Herbaria in the real world

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Now, more than ever before, a botanical institution, particularly a herbarium, cannot regard itself as standing remote and apart from the activities of the world. It should be *in* them, *of* them and *for* them. Essentially, like all scientific endeavours, herbaria must deal with the real problems of the world and by so doing be relevant to these problems.

Over the past 10 years many herbaria in the world entered a decade of growth and significance that followed the first World Summit on Sustainable Development in Rio de Janeiro (Smith & al., 1996). This change can be attributed to the fact that it was quickly realised by decision-makers that *functional* herbaria (and natural history museums for that matter) represent vast warehouses of unsurpassed quality-content of the biodiversity of a given region. At the same time, herbaria began to realise that they could not function as elitist institutions, only for the benefit of the few operating from and having access to them.

Herbaria are, in essence, established for the public good and have an important role to play in global and regional biodiversity affairs. As a result, complying with any legitimate request for basic information, value-added data, expert knowledge, and leadership in these matters has become the duty of herbaria. More recently, a growing demand for trained human power, and consequently for skills transfer from the knowledgeable and experienced to the learning-hungry next generation of biodiversity specialists, has meant that taxonomists and systematists have an additional responsibility in the area of human capital development. There is essentially no longer a place for scientific aloofness as scholarship has to be tied to governmental and institutional needs.

Changes in the global society over the past few years—the advent of democracy in previous autocracies, the increasing significance of mass electronic communication, the ease with which long distances can be travelled, the opening up of opportunities to engage with new like-minded global partners, and the conflicting views on basic scientific hypotheses and methodologies, even on matters as elementary as predictive plant classification systems—have meant that the world is becoming more and more complex, indeed on an unprecedented scale. Our challenge as specialists in biodiversity science is to channel our collective energies, resources and know-how to support decision-makers with appropriate information to grapple wisely with emerging and expanding issues requiring a sound and rational basis for contemplation. The reasons for this approach are obvious. Firstly, we should have at heart the interests of the end-users of the research we conduct, for they are the ones who will support us when financial hard times befall our institutions. Essentially, we will be defined largely by the company we keep. It is therefore necessary that we take an active interest in what the users of the information we generate request, not demand, from us. Secondly, we should guard against devoting too much research effort to aspects that could be perceived as little more than the esoteric and intellectual ramblings of outdated subdisciplines of science, particularly botanical science. The question we should pose to ourselves is whether we are addressing the needs of as broad a cross-section of society as possible, or whether we are relevant only to a small circle of fellow scientists. Thirdly, our methodology of addressing scientific questions only on a regional scale must be rethought. Plants do not observe political boundaries. This approach developed in the colonial era, but now, with greater access to preserved collections and live material, we should take up our rightful places as global role players as far as taxonomic studies are concerned. There really is no reason for us to persist working on a limited scale. If nothing else, rapid electronic communication and the advent of the internet in 1993 have changed this irreversibly: we are now able to broaden our studies to the global scale.

We have all seen this in our own fields of expertise. Take the Asphodelaceae for example. There are several studies available on the family for the so-called floristic regions of Africa. Yet a serious reassessment and combination of all the treatments, expanded to include the Arabian Peninsula and Madagascar, has yet to be achieved. Only once this has been done will a predictive classification, as one outcome, be at our disposal. Sadly, it is still lacking. As the era of floristic colonialism flourished in the the 20th century—and in some instances it is surviving to this day—expertise has become fragmented and treatments have become conflicting. With the advent of globalisation, there should be no reason for this

approach to continue to flourish. We are now uniquely positioned to cast off our regionalism and apply our research efforts for the global good. This is the perfect time to expand our taxonomies and molecular systematics to address global classification problems, while maintaining a focus on the regions from which we operate. But perhaps more than ever before, we need taxonomists. Twenty years ago there must have been at least 10 taxonomists to every molecular systematist. At present that ratio has been reversed. There are simply too few practising taxonomists around to assist molecular systematists to interpret their phylogenies and sensibly harmonise them with existing classification hypotheses.

Since the world within which we operate is constantly changing and reinventing itself, new challenges are raised, almost daily, requiring rapid responses and mechanisms that support informed decision making. A herbarium must therefore be able to respond to these challenges continually to remain relevant. Increasingly, therefore, drastic changes are required in the way in which we as taxonomists go about our everyday business. This applies to both the services we provide and the research in which we engage. It undoubtedly remains important to maintain herbaria through the services they deliver, which often justify their very existence. But, we simply cannot pretend that the world must pass us by. Although it remains tempting to focus only on unravelling basic classificatory discrepancies, such an approach will not cut it with funding agencies. Our challenge will be to establish and maintain a healthy balance between basic taxonomic research, service delivery and accepting the challenge to study our material on a global scale. These activities are fundamentally vital if we are to remain relevant. We should not be tempted to reject the one in favour of the other.

To summarise, herbaria need to:

- Create support for relevant core activities;
- Balance new initiatives with existing projects;
- Build strong, vibrant partnerships for exciting, new initiatives;
- Regenerate and rejuvenate existing projects, emphasising information dissemination;
- Mainstream, lead and co-ordinate biodiversity science as an essential scientific endeavour;
- Focus on product delivery;
- Embrace new technologies for product development and dissemination;
- Develop a sound and achievable financial and strategic action plan for all;
- Ensure good corporate governance, based on accountability;
- Communicate the value of its/their work;
- Align its/their goals with end-user needs.

The rehabilitation of infrastructure and the acquisition of appropriately skilled, tenured staff to assist herbaria in achieving these goals will be possible only if we can optimise the delivery of products and services relevant to stakeholder needs.

The challenge for herbaria is to be viewed as *productive, inclusive, well-governed* and *sustainable*. Only we can do this.

LITERATURE CITED

Smith, G. F., Van Wyk, A. E., Johnson, L. A. S. & Van Wyk, B.-E. 1996. Southern African plant systematics: needs, priorities and actions. *S. African J. Sci.* 92: 314–320.