IN SITU PRESERVATION RESEARCH AND MONITORING IN THE SOMERSET LEVELS: AN INTERIM REPORT

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A first interim report is presented on the rationale, methodology and initial fieldwork for a three-year research project examining in situ *preservation at two sites in Somerset: Glastonbury Lake Village and the Sweet Track. This research focuses on chemical and hydrological change within the burial environment, in tandem with analysis of the sedimentary context. Since monitoring and laboratory analysis is at an early stage these aspects and interpretations will be discussed in subsequent interim reports.*

INTRODUCTION

As a first interim report, this summary outlines the rationale and fieldwork methodology for a three-year doctoral research project into *in situ* preservation, at two internationally important archaeological sites in the Somerset Levels (Figure 1). These are the Iron Age site of Glastonbury Lake Village, and the southern section of the Neolithic Sweet Track bordering the Shapwick Burtle.

Research began in October 2008 with the overall objective of increasing our understanding of the chemical, hydrological and sedimentological nature of the burial environments at these sites. This will be achieved through analysis of the site-specific sediment context, and monitoring of the spatial and temporal variability in water chemistry, and water table depth. The 'sediment context' refers to the specific soil/sediment sequence (profile) at each site and, in particular, the horizons containing archaeological remains. This information will then be used to enhance our knowledge of the impacts of these variables on the current, and future, *in situ* preservation potential of the inorganic and organic remains preserved at these sites (Figure 2).

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PROJECT RATIONALE

Waterlogged deposits

The unique importance of waterlogged archaeological deposits results from the exceptional preservation of organic remains including wooden structures and artefacts, and palaeoenvironmental evidence, such as pollen and plant macrofossils. These remains provide the opportunity to enhance our understanding of landscape use and management, vegetation change/succession, and importantly, social interactions (Williams 2009), including the organic fraction of prehistoric 'material culture and structures' (Brunning 2007) not found preserved at dryland sites (Coles and Coles 1986; English Heritage 2002). Analysis of dryland sites alone would leave considerable voids in our understanding of prehistoric communities (Coles 1984), in particular, understanding the wider context of landscape use (Coles and Coles 1986; Caple 2005).

Archaeological resource

It is important to emphasise that waterlogged organic remains and palaeoenvironmental resources can quickly become degraded, or lost entirely from the archaeological record, as a result of chemical or hydrological changes within the burial environment, microbial attack, or the

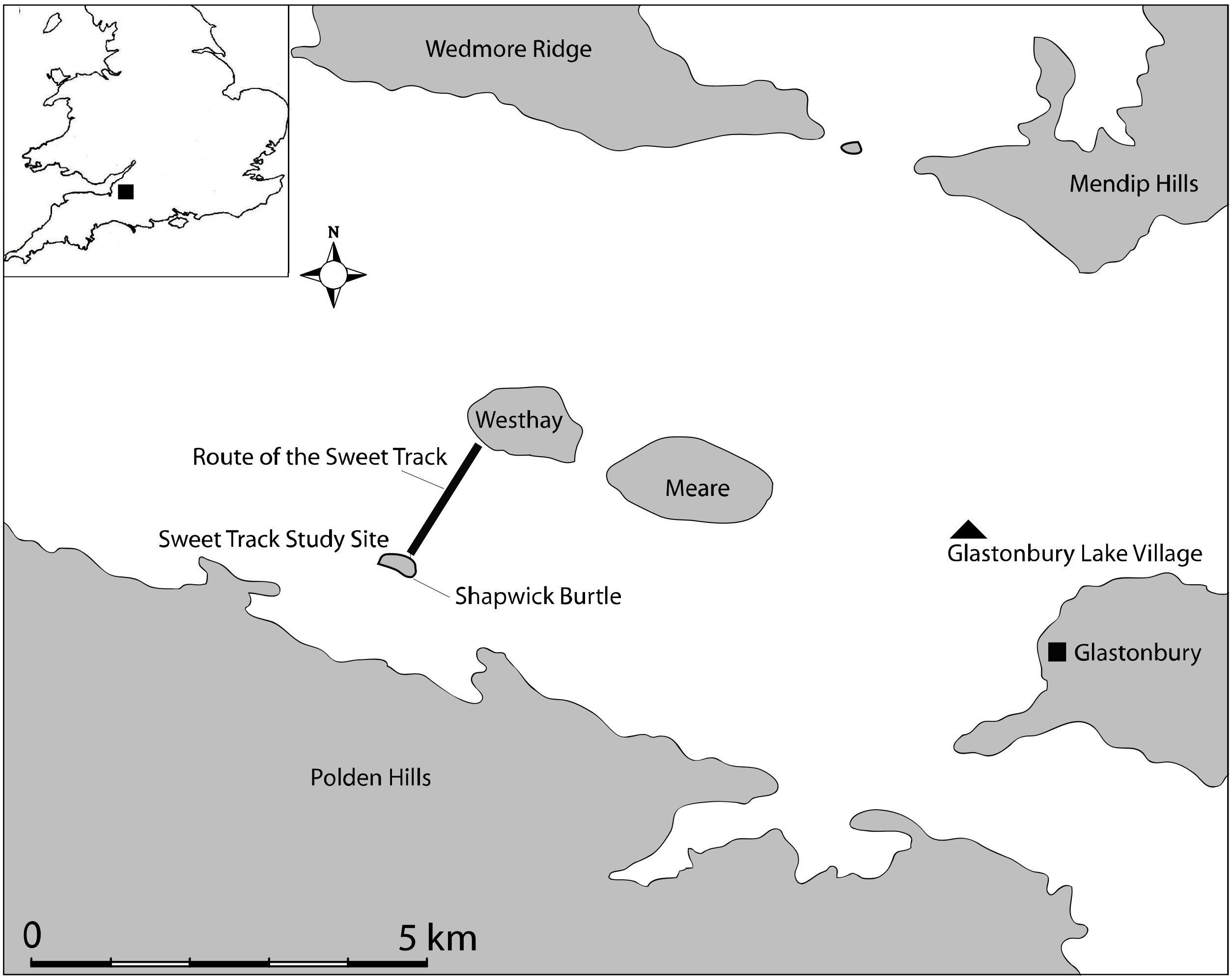

Figure 1. Location map of the study area.

physical destruction of wetlands themselves.

Crucially, both archaeological remains and their original context are also 'non-renewable resources' (DOE 1990; Matthiesen 2003) which cannot be replaced (Kars 1998; English Heritage 2002). When fully excavated, the context to archaeological artefacts and structures is irretrievably lost (Ramseyer 1999), and despite comprehensive recording and analysis it is unlikely that in the future it will always be possible to answer new questions about wetland sites from existing records and samples. The aim to successfully preserve archaeological remains and their context *in situ,* therefore, has a valuable role within archaeological conservation and future research.

In situ *preservation*

In situ preservation is not purely an alternative to complete excavation (Babiński *et al* 2007), but a fundamental strategy for the conservation and management of waterlogged remains at wetland sites (Corfield and Nixon 2004), located at the centre of international and national government archaeological policies and heritage organisation guidelines. Its designation within Planning Policy Guidance Note 16 (PPG16) as the 'preferred' option (DOE 1990) for archaeological conservation highlights the importance of *in situ* preservation within the planning process. As a result, research into how archaeological remains are preserved *in situ*, potential threats to their preservation, and the nature of the burial environment, are central issues in heritage management.

The use of the phrase '*in situ* preservation' may result in the mistaken belief that the artefacts or structures in question will remain unchanged for perpetuity (Caple 2008). However, this is to misunderstand the concept of *in situ* preservation, its role within archaeological research and

Figure 2. Monitoring and coring transect at the Sweet Track site. The photograph was taken facing north-east towards the bunded section of the Shapwick Heath National Nature Reserve.

management, the inherent variability of natural environments, and consequently the impacts on preservation over both long and short timescales. Both inorganic and organic artefacts and structures decay over time (Williams 2009), although crucially it is the reduced rate of decay within waterlogged, reducing environments (Coles 1984; Douterelo *et al* 2009), which results in the exceptional preservation of both inorganic and organic archaeological and palaeoenvironmental evidence.

Environmental monitoring

Potential threats to preservation may be readily identifiable, for example, as a result of peat abstraction or drainage but, more importantly, can also occur unnoticed within the burial environment, where without monitoring, degradation can take place rapidly (Matthiesen 2003). Changes in environmental variables including the depth of the water table, redox potential — "intensity of oxidation or reduction" (Faulkner *et al* 1989) and groundwater chemistry, can impact on, and alter, the preservation state of both archaeological and palaeoenvironmental evidence. Monitoring these parameters is therefore fundamental, not only to the development of informed conservation strategies, but also to ensure that archaeological remains, and importantly their context, are preserved for future generations and new research questions (Matthiesen 2003).

A multidisciplinary approach (Kars 1998; Van de Noort *et al* 2001; Corfield and Nixon 2004) is crucial to understanding *in situ* preservation potential, because of the complex and interrelated (Jordan 2001; Holden *et al* 2006) nature of wetland burial environment variables including chemistry, hydrology and sedimentology, each of which cannot be fully understood in isolation. It is only by investigating the sediment context, and monitoring environmental parameters, including water table depth, redox potential, pH, and water chemistry, that the complexity of burial environments can be appreciated. Interrelated within this is a need to understand the impacts of land use/management on preservation, including that of the wider landscape, where for example large-scale water abstraction may impact on the water table level of a site, even though it is being carried out on adjacent land and not the site in question.

Without monitoring it is not possible to identify whether the chemical and hydrological nature of the burial environment has changed, or is changing, either spatially or temporally, potential impacts on preservation potential, and to what extent this variability is seasonal. Monitoring is also very valuable in evaluating whether any mitigation strategies used to prevent further degradation, are ultimately successful (Holden *et al* 2006).

LARGER SCALE CONTEXT OF *IN SITU* MONITORING

The research rationale, methodology, and parameters selected to monitor *in situ* preservation at different sites, vary, both nationally and internationally, often reflecting site-specific research questions, funding and resources. While some projects, for example at the Iron Age site of Fiskerton in Lincolnshire (Williams *et al* 2008), include experimental archaeology, in terms of the burial of modern materials to examine degradation rates, others have focused on the changes to the burial environment over time, as a result of changing land use, for example due to nearby gravel and water abstraction at the site of Over in Cambridgeshire (French 2009), or the impacts of construction at Tønsberg, Norway (Reed 2004). In contrast at a number of Scottish crannog sites the focus has been on obtaining initial data on the nature of the burial environment (Lillie *et al* 2008), while at Sutton Common in South Yorkshire understanding the complexity of the site has been a key focus in terms of determining the research direction (Lillie 2007). Spatially, monitoring projects range from large scale, comprehensive and multidisciplinary such as the ongoing research at the Iron Age site of Nydam in Denmark (Matthiesen *et al* 2004), to comparatively smaller scale, shorter term assessments of specific structures, such as the Bell Tracks, Harding Alignment, and Tinney's Tracks (Brunning *et al* 2008) as part of the Monuments at Risk in Somerset's Peatlands project (Brunning *et al* 2008).

A thorough literature review at the start of this research project into these, and many other national and international *in situ* monitoring projects was used to identify best practices, research priorities, and how a greater focus on a multidisciplinary approach, in particular including chemical and sediment analysis, can potentially be used to improve our understanding of wetland burial environments and *in situ* preservation potential. This project has therefore been designed to identify whether a spatial, stratigraphic and analytical approach to the analysis of soil/sediment horizons, groundwater chemistry, redox potential, and water table depth, can be used to characterise two wetland burial environments more fully, and therefore inform on the current and future *in situ* preservation potential of inorganic and organic remains. It is also hoped that as a result, this research will also contribute towards *in situ* preservation research more widely.

Previous in situ monitoring on the Somerset Levels

During 1982 the Somerset Levels Project monitored the water-table depth around the section of the Sweet Track located within the Shapwick Heath National Nature Reserve. From this work it was identified that the water table fell below the level of the trackway during the summer, putting the structure at increased risk of desiccation (Coles and Orme 1983). As a result a strategy was put in place to surround the reserve with a waterproof bund and pump in water to maintain high water levels in this area, benefiting both the buried archaeology and nature conservation. This subsequently led to the research by Brunning *et al* (2000) in this same area, to evaluate whether the preservation condition of the Sweet Track had changed over this time, and to determine how successful raising the level of the water table had been in maintaining the preservation state of the trackway. Importantly, as a result of this monitoring it was identified that this management strategy 'should be able to ensure its long-term survival' (Brunning *et al* 2000).

Awareness of the significant potential threats to the preservation of waterlogged archaeological resources (Van de Noort *et al* 2002) resulted in the development of a larger scale project in 2004 to evaluate the current preservation state of organic remains and palaeoenvironmental evidence, and monitor the nature of the burial environment at 13 sites in the Somerset Levels. The Monuments at Risk in Somerset's Peatlands project (Brunning *et al* 2008) formed an assessment of these sites, including Glastonbury Lake Village, and it is these findings, in tandem with the earlier monitoring of the Sweet Track, which has led in consultation with Dr Brunning, to the development of this current doctoral project.

RESEARCH SITES

Glastonbury Lake Village

Since 1892 when the Iron Age site of Glastonbury Lake Village was first discovered, (Bulleid and Gray 1911) this complex wetland site, characterised by exceptional organic preservation of artefacts, structures and palaeoenvironmental evidence (Brunning 2007), has been the focus of comprehensive research. This was first published in two seminal monographs by Bulleid and Gray in 1911 and 1917, and these subsequently formed the basis for further research, including that by Godwin (1955), Housley (1988), Coles and

Minnitt (1995), and more recently Brunning *et al* (2008). Since 1892 the site has been in the ownership of, and successfully managed by, the Glastonbury Antiquarian Society. This has afforded the site, unlike many others in the Somerset Levels, considerable protection in terms of land use, management, and the maintenance of a higher water table. This site is currently used as pasture for grazing cattle.

Despite extensive excavations across the core of the site, and the removal of a diverse range of artefacts for analysis and conservation, abundant archaeological artefacts and structures are currently preserved and remain *in situ.* This does not, however, guarantee their future preservation (Van de Noort *et al* 2001). It is also relevant to note that Bulleid and Gray (1911, 1917) identified a range of inorganic and organic artefact types at the site including antler, bone, glass, iron, pottery and wood. By monitoring the chemistry and hydrology of the burial environment it is anticipated that this research will inform on the current and future preservation potential for this diverse range of artefact types.

While Glastonbury Lake Village is the best preserved site examined during the Monuments at Risk in Somerset's Peatlands (MARISP) study in 2004, hydrological analysis did indicate that the depth of the water table fell below the surface of the archaeological remains from April to October, leaving only lower deposits waterlogged (Brunning *et al* 2008). This initial research was based on three monitoring locations to the south of the site which were outside the boundary of earlier excavations. This very valuable research is, however, limited in terms of understanding the nature of the burial environment within the areas that have been excavated, and also in terms of spatial variability across the site. Further analysis and monitoring is therefore required across the entire site to build on this research, and enhance understanding of the nature of the burial environment, preservation potential, and possible threats to preservation across the site as a whole.

Sweet Track

The importance of the Sweet Track to British and international wetland archaeology stems not only from its designation as the oldest trackway in the UK, but also from the exceptional preservation of waterlogged organic remains. As a consequence, preservation of this prehistoric communication and access route (Coles and Coles 1986; Brunning 1999), has added to our understanding of land use, woodland management (Morgan 1979) and the palaeoenvironment of the trackway (Beckett 1979), both during its construction, and use during the Neolithic in 3807/3806 BC (Brunning 1995). The trackway itself extends over approximately 2 km from the lias 'island' of Westhay, towards the Polden Ridge (Brunning 1999), with the most southerly excavated section (Coles *et al* 1973) being adjacent to the Shapwick Burtle, an estuarine or marine Ipswichian interglacial sand island deposit (Kidson *et al* 1981). Mesolithic flint artefacts have been identified from the Shapwick Burtle site (Coles 1989), and there is the possibility that evidence of activity of this date may also be preserved in waterlogged deposits at its margins.

The section of trackway and associated palaeoenvironmental evidence located within the bunded area of the Shapwick Heath Nature Reserve has, since 1983 (Brunning *et al* 2000), been conserved and protected by the anaerobic conditions created by the water table being permanently raised above the trackway. This is not, however, the case for the section of trackway outside this bunded area, (although still within the Shapwick Heath Nature Reserve) located adjacent to the Shapwick Burtle and identified as 'Site B' (Coles *et al* 1973). This area is currently used as pasture for grazing cattle. Extensive peat wastage in this field, evident by the exposure of bog oaks (Figure 3), indicates that this section of the

Figure 3. Section of bog oak near Shapwick Burtle.

trackway, and significantly any potential Neolithic or possibly even Mesolithic (Coles 1989) waterlogged deposits at the edge of the Burtle, may be at risk of oxidation and degradation.

Monitoring the burial environment is therefore vital here for the development of informed conservation and management strategies, for both the Sweet Track itself, and potential waterlogged deposits associated with the Burtle. If Mesolithic and Neolithic deposits are present at the edge of the Burtle, the enormous potential and importance of this site for advancing our knowledge and understanding of Mesolithic and Neolithic activities in this area of Somerset, and more widely, in terms of organic preservation, is invaluable.

METHODOLOGY

Monitoring strategy

A minimally invasive (Van de Noort *et al* 2001; Keevil *et al* 2004) monitoring strategy was designed for both sites to answer specific research questions, and therefore, be targeted in terms of the parameters being monitored, sampling methodology, and where monitoring stations are located. This is with the aim of enhancing understanding of the burial environment and preservation potential, while simultaneously limiting any possible impact on the archaeological resource itself.

In terms of which parameters are monitored and their frequency, it is only recently, in particular, with the publication of the Danish *Archaeological Monitoring Standard* by Smit *et al* (2006), that a greater focus on a more standardised methodology has begun to emerge. These guidelines have been used in conjunction with the literature review of national and international monitoring projects to design site specific monitoring strategies, which are also achievable within the resource and time constraints of a three-year doctoral project.

The parameters being monitored include water-table depth, soil moisture content, redox potential, analysis of water chemistry, water pH and conductivity. All of these are monitored on a monthly basis with processing and analysis of samples between site visits.

Monitoring spatial and temporal variability in water chemistry is crucial to characterising burial environments and hence preservation potential, particularly because this variable is so closely interlinked to the larger scale hydrological and geological context. This research combines ICP-OES analysis for specific cations including calcium, iron, magnesium, manganese, potassium, sodium and sulphide, and anion chromatography for chloride, phosphate, sulphate and nitrate. These results can be used to characterise the burial environment in terms of water quality, including identifying the extent of spatial and temporal changes in water chemistry, and possible anthropogenic impacts, for example, whether there is any evidence for the input of agricultural fertilisers and or pesticides into the groundwater system. These changes in groundwater chemistry may adversely impact on the long-term preservation of artefacts, for example, through altering variables including redox potential (Douterelo *et al* 2009), the stability of corrosion layers on metal artefacts (Edwards 1998), the pH of the groundwater (Banwart 1998), or the microbiology of the burial environment (Powell *et al* 2001). The complexity (Caple 1998) of the interrelationships between these variables highlights the difficulties in characterising and understanding burial environments in terms of *in situ* preservation potential.

These monitoring techniques are being combined with sediment analysis which includes particle size analysis, X-ray diffraction (mineralogy), X-ray fluorescence (multi-element chemistry), and loss on ignition (organic matter content), using samples from the targeted coring strategies (Figure 4) to characterise and identify the sediment sequence both more accurately and fully. Detailed geoarchaeological analysis of the sediment context of a site is not a commonly used technique within *in situ* preservation research and monitoring, but is arguably fundamental in understanding a burial environment (Lillie *et al* 2008), in terms of spatial and temporal variability in hydraulic conductivity, pH, sediment chemistry, and also the palaeoenvironment of deposition, all of which impact on preservation potential.

Glastonbury Lake Village

The main focus of this project is on the

Figure 4. Sediment coring at the Sweet Track site.

Glastonbury Lake Village site, where its large size, archaeological complexity, and the discovery of organic remains preserved outside the palisade, highlight the need for a more detailed spatial analysis of the burial environment across the entire area (Brunning *et al* 2008).

Although the whole field in which the village occurs is regarded as an archaeological site, most of the area outside the palisade has not been excavated (Figure 5), and therefore remains undisturbed. Understanding the extent to which the burial environment differs between areas which have been excavated and those which are unexcavated, is just one important research question when evaluating current and future preservation potential, and the extent of variability across a site.

Detailed and lengthy discussions were held between all parties involved in this project, in particular Glastonbury Antiquarian Society, English Heritage, Professors John and Bryony Coles, my research supervisors (Dr Matthew Almond, Professor Martin Bell, and Dr Steve Robinson), and myself, to design a research strategy which was targeted, minimally invasive, avoided sensitive areas of the site, and formed the basis for answering key research questions. As a result, a 30 m square grid system of sediment cores and monitoring locations were designed to identify and monitor spatial variability across the entire site (Figure 6). This spacing was identified as being the optimum for obtaining detailed spatial data across the site, and targeting specific areas both inside and outside the palisade, while at the same time reducing any impact on the site, and being achievable within the timeframe of the research.

In total 30 sediment cores were taken using this grid system enabling comparisons to be made of the sediment sequence, and peat preservation, between areas which have been excavated and those which remain unexcavated. Utilising this grid system a monitoring strategy was designed to focus on ten key locations across the site and two additional small transects, one extending from the drainage ditch to the west, and another from the drainage ditch to east of the site. Both of these small transects extend to the palisade boundary, and comprise four and six monitoring locations respectively. These transects are designed to identify the spatial extent of the impacts of water levels in the ditches, on the water table and water chemistry of the site.

At each of the monitoring locations piezometers were installed at depths of 50, 100

Figure 5. Highlighting the boundaries of Faxon Mound which was identified and described during the MARISP project (Brunning et al *2008). The photograph was taken facing towards the north of the site.*

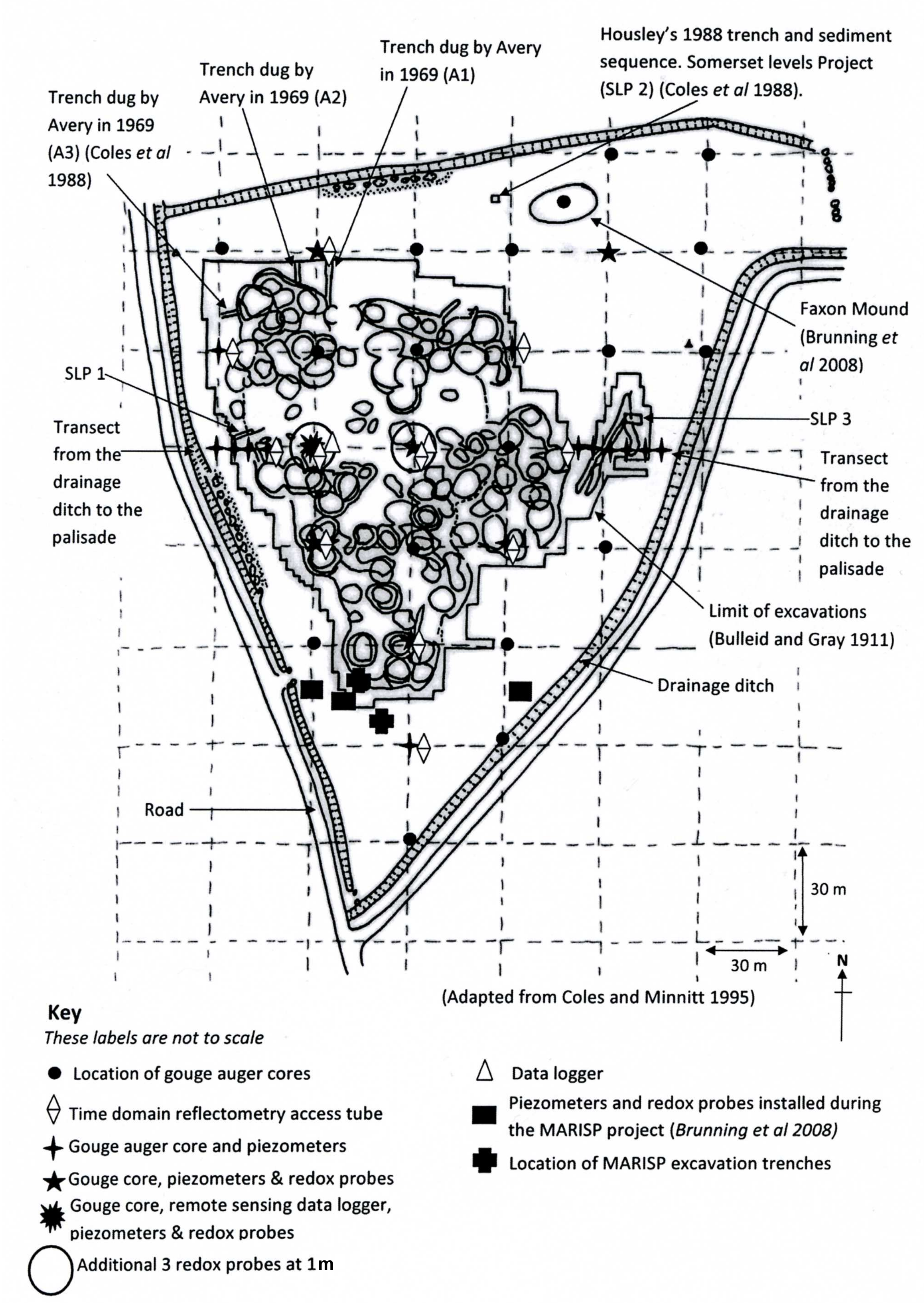

Figure 6. Monitoring and sampling strategy at Glastonbury Lake Village.

Figure 7. Installing protective metal plates over the monitoring equipment at Glastonbury Lake Village.

and 150 cm. The piezometers consist of a section of 27 mm (external) diameter plastic tubing with a porous filter cap at the base, and sealed by a plastic cap at the top. These enable the measurement of water table depth and the collection of water samples for pH, electrical conductivity and chemical analysis. At six of these monitoring locations platinum wire redox probes were installed to measure the redox potential. Replicates of three redox probes were positioned at depths of 30, 50 and 70 cm to monitor above, at the same level as, and below the archaeological remains. At two of these locations at the centre of the site, additional replicates of three redox probes were installed at 100 cm to enhance understanding of redox potential at this deeper depth. Each piece of monitoring equipment is secured and protected beneath sections of metal cable tray fixed in place by tent pegs to prevent any cattle grazing in the field from damaging the equipment (Figure 7).

In total 11 sealed access tubes for Time Domain Reflectometry (TDR) analysis were installed to monitor the soil moisture content (Figure 8). These will potentially enable the identification of the extent of the 'wetting front' above the water table and how this may impact on preservation potential, in particular in relation to seasonal variability in the depth of the water table itself.

Stratigraphic sequence at Glastonbury Lake Village

Beneath a depth of approximately 17 cm of topsoil (the exact thickness varies across the site), a silty clay alluvial layer approximately 40 cm thick (again varying across the site) was identified in all of the sediment cores taken from both within and outside the palisade area, and, therefore, from both excavated and unexcavated locations. This subsoil layer is likely to be a key factor in the ponding of water on the ground surface after heavy and prolonged rain. It is as yet, however, too early to identify the extent and of drainage through this layer, the complexities of water movement both laterally and vertically through the soil profile, and the potential impacts on the depth and location of the water table below this. Peat was not identified in any of the cores to be directly beneath the topsoil.

This silty clay layer has important

Figure 8. Installing the TDR access tubes at Glastonbury Lake Village.

implications for the preservation potential of the peat and the archaeological resources themselves, since this alluvial horizon may to some extent act as a protective barrier against surface desiccation. It is important to highlight, however, that fluctuations in the water-table depth, and hence redox potential could nevertheless potentially result in degradation and loss of the archaeological record despite this subsurface horizon. This also does not take into account the potential impacts of changing pH and / or variable water chemistry on preservation potential.

The basic sediment sequence within the excavated area at Glastonbury Lake Village can therefore be summarised as: topsoil; alluvium; disturbed wood peat; undisturbed wood peat, and estuarine clay.

It is important to note, however, that it was often difficult to identify the backfill within the excavated section of the site and differentiate this from undisturbed peat deposits outside this area. This is largely a reflection of the small diameter of the gouge auger, (2.5 cm) used to minimise disturbance to the site, but also potentially that the sediments have 'settled' over time, and that they were apparently replaced in sequence, reducing mixing between the different sediments. This would explain the presence of the alluvium below the topsoil in all of the cores.

The majority of the wood encountered during the gouge auger coring was below 150 cm, and very soft and degraded, with only very limited hard and resistant wood being observed. This may once again reflect the 2.5 cm diameter size of the gouge auger cores, the positioning of the sampling grid, and also the small fraction of the site which was cored for stratigraphic analysis (only 0.0073%), in order to minimise impacts on the site.

Sweet Track

In contrast to the grid system used at Glastonbury Lake Village, at the Sweet Track a transect (offset from the trackway itself), was designed to target monitoring in this area (Figure 9). In total 15 sediment cores were taken extending from the northern field boundary, across the Shapwick Burtle to the south of the site.

At 11 of these coring locations piezometers were installed at depths of 50, 100 and 200 cm to monitor water-table depth and collect samples for chemical analysis. The depth of 200 cm is required to measure the depth of the water table, and obtain samples during the summer, when water table levels fall significantly and archaeological deposits are potentially at most risk of oxidation and degradation. Replicates of three platinum tipped redox probes were installed at 40, 80 and 150 cm at five of the 11 key monitoring locations to monitor redox potential.

These 11 locations were selected in order to monitor the burial environment of the trackway and the particularly sensitive areas immediately adjacent to the rise of the sandy Burtle. It was additionally important to investigate the spatial extent of the influence of water levels in the ditches on the water table of the site.

The Sweet Track was previously excavated to the north of the Burtle by Coles *et al* (1973) and this work provides important baseline information on the condition and depth of the trackway at this

Figure 9. Route of the monitoring transect at the Sweet Track site. The photograph was taken facing towards the south.

time. Monitoring in this area is now important to identify the present preservation state of the peat and hence the potential for continued preservation in this location, in addition to issues of preservation south of the Burtle. It is uncertain whether the trackway extends further in this direction (Coles and Orme 1981), although possible evidence of its continuation in this area is provided by the discovery of worked wood in an assessment excavation by Dr Richard Brunning (pers. comm. July 2, 2009) approximately 280 m south of the Burtle. This particular area has now also been taken into the ownership of Natural England.

Stratigraphic sequence at the Sweet Track

These coring results can be compared to those obtained by Wilkinson (1989), who cored approximately 250 m to the west of this transect in a field alongside the Westhay-Shapwick road, and where some of the cores extended below the stratigraphic sequence obtained here.

The basic sediment sequence at the Sweet Track site comprises: thin topsoil; humified, degraded peat; *Sphagnum* (moss)/*Phragmites* (reed) peats with varying quantities of wood – these generally show good preservation of both wood and plant remains; humic silty clay – interpreted as a thin soil horizon, and estuarine grey clays.

In close proximity to the Burtle this sequence is further complicated by the presence of thin sand lenses and thicker silty sand horizons. In comparison with surface exposures, clayey sands identified immediately adjacent to the Burtle within the estuarine grey clays, were interpreted in the field as being Burtle deposits. Particle size analysis is now required to differentiate between samples collected in the field to clarify this complex sediment sequence.

An initial, simplified interpretation of the sediment sequence for the Sweet Track is presented in Figure 10, where a temporary, arbitrary vertical scale has been used. The descriptions are based purely on field observations and will be refined with future particle size, X-ray

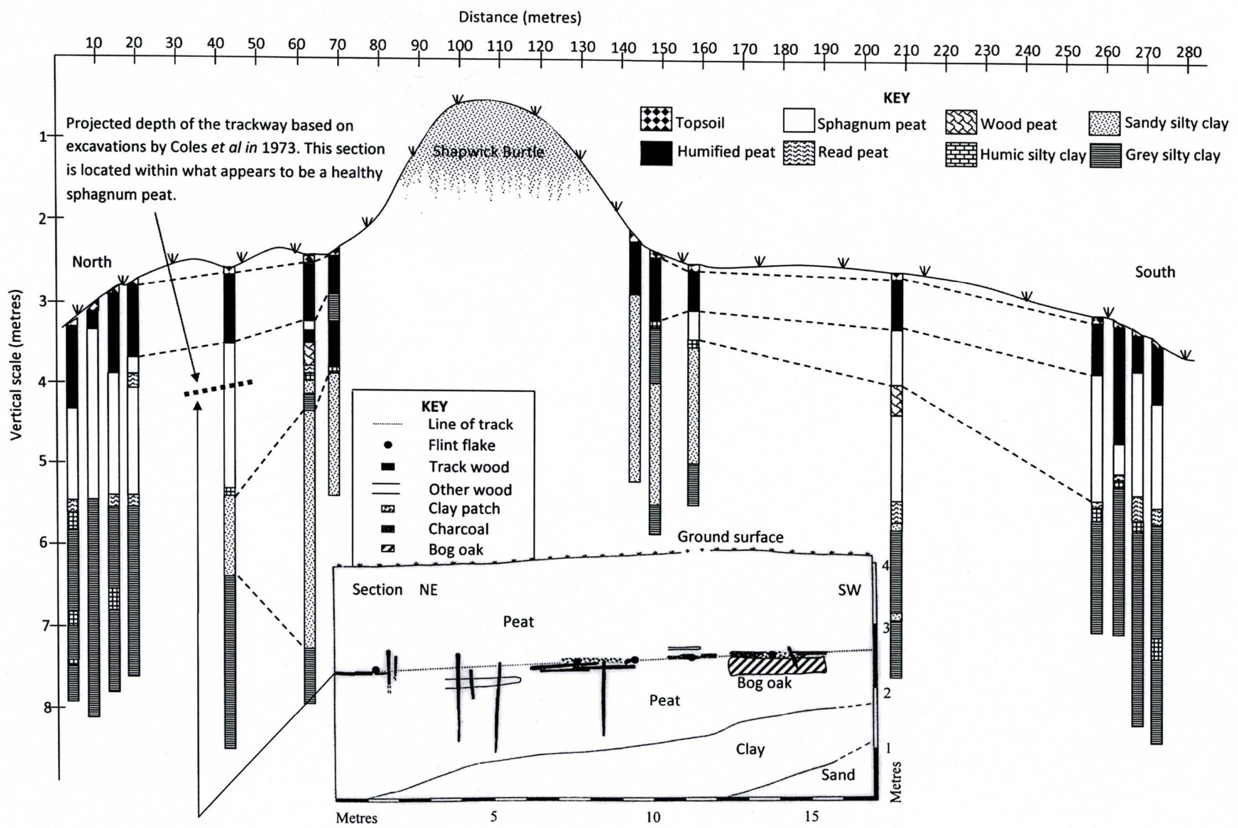

Figure 10. Simplified cross section of the sediment sequence at the Sweet Track, including a cross section of the excavation in this area by Coles et al in 1973.

diffraction and X-ray fluorescence analysis. The stratigraphy identified north of the Burtle does, however, correspond closely to that described by Coles *et al* (1973).

As each of the gouge auger cores were sub-sampled in the field, the peat was described in terms of whether it was very humified, in which case it had a loose, friable texture, dry, and lacked preserved and identifiable organic remains, or whether it was effectively a very 'healthy' peat which was very wet with a dense, compact structure, and contained preserved and identifiable organic material. This distinction is relevant to the potential for the preservation of the Sweet Track itself and is highlighted visually on the transect diagram by the different shading patterns. It is clear from this that the upper section of all of the profiles is humified, while below this are 'healthier' *Sphagnum* (moss) and *Phragmites* (reed) peats.

The Sweet Track was identified as being at approximately 150 cm beneath the ground surface during excavations by Coles *et al* (1973), although this depth is likely to decrease adjacent to the Burtle itself, as the trackway rises up onto dry ground. At a similar level to the trackway, it is possible that there may be Mesolithic and or Neolithic organic remains preserved within the peat, providing possible evidence of activities or occupation, given the density of flint artefacts on the Burtle.

This initial coring data suggests the Sweet Track to the North of the Burtle is located within 'healthy' peat below the upper humified horizon. Crucially, however, peat wastage in this area may have altered the depth of peat, and therefore the depth of the trackway beneath the ground surface, possibly modifying any interpretations. Therefore, although these are very positive findings, this is not conclusive evidence that the preservation state of the trackway is likely to be good. Without monitoring it is also not possible to identify the extent of fluctuations in the depth of the water table and redox potential, and the nature of the burial environment in terms of pH and water chemistry, and how these may be impacting on preservation potential.

While it is not known whether the Sweet Track does extend south of the Burtle, and if so whether it occurs at a similar depth over this distance, the identification of split timbers on a similar alignment at 1.87 m OD and 2.01 m OD below the ground surface (Brunning pers. comm. July 2nd 2009), does indicate that if present in this area, the trackway may also be located within the 'healthy' peat. At this stage, however, this is pure conjecture.

CONCLUSIONS AND ONGOING RESEARCH

The sediment coring and installation of monitoring equipment was completed at the Sweet Track on the 15th July, and at Glastonbury Lake Village on the 2nd August 2009. Sub-samples from these cores are currently being analysed. The sediment analysis data will ultimately be combined with the data from the monitoring which is an ongoing monthly process. To date (December 2009), samples have been collected over three months, but at this stage it is too early to draw any firm conclusions from these results. It is anticipated, however, that the preliminary results from the monthly monitoring will be reviewed in the summer of 2010 with the partners in this research project to identify key research priorities, whether it is necessary to further refine the research questions, and whether the monitoring strategy needs to be modified in light of these findings.

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