



URBAN FOSSILS

Villuercas-Ibores-Jara
UNESCO Global Geopark



**Andrey Nicolas
Campos Corredor**

Fossils in the villages

A distinctive feature in the architecture of the Villuercas-Ibores-Jara UNESCO Global Geopark are the pieces of rock with fossils used to decorate the facades of the houses composing exterior wainscots, fences, door and window frames, and other surfaces.

Most of these fossils are **ichnofossils**, that is, traces resulting from the activity of organisms. Unlike a regular fossil where the body of the organism is preserved, here only its trace is preserved. These traces are related to movement, feeding, predation or a state of rest.

The ichnofossils you will see were created by organisms that lived in a shallow sea approximately **475 million years ago** and have been preserved in very hard rocks rich in quartz.

Here you will learn to recognize the main ichnofossils present along the streets of the geopark. The photos correspond to real examples of what you will find if you look closely at the houses.

This work was carried out by Andrey Nicolas Campos Corredor with the supervision of Iván Cortijo Sánchez in the framework of the PANGAEA Erasmus Mundus Joint Master's Degree (Paleontology, Geoheritage and Applications) with funding through a scholarship, and the collaboration of the Diputación de Cáceres. Special thanks to Sören Jensen, the C.E.I.P. Fausto Maldonado (Cañamero) and the owners of the houses.

How did these fossils get here?



This journey begins
475 million years ago
(Lower-Middle Ordovician)

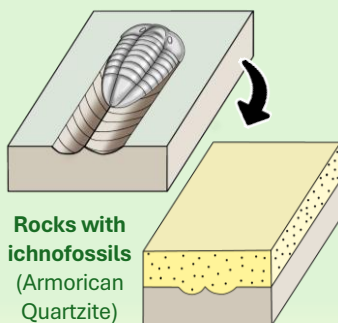
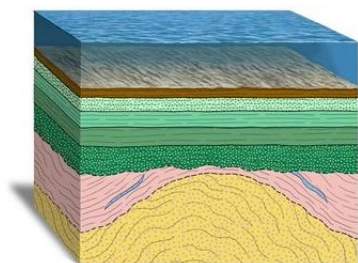


At that time, the territory of the Villuercas-Ibores-Jara UNESCO Global Geopark, together with the Iberian Peninsula, was located under the sea near the South Pole and was part of the ancient supercontinent Gondwana.

The environmental conditions were very different: **a shallow sea with cold waters and rich in nutrients**. On the sands of these ecosystems lived organisms such as gastropods (like snails), bivalves (like clams), marine worms and the now extinct **trilobites**, which generated tracks and galleries in the sediments. These marks that reflect the activity of these organisms are called **ichnofossils** and were recorded in a group of rocks called **Armorican Quartzite**. Today, it is possible to find these ichnofossils adorning the facades of houses and other surfaces in urban environments within the geopark.

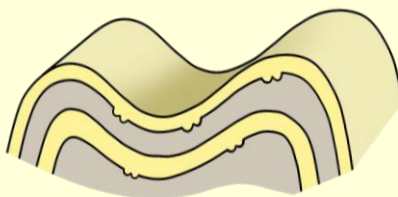
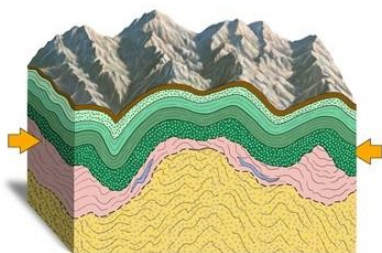


1 Formation Stage



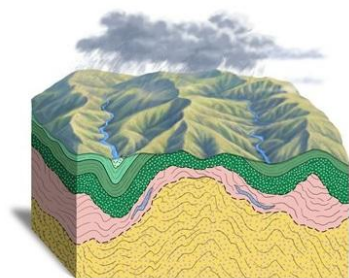
Trilobites were animals that moved on the sea floor and left traces or tracks known as **Cruziana**. These tracks were filled by sandy sediment (forming the mold), which was compacted giving rise to **sandstones and quartzites** (very hard rocks composed mainly of quartz). Subsequently, these rocks were buried by other rocks that were deposited on top of them.

2 Folding Stage

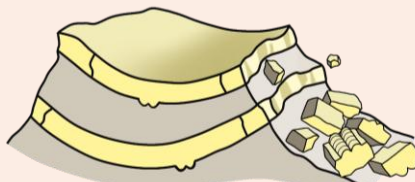


Altogether, these rocks were folded by compressional processes more than 280 million years ago, generating a mountainous relief.

3 Erosional Stage

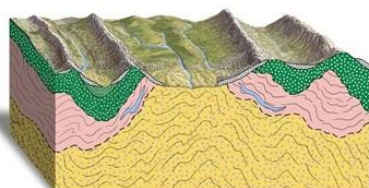


During the Mesozoic Era (251 to 66 million years ago), these rocks were eroded by the action of rivers and wind. Then they were again fractured and folded 30 million years ago, allowing the rocks with ichnofossils to be exposed at the surface.



The exposed layers with *Cruziana* casts were eroded and accumulated with other materials in the form of blocks and loose fragments on the mountain slopes. These accumulations are known as "*pedreras*" (talus).

4 Current Stage



Today, the highest parts of the geopark's mountain ranges correspond to these sandstones and quartzites, which are very easy to recognize because they stand out from the rest of the landscape. The characteristic **Appalachian-type relief** can be seen, consisting of a series of mountain ranges and valleys aligned in parallel.

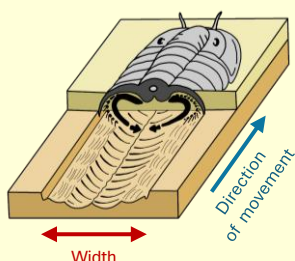
People have taken advantage of the accumulation of these rocks with impressive ichnofossils to decorate the facades of their houses giving a distinctive feature to the architecture of the region.

Urban fossils in the Villuercas-Ibores-Jara UNESCO Global Geopark

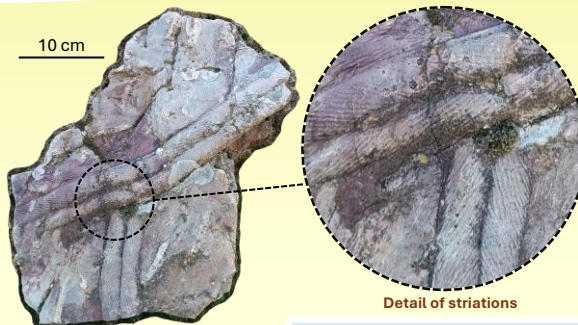


1 Cruziana

Cruziana is the most representative urban fossil of the geopark. They are fossilized traces left by **trilobites** and other arthropods as they moved along the marine sediment in search of food.



The marks or striations generated by the legs are "V" shaped and indicate the direction of movement of the organism. The open part of the V indicates the direction of displacement.

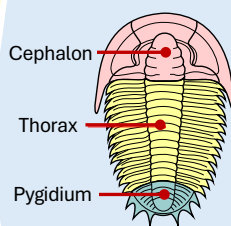


Av. de Extremadura, Navezuelas

It is recognized as a path with a central groove that divides two lobes with striations generated by the legs of the organism.

Trilobites moved between the sandy layers of the seafloor and left a trail that was then filled in by sediment forming the mold we see today.

Trilobites



were arthropods (like crabs) that had a body divided into three parts. They were one of the most successful living groups on the planet, being present for about 270 million years. They lived in the seas and became extinct about 250 million years ago.

Trilobites varied in size from the size of a fingernail up to 70 cm, depending on environmental conditions and species.

Did you know that they generated more than one type of ichnofossil?

2 Rusophycus

This ichnofossil is also produced by trilobites and is related to a resting state or hiding from predators. It is recognized because it has a coffee bean shape that narrows towards one end. It is usually divided into two lobes with striations.

Rusophycus makes it possible to determine more accurately the length of the organism.



Av. de Extremadura, Navezuelas



C. Martínez, Navezuelas

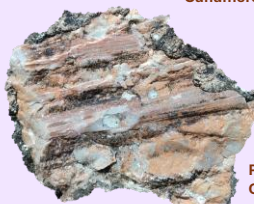
3 Daedalus

It is believed that these trace fossils were perhaps produced by worm-like organisms, which moved in circles under the sediment looking for food while forming complex spiral-shaped galleries. These ichnofossils could be up to 1 meter long.



10 cm

C.E.I.P.
Fausto
Maldonado,
Cañamero



5 cm

P.º Extremadura,
Cañamero



5 cm

C. Zurbarán,
Cañamero

4 Skolithos

These ichnofossils are simple vertical tubes that were used as burrows by various marine organisms such as gastropods (snails), bivalves (such as mussels) and annelids (worms). They lived in the sediment perpendicular to the seafloor surface, which differentiates them from other simple galleries that were formed horizontally.



The creators of these ichnofossils were filter feeders, that is, they captured small food particles that were suspended in the water. They are very common to find with the other ichnofossils and are recognized as elongated tubes or small dots.



In cross section (dots)
C. Conquistadores, Cañamero



5 cm

In longitudinal section (tubes) -
San Juan Bautista Church, Berzocana

Ruta de fósiles urbanos de Berzocana

Urban Fossil Route of Berzocana

Encuentra esta ruta en Google Maps para obtener más información sobre cada punto.

Find this route in Google Maps for more information about each point.



Puntos de interés

Points of Interest

1 - 10

Fósiles urbanos
Urban Fossils



Bar / Restaurante
Bar / Restaurant



Centro de Interpretación
de la Arqueología
Comarcal
Regional Archaeology
Interpretation Center



Ruta de fósiles urbanos de Navezuelas

Urban Fossil Route of Navezuelas

