

BIOSCIENCE IN THE FIELD

I recently organised an expedition to a classic ecological site in Shetland where I have been keeping detailed records since before 1978 (Slingsby *et al.*, 1993, 2006). I couldn't have carried out this task without a lot of help. On this occasion I enlisted the help of a team of undergraduates and recent graduates studying ecology or related disciplines. They met me on the ferry as we headed north and came on an 'expenses-only-plus-useful-experience' basis. They were good scientists and were able to identify a range of UK plant species, including different types of grasses and mosses. They picked up new knowledge quickly and they collected data with precision, integrity and intelligence. Many of them wanted to work in ecologically-based research, conservation, education or in environmental consultancy. All of these career opportunities place great value on adaptable fieldwork skills.

Yet fieldwork in undergraduate courses in ecology and in general biology appears to be in decline (Smith, 2004). One could say the evidence is anecdotal – but there is a lot of it. One need only put a group of lecturers who are committed to fieldwork in a room together and the same perceptions and concerns arise.

IS THE BENCHMARK STATEMENT LETTING STUDENTS DOWN?

The Biosciences Benchmark statement is weak with respect to fieldwork using phrases which seem to lack conviction such as 'may include' and 'is likely to include'. By contrast the Geography Benchmark states boldly: 'An education in Geography involves an active engagement with the external world. Fieldwork constitutes an essential aspect of this engagement and thus has a variety of roles . . .' Yet any bioscience course, indeed in any science course, is not worth its salt if it does not involve 'active engagement with the external world' in some way or other. Bioscience covers a much bigger variety of disciplines than geography, and fieldwork is much more important in some areas (such as

ecology and general biology) than in others (such as biochemistry and microbiology). I welcome the fact that ecology courses are judged against the same criteria as other biosciences but I do not understand why the benchmarks have to be so 'one-size-fits-all' that they betray important discipline-specific aspects. If an ecology or general biology degree does not have adequate fieldwork it is inadequate and if this is not highlighted then the system has failed. Are there any other examples of essential discipline-specific forms of practical activity in other biosciences which are not protected by the benchmarks?

IS THERE AS MUCH PRACTICAL WORK IN BIOSCIENCES AS THERE USED TO BE?

The reasons given why there is not as much field work in biosciences as there used to be include predictable arguments about costs. Actually, in terms of equipment, materials, and even travel and accommodation, a field course can be relatively inexpensive in comparison to many forms of bioscience laboratory practical activity. It is, however, technically expensive in terms of staff contact time, often away from the university for several days (and nights). Thus it is equivalent to many of the standardised bite-sized chunks of staff time which administrators like to work with. It is also administratively untidy because it raises issues such the extent of staff 'duty of care' for students 24/7 on a residential course and accommodating the needs of students with disabilities (HUBS, 2006). Bioscience fieldwork need not be any more dangerous than any other activity undertaken during an undergraduate course and, as an intensive, joined-up and often very high quality teaching activity, fieldwork is, in the real (rather than the virtual) world a very efficient use of staff time. The cost issue needs to be overcome not so much by more money but by proper recognition of its value and importance, as well as some creative and flexible administration.

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BIOSCIENCE IN THE FIELD (cont.)**GIVING THE STUDENTS WHAT THEY WANT AND NEED**

Some institutions find that students are more prepared to pay the (not inconsiderable) costs of a field course in some exotic location overseas rather than in the UK. Perhaps they consider that the 'bread and butter' fieldwork where they learn to be ecologists should be paid for by their institution. An adventurous overseas expedition can be a fitting climax to an exciting course (with plenty of UK experience) but for many students it is knowledge of UK habitats, flora and fauna which will make them employable. There is a tension here because a sixth former does not know as much about the subject as (hopefully!) they will when they graduate. There is less fieldwork in schools than there used to be and many prospective students may never have had the opportunity to discover how much they enjoy it (Barker *et al.*, 2001). He or she needs to find a course attractive to be persuaded to embark upon it, but there is also an issue of trust that the department will provide a sound initiation into the discipline, open his or her eyes to new ideas, and make him or her employable. Increasingly, as students run up student debts, they are more and more likely to ask legitimate questions about whether their course is good value for money in terms of employability. One of the functions of benchmarks is to provide such quality assurance.

Another function is surely to support departments seeking to maintain the quality of their courses in ecology and general biology by continuing to provide an appropriate fieldwork element. Good benchmarking ensures that the administrative framework is sufficiently adaptable to allow diversity within unity. It strengthens the will that finds the way and the result is a quality university education.

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ENTERPRISE IN BIOSCIENCE

Thank you very much to all those who responded to our request for data on enterprise and entrepreneurial teaching in bioscience. The full analysis of the data (and that from other subject communities) will be undertaken by the National Council for Graduate Entrepreneurship (NCGE) who will be publishing a report in due course.

We have undertaken a superficial analysis and found that currently 15 out of the 56 responding departments provided modules or programmes mainly (more than 75%) orientated towards enterprise-related learning objectives. Half of the provision used teachers from within the bioscience unit.

With regard to the nature of the provision of enterprise teaching the most obvious feature was its diverse nature both in what it encompassed, its extent and how it was delivered. Responses from many institutions emphasised that enterprise was integrated into their modules throughout the bioscience courses. Thus, while the totality of the provision of enterprise elements was significant, in no module did it involve more than 75% of the learning objectives and, therefore, was not returned in the survey.

Thank you again to all those who responded at what I know was a particularly busy time of year.

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BIOSCIENCE EDUCATION E-JOURNAL VOLUME 8

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- Do We Assume Too Much?
- Plagiarism: Do Students Know What It Is?
- Supporting the Development of Undergraduates' Experimental Design Skills and Investigating their Perceptions of Project Work
- First Employment of British Pharmacology Graduates
- Assessed Online Discussion Groups In Biology Education
- Evaluation of Formative Computer-based Assessment by Cell Biology Students with Differing Entry Qualifications and Ethnicity

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