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## Biology Curators Group Newsletter

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# Field work in the service of Biological Collections

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Recently Evans (1979) discussed the question, 'Are your collections really necessary?' He characterised various levels of organisation in the natural world and considered how representative biological collections were in respect of these, concluding that they were adequate for only a few. Evans urged that we seek remedies in order to portray these levels and thereby to develop the use of biological collections. For example, he suggested collecting from areas where destruction of the habitat is inevitable to provide records for posterity, and to collect and collate information on other sites in preparation for possible conservation measures. These suggestions are admirable, but in the sense of providing a remedy to ensure the development of biological collections, they do not, I think, go far enough.

The essential scientific contribution collections make to biology is that they provide reference material- reference in the widest sense. This is important because the identities of specimens used in a particular piece of research can be verified, if necessary, when the species is considered again. Of course the need for reference goes further than this. It is important to possess the means to verify all manner of relationships, for example organisms associated with particular plants, predators and their prey, etc. If samples are taken quantitatively and stored, then numerical relationships can be confirmed and so on. Thus one way to develop biological collections is to increase their potential for reference. How can this be achieved? Clearly, the more information there is with a specimen the greater the potential for reference. Therefore, whenever possible, the curator should act to maximise the amount of data collected with a specimen.

The deficiency of the usual distribution and survey schemes is the limited information collected with the specimens. Greater amounts of data could be recorded such as, method of capture, time of day when caught, grid reference, activity when caught, reason for capture, observed associations with biotic or abiotic parts of the environment, weather conditions etc. To substantially increase data levels small scale, detailed projects are necessary. These should be designed with a specific objective in mind and made to yield results that can be quantified. An excellent text describing sampling techniques and methods of analysis is Southwood's 'Ecological Methods'. We should research our sampling techniques and apply them in conjunction with others, make the important measurements, store the specimens, analyse the data and then publish. For our purposes, such an approach is suitable for measuring along gradients of various kinds, for example, altitude or one vegetation type merging into another. Also comparing floral and faunal changes in space and time, for example in streams, grass tussocks, compost heaps, aphid colonies, flowerheads and so on. Such work extends the tradition of distribution studies begun by our predecessors.

With modern emphasis on relationships it is an appropriate time to assess the possibilities of assembling bionomic collections. These seek to illustrate naturally occurring relationships such as predators with their prey, phytophagous insects and their plants etc. Bionomic

collections can also be built around species displaying some common behaviour such as those that court and mate close to certain plants or aggregate at particular places for shelter etc.

With the use of tested, quantitatively based recording techniques, a high level biological monitoring of selected parts of the environment could be achieved. This will be good for our collections, for suggesting new research projects, assisting planners and conservation bodies and so on. It is important to publish the results because it makes known the work done in museums, may assist in attracting grant aid and is, of course, a good discipline for curators. However the chief reason for writing papers must be that it disperses knowledge about our collections and what is contained in them.

In my opinion, to ensure the development of biological collections, it is far better to attempt a detailed study of, for example, the knapweed gall fly in relation to its host plant in a small area, than it is to produce a map of the distribution of the adult fly in a particular county. This is because of the greater amount of information obtained from the smaller scale, detailed study which automatically increases the potential for reference in the future; thereby adding value to the collection in which the specimens are stored. In any case a map can be produced at a later date if required.

The work suggested here is not new. It may sometimes overlap with work done elsewhere but that need not matter. What is important is that we make an effective contribution to the biological and environmental sciences based on the use, growth and increasing relevance of biological collections. I suggest that this is dependent, in part, on developing a sophisticated approach to fieldwork. Co-operative projects between curators could be started on regional or a national basis. This has many advantages, such as centralising resources, a narrow range of objectives can be tackled with increased chances of success making maximum use of available expertise, apart from encouraging communication between widely dispersed curators. Perhaps, ultimately, we could look forward to the founding of a journal devoted to publishing the results of biological work carried out by museum workers or work based on biological collections.

#### REFERENCES

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