

Period summaries

Palaeolithic – 450,000-12,000 BC

Research over the past two decades has seen Sussex transformed from a backwater of the British Palaeolithic to an area of regional and global significance (Pope 2003). Analysis of raised beach deposits, terrestrial land-surfaces and periglacial gravels has indicated that they may preserve a record of climatic and environmental change over the past half a million years. Large areas of intact Pleistocene land-surface have been revealed by excavation that preserve traces of hominid tool production and a wide range of palaeo-environmental and faunal data. These discoveries underline the potential for the Palaeolithic period for the AONB, even though so far finds from this period are sparse (Fig 3).

The raised beaches in Sussex are a series of wave-cut steps forming the coastal plain at the base of the South Downs. Isostatic uplift during the past 500,000 years has preserved ancient archaeological, environmental and palaeontological remains from marine erosion. As a result, the Sussex Coastal Plain is internationally important for the Palaeolithic period. To understand the relevance of this for the AONB, the wider context is outlined below.

The Goodwood-Slindon Raised Beach is the highest of the series of Pleistocene marine deposits at 40m above sea level. Its east-west course across the Sussex Coastal Plain and possibly continuing into Hampshire has been traced for over 20km between Arundel and Funtington. Mineral extraction around Chichester has exposed the Goodwood-Slindon Raised Beach in a number of places. Stone tools have been recovered from the deposits, some unrolled suggesting they were *in situ* and had not been redeposited by wave action. Two collections of burnt flint were also noted on one site in the 1930s, although this is the only evidence so far of fire.

The excavations at Boxgrove, which lies some 10km north-east of the AONB, has also recovered *in situ* faunal remains (Woodcock 1981), as well as human remains in 1993-95 establishing this site as internationally important. An outline of the environmental conditions in this period provides a glimpse of the conditions that are likely also to have prevailed in the AONB.

The marine deposits at the base of the sequence indicate climatic conditions and sea levels almost identical to those in Britain today. Chalk cliffs were eroded by the action of the sea and at the base of the cliff a shingle beach formed on a wave-cut platform. It was on this beach that hominids appear to have been active, and there is evidence for stone tool manufacture. Hominids seem to have been exploiting the good quality flint seams running through the chalk cliffs. The marine deposits are overlain by laminated silts that indicate a change in the depositional regime to low-energy, quiet water conditions, perhaps of a lagoon or mud flats. As sea levels fell, grassland began to form. Archaeological material in this period varies from isolated finds to complete scatters of knapped flint. Butchery sites seem to suggest that Middle Pleistocene hominids were not just scavengers competing with other carnivores for carcasses, but may have been hunters or at least were consistently getting primary access to carcasses before other predators.

As the sea level continued to fall, grassland vegetation became more established, and a greater variety of fauna became evident. Red deer, roe deer, horse, boar, bear and wolf existed alongside elephant, rhinoceros, lion and hyena. The artefactual material in this period consists of scatters of flint, especially hand axe trimming flakes. More dense concentrations may have been associated with areas of hand axe manufacture and the butchery of large animals. It was on such a butchery site that human remains were recovered at Boxgrove. The remains consisted of two teeth (both lower incisors) probably from one individual and part of a tibia (shin) belonging to another, perhaps 1.8m tall. The Boxgrove hominids may have been similar to *Homo heidelbergensis*, a Middle Pleistocene relative of *Homo erectus*. This species is known from numerous fragmentary remains found across Europe and Africa.

The Boxgrove excavations illustrate the potential for the recovery of *in situ* archaeology and palaeontological remains unparalleled for this period outside Africa (Pope 2003). A strip of this land-surface some 10-20km long may well be preserved between Arundel and Portsmouth, although it may lie just to the north of the AONB.

The Aldingbourne Raised Beach lies parallel to and some 10m lower than the Goodwood-Slindon Raised Beach at 24-27.5m OD. The Aldingbourne formation may represent fluctuations in sea level at OIS 11 (c 400,000-450,000 years ago). Flint handaxes and cores have been recovered from these sediments but in contrast to those from Goodwood-Slindon they tend to be rolled and patinated. The lack of unequivocally *in situ* remains means that interpretations about hominid behaviour are not possible from these remains.

The Brighton-Norton Raised Beach is associated with the raised beach deposits and cliff-line at Black Rock, Brighton and have been traced by geological survey through Arundel, Chichester and may extend as far as Hayling Island. The 15m contour line traces the approximate line of this fossil cliff of marine sediments. The deposits have been assigned to OIS 7 (c 186,000-245,000 years ago) on the basis of amino acid ratios and faunal evidence. Remains of mammoth and horse have been recovered, although evidence for fossil tools is sparse.

The most recent of the Sussex raised beach deposits are the marine deposits associated with the Pagham Raised Beach. This appears to relate to high sea levels associated with the interglacial of OIS 5e (c 100,000 years ago) and runs from Brighton to Portslade, Worthing, Bognor and Pagham at about 3m OD. The absence of *in situ* remains seems to confirm a hiatus in the human occupation in Britain at this time.

A number of exotic rocks are also found on the shoreline of the AONB. Sandstone sarsen erratics have been found on the foreshore at West Wittering (Chi SMR 2842; 478000 099700). Sarsen stones and erratic boulders have also been recorded near the modern Chichester Yacht Basin, west of Bosham Hoe, at Cobnor Point at Chidham, and at Longmere Point and Marker Point on Thorney (Cordiner 1997). These rocks were deposited by keeling icebergs throughout the Pleistocene and are also found in the Boxgrove and Aldingbourne raised beach deposits. Although the AONB falls to south of the cliffline of the Brighton Norton raised beach, work over the past few years has suggested that there are a number of strandlines of the regressing sea to the south of this cliffline. Beach sediments have been identified to the east of the AONB at Merston and Aldwick that should continue through the AONB (Mark Roberts pers comm.).

Recent work on the Palaeolithic archaeology of the Sussex-Hampshire coastal corridor (Bates *et al* 2004) has led to a re-interpretation of Palaeolithic sequences in the West Sussex Coastal Plain. Important new sequences of sediments, some possibly dating to the Devensian period, were identified during fieldwork. These included channel sediments from West Wittering that were found to be more complex than previously understood. Further study is required to understand the age and palaeoenvironmental significance of these sediments.

In contrast to the great potential for this period, Palaeolithic material has been found in only three places in the AONB, all stray finds largely consisting of axes. A Palaeolithic handaxe was found in 1897 (Chi SMR 2342; 483890 103590) ‘in a field 10 feet from the shore, 200 yards from the Lavant.’ Another handaxe and flakes (Chi SMR 31; 477300 099200) were found in 1979, apparently after having eroded out of the base of a cliff at West Wittering. A third Palaeolithic axe (Chi SMR 2434; 483000 103000) was found in the area near the head of the Fishbourne Channel, its find location not known precisely.

Research questions

Future research should aim to build on the recent advances detailed above to improve our understanding of Pleistocene deposits in Sussex river valleys. A key task is to map the distribution of sands and gravels deposited during the Palaeolithic period and to date them, for example using shells, mammalian remains or the sands themselves. This will provide important information on hominid activity and sea level change. Two areas within the AONB are likely to yield good results – at Thorney Island airfield and Conigar Point at Emsworth.

Further work is also needed to understand the age and palaeoenvironmental significance of sediments identified in a recent study of the Palaeolithic archaeology of the Sussex-Hampshire coastal corridor.

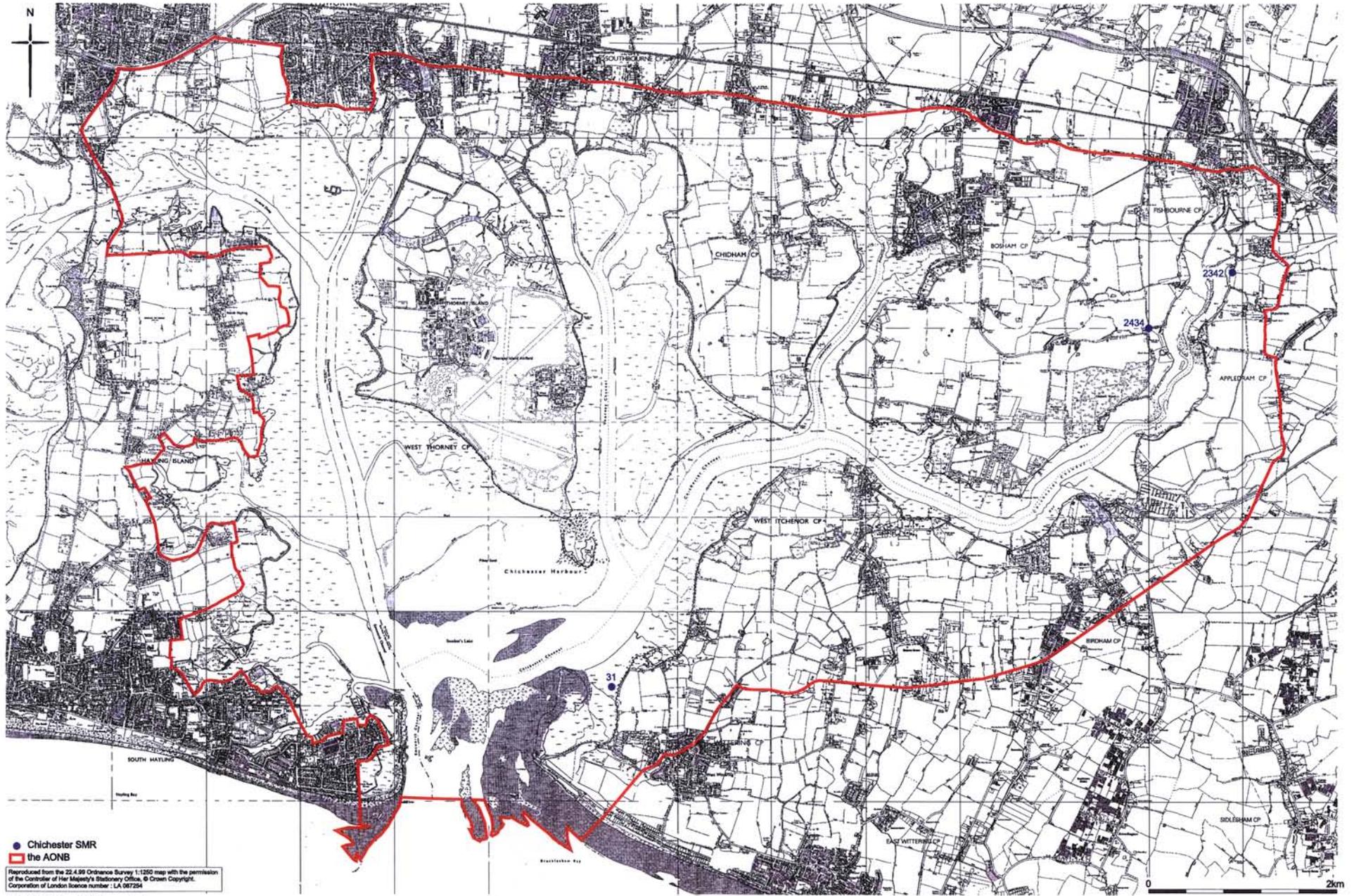


Fig 3 Palaeolithic period map