

## SITE

**Name:** Pengelly Caves (Joint Mitnor Caves etc)

**Parish:** Buckfastleigh

**Local Authority:** Dartmoor National Park

**National Grid Ref:**

**OS Sheets:** 1:50k 202 1:10k SX 76 NW

**Locality Description:** A series of eight spectacular caves that twist underground along narrow passages and open out into underground pockets of geological marvel. Located in Buckfastleigh. The main entrances to several of the most important caves lie with the former Higher Kiln Quarry at Buckfastleigh.

**Nature and Status of Site:** The caves lie within the Buckfastleigh Caves [Site of Special Scientific Interest](#) (SSSI). All the caves are gated and public access is only permitted to one in Higher Kiln Quarry – Joint Mitnor Cave, by arrangement with the William Pengelly Cave Studies Trust (see contact information below).

**Summary of Geological / Geomorphological Interest:** The Buckfastleigh caves have been etched into Middle Devonian limestones over hundreds of thousands of years. As such they include an important record of quaternary climate change. Joint Mitnor Cave is the most famous and includes a remarkable talus cone full of the remains of large mammals from the last, or Ipswichian, interglacial. The latter include straight tusked elephant, narrow-nosed rhinoceros, bison, hippopotamus and hyaena – the last scavenging within the cave.

**Safety Considerations:** Visits to Joint Mitnor Cave are managed and there is no public access to any other caves within the Higher Kiln Quarry.

**Educational Age Groups:** Access to the William Pengelly Cave Studies Trust site museum and Joint Mitnor Cave is suitable for all age groups. The cave and centre are not open daily and prior arrangement is essential.

**Parking and Access:** Access to the Pengelly Trust museum is located at Buckfastleigh. Take this turning off the A38 Devon Expressway. The centre can be found on Russets Lane. Buckfastleigh receives a regular bus service from Exeter and Plymouth, both of which can be reached by train. For bus and train timetables, visit [www.traveline.org.uk](http://www.traveline.org.uk)

**Contact:** For further information, call 01364 643096 or email to [enquires@pengellytrust.org](mailto:enquires@pengellytrust.org). To arrange a visit, please contact the Booking Secretary on 01752 700293.

### References:

Brunsdon, D. 1963. The denudation chronology of the River Dart. *Trans. & Papers Inst. Brit. Geog.* 32, 49-63.

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Hooper, J.H.D. 1947. The caverns at Buckfastleigh. *Rep. Trans. Devonsh. Assoc.* 70, 113-116.

Hooper, J.H.D. 1950. Reed's Cave, Buckfastleigh. *Rep. Trans. Devonsh. Assoc.* 82, 291-294.

Hooper, J.H.D. 1956-1962. The Buckfastleigh caverns *Cave Science* 4 No.27, 95-122 (1956), No.28, 145-163 (1957), No.30, 259-272 (1960), No.31, 318-335 (1962).

Jean, D. 1982. The geology of Buckfastleigh Hill. William Pengelly Cave Studies Trust Occasional Publication, 1-3.

Joint, W. and Hooper, J. 1985. Caves of Buckfastleigh quarries. William Pengelly Cave Studies Trust Occasional Publication, 1-2

Macfadyen, W.A. 1971. Geological Highlights of the West Country, Butterworths, 65-69.

Pengelly, W. 1873. Literature of the Buckfastleigh caves. *Trans. Devonsh. Assoc.* 6, 70-

Sutcliffe, A.J. 1960. Joint Mitnor Cave. *Trans. Torquay Nat. Hist. Soc.* 13 (for 1958-1959): 1-26.

Waltham, A C, Simms, M J, Farrant, A J & Goldie, H S 1997. Karst and Caves of Great Britain. *Geological Conservation Review Series* 12 (Joint Nature Conservation Committee, Peterborough, and Chapman and Hall, 1997)

### **Online References**

William Pengelly Cave Studies Trust, visit [www.pengellytrust.org/](http://www.pengellytrust.org/)

### **Detailed Geology:**

Buckfastleigh caves are an excellent example of cave formation during the Pleistocene Epoch and are one of Britain's outstanding locations for Pleistocene mammals. The cave waters are important for aquatic crustacean and the site supports both winter and breeding roosts of a rare bat.

The site is one of three networks of cave passages in separate limestone outcrops around Buckfastleigh. Detailed study has shown that the three networks developed over the same time span during the late Pleistocene phase, from around about 150,000 years ago. Furthermore, stages in the development of the caves can be related to the stages in the development of the River Dart. Accumulations of debris washed into the caves during their formation contain important fossil remains which give an indication of the use of the caves. The wide range of important features found within these caves make this a most valuable site for the study of late Pleistocene cave formation.

Joint Mitnor Cave has yielded one of the richest known fossiliferous assemblage of Ipswichian Interglacial age in Britain. And extensive fossiliferous deposits remain in situ. The fauna includes hippopotamus, straight-tusked elephant, wild boar, fallow deer, spotted hyena, lion and small mammals.

Abundant in the cave waters is the endemic crustacean *Niphargellus glenniei*, an animal thought to be a pre-glacial relict. The caves also provide an important winter

roost site for a large colony of the rare and endangered Greater Horseshoe Bat (*Rhinolophus ferrumeguinum*), while the nearby buildings support nursery roosts during the summer months.

[modified from the Statement of Interest for the Buckfastleigh Caves SSSI]

**Joint Mitnor Cave** (adapted from an updated MS by A.J.Stuart): Joint Mitnor Cave was discovered in 1939 and was named after Messrs Joint, Mitchelle and Northey who found it. The deposits present were excavated by the Torquay Natural History Society from 1939 to 1941.

The cave, which extends only about 20 m from the quarry face is developed in Middle Devonian limestones and underlain by a green volcanic ash band (tuff). The stratigraphy of the Pleistocene sediments present is relatively simple. Around 1-1.5m of waterlain or sludged silts and gravels, devoid of fossils, are overlain by at least 1.5m of a steeply sloping desposit of 'cave earth' and small pebbles mixed with large limestone boulders. The latter deposit contains abundant bones and teeth of many mammal species. Sutcliffe (1960) suggested that the assemblage was formed as animals fell to their deaths through a conjectured opening in the cave roof, so that the cave acted as a natural 'pit-fall' trap. The opening was subsequently blocked by falling boulders.

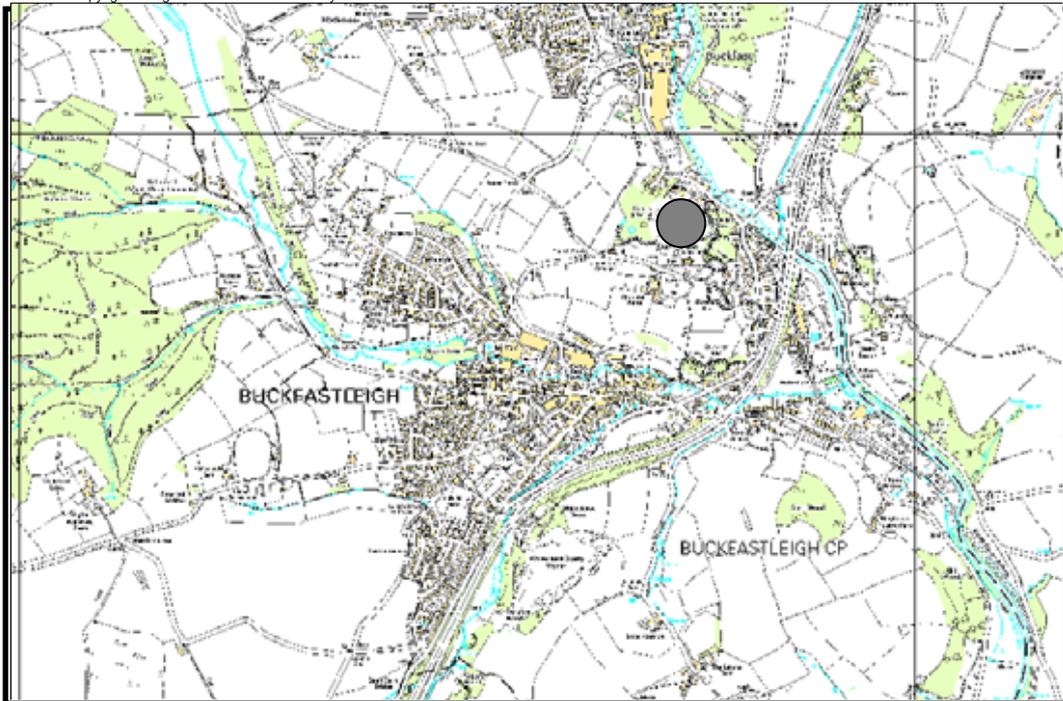
The fauna recovered includes: Hare, field vole, an extinct water vole (*Arvicola cantiana*), red deer, extinct bison (*Bison priscus*), wild boar, hippopotamus, giant deer (*Megaceros giganteus*), fallow deer, extinct rhino (*Dicerorhinus hemitoechus*), straight-tusked elephant (*Palaeoloxodon antiquus*), wolf, red fox, brown bear, badger, spotted hyaena, wild cat and lion.

This assemblage compares very closely with 'hippopotamus faunas' from a number of 'open sites' in England (e.g. Barrington in Cambridgeshire) which have been dated by pollen to subzone IpIIb or early IpIII of the Ipswichian Interglacial. The homogeneity of the Joint Mitnor fauna suggests that the assemblage accumulated over a short period of time and is the richest known assemblage of the Ipswichian Interglacial in Britain. The fossiliferous level is succeeded by thin beds of limestone fragmenta, cave earth and a stalagmite floor.

For a full description of the caves see Waltham et al. 1997 (site report available via: [www.incc.gov.uk](http://www.incc.gov.uk))

**LOCATION PLAN**  
**PENGELLY CAVES**  
**BUCKFASTLEIGH, DARTMOOR NATIONAL PARK**

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Scale 1:27000



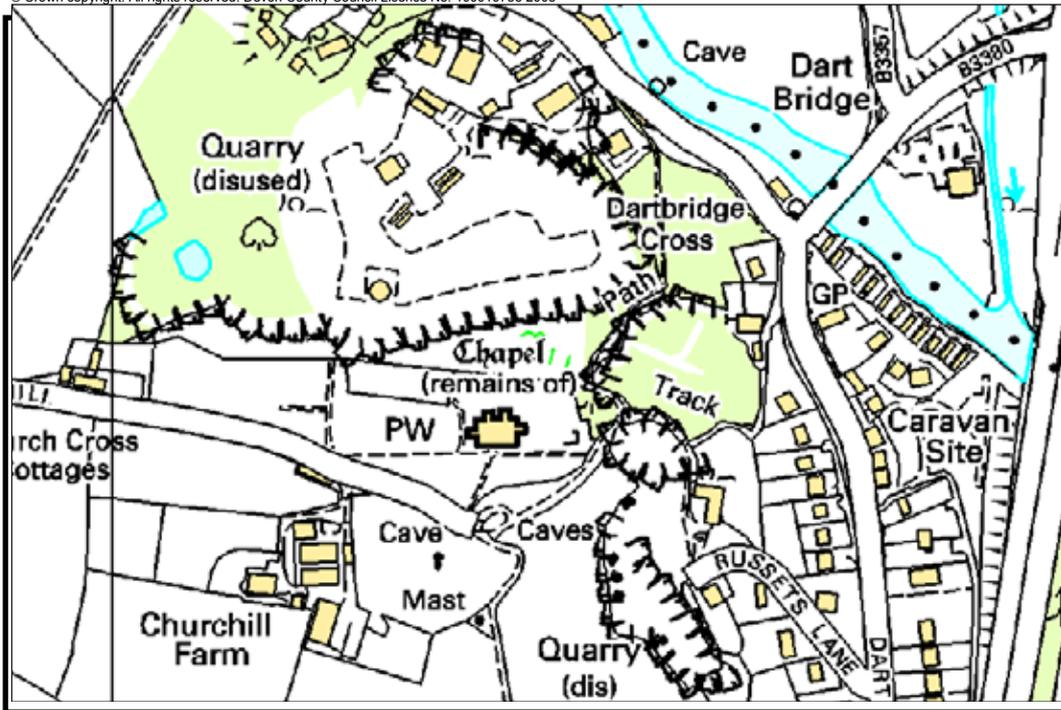
Site Locality

**Parking and Access**

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Scale 1:5000

**Main points of interest**

- Important cave studies site with remarkable bone-rich talus cone dating from the last, or Ipswichian, interglacial.

# PENGELLY CAVES

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Cave entrances in Higher Kiln Quarry (above: Reed's Cave; below: Rift Cave)

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Part of the bone-rich talus-cone in Joint Mitnor Cave showing straight-tusked elephant tooth above miscellaneous bone fragments