

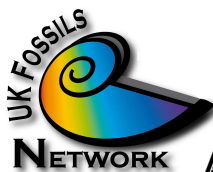
# FIELD GUIDE TO FOSSIL COLLECTING AT BRACKLESHAM BAY IN WEST SUSSEX







**GEOLOGY**



## **FIELD GUIDE TO FOSSIL COLLECTING AT BRACKLESHAM BAY IN WEST SUSSEX**

Bracklesham Bay, between Bracklesham & Selsey in West Sussex, is one of the best fossil collecting sites in the south of England. When beach conditions are good it can provide some truly excellent finds. Bracklesham Bay is a child-friendly location and is a suitable spot for all ages. The flat, sandy beach that extends past the beach shingle allows safe fossil collection, with minimal risk to all.

Before visiting the location, it will be prudent to check the tide times, as collecting on a low tide is highly advisable. Try to choose a good low tide, as that uncovers much more of the beach. It will also give you more time before the tide comes back in. The best tides are undoubtedly the 'Spring' tides, which occur every fortnight with the lowest tide generally being in the late afternoon or evening. Early in the morning can also be good but visibility might not be, particularly during the winter months!. The best tides often occur in the spring and autumn each year.

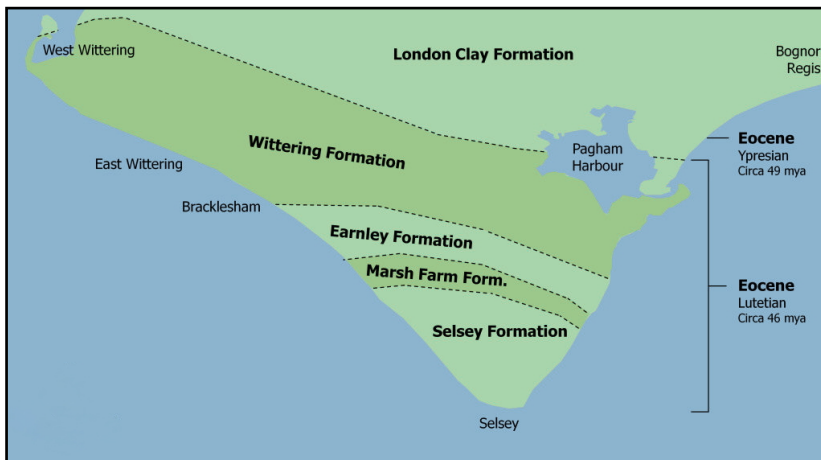
The beach is usually accessible up to two hours before and after a low tide. The majority of the fossils to be found are washed in from the beds further offshore, so after stormy weather can often be a good time. However, be aware that this may also sweep a lot of sand onto the beach, thus covering any fossils. Strong winds may also stop the tide going fully out. So, a good low tide and a beach clear of sand are essential to a successful hunt!

Bracklesham Bay, being relatively exposed, can also be very windy and as a result is one of the premier kitesurfing and kiteboarding locations of the UK ! Importantly, Don't forget to dress for the weather. The south-westerly winds can change a mild evening into a bitterly cold one. The beach is totally flat with no cliffs or any kind of protection against the wind and rain, and darkness can soon fall after an evening low tide.

## GEOLOGY

Bracklesham Bay is an area of geologically recent rocks. The clay sediments exposed here belong to the Bracklesham Group, which were deposited during the Lutetian Stage of the Eocene epoch by several rivers, that supplied sediment into a large estuary, which connected to the North Sea. This deposition occurred around 46 million years ago and the fossils found here are the remains of animals that lived in the sub-tropical sea that covered south-east England at that time.

The Bracklesham Group of sediments found at Bracklesham Bay is divided into four beds, which are all present on the beach. Walking east or west from the car park will take you over the beds, which are, from west to east: The Wittering Formation, The Earnley Sand, The Marsh Farm Formation and the Selsey Sand.



As the rocks at Bracklesham were formed in geologically recent times, many of the fossils are very similar to species still alive today. From the rocks and fossils, we know that the different beds at Bracklesham were deposited on the edge of a shallow sea, no more than 10 to 30 m deep and with a water temperature around 18°C. sand sediments were slowly laid down to form layers, or beds, of sedimentary rock. Each bed has a distinctive composition of sand and mud or types of fossils.



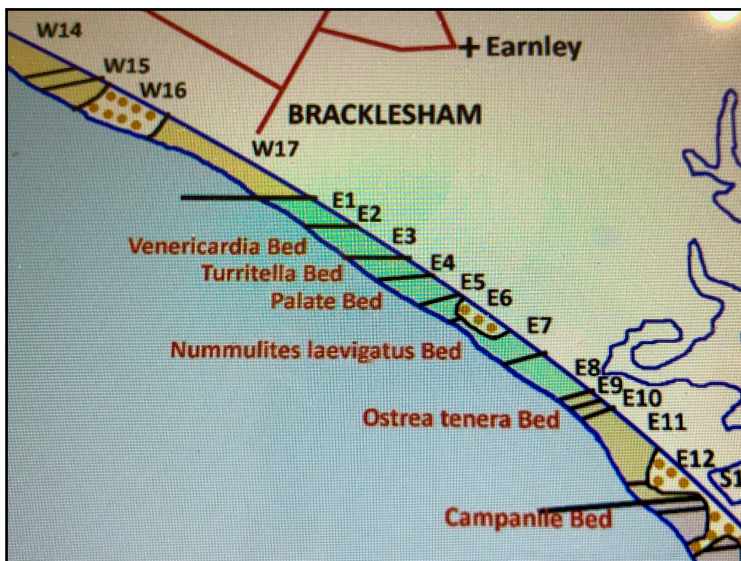


From the car park and approximately 1 km towards Selsey, in the east (this is to the left as you face out to sea), the clays are of the Earnley Formation. These grey clays are sometimes exposed as 'mushroom' shaped pedestals of clay, which are fully exposed on very low tides but even in less favourable conditions, will distribute their fossils on the sandy beach. Immediately start looking for fossils.

They may be washed up along the foot of the shingle or may be lying further out on the sand towards low tide. Look out for drifts of fine broken shell debris. These are often good places to look for smaller fossils, including sharks teeth.

There is no need to dig for fossils in the sand. The best specimens will be lying on the surface. If you are lucky, there may be exposures of the fossil beds that are often hidden beneath the beach sand. The best area for this is from the apartment blocks up to the last houses before the Earnley marshes.

As shown on the map below, the Earnley Formation is comprised of 12 numbered beds, with Bed 3 (*Venericardia* Bed) and Bed 4 (*Turritella* Bed) being the most frequently exposed.







Many fossils will look almost the same as modern specimens, so as a rule of thumb, fossil shells will be missing their natural colouration. They present as a uniform colour, usually cream or buff brown. Shells which have any colouration, such as white, pink, black or red are most probably modern shells. Vertebrate fossils, such as sharks' teeth, ray spines or turtle bones are very dark in colour, almost black. This makes them a little easier to find against the pale beach sand.

Shark teeth are a common find at Bracklesham Bay and can be picked up from the beach at almost any point from West Wittering to Selsey. However, the best area is undoubtedly the beach from Bracklesham to Earnley. The larger teeth can be found also in the shingle near the beach entry point at Bracklesham car park, however, these can often be found damaged because of the pebbles.







At certain times of the year large mushroom-shaped pedestals of clay protrude from the sand. Extracting fossils from these fossil beds requires patience. If the fossil beds are exposed, use a flat-bladed trowel to carefully excavate specimens, preferably leaving them protected within a block of sediment. Take them home as carefully as possible to finish cleaning up later. There are usually large lumps of loose clay around the base of the pedestals from which to collect; collecting in situ specimens is not recommended.

The Bracklesham Group of sediments at Bracklesham Bay now fall under SSSI rules. A Site of Special Scientific Interest allows fossil collecting under certain conditions and one of these is to not dig directly into the bedrock. Make sure you take loose, ex-situ specimens for your own collection.

Locations such as this always provide 'spare' fossils which can be donated to schools and are gratefully received. Details can be found here; <https://earthheritagetrust.org/fossil-resources-boxes-for-schools/>









There are over 600 different fossil shells to be found at Bracklesham and being able to identify them is not easy. Here we present a simple guide to the most commonly found shells and vertebrate fossils and those you are most likely to encounter. For more fossils from this site, visit <https://www.dmap.co.uk/fossils/> A Collection of Eocene and Oligocene Fossils

***Venericor planicosta***  
previously known as  
Venericardia or  
Cardita.



***Haustator***  
previously known as Turritella



***Venericardia carinat***



***Cubitostrea plicata***





***Venericardia elegans***



***Costacallista suberycinoides***



***Ispharina sulcifera***



***Nummulites brittanicus***

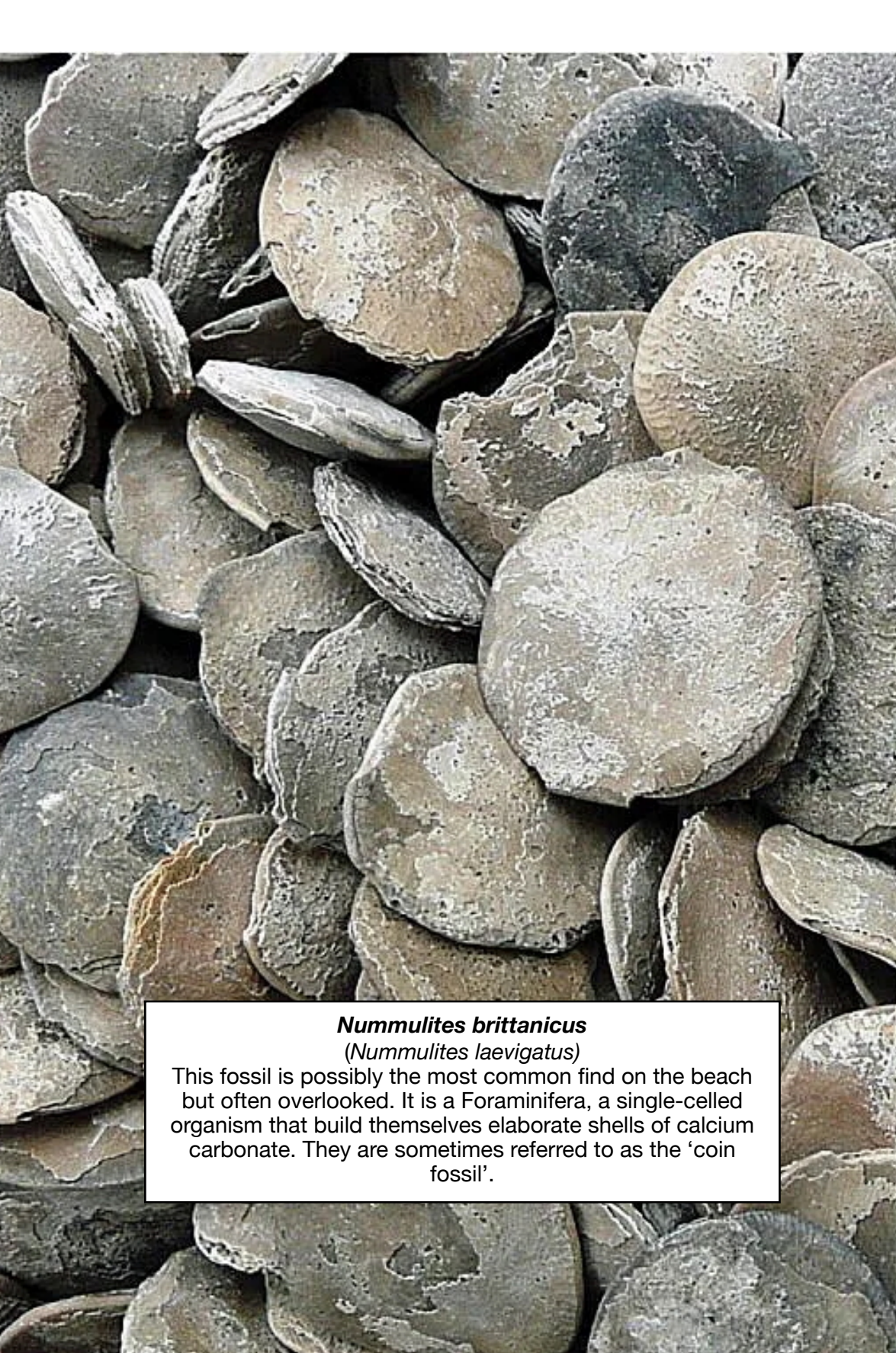


***Aetobotus irregularis***  
Eagle ray dentition



**Ray tail spine**





***Nummulites brittanicus***

(*Nummulites laevigatus*)

This fossil is possibly the most common find on the beach but often overlooked. It is a Foraminifera, a single-celled organism that build themselves elaborate shells of calcium carbonate. They are sometimes referred to as the 'coin fossil'.





***Notorynchus tempi***  
Cow shark



***Odontaspis winkleri***  
Smalltooth sand tiger shark



***Striatolamia macrota***  
Sand Tiger Shark



**Turtle shell fragments**  
Left: *Trionyx* (soft shell turtle)  
Right: *Chelone* (Leathery turtle)



***Palaeophis typhaeus***  
Marine snake vertebra



***Shark vertebra***

## CLEANING & STORING YOUR FINDS

### Cleaning & preservation

Most of the fossils that you will find at Bracklesham Bay have already survived 46 million years! They have been buried in sediment and washed around by the tides, but do still treat them with care.

Loose sand can be removed with a small scrubbing brush or toothbrush. Leave them to dry naturally and not on top of a radiator. Sharks teeth and other vertebrate material will need no extra treatment to preserve them.

Any fossil found on a beach will need desalination. In other words you do need to wash the seawater out of your fossils as the absorbed salt may lead to long-term damage, particularly of the shells.

Do not be tempted to varnish your fossils as this can leave an unsightly surface coating. However, you might need to treat more delicate specimens. For this, simply dilute some PVA in water at a ratio of 1:3 (PVA:water) and allow to dry. This will help to harden the more delicate specimens.

### Storage

Storage is a matter of preference and small boxes of card or plastic are probably a good place to start (See <https://earthlines.com>). Most importantly, your specimens need a label. A fossil collection will be worthless if you do not, at least, record where you found the fossil, even if you don't know the fossil names - you can always name them at a later time. A simple label like this example will be useful.

<p><b>Name:</b> <i>Ispharína su leífera</i> (Fossil gastropod) <b>Location:</b> Bracklesham Bay, West Sussex <b>Geology:</b> Bracklesham Beds, Earnley Formation. <b>Age:</b> Eocene, <b>Date found:</b> July 2025</p>
--

## **DISCLAIMER**

This downloadable PDF is one of a series of general guides to fossil collecting localities and not an extensive manual for health and safety when visiting such sites.

Furthermore, because potential hazards may change over time, prior to undertaking any fossil collecting activities, you need to make yourself aware of any RISKS, DANGERS, HAZARDS and LEGAL IMPLICATIONS associated with visiting and collecting fossils at any particular site.

UK Fossils, authors or any associated parties cannot be held responsible for your failure to do so, nor any consequences thereof.

Enjoy your fossil collecting safely and responsibly.