

## The Ivel Valley

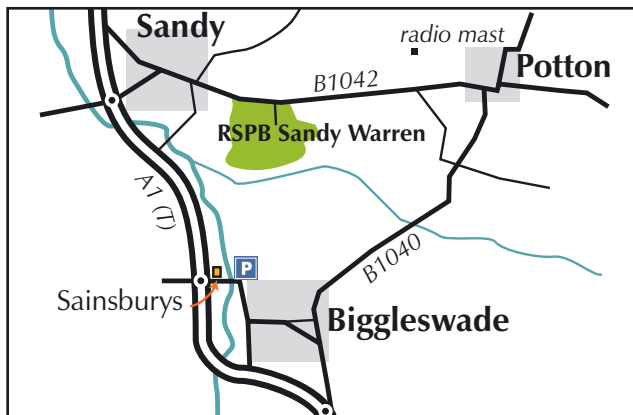
People have been living in this flat, fertile valley for longer than you might think: stone tools found on the banks of the Ivel tell us that our ancestors were hunting here in the Palaeolithic, nearly 450,000 years ago. Time – and ice sheets – passed, and eventually the first farmers began to clear the woodland that covered much of southern Britain 6,000 years ago.



The Ivel valley was a good place to settle: the river provided far more than reliable, cheap transport, food and water. Winter flooding deposited silt and nutrients that renewed the fertility of riverside meadows such as Biggleswade Common. Cattle have grazed here since 1200AD; their manure enriched arable fields on higher ground. The grain from these fields was ground in water mills powered by the Ivel. Like most British waterways, in many places the Ivel no longer follows its original course. The stretch from Tempsford to Biggleswade was substantially altered in 1758 to improve conditions for horse-drawn barges. If you look along the river side path, you may see where the river was straightened, or soil has been moved to create a better path and reinforce the bank.



You'll also see the results of more modern industry, the lakes created by quarrying of the Ice Age Ivel valley gravels at Warren Villas Nature Reserve.



To find the Ivel Walk turn off the A1 at the northernmost Biggleswade roundabout, pass Sainsburys, over the bridge, then immediately turn left into Dan Albone carpark. Walk north from the carpark, and bear left through the kissing gate, following signs for the Kingfisher Way.

**The Bedfordshire & Luton Geology Group** exists to encourage understanding of the geology and geomorphology of the county and to undertake site recording, interpretation, advice and education

**Regionally Important Geological and Geomorphological Sites (RIGS)** are places that reveal our geological past and are considered important enough to deserve conservation. They include sites where rocks can be seen (such as quarries and road cuttings) or where the geology or geological processes can be inferred from the shape of the landscape. Official RIGS are recognised by county councils and by Natural England.

For more information about the BLGG and our events as well as the geology and geomorphology of your area visit our website at

[www.bedsrigs.org.uk](http://www.bedsrigs.org.uk)

or contact Chris Andrew c/o Bedford Museum, Castle Lane, Bedford, Bedfordshire MK40 3XD. Tel: 01234 353323; Fax: 01234 273401



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## Ice Age gravels Ivel Walk, Biggleswade

Bedfordshire  
& Luton  
Geology Group



bringing  
landscape  
to life



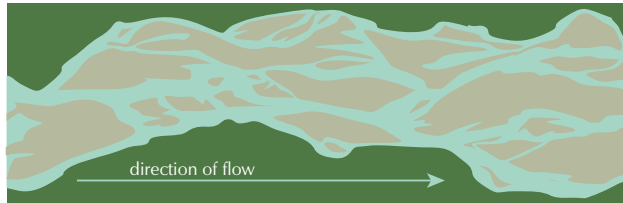
*The River Ivel looking north across Biggleswade Common to Sandy Warren on the Greensand Ridge.*

When the ice sheets that sculpted our landscape over the last 2.6 million years melted, they left a legacy of sands and gravels in the river valleys of Bedfordshire. The River Ivel has revealed some of this story as it winds north from Biggleswade to Sandy.



## The Ice Age River Ivel

The Ivel was once very different from the gentle meandering river we see today. During the Ice Age the Ivel (like all British rivers at this time) was a *braided river*. Braided rivers flow torrentially at some times (in high summer when ice is melting, for example) and slow to a trickle at other times. The high flow deposits large quantities of cobbles, gravels and sand (but very little mud and silt) in the valleys. Braided rivers have many channels that shift from place to place across the valley as changing water flows move the sediments.

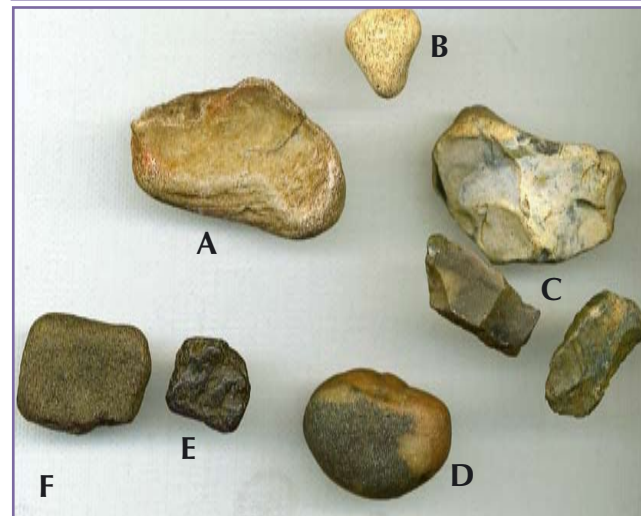
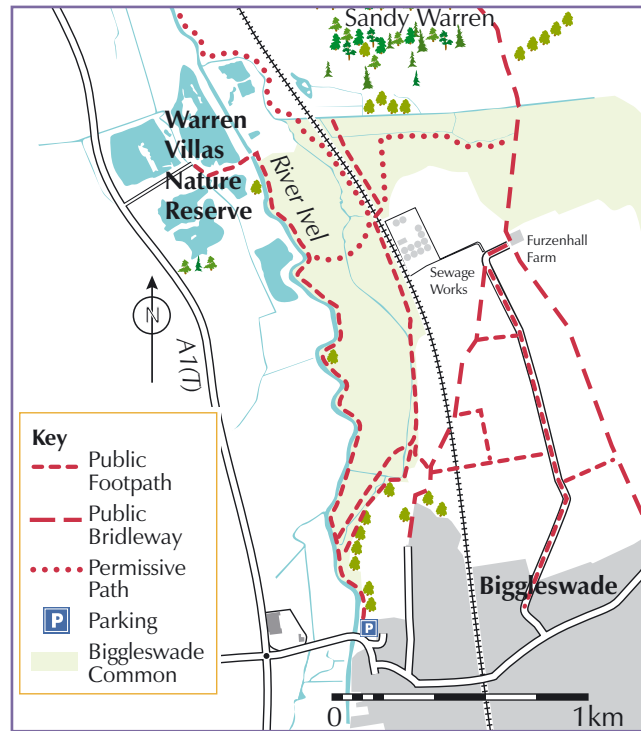


A braided river or stream.

Meandering rivers flow more slowly throughout the year, carrying sands, silts and mud. They typically erode one bank as they deposit sediment on the opposite bank, so over time they migrate sideways – *meander* – across their valley. The River Ivel shows this (although much influenced by human attempts to guide the river's course). The braided Ivel of the Ice Age, can be seen in the gravel deposits exposed in the river bank.



Much of the gravel is coarse and angular, which tells us of high energy river flows, rapid erosion and deposition. There are many black, brown and whiter (de-vitrified) sharp-edged flints from the Chalk to the east and south. Pebbles of brown sandstone from the Midlands are rounded, which means they were carried for a long time by ice and ancient rivers before they arrived here. These two kinds of rock suggest at least two episodes of erosion and deposition of this gravel: the first, older, travelling from the Midlands and a second more recent rapid erosion of local Chalk.



Rocks from the Ivel gravels: A. water-worn Gryphaea, a fossil oyster from the Jurassic Oxford Clay; B. soft Chalk rock is easily rounded; C. flints; D. well-worn iron-stained quartz pebble; E. much less rounded phosphate pebble and F. sandstone, both from the local Lower Greensand.

## Geology

The geology of the Ivel valley is dominated by a layer of sands and gravels up to 5m thick, lying on a bed of till deposited by an earlier ice sheet. Under the till is the *solid* geology, the Cretaceous Gault clay (100 million years) and the Oxford Clay (150 million years old). The sands, gravels, and till have levelled any unevenness in the underlying clays to create the wide flat valley we see today.

Look north across Biggleswade Common towards the Sandy Warren, which sits on a ridge of the Lower Greensand. There is a 'cut down', a terrace in the slope just visible if you have a clear view.



Rivers *cut down* through the surrounding landscape when sea-level falls, and sea-level falls when water is locked in ice sheets during a cold phase of the Ice Age. So each cold phase (when ice sheets are advancing) is marked by a distinct *terrace* formed when the river cuts down to meet the lower sea-level. Large rivers like the Thames have as many as ten terraces; smaller rivers such as those in Bedfordshire commonly show three or four. The lower number is partly due to re-locating of the river courses by the ice of the Anglian period (half a million years ago), and to erosion of early deposits by later ice sheets. We know there were cold phases after the Anglian because the frost and ice sculpted the landscape of Bedfordshire.

