

INTRODUCTION

I have taken the opportunity of being the editor of *Sibbaldia* to award myself the privilege of writing the Guest Essay to highlight an issue that is becoming increasingly serious. Many readers will be familiar with the fact that most university botany courses have closed down or been amalgamated into general biology courses and that this has had a detrimental impact on the number of botanists. What is less well known is that the same phenomenon is happening in horticulture, meaning that it is increasingly difficult to attract suitably qualified and experienced botanic garden horticulturists. However, there is a subtle difference in this situation, which is that while the number of research staff in botanic gardens has remained fairly stable over the last 20 or so years (despite the reduction in university courses), the number of horticultural staff in many botanic gardens has reduced significantly over the same period. Not only this, but the value placed on the significance of the work they do appears to be lower than it once was, meaning that fewer recruits are coming into horticulture. While areas such as administration, events, marketing and education have all seen increases in staff, horticulture seems to have shrunk despite the fact that the garden part of botanic gardens is not only important but is the single common factor in all botanic gardens. In my Guest Essay I try to find the reasons for and solutions to this issue.

I am delighted that William McNamara has put pen to paper to describe Quarryhill Botanical Garden, a delightful and unique Californian garden specialising in Asian species. The garden is now celebrating its 25th anniversary and the paper focuses on three significant developments: an education programme for local elementary schools, an *ex situ* conservation project for the endangered *Acer pentaphyllum* and the creation of a heritage rose garden demonstrating the influence of Chinese species roses on modern roses. The author is Executive Director of the garden and is uniquely able to describe its mission, foundation and development into a garden now open to the public. The paper includes images showing the extraordinary way in which these Asian plants thrive in the Californian climate, and William describes the acquisition of plant material, particularly from China and Japan, and the collaborations forged during the process.

The student project for this edition has been written by Rebecca Hilgenhof who undertook a thorough review of *Passiflora*, subgenus *Astropheia* for the dissertation component of the Kew Diploma in Horticulture in 2012. This little-known subgenus of *Passiflora* deserves to be better known and in this paper Rebecca describes the historic taxonomic treatment, habitat, conservation status and ecology of the subgenus followed by a detailed description of the species and its cultivation requirements.

In recent years, botanic gardens have progressed from talking about the need for reintroduction of threatened species back into the wild to actually doing it, and Target 8 of the Global Strategy for Plant Conservation (GSPC) has been a catalyst for this work. While the GSPC doesn't mention the procedures and processes involved, other bodies, such as the International Union for Conservation of Nature (IUCN), have grappled with the intricacies of, for instance, the genetic issues of selection and the implications

for reintroduction. However, what many have not considered are the practical issues of factors such as hybridisation within cultivation. Natacha Frachon, who has been involved with this work for at least the last ten years, has developed her own protocols to be followed before returning a plant to the wild, such as removing all flowers and fruit prior to transportation to the site to avoid the possibility of hybrid seeds being released into the wild. It is precisely in order to publicise these types of practical horticultural procedures that *Sibbaldia* was established. These protocols will be of interest to the University of Dundee Botanic Garden, where there has been a strong focus on the display of Scottish native plant habitats since it was created and designed in 1974. The displays now need revitalising and modernising. Here, Curator Alasdair Hood and Horticultural Technician Clare Reaney give an account of how they have achieved this with a limited budget and how they have been able to incorporate new initiatives, such as Target 8 of the GSPC, into the new designs. Their paper also includes propagation and cultivation summaries of ten native plant species.

Botanic garden collections exist to be used but they can only be used if they meet certain standards. Evaluating collections to make sure they meet these standards is part of curation but it is an unfortunate truth that many curators simply don't have the time or inclination to do this work. Dave Aplin draws examples from personal experience to describe how he has undertaken such reviews and, in so doing, describes some of the issues and problems he has unearthed. A good example of a collection being well used and well evaluated to make sure it meets the needs of its users is the Zingiberaceae collection at the Royal Botanic Garden Edinburgh (RBGE), which is of long-established research interest. Helen Yeats discusses the background, history of research, propagation and cultivation of one genus within the family, *Etilingera*. Another genus that has been well used and evaluated is *Meconopsis*. The cultivation of *Meconopsis* and the work of the Meconopsis Group have already featured in many volumes of *Sibbaldia* (Stevens, 2006; Grey-Wilson & Mitchell, 2007; Elliott & Kenicer, 2009; Grey-Wilson & Mitchell, 2010). In this volume Ian McNaughton has elected to present an area of study that has not been featured here before, that is a comparison between the evolution of the genus *Meconopsis* through natural selection, which takes a long time, and rapid evolution through polyploidy. He goes on to consider the formation of the tetraploid *M. grandis* from the diploid *M. baileyi*. The cultivation of the cultivar *M.* 'Lingholm' as an example of a probable new hexaploid species is also considered in detail with its evolution through somatic chromosome doubling. The paper takes us on a journey from the taxonomy of *Meconopsis*, through exploration, evolution through natural selection, evolution through polyploidy, an explanation of polyploidy and a helpful glossary for those of us requiring a little help with the terminology.

Busy garden staff work hard to manage the collections as well as undertaking all the other tasks that botanic gardens demand, such as plant records. It is all too easy to maintain flower beds, keeping them looking superficially neat and tidy, while all the time perennial weeds are multiplying unchecked. At some point the only solution is to painstakingly remove all the plants, eradicate the perennial weeds and replace the plants,

maybe two or even three years later. The amount of time and effort required to do this frequently means the task is left, but the problems only get worse. In this paper Robert Unwin describes how this process was undertaken at the Lower Woodland Garden at RBGE and how, at the same time, the area was redesigned from a peat garden to a modern interpretation of a terraced woodland garden, with a stumpery, and the use of sustainably sourced peat blocks. While perennial weeds can get out of hand in botanic gardens, they pale into insignificance compared with non-native invasive species outside the confines of botanic gardens. The destructive influence of non-native invasive species and the expense of controlling them has become increasingly apparent in recent years. While conservation managers were well aware of how much damage these species were causing to habitats the general public was not aware of this at all. This is changing now as the control of these species is increasingly included in legislation and public campaigns. In the past, some pointed the finger at botanic gardens as the source of these plants but apart from that few, if any, botanic gardens were concerning themselves with control measures outside of their grounds. How good it is, then, to see Noeleen Smyth and staff from the National Botanic Gardens, Ireland attracting research grants to work on practical solutions for the control of some of these species. In their paper Noeleen and her colleagues describe the scale of the task in Ireland and go on to present case studies of the work they have done on two species.

Sibbaldia is not intended to be an historical journal, but I was delighted to receive the paper on the 'Northern Lads' by Ron McEwen as it gives a fascinating account of the influence of Scotsmen on the history and development of the Royal Botanic Gardens, Kew, the many Scottish plant collectors employed by Kew and the number of Scotsmen who established colonial botanic gardens under Kew's influence. I found this an intriguing historical account of the possible reasons why so many Scottish gardeners migrated south.

Christopher Walker is a mycologist who has a long association with RBGE. A specialist in arbuscular mycorrhiza, he has observed the fungi growing in the research glasshouse collections at the Garden for many years and has been able to record several species. His account of the number and diversity of species found, a list of host plants and description of their interactions with the plants gives a fascinating insight into these organisms which staff never set out to cultivate, but which are probably helping them in their task.

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A bound Index to Numbers 1–10, matching the design and size of the existing journals for ease of binding, has just been published and is available from Publications Department, Royal Botanic Garden, 20A Inverleith Row, Edinburgh EH3 5LR.

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Editor

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