Joint Archaeobotany Work Group and Charcoal and Wood Work Group

Minutes

22 April 2018

University of Birmingham, UK

Attendees: Stacey Adams (ASE: UCL), Ferran Antolin (Universität Basel), Rachel Ballantyne (University of Cambridge), Chase Beck (Texas A&M University), Julie-Anne Bouchard-Perron (Historic England/CIfA), Amy Bunce (Border Archaeology),Dana Challinor (freelance), Gill Campbell (Historic England), Wendy Carruthers (freelance), Danielle de Carle (University of Leicester), Rachel Fosberry (Oxford Archaeology East), Sharon Cook (Oxford Archaeology), Matthew Green (Rentokil Initial Plc), Zoë Hazell (Historic England), Kath Hunter Dowse (Border Archaeology), Lisa Lodwick (University of Oxford), María Martín Seijo (Universidade de Santiago de Compostela), Hayley McParland (Historic England), Julia Meen (Oxford Archaeology), Don O'Meara (Historic England), Richard Palmer (Oxford Archaeology), Liz Pearson (Worcestershire Archaeology), Ruth Pelling (Historic England), David Smith (University of Birmingham), Alys Vaughan-Williams (freelance) and Angela Vitolo (ASE: UCL).

The session was held in the ERI (European Research Institute) (University of Birmingham) in the high-tech visualisation suite, set up with live video links from microscopes to large screens.

It was held in association with the AEA Spring one-day conference: *Pests of Society* (http://envarch.net/events/51/aea-spring-2018/).

MORNING SESSION

The morning session was led by Matthew Green, urban entomologist, who outlined the main wood-boring insects in the British Isle, including beetles: *Xestobium rufovillosum* (deathwatch beetle), *Stegobium paniceum* (biscuit beetle) and *Anobium punctatum* (common furniture beetle); and weevils, some of which area adapted to waterlogged conditions eg *Nacerdes melanura* (wharf borer). He covered their life cycles, the various wood preferences of their larvae (wood type, sapwood over heartwood, knots or not, etc) and their characteristic damage patterns.

He also highlighted the relationship between fungal attack and insect damage, as the insects are attracted to rotting wood, where the naturally-occurring preserving chemicals have leached out. Matthew also covered how to identify active infestations (fresh, sharp-edged neat holes, bright holes/tunnels) and differentiate them from old infestations (softened edges, dark holes/tunnels).

Crucially, because the quality of the timber will affect the adult size (lower quality wood will result in smaller adults and smaller exit holes) the size of the exit holes is not considered a reliable indicator of insect type. This has important implications for the interpretation of wood damage in archaeological wood remains ie it is not recommended on the basis of hole size alone.

AFTERNOON SESSION

The first half of the afternoon was a session led by David Smith, palaeoentomologist, who started by reiterating that before the Roman occupation there are no records of grain insect pests in Britain. To establish whether the absence of pre-Roman grain pests is genuine or a reflection of bias in the entomological sample types (open rural habitat contexts in the Iron Age, grain storage and urban deposits in the Roman period), David stressed the need for archaeobotanists to recognise occurrences of likely pests in charred plant assemblages. Insect remains can be preserved by charring given favourable conditions and therefore can be expected in charred archaeobotanical samples as well as the more usual waterlogged and mineralised assemblages. Where encountered, grain pests can comprise a substantial component of the insect remains.

David introduced some of the most-commonly encountered archaeobotanical pests in the British Isles: grain weevil, sawtoothed grain beetle, and the pea weevil [which is partial to pulses more generally, eg beans, chickpeas]. Pests are categorised into primary pests (those that feed directly on the grain eg pea weevil) and secondary pests (those that eat already-degraded, starchy matter such as bran eg sawtoothed grain beetle). Most-commonly, larvae of primary pests hollow out a grain from the inside resulting in characteristic damage to the seed.

As well as beetles, David also outlined the identification criteria of the main flies and their pupae which occur in sewage deposits (seaweed, latrine and Sepsis flies) including the rat-tailed maggot with its somewhat unsavoury habitat preferences. These are familiar to archaeobotanists working on mineralised assemblages. All will be included in the forthcoming *Guide to Mineralised Plant and Invertebrate Remains.* It is possible to recognise 'sudden death events' eg when lime was thrown down a 'well' (cesspit?) for sanitisation.

The remainder of the afternoon was spent with participants examining type material (insects and their damage), and consulting with David and Matthew about their own samples. A bit of time was also spent on an excerpt of David Smith and Wendy Carruthers' forthcoming mineralised remains draft (Historic England project 7443).

OTHER ANNOUNCEMENTS

- Ruth is considering a plant fibre/dye theme for the next AWG, including a practical, and is looking for volunteer hosts
- Any topic suggestions and offers to host the next CWWG will also be gratefully received

THANKS

Thanks to everyone for attending. Thank you to David and Matthew for their extremely informative and engaging sessions. Thanks to David, Ruth, Zoe, Gill, and Henry Chapman (University of Birmingham) for arranging and setting up the day.

Additional information and some useful references

Hickin, N.E. 1975 *The insect factor in wood decay: an account of wood-boring insects with particular reference to timber indoors* 3rd edition (revised by Edwards, R.) London: Associated Business Programmes

McCaig, I. and Ridout, B. (ed.s) 2012 *Practical Building Conservation: Timber* Farnham: Ashgate Publishing Limited, for English Heritage

Smith, DN 2013 Defining an indicator package to allow identification of 'cesspits' in the archaeological record *Journal of Archaeological Science* 40, 526-543

Smith, DN and Kenward HK 2013. 'Well, Sextus what can we do with this?' The disposal and use of insect-infested grain in Roman Britain. *Environmental Archaeology* 17, 141–150

http://www.english-heritage.org.uk/learn/conservation/collections-advice-and-guidance/

Historic England Project (Number 7443) (in progress) *A Photographic Guide to the Identification of Mineralised Plant and Invertebrate Remains from Archaeological Deposits*

Minutes by Z Hazell and R Pelling, May 2018