

THE MULTICULTURAL CITY ECOSYSTEM

Introduction

This paper argues that to make environmental education more relevant to under represented groups, especially ethnic minorities, we need to reassess our views of cities, their people, flora and fauna. The concept of the "multicultural city ecosystem" is suggested as a framework for this reassessment. Botanic gardens have a role to play in this process; they can advise on, and help in the creation of "cultural ecological gardens", areas dedicated to planting hardy species which represent peoples' countries of origin.

As a schools' adviser for environmental education in Islington, London, I am the person who advises schools where to visit, and what to do to fulfil their pupils' entitlement to an environmental education.

Botanic gardens show representatives of the world's flora in a small area and can create projects which show how human cultures and plants interact and have interacted in the past, present and future.

In my school area, about 30% of the students have parents who are from the Caribbean, Asia, Africa, Turkey, Greece, Italy and South America. To them, botanic gardens are places where they may see familiar plants and tell other students about the uses of such plants in their own cultures. Such students are thus given a rare opportunity to take the lead in a learning situation.

Urban ecology

Nevetheless, botanic gardens cannot provide a complete environmental education. Students must also learn, amongst other things, about the ecology of the city and how it works, both built and natural. Teaching about urban ecology has not kept pace with the human changes in cities brought about by such factors as immigration. In Britain, we still try to create "the countryside in the city", when we ought to be showing that the city has a unique and cosmopolitan ecology of its own. It is different to that of the countryside, but it is still intrinsically valuable.

Imagine that you are an Asian or African-Caribbean pupil at an inner-city school. Today's lesson is urban ecology. The teacher has been talking about the planned school nature garden. Your "design-a-nature-

garden" pack talks about the different types of plants that "should" be encouraged. It says "native" British plants should be used in preference to "alien" or foreign ones, implying that they are "better". What are your feelings? It seems that even in urban ecology, the ecology of our local areas, parochial thinking is commonplace. Why is this so?

Native species versus alien species

In general, the advice in school ecology project packs and from wildlife organizations is not to plant alien species. Because of the recency of their arrival, they are seen (with few exceptions) as being unsupportive of wildlife, when compared with native species which have been around at least since the last Ice Age - about 10,000 years ago. So the theory holds, this may result in, for example, their not having had time to establish ecological (feeding, shelter and breeding) links with other organisms such as insects and butterflies.

The assumption is also that such alien species can be invasive. Good examples of alien species invading natural habitats are known in most countries. Whilst the exertion of some form of ecological control may be justified in the case of special (and predominantly rural) natural habitats such as the U.K. Sites of Special Scientific Interest (SSSIs), ancient woodland, upland, downland, heath, bog or meadow, is it justifiable in the context of the diverse ecology of urban areas, where 85% of the population lives?

To answer this question, perhaps we need to look at towns and cities differently. Taking up about 10% of the land area of Britain, they are not static, isolated physical and living structures, cut off from local, national or, increasingly, global influences. They are dynamic open systems involving inputs of energy and materials, and outputs such as manufactured products and waste.

In this respect they are similar to ecological systems, except that ecosystems generally recycle waste materials. Just as an ecosystem depends on the sun's energy, towns and cities need power in the form of electricity. Moreover, improved global communications mean that urban areas are increasingly heterogeneous and cosmopolitan; they now

receive inputs from all over the planet. This means greater diversity, not only of humans, but ecologically. Viewed in this way, the town or city should be seen as a multicultural ecosystem.

The multicultural city ecosystem

This approach to the study of urban areas combines the cross curricular theme of environmental education with the cross curricular dimension of multicultural education and provides a resource for endless practical ecological projects ("where is that plant from, what was it used for and how did it get here?") linking culture to science, the geography of technology and history. Information for such projects is readily available from many sources. For example in the UK, botanic gardens, such as those at Edinburgh or Kew, are invaluable sources, as are the Urban Wildlife Trusts (the urban branches of the Royal Society for Nature Conservation) as is a Worldwide Fund for Nature publication, "Green Inheritance".

Multicultural city ecology recognizes that, just as human populations are in a constant state of flux (with inputs and outputs of people from diverse backgrounds and ethnic, cultural or religious groups) plants and animals from different parts of the world form a significant element of the ecology of cities. These human, plant and animal inhabitants are very adaptable; exploiting habitats and niches, communities and opportunities which are created either through planning or by chance.

For incoming plants and animals, the multicultural city ecosystem offers a more sheltered, warmer and drier environment than the surrounding countryside. It contains rich food or nutrient sources (a city of 1 million people produces 500,000 tons of sewage and 2,000 tons of domestic waste per day - excellent food for seagulls and foxes whose urban lifestyle is relatively recent). The "urban heat island" effect adds 0.5 - 5.0 C to urban temperatures providing increased warmth.

A great variety of habitats, from parks, refuse tips and buildings to road and railway embankments act as wildlife corridors for animals, with trains and other vehicles helping in the distribution of seeds. For human immigrants to the urban environment, a city often provides the security

of joining a common religious or ethnic community as well as increased employment, medical, educational, cultural and social opportunities.

Plant colonisation in the urban area

Urban renewal, road building and other ecological disturbances create temporary spaces which may account for 5-10% of an urban area. Such new habitats do not stay clear for long. The processes of plant colonisation and succession ensure that very quickly, the space is invaded by a diverse mixture of early colonisers and opportunistic animals. For example, in the UK amongst some of the first native species to arrive are groundsel (*Senecio vulgaris*) and coltsfoot (*Tussilago farfara*) and amongst some of the non-native species are *Buddleja davidii* from China and the Oxford ragwort (*Senecio squalidus*) from southern Europe. This mixing of plants and animals from diverse origins makes the study of urban ecology fascinating.

Since the last Ice Age, the many waves of immigrants to Britain have brought in a host of plants and animals which have become widespread and are today often found in the multicultural city ecosystem. Neolithic agriculturists were responsible for bringing in many present day urban weeds from the Mediterranean and Near East. Some are valuable food sources to flying and herbivorous insects. Iron Age immigrants brought with them the house mouse (*Mus musculus* check) and the Romans brought, amongst other species, the black rat (*Rattus rattus*), ground elder (*Aegopodium podagraria*), sweet chestnut (*Castanea sativa*), walnut (*Juglans spp.*), and perhaps sycamore (*Acer pseudoplatanus*), a most maligned alien species by British conservationists. Nevertheless, sycamore flowers are copious early nectar producers and are used by bees. Aphids live on their leaves in abundance which are food sources for ladybirds, other insects and birds.

So-called urban wasteland and railway banks, are often habitats for non-native plants such as bristly-ox tongue (*Picris echioides*) from south west Europe and goldenrod (*Solidago canadensis*) from north America. The colourful Oxford ragwort, a prolific urban plant, is not a native species, despite its name. It was brought to the Oxford Botanic Gardens in the late 17th century from the volcanic ash fields of Mount Etna in

Sicily. Escaped seeds reached London by the mid-19th century. Its spread was firstly assisted by the expansion of railways, then it thrived on the rubble of Second World War bomb sites. Another such colonizer is a South American plant, the gallant soldier (*Galinsoga spp.*). This species escaped from the Royal Botanic Gardens, Kew and is now common in the London area. Due to Britain's position as a trade centre, many foreign species of plants and animals have arrived and become established here; the plants often arriving as seeds on people's clothes, shoes or in cargo and the animals often arriving in foodstuffs.

The multicultural city ecosystem is therefore a complex tapestry of interlinked human and ecological factors which have adapted to a favourable habitat (plants and animals) or economic, cultural and social structure (humans). As the human population changes so too do the plants and animals, colonizing the new habitats that arise in the city.

Teaching urban ecology - a new perspective

Teachers should therefore be wary of the rather parochial ecological thinking surrounding the utility of native and alien plant species in urban areas. This is a view shared by George Barker, English Nature's Urban Programme Coordinator who, writing in "Environmental Interpretation" (Feb., 1991) notes that the use of such terms "in an urban context where the origin of human population is diverse, may give quite the wrong signals". He also notes that, in comparing rural to urban habitats "whose plant and animal communities may be different.....are they any worse".

All too frequently, practical school projects attempt to impose the native ecology of an arcadian, historic countryside on the unique and varied ecology of urban areas. For example, many schools have tried to establish wildflower meadows - why, when such meadows require low fertility, have a low success rates, generally because of the high level of nutrients and pollutants in urban soils, and there is a lack of time for management? Why not utilise urban wildflowers? This method of creating urban green spaces, by attempting to transplant rural habitats into the city is based upon scientific values developed over the last century by ecologists whose premier allegiance was towards, and whose

training was in the countryside. It does not take into account urban environmental heterogeneity, the increases in global communications, nor the resultant cultural and ecological diversity of urban communities and is in need of thorough review.

This is particularly urgent for two reasons: firstly, there is evidence that the environmental heterogeneity and habitat differentiation brought about by urbanization may actually select for recent arrivals over previously established plants, and secondly, the widely predicted changes in floral boundaries as we approach Global Warming-induced climatic change may result in an influx of species from warmer and drier areas such as southern Europe and the Mediterranean.

Within the framework offered by the multicultural city ecosystem, people are already growing Asian and African-Caribbean foodstuffs on allotments, wasteland and in greenhouses. Similarly, teachers can progress to creating imaginative habitats in school grounds. A "cultural ecological garden" is a place where flowers, ferns, trees and vegetables can be grown representing the pupils' countries of origin. This provides a valuable ecological, cultural and educational resource for parents, pupils and the local community. Many suitable plants from most parts of the world are widely available in the horticultural trade in Britain to provide material for such gardens.

Conclusions

Perhaps botanic gardens, particularly those in urban settings, could encourage the establishment of cultural ecological gardens, regarding and supporting them as "satellite gardens" where people from different cultures could meet and learn about urban ecology. These gardens could provide a focus for outreach work from the botanic garden and may also have the benefit of encouraging the increased recruitment of staff from ethnic minorities for employment in botanic gardens. For a list of plants suitable for a temperate cultural ecological garden, write to: July Ling Wong, Black Environment Network, National Council for Voluntary Organisations, 26 Bedford Square, London, WC1B 3HU.

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