1.1 Assessment of Soil Micromorphology

Dr M J Allen

Introduction

1.1.1 A series of five undisturbed soil micromorphology samples were taken in kubiena tins, complemented by a suite of disturbed bulk samples. These sampled the *in situ* Mesolithic soil horizons in both the northern spread **144** and southern spread **137** (including the underlying natural sand **140**), as well as Mesolithic pit **72** and tree-throw **151**.

1.1.2 The potential of these samples and the pedological criteria has been discussed with Dr R I Macphail (Univ. London), and Drs C A I French and H Lewis (Univ. Cambridge).

1.1.3 In addition, soil monoliths were taken through the fill of pit **72** and the colluvium that sealed the Mesolithic site, both for pollen analysis and descriptive and interpretative purposes.

Methodology

1.1.4 The soil samples were described following pedological notation outlined in Hodgson (1976).

Quantifications

1.1.5 Description of sands in southern spread area **137**

- *0 – 70 mm (?bBh) Context **137**. Medium loose sand with some silt, slightly humic matrix, some vertical worm/root channels with humic silty loam ('A' horizon) material – no structure observed, few very fine fleshy roots, gradual smooth boundary.*

- *70 mm+ (?Rw) Context **140**. Medium sorted sand, strong orange colour – Folkestone Beds – no structure observed, some vertical macropores up to 4mm in diameter with humic silty loam material.*

1.1.6 Mesolithic pit **72** contained the most humic fill of this period, indicating that it may be derived from the Mesolithic land surface. The single fill, **73**, was sampled with a kubiena tin and as a small bulk sample. In addition, as this was the deepest Mesolithic profile, a 0.3 m monolith for pollen analysis was also taken.

1.1.7 Description of fill in pit **72**

- *0 – 70 mm: A dark humic medium sandy loam with very rare small and medium flints with occasional fine fleshy roots and 0.2% medium macropores (4 mm diameter) with more humic 'A' horizon material, gradual smooth boundary.*

- *70 mm – 300 mm: Loose fine and medium sandy loam with very rare small and medium flints with occasional fine fleshy roots and 0.2% medium macropores (4 mm diameter) with more humic silty material.*

Provenance

1.1.8 The pedological description provides evidence of the local site-specific soil history.

Conservation

1.1.9 There are no conservation issues that may affect further analysis.

Comparative material

1.1.10 Comparative soils that are published are known in the Surrey Heathlands and the Dorset Heath. There are also parallels of Mesolithic activity on heathlands from Hampstead, North London, and via palynological analysis at Wytch Farm, Dorset (Allen and Scaife 1991).

Potential for further work

1.1.11 The soil history obtained from this analysis may elucidate various anthropogenic events such as clearance, burning of woodland, soil disturbance for occupation etc. The topsoil from the two Mesolithic spreads has been truncated or reworked into the overlying colluvium, but the main soil events can be discerned from this truncated horizon. The nature of the topsoil, however, can be determined from the humic fill of pit **72**, which is likely to have filled either naturally of by dumping, with topsoil material. Specific Mesolithic activities may be discerned from these contexts.

1.1.12 Evidence of soil degradation, tillage and erosion can be discerned from the detailed description and interpretation of the colluvium which was sample in a long monolith tin. This will augment data from the charred plant remains to provide a site history and scheme of landscape degradation caused by human activity

1.1.13 In order to define the nature of the pre-Mesolithic and Mesolithic soil, and any associated activity, it is proposed therefore that four soil micromorphology slides are prepared to facilitate full soil micromorphological study.

1.1.14 The descriptions will be used to interpret the soil history and erosional events relating to archaeological activity. Despite the evidence of biotic re-working the deposits are *in situ* and provide the potential to examine the nature of the former Mesolithic soils prior to major anthropogenic change in the Bronze Age (cf. Macphail 1983; Scaife and Macphail 1983; Allen and Scaife 1991). Further, soil micromorphological studies will provide detailed information on the nature of bioturbation which is so critical to the presence of charred cereal remains in these contexts.

Bibliography

Allen, M J, and Scaife, R G, 1991, 'The exploitation of the flora and fauna and its impact on the natural and derived landscape', in P W Cox and C M Hearne, *Redeemed from the Heath; the archaeology of the Wytch Farm Oilfield (1987-90)*. Dorset Nat Hist Archaeol Soc Mongr Ser **9**, 216-20

Hodgson, J M, 1976, Soil Survey Field Handbook, *Soil Survey Technical Monogr* **5**

Macphail, R I, 1983, 'Surrey heaths and their soils', in C P Burnham (ed.), *Soils of Heathland and Chalk Grassland,* SEESOIL (Journal of the South East Soils Discussion Group) **1**, 57-69

Scaife, R G and Macphail, R I, 1983, 'The post glacial development of heathland soils and vegetation', in C P Burnham (ed.), *Soils of Heathland and Chalk Grassland,* SEESOIL (Journal of the South East Soils Discussion Group) **1**, 70-79