

Dartmoor Habitat Action Plan for Rocks (including tors, clitter slopes, quarries, caves, mines, cuttings and buildings)



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Exposure showing tor formation at Cherrybrook Bridge Quarry

Dartmoor National Park is an area of very high geological and geomorphological importance with many natural rocky outcrops and artificial exposures in quarries, mines, and road and railway cuttings. These are also often key wildlife habitats, supporting a range of rare and endangered species. As a result, actions to achieve conservation objectives for geological and ecological features must be integrated and are therefore combined here in a single action plan. The objectives here incorporate key geological and wildlife conservation objectives from *The Nature of Dartmoor: A Biodiversity Profile*.

Dartmoor is dominated by a granite massif, which was intruded into the country rocks of Devonian and Carboniferous age around 280 million years ago. The heat of the intrusion and associated fluids altered the surrounding sediments and volcanic rocks to form a variety of metamorphic rock types and an extensive development of metalliferous mineral veins. Where the country rocks surrounding the granite are less altered, nationally important fossil marine faunas can be found. Dartmoor's rich mineral wealth has been utilised by people since prehistoric times and is still of economic value today. Artefacts of former workings are now often of great archaeological interest.

The present Dartmoor landscape has been moulded by Tertiary and Quaternary processes, starting at least 50 million years ago. In particular, periglacial processes during the Ice Ages (around 1.5 million to 10,000 years ago) created many of the landforms visible today, including tors, stone stripes and patterned ground. During warmer phases, or interglacials, cave systems developed in the limestones of the Buckfastleigh area. These now contain remarkable cave formations and the remains of extinct large mammals such as elephant and hyaena. Peat deposits on the moor include a remarkable post-glacial record of climate change, essential for understanding the development of present-day vegetation.



© DNPA

Staple Tor

The tors, rocky outcrops, clutter slopes, caves, quarries, cuttings and mining relics of Dartmoor support unique and varied wildlife. Collectively they are nationally important for bats, breeding birds, plants, lichens, and ferns. The key Dartmoor species present are **ring ouzel**, **flax-leaved St. John's wort** (a Red Data Book species), which have their own Species Action Plans, **greater horseshoe bat** which is included in the Bat Species Action Plan, and the **cave shrimp *Niphargellus glenniei*** which is included within this Action Plan. Other species of conservation importance include lesser horseshoe bat and other bat species (all specially protected under the *Wildlife and Countryside Act*), peregrine, and a number of uncommon ferns and lichens (covered in the Mosses, Lichens, Ferns & Fungi Species Action Plan). Buildings provide roosting and breeding sites for barn owls and bats whilst granite walls and rocks are often covered with luxuriant growths of mosses and lichens especially where shaded. Buckfastleigh Caves, and Haytor and Smallacombe Iron Mines are part of the South Hams Special Area of Conservation (SAC) designated under the European Habitats Directive for their wildlife interest.

Distribution map

A list of the 21 geological Sites of Special Scientific Interest can be found at Annex 3 of *The Nature of Dartmoor: A Biodiversity Profile*. Locations of these SSSIs and further details can be found on Natural England's web site at www.natureonthemap.gov.uk. There are 4 Regionally Important Geological Sites (RIGS) on Dartmoor. Further details can be found on the Devon RIGS web site at www.devonrigs.org.uk. For further details (including location) of 11 Dartmoor sites suitable for educational use please refer to the Register for Geological Sites at www.devon.gov.uk/geo-site_index.pdf.

Rocks (including tors, clutter slopes, quarries, caves, mines and buildings) Key Conservation Objectives and Targets

Rocks Objectives

Objective 1

Identify, maintain and enhance all existing rock exposures and natural landforms that are important for understanding the origin and geological development of Dartmoor and its landscape.

Dartmoor targets

- A** Complete the Dartmoor RIGS survey by 2001.*
- B** Develop and implement management plans for priority earth heritage sites by 2011.
- C** Establish a geological database on GIS (integrated with wildlife and archaeological data) by 2001.*
- D** Enhance geology and wildlife wherever possible during mineral working and restoration.

Objective 2

Encourage appreciation of the Dartmoor landscape and its geology, and an understanding of its links with scenery, tourism and mining, through education and interpretation targeted at the public, educational establishments, the minerals industry and other bodies.

Dartmoor targets

- A** Define the interpretation plan for all eleven Dartmoor sites in the Educational Register of Geological Sites by 2008.
- B** Include appropriate Dartmoor sites in the Educational Register of Geological Sites in Devon by 2001.*
- C** Develop two pilot educational schemes by 2001.*

Objective 3

Protect the processes of natural evolution of the Dartmoor landscape, including drainage patterns, slope development and peat formation.

Dartmoor target

- A** Maintain or enhance geological SSSI and actual or proposed RIGS through the planning system and/or agri-environment schemes.
- B** Establish trends in carbon fluxes on the blanket bog by 2011.

Objective 4

Encourage surveys of old mine workings and spoil tips, promote appropriate protection measures and responsible use and, where necessary, their positive conservation management.

Dartmoor targets

- A** Include existing information on mining features and their associated geological and wildlife interest (particularly bats and metal-tolerant plants) on GIS database.
- B** Assess need for further survey work by 2001 and carry out by 2005.*
- C** Draw up and implement integrated conservation management proposals for old mine sites where necessary by 2011.
- D** Produce and disseminate a Guidance Note for Geological Fieldwork on Dartmoor (including mineral collecting), which refers to potential biological and archaeological importance by 2001.*

Objective 5

*Ensure that there is a Cave Conservation Plan for caves in the Buckfastleigh area which safeguards the remaining cave sediments, formations, fossils and wildlife including the cave shrimp *Niphargellus glenniei*.*

Dartmoor targets

- A** Complete a survey of cave invertebrates at Buckfastleigh by 2008.
- B** Produce and implement an integrated Cave Conservation Plan for Buckfastleigh Caves SSSI by 2011.

Objective 6

*Maintain the biodiversity of tors and clutter slopes, quarries, caves, mines, cuttings, and buildings and ensure the continuing existence of rare species, especially of the flax-leaved *St John's-wort* and breeding birds such as the peregrine and ring ouzel.*

Dartmoor targets (see also Action Plans for Flax-leaved St. John's Wort, Ring Ouzel, Bats, and Mosses, Ferns, Lichens & Fungi).

- A** Identify location of the above key species and any management requirements by 2001.*
- B** Seek appropriate management for all known Flax-leaved St. John's wort, ring ouzel and peregrine sites and known important bat and lower plant localities by 2011.

Objective 7

Maintain, and where possible, improve air quality across Dartmoor.

See Action Plan for Mosses, Ferns, Lichens & Fungi.

Objective 8

Halt the decline of all bat species especially the greater and lesser horseshoe bat.

See Action Plan for Bats.

Objective 9

Increase the number of barn owls breeding on Dartmoor, by providing adequate roosting and feeding sites.

Dartmoor targets

- A** Collate information on location and numbers of barn owls on Dartmoor by 2001.*
- B** Increase the total number of nesting sites through development control, agri-environment schemes and advice.
- C** Maintain or restore, and secure ideal management on a minimum of 4 ha of rough grassland within a 1 km radius of all nesting sites by 2011.

* Target from original (2001) version of the BAP that has already been achieved and therefore not taken forward in the revised Action Plan.

Actions for Rocks (including tors, clutter slopes, quarries, caves, mines, cuttings and buildings) on Dartmoor

Monitoring responsibility: Natural England

Action	Meets Objective/Target	Deliverer		Complete by					Date achieved
		Lead	Partners	2007	2008	2011	2016	On-going	
Policy and Legislation									
Include protection policies for earth heritage sites in all relevant statutory plans and Catchment Management Plans when reviewed	1, 3A	DNPA	EA					●	
Enhance wildlife and geological interest in minerals restoration schemes through Review of Old Minerals Permissions and planning process	1D	DNPA	NE, DCC					●	
Site Safeguard									
Safeguard key earth heritage and wildlife sites against direct threats through the planning system and other consultations	1B, 3A, 6	DNPA	NE					●	
Habitat Management									
Draw up and implement integrated management plans for priority sites (to include geological, wildlife and archaeological interests)	1B, 4C, 6B	DNPA, NE	EH, DoC			●			
Produce and implement an integrated Cave Conservation Plan for Buckfastleigh Caves	5B	NE	WPCST, DWT, DCUG			●			
Complete peatland restoration pilot scheme near Rattlebrook and extend to all suitable sites	3	DNPA, NE	EA, DoC, NT		●				

(cont.)

Actions for Rocks (including tors, clutter slopes, quarries, caves, mines and buildings) on Dartmoor (cont.)

Action	Meets Objective/ Target	Deliverer		Complete by					Date achieved
		Lead	Partners	2007	2008	2011	2016	On-going	
Key species management protection									
(For Bats, Ring Ouzel, Flax-leaved St. John's Wort, Mosses and Lichens see separate Action Plans)									
Complete survey of cave invertebrates at Buckfastleigh and carry out management recommendations	5A, 6B	WPCST	NE, DWT		●				
Continue to collate information on location of peregrine and barn owl nest and roost sites on Dartmoor and put on GIS	6A, 9A	DNPA, BOT						●	
Maintain or restore, and secure ideal management on a minimum of 4 ha of rough grassland within a 1 km radius of all barn owl nest sites	9C	DNPA, NE	BOT			●			
Ensure provision for barn owl nest sites in all barn conversions and new barns where barn owls are known to be present	9B	DNPA	BOT					●	
Promote provision for barn owl nest sites in all barn conversions or new barns through advice and grant aid	9B	DNPA	BOT					●	
Collate information on breeding sites for peregrines and sand martins and protect from disturbance as necessary	6A, 6B	DNPA, RSPB, DPBWS						●	
Continue liaison with MoD, letterbox users and other recreational and educational groups to minimise disturbance to key wildlife species and geological features	3, 4D, 6B	DNPA	NE, DCUC, MoD, DRG, WPCST, NT					●	

(cont.)

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Action	Meets Objective/ Target	Deliverer		Complete by					Date achieved
		Lead	Partners	2007	2008	2011	2016	On-going	
Advisory									
Promote existing Dartmoor Recreational Activity Guides and review as necessary (including the need for a caving guide)	3A, 6B	DNPA							●
Promote land management practices that contribute to peat formation through suitable incentives	3	NE	DNPA						●
Research and Monitoring									
Establish the options for positive carbon management in Dartmoor soils, including peat formation, and implement accordingly. Assess the carbon flux of blanket bog	3B	DNPA	DoC, NT, NE, EA			●			
Communication and Publicity									
Define the interpretation plan for all eleven Dartmoor sites in the Educational Register of Geological Sites	2A	DNPA	NE		●				

Abbreviations used in this table:

BOT - Barn Owl Trust, DBG - Devon Bat Group, DCUC - Devon Caving and Underground Council, DCC - Devon County Council, DNPA - Dartmoor National Park Authority, DoC - Duchy of Cornwall, DRG - Devon RIGS Group, DWT - Devon Wildlife Trust, EA - Environment Agency, MoD - Ministry of Defence, NE - Natural England, NT - National Trust, RSPB - Royal Society for the Protection of Birds, WPCST - William Pengelly Cave Studies Trust, VWT - Vincent Wildlife Trust.

