Archaeobotany Workgroup Meeting

18 September 2010

Fort Cumberland, Portsmouth

Present: Jennifer Bates (UCL), Gill Campbell (English Heritage), Wendy Carruthers (freelance), Zoë Hazell (English Heritage), Karine Le Hegerat (Archaeology South East), Hayley McParland (Wessex Archaeology/Exeter University), Lisa Moffett (English Heritage), Don O'Meara (North Pennines Archaeology), Ruth Pelling (English Heritage) and Chris Stevens (Wessex Archaeology).

Reference collections

ZH and GC began the meeting with a 'tour' of the English Heritage modern comparative seed reference collection, held at Fort Cumberland. This included its development (combining EH's core collection with those donated by Frank Green and John Letts (cereals) and purchased from Gay Wilson, plus *ad-hoc* additions), cataloguing (Access database, complete with search facility), ordering (Stace 1997, and Flora Europaea), sample preparation (freezing and then air drying) and storage (taxonomic order, plastic boxes, Bisley cabinets, acid-free paper labels). GC emphasised the importance of recording associated sample information, particularly the location of samples and the collector/identifier. She also advised that, when receiving samples for inclusion in a reference collection, it is always necessary to check the labelling and identifications. ZH also showed the 'Family plates' held at EH; two examples of each species from the same Family are glued onto glass plates, allowing an initial quick reference.

[A summary list of the EH collection is available online at: http://www.english-heritage.org.uk/professional/research/heritage-science/environmental-studies/Environmental-Studies-Resources/Environmental-Archaeology-Reference-Collections/].

RP and CS described the collection held at Wessex Archaeology; accession information is stored in an Access database, samples are generally stored as at EH, the collection is made up of donations from seed companies, purchased commercial seeds and material collected by staff. CS highlighted the practical benefit of keeping samples stored in glass tubes to avoid static build-up.

Both reference collections are available to consult on their respective site, with prior appointment. Samples from the EH collection are also available to loan and for swaps. In addition, other collections are held at: the George Pitt-Rivers Laboratory (Archaeology) (www.arch.cam.ac.uk/pittrivers/index.html) and The Physical Geography Laboratories (Geography) (http://www.quaternary.group.cam.ac.uk/reference/), both at Cambridge University; and at UCL (http://www.ucl.ac.uk/museums/archaeology/collections/collections/archaeobotanical)

WC showed a simple, cheap, yet effective way of keeping a collection as a series of clear sample bags stapled to index cards; one for each species. Descriptive notes and references can then be made on the cards themselves.

Discussion

Then followed a discussion on sourcing seeds. Various sources were suggested:
RP: Chiltern Seeds (who provide complementary samples)
GC: Oxford Botanic Gardens (http://www.botanic-garden.ox.ac.uk/) and RHS, Wisley (www.rhs.org.uk/seedlist) offer seeds to members. GC also suggested that the group can set up a seed request email list if people would find this useful [if so, please contact ZH].

DO'M: advertised NIAB (National Institute of Agricultural Botany, Cambridge) as a potential source of recommended list and ancient cereals. Country houses e.g. Duchess of Northumberland's Alnwick Gardens (notably the Poisonous Garden).
CS: mentioned Sharpham Park, Somerset (http://www.sharphampark.com/) for spelt, Butser Ancient Farm (http://www.butserancientfarm.co.uk/) and the Weald and Downland Open Air Museum (http://www.wealddown.co.uk/home-page-english.htm).
WC: spoke of the Index Seminum – seeds lists produced by herbaria for swaps between themselves (not commercial profit).
LM: John Letts (The Oxford Bread Group).
[Val Fryer has since recommended the John Innes Centre, Norwich, for cereals (including spelt, emmer, club wheat); they are happy to supply reference material].

Identification session/discussion

JB: highlighted the need for a basic, introductory identification tool for those starting out in plant identifications.
GC: Mentioned Camilla Dickson's (1970) article as a suitable introduction, and that from Bancroft Villa (Pearson and Robinson, 1994), particularly for its detail on distinguishing Brassicae. [Subsequently, RP has provided a table of Brassica spp seed characteristics, compiled for a 1994 Archaeobotany Workgroup meeting by Camilla Dickson. This will be made available on the forthcoming AWG website].

DO'M: emphasised that there is no substitute for spending time with the material. He suggested that plant identification books are readily found in gardening sections of second hand book shops.
LM: Has some identification techniques described in her MPhil thesis (Birmingham University).

GC's top identification tip, usefully illustrated [see AW website], was how to distinguish *Centaurea* (*cyanus/nigra/scabiosa*) achenes and bracts, based on characterisations by James Greig.

Also distributed was M. Robinson's key for separating *Juncus* species [see AW website].

WC described the presence of unusually large, squarish, 'chunky' spelt grains, with thick, angled glume bases, from Roman deposits associated with an A30 Cornish site, occurring in association with big, rounded, scoop-shaped *Bromus*. She enquired as to whether anyone else had found similar remains [any such information would be gratefully received]. CS stated that Italian spelt is similar to this, as is modern 5 grain spelt that is comprised of noticeably chunky grains. GC notes that some of the Danebury Environs samples contained short, fat spelt grains. From her own

research experience, RP highlighted Kent grain material as often being particularly different and variable from the rest of England.

There was a degree of debate over the possibility of separating *Carduus* and *Cirsium*; the former has horizontal grooving and the latter is smoother; however, ridges can be eroded in poor preservation conditions. If samples are waterlogged, GC recommended drying the surface slightly to allow features to become more prominent.

Participants then took advantage of the microscope session to examine the aforementioned differences between *Carduus* and *Cirsium*. We also looked at archaeologically- and experimentally-charred *Celandine* tuber samples (courtesy of RP) which have a distinctive morphology; GC postulated that many fragments can only be identified as Apiaceae/ Asteraceae, but that their presence can indicate uprooting and turf burning.

Additional discussion centred on carrot and the recognition of cultivated and wild forms. There are no distinct morphological characters. The spines are removed from fruits (seeds) sold commercially for sowing (see Mueller-Bieniek 2010 for discussion of a record of processed? cultivated carrot from medieval Kraków) (S. Poland). *Daucus carota* (wild carrot) grows along with wild parsnip, itself common on chalkland sites, on the Danebury hillfort. It was noted (RP, CS, WC) that carrot seems to be common on Bronze Age waterlogged sites within the Middle Thames Valley. This led to a discussion on wild parsnip (*Pastinaca sativa*) and its skin irritation properties. GC also noted Salisbury's discussion of *Anthemis cotula* and the irritation caused by the combination of sap and sunlight, particularly to harvesters (Salisbury1961, 150; Grigson 1987, 376). A reason for such irritations could be the presence of chemicals to inhibit germination of plants nearby, such as found in *Centaurea maculosa* (spotted knapweed), where the roots secrete (-)-catechin inhibiting germination of other plants in the vicinity (Weir *et al* 2003).

Other

GC: The AWG website is forthcoming, on EH webpages. The EH reference collection list will be put there, as will minutes of workgroup meetings. Any content suggestions or contributions will be gratefully received, for example, links to relevant sites, bibliographies, open access pdfs.

Fieldtrip

The afternoon, led by GC, was spent in the sunshine collecting botanical samples within the fort and along the foreshores of Langstone Harbour and the Solent. Plants encountered included:

Within Fort Cumberland: *Odontites vernus* (red-bartsia), *Plantago coronopus* (buck's-horn plantain), *Salvia verbenaca* (wild clary) and *Spiranthes spiralis* (autumn lady's tresses).

On surviving saltmarsh at the edge of Eastney Lake, Langstone Harbour: *Atriplex portulacoides* (sea-purslane), *Salicornea europea* L. agg. (glasswort), *Suaeda vera* (shrubby sea-blite), *Raphanus raphanistrum* ssp. *maritimus* (wild radish), *Daucus carota* (wild carrot) and *Spartina* cf. *anglica* (cord-grass).

On the shingle, Eastney Beach: *Glaucum flavum* (yellow horned-poppy), *Atriplex* prostrata (spear-leaved orache), *Beta vulgaris* ssp. *maritima* (sea beet), *Rumex crispus* (curled dock), and *Crambe maritima* (sea-kale)

Useful references

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Minutes compiled by ZH with GC and RP, Oct 2010

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