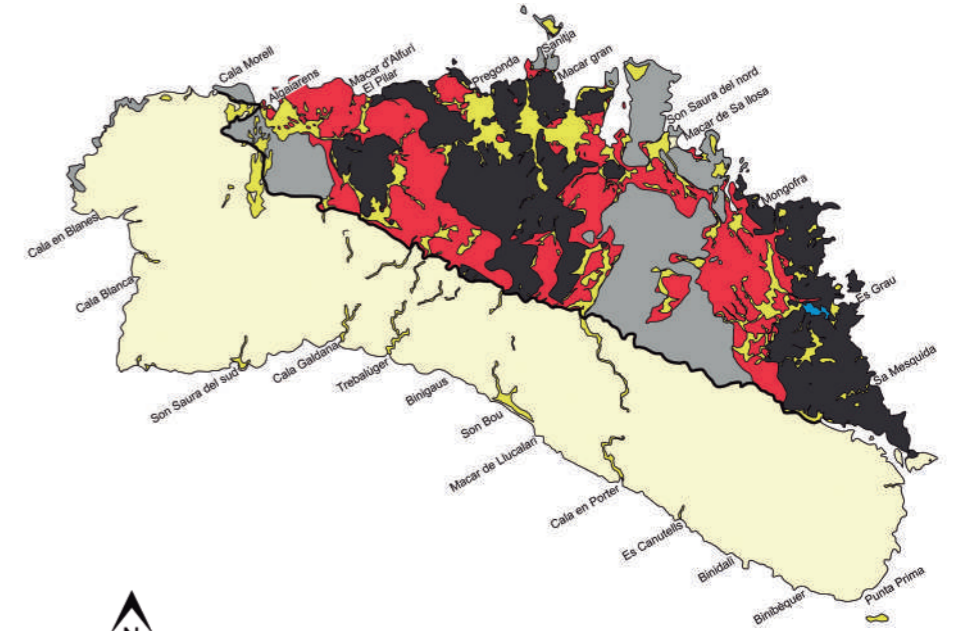
The remaining rocks of the Tramuntana region were deposited between 240 and 110 million years ago, primarily in shallow, calm seawaters.

THE WHITE MENORCA

The most characteristic rock on the island, *marès*, covers the island's southern half. This sandstone type rock was created around 11 million years ago due to the accumulation of skeletal remains of sea organisms mixed with grains of quartz and other rock fragments.

QUATERNARY

The last of the geological periods, with rocks formed starting 2.5 million years ago. In Menorca, these are found primarily as fossil dunes.



© Centre de Geologia de Menorca

THE *TRAMUNTANA*: THE NORTHERN WIND

This dry, cold and strong wind is one of the most notorious in the western Mediterranean. In Menorca, it blows an average of 165 days per year, with approximately thirty days with forces of over 100 km/h. The northern coast is the best place to witness the effects these winds have on the island: dry soil, storms, shipwrecks, plants adapted to wind and salinity, trees slanted toward the south, and more.

The vegetation on the northern coast is scant, but there are plants like the *socarrells*, cushion-like thorn bushes endemic to Menorca and Mallorca, which have adapted to the wind and salt.

Wind erosion shapes the vegetation and the rocks, even the hardest of them. In Menorca, the *tramuntana* blows with extreme force thanks to the absence of obstacles.

The salt carried by the *tramuntana* winds dehydrates and kills the parts of trees openly exposed to the north, causing growth towards the south.



SOCARRELLS © Pere Fraga



CALA ROJA



WILD OLIVE (*Olea europaea*)

NATURAL DIVERSITY



MOSAIC LANDSCAPES ARE TYPICAL OF THE MENORCAN COUNTRYSIDE



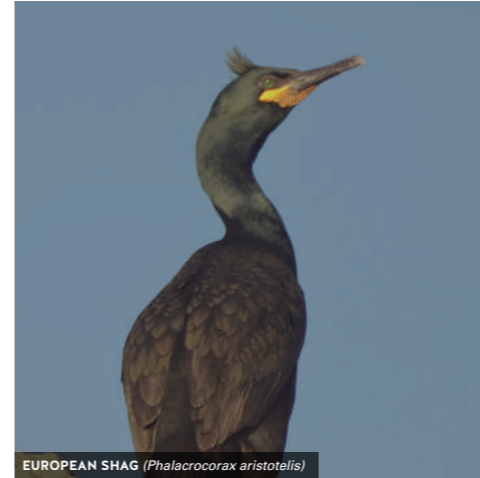
HERMANN'S TORTOISE (*Testudo hermanni*)



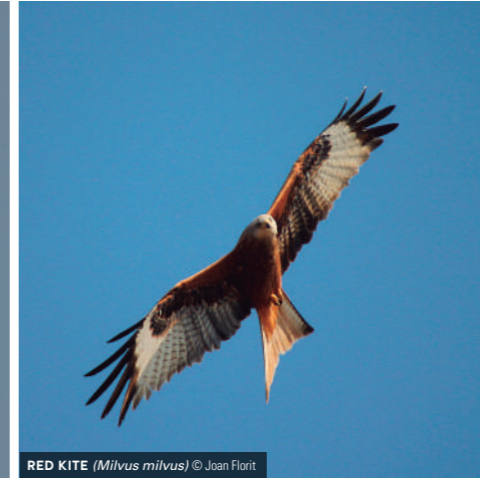
SOCARRELL (*Lauaetum cervicornis*)



LILFORD'S WALL LIZARD (*Podarcis lilfordi*)



EUROPEAN SHAG (*Phalacrocorax aristotelis*)



RED KITE (*Milvus milvus*) © Jean Florit



BALEARIC SHEARWATER (*Puffinus mauretanicus*)

Its insularity, climatic conditions, relatively low impact from tourism, absence of highly polluting large industry and goals involving sustainable development explain such an elevated level of biodiversity in an area that covers less than 700 km².

LAND BIODIVERSITY

One of the most important characteristics of the island's land biodiversity are its endemisms, species that are only found in a singular limited geographical area. There are 83 species of endemic plants and 109 species of endemic invertebrates in Menorca. Among the vertebrates, we find the Lilford's Wall Lizard (*Podarcis lilfordi*), an evolutionary prodigy that has diversified on each of the islets that surround Menorca.

The Hermann's tortoise is a highly abundant species on the island, while quite rare on a national level. They can be found living in virtually any part on the island.

The island is home to several species of socarrells, cushion-like thorn bushes well adapted to the harsh coastal conditions.

In Menorca, there are 18 Lilford's Wall Lizard populations, all of which are found on the small islets that surround Menorca.

BIRD BIODIVERSITY

The biodiversity of birds is extremely high in Menorca, with over 300 identified species. Birds of prey are a highlight, and include the endangered red kite, osprey, Egyptian vulture and peregrine falcon. Sea birds form another ornithological group with unique singular species, like the endangered Balearic shearwater, European shag, Cory's shearwater or Audouin's gull. The presence of coastal lagoons and other wetland areas allows for a significant population of birds adapted to these ecosystems, like ducks, pochards, cattle egrets or other species of egrets and herons.

Common to the island's coastal areas, the European shag can be easily observed. Adult birds are completely black and have a crest on their heads during mating season, while younger specimens have lighter coloured abdomens.

A species that is in danger of extinction, the red kite is slowly recovering from a state that nearly led to its disappearance.

The Balearic shearwater, endemic to the Balearic Islands, is one of the most threatened European birds that still breeds in Menorca.



RED CORAL (*Corallium rubrum*)



SPINY LOBSTER (*Palinurus elephas*)



COMMON OCTOPUS (*Octopus vulgaris*)

MARINE BIODIVERSITY

Located in the middle of the Mediterranean Sea, it is not surprising that the island is home to areas that would thrill any enthusiast of sea life. Some highlights include the substantial communities of *Posidonia oceanica* or Neptune grass, a plant that has adapted to living in the sea and provides shelter to a great many species that live and reproduce up to depths of 35 metres.

Red coral is a species that, although somewhat rare, is abundant in some locations around the island's coast. Its capture is strictly forbidden in Menorca's internal waters, although with special permits it can be collected in specific areas of external waters in the north of the island.

The spiny lobster is certainly known as one of the island's gastronomic delicacies, and most of the professional fishing fleet engages in its capture and sale.

A master of camouflage, even at the shallower depths that it calls home, the common octopus can be spotted quite easily around coastal rocks. Generally brown in colour, although they can alter their skin colour and texture depending on its surroundings.



SADDLED SEABREAM (*Oblada melanura*) © Joana Mendes

A QUESTION OF GEOGRAPHY



CAVALLERIA, THE VERY NORTH

Menorca has a highly strategic position in the Mediterranean Sea. For this reason, it has been part of both maritime and commercial routes since prehistoric times.

THE PORT OF SANITJA

Sanitja is the most sheltered area on the northern coast. The inlet that forms the harbour is 700 m long and 120 m wide, and is only around 6 metres deep. In Roman times, one of the three Menorcan cities of the era was built here: Sanisera, which covered an area of 6 hectares. At present, it is a fishing port that maintains its excellent patrimonial wealth, and is hence object of numerous archaeological excavations, both on land as well as below the surface of the sea. It is part of the northern marine reserve, which restricts fishing activity.



At the archaeological excavations of Sanisera, fragments of ceramics from different cities around the Mediterranean have been discovered, which is further evidence of the level of this port's importance with regard to commercial trade routes during Roman times.

- | | |
|------------------|--------------------|
| 01 Ebusus | 05 Carthage |
| 02 Tarraco | 06 Neapoli |
| 03 Carthago Nova | 07 Roma |
| 04 Tingi | 08 Syria Palestina |

Since 2004, work has been carried out to find further subaquatic remains. To date, a total of 18 shipwrecks have been discovered.

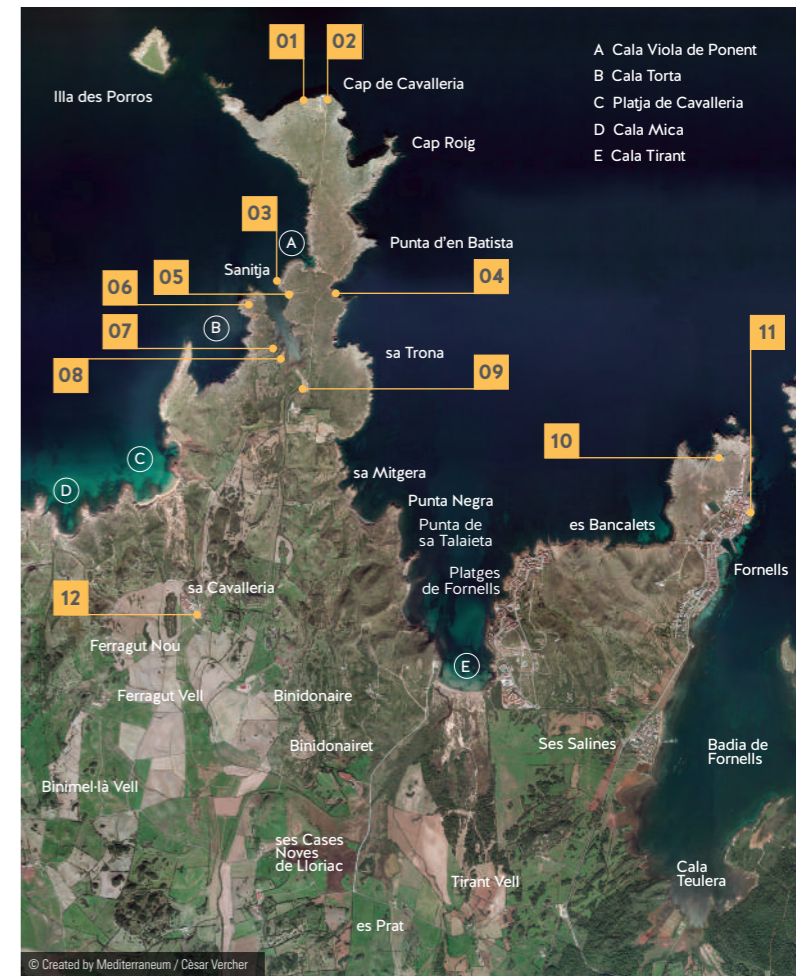
On dry land, highlights include the remains of the Roman city of Sanisera, those of a Roman military encampment, those of a palaeochristian basilica, and others that have been interpreted as a Muslim mosque and a defence tower of the 19th century.

HISTORICAL SITES

- 01 Artillery, bunker and munitions dump. Spanish civil war (1936-1939)
- 02 Cavalleria lighthouse (1857)
- 03 Bunker from the Spanish civil war (1936-1939)
- 04 Bunker from the Spanish civil war (1936-1939)
- 05 S'Almadrava (18th century)
- 06 Sanitja tower (1800-1802)
- 07 Roman city of Sanisera (1st century B.C. - 7th century A.D.)
- 08 Paleochristian basilica
- 09 Roman military encampment (123-45 B.C.)
- 10 Fornells tower (1801-1802)
- 11 Sant Antoni fortress (17th century)
- 12 Cavalleria tower (medieval period)



SANITJA



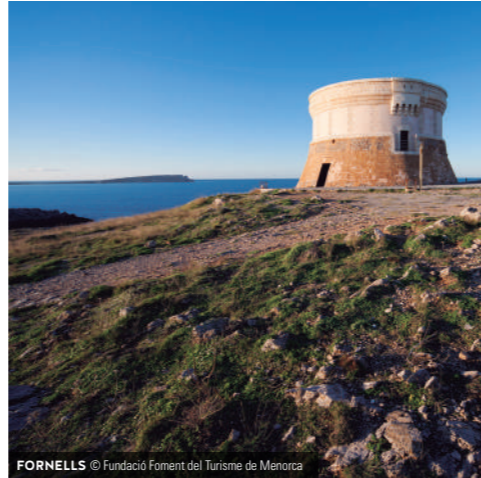
- A Cala Viola de Ponent
- B Cala Torta
- C Platja de Cavalleria
- D Cala Mica
- E Cala Tirant



SANT NICOLAU © Antoni Cutiller



SANITJA © Fundació Foment del Turisme de Menorca



FORNELLS © Fundació Foment del Turisme de Menorca



SA MESQUIDA © Fundació Foment del Turisme de Menorca



ALCALFAR © Antoni Cutiller



TORRE D'EN PENJAT

THE ISLAND'S DEFENCE

Throughout history, Menorca has suffered numerous invasions and dominations due precisely to its highly strategic position. The cultural and patrimonial legacy of such contact with other cultures is extensive. The defence towers, built between 1795 and 1802, during the third period of British rule, are an excellent example. These towers constituted a defensive system that helped keep the entire coastline under control, hence preventing enemy squadrons from anchoring near the island. They are substantially more robust than the towers built during earlier periods, like the medieval watchtowers.

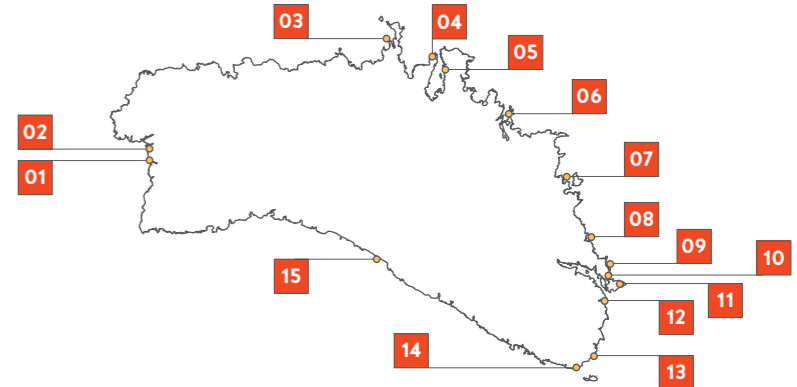
From any given defence tower, at least two others were visible, and warnings of danger were transmitted using smoke during daylight hours and fire at night.

The defence towers were up to three storeys high and housed garrisons of up to 15 soldiers. The entry way was normally placed on the upper level and access could only be achieved by means of a ladder that was pulled up in case of attack. On the same level as the entryway, there was an upper artillery platform.

The towers and Sanitja and Fornells were components of this defence system. The Fornells tower is the most well conserved example on the island and is open for visitation during the tourist season.

DEFENCE TOWERS

- | | |
|----------------------------|------------------------|
| 01 es Castellar | 08 sa Mesquida |
| 02 Castell de Sant Nicolau | 09 la Mola |
| 03 Sanitja | 10 Sant Felipet |
| 04 Fornells | 11 Cala Teulera |
| 05 Illa de ses Sargantanes | 12 d'en Penjat |
| 06 Addaia | 13 Alcalfar |
| 07 de Rambla | 14 Son Ganxo |
| | 15 Son Bou (destroyed) |



LAND AND SEA, SOURCES OF WEALTH

THE SEA IS A PILLAR OF THE ISLAND'S ECONOMIC ACTIVITY

Menorca is a relative newcomer to the tourist industry in the Balearic Islands. This is due to the importance placed on the utilisation of local natural resources, from agricultural and stockbreeding activity to the leather trade, and includes fishing and salt extraction or sand extraction from the dunes. In the area around the cape of Cavalleria, the harvesting of wild chamomile has also been of substantial importance, although at present the collection of this plant is restricted due to its protected status.

RURAL PROFESSIONS

Although the direct economic impact from agricultural activity has declined significantly, still today virtually half of the island's territory is used for cultivation and pasture, and rural professions play a fundamental role in landscape conservation and resource management. In Menorca, agricultural holdings are known as *llocs*. These farms have traditionally engaged in cultivation of grains and forage, or to livestock. Livestock farming is carried out without the need of a shepherd thanks to the division of fields using dry stone walls, which are erected without any type of mortar.



FISHING

The fishing industry, which has been revitalised of recent thanks to gastro-tourism, revolves primarily around the fishing associations in Ciutadella, Maó and Fornells. These are primarily small family-run enterprises whose product is sold mostly on a local level. Their catch comes from the coastline up to a distance of 8 nautical miles, using nets or trawl lines. The most frequently captured species include lobsters, striped red mullets, cuttlefish, dusky groupers, common dentex and common seabreams.

S'Almadrava

The earliest fishing industry in Menorca was established in the port of Sanitja in the 18th century. Its activity was focused primarily around tuna fishing using the *almadrava* tuna trapping technique, placing several nets in the tunas' trajectory. This venture was unsuccessful and was shut down only a few years later.

S'Almadrava, known also as "Sa Caseta de Sanitja", is currently a shelter for fisherman.

The Menorcan *llaüt*, the traditional fishing boat on the island, is robust and stable, even in adverse weather conditions.

Fornells has always been a fishing port. Of recent, the fishing industry shares prominence with tourism.





SIGNAGE MARKING THE CAMÍ DE CAVALLS TRAIL



HIKING, A YEAR ROUND ACTIVITY © Fundació Foment del Turisme de Menorca



CALA PREGONDA



CALA TURQUETA

TOURISM

Tourism has become the true economic pillar of Menorca. The island offers everything from urbanised beaches with all services imaginable to a variety of outdoor activities in totally unspoilt surroundings. The area around the cape of Cavalleria is one of the most visited on the entire northern coast.

The *Camí de Cavalls* trail is a historic route that follows the entire Menorcan coastline. Its 185 km can be explored on foot, by bike or on horseback.

Hiking is a great way to get up close to the rich nature and landscapes that have contributed to Menorca's most deserved declaration as a biosphere reserve.

The clear identity of the north's untamed, virgin beaches provides stiff competition for the beauty of the south's white sand coves.



CALA GALDANA © Antoni Cutiller

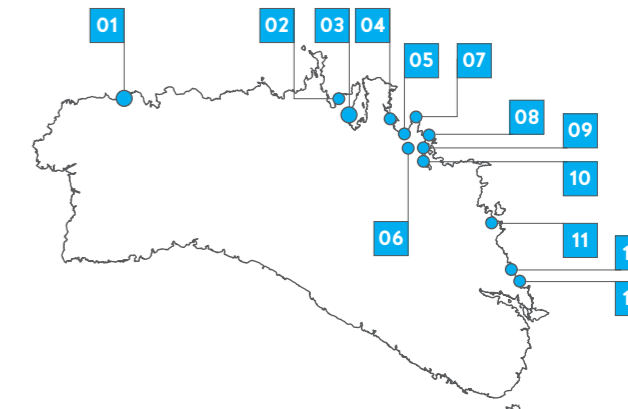


BINIBÈQUER VELL

The full service beaches around tourism developments, like Cala Galdana, in Ferreries, are highly attractive for families.

The town centre of Binibèquer, in Sant Lluís, was built in 1972 expressly for tourism.

Over recent years, gastronomy and active tourism have gained ground on tourism of simply sun and sand.



NORTHERN TOURIST DEVELOPMENTS

- | | | |
|------------------------|------------------|----------------|
| 01 Cala Morell | 06 Coves Noves | 11 Es Grau |
| 02 Platges de Fornells | 07 Punta Grossa | 12 Sa Mesquida |
| 03 Ses Salines | 08 Na Macaret | 13 Es Murtar |
| 04 Son Parc | 09 Cala Molí | |
| 05 Arenal d'en Castell | 10 Port d'Addaia | |

Development of the northern coast

Historically, the Tramuntana region has been relatively unpopulated due to its harsh climatic conditions. Developed areas have been built around bays and coves, with the western half even less populated. Although today there are

several residential areas, there is only one with a stable population, Fornells, which was originally built around the Sant Antoni fortress. As is the case in all of Menorca, the town triples in population during the summer.

THE FAR DE CAVALLERIA LIGHTHOUSE



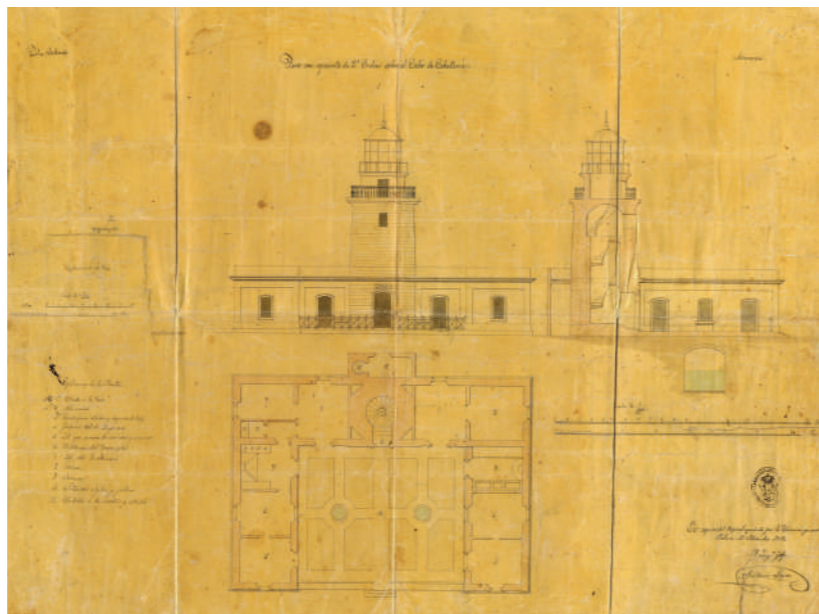
THE STAIRCASE OF THE FAR DE CAVALLERIA LIGHTHOUSE © Lluís C. Catchot

A PERILOUS COASTLINE: SHIPWRECKS

Menorca's northern coast is especially hazardous. The violent *tramuntana* wind, the cliffs and the shoals are the principal culprits. From the 14th century until the construction of the lighthouse, there were approximately 700 shipwrecks.

THE LIGHTHOUSE

The lighthouse at Cavalleria was inaugurated on March 1st, 1857, and is the oldest in Menorca. It was the first of the lighthouses on the northern coast and its construction resulted in a considerable reduction in the number of shipwrecks. As with all lighthouses, its physical appearance and light signal are unique, hence allowing for easy identification both during the day and at night by any sailor.



The circular structure preserved around the building is the lighthouse's old dome. It was replaced by the existing lantern in 1989. Unfortunately the bronze upper portion was stolen.

The original plans of the Cavalleria lighthouse building, designed by the engineer Antonio López y Montalvo.



CURRENT VIEW OF THE TOWER AND THE DWELLING © Joan Mercadal

TECHNICAL DATE OF THE FAR DE CAVALLERIA LIGHTHOUSE

NOMINAL RANGE

26 nautical miles, or 48,152 metres

HEIGHT ABOVE SEA LEVEL

94 metres

LIGHT PATTERN

A set of 2 flashes every 10 seconds

DAYTIME APPEARANCE

White tower and house, Height 15m

LOCATION

Latitude N 40° 5,337'

Longitude E 4° 5,534'

at the point of the cape of Cavalleria

ORDER

Second. The importance of each lighthouse was historically determined with a classification ranging from first order (the most important) to sixth order.

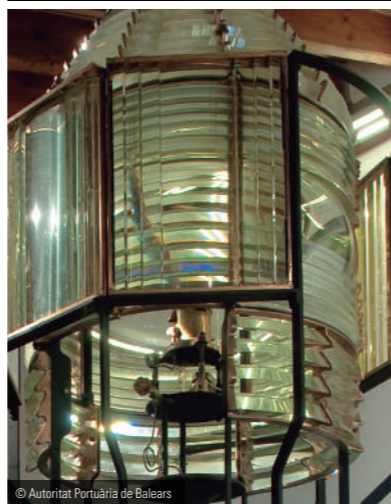
LIGHT SOURCES

Lighthouse lighting has undergone a significant technological evolution. Fuel sources have included olive oil, mineral oil, petrol, acetylene gas and, finally, more modern systems as are electrical and solar energy. In the early 19th century, their visible range increased considerably thanks to the optic system invented by Fresnel, which utilised a series of glass prisms that intensified the light allowing it to be concentrated in a specific point.

The base of the Cavalleria lighthouse is 80 m above sea level. The lens is located 14.35 metres above the ground; hence the lighthouse shines from a total height of 94.35 metres above sea level.

The lamps have also evolved greatly over recent years. The current lamp is a 150-watt halogen that receives energy from solar panels and batteries.

The current lens of the Cavalleria lighthouse is the same one that was installed in 1922.



THE TOWER OF THE FAR DE CAVALLERIA LIGHTHOUSE © Joan Mercadal





FAVÀRITX



PUNTA NATI



ARTRUTX



ILLA DE L'AIRE ISLET

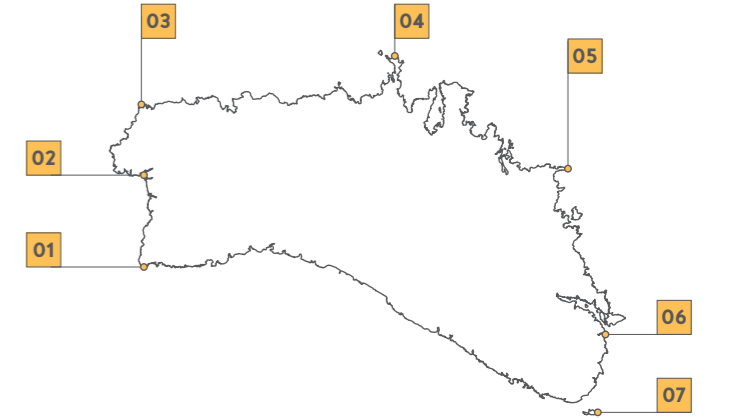
THE ISLE OF THE SEVEN LIGHTHOUSES

Despite the improvement that resulted from the installation of the Cavalleria lighthouse, there continued to be further important shipwrecks, which led to the construction of the lighthouses of Favàritx and Punta Nati, both designed by Mauro Serrat. Favàritx was opened in 1922 and is the first lighthouse with a concrete tower in the Balearic Islands. The Punta Nati lighthouse was erected in just 14 months and was inaugurated in 1914, although the building was still under construction for several more months. Around the lighthouse there is a blowhole which,

during storms with prevailing northern winds, sprays columns of water that have caused serious problems regarding lighthouse maintenance over the years. At present there are seven lighthouses in Menorca. With the exception of Favàritx and Punta Nati, all were built in the mid-19th century. The first was in Maó (Sant Carles), in 1852, but had to be demolished as it conflicted with the military's artillery drills in the area. It was replaced by a transportable beacon placed on a metallic davit upon a cliff.

LIGHTHOUSES

- | | |
|-----------------------|-------------------------|
| 01 Cap d'Artrutx | 05 Favàritx |
| 02 Punta de sa Farola | 06 Punta de Sant Carles |
| 03 Punta Nati | 07 Illa de l'Aire |
| 04 Cavalleria | |



LIGHTHOUSE KEEPERS

Lighthouses must be in permanent operation and any malfunctions must be resolved quickly. Historically, this was only possible if each lighthouse had two lighthouse keepers living on the premises, taking turns to keep a watchful eye on the lighthouse day and night. Timing mechanisms required periodic winding and the oil pressure had to be continually adjusted to maintain necessary levels. Currently, however, they are operated automatically and monitored remotely.

LIGHTHOUSES, CULTURAL SITES

In addition to preventing shipwrecks, lighthouses have served as genuine sources of life and culture. The lighthouse keepers, along with their families who lived on premises, played important roles in educational and cultural development of the environment. Two examples are the creation of a library at the Cavalleria lighthouse, when the government of the Second Spanish Republic (1931-1939) established a plan for literacy and education to reach isolated areas, and the fact that lighthouse keepers worked as teachers for local children who could not get to the nearest schools.

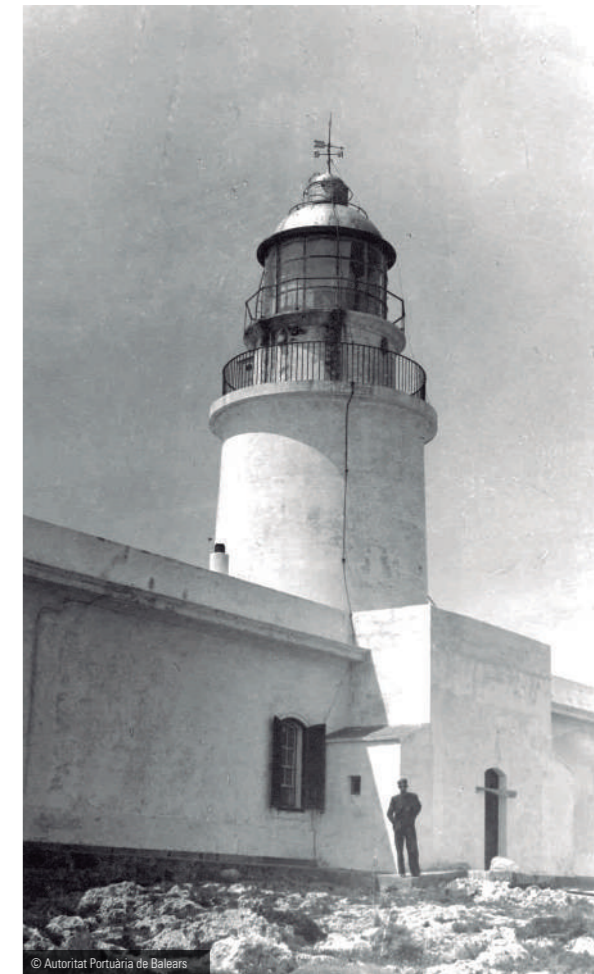
Bernat Coll was the lighthouse keeper at Cavalleria for 40 years. He lived on site with his wife, Victòria Pons, and their children until 1995. The last lighthouse keeper to live there was José Barthelemy, who lived at the lighthouse with his wife Soqui Rojo and their children until 1998.

Many children of lighthouse keepers were raised in lighthouses. Currently, as a result of automation of the machinery, most are now uninhabited.



Few older images of the Cavalleria lighthouse remain. In the photo above, from the 1940s, we can see the fence that restricted access to the patio.

Thanks to archived images, we can observe the old lantern, or glass enclosure that protected the lens.



PLANNING FOR SUSTAINABILITY



THE ALBUFERA DES GRAU LAGOON © Joan Mercadal

MENORCA, BIOSPHERE RESERVE

UNESCO declared Menorca a biosphere reserve in the year 1993. The island hence became part of a global network that now includes 660 reserves located in 120 countries. This is recognition of the balance achieved between human activity, consumption of resources and the conservation of both cultural and natural heritage; or in other words, recognition of Menorca's goals for sustainability, which strive for balance between the development of the resident society and the preservation of the environment.

The core area of the reserve is the Parc Natural de S'Albufera des Grau, on the northeast coast, which covers a total of 5,000 hectares (on both land and sea) between the cape of Favàritx, the Es Grau coastal lagoon and the Illa d'en Colom islet. Declared a natural park in 1995, it takes the name of S'Albufera des Grau, the most extensive wetland area in Menorca.



ALBUFERA DES GRAU

BIOSPHERE RESERVE ZONES

CORE AREA

Made up of highly undisturbed ecosystems characteristic of a determined region. Under legal protection. Only activities that do not destroy biodiversity are permitted.

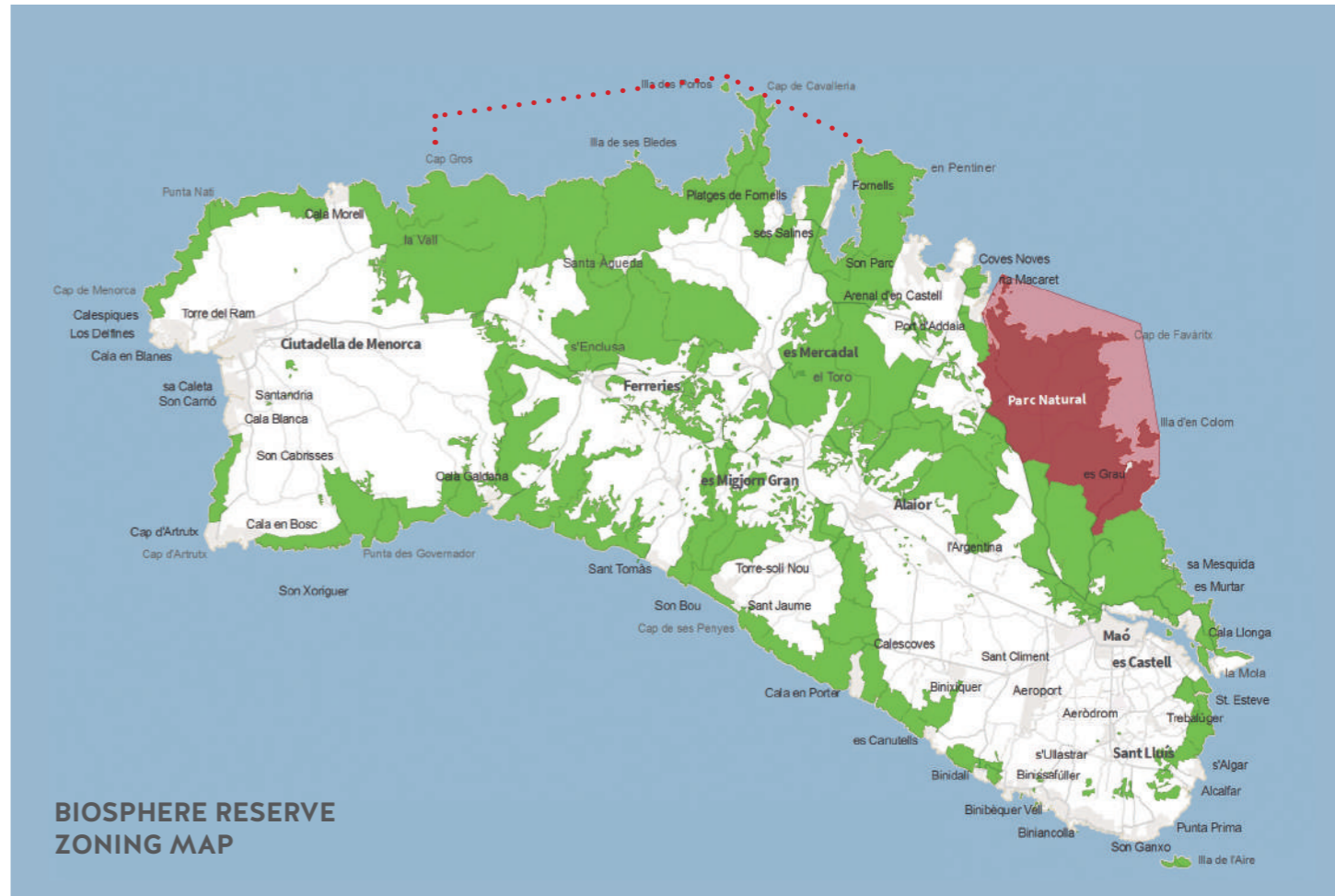
BUFFER ZONE

Areas in which only activities that contribute to the conservation of the reserve's goals are permitted. Models that respond to traditional practices and uses are applied.

TRANSITION AREA

Areas that are unprotected in which objectives for sustainability of the reserve adapt to the necessities of the local community to allow for socio-economic development. These areas are home to the larger population centres.

NORTHERN MARINE RESERVE



BIOSPHERE RESERVE ZONING MAP

NORTHERN MARINE RESERVE

The marine reserve in the north was established in 1999 with two goals; to protect the Menorcan coastline and conserve the species that call it home, while also as a tool for management of the fishing industry. It encompasses the waters found between Cap Gros cape, Illa des Porros islet and Punta des Morter point. This area is home to a great diversity of habitats, hence explaining the need for protection, which also includes restrictions on anchoring. Since its establishment, a gradual increase in number and size of the species that occupy the area has been observed.

NATURA 2000 NETWORK

Natura 2000 is a network of protected sites for the conservation of biodiversity. It includes Special Areas of Conservation (SAC), Sites of Community Importance (SCI) and Special Protection Areas for Birds (SPAB). This ecological network aims to guarantee the long term survival of European species and habitats, in addition to contributing to stopping the loss of biodiversity. It serves as the principal instrument for the conservation of the natural environment in the European Union.



POSIDONIA SEAGRASS IS A PLANT OF HIGH ECOLOGICAL VALUE © Fundació Foment del Turisme de Menorca

From among the elevated diversity of flora and fauna in the marine reserve, we find the extensive prairies of *Posidonia oceanica*. This plant assures the sea's good health, the creation of sand and its agglutination on the sea floor and beaches.

38% of Menorcan territory is part of the Natura 2000 network and in the Balearic Islands, the network covers an area of 222,424 ha on land and at sea.



BAY OF FORNELLS