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PRELIMINARY REPORT OF PALAEOENVIRONMENTAL INVESTIGATIONS AT UNDER WHITLE, SHEEN, STAFFORDSHIRE

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Since 2015, a small local heritage group (TFIG: the Tudor Farming Interpretation Group) has been investigating the origins of a farmstead known as Under Whitle near Pilsbury Castle, on the Staffordshire/ Derbyshire border in the Peak District, centred on SK107640 (Fig. 1). The archaeological potential of the farmstead was first recognised by Rylatt (2005), who identified several standing earthworks of mixed date within the study area, including a possible building platform, holloways, enclosures, and a field system with lynchets, ditches, banks and areas of ridge-and-furrow likely to date to the medieval period. In addition to these features, there were areas identified as having potential for the preservation of palaeoenvironmental remains.

Research from 2016–2022

A LiDAR survey in 2016 by the Environment Agency Geomatics Group (EAGG 2016) noted additional features associated with those identified by Rylatt, with more extensive areas of ridge-and-furrow than previously appreciated. Fieldwork in that same year, undertaken by TFIG, revealed a number of additional structures in the vicinity, such as the remains of a seventeenth-century house and nineteenth-century barn. A key focus for the work was the possible building platform identified by Rylatt and thought to be the site of a medieval house. Excavation recovered a range of ceramic materials including sherds dated to the fourteenth century, and charcoal recovered from the platform produced a complementary radiocarbon date range of cal. AD 1299–1404, with 95.4% probability (Parker Heath 2017).[3] A second season of fieldwork was commissioned by TFIG – *Digging Deeper: the Origins of Whitle* – which sought to explore the platform further. Excavation of the platform failed to find any further evidence of a structure, but did recover more ceramic material, including a small number of sherds potentially datable to the twelfth century (Parker Heath 2022; Budge 2022).

In addition to a programme of excavations, a second element of work focused on the palaeoenvironmental potential of the site. Analysis of charred plant remains recovered from the platform itself revealed very limited potential to provide evidence for cereal crops, and no potential to provide evidence of crop husbandry or processing practices. Positive identification of barley grains could be made, but an oat grain could not be fully determined as either wild or cultivated, as is usual in archaeobotany (Simmons 2022).

A parallel programme of palaeoenvironmental investigations examined the research potential of wetland areas previously identified within the study area (Davies 2022). After preliminary fieldwork, including a walkover survey and auger trials, detailed investigations were undertaken on a very small (c. 15 x 30 m) spring-fed bog at the southeast corner of the study area (hereafter the Under Whitle Bog: Site 3 on Fig. 1). Further fieldwork allowed for a detailed examination of the stratigraphy of the bog, indicating that it represents a sequence of colluvium and peat deposits overlying a gravity spring, located at the base of a slope immediately south of the medieval field system.

A 0.95 m core was collected from the centre of the Under Whitle Bog, which was subsequently subject to geoarchaeological, pollen and chronometric analysis. The results of initial radiocarbon dating analysis and age -depth modelling (Fig. 2) suggest that the core contains a sequence dating from the late Bronze Age onwards, but with either a change in accumulation rate or truncation of the core in the late ninth century AD. The results of this chronometric modelling were used to guide the selection of samples for pollen analysis, ensuring that they were contemporary with archaeological remains identified by the *Digging Deeper* project, i.e. of broadly medieval date.

Preliminary pollen analysis examined 11 samples from deposits of 44–72 cm depth, covering the c. 600 years between the late ninth and late fifteenth centuries. This initial pollen analysis – whose results are presented more fully in an archive report (Davies 2022) – indicated that the area surrounding Under Whitle Bog was open for the majority of the period investigated, with exceptionally high levels of arable indicators and lower percentages of pastoral indicators. The percentages of cereal-type pollen identified in the samples are higher than in any other palynological study

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[3] Beta-452848 UW16 218: 610 ± 30 BP, calibrated with IntCal20 (Reimer *et al*. 2020) using OxCal v.4.4.4 (Bronk Ramsey 2009).

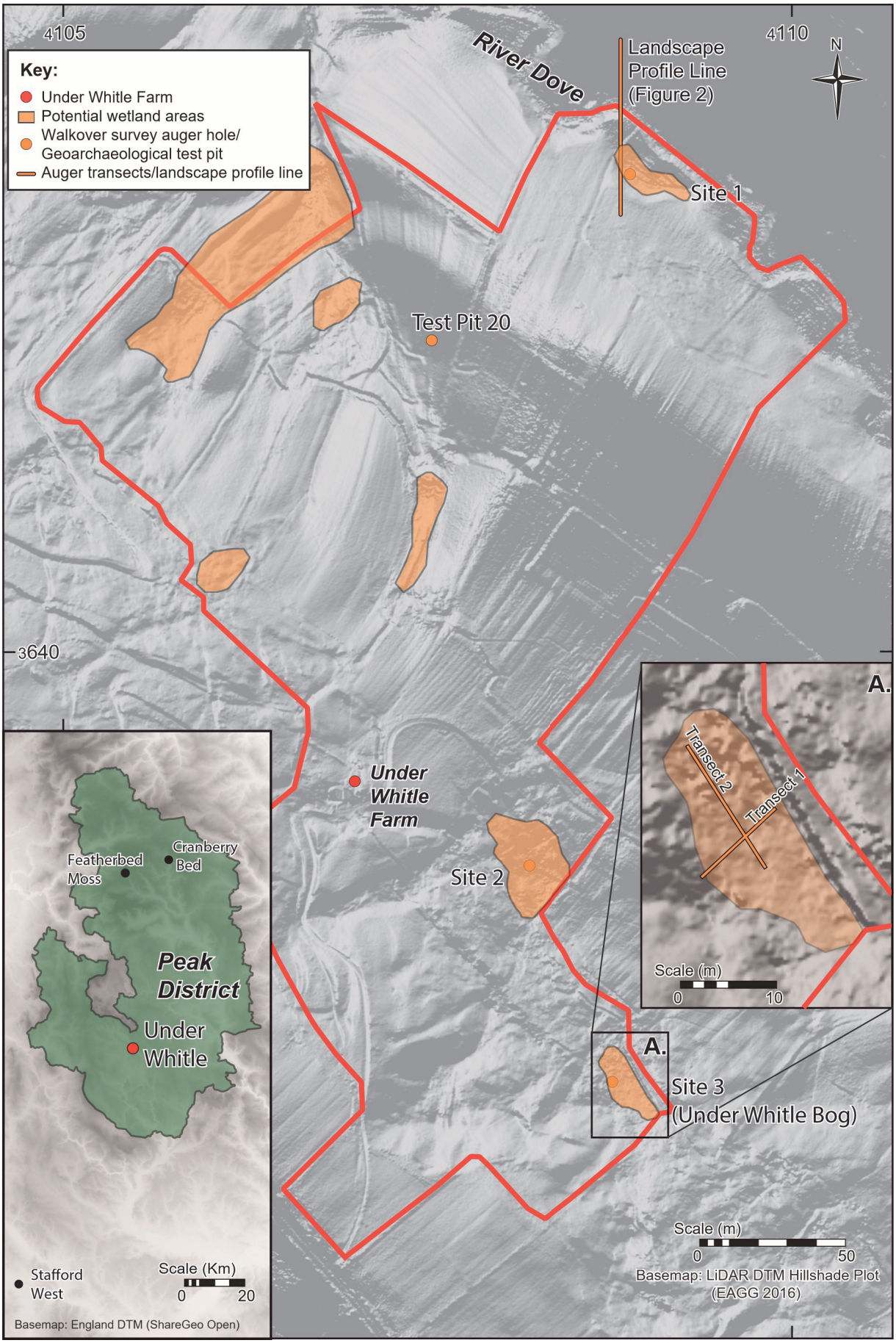

Figure 1 Map of the study area showing the locations of work areas and studies mentioned in the text. LiDAR base map commissioned by TFIG; data processed by Dr Steve Malone of Trent & Peak Archaeology.

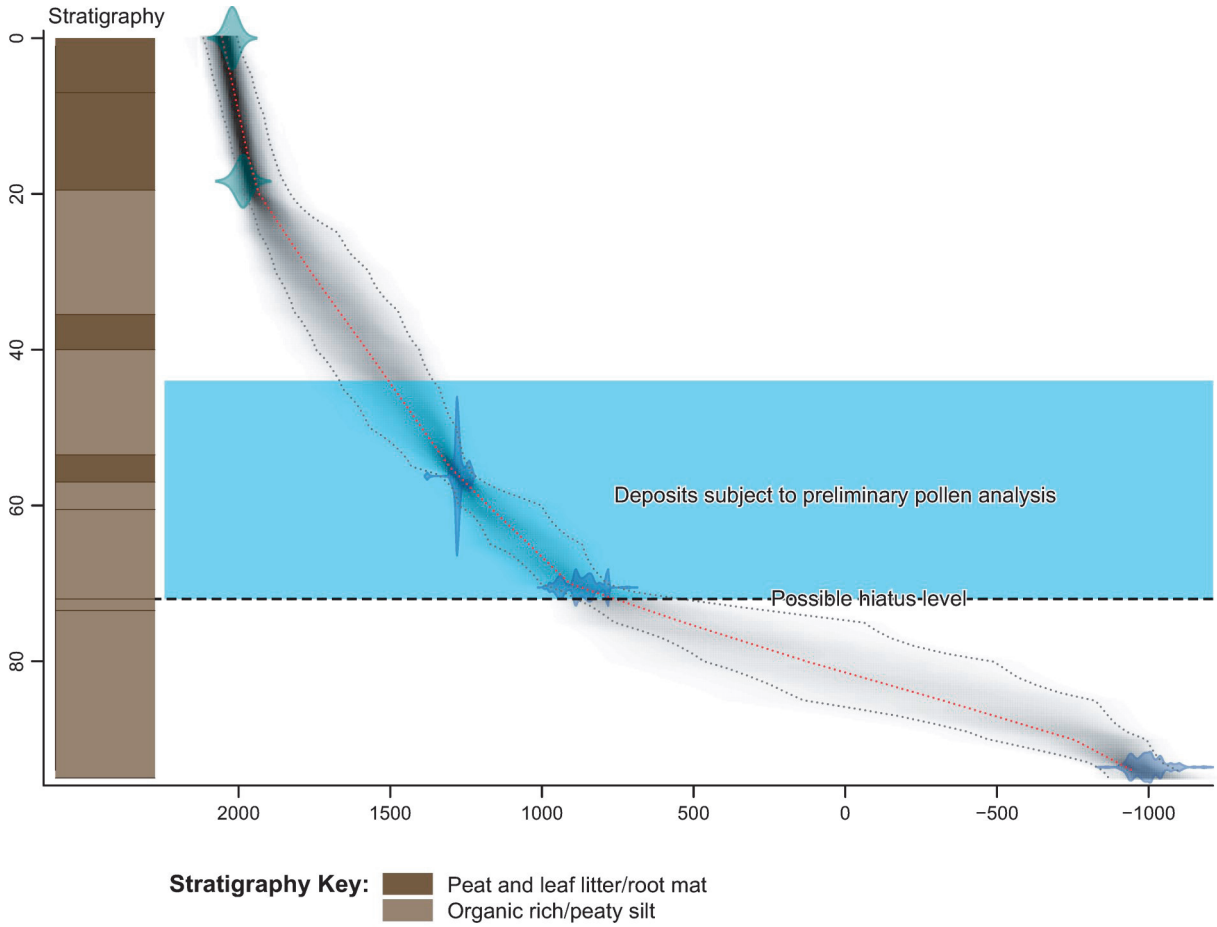

Figure 2 Age-depth model for the core subject to palaeoenvironmental analysis; years on x-axis, depth in centimetres on y-axis.

of medieval deposits identified in the Peak District and Midlands (cf. Hamerow *et al*. 2020). These early results indicate that the core provides an excellent record of environmental change for a medieval community undertaking significant arable activity in this locale.

It is very rare to be able to obtain and analyse palynological data presenting such a strong arable signature in this part of the country, as most pollen sampling sites in Britain are located in upland settings, away from the usual lowland focus of medieval arable activities and core settlement areas (cf. Rippon *et al*. 2015, 56–57). It appears that the proximity of the sampling site to a medieval field system has rendered it particularly sensitive to variations in arable activity. Despite the relatively localised pollen catchment of the site, some trends in its palynological record are comparable to other studies in the wider region, such as a reduction in woodland pollen in the late eleventh/early twelfth century also seen at Featherbed Moss, a much less arable sequence (Fig. 3; Tallis and Switsur 1973; cf. also Stafford West: Hamerow *et al*. 2020). Such parallels suggest that the data from Under Whitle Bog may reflect broader environmental changes in this part of medieval England (Davies 2022).

The interim report on pollen analysis hypothesises correlations between the palaeoenvironmental sequence and known historical events and climatic changes, such as the 'Harrying of the North' after the Norman Conquest, the fourteenth-century depredations of the Great Famine and the Black Death, and the so-called 'Little Ice Age' – a climatic downturn beginning c. 1300 (Davies 2022).

The *Digging Deeper* project now intends to seek additional funding to produce a more robust chronological framework for this core and to examine its palynological record in greater detail.

Future research

This preliminary report serves to summarise our findings so far and to highlight the potential of this site, in a region where archaeological evidence for medieval farming is relatively rare. In order to capitalise on these results and the potential they have for producing an extremely detailed record of environmental change over the medieval period, the landowner and the heritage group are now considering future directions – including further dating, excavation, and palaeoenvironmental analysis – for continuing the research into the farmstead. The extant field systems with their lynchets, ridge-and-furrow and associated earthworks, in close proximity to the peat bog, present an exciting opportunity to integrate different strands of evidence from such a rich source. Excavation of some of these features holds the prospect of establishing the nature of the agricultural practices adopted in this upland valley as well as resolving a secure chronology for their origins.

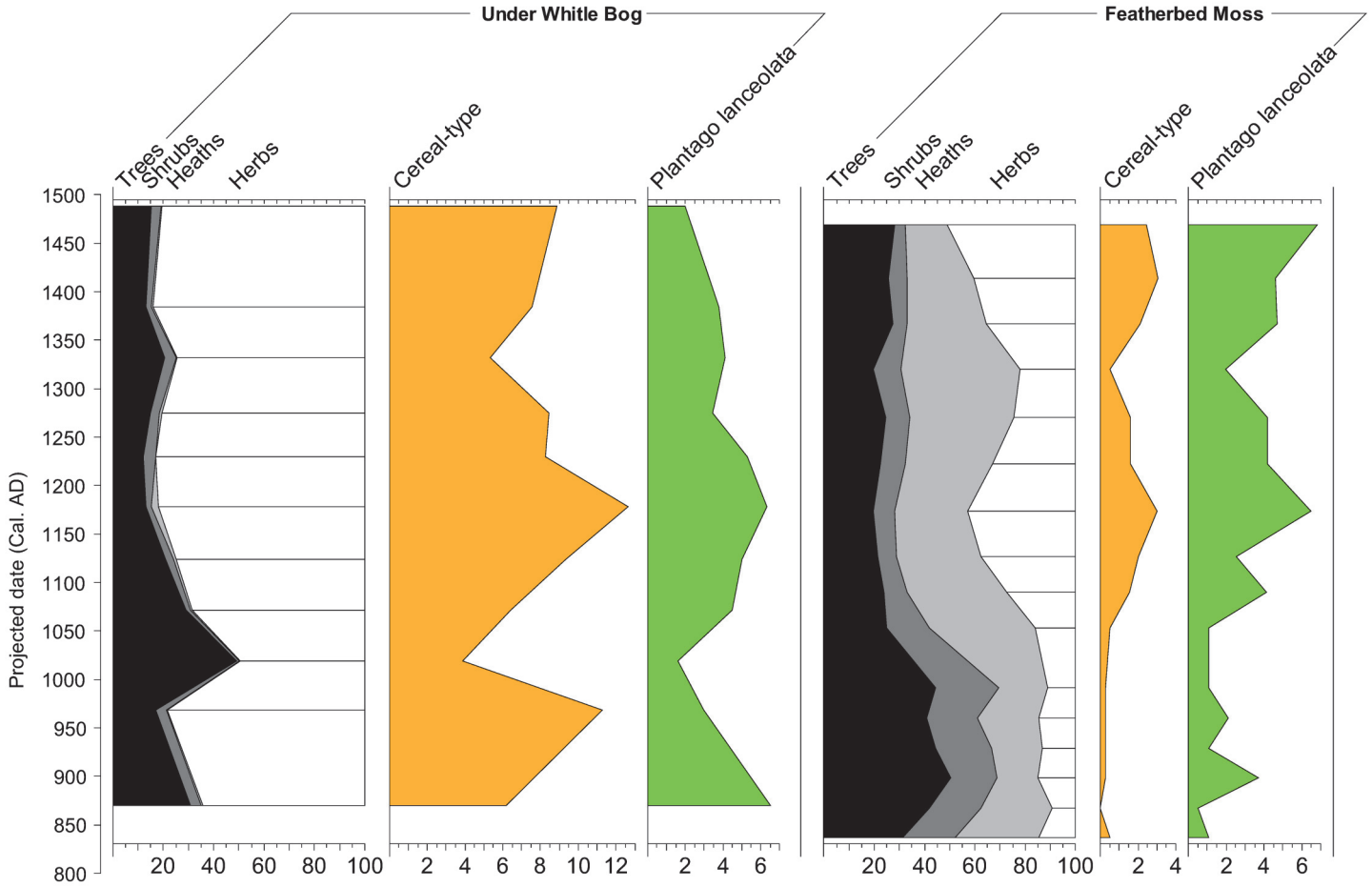

Figure 3 Comparative pollen summary diagrams for Under Whitle Bog and Featherhead Moss plotted against projected chronology. Featherbed Moss pollen data obtained from the supplementary material provided by Hamerow et al. *(2020); projected chronology obtained from a depth model produced in Bacon 4.0.5 (Blaauw & Christen 2011) from the original radiocarbon dates provided by Tallis & Switsur (1973).*

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