THE JURASSIC COAST STORY BOOK

Interpretation Framework for the Dorset and East Devon Coast World Heritage Site

JURASSIC COAST TRUST

HOW TO USE THE JURASSIC COAST STORY BOOK

Every mile of the Jurassic Coast is crammed with stories. This document is designed to help you make sense of them. It is a guide for developing heritage interpretation – a powerful method for communicating the value of the Jurassic Coast to our audiences.

PART ONE

Summarises the impact good interpretation can have for the benefit of the World Heritage Site and its communities.

PART TWO

Offers general guidance on how to approach geology as a heritage interpreter.

PART THREE

Provides the building blocks for creating interpretation about the Jurassic Coast.

Who is this framework for?

This framework is for anyone wishing to develop interpretation about the Dorset and East Devon Coast World Heritage Site, from community volunteers to museum professionals or national NGOs (Non-Governmental Organisations).

Successful interpretation is well planned, designed to suit its audience and has thought-provoking, relevant and enjoyable content. Here you will find information to help in all areas of the interpretive process.

Planning – Part 1 gives an overview of the sorts of impacts interpretation can have, so will help you to shape the aims of your project, scope its context and decide who should be involved.

Audiences – Part 3 includes a summary of the kinds of interactions people have with the Dorset and East Devon Coast and describes some of the preferences of the Site's key audiences. Both will help you target your interpretation effectively.

Content – if you are unfamiliar with communicating stories about rocks and fossils, part 2 introduces the concepts of geodiversity and geo-heritage from an interpretation perspective. When it comes to working up the content for your project, part 3 sets out the key Jurassic Coast stories, whilst the tables on pages 44-57 link these overarching themes to locally relevant and distinctive topics

Working from this framework will help to build consistency in how the Jurassic Coast is interpreted. The guidance provided here is intended to work flexibly, allowing partners to adapt it to suit their particular audiences and objectives.

Want more help?

The Jurassic Coast Trust can provide years of Jurassic Coast learning and interpretation experience to assist you in planning and delivering your projects. If you would like to talk about how we can help, please get in touch.

Tel: 01308 807000
Email: info@jurassiccoast.org

"Working with The Jurassic Coast Trust on the interpretation strategy for the new Jurassic Coast Gallery at Bridport Museum was an absolute pleasure. Their staff were open and responsive to working collaboratively, and fully understood some of the constraints of objects and displays. They clearly have a thorough academic knowledge of the Jurassic Coast, which is balanced with the ability to communicate in an accessible and engaging way to the target audiences. They were also able to help us identify the stories that are unique to Bridport, and how those sit within the wider Jurassic Coast interpretation framework."

Emily Hicks, Curator, Bridport Museum

CONTENTS

PART ONE

The role of Interpretation along the Jurassic Coast World Heritage Site

PART TWO

Understanding geological heritage

PART THREE

Interpreting the Jurassic Coast World Heritage site

Note: Since the UNESCO citation for the Jurassic Coast was written, the ages of geological boundaries have been updated. The ages used in this document are based on 2017 data. See www.stratigraphy.com for the most current international standard.

PART ONE

The role of Interpretation along the Jurassic Coast World Heritage Site

Since being designated a World Heritage Site (WHS) by The United Nations Education, Scientific and Cultural Organisation (UNESCO) in 2001, the Jurassic Coast has increasingly become a source of pride and opportunity for local communities and visitors. This positive relationship between people and place relies on the effective communication of the Site's unique heritage and global value.

The Jurassic Coast Trust, an independent charity, leads the protection and management of the Jurassic Coast, and is committed to a vision of the future where:

"Everyone loves, understands and values the Jurassic Coast World Heritage Site"

Interpretation is at the heart of this vision, providing vital tools to help communicate the Site's stories, and realise the full social, economic and natural heritage potential of the Jurassic Coast. Interpretation projects are delivered along the length of the WHS through strong partnership and collaborative relationships. This interpretation framework is intended to facilitate that process, offering guidance on Jurassic Coast heritage stories and themes, and providing a starting point for interpretation planning.

What is Interpretation?

"An educational activity that aims to reveal meanings and relationships through the use of original objects, by first-hand experience and by illustrative media, rather than simply to communicate factual information[1]"

– Freeman Tilden

1 Interpreting our Heritage, Freeman Tilden

Overview of the Jurassic Coast

Every World Heritage Site has a statement of Outstanding Universal Value (OUV) that describes the reasons why the designation has been applied. A brief summary of the statement for the Jurassic Coast is given here:

The Dorset and East Devon Coast has an outstanding combination of globally significant geological and geomorphological features. Along 155 km of largely undeveloped coast the Site's geology displays approximately 185 million years of the Earth's history, including a number of internationally important fossil localities. The Site also includes outstanding examples of coastal landforms and processes, and is renowned for its contribution to earth science investigations for over 300 years. This coast is considered to be one of the most significant earth science teaching and research sites in the world.

In addition to OUV, another key concept for the WHS is 'its setting'. This recognises that the surrounding landscape is key to how people experience the Site itself. For the Jurassic Coast setting is described as:

The surrounding landscape and seascape, and concerns the quality of the cultural and sensory experience surrounding the exposed coasts and beaches.

For a full account of OUV and setting please refer to the Site management plan.

Although features of the coast such as natural beauty, wildlife and cultural heritage are not included in the World Heritage designation, they are an important part of its setting and how visitors experience the Site. Furthermore, geology underpins many of these other features, meaning the Jurassic Coast can act as a unifying story for the broader heritage values of the Dorset and East Devon coastline.

National Character Area (NCA) profiles each provide a useful overview of the relationships between geodiversity, biodiversity, landscape and communities. All NCA profiles are available online and those covering the Jurassic Coast are: 136, 137, 138, 139, 147 and 148.

The Dorset and East Devon Coast was inscribed on the World Heritage List under Criterion eight:

"to be outstanding examples representing major stages of Earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features."

United Nations Educational, Scientific and Cultural Organization

Dorset and East Devon Coast inscribed on the World Heritage List in 2001

What makes the concept of World Heritage exceptional is its universal application. World Heritage Sites belong to all the peoples of the world, irrespective of the territory on which they are located.[2]

2 whc.unesco.org

How does interpretation help deliver the vision for the WHS?

Interpretation is used as a delivery mechanism across all areas of site management, particularly conservation, learning, community engagement and visitor management. Interpretation can also help local people make the most of the Site's economic potential and, in turn, aid in fundraising to support the conservation of the Site.

Interpretation is primarily a communication process that helps people make sense of, and understand, more about your site, collection or event. It can: Bring meaning to your cultural or environmental resource... Enhance the visitor experience... Enable communities to better understand their heritage, and to express their own ideas and feelings about their home area.[3]

3 Association for Heritage Interpretation

Protection & Conservation

The future of the Jurassic Coast WHS is dependent on continuing natural erosion, which underpins the Site's Outstanding Universal Value (OUV), integrity[4] and setting. This presents a challenge as to how the value of the Site is communicated because erosion is generally regarded as a destructive process.

High quality interpretation can provide innovative ways to help people understand the long-term conservation needs of the Jurassic Coast, and in the right context can equip them to be able to pass that understanding on to others. This can have positive impacts for the Site, as members of our communities become advocates for the conservation of the WHS, particularly with local planning matters.

High quality interpretation can help create empowered and well-informed advocates for the long-term protection of the Jurassic Coast.

4 "A measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes." - Operational Guidelines for the Implementation of the World Heritage Convention

Case Study

Ambassador training

Jurassic Coast training sessions are occasions where community members can meet, discuss and learn about the Jurassic Coast. One such session, held in Exmouth in January 2016, was attended by a local district councillor. Several months later, she drew on that training during a planning committee meeting to argue in favour of protecting the Jurassic Coast against a development that would have impacted the OUV of the Site:

"The training was a great help in understanding the issues around protecting our wonderful World Heritage Site and explaining how fortunate we are to have such a special place on our doorstep."

Councillor Alison Greenhalgh

Learning

The Jurassic Coast is a world-famous learning resource for the Earth Sciences, and learning plays a crucial role in all aspects of Site management[5].

Interpretation typically aims to communicate scientific ideas in a way that enriches an audience's experience of the WHS, expanding the reasons they value and appreciate it. By providing inspiration, entertainment, and education, interpretation can provide a rich diversity of opportunities for people to develop a relationship with the WHS.

Exciting and provocative interpretation and inspirational learning experiences can help people to develop a strong and lasting relationship with the Jurassic Coast.

Case Study

Lyme Regis Fossil Festival

The Lyme Regis Fossil Festival, normally held in early May each year, is a key learning and interpretation event for the Jurassic Coast. Scientists from globally recognised institutions such as the British Antarctic Survey and Natural History Museum, London, are hosted by the festival as they engage in outreach over the course of four days. As well as face-to-face contact with scientists, there is a varied arts programme delivering hands-on craft sessions and performance pieces that draw on the geological stories of the Jurassic Coast. The content of the festival has a strong grounding in active science and research, and is presented as a celebration that aims to inspire audiences.

Case Study

Iguanodon Restaurant at Lyme Regis Fossil Festival

Iguanodon Restaurant, a street theatre performance, was developed by local arts company Emerald Ant, working in partnership with the Jurassic Coast Trust, expert palaeontologists and the Friends of Crystal Palace Dinosaurs. A 35-foot-long iguanodon model, replicating the famous iguanodon banquet of 1853 (pictured), acted as the centrepiece in an exciting and entertaining show that explains *"the origins of geology told through the eccentric characters of Victorian fossil hunters and early scientists"*. The Lyme Regis Fossil Festival provided an authentic context for the first performances, making powerful links between the natural heritage of the Jurassic Coast and the on-going global application of scientific ideas that were first developed here.

"Inspired dinosaur fun for all. Iggy rocked the birthplace of palaeontology."[6]

"Fantastic palaeo-history storytelling from the Iguanodon Restaurant."[6]

"I thought the show was fabulous and I watched it three times and each time I spotted some other little touch which I enjoyed."[6]

5 Jurassic Coast Management Plan p 27

6 Audience feedback provided by Sarah Butterworth, Creative Director of Emerald Ant C.I.C

Community Engagement

Over the last 10 years, the Jurassic Coast has become a successful national and international brand and is highly valued by the communities of Dorset and East Devon[7]. This is testament not only to the sensitive way in which the brand has been developed, but also to the genuine feeling of pride that many people have for this stretch of coastline[8].

Involving community members in interpretation projects not only helps to develop this much-needed sense of ownership, but can also be hugely enriching to the process of interpretation development and delivery. In some cases, entire projects can be suggested and led by communities, in other cases their input can contribute new ideas and perspectives. Local distinctiveness is an underlying principle for Jurassic Coast interpretation (see 'string of pearls' page 11,) and engaging local communities in the interpretation process helps to draw on local knowledge to express that distinctiveness.

Inclusive and collaborative interpretation projects can help communities to express their local distinctiveness, communicate their pride in the Jurassic Coast and invest in the future of the WHS.

Case Study

Beer Heritage Centre and Self-Shelter panel

The Beer Fine Foundation Centre has been a hub for interpretation activity, allowing local people to engage visitors to Beer in the natural and cultural heritage of the village. Volunteers are involved in producing and delivering the majority of interpretation content including panels, leaflets, online information and walks and talks. As an extension to this facility, a large interpretation display was installed in 2014 in the Self-Shelter, just above the beach. The display details the intimate relationship between geology and local history, and was produced in close partnership with volunteers from the village. Beer is an excellent example of how local involvement has created a strong sense of ownership and pride over local geological heritage and the Jurassic Coast at large.

"The Self-Shelter continues to have the WOW factor for local people and visitors alike. One local lady told me today that she has sent photos of it to friends all over the world. Everyone seems to be very proud of it".

Norah Jaggers, Beer Village Heritage volunteer and Jurassic Coast Ambassador

UNESCO's World Heritage Mission includes the aim "to encourage participation of the local population in the preservation of their cultural and natural heritage"[9]. Interpretation is a key means to achieve that aim.

7 Dorset's Environmental Economy, Jurassic Coast Economic Impact Report

8 Jurassic Cost Management Plan p28

9 whc.unesco.org

Visitor Management

Good access and a welcoming experience are critical to people's enjoyment of the Jurassic Coast. Interpretation has been a key tool in enhancing the way visitors and residents can access the site intellectually, emotionally and physically.

It has also been an important method for communicating issues of risk and sustainability along the coast. Access to the site tends to occur at key gateways, and a combination of virtual and physical infrastructure has helped thousands of people to plan their visits to the Jurassic Coast each year. This encourages them to explore the World Heritage Site in safe, responsible and sustainable ways.

Innovative interpretation can help people access, explore and enjoy the WHS in safe, responsible and sustainable ways.

Case Study

National Trust beach safety windbreaks

In 2015, the National Trust trialled a project using windbreaks and deckchairs to increase awareness amongst visitors to Hive Beach of the dangers posed by rock falls (see photo). This non-traditional and innovative adaptation of warning messages about cliff falls has had a positive impact:

"They have proved very useful as a talking point. They attract attention and so start the conversation around safety, as an ice breaker. They are popular with people and we allow them to be used on the beach and so the message is repeated across the beach. People are now more aware and taking care."

Rob Rhodes, National Trust

Local Economy & Fundraising

In 2016, a report on Dorset's Environmental Economy found that the World Heritage Site designation influences over £100 million of economic output in Dorset and East Devon each year, and stated that "The natural environment on which the economy depends is a significant economic asset in and of itself, and should be protected, improved and invested in"[10].

Interpretation plays a key role in providing visitors with a high-quality experience of the Jurassic Coast and good value for money. In this way, interpretation can help maximise the contribution of the WHS to the local economy. To achieve this outcome sustainably, the WHS designation will require ongoing investment. By helping people build a relationship with the coast, interpretation can generate interest amongst residents and visitors in supporting the WHS into the future.

Interpretation can help maximise the economic potential of the Jurassic Coast in a sustainable way and also help to build a more secure future for the protection of the WHS.

Case Study

Ladram Bay Holiday Park and Highway Farm B&B

Since becoming Jurassic Coast business partners, both Ladram Bay Holiday Park and Highway Farm B&B have hosted successful public outreach events. Interpretation about the WHS was delivered by Jurassic Coast Ambassadors, while the businesses offered use of their facilities for free. Events like these enhance the offer of the host businesses to their customers, and in return the businesses are able to raise funds for, or make donations to, the Jurassic Coast Trust, in support of conservation and education along the WHS.

"We feel the Jurassic Coast is an outstanding place of natural beauty that everyone should visit. Being located right on the coastal path between Budleigh Salterton and Sidmouth, we are forever recommending to our guests to enjoy all it has to offer. We are pleased to enhance our knowledge and offering to our guests through the Business Partner Scheme."

Carla Bragg from Ladram Bay Holiday Park

10 Dorset's Environmental Economy – summary paper, page 1

Existing Interpretation on the Jurassic Coast

The first interpretation plan for the Jurassic Coast was created in 2005 and out of it a great deal was achieved. In 2015, the plan was reviewed as the first step towards creating a new interpretation framework. The findings are summarised here.

Interpretation development

- Jurassic Coast communities and partners have demonstrated a significant will to respond to opportunities to make the most of their connections to the World Heritage Site through interpretation projects. This has provided crucial support, bolstering the limited capacity of the central Jurassic Coast Partnership to develop projects itself.
- Local ownership of interpretation projects has been instrumental in embedding the value of Jurassic Coast within its communities.
- The inclusion of the arts sector has been a source of great inspiration and innovation, and so should remain a core consideration when developing interpretation.

Interpretation delivery

- A mixture of enhanced museums and visitor centres, printed material, varied online information and static outdoor interpretation has created a strong base for public engagement with the Site.
- Walks, talks, festivals and events provide a great many opportunities for the public to participate in activities, and, importantly, meet people who are passionately engaged with the promotion and conservation of the Jurassic Coast.
- There is a gap in assets that facilitate and promote the physical exploration of the coast.

Future opportunities

- The energy and commitment of the communities, partners and stakeholders is fundamental to the successes of the last decade and will continue to be into the future.
- Exploration may represent a key focus for work and projects to help residents and visitors make the most of the substantial range of quality interpretation facilities and of the coast itself.
- There is a recognised need for increased acquisition, curation and display of key fossils from along the Jurassic Coast. In that regard, the proposed Jurassic Coast Collection will be a key project for future interpretation of fossils.
- The impact of existing interpretation is not well understood. Evaluation could be hugely valuable in creating successful interpretation projects.

The 'String of Pearls'

One of the core aspirations of the 2005 IAP (Interpretation Action Plan) was to create a 'string of pearls' of interpretation sites and facilities. This was to reflect the linear nature of the geography of the WHS and its associated record through geological time. It was also a means to give each community a way of expressing the unique heritage in their local area, whilst building a connected heritage offer along the entire site. The 'string of pearls' remains a key concept within this Framework.

Summary of key points

What is the Jurassic Coast World Heritage Site?

Along 155 km of largely undeveloped coast, the Site's geology displays approximately 185 million years of the Earth's history, including a number of internationally important fossil localities. The Site also includes outstanding examples of coastal landforms and processes.

The setting of the Jurassic Coast concerns how people **experience** the culture, landscape and seascape surrounding the site.

Geology underpins landscape, biodiversity and social history, meaning the Jurassic Coast can act as a unifying story for the broader heritage values of the Dorset and East Devon coastline.

What impact can effective interpretation have?

Protection and Conservation
High quality interpretation can help create empowered and well-informed advocates for the long-term protection of the Jurassic Coast.

Learning
Exciting and provocative interpretation and inspirational learning experiences can help people to develop a strong and lasting relationship with the Jurassic Coast.

Community Engagement
Inclusive and collaborative Interpretation projects can help communities to express their local distinctiveness, communicate their pride in the Jurassic Coast and invest in the future of the WHS.

Visitor management
Innovative interpretation can help people access, explore and enjoy the WHS in safe, responsible and sustainable ways.

Local economy and fundraising
Interpretation can help maximise the economic potential of the Jurassic Coast in a sustainable way, and also help to build a more secure future for the protection of the WHS.

What has happened and what lessons have we learnt?

There is a diverse offer of physical, virtual and experiential interpretation that forms the context for any new interpretation projects

The involvement of communities, partners and stakeholders in interpretation development, and local ownership of interpretation projects, has been a key success factor

There are distinct opportunities to improve interpretation that encourages or enables the physical exploration of the Site

Measurable evaluation targets within projects will be essential to help steer ongoing interpretation development

The 'string of pearls' concept remains fundamental to the interpretation of the Jurassic Coast

PART TWO

Understanding geological heritage

At its heart, the natural heritage of the Jurassic Coast is about geology, but rocks, fossils, landforms and landscape processes are arguably some of the most difficult subjects to interpret effectively. This section is intended to introduce geodiversity, and provide overarching guidance for how to deal with geo-heritage stories. The principles outlined here can be applied at every level of the interpretive process.

Geodiversity is the diversity of rocks, minerals, fossils, landforms and soils, together with the natural processes that shape them.

What is Geological Heritage?

Geology is everywhere, forming the literal bedrock of our country. England enjoys an astonishing diversity of rocks, minerals, fossils, landforms and soils, together with the natural processes that shape them. We can refer to these elements of the natural world as the 'geodiversity' of our surroundings, and they make a profound contribution to our sense of place.

Many important places in England are protected for their geodiversity, including National Nature Reserves, Sites of Special Scientific Interest, Local Geological Sites, Areas of Outstanding Natural Beauty, National Parks and UNESCO Global Geoparks. These sites, as well as soils, water sources, building stone and other natural and economic resources derived from our geodiversity, are protected through the National Planning Policy Framework.

The Dorset and East Devon Coast is the first natural World Heritage Site in England and is designated because of its unique and exceptional geodiversity.

Our connection runs deep…

England is a country of great contrasts. For example, chalk coastal cliffs and downs, the Cotswolds, Dartmoor, the Fens, the Lake District and Wenlock Edge are all distinct landscapes that give our countryside its character and reflect part of England's geodiversity. Much of this is due to England's long and dramatic journey through time. Over 700 million years of moving continents, mountain building, volcanic activity, changing climates and sea levels, erosion and deposition have shaped England's landscape. Not only does the resultant geodiversity help us understand the history of our Earth, but it also profoundly shapes the world around us.

Many of the concepts of modern geology were first established through studying the rocks of England. The diversity of our fossil record influenced the thinking of Darwin as he developed his theory of evolution and the 'Origin of Species'. The contribution of England's geodiversity to global science is as important today as it has been in the past.

Geodiversity has an influence across all aspects of our lives. Our geology is a source of fossil fuels, the raw materials for construction, and the minerals and metals that help to underpin the nation's wealth and health. It provides the diversity of soils essential for agriculture. It controls fresh water through aquifer storage and the flow of rivers, and is increasingly important as a source of geothermal energy and renewables such as hydroelectric power. Critically, sustainable use of these resources requires an understanding of geodiversity. For example, managing natural processes is critical in responding to the risks of natural hazards such as flooding, coastal change and landslides, whilst peat and soils have an important role in mitigating pollution through carbon storage.

England's geodiversity also underpins biodiversity. It provides a rich tapestry of rocks, landforms, soils, water, nutrients and natural processes that support locally, nationally and internationally valued habitats, species and ecosystems. Healthy biodiversity depends on robust geodiversity. Geodiversity also provides key links between people and their 'sense of place' because it characterises our natural and built environments. Through underpinning the character and function of our landscapes, geodiversity connects deeply with human history, culture, industry and creative expression, providing inspiration for art, literature, music, poetry and science.

From p.3 of the Geodiversity Charter for England

Geo-heritage narratives and interpretation principles

The way people understand and value heritage is often linked very strongly to the way they experience it. Our direct experience of geo-heritage occurs physically with objects (fossils and minerals) and through the character of our landscapes and communities (which are strongly influenced by geology). But it also occurs within our minds, as we imagine past worlds and extinct creatures. Framing geo-heritage based on how people experience it allows us to outline three broad, overlapping narrative categories.

Landscape
The substance and character of where we live

Diverse geology gives rise to a huge variety of landscapes we can directly experience and enjoy. The various properties of different rocks create the hills, valleys, dales, mountains, marshes and moors of our countryside. It controls soil types and water sources, dictates how natural processes like erosion function, and influences the character and distribution of habitats. Within this rich diversity our society has grown and flourished, responding to the opportunities it offers. All of these connections and relationships are transient, subject to ongoing environmental change, underpinned by processes and events reaching back millions of years into the deep past of our planet.

Cultural Geology[11]
The relationships between people and geology

From landscape art to coal mines, geodiversity has been a vital source of nourishment for human society, influencing both tangible, intangible and even personal aspects of our culture. Our reliance on the services provided or influenced by geodiversity (fuel, minerals, soils, water, etc.) shaped our society as populations relocated to be nearer valuable resources. Not only has this relationship helped us to flourish it has also facilitated our scientific investigations of Earth history, enhancing our understanding of our planet and our impacts on it. Perhaps the most visible testament to our intimate relationship with geology comes in the form of stone buildings, from lowly rural barns to architectural masterpieces like St Paul's Cathedral. The use of local stone often defines the character of our towns and villages, while the availability of high quality building stone has enabled an outpouring of creative expression across the centuries. We encounter the pervasive but locally distinct influence of geodiversity in almost every aspect of our cultural surroundings. It provides a physical, economic and emotional context for our experiences as individuals – a personal geodiversity, helping to shape our outlook on the world.

11 Key reference: Rose Ferraby. Stone Exposures, A Cultural Geology of the Jurassic Coast World Heritage Site. Unpublished PhD, University of Exeter.

Earth History
Discovering the story of our planet

The scientific understanding of the history of the Earth has come through the study of rocks, fossils and natural processes. This includes the structure and geological systems of the Earth, the evolution of life across billions of years of time, and the origin of our own species and the biodiversity we see today. It also reveals the complex and often catastrophic variation in climate experienced by our planet, helping us understand the implications of modern climate change. Collected objects and natural or man-made exposures of rocks and fossils are tangible gateways to these remarkable stories.

We can use three principles – perspective, intimacy and imagination – to take advantage of the ways people encounter the geo-heritage of Landscape, Cultural Geology and Earth History. These principles draw on the powerful connections between geodiversity, landscape and people, and seek to reveal deeper meanings within geo-heritage, evoke emotional responses beyond awe and wonder, and invest rocks, fossils and Earth processes with a more immediate sense of relevance.

PRINCIPLE ONE
Perspective

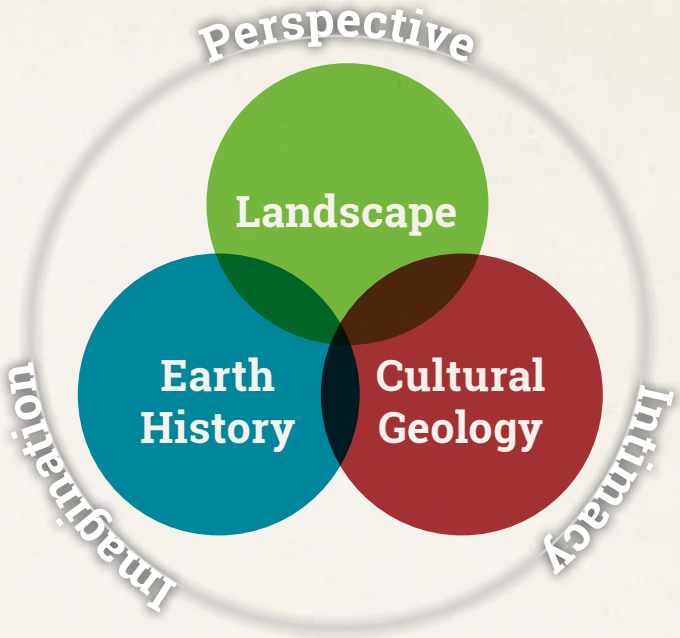
Reveal what lies beyond the horizon of a human perspective
Challenge innate perceptions of the natural world and signpost the reality of larger processes at work in framing our place within the landscape and how we experience it.

PRINCIPLE TWO
Intimacy

Present the human connection as intimate
Geodiversity has nurtured our society, culture and most basic human characteristics and needs, from survival to industry and creative expression. In turn, we give a voice to the stories locked within the silent rocks.

PRINCIPLE THREE
Imagination

Give a sense of agency to the human imagination
Human curiosity and imagination have made us custodians of stories from deep time. In that way, imagination plays a key role for people participating in, and sustaining, geo-heritage.



Category	Narratives	Interpretive principle	Emotional provocation	Revealed meaning
Landscape	Stories about deep time and/or huge change at the landscape, global and cosmic scale.	**Perspective**	Awe, wonder, a sense of smallness in the face of vast processes, distances and time.	Our **place** in the story of our planet
Cultural Geology	Local and personal human stories about our relationship with geodiversity.	**Intimacy**	Relevance Sense of place Identity Custodianship	Our **connections** to geodiversity
Earth History	Stories about the human role in revealing the way our planet works. People bringing the past to life, becoming storytellers, and turning geology into heritage.	**Imagination**	Agency Custodianship Responsibility	Our **role** with respect to geo-heritage

PART THREE

Interpreting the Jurassic Coast World Heritage Site

The Dorset and East Devon Coast is valued as a special place for many different reasons, just one of which is the World Heritage designation. For this reason the Jurassic Coast requires a thoughtful approach to interpretation planning.

It is a large site with a great many stories, and with a huge potential for varied interpretation methods.

Presented here are various elements to aid interpretive planning:

- **A 'Spirit of Place Statement'** provides a perspective of what is special about the Jurassic Coast. It is not definitive, but intended to provoke reflection about people's attitudes and relationships with the World Heritage Site. It is a starting point that draws out connections between our audiences and the Site's unique natural heritage.

- **Audience segment profiles** offer an analysis of local audience data, with information about the motivations and preferences of key groups.

- **Overarching narrative concepts** for the Jurassic Coast define the Site's core heritage values.

- **Seven interpretive themes** help explore the key concepts and guide content development.

- **Broad and site specific topics** begin to unpick the detailed geodiversity of the Jurassic Coast, and present a selection of subjects to fit the seven themes at different locations along the Site.

THE JURASSIC COAST SPIRIT OF PLACE

The Jurassic Coast is a hugely diverse and beautiful landscape underpinned by incredible geology of global importance. The area's rocks, fossils and landforms have long been known to be a source of valuable scientific discovery. In a geological record spanning the Triassic, Jurassic and Cretaceous periods we glimpse the profound environmental changes that occur across deep time.

Fossils of strange and terrifying extinct creatures tumble from the cliffs to change the way we see the world. Out of rock falls, landslides and storm-battered beaches we gain insights into the creation of the coastline itself. In 2001, the Jurassic Coast was inscribed onto the World Heritage List, recognising that it is a unique and outstanding place to explore Earth's history, the evolution of life and the natural processes that shape our landscapes.

Along this largely unspoilt coastline, nature continues to craft a dramatic and scenic wonder of the world. Its diversity provides an opportunity for many different and unforgettable experiences, from lazy-summer beach days and family barbecues to soul-stirring, lonely walks in wind-swept winter. Nestled in towns and villages are museums and visitor centres that help to bring the Jurassic Coast's heritage to life. These vital hubs showcase exceptional fossils and local heritage, and many offer unique activities such as coasteering, fossil hunting and even musical geology walks.

Relatively secluded from busy commuter routes and urban stress, this World Heritage Site is a playground for the adventurous. Welcoming coastal communities and paths aplenty make it easy for people step off the beaten track and explore its treasures at their own pace. Everyone can find their own special place on the World Heritage Site, where fresh hidden gems wait around each headland and over every hill. Relationships with the Jurassic Coast last a lifetime and for many there is nowhere they would rather be.

Through it all runs the incredible geology that connects the deep past of our planet to our lives today. In exploring this magnificent landscape, we discover how geodiversity has shaped distinctive communities, wildlife habitats, a sense of place and our connections to nature. As we come to know the Jurassic Coast, we bind ourselves to stories of stone.

The landscape of the Jurassic Coast is a feast for the senses. Its stories stimulate mind, body and soul. It captures our imagination, and invites us to find a sense of belonging, to return again and again to experience all it has to offer.

Understanding our audiences

There are many reasons why people choose to visit the Dorset and East Devon Coast, from day trips to adventure holidays, dog walking to long distance running.

Having insight into our audiences is vital for effective interpretation. Projects that start with understanding their intended audiences will have more impact and ultimately provide a higher quality experience of the World Heritage Site.

Audience research carried out in 2017 by Lemon Drizzle and the Jurassic Coast Trust* identified four broad local** groups, each with their own motivations and preferences for how they might engage with the World Heritage Site. These are summarised below together with an outline of cross-cutting barriers to engagement.

*Data drawn from Audience Agency cultural activity segmentation, council data analysts, on-line census data and Sport England Getting Active Outdoors study.

**Local in this context is defined as a 40-mile catchment around the Dorset and East Devon Coast World Heritage Site.

'My special place'

This is not a distinct segment but a general characteristic across all our audiences.

Many people who visit the Jurassic Coast regularly will have a favourite spot that they return to again and again. Even if visits only take place once every few years, their motivation to come back will be associated with time spent in a 'special place', perhaps with family or friends. These relationships with particular places can span lifetimes and even be passed down to children and grandchildren. The diverse nature of the World Heritage Site has created a coast where there are hundreds of 'special places' that are loved and valued by visitors and residents alike. The opportunity for interpretation in this case is to connect people's personal experiences of the coast with its unique heritage, and invite them to find new special places by exploring different parts of the Jurassic Coast.

Memory Makers

13% of local audience (25% at the eastern end of the coast)

Typically young, independent adults with no children, this group emphasises spending time on the coast to socialise with friends and share fun experiences. They are more likely to engage with interpretation that facilitates a new, adventurous way to see the coast. Alternatively, they might seek out an organised activity such as coasteering or mountain biking that they can do with friends. In general, they respond positively to peer-to-peer recommendation and less so to anything packaged or overly curated. Interpretation should aim to help this audience connect their experiences to a strong sense of place underpinned by the unique natural heritage of the coast. Potentially, their experiences will become the early memories that establish their 'special places' and a life-long relationship with the Jurassic Coast. Interpretation should aim to facilitate that process.

Jurassic Coast Lifestylers

37% of the local audience

This inclusive segment gathers together families of all types as well as older couples. Typically they seek to make the most of their time and place a high value on shared experiences. Visits often revolve around hobbies, familiar places where access is easy, or where the facilities are good and there is infrastructure that aids relaxation and socialising. Whilst they are interested in exploring the coast and engaging with its heritage, they are sensitive to the investment needed to do so, both of time and money. Interpretation should aim to incentivise exploration of the coast and build confidence that the investment will not be wasted. This can apply to spontaneous afternoon family walks, visiting special weekend events, or local people simply getting outdoors for health and fitness. Cost is not necessarily a barrier. Interpretation can play a key role in encouraging this group to visit new places and can help facilitate relaxing and entertaining experiences. It can help establish the natural heritage of the Jurassic Coast as a part of their lifestyle. There are particular preferences found between younger and older families:

Young families

Younger families place an emphasis on visiting the coast for 'family time'. They tend to have a 'kids first' attitude. Parents will perceive their investment of time spent on the coast as good if their children have positive

experiences, but children themselves also represent a particular opportunity. Interpretation aimed specifically at children can help create for them happy experiences and important memories that in turn encourage a lifelong relationship with the World Heritage Site.

Older families and couples

With less pressure to entertain children, the older families and couples within this group may be more confident whilst out and about, and tend to have more time and energy to engage with the heritage of the coast. They have an enquiring nature and enjoy learning as a part of their shared experiences. This might occur as time spent developing their own skills and hobbies (photography is popular) or simply including visitor centres and museums within their planned days out.

Heritage Explorers

14% of local audience

With a bias towards mature adults, this group tends to be made up of fairly affluent, well-educated people with older families or who are nearing retirement. They tend to have more spare time and are more interested in self-improvement than the other groups. Their motivations for visiting the Jurassic Coast revolve around fitness, learning and simply enjoying the outdoors. This group is the most likely to engage with interpretation that has more depth and that is delivered in more traditional ways, such as museum displays and static panels. They are confident, self-led explorers who can use digital media to plan and make the most of their time, and often enjoy strenuous activity such as hiking. They are likely to be interested in higher level narratives around conservation, UNESCO and what it means to be a World Heritage Site. Interpretation should aim to promote the Jurassic Coast as a destination to stimulate body and mind It should also emphasise the diversity of the coast's landscape as an opportunity for repeat visits and deeper exploration. Interpretation should also emphasise the diversity of the Jurassic Coast's landscape as an opportunity for repeat visits and deeper exploration.

Seaside and Sandwiches

19% of the local audience

Mainly older adults who may or may not be retired, this group tend to be more conservative. They are less likely to engage with digital or web-based interpretation, preferring more traditional approaches such as panels or guidebooks. Their interests are typically local and specific. They would rather find out about the local history of a town than engage with large scale narratives about nature, World Heritage and the coast. They are not averse to enjoying the outdoors, but generally opt for gentle, non-challenging activities. Interpretation should aim to make links between the geodiversity of the coast and local history and heritage. Interpretation delivered via special exhibits, leaflets and books or short guided walks are likely to be popular. Whilst this group is the least likely to engage with the unique natural heritage of the Jurassic Coast, there is a distinct opportunity to illuminate for them the role of geology and landscape in shaping the history and identity of local communities

Barriers to engagement

For most people, the main barriers to visiting a place like the Jurassic Coast are:
- Lack of time
- Weather
- Lack of opportunity in relation to transport
- Lack of confidence
- Lack of appropriate information

For Families the main difficulties revolve around:
- Planning
- Organising
- Transportation
- Cumulative costs (financial and emotional).

Learning

In general, 'learning' is not a primary reason for people going outdoors or engaging with the natural environment. If it is overemphasised, it can be a turn-off for some groups.

Risk

Perceived risk can be a barrier to people engaging with the natural environment, but awareness of risk is something we seek to promote on the Jurassic Coast. Many people simply do not perceive the danger presented by rockfalls, landslides, mudflows and storms.

Interpretation can help by:

- Making visiting the Jurassic Coast easy
- Helping people feel confident about accessing and enjoying the coast
- Providing a diversity of engagement opportunities (something for any occasion)
- Providing bespoke content for children
- Positioning learning as something that adds value and enhances a wider engagement experience
- Helping to raise awareness of coastal risks in innovative and engaging ways
- Promoting responsible and safe ways for people to explore and enjoy the landscape

KEY NARRATIVE CONCEPTS

The Jurassic Coast is a unique geological site with Outstanding Universal Value. Two key concepts describe the Jurassic Coast's core World Heritage value and the broader relevance of its geodiversity. These narratives encompass the Site's international significance, and help to draw out the connections between geology, people and place.

KEY CONCEPT ONE
A Walk Through Time

Take a 'Walk Through Time' in Dorset and East Devon, where the coast whispers to us of lost landscapes and Earth's ancient past.

The Jurassic Coast presents a Walk Through Time of 185 million years of geological and biological change. The rocks and fossils exposed along the Site represent a unique record of Earth's history. Since those rock layers formed, 66 million years of geomorphological transformation and some Alpine mountain building have helped create a spectacular modern landscape. Its diverse landforms and active natural processes make the Jurassic Coast an exceptional place to study the development and evolution of coastlines.

This key concept is explicitly linked to World Heritage criteria viii, under which the coast was designated, and represents a single idea that underpins the various qualities that contributed to its nomination. The Walk Through Time is derived from the way the rocks are exposed. The entire rock record on the Jurassic Coast is tilted gently to the east, creating a progressive exposure of younger and younger layers working west to east. The Site's linear geography matches the linear narrative of change through geological time. Each point on the coast reveals a different part of this story.

The Geology of the Jurassic Coast records almost the entire Mesozoic Era. The Mesozoic is made up of the Triassic, Jurassic and Cretaceous periods, and covers the time between 252 and 66 million years ago.

DELIVERING
KEY CONCEPT ONE

The Walk Through Time is a site-wide concept that unites the hugely diverse geology and geomorphology of the Jurassic Coast into a single, compelling idea. It is the starting point for developing interpretation about the Jurassic Coast.

Central to interpreting the Walk Through Time within site-specific projects is the idea of the **'String of Pearls'**. This concept reflects the linear nature of the coast and the fact that local stories often relate to a particular or unique aspect within the wider WHS. Alternatively, the approach could be thought of as interpreting the footsteps on the Walk Through Time, with each location representing a different part of the Mesozoic Era or different aspect of the Site's special landscape. In practice, it means delivery of interpretation that is locally distinctive but coherently part of the interpretation of the entire WHS. Within this framework seven themes are provided to help interpretation planners to capitalise on locally distinctive stories. For Key Concept One see themes one to five.

Pages 44–57 include tables that identify some local stories for 14 sections of the WHS. In essence, these tables are an audit of some of the site-specific opportunities for interpretation along WHS.

As well as being a conceptual idea, the Walk Through Time is also something that people can do physically whilst on the coast. Where there are opportunities to do so, interpretation of Key Concept 1 should highlight the ways in which the Walk Through Time can be explored. For example, through walking routes, suggested viewpoints, museum fossil collections and activities such as boat trips. Partners should endeavour to research ways in which the Walk Through Time, or elements of it, can be accessed physically, intellectually and emotionally within the scope of their interpretation projects.

The 'String of Pearls' concept relies on several principles:

- Identification of strong, local stories that relate to the OUV and setting of the WHS
- Projects that develop community involvement and ownership
- Partnership and co-ordination to reduce replication and enhance the unique aspects of local projects
- Partnership and co-ordination to enable strategic planning for delivery and fundraising
- Consistent messaging about the WHS to establish a site-wide identity and improve visitor experience

Key geo-heritage topic & principle

Earth History – Imagination

Landscape – Perspective

Desirable Outcomes

Learning
Most people appreciate that local geo-heritage is part of a wider Walk Through Time that forms a World Heritage Site.

Emotional
Most people feel inspired by the amazing story of the World Heritage Site.

Behavioural
Most people are motivated to explore the Walk Through Time by visiting other places on the Jurassic Coast.

KEY CONCEPT TWO

I didn't realise rocks mattered.

The truth of the unseen, the underground and the commonplace are easily overlooked, but we are bound to stories of stone and the profound importance of the rocks that lie, metaphorically and literally, just beneath the surface.

The heritage values of the World Heritage Site are not always the highest priority for interpretation projects along the coast. However, the unique geology exposed on the Jurassic Coast is the foundation for many of the other distinctive qualities of Dorset and East Devon. Geodiversity (the variety of rocks, fossils, soils and natural processes) underpins landscape, biodiversity, our communities and our culture, meaning that geology fits easily with stories about wildlife, social history and the natural beauty of the area. Interpreting geological heritage in this way will benefit the World Heritage Site indirectly by raising the profile of geodiversity.

In turn, the Site's World Heritage status can help to elevate interest in the wider stories associated with the coast.

DELIVERING
KEY CONCEPT TWO

Key Concept Two can be applied site-wide, particularly for interpretation that doesn't take the WHS as a core subject.

The message here is about how geodiversity influences our surroundings and communities, from the shape of the landscape to the opportunities it provided to our ancestors. Geodiversity can help interpret other heritage stories by providing a context for the changes that have shaped the area over the last few thousand years. Within this framework seven themes are provided to help interpretation planners to capitalise on locally distinctive stories. For Key Concept Two see themes six and seven.

Rocks connect with:

- Building stone
- Quarries
- Water
- The shape of the landscape
- Soil type
- Distribution of different habitat types
- Human settlements, industry and culture

The geo-heritage interpretation principles of perspective and intimacy are key here. Interpretation should aim to move beyond presenting geodiversity as merely a backdrop, and endeavour to make it a vital part of the relationship between people and place. For example, it should highlight how certain building stones have enabled creative expression or economic growth, rather than simply explain their traditional uses. Or how the natural beauty found in a landscape is not only a product of a particular geodiversity but is subject to change in the future as well, both human and natural.

Alternatively, geodiversity can be the driver for the interpretation. Using this key concept as its cue, interpretation can explore social history and biodiversity through the influence of geodiversity, referencing the WHS designation as a part of the wider and ongoing story of the relationship between people and geology.

Key geo-heritage topic and principle

Cultural geology – Intimacy

Landscape – Perspective

Desirable Outcomes

Learning
Most people understand that local geo-heritage has a fundamental influence on local character.

Emotional
Most people feel a connection between local geodiversity, people and place.

Behavioural
Most people are more likely to think of geodiversity as relevant to them.

INTERPRETATION THEMES

The following seven themes explore different elements of the key narrative concepts.

They are intended to guide content development and help interpretation planners to capitalise on locally distinctive stories. There is no hierarchy and each theme can draw on ideas or information belonging to another. When creating interpretation project plans, they can be incorporated, adapted or simply used as reference.

Themes one to five mainly deliver Key Concept One by focusing on exploring the Earth Science of the Jurassic Coast and the international significance of the Site. Themes six and seven help deliver Key Concept Two by exploring the influence and importance of geodiversiy.

Theme One: Earth Stories

Like a locked library, the Jurassic Coast's geology contains a hidden history of the entire Mesozoic Era. Science and imagination open the door.

Theme Two: Life's Legacy

Jurassic Coast fossils chronicle the evolution, extinction and survival of Mesozoic species. Like all life today, we live and breathe as part of their legacy.

Theme Three: A Landscape Adventure

The Jurassic Coast is a landscape laboratory, continually shaped and reshaped by unique geodiversity. Explorers, students and scientists thrive on its varied, distinctive beauty.

Theme Four: The Power of Nature

Erosion created this dynamic coastline. Time, tide and natural change are at the heart of its heritage.

Theme Five: Outstanding Universal Value

The Jurassic Coast is in a global family of World Heritage Sites that illuminate humanity's collective history, identity, and relationship with nature.

Theme Six: The Land and its People

The Jurassic Coast's geodiversity nurtures discovery, creativity and distinctive communities. It adds meaning to life and landscape, binding people to stories of stone.

Theme Severn: The Wild Coast

This diverse and dynamic coast harbours rare habitats, providing a vital refuge for the wildlife that shares our world.

THEME ONE
Earth Stories

Like a locked library, the Jurassic Coast's geology contains a hidden history of the entire Mesozoic Era. Science and imagination open the door.

Theme One relates to the unique geology of the Jurassic Coast. The emphasis is on the rock record itself and the strong narrative it provides of millions of years of environmental change spanning almost the entire Mesozoic Era. It also draws on the role of human endeavour in bringing those past environments to life, scientifically and imaginatively.

Dealing with things of such extreme age can have immediate impact, creating feelings of awe and wonder, and prompting people to marvel at our position within the natural history of our planet.

However, it is important to also consider that interpreting stories about the deep past involves describing places that no longer exist. Audiences have to imagine the Mesozoic events and environments that are recorded by the Site's geology. For example, East Devon is no longer covered by a desert. Those conditions are not something an audience can experience directly during a visit to the Jurassic Coast, nor do the rocks disclose those stories without some sort of intervention to help people see and interpret the evidence. The Mesozoic 'places' we evoke are effectively imaginary and so are experienced internally.

One of the consequences of millions of years of change is a highly diverse rock sequence. The varying properties of rocks – hardness, colour etc. – has created a diverse landscape, which of course is directly experienced by people. That physical connection between the way rocks formed and their impact on today's landscapes means there is significant overlap between themes one to three.

THEME ONE
Earth Stories

Interpretation should...

Aim to illustrate the environments and changes of the geological past, and highlight connections between those stories, people and landscape.

For example:

- By highlighting how geological heritage cannot be revealed without people; from scientists both past and present who unlock the rock record, to an individual visitor passing on those stories to their family and friends. The lost worlds of the Mesozoic now only exist in our imaginations, inviting us all to become story-tellers.

- By indicating how ancient processes have provided the foundation for our current landscape – a place where we find enjoyment and beauty

Key geo-heritage topic and principle

Earth History – Imagination

Desirable outcomes

Learning
Most people understand that rocks reveal what the landscape used to be like millions of years ago, and that this concept lies at the heart of the coast's World Heritage status.

Emotional
Most people feel a sense of agency in bringing the geological past to life.

Behavioural
Most people feel inspired to explore landscapes as a way of experiencing geodiversity.

THEME TWO
Life's Legacy

Jurassic Coast fossils chronicle the evolution, extinction and survival of Mesozoic species. Like all life today, we live and breathe as part of their legacy.

Theme Two relates to the unique fossil record of the Jurassic Coast. In a similar way to Theme One the emphasis is on the strong narrative provided by fossils that span the Mesozoic Era. Fossils are of great interest to a wide audience and are often one of the most popular subjects related to the World Heritage Site.

While fossils are widespread along the Jurassic Coast, it is not always appropriate to use them as a headline story for interpretation. In certain places there are no fossils at all or if there are, they are inaccessible or of poor quality. Interpreting the Walk Through Time, and implementing the concept of the String of Pearls, means that local fossils should always be used as a guide for whether Theme Two has a strong part to play in an interpretation project. The tables on pages 44–57 begin this process.

Some recurring topics and key considerations for interpreting the fossils of the Jurassic Coast are:

- Fossils provide evidence of evolution of life over the course of Earth's history
- Fossils help us to understand how life today came to be
- Fossils form in many different and sometimes complex ways
- Some fossils are directly related to modern species, others are not
- Fossils help us to piece together Earth history e.g. guide and Zone fossils
- Museums play a key role in providing audiences with access to fossil specimens from the Jurassic Coast. That includes local museums as well as national institutions like the Natural History Museum in London.
- Through centuries of scientific fascination and thousands of years of folklore and myth, fossils have, and continue to contribute to, our cultural experience and identity.
- Fossil collecting is a sensitive subject and is not always an appropriate activity. In general, only Charmouth is promoted as a sustainable locality for fossil collecting.

THEME TWO
Life's Legacy

Interpretation should...

Interpretation should aim to help audiences to understand fossils and emphasise the legacy of prehistoric life in the modern world. It should also make links between specimens and stories, and the emotional experiences people can have with fossils – awe, wonder, discovery, obsession, curiosity, inspiration. Building on this, interpretation of fossils can also be used to explore the impacts humans are having on current ecosystems, both positive and negative.

Key geo-heritage topic and principle

Earth History – Imagination

Desirable outcomes

Learning
Most people understand that Jurassic fossils reveal the ecosystems of the Mesozoic for this part of the world.

Emotional
Most people feel a sense of awe and wonder at our connection to past life.

Behavioural
Most people feel inspired to visit different local museums and see distinctive fossil collections from the WHS, and are aware that fossil collecting is not always possible on the Jurassic Coast.

THEME THREE
A Landscape Adventure

The Jurassic Coast is a landscape laboratory, continually shaped and reshaped by unique geodiversity. Explorers, students and scientists thrive on its varied, distinctive beauty.

Theme Three relates to the way in which the geodiversity of the World Heritage Site gives rise to a spectacularly diverse coastal landscape. Its emphasis is on what this landscape offers, from the sensory experience of spending time exploring its diversity, to the scientific study of coastal geomorphology. Understanding the role of geology in creating the landscape can help people appreciate certain natural processes that they may not be aware of, and that stretch across millions of years. This gives the human viewpoint a fresh perspective and can elicit feelings of awe and a sense of smallness in a large and changing world.

Crucially, the link between geodiversity and landscape means that Theme Three is key to encouraging people to physically explore and 'do' the Walk Through Time.

Although the World Heritage Site was not designated for its natural beauty, large parts of it lie within the East Devon and Dorset Areas of Outstanding Natural Beauty (AONBs) and there are strong links between the Site's beautiful scenery and its geodiversity.

Six National Character Area profiles cover the Jurassic Coast and offer excellent overviews of the connections between geology and landscape. All NCA profiles are available online and those covering the Jurassic Coast are: 136, 137, 138, 139, 147 and 148.

THEME THREE
A Landscape Adventure

Interpretation should...

Interpretation should aim to reveal the often hidden role of geodiversity in creating spectacular landscapes. It should aim to make strong links between the geological stories and the modern landscape character and highlight the opportunities provided by such rich landscape diversity. Notions of long term relationships and 'special places' described in the Jurassic Coast Spirit of Place statement are of particular relevance (see page 17).

Key geo-heritage topic and principle

Landscape – Perspective

Desirable outcomes

Learning
Most people understand role of geodiversity in creating the spectacular landscapes of the Jurassic Coast and that this forms part of its World Heritage status.

Emotional
Most people feel encouraged to build a relationship with the landscape of the Jurassic Coast and find their own 'special place'.

Behavioural
Most people are inspired to physically explore the walk through time.

THEME FOUR
The Power of Nature

Erosion created this dynamic coastline. Time, tide and natural change are at the heart of its heritage.

Theme Four relates to the ongoing processes that shape the Jurassic Coast. It emphasises natural erosion as the means by which this remarkable and celebrated site has been created and continues to evolve.

Along most of the Site, the cliffs change very slowly as weathering and erosion fritter away the rock face. As separate events, even dramatic rock falls and landslides may not necessarily cause significant change. It is the cumulative effect of these everyday processes together, that, over time, profoundly reshape the landscape.

Ongoing natural erosion is the main driver for the conservation of the World Heritage site because it keeps the geology exposed and accessible. That same process underpins many associated interests, such as protected coastal wildlife habitats. It is also the reason for the wild and rugged natural beauty of the coast, which in turn is an important asset to local tourism and the wider economy of Dorset and East Devon.

At its heart this theme is about the positive consequences of natural change, but people don't always see it that way. People who live here value the coast highly but worry about the impact of natural change on their communities. Large storms are a particular concern, as they have the potential to cause sudden change along large stretches of coast. There is only a short period of warning before major storm events, and the impacts of storms are much greater when they cluster together (like they did in February 2014). Climate change predicts an increase in these sorts of events, meaning that the idea of community adaptation may become much more important in the future.

The processes of natural change also present more immediate risks. Every summer there is widespread media interest in the threat posed to beach users by rock falls and landslides. The behaviour of many people seems to indicate a low awareness of coastal hazards amongst the public. Raising awareness of these hazards, and the effective and consistent communication of safety messages, is of key concern.

Whilst erosion is a good thing for the World Heritage designation, it is important to recognise that there is a complex mixture of emotions and interests surrounding this theme.

THEME FOUR
The Power of Nature

Interpretation should...

Interpretation should seek to reveal the positive role of erosion and challenge assumptions about our relationship with the natural world, including attitudes towards risk. It should highlight the role of erosion in creating things that people value about the coast, but include areas of conflict where appropriate. Messages should remain positive, emphasising action we can take to preserve both the wonderful natural character of this special place and the communities who live, work and play here.

Key geo-heritage topic and principle

Cultural Geology – Intimacy

Desirable outcomes

Learning
Most people are aware of the different mechanisms and impacts of natural erosion, and understand the key role it plays in the conservation of the WHS.

Emotional
Most people appreciate how nature and people benefit from the ongoing change caused by natural erosion.

Behavioural
Most people are aware of the risks posed by natural erosion and understand how to explore the WHS safely and responsibly.

THEME FIVE
Outstanding Universal Value

The Jurassic Coast is in a global family of World Heritage Sites that illuminate humanity's collective history, identity, and relationship with nature.

Theme Five relates to the idea that lies behind the World Heritage programme – that World Heritage Sites belong to everyone, irrespective of the territory on which they are located. The implication is that not only is every World Heritage Site universally valuable, but universally relevant, to all cultures, all nations and all people. In this way, they help to deliver the UNESCO mission of building peaceful relationships between nations, cultures and peoples.

This is a profound idea and a key component of the heritage story of the Jurassic Coast. As a World Heritage Site, it belongs to a family of special places that have the capacity to unite people around compelling stories. Each site can be thought of as an example of a particular narrative, whether it is human creative genius, or habitats that are crucial to preserving the biodiversity on which humans depend. The Jurassic Coast is an example of our relationship with rocks, fossils and landscape, from scientific investigation to artistic inspiration.

In this way, World Heritage is not simply a badge of honour or mark of quality. It indicates a place where there is the potential for a deep learning experience, helping us to understand our place in the long history of our planet.

Interpretation should...

Interpretation should aim to incorporate these ideas by inviting reflection, and asking questions about what it means to humanity to be able to understand Earth History.

Key geo-heritage topic and principle

Cultural Geology – Intimacy

Desirable outcomes

Learning
Most people appreciate the purpose of UNESCO's World Heritage programme and understand the concept of OUV.

Emotional
Most people are inspired to reflect on what it means to humanity to be able to understand Earth History through places like the Jurassic Coast.

Behavioural
Most people feel inspired to visit other World Heritage Sites.

THEME FIVE
Outstanding Universal Value

THEME SIX
The Land & Its People

The Jurassic Coast's geodiversity nurtures discovery, creativity and distinctive communities. It adds meaning to life and landscape, binding people to stories of stone.

This theme connects the globally important geodiversity of the Jurassic Coast to the social history stories of Dorset and East Devon. The communities along the World Heritage Site act as gateways to the wider coast. Involving local social history in Jurassic Coast interpretation is an important way to give communities a sense of ownership of interpretation projects, and helps reinforce the links between the natural and cultural aspects of the coastline.

The relationship between people and geodiversity is intimate. It is useful to think of the geology of the coast as providing opportunities – building stone, oil, beaches, rich soil, sheltered valleys, fresh groundwater. The particular nature of those opportunities depends on local geodiversity and so in that way rocks influence human activity and culture.

Perhaps the most obvious example is local building stone, which varies along the length of the Jurassic Coast and gives a distinct local character to towns and villages. Often these materials have fed into historical events at different times and for different reasons. For example, high quality flint from Beer in East Devon was used throughout the South West in the Stone Age and then actively quarried during the English civil war for use in muskets.

The important aspect of this theme is that the geodiversity of the Jurassic Coast is experienced through its influence on social history. In this way, the cultural geology of the WHS is part of its setting.

Including the influence of geology in social history stories can help people to better understand their communities. In that context, the World Heritage Designation can become part of the social history story, reflecting a modern appreciation for this special landscape and a desire to protect it for future generations.

Crucially, the emphasis this theme gives to the connection between people and rocks at the local level ties directly into the 'string of pearls' concept, and provides a platform for telling truly distinct local stories.

A developing approach towards managing heritage sites is to emphasise that nature and culture are closely related. UNESCO is encouraging this practice at all World Heritage Sites.

Interpretation should...

Interpretation should present the connections between the coast's geodiversity and local history and culture by including local knowledge, stories and information. As well as drawing out tangible impacts that geodiversity has had on social history, emphasis should also be given to the influence geology has had on intangible aspects of culture, and feelings and expressions of identity.

Artists are often inspired by the Jurassic Coast. Lorna Rees and Adele Keeley created this 'Sedimentary Skirt' to represent the different rock layers and geological time periods of the World Heritage Site.

Key geo-heritage topic and principle

Cultural Geology – Intimacy

Desirable outcomes

Learning
Most people appreciate that geodiversity has influenced local social history and culture.

Emotional
Most people feel sensitive to the influence geodiversity has had on expressions of identity and of sense of place.

Behavioural
Most people will be motivated to seek out the local distinctiveness of Jurassic Coast communities.

THEME SIX
The Land & Its People

THEME SEVEN
The Wild Coast

This diverse and dynamic coast harbours rare habitats, providing a vital refuge for the wildlife that shares our world.

This theme relates to the connection between wildlife and the unique geodiversity of the Jurassic Coast.

Habitats are closely tied to underlying geology. Rock type influences soil, surface processes and the shape of the land. For example, the clay cliffs between Lyme Regis and Charmouth collapse into large landslides that are constantly moving and breaking up the ground, providing an important habitat for certain pioneering plants and insects. Meanwhile, around Lulworth, the limestone cliffs and Chalk downs are home to the rare Lulworth Skipper butterfly.

The wildlife interests along the Dorset and East Devon Coast are as rich and varied as the geology, particularly for birds, insects and plant life. Purbeck, for example, has been described as the most biodiverse landscape in England. It is no coincidence that it is also one of the most geodiverse landscapes in England too.

THEME SEVEN
The Wild Coast

Interpretation should...

Interpretation should aim to present these links in a way that emphasises local distinctiveness, and highlights the role of geology in providing important habitats. It should also seek to show that the Site's geodiversity is expressed through the coast's biodiversity which in turn forms a valuable part of how we experience the World Heritage Site. Wildlife can be a rich source of emotional resonance whilst exploring the coast. The connection with geology can anchor these experiences, building a stronger relationship between people and place.

Key geo-heritage topic and principle

Landscape – Perspective

Desirable outcomes

Learning
Most people appreciate the link between the biodiversity and the geodiversity of the Jurassic Coast.

Emotional
Audiences are inspired to reflect on how geodiversity is experienced through the diverse wildlife of the Site.

Behavioural
Audiences are motivated to explore the locally distinctive wildlife of the Jurassic Coast.

Broad narratives

Creating content with the seven themes will involve drawing on broad and site-specific stories. The broad stories summarised here can be crucial in helping audiences understand the large-scale processes at work in creating this unique heritage site, and help to link particular features of the coast with the overarching concept of the Walk Through Time.

The formation of the Jurassic Coast

[For accompanying diagrams see pg 13 of the official guide to the Jurassic Coast].

Triassic Period

(252 – 201 million years ago)

Rocks form in desert conditions. Vast rivers flow through baking deserts, depositing thick layers of pebbles and sand. Huge shallow lakes spill across the desert plains.

Jurassic Period

(201 – 145 million years ago)

Sea Levels rise, flooding the deserts. Ammonites, marine reptiles and other life flourish in the tropical seas. A thick sequence of clays, sandstone and limestones is deposited.

Cretaceous Period

(145 – 66 million years ago)

Sea levels drop in the early Cretaceous. Rocks form in swamps, forests and lagoons (a). Earth movements then tilt all the rocks to the east (b), and the rock layers are eroded (c). Sea levels rise again later in the Cretaceous, depositing clays, sandstones and the chalk in the deepening marine conditions.

Paleogene and Neogene Periods

(66-2.5 million years ago)

After the Mesozoic Era, mammals came to dominate life on earth. Massive earth movements form the Alps and create great folds in the Weymouth and Purbeck areas. The plateaus of East Devon and Dorset are uplifted.

Quaternary Period

(2.5 million years ago to present day)

Erosion creates the hills and valleys of the present landscape. A series of ice ages and rapid changes in sea level take place. In the last glacial period, sea level drops to over 100m lower than today. The last ice age ends 10,000 years ago and sea levels rise to create the modern coastline.

Environmental changes through time

The **Triassic** period is characterised by hot, desert conditions that began during the preceding period (the Permian). Triassic rocks are dominated by sandstones and muds, coloured red by iron minerals that oxidised in the arid environment. Most of the sediment that formed the rocks was derived from mountains that existed in the area of modern Brittany. Sea level rise towards the end of the Triassic flooded the desert.

The **Jurassic** period was dominated by marine conditions. Jurassic rocks are characterised by several 'rhythms' of sea level rise and gradual fall. The basic pattern shows clay, sandstone and then limestone rocks in sequence. The Jurassic ended with a fall in sea level exposing the area as a low lying coastal landscape.

The **Cretaceous** period begins with coastal swamps, lagoons, forests and salt flats, all of which are subsequently replaced by a large river system flowing from the area of Dartmoor eastwards. Sea level rise towards the middle of the Cretaceous leads to a return to marine conditions. Sea level reached a peak at roughly 200m higher than today. This reduced the amount of sediment derived from land to make new rocks, and led to the formation of the chalk, which is comprised largely of fossilised plankton.

Plate Tectonics

The formation of the supercontinent Pangaea, roughly 300 million years ago, set the stage for the beginning of the Mesozoic Era. Volcanic eruptions prior to the break-up of Pangea triggered a major mass extinction at the end of the Triassic Period. Tectonic processes during the break-up caused the crust to sink in the Dorset and East Devon area (called the Wessex basin). This allowed layers of sediment to build up almost continuously over millions of years. The result was a near-complete rock record of that time. The same tectonic processes explain why the rock record was tilted to the east. Ongoing tectonic activity created deep breaks through the geology (faults). The rock layers were able to move up or down either side of these faults. Movement occurred at different times. One of the most important movements happened 25 million years ago and was caused by the formation of the Alps. Faults, along with tilted and folded layers of rock, control the shape of landscapes, particularly around Weymouth and Purbeck.

Evolution and extinction events

The Permian mass extinction is crucial to understanding the evolution of life through the Mesozoic Era. It caused the replacement of earlier life (from the Palaeozoic Era) with a more modern form of ecosystem, and led to the rise of reptiles and mammals. The Triassic mass extinction is another major extinction event, and thought to be caused by intense volcanic activity. It had a significant impact on life in the sea and on land, allowing dinosaurs and other large reptiles to assume dominant roles.

Our Triassic fossils record the coexistence of reptiles and older groups of animals, such as giant amphibians. By the Jurassic, reptiles dominated world, and dinosaurs, pterosaurs and giant marine reptiles prevailed in most habitats. Mammals had also appeared by this time and continued to become more successful and diverse into the Cretaceous Period. In the mid-Cretaceous, environmental pressures that are not fully understood began to affect Earth's ecosystems, meaning that many groups of animals were vulnerable when the end-Cretaceous mass extinction occurred. This event wiped out around 75% of life including the dinosaurs, giant marine reptiles, pterosaurs and ammonites. It is not recorded in our rocks because the layers of that age were eroded away within 20 million years after the Cretaceous came to an end.

What happened after the Cretaceous?

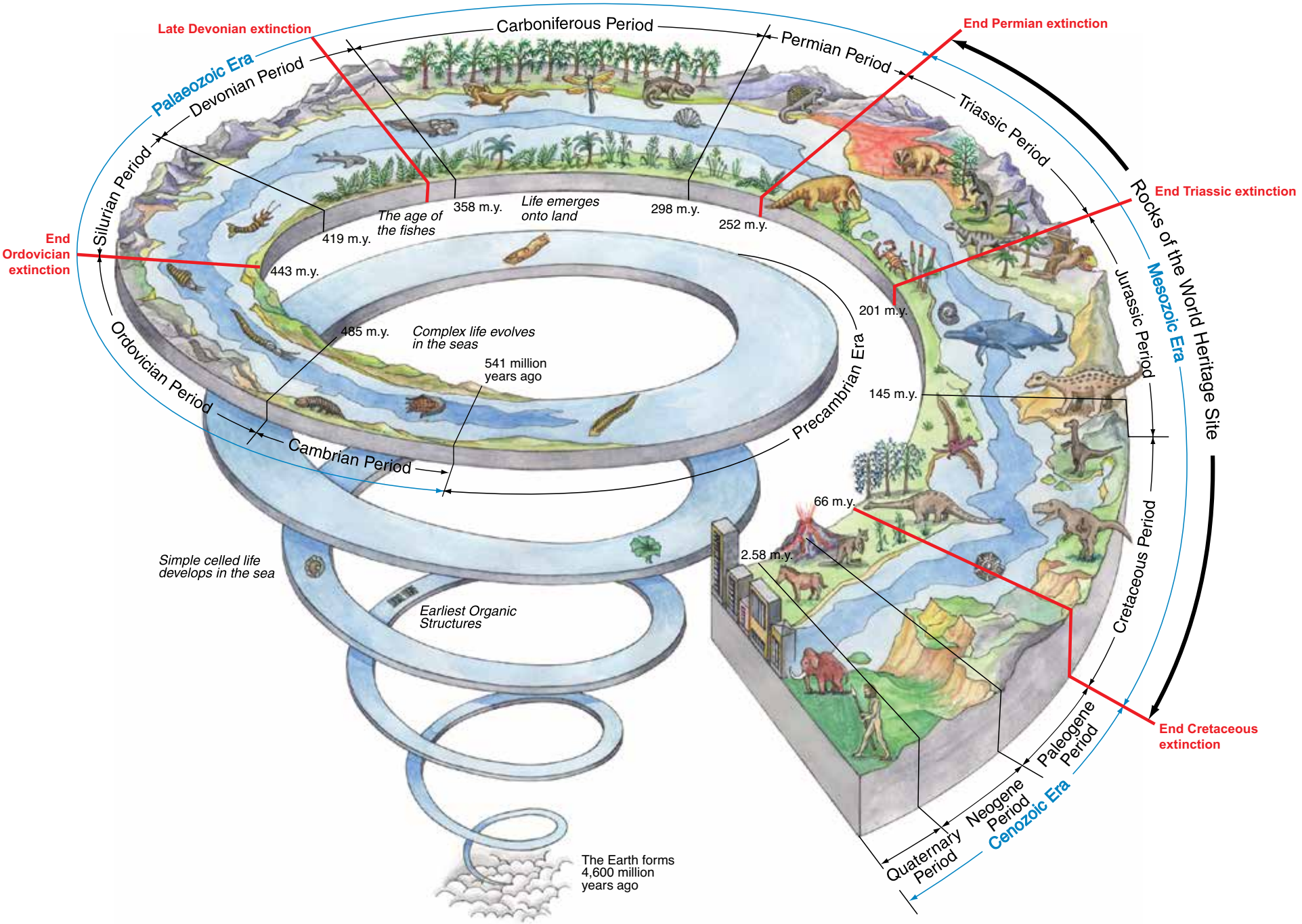
Post-cretaceous events began in the Palaeogene Period with the erosion of the chalk, particularly in the west where it was entirely eroded away in many parts of East Devon. Lots of gravel was left behind by this process and was deposited across Dorset and East Devon. Subsequent uplift has caused the erosion of much of that gravel, leaving pockets preserved on flat hill tops, particularly in East Devon and West Dorset. More layers were laid down at this time, but these are largely only preserved to the east, underpinning much of the Dorset heathland and forming the coast from Studland round to Christchurch and beyond.

The tectonic forces associated with the formation of the Alps around 25 million years ago had a profound effect on the geodiversity of the Jurassic Coast. Rocks in the Weymouth and Purbeck areas of Dorset were uplifted and eroded, forming the distinct landscapes of those areas, including iconic landforms such as Durdle Door. The ice ages represent the last major stage in shaping the landscape of the WHS. Ice sheets never extended this far south, but periods of cold and warm caused major changes in sea level and freeze-thaw erosion inland. This led to the creation of raised beaches on Portland and the current Chesil Beach, as well as most of the river catchments and valleys that open out on the coast. Many of these were subsequently settled by humans.

The changes in sea levels during the ice ages shaped the bays cliffs we see today. In the process, complex geological structures created by tectonic forces were cut across and exposed on the sea bed. These are visible today via imagery such as the DORIS map (www.dorsetwildlifetrust.org.uk/doris). The spectacular features evident on the seabed are rarely seen on land, where the detail of the geology is hidden beneath soil and vegetation.

Storms and Climate Change

Whilst ongoing erosion is a continuous process, the most dramatic changes are caused suddenly by large storm events, particularly when such events occur in close succession over one season. Even relatively minor storms can cause huge changes if they rapidly follow one another. If the predicted increase in stormy conditions does occur with climate change, then we might expect changes to occur more rapidly in the future.


Late Devonian extinction
Carboniferous Period
Permian Period
End Permian extinction
Palaeozoic Era
Devonian Period
Triassic Period
Silurian Period
End Triassic extinction
Rocks of the World Heritage Site
Mesozoic Era
The age of the fishes
358 m.y.
Life emerges onto land
298 m.y.
252 m.y.
End Ordovician extinction
419 m.y.
Jurassic Period
443 m.y.
201 m.y.
485 m.y.
Complex life evolves in the seas
541 million years ago
Precambrian Era
Ordovician Period
145 m.y.
Cambrian Period
66 m.y.
Simple celled life develops in the sea
2.58 m.y.
Cretaceous Period
Earliest Organic Structures
Paleogene Period
End Cretaceous extinction
Neogene Period
Quaternary Period
Cenozoic Era
The Earth forms 4,600 million years ago

Site specific topics

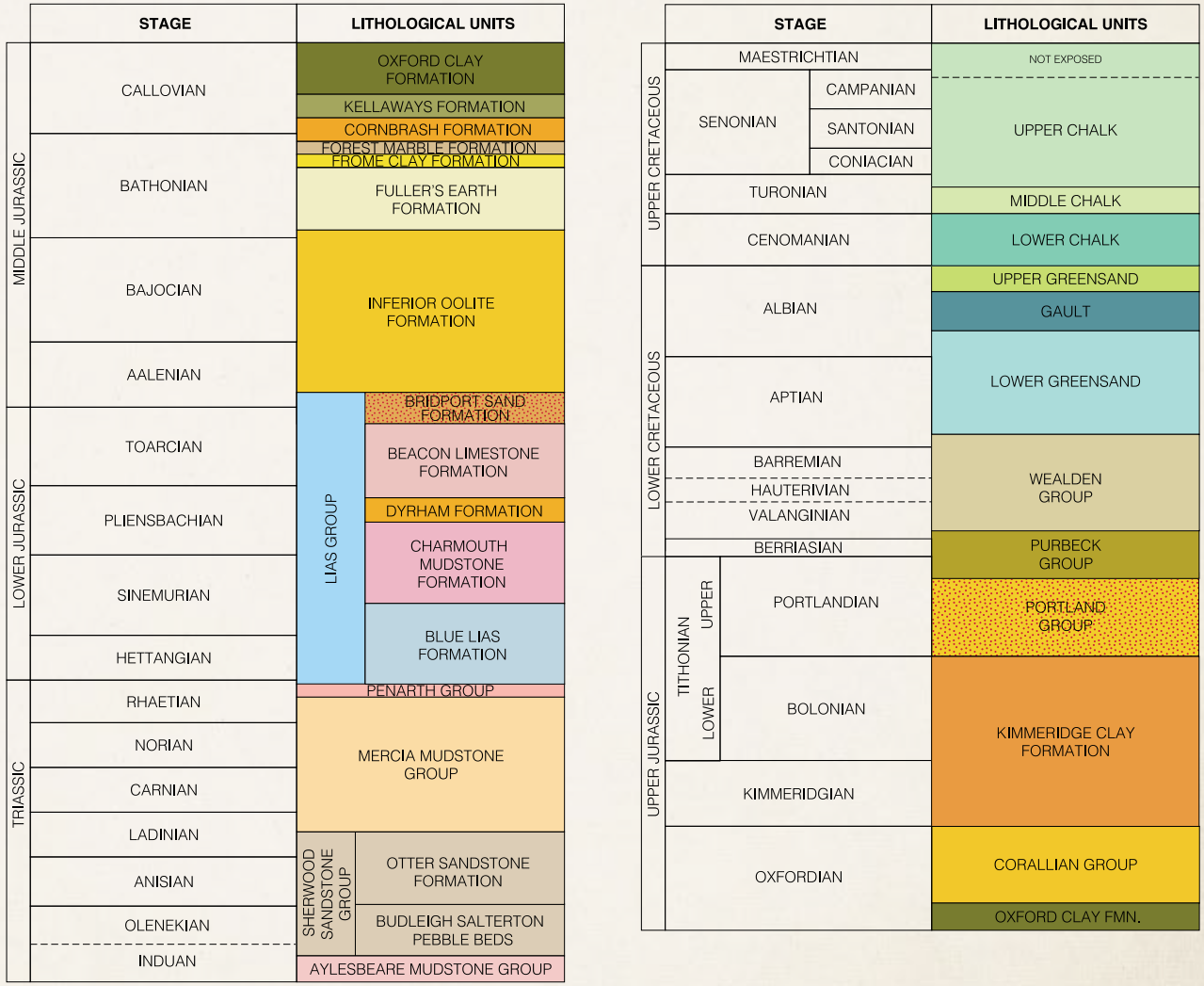
The following section provides a brief audit of the various site-specific stories that are found along the coast, and arranges them into the thematic framework. They are given as an outline list of potential topics to work with and as prompts for further research. The following chart can be used in conjunction with the coastal diagrams to follow the rock sequence.

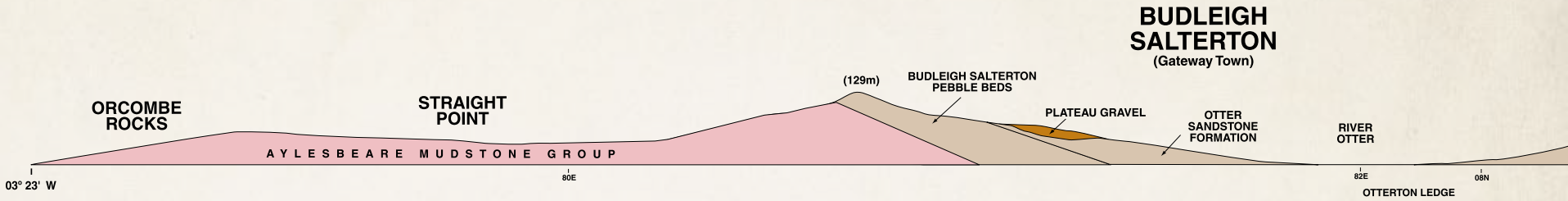
For up-to-date ages to match against this chart, download the International Geological Time Scale here: www.stratigraphy.org

The Aylesbeare Mudstone Group is considered to be Permian in age by some sources.

The terms lower, middle and upper chalk have been replaced by a more refined sequence. For more information please refer to Geology of the Dorset Coast by John C.W.Cope, Geologists' Association Guide No.22.

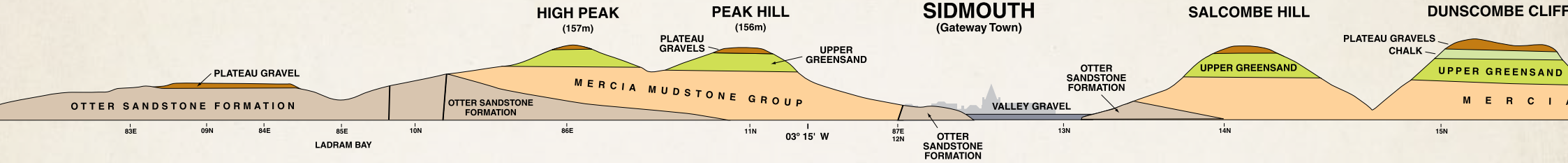
Summary of the rock units found along the Jurassic Coast





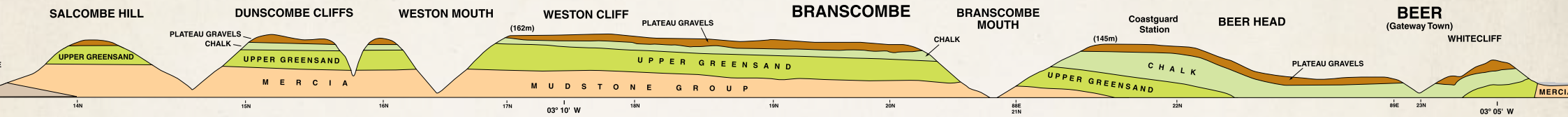
ORCOMBE POINT TO THE MOUTH OF THE RIVER OTTER

Earth Stories	Late Permian – mid Triassic geology, 265 – 240 million years old Desert environments including flash floods, sand dunes and seasonal rivers Excellent examples of faults and easterly dipping layers Radioactive nodules
Life's Legacy	Aftermath of Permian mass extinction Relics of much older Palaeozoic fossils in Budleigh Salterton pebbles Traces of Triassic plant roots
A Landscape Adventure	Mouth of the River Exe Sandy Bay beach Budleigh Salterton Beach Pebblebed Heaths River Otter
The Power of Nature	Erosion has recycled ancient pebbles to create the storm beach at Budleigh Salterton
Outstanding Universal Value	Western end of the World Heritage Site and geology near the Permian / Triassic boundary
The Land and its People	Salt production in the Otter Estuary Lyme kilns at Budleigh Salterton
The Wild Coast	Orchids and coastal meadows near Orcombe Point Heathland habitat of the Pebblebed Heaths
Associated nearby interests	Ancient terraces of the River Exe Views west towards the English Riviera Global Geopark



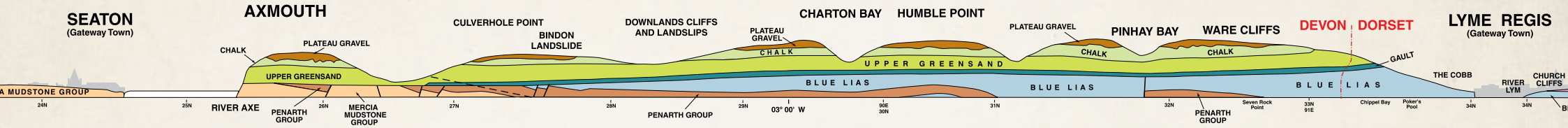
THE MOUTH OF THE RIVER OTTER TO PENNINGTON POINT

Earth Stories	Mid-late Triassic Geology 240 – 210 million years old Desert environment dominated by seasonal rivers, streams and lakes Early Cretaceous geology 105 – 100 million years old Shallow sea environments Unconformity between Triassic and Cretaceous rocks
Life's Legacy	Rare but exceptional Triassic fossils including amphibians, reptiles, fish, insects, plants and fossil footprints Recovery of life following Permian mass extinction
A Landscape Adventure	Ladram Bay sea stacks Gentle Triassic clay valley and steep-sided Cretaceous sandstone hilltops River Sid
The Power of Nature	The creative power of the sea to create stacks, caves and arches
Outstanding Universal Value	Internationally important source of Triassic fossils
The Land and its People	Seaside resort Managing coastal erosion at Sidmouth
The Wild Coast	Otter Estuary salt marsh
Associated nearby interests	Geologically controlled hills and vales inland



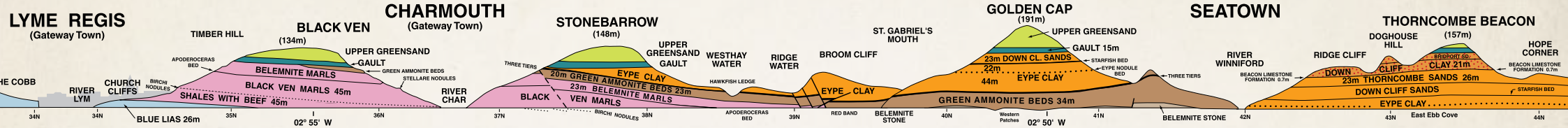
PENNINGTON POINT TO AXMOUTH

Earth Stories	Mid-late Triassic Geology 240 – 210 million years old Desert environment dominated by seasonal rivers, streams and lakes Early Cretaceous geology 105 – 100 million years old Late Cretaceous geology 100 - 90 million years old	Shallow sea environments with rising sea levels over time Unconformity between Triassic and Cretaceous rocks Seaton Hole fault
Life's Legacy	Rare but exceptional Triassic fossils including amphibians, reptiles, fish, insects, plants and fossil footprints Recovery of life following Permian mass extinction	Heteromorph ammonites and other early Cretaceous and Chalk fossils Chalk rock made of countless microscopic fossils of plankton
A Landscape Adventure	Gentle Triassic clay valley and steep sided Cretaceous sandstone hilltops	Hooken Landslide Beer Head Axe estuary
The Power of Nature	Landslides Growth and depletion of beaches	
Outstanding Universal Value	Internationally important source of Triassic fossils (near Sidmouth)	
The Land and its People	Strong local character derived from use of Beer and Salcombe stone, chert and flint as building stone National use of high quality Beer stone Beer Quarry Caves	Beer flint (Neolithic and civil war use) Fishing off Beer beach Cliff potato plants Seaton seaside resort
The Wild Coast	Diverse plants growing on acid gravels and chalky soils	
Associated nearby interests	Plateau gravels capping the hills representing a 50 million year old land surface	



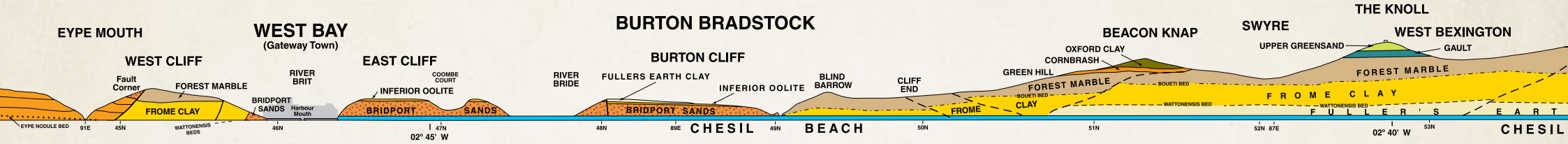
AXMOUTH TO LYME REGIS

Earth Stories	Late-Triassic Geology 220 – 201 million years old Desert environment dominated by seasonal lakes which evaporated leaving behind minerals like gypsum Mudstones and limestones showing a change from desert conditions to a warm shallow sea Early Jurassic Geology 201 – 198 million years old	Limestone and clay rocks laid down in a warm shallow sea. Repeating layers in Blue Lias linked to changes in Earth's orbit. Early to late Cretaceous geology 105 – 90 million years old Shallow sea environments with rising sea levels over time Unconformity between Triassic and Cretaceous rocks
Life's Legacy	Recovery of life following end-Triassic mass extinction World famous well preserved lower Jurassic fossils including ammonites, marine reptiles and other marine species	Heteromorph ammonites and other early Cretaceous and Chalk fossils
A Landscape Adventure	Major landslides creating a near-wilderness landscape	
The Power of Nature	Landslides and threats to Lyme Regis from coastal erosion	
Outstanding Universal Value	A Birthplace of palaeontology	
The Land and its People	History of quarrying Blue Lias for building and making lime cement Abandoning of undercliffs after major landslides Bindon landslide - first scientific description of a landslide, includes associated illustrations and paintings	Early pioneering palaeontologists' life and work in and around Lyme Regis Role of fossils in making Lyme Regis a regency and modern seaside resort Managing coastal change at Lyme Regis through engineered defences
The Wild Coast	Undercliffs National Nature Reserve – major wildlife interest including woodland, grassland and foreshore	
Associated nearby interests	Plateau gravels capping the hills representing a 50 million year old land surface Axe Estuary Wetlands	Axe Valley – link to William Buckland's geological theories of catastrophism and the biblical flood. Lyme Bay marine life



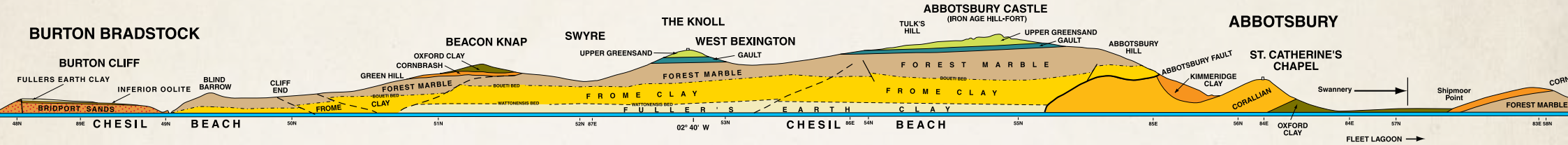
LYME REGIS TO SEATOWN

Earth Stories	Early Jurassic geology, 201 – 185 million years old Marine environments with occasional low oxygen and exceptional preservation of fossils	Early Cretaceous geology – 105 – 100 million years old Shallow sea environments with rising sea levels over time Unconformity between Jurassic and Cretaceous rocks
Life's Legacy	Recovery of life following end-Triassic mass extinction Exceptional fossils of Early Jurassic giant marine reptiles, fish and insects Scelidosaurus – an early armoured dinosaur unique to the Jurassic Coast	Dimorphodon – best source in the world of this unusual pterosaur Cretaceous fossils include lobsters, sea urchins and rare plants
A Landscape Adventure	Golden Cap - the highest point on the south coast of England Gentle Jurassic clay valleys and steep sided Cretaceous sandstone hilltops	Foreshore ledges River Char
The Power of Nature	Major coastal landslides of Black Ven and Stonebarrow Boulder arcs – remnants of old and ancient landslides Rock falls	Mouth of the River Char Role of erosion exposing fossils
Outstanding Universal Value	Richest source of lower Lias marine reptiles, fish and insects in the world Scelidosaurus – globally unique dinosaur	
The Land and its People	Fossil collecting Strong local character derived from use of Blue Lias and chert as building stones Cement making Mary Anning and the historical links between this area and the development of palaeontology	Evidence of human habitation since the stone age National Trust custodianship Managing coastal change at Lyme Regis through engineered defences
The Wild Coast	Internationally significant soft cliff habitat Rockpools and sabelleria colonies	Charmouth foreshore reed bed
Associated nearby interests	Plateau gravels capping the hills representing a 50 million year old land surface Marshwood Vale and surrounding hills	



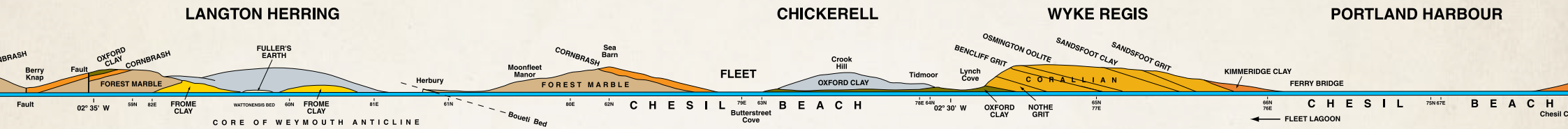
SEATOWN TO BURTON BRADSTOCK

Earth Stories	Early-mid Jurassic Geology, 185 – 166 million years old Rocks laid down in shallow tropical seas, recording sea level fall
Life's Legacy	Unique 'starfish bed' with exquisite brittle star fossils Abundant fossils from the Inferior Oolite limestone Rare and globally important mammal fossils from the Forest Marble
A Landscape Adventure	Faulting has displaced the geology vertically in places, creating sharp changes in the coastal landscape at 'fault corner', West Bay and Hive Beach River Brit Western end of Chesil Beach
The Power of Nature	Rock falls and landslides Role of erosion in exposing fossils The formation of Chesil beach
Outstanding Universal Value	Rare and globally important mammal fossils from the Forest Marble Chesil beach one of the finest examples of a barrier beach in the world
The Land and its People	West Bay - East beach management to protect the town from flooding Link between geology, agriculture and local net making industry Strong local character derived from use of Inferior Oolite and Forest Marble as building stones Thorncombe Beacon – site of one of the coastal braziers that communicated the warning of the approaching Spanish armada. West Bay harbour as a historic site of ship building
The Wild Coast	Bird migration and nesting Soft cliff habitat for plants and insects
Associated nearby interests	Strong relationship between the inland landscape, including the distinctive holloways, and features seen in the geology at the coast Lyme Bay marine life



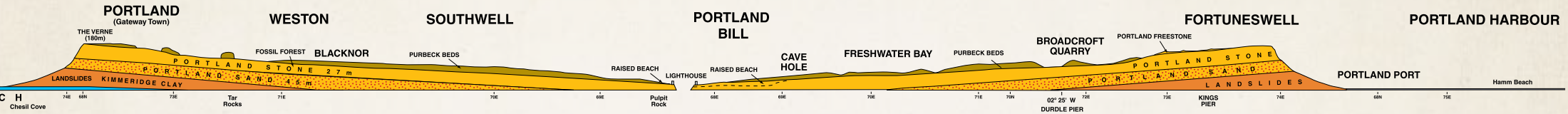
BURTON BRADSTOCK TO ABBOTSBURY

Earth Stories	Jurassic Geology, 174 – 157 million years old, showing a general fall in sea level. The geology changes sharply at Abbotsbury due to a major fault. Cretaceous geology, 105 – 100 million years old, clay and sandstone laid down in tropical sea A major fault known as the Abbotsbury fault runs from the coast below Abbotsbury Castle eastward along the base of the South Dorset Ridgeway and acts as a major geological boundary in the landscape.	The Abbotsbury fault is associated with the Weymouth Anticline, a major geological fold that controls the way rocks are exposed in the Weymouth area. The influence of the Weymouth Anticline can be seen on the WHS between Abbotsbury and White Nothe to the east of Ringstead.
Life's Legacy	Marine fossils from the Fuller's Earth, Forest Marble, Corallian and Oxford Clay Fossil interest is limited here by lack of eroding cliffs along much of the coast behind Chesil Beach.	
A Landscape Adventure	Chesil Beach, one of the finest barrier beaches in the world Fleet Lagoon	
The Power of Nature	History of the formation of Chesil and the ongoing effect of storms in moving and shaping the beach. Strong relationship between Chesil and the fleet lagoon behind. Lack of cliffs here because Chesil acts as massive natural sea defence	
Outstanding Universal Value	Chesil Beach, an exemplar of the evolution of a dynamic shingle beach and its associated habitats	
The Land and its People	Smuggling activities Fishing Historic quarrying of shingle from Chesil	
The Wild Coast	Vegetated shingle beach, marsh and lagoon habitats	
Associated nearby interests	Abbotsbury Iron Stone - a unique iron stone rock at Abbotsbury at the base of the Kimmeridge Clay Ruined Abbey as source of fine building stone recycled into the village of Abbotsbury The South Dorset Ridgeway is the inland boundary of the Weymouth Anticline and crucial to understanding the geological story around Weymouth	



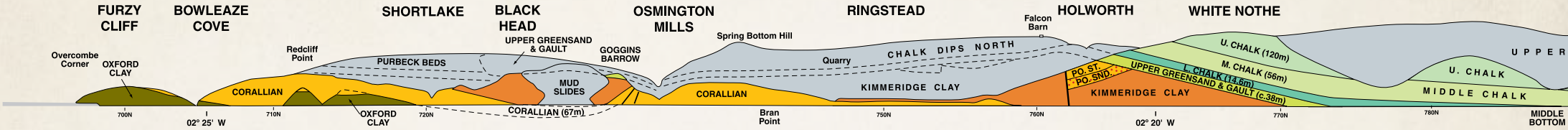
ABBOTSBURY TO FERRYBRIDGE & PORTLAND HARBOUR SHORE

Earth Stories	Jurassic geology, 168 – 157 million years old, recording changing sea levels Weymouth anticline, a major geological fold that controls the way rocks are exposed in the Weymouth area. The influence of the Weymouth Anticline can be seen on the WHS between	Abbotsbury and White Nothe to the east of Ringstead. This fold is associated with the formation of the Alps around 25 million years ago.
Life's Legacy	Important record of ammonites along with other abundant marine fossils Exquisite trace fossils in the Corallian along the shore of Portland Harbour	
A Landscape Adventure	Chesil Beach, one of the finest barrier beaches in the world Fleet Lagoon Ham Beach and Portland Harbour	Weymouth anticline - expressed in the geology exposed in the WHS and a strong influence on the coastal landscape
The Power of Nature	Portland Harbour Shore is the only part of the WHS in poor condition – a consequence of reduced natural erosion due to Portland Harbour breakwaters	History of the formation of Chesil and the ongoing effect of storms in moving and shaping the beach. Strong relationship between Chesil and the Fleet Lagoon behind. The future of Chesil Beach and its gradual decline
Outstanding Universal Value	Chesil Beach, an exemplar of the evolution of a dynamic shingle beach and its associated habitats The Weymouth anticline as an example of the global influence of plate tectonics	
The Land and its People	History of Portland Harbour, a natural anchorage protected by Chesil Beach 2012 Olympics	Current and historic use of Fleet Lagoon including Abbotsbury Swannery and the testing of the bouncing bomb during WW2 Strong local character derived from local use of Corallian and Forest Marble
The Wild Coast	Fleet Lagoon internationally important habitat	Shingle and pebble beach habitat and Little Tern colonies
Associated nearby interests	Weymouth anticline - expressed in the geology exposed in the WHS but also controls the landscape of Weymouth north to the South Dorset Ridgeway, creating a series of undulating ridges and vales with associated local histories, industries and habitats Ham beach stable sand dune habitats	



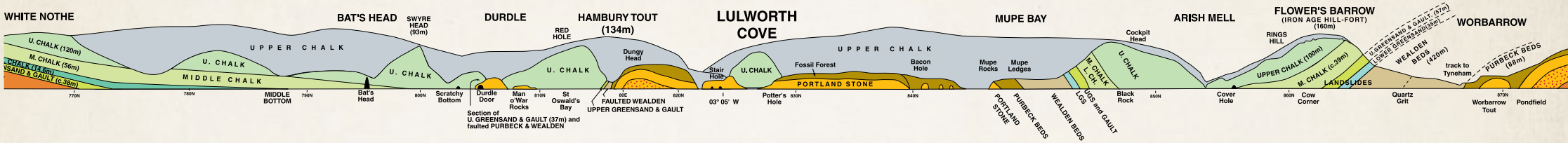
THE ISLE OF PORTLAND

Earth Stories	Jurassic geology, 150 – 145 million years old Rocks record a fall in sea level and the transition from tropical seas to swamps, forests, lagoons and salt flats. These environments continue into the early Cretaceous.	Portland's 'wedge' shape is the result of being on the southern side of the Weymouth anticline
Life's Legacy	Marine fossils from the Kimmeridge Clay and Portland Stone (the Portland Stone is an internationally important source of marine reptile fossils)	Fossil forest exposed on cliff top and in quarries Dinosaur footprints exposed in blocks of quarried stone
A Landscape Adventure	An extraordinary wild and industrial island landscape where working and disused quarries and local use of Portland Stone are key to the sense of place	Exceptional views across of Chesil Beach and the wider WHS
The Power of Nature	Landslides Raised beaches at Portland Bill	Management of flooding over Chesil Beach at Chiswell
Outstanding Universal Value	Portland Stone – an internationally important source of late Jurassic marine reptile fossils and globally famous and highly valued building stone.	The Weymouth anticline as an example of the global influence of plate tectonics
The Land and its People	Portland Stone and quarrying Mesolithic Archaeology	Portland Castle (Tudor)
The Wild Coast	Northern limit of some Mediterranean species Mosaic habitats on coasts and in disused quarries	Very rare lichens and other unique plant species Limestone grassland and butterflies Bird observatory
Associated nearby interests	Portland Bill lighthouse Sea bed imagery – DORIS map – showing the geology connecting to Purbeck as well as submerged coastlines and rivers that formed during ice ages	Weymouth anticline - expressed in the geology exposed in the WHS but also controls the landscape of Weymouth north to the South Dorset Ridgeway, creating a series of undulating ridges and vales with associated local histories, industries and habitats



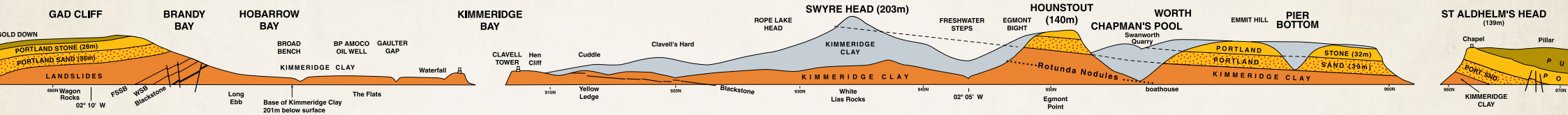
FURZY CLIFF TO WHITE NOTHE

Earth Stories	Jurassic geology, 166 – 145 million years old, rocks show fluctuating sea levels The Oxford Clay at Redcliff Point is a candidate global geological reference point (Global Stratigraphic Section and Point) Cretaceous geology, 105 – 75 million years old rocks show sea level rise The Weymouth Anticline - a major geological fold that controls the way rocks are exposed in the Weymouth area. The influence of the Weymouth Anticline can be seen on the WHS between Abbotsbury and White Nothe, to the east of Ringstead, and north across the landscape to the South Dorset Ridgeway.
Life's Legacy	Weymouth Bay Pliosaur at Dorset County Museum came from Black Head Exceptional trace fossils in the Corallian Unique dinosaur from the Oxford Clay at Furzy Cliff
A Landscape Adventure	Views out across Weymouth Bay and a varied coastline with lots of nooks and crannies Dramatic 'sheep path' up the face of White Nothe landslides
The Power of Nature	The future of Ringstead and Furzy Cliff communities in light of predicted sea level rise and climate change Transfer of shingle to manage Preston beach Active and ongoing landslides
Outstanding Universal Value	Globally significant fossil - Weymouth Bay Pliosaur The Oxford Clay candidate Global Stratigraphic Section and Point
The Land and its People	Bowleaze as a 'resort' beach Smuggling at Osmington Mills WW2 fortifications between Osmington Mills and Ringstead Ringstead
The Wild Coast	Undercliff and soft cliff mosaic habitats and cliff top grassland
Associated nearby interests	Medieval settlement at Ringstead Weymouth anticline - expressed in the geology exposed in the WHS but also controls the landscape of Weymouth north to the South Dorset Ridgeway, creating a series of undulating ridges and vales with associated local histories, industries and habitats



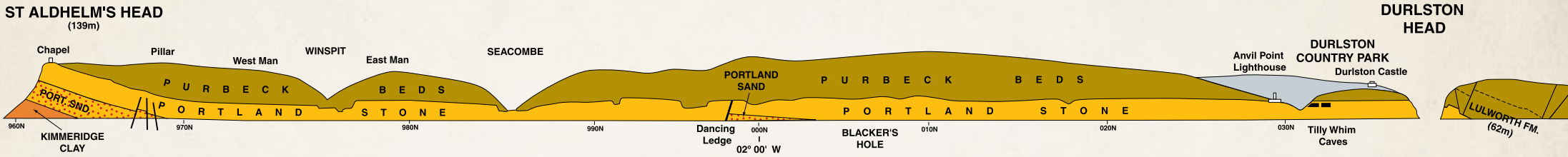
WHITE NOTHE TO GAD CLIFF

Earth Stories	Jurassic Geology 152 – 145 million years old, rocks show a fall in sea level and the establishment of coastal swamps, lagoons, forests and salt flats that persist into the Cretaceous. Cretaceous Geology 145 – 85 million years old. Rocks represent all the major environments and changes during the Cretaceous Period The coast to the east of White Nothe is heavily influenced and controlled by the Purbeck monocline, a large geological fold that is associated with the formation of the Alps.
Life's Legacy	Purbeck beds fossils and the Fossil Forest to the east of Lulworth Cove Wealden dinosaurs fragments 'Oily boulders' - first evidence of oil in Dorset Chalk and chalk fossils
A Landscape Adventure	A hugely diverse coastline with text-book features, all derived from the range of rock types and the effects of the Purbeck monocline.
The Power of Nature	Formation of Lulworth coast, often described as an outdoor laboratory of coastal evolution The future of the Lulworth coast Rock falls
Outstanding Universal Value	An exceptional area for the study of coastal systems The Purbeck monocline as an example of the global influence of plate tectonics
The Land and its People	Undeveloped Army Ranges – use of land by MOD Weld Estate management Coastguard cottages on White Nothe A mecca for geography students Flower's Barrow - cliff-top iron age hillfort
The Wild Coast	Chalk Downs and limestone grassland with associated wild flowers, insects and butterflies
Associated nearby interests	Heath hinterland Tyneham – abandoned village evacuated after MOD requisition during WW2 Purbeck monocline - expressed in the geology exposed in the WHS but also controls the landscape of Purbeck north to the Purbeck Ridgeway, creating a ridge and vale landscape with associated local histories, industries and habitats



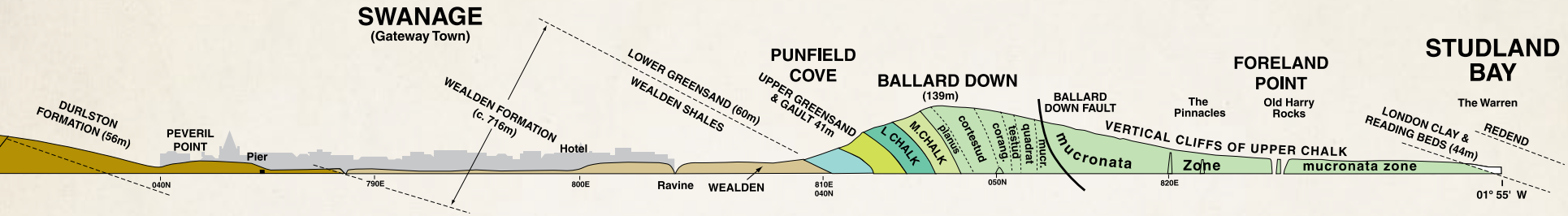
GAD CLIFF TO ST ALDHELM'S HEAD

Earth Stories	Jurassic geology, 157 – 145 million years old, rocks show a fall in sea level and the establishment of coastal swamps, lagoons, forests and salt flats that persist into the Cretaceous. This is the type locality for the Kimmeridge Clay. The Kimmeridgian stage of the Jurassic period was named after the village of Kimmeridge.
Life's Legacy	The Etches Collection at the Museum of Jurassic Marine Life is a globally important collection of fossils from the Kimmeridge clay, including new species and rare material. Oil ('liquid fossil') is sourced and extracted from older Jurassic rocks buried deep beneath Kimmeridge Bay
A Landscape Adventure	A dramatic coastline and adjacent landscape created by the relationship between rock type and the Purbeck monocline
The Power of Nature	Rock falls and landslides Clavell's Tower moved back from the cliff edge to protect it from erosion
Outstanding Universal Value	This is the type locality for the Kimmeridge Clay, the source rock for much of the North Sea oil and so one of the UK's most important economic resources The Kimmeridgian stage of the Jurassic period was named after the village of Kimmeridge. The internationally significant Etches Collection
The Land and its People	The Etches Collection Use of Kimmeridge shale from prehistoric through to recent times Kimmeridge Clay studied as source rock for North Sea oil
The Wild Coast	Kimmeridge Bay voluntary marine reserve, shoreline, rock pool and reef habitats
Associated nearby interests	Tyneham – abandoned village evacuated after MOD requisition during WW2 Purbeck monocline - expressed in the geology exposed in the WHS but also controls the landscape of Purbeck north to the Purbeck Ridgeway, creating a ridge and vale landscape with associated local histories, industries and habitats



ST ALDHELM'S HEAD TO DURLSTON HEAD

Earth Stories	Jurassic geology, 157 – 145 million years old, rocks show a fall in sea level and the establishment of coastal swamps, lagoons, forests and salt flats that persist into the Cretaceous. Cretaceous geology, 145 – 140 million years old, coastal swamps, lagoons, forests and salt flats
Life's Legacy	Durlston Bay is an incredibly rich source of Early Cretaceous fossils, including crocodiles, turtles, dinosaur footprints, pterosaurs, insects, plants, mammals and other reptiles
A Landscape Adventure	Open coast characterised with sheer limestone cliffs plunging into the sea and featuring cliff quarries and quarry caves
The Power of Nature	Slowly changing coast
Outstanding Universal Value	Durlston Country Park exhibiting Victorian attitudes towards nature
The Land and its People	Centuries old tradition of quarrying Purbeck stone, represented in various cliff quarries and quarry caves e.g. Winspit, Dancing Ledge, Tilly Whim Caves Durlston Castle and Country Park
The Wild Coast	Durlston Country Park - cliffside guillemot and puffin colonies, limestone grassland and undercliff habitats
Associated nearby interests	Norman Chapel at St Aldhelm's Head Durlston Country Park wildflower meadows and woodland Active quarries and use of Purbeck stone locally Keates Quarry dinosaur footprints Radio navigation masts at Durlston and radar development at Worth Matravers Purbeck monocline - expressed in the geology exposed in the WHS but also controls the landscape of Purbeck north to the Purbeck Ridgeway, creating a ridge and vale landscape with associated local histories, industries and habitats



DURLSTON HEAD TO STUDLAND BAY

Earth Stories	Geology spanning the end of the Jurassic period and the entire Cretaceous period, 146 – 72 million years old (The Cretaceous ends at 66 million years ago, but the chalk layers that recorded the last six million years of the Period were eroded away.) These rocks can be followed in sequence from the oldest at Durlston Head through to the youngest at South Beach, Studland Bay. Rocks record huge changes in ancient environments, from shallow tropical seas, to swamps, lagoons and lakes, to rivers and back to shallow seas again. The coast to the west of Foreland Point is heavily influenced and controlled by the Purbeck monocline, a large geological fold that is associated with the formation of the Alps.
Life's Legacy	Durlston Bay is an incredibly rich source of Early Cretaceous fossils, including crocodiles, turtles, dinosaur footprints, pterosaurs, insects, plants, mammals and other reptiles.
A Landscape Adventure	The tilted geology associated with the Purbeck monocline, with layers dipping north, has a very strong control on the entire Purbeck landscape, creating the headlands, bays, ridges and vales of the area.
The Power of Nature	The hard and soft rocks within the varied geology here have responded to natural processes in different ways, creating a varied coastline. History of the formation of the Solent includes separating of the Isle of Wight from the mainland here.
Outstanding Universal Value	Internationally famous site for the study of coastal landforms and processes Globally important site for early Cretaceous fossils, particularly reptiles and mammals.
The Land and its People	Purbeck and Portland stone famous as building materials. Quarrying is a vital industry, both historically and today. George Burt and Durlston Country Park
The Wild Coast	Chalk downland habitat Bird, butterfly and moth migration
Associated nearby interests	Durlston Country Park wildflower meadows and woodland Marine mammal sightings from Durlston Country Park Swanage pier as location for boat trips to see the coast View of Isle of Wight Wytch Farm Oil Field

Measurable targets

Evaluation is an important part of interpretation and can provide essential information to help future interpretation planning.

The following table provides some basic targets that could be measured as part of project evaluation.

Delivering the vision for the World Heritage Site		
Desired outcome	**#**	**Measurable target**
Engaged audiences yield empowered and well informed advocates for the long term protection of the Jurassic Coast.	1	Interpretation communicates: The site's Outstanding Universal Value The role of erosion in site conservation
Inspirational learning experiences help people to develop a strong and lasting relationship with the Jurassic Coast.	2	Audiences enjoy the experience offered by the interpretation
	3	Interpretation creates a strong emotional resonance
	4	Interpretation integrates the arts sector / an artistic approach into planning and delivery
	5	Interpretation leaves audiences with a desire to: Know more about the site Explore the WHS
Communities have an opportunity to express their local distinctiveness, communicate their pride in the Jurassic Coast and invest in the future of the WHS.	6	The local community was included in interpretation planning and delivery
	7	Interpretation reflects local stories and local distinctiveness
	8	Audiences understand the connection between local heritage and the geo-heritage of the WHS
People access, explore and enjoy the WHS in safe, responsible and sustainable ways.	9	Appropriate messages concerning safety and sustainability were considered as part of interpretation planning and delivery
	10	Where appropriate, audiences feel the interpretation helped them better understand beach safety
	11	Interpretation accurately represents site access and specific conservation sensitivities
	12	Interpretation was sensitive to issues of visitor pressure
The economic potential of the Jurassic Coast is used in a sustainable way and helps to build a more secure future for the protection of the WHS.	13	The interpretation project adequately considered economic pressures and site sensitivities within its area of impact
	14	The interpretation project sought opportunities to support or work with local businesses

Delivering the Key Concepts

Desired outcome	#	Measurable target
Key Concept One is delivered *Take a Walk Through Time*	15	Audiences understand the concept of the Walk Through Time and how it is expressed on the coast
	16	Audiences feel inspired by amazing story of the World Heritage Site
	17	Audiences are motivated to visit other places on the Jurassic Coast to explore the Walk Through Time
	18	Strong, local stories that relate to the OUV and setting of the WHS were identified during interpretation planning
	19	Interpretation is consistent with other local and site wide messaging about the Walk Through Time
	20	Interpretation integrates with or makes use of existing provision
	21	The ways in which the Walk Through Time, or elements of it, can be accessed physically, intellectually and emotionally were considered within the scope of the interpretation project
Key concept Two is delivered *I didn't realise Rocks Mattered*	22	Audiences understand and appreciate how geodiversity plays a vital role in the relationship between people and place
	23	Interpretation makes links to the WHS in appropriate ways

Delivering Theme One

Desired outcome	#		Measurable target
Theme One is delivered *Earth Stories*	24	*Learning*	Audiences understand that the Site's unique rock record is at the heart of its World Heritage Status
	25		Audiences appreciate the vast time scales represented within geology
	26		Audiences understand the link between different rocks and past processes
	27	*Emotional*	Audiences appreciate the link between past processes and the landscape we experience and enjoy today
	28		Audiences understand how geological heritage cannot be revealed without people and feel a sense of agency in bringing the geological past to life
	29	*Behavioural*	Most people feel inspired to explore landscapes as a way of experiencing geodiversity

Delivering Theme Two

Desired outcome	#		Measurable target
Theme Two is delivered *Life's Legacy*	30		*Interpretation prioritises local fossils in planning and delivery*
	31	*Learning*	Audiences understand that Jurassic fossils reveal the ecosystems of the Mesozoic for this part of the world
	32	*Learning*	Audiences understand that fossils form a part of the Site's World Heritage status
	33	*Learning*	Audiences have a grasp of how fossils form
	34	*Learning*	Audiences understand the link between fossils and the processes of evolution and extinction
	35	*Emotional*	Audiences feel a sense of awe and wonder that modern life, including our own species, is a direct legacy of ancient life
	36	*Behavioural*	Most people feel inspired to visit different local museums to see distinctive fossil collections from the WHS
	37	*Behavioural*	Where appropriate, interpretation makes it clear that fossil collecting is not always a desirable or safe activity
	38	*Behavioural*	Where appropriate, interpretation signposts Charmouth as the best and safest place to try fossil collecting on the Jurassic Coast and promotes the Charmouth Heritage Coast Centre as a source of on-site advice

Delivering Theme Three

Desired outcome	#		Measurable target
Theme Three is delivered *A landscape Adventure*	39	*Learning*	Audiences understand role of geodiversity in creating the spectacular landscapes of the Jurassic Coast and that this forms part of its World Heritage status.
	40	*Learning*	Audiences appreciate the link between the area's beautiful scenery and its geodiversity.
	41	*Emotional*	Audiences feel encouraged to build a relationship with the landscape of the Jurassic Coast and find their own 'special place'.
	42	*Emotional*	Interpretation refers to the rich physical and sensory experience of landscape diversity.
	43	*Behavioural*	Audiences are inspired to physically explore the Walk Through Time.

Delivering Theme Four

Desired outcome	#		Measurable target
Theme Four is delivered *The Power of Nature*	44		With reference to local audiences, the interpretation adequately and sensitively dealt with any relevant areas of conflict associated with natural erosion.
	45	*Learning*	Audiences understand the key role natural erosion plays in the conservation of the WHS.
	46	*Learning*	Interpretation refers to the different mechanisms and impacts of erosion.
	47	*Emotional*	Audiences appreciate how nature and people benefit from the ongoing change caused by natural erosion.
	48	*Emotional*	Interpretation emphasises positive messages and actions that can be taken for the benefit of both nature and our communities.
	49	*Behavioural*	Interpretation communicates appropriate safety information where it is required.

Delivering Theme Five

Desired outcome	#		Measurable target
Theme Five is delivered *Outstanding Universal Value*	50	*Learning*	Audiences appreciate the purpose of UNESCO's World Heritage programme.
	51	*Learning*	Audiences understand the concept of OUV.
	52	*Learning*	Where appropriate, interpretation includes specific examples that illustrate the global impact of Earth sScience associated with the Jurassic Coast.
	53	*Emotional*	Audiences are inspired to reflect on what it means to humanity to be able to understand Earth History through places like the Jurassic Coast.
	54	*Behavioural*	Audiences are inspired to visit other World Heritage Sites

Delivering Theme Six

Desired outcome	#	Measurable target	
Theme Six is delivered *The Land and its People*	55	*Learning*	Audiences appreciate that geodiversity has influenced local social history and culture
	56	*Learning*	Audiences know something of past and current roles geological materials and processes play in nurturing economic, industrial and creative aspects of Jurassic Coast communities
	57	*Emotional*	Audiences are inspired to reflect on how geodiversity is experienced through social history and culture
	58	*Emotional*	Audiences feel sensitive to the influence geodiversity has had on feelings and expressions of identity and a sense of place
	59	*Behavioural*	Audiences are motivated to seek out the local distinctiveness of Jurassic Coast communities

Delivering Theme Seven

Desired outcome	#	Measurable target	
Theme Seven is delivered *The Wild Coast*	60	*Learning*	Audiences understand the link between the biodiversity and the geodiversity of the Jurassic Coast.
	61	*Learning*	Interpretation emphasises local distinctiveness and highlights the role of geodiversity in providing associated habitats.
	62	*Learning*	Interpretation refers to any relevant wildlife conservation designations.
	63	*Emotional*	Audiences are inspired to reflect on how how geodiversity is experienced through the diverse wildlife of the Site.
	64	*Emotional*	Audiences feel sensitive to the role of geodiversity and wildlife in creating a sense of place.
	65	*Behavioural*	Audiences are motivated to explore the locally distinctive wildlife of Jurassic Coast

Image Credits

Cover: Mark Bauer
Cover inset: Eddy Pearce
Alan Holiday: 1; Anjana Ford: 24; Bridport Museum, Moonfleet Photography: 28 inset; Danni Donovan: 4; Dorset County Museum, Moonfleet photography: 29 inset; Frank Peters (www.frank-peters.nl): 30; James Price: 5; Jurassic Coast Trust 8, 11, 15, 20, 22 inset, 28, 31 inset, 32 inset, 33 inset, 34, 34 inset, 35 inset, 39 inset, 41,42, 43, 44-57; Lorna Rees and Adele Keeley: 37 inset; National Trust: 7; Rose Ferraby: 22; Sam Rose: 32; Steve Belasco: 30 inset, 36, 36 inset, 38, 38 inset; Tom Chamberlain: 26, 26 inset, 27 inset, 40; William Smith: 12.

JURASSIC COAST TRUST

The Jurassic Coast Trust is the independent charity responsible for managing the Jurassic Coast World Heritage Site (registered charity number 1101134).

Our vision is that everyone loves, understands and values the Jurassic Coast.

Our mission is to enable everyone to have the best possible experience of the Jurassic Coast, whether they want to learn, enjoy, work or study.

Jurassic Coast Trust HQ
Mountfield
Bridport
Dorset
Jurassic Coast
DT6 3JP

www.jurassiccoast.org
Jurassic Coast Trust
@jurassic_coast

heritage lottery fund
LOTTERY FUNDED