

## Building sustainable botanic gardens: Beyond architecture

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### Abstract

Too often in heritage settings the items that are used to engage with the site have a high environmental footprint both in miles and materials, not only in production and transportation, but also post-use. Plastics, once discarded, have enormous environmental consequences for marine life. Botanic gardens make public contemporary threats to plant-life through specimen display and education. However, loss of marine life is often 'unobserved'. In building our 'green theatres' we need to be conscious of the wider biomes in which humans exist and our impacts on them. Eighty percent of ocean pollutants originate on land and global use is in excess of 260 million tons of plastic per annum. By examining the smaller artefacts on site botanic gardens can add to the wider socio-environmental benefits of sustainable architecture, and through interpretation acknowledge the reasons why it is important to do so. This paper features a recent project in Glenveagh Castle Gardens, Donegal, Ireland in which local artists produced 40 'Nature Discovery Bags' made from hand-woven Donegal tweed, containing materials made from recycled paper, and garden plants to reduce the use of plastic, and celebrate the local landscape and associated artisan traditions.

### Key Words

Culture, Nature, Education, Conservation, Ireland, Tweed, Plastic, Biomes.

### Introduction

'The last fallen mahogany would lie perceptibly on the landscape, and the last black rhino would be obvious in its loneliness, but a marine species may disappear beneath the waves unobserved and the sea would seem to roll on the same as always'. (Ray in Derraik, 2002)

Botanic gardens publicise contemporary loss of plant-life through specimen display, interpretation and education. However, as Ray has stated loss of marine life is often 'unobserved'. In building our 'green theatres' we need to be conscious of the wider biomes in which humans exist and our detrimental impacts on them. Eighty percent of ocean pollutants originate on land and global plastic is in excess of 260 million tons per annum (Thompson *et al*, 2009). Of the 21 Albatross species alive in the world today, 19 are threatened or endangered. Modern plastic waste has replaced the ancient mariner's arrow (Coleridge, 1798). By examining the purchase, use and disposal of smaller artefacts botanic gardens can extend the wider socio-environmental benefits of sustainable architecture and, through interpretation, share the reasons why it is important to do so.

In his book 'Bringing the Biosphere Home' (2003) Thomashow states that: 'the biosphere will forever be an esoteric concept unless it receives the scientific, spiritual and artistic attention it deserves' (p.192). In developing the 'Nature Discovery Bags' at Glenveagh Castle Gardens we have considered how sense of place can be embodied in the educational tools we use to engage visitors with the gardens, and the physical and cultural landscape it is situated in.

### **The Nature Discovery Bags**

Two local artists were commissioned to make the bags; one, Eddie Docherty to weave the Donegal tweed, the other, Clare O'Presco to design and make the bags. Natural dyes such as lichen, peat and seaweed produce the earthy tones of Donegal tweed. The colour palette is sourced from the landscape: granite grey, the shades of beech pebbles and the different warm tones found in bog-land grasses provide inspiration for these traditional textiles. As a hand-woven Donegal tweed supplier states on their website:

'From one generation to the next, the craft of hand weaving is still passed down in the cottages of Donegal. The looms are entirely hand operated and differ very little from 200 years ago. Thread by thread and inch by inch each weaver watches over his work taking two days to weave each piece. Donegal is a tapestry of the most breathtaking landscapes. Each piece of cloth reflects the colourful and wild landscape that has inspired the weavers for hundreds of years. Take the tweed between your thumb and forefinger. Close your eyes and imagine...the peat's ancient aroma, the roar of the Atlantic, and the click of the weaver's loom' (Murphy, accessed June 3, 2010).

The contents of the 'Nature Discovery Bags' come from the garden or plant-based material; identification kits made from recycled handmade paper, viewfinders made from large leathery leaves, such as *Rhododendron spp.* In this way we have chosen materials that have a low carbon footprint and high biodegradability, contained in a bag that represents a local tradition. Forty 'Nature Discovery Bags' have been made and these are used with both visiting school groups and families.

### **Native vegetation**

One of the rarest vegetation types in Ireland is indigenous oak woodland. The upper half of Glenveagh Castle Gardens is such a woodland, and the under-storey flora found within (varied rushes, ferns and mosses) integrates with the introduced plants. The gardeners at Glenveagh have made the native flora part of this garden rather than pushed it aside. Glenveagh Castle Gardens have unique value as an example of a long-term ecologically sustainable relationship between human culture and natural biodiversity. From the poorest wet peaty soil, in one of the most inhospitable locations in the region, a garden of great beauty has been established, supporting a team of craft gardeners and drawing visitors from many regions. The Nature and Outdoor Learning centre was set up in 2004 and seeks to foster an understanding of both natural and cultural heritage; the 'Nature Discovery Bags' are part of this important conservation mission.

### **Place-based conservation education**

Ireland's biogeography is such that marine habitats are a significant part of her ecological portrait, thus a reduction in plastic pollution is a major concern in any biodiversity protection plan. Likewise, the ancient craft of Donegal tweed is under threat. In commissioning the bags, and reframing their contents, we have made a conscious decision to value both nature and culture in this unique landscape in the Derryveagh Mountains of Donegal, and importantly removed materials detrimental to marine biomes. A key part of the development process was to see the garden, and its wider environs, through the eyes of both gardeners and educators, and bring them together in mutual conversation to develop place-based conservation education. The

story of the bag's construction and its relationship with the landscape is integral to the interpretation of this project. When children handle this bag they touch both the land itself and an important artisan history, as they walk through the gardens and look to the mountains, inspired by the natural palette they are witnessing.

### Conclusion

This is a small action by one Irish garden. If we replicated this approach throughout the diverse community of botanic gardens represented by Botanic Gardens Conservation International we could create garden artefacts that symbolise both the nature, and culture of our individual garden settings. This development could generate planning models that examine changes in infrastructure and procurement informed by the need to protect both land and water-based biomes, while supporting sustainable artisan traditions. Perhaps then we might bring the biosphere home, both for our visitors and our own unique institutional identities.

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### References

- Coleridge, S. T. (1798) *The Rime of the Ancient Mariner*  
<http://www.online-literature.com/coleridge/646/>  
accessed July 31 2010
- Murphy of Ireland <http://www.murphyofireland.com/donegal-tweed-jackets.php>  
accessed June 3 2010
- O'Gaoithin, S., O'Callaghan, C., and Sanders, D. (2009)  
The Green Theatre, *Roots* 6,2, p.21-22
- Ray, G.C. (1988) in Derraik, J.G.B. (2002) The Pollution of the Marine Environment by Plastic Debris: A Review. *The Journal of Marine Pollution* p.45
- Thomashow, M. (2003) *Bringing the Biosphere Home*  
Cambridge, Mass.: MIT Press
- Thompson, R.C., Swan, S.H., Moore, J. and vom Saal, F.S. (2009) Our Plastic Age, *Phil. Trans. R. Soc. B.* 364, p.1973-1976.  
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