Changing Perspectives: Exploring Ways and Means of Collaborating in Environmental Archaeology

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1 Introduction

One of the questions that this book seeks to address is the extent to which environmental archaeology is still regarded as an add-on to archaeological excavation projects. In particular it explores how integration, in terms of using environmental archaeological evidence to address important questions about the past at the site and landscape level, and the sharing of results and interpretations of different types of evidence within multidisciplinary teams, leads to better outcomes.

Environmental archaeology has been an established part of archaeological practice from the early 1970s (Evans and O'Connor 1999, 5). Within the UK, the introduction of Planning Policy Guidance Note 16: Archaeology and Planning (PPG16) in 1990 resulted in a huge growth in developer-funded archaeology and the number of archaeological excavations undertaken (Darvill and Russell 2002; Fulford and Holbrook 2011). At the same time the number of environmental archaeologists has grown and the range of materials studied as well as the techniques and methods used to study these materials has greatly increased. However, the

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environmental archaeology sector is still tiny in comparison to the archaeological sector as a whole (Aitchison and Rocks-Macqueen 2013). In addition, the work-force is varied, with environmental archaeologists working as sole-traders, for commercial archaeology companies, for universities and for national heritage organisations. As such their working conditions differ considerably, as do the drivers for work undertaken, which often forms a small part of much larger projects. This can present challenges in terms of integrating the results generated from research undertaken by environmental archaeologists with those produced by other specialists, for example artefact specialists. These challenges are nothing new (see Luff and Rowley-Conwvy 1994), but the growth in the amount of data available and the birth of the digital age means that we need to ensure that we are not just continuing to collect data for the sake of it but rather directing our efforts and resources to answer key research questions. These challenges, in terms of integration and a rapidly changing working environment, are not unique to the UK; we therefore hope our observations will provide a useful perspective for archaeological practice in other countries.

This chapter focuses on the experiences of environmental archaeologists working on multidisciplinary projects in different parts of the historic environment sector in the UK: national heritage organisations, academia, commercial archaeological units, archaeological units sponsored by local government and freelance specialists. Rather than entailing a general survey of environmental archaeologists and their experiences, it uses as a starting point the results of the Mind the Gap project conducted by Bell et al. (2014) which reported on some of the challenges involved in managing large projects (Bell et al 2014), and some of the issues raised on the archaeobotany email discussion list (https://www.jiscmail.ac.uk/cgi-bin/webadmin?A0=ARCHAEOBOTANY) regarding a mismatch between research syntheses based in universities on the one hand and those creating the data as part of developer-funded archaeological projects on the other.

We considered our own experiences of working within multidisciplinary projects, and how the way we work and what is expected of us as individuals working in and with a range of different organisations varied both in terms of priorities and drivers for our work. These are presented as personal views rather than those of the organisations within which we work. They are illustrative rather than exhaustive but we hope to bring out some common themes that need to be considered when collaborating on multidisciplinary projects if we are to achieve fully integrated interpretations and realise the full potential of the research undertaken. These general issues and themes are discussed in the final section of the chapter which makes suggestions regarding the measures that lead to successful collaborative projects.

Discussion on the archaeobotany email list focused on the dichotomy between commercial archaeology carried out as part of the planning process and environmental archaeology research undertaken as part of research funded by the UK research councils and others. The results of commercially funded environmental archaeology are a huge resource which is mined by research projects but sometimes undervalued or not thought sufficiently rigorous. Part of the problem here may be that the data procured as part of developer-funded projects is not collected with a

given research project or question in mind but rather to offset harm[1] to heritage assets.[2]

Other issues include access to grey literature and poor signposting of archives, both digital and material. Furthermore, there is rarely funding for specialists working on developer-funded projects to carry out research that places the assemblages or sites they investigate in their wider context. Added to this publication may only cover the major or the most significant results as determined by the client or project manager, taking into account costs, word limits and audience. This can mean that important results, especially negative ones, are not adequately disseminated. Thus trends and patterns which are apparent to practitioners working in particular regions, and/or on specific materials, are not borne out by the published data. There is therefore a pressing need for us to share our datasets (see Arbuckle et al. (2014) for a recent example within zooarchaeology) and increase the dialogue between the academic and commercial sectors.

The Mind the Gap project (Bell et al. 2014), funded by the Arts and Humanities Research Council as part of the Science and Heritage Programme, sought to capture the experiences and attitudes of participants in research projects. The survey conducted as part of the project asked researchers and users of research about one collaborative project they had been involved in over the last 5 years. The survey was designed to assess whether those questioned had achieved their personal goals as well as their level of satisfaction with the project outcomes and the project impact. Those taking part in the survey were also asked about what helped or hindered their project split into two themes:

- Background – specialism, experience, place of work and role
- Project – size and complexity

There were just over 200 responses to the questionnaire. A wide range of projects were included, but projects that comprised only academic researchers were excluded. The study showed that the users of research have practice-focused goals, whereas for researchers in academic institution publication, career development and intellectual goals are more important. Hybrid researchers, those that both do and use research, and the category into which most environmental archaeologists fit, have a mixture of both practice-focused and intellectual goals.

The project findings of most import to environmental archaeologists and archaeological practice were that large projects present challenges in terms of the research dynamic[3] and that multidisciplinary projects lead to better outcomes. However, and

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[1] Harm as used in this context is 'Change for the worse, here primarily referring to the effect of inappropriate interventions on the heritage values of a place' (English Heritage 2008, 71).

[2] A heritage asset is 'a building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest' (National Planning Policy Framework, Department for Communities and Local Government 2012, Annex 2: Glossary).

[3] A healthy research dynamic is crucial for collaborative research. It comprises a number of elements, namely, trust, shared goals, communication, openness and relationships (Bell et al. 2014).

importantly, more than six subject specialisms make project management very difficult and can affect success, whilst collaboration takes time and needs to be resourced properly (Bell et al. 2014, 4).

Archaeological projects are complex projects by their very nature. In other words, we do difficult projects all the time and often very well. However, However, we need to recognise that complex projects are hard to manage and that better ways and means of working together are required at a time when the way that research is conducted is rapidly evolving and facing increasing fiscal downward pressure, concerns that apply not only to UK archaeology but also in other areas of the world (Kansa 2012).

Collaborating on projects should be an enriching experience. How can we make it one and what makes a good project? In order to start exploring these issues, we decided to get together and compare our own experiences, focusing on the concept of communities of practice.[4] We wanted to understand how our priorities and approaches differed depending both on our place of work and also on our roles and responsibilities. From this, we hoped to better understand each other's needs and aspirations and how to develop better projects and ways of working.

2   Our Communities of Practice

Gill Campbell and Ruth Pelling work for the Historic England (formerly English Heritage). Figure 1 is a representation of their communities of practice.

Their role in Historic England centres on heritage protection and providing advice on making and managing changes to historic places. They help to provide the evidence base for establishing the significance or value of archaeological sites and work to ensure best practice in environmental archaeology through training, teaching, as well as the promotion and maintenance of high professional standards.

Issues that can affect collaboration on projects include a focus on heritage protection and the assessment of significance which tends to place more emphasis on archaeological structures rather than the ecofact and artefact assemblages they contain. The nature of the research they carry out, as would be expected for a national heritage body, centres on a national rather than an international scale. At the same time, work on projects is squeezed by the time required to provide advice, input into strategy and policy development and management tasks, whilst public engagement and outreach activities are directed towards history rather than science.

On the other hand, there is less emphasis on a 3- or 4-year project cycle than is the case within the university sector giving a certain amount of freedom to conduct research which requires medium-term investment over 5–10 years. Also, within Ruth and Gill's department, continuing professional development (CPD) is well-supported, and partnership working is encouraged. Specialists can manage their

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[4]The pursuit of an enterprise or series of enterprises (practice) and the attendant social relations (community) (Wenger 1998, 45).
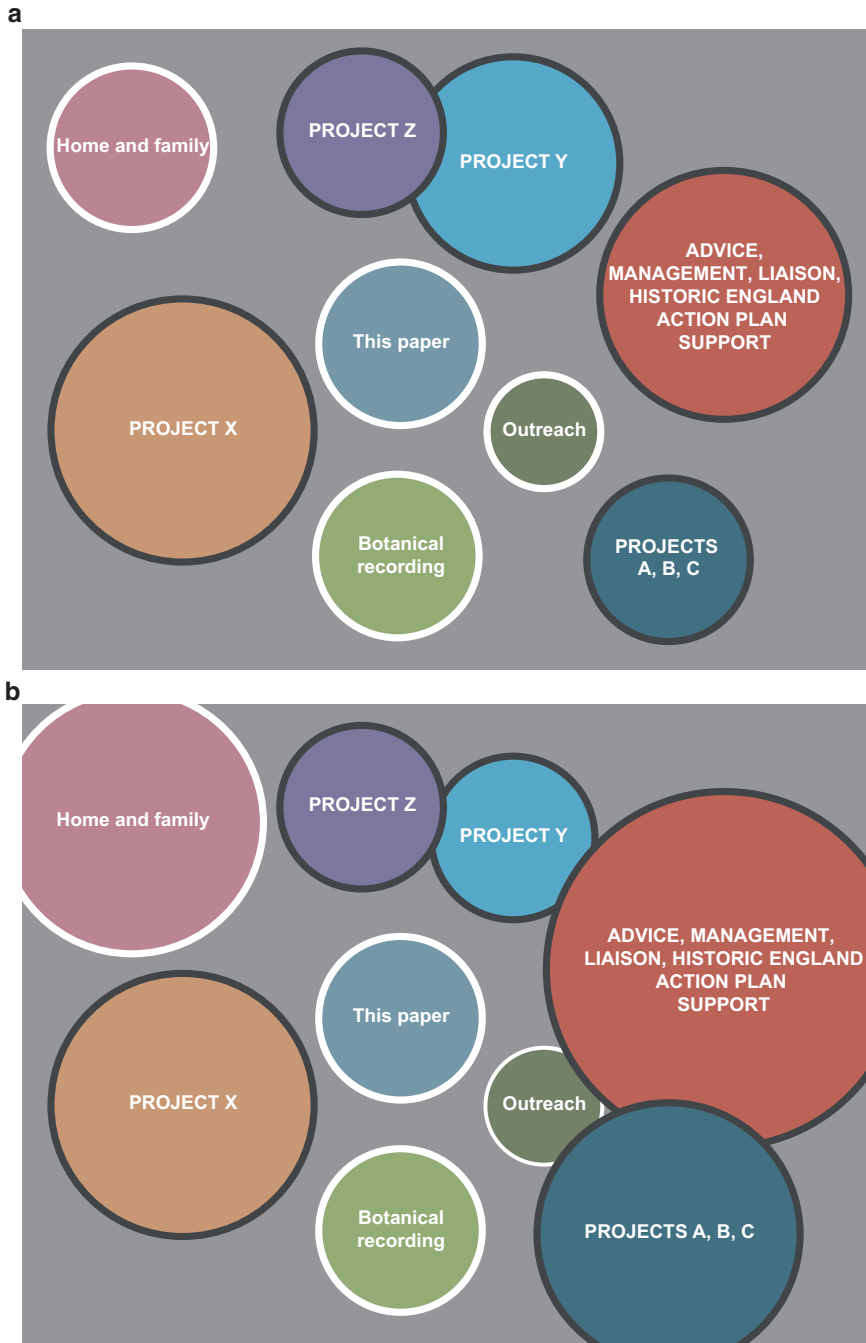
Fig. 1 Map of communities of practice for archaeobotanists/environmental archaeologists working in a state-funded heritage organisation (Gill Campbell, Ruth Pelling); (**a**) planned, (**b**) in practice. The use of uppercase indicates core business activity

own projects, including projects involving fieldwork, with this becoming a more common occurrence in the last few years.

Dr. David Smith is an archaeoentomologist and a senior lecturer in the Department of Classics, Ancient History and Archaeology at Birmingham University. At the time when this paper was written he was seconded 2 days a week as welfare tutor at the Birmingham International Academy. A representation of his communities of practice is shown in Fig. 2. David has recently returned to his substantive post but many of the issues raised here still apply.

Aspects that affect his ability to collaborate on projects include the university's core commitment to teaching excellence and the requirement that all research activity must be aimed at achieving 3*/4* Research Excellence Framework (REF) return. However, the ranking of different types of publications varies depending on the department where the specialist works. David works in the School of History and Cultures which values single authored books alongside research journal publications. If he was based in a scientific department single authored or lead authored journal articles would be key performance indicators. Unfortunately many of the primary publications that result from the type of collaborations discussed here do not fall into this category of publication. Grant capture from major funders, such as the UK research councils, is also now expected as routine, and to be successful, an emphasis on answering research questions of international importance is required. Many of the small scale commercial projects discussed in this paper do not have this level of international reach. In addition, for David, at the time of writing this paper 40% of his time (2 days a week) was taken up with his role as welfare tutor. The university also expects full economic costing (FEC) rates to be paid for staff involved in research. These rates are often more than some funders, and small medium enterprises (SMEs) are willing to pay.

However, on the positive side, David's university encourages involvement with the wider community and knowledge transfer. David's department also appreciates the income generated from small collaborative projects, where he undertakes work on insect remains, and considers this to be research funding. These types of projects, either singularly or collectively, can also lead to be turned into REF publications. David's university recognises this. Such research can also provide, or lead to, research projects for undergraduate, masters and PhD students.

At the same time, David has addressed high FEC rates by developing novel working techniques leading to cheaper bids and helping with his workload. This activity is included in David's Work Allocation Model (WAM) and therefore planned.

Liz Pearson is a senior environmental archaeologist at the Worcestershire Archaeology, a council-sponsored commercial archaeology unit (part of Worcestershire Archive and Archaeology Service). A representation of her communities of practice is given in Fig. 3.

Central to her work is the need for earning targets to be maintained in order for the unit to remain viable and in business. The majority of her work is in commercial contract archaeology, but other types of project are possible, if funded. Collaborative projects which are relevant to people living in the area are more likely to be supported
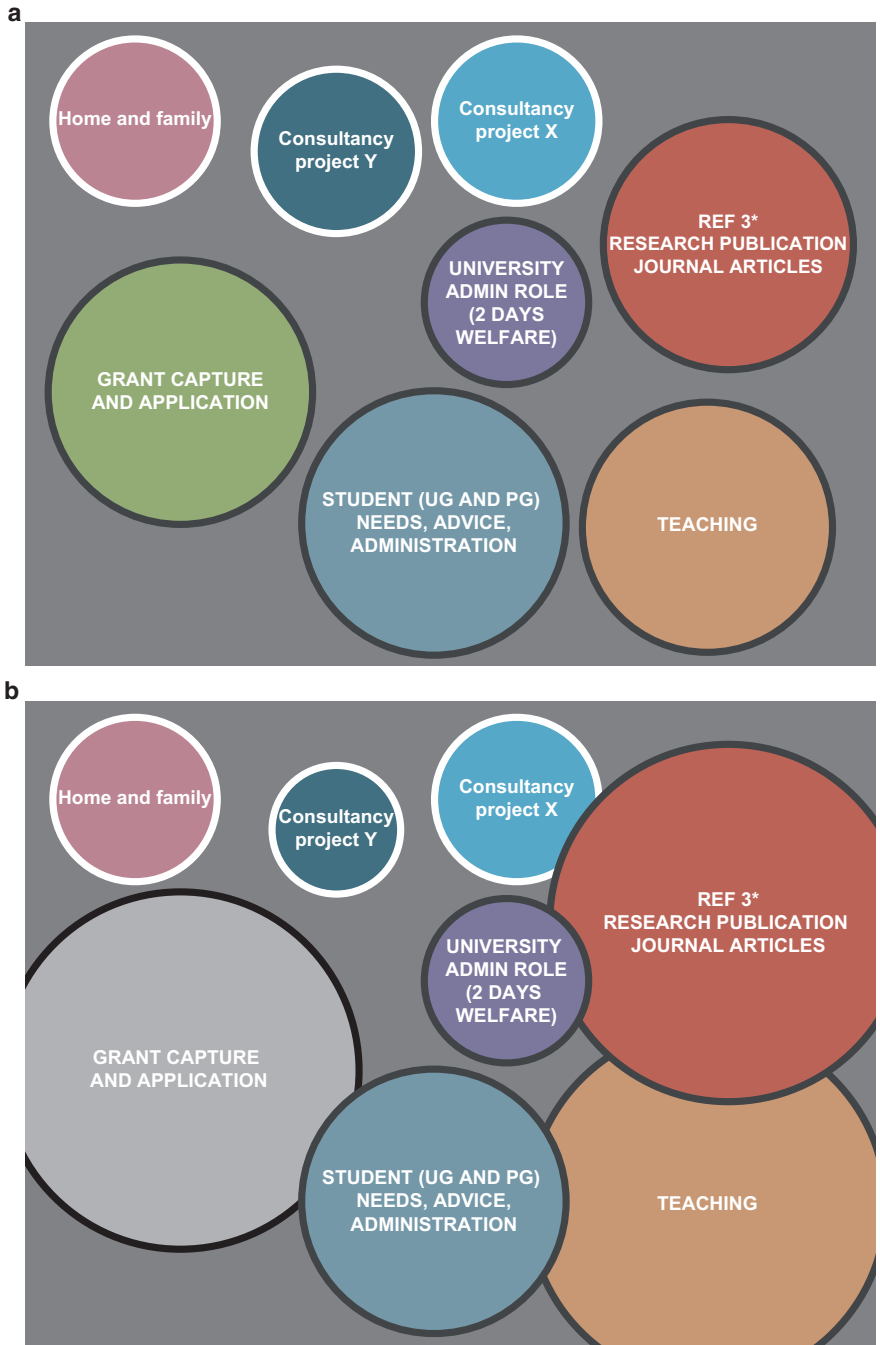
a

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Fig. 2 Map of communities of practice for an archaeoentomologist/environmental archaeologist working within a university (David Smith); (**a**) planned, (**b**) in practice. The use of uppercase indicates core business activity
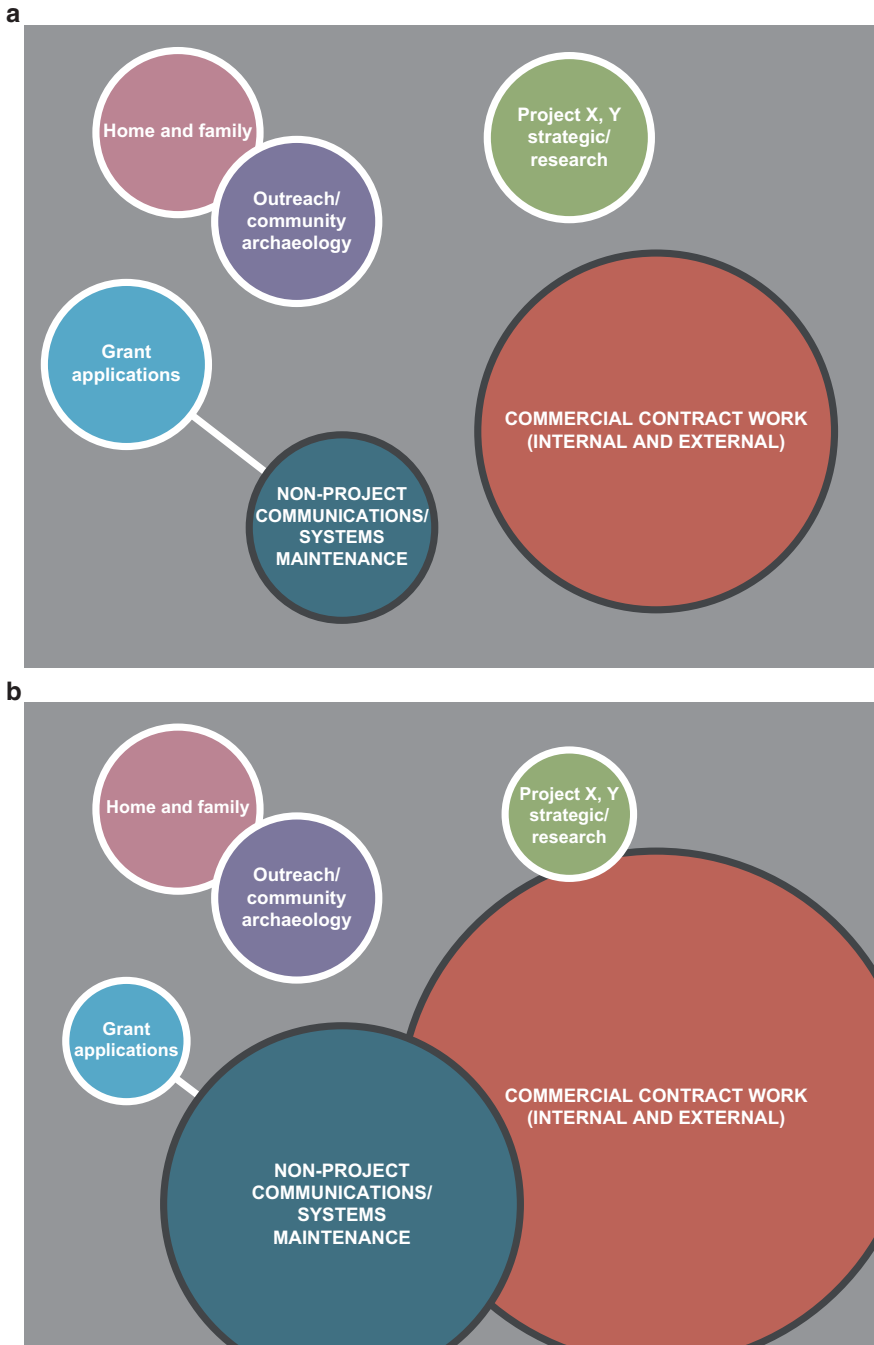
Fig. 3 Map of communities of practice for an archaeobotanist/environmental archaeologist working in a commercial archaeology company sponsored by a local council (Liz Pearson); (**a**) planned, (**b**) in practice. The use of uppercase indicates core business activity

than those on a national or international scale. However, the time Liz has available for developing ideas, applying for grants and contributing towards discussion on professional issues are increasingly squeezed both as a result of the current market and because the Worcestershire City Council, as a result of government policies, is withdrawing resources generally.

On the other hand, the council supports involvement with the wider professional community, and particularly with the general public, despite funding constraints, whilst the close connection between the field archaeology unit (Worcestershire Archaeology), curators, the Historic Environment Record (HER) and museums fosters exchange of knowledge and understanding which can result in strategic or HER enhancement projects and other positive outcomes.

Catherine Barnett, at the time when our discussions took place, was a principal archaeological scientist at the Wessex Archaeology, a commercial archaeology unit with charitable trust status. A representation of her communities of practice is given in Fig. 4.

The company's existence depends on its ability to bring projects in on budget. A tension therefore exists between the bottom line and research. There is a perception that specialist's work loses money, though this is not the case. The major challenge for Catherine was the availability of suitable specialist staff, coupled with a need for a tight turnaround. Managing grants and projects is complex, especially where subcontractor(s) are involved and takes up a great deal of time including dealing with bureaucracy and laws on subcontracting such as the need to pay value-added tax. Little or sporadic direct contact between environmental specialists (as opposed to general managers) with clients and funders can also result in environmental archaeology being sold short and important aspects of sites and assemblages being neglected or not brought to publication.

However, collaborative research can be used to demonstrate the company's pedigree. A supportive manager at the Wessex Archaeology recognised the value her research brought to the company. Her depth of specialist knowledge meant she was able to identify important and significant results and had the freedom to manage her own time effectively; in her particular case, Catherine also had direct contact with clients and funding bodies and was able to raise their enthusiasm and gain support for environmental archaeology investigations, although this is not usually the norm.

Wendy Carruthers is a freelance archaeobotanist of international standing. She works on research projects and on commercial archaeology projects. A representation of her communities of practice is given in Fig. 5.

The main issue affecting her working life is the difficulty in earning a living wage, especially taking into consideration the lack of holiday pay and that there is no sick pay, without taking out costly insurance. Funding to attend conferences and training courses also needs to be covered from her earnings. In addition, the time that Wendy can devote to developing ideas and writing research papers is limited given that these activities are not funded.

Costing projects can also be problematic. Wendy can be presented with an inadequate fixed budget or budget that cannot be extended even when it is clear that

a

b

Fig. 4 Map of communities of practice for an archaeobotanist/environmental archaeologist working in a local commercial archaeology company unit with charitable trust status (Cathy Barnett); (**a**) planned, (**b**) in practice. The use of uppercase indicates core business activity
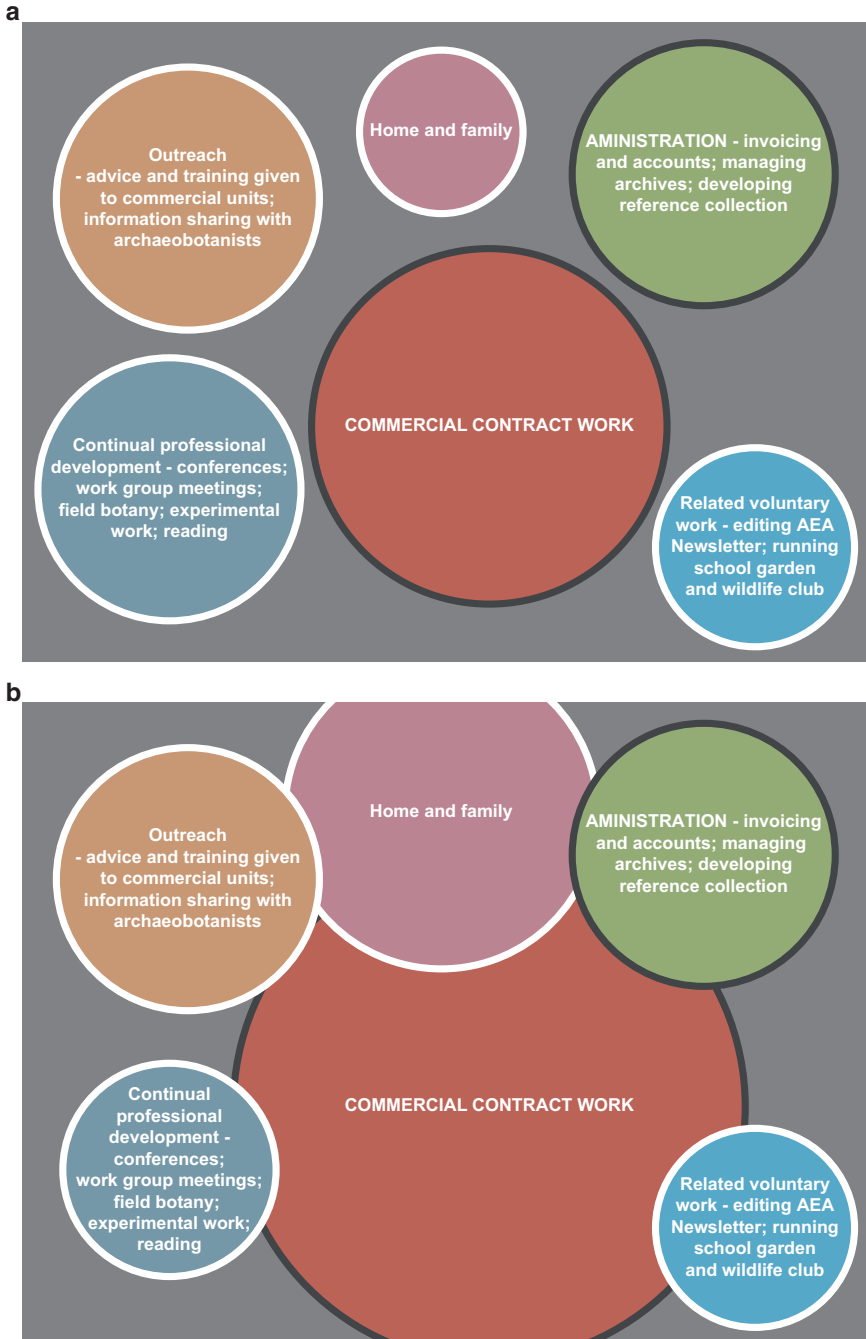
Fig. 5 Map of communities of practice for a freelance archaeobotanist (Wendy Carruthers); (**a**) planned, (**b**) in practice. The use of uppercase indicates core business activity

additional work is required if the research potential of the material is to be realised. It can also be years between the completion of an assessment[5] and the point at which funds are released for analysis presenting problems in terms of timetabling work. Short notice is often given of projects requiring completion, and the storage space required for material awaiting analysis or deposition into an archive can be difficult to find and fund.

Also, and importantly, because Wendy is based at home, people ask her to help in a crisis. This means the community of family and friends, a factor that can take be an overriding in all our lives at times (see also Fig. 1b), can exert more influence than on those who are not home-based.

There are however benefits to working as a freelancer. Wendy is able to choose the hours she works to fit around the family and other interests. She has no boss, does not have to travel to work, attend administrative meetings and/or deal with office politics. She has acquired a great deal of experience over the years through working on large numbers of projects covering all periods and all types of preservation. This often includes gaining knowledge of particular geographic areas which means her knowledge is valued by her clients and peers. She also has the freedom to develop her own methods and approaches unconstrained by organisational procedures.

3   General Issues

A number of general issues emerged from this comparison of our experiences and the discussions that took place as part of this process.

It is clear that goals vary greatly within environmental archaeology, between environmental archaeologists and field archaeologists as well as between researchers. Where and how we work influences these goals. Notably, institutions vary in their *locus operandi*. Universities want to attract research funding from the UK and European research councils, and this means seeking to answer questions that are of international importance. National heritage bodies concentrate on national importance, whereas for a county council sponsored unit research needs to be directed towards what matters to people living and working in their area. These different drivers are not necessarily incompatible but need to be taken into account when developing collaborative projects.

The uptake of new scientific and analytical techniques and theoretical frameworks for interpreting data within commercial archaeology is slow because within projects time to consider new approaches is limited. There is a tendency to replicate what has been done before at other sites rather than develop new approaches. This can result in lost opportunities, especially when new and unexpected discoveries are made.

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[5]The assessment of an assemblage involves determining its potential to answer the research aims of a project and also its value beyond this. It is a specific project stage in archaeological projects (Chartered Institute for Archaeologists 2014).

There is also an inclination to treat all aspects of the archaeological resource in the same way (a default mode) rather than seek to answer specific questions about the past and design projects that aim to answer these questions.

While public engagement is encouraged, it tends to be poorly resourced and rely on the willingness of individuals to do this outside and beyond their normal working hours. Flexible and part-time working are becoming increasingly common, and whilst this is a positive development in many ways, workloads need to adjust accordingly. Too often we are trying to stretch our resources beyond their capacity as funding becomes ever tighter. Related to this, there are not many opportunities for environmental archaeologists at an early stage in their career, though the situation does seem to be gradually improving.

The way in which we work is also changing, reflecting the pace of technological change seen in the first decade of the twenty-first century. This last point is illustrated by reference to the European Commission consultation on Science 2.0 or Open Science (European Commission 2014; see also Kansa 2012). We are moving into a world where open access publication and open data are becoming the norm. In addition, we both create and have access to increasingly large datasets, whilst the number of actors in science and addressees of science continues to grow.

The way in which archaeology is recorded in the field and laboratory is also changing. Systems based on geographical information systems (GIS) are becoming commonplace, and databases which allow the project team access to each other's results are being more widely used. This means learning new skills but also presents challenges as we can become overwhelmed with information and the size of our email inboxes. In addition, in reality, not all the project team will have access to the full range of information about a project because they either don't use the same recording system or software. So one of the tasks that is required within projects is one of ensuring that all the project experts have access to the information they need. However, only giving project experts or specialists the information they need to carry out given tasks or analyses does not allow for unexpected insights and interpretations to emerge and can lead to loss of engagement in project aims and outcomes.

Use of digital recording systems and the datasets produced also means we need to consider carefully how to make our data accessible and that the publication of data and data as a product in its own right is sufficiently valued. Coupled with this is the need to be vigilant about data standards and metadata.

There also are many more ways that we can tell each other and the world about our work: tweets, blogs and vlogs. For example, it is possible to send a digital photograph from site straight to the specialist and ask advice and conduct virtual site visits. This can, and is, opening up new audiences to the world of environmental archaeology. However, it also requires learning new skills and having access to up-to-date technology. In conjunction with these developments, incentives and resources for these types of dissemination need to be considered and thought of as a research output.

4   Recommendations and Conclusion

So in conclusion and coming out of our discussions, what are the solutions to some of the issues we face and what measures need to be put in place to make a project successful, foster healthy research dynamics and encourage collaboration?

4.1   Recommendations

Echoing the findings of the Mind the Gap project (Bell et al. 2014, 4), we need to understand each other's goals and the strengths and weaknesses of our different communities of practice. This will aid us in developing shared goals and approaches that will benefit both researchers and environmental archaeological practice. Coupled with this, there seems to be considerable merit in developing lists of burning questions at regional, national and international scales along the lines of those produced for palaeoecology (Seddon et al. 2014). These summaries would be more readily accessible than research frameworks for those working at the coalface of developer-funded archaeology, who may have limited time to devote to reading beyond their immediate area of interest.

Better, rather than more communication is needed within project teams making full use of the new media at their disposal. Dividing complex projects into work packages, with ambassadors for each work package, will help to bring environmental archaeology to the attention to developers and other funding bodies. Linked to this, we need to prioritise public engagement to win more support and funding. The audience is out there, but we need to engage with them directly wherever possible and be given the time and resources to do this effectively. Fundamental to this is improving access to the results of our work for everyone, including our peers.

We also need to provide more CPD opportunities, including formal and informal training, work placements and cross training, another of the key recommendations that came out of the Mind the Gap project (Bell et al. 2014, 9). Feedback on the reports we produce and regular peer review of our work would help to raise standards and increase competence. Avenues for support (financial or other) for publication of important results which cannot or will not be published through developer funding should be considered.

4.2   What Makes a Good Project?

If results produced by different specialists are going to be considered and fully integrated, all members of the project team need to feel that their contribution is valued and that their opinion will be heard and feel comfortable with expressing their views to the team. Knowing what individual team members hope to get out of

their involvement and helping each other to achieve these goals is important, especially for larger projects. Regular updates including access to each other's results can help increase engagement and satisfaction. For large projects, there is no substitute for team meetings at key project stages. These help for a variety of reasons. Firstly, cross-referencing between specialists (environmental and finds) highlights whether results from one specialist might have a bearing on the interpretation that another specialist makes and could potentially even suggest a change of approach or methods. Results from one area of a site or from a particular context or a particular assemblage can take on more significance (or vice versa). Secondly, project team meetings help keep the finish line from drifting too much because of the need for most involved to get to a certain point in the project for the meeting to make sense. Lastly, meetings can also foster the research dynamic and encourage mutual engagement across different disciplines and institutions.

Having clearly defined roles and responsibilities assists considerably when dealing with issues that arise during project implementation and with resolving conflicts. We should also consider balancing personalities and skills within project team if at all possible (see Bell et al. 2014, 5, 7) and play to our strengths. Having a flexible approach, whereby new questions that come out of the investigation can be addressed and less fruitful avenues abandoned or cut back, is also extremely useful. However, this means placing equal value on all aspects of the archaeological resource. Finally, when it comes to dissemination, publication and sharing of results, full presentation and acknowledgement of key specialist input and data is needed; the trend to integrated reports and relegation of specialist reports to archive detracts from and can mask important results. Although this is becoming less of an issue as publication of citable datasets online becomes the norm.

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