Bulletin of Entomological Research (1994) **84**, 443–446

GUEST EDITORIAL

A biosystematic crisis and a global response to resolve it

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Very late on a dark Saturday night in 1953, in the town of Kumasi in what was then the Gold Coast (Ghana), a semi-literate Tribal Policeman accosted a totally illiterate and inebriated employee of mine called Awuni Farafara, with the words 'Who be You'. Awuni's reply of 'I be Me', caused the policeman to retort 'You Lie!' and the luckless Awuni was incarcerated for 'failing to identify himself and thereby hindering the police in the performance of their duty'.

My plea, on his behalf, that Awuni's reply to the policeman was perfectly correct was rejected on the grounds that, 'Me was not his given name; Me was not the name by which he was known; and Me was not the name by which the police could check their records to see what was known about him'. It further transpired that even if Awuni had given his correct name he would still have been arrested, 'because it could have been a false name leading the police to false information in their records'. Awuni it seemed was destined to remain in jail until 'he had been properly identified by someone with the authority to do so'. I had such authority; I did properly identify him; and he was released.

If there is a moral to this story it surely is that, even in the mono-specific biological system known as human society, biosystematics is the very foundation for the orderly management of its member organisms. It was the absence of biosystematic support, albeit temporary, that precipitated Awuni's parochial crisis.

The crisis with which this paper is concerned is of much wider interest and impact. It is that occasioned by the acute shortage, and ever-diminishing availability, of biosystematic services for critically important groups of organisms in developing countries, in the face of ever-increasing need for them to support national programmes for sustainable agriculture and use of biodiversity.

It is relatively recent, though perhaps long foreseen by some. Its origin is widely attributed to the wider awakening of the world's environmental conscience, which began with the Stockholm Conference on Man and the Environment in 1972 and culminated in Agenda 21 and the Convention on Biological Diversity of UNCED in Rio in 1992. Whilst these events and world recession are undoubtedly the major forcing factors of today's sad situation, developing countries were pre-disposed to it during the Colonial Era and the advent of independence. With perhaps the best of intentions, colonial policies and the priorities of newly independent nations conspired together to create conditions for a 'crisis waiting to occur'.

At a time when the orderly exploitation of the renewable natural resources of developing countries began, colonialists recognized the vital role of biosystematics in agricultural development and in programmes to improve human and animal health. Plant toxonomists were the pioneers, but gradually entomologists, mycologists and other toxonomists were appointed to countries for the express purpose of collecting specimens and gathering information about them. The task of identifying collections of pests and vectors and their natural enemies was delegated to appropriate home institutions of the colonial powers, which also provided duplicate reference collections to individual countries to encourage and enhance local biosystematic capabilities. Information and advisory services were also made available to expand the local 'data-base'.

The International Institute of Entomology (IIE) and its sister institutes for Mycology (IMI) and Parasitology (IIP) provided such services free-of-charge respectively from 1913, 1920, and 1945, until 1993, and this very Bulletin began as one of IIE's contributions to taxonomic literature in 1913–along with the Review of Applied Entomology.

As national collections and records were developed, and expertise improved in developing countries, their reliance on external services for routine identifications gradually diminished, but this was offset by the demand for more exacting determinations and ever-widening biosystematic horizons, which could only be satisfied by the major world centres. What was particularly significant, however, was that with some notable exceptions, few indigenous scientists were being attracted into or otherwise involved in biosystematics in the colonies. Expertise resided predominantly, and sometimes exclusively with expatriate scientists.

The departure of the latter at independence left most developing countries with totally inadequate biosystematic capabilities if any, and given the financial constraints of these new nations with other priority programmes to pursue, there were few opportunities to replace lost expertise. Total reliance on external services once again became unavoidable, and whilst these were free and available there was no critical impediment to national biological programmes. Sadly a coincidence of circumstances conspired to deny this solution to developing country problems.

The advent of the global Convention on Biological Diversity to which these countries became signatories, imposed national obligations to develop sound management prescriptions for sustainable use of biodiversity, which could only be developed on firm biosystematic foundations. As a result the developing world's need for biosystematic services dramatically increased following the Rio Conference, and at the very time when world-wide recession caused the major suppliers of these services to impose charges which were beyond the foreign exchange capacity of their developing country clients. This situation pervails and developing countries now face a biosystematic crisis at a time when, morally and economically, they can least afford it. It is a matter of international concern that an enduring solution be found. If the richest world resource of biodiversity is to be secured for the future, global action is needed now to provide the developing world with realistic self-reliance in biosystematics.

Leadership must come from the developing countries themselves, through concerted Do-It-Yourself programmes endowed with sustainability and effective mechanisms for institutional collaboration for optimizing the use of existing resources, and their subsequent enhancement through capacity building and human resource development programmes sponsored by the international community.

A tailor-made mechanism exists in the form of BioNET-INTERNATIONAL–a global network, which without prejudice to its ultimate scope, is concerned particularly with the biosystematics of invertebrates and microorganisms which play a crucial role in the maintenance of ecosystems and the functioning of the world's geochemical cycles. BioNET is comprised of a series of inter-linked sub-regional networks (LOOPs) in developing countries, supported by a consortium of the major world centres of excellence known as BIOCON and is coordinated by a central Technical Secretariat at CAB INTERNATIONAL. The Caribbean LOOP CARINET is operational, as is the consortium LOOP for Europe (EuroLOOP), whilst networks for East Africa, South-East Asia and South Pacific are in the process of establishment. A world-wide network is expected to be in place in the late 1900s, and the world-strategy for BioNET will be a major topic at the LOOP/Donor interface planned for the Global Workshop to be held in Cardiff in August 1995.

The purpose of the sub-regional LOOPs is to mobilize and pool the resources of information, expertise and experience, techniques and technologies and materials of relevant institutions and make them available to all member countries. It is envisaged that resources of individual institutes will be made available to others on a reciprocal basis involving no financial transactions, and additionally members of a LOOP will collaborate in programmes designed to enhance corporate resources and/or address particular biosystematic problems. Above all else perhaps, BioNET is a formal but democratic mechanism for collaboration between biosystematists and between biosystematic institutions–something that outside the 'old boy' system has been singularly lacking hitherto in the biosystematic community. Furthermore like all technical cooperation networks which enjoy a formal commitment by governments, the sub-regional LOOPs are sustainable and have the inherent longevity favoured by donors.

EuroLOOP, which embraces institutions in 22 countries of Europe and already shows prospects of expansion, may be of particular interest to a major section of this Bulletin's readership. It is a consortium of centres of excellence which stands ready to provide technical support for developing country LOOPs through donor funded programmes. Its original charter of June 1994 sums up its objectives viz:

1. Mobilizing and pooling expertise and resources, and through collaborative activities, developing a comprehensive source of biosystematic information, expertise, and technology in support of the developing-country LOOPs of BioNET-INTERNATIONAL, and through donor-funded programmes, making this available to developing countries, AND
2. Providing the Directorates-General of the European Union, the national and federal governments of Europe and the national governments of countries in receipt of European aid, with the best possible advice on biosystematics and the best possible biosystematic services within the disciplines of EuroLOOP's remit, AND
3. Sustaining an effective lobby within the Directorates-General of the European Union and within national and federal governments, to ensure requisite investment by them in the biosystematic institutions of Europe to support national, and bilateral and multilateral aid programmes for the conservation and wise-use of the environment and biodiversity.

A strong and concerted effort, such as that of EuroLOOP, to raise the profile of biosystematics at the highest administrative and political level is long overdue. Parochial, solitary and piecemeal approaches over decades past, have failed to attract the investment and financial support of governments, international organisations and donors and to coin a fashionable phrase there needs to be a 'quantum leap' in biosystematic budgets if this vital science is to deliver what the adherents to Agenda 21 and the signatories to the Convention expect from it.

Politicians and purse-string-holders need to realise that the present biosystematic impediment to biological research is the biggest single scientific constraint to human aspirations for sustainable and the wise use of biodiversity.

BioNET has provided the mechanism for a world-wide collaborative programme to remove this critical constraint, and biosystematists have the research and technical skills and the vision to make this programme successful. But there are not enough of them to do the job and through financial constraints they are denied access to sophisticated ultra-modern technologies, such as those developed for military purposes and which are now redundant, which could revolutionise the biosystematic approach. Technologies now exist for adaptation, which could render the present labour-intensive approach of both morphological and molecular biosystematics unnecessary. They are replaceable to a considerable degree by rapid automated procedures of unprecedented accuracy and refinement. Major investment now might make the objective of a global inventory of diversity not only realistic, but also achievable in decades rather than centuries.

Biosystematics needs to be made more widely available and more easily usable by those who need it. It should not, and cannot remain the exclusive domain of the taxonomic specialists, vital as they will ever be.

But however vital, biosystematists, who have never been abundant in developing countries, are becoming the rarest scientific species there. What has emerged from BioNET Workshops world-wide is undeniable evidence of universal reluctance of developing country graduates to enter this profession. It is seen as offering them little prospect of recognition within scientific circles, inferior social standing relative to that of applied biologists, poor career prospects and hence unattractive financial rewards. There is a call for some means of bestowing the profession with the recognition it deserves. Like the craftsman of old who established guilds to acquire dignity and exclusively in their trades, developing country biosystematists are attracted to the proposal for a select professional body, bestowing its unique recognition on bona-fide taxonomists and biosystematic technicians. An international guild, under whatever name, with regional and disciplinary chapters would be a practical approach.

It may be apposite to recall in this context, the dispute between the London Guilds of Merchant Taylors and the Guild of Skinners, both of whom claimed to be sixth in the order of seniority within the Guild community of London. The issue was resolved by the Guilds being accorded sixth and seventh position in alternate years, hence the adage 'being at sixes and sevens'. Biosystematics has been 'at sixes and sevens' for too long, but there are

prospects through the window of opportunity of the biodiversity movement and perhaps BioNET, for it to claim its rightful ranking at the very top of the scale of biological sciences. But biosystematists need to band together to achieve this. They need to forsake isolationism, cast aside modesty and become an effective political pressure group, not only to make their science 'fashionable' but also to convince the powers that be, beginning with the United Nations, of the biosystematic imperative in the world's aspirations for biodiversity.

Further Reading

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https://doi.org/10.1017/S000748530003265X Published online by Cambridge University Press