

THE JURASSIC COAST: THE CASE FOR A WORLD HERITAGE SITE

by Gary Atterton

THIS UNIT examines the reasons why the Dorset and East Devon coastline (now referred to as 'The Jurassic Coast') was designated a World Heritage Site and what the impact of the designation has been.

Along just 95 miles (153 km) of the beautiful Dorset and East Devon coastline there is a record of 185 million years of the Earth's history (Figure 1). This unique astonishing sequence makes it a World Heritage Site.

Background to World Heritage Sites

Sometimes it is easy to know when you are looking at a World Heritage Site. For example The Grand Canyon National Park in the USA is a spectacular natural wonder, while the stone circle of Stonehenge in England may hold the key to some of the the mysteries of prehistoric times. Other sites on the United Nations Educational Scientific and Culture (UNESCO) list may be surprising – for example Brasilia, the capital city of Brazil, or the Second World War concentration camp at Auschwitz in Poland. Sometimes places are worth saving not just for what they look like but for what they are and what they represent.

The purpose of the World Heritage List – and of World Heritage conservation in general – is to identify and protect sites of 'outstanding universal value', and to make sure they're still here for future generations to appreciate and learn from.

How do sites get to be included on the World Heritage List? The

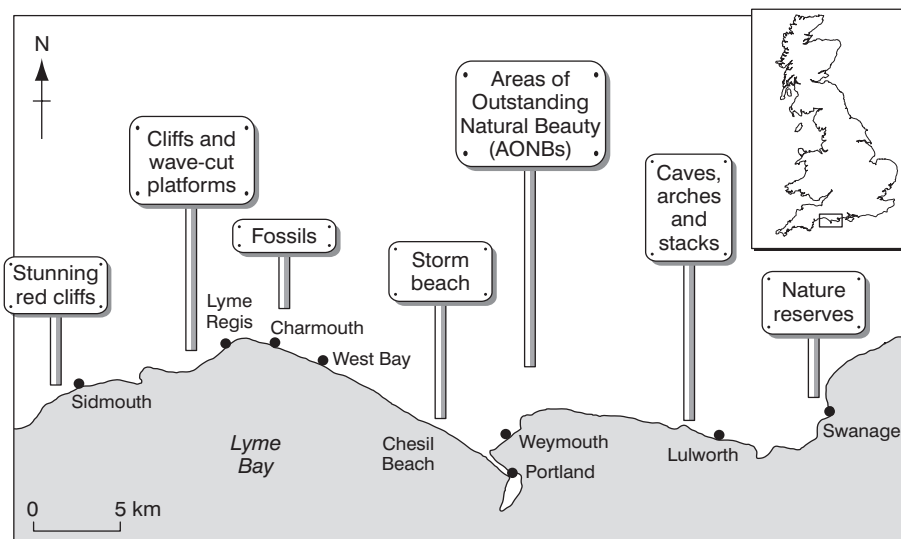


Figure 1: What's on? The Jurassic Coast: 185 million years in 95 miles

governments of countries where the sites are located submit their applications to the World Heritage Committee. The Committee then has to consider each site's merits, according to very strict rules called **criteria**. Key questions are asked, such as:

- Is the site a unique geological formation like the Grand Canyon?
- Is it an important historical property like Stonehenge?
- Is the site in need of protection and preservation?

There are presently 754 sites on the World Heritage List. The World Heritage Committee works to make sure that future generations can inherit the treasures of the past. However, most sites face a variety of pressures and threats.

How did the Jurassic Coast fit the criteria set by the World Heritage Committee?

- 1 The coastline is one of the most significant earth science sites in the world.

- 2 The cliffs provides an almost continuous sequence of Triassic, Jurassic and Cretaceous rock formations spanning approximately 185 million years of Earth history.
- 3 There are internationally important fossil localities here, which have produced well-preserved and diverse evidence of life.
- 4 The area's important fossil sites and classic coastal landform features have contributed to the study of earth sciences for over 300 years.
- 5 It is an unspoilt yet accessible coastline, which is both protected and managed for conservation, public enjoyment and education.

There are many other World Heritage Sites in the United Kingdom. Figure 2 lists some of the more famous ones.

185 million years of Earth history

How can 185 million years of Earth history be present in just 95 miles of coastline? The answer is simple: all the rocks are tilted up like books on a bookshelf (Figure 3). The oldest rocks are to the east

Date of designation	Site
1986	Durham Castle and Cathedral
1986	Giant's Causeway and Causeway Coast
1986	Ironbridge Gorge
1986	Stonehenge, Avebury and associated sites
1987	City of Bath
1987	Hadrian's Wall
1987	Westminster Palace, Westminster Abbey and St Margaret's Church
1988	Tower of London
1988	Canterbury Cathedral, St Augustine's Abbey and St Martin's Church
1995	Old and New Towns of Edinburgh
1997	Maritime Greenwich
2000	Blaenavon Industrial Landscape
2001	Dorset and East Devon Coast
2003	Royal Botanic Gardens, Kew

Figure 2: Some World Heritage Sites in the UK

and the younger ones are to the west. Each rock is like a page in the book and the fossils and features within the layers are the writing.

Let's take a read through time by examining the geological timeline of the Jurassic coast.

The ancient deserts of East Devon

The red rocks found in the cliffs of East Devon were formed in vast deserts through which great rivers flowed. These are the oldest rocks, from the Triassic geological period, formed 240 million years ago. The environment of this geological period would have been like the Namib Desert in southern Africa is today. Now, great cliffs and stacks can be found on this coastline in places like Ladram Bay and Sidmouth.

The Jurassic seas of Lyme Regis and Charmouth

The steep cliffs at Lyme Regis are made up of dark grey clays of the early Jurassic period, from around 200 million years ago. At that time the seas were deep and muddy. As the sea became shallower, limestones and sandstones were

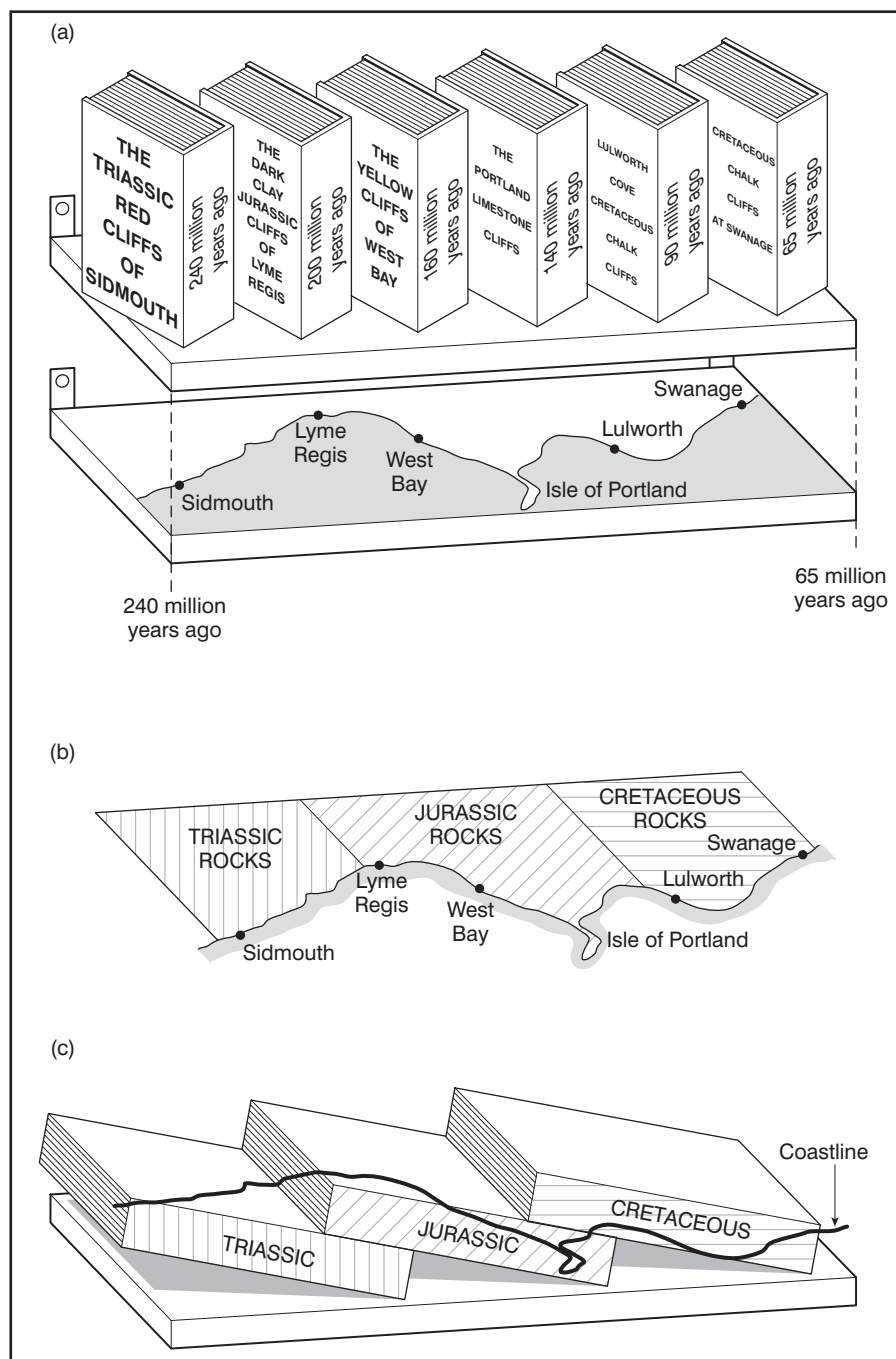


Figure 3: The geology of the Jurassic Coast

formed. The best place on the Heritage coast to find fossils is below the cliffs at Lyme Regis and Charmouth, especially after a period of rain. There is no need to climb the cliffs to look for the remains of sea creatures. There are many fossils, such as ammonites (Figure 4) and belemnites, to be found here on the beach near the rock falls. This area would have been a warm tropical sea such as the Caribbean is today. Classic coastal landforms, such as wave-cut platforms and collapsed cliffs, can be seen along this part of the coast today.

The great storm that formed Chesil Beach

Chesil Beach is one of the finest barrier beaches in the world. The 17 mile (28 km) shingle beach stretches from West Bay to the Isle of Portland. The beach material increases in size and roundness from west to east. It is a very good example displaying the process of longshore drift.

The tropical seas of Portland

The Portland limestone dates from around 140 million years ago. The rocks were formed from

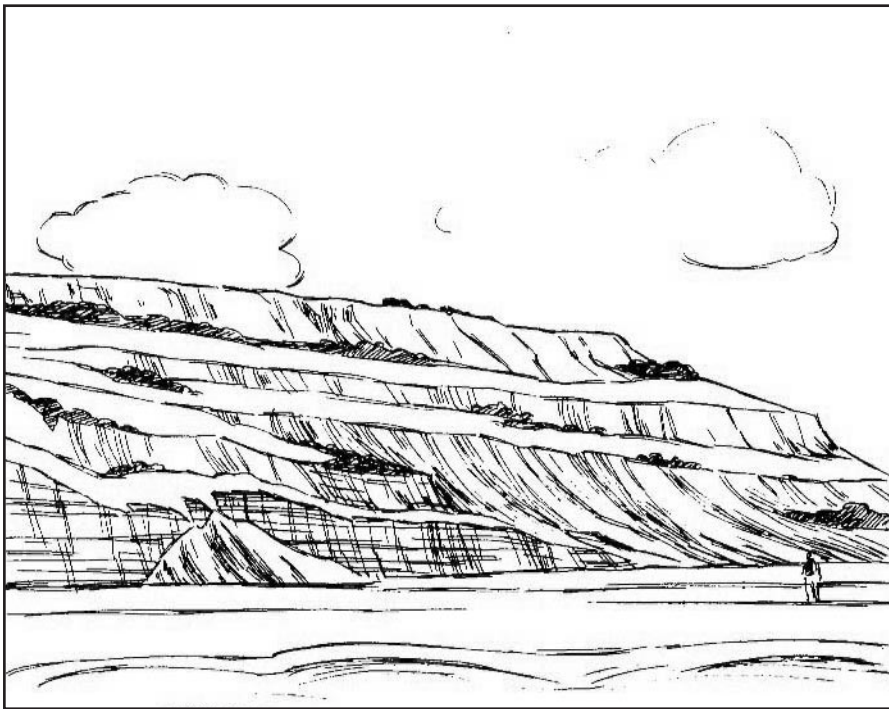


Figure 4: Black Ven cliffs between Lyme Regis and Charmouth is the site of one of the largest coastal mudslides in Europe

sediments and tiny sea creatures in warm, shallow tropical seas.

The fossil forests

Towards the end of the Jurassic period the seas retreated. Islands formed where soils developed and trees grew. This area was like the Mediterranean is today.

Dinosaur swamps

The next geological period is called the Cretaceous. This area was like the deserts of Arabia, with great salt lakes. Dinosaurs roamed the lake shores and left their footprints in the soft sediment.

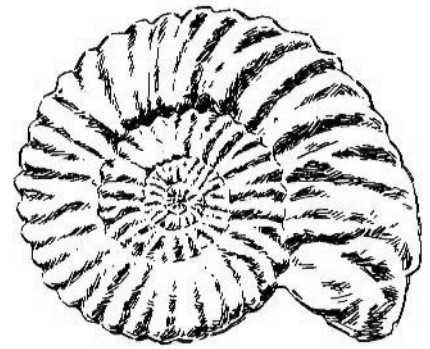
Today dinosaur footprints can be found in the rocks at Purbeck.

The impact of tourism on the Jurassic coast

‘Tourism is like fire. It can cook your food or burn your house down.’

R. Fox

Tourism can bring advantages and disadvantages to an area. The changes can have good and bad effects on the economy, on society and the environment. Figure 6 on page 4 presents the views of



people who live and work in and around the coastal tourist resort of Lyme Regis.

The future

Travel and tourism is the world’s biggest industry, and it is growing very fast. What will be the cost of this tremendous boom to the Jurassic Coast? There is always a problem in giving special labels to outstanding landscapes and environments. The two key aims are, often, firstly to conserve and protect and secondly to make places well managed for visitors to experience and enjoy.

Conservation and tourism can lead to conflict. Will the designation of World Heritage status actually lead to an increase in tourism and then a decline in the quality of the environments and places?

One of the key ideas in Geography is the idea of **sustainable development**. This has many meanings. In simple terms it means development that supports present generations, places and environments, and doesn’t affect future generations in a negative way. So can tourism be managed and planned carefully so that future generations will experience the same benefits we enjoy today? For example, how many geography students in the future will be able to see the incredible landforms such as Durdle Door, the natural arch near Lulworth (Figure 5), as we see them today?

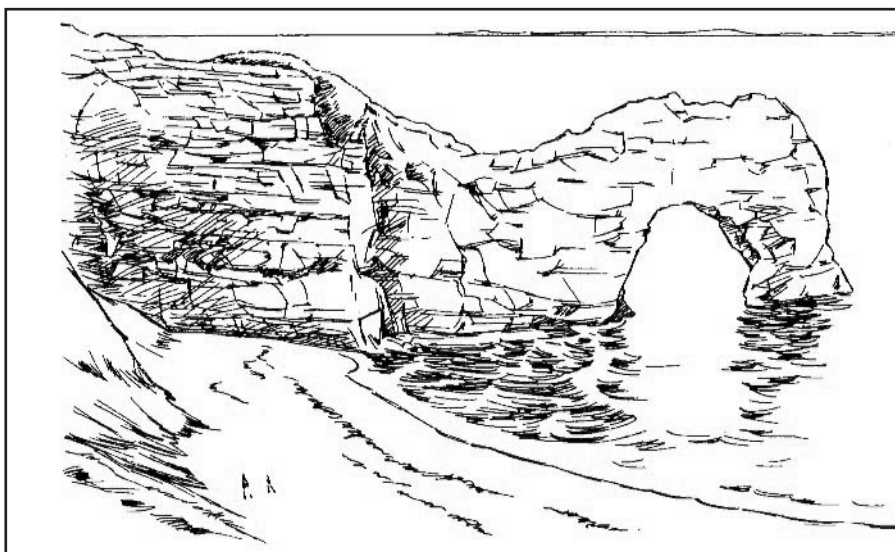


Figure 5: Durdle Door and Lulworth Cove

Activities

- What do the letters UNESCO stand for?
 - Name four UNESCO sites outside the UK.
- What is the purpose of the World Heritage List?
- Why was the East Devon and West Dorset coast chosen as a World Heritage Site?
- Examine Figure 2. Find out more about each site. Then divide them into *natural* and *human* sites.
- Read the section headed '185 million years of Earth history' again. Your task is to write the opening page for a leaflet on the Jurassic Coast. Your leaflet should explain why the variation in the geology and landforms along the coastline is so unique and worth World Heritage Status. You should write no more than 100 words, and start with: 'Welcome to the Jurassic Coast – England's first natural World Heritage Site...'
- Re-read the quote by R. Fox on page 3. Try to explain what he meant, using examples of good and bad tourism that you have studied from around the world.
- Study the different people's opinions in Figure 6. Then copy and complete a larger version of Figure 7.
 - In your opinion, do you think that World Heritage status is good or bad for the Jurassic Coast?
- A new site has been found for a Jurassic Coast study centre in the town of Lyme Regis. The site chosen is in the centre of the town. The project will redevelop a hotel that has been closed for many years. It will provide jobs for local people and opportunities for visitors to study the Jurassic Coast. However, does the town really need this development?



Ida Livehere, a local resident of Lyme Regis
We do not need any more tourists in Lyme Regis. The streets and roads are congested enough as it is.

B and B Only, who recently purchased a hotel in Lyme Regis
We need to find more tourists throughout the year. We need the visitors spring, summer, autumn and winter.

Bill Monite, a geologist at the Charmouth visitor centre
World Heritage status will mean more visitors. This means we can employ more people and educate more people about the coastline.

Cliff Top, a local wildlife expert
We will have to manage some Sites of Special Scientific Interest (SSSIs) very carefully. More visitors walking over fragile environments could lead to a loss of habitats for breeding birds.

Pam Flitt, Lyme Regis tourism officer
Since designation the numbers of visitors to the tourist information office have gone up, and the number of enquiries for accommodation, too.

Cedric Orpington-Smith, a West Dorset district councillor
Lyme Regis needs a World Heritage Site study centre to support the town's Jurassic Coast 'Gateway' status.

Figure 6: Some views on the World Heritage Site

What the person does	Environmental impact	Social impact	Economic impact

Figure 7: Impact assessment

Your task is to write a letter to a local newspaper outlining your opinions on whether you are for or against this development. In your letter you should include the

key concept of *sustainable development* – development that is both economically viable and environmentally sound.