‘All Netted Together’: Is there a need for cultural consilience in the face of extinction?
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Summary
Professor Stephen Hopper has suggested that ‘possibly the most significant future challenge facing plant conservation is the achievement of a global shift in value systems towards acceptance of the old cultural wisdom that humans are part of, not separate from, nature’ (Hopper, 1997). I examine this challenge for contemporary humanity experiencing increasingly divergent ‘lifeworlds’ and ask if it is possible to be ‘all netted together’, and achieve cultural consilience in the face of increasing plant extinction. The first part of the discussion explores a hybrid approach to botanical education, where ‘border crossings’ between ‘Pokémon’ and plant based inquiry might facilitate 21st century urban children to engage more intimately with the living world. The second part highlights how botanic gardens can facilitate expressions of lost botanical knowledge carried through human migration from rural to urban contexts. The article ends with a discussion, intended to provoke interdisciplinary discourse between botanical science and botanical education, contextualised within the wider literature that examines the role of botanic gardens.

Key Words
Carnivorous plants, rural, urban, Pokémon, plant conservation, education.

Introduction
The recent review of progress on the implementation of the global strategy of plant conservation (GSPC) notes that ‘educationalists have not always been included in stakeholder consultations on the GSPC and there is a need for greater engagement with this community’ (2009, p.39). This article is written with the intention of provoking interdisciplinary discussion relevant to such communities using material drawn from a doctoral study in the University of Sussex Geography Department (Sanders, 2004) and a Royal Society Millennium Project (Sanders, 1999), contextualised within the wider literature that examines the role of botanic gardens.

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Professor Stephen Hopper has suggested that ‘possibly the most significant future challenge facing plant conservation is the achievement of a global shift in value systems towards acceptance of the old cultural wisdom that humans are part of, not separate from, nature’ (Hopper, 1997). In this paper I examine Hopper’s challenge for a humanity facing increasingly divergent ‘lifeworlds’, and ask if it is possible to be ‘all netted together’ (Darwin Notebook ‘B’) and achieve cultural consilience in the face of increasing species loss.

**Nature-Deficit**
The phrase ‘extinction of experience’ (see Pyle, 1993) punctuated environmental education texts for much of the late 20th century. More recently the term ‘nature-deficit disorder’ (Louv, 2008) has surfaced. The following quote from Pyle (1993) exemplifies this literature: ‘Direct, personal contact with living things affects us in vital ways that vicarious experience can never replace. I believe that one of the greatest causes of the ecological crisis is the state of personal alienation from nature in which many people live. We lack a widespread intimacy with the living world.’ (p.145).

This concern for the apparent extinction of experiences with nature is critical in a time of increasing urbanisation and species loss. However, returning to our own childhoods to model our response to this impending socio-biological crisis may not be appropriate. We live in a world where, for many, social spaces exist in several ‘lifeworlds’, some of which are only present in virtual form on a planet where untainted wilderness has all but ceased to exist. Children are now born into a mapped physical world (Shepherd, 1997), which for some is complemented by a more familiar virtual world.

**Pokémon and Carnivorous Plants**
As a botanical scientist and educator I share Darwin’s passion for *Drosera rotundifolia* and carnivorous plants in general. While teaching a session on carnivorous plants, using both live specimens and sections of Attenborough’s ‘Private Life of Plants’ programme, I was fascinated to witness a group of children respond to the programme by calling out ‘Pokémon Plants’. Parallel to this experience anecdotal evidence emerged from a carnivorous plant nurseryman from Hampshire Carnivorous Plants that ‘Pokémon’ was becoming a primary motivation for children to buy and care for their own specimens. So began a journey that added the ‘Official Guide to Pokémon’ (Barbo, 1999) to my doctoral reading list. Pokémon are available as collectable cards, computer games, toys and bags. The language of Pokémon
often replicates that of botany, zoology and ecology to the extent that on-line ‘field guides’ are available in which the taxonomic protocols of common name, scientific name, description, range, and habitat are adopted. This is a contentious issue, some see it as a positive characteristic, others view this linguistic mimicry as confusing or detrimental to children’s biological learning. Much of this discussion is currently evidenced in the blogosphere. An extensive formal research programme could explore the educational potential of this socio-biological interaction and the learning impacts it might afford. It is interesting to note, in relation to Pokémon, that cards demonstrating poisonous plants were used as an effective learning tool for 2\(^{nd}\) world war RAF pilots who might need to survive in unfamiliar habitats (Lucas, pers. Comm. 2009). In my own area of scientific interest, three Pokémon; Bellsprout (69), Wheepinbell (70) And Vitreebel (71) are directly influenced by carnivorous plant characteristics:

‘Bellsprout are plant Pokémon that trap and eat bugs like a Venus fly Trap. Their roots dig under the dirt to soak up needed moisture. If you are thinking about collecting a wild Bellsprout, use your most powerful technique before it has a chance to use Growth technique on you’ (Barbo, 1999, p.68)

Ecomon

After completing my studies I came across a letter to the journal ‘Science’ from four University of Cambridge zoologists (Balmford, 2002 et al), it was entitled: ‘Why Conservationists should heed Pokémon’. They had conducted a survey of 109 UK primary school children and found that ‘for wildlife, mean identification success rose from 32% at age 4 to 53% at age 8 and then fell slightly; for Pokémon, it rose from 7% at age 4 to 78% by age 8, with children aged 8 and over typically identifying Pokémon ‘species’ substantially better than organisms such as oak trees or badgers’ (Balmford, et al 2002 p.236). The authors ended their letter by asking ‘is Ecomon the way ahead?’

I believe ‘Ecomon’ is not necessarily the way ahead and suggest Pokémon could be utilised as a border crossing into inquiry-based explorations with living specimens, alongside clips of relevant film documentaries. In this discussion it is useful to reveal what inspired Tajiri Satoshi, designer of Pokémon. Three key motivations emerge from recent interviews with him:

- A passion for insects created through childhood collecting and observing.
The loss of their habitat through increasing urbanisation of his home area.
A wish to pass this lost experience on.

These motivations are not dissimilar to those expressed by renowned biologists such as Charles Darwin and E.O. Wilson both of whom were passionate young entomologists fascinated, even as adult scientists, by the complexities of life in their immediate surroundings.

Complex Worlds
Louise Chawla, an American researcher, has considered at length the question of children’s relationships to nature and poses some interesting questions for botanists, and botanical educators considering border crossings between a symbolic virtual nature, and living organisms. Her work, ‘Spots of Time: Manifold Ways of Being in Nature in Childhood’ (Chawla in Kahn and Kellert, 2002) asserts a case for including the complex worlds of childhood imagination, cultural artefacts and cyberspace in our work with children, a reflection not dissimilar to the poetry of Wordsworth where he implies both physical and imaginary states in childhood: ‘Fair seed time had my soul and I grew up fostered alike by beauty and by fear’ (Sharrock, 1958). I am not advocating nature-based experiences solely mediated via the virtual world or through collectable artefacts, but rather recognising, as Chawla does, that childhood ephemera such as computer games, card collections, films and books can facilitate border crossings between the layered habitats of culture and nature that children increasingly inhabit. Indeed, this mirrors the findings of Malone and Tranter in their examination of children’s conceptual weaving of imaginary and place-based interactions in their school grounds (Malone and Tranter, 2003).

The Nature of Experience
A tension persists in environmental education between the emphases involved in experiencing nature and the nature of the experience itself (see for example discussions in Rickinson et al 2004), more research is needed to unravel these complexities in the context of learning in botanical gardens and the affordances of real, model and virtual specimens. In 2005, Eberbach and Crowley explored the impacts of these diverse entry points into the process of pollination at Pittsburgh Botanical Garden (Eberbach and Crowley, 2005). They concluded that each representation drew out knowledge connections from different learning
contexts e.g. school, family, television: an important finding in relation to Pokémon and other cultural doorways into plant life.

**Migration**

Over the twentieth century there were extensive patterns of human migration across the world. The Moroccan Cultural Botany Project at Chelsea Physic Garden sought to document the plant based knowledge of one of these diasporas through the use of the botanic garden, as a catalyst for informal discussion groups, in order to rebuild lost knowledge and strengthen bonds between generations (Sanders, 1997). Many of these translocated communities moved from rural or semi-rural settings to urban ones. In the 21st century this shift from rural to urban has continued to the extent that the human species now primarily dwells in urban habitats. Botanic gardens can help to make visible the landscapes of home countries and ameliorate the emotional impacts of sudden cultural change, particularly when the garden has relevant collections for specific cultural communities. *Chaememrops humilis* was one of several plants in Chelsea Physic Garden that enabled older Moroccan women from the Al–Hasaniya centre in the Golbourne road, an area in London dominated by tower blocks, to share their botanical knowledge and memories with younger members of their community. This resulted in Al-Hasaniya applying for a grant to develop a Moroccan garden within their local community at ‘Meanwhile Gardens’ so that plants representative of their North African homelands became part of their everyday city landscape, and shared conversations.

**Lifeworlds**

In his book ‘Humanity and Environment: A Cultural Ecology’ Simmons (1997) suggests that Husserl’s notion of ‘Lebenswelt’ or ‘lifeworlds’- the social, physical and emotional ‘envelope’ in which individuals live- offers a theoretical lens ‘critical to any understanding of environmental knowledge’ (p.304). In today’s human society the ‘envelope’ in which many individuals live has been punctured by conflict, forced migration and poverty; and for others changed by engagements with an increasingly familiar virtual world. The living world itself has also become fragmented and framed by terms such as ‘mosaic habitat’, ‘green corridors’,...
‘degraded and remnant vegetation’. Johnson (2007) observes that: ‘no matter what the future face of botanic gardens may look like, one thing is certain: botanic gardens will continue to be humanity’s main scientific, aesthetic and social link to plants…They will continue to reflect our evolving relationship with plants and the rest of the natural world’ (p.304).

However, as we engage ever more deeply with the rapid rate of species extinction, in an increasingly populated world where the gap between rich and poor is expanding, will botanic gardens maintain ‘their right to continued existence through their scientific and pedagogic value’ (Kohlmaier and Sartory, 1990, p. 42) ?

Do botanic gardens effectively communicate the importance of plants across the diverse geographies of ‘lifeworlds’ humanity now occupies? And where does the fragmented and transitory urban landscape that many humans now occupy leave the ‘relationship between man and his ambient vegetation?’(Shultes,1995, p.289). Is there a need for cultural consilience in the face of extinction? Can we ever be ‘all netted together’( Darwn 1837) ?

John Hunt (2004) has recently suggested that there is an ‘afterlife’ to a garden visit, one that lives on in visitors’ imaginative and cultural responses. By strengthening connections between scientific and pedagogical values, through professional discourse and cultural connections, the meaning of species extinction might resonate longer in the memories of our visitors, and translate more coherently into a social response; one that values the contribution plants make to our contemporary world. We might then witness greater cultural consilience in the face of species extinction, both in, and beyond, the botanical garden.

References


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