

Project Title: Quaternary Paleoenvironments and Climates (QPAC)

Background

The project leads are both involved in the reconstruction of environments and climates of the past one million years in Britain, using sedimentological and micropalaeontological evidence. They focus on (1) river and lake sediments and their microfossil assemblages as archives of environmental change, (2) quantitative palaeoclimate reconstruction using the Mutual Ostracod Temperature Range method developed by Horne, and (3) sites with archaeological evidence of early human presence*. Both academics have strong collaborative links with the British Museum and The Natural History Museum. They are particularly interested in sites of Marine Isotope Stage 11 age (Hoxnian Interglacial and the transition to the overlying cold stage – c. 400,000 years ago); one such site is Marks Tey in Essex, where lake sediments supposedly preserve the most complete record in Britain of the Hoxnian Interglacial and the overlying cold stage. They are also involved in testing hypotheses about early human dispersal from the Mediterranean area into NW Europe, using an innovative Multi-Proxy Consensus approach currently under development.

*e.g. through involvement in the Leverhulme-funded Ancient Human Occupation of Britain and Calleva-funded Pathways to Ancient Britain projects:

<http://www.nhm.ac.uk/our-science/our-work/origins-evolution-and-futures/pathways-ancient-britain.html>

Project leads

Professor Dave Horne
Professor Simon Lewis

Undergraduate researchers

A 2nd year, Environmental Science
A 2nd year, Environmental Science
A 3rd year, Environmental Science

Undergraduate researchers' roles and expected research outputs

There were the expectations that student researchers would be employed to:

- (1) assist in fieldwork, including the preparation, recording and sampling of sedimentary sections, drilling boreholes to extract sediment cores, and site survey activities;
- (2) assist in laboratory work, including particle size analyses of sediments and the picking, sorting and identification of ostracod microfossils;

- (3) assist in data analyses including the application of the Mutual Ostracod Temperature Range method;
- (4) assist in data management, including the abstraction of data from published literature and museum collections, and the validation and maintenance of databases.

Students would be expected to produce outputs in formats appropriate to the work (e.g. written reports, spreadsheets) and to present their work orally and visually at project meetings. They would be expected to keep legible, transferable records of their work (e.g. field notebooks, laboratory notebooks). All work carried out by students would have the potential to contribute to staff publications, with due acknowledgement or with co-authorship subject to the scale and significance of their contribution. They would also (individually or together) write a blog on aspects of their contribution to the research project, for public engagement / outreach purposes.

They would work both individually (with the potential for some of their work to form part of their Independent Geographical Study or Project in Environmental Science, 30-credit L6 modules) and as members of a team that will include Horne and Lewis, PhD students and external collaborators in other universities and at the British Museum and the Natural History Museum.

Additional note and pre-requisites

All three students would be expected to participate in (and benefit from training and experience in) all activities, although some degree of specialisation would be allowable. They should have gained relevant skills and knowledge of Quaternary palaeoenvironments from their L4 and 5 BSc Geography or Environmental Science programmes, and should be able to demonstrate some proficiency in these, although further on-the-job training would be required.

Student researchers' views

Key points mentioned by the student researchers in the focus group – they gained:

- More specialization in terms of fieldwork and lab work as well as analysis;
- Better understanding and practice of fieldwork and lab work: 'learning while in the job';
- Better understanding of what it is like to be a researcher. A student actually said that they 'understand more bits of knowledge than other people';
- Awareness of the importance of skills developed throughout the research project for any future job;
- The awareness of what a research project entails may help with the final dissertation (process). A student stated that if they had gone through this process before, they would have done the dissertation differently.

One student mentioned that the appraisal (1st assessment component) gave them the 'experience of a real job'. In terms of the process and the activity log (related to the 2nd assessment component), one student highlighted that it was useful to keep track of the work already done and the following steps.

Research leads' views

Key points – and moments – mentioned by one of the project leads in an interview:

- The lead researchers benefitted from getting extra-help from students as research assistants in fieldwork and lab work, and had the opportunity to know three students better.
- Two students who went on the field trip to Scotland (and who applied to the expedition's fund successfully, which was in itself a really valid experience) wrote an article that went to School's newsletter and website.
- Students and staff were partners: they were involved in the research study together.
- It is recognised the importance of the research team, which is constituted by experienced researchers, PhD students, and undergraduate students.
- Fieldwork in the research project was considered to be a genuine experience: the student has time to reflect since it is a slower paced learning experience that enables the student to actually learn from it.
- One student presented a talk in an event at UCL.