

LIVING COLLECTION CURATION – A HOLISTIC APPROACH, WITH THE RBGE PALM HOUSE AS A CASE STUDY

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The necessity to redesign and relandscape the interior of the Temperate Palmhouse at the Royal Botanic Garden Edinburgh (RBGE) created the opportunity to undertake a full curatorial survey of the palms and other plants contained in the Palmhouse. This paper gives the background to, and describes the process of, undertaking the survey. It stresses the need for maximum consultation with all interested parties to decide the fate of existing plants and make recommendations for new plantings. The result was a booklet describing the history and development of the Palmhouse, listings of all existing plants with notes on ethnobotanical use, value in teaching or research and final destination and suggestions for new species to meet the new design along with educational and interpretation opportunities. The resultant survey could act as a model for other projects.

INTRODUCTION

The management of living collections is becoming increasingly challenging for curators as the multiplicity of their role increases. The Royal Botanic Garden Edinburgh (RBGE) is not immune from this situation and curators continually seek solutions to the problem. One approach to this situation arose recently through the need to examine a group of collections closely as part of a programme to upgrade the interior landscape of several public glasshouses. In this case, due to the diversity and complexity of the living material in question, a holistic approach to curation was adopted. Having now experienced the benefits of this approach, it is suggested that this model could provide a way forward for other curatorial challenges, especially when they are integrated with landscape renovation.

CURATION OF LIVING COLLECTIONS

What exactly is curation? Chambers English Dictionary defines a curator as one who is in charge of anything: a superintendent, esp. of a museum. It also offers another definition: a guardian. Curators are in charge of the daily management of collections and, possibly more importantly, the staff who maintain them. In the long term the role of guardian is equally, if not more, important. However, it is not possible to have one without the other. Good guardianship of collections is dependent on good staff. This seems especially true in today's world where collections can easily suffer from financial constraints or shifting organisational priorities.

Curators must be realistic and embrace change, becoming adaptable and imaginative in the way they manage their responsibilities. New ways must constantly be sought to

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maintain the balance between the cultural requirements of plants, motivation and development of staff and the implementation of new legislation in relation to work practices. This managerial–curatorial balance can be difficult to achieve effectively, especially if resources are limited. The result can be that the development of collections often falls into second place behind other, seemingly more immediate, priorities. This should be avoided if at all possible and the development of collections should remain the core curatorial activity, and one in which new standards are set wherever possible.

Curators are frequently the greatest advocates a collection has, and it is essential that they are aware of their content and history, along with the difficulties of replacing them in the future. Equally important, but arguably more difficult, is the issue of changing the perception about a collection's use and value that is sometimes held by others not so closely involved with plants or their research function. Here, curators are sometimes required to defend collections for the future, by highlighting previous and current values, global importance, or potential for further research and educational use.

Long established living collections which have ceased to be actively researched could be regarded as being moribund and expensive to maintain by some. This can place them under threat of de-accessioning, yet experience has repeatedly shown that seemingly 'finished' collections often take on a 'new lease of life' as new staff see new opportunities for scientific, educational or conservation work. At first glance the collections within RBGE's Temperate Palmhouse could have been regarded as 'tired' and valueless for research. Likewise, it could be argued that they had a low amenity and conservation value and that at best only a small percentage of them were of importance for educational use.

In autumn 2002 the decision was made to revitalise the interior of the building as part of a wider programme funded by the Scottish Executive to improve access. Rather than being dismayed at the possible loss of plant material, the project was seen as an opportunity to examine the plants within the Palmhouse with a view to gaining a better picture of their value. The main objective was to analyse why each plant was grown, who used them, what their scientific and conservation status was, along with their educational and amenity value. Obviously, this could be done alone and a holistic approach was thought to be a much more effective approach as it would seek comments from staff in science, education and other user groups. Having collated a broad range of views, considered opinions about the longer term role of specific taxa within the collection could then be made with confidence, everyone having contributed to the process.

As well as assessing existing holdings, re-landscaping projects also provide a good opportunity to look to the future, to enhance the living collection in the long term and to refocus displays through the introduction of appropriate new taxa which would help RBGE to fulfil its mission statement '*to explore and explain the world of plants*' more effectively under glass. To do this several factors need to be considered. These are the family, genus and species representation within the overall collection, and the acquisition of material which would better highlight particular aspects of RBGE's work, inclusion of material which would focus on specific global conservation issues or the value of plants to mankind. The 'stamp collection' mentality must be avoided and it is important to remember that plants are expensive to acquire and maintain, especially for non-hardy collections. It is therefore much better for individual taxa to

be grown for several reasons if possible, including, for instance, research, conservation, education and amenity purposes, rather than simply for one reason.

In the case of palms this is very important. Due to their great size when mature it is clearly not possible to grow numerous accessions of a species. This means that no meaningful species conservation is possible nor is it possible to establish functional research collections and so other objectives and targets need to be considered. One option, which would help their status in the wild, would be for the new display to fulfil the role recommended by the report *Palms, Their Conservation and Sustained Utilization. Status Survey and Conservation Action Plan* (Johnson, 1996). This is “to raise awareness, develop educational material, explain the economic, cultural and historic value of threatened plants”. This philosophy is at the heart of the proposals for the Temperate Palmhouse where the design now aims to engage the public at the first point of contact, providing them with a strong message through quality architecture and interesting, well-grown and well-interpreted plants .

This was the approach taken with the Arid House collections during the 1998-2000 renovation and, as a result, the species representation within the living collection was enhanced considerably using taxa which fulfilled many different functions. The final landscape design also presented the public with accessible information about the world’s deserts and their importance to our daily lives.

FURTHER BENEFITS OF A HOLISTIC APPROACH

When curators are confronted with the need to renovate a particular garden area or plant group, one of the greatest difficulties is often in persuading others of the need for the project. In addition, there has been a change of culture in recent years, with a result that everyone feels that they have a view, and a right to express it, especially when it comes to de-accessioning or the acquisition of living material. There is nothing wrong with this, but it becomes the curator’s task to focus and combine these opinions into the decision which is best for the overall development of the collection in the long term.

It is no longer possible or appropriate for curators to be dogmatic and overbearing in the decision-making process. Rather, they must be inclusive, allowing living collections to develop as much more than mere accumulations of plants. They must work to create planted landscapes which function as a tool as well as a visual delight, serving many different purposes for numerous user groups. In the case of RBGE, these include research scientists, conservation specialists, PhD & MSc students, horticultural students, school groups and life-long learning activities. General visitors are also important users, as are specialist groups such as botanical artists and amateur gardeners specialising in, for instance, orchids, cacti or carnivorous plants. In recent years, fundraisers and event managers have emerged as a new user group. It is becoming increasingly important to take their views into account and to accommodate their needs within design proposals. A holistic, inclusive approach is essential to provide a satisfactory result which makes collections accessible and more user friendly to all.

Although time-consuming and, on occasions, complex to execute, wide consultation on the curation of living plants can be very rewarding, providing the key to the success of large projects. Experience has shown that consultation with staff in science, education, horticulture, conservation and public programmes allows maximum project

'buy-in' and a wider understanding of the project's relationship to other institutional activities. This can be particularly helpful when difficult decisions that might affect others have to be taken regarding project finances.

Other benefits include a flow of innovative ideas from staff who might not normally be consulted, the ability to proceed with the de-accessioning of specimens when key staff are not available, clear documentation of decisions taken, smooth and rapid implementation of work on the ground and, most importantly, the creation of a culture of trust and co-operation.

TEMPERATE PALMHOUSE CURATORIAL SURVEY IMPLEMENTATION

The curatorial survey conducted for the renovation of RBGE's Temperate Palmhouse is an example of the approach described above. Conducted during January 2003, the survey was a major managerial tool in preparing the way to establish the project as a priority for RBGE and for convincing staff that material could be carefully removed, propagated or transplanted. To start with, an inventory of plants was extracted from *BG-BASE* (the plant records database) and data was laid out as a table within a Word document. From this, each accession was carefully researched and a suggested recommendation was made by the Curator for its treatment.

Next, the document was passed to the supervisor for further comment. It was then circulated among horticultural staff associated with the project, for further comments and suggestions. All suggestions were incorporated into the document before the survey was circulated widely among other staff and user groups. It was even faxed to a staff member with an interest in monocotyledonous plants, who was in Calcutta at the time!

After circulation all the comments were included in the final version of the document before it was sent to the Regius Keeper and the Senior Management Group for approval. At this point it was also made available to any interested party and placed in the Garden's library both as hard copy and as a CD ROM. It is worth noting that *BG-BASE* and accurate plant records were integral to this process – without that foundation point, the process would have been much more difficult.

The survey was presented in several sections including a taxa count, accession tables, Horticulture and Science Division recommendations as well as educational recommendations from RBGE's Public Programmes Division. The introduction and a detailed key to the tables plus an extensive bibliography were included to provide clarification for the reader, along with the concept for the proposed landscape including its design principles, objectives and feature elements. Finally, a plan showing the agreed key plants for retention plus a selection of historical information on the house and its historical plant content were included, complete with photographs showing the building in its existing state.

Taxa counts (Tables 1 & 2) from the survey are included here as they show the diversity of material in question. In addition, Plates 7, 8 and 9 (in the centre of this volume) show a sample page from the accession tables and provide a greater insight into the information contained in the survey. As part of the process the curatorial survey also set out various recommendations, actions and conclusions from both the Horticultural and Science Divisions (Boxes 1 & 2). These served to guide the implementation team throughout the project.

LIVING COLLECTION CURATION

TABLE 1. Temperate Palmhouse plant count. Summary of count for 302 plant records, 13 November 2002

Major Taxon	Families	Genera	Species	Taxa	Records
Fern	8	9	14	14	22
Conifer	6	12	13	14	14
Cycad	1	3	3	3	3
Dicot	43	68	100	106	121
Monocot	22	54	89	102	141
Total	80	146	219	239	302
41 IUCN category plants					
E = 1	R = 15	V = 12	I = 9	K = 4	

TABLE 2. Tropical Palm House plant count. Summary of count for 194 plant records, 13 November 2002

Major Taxon	Families	Genera	Species	Taxa	Records
Lycosphen	1	1	2	2	3
Fern	2	2	2	2	2
Cycad	2	3	4	4	4
Dicot	36	54	64	64	68
Monocot	19	52	89	92	117
Total	60	112	161	164	194
11 IUCN category plants					
EX/E = 2	E = 3	R = 1	V = 4	I = 1	

Box 1. Horticulture Division – Recommended actions and conclusions.

1. The Temperate and Tropical Palmhouse living collections presently contain a large proportion of unusual plant families and genera. For the Tropical House in particular, where families and genera are represented here only and nowhere else in the collections, it is recommended that they continue to be maintained in the Tropical House to avoid depletion of the collection's diversity.
2. As a next step, Indoor Department staff should review the document and its recommendations against the actual plants and make any alterations as required, particularly regarding the practicality of containerisation.

3. As part of the above review, material recommended for removal and reduction to one location should be checked in all locations for condition. This is particularly important where the only other location is situated outside or at one of RBGE's Regional Gardens.
4. In view of the tight time scale, all propagation recommendations should begin at once.
5. Upon completion of the above and the incorporation of changes, the Curator and Indoor Department staff should carry out a final on-site living collection assessment, thus finalising the document.
6. Once the document is finalised it should be discussed with appointed staff from the Science and Public Programmes Divisions and once it has their approval it should then be presented to the Project Group.
7. All palms recommended for removal should be checked against the living collections at Kew and Glasnevin to ensure they are not unique within the British Isles context and against our herbarium holdings. Voucher specimens to be taken of anything that is to be removed.
8. Presentation of living collection recommendations to the Senior Management Group for approval.
9. Indoor Department staff start implementing the recommendations in early November 2003 (apart from propagation, which should happen immediately).

Box 2. Science Division and Public Programmes Points and Recommendations.

1. No accessions should be lost.
2. Herbarium vouchers should be made from any material that is to be potted, containerised, moved, removed or de-accessioned in case transplantation is not successful.
3. DNA samples should be taken from any material that is to be potted, containerised, moved, removed or de-accessioned in case transplantation is not successful.
4. List to be made of material we need to sample for DNA.
5. Material of all *Podocarpaceae* likely to be removed should be propagated as it is currently part of an active research programme at the RBGE.
6. Other gymnosperms in the house are less important for current research but are used for university teaching.
7. Plants to be considered for inclusion in the interpretation plan – Tea (*Camellia*), timber trees (*Agathis*, *Widdringtonia*), spices (nutmeg, cloves, pepper etc), medicinal plants (*Catharanthus roseus* already in Arid House), foods (*Citrus*), gums, resins or oils (*Jojoba*, *Boswellia*, *Commiphora* – currently in the Arid House).

PROPAGATION PROGRAMME

Key to the success of any project such as this is the propagation programme, which requires planning, patience and perseverance. Work started prior to the curatorial survey with plants which were known to require propagation. Upon completion of the survey, all the recommendations concerning propagation were put into place and for difficult subjects continual batches of cuttings were taken until successful rooting was achieved. In the majority of cases material was rooted in standard temperate mist benches or a temperate closed case. A bark and Perlite compost was used and cuttings were treated with Synergol.

At the time of writing (November 2003) the majority of the material has been successfully rooted and potted, the remainder looks healthy and it is hoped that they will be ready for potting soon. Only a few taxa are causing problems and they are currently being treated with different strengths of Synergol before being placed in a variety of different environments. Through a combination of propagation and transplanting, it is the intention that no taxa will be lost from the collection.

THE IMPORTANCE OF HARVESTING DNA

Apart from ensuring that the collection remained intact throughout the propagation and transplantation phase, another way of retaining material for future study was through harvesting DNA along with a voucher specimen for the herbarium. The survey was circulated widely and staff were asked to mark those species from which they wanted DNA to be collected. As a precaution DNA was also harvested from all the taxa which were due to be moved or transplanted. Whilst this may not be possible in all botanic gardens, it is certainly something which should be considered where large-scale landscape projects impact upon living collections.

IMPLEMENTATION OF THE SURVEY

The decision was made to empty the building by plant group, or in some cases by genera, rather than by a bed at a time. Although this meant working throughout the building, clearing several areas at once which may at first have seemed strange, it made matters much easier in the potting shed and the holding houses. This was particularly the case regarding treatment, choice of pot, potting medium and transportation to their eventual destination. As they were the most delicate, the ferns and selaginellas were lifted first, followed by the bulbs and herbaceous groundcover. The smaller woody material was moved next, followed by the medium-sized shrubs and, finally, the larger woody shrubs, taller trees and palms.

It was during this period that the Curatorial Survey document proved invaluable on the ground, especially when key personnel were unavailable to comment on the fate of particular plants. In such situations horticultural staff were able to refer to the joint decisions made previously, and were able to keep or remove large specimens quickly and with confidence. This was particularly important for the smooth operation of the project.

CONCLUSIONS

Overall, the curatorial survey was an effective document for gathering and then disseminating information. It also served the purpose of instilling confidence in staff and others about the horticultural activity taking place in a high profile, sensitive area of the Garden. In addition, it helped in briefing Stuart Brown, of Simpson and Brown Architects, who brought his own particular expertise and reputation, especially in work with historic buildings, to the project.

During the actual implementation of the recommendations on the ground, the survey facilitated rapid decision-making which avoided delays and improper decisions about the removal of taxa from the landscape. It also allowed a wide range of staff to comment on proposals at an early stage, thereby ensuring that they had had an opportunity to make a contribution. In addition, it generated an air of confidence in staff directly associated with plant removal and propagation.

Finally, and of particular importance, it provided a historical record of the Temperate Palmhouse prior to major change, something that will no doubt be of interest to researchers in generations to come. It also re-affirmed our core values and set new standards in the documentation of curatorial decisions and the management of landscape projects.

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- Note:** Copies of the full curatorial survey are available on CD Rom by contacting David Mitchell, Royal Botanic Garden Edinburgh , 20a Inverleith Row, Edinburgh EH3 5LR

