

UNIQUE, UNRIVALLED AND DISAPPEARING. WHAT HOPE FOR SOMERSET'S WETLAND HERITAGE?

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Abstract

The prehistoric waterlogged heritage of the Somerset peat moors is unrivalled by any other wetland or former wetland in England. Together with the levels on the Welsh side of the estuary they form one of the most important areas of wetland heritage in the world. Many forces threaten this unique, irreplaceable and internationally important resource. Development nibbles away the edges of the wetland and peat extraction is removing a large part of the central Brue valley. The biggest threat is, however, from agriculture. Drying out of the peat in summers is causing a slow death for the peat and the archaeology that it contains. Most of the wetland Scheduled Monuments on the moors are already showing the effects of desiccation and some have been completely destroyed. If there were to be any hope for the future of the prehistoric wetland heritage a more sustainable type of farming is required that would benefit both heritage and wildlife interests as well as supplying a livelihood for the landowner.

THE TIP OF THE ICEBERG – THE LIMITS OF WHAT WE KNOW

Our knowledge of the prehistoric period on the moors has been directed by forces largely beyond the control of archaeologists. Finding archaeological sites deeply buried in waterlogged peat is extremely difficult. The normal techniques of field walking to

retrieve artefacts, examining aerial photographs for crop marks and using geophysical surveys are all poorly suited to such environments.

Because the Somerset moors have not suffered from the extensive ploughing of other major wetlands such as the Fens, the main avenue for exploring the hidden wetland heritage has been in the areas of peat-cutting in the central Brue valley. Peat-cutting in these areas has been going on since Roman times but the first recorded discoveries of archaeology occur in the early 19th century by the Revd W. Stradling. He provides us with the first and only record of many of the early discoveries including bog oaks, a box containing a bronze hoard, prehistoric bows and paddles, and a dug out canoe 'formed from an immense oak ... (and) long known as Squire Phippen's Big Ship' (Stradling 1849, 52).

The archaeology of the Brue valley rose to national fame at the end of the 19th century when Arthur Bullied discovered Glastonbury Lake Village in 1892. This was the product of a four-year search for prehistoric wetland settlements inspired by Ferdinand Keller's book on *The lake dwellings of Switzerland* (Keller 1878). Bulleid excavated the site from 1893 to 1898 and then again from 1904 to 1907 in company with Harold St George Gray. The recording of the work in terms of plans, sections and descriptions was very good for its day as was the analysis of the plant material, metal artefacts and the bird and animal bones which was carried out by four Fellows of the Royal Society (Bulleid and Gray 1911; 1917).

Finds sent by a farmer to Bulleid in 1895 led him to the discovery of another Iron Age wetland settlement, at Meare. Bulleid and Gray excavated the eastern and western 'Meare Lake Villages' between 1910 and 1956 (Bulleid and Gray 1948; Gray and Bulleid 1953; Gray 1966; Coles 1987). Bulleid also visited the peat workings in the Brue valley and recorded the wooden trackways archaeology that was being uncovered there (Bulleid 1933). It was this paper that inspired much of the succeeding archaeological work in the peatlands.

Sir Harry Godwin, then Professor of Botany at Cambridge, continued work in the peat-cutting areas between 1937 and 1965. He made numerous borings through the peat into the underlying clay to establish the basic sequence of environmental change for the valley (Godwin 1941; 1948; 1981). In company with local archaeologist Stephen Dewar he also excavated and reported on many small finds and trackways (Godwin 1960; Dewar and Godwin 1963).

In 1970 E.J. Godwin's peat company sent a package to John Coles, then an assistant lecturer at Cambridge, containing part of a plank from what turned out to be the Sweet Track, the oldest known wooden trackway in the UK. The early date of the structure led to a large scale excavation of the trackway in 1973 and the local inspector, Dr Geoffrey Wainwright, was so impressed by the excavations continuing in the pouring rain that support from central government continued for many years, not least when Dr Wainwright eventually became head of Archaeology in English Heritage. In that same year, 1973, the Somerset Levels Project was officially born.

The Somerset Levels Project ran for 15 years until 1989, dedicated to the recording of the wetland archaeology that was being uncovered in the peat cuttings of the Brue valley. The joint directors were John Coles and Bryony Orme who pioneered many new techniques in wetland archaeology through their work in Somerset (Coles and Coles 1986).

The rescue excavations conducted by the Levels Project brought the Somerset moors to international importance once again but there was little time for investigating the areas outside the central Brue valley. As a result our knowledge of the other moors is far more limited but the evidence available suggests that they have the same potential (eg Brunning 1998). If the density of archaeological finds in the peat-cutting areas is replicated elsewhere then our existing knowledge represents just the tip

of the iceberg. Very little excavation has been carried out on the other moors so if sites are being slowly destroyed by gradual desiccation they are passing with no record being made before their extinction.

WHY IS WATERLOGGED ARCHAEOLOGY SO IMPORTANT?

Waterlogged archaeology has characteristics of composition, preservation and vulnerability, which separate it from the wider body of the archaeological resource. Because of the anaerobic conditions present in waterlogged environments, the normal processes of decay do not occur. The result is that organic materials such as wood and leather often survive in good condition. Such survival is of immense archaeological importance because the organic component formed the largest part of the material culture of all societies from the prehistoric to the medieval period. In addition, environmental information, in the form of pollen, plant remains, Coleoptera, Mollusca, Foraminifera, and Diatoms, often also survives in waterlogged deposits. Analysis of these remains allows archaeologists to reconstruct the changing local landscape over thousands of years and see how it responded to sea level and climate change and how people began to use and adapt it.

The wealth of information available from wetland sites can be seen in the example of the Sweet Track. This structure and its associated palaeo-environmental data have generated a vast amount of information about the early Neolithic period when the first settled farming human communities were being established.

The environmental remains provide information on the local and regional scale. Beetle remains show that early Neolithic Somerset experienced a significantly different climate from today, more akin to present day Denmark with hotter summers and colder winters (Girling 1979). Pollen and plant remains show how the wetland landscape was changing in response to sea level rise. These changes may have triggered the need for the trackway to be built.

Pollen evidence shows how the dryland forests were beginning to be gradually cleared, by the creation of clearings that only lasted a few years (Coles *et al.* 1970). The wood from the trackway itself shows the huge scale of the long-lived trees from this primary forest and how man was gradually changing its character (Hillam *et al.* 1990).

A vast array of artefacts was found beside the track, some accidental losses, and some seemingly offerings to the Gods of the wetlands. These range from pottery and wooden bowls to axes, bows and small items such as wooden stirrers, remains of arrowshafts and yew pins. It forms our most complete picture of the material culture of the first farmers (Coles and Coles 1986). New analysis is discovering more, such as lipid remains extracted from the pottery that provide the earliest evidence for dairying in the UK. Tree-ring dating from the oak planks used in the track have enabled a precision of dating that is unimaginable on normal archaeological sites. We know that an initial track (the Post Track) was formed in 3838 BC, that the Sweet Track itself was built over the winter of 3807 to 3806 BC and that it was repaired for at least 6 years thereafter (Hillam *et al.* 1990).

HOW IMPORTANT IS SOMERSET'S WETLAND HERITAGE?

Many of the UK's extensive wetland areas have been heavily damaged by agriculture and/or peat extraction. Arable agriculture in the Humber wetlands and the Fens has destroyed countless waterlogged archaeological sites. By contrast the Somerset peat moors are fortunate that peat extraction has been limited to one area and that pasture rather than arable has been the norm.

This essential difference means that the Somerset moors probably have comparatively better preservation of waterlogged sites than any other extensive wetland area in the UK. The importance of Somerset's prehistoric wetland heritage can be shown by a few basic facts:

- 25% of all the prehistoric waterlogged sites thought still to exist in England are from the Somerset moors
- The wetland prehistoric trackways and settlements deemed worthy of Scheduled Monument status in England all occur in Somerset
- The County Museum in Taunton Castle holds the largest collection of conserved prehistoric worked wood in the UK, possibly in the whole of Europe
- The Sweet Track and Glastonbury Lake Village have produced our most complete record of Neolithic and Iron Age material culture ever discovered in the UK
- Glastonbury Lake Village is the best preserved prehistoric settlement ever discovered in the UK

- Queen's Sedgemoor contains the longest lowland peat sequence in England

WHAT ARE THE THREATS TO THE WETLAND HERITAGE?

The Somerset moors have the most important prehistoric wetland archaeology in the UK but how well is this heritage surviving today? There is relatively little threat from development such as road and house building although the edges of the floodplain are being encroached upon, for example around Glastonbury and Bridgwater.

The extent of peat extraction in the county has reduced considerably in the last two decades as large areas of land have gone out of production, often to become part of new nature reserves. Extraction is continuing with no end date in sight and an increasing percentage of the central Brue valley is destined for such open cast mining. The effect on wetland archaeology can largely be mitigated through the planning process although there are difficulties, most notably in methodologies for identifying sites in deep peat and in the ability of small local peat firms to meet the large cost of excavating waterlogged remains if they are discovered during extraction.

By far the biggest threat comes from peat wastage. This is because it is a far more extensive threat than other pressures. In addition it lies outside the planning process so it is impossible to finance mitigation through the 'polluter pays' principle. What is peat wastage? When peat is drained large amounts of water are lost and oxygen is introduced allowing the organic matter to be decayed by micro-organisms. This results in the shrinkage of the peat as it literally wastes away. In arable fields 10mm to 20mm is lost annually and many arable fields on the moors have become so low that they can now no longer be farmed conventionally.

Even in pasture fields there is often poor summer irrigation and over a century 0.5m to 0.75m of peat can be lost (Brunning 2001). This seems quite slow but is enough to destroy all the known wetland Scheduled Monuments in Somerset.

WHAT IS THE PRESENT CONDITION OF THE WETLAND HERITAGE?

It is not easy to assess the condition of waterlogged archaeological structures. For over 95% of such sites

thought to survive *in situ* in the UK we have no accurate information on their present condition. Very few are protected by any kind of hydrological management system (Coles 1995). Excavation to expose the remains and monitoring of the local hydrological regime are both required to determine the condition of the monument and the threats to its preservation.

The Somerset Levels Project assessed the condition of some of the monuments they discovered (eg. Coles and Orme 1981; Coles *et al.* 1986), but hydrological monitoring was only undertaken over part of the Sweet Track in Shapwick Heath. Up till 2004 there was only recent information on the condition of a 500m length of the Sweet Track (Brunning *et al.* 2000), a short stretch of the Neolithic Abbots Way (Cox *et al.* 1992) and two recently investigated Bronze Age ritual sites at Greylake and Harter's Hill (Brunning 1998; Cheetham 1998; Dinnin 1999). Elsewhere in the UK there was comparable information from half a dozen rural prehistoric wetland sites.

To address this lack of information English Heritage, Somerset County Council, and the Environment Agency funded the Monuments At Risk In Somerset's Peatlands (MARISP) project. This has assessed the condition of eleven nationally important wetland sites. The assessment comprised limited excavation to recover samples to determine the condition of wood structural remains and associated palaeoenvironmental deposits (pollen, plant macrofossils, beetles, snails and diatoms). The other component was a year of hydrological monitoring and analysis of water quality.

Of the eleven sites examined, two (Vipers and Nidons Bronze Age trackways) appear to have been totally destroyed by ploughing, despite the supposed protection of Scheduled Monument status. This is consistent with the experience of the Skinners Wood trackways, also of Bronze Age date, that have been largely destroyed by arable farming and peat extraction *c.* 1km further west in the valley.

The other nine sites are all in permanent pasture but are suffering from desiccation in the summer months with the exception of Glastonbury Lake Village which appears to be in a naturally wetter hydrological regime, possibly because of its proximity to a former channel of the River Brue. The condition of the surviving monuments is very variable. At the Iron Age settlement of Meare Lake Village wooden remains have virtually ceased to exist because of the low ground water levels. The Neolithic Bell and Abbot's Way tracks are also

suffering severely and are quite close to the ground surface. The wooden remains at most of the other sites are still in a condition where a lot of information continues to be extracted but seasonal desiccation is annually diminishing this information.

Of all the wetland sites in the Somerset moors the present information suggests that there is optimism for the long-term survival of only two sites. One of these, the Sweet Track in Shapwick Heath NNR, is protected by an irrigation system operated by English Nature (Brunning *et al.* 2000). The other site, Glastonbury Lake Village, is protected by a capping of silt and appears to be in a naturally wetter hydrological regime. All the other known sites are dying a slow death from desiccation and some have already died. The only remaining uncertainty is the speed of the dying process.

IS THERE A SUSTAINABLE FUTURE?

Numerous studies have been conducted on the sustainable management of peat soils (eg. Armstrong 1996; Richardson and Smith 1977; French 2000). One local study has provided the baseline conditions that are required to avoid wastage of peat soils (Spor *et al.* 1999). This suggested maximum spacing of irrigation features of 40m to 60m depending on soil permeability, and ground water tables that do not fall below 0.5m from the ground surface in summer.

These conditions are only coming close to being met in some very limited areas, most notably in the Raised Water Level Areas (RWLAs) financed through the Environmentally Sensitive Area (ESA) scheme and in some land managed by the RSPB on West Sedgemoor and Shapwick allotment at Greinton. For the rest of the moors slow peat wastage is the norm although the position should be slightly better in the SSSI areas where there is greater control over the summer water penning arrangements.

A new agri-environment scheme, Environmental Stewardship, is replacing the ESA scheme in 2005. It is unrealistic to expect the new scheme to deliver a sudden solution to the problem. It is likely that the achievement of favourable and sustainable condition of both the natural and archaeological wetland heritage of the moors will require a more radical change in the existing farming and water management practice. Vast amounts of public money are being spent in the area through flood and water management by the Environment Agency and through DEFRA's other wings of the Rural Development Service, who administer the agri-

environment schemes, and English Nature. Development of large scale sustainable wetland systems have been pioneered elsewhere in the EU (eg. Rasmussen 1999). Such radical thinking within DEFRA may be required to achieve sustainable land management on the moors and a safe future for the internationally important natural and archaeological wetland heritage.

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