

POPWEB: a web-based introduction to studying pollen and plants.

Jeff Blackford, Matthew Boulton, Jim Innes, Abby Kelly, Edward Oliver and Lawrie Wright,
Department of Geography, Queen Mary, University of London, London E1 4NS.

Introduction

POPWEB is a generally accessible web-site, available without any registration or fee, aimed at undergraduate students studying palynology and/or aspects of biogeography for the first time. The site includes information concerning the current habitats, associated soils and spatial distribution of around 20 plants common in the United Kingdom. Also included are illustrations and descriptions of the pollen of each plant and notes on identifying the selected plants in the field, thereby bringing these two sets of information together for the first time.

Rationale and aims

The web-site arose out of the needs of two courses at Queen Mary, University of London, a second year option *Plant Geography* and a second or third year option *Palaeoecology*. These courses are available for students studying Geography, Environmental Science and Biological Sciences, and are often taken by students with little background in plant ecology. We identified a need for a learning tool that could provide an integrated resource covering both plants and pollen, so that students could more readily identify plants and pollen, understand their associations and biogeography and understand and interpret the changes in pollen diagrams. An earlier version of the site ran on the internal web at Queen Mary with the data required specifically for these two courses. With funding from GEES, this has been upgraded and updated and is now intended to be of more general use to students at a similar stage, but not necessarily studying those specific courses. The aims of the web site are therefore:

1. To provide basic background information regarding a selection of common plant types,
2. To aid in the identification of those plants in the field,
3. To aid in the identification of pollen grains,
4. To help students interpret pollen data,
5. To encourage students to learn more about the plants and pollen records.

Features

- A glossary of terms, accessible as a window from any page.
- Photographs of the plants
- Notes on identification of the plants
- European distribution maps
- Description of the Quaternary history of the plant
- Notes on pollen features
- Links to Uppsala University pollen image collection
- SEM images of pollen in some cases
- Notes on associated soil types
- Notes on common plant associations
- Links to other substantive relevant web sites

Use of POPWEB

POPWEB has been used at Queen Mary in four different ways. First, prior to field visits to managed forests and heathland, students use the site to learn some basic information about the species they will find and how to identify them. Second, on return from the visits, the site is used as one of a number of sources for the write-up. Third, those students who continue on to study *Palaeoecology* are instructed to look at all the species on the web site and learn the form and diagnostic features of the pollen. This exercise, which does not have scheduled class time, runs alongside the microscopic observation and drawing of a small number of types. The class time required to cover all the types through microscopic work would be too great. This is followed by a group analysis of sub-fossil pollen data from northern Scotland. Finally, the ecological, palaeoecological and distribution data are used to help students interpret the group pollen diagram. References are included to encourage further reading.

Evaluation

Second year QM Geography and Environmental Science students were questioned directly regarding the five aims above. In addition, observations were made about the quality of coursework produced

and the competence of the group in field and laboratory. Respondents were anonymous, and were asked to grade the questions below on a scale 1-5, with 1 being strongly positive and 5 being strongly negative.

1. Did the site provide relevant background information?

Grade 1, 12%; Grade 2, 71%; Grade 3, 10%; Grade 4, 7%.

Comments included a positive remark about ease of use, but some students thought some terminology too difficult.

2. Did the site aid in the identification of plants in the field?

Grade 1, 10%; Grade 2, 33%; Grade 3, 48%; Grade 4, 10%.

Comments included both positive and negative comments, including the admission that the students had not actually used the site prior to the field visits.

3. Did the site help in the identification of pollen grains?

Grade 1, 33%; Grade 2, 30%; Grade 3, 33%; Grade 4, 5%.

The self-reliance of students in the laboratory was notably greater than in previous years and the identifications seemed more accurate, although this is hard to quantify.

4. Did the site help you to interpret the pollen diagram?

Grade 1, 50%; Grade 2, 31%; Grade 3, 14%; Grade 4, 5%.

Most students found the site useful for completing the exercise, but some then failed to go on to further reading.

5. Did the site encourage you to learn more about plants and pollen?

Grade 1, 17%; Grade 2, 26%; Grade 3, 34%; Grade 4, 20%; Grade 5, 3%.

For many students, it seems that the site replaced, rather than led to, traditional reading. Many students used it as their sole source of further information for interpreting the pollen data.

Overall, the responses and observations suggest that the site is promising, but our management of the use of it by different student groups needs to be changed to encourage prior use and further reading.

Further work

The GEES-funded project has established a template-based web-site, managed using Dreamweaver, which is useful in its present form but also almost infinitely expandable. The current aims are to increase the number of species, improve the referencing, link directly to on-line journal papers and include more general notes on the field and laboratory procedures of plant and pollen studies while still remaining focused on introductory-level teaching needs.

The GEES project

The funding from GEES contributed to the costs of the web-site design and content writing. Without the GEES funding, a previous, less user-friendly version with less detailed information that was inappropriate for external use would have remained on the internal network only. The original bid underestimated the cost of the web-design work and the time taken to write the text. It also proved difficult to find someone willing and able to do the work for the available money. As such, the expertise of existing Queen Mary staff was used to supplement the project grant.

Contacts and site address

Any comments on the site are welcome, including what users would like to see added. Please contact Jeff Blackford (j.j.blackford@qmul.ac.uk) in the first instance. The web-site was designed by Matthew Boulton, technical questions please directly to him at mafue@hotmail.com. The web site itself can be seen at <http://www.geog.qmul.ac.uk/popweb/default.htm> or via a link from the Geography home page at <http://www.geog.qmul.ac.uk/>.