

Ammonite Diversity

Parkinsonia (pictured below) is perhaps the classic ammonite that you think of when imagining an Ammonite from the Jurassic Coast. However, there are many different types of ammonite so give you an idea of the variety, we have picked some of our Jurassic Coast favourites.



Ammonites have a spiral shell divided into chambers. It could control its buoyancy in the water by filling the chambers with gas and water. The soft body of the ammonite only took up the last half whorl of the shell.

Ammonites moved by sucking water through the mouth, pumping it over the gills, then squirting it out again. This propelled the animal through the water – backwards!

Only the shells of ammonites have ever been found as fossils.

How ammonites help us tell the time

The ammonite species pictured right is one of the 'zonal' ammonites which help us work out the relative age of rocks. Ammonites evolved rapidly through time so if you find the same ammonite in two different locations, the rocks that they are found in must be the same age (unless the ammonite has been eroded and moved by rivers etc). So this fossil, *Rasenia*, gets its name from Market Rasen in Lincolnshire but this specimen was actually found 260 miles away near Ringstead, east of Weymouth. The rocks at both places are exactly the same age, dating back about 155 million years.



Mariella rasenia

Zonal fossils also help to tell the relative age of other fossils, such as the large marine reptiles. This is really important because it allows us to understand how they evolved through time. If we could not tell the relative age of, say, a plesiosaur found in Lincolnshire and one found in Dorset, then we would not be able to tell which came first or how they evolved. So ammonites are 'tools of time'.

The Oldest Ammonite

All Ammonites, with the sole exemption of the genus *Psiloceras* were wiped out at the Triassic–Jurassic extinction event (201.3 million years ago). This means that all ammonites that lived during the Jurassic and Cretaceous are descendants of *Psiloceras*.



This humble crushed ammonite, *Psiloceras*, is a survivor from an older type of ammonite ('ammonoid' to be more precise) known as a *Ceratite* and these lived during the Permian and Triassic periods of geological time.

Ceratites differ from ammonites by having a less complex suture line, the pattern created where the chamber walls meet the outer shell. The great extinction event that took place between the Triassic and Cretaceous periods wiped out the *Ceratites* but *Psiloceras* survived to a new world with no competition.

Psiloceras is found near the base of the Blue Lias and marks the Planorbis Zone, the first of the ammonite zones used to date the relative age of the rocks

As a result of having no competition, *Psiloceras* went on to evolve into all the weird and wonderful forms in the Jurassic and Cretaceous.

Cretaceous weirdness



Acanthoceras rhotomagense

Ammonites from the Lower Chalk are very distinctive and developed into a range of bizarre forms. Some, such as the *Acanthoceras rhotomagense* are very robust with strong ribbing and spines. But in complete contrast, there's another set of ammonites that don't look like ammonites at all – they either started to uncoil or coil into a spire like a snail. It's thought that ammonites were experiencing some stress from climate change and that led them to evolve into a whole new range of forms. It didn't do them much good though, as they became extinct at the end of the Cretaceous period, along with the dinosaurs and two thirds of life on the planet.

Uneven coils

Ammonites with uneven coils are called heteromorph ammonites. Uncoiled Cretaceous ammonite shells like *Sciponoceras baculoides* have bullet shapes and the shells of *Scaphites equalis* were coiled tightly when it was young and started to uncoil as it got older. Why? No-one is really sure but this must have had a profound impact on how the animal lived. It is thought that *Scaphites* probably floated in the water filtering it with adapted tentacles in order to capture microscopic food. But as no soft parts have been found so far, we may never know.



Sciponoceras baculoides



Scaphites equalis



Mariella lewesiensis

This is an ammonite, not a snail! Rather than developing as a flat spiral like nearly all other ammonites, it coiled into a spire, like a snail. It is thought that these ammonites may have been filter feeders, or that they bumbled along just above the sea bed picking up food.

A rare discovery

In 2009, Steve Etches, Jane Clarke, and John Callomon reported the discovery of eight clusters of ammonite eggs in the Lower and Upper Kimmeridge Clay of the Dorset Coast in England.

The eggs are subspherical to spherical in shape. They were interpreted by the researchers as ammonite eggs sacks and are the best preserved specimens of such known to science. You can see them at the Etches Collection in Kimmeridge.



Perhaps you will soon be able to come and visit the Jurassic Coast and have a look for ammonites on the shoreline yourself?