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# Bosworth Fields, Leicestershire: Palaeoenvironmental Survey and Assessment

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*By*

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**Summary**

*Birmingham Arcaheo-Environmental were subcontracted by the Battlefields Trust to undertake a palaeoenvironmental assessment of the lowland sedimentary deposits present on the floodplains between Shenton and Dadlington. Sedimentary coring concentrated on the fields around Fen Lane and Mill Lane, during which organic-rich deposits were encountered. Spot samples were taken from the organic sequence for pollen analyses. A later Holocene landscape was inferred, suggesting that such organic depositional environments may stretch into the Medieval period. A second phase of fieldwork resulted in the excavation of trenches in the area of interest, from which samples were taken for further palaeoenvironmental analysis. Palynological assessments supported by high-resolution radiocarbon dating indicated that peat accumulation began in the mid-Holocene. A dense alder carr woodland setting prevailed until deforestation occurred in the Romano-British period. A transition from biogenic to minerogenic accumulation then occurred c. cal AD 610-720, after which a seasonally waterlogged alluvial environment is likely to have persisted until artificial drainage of the area took place*

**KEYWORDS:** Bosworth, Battlefield, Ambion Hill, pollen, radiocarbon dating, peat

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# Bosworth Fields, Leicestershire: A palaeoenvironmental assessment of deposits encountered during ground investigations

## 1. INTRODUCTION

A major study has taken place over the last three years by the Battlefields Trust on behalf of Leicestershire County Council. This study was commissioned in order to resolve a number of the issues regarding the Battle of Bosworth Field (22nd August, AD 1485). One major issue related to the precise location of the battlefield which was originally thought to have been at Ambion Hill, where a Battlefield visitor centre was opened in 1977. However, recent research has cast doubt on this. Under the direction of Dr Glenn Foard, Birmingham Archaeo-Environmental (BA-E) was subcontracted to assist in identifying possible locations of the battle (Foard 2004).

This report summarises the field work, associated palaeoenvironmental analyses and radiocarbon dating of organic deposits recovered as part of a survey by BA-E of the lowlands between Stoke Golding and Shenton, about 1 km to the south-west of Ambion Hill and either side of Mill Lane. These site locations were identified as being possible locations of the *'pallius'* referred to in Vergil's account of the Battle of Bosworth and thus regarded as key to locating the site. Although drainage as part of modern agricultural development has led to the demise of previously waterlogged areas of valley floor, soils developed on alluvial sediments do indicate former wetter areas. Research by Dr Rodney Burton of Cranfield University had resulted in the refinement of the soil characteristics of the area (Burton, 2006), more generally described by the Soil Survey of England and Wales. Whilst the spatial extent of the wetter areas was thus reasonably well defined, the timing and character of any wetland development was poorly understood. The project undertaken by Birmingham Archaeo-Environmental thus aimed to:

- To assess the potential of the alluvial areas to preserve organic-rich sediments capable of yielding proxy indicators (pollen, insects, diatoms and macroscopic plant remains) of environmental change.
- To extract any such proxy indicators and assess the potential for reconstructing the landscape history of the Bosworth hinterland, particularly relating to any wetland/marshland development.
- To date any organic deposits using radiocarbon to determine whether any surviving wetland sediments are broadly contemporaneous with the date of the battle.
- To assess from such dating, whether there is the potential for buried land surfaces in the valley floors, which are broadly contemporaneous with the battle and upon which evidence of the battle may be preserved.

Following the work of Burton (2006) and discussions with Glenn Foard, it was agreed to concentrate resources and effort on alluvial areas between

Stoke Golding and Shenton, to the west of Ambion Hill and either side of Mill Lane.

# 2. PHASE 1 ASSESSMENT

## 2.1 METHODOLOGY

### *2.1.1 Borehole Survey*

The first phase of fieldwork comprised hand coring along transects, running perpendicular to flow of the contemporary channels, in order to establish the character of the subsurface stratigraphy of the extant alluvial wetlands (Figure 1). Burton's study (2006) suggested that it was unlikely that coring would be required below depths greater than 1.5m. Augering was undertaken using a small gauge Gouge Auger (max 5cm diameter). If organic-rich deposits were encountered, the sediment was sub-sampled to provide suitable material for palaeoenvironmental assessment. Any material suitable for radiocarbon dating was sub-sampled from the top and bottom of organic levels to provide rangefinder dates. A report describing the fieldwork and results of the initial coring survey was produced (Hill *et al*., 2006).

The initial coring was undertaken over a period of 4 days during October 2006 ($11^{th}$, $12^{th}$ $13^{th}$, $18^{th}$). A total of 41 cores were taken along 6 of the original 10 core transects (Figure 1; Transects 1, 2, 3, 6, 7, 8). Upon consultation with Glenn Foard however, an additional site location was identified and an extra transect of a further 19 cores was subsequently excavated (Transect 11).

## 2.2 RESULTS

### *2.2.1 The General Depositional Sequence*

The typical sedimentary sequence found along Transects 1, 3, 6, 7, 8 and 11 consisted of 1.0-1.5m of fine silts and clays overlain by an organic-rich topsoil and underlain by increasingly coarse minerogenic material including gravel with depth. There was variation in colour of the silts and clays within each core, typically changing from grey-brown, to orange/yellow-brown and then red-brown with depth. Post-depositional precipitation of iron-oxides within the sedimentary sequence is likely to have contributed to these colour variations. The gravel-rich sediments could not be penetrated to any great depth with the hand operated coring equipment.

The basal gravel-rich basal sediments are likely to be of glacial or fluvio-glacial origin whilst the majority of the silts and clays are likely to have been deposited through processes of alluviation/colluviation. Such deposition occurs either by the action of the watercourses during periods of flooding or by overland flow of silts and clays during periods of landscape instability; or occasionally a combination of the two processes.

The timescale for such deposition is likely to vary across the area but increasing agricultural activity in the lowlands is probably responsible for increased rates of erosion and re-deposition of such material from the mid-Holocene onwards. In addition, changing catchment dynamics, climate change and drainage network evolution during the Mid- to Late Holocene would have resulted in different rates and patterns of deposition. Minerogenic sediments such as these have little potential for palaeoenvironmental analyses or radiocarbon dating for which organic rich material is generally required.

During the course of fieldwork, cores that contained sedimentary sequences typical of the transect in question were sampled. Bulk samples were taken at regular intervals within the core profile and returned to the University of Birmingham for storage. Two cores were sampled from Transect 3 (cores 5 and 9), one core was sampled from Transect 8 (core 5), and one core was sampled from Transect 11 (core 7).

At Transect 2, a sedimentary archive rich in organic remains was encountered. Such organic sediments were only present in this transect and restricted to cores 2, 3 and 4. The transect location had been moved north from its original position within field 98 due to access restrictions, the absence of such deposits elsewhere and the prior identification of peats in this area (Foard 2005). Cores 2, 3, and 4 were located towards the east of the transect. The stratigraphy within these three cores was characterised by a light grey slightly organic clayey silt towards the surface, which was underlain by a herbaceous well humified peat of varying thickness (0.5-0.9m) This peat was silty with occasional wood fragments. Below the peat was a light grey, gravely silty sand. Further east (Core 1) and west (Cores 5-8), no organic remains were encountered.

The peat deposits and organic clays and silts indicated that a waterlogged environment such as fen (ie. a largely groundwater fen wetland) had been present on this area. Due to the relative abundance of such organic deposits encountered, a complete core sequence was sampled to a depth of *c*. 1.95 m for palaeoenvironmental consideration.

It was clear following this phase of fieldwork that the distribution of organic-rich sediments within the field survey was confined to a small area adjacent to Mill Lane (Field 97, see Figure 1). However, additional fieldwork was undertaken by Foard and Mackinder within Field 97 to define the extent of the peat deposits more precisely, whilst an additional site containing organic deposits was identified at Fen Hole to the south. BA-E consequently visited both sites to carry out further coring to recover subsamples for pollen assessments and radiocarbon dating.

After initial palynological assessments had been undertaken on the Fen Hole site, consultation with Glenn Foard concluded that this site was unlikely to have been the '*pallius*' in question, due to the limited extent of the organic deposits. Consequently, palaeoenvironmental assessment focussed on Field 97 proximal to Mill Lane (centred on SP39157, BNG98190).

### *2.2.2 Radiocarbon Dating and Palynological Assessment of deposits from Field 97*

In order to establish a timeframe for the deposition of the organic sediments identified in Field 97, two samples of wood from the top and base of the organic sequence were submitted to Beta Analytic Inc., Miami, Florida, for dating using the radiocarbon AMS (Accelerator Mass Spectrometry) method. The results are given in Table 1. The two dates indicate that peat formation at the site was occurring between 2980±50 BP (Beta-222927; 1380-1030 cal.BC) and 2860±60 BP (Beta-222926; 1210-880 cal.BC). Clearly these initial results suggested that the wetland at this site was in existence during the Bronze Age, with organic accumulation replaced by minerogenic accumulation towards the end of this period.

However, it had been observed during the auger survey that the deposits at this location showed some considerable spatial variation, with sharp sedimentary boundaries evident between the organic deposits and the overlying silts and clays. This suggested that the sequence from which the radiocarbon samples had been recovered might have bee affected by post-depositional reworking. This was further supported by the results of pollen analyses on samples from the upper organic boundary.

A number of spot samples were taken from different cores across the area in which the organic deposit had been encountered. Each analysis concentrated on the organic deposit immediately underlying the alluvial deposit. The resulting pollen assemblages suggested a mixture of both mid and later Holocene sediments survived within the upper organic archive. It was concluded that the core location from which Bronze Age radiocarbon dates had been obtained might have been affected by substantial erosion and/or reworking but that more recent organic sediments might survive in this area. This possibility was subsequently explored through re-sampling for palynological assessment at the site to establish if later Holocene sediments might survive.

# 3. PHASE 2 ASESSMENT

## 3.1 METHODOLOGY

The stratigraphic integrity of the organic deposits in Field 97 had so far only been assessed through sedimentary coring. In order to fully understand the sedimentary sequence and to obtain sufficient samples for high resolution palaeoenvironmental analyses, further fieldwork was undertaken within Field 97 in October 2007. Two trenches were excavated, the first of which was located proximal to where initial pollen assessments during phase 1 had identified later Holocene sediments. Two sediment sequences were taken from this trench using monolith tins from 0.35-0.85m depth (Sequence 1a) and also from 0.32-0.57m depth (Sequence 1c; see Figure 2). In addition, a second trench was excavated where the coring results had suggested the approximate location of the western extent of the organic unit. The margin of the organic deposit was encountered within the trench, and a monolith was taken. However, it was concluded that no palaeoenvironmental analyses were necessary on this sequence.

### *3.1.1 Pollen Analyses*

Sub-samples were taken from the sequences for pollen analyses; nine from Sequence 1a (at 0.40, 0.42, 0.44, 0.46, 0.48, 0.54, 0.50, 0.72 & 0.85m depths) and four from Sequence 1c (at 0.37, 0.39, 0.41 and 0.43m depths; Figure 2). Samples were prepared for analyses using standard techniques (Moore *et al.* 1991), mounted in silicon oil for counting. A sum of at least 125 total land pollen (TLP) grains was attempted for each sample, with counting carried out on a Nikon Eclipse 50i microscope.

### *3.1.2 Radiocarbon Dating*

The strategy for radiocarbon dating was aimed at establishing the general chronology of sediment accumulation at this location, with a focus on obtaining precise and accurate dates for the upper organic silts since the previous pollen assessments had indicated these were likely to be of later Holocene age. The samples were processed at the Scottish Universities Environmental Research Centre (SUERC) in East Kilbride in 2008. The samples (waterlogged plant macrofossils and wood) were pretreated using the acid-base-acid protocol (Stenhouse and Baxter 1983) and $CO_2$ obtained by combustion in pre-cleaned sealed quartz tubes (Vandeputte *et al* 1996). The purified $CO_2$ was converted to graphite (Slota *et al* 1987) for subsequent AMS analysis. The sample $^{14}C/^{13}C$ ratios were measured on the SUERC AMS, as described by Xu *et al* (2004). The laboratory maintains a continual programme of quality assurance procedures, in addition to participation in international inter-comparisons (Scott 2003). These tests indicate no laboratory offsets and demonstrate the validity of the measurements quoted.

### 3.2 RESULTS

#### *3.2.1 Pollen Analyses*

The results of the pollen analyses are given in the form of a percentage pollen diagram for each sequence (Figure 3 and 4) and were produced using the computer programme TILIA and TILIA*GRAPH (Grimm 1991). Sequence 1a has been divided into 2 local pollen assemblage zones (B1a-I and B1a-II) to facilitate discussion. A detailed interpretation of the pollen will not be attempted here but is summarised below.

#### *3.2.2 Radiocarbon Dating*

The radiocarbon results are given in Table 1, and are quoted in accordance with the international standard known as the Trondheim convention (Stuiver and Kra 1986). They are conventional radiocarbon ages (Stuiver and Polach 1977). The calibrations of the results, relating the radiocarbon measurements directly to calendar dates, are given in Table 1 and in Figures 4 and 5. All have been calculated using the calibration curve of Reimer *et al* (2004) and the computer program OxCal v4.0.5 (Bronk Ramsey 1995; 1998, 2001, 2008). The calibrated date ranges cited in the text are those for 95% confidence. They are quoted in the form recommended by Mook (1986), with the end points rounded outwards to 10 years. The ranges quoted in italics are *posterior density estimates* derived from mathematical modelling of archaeological problems (see below). The ranges in Table 1 have been calculated according to the maximum intercept method (Stuiver and Reimer 1986). The probability distributions shown in Figures 5 and 6 are derived from the probability method (Stuiver and Reimer 1993).

## 4. DISCUSSION

#### *4.1 Bosworth Sequences 1a and 1c.*

The radiocarbon measurements indicate that Sequence 1a covers the period from 4240-3970 cal BC to cal AD 610-780 (Figure 5). The two measurements from 40-41cm (SUERC-16389, 16390) are statistically consistent (T'=0.1; v=1; T'(5%)=3.8; Ward and Wilson 1978) and could therefore be of the same actual age. The radiocarbon measurements are in good agreement with the stratigraphic sequence (Figure 5). However, the two measurements from Sequence 1c, at 39-40cm depth (SUERC-17639 and SUERC-17640), are not statistically consistent (T'=4.5; v=1; T'(5%)=3.8; Ward and Wilson 1978), although they only just fail a $\chi^2$ test. This therefore suggests that the deposit accumulated rapidly over a relatively short period of time. The three measurements from the top of both sequences (SUERC-17632-17633 and SUERC-17635) just fail a $\chi^2$ test (T'=7.3; v=2; T'(5%)=6.0; Ward and Wilson 1978). These data therefore suggest that the end of organic sedimentation is broadly contemporary, and dates to the seventh-eighth centuries cal AD.

### *4.2 Summary: Sequence 1a*

The presence of coarse sands and gravel at the base of the trench indicates deposition under high energy fluvial conditions. This may date back to the earliest Holocene. However, organic sediment accumulation did not commence until around 5265±35 BP (SUERC-16433; 4180-3980 cal BC), or the later Mesolithic/earlier Neolithic. The pollen evidence shows that alder carr was growing on and around the sampling site at this time (B1a-I; Figure 3); the wood macrofossils observed in the peat are almost certainly the remains of these alder trees. The drier soils beyond the wetland area were probably characterised by lime, oak and hazel woodland. The canopy was generally closed with few herbs recorded. This environment persisted until the later Neolithic at least, with a date of 3965±35 BP (SUERC-16432; 2580-2340 cal BC) obtained at 0.60m depth.

There would appear to be a sedimentary hiatus between the zones B1a –I, and II, since the next radiocarbon date at 0.55m depth is 1620±40 BP (SUERC-16391; cal AD 340-550) or the late Romano-British/early Medieval periods. Some time before this, clearance of the woodland appears to have commenced, with clear reductions in percentages of trees and shrubs and an expansion in herbs (especially grasses and sedges). Wet, marshy conditions on the site are indicated by the presence of *Hydrocotyle vulgaris* (marsh penny wort). The alder carr which had been present on the site had thus been replaced by open sedge fen with tall herb communities including fat hen and meadowsweet. The mixed woodland on the drier soils was also affected with marked reductions in oak and lime, although some hazel scrub probably remained nearby. The record of herbs typical of pastoral areas such as dandelions, ribwort plantain, knapweed and buttercups suggests farming activity in the near vicinity, with the presence of cereal type grains suggesting arable cultivation.

A change in the stratigraphy at 0.47m from predominantly organic to increasingly minerogenic sedimentation is associated with further increases in grasses and sedges and a drop in hazel. This is interpreted as reflecting inwash of silts and clays onto the sampling site following destabilisation of soils through continuing anthropogenic activity, although other processes such as climatic changes might also be responsible. A peak in cereal type and the appearance of *Secale* (rye) shortly before this stratigraphic transition at 0.46m suggests this may be related to the effects of intensified arable cultivation.

The organic silts are replaced by inorganic clays and silts during the earlier Medieval period. The pollen record terminates at this time, with the uppermost pollen sample at 0.40m indicating a wet, sedge fen environment on and close to the sampling site within an open, pastoral landscape. The presence of *Eriophorum* seeds indicates that at least some of the sedge pollen recorded in the sequence is likely to derive from cottongrass whilst *Carex* seeds reflect the presence of this genus on-site.

A very similar picture of environmental changes is apparent in Sequence 1c. The radiocarbon dates confirm that by the Romano-British period (1780±35 BP; SUERC-17639; cal AD 130-350) an open grass-sedge environment with pastoral vegetation communities was present on and around the site. There is less evidence for arable cultivation in this sequence, with no cereal pollen grains recorded. The radiocarbon date from the top of the sequence indicates that the transition from organic silts to the inorganic clays and silts dates to the early Medieval period at 1475±35 BP (SUERC-17635; cal AD 530-660).

### *4.3 The later landscape: The Early Medieval to Modern Periods*

The top *c*. 0.35m of deposit at the sampling site consists of a dense silty clay with abundant rootlets and iron mottling. This indicates that from the end of the pollen diagram around cal AD 610-720 to the present day, accumulation of sediments on the sampling site has been through a combination of alluvial and colluvial processes, the latter reflecting the instability of the landscape through the erosion of local soils as a result of ploughing and other agricultural activities.

The lack of organic remains above *c.* 0.35m depth limits the potential of environmental archaeology to produce further detailed information regarding the character or chronology of local landscape evolution (although some further work may be profitable, see below). It should be noted however that the absence of organic material in these upper deposits does not necessarily indicate that the substrate at this location has always been minerogenic in character throughout this time; it is likely that processes of oxidation have destroyed the remains of the plants that were growing on the sampling site prior to the present day.

Estimating the precise level of the ground surface or the nature of the vegetation during the 15$^{th}$ Century is thus not possible on the basis of the current data, but the following comments may be made. A very crude accumulation rate of *c.* 32 years cm $^{-1}$ can be estimated for the capping clay-silts; based on this the ground surface in the 15$^{th}$ Century would be at a depth of *c.* 0.15m below the current level. However, this should be used very cautiously since it is unlikely that the clay silts had a constant accumulation rate, whilst other factors such as periods of sediment wastage and compression following drainage and dry periods will also have affected the uppermost sediments.

The contact between the upper organic silts and the overlying clay silts would appear to be conformable, suggesting this is not an erosive contact and hence that the archive at this location is intact. Hence, it may be concluded that since the early Medieval period conditions on the site have not been conducive to accumulation of peat or other organic sediments but have nevertheless been poorly drained. The absence of organic sedimentation is perhaps not surprising given the location within a lowland landscape that has clearly been heavily agriculturally exploited since the Romano-British period at the latest. Other factors, such as climatic changes, drainage and management of local watercourses may also have been responsible for a drop in local watertables which would inhibit peat formation.

However, it is clear that the sampling site has always been poorly drained with such dense alluvial soils and would certainly have been wetter for much of the time than adjacent areas. It is probable that seasonally at least, standing water would have accumulated and it is unlikely that this location was of any use for arable agriculture until the excavation of the major drains in this area.

It is likely that the location would have been useful for pastoral purposes (supporting the Medieval place name evidence), but not for arable agriculture. The character of the vegetation that would have been present cannot be ascertained on the basis of the current data, but is more likely to have been sedges and other herbaceous plants typical of wet areas (eg. the common reed, *Phragmites*) and semi-aquatic taxa in wetter areas, rather than carr woodland (although some willow scrub or similar cannot be ruled out). The nature and distribution of this vegetation would probably have been largely controlled by grazing pressures, the nature of local agricultural activities and other anthropogenic factors.

## 4. CONCLUSIONS

The following conclusions can be drawn from the coring and environmental work at Bosworth:

- The coring survey has demonstrated that alluvial soils are common in valley areas and topographic lows where drainage is poor or proximal to rivers
- Only two locations were identified where organic sediments survived with potential for palaeoenvironmental analyses and radiocarbon dating
- The deposits at the 'Fen Hole' were regarded as insufficient in area to reflect the location of the '*pallius*'. Only thin and ephemeral peat deposits were identified at this location with low potential for detailed palaeoenvironmental work. It is possible that more extensive organic deposits were present at this location which have since been affected by the effects of anthropogenic activity or natural processes such as erosion/desiccation. Further detailed work would be required to investigate this issue in detail
- The deposits in Field 97 were the most extensive and most suitable for further analyses
- Pollen and radiocarbon dating of these sediments has shown that peat accumulation began in the mid-Holocene (*c*. 4000 cal BC), at which time dense alder carr was present on the site with closed woodland on the drier soils. This vegetation persisted into the later Neolithic (*c*. 2500 cal BC) after which there appears to be an hiatus in the sediments
- Clearance of this woodland for agriculture/settlement began in the Romano-British period at the latest and led to increased erosion of soils with re-deposition of this material on the sampling site. At this time, the pollen evidence suggests both pastoral and arable agriculture. Arable farming, including cultivation of oats, peaked prior to change from mixed farming to predominantly pastoral farming at some point before the early Medieval period. At a date of *c*. cal AD 610-720, there is a final shift from organic to minerogenic accumulation on the sampling site
- The character of the subsequent vegetation or any further changes in this as well as the precise

nature of the site during the 15th Century cannot be established on the basis of the current data. However, it is clear that this would have remained a poorly drained area with dense, clayey soils which would have been poorly drained and susceptible to waterlogging on a seasonal basis at the very least, until the advent of large scale drainage work. The vegetation is thus likely to have been open, wet grassland, but areas of standing water with semi-aquatic taxa are possible.

## 5. RECOMMENDATIONS FOR FURTHER WORK

No further work on the samples described above is recommended at this time. Whilst the clay silts are highly inorganic and hence are unlikely to yield extensive further environmental remains, it is possible that macrofossil material or sub-fossil beetles might be preserved. If this is the case, some further characterisation of the later deposits may be possible.

This would require the excavation of a test pit and the recovery of large (c. 20 litres +) bulk samples of the sediment. These would then be assessed for plant macrofossil and beetle remains. Beetle remains may provide more precise information of the depositional regime and local environment, whilst any plant macrofossils recovered could be radiocarbon dated in an attempt to refine the chronology of recent sediment deposition at the sampling site. This is of course dependent on the concentration and preservation of such material whilst the possibility of re-worked/re-deposited material in such sediments means that dating of any organic material may be imprecise.

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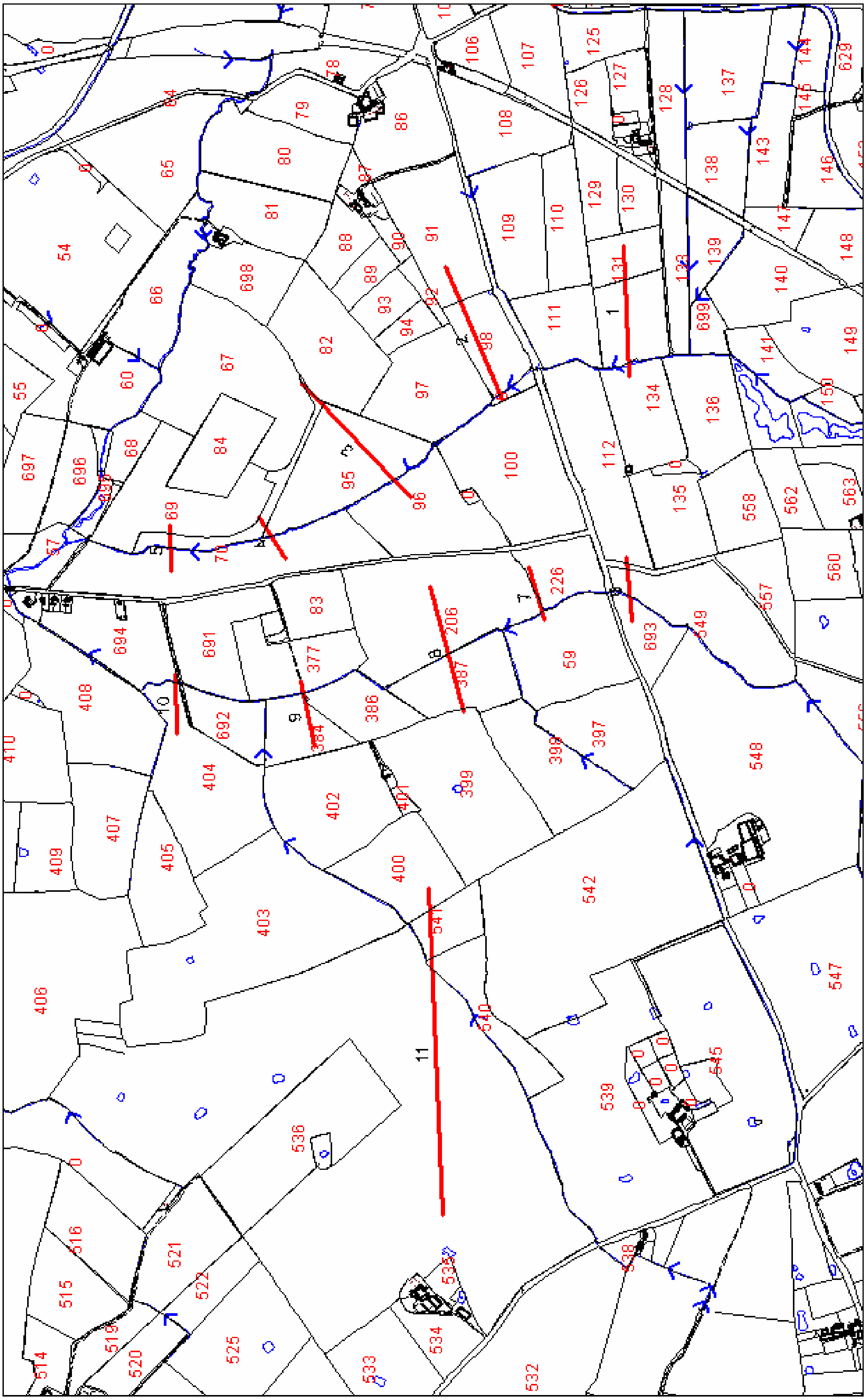

**Figure 1: Location Map**

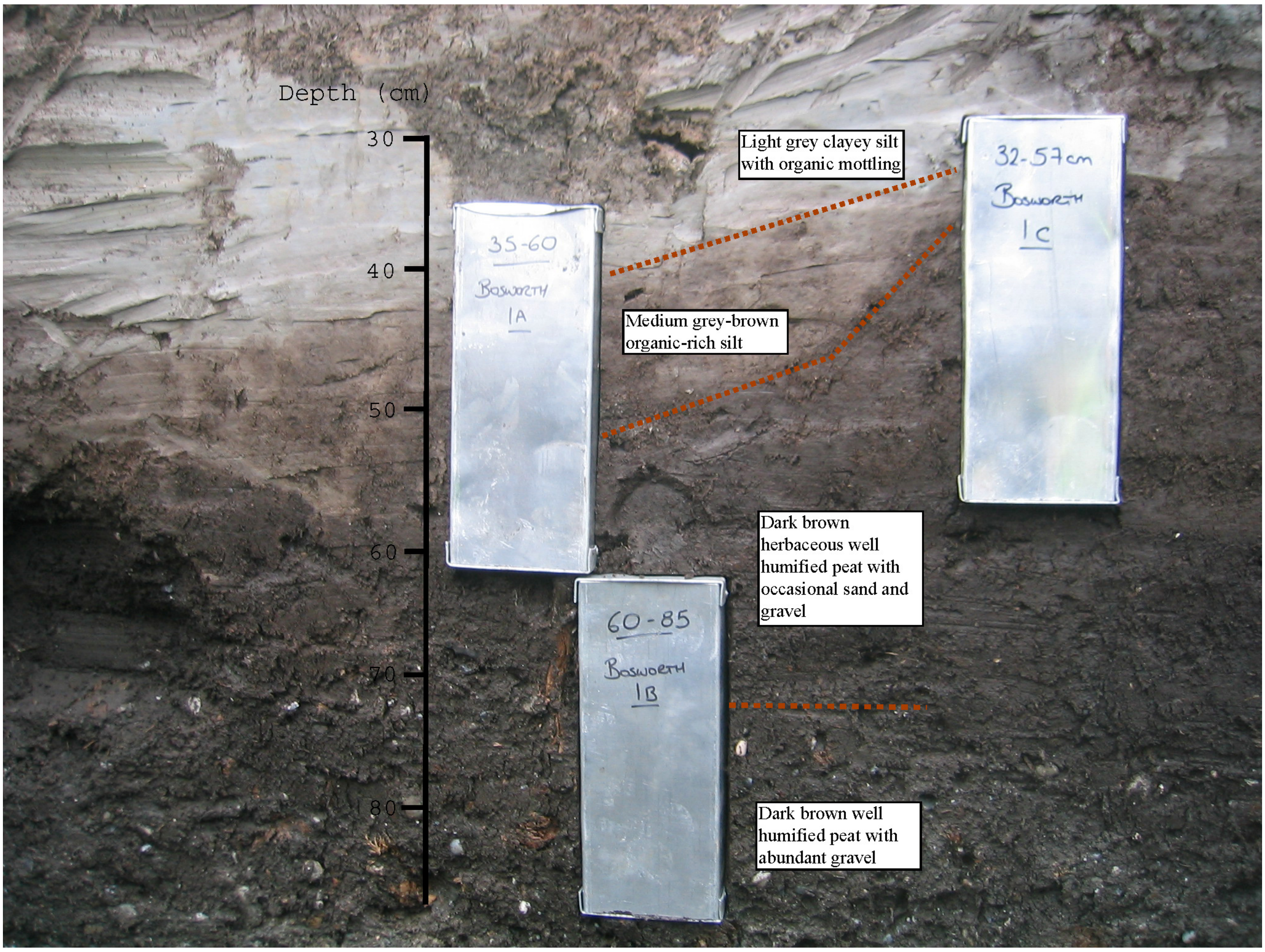


**Figure 2: Annotated photograph of trench section excavated during phase 2. Monolith tins were used to provide suitable material for palynological assessments and radiocarbon dating**

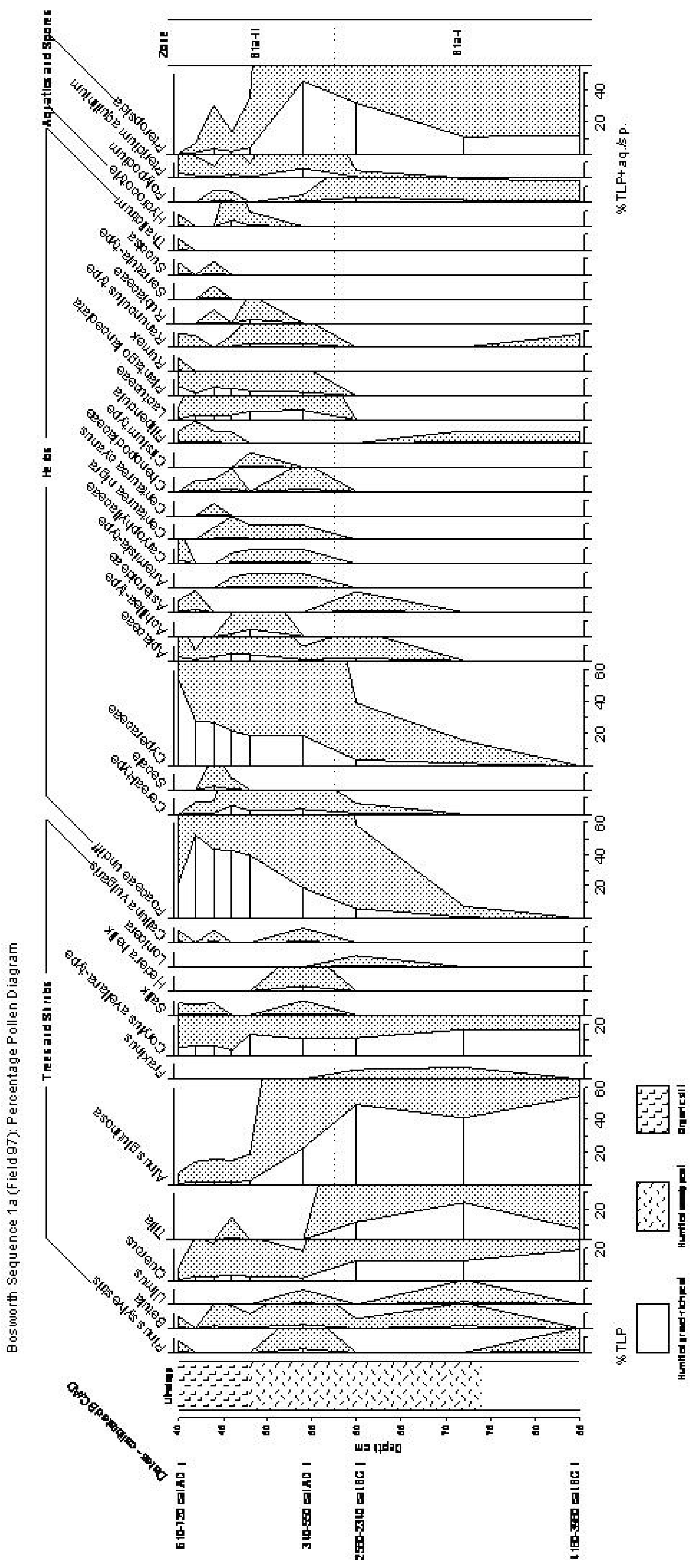


**Figure 3: Bosworth 1a Pollen Sequence 1**

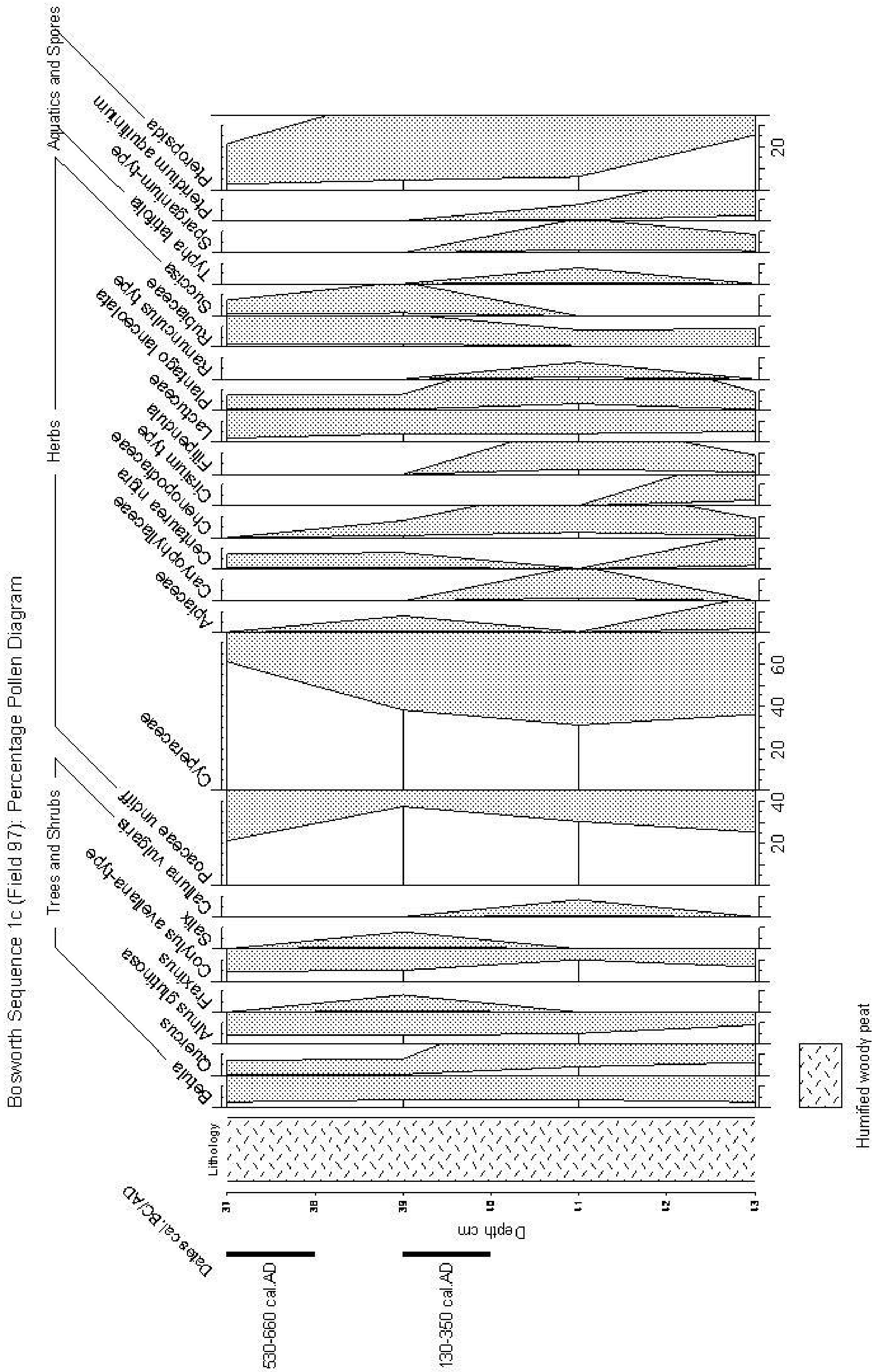


**Figure 4: Bosworth 1c Pollen Sequence**

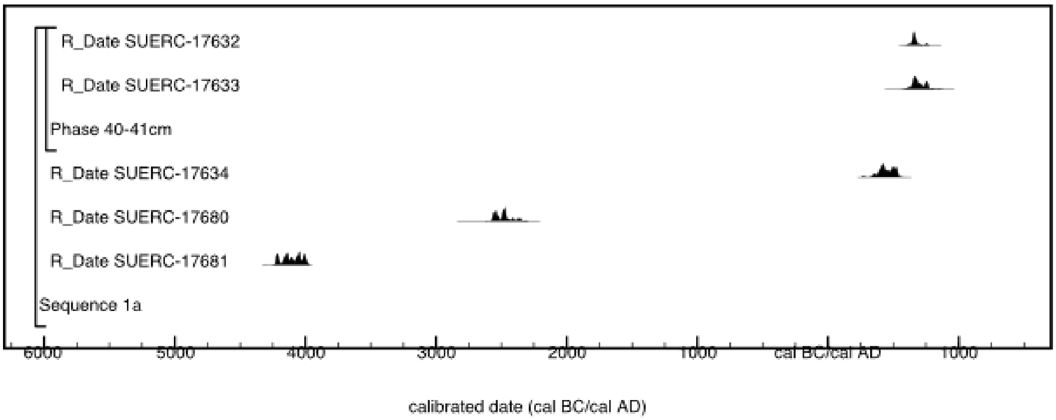


**Figure 5: Bosworth 1a radiocarbon date plot**

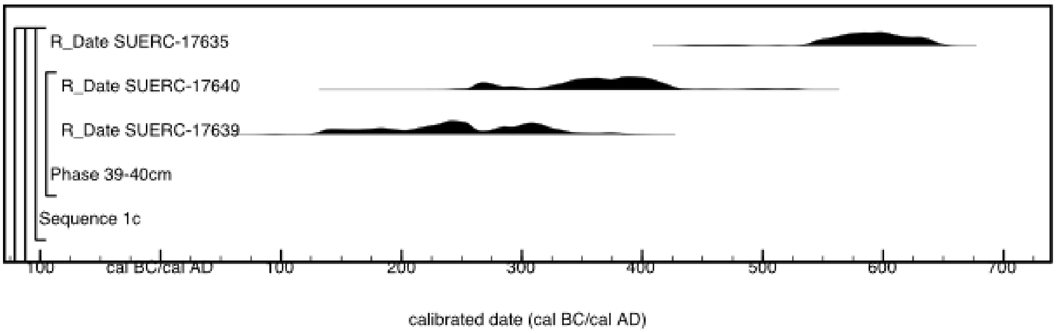


**Figure 6: Bosworth 1c radiocarbon date plot**

| Sample/ Depth m | Lab Code | Material | δ13C o/oo | Radiocarbon Age BP | Calibrated Range 2σ |
|---|---|---|---|---|---|
| B97 1.0 | Beta-222926 | Wood | -29.1 | 2860±60 | 1210-880 BC (95.4%) |
| B97 1.45 | Beta-222927 | Wood | -27.5 | 2980±50 | 1380-1030 BC (95.4%) |
| B1a 0.40-0.41 | SUERC-16389 | *Eriophorum* seeds | -25.7 | 1360±35 | 610-720 AD (89.3%) and 740-770 AD (6.1%) |
| B1a 0.40-0.41 | SUERC-16390 | *Carex* seeds | -25.0 | 1340±50 | 600-780AD (95.4%) |
| B1a 0.54-0.55 | SUERC-16391 | *Rumex* and *Eriophorum* seeds | -20.4 | 1620±40 | 340-550 AD (95.4%) |
| B1a 0.54-0.55 | SUERC-16392 | *Carex* and *Potentilla* seeds | - | Sample failed (insufficient carbon) | - |
| B1a 0.60-0.61 | SUERC-16432 | Wood: *Betula* sp. | -27.3 | 3965±35 | 2580-2340 BC (95.4%) |
| B1a 0.84-0.85 | SUERC-16433 | Wood: *Salix* sp. | -27.3 | 5265±35 | 4230-4190 BC (15.0%) and 4180-3980 BC (80.4%) |
| B1c 0.37-0.38 | SUERC-17635 | *Eriophorum* seeds | -24.9 | 1475±35 | 530-660 AD (95.4%) |
| B1c 0.37-0.38 | GU-16393 | *Eriophorum* seeds | - | Sample failed (insufficient carbon) | - |
| B1c 0.39-0.40 | SUERC-17639 | *Eriophorum* seeds | -25.4 | 1780±35 | 130-350 AD (95.4%) |

**Table 1: Results of the radiocarbon dates from Bosworth Field 47, including initial rangefinder dates (Beta-222926 and 222927) and sequences 1a and 1c (SUERC/GU codes). Calibrations carried out using Ox.Cal V3.10 with atmospheric data from Reimer *et al.* (2004).**