

Managing geological specimen collecting: Charmouth case study

This case study has been written to help explain the guidance provided in TIN111. It illustrates fossil collecting from an eroding coast. Charmouth lies within the West Dorset Coast Site of Special Scientific Interest and the Dorset and East Devon Coast World Heritage Site (WHS), known as the Jurassic Coast. The coastal cliffs and landslides at Charmouth comprise limestones and mudstones that are the richest source of Lower Jurassic reptiles, fish and insects anywhere in the world. The management approach is a combination of open and open-managed collecting, with open collecting for fossils on the beach and open-managed for fossils in the cliff.

Understanding the fossil resource

The nature of the site

Landslides are caused by the geology combined with heavy rainfall and coastal erosion. Here, impermeable Lower Jurassic clays are overlain by permeable Upper Greensand. The constantly eroding foreshore and cliffs, together with the landslides, are classified as an exposure site.

The process of exposure

New fossil-rich exposures are revealed regularly, either *in situ* within the cliffs and foreshore, in rock falls and landslides and amongst the eroded material on the beach, particularly after strong winter storms.

The nature of the interest

Marine reptiles, fish, insects, plants and marine invertebrates can all be found, including, a diversity of ammonites for which Charmouth is celebrated.

The nature of collecting

The site is one of Britain's best known fossil-collecting locations and has attracted a large variety of collectors for over 200 years.



The beach between Charmouth and Golden Cap, Dorset. Jurassic age fossils are frequently found on the beach.
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Ownership

The National Trust and the Charmouth Parish Council are the two major site landowners. Parts of the foreshore are owned by the Crown Estate and a number of private estates.

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The nature of the access

The beaches at Charmouth can be freely accessed by the public at any time (except during high tide and in storm conditions).

The skills of collecting

Fossils of great scientific interest can be found by anyone but their recovery can often require both skill and experience. Common and rare fossils are regularly found by both locals and visitors.

Research and museum collections

Discoveries new to science continue to be made by local collectors both amateur and professional, for example *Leptonectes moorei* (a Jurassic ichthyosaur) was discovered in 1994 and is now part of the Natural History Museum collection. Others include unique insects donated to the Natural History Museum, several other ichthyosaurs, fish and an almost complete example of *Scelidosaurus*, known as “The Charmouth dinosaur”.

Management options and issues

A rapidly eroding and changing coastline constantly reveals fossils. Equally, the same coastal processes potentially damage and remove fossils. The recovery of fossil specimens through collecting is therefore an important part of the conservation and management of the fossil resource. Applying the principles of responsible collecting ensures that, wherever possible, scientifically important specimens are recovered and that collecting continues into the future.

There are significant health and safety risks associated with crossing the landslides and collecting directly from cliff faces. These need to be addressed as part of collecting management.

Given the amount of public interest and open access to the beaches and cliff faces, the collecting pressure on the site is very high. However, the threat of that pressure to the resource is relatively low as fossils are usually plentiful and are constantly being replenished by natural coastal processes.

Selecting the management approach

As the site is extensive, continually changing and widely accessible, it is impractical, as well as unsightly to install and maintain any form of physical barrier against collecting loose and *in situ* fossils or to restrict access in all but the most extreme cases.

Similarly, it is not viable to constantly ‘police’ and control collecting. The most effective way of managing collecting is through co-operation and understanding between landowners, collectors, relevant researchers and those with a remit for protecting the environment through clear communication and promoting good practice.

As a consequence the West Dorset Collecting Code of Conduct was agreed following wide consultation between landowners, managers, local fossil collectors, museums and the scientific community.

The Code, which applies to National Trust, Charmouth Parish Council and Crown Estate land only, recognises the crucial role that collectors play in the recovery of fossils.

Collectors are required not to dig *in situ* without permission. If collectors wish to extract fossils directly from the cliffs, they must obtain permission from the landowner (‘Open-Managed Collecting’), unless the specimen is at immediate risk and prepare a risk assessment to protect themselves and others from their activities.

To comply with the Code, all ‘key scientifically important fossils’ should be registered as part of the recording scheme, managed by the Charmouth Heritage Coast Centre. The Heritage Centre is located on the beach front, and provides information and advice on good collecting practice. Specimens are displayed here to encourage local communication between collectors, academics and visitors.

Tourists are encouraged to follow a Visitors Fossil Hunting Code (open collecting). The Code provides advice on:

- where to look for fossils;

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- what might be found;
- how to use a geological hammer;
- how to look after any finds; and
- safety information.

Heritage Centre staff have also developed a wide-ranging programme of events for GCSE and A Level students and throughout the year families and visitors are invited to a number of fossil hunting activity days on the beaches.

Since 2008 Dorset County Council has employed a summer Fossil Warden to monitor the beaches. As local collectors were involved in the development of the full Code and recording scheme, they are generally content with the principles of the Code and the vast majority fully adhere to it. The role of the summer Warden is to ensure that tourists are aware of health and safety issues, particularly discouraging irresponsible collecting.

The National Trust developed its own Collecting Policy (National Trust, 2007) as a way of managing collecting on all Trust land throughout the UK. The aims of the policy are to: 'promote responsible and safe geological collecting on Trust land, where appropriate; minimise loss and damage to geological specimens and sites; and to share the significance and beauty of geological specimens with local communities, interest groups and individuals for all to appreciate and enjoy'.

Monitoring and progress

The use of both 'Open' and 'Open-managed' collecting approaches in different areas of the site allows greater flexibility for the site managers to meet their management aims of safe and sustainable collecting, whilst still actively encouraging collectors to visit Charmouth to benefit from the abundance and diversity of fossils. Those collectors in turn, provide the best possible chance for important fossils to be rescued from the sea.

The fossil recording scheme provides a mechanism to record specimens of key scientific interest and also a method for monitoring whether collectors are following the principles of the Code.

A key issue is that very few of these specimens have actually been acquired by accredited museums. Heritage Centre staff also consider the Fossil Warden to have a significant effect on communication of best practice and have noticed a reduction in the number of times that they would need to guide collectors away from digging the cliffs.

Monitoring of the site's overall condition is required as part of its status as a SSSI and WHS.

As part of the on-going monitoring of the Code, and the recording scheme, a review (with wide public consultation) was undertaken in 2011. The results and recommendations are published at www.jurassiccoast.com/.

Further information

The West Dorset Fossil Collecting Code of Conduct. URL:

www.charmouth.org/chcc/downloads/WestDorsetFossilCode.PDF [Accessed March 2012].

Fossil Collecting and Beach Safety: A guide to enjoyable, safe and responsible collecting. URL: www.charmouth.org/chcc/downloads/FossilCollectingAndBeachSafety.pdf [Accessed March 2012].

Natural England Technical Information Notes are available to download from the Natural England website: www.naturalengland.org.uk. In particular see:

- TIN111: *Managing geological specimen collecting*
- TIN112: *Managing geological specimen collecting: responsible collecting*
- TIN113: *Managing geological specimen collecting: caves*
- TIN115: *Managing geological specimen collecting: Fowlmead Country Park case study*
- TIN116: *Managing geological specimen collecting: rock coring*
- TIN117: *Managing geological specimen collecting: Whittlesey Brick Pits and King's Dyke Nature Reserve case study*
- TIN118: *Managing geological specimen collecting: Wren's Nest case study*

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- TIN119: *Managing geological specimen collecting: Writhlington case study*
- TIN127: *Managing geological specimen collecting: Caldbeck Fells case study*

For further information contact the Natural England Enquiry Service on 0300 060 0863 or e-mail enquiries@naturalengland.org.uk.

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Authors: Hannah Townley and Jonathan Larwood (Natural England). Case study information is based upon work by Jane Poole, Jenny Higgs and Kate Harris (Capita Symonds Ltd). We would like to thank all those who provided information for or comments on the case study examples. Editor Susie Smith.

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Table 1 Summary of the management approaches at Charmouth

Management approach taken	A combination of Open and Open-Managed collecting approach
Benefits of chosen management approaches	<ul style="list-style-type: none"> • Protects the cliff faces and fossils from excavation damage. • Encourages responsible collecting which is essential to gain the best value from the resource and prevent fossils from being lost to erosion. • Requires recording of scientifically important specimens. • Uses zoned management: areas with different issues are managed to best effect. • Maintains a good relationship between collectors, academics and landowners. • Provides an effective approach for the recovery of scientifically important specimens. • Encourages understanding and enjoyment of the fossil resource.
Drawbacks of chosen management approaches	<ul style="list-style-type: none"> • Assumes compliance with the Codes by regular collectors and visitors. • There is no guarantee that key scientific specimens would go into public collections. • Relies upon trusting relationships between the site managers and collecting community. • Some digging <i>in situ</i> along fossil rich strata continues despite ground breaking legal action taken against one persistent offender.
Current monitoring situation	<ul style="list-style-type: none"> • The recording scheme provides a record of key scientific finds. • The Fossil Warden is viewed as having improved the communication of best practice. • Monitoring of the overall site condition (including <i>in situ</i> digging) is a requirement of SSSI and World Heritage Site status.