



British Ecological Society

Charles Darwin House, 12 Roger Street, London, WC1N 2JU

TEL: +(44) (0)20 7685 2500 FAX: +(44) (0)20 7685 2501
E: info@BritishEcologicalSociety.org Web: www.BritishEcologicalSociety.org

Dr Phil Newton
Director, Science Delivery
Natural Environment Research Council
Polaris House
North Star Avenue
Swindon
SN2 1BJ

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Dear Dr Newton,

Re: Recommendations of 'Developing a National Strategy in Taxonomy and Systematics'

In May 2011 the British Ecological Society (BES) submitted a considered response to the NERC consultation on the recommendations of the report produced by Professor Charles Godfray; 'Developing a National Strategy in Taxonomy and Systematics'. Whilst we are pleased to be included in the stakeholders for consultation once again on this matter, the very tight timescale has meant that it has not been possible for us to prepare a detailed response to each of the 19 recommendations. We stand by the points we raised in our original submission to the consultation, which have the broad support of our members.

We have however taken the opportunity to consult our members once again and several have raised additional points to bring to the attention of the NERC. I have pleasure in detailing these in the document attached and hope that this proves helpful in moving forward with the establishment of the Taxonomy Co-ordination Committee and development of a National Strategy for these most important of disciplines.

Best wishes,

Yours sincerely,

Ceri Margerison
Policy Manager
British Ecological Society
ceri@britishecologicalsociety.org

Executive Director:
Dr Hazel J. Norman
British Ecological Society
Charles Darwin House,
12 Roger Street, London
WC1N 2JU

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Recommendation 1: A national strategy in systematics and taxonomy should be developed

Members commented that they found it difficult to identify the aims of the Strategy: *'the Strategy merely suggests what ought to be done but says nothing of what ought to be achieved'*. Without these aims and targets there is no means of knowing whether progress of any significance has been made towards where the Strategy sought to arrive. There is a need to draft strategic aims as a matter of priority which can form the basis for consultation and discussion.

One member suggested an overarching objective for the Strategy as: to establish a long-term sustainable funding source for systematics and taxonomy research at British institutions and universities, with the primary role of the TCC to achieve this. Another objective for the Strategy should be to address taxonomic training at all levels of education; again, the BES would like to question why training was left out of the scope of the NERC Review. In addition, one member commented that the Strategy should address acquisition targets, recognising the effort and time involved in the field work to obtain further specimens for collections.

As we acknowledge in our original response, the taxonomic community is broader than the National History Museum, Royal Botanic Gardens Kew and the Royal Botanic Garden Edinburgh, as vitally important as these institutions are. Taxonomists beyond universities and institutes must be engaged in the development of the Strategy: a great deal of the UK's taxonomic expertise is vested in talented amateur naturalists who must be involved in this process.

If the three organisations mentioned are singled out as particular consultees for the development of the National Strategy, one member raised the concern that this could lead to a bias towards botanical taxonomy, as only one of the three organisations (the NHM) covers animal taxonomy. Animal taxonomy is dispersed and largely found in universities.

Recommendation 2: A UK Taxonomy Co-ordination Committee (TCC) should be set up to develop and review the National Strategy in Systematics and Taxonomy

Members agreed that the scientific community should nominate its own representatives on the TCC, with members including representatives of universities, institutions and volunteer scientists involved actively in taxonomic research and aware of changing needs. However, in order to ensure that taxonomy and systematics develop with regard to wider societal challenges, one suggestion is that other biological/ environmental science disciplines be represented on the TCC. A link with the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) could be forged, for example through cross-representation of individuals on these bodies, to ensure that the importance of taxonomy and systematics as enabling sciences to biodiversity conservation are recognised.

Members felt that the TCC lacked concrete aims and objectives, with one comment that the TCC *'seems to be about providing leadership and coordination to disparately located collections but little indication is given about what the TCC will achieve or the timescale for achieving anything'*. Outline terms of reference for the TCC must be drawn up and modified in consultation with the wider systematics and taxonomy community. Agreeing timelines for achievements is important.

One member suggested that a potential role for the TCC could be to lobby to ensure that all holders of taxonomic collections have 'research' as a targeted, measured, outcome of their work. This individual wished to raise concerns that many museums see public engagement and not taxonomic research as their responsibility.

Again, as we raised in our original response, it is important that the TCC is and is seen to be, independent. Members wished the BES once again to stress the significance of this point and suggested that the Linnean Society could be a suitable home for the Committee.

Recommendation 6: There is no viable funding model for collections in universities and HEFCE should work with HEIs to resolve this situation (which may involve collection consolidation and transfer)

Concern was expressed about any trend to move taxonomic collections to larger institutions, as this may serve to remove taxonomy to a greater extent from basic biological training outside of these bodies. The Strategy must seek to ensure that the collections found in institutions not employing taxonomists are curated adequately and used for taxonomic training as appropriate.

Recommendation 7: Moves to collection digitisation should continue with investment concentrated on priority resources

This was supported and identified as an 'excellent recommendation'. Access to specimens and literature is a major barrier to taxonomic research.

Recommendation 8: As part of a co-ordinated global programme major taxonomic organisations should take the responsibility for leading the provision of resources for particular taxa

This was supported. The UK should take the lead in trying to coordinate taxonomic effort globally.

Recommendation 9: For most groups molecular and morphological taxonomic approaches should advance together though for certain microorganisms concentration on molecular approaches (as has happened with bacteria) will be most efficient

This was supported. Members do not support a purely molecular approach to taxonomy.

Recommendation 10: The TCC should co-ordinate the development of a costed road map to provide appropriate identification tools for all UK organisms

Again, this was recognised as an 'excellent' recommendation. The BES supports efforts to develop identification tools for all UK flora and fauna.

General comments

1. Education and Training

Members wished the Society to reiterate the points we raised in our response to the initial consultation regarding the importance of engendering an interest in taxonomy and systematics from an early stage. The role of schools and universities in providing taxonomic training is fundamental to achieving the ideals of the National Strategy.

Taxonomy and systematics should be introduced to school pupils at an early age by educators. Here too there is a role for individual scientists. One member highlighted the importance of systematists and taxonomists themselves engaging the public creatively with the excitement and importance of their work as they *'act as facilitators of a vast resource of amateur naturalists'*.

At undergraduate level, species identification training should be embedded within ecology, geography, environmental science and biology teaching. The onus on universities to provide these skills may strengthen the recruitment of experienced taxonomists to university staff. This is unlikely however without universities providing clear opportunities for career progression and development; this is important both for staff retention and recruitment to the discipline.

NERC could play a constructive role by supporting and encouraging Masters courses in identification skills. One member commented that he wanted to be able to recommend courses to his graduate students to enable them to obtain advanced certification and ID skills, so that they were able to pursue careers in ecological consultancy, where these are in high demand. As a short term solution, if universities wishing to run these courses find it difficult to find the necessary skills in-house, taxonomists could be contracted from other institutes or from a pool of interested volunteer scientists.

NERC could also establish a travel grant to allow exchange visits between academics in Eastern Europe, where there is a great deal of taxonomic expertise, and the UK for the purposes of teaching and research. Researchers in the UK would benefit from the taxonomic expertise of their colleagues whilst Eastern Europe would benefit from the transfer of analytical techniques (such as statistical analysis and training in the use of models).

2. Research Funding

As in our initial response, members once again stressed the importance of adequate funding to allow taxonomy to proceed within UK universities. Ring-fenced funding for systematics and taxonomy was seen as significant, with one member commenting that *'there will not be a level playing field without ring-fencing and taxonomy will never get funded if it is in direct competition with other kinds of research'*. Ring-fencing may be necessary for alpha taxonomy, for small and medium-sized grants to support revisions to classifications and for field work to develop collections.

One member suggested that the funding for alpha taxonomy should be separated from funding for genetic sequencing and phylogenies. Several members suggested that that molecular systematics is fairly well funded and supported, meaning that support for taxonomy should be prioritised.

The importance of the Research Councils in recognising and supporting taxonomic research where it forms part of a larger project was also identified.

On a positive note, the efforts of the Systematics Association and Research Councils, including NERC, to support preliminary research with a substantial systematics and taxonomy component through the Systematics and Taxonomy Research Scheme (SynTax), was commended.

3. Academic Reward Structures

The challenges presented to taxonomic research by academic reward frameworks were once again highlighted by members. Taxonomic journals have low impact factors so the publication of a species description is unlikely to be included in the Research Excellence Framework (REF). One member also commented that although some researchers from the UK may be involved in providing taxonomic input to large projects, the results of which may be published in high impact factor journals such as *Science and Nature*, these papers will also not be entered into the REF as they are produced by international consortia (although these will count as indicators of 'esteem'). Taxonomists need to be supported to find means by which they can highlight the 'impact' of their work under the framework of the REF.

Taxonomy and systematics need to be recognised as subjects of research worth within the REF, translating to career progression within universities. One member commented that *'an expectation of continued taxonomic research and publication, together with an allocation of time to achieve this, should be fundamental to retaining high grade posts'*.