view from the top richard bateman

When diagnosis is easier than cure

The main message from the House of Lords' third review in 17 years of the UK's systematic biology and biodiversity community, released last month, is that Westminster still lacks the vision to integrate its chronically disconnected research and funding bodies in order to address key long-term policy goals such as climate change.

As a practising systematist I welcome this attention, even though the Lords Science and Technology Committee clearly identifies systematics—those aspects of comparative biology that concern the classification and evolutionary relationships of organisms, and so underpin biodiversity studies and ecological monitoring—as a discipline that is suffering from chronic problems.

But I also wonder whether it exposes a fundamental weakness in the nature of parliamentary reviews themselves. Specifically, I question whether the remit is sufficiently broad and flexible, and whether the select committees have sufficient vision and influence to progress from accurate diagnosis to genuine cure, especially where the challenges in question are inherently long term.

The latest review, *Systematics and Taxonomy*, identifies the subdiscipline of systematics called taxonomy—the naming, description and identification of organisms—as an endangered species itself. It also identifies dissembling by government departments and agencies. The report refutes the Higher Education Funding Council for England's optimistic denial of the self-evident truth that it is the narrow, short-term prescriptions of the Research Assessment Exercise that have virtually eliminated taxonomy from the UK's universities.

Taxonomic emphasis has consequently shifted to the Big Three institutions in the UK's taxonomic firmament, each of which relies on a different government department for core funding—the Natural History Museum and the Department for Culture, Media and Sport, the Royal Botanic Gardens Kew and the Department for Environment, Food and Rural Affairs, and the Royal Botanic Garden Edinburgh and the Scottish Executive's Rural and Environment Research and Analysis Directorate—and all of which look to the research councils and the Department for International Development (usually in vain) for additional funding.

'The plight of taxonomy epitomises a much broader challenge for the UK—how to pursue long-term research'

Never again can the leaders of DCMS, Defra, Research Councils UK, BBSRC and NERC facetiously claim, as they did to the committee, to be unaware that the UK's taxonomic base has long been declining under their proctorship. So far, so good.

However, the research councils, notably NERC, are heavily criticised by the Lords for their policy of funding only science that is genuinely hypothesis testing (classical taxonomy erects hypotheses, but other disciplines within systematic biology are needed to satisfactorily test those hypotheses). Yet NERC's policy simply reflects government's perennial enthusiasm for benchmarking and resourcing disciplines according to their immediate impact in the international academic arena.

En masse, the 23 recommendations of the Lords' review are, as in the three preceding reports, disappointing. They offer sensible goals but little guidance on how to achieve them. And by adhering to a remit and to a definition of systematic biology that are both undesirably narrow, the recommendations appear parochial rather than visionary.

I view mainstream, predictive science as a linear, multi-stage process. We first select a high-priority hypothesis to test. We then gather baseline data and synthesise different complementary lines of data to gain a deeper understanding of the issues, which allows us to accept or refute the initial hypothesis and to make well informed practical recommendations on topics such as climate change. Unfortunately, the short-term emphasis that characterises all organisations funding British science means that many project leaders cut corners as they move from hypothesis to synthesis to recommendations as rapidly as possible. 'Enabling' disciplines such as taxonomy, which feed into many hypothesis-driven sciences but are not themselves hypothesis testing, have become seriously under-valued.

In fact, the plight of taxonomy valuably epitomises a much broader challenge to the UK's science base—how to pursue long-term research disciplines, such as evolutionary biology and ecological and environmental monitoring, that underpin more explicitly hypothesis-testing research and facilitate advice on socio-political issues. These long-term enabling disciplines cry out for government to construct a new, genuinely integrated and stable infrastructure that is not in thrall to short-term funding.

But establishing this integrated system would require rejuvenation of generally under-resourced and under-appreciated institutes. Even more of a challenge, it would require sufficient direction from central government to persuade DIUS, Defra, DCMS, RERAD, DFID, RCUK, NERC, BBSRC, HEFCE and the Scottish Higher Education Funding Council to develop a joint strategic plan that involves fundamental change rather than minor tinkering, and then to adhere to that plan in the longer term. Small wonder that the Lords' report on systematics fights shy of making such outlandish and impractical recommendations.

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