Minutes of the Archaeobotany Work Group (AWG) meeting

Fort Cumberland, Portsmouth and online, 15th October 2022

Present in person: Tegan Abel (PCA), Mariangela Vitolo (ASE), Julia Meen (OA), Chris Dark (OA), Laura Bailey (Headland), Kate Turner (Headland), Charlotte Molloy (Cotswold Archaeology), Kate Roberts (MOLA), Kath Hunter Dowse (Independent), Charlotte Harman (Bristol University), Kelly Reed (Independent), Rachel Fosberry (OA East), Ruth Pelling (Historic England), Gill Campbell (Historic England), Sarah Wyles (Cotswold Archaeology), Michael Wallace (Headland), Edward Treasure (Wessex), Anna West (Cotswold Archaeology). Megan Scantlebury (Wessex), Sophie Pallett (PCA), Martha Craven (OA East)

Present on line: Anne De Vareilles (Historic England), Ines Lopez Doriga (Wessex), Lisa Gray (independent), Marta Perez Fernandez (Royal Holloway), Colin Forrestal (Independent), Emma Aitken (Cotswold Archaeology), Meriel McClatchie (University College Dublin), Laura Bailey (Headland), Marvin Demicoli (MOLA), Gemma Warham (Sheffield), Hayley McParland (Historic England), Bekky Hillman (Warwickshire), Catherine Longford (Sheffield)

Apologies: Rachel Small, Lisa Lodwick

The First AWG meeting since the Covid Pandemic, was hosted by Historic England at Fort Cumberland and online on 15th October 2022. The theme of the meeting was “Pandemic Positives”. The meeting was very well attended with a lot of lively discussion. There were some technical issues with connectivity which it has subsequently transpired was due to a wider problem with the Historic England server and wifi access from HE laptops. Apologies to the remote attendees for whom sound quantity particularly was impacted. It was a busy and informative and enjoyable day.

Announcements

Next meeting – March 2023, Oxford, as part of the project **'Rewilding' later prehistory: Bronze and Iron Age ecologies from the perspective of the wild,** led by Anwen Cooper at Oxford Archaeology, in collaboration with the Universities of Exeter, Oxford, and Toulouse, Historic England, the Archaeology Data Service and Knepp Estate rewilding hub. The focus of the meeting is likely to be on data standardisation and sharing and use of OASIS V following the results of the sector survey.

A survey created by the Rewilding Project was announced and has now been circulated on 18/10/2022 to the AWG, and more widely. The survey is focused on data collection and sharing including the use of Oasis V and will feed into a paper to be given at the AEA conference in Glasgow in December 2022 by Anwen Cooper, Tina Roushannafas and other project partners. Members of the AWG were encouraged to respond. Closing date 28th October 2022

Oasis V – A quick show of hands indicated that very few AWG members had attended the online Oasis V training. HE will explore re-running the training session for the professional groups. https://oasis.ac.uk/;jsessionid=50e358201b1c5493e697bac69f2c

Trello Board – members are reminded to keep posting ideas and queries. This should enable greater membership participation in the running for the AWG, sharing of ideas and resources.

Autumn 2023 – volunteers sought to host. Please propose details on the Trello Board.

Open reference collection days at Fort Cumberland are back on – held on the second Wednesday of the month. Next session to be held on 9/11/2022. To book on to an open day or to request use of the Keyence VHX 700 Digital 3D imaging microscope, email Ruth.Pelling@HistoricEngland.org.uk or Gill.Capmbell@HistoricEngland.org.uk

Gill Campbell had spent much of the week in Florence at a meeting of the **European Research Infrastructure ON Heritage Science (IPERION-HS)**. This initiative, funded by the European Commission as part of the Horizon 2020 programme, is developing a connected infrastructure of research facilities across Europe and beyond, with funding for participants to visit participating facilities outside the UK, and for researchers from outside the UK to come here. Historic England is a linked third party in the project (through University College London) and is leading on engaging the global archaeological community with the project. For further details see the HE website (scroll down) https://historicengland.org.uk/whats-new/research/back-issues/investing-in-scientific-research/

Or the IPERION website **https://www.iperionhs.eu/iperion-hsaccess/**

There is an open call now until February 28th 2023

Presentations

Four presentations of work conducted during the course of the pandemic were presented. All were informative and prompted lively discussion. A fifth presentation discussed health and safety for specialists.

Kelly Reed (independent), "Identifying *Triticum timopheevii* in Neolithic Croatia"

Grain and spikelet forks from four Neolithic sites in Croatia (6060-3997 BC) previously identification as *Triticum timopheevii* ("new glume wheat") have been re-examined. Increasing evidence of this morphotype from prehistoric sites across Europe, as well as comparative studies of modern Timopheev's wheat, has generated a range of comparative material. Identification criteria were shown with archaeological examples provided by Helmut Kroll identified from Bronze Age Serbia. While the application of morphometrics has raised questions over the identification of *T. timopheevi* grain at the Croatian sites, with much of the grain more likely to be emmer or spelt, a small quantity of spikelet forks did conform to dimensions expected for *T. timopheevi*. Overall, the results suggest that it is possible that NGW was present at the Croatian sites, however, these identifications should be viewed with caution as the number of remains are so low.
Examples of confirmed *T. timopheevi* donated by Helmut Kroll were shown in the microscope session. Kelly will bring to future meetings.

Kelly has shared her report via a free to use open access platform:

Reed, K. (2022, September 25). Archaeobotanical evidence of *Triticum timopheevii* from late Neolithic and Copper Age Croatia. https://doi.org/10.17605/OSF.IO/AMRYD

Figure 1 Triticum timopheevi grain and spikelet forks, Feudvar, Serbia (Bronze Age), Kroll, H. 2016 'Die Pflanzenfunde von Feudvar', in Kroll, H. and Reed, K. (eds.) Die Archäobotanik. Feudvar III. Würzburger Studien zur Vor-und Frühgeschichtlichen Archäologie. Band 1 Würzburg University Press, pp. 37 -194

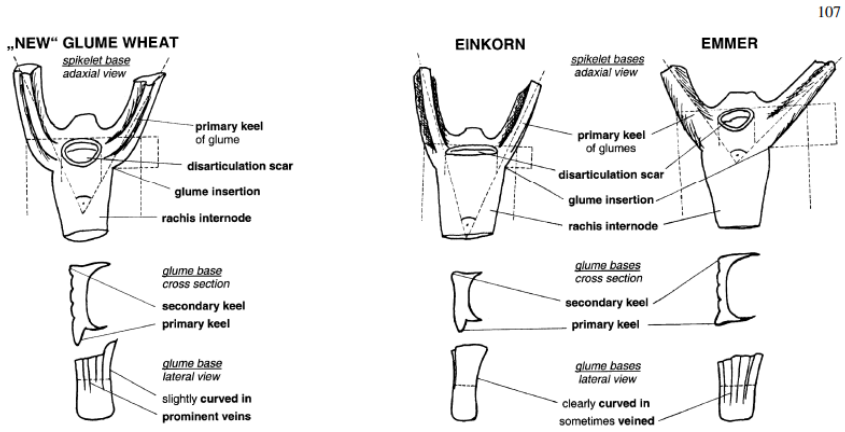

Figure 2 From Kohler-Schneider, M. 2003. Contents of a storage pit from late Bronze Age Stillfried, Austria: another record of the "new" glume wheat. Veget Hist Archaeobot (2003) 12:105–111

Rachel Fosberry (Oxford Archaeology East), "Late Bronze Age Millet"

A remarkable find from the site of Old Catton, Norfolk: deposit of charred emmer, barley, flax and millet (Panicum milliaceum), in a pit in an otherwise unremarkable Late Bronze Age site with Neolithic to post-medieval activity. A fantastic example of where the archaeobotany is the significant find. Also stressed the importance of dating and verifying identification. The pit was noted to be charcoal-rich, and contained six sherds of Late Bronze Age pottery, burnt flint and burnt stone. Organic remains included charred vesicular material, some with impressions, but no obvious inclusions, wrinkled *Triticum dicoccum* grain (immature?), barley, barley, flax, large weed seeds, and, uniquely for British prehistory, a notable number of millet grains. Late Bronze Age date confirmed by C14 dating.

Brudenell, M., Fosberry, R., Phillips, T., & Kwiatkowska, M. (2022). Early cultivation of broomcorn millet in southern Britain: Evidence from the Late Bronze Age settlement site of Old Catton,

Norfolk. *Antiquity, 96*(389), 1310-1315. doi:10.15184/aqy.2022.94

Figure 3 Charred broomcorn millet grains from pit 715, Old Catton Norfolk, taken by Catherine Kneale, Pitt-Rivers Laboratory for Archaeological Science, Department of Archaeology, University of Cambridge.

Michael Wallace (Headland Archaeology), "Isotopes in commercial archaeology"

The value of commissioning isotopic analysis of cereal grains even in modest commercial assemblages was stressed. Grain was submitted from an Iron Age enclosed settlement with Neolithic and Bronze Age pits and ditches, in north east England. A cluster of Neolithic pits produced a good assemblage of cereal grains of emmer, indeterminate wheat and barley. Much more limited Iron Age remains. Michael acknowledged the limitations of using a series of single grains from a single site, but stressed the collective value in building a regional dataset. Isotopic analysis is cheap (1/10th the cost of a C14 date). It provides direct data specific to crops, and can be applied to small samples of specific species. Usefully it also opens up new avenues of research and interest. Results indicated variation in $\Delta^{13}C$ – accepting limitations of carbon isotopes in wet environments, the hypothesis was posed that this could be a proxy for environmental variation. The $\delta^{13}N$ values were fairly high in a number of samples from both phases and crop types, with a couple of very high readings from pit finds. Questions raised included are the $\delta^{13}N$ values typically high in that region, and do pit deposits "attract" special/unusual or selected crops with atypical values (ie treatment)? Details of the report to follow once the site is published.

A discussion followed including the ethics of destroying grain – generally it was felt that in the UK there is no shortage of archaeobotanical cereal grain and the information gained is worth the sacrifice. Selection was discussed – it is not necessary to use pristine grain.

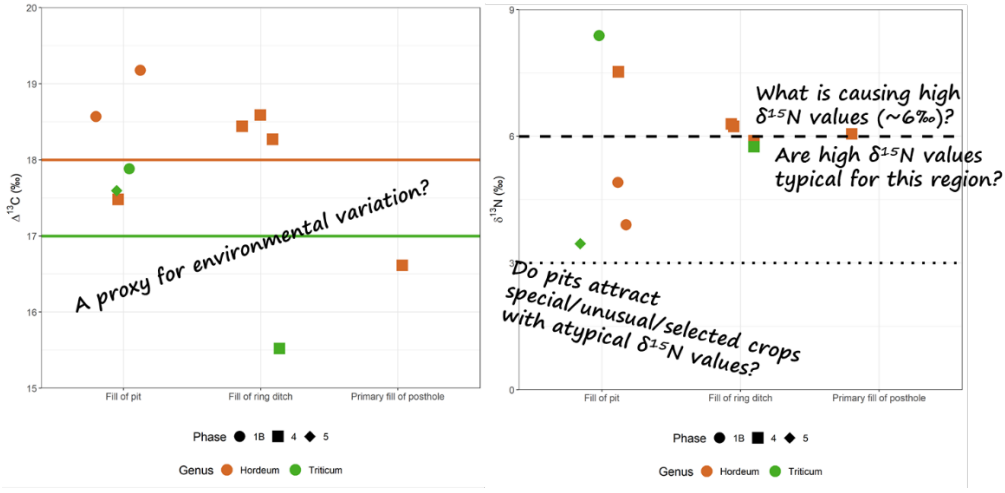

Figure 4: Isotopic values from Neolithic and Iron Age cereals from a site in north east England showing potential research questions raised

Edward Treasure, Uplands Farm - Roman salt working and peat fuel

Results were presented from a study of archaeobotanical samples from Uplands Farm on the edge of the Pevensy Levels, East Sussex. Occupation spans late Iron Age/Romano-British to the medieval period. Phase of saltern activity in the late Iron Age/Romano-British period. Features directly associated with salt production, especially those containing briquetage produced a consistent range of charred plant remains and wood charcoal, with taxa indicative of fenland vegetation, notable seeds of bog bean (*Menyanthes trifoliata*) and pondweeds (*Potomogenton* sp), as well as monocot stems/rhizomes, Ericaceae stems, *Betula* wood charcoal and peat fragments. Variable wood charcoal preservation – potentially representing wood from the peat vs recently felled fuel wood?

In the medieval samples, a similar range of "peat burning" indicators were present along with wood charcoal, but in association with cereals and arable weeds and not salt production. This echoes documentary evidence of the use of peat fuels dating from c AD1180. A similar picture of the presence of fenland plants is seen across local sites. Suggests a shift in greater use of peat fuel in the medieval period, in contrast to its association with salt production in the Roman period. Potentially related with to changing rights to common land, and peat resources, changes in woodland exploitation and landscape/vegetation change?

Identification of charred peat types was proposed: well humified peat with few diagnostic macro-remains vs more fibrous upper peat and peat turf with poorly humified fibrous material and high seed concentrations and small monocot/culms and rhizomes, indicative of fenland peat. Ed to circulate publication details once out.

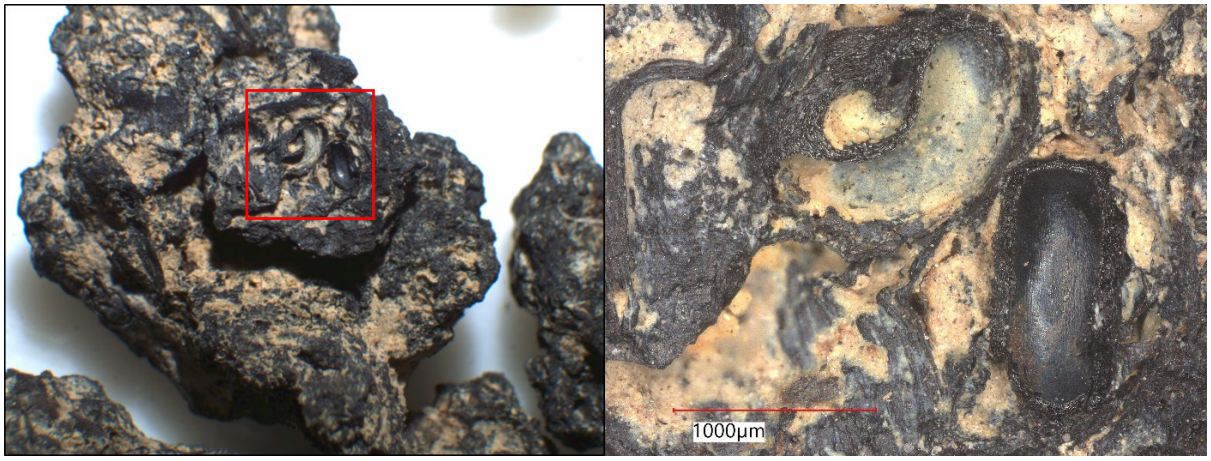

Figure 5 Charred peat fragments from Uplands Farm, East Susseux, showing incorporated Potomogeton AND Menyanthes trifoliata seed. Right had image taken on Keyance microscope, Fort Cumberland Laboratories, Historic England

Colin Forrestal, Health and Safety – a discussion around laboratory and site visit H&S

Colin is collating examples, evidence and thoughts on behalf of a CIfA committee, in part prompted by H&S concerns during the pandemic. Most laboratories should have H&S protocols in place including COSHH requirements and all staff should be familiar with them. Some archaeobotanical specific concerns may not be included and were discussed, particularly around mask wearing. This may apply to residue sorting as well as sieving, assessing and sorting dried flots. Particular concerns include asbestos in particle form, mussel shell fibre and dust. A card has been added to the Trello Tea Room board for AWG members to post links to specific training, or examples of risk assessments, or risks that we might be missing. Should we be wearing face masks more often? Kath

Hunter Dowse raised awareness for appropriate asbestos training for lab-based staff where awareness of fibres is important; most asbestos training for archaeologists is site based and involves recognition of larger pieces of asbestos. Kath to please put links to training on the Trello board.

Mussel shell fibres are common, especially in some Roman and medieval/post-medieval contexts. In the flot they often appear as soft "fluff" but are actually formed of needle-fibre calcite, that are released as the shell breaks down through free-thaw cycles and other methods. It is always recommended to use a mask when dealing with such flots.

For interest, see Ximena S. Villagran, Rosa M. Poch, 2014 "A new form of needle-fiber calcite produced by physical weathering of shells", *Geoderma*, Volume 213, (2014), 173-177, https://doi.org/10.1016/j.geoderma.2013.08.015

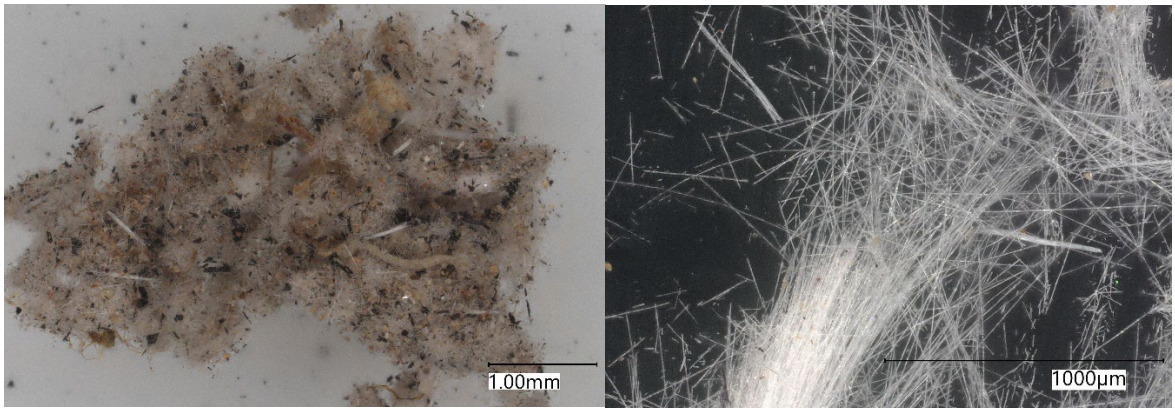

Figure 6: mussel fibre in a flot from Chester Amphitheatre, taken on the Keyance microscope, Fort Cumberland Laboratories, Historic England

Microscope session:

The afternoon was spent in the Fort Cumberland Archaeobotany Laboratories, with access to the reference collections and support from colleagues. Tours of Fort Cumberland were also provided.

Kath Hunter Dowse brought in some spare reference material to share including various fruits

Kelly Reed showed some examples of *Triticum timopheevii* grain and spikelet forks

Gill Campbell showed examples of charred seaweed with archaeological material from Tintagel.

Edward Treasure showed examples of burnt peat, and *Vicia faba* with weevil holes

The follow images taken on the Keyance microscope, Fort Cumberland Laboratories, Historic England.

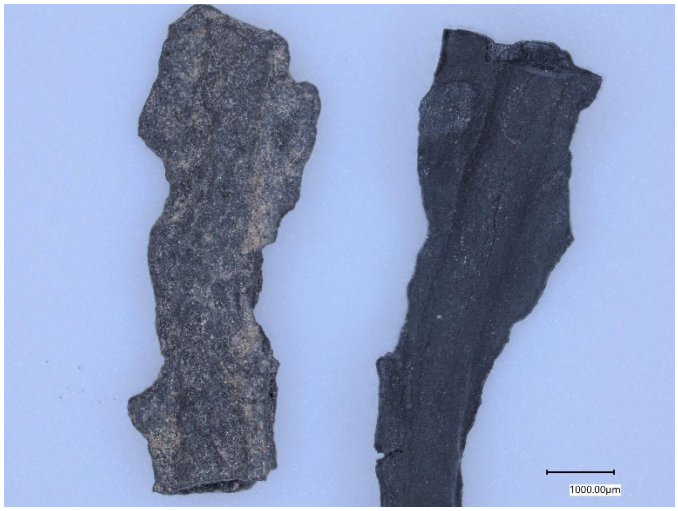

Figure 7 Charred archaeological (left) and modern (right) bladder wrack seaweed

Figure 8 charred archaeological (left) and modern (right) egg wrack seaweed

Figure 9 Vicia faba *with bean weevil damage. From a Middle Bronze Age feature at Cuthbury Gardens, Wimborne, Dorset (publication details to follow when available). Cache containing thousands of beans, spelt wheat, and emmer wheat.*