



Enjoy, it's a Museum





Photo: Roberto Tolin

## MUJA, an EMBLEMATIC building

The Jurassic Museum of Asturias (MUJA), which belongs to the network of public museums of the Principado de Asturias, is a singular building in the shape of the three-toed dinosaur footprint, which houses a complete and didactic exhibition on the world of these fascinating reptiles and on the JURASSIC PERIOD IN ASTURIAS.

## The dinosaur coast

Built on the coastal area of San Telmo, between the towns of Colunga and Lastres, the MUJA is located at a strategic point on the so-called "Dinosaur Coast". This section of the Asturian coastline between Gijón and Ribadesella has preserved vestiges of extinct beings that inhabited our region about 154 million years ago, in the late Jurassic period.

Along this section of the coastline, declared a Natural Monument by the Government of the Principado de Asturias, as many as nine dinosaur icnite sites can be visited.





## The MUJA permanent exhibition

The building includes three large areas, each dedicated to one of the geological periods that form part of the MESOZOIC: **TRIASSIC**, **JURASSIC** and **CRETACEOUS**.

The exhibition offers ample information on different aspects concerning the lives of dinosaurs, a particular group of land reptiles that appeared approximately 230 million years ago and mostly became extinct 66 million years ago.

The collection is completed by three more sections: one dedicated to explaining some general aspects of geology and palaeontology and the other two on the geological history of the Jurassic of Asturias and its fossil sites.



TRIASSIC Area



JURASSIC Area



CRETACEOUS Area



Level 0

## PRE-MESOZOIC Area

This area introduces the period that elapsed since the Earth was formed, about 4,600 million years ago, to the end of the Palaeozoic era, about 252 million years ago.

The intention in this area is to help visitors understand several concepts that are outside their daily environment, such as the magnitude of geological time, the dynamics of the continents, and the evolution of organisms by viewing their fossils, the first organisms that inhabited the Earth, and a classification of vertebrates and their relationships.

Life commenced on Earth about 3,500 million years ago; since then, our planet has suffered important physical and climatic changes that favoured certain organisms, allowing them to develop and diversify, while others were affected adversely, which led them, in many cases, to become extinct.

The extinction that took place at the end of the Paleozoic was the most important in the Earth history, since 96% of organisms disappeared.



## TRIASSIC Area

The TRIASSIC, which covers the period from 252 to 201 million years ago, is the period when dinosaurs appeared. This area exhibits the biology of these fabulous reptiles, which has not only been reconstructed from their bones, but also from fossil tracks or icnites, gastroliths (stones that some dinosaurs swallowed to help crush the food in their stomachs), coproliths or fossilised excrements, eggs and nests.

Furthermore, the intention is for visitors to be able to distinguish a dinosaur from other reptiles, by means of a number of features (evolutionary innovations) that do not appear in their nearest relations.

As characteristic examples of this period, we have chosen the most ancient, best known and largest dinosaurs which existed in Europe throughout this period, the **Plateosaurus**.

Another part of the Area is dedicated to the Montral-Alcover sites, located in the Prades Mountain Range (Tarragona).

On one of the walls of the perimeter ramp, there are several portraits of prestigious investigators related with the world of dinosaurs.



Level 1



Photo: Juanjo Arrojo

## JURASSIC Area

The JURASSIC is the intermediate period of the Mesozoic, between 201 and 145 million years ago; the last third of which is considered to be one of the most splendorous eras for dinosaurs, especially for large sauropods.

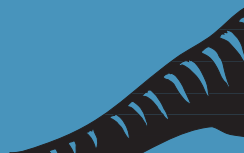
The basic information that visitors should obtain in this area is based on the classification and on the relationships between these singular reptiles represented on a cladogram, as well as the definition of the most characteristic features of the main groups.

In the area dedicated to sauropods, several anatomical aspects are highlighted, such as weight, position of the neck, arm muscles, circulatory system and relative skull size.

The area dedicated to theropods focuses on dinosaurs' offensive elements, mainly teeth and claws.

The exhibition dedicated to ornithopods centres on the morphological features that are most related to their vegetarian diet: toothless snout, batteries of crushing teeth, moveable skull bones, development of cheeks and hooves.

The area dedicated to thyreophora displays the main defensive elements that this group of dinosaurs used to protect themselves from predators: osseous shields, spikes, club-like tails, etc.



The central part of the area is occupied by the skeleton of a **Camarasaurus**, a large sauropod dinosaur, frequently found in sites in the centre and west of the United States. Surrounding it, on a large curved panel, is a reproduction of its aspect when alive and of the ecosystem it formed part of.

The wall of the ramp that surrounds the central area offers a section dedicated to the famous Holzmaden Sites in Germany. It includes a rear-lighted panel that reproduces the ecosystem of Jurassic marine vertebrates, among which we can find large reptiles such as ictiosaurs and plesiosaurs, crocodiles and fish. An adjacent cabinet displays replicas of the skeletons of an ictiosaur (a fish-like reptile similar to a dolphin) and of a Sea Lilly or crinoidea.

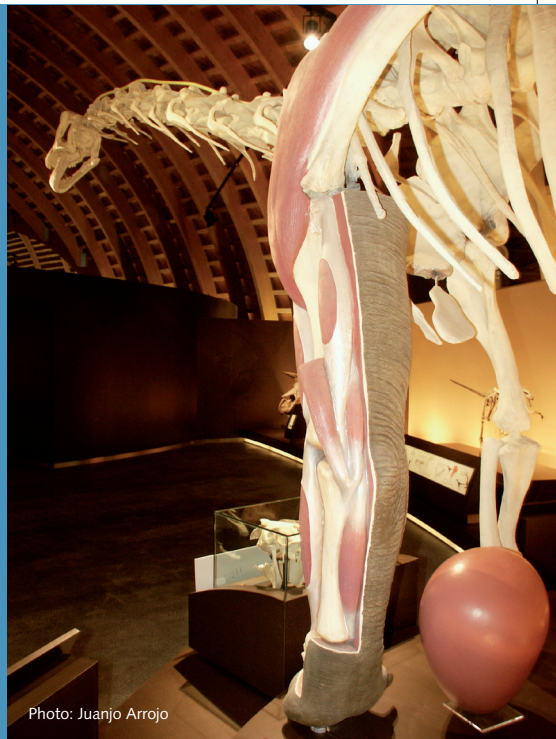


Photo: Juanjo Arrojo



Levels 0 and 1



Photo: Álvaro García-Ramos

## CRETACEUS Area

The CRETACEOUS, the last part of the Mesozoic, goes from 144 to 66 million years ago. In this area, visitors may obtain information on dinosaur behaviour; we know, for example, aspects about their reproduction (they laid eggs in nests) or about their social behaviour, as they presented diverse communication structures both at visual and sonorous levels, based on highly ornamented heads such as those of the Chasmosaurus and Parasaurolophus.



Levels 0 and 1

Here, we also deal with the issue concerning the extinction of most dinosaurs due to several events that took place towards the end of the CRETACEOUS: impact

of a meteorite, volcanic eruptions and intense geographical and climatic changes.

One of the exhibition areas is specifically dedicated to the transition between non-avian dinosaurs and birds. For some years now, these have been considered as a specialised group of theropods, a hypothesis based on the evolutionary similarities presented by **Archaeopteryx** (primitive bird) and certain dinosaurs, such as **Deinonychus** or **Dromaeosaurus**, the latter has been represented with feathers in the exhibition.

As representatives of this period, and occupying the central area of the room, we have selected a pair of **Tyrannosaurus rex**, one of the largest land predators in the history of our Planet, enacting what would have been a courtship ritual.

One of the side ramps displays the exceptional Las Hoyas site in Cuenca.





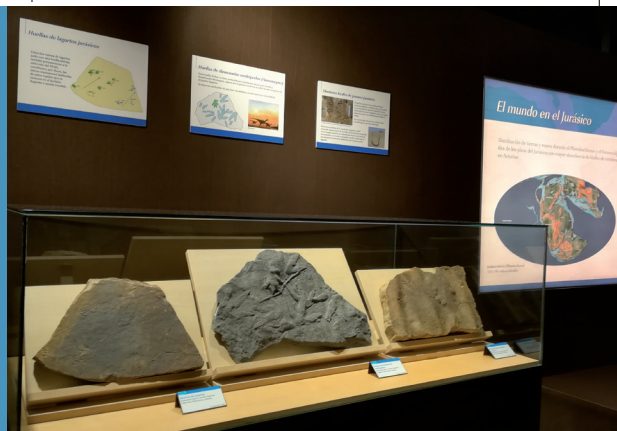
## Introduction to the ASTURIAN JURASSIC Area

The most spectacular outcrops with Jurassic rocks in the region extend practically continuously from Gijón to Ribadesella, in what is known as “The Dinosaur Coast.”

The rocks are separated into groups called formations. Their graphical representation, ordered vertically from oldest to most recent, is known as a stratigraphic column. Each Formation receives its name from the place or geographical feature closest to the place where these rocks show the best conditions for their study; in the case of the ASTURIAN JURASSIC, they would be Gijón, Rodiles, Vega, Tereñes and Lastres.

The distribution of lands and seas during the Lower and Upper Jurassic, as well as the location of Asturias at that time, can be observed in one of the backlit panels in this room. At the beginning of the Jurassic, the supercontinent Pangea started to separate and the first seaways between the North American and Eurasian continents opened up which were the beginnings of the current Atlantic Ocean.

The continuous palaeogeographical changes that took place in the region throughout the 56 million years that the JURASSIC lasted led to



the alternation of stages in which Asturias was covered by the sea, rich in fossils of invertebrates and sea reptiles, and others in which the retreat of the sea gave way to terrestrial and coastal ecosystems dominated by dinosaurs, crocodiles, turtles and fishes. At that time, the indisputable rulers of the sky were the flying reptiles (pterosaurs).

Did you know that the collection of dinosaur footprints in the MUJA is the best collection in Europe and the third worldwide in a museum? This is not only due to the excellent state of preservation of many of them, but also to their diversity and the high number of specimens collected. In this room, you can also contemplate several exceptional pieces from the Asturian Jurassic vertebrates (dinosaurs and other reptiles) as well as invertebrates.



Level 0

## ASTURIAN JURASSIC Area

In the initial visit to this room, the main rock varieties and fossils representative of the different environments which existed in Asturias during this period of the Mesozoic are shown. Many examples of invertebrates stand out here such as brittle stars, oil filled brachiopods, sponges, bivalves, ammonoids, etc. You can also contemplate rain drop impressions and different plant species.

The display cabinet dedicated to the fossils of Jurassic vertebrates exhibits a few of the footprints and skeletal remains that make up MUJA's resources (around 200 fossils are displayed); this collection constitutes the best and most complete fossil record from Spain for this period. The stegosaur footprints, some with skin impressions which are relatively scarce on a global scale, the footprints of flying reptiles or pterosaurs, a large ulna of 1.25m in length belonging to an giant sauropod as well as different stegosaur bones, several fish remains, the skeleton of a marine crocodile and the skull and shell of a turtle all particularly stand out. Also displayed in this cabinet is the reproduction of the trackway of a bipedal dinosaur in which some useful measurements are represented for recognising different aspects of the characteristics and behaviour of these fascinating reptiles.



In another space, the industrial application of some Jurassic materials is shown such as jet (fossilized wood), one of the most precious jewels in traditional Asturian culture, and the main varieties of Jurassic rocks that have been used in the region for centuries for the construction of buildings.

The location of the main dinosaur tracksites on "*The Dinosaur Coast*" can be seen in an aerial photograph set on a backlit panel.



Level 0

## REST area and TOILETS

Located on the BOTTOM FLOOR, they can be accessed by lift: level -1.

## TEMPORARY EXPOSITION hall

Is found in the basement floor of the MUJA, having an area of 300 square metres and allowing for different assembly possibilities.

## SHOP

Located on the GROUND FLOOR. It offers a wide range of thematic products; books, didactic material, gifts and crafts.

## Workshops for CHILDREN

Workshops and didactic activities are another possible visit for schools and families with children (request additional information at the museum reception desk).

## AUDITORIUM

A room with a capacity for ninety people, located on the GROUND FLOOR next to the Asturian Jurassic section.

## THE MUJA CAFÉ

Outside the Museum, under the viewpoint, is situated the *MUJA* Café, whose specialities are breakfasts and afternoon snacks with dinosaurs.

## THE GARDEN

Enjoy a walk amongst dinosaur from different geological periods on a 7,000 square metre garden.

Not only does it boast of a children's park and footprint casts, but it also has original dinosaur tracks recovered from Asturias.



## MUSEO DEL JURÁSICO DE ASTURIAS

Rasa de San Telmo. 33328 Colunga - Asturias

### MORE INFORMATION AND RESERVATIONS

[www.museojurasicoasturias.com](http://www.museojurasicoasturias.com)

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GOBIERNO DEL  
PRINCIPADO DE ASTURIAS

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